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Kaspersky Embedded Systems Security 4.1 for Windows

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Kaspersky Embedded Systems Security for Windows

Kaspersky Embedded Systems Security for Windows (hereinafter also referred to as Kaspersky Embedded Systems Security) protects computers and other embedded systems under Microsoft® Windows® (hereinafter also referred to as protected devices) against viruses and other computer threats. Kaspersky Embedded Systems Security users are corporate network administrators and specialists responsible for anti-virus protection of the corporate network.

The application is not intended to be used in technological processes that involve automated control systems. To protect devices in such systems, it is recommended to use Kaspersky Industrial CyberSecurity for Nodes application.

You can install Kaspersky Embedded Systems Security on a variety embedded systems under Windows, including the following devices types:

- ATM (automated tellers machines).
- POS (points of sales).

Kaspersky Embedded Systems Security can be managed in the following ways:

- Via the Application Console installed on the same protected device as Kaspersky Embedded Systems Security, or on a different device.
- Using commands in the command line
- Via the Kaspersky Security Center Administration Console

The Kaspersky Security Center application can also be used for centralized administration of multiple protected devices running Kaspersky Embedded Systems Security.

It is possible to review Kaspersky Embedded Systems Security performance counters for the "System Monitor" application, as well as SNMP counters and traps.

Kaspersky Embedded Systems Security components and functions

The application includes the following components:

- **Real-Time File Protection**. Kaspersky Embedded Systems Security scans objects when they are accessed. Kaspersky Embedded Systems Security scans the following objects:
  - Files
  - Alternate file system streams (NTFS streams)
  - Master boot records and boot sectors on local hard and removable drives

- **On-Demand Scan**. Kaspersky Embedded Systems Security runs a single scan of the specified area for viruses and other computer security threats. The application scans files, RAM, and autorun objects on a protected device.

- **Applications Launch Control**. The component monitors user attempts to start applications and regulates application launches on the protected device.

- **Device Control**. The component controls registration and usage of external devices in order to protect the device against computer security threats that may arise while exchanging files with USB-connected flash drives or other types of external device.

- **Firewall**. Depending on its mode, the component: monitors traffic filtering by Windows Firewall; only records events about network activity of the protected computer in the component's log; or filters network traffic according to the Firewall settings.

- **File Integrity Monitor**. Kaspersky Embedded Systems Security detects changes in files within the monitoring scopes specified in the task settings. These changes may indicate a security breach on the protected device.

- **Log Inspection**. This component monitors the integrity of the protected environment based on the results of an inspection of Windows event logs.

The following functions are implemented in the application:

- **Update**. Kaspersky Embedded Systems Security downloads updates of application databases and modules from Kaspersky's FTP or HTTP update servers, Kaspersky Security Center Administration Server, or other update sources.

- **Quarantine**. Kaspersky Embedded Systems Security quarantines probably infected objects by moving such objects from their original location to the *Quarantine* folder. For security purposes, objects in the Quarantine folder are stored in encrypted form.

- **Backup**. Kaspersky Embedded Systems Security stores encrypted copies of objects classified as *Infected* in *Backup* before disinfecting or deleting them.

- **Administrator and user notifications**. You can configure the application to notify the administrator and users who access the protected device about the events related to the operation of Kaspersky Embedded Systems Security and the anti-virus protection status of the device.

- **Importing and exporting settings**. You can export Kaspersky Embedded Systems Security settings to an XML configuration file and import settings into Kaspersky Embedded Systems Security from the configuration file. You can save all application settings or only settings for individual components to a configuration file.

- **Applying templates**. You can manually configure the security settings of a node in the tree or in a list of the protected device's file resources, and save the configured setting values as a template. This template can then be used to specify the security settings of other nodes in Kaspersky Embedded Systems Security protection and scan tasks.

- **Managing access permissions for Kaspersky Embedded Systems Security functions**. You can configure the rights to manage Kaspersky Embedded Systems Security and the Windows services registered by the application, for users and groups of users.

- **Writing events to the Windows Event Log**. Kaspersky Embedded Systems Security logs information about software component settings, the current status of tasks, events that occur while tasks run, events associated with Kaspersky Embedded Systems Security management, and information required to diagnose errors in Kaspersky Embedded Systems Security.

- **Trusted zone**. You can generate a list of exclusions from the protection or scan scope, that Kaspersky Embedded Systems Security will apply in the On-Demand and Real-Time Computer Protection tasks.

- **Exploit Prevention**. You can protect process memory from exploits using a Protection Agent injected into the process.

Updates functionality (including providing anti-virus signature updates and codebase updates), as well as KSN functionality may not be available in the software in the U.S.

What's new

Update 4.1

Kaspersky Embedded Systems Security 4.1 for Windows introduces the following features and improvements:

- Windows BitLocker encryption management is now available. The application supports using Kaspersky Security Center to encrypt and decrypt the hard drives of protected devices and restore access to encrypted drives.

- You can now configure the scheduled tasks to run only on specified days of the week at a specified interval in weeks. The schedule is available in Kaspersky Security Center 16.1 or later.

- You can now pause On-Demand Scan tasks for a selected time interval, for example, to perform routine maintenance.

- The *Operation with the device is prohibited until Kaspersky Embedded Systems Security startup* and *Device connection is blocked until Kaspersky Embedded Systems Security startup* events are now available. Now, if the device is blocked before the application is launched, the corresponding event will be generated and sent to the Administration Server.

- The following operating systems are now supported:

  - Windows 11 26H2

  - Windows 11 IoT 25H2

- Performance of the hard drive subsystem on the protected device has been optimized by reducing the number of I/O operations.

- When developing this version of Kaspersky Embedded Systems Security, we incorporated the changes included in the following private patches: PF23074, PF23088, PF23089, PF23099, PF23102, PF23104, PF23105.

Update 4.0

Kaspersky Embedded Systems Security 4.0 offers the following features and improvements:

- Significantly updated user interface of the Application Console and the plug-ins for managing the application using Kaspersky Security Center.
- Support for Windows 11 24H2.
- Now you can change the port that the Application Console uses to connect to a computer with the application installed.
- In the *Trusted zone*, you can:
  - Configure trusted processes in a more granular way.
  - Use the trusted certificate store.
- New settings for user and group rights to manage the application.
- New *Anti-Rootkit* component. By default, the component is enabled if *Real-Time File Protection* is enabled. You can disable the component while installing the application, using the *Change application components of Kaspersky Embedded Systems Security* task, or in the properties of the application installation package.
- In *Exploit Prevention* settings, the application can now automatically identify protected processes.
- New *Remediation Engine* component.
- The Network Threat Protection component can monitor network traffic to detect port scanning and high-intensity network requests.
- The application is now compatible with the Windows Firewall. You no longer need to remove the Windows Firewall to install the application.
- The *Behavior Detection* component monitors shared folders as well as local folders.
- Reworked *Applications Launch Control* component:
  - Significant changes in the structure of component settings.
  - To specify Applications Launch Control rule triggering conditions and exclusions, you can now use the drive type, KL categories, KSN groups.
- Reworked *Device Control* component:
  - By default, the *Device Control* component is configured to allow connection of all devices.
  - *Wi-Fi Control* is no longer a separate component and is now part of Device Control.
  - The possibility to control connected devices depending on the connection bus has been added.
  - Migration of settings for access to removable drives when upgrading from previous versions of the application to version 4.0 has been added.

- The *Firewall Management* component has been reworked into the *Firewall* component, which, in addition to interfacing with the Windows firewall, now additionally functions as a firewall.
- The functionality of the *File Integrity Monitor* and *Registry Access Monitoring* components has been merged into the new *System Integrity Monitoring* component. This improvement lets you efficiently track changes in the file system and Windows registry, increasing the protection against unauthorized modification of data.
- The application does not support scheduling individual components. If the components are enabled, they keep running while the application is running.
- Kaspersky Security Center Windows 15.1 is now supported.
- Group tasks added:
  - *Administration Server connection protection*
  - *Changing the set of Kaspersky Embedded Systems Security components*
  - *Baseline System Integrity Monitor* instead of *Baseline File Integrity Monitor*
  - *Update* instead of *Copying Updates*, *Application Database Update* and *Software Modules Update*
  - *Update rollback* instead of *Rollback of Application Database Update*
  - *Remove key*
- The application checks the configuration of control components before saving the settings. The check was added for the Applications Launch Control, Device Control, System Integrity Monitoring components. The application now displays a warning if the current settings of the control component may increase the load on the computer or cause system failures. For example, in the case of Applications Launch Control, if you selected the mode that blocks all applications except allowed ones, and you did not add any allow rule, the application displays a warning because such a configuration may cause system failures.
- The possibility has been added to automatically create allowing rules for Applications Launch Control and to export these rules to a file. To do this, run the *Rule Generator for Applications Launch Control* task and enable the automatic creation of allowing rules based on running applications as well as the export of allowing rules. You can use the resulting file to inventory the software installed on the device.
- New component, *BadUSB Attack Prevention*. The BadUSB Attack Prevention component prevents infected USB devices emulating a keyboard from connecting to the computer. When an USB device that the operating system identifies as a keyboard is connected to the computer, the application prompts the user to type on this keyboard to authorize the keyboard.
- The *Security level indicator* has been added. The Security level Indicator is displayed at the top of the policy properties window and shows the degree of compliance of security settings with Kaspersky Lab recommendations. The Security level indicator allows you to quickly configure the policy and enable the required protection components.

Fixed issues

The table below lists all issues discovered in previous versions of Kaspersky Embedded Systems Security and fixed in the current version.

List of issues fixed in version 4.1

Identifier	Issue Description
9986614	In the Web Console and the Kaspersky Security Center Administration Console, it is not possible to import a list of trusted devices from a TXT file containing a selection of Kaspersky Security Center events related to blocked devices, which was exported from the Web Console.
10700703	In the interface of the System Integrity Monitoring, Trusted zone, Applications Launch Control, and Device Control components, it is not immediately clear how to select list items to execute the **Export selected** command. The description in the application help has been expanded.
10720231	The trusted devices counter is not displayed in the **Device Control** section of the policy in the Kaspersky Security Center Administration Console.
10729552	Events related to file operations on removable drives are not being generated, even though logging for such events is enabled.
10752491	In the Web Console, it is not possible to import a list of trusted devices from a TXT file containing a selection of Kaspersky Security Center events related to blocked devices, which was exported from the Administration Console.

Distribution kit

The distribution kit includes the welcome application that lets you do the following:

- Start the Kaspersky Embedded Systems Security Setup Wizard.
- Start the Kaspersky Embedded Systems Security Console Setup Wizard.
- Start Kaspersky Virus Removal Tool.
- Read about this version of Kaspersky Embedded Systems Security.
- Open the Kaspersky Embedded Systems Security 4.1 Help.
- Go to Kaspersky Embedded Systems Security page on the Kaspersky website.
- Visit the Kaspersky website.
- Visit the Technical Support website.

The distribution kit files are stored in the different folders depending on their intended use (see table below).

Kaspersky Embedded Systems Security distribution kit files

File	Purpose
autorun.inf	Autorun file for the Kaspersky Embedded Systems Security Setup Wizard when installing the application from removable drive.
setupui.exe	Application welcome screen launch file.
ess_win.kud	File in Kaspersky Unicode Definition format with a description of the installation package for remote installation of the application via Kaspersky Security Center.
\console\esstools.msi	Windows Installer installation package; installs Kaspersky Embedded Systems Security Console on the protected devices.
\console\setup_esstool.exe	The file that starts the wizard for installing the Kaspersky Embedded Systems Security Console for Windows. The installation package file esstools.msi is started with the installation settings specified in the wizard.

File	Purpose
\console\license.txt	Kaspersky Embedded Systems Security Management Console End User License Agreement and Privacy Policy text file.
\exec\bases.cab	Archive of anti-virus databases current at the time of application release.
\exec\cleaner_v2.cab \exec\cleanerapi_v2.cab	Files for removing incompatible software.
\exec\ess.cab	Files for the graphical interface of the application.
\exec\ess_win.kud	File in Kaspersky Unicode Definition format with a description of the installation package for remote installation of the application via Kaspersky Security Center.
\exec\ess_win.msi	Windows Installer installation package: this installs Kaspersky Embedded Systems Security on the protected device.
\exec\incompatible.txt	Kaspersky does not guarantee the compatibility of Kaspersky Embedded Systems Security with applications listed in the file.
\exec\installer.ini	File that contains the internal settings of the distribution kit.
\exec\klcfginst.msi	Installer for Kaspersky Embedded Systems Security Administration Plug-in available via the Kaspersky Security Center. Install the Administration Plug-in on each protected device where the Kaspersky Security Center Administration Console is installed if you plan to use it for managing Kaspersky Embedded Systems Security.
\exec\ksn_en.txt	File with the text of the KSN Statement.
\exec\license.txt	Kaspersky Embedded Systems Security End User License Agreement and Privacy Policy text file.
\exec\package.kcat	File with the signatures of distribution kit files.
\exec\setup_ess.exe	The file that starts the wizard for installing Kaspersky Embedded Systems Security on the protected device; it starts the installer package file ess_win.msi with the installation settings specified in the wizard.
\kvrt\KVRT.exe	Installer for Kaspersky Virus Removal Tool.
\product_long_term\cleaner_v2.cab \product_long_term\cleanerapi_v2.cab	Files for removing incompatible software.
\product_long_term\ess.cab	Files for the graphical interface of the application.
\product_long_term\ess_win.kud	File in Kaspersky Unicode Definition format with a description of the installation package for remote installation of the application via Kaspersky Security Center.
\product_long_term\ess_win.msi	Windows Installer installation package; this installs Kaspersky Embedded Systems Security for Windows in the **Protect computer with Default Deny technology** configuration on the protected device.
\product_long_term\incompatible.txt	Kaspersky does not guarantee the compatibility of Kaspersky Embedded Systems Security with applications listed in the file.
\product_long_term\installer.ini	File that contains the internal settings of the distribution kit.
\product_long_term\klcfginst.exe	Installer for Kaspersky Embedded Systems Security Administration Plug-in available via the Kaspersky Security Center. Install the Administration Plug-in on each protected device where the Kaspersky Security Center Administration Console is installed if you plan to use it for managing Kaspersky Embedded Systems Security.
\product_long_term\ksn_en.txt	File with the text of the KSN Statement in Russian.
\product_long_term\license.txt	Kaspersky Embedded Systems Security End User License Agreement and Privacy Policy text file.
\product_long_term\package.kcat	File with the signatures of distribution kit files.
\product_long_term\setup_ess.exe	The file that starts the wizard for installing Kaspersky Embedded Systems Security on the protected device; it starts the installer package file ess_win.msi with the installation settings specified in the wizard.
\setup\images	Folder with application welcome screen launch files.
\setup\setup.hta	Application welcome screen launch file.
\setup\SETUP_STRINGS.JS	File with the application string resources.

Distribution kit files can be run from the Installation CD. If you have copied the distribution package files onto

the local drive beforehand, make sure that the structure of the distribution kit files has been preserved.

Hardware and software requirements

Software requirements for the protected device

This article lists the software versions on which the application has been tested and for which it is guaranteed to work correctly. The application may also work with other software versions, but those configurations have not undergone a full testing cycle and are not included in the list of guaranteed-supported versions.

Windows Installer 3.1 is required for proper installation and operation of the application on a protected device running Microsoft Windows XP.

To install and use Kaspersky Embedded Systems Security on protected devices with embedded operating systems, the Filter Manager component (Filter Manager) is required.

For correct operation of Kaspersky Embedded Systems Security, SHA-2 support in Microsoft Windows is required. For detailed information, see knowledge base on the Technical Support website.

You can install Kaspersky Embedded Systems Security on a device running one of the following 32-bit or 64-bit Microsoft Windows operating systems:

Workstations:

- Windows XP Professional SP2 32-bit / 64-bit
- Windows XP Professional SP3 32-bit
- Windows Vista SP2 32-bit / 64-bit
- Windows 7 SP1 Home / Pro / Enterprise / Ultimate 32-bit / 64-bit
- Windows 8 Pro / Enterprise 32-bit / 64-bit
- Windows 8.1 Pro / Enterprise 32-bit / 64-bit
- Windows 10 TH1 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 TH2 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 RS1 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 RS2 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit

- Windows 10 RS3 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 RS4 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 RS5 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 RS6 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 19H2 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 20H1 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 20H2 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 21H1 Home / Pro / Pro for Workstations / Education / Enterprise 32-bit / 64-bit
- Windows 10 21H2 Home / Pro / Pro for Workstations / Education / Enterprise 64-bit
- Windows 10 22H2 Home / Pro / Pro for Workstations / Education / Enterprise 64-bit
- Windows 11 21H2 Home / Pro / Pro for Workstations / Education / Enterprise 64-bit
- Windows 11 22H2 Home / Pro / Pro for Workstations / Education / Enterprise 64-bit
- Windows 11 23H2 Home / Pro / Pro for Workstations / Education / Enterprise 64-bit
- Windows 11 24H2 Home / Pro / Pro for Workstations / Education / Enterprise 64-bit
- Windows 11 25H2 Home / Pro / Pro for Workstations / Education / Enterprise 64-bit
- Windows 11 26H2 Home / Pro / Pro for Workstations / Education / Enterprise 64-bit

Server operating systems:

- Windows Server 2003 SP1 Standard / Enterprise 32-bit / 64-bit
- Windows Server 2003 SP2 Standard / Enterprise 32-bit / 64-bit
- Windows Server 2003 R2 SP2 Standard / Enterprise 64-bit
- Windows Server 2008 SP2 Standard / Enterprise 32-bit / 64-bit
- Windows Server 2008 R2 SP2 Foundation / Standard / Enterprise 64-bit

Embedded systems:

- Windows XP Embedded Service Pack 3 32-bit
- Windows Embedded POSReady 7 32-bit / 64-bit
- Windows Embedded Standard 7 Service Pack 1 32-bit / 64-bit
- Windows Embedded 8 Standard 32-bit / 64-bit
- Windows Embedded 8.1 Industry Pro 32-bit / 64-bit

- Windows 10 IoT Enterprise Version 1507 32-bit / 64-bit
- Windows 10 IoT Enterprise Version 1607 32-bit / 64-bit
- Windows 10 IoT Enterprise Version 1803 32-bit / 64-bit
- Windows 10 IoT Enterprise Version 1809 32-bit / 64-bit
- Windows 10 IoT Enterprise Version 1909 32-bit / 64-bit
- Windows 10 IoT Enterprise Version 21H2 32-bit / 64-bit
- Windows 10 IoT Enterprise Version 22H2 32-bit / 64-bit
- Windows 11 IoT Enterprise Version 21H2 64-bit
- Windows 11 IoT Enterprise Version 22H2 64-bit
- Windows 11 IoT Enterprise Version 23H2 64-bit
- Windows 11 IoT Enterprise Version 24H2 64-bit
- Windows 11 IoT Enterprise Version 25H2 64-bit

Hardware requirements for the protected device

Hardware requirements for the protected device

OS type	OS name	Minimum requirements	Recommended requirements

Workstations	Windows XP x86 / x64	• Processor: 1.4 GHz single-core processor Pentium III (x32), Pentium IV (x64)
		• RAM:
		  • To install the Applications Launch Control component only – 256 MB
		  • To install all application components – 512 MB
		• Free disk space:
		  • To install the Applications Launch Control component only – 50 MB
		  • To install all application components – 2 GB
			• Processor: 2.4 GHz quad-core
			• RAM: 2 GB
			• Free disk space:
			  • To install the Applications Launch Control component only – 2 GB
			  • To install all application components – 4 GB

	Windows 7 / 8 / 10 x86	• Processor: 1.4 GHz single-core processor Pentium III (x32), Pentium IV (x64)
		• RAM:
		  • To install the Applications Launch Control component only – 256 MB
		  • To install all application components – 1 GB
		• Free disk space:
		  • To install the Applications Launch Control component only – 50 MB
		  • To install all application components – 2 GB
			• Processor: 2.4 GHz quad-core
			• RAM: 2 GB
			• Free disk space:
			  • To install the Applications Launch Control component only – 2 GB
			  • To install all application components – 4 GB

	Windows 7 / 8 / 10 / 11 x64	• Processor: 1.4 GHz single-core processor Pentium IV (x64)
		• RAM:
		  • To install the Applications Launch Control component only – 256 MB
		  • To install all application components – 1 GB
		• Free disk space:
		  • To install the Applications Launch Control component only – 50 MB
		  • To install all application components – 2 GB
			• Processor: 2.4 GHz quad-core
			• RAM:
			  • To install the Applications Launch Control component only – 2 GB
			  • To install all application components – 4 GB
			• Free disk space:
			  • To install the Applications Launch Control component only – 2 GB
			  • To install all application components – 4 GB

Embedded	Windows XP Embedded	• Processor: 1.4 GHz single-core processor Pentium III (x32), Pentium IV (x64)
		• RAM:
		  • To install the Applications Launch Control component only – 256 MB
		  • To install all application components – 512 MB
		Free disk space:
		• To install the Applications Launch Control component only – 50 MB
		• To install all application components – 2 GB
			• Processor: 2.4 GHz quad-core
			• RAM: 2 GB
			• Free disk space:
			  • To install the Applications Launch Control component only – 2 GB
			  • To install all application components – 4 GB

	Windows 7 / 8 Embedded Windows 10 / 11 IoT	• Processor: 1.4 GHz single-core processor Pentium IV (x64) • RAM: 256 MB	• Processor: 2.4 GHz quad-core • RAM: 2 GB

OS type	OS name	Minimum requirements	Recommended requirements

		• Free disk space:
		  • To install the Applications Launch Control component only – 50 MB
		  • To install all application components – 2 GB
			• Free disk space:
			  • To install the Applications Launch Control component only – 2 GB
			  • To install all application components – 4 GB

Supported versions of Kaspersky Security Center

Kaspersky Embedded Systems Security is compatible with the following versions of Kaspersky Security Center:

- Kaspersky Security Center Linux versions 14.2, 15, 15.1, 15.2, 15.3, 15.4, 16, 16.1, 16.2, 16.3, 17.0. Management of Kaspersky Embedded Systems Security is supported via Kaspersky Security Center Web Console.
- Kaspersky Security Center Windows versions 14.2, 15.1. Management of Kaspersky Embedded Systems Security is supported via Kaspersky Security Center Administration Console and via Kaspersky Security Center Web Console.
- Kaspersky Security Center Windows versions 10.5, 11. Management of Kaspersky Embedded Systems Security installed on devices running the Microsoft Windows XP SP2 operating system is supported via Kaspersky Security Center Administration Console and via Kaspersky Security Center Web Console.

To manage Kaspersky Embedded Systems Security via Kaspersky Security Center, Kaspersky Security Center Network Agent is required.

Kaspersky Security Center Network Agent is not included in the Kaspersky Embedded Systems Security distribution kit. You can download it on the applications download page in the **Kaspersky Security Center** section.

Functional requirements and limitations

This section describes additional functional requirements and existing limitations for Kaspersky Embedded Systems Security components.

Installing and removing the application

- For correct operation of Kaspersky Embedded Systems Security, SHA-2 support in Microsoft Windows is required.
- When you install the application, a warning may appear on the screen If the specified path to the Kaspersky Embedded Systems Security installation folder contains more than 150 characters. The warning does not affect the installation process: you can install and run Kaspersky Embedded Systems Security.
- If you want to install the SNMP protocol support component, make sure to restart the SNMP service if the SNMP service is running.

- If you want to install and run Kaspersky Embedded Systems Security on a device running on an embedded operating system, make sure to install the Filter Manager component.
- You cannot install Administration Tools via Microsoft Active Directory® group policies.
- If you exclude the Anti-virus Protection node from the list of installed application components, this node disappears from the list of available components after the installation is completed. To install the components of the Anti-virus Protection node, start the Installation Wizard from the installation package since the installation package contains a full list of components.
- If Kaspersky Embedded Systems Security Administration Console is installed, the Installation Wizard may prompt to restart the computer. In this case, reboot is not mandatory. It is sufficient to end the session of the user who installed the Administration Console and log in to the system again.
- When installing the application on a Windows XP or Windows Vista device, you may need to install the DigiCert Assured ID Root CA certificate to enable driver signature verification. If necessary, this certificate will be automatically installed into the trusted root certificate store of the operating system from the installation package of the application.
- When installing the application on Windows XP or Windows Vista devices, you need to check if the DigiCert High Assurance EV Root CA. is present.

  If this root certificate is not installed, the application may function improperly. We recommend that you install the certificate as soon as possible.
- Application installation finishes with an error if the path to the installation folder is the same as the path to at least one of the following folders: application database folder, Backup folder, folder for restoring objects from Quarantine, temporary file folder.
- If you manage Kaspersky Embedded Systems Security using Kaspersky Security Center Cloud Console, updating the application locally is not allowed. When updating the application locally, it is not possible to accept the Data Processing Agreement for Kaspersky Security Center Cloud Console.

System Integrity Monitoring

By default, the System Integrity Monitoring component does not monitor changes in the system folders or the file system's housekeeping files to not clutter task reports with information about routine file changes performed constantly by the operating system. You cannot include such folders in the monitoring scope.

The following folders and files are excluded from the monitoring scope:

- NTFS housekeeping files with file id from 0 to 33
- %SystemRoot%\Prefetch\
- %SystemRoot%\ServiceProfiles\LocalService\AppData\Local\
- %SystemRoot%\System32\LogFiles\Scm\
- %SystemRoot%\Microsoft.NET\Framework\v4.0.30319\
- %SystemRoot%\Microsoft.NET\Framework64\v4.0.30319\
- %SystemRoot%\Microsoft.NET\

- %SystemRoot%\System32\config\
- %SystemRoot%\Temp\
- %SystemRoot%\ServiceProfiles\LocalService\
- %SystemRoot%\System32\winevt\Logs\
- %SystemRoot%\System32\wbem\repository\
- %SystemRoot%\System32\wbem\Logs\
- %ProgramData%\Microsoft\Windows\WER\ReportQueue\
- %SystemRoot%\SoftwareDistribution\DataStore\
- %SystemRoot%\SoftwareDistribution\DataStore\Logs\
- %ProgramData%\Microsoft\Windows\AppRepository\
- %ProgramData%\Microsoft\Search\\Data\Applications\Windows\
- %SystemRoot%\Logs\SystemRestore\
- %SystemRoot%\System32\Tasks\Microsoft\Windows\TaskScheduler\

The application excludes top-level folders.

The component does not monitor files changes that bypass the ReFS/NTFS file system (file changes made through BIOS, LiveCD, and more).

Firewall

- You should specify more than one address. Otherwise, working with IPv6 is unavailable.
- Preset Firewall rules support basic scenarios of interaction between protected devices and Administration Server. To make full use of Kaspersky Security Center functions, you need to configure port rules. You can find information about port numbers, protocols and their functions in the Kaspersky Security Center Knowledge Base.
- After the application is installed and Firewall rules are configured, the application monitors changes to Windows Firewall rules and rule groups when the Firewall component is running. To update the status and to add necessary Windows Firewall rules, restart the Firewall component.
- When you start the Firewall component, the deny rules and rules that control outbound traffic are automatically removed from Windows Firewall settings.
- Characters `*` and `?` cannot be used in the application path and in the name of the Firewall rule for applications.
- If the *Observe the state of Windows Firewall* mode is selected, the Windows Firewall settings (**Settings** → **Update & Security** → **Windows Security** → **Firewall & network protection**) will show that the Kaspersky Embedded Systems Security Firewall is disabled. If you click the button that enables the Firewall, its operating mode changes to *Block*.

- On computers running Windows 7 and Windows Server 2008 R2, Firewall rules configured for the TermService service based on the service name do not restrict access via RDP.

- When the Firewall is running in the **Block** mode, the application prevents obtaining an IP address from the DHCP server. To obtain an IP address, configure the Firewall to allow the svchost.exe system process.

Limitations on outdated Windows versions

- Windows XP SP2 version do not allow blocking remote devices and configure the List of blocked network sessions settings. In this Windows version, the **Block access to network shared resources for the sessions that show malicious activity** option is inactive.

- Kaspersky Embedded Systems Security installation:

  - On computers running Windows XP SP2 Professional (32-bit/64-bit), Windows Server 2003 and Windows Server 2003 R2 you should use the application distribution kit or place the setup.exe executable file from the standard installation package "Kaspersky Security Center 10.5 Network Agent for Windows XP" into the application installation package folder in Kaspersky Security Center.

  - On computers running Windows XP SP3 Professional (32-bit) and Windows XP Embedded SP3 (32-bit), it is necessary to use the application distribution kit or place the setup.exe executable file from the application installation package created in Kaspersky Security Center version 14 or from the standard installation package "Kaspersky Security Center 14 Network Agent for Windows XP" into the application installation package folder in Kaspersky Security Center.

  How to extract setup.exe file from the standard Kaspersky Security Center installation package

  1. In the Kaspersky Security Center Administration Console tree, select **Advanced → Remote installation → Installation packages**.

  2. In the workspace click **Additional actions** and select **View current versions of Kaspersky applications** from the drop-down list.

  3. Select the necessary application from the list. For example, Kaspersky Security Center 10.5 Network Agent for Windows XP.

  4. Click the **Download and create installation package** button.

     The created installation package will be displayed in the **Installation packages** list.

  5. Open the properties of the created installation package.

  6. In the **General** section, copy the path to the installation package folder.

  7. Open the installation package folder.

  8. Copy setup.exe file.

- To manage Kaspersky Embedded Systems Security via Kaspersky Security Center:
  - on a computer running Windows XP SP2 Professional (32-bit/64-bit), Windows Server 2003 or Windows Server 2003 R2, you must use Kaspersky Security Center Network Agent (klnagent) version 10.5.1781.
  - on a computer running Windows XP SP3 Professional (32-bit) and Windows XP Embedded SP3 (32-bit), you must use Kaspersky Security Center Network Agent (klnagent) version 14.0.0.20023.
- On Windows XP computers, telemetry cannot be sent to a data diode using the MQTT protocol.

Integration with Kaspersky Security Center

- When update packages are received, Administration Server verifies database updates before sending the updates to protected devices on the network. Kaspersky Security Center Administration Server does not verify application module updates.
- Make sure that the required check boxes are selected in the Interaction with the Kaspersky Security Center Administration Server settings when you use the components that transmit dynamic data to Kaspersky Security Center using network lists (Quarantine, Backup).
- Network Agent 10.5 does not send information about installed components to the Kaspersky Security Center Administration Server. For this reason, in Kaspersky Security Center Administration Console and Kaspersky Security Center Web Console, the settings of a device with Network Agent 10.5 do not display installed Kaspersky Embedded Systems Security components and their settings.
- If Kaspersky Security Center Network Agent 10.5 is installed on the device, you cannot use Kaspersky Security Center Web Console to download files in Backup.
- If Kaspersky Embedded Systems Security is installed with enabled low resource consumption mode for Kaspersky Security Center Network Agent (default, `SKIP_KLNAG_FLAG_TEST_VM_PERF=0`) and then the Network Agent is installed, Kaspersky Embedded Systems Security does not create an exclusion for the Network Agent in Windows Firewall, therefore Windows Firewall blocks the Network Agent.
- If Kaspersky Embedded Systems Security is installed with enabled low resource consumption mode for Kaspersky Security Center Network Agent (default, `SKIP_KLNAG_FLAG_TEST_VM_PERF=0`), modifications of network lists are reflected in the Kaspersky Security Center Administration Console with a delay of approximately ten minutes.
- When searching for managed devices in the Kaspersky Security Center Administration Console, the **Application components** tab may simultaneously display multiple variants of the name of the same application component, including names corresponding to older versions of Kaspersky Embedded Systems Security. The names of some components may also be duplicated.

  To search by component, you simply need to select one of the displayed variants. For more details on device discovery, refer to the Kaspersky Security Center Help.

Other limitations

On-Demand Scan and Real-Time File Protection

- Scanning of connected MTP-devices is not available.
- Archive scanning is unavailable without SFX-archive scanning: if archive scanning is enabled in the protection settings of Kaspersky Embedded Systems Security, the application automatically scans objects in both archives and SFX-archives. SFX-archive scanning is available without archive scanning.
- If **Deep analysis of launching processes (process launch is blocked for the duration of analysis)** checkbox and **KSN Usage** are enabled simultaneously, any launched process that receives URL web-address as an argument will be blocked, even if the "Inform" mode was chosen. To avoid blocking the process, please choose one of the options:
  - Disable **KSN Usage**.
  - Disable **Deep analysis of launching processes (process launch is blocked for the duration of analysis)** checkbox

  Recommended option: clear the **Deep analysis of launching processes (process launch is blocked for the duration of analysis)** check box.

Licensing

- You cannot activate the application with a key via the Setup wizard if the key was created using the SUBST command, or if the path to the key file is a network path.
- If you plan to use a Kaspersky Security Center proxy server to activate the product on a client device, disable VDI optimization on that device when installing Kaspersky Security Center Network Agent.

Update

- During the installation and uninstallation of Kaspersky Embedded Systems Security patches installed on Windows XP devices, due to the peculiarities of this operating system, the device may need to be restarted.
- By default, the application icon is hidden after Kaspersky Embedded Systems Security critical modules updates are installed.
- KLRAMDISK is not supported on protected devices running the Windows XP or Windows Server® 2003 operating system.
- If Kaspersky Embedded Systems Security patch installation fails, the patch is rolled back and you are prompted to restart the operating system.

Interface

- In the Application Console, filtering in the Quarantine, Backup, System audit log or Task log is case sensitive.
- When configuring a protection or scan scope in the Application Console, you can use only one mask and only at the end of the path. Following are the examples of correct masks: `C:\Temp\Temp*`, `C:\Temp\Temp???.doc`, `C:\Temp\Temp*.doc`. This limitation does not affect configuration of the Trusted Zone.
- In the Application Console, in the **Telemetry collection servers** section, the time when the tasks are scheduled to run is not displayed. The **Start time** column is empty.
- Pop-up notifications for interface text elements longer than 256 characters are not displayed in the Kaspersky Security Center Administration Console or the Application Console.
- In the Kaspersky Security Center Administration Console, the **Select a user or a group of users** window displays only the first 50,000 users from the list of Kaspersky Security Center users. See Kaspersky Security Center Help for more details.

Security

- If the operating system's User Account Control feature is enabled, a user account must be part of the ESS Administrators group to be able to open the Application Console by double-clicking the application icon in the tray notification area. Otherwise, it will be necessary to login as a user who is allowed to open the Compact Diagnostic Interface or Microsoft Management Console snap-in.
- If User Account Control is enabled, you cannot uninstall the application via the Microsoft Windows Programs and Features window.

Exploit Prevention

- Exploit Prevention is unavailable if the apphelp.dll libraries are not loaded in the current environment configuration.
- Exploit Prevention is incompatible with the EMET utility from Microsoft on protected devices running the Microsoft Windows 10 operating system. Kaspersky Embedded Systems Security blocks EMET if the Exploit Prevention component is installed on a protected device with the EMET utility installed.
- Exploit Prevention is incompatible with the SQL Server® 2012 Database Engine. If you install Kaspersky Embedded Systems Security on the computer with installed MS SQL Server 2012, you must add the sqlos.dll library of the database server to the list of exclusions in the Exploit Prevention task.

Detection and Response

- If in the course of the threat response process, a shared folder access error occurs, such an error is not reflected in the threat response history (Kaspersky Security Center Web Console → properties of the host with the installed application → **Detection and Response** – **Response history** section).

Event configuration

Settings of the *Uncontrolled file operation in controlled area* event that can be configured in the **Event configuration** section of the Kaspersky Security Center policy are also applied to the following events:

- *Allowed file operation in a controlled area performed by a trusted user*.
- *Prohibited file operation in controlled area*.
- *Statistics only: prohibited file operation in controlled area*.
- *Uncontrolled file operation in controlled area*.

Compact Diagnostic Interface

On Windows XP computers, Compact Diagnostic Interface requires the Terminal Service to be working.

Working in Windows Safe Mode

The application cannot work in Windows Safe Mode.

Compatibility with other applications

Kaspersky Embedded Systems Security is incompatible with applications that are part of third-party endpoint protection systems (Endpoint Protection Platform, EPP). Kaspersky Embedded Systems Security may also be incompatible with other applications and some Kaspersky applications. To determine compatibility, Kaspersky Embedded Systems Security consults a list of software prepared by Kaspersky. This list is contained in the incompatible.txt file. This file is included in the distribution kit.

If an application from the incompatible.txt list is detected, the installer aborts the installation of Kaspersky Embedded Systems Security. You need to remove the third-party anti-virus application. The installer may automatically delete some applications from the list.

If the Windows Firewall is installed on the computer, the installer turns it off to proceed with the installation of Kaspersky Embedded Systems Security.

If, despite the risks, you need to install Kaspersky Embedded Systems Security alongside an application from the incompatible.txt list, you can skip the check for installed third-party anti-virus applications. To do so, when running the installer, specify the following parameters: `SKIPPRODUCTCHECK=1` and `SKIPPRODUCTUNINSTALL=1`.

Example:

```
setup_ess.exe /s EULA=1 PRIVACYPOLICY=1 SKIPPRODUCTCHECK=1 SKIPPRODUCTUNINSTALL=1
```

Installing and removing the application

This section provides step-by-step instructions for installing and removing Kaspersky Embedded Systems Security.

Installation planning

This section describes the set of Kaspersky Embedded Systems Security administration tools, and special aspects of installing and uninstalling Kaspersky Embedded Systems Security using a wizard, command line, using Kaspersky Security Center and via an Active Directory group policy.

If you are installing Kaspersky Embedded Systems Security after removing Kaspersky Industrial CyberSecurity for Nodes or Kaspersky Endpoint Security for Windows, you must restart the computer.

Before starting installation of Kaspersky Embedded Systems Security, plan the main stages of the installation.

1. Determine which administration tools will be used to manage and configure Kaspersky Embedded Systems Security.
2. Select the necessary application components for installation.
3. Select the installation method.

Selecting administration tools

Determine the administration tools that will be used to configure Kaspersky Embedded Systems Security settings and to manage the application. Kaspersky Embedded Systems Security can be managed using the Application Console, command-line utility, and Kaspersky Security Center Administration Console.

Kaspersky Embedded Systems Security Console

Kaspersky Embedded Systems Security Console is a standalone snap-in added to the Microsoft Management Console. Kaspersky Embedded Systems Security can be managed via the Application Console installed on the protected device or on another device on the corporate network.

Multiple Kaspersky Embedded Systems Security snap-ins can be added to one Microsoft Management Console opened in author mode to use it to manage the protection of multiple device with Kaspersky Embedded Systems Security installed.

Command line utility

You can manage Kaspersky Embedded Systems Security from the command line of a protected device.

The command line utility is included in the Kaspersky Embedded Systems Security software components group.

Kaspersky Security Center

If Kaspersky Security Center is used for centralized management of anti-virus protection of devices at your company, you can manage Kaspersky Embedded Systems Security via the Kaspersky Security Center Administration Console.

The following components must be installed:

- **Module for integration with Kaspersky Security Center Network Agent**. This component is included in the Kaspersky Embedded Systems Security software components group. It allows Kaspersky Embedded Systems Security to communicate with the Network Agent. Install the module for integration with Kaspersky Security Center Network Agent on the protected device.

- **Kaspersky Security Center Network Agent**. Install this component on each protected device. This component supports interaction between Kaspersky Embedded Systems Security installed on the protected device and Kaspersky Security Center Administration Console. The Network Agent installation file is included in the Kaspersky Security Center distribution kit folder.

- **Kaspersky Embedded Systems Security Management Plug-in**. Additionally, install the Administration Plug-in for managing Kaspersky Embedded Systems Security via the Administration Console on the protected device where the Kaspersky Security Center Administration Server is installed. This provides the interface for application management via Kaspersky Security Center. The Administration Plug-in installation file, \exec\klcfginst.exe, is included in the Kaspersky Embedded Systems Security distribution kit.

Selecting the installation type

After specifying the software components for installation of Kaspersky Embedded Systems Security, you need to select the application installation method.

Select the installation method depending on the network architecture and the following conditions:

- Whether you need special Kaspersky Embedded Systems Security installation settings, or the recommended installation settings.

- Whether the installation settings will be the same for all protected devices or specific to each protected device.

Kaspersky Embedded Systems Security can be installed interactively using the Setup Wizard or in silent mode without user involvement, and can be invoked by running the installation package file with installation settings from the command line. A centralized remote installation of Kaspersky Embedded Systems Security can be performed using Active Directory group policies or using the Kaspersky Security Center remote installation task.

Kaspersky Embedded Systems Security can be installed and configured on a single protected device with its settings saved to a configuration file; the file can then be used to install Kaspersky Embedded Systems Security on other protected devices. Note that this ability does not exist when the application is installed using Active Directory group policies.

Starting the Setup Wizard

The Setup Wizard can install the following:

- Kaspersky Embedded Systems Security components on the protected device, by clicking the link in the welcome application, which can be started by opening setupui.exe or directly using \exec\setup_ess.exe file in the distribution kit.
- Kaspersky Embedded Systems Security Console on the protected device or other device on the LAN, by clicking the link in the welcome application, which can be started by opening setupui.exe or directly using \console\setup_esstools.exe file in the distribution kit.

Running the installation package file from the command line with the necessary installation settings

If the installation package file is started without command-line options, Kaspersky Embedded Systems Security will be installed with the default settings. Kaspersky Embedded Systems Security options can be used to modify the installation settings.

The Application Console can be installed on the protected device and / or administrator's workstation.

You can also use sample commands for the installation of Kaspersky Embedded Systems Security and the Application Console.

Centralized installation via Kaspersky Security Center

If Kaspersky Security Center is used in your network for managing networked devices' anti-virus protection, Kaspersky Embedded Systems Security can be installed on multiple devices by using the remote installation task.

The protected devices on which you want to install Kaspersky Embedded Systems Security using Kaspersky Security Center may be in the same domain as Kaspersky Security Center in a different domain, or in no domain at all.

Centralized installation using Active Directory group policies

Active Directory group policies can be used to install Kaspersky Embedded Systems Security on the protected device. The Application Console can be installed on the protected device or administrator's workstation.

Kaspersky Embedded Systems Security can be installed using just the recommended installation settings.

The protected devices on which Kaspersky Embedded Systems Security is installed using Active Directory group policies must be located in the same domain and the same organizational unit. Installation is performed at protected device start before logging in to Microsoft Windows.

Installing and uninstalling the application using a wizard

This section describes the installation and uninstallation of Kaspersky Embedded Systems Security and the Application Console by means of the Setup Wizard, and contains information about additional configuration of Kaspersky Embedded Systems Security and actions to be performed upon installation.

Installing using the Setup Wizard

The following sections contain information about installation of Kaspersky Embedded Systems Security and the Application Console.

To install and proceed to use Kaspersky Embedded Systems Security:

1. Install Kaspersky Embedded Systems Security on the protected device.
2. Install the Application Console on the devices from which you intend to manage Kaspersky Embedded Systems Security.
3. If the Application Console has been installed on any device in the network other than the protected device, perform additional configuration to allow Application Console users to manage Kaspersky Embedded Systems Security remotely.
4. Perform actions after installation of Kaspersky Embedded Systems Security.

Kaspersky Embedded Systems Security installation

Before installing Kaspersky Embedded Systems Security, do the following:

1. Make sure no other anti-virus applications are installed on the protected device. You must remove Kaspersky Anti-Virus 8.0 for Windows Servers Enterprise Edition. You do not need to remove Kaspersky Security 10 for Windows Server to install Kaspersky Embedded Systems Security.
2. Make sure that the account you use to run the Setup Wizard belongs to the administrators group on the protected device.

Kaspersky Embedded Systems Security includes the following predefined configurations:

Protect computer with Default Deny technology

> The components enabling updates are not included in the **Protect computer with Default Deny technology** configuration.

If the **Protect computer with Default Deny technology** configuration is selected, the following components are included by default:

- Exploit Prevention
- Applications Launch Control
- System Tray Icon

When you install the **Protect computer with Default Deny technology** configuration of application over an application version that uses signature analysis and anti-virus databases to protect your computer, the set of application components will be automatically reduced by removing the following components:

- Real-Time File Protection
- On-Demand Scan
- Components enabling updates

This configuration is recommended for protecting devices with limited resources. In this case, you can activate the application for a long term, and the Applications Launch Control component provides computer protection.

Protect computer with Anti-Virus Bases

If the **Protect computer with Anti-Virus Bases** configuration is selected, all Kaspersky Embedded Systems Security components are included by default except the Firewall and Performance Counters components.

When you install the **Protect computer with Anti-Virus Bases** configuration of application over an application version that does not use signature analysis and anti-virus databases to protect your computer, the set of application components will be automatically extended by adding the following components:

- Real-Time File Protection
- On-Demand Scan
- Network Threat Protection

You can read more about the installation (uninstallation) settings.

To install Kaspersky Embedded Systems Security using the Setup Wizard:

1. Run the setupui.exe file on the protected device.
2. In the window that opens, in the **Installation** section, click the **Protect computer with Default Deny technology** link or **Protect computer with Anti-Virus Bases** link.
3. In the welcome screen of the Kaspersky Embedded Systems Security Setup Wizard, click the **Next >** button.

   The **End User License Agreement** window opens.
4. Review the terms of the License Agreement and Privacy Policy.
5. If you agree to the terms and conditions of End User License Agreement and Privacy Policy, select the **I confirm that I have fully read, understand, and accept the terms and conditions of these End User License Agreements** and **I am aware and agree that my data will be handled and transmitted (including to third countries) as described in the Privacy Policy. I confirm that I have fully read and understand the Privacy Policy** check boxes.

   If you do not accept the End User License Agreement and/or Privacy Policy the installation will be aborted.
6. Click **Next >**.

   The **Custom installation** window opens.

   Select the components to be installed.

   The SNMP Protocol Support component of Kaspersky Embedded Systems Security will only appear in the list of components suggested for installation if the Microsoft Windows SNMP service is installed on the protected device.
7. To cancel all changes, click the **Reset** button in the **Custom installation** window. Click **Next >**.
8. In the **Select destination folder** window, do the following:

   - If required, specify a folder to which Kaspersky Embedded Systems Security files will be copied.
   - If required, review the information about available space on local drives by clicking the **Disk** button.

   Click **Next >**.
9. In the **Configure** window, you can exclude objects and folders from the protection scope and configure Real-Time File Protection.
10. In the **Import settings from configuration file** window, specify a path to the configuration file, if you want to import Kaspersky Embedded Systems Security settings from an existing configuration file created in a previous version of the application.

11. In the **Activation of the application** window, do one of the following:

    - If you want to activate the application, specify a Kaspersky Embedded Systems Security key file for application activation.
    - If you want to activate the application later, click the **Next >** button.
    - If a key file was previously saved in the \exec folder of the distribution kit, the name of this file will be displayed in the **Key** field.
    - To add a key using a key file stored in another folder, specify the key file.

      > The installation wizard does not allow activating the application with an activation code. If you want to activate the application with an activation code, you can specify one after installing the application.

      Once the key file is added, license information will be shown in the window. Kaspersky Embedded Systems Security displays the license's calculated expiration date. The license term runs from the time when you add a key and expires no later than the expiration date of the key file.

      Click **Next >** to add the key file to the application.

12. In the **Remote access settings** section, if necessary, change the TCP port numbers that the Application Console uses for the remote connection to the computer with the application installed.

    The default port number for connection with Windows credentials is 13032, and the default port number for connection with credentials of manually created users is 13031. Range of possible port numbers: 1–65535.

    To prevent connection with credentials of manually created user accounts, clear the **Using credentials from manually created users** check box.

13. In the **Ready to install** window, you can disable the **Protect the installation process** option if necessary. Installation protection includes protection against replacement of the distribution package with malicious applications, blocking access to the installation folder of Kaspersky Embedded Systems Security, and blocking access to the system registry section containing application keys. However, if the application cannot be installed (for example, when performing remote installation with the help of Windows Remote Desktop), you are advised to disable protection of the installation process.

14. If necessary, add the kavshell.exe file path to the %PATH% system variable for convenient use of the command line interface.

15. Click **Install**.

16. The **Installation complete** window opens when installation is complete.

17. Click the **Finish** button.

    The Setup Wizard closes. Once the installation is complete, Kaspersky Embedded Systems Security is ready to use if you have added an activation key.

Kaspersky Embedded Systems Security Console installation

Follow the instructions of the Setup Wizard to configure installation settings for the Application Console. The installation process can be stopped at any step of the wizard. To do so, click the **Cancel** button in the Setup Wizard window.

To install the Application Console:

1. Make sure that the account you use to run the Setup Wizard belongs to the administrators group on the device.

2. Run the setupui.exe file on the protected device.

   The welcome window opens.

3. Click the **Install Kaspersky Embedded Systems Security for Windows Console** link.

   The Setup Wizard's welcome window opens. Click **Next >**.

4. If you agree to the terms and conditions of End User License Agreement and Privacy Policy, select the **I confirm that I have fully read, understand, and accept the terms and conditions of these End User License Agreements** and **I am aware and agree that my data will be handled and transmitted (including to third countries) as described in the Privacy Policy. I confirm that I have fully read and understand the Privacy Policy** check boxes. Click **Next >**.

5. Specify a folder to which the files being installed should be saved in the **Select destination folder** window.

6. Click **Next >**.

7. Click the **Install** button in the **Ready to install** window.

   The wizard will begin installing the selected components.

8. Click **Finish**.

The Setup Wizard closes. The Application Console will be installed on the protected device.

If the Application Console has been installed on any device in the network other than the protected device, configure the advanced settings.

Advanced settings after installation of the Application Console on another device

If the Application Console has been installed on any device in the network, other than a protected device, perform the following actions to allow users to manage Kaspersky Embedded Systems Security remotely:

- Use a user account that has permission to connect remotely in the application settings. By default, all users in the Administrators and ESS Administrators groups have this permission.

- On the remote device, in the Windows Firewall settings, open the TCP 13032 port for connection by Windows system user accounts and TCP 13031 for connection by user accounts manually created in application settings. Also allow network connections for the executable file of the Kaspersky Embedded Systems Security remote management process, avp.exe. You can manage this setting using the `ADDWFEXCLUSION=1` option when installing the application on the command line.

If you need to run Kaspersky Embedded Systems Security remotely, additionally do the following:

The user account that will remotely start the application must be part of the Administrators group.

- On the remote device, in the Windows Firewall settings, enable the **File and Printer Sharing (SMB-In)** rule (port TCP 445). We also recommend opening port TCP 135 to facilitate the connection to the device.
- For remote devices running Windows Vista or later that are not part of a domain or are managed by a local user account, **disable remote control of user accounts (UAC).**

  1. Open the registry editor on the computer.
  2. In the registry editor, open the HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System key.
  3. Open the LocalAccountTokenFilterPolicy value.

     If the LocalAccountTokenFilterPolicy value is missing under this key, create a DWORD (32-bit) value with this name (for details, refer to the Microsoft Technical Support website).
  4. Set it to `1` and click **OK**.

     Disabling remote UAC does not affect local UAC.
- If the device on which the Application Console is installed or the protected device run Windows 8.1 or an earlier version of Windows, **enable the support of shared access to SMB 1.0/CIFS files on devices running Windows 10 or later.**

  - In the "Windows Features" application:

    1. Select **Start** → **Control Panel** → **Programs and Features** → **Turn Windows features on or off**.
    2. In the **Windows Features** window, select the **SMB 1.0/CIFS File Sharing Support** check box.
    3. Click **OK**.
  - In Windows PowerShell:

    1. Run Windows PowerShell as administrator.
    2. Run the following command:

```
Enable-WindowsOptionalFeature -Online -FeatureName SMB1Protocol
```

The same steps should be applied to configure any other software or hardware firewall.

If the Application Console is open while you configure the connection between the protected device and the device on which the Application Console is installed:

1. Close the Application Console.
2. Wait until the Kaspersky Embedded Systems Security remote management process avp.exe is finished.
3. Restart the Application Console.

The new connection settings will be applied.

Allowing anonymous remote access to COM applications

The names of settings may vary depending on the installed Windows operating system.

To allow anonymous remote access to COM applications:

1. On the remote device with the Kaspersky Embedded Systems Security Console installed, open the **Component Services** console. To do this:
   a. Select **Start** → **Run**.
   b. Run the following command:

      ```
      dcomcnfg
      ```

   c. The **Component Services** console opens.
2. Expand the **Computers** node in the **Component Services** console on your protected device.
3. Open the context menu on the **My Computer** node.
4. Select **Properties**.
5. On the **COM Security** tab of the **Properties** window, click the **Edit Limits** button in the **Access permissions** settings group.
6. Make sure that the **Allow Remote Access** check box is selected for the ANONYMOUS LOGON user in the **Allow Remote Access** window.
7. Click **OK**.

Allowing network connections for the Kaspersky Embedded Systems Security remote management process

The names of settings may vary depending on the installed Windows operating system.

To open TCP port 135 in Windows Firewall and to allow network connections for the Kaspersky Embedded Systems Security remote management process:

1. Close the Kaspersky Embedded Systems Security Console on the remote device.
2. Do one of the following:
   - On Microsoft Windows XP SP2 or later:
     a. Select **Start** → **Windows Firewall**.
     b. In the **Windows Firewall** window (or Windows Firewall settings), click the **Add port** button on the **Exclusions** tab.
     c. In the **Name** field, specify the port name RPC (TCP/135) or enter another name, for example Kaspersky Embedded Systems Security DCOM, and specify the port number (135) in the **Port name** field.
     d. Select the **TCP** protocol.
     e. Click **OK**.
     f. Click the **Add** button on the **Exclusions** tab.
   - On Microsoft Windows 7 or later:
     a. Select **Start** → **Control Panel** → **Windows Firewall**.
     b. In the **Windows Firewall** window, select **Allow a program or feature through Windows Firewall**.
     c. In the **Allow programs to communicate through Windows Firewall** window click the **Allow another program** button.
3. Specify the kavfsrcn.exe file in the **Add application** window. It is located in the destination folder specified during installation of Kaspersky Embedded Systems Security Console using Microsoft Management Console.
4. Click **OK**.
5. Click the **OK** button in the **Windows Firewall (Windows Firewall settings)** window.

Actions to perform after Kaspersky Embedded Systems Security installation

Kaspersky Embedded Systems Security starts protection and scan tasks immediately after installation if you have activated the application. If the **Enable Real-Time File Protection after installation of application (recommended)** check box is selected during installation of Kaspersky Embedded Systems Security, the application scans the device's file system objects when they are accessed. If the Script monitoring component was installed as part of custom installation, Kaspersky Embedded Systems Security scans the source code of all scripts when they are started. Kaspersky Embedded Systems Security will run the *Critical Areas Scan* task every Friday at 8:00 P.M.

We recommend that you take the following steps after installing Kaspersky Embedded Systems Security:

- Start the application database update task. After installation Kaspersky Embedded Systems Security will scan objects using the database included in the application distribution kit.

We recommend updating Kaspersky Embedded Systems Security databases immediately since they may be out of date.

The application will then update the databases every hour according to the default schedule configured in the task.

- Run a Critical Areas Scan of the device if no anti-virus software with real-time file protection was installed on the device before installation of Kaspersky Embedded Systems Security.
- Configure administrator notifications about Kaspersky Embedded Systems Security events.

Starting and configuring the Update of databases and application modules task

To update the application database after installation:

1. Under *Update*, configure the connection to the update source.
2. Run the *Update* task.

Web Proxy Auto-Discovery Protocol (WPAD) may not be configured on your network to detect proxy server settings automatically in the LAN. At that, your network may require authentication when accessing the proxy server.

To specify the optional proxy server settings and authentication settings for accessing the proxy server:

1. In the Application Console, open the context menu of the **Kaspersky Embedded Systems Security** node.
2. Select **Application properties**.
3. This opens a window; in that window, select the **Network settings** tab.
4. In the **Proxy server settings** section, click **Settings** and in the displayed window, select the **Use specified proxy server settings** check box.
5. Enter the proxy server address in the **Address** field, and enter the port number for the proxy server in the **Port** field.
6. If necessary, clear the **Bypass a proxy server for local addresses** check box. If this functionality is enabled, devices are accessed directly from the network that hosts the protected device with Kaspersky Embedded Systems Security installed. This option is enabled by default.
7. In the **Proxy server authentication settings** section, select the necessary authentication method in the drop-down list:
   - **Do not use authentication**.
   - **NTLM authentication**. NTLM authentication with the current user account (default).
   - **NTLM authentication with user name and password**. NTLM authentication with manually specified credentials.

- **Kerberos authentication**. Kerberos authentication with the current user account.

  To ensure the Kerberos authentication works correctly when using CNAME records for the proxy server address, you must register a Service Principal Name (SPN) for each CNAME record.

- **Kerberos authentication with user name and password**. Kerberos authentication with manually specified credentials.

- **User name and password**. Authentication with manually specified credentials.

Enter the user name and password, if needed.

If Kerberos authentication is selected, Kaspersky Embedded Systems Security can, depending on the proxy server settings, perform authentication using either the Kerberos or NTLM protocol.

8. Click **OK**.

To run the Update task:

1. In the Application Console tree, expand the **Update** node.
2. In the context menu of the **Database update** child node, select the **Start** item.

The *Update* task is started.

After the task has successfully completed, you can view the release date of the latest database updates installed in the results pane of the **Kaspersky Embedded Systems Security** node.

Critical Areas Scan

After you have updated the Kaspersky Embedded Systems Security databases, scan the protected device for malware using the *Critical Areas Scan* task.

To run the Critical Areas Scan task:

1. In the Application Console tree, expand the **On-Demand Scan** node.
2. In the context menu of the **Critical Areas Scan** child node, select the **Start** command.

The task starts; the **Running** task status is displayed in the results pane.

To view the task log,

in the results pane of the **Critical Areas Scan** node, click the **Open task log** link.

Modifying the set of components and repairing Kaspersky Embedded Systems Security

Kaspersky Embedded Systems Security components can be added or removed. You need to stop the Real-Time File Protection task before removing the Real-Time File Protection component. In other circumstances there is no need to stop the Real-Time File Protection task or the Kaspersky Embedded Systems Security Service.

If application management is password protected, Kaspersky Embedded Systems Security requests the password when you attempt to remove components or modify the set of components in the Setup Wizard.

To modify the set of Kaspersky Embedded Systems Security components:

1. In the Windows **Control Panel**, select **Apps & features**. The **Modify or Remove** window opens.
2. Right-click **Kaspersky Embedded Systems Security** and select **Edit**.

   This opens the Setup Wizard **Modify, repair, or remove application**.
3. Select **Modify**.

   The **Custom installation** window opens. Select **Full functionality** and click **Next >**.
4. In the **Custom installation** window, in the list of available components, select the components that you want to add or remove from Kaspersky Embedded Systems Security. To do this, perform the following actions:

   - To change the set of components, click the button next to the name of the selected component. Then in the context menu, select:
     - **Feature will be installed on the local hard drive**, if you want to install one component;
     - **Entire feature and its subfeatures will be installed on local hard drive**, if you want to install the group of components;
   - To remove previously installed components, click the button next to the name of the selected component. In the context menu, select **Feature will be unavailable**.

   Click **Next >**.
5. In the **Ready to install** window, confirm the selection of application components by clicking **Install**.
6. In the window that opens when installation is complete, click the **Finish** button.

   The set of Kaspersky Embedded Systems Security components will be modified based on the specified settings.

If problems occur during the operation of Kaspersky Embedded Systems Security (Kaspersky Embedded Systems Security crashes; tasks crash or do not start), you can perform a repair for Kaspersky Embedded Systems Security. You can perform a repair while saving the current Kaspersky Embedded Systems Security settings, or you can select an option to reset all Kaspersky Embedded Systems Security settings to their default values.

To repair Kaspersky Embedded Systems Security after the application or a task crashes:

1. In the Windows **Control Panel**, select **Apps & features**. The **Modify or Remove** window opens.
2. Right-click **Kaspersky Embedded Systems Security** and select **Edit**.
3. This opens the Setup Wizard **Modify, repair, or remove application**.
4. Select the **Repair** option.

   The **Repair Kaspersky Embedded Systems Security** window opens. Click **Next >**.
5. Wait until the restore operation completes and in the window that opens click **Finish**.

Kaspersky Embedded Systems Security will be repaired using the specified settings.

Uninstalling using the Setup Wizard

This section contains instructions on removing Kaspersky Embedded Systems Security and the Application Console from a protected device using the Setup / Uninstallation Wizard.

Kaspersky Embedded Systems Security uninstallation

Dump and trace files are not deleted on uninstalling Kaspersky Embedded Systems Security. You can manually delete dump and trace files from the folder specified during the configuration of dump and trace files writing.

The names of settings may vary depending on the installed Windows operating system.

Kaspersky Embedded Systems Security can be uninstalled from the protected device using the Setup / Uninstallation Wizard.

After uninstalling Kaspersky Embedded Systems Security from a protected device a restart may be required. The restart can be postponed.

Uninstallation, repair and installation of the application is not available via the Windows Control Panel.

Kaspersky Embedded Systems Security prompts for the user's account credentials when the user attempts to remove or modify the set of components in the Setup Wizard. You need to enter the credentials of a user with sufficient rights. If an empty Windows password is set for the user account that performs the removal, disable the **Request password to confirm critical actions** functionality before starting the removal.

To uninstall Kaspersky Embedded Systems Security:

1. In the Windows **Control Panel**, select **Apps & features**. The **Modify or Remove** window opens.
2. Right-click **Kaspersky Embedded Systems Security** and select **Edit**.

3. This opens the Setup Wizard **Modify, repair, or remove application**.

4. Select **Remove**.

   The **Save objects** window opens.

5. If required, in the **Save objects** window, do the following:

   Under **Save objects**, specify which objects or settings you want to keep. By default, the check boxes are cleared.

   - Select the **Activation data** check box.
   - Select the **Backup files** check box.
   - Select the **Operational settings of the application** check box.

   Under **Export objects**, specify which objects you want to export. By default, the check boxes are cleared.

   - Select the **Export quarantine objects** check box to make Kaspersky Embedded Systems Security export objects that have been quarantined. By default, the check box is cleared.
   - Check the **Export Backup objects** check box to export objects from Kaspersky Embedded Systems Security Backup. By default, the check box is cleared.
   - Click the **Save** button and select the folder to which you want to export the objects. By default, the objects will be exported to %ProgramData%\Kaspersky Lab\KESS.4.1\QB.

     Click **Next**.

6. In the **Ready to uninstall** window, confirm the removal by clicking **Remove**.

7. In the window that opens when the uninstallation is complete, click the **Finish** button.

Kaspersky Embedded Systems Security will be uninstalled from the protected device.

Kaspersky Embedded Systems Security Console uninstallation

The names of settings may vary depending on the installed Windows operating system.

You can uninstall the Application Console from the protected device using the Setup / Uninstallation Wizard.

After uninstalling the Application Console, you do not need to restart the protected device.

To uninstall the Application Console:

1. In the Windows **Control Panel**, select **Apps & features**. The **Modify or Remove** window opens.

2. Right-click **Kaspersky Embedded Systems Security Console** and select **Edit**.

   This opens the window of the **Modify, repair, or remove application** wizard.

3. Select **Remove**.

   The **Ready to uninstall** window opens. Click **Uninstall**.

4. In the window that opens when the uninstallation is complete, click the **OK** button.

Uninstallation is now complete, and the Setup Wizard closes.

Installing and uninstalling the application from the command line

This section describes the particulars of installing and uninstalling Kaspersky Embedded Systems Security from the command line and contains examples of commands to install and uninstall Kaspersky Embedded Systems Security from the command line, and examples of commands to add and remove Kaspersky Embedded Systems Security components from the command line.

About installing and uninstalling Kaspersky Embedded Systems Security from command line

Dump and trace files are not deleted on uninstalling Kaspersky Embedded Systems Security. You can manually delete dump and trace files from the folder specified during the configuration of dump and trace files writing.

You can install or uninstall Kaspersky Embedded Systems Security and add or remove its components by running the \exec\ess_win.msi installation package file from the command line after you specify the installation settings using command-line options.

The Kaspersky Embedded Systems Security Console can be installed on the protected device or on another device on the network to work with the application locally or remotely. To do this, use the \client\esstools.msi installation package.

Perform the installation using an account included in the administrators group on the protected device where the application is installed.

If the \exec\ess_win.msi file is run on the protected device without additional command-line options, Kaspersky Embedded Systems Security will be installed with the default installation settings.

You can assign the set of components to be installed using the ADDLOCAL command-line option and listing the codes for the selected components or sets of components.

Kaspersky Embedded Systems Security software component codes for the Windows Installer service

The \product_long_term\ess_win.msi file is designed to install the **Protect computer with Default Deny technology** configuration of Kaspersky Embedded Systems Security, and the \exec\ess_win.msi file is designed to install the **Protect computer with Anti-Virus Bases** configuration of Kaspersky Embedded Systems Security.

If the **Protect computer with Anti-Virus Bases** configuration is selected, all Kaspersky Embedded Systems Security components are included by default except the Firewall and Performance Counters components.

When you install the **Protect computer with Anti-Virus Bases** configuration of application over an application version that does not use signature analysis and anti-virus databases to protect your computer, the set of application components will be automatically extended by adding the following components:

- Real-Time File Protection
- On-Demand Scan
- Network Threat Protection

> The components enabling updates are not included in the **Protect computer with Default Deny technology** configuration.

If the **Protect computer with Default Deny technology** configuration is selected, the following components are included by default:

- Exploit Prevention
- Applications Launch Control
- System Tray Icon

When you install the **Protect computer with Default Deny technology** configuration of application over an application version that uses signature analysis and anti-virus databases to protect your computer, the set of application components will be automatically reduced by removing the following components:

- Real-Time File Protection
- On-Demand Scan
- Components enabling updates

This configuration is recommended for protecting devices with limited resources. In this case, you can activate the application for a long term, and the Applications Launch Control component provides computer protection.

The \console\esstools.msi file is designed to install the Kaspersky Embedded Systems Security Console.

The following table contains codes and descriptions of Kaspersky Embedded Systems Security software components.

Component	Code	Component functions
Real-Time File Protection	`FileThreatProtection`	This component performs virus scans of files on the protected device when these files are accessed.
AMSI Scanner	`AMSI`	This component is intended to support Antimalware Scan Interface from Microsoft. The Antimalware Scan Interface (AMSI) allows third-party applications with AMSI support to send objects (for example, PowerShell scripts) to Kaspersky Embedded Systems Security for an additional scan and then receive the results from scanning these objects.
Behavior Detection	`BehaviorDetection`	This component fills the list of blocked hosts with names of remote devices that show malicious activity.
Exploit Prevention	`ExploitPrevention`	This component makes it possible to manage settings to protect memory used by processes in a device's memory.
Remediation Engine	`RemediationEngine`	This component allows Kaspersky Embedded Systems Security to roll back actions that have been performed by malware in the operating system.
Firewall	`Firewall`	This component makes it possible to manage Windows Firewall through the Kaspersky Embedded Systems Security graphical user interface.
Network Threat Protection	`NetworkThreatProtection`	This component scans inbound network traffic for activity that is typical of network attacks. Upon detecting an attempted network attack that targets your computer, Kaspersky Embedded Systems Security blocks network activity from the attacking computer.
Applications Launch Control	`ApplicationControl`	This component monitors user attempts to start applications and allows or denies application launch in accordance with specified Applications Launch Control rules.
Device Control	`DeviceControl`	This component tracks attempts to connect external devices to a protected device and allows or denies use of these devices according to the specified device control rules.
Module for integration with Kaspersky Security Center Network Agent	`AdminKitConnector`	Provides a connection between the Kaspersky Embedded Systems Security and the Kaspersky Security Center Network Agent. You can install this component on the protected device if you intend to manage the application via Kaspersky Security Center.
Log Inspection	`LogInspector`	This component monitors the integrity of the protected environment based on the results of an inspection of Windows event logs.
System Integrity Monitoring	`SystemIntegrityMonitor`	This component includes all functionality of File Integrity Monitor and additionally allows monitoring registry changes and connection of external devices.
BadUSB Attack Prevention	`BadUSBAttackPrevention`	The component prevents infected USB devices emulating a keyboard from connecting to the computer.
Managed Detection and Response	`MDR`	This component facilitates interaction with the Kaspersky Managed Detection and Response solution.

Installation and recovery settings, and Windows Installer command-line options

This section describes Kaspersky Embedded Systems Security installation and recovery settings. The section also contains the keys for changing the installation settings and possible key values. These keys can be used in conjunction with standard keys for the Windows Installer service's `msiexec` command when installing Kaspersky Embedded Systems Security from the command line.

Installation settings and Windows Installer command-line options

- Acceptance of the terms of the End User License Agreement.

`EULA=<value>` can take the following values.

- `0` – you reject the terms of the End User License Agreement (default value).
- `1` – you accept the terms of the End User License Agreement.

- Acceptance of the terms of the Privacy Policy.

  `PRIVACYPOLICY=<value>` can take the following values.

  - `0` – you reject the terms of the Privacy Policy (default value).
  - `1` – you accept the terms of the Privacy Policy.

- Destination folder where Kaspersky Embedded Systems Security files will be saved during installation. A different folder can be specified.

  The default value for the `INSTALLDIR=<full path to the folder>` command-line option is as follows:

  - For the 32-bit version of Microsoft Windows:
    - Kaspersky Embedded Systems Security: %ProgramFiles%\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0
    - Kaspersky Embedded Systems Security Console: %ProgramFiles%\Kaspersky Lab\Kaspersky Embedded Systems Security Console 4.1.0
  - For the 64-bit version of Microsoft Windows: %ProgramFiles(x86)% and further similarly to the paths for 32-bit versions of Microsoft Windows.

- Start of the *Real-Time File Protection* task immediately after Kaspersky Embedded Systems Security starts.

  `RUNRTP=<value>` can take the following values.

  - `1` – start (default value).
  - `0` – do not start.

- Path to the key file (`LICENSEKEYPATH`). By default, the Windows Installer attempts to find the file with .key extension in the \exec folder of the distribution kit. If the \exec folder contains several key files, the Windows Installer will select the key file whose expiration date is the farthest into the future. A key file can be saved beforehand in the \exec folder or at another path that you can specify in the `LICENSEKEYPATH` parameter.

  `LICENSEKEYPATH` can take the following values.

  - Full path to the key file including its name.
  - Path to the folder where the key files are stored.

  You can add a key after Kaspersky Embedded Systems Security is installed using an administrative tool of your choice: for example, the Application Console. If you do not add a key during installation of the application, Kaspersky Embedded Systems Security will not function.

- Path to the configuration file. Kaspersky Embedded Systems Security imports settings from the specified configuration file created in the application. Kaspersky Embedded Systems Security does not import passwords from the configuration file, for example, account passwords for starting tasks, or passwords for connecting to a proxy server. Once the settings are imported, you will have to enter all passwords manually. If the configuration file is not specified, the application will start to work with the default settings after setup.

  The default value for `CONFIGPATH=<configuration file name>` is not specified.

- *Scan at Operating System Startup* mode (`SCANSTARTUP_BLOCKING`). If Kaspersky Embedded Systems Security was installed without a `SCANSTARTUP_BLOCKING` key, the **Scan scope** parameter in the *Scan at Operating System Startup* task is set as follows:

  - Action to perform on infected and other objects: **Inform**.
  - Action to perform on probably infected objects: **Inform**.

  If Kaspersky Embedded Systems Security was installed with a `SCANSTARTUP_BLOCKING` key, the **Scan scope** parameter in the *Scan at Operating System Startup* task is set as follows:

  - Action to perform on infected and other objects: **Perform recommended action**.
  - Action to perform on probably infected objects: **Perform recommended action**.

  The *Scan at Operating System Startup* task is created automatically. The **Inform** mode is applied by default. In this case, after you deploy Kaspersky Embedded Systems Security on the devices, you can enable the *Scan at Operating System Startup* task if no issues with system services were discovered during scan. If the application detects critical system services as infected or probably infected objects, the **Inform** mode gives you time to figure out the reason and solve the issue. If the application applies the **Perform recommended action** mode, the **Disinfect. Delete if disinfection fails** action is performed. Disinfection or removal of the system files may result in critical issues with operating system startup.

- Disabling the check for incompatible software. Use this setting to enable or disable the check for incompatible software during background installation of the application on the protected device. Regardless of the value of this setting, during installation of Kaspersky Embedded Systems Security, the application always warns about other versions of the application installed on the protected device.

  The possible values for `SKIPPRODUCTCHECK=<value>` command line option are as follows (you can also use `SKIPINCOMPATIBLESW=<value>`):

  - `0` – The check for incompatible software is performed (default value).
  - `1` – The check for incompatible software is not performed.

- Disabling automatic removal of incompatible software.

  If the `SKIPPRODUCTUNINSTALL=1` option is specified, Kaspersky Embedded Systems Security does not remove incompatible software. If this option is not specified, Kaspersky Embedded Systems Security automatically attempts to remove incompatible software.

  > When installing Kaspersky Embedded Systems Security using the msiexec installer, removal of incompatible software is not performed. To automatically remove the software that may cause compatibility issues, use setup_ess.exe file.

- Disabling the check for the KB5007186 operating system update.

After installing the KB5007186 update, the application continues working normally, system security is not compromised, but minor version updates of the applications become impossible. Before installing the application, the installer checks for installed operating system updates. If update KB5007186 is discovered, the installer aborts the installation. You can use the `SKIPKB5007186CHECK` key on the command line to enable or disable the check for the KB5007186 operating system update.

`SKIPKB5007186CHECK=<value>` can take the following values.

- `0` – The installer checks if the KB5007186 operating system update is installed.
- `1` – The installer does not check if the KB5007186 operating system update is installed.

By default, the key is not set, which corresponds to 0.

- Configuring the Protection of operating system services functionality.

  If this function is enabled, third-party applications cannot act upon the processes of the operating system. `PROTECTOSSERVICES=<value>` can take the following values.

  - `1` means that the protection of operating system services is enabled (default setting).
  - `0` means that the protection of operating system services is disabled.

- Configuring ports used for the remote connection of the Application Console to a computer on which the application is installed:

  To configure the port for connecting with Windows credentials, you can use the `UIPORT=<port number>` parameter. Range of possible port numbers: 1–65535. If the number is outside the specified interval, the default port number is used. The default value is 13032.

  If necessary, you can close the port for connecting with credentials of manually created users using the `ENABLEUIKLPORT=<value>` parameter:

  - `1` opens the port (default setting).
  - `0` closes the port.

  The default value for this port is 13031. You can change the port number by specifying the `UIKLPORT=<value>` parameter. Range of possible port numbers: 1–65535.

- Setting for enabling network connections for remote management of Kaspersky Embedded Systems Security using the Application Console installed on a different computer.

  `ADDWFEXCLUSION=<value>` can take the following values.

  - `1` If this value is specified, TCP ports configured for the remote connection of the Application Console to a computer with the application installed (the `UIPORT=<value>` and `UIKLPORT=<value>` parameters) are opened in the Windows Firewall, and network connections are allowed for the executable file of the Kaspersky Embedded Systems Security remote management process, avp.exe.

    Read also about additional configuration when installing the application on another device.

  - `0` If this value is specified, nothing happens.

- Skip the installation of the DigiCert Assured ID Root CA root certificate to the trusted certificate store of the operating system.

  If the `SKIPINSTALLROOTCACERTIFICATES` option is specified when installing the application, the DigiCert Assured ID Root CA root certificate is not installed. By default, the certificate is automatically installed from the application installation package.

Recovery settings and Windows Installer command-line options

- Restoring quarantined objects.

  `RESTOREQTN=<value>` can take the following values.

  - `0` – Remove quarantined content (default value).
  - `1` – Restore quarantined content to the folder specified by the RESTOREPATH parameter into the \QB subfolder.

- Restoring the content of backup.

  `RESTOREBCK=<value>` can take the following values.

  - `0` – Remove backup content (default value).
  - `1` – Restore backup contents to the folder specified by the RESTOREPATH parameter into the \QB subfolder.

- Enter the current password to confirm the restoration (if password protection is enabled).

  The default value for `UNLOCK_PASSWORD=<specified password>` is not specified.

- Folder for restored objects. Restored objects will be saved to the specified folder.

  The default value for the `RESTOREPATH=<full path to the folder>` command-line option is %ALLUSERSPROFILE%\Program Data\Kaspersky Lab\KESS.4.1.0\QB\Restored

Example commands for installing Kaspersky Embedded Systems Security

This section provides examples of commands used to install Kaspersky Embedded Systems Security.

Run the ess_win.msi file from the distribution kit on the protected device.

Detailed information about the use of Windows Installer's standard commands and command-line options is provided in the documentation supplied by Microsoft.

Examples of installing Kaspersky Embedded Systems Security from the setup_ess.exe file

To install Kaspersky Embedded Systems Security with the recommended installation settings and without user involvement:

```
\exec\setup_ess.exe EULA=1 PRIVACYPOLICY=1
```

To install components, such as Device Control:

```
\exec\setup_ess.exe /p ADDLOCAL=DevCtrl /p RUNRTP=0
```

When installing Kaspersky Embedded Systems Security on computers with network devices and SCSI devices that cause a system crash after installation, you can use the following additional options with this command:

```
/p SKIP_NETWORK_UPPERFILTERS=<1|0>
```

Enables (`1`) or disables (`0`) interception of connections of network adapters.

```
/p SKIP_SCSIADAPTER_UPPERFILTERS=<1|0>
```

Enables (`1`) or disables (`0`) interception of connections of SCSI adapters.

To install and activate Kaspersky Embedded Systems Security using the key file:

```
setup_ess.exe /s EULA=1 PRIVACYPOLICY=1 /p LICENSEKEYPATH=C:\0000000A.key
```

To change the port used for the remote connection of the Application Console to a computer on which the application is installed with Windows user credentials:

```
setup_ess.exe /pUIPORT=<port number>
```

Range of possible port numbers: 1–65535. The default value is 13032.

List of commands used for installation: running an .msi file

To install Kaspersky Embedded Systems Security with the recommended installation settings and without user involvement:

```
msiexec /i ess_win.msi /qn EULA=1 PRIVACYPOLICY=1
```

To install Kaspersky Embedded Systems Security with the recommended installation settings and display the installation interface:

```
msiexec /i ess_win.msi /qf EULA=1 PRIVACYPOLICY=1
```

To install Kaspersky Embedded Systems Security with the recommended installation settings and enable trace file rotation when the number of trace files reaches the specified maximum number:

```
msiexec /i ess_win.msi TRACE_FOLDER=C:\Traces TRACE_MAX_ROLL_COUNT=50 /qn EULA=1 PRIVACYPOLICY=1
```

The `TRACE_FOLDER` parameter is required.

The following rules apply to the `TRACE_MAX_ROLL_COUNT` parameter:

- If this parameter is specified, trace file rotation is enabled when the number of trace files reaches the maximum number specified in the parameter. Available range of parameters values: from 1 to 999.
- If the maximum number of trace files is specified as 0, trace file rotation is disabled.
- If a parameter value is specified, but is invalid or outside the range of available values (from 1 to 999), trace file rotation is enabled with the default maximum number of trace files set to 5.
- If the parameter is not specified:
  - If trace file rotation is already configured on the device, its settings are not changed. The application will ignore the entered parameters.
  - If trace file rotation is not configured on the device, the rotation option will be enabled with the default maximum number of trace files set to 5.

To install and activate Kaspersky Embedded Systems Security using the key file C:\0000000A.key:

```
msiexec /i ess_win.msi     LICENSEKEYPATH=C:\0000000A.key /qn EULA=1 PRIVACYPOLICY=1
```

To install Kaspersky Embedded Systems Security with a preliminary scan of active processes and the boot sectors of local disks:

```
msiexec /i ess_win.msi PRESCAN=1 /qn EULA=1 PRIVACYPOLICY=1
```

To install Kaspersky Embedded Systems Security in the installation folder C:\KESS:

```
msiexec /i ess_win.msi INSTALLDIR=C:\KESS/qn EULA=1 PRIVACYPOLICY=1
```

To install Kaspersky Embedded Systems Security and save an installation log file named ess.log in the folder where the Kaspersky Embedded Systems Security msi file is stored:

```
msiexec /i ess_win.msi/l*v ess.log /qn EULA=1 PRIVACYPOLICY=1
```

To install the Kaspersky Embedded Systems Security Console:

```
msiexec /i esstools.msi /qn EULA=1
```

To install and activate Kaspersky Embedded Systems Security using the key file C:\0000000A.key and configure Kaspersky Embedded Systems Security according to the settings in the configuration file C:\settings.xml:

```
msiexec /i ess_win.msi LICENSEKEYPATH=C:\0000000A.key CONFIGPATH=C:\settings.xml /qn EULA=1 PRIVACYPOLICY=1
```

To install an application patch when Kaspersky Embedded Systems Security is password-protected:

```
msiexec /p "<MSP file path>" UNLOCK_PASSWORD=<password>
```

Actions to perform after Kaspersky Embedded Systems Security installation

Kaspersky Embedded Systems Security starts protection and scan tasks immediately after installation if you have activated the application. If the **Enable Real-Time File Protection after installation of application (recommended)** check box is selected during installation of Kaspersky Embedded Systems Security, the application scans the device's file system objects when they are accessed. If the Script monitoring component was installed as part of custom installation, Kaspersky Embedded Systems Security scans the source code of all scripts when they are started. Kaspersky Embedded Systems Security will run the *Critical Areas Scan* task every Friday at 8:00 P.M.

We recommend that you take the following steps after installing Kaspersky Embedded Systems Security:

- Start the Kaspersky Embedded Systems Security Update task. After installation Kaspersky Embedded Systems Security will scan objects using the database included in its distribution kit. We recommend that you update the Kaspersky Embedded Systems Security database immediately. To do this, run the *Update* task. The update will then run every hour according to the default schedule.

  For example, you can start the *Update* task by running the following command:

  ```
  KAVSHELL UPDATE /KL /PROXY:proxy.company.com:8080 /AUTHTYPE:1 /PROXYUSER:inetuser /PROXYPWD:p@ssw0rd
  ```

  In this case, Kaspersky Embedded Systems Security database updates are downloaded from Kaspersky update servers.

- Start the *Critical Areas Scan* task if no anti-virus software with real-time file protection was installed on the device before installation of Kaspersky Embedded Systems Security.

  You can start the *Critical Areas Scan* task from the command line by running the following command:

  ```
  KAVSHELL SCANCRITICAL /W:scancritical.log
  ```

  This command saves the task log in a file named scancritical.log contained in the current folder.

- Configure administrator notifications about Kaspersky Embedded Systems Security events.

Adding / removing components. Sample commands

To install the On-Demand Scan component, run the following command:

```
msiexec /i ess_win.msi ADDLOCAL=Oas,Ods /qn
```

or

```
\exec\setup_ess.exe /s /p ADDLOCAL=Oas,Ods
```

After you add the components to the list, Kaspersky Embedded Systems Security reinstalls the existing components and installs the specified components.

To remove installed components run the following command:

```
msiexec /i ess_win.msi REMOVE=Firewall,PerfMonCounters EULA=1 PRIVACYPOLICY=1 /qn
```

To install new components, run the following command:

```
msiexec /i ess_win.msi
ADDLOCAL=AKIntegration,AVProtection,AntiExploit,AppCtrl,DevCtrl,Fim,Ksn,LogInspector,Oas,Ods,SnmpSupport,TrayApp,IDS,
EULA=1 PRIVACYPOLICY=1 /qn
```

After you list the components that you want to install and remove, Kaspersky Embedded Systems Security installs and removes the corresponding components.

Kaspersky Embedded Systems Security uninstallation. Sample commands

To uninstall Kaspersky Embedded Systems Security from the protected device in silent mode, run the following command:

```
msiexec /x ess_win.msi KLLOGIN=<user name> KLPASSWD=<password> /qn
```

or

```
msiexec /x {6202AB29-4AC2-4A92-AF8E-977AADD4B27F} KLLOGIN=<user name> KLPASSWD=<password> /qn
```

or

```
setup_ess.exe /pKLLOGIN=<user name> /pKLPASSWD=<password> /s /x
```

where `<user name>` is the name and login of a user with sufficient rights to uninstall.

If an empty Windows password is set for the user account that performs the removal, disable the **Request password to confirm critical actions** functionality before starting the removal.

To uninstall the Kaspersky Embedded Systems Security Console in silent mode, run the following command:

```
msiexec /x esstools.msi /qn
```

or

```
msiexec /x {E827CBBA-974C-4386-B50E-8F202D41E428} /qn
```

Return codes

The application installer can return the return codes described in this article.

The table below contains a list of command-line return codes.

Return codes

Code	Description
27100	Drives with Authentication Agent installed in test mode have been detected on the computer.
27101	Drives with Authentication Agent installed in test mode have been detected on the computer.
27102	Failed to find encrypted disks.
27200	Failed to unload application from RAM.
27201	Error while starting the AVP.exe process. Your computer may be infected.
27204	Failed to cache distributive package.
27205	Failed to migrate license information.
27206	Failed to remove license information.
27207	Failed to remove incompatible software.
27208	Failed to check incompatible software.
27209	Failed to extract files from cabinet.
27210	Failed to configure Self-Defense.
27211	Failed to enable Self-Defense.
27212	Failed to get operating system version info.
27213	Failed to get startup directory.
27214	Failed to verify installation directory.
27215	Failed to configure service.
27216	Failed to configure klcp upgrade.
27217	Failed to upgrade klcp.
27218	Failed to configure kl1 driver parameters.
27219	Failed to configure klelam driver parameters.
27220	Failed to configure klwfp driver parameters.
27221	Failed to configure driver compatibility mode.
27222	Failed to remove registry key.
27223	Failed to restart operating system.
27224	Failed to install driver.
27225	Failed to migrate driver settings.
27226	Failed to stop driver.
27227	Failed to block driver start.
27228	Failed to verify the signature of the file.
27230	Failed to prepare kldl driver settings.
27231	Failed to configure kldl driver settings.
27300	Error installing driver.

Code	Description
27301	Error removing driver.
27302	Error installing network components.
27303	Registration information for the driver is inconsistent or incomplete. Please restart the operating system and try again.
27305	Error disabling driver.
27310	Failed to install digitally signed catalog file.
27311	Failed to uninstall digitally signed catalog file.
27312	Failed to install certificates.
27313	Failed to remove certificates.
27320	Failed to configure service.
27321	Failed to unprotect service.
27350	Patch <patch name> is not intended for the <application name> application localization.
27352	Full disk encryption patch cannot be removed.
27353	Patch <patch 1 name> can be installed only together with patch <patch 2 name>.
27354	The computer must be restarted to apply the patches before the application is modified/restored.
27355	Failed to lock Full Disk Encryption management. Failed to lock Full Disk Encryption management. You must finish encryption to install an update for Full Disk Encryption.
27356	Patch cannot be installed.
27357	Installation package has been found to contain recalled patches. Installation will be aborted.
27360	Patch cannot be registered.
27361	Failed to set patch installation parameters.
27363	The patch contains encryption libraries that are incompatible with the installed encryption libraries.
27370	Error initializing .NET 8.0 unpacking.
27371	Error unpacking .NET 8.0.
27372	Registration information about the previous application version was deleted. Please restart the installation.
27373	Failed to delete registration information about the previous application version.
27374	The application is upgrading. Please try again later.
27375	Uninstallation password or user name has not been specified or is incorrect.
27376	Failed to uninstall Kaspersky Endpoint Agent. Please uninstall it yourself or disable password protection in settings. Then restart the installation of the application.
27377	Failed to uninstall Kaspersky Security for Windows Server. Please uninstall it yourself or disable password protection in settings. Then restart the installation of the application.
27378	Out of disk space.
27379	Failed to install the application because the incompatible components were selected. Please change the set of components and restart the installation.
27380	An invalid configuration file has been selected.
27381	An invalid license key has been selected.
27382	Failed to create the application administration group.
27383	You have selected an invalid folder. The name of the destination folder cannot exceed 160 characters.
27384	You have selected an invalid folder or drive. The application must be installed on a local hard drive.
27385	You have selected an invalid folder. The application cannot be installed to the root folder.
27386	You have selected an invalid folder. The application cannot be installed to the Windows folder or its subfolders.
27387	You have selected an invalid folder. The application cannot be installed to a folder that contains a Temp subfolder.
27388	You have selected an invalid folder. The application cannot be installed directly in the Program Files folder.

Code	Description
27389	You have selected an invalid folder. The application cannot be installed on a virtual disk.
27390	You have selected an invalid folder or drive. The application cannot be installed to the folder where the previous version of the application is installed.
27391	The selected folder or drive already contains files. The application cannot be installed to a folder that contains other data, because this data can become unavailable after Self-Defense is enabled.
27392	The application cannot be installed to a folder that contains Reparse Points. Please select another installation folder.
27393	The application cannot be installed to a folder that contains a semicolon (;) in its name. Please select another installation folder.
27394	You have selected an invalid folder. The root folder cannot be specified.
27395	You have selected an invalid folder. The Windows folder or its subfolders cannot be specified.
27396	You have selected an invalid folder. The Program Files folder cannot be specified directly.
27397	You have selected an invalid folder. A folder that contains a Temp subfolder cannot be specified.
27400	Error initializing file updates.
27450	CAB file could not be installed.
27451	Error removing.
27452	Error removing files.
27453	Error moving files.
27454	Failed to create registry files.
27455	Failed to get operating system version info.
27456	Failed to schedule rollback registry values.
27457	Failed to get well-known security identifiers (SIDs).
27460	Error creating security descriptors.
27461	Error restoring security descriptors.
27462	Failed to create rules for Microsoft Windows Firewall.
27463	Failed to delete rules for Microsoft Windows Firewall.

Installing and uninstalling the application using Kaspersky Security Center

This section contains information about installing Kaspersky Embedded Systems Security using Kaspersky Security Center, a description of the procedure for installing and uninstalling Kaspersky Embedded Systems Security through Kaspersky Security Center, and a description of actions to be taken after Kaspersky Embedded Systems Security is installed.

General information about installing via Kaspersky Security Center

You can install Kaspersky Embedded Systems Security via Kaspersky Security Center using the remote installation task.

After the remote installation task is complete, Kaspersky Embedded Systems Security will be installed with identical settings on multiple protected devices.

All protected devices can be combined in a single administration group, and a group task can be created to install Kaspersky Embedded Systems Security on the protected devices in this group.

You can create a task to remotely install Kaspersky Embedded Systems Security on a set of protected devices that are not in the same administration group. When creating this task, you must generate the list of individual protected devices that Kaspersky Embedded Systems Security should be installed on.

Detailed information on the remote installation task is provided in Kaspersky Security Center Help.

Rights to install or uninstall Kaspersky Embedded Systems Security

The account specified in the remote installation (removal) task must be included in the administrators group on each of the protected devices in all cases except those described below:

- If the Kaspersky Security Center Network Agent is already installed on the protected devices on which Kaspersky Embedded Systems Security is to be installed (regardless of which domain the protected devices are in or whether they belong to any domain).

  If the Network Agent is not yet installed on the protected devices, you can install it with Kaspersky Embedded Systems Security using a remote installation task. Before installing the Network Agent, make sure that the account you want to specify in the task is included in the administrators group on each of the protected devices.

- All protected devices on which you want to install Kaspersky Embedded Systems Security are in the same domain as the Administration Server, and the Administration Server is registered as the **Domain Admin** account (if this account has local administrator rights on the protected devices within the domain).

By default, when using the **Forced installation** method, the remote installation task is run from the account running the Administration Server.

When working with group tasks or with tasks for sets of protected devices under forced installation (uninstallation) mode, an account must have the following rights on the protected device:

- Right to execute applications remotely.
- Rights to the **Admin$** share.
- Right to **Log on as a service**.

Installing Kaspersky Embedded Systems Security via Kaspersky Security Center

Installing Kaspersky Embedded Systems Security via Kaspersky Security Center involves the following steps:

1. **Creating an installation package**

An *installation package* is a set of files created for remote installation of a Kaspersky application via Kaspersky Security Center. The installation package contains a range of settings needed to install the application and get it running immediately after installation. The installation package is created using files with the .kpd and .kud extensions included in the application distribution kit.

How to create an installation package in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select the **Advanced** → **Remote installation** → **Installation packages** folder.

2. In the results pane, click the **Create installation package** button.

The New Package Wizard starts. Follow the instructions of the Wizard.

Step 1. Selecting the installation package type

Select the **Create an installation package for a Kaspersky application** option.

Step 2. Defining the installation package name

Enter the name of the installation package, for example, *Kaspersky Embedded Systems Security*.

Step 3. Selecting the distribution package for installation

Specify the ess_win.kud file from the Kaspersky Embedded Systems Security distribution kit as the installation package file.

If you plan to install the application using the **Protect computer with Anti-Virus Bases** configuration over the application configuration that does not use signature analysis and anti-virus databases to protect the computer, or vice versa, you should first specify login and password of the account with permissions to install the application in the ess_win.kud file. To do this, open the ess_win.kud file in a text editor and add the following parameters to the `Params` line: `/pKLLOGIN=<login>` and `/pKLPASSWD=<password>`.

If necessary, select the **Copy updates from repository to installation package** check box to update the anti-virus databases in the installation package.

Step 4. End User License Agreement and Privacy Policy

If you agree to the terms and conditions of End User License Agreement and Privacy Policy, select the **I confirm that I have fully read, understand, and accept the terms and conditions of this End User License Agreement** and **I am aware and agree that my data will be handled and transmitted (including to third countries) as described in the Privacy Policy. I confirm that I have fully read and understand the Privacy Policy** check boxes.

You must accept the License Agreement and the Privacy Policy to proceed.

The installation package will be created and added to Kaspersky Security Center. Using the installation package, you can install Kaspersky Embedded Systems Security on corporate network computers or update the application version.

To change the set of Kaspersky Embedded Systems Security components to be installed and the default installation settings in the created installation package:

1. In the Kaspersky Security Center Administration Console expand the **Remote installation** node.
2. In the results pane of the **Installation packages** child node, open the context menu of the created Kaspersky Embedded Systems Security installation package and select **Properties**.
3. In the **Properties: <name of installation package>** window open the **Settings** section.
4. Configure the trusted zone by clicking the **Configure** button.
5. In the **Component selection** block, select the check boxes next to the names of the Kaspersky Embedded Systems Security components you want to install.
6. In the **Real-Time File Protection mode** block, select the **Enable Real-Time File Protection after installation of application (recommended)** check box and select the component operating mode.
7. If necessary, change the TCP port numbers that the Application Console uses for the remote connection to the computer with the application installed.

   The default port number for connection with Windows credentials is 13032, and the default port number for connection with credentials of manually created users is 13031. Range of possible port numbers: 1–65535.

   To prevent connection with credentials of manually created user accounts, clear the **Using credentials from manually created users** check box.
8. In order to indicate an installation folder other than the default one, specify the folder name and path in the **Configure application installation paths** block, by clicking the **Settings** button.
9. To install the application with predefined settings, upload the configuration file.
10. Save your changes.

How to create an installation package in the Web Console

1. Do one of the following:

   - In the main window of the Web Console, select **Discovery & deployment** → **Deployment & assignment** → **Installation packages**.
   - In the main window of the Web Console, select **Operations** → **Repositories** → **Installation packages**.

   This opens a list of installation packages that have been downloaded to Kaspersky Security Center.
2. Click **Add**.

The New Package Wizard starts. Follow the instructions of the Wizard.

Step 1. Selecting the installation package type

Select the **Create an installation package for a Kaspersky application** option.

The Wizard will create an installation package from the distribution package residing on Kaspersky servers. The list is updated automatically as new versions of applications are released.

You can also create an installation package from a file.

Step 2. Installation packages

Select the Kaspersky Embedded Systems Security for Windows installation package. The installation package creation process starts. During creation of the installation package, you must accept the terms of the End User License Agreement and Privacy Policy.

> You must accept the License Agreement and the Privacy Policy to proceed.

The installation package will be created and added to Kaspersky Security Center. Using the installation package, you can install Kaspersky Embedded Systems Security on corporate network computers or update the application version.

To change the set of Kaspersky Embedded Systems Security components to be installed and the default installation settings in the created installation package:

1. In the **Installation packages** window, click on the name of the created Kaspersky Embedded Systems Security installation package.
2. In the window that opens, select the **Settings** tab.
3. Select the **Protection components** section.
4. Configure the trusted zone by clicking the **Configure** button.
5. In the **Select components to install** section, select the check boxes next to the names of the Kaspersky Embedded Systems Security components you want to install.
6. In the **Real-Time File Protection mode** block, select the **Enable Real-Time File Protection after installation of application (recommended)** check box and select the component operating mode.
7. If necessary, change the TCP port numbers that the Application Console uses for the remote connection to the computer with the application installed.

   The default port number for connection with Windows credentials is 13032, and the default port number for connection with credentials of manually created users is 13031. Range of possible port numbers: 1–65535.

   To prevent connection with credentials of manually created user accounts, clear the **Port for remote connection using credentials from manually created users** check box.
8. Select the **Installation settings** section.

9. In the **Advanced Settings** section, configure the following settings:

   - **Add application location to environment variable %PATH%**. You can add the installation path to the %PATH% variable for convenient application management from the command line.

   - **Display System Tray Icon in the taskbar**. If the check box is selected, after Kaspersky Embedded Systems Security is installed, the application icon appears in the Microsoft Windows taskbar notification area.

10. If necessary, disable the **Protect the installation process** functionality.

11. If necessary, change the default folders that are created on the protected device during application installation.

12. To install the application with predefined settings, click the **Add configuration file** link and upload the configuration file.

    When working with installation packages in Kaspersky Security Center Web Console, the maximum supported size of uploaded configuration files is 4 MB. If you work with installation packages in the Kaspersky Security Center Administration Console, this limit does not apply.

13. Save your changes.

2 Creating a remote installation task

The *Install application remotely* task allows you to remotely install Kaspersky Embedded Systems Security. The *Install application remotely* task allows you to deploy the installation package of the application to all computers in the organization.

How to create a remote installation task in the Kaspersky Security Center Administration Console

1. Open the Kaspersky Security Center Administration Console.

2. In the console tree, select **Tasks**.

   The list of tasks opens.

3. Click **New task**.

The Task Wizard starts. Follow the instructions of the Wizard.

Step 1. Selecting task type

Select **Kaspersky Security Center Administration Server → Install application remotely**.

Step 2. Selecting an installation package

Select Kaspersky Embedded Systems Security installation package from the list. If the list does not contain the installation package for Kaspersky Embedded Systems Security, you can create the package in the Wizard.

You can configure the installation package settings in Kaspersky Security Center. For example, you can select the application components that will be installed to a computer.

Network Agent will also be installed together with Kaspersky Embedded Systems Security. *Network Agent* facilitates interaction between the Administration Server and a client computer. If Network Agent is already installed on the computer, it is not installed again.

Step 3. Additional

Select the Network Agent installation package. The selected version of Network Agent will be installed together with Kaspersky Embedded Systems Security.

Step 4. Settings

Configure the following additional application settings:

- **Force installation package download**. Select the method of application installation:
  - **Using Network Agent**. The Network Agent is responsible for delivering the Kaspersky Embedded Systems Security installation package to the client computers. If the Network Agent is not installed, the task will end with an error. In this case, add the Network Agent installation package to the *Install application remotely* task and enable file delivery via operating system resources. Then the Network Agent will be installed using operating system resources. Kaspersky Embedded Systems Security is then installed using Network Agent.
  - **Using operating system resources through distribution points**. The installation package is delivered to client computers using operating system resources via distribution points. You can select this option if there is at least one distribution point in the network. For more details about distribution points, refer to the Kaspersky Security Center Help.
  - **Using operating system resources through Administration Server**. Files will be delivered to client computers by using operating system resources through the Administration Server. You can select this option if Network Agent is not installed on the client computer, but the client computer is in the same network as the Administration Server.
- **Behavior for devices managed through other Administration Servers**. Select the Kaspersky Embedded Systems Security installation method. If the network has more than one Administration Server installed, these Administration Servers may see the same client computers. This may cause, for example, an application to be installed remotely on the same client computer several times through different Administration Servers, or other conflicts.
- **Do not re-install application if it is already installed**. Clear this check box if you want to install an earlier version of the application, for example.

Step 5. Selecting the operating system restart setting

Select the action to be performed if a computer restart is required. A restart is not necessary when installing Kaspersky Embedded Systems Security. Restart is required only if you have to remove incompatible applications prior to installation. Restart may also be required when updating the application version.

Step 6. Selecting the devices to which the task will be assigned

Select the computers on which Kaspersky Embedded Systems Security will be installed. The following options are available:

- Assign the task to an administration group. In this case, the task is assigned to computers included in a previously created administration group.
- Select computers detected by the Administration Server in the network: *unassigned devices*. Network Agent is not installed on unassigned devices. In this case, the task is assigned to specific devices. The specific devices can include devices in administration groups as well as unassigned devices.
- Specify device addresses manually, or import addresses from a list. You can specify NetBIOS names, IP addresses, and IP subnets of devices to which you want to assign the task.

Step 7. Selecting the account to run the task

Select the account for installing Network Agent using the tools of the operating system. In this case, administrator rights are required for computer access. You can add multiple accounts. If an account does not have sufficient rights, the Installation Wizard uses the next account. If you install Kaspersky Embedded Systems Security using Network Agent tools, you do not have to select an account.

Step 8. Configuring a task start schedule

Configure a schedule for starting a task, for example, manually or when the computer is idle.

Step 9. Defining the task name

Enter a name for the task, for example, *Installing Kaspersky Embedded Systems Security for Windows 4.1*.

Step 10. Finishing task creation

Finish the wizard. If necessary, select the **Run the task after the wizard finishes** check box. You can monitor the progress of the task in the task properties. The application will be installed in silent mode. After installation, the icon will be added to the notification area of the user's computer. If the icon looks like this , make sure that you activated the application.

How to create a remote installation task in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Tasks**.

   The list of tasks opens.

2. Click **Add**.

The Task Wizard starts. Follow the instructions of the Wizard.

Step 1. Configuring general task settings

Configure the general task settings:

1. In the **Application** drop-down list, select **Kaspersky Security Center**.
2. In the **Task type** drop-down list, select **Install application remotely**.
3. In the **Task name** field, enter a brief description, such as *Installation of Kaspersky Embedded Systems Security for Managers*.
4. In the **Devices to which the task will be assigned** block, select the task scope.

Step 2. Selecting computers for installation

At this step, select the computers on which Kaspersky Embedded Systems Security will be installed according to the selected task scope option.

Step 3. Configuring an installation package

At this step, configure the installation package:

1. Select the Kaspersky Embedded Systems Security for Windows (4.1) installation package.
2. Select the Network Agent installation package.

   The selected version of Network Agent will be installed together with Kaspersky Embedded Systems Security. *Network Agent* facilitates interaction between the Administration Server and a client computer. If Network Agent is already installed on the computer, it is not installed again.

3. In the **Force installation package download** block, select the application installation method:

   - **Using Network Agent**. The Network Agent is responsible for delivering the Kaspersky Embedded Systems Security installation package to the client computers. If the Network Agent is not installed, the task will end with an error. In this case, add the Network Agent installation package to the *Install application remotely* task and enable file delivery via operating system resources. Then the Network Agent will be installed using operating system resources. Kaspersky Embedded Systems Security is then installed using Network Agent.

   - **Using operating system resources through distribution points**. The installation package is delivered to client computers using operating system resources via distribution points. You can select this option if there is at least one distribution point in the network. For more details about distribution points, refer to the Kaspersky Security Center Help.

   - **Using operating system resources through Administration Server**. Files will be delivered to client computers by using operating system resources through the Administration Server. You can select this option if Network Agent is not installed on the client computer, but the client computer is in the same network as the Administration Server.

4. In the **Maximum number of concurrent downloads** field, set a limit on the number of installation package download requests sent to the Administration Server. A limit on the number of requests will help prevent the network from being overload.

5. In the **Maximum number of installation attempts** field, set a limit on the number of attempts to install the application. If installation of Kaspersky Embedded Systems Security ends with an error, the task will automatically start the installation again.

6. If necessary, clear the **Do not re-install application if it is already installed** check box. It allows, for example, to install one of the previous versions of the application.

7. If necessary, clear the **Verify operating system type before downloading** check box. This lets you avoid downloading an application distribution package if the operating system of the computer does not meet the software requirements. If you are sure that the operating system of the computer meets the software requirements, you can skip this verification.

8. If necessary, select the **Assign package installation in Active Directory group policies** check box. Kaspersky Embedded Systems Security is installed by means of Network Agent or manually by means of Active Directory. To install Network Agent, the remote installation task must be run with domain administrator privileges.

9. If necessary, select the **Prompt users to close running applications** check box. Installation of Kaspersky Embedded Systems Security takes up computer resources. For the convenience of the user, the Application Installation Wizard prompts you to close running applications before starting the installation. This helps prevent disruptions in the operation of other applications and prevents possible malfunctions of the computer.

10. In the **Behavior for devices managed through other Administration Servers** block, select the Kaspersky Embedded Systems Security installation method. If the network has more than one Administration Server installed, these Administration Servers may see the same client computers. This may cause, for example, an application to be installed remotely on the same client computer several times through different Administration Servers, or other conflicts.

Step 4. Selecting the account to run the task

Select the account for installing Network Agent using the tools of the operating system. In this case, administrator rights are required for computer access. You can add multiple accounts. If an account does not have sufficient rights, the Installation Wizard uses the next account. If you install Kaspersky Embedded Systems Security using Network Agent tools, you do not have to select an account.

Step 5. Completing task creation

Finish the wizard by clicking the **Finish** button. A new task will be displayed in the list of tasks. To run a task, select the check box opposite the task and click the **Start** button. The application will be installed in silent mode. After installation, the icon will be added to the notification area of the user's computer. If the icon looks like this , make sure that you activated the application.

Detailed information about generating an installation package and creating a remote installation task is provided in the Kaspersky Security Center Help.

Actions to perform after Kaspersky Embedded Systems Security installation

After you install Kaspersky Embedded Systems Security, we recommend that you update Kaspersky Embedded Systems Security databases on the devices, and perform a Critical Areas Scan of the devices if no anti-virus applications with enabled real-time protection were installed on the devices before installation of Kaspersky Embedded Systems Security.

If the protected devices on which Kaspersky Embedded Systems Security was installed are part of the same administration group in the Kaspersky Security Center, you can perform these tasks using the following methods:

1. Create the *Update* task for the group of protected devices on which Kaspersky Embedded Systems Security was installed. Set the Kaspersky Security Center Administration Server as the update source.

2. Create an On-Demand Scan group task with the *Critical Areas Scan* status. Kaspersky Security Center evaluates the security status of each protected device in the group based on the results of this task, not based on the results of the *Critical Areas Scan* task.

3. Create a new policy for the group of protected devices. In the policy properties, in the **Application Settings** section, deactivate the scheduled start of local system on-demand scan tasks and the *Update* tasks on the administration group's protected devices in the settings of the **Run local system tasks** subsection.

You can also configure administrator notifications about Kaspersky Embedded Systems Security events.

Installing the Application Console via Kaspersky Security Center

Detailed information about creating an installation package and a remote installation task is provided in the Kaspersky Security Center Help.

To install the Application Console using a remote installation task:

1. In the Kaspersky Security Center Administration Console expand the **Advanced** node.
2. Expand the **Remote installation** child node.
3. Create an installation package:
   a. In the results pane of the **Installation packages** child node, click the **Create installation package** button.
   b. In the **New Package Wizard** window, select **Create installation package for specified executable file** as a package type.
   c. Enter the new installation package name.
   d. Select the \client\setup_esstool.exe file from the Kaspersky Embedded Systems Security distribution kit folder and select the **Copy entire folder to the installation package** check box.
   e. In the **Executable file launch settings (optional)** field, specify the parameter values EULA=1 and PRIVACYPOLICY=1:

      ```
      /s /p "EULA=1 PRIVACYPOLICY=1"
      ```

      Otherwise, it is impossible to install components.
   f. If necessary, in the **Executable file launch settings (optional)** field, you can specify the ADDLOCAL command-line parameter to change the set of components to be installed, and the INSTALLDIR command-line parameter to specify a destination folder other than the default one. For example, to perform a standalone installation of the Application Console in the C:\KasperskyConsole folder, use the following command-line option:

      ```
      /s /p "INSTALLDIR=C:\KasperskyConsole EULA=1 PRIVACYPOLICY=1"
      ```
4. In the **Installation packages** child node, create a task to remotely install the Application Console on the selected protected devices (administration group).
5. Configure the task settings.
6. Run the remote installation task.

The Application Console is installed on the protected devices specified in the task.

Uninstalling Kaspersky Embedded Systems Security via Kaspersky Security Center

Dump and trace files are not deleted on uninstalling Kaspersky Embedded Systems Security. You can manually delete dump and trace files from the folder specified during the configuration of dump and trace files writing.

If management of Kaspersky Embedded Systems Security on network devices is password protected, enter the password when creating a task to uninstall multiple applications. If the password protection is not managed centrally by a Kaspersky Security Center policy, Kaspersky Embedded Systems Security will be successfully uninstalled from the devices, on which the entered password matched the set value. Kaspersky Embedded Systems Security will not be uninstalled from other protected devices.

To uninstall Kaspersky Embedded Systems Security:

1. In the Kaspersky Security Center Administration Console, create and start an application removal task.
2. In the task, select the uninstallation method (similar to selecting the installation method; see the previous section) and specify the account that Administration Server will use to access the protected devices. You can uninstall Kaspersky Embedded Systems Security with only the default uninstallation settings.

Changing the set of application components using Kaspersky Security Center

The *Change application components* task allows you to change the set of components of Kaspersky Embedded Systems Security after the application is installed.

How to change the set of application components in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Tasks**.

   The list of tasks opens.

2. Click **New task**.

   The Task Wizard starts. Follow the instructions of the Wizard.

Step 1. Selecting task type

Select **Kaspersky Embedded Systems Security for Windows (4.1)** → **Change application components**.

Step 2. Task settings for changing application components

Select the application components that will be available on the user's computer. Configure the advanced settings for the task (see the table below).

Step 3. Selecting the devices to which the task will be assigned

Select the computers on which the task will be performed. The following options are available:

- Assign the task to an administration group. In this case, the task is assigned to computers included in a previously created administration group.
- Select computers detected by the Administration Server in the network: *unassigned devices*. The specific devices can include devices in administration groups as well as unassigned devices.
- Specify device addresses manually, or import addresses from a list. You can specify NetBIOS names, IP addresses, and IP subnets of devices to which you want to assign the task.

Step 4. Configuring a task start schedule

Configure a schedule for starting a task, for example, manually or when the computer is idle.

Step 5. Defining the task name

Enter a name for the task, for example, *Add the Application Control component*.

Step 6. Completing task creation

Finish the wizard. If necessary, select the **Run the task after the wizard finishes** check box. You can monitor the progress of the task in the task properties.

How to change the set of application components in the Web Console

1. In the main window of the Web Console, select **Asset management → Tasks**.

   The list of tasks opens.

2. Click **Add**.

The Task Wizard starts. Follow the instructions of the Wizard.

Step 1. Configuring general task settings

Configure the general task settings:

1. In the **Application** drop-down list, select **Kaspersky Embedded Systems Security 4.1.0**.
2. In the **Task type** drop-down list, select **Change Kaspersky Embedded Systems Security components**.
3. In the **Task name** field, enter a brief description, for example, *Add the Application Control component*.
4. In the **Devices to which the task will be assigned** block, select the task scope.

Step 2. Selecting the devices to which the task will be assigned

Select the computers on which the task will be performed. For example, select a separate administration group or build a selection.

Step 3. Completing task creation

1. Select the **Open task details when creation is complete** check box and finish the wizard.
2. In the task properties, select the **Application settings** tab.
3. Select the application components that will be available on the user's computer. Configure the advanced settings for the task (see the table below).

As a result, the set of Kaspersky Embedded Systems Security components on users' computers will be changed in silent mode.

Advanced task settings

Parameter	Description
Trusted zone	For the *Change application components* task, you can only add exclusions from scanning and trusted applications to the trusted zone.
Use password for modifying the set of application components	Administrators typically enable Password protection to restrict access to Kaspersky Embedded Systems Security. That is, to modify the selection of application components, you must enter credentials of a user that has the **Remove / modify / restore the application** permission. For example, you can use the KLAdmin account.
Check for incompatible third-party applications	By default, Kaspersky Embedded Systems Security checks installed applications for compatibility. The list of incompatible software is available in the incompatible.txt file that is included in the distribution kit. If the incompatible software check is enabled, Kaspersky Embedded Systems Security stops the task upon detecting an application from the list. You can disable the scan of installed software if the vendor documentation of the third-party software claims compatibility with Endpoint Protection Platform (EPP).
Remove incompatible third-party applications	Automatic removal of applications from the incompatible.txt list before changing the set of components. If this functionality is enabled, Kaspersky Embedded Systems Security attempts to remove the applications that may cause compatibility issues in order to continue the task. This option is enabled by default.

Installing and uninstalling the application via Active Directory group policies

This section describes how to install and uninstall Kaspersky Embedded Systems Security through Active Directory group policies, as well as information on the actions that must be performed after installing Kaspersky Embedded Systems Security through group policies.

Installing Kaspersky Embedded Systems Security via Active Directory group policies

You can install Kaspersky Embedded Systems Security on several protected devices via the Active Directory group policy. You can install the Application Console the same way.

The protected devices on which you want to install Kaspersky Embedded Systems Security or the Application Console must be in the same domain and a single organizational unit.

The operating systems on the protected devices on which you want to install Kaspersky Embedded Systems Security using the policy must be of the same bitness (32-bit or 64-bit).

You must have domain administrator rights.

To install Kaspersky Embedded Systems Security, use the ess_win.msi installation package. To install the Application Console, use the esstools.msi installation package.

> Detailed information about the use of Active Directory group policies is provided in the documentation supplied by Microsoft.

To install Kaspersky Embedded Systems Security or the Application Console:

1. Save ess_win.msi to a shared folder on the domain controller.
2. Save the key file in the same public folder on the domain controller.
3. In the same shared folder on the domain controller, create an install_props.json file that contains the lines below. This signifies that you agree to the terms of the End User License Agreement and Privacy Policy.

   ```
   {
   "EULA": "1",
   "PRIVACYPOLICY": "1"
   }
   ```

4. On the domain controller create a new policy for the group that the protected devices belong to.
5. Using the **Group Policy Object Editor**, create a new installation package in the **Computer Configuration** node. Specify the path to the msi file for Kaspersky Embedded Systems Security (or Application Console) in UNC (Universal Naming Convention) format.

6. Select the Windows Installer's **Always install with elevated privileges** check box in both the **Computer Configuration** node and in the **User Configuration** node of the selected group.

7. Apply the changes using the `gpupdate / force` command.

Kaspersky Embedded Systems Security will be installed on the protected devices of the group after they have been restarted.

Actions to perform after Kaspersky Embedded Systems Security installation

After installing Kaspersky Embedded Systems Security on the protected devices, it is recommended that you immediately update the application databases and run a Critical Areas scan. You can perform these actions from the Application Console.

You can also configure administrator notifications about Kaspersky Embedded Systems Security events.

Uninstalling Kaspersky Embedded Systems Security via Active Directory group policies

Dump and trace files are not deleted on uninstalling Kaspersky Embedded Systems Security. You can manually delete dump and trace files from the folder specified during the configuration of dump and trace files writing.

If you used an Active Directory group policy to install Kaspersky Embedded Systems Security (or the Application Console) on the group of protected devices, you can use this policy to uninstall Kaspersky Embedded Systems Security (or the Application Console).

You can uninstall the application only with the default uninstallation parameters.

Detailed information about the use of Active Directory group policies is provided in the documentation supplied by Microsoft.

If application management is password protected, you cannot uninstall Kaspersky Embedded Systems Security using Active Directory group policies.

To uninstall Kaspersky Embedded Systems Security (or the Application Console):

1. On the domain controller, select the organizational unit from whose protected devices you want to uninstall Kaspersky Embedded Systems Security or the Application Console.

2. Select the policy created for the installation of Kaspersky Embedded Systems Security and in the **Group Policies Object Editor**, in the **Software installation** node (**Computer Configuration** > **Software Settings** > **Software installation**) open the context menu of the Kaspersky Embedded Systems Security (or the Application Console) installation package and select the **All tasks** > **Remove** command.

3. Select the uninstallation method **Immediately uninstall the software from users and computers**.

4. Apply the changes using the `gpupdate /force` command.

   Kaspersky Embedded Systems Security is removed from the protected devices after they are restarted and before logging in to Microsoft Windows.

Kaspersky Embedded Systems Security install and uninstall logs

If you install (uninstall) Kaspersky Embedded Systems Security or Application Console using the Installation (Uninstallation) Wizard, the Windows Installer service creates an install (uninstall) log. A log file named kl-install-<uid>.log (where <uid> is a unique 8-character log identifier) will be saved in the %temp% folder for the user whose account was used to start the setup_ess.exe or setup_esstool.exe file.

If Kaspersky Embedded Systems Security is installed or uninstalled from the command line, the install log file will not be created by default.

To install Kaspersky Embedded Systems Security and create a log file on disk C:\, execute the following command:

```
msiexec /i ess_win.msi /l*v C:\<log_name>.log /qn EULA=1 PRIVACYPOLICY=1
```

System changes after Kaspersky Embedded Systems Security installation

When Kaspersky Embedded Systems Security and the Kaspersky Embedded Systems Security Console are installed together, the Windows Installer service will make the following modifications on the protected device:

- Kaspersky Embedded Systems Security folders are created on the protected device and on the device where the Application Console is installed.
- Kaspersky Embedded Systems Security services are registered.
- Kaspersky Embedded Systems Security user group is created.
- Kaspersky Embedded Systems Security keys are registered in the system registry.
- Kaspersky Embedded Systems Security OS Upgrade Detect system task that is displayed in the Windows Task Scheduler is created.

These changes are described below.

Kaspersky Embedded Systems Security folders on a protected device

When Kaspersky Embedded Systems Security is installed, the following folders are created on a protected device:

- Kaspersky Embedded Systems Security default installation folder containing the Kaspersky Embedded Systems Security executable files. The following installation folder is used by default:

  %ProgramFiles%\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0

- Management Information Base (MIB) files containing a description of the counters and hooks published by Kaspersky Embedded Systems Security via the SNMP protocol:

  %ProgramFiles%\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0\mibs

- Kaspersky Embedded Systems Security service files:

  - %ProgramData%\Kaspersky Lab\KESS.4.1\Data
  - %ProgramData%\Kaspersky Lab\KESS.4.1\Settings
  - %ProgramData%\Kaspersky Lab\KESS.4.1\Dskm

- Files with settings for update sources:

  %ProgramData%\Kaspersky Lab\KESS.4.1\Data

- Updates of databases and software modules downloaded using the *Update* task (the folder will be created the first time updates are downloaded using the *Update* task).

  %ProgramData%\Kaspersky Lab\KESS.4.1\Update distribution

- Task logs and system audit log:

  %ProgramData%\Kaspersky Lab\KESS.4.1\Reports

- Set of databases currently in use:

  %ProgramData%\Kaspersky Lab\KESS.4.1\Bases

- Backup copies of databases; they are overwritten each time the databases are updated:

  %ProgramData%\Kaspersky Lab\KESS.4.1\QB

- Temporary files created during execution of update tasks:

  %ProgramData%\Kaspersky Lab\KESS.4.1\Data\temp\temporaryFolder

- Quarantined objects (default folder):

  %ProgramData%\Kaspersky Lab\KESS.4.1\QB

- Objects in backup (default folder):

  %ProgramData%\Kaspersky Lab\KESS.4.1\QB

- Objects restored from backup and quarantine (default folder for restored objects):

  %ProgramData%\Kaspersky Lab\KESS.4.1\QB\Restored

Folder created during installation of Application Console

The default installation folder of the Application Console depends on the operating system bit set. The following installation folder is used by default:

%ProgramFiles%\Kaspersky Lab\Kaspersky Embedded Systems Security Console 4.1.0

Kaspersky Embedded Systems Security services

The following Kaspersky Embedded Systems Security services run under the SYSTEM account:

- Kaspersky Embedded Systems Security Service (AVP.KESS.4.1). The main system service of Kaspersky Embedded Systems Security that protects devices against viruses and other threats
- Kaspersky Embedded Systems Security Side-by-Side Service (AVP.KESS.4.1.SbS). The system service that protects the devices while Kaspersky Embedded Systems Security is being updated, restored or undergoing component changes
- Kaspersky Seamless Update Service (avpsus.KESS.4.1). The system service that installs and rolls back critical and approved updates of application modules
- Kaspersky Embedded Systems Security Remote Control Service (avpcos.KESS.4.1). The system service for remote restarting and stopping Kaspersky Embedded Systems Security Service from Application Console

Kaspersky Embedded Systems Security group

ESS Administrators is a group on the protected device, whose members have full access to all Kaspersky Embedded Systems Security functions.

System registry keys

When Kaspersky Embedded Systems Security is installed, the following system registry keys are created:

- Kaspersky Embedded Systems Security settings:
  [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\AVP.ESS.4.1]
- Kaspersky Embedded Systems Security event log settings (Kaspersky Event Log):
  [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog\Kaspersky Embedded Systems Security]
- Trace file settings:
  [HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\KasperskyLab\protected\KESS.4.1\Trace]

- Settings for application tasks and functions:
  [HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\KasperskyLab\protected\KESS.4.1\environment]

Kaspersky Embedded Systems Security OS Upgrade Detect system task

The Windows Installer service creates a Kaspersky Embedded Systems Security OS Upgrade Detect task during application installation. The task is started immediately after it is created and later at every OS startup. The task checks the version of the drivers used by the application: if an operating system version is updated, the application updates the drivers for the corresponding version of the operating system.

The task does not affect the application and can be deleted. We recommend to keep operating system upgrade scenario in mind.

Windows Firewall rules

Depending on the specified installation settings, Windows Firewall allow rules for incoming connections described in the table below can be created on the protected device.

Windows Firewall rules

Rule name	Rule description	Rule creation condition
AVP.KESS.4.1	Allow rule for the executable file avp.exe.	Always created.
AVP.KESS.4.1 Remote UI Connection	Allow rule for TCP port 13032.	Installing the application with the `ADDWFEXCLUSION=1` parameter.
AVP.KESS.4.1 Remote UI Connection	Allow rule for TCP port 13031. This port number is used by default. You can change the port number by specifying the `UIKLPORT=<port>` parameter. In this case, the application will create a rule for the specified port number.	Installing the application with the `ADDWFEXCLUSION=1` and `UIKLPORT=13031` parameters. The rule is not created if the `ENABLEUIKLPORT=0` parameter is passed

Kaspersky Embedded Systems Security processes

Kaspersky Embedded Systems Security starts processes described in the table below.

Kaspersky Embedded Systems Security processes

File name	Purpose
avp.exe	Kaspersky Embedded Systems Security workflow
avpsus.exe	This process allows installing and rolling back critical and approved application module updates.

Checking Kaspersky Embedded Systems Security functions. Using the EICAR test virus

This section describes the EICAR test virus and how to use the EICAR test virus to check the Real-Time File Protection and On-Demand Scan features of Kaspersky Embedded Systems Security.

About the EICAR test virus

This test virus is designed to verify the operation of anti-virus applications. It was developed by the European Institute for Computer Antivirus Research (EICAR).

The test virus is not a malicious object and does not contain executable code for your device, but most vendors' anti-virus applications identify it as a threat.

The file containing this test virus is called eicar.com. You can download it from the EICAR website.

Before saving the file in a folder on the device's hard drive, make sure that Real-Time File Protection is disabled on that drive.

The eicar.com file contains a line of text. When scanning the file Kaspersky Embedded Systems Security detects the test threat in this line of text, assigns the **Infected** status to the file, and deletes it. Information about the threat detected in the file will appear in the Application Console and in the task log.

You can use the eicar.com file to check how Kaspersky Embedded Systems Security disinfects the infected objects and how it detects probably infected objects. To do this, open the file using a text editor, add one of the prefixes listed in the table below to the beginning of the line of text in the file, and save the file with a new name, such as eicar_cure.com.

To make sure that Kaspersky Embedded Systems Security processes the eicar.com file with a prefix, in the **Objects protection** security settings section, set the **All objects** value for the Real-Time Computer Protection tasks and Default On-Demand Scan tasks of Kaspersky Embedded Systems Security.

Prefixes in EICAR files

Prefix	File status after the scan and Kaspersky Embedded Systems Security action
No prefix	**Kaspersky Embedded Systems Security assigns the Infected status to the object and deletes it.**
SUSP–	Kaspersky Embedded Systems Security assigns the **Probably infected** status to the object detected by the heuristic analyzer and deletes it since probably infected objects are not disinfected.
WARN–	Kaspersky Embedded Systems Security assigns the **Probably infected** status to the object (the object's code partly matches the code of a known threat) and deletes it since probably infected objects are not disinfected.
CURE–	Kaspersky Embedded Systems Security assigns the **Infected** status to the object and disinfects it. If disinfection is successful, the entire text in the file is replaced with the word "CURE".

Checking the Real-Time File Protection and On-Demand Scan features

After installing Kaspersky Embedded Systems Security, you can confirm that Kaspersky Embedded Systems Security detects objects containing malicious code. To do this, use the EICAR test virus.

To check the Real-Time File Protection feature:

1. Download the eicar.com file from the EICAR website. Save it in a shared folder on the local drive of any device on the network.

   Before you save the file to the folder, make sure that Real-Time File Protection is disabled for the folder.

2. If you want to check that network user notifications are working, make sure that the Microsoft Windows Messenger Service is enabled both on the protected device and on the device where you saved the eicar.com file.

3. Open the Application Console on the protected device.

4. Copy the saved eicar.com file to the local drive of the protected device using one of the following methods:

   - To test notifications through a Terminal Services window, copy the eicar.com file to the protected device after connecting to the protected device using the Remote Desktop Connection utility.

   - To test notifications through the Microsoft Windows Messenger Service, use the device's network places to copy the eicar.com file from the device where you saved it.

Real-Time File Protection is working as it should if the following conditions are met:

- The eicar.com file is deleted from the protected device.

- In the Application Console, the task log gets the *Critical* status. The log has a new line with information about a threat in the eicar.com file.

- The following Microsoft Windows Messenger Service message appears on the device from which you copied the file: Kaspersky Embedded Systems Security blocked access to <path to file on the device>\eicar.com on computer <network name of the device> at <time that event occurred>. Reason: Threat detected. Virus: EICAR-Test-File. User name: <user name>. Computer name: <network name of the device from which you copied the file>.

  Make sure that the Microsoft Windows Messenger Service is running on the device from which you copied the eicar.com file.

To check the On-Demand Scan feature:

1. Download the eicar.com file from the EICAR website. Save it in a shared folder on the local drive of any device on the network.

   Before you save the file to the folder, make sure that Real-Time File Protection is disabled for the folder.

2. Open the Application Console and expand the **On-Demand Scan** node in the Application Console tree.
3. Select the **Critical Areas Scan** child node.
4. Add **All network drives** to the scope of the On-Demand Scan task.
5. Run the Critical Areas Scan task.

The On-Demand Scan is working as it should if the following conditions are met:

- The eicar.com file is deleted from the device's hard drive.
- In the Application Console, the task log gets the *Critical* status. The On-Demand Scan task log has a new line with information about a threat in the eicar.com file.

Upgrading older versions of Kaspersky Embedded Systems Security to version 4.1

When upgrading an older version of Kaspersky Embedded Systems Security to version 4.1, follow these recommendations:

- Plan ahead and schedule the upgrade. Choose a time when servers are operating under the lightest load, for example, during the weekend.
- After the upgrade, turn on application components one by one. That is, for example, start by enabling the Real-Time File Protection component alone, then enable other protection components, then enable control components, and so on. We recommend testing the application at each step.
- Carry out the upgrade step by step. First upgrade a single computer, then multiple computers, then upgrade all computers of the organization.

Steps of the upgrade procedure

Upgrade Kaspersky Embedded Systems Security to version 4.1 in the following order:

1. **Upgrade Kaspersky Security Center**

   Upgrade all Kaspersky Security Center components to version 14.2 or higher, including Network Agent on user computers and Kaspersky Security Center Web Console.

2. **Upgrade the Kaspersky Embedded Systems Security web plug-in**

   In the Kaspersky Security Center Web Console, upgrade the Kaspersky Embedded Systems Security web plug-in to version 4.1.

3. **Migrate Kaspersky Embedded Systems Security tasks and policies**

   After migrating policies and tasks, you must configure the settings that the migration wizard cannot migrate, and which did not exist in older versions of the application. We also recommend checking if the migration wizard correctly migrated all settings.

4. **Install Kaspersky Embedded Systems Security 4.1**

   Kaspersky Embedded Systems Security version 4.1 uses HTTPS protocol instead of DCOM protocol. Therefore, before installing the new version of Kaspersky Embedded Systems Security, it is necessary to configure the device on which the application will be updated to enable remote start of the KESS service. If such configuration is not performed, remote service start will be unavailable.

   You can install Kaspersky Embedded Systems Security 4.1 after removing an earlier version of the application or on top of it.

   When installing on top of an older version of the application, the same set of application components is installed, taking into account new names and contents of some components.

   When installing remotely, the installer installs components that you select in the properties of the installation package.

5. **If necessary, activate Kaspersky Embedded Systems Security 4.1**

   When installing Kaspersky Embedded Systems Security 4.1 on top of an older version of the application, the current license is automatically applied to the application, and the new application components and tasks are fully available. The license term remains unchanged.

6. **Make sure the application is working**

   After upgrading Kaspersky Embedded Systems Security, make sure that the application is working as intended. Make sure no errors are reported for the application, also check the time of the last connection to the Administration Server, the time of the last update and the computer protection status.

   Pay attention to the migration of exclusion lists, trusted applications, Device Control rules, and Applications Launch Control rules.

Updating Kaspersky Embedded Systems Security

Upgrade to Kaspersky Embedded Systems Security 4.1 is supported for versions 2.3, 3.1 or later. To update from earlier versions of the application, you must remove the installed version and install version 4.1.

The update is performed by installing the new version of the application over the installed version of the application and does not require a computer restart.

By default, the application creates a new installation folder with the name of the new application version based on the path to the existing application installation folder. You can manually specify a new path for the application installation folder.

When upgrading Kaspersky Embedded Systems Security to version 4.1, the previously installed version of the application is automatically deleted.

When updating a password-protected installation of Kaspersky Embedded Systems Security, pass the password to the installer in one of the following ways:

- If installing locally via the Installation Wizard interface or in interactive CLI mode, specify the password when requested.
- If installing locally in non-interactive CLI mode, specify the password in the `UNLOCK_PASSWORD` key.
- If installing using Active Directory group policies, use the value of the `UNLOCK_PASSWORD` key in the install_props.json configuration file.

When the application that you are remotely upgrading via Kaspersky Security Center is password-protected, you must first disable password protection using a Kaspersky Security Center policy.

When updating the application, the current license is automatically applied to Kaspersky Embedded Systems Security version 4.1, and the use of the new application components and tasks is fully available. The license term remains unchanged.

If an application is updated with an expired license, the new version of the application runs in limited functionality mode after installation (for example, application database updates are not available).

Updating Kaspersky Embedded Systems Security Administration Tools

You can update the Administration Plug-in for managing the application using Kaspersky Security Center to version 4.1 from versions 2.3, 3.1, 3.2, 3.3, 3.4 or later. To update earlier versions of the Administration Plug-in and the Application Console, you must remove the installed version and then install version 4.1.

During the update a new version of the Administration Plug-in is installed over the previously installed version and does not require a computer restart.

For information about migrating the settings of the Administration Plug-in, refer to this article.

Migrating policies and tasks

You can migrate policy and task settings of previous versions of the application to version 4.1 in the following ways:

- Using the Policies and Tasks Batch Conversion Wizard (only available in the Kaspersky Security Center Administration Console).
- Using the Kaspersky Embedded Systems Security 4.1 Policies and Tasks Migration Wizard (available only in the Kaspersky Security Center Web Console).

It is recommended to begin with migrating policies and tasks of Kaspersky Embedded Systems Security on a single computer, then do it on a group of computers, and then complete the migration on all computers of the organization.

How to use the Policies and Tasks Batch Conversion Wizard to migrate policy and task settings

1. In the Kaspersky Security Center Administration Console, select the Administration Server and right-click to open the context menu.
2. Select **All tasks → Policies and tasks batch conversion wizard**.

   This starts the Policies and Tasks Batch Conversion Wizard. Follow the instructions of the Wizard.

Step 1. Selecting the application for which you need to convert policies and tasks

Select Kaspersky Embedded Systems Security 4.1. Go to the next step.

Step 2. Conversion of policies

Select the policies of the application version being upgraded that you want to create for Kaspersky Embedded Systems Security 4.1. Go to the next step.

Step 3. Conversion of tasks

Select the tasks of the application version being upgraded that you want to create for Kaspersky Embedded Systems Security 4.1.

Non-group tasks (tasks that are assigned to individual devices) are not displayed at the current step.

To convert non-group tasks from your version of the application to Kaspersky Embedded Systems Security 4.1:

1. Click **Next**.

   The **Additionally migrate schedules and non-group tasks** window opens.

2. Select the **Migrate non-group tasks** check box.

3. Specify the connection settings for the Kaspersky Security Center Administration Server.

4. Click **OK**.

Step 4. Wizard completion

Finish the wizard. As a result, the wizard does the following:

- New policies for Kaspersky Embedded Systems Security 4.1 are created.

  New policies contain settings from the selected Kaspersky Embedded Systems Security policies and also new settings that were introduced in Kaspersky Embedded Systems Security 4.1. The names of the new policies are the same as the names of the Kaspersky Embedded Systems Security policies before the conversion, with " (converted)" added. New policies has the *Inactive policy* status.

- New tasks for Kaspersky Embedded Systems Security 4.1 are created.

  New tasks contain settings from the selected Kaspersky Embedded Systems Security tasks and also new settings that were introduced in Kaspersky Embedded Systems Security 4.1. The names of the new tasks are the same as the names of the Kaspersky Embedded Systems Security tasks before the conversion, with " (conversion)" added.

- Policies and tasks selected for conversion remain unchanged.

How to use the migration wizard to migrate policy and task settings

In the main window of the Web Console, select **Operations → Migration to KESS 4.1.0**.

This runs the policies and tasks migration wizard. Follow the instructions of the Wizard.

Step 1. Policy migration

Select the Kaspersky Embedded Systems Security policies that you want to create for Kaspersky Embedded Systems Security 4.1. Go to the next step.

Step 2. Task migration

In the task list, select the Kaspersky Embedded Systems Security tasks that you want to create for Kaspersky Embedded Systems Security 4.1. Go to the next step.

Step 3. Wizard completion

Finish the wizard. As a result, the wizard does the following:

- New policies for Kaspersky Embedded Systems Security 4.1 are created.

  New policies contain settings from migrated Kaspersky Embedded Systems Security policies and also new settings that were introduced in Kaspersky Embedded Systems Security 4.1. The names of the new policies are the same as the names of the Kaspersky Embedded Systems Security policies before the merge, with the "copied from KESS" phrase added. New policies has the *Inactive policy* status.

- New tasks for Kaspersky Embedded Systems Security 4.1 are created.

  New tasks contain settings from migrated Kaspersky Embedded Systems Security tasks and also new settings that were introduced in Kaspersky Embedded Systems Security 4.1. The names of the new tasks are the same as the names of the Kaspersky Embedded Systems Security tasks before the migration, with the "copied from KESS" phrase added.

Migration of settings of the application version being updated

The following is migrated without changes after upgrading of the application and its management plug-ins to version 4.1:

- Settings of components and tasks except those that are reset to defaults and those that are listed under "Limitations of settings and components migration"
- Task logs and system audit logs, as well as records in the Windows event log
- Task notification settings
- User accounts under which tasks are started
- User access permissions for application management

- Proxy server connection password
- Attribute state

The following settings are reset or set to default values for the new version of the application after upgrading of the application and its plug-ins to version 4.1:

- All counters, including anti-virus database statuses
- Data about installed updates of application modules and anti-virus databases
- Task statuses
- User access permissions to manage the Kaspersky Embedded Systems Security Service
- Application and task settings configured through the registry
- Application and task settings that were changed during the installation of critical fixes
- Event configuration
- Settings of data transfer to the Kaspersky Security Center Administration Server: by default, the transfer of all data is enabled
- Trace and dump settings
- Settings of the application's local tasks located on the **Notifications** tab

Settings that did not exist in the version of the application that you are updating get default values.

Limitations of settings and components migration

- The contents of the Quarantine of the version being upgraded is moved to the Backup of version 4.1. At the same time, the maximum size of Backup is increased to 400 MB, and the available space threshold is increased to 100 MB.
- The following settings of Kaspersky Embedded Systems Security version 3.4 do not exist in Kaspersky Embedded Systems Security version 4.0 and later, therefore they are not migrated: **Quarantine folder**, **Backup folder**, and **Folder for restoring objects**. Other settings that exist in the old version, but not in the new version are likewise not migrated.
- The list of blocked network sessions of client computers is not migrated. At the same time, the settings for automatically unblocking access to blocked network file resources remain unchanged after the application upgrade.
- Password protection settings are not migrated. In Kaspersky Embedded Systems Security 4.0, Password protection underwent significant changes. If necessary, turn on Password protection and set a password.

- Trusted zone:
  - The method of selecting trusted zone objects has been changed in Kaspersky Embedded Systems Security 4.1. Exclusions defined as individual files or file or folder paths can be migrated. Exclusions defined as a predefined scope (for example, hard drives) or a script URL are not migrated. After migration, you must add such exclusions manually.
  - Predefined scan exclusions and trusted applications that help set up the application on servers have been added to the trusted zone.
- The Applications Launch Control and Device Control components have been significantly reworked. Component settings of the version being upgraded are migrated with consideration of the new settings structure in Kaspersky Embedded Systems Security 4.1. This means that you may need more space on the Administration Server to store application settings.
- Settings of the File Integrity Monitor and Registry Access Monitoring components of the application version being upgraded are migrated to the settings of the System Integrity Monitoring component.
- The Firewall Management component has been reworked into the Firewall component, which, in addition to interfacing with the Windows firewall, now additionally functions as a firewall. After completing the migration, you must configure the component mode from scratch.
- To use KSN, you must read and accept the KSN Statement again.
- Versions 4.0 and later of the application do not support scheduling individual components. If the components are enabled, they keep running while the application is running.
- When migrating tasks, the scheduled start time for the task is offset by the number of hours that matches the number of the timezone configured in the OS settings of the computer on which the migration is being performed. For example, suppose the start time of the task in the earlier version of the application is 7:00, and the time zone configured for the operating system is UTC +3:00. Then, after the task is migrated, the start time changes to 10:00.
- The section for setting up the actions to perform on probably infected objects has been removed from the settings of the Real-Time File Protection component and On-Demand Scan tasks. These settings are not migrated to the newer application version.
- Kaspersky Security Center Web Console or Administration Console cannot be used to send Backup objects to Kaspersky for analysis if they were migrated after upgrading version 3.4 or earlier of the application to version 4.0 or later.
- When migrating On-Demand Scan tasks, the default security level for predefined scan scopes changes from *Inform* to *Custom*.
- If a component that was previously included in the installation is not installed during a local upgrade of Kaspersky Embedded Systems Security, settings of such a component are not preserved. If you subsequently install this component, default settings will be applied to it.

Correspondence of components and tasks in Kaspersky Embedded Systems Security versions 3.4 and 4.1

When upgrading Kaspersky Embedded Systems Security 3.4 to version 4.1, the set of components and tasks is migrated only if the application is installed locally.

Correspondence of components in Kaspersky Embedded Systems Security versions 3.4 and 4.1

Component of Kaspersky Embedded Systems Security 3.4	Component of Kaspersky Embedded Systems Security 4.1
Trusted zone	Trusted zone
Real-Time File Protection	Real-Time File Protection
KSN Usage	KSN Usage
Exploit Prevention	Exploit Prevention
AMSI Scanner	AMSI Scanner
Applications Launch Control	Applications Launch Control
Device Control	Device Control
Firewall Management	Firewall The Windows Firewall acts as the firewall of Kaspersky Embedded Systems Security 3.4, while the application manages the Windows Firewall. In Kaspersky Embedded Systems Security 4.1, a separate component is responsible for the Firewall functionality.
Network Threat Protection	Network Threat Protection
File Integrity Monitor	System Integrity Monitoring The functionality of the File Integrity Monitor and Registry Access Monitoring components has been merged into the System Integrity Monitoring component.
Log Inspection	Log Inspection
Registry Access Monitoring	System Integrity Monitoring The functionality of the File Integrity Monitor and Registry Access Monitoring components has been merged into the System Integrity Monitoring component.
(none)	Behavior Detection
(none)	Remediation Engine
Task of Kaspersky Embedded Systems Security 3.4	**Task of Kaspersky Embedded Systems Security 4.1**
Activating the application	Application activation
Copying Updates	Update The functionality of the Copying Updates task has been merged into the Update task.
Baseline File Integrity Monitor	Baseline System Integrity Monitor
Database Update	Update The functionality of the Database Update task has been merged into the Update task.
Software Modules Update	Update The functionality of the Software Modules Update task has been merged into the Update task.
Rollback of Application Database Update	Update rollback
On-Demand Scan	On-Demand Scan
Application Integrity Control	Application Integrity Control
Rule Generator for Applications Launch Control	Rule Generator for Applications Launch Control
Rule Generator for Device Control	Rule Generator for Device Control
(none)	Administration Server connection protection
(none)	Change Kaspersky Embedded Systems Security components
(none)	System integrity status reset

Application interface

You can control Kaspersky Embedded Systems Security using the following interfaces:

- Application Console.
- Kaspersky Security Center Administration Console.
- Kaspersky Security Center Web Console.

Kaspersky Security Center Administration Console

Kaspersky Security Center lets you remotely install and uninstall, start and stop Kaspersky Embedded Systems Security, configure application settings, change the set of available application components, add keys, and start and stop tasks.

The application can be managed via Kaspersky Security Center using the Kaspersky Embedded Systems Security Administration Plug-in. See detailed information about the Kaspersky Security Center interface in the Kaspersky Security Center Help.

Kaspersky Security Center Web Console

Kaspersky Security Center Web Console (hereinafter also referred to as Web Console) is a web application intended for centrally performing the main tasks to manage and maintain the security system of an organization's network. Kaspersky Security Center Web Console – is a Kaspersky Security Center component that provides a user interface. For detailed information about Kaspersky Security Center Web Console, please refer to the Kaspersky Security Center Help.

The following actions are available for Web Console:

- Monitor the status of your organization's security system.
- Install Kaspersky applications on devices within your network.
- Manage installed applications.
- View reports on the security system status.

Working with the Administration Plug-in

This section provides information about the Kaspersky Embedded Systems Security Administration Plug-in and describes how to manage the application installed on a protected device or on a group of protected devices.

Managing Kaspersky Embedded Systems Security from Kaspersky Security Center

You can centrally manage several protected devices that have Kaspersky Embedded Systems Security installed and are joined to the same administration group via the Kaspersky Embedded Systems Security Administration Plug-in. Kaspersky Security Center also lets you separately configure the settings of each protected device included in the administration group.

An administration group is created manually via Kaspersky Security Center. The group includes several devices with Kaspersky Embedded Systems Security installed for which you want to configure the same control and protection settings. For details on using administration groups, see Kaspersky Security Center Help.

Application settings for a single protected device are unavailable if the operation of Kaspersky Embedded Systems Security on the protected device is controlled by an active Kaspersky Security Center policy.

No additional actions are required to start the Kaspersky Embedded Systems Security Administration Plug-in in Kaspersky Security Center. Once the Management Plug-in is installed on the administrator's protected device, it is started together with any type of the Kaspersky Security Center Administration Console.

Kaspersky Embedded Systems Security can be managed from Kaspersky Security Center in the following ways:

- **Using Kaspersky Security Center policies**. Kaspersky Security Center policies can be used to remotely configure the same protection settings for a group of devices. Task settings specified in the active policy have priority over task settings configured locally in the Application Console or remotely in the **Properties: <Protected device name>** window of Kaspersky Security Center.

  Policies can be used to configure general application settings, settings for real-time computer protection tasks, activity control tasks on devices, network storage protection tasks and settings for starting local system tasks on a schedule.

- **Using Kaspersky Security Center group tasks**. Kaspersky Security Center group tasks allow remote configuration of common settings of tasks with an expiration period for a group of devices.

  You can use group tasks to activate the application, configure On-Demand Scan task settings, update task settings, and Rule Generator for Applications Launch Control task settings.

- **Using tasks for a set of devices**. Tasks for a set of devices allow remote configuration of common task settings with a limited execution period for protected devices that do not belong to any administration group.

- **Using the properties window of a single device**. In the **Properties: <Protected device name>** window, you can remotely configure the task settings for an individual protected device included in an administration group. You can also configure both general application settings and settings for all Kaspersky Embedded Systems Security tasks if the selected protected device is not controlled by an active Kaspersky Security Center policy.

Managing application settings

This section contains information about configuring Kaspersky Embedded Systems Security general settings in the Kaspersky Security Center Administration Console.

Configuring general application settings in Kaspersky Security Center

You can configure Kaspersky Embedded Systems Security general settings from Kaspersky Security Center for a group of protected devices or for one protected device.

Configuring interface and scan settings in Kaspersky Security Center

To configure scalability settings and the application interface:

1. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree.
2. Select the administration group for which you want to configure application settings.
3. Perform one of the following actions in the details pane of the selected administration group:
   - To configure application settings for a group of protected devices, select the **Policies** tab and open the **Properties: <Policy name>** window.
   - To configure the settings of a task or application for an individual protected device, select the **Devices** tab and go to local task settings or application settings.
4. In the **Application settings** section, click the **Settings** button in the **Interface settings** subsection.

5. In the **Interface settings** window, on the **General** tab, configure the following settings:

   - In the **Interaction with user** section configure whether the System Tray Icon will be displayed in the taskbar after each application start.

     - **Display user interface**. On the client computer, an icon is available in the Windows tray. In the context menu of the icon, the user can perform operations with Kaspersky Embedded Systems Security. Kaspersky Embedded Systems Security also displays notifications above the application icon. The context menu of the icon in the Windows system tray lets you open the Compact Diagnostic Interface. Clicking a link in the Compact Diagnostic Interface opens the Application Console.

     - **Do not display user interface**. On a client computer, no signs of Kaspersky Embedded Systems Security operation are displayed. The icon in the Windows notification area and notifications are not available.

   - In the **Statuses** section, you can specify which warnings you want to see on the Kaspersky Embedded Systems Security system tray icon.

6. Click **OK**.

   The configured application settings are saved.

Configuring security settings in Kaspersky Security Center

To configure security settings manually:

1. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree.

2. Select the administration group for which you want to configure application settings.

3. Perform one of the following actions in the details pane of the selected administration group:

   - To configure application settings for a group of protected devices, select the **Policies** tab and open the **Properties: <Policy name>** window.

   - To configure the settings of a task or application for an individual protected device, select the **Devices** tab and go to local task settings or application settings.

4. In the **Application settings** section, click the **Settings** button in the **Security and reliability** subsection.

5. In the **Security settings** window, on the **Security** tab, configure the following settings:

   - In the **General** section, we recommend leaving the **Start the application on computer startup (recommended)** enabled (default).

   - In the **Self-Defense** section, enable or disable the **Protect application processes from external threats** functionality.

   - In the **Actions when switching to UPS backup power** section, specify limitations on protected device load created by Kaspersky Embedded Systems Security after switching to UPS power:

     - **Do not start scheduled scan tasks**

     - **Stop running scan tasks**

- In the **Computer status when settings are applied** section, configure the display of the status of client computers with the application installed if errors occur when applying a policy or running a task.

- In the **Compatibility settings** section, configure the **Compatibility with remote administration software** setting.

6. On the **Scan settings** tab, configure the following settings:

   - **Limit CPU usage for scan tasks**. Kaspersky Embedded Systems Security limits its use of the protected device CPU during on-demand scan tasks to the value specified in the **Upper limit** field. Enabling of this option can negatively affect the performance of Kaspersky Embedded Systems Security.

   - **Yield resources to other applications**. Consumption of computer resources by Kaspersky Embedded Systems Security when scanning the computer may increase the load on the CPU and hard drive subsystems. This may slow down other applications. To optimize the performance, Kaspersky Embedded Systems Security provides a mode for transferring resources to other applications. In this mode, the operating system can decrease the priority of Kaspersky Embedded Systems Security scan task threads when the CPU load is high. This allows redistributing operating system resources to other applications. Thus, scan tasks will receive less CPU time. As a result, Kaspersky Embedded Systems Security will take longer to scan the computer. By default, the application is configured to concede resources to other applications.

7. Click **OK**.

The scalability and reliability settings are saved.

Configuring connection settings using Kaspersky Security Center

The configured connection settings are used to connect Kaspersky Embedded Systems Security to update and activation servers and during integration of applications with Kaspersky Security Network services.

To configure the connection settings take the following steps:

1. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree.

2. Select the administration group for which you want to configure application settings.

3. Perform one of the following actions in the details pane of the selected administration group:

   - To configure application settings for a group of protected devices, select the **Policies** tab and open the **Properties: <Policy name>** window.

   - To configure the settings of a task or application for an individual protected device, select the **Devices** tab and go to local task settings or application settings.

4. In the **Application settings** section, click the **Settings** button in the **Connection settings** subsection.

   The **Connection settings** window opens.

5. In the **Proxy server** section, click **Settings**.

6. This opens a window; in that window, in the **Proxy server settings** section, select an option for managing proxy settings:

   - **Do not use a proxy server**. If this option is selected, Kaspersky Embedded Systems Security does not use a proxy server.
   - **Automatically detect proxy server settings.** If this option is selected, Kaspersky Embedded Systems Security uses proxy settings of the operating system.
   - **Use specified proxy server settings**. If this option is selected, Kaspersky Embedded Systems Security uses proxy server settings specified manually. Enter the IP address or symbolic name of the proxy server and the port number

     If necessary, clear the **Bypass a proxy server for local addresses** check box. If this functionality is enabled, devices are accessed directly from the network that hosts the protected device with Kaspersky Embedded Systems Security installed. This option is enabled by default.

7. In the **Proxy server authentication settings** section, in the drop-down list, select the method for authenticating at the proxy server:

   a. If you selected **Automatically detect proxy server settings**:

      - **Do not use authentication**.
      - **NTLM authentication**. NTLM authentication with the current user account (default).
      - **Kerberos authentication**. Kerberos authentication with the current user account.

   b. If you selected **Use specified proxy server settings**:

      - **Do not use authentication**.
      - **NTLM authentication**. NTLM authentication with the current user account (default).
      - **NTLM authentication with user name and password**. NTLM authentication with manually specified credentials.
      - **Kerberos authentication**. Kerberos authentication with the current user account.

        To ensure the Kerberos authentication works correctly when using CNAME records for the proxy server address, you must register a Service Principal Name (SPN) for each CNAME record.

      - **Kerberos authentication with user name and password**. Kerberos authentication with manually specified credentials.
      - **User name and password**. Authentication with manually specified credentials.

     If necessary, enter a user name and a password.

     If Kerberos authentication is selected, Kaspersky Embedded Systems Security can, depending on the proxy server settings, perform authentication using either the Kerberos or NTLM protocol.

8. In the **Licensing** section, select or clear the **Use Kaspersky Security Center as a proxy server when activating the application** check box.

9. Click **OK**.

10. In the **Monitored ports** section, specify an option for network port:

    - **Monitor all network ports**. In this network port monitoring mode the protection components monitor data streams that are transmitted via any open network ports of the computer.

    - **Monitor selected network ports only**. In this network port monitoring mode, the protection components monitor the selected ports of the computer and the network activity of the selected applications. The list of network ports that are normally used for transmission of email and network traffic is configured according to the recommendations of Kaspersky experts. If necessary you can edit the list of network ports.

11. Click the **Settings** button and edit the following settings:

    - **Monitor all ports for the applications from the list recommended by Kaspersky**. Kaspersky Embedded Systems Security monitors network ports of applications from the predefined list. For example, this list includes Google Chrome, Adobe Reader, Java, and other applications.

    - **Monitor all ports for specified applications**. Kaspersky Embedded Systems Security monitors network ports of applications added to the list.

12. Click **OK**.

    The configured connection settings are saved.

Configuring the local task run mode

You can use policies to allow or block the start of the local system On-Demand Scan task and the Update task. This is done according to the schedule configured locally on each protected device in the administration group:

- If the scheduled start of a specific type of local system task is prohibited by a policy, these tasks will not be performed on the protected device according to the schedule. You can start local system tasks manually.

- If the scheduled start of a specific type of local system task is allowed by a policy, these tasks will be performed in accordance with the scheduled parameters configured locally for this task.

By default, starting of local system tasks is prohibited by policy.

> We recommend that you do not allow local system tasks to start if updates or on-demand scans are administered by Kaspersky Security Center group tasks.

If you do not use group update or on-demand scan tasks, allow local system tasks to be started in the policy: Kaspersky Embedded Systems Security will perform application database and module updates, and start all local system on-demand scan tasks in accordance with the default schedule.

You can use policies to allow or block the scheduled start of the following local system tasks:

- On-Demand Scan tasks: *Critical Areas Scan*, *Scan at Operating System Startup*, *Application Integrity Control*, *Baseline System Integrity Monitor*.
- Update tasks: *Update of databases and application modules*, *Application update*.

If the protected device is excluded from the administration group, the local system tasks schedule will be enabled automatically.

To allow or block startup schedule management for the application local tasks in a policy:

1. In the Kaspersky Security Center Administration Console tree, expand the **Managed devices** node, expand the relevant group, and in the results pane, select the **Policies** tab.
2. On the **Policies** tab, in the context menu of the policy for which you want to schedule Kaspersky Embedded Systems Security local system tasks for the group of protected devices, select **Properties**.
3. In the policy properties window, select the **Application settings** section.
4. Click **Settings** in the **Run local system tasks** subsection.
5. Select the **Allow use of local tasks** check box.
6. Use the **Allow schedule management** check box to allow or block startup schedule management for the application local tasks.

Configuring Backup settings in Kaspersky Security Center

To configure general Backup settings in Kaspersky Security Center:

1. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree.
2. Select the administration group for which you want to configure application settings.
3. Perform one of the following actions in the details pane of the selected administration group:
   - To configure application settings for a group of protected devices, select the **Policies** tab and open the **Properties: <Policy name>** window.
   - To configure the settings of a task or application for an individual protected device, select the **Devices** tab and go to local task settings or application settings.
4. Go to the **Supplementary** section.
5. Click the **Settings** button in the **Storages** subsection.
6. Configure the settings described in the table below.

Storage settings

Parameter	Description
On the **Reports** tab, specify the reports settings:	
Store reports no longer than	If the check box is selected, the maximum report storage term is limited to the defined time interval. The default maximum storage term for reports is 30 days. After that period of time, Kaspersky Embedded Systems Security automatically deletes the oldest entries from the report file.
Limit the size of report file to	If the check box is selected, the maximum report file size is limited to the defined value. By default, the maximum file size is 1024 MB. To avoid exceeding the maximum report file size, Kaspersky Embedded Systems Security automatically deletes the oldest entries from the report file when the maximum report file size is reached.
On the **Backup** tab, specify the Backup settings:	
Store objects no longer than	If the check box is selected, the maximum file storage term is limited to the defined time interval. The default maximum storage term for files is 30 days. After expiration of the maximum storage term, Kaspersky Embedded Systems Security deletes the oldest files from Backup.
Limit the size of Backup to	If the check box is selected, the maximum storage size is limited to the defined value. By default, the maximum size is 400 MB. To avoid exceeding the maximum storage size, Kaspersky Embedded Systems Security automatically deletes the oldest files from storage when the maximum storage size is reached.
Threshold value for available space	The check box enables or disables the function that monitors the minimum amount of free space in Backup (the default value is 100 MB). If the amount of free space decreases below the specified threshold, Kaspersky Embedded Systems Security logs the *Backup free space threshold exceeded* event and issues a notification according to the settings for notifications about events of this type. If the check box is selected, Kaspersky Embedded Systems Security monitors the amount of free space in Backup. The **Threshold value for available space** check box is active if the **Limit the size of Backup to** check box is selected.

Creating and configuring policies

This section provides information on using Kaspersky Security Center policies for managing Kaspersky Embedded Systems Security on several protected devices.

Global Kaspersky Security Center policies can be created for managing protection on several devices where Kaspersky Embedded Systems Security is installed.

A policy enforces the Kaspersky Embedded Systems Security settings, functions and specified tasks on all the protected devices for one administration group.

Several policies for one administration group can be created and enforced in turns. The policy currently active for a group has *Active* status in the Administration Console.

Information on policy enforcement is logged in the Kaspersky Embedded Systems Security system audit log. This information can be viewed in the Application Console in the **Log Inspection** node.

Kaspersky Security Center offers one way to apply policies on protected devices: *Prohibit editing of settings*. After a policy has been applied, Kaspersky Embedded Systems Security uses the values of settings for which you have specified in the policy properties that **Editing prohibited** . In this case, Kaspersky Embedded Systems Security does not use the values of settings in effect before the policy was applied. Kaspersky Embedded Systems Security does not apply the values of active policy settings for which you have specified in the policy properties that **Editing allowed** .

If a policy is active, the values of settings marked with the icon in the policy are displayed in the Application Console but cannot be edited. The values of other settings can be edited in the Application Console.

The settings configured in the active policy and marked with the icon also block changes in Kaspersky Security Center for an individual protected device in the **Properties: <Protected device name>** window.

Settings that are specified and sent to the protected device using an active policy are saved in the local task settings after the active policy is disabled.

If a policy defines the settings of a currently running Real-Time Computer Protection task or Network-Attached Storages Protection task, the settings defined by the policy will change immediately after the policy is applied. If the task is not running, the settings are applied when it starts.

Creating a policy

Before creating a policy, you need to install the Administration Plug-in klcfginst.exe.

To create a policy for a group of protected devices where application is installed and running:

1. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree, then select the administration group containing the protected devices for which you wish to create a policy.
2. In the results pane of the selected administration group, select the **Policies** tab and click the **New policy** button to start the New Policy Wizard.

   The **New policy wizard** window opens.
3. In the **Select the application for which you want to create a group policy** window, select Kaspersky Embedded Systems Security.
4. Click **Next**.
5. Enter a group policy name in the **Name** field.

   The policy name cannot contain the following symbols: `" * < : > ? \ | .`
6. To apply a policy configuration used in a previous version of the application:

   a. Select the **Use policy settings for an earlier version of the application** check box.

   b. Click **Browse**.

   c. Select the policy you want to apply.

   d. Click **Next**.
7. In the **Operation type selection** window, in the **Configure Real-Time File Protection** block, select the **Enable Real-Time File Protection** check box and specify the security level.

   If the task run mode is not selected, you cannot proceed to the next step of the New Policy Wizard.

8. Configure Real-Time Computer Protection.

9. Configure scan exclusions and trusted applications.

10. Select one of the following policy statuses in the **Create the group policy for the application** window:

    - **Active policy**, if you want to apply the policy immediately after it is created. If an active policy already exists in the group, it is deactivated and a new policy is applied.

    - **Inactive policy**, if you do not want to apply the created policy immediately. In this case the policy may be activated later.

    - **Out-of-office policy**, the policy is activated when a computer leaves the organization network perimeter.

    - Select the **Open policy properties immediately after it is created** check box to automatically close the **New policy wizard** and configure the newly created policy after clicking the **Next** button.

11. Click **Finish**.

    The created policy appears in the list of policies on the **Policies** tab of the selected administration group. In the **Properties: <Policy name>** window, you can configure other settings, tasks and functions of Kaspersky Embedded Systems Security.

After a new policy is created, a set of allowing rules is created to prevent applications from being blocked, ensuring their uninterrupted operation.

By default, Kaspersky Embedded Systems Security creates a set of rules for inbound network traffic when creating a new policy:

- Two allowing rules for the process of sharing the Windows desktop using Kaspersky Security Center Network Agent, which is located in the %Program Files% and %Program Files (x86)% folders. Status: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.

- Two allowing rules for local port 15000. State: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.

By default, Kaspersky Embedded Systems Security creates a set of outgoing network traffic rules when creating a new policy:

- Two allowing rules for the Kaspersky Embedded Systems Security service, which is located in the %Program Files% and %Program Files (x86)% folders. Status: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.

- Two allowing rules for the worker process of Kaspersky Embedded Systems Security, which is located in the %Program Files% and %Program Files (x86)% folders. Status: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.

- Two allowing rules for local port 13000. State: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.

Configuring a policy

To configure the policy settings:

1. In the Kaspersky Security Center Administration Console tree, expand the **Managed devices** node.
2. Expand the administration group for which you want to configure the associated policy settings, and open the **Policies** tab in the details pane.
3. Click the policy name you want to configure.

   Open the **Properties: <Policy name>** window in one of the following ways:

   - Selecting the **Properties** option in the policy context menu.
   - Double-clicking the selected policy.
4. On the **General** tab in the **Policy status** section, enable or disable the policy. To do so, select one of the options below:

   - **Active policy**, if you want the policy to be applied on all protected devices within the selected administration group.
   - **Out-of-office policy**, the policy is activated when a computer leaves the organization network perimeter.
   - **Inactive policy**, if you want to activate the policy later on all protected devices within the selected administration group.
5. Configure application settings in the other sections of the policy.

   > You can enable or disable the execution of any task on all protected devices within the administration group by means of a Kaspersky Security Center policy.

   > You can configure the application of policy settings on all network protected devices for each individual software component.
6. Click **OK**.

The configured settings are applied in the policy.

Security level indicator

The security level indicator is displayed at the top of the policy properties window. The indicator can take one of the following values:

- **High protection level**. The indicator takes this value and changes its color to green if all components belonging to the following categories are enabled and marked with :
  - **Critical**. This category includes the following components:
    - Real-Time File Protection.
    - Behavior Detection.
    - Exploit Prevention.
    - Remediation Engine.
    - Enable Secure Desktop notifications.
  - **Important**. This category includes the KSN Usage component.
- **Medium protection level**. The indicator takes this value and changes its color to yellow if one important component is disabled or marked with .
- **Low protection level**. The indicator takes this value and changes its color to red if one or several critical components are disabled or marked with .

If the indicator displays the **Medium protection level** or **Low protection level** value, a link to the right of the indicator opens the **Recommended protection components** window. In this window, you can enable any of the recommended protection components and prevent them from being disabled.

Creating and configuring tasks using Kaspersky Security Center

This section contains information about Kaspersky Embedded Systems Security tasks, and how to create them, configure task settings, and start and stop them.

About task creation in Kaspersky Security Center

You can create group tasks for administration groups and sets of protected devices. You can create the following types of tasks via Kaspersky Security Center:

- *Application Activation*
- *Administration Server connection protection*

- *Change Kaspersky Embedded Systems Security components*
- *Baseline System Integrity Monitor*
- *Update*
- *Update rollback*
- *On-Demand Scan*
- *Application Integrity Control*
- *Remove key*
- *Rule Generator for Applications Launch Control*
- *Rule Generator for Device Control*.

You can create local and group tasks in the following ways:

- For an individual protected device in the **Tasks** section.
- For an administration group: in the details pane of the node of the selected group of protected devices on the **Tasks** tab.
- For a set of protected devices: in the details pane of the **Device selections** node.

> You can use policies to disable schedules for *Update* and *On-Demand Scan* local system tasks on all protected devices in the same administration group.

General information on tasks in Kaspersky Security Center is provided in the *Kaspersky Security Center Help*.

Creating a task using Kaspersky Security Center

To create a new task in the Kaspersky Security Center Administration Console:

1. Start the task wizard in one of the following ways:
   - To create a local task:
     a. Expand the **Managed devices** node in the Administration Console tree and select the group that the protected server belongs to.
     b. In the results pane of the **Devices** tab, open the context menu of the protected device and select **Properties**.
     c. In the window that opens, in the **Tasks** section, click the **Add** button.

- To create a group task:

  a. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree.

  b. Select the administration group for which you want to create a task.

  c. In the results pane, open the **Tasks** tab and select **New task**.

The task wizard window opens.

2. In the **Select the task type** window, under the heading **Kaspersky Embedded Systems Security**, select the type of the task to be created.

3. Depending on the task type, the settings may vary:

   - Create an On-Demand Scan task.

   - To create an update task, configure task settings based on your requirements:

     a. You can specify Kaspersky Security Center Administration Server or Kaspersky update servers as an application update source in the **Update source** block. You can also create a customized list of update sources: by adding custom HTTP and FTP servers or network folders manually and setting them as update sources.

     You can specify the usage of Kaspersky update servers, if manually customized servers are not available.

     b. Configure the settings for a feature that reduces the load on the disk subsystem:

     c. You can specify the actions that Kaspersky Embedded Systems Security will perform if critical application module updates are needed, as well as after installation of critical updates is complete. In addition, you can specify whether Kaspersky Embedded Systems Security will receive information about available scheduled updates.

     d. Specify the set of updates to copy and a path to the folder that will be used by Kaspersky Embedded Systems Security to store copied updates.

   - To create the *Application Activation* task:

     a. In the **Activation settings** window, specify the key file or activation code that you want to use to activate the application.

     b. Select the **Use as additional key** check box if you want to create a task for renewing the license.

   - Create the Rule Generator for Applications Launch Control task.

   - Create the Rule Generator for Device Control task.

4. Configure the task schedule.

5. Click **OK**.

6. If the task is being created for a set of protected devices, select the network (or group) of protected devices on which this task will be executed.

7. In the **Selecting an account to run the task** window, specify the account you want to use to run the task.

8. In the **Define the task name** window, enter the task name (no longer than 100 characters, not containing the symbols " * < > ? \ | :).

   We recommend that you add the task type to the task name (for example, "On-demand scan of shared folders").

9. In the **Finish task creation** window, do the following:

   a. Select the **Run the task after the wizard finishes** check box if you want the task to start as soon as it is created.

   b. Click **Finish**.

The created task is displayed in the **Tasks** list.

Going to the local task settings and general application settings for an individual computer

If the application is currently under the Kaspersky Security Center policy and this policy prohibits changing the application settings, you cannot edit these settings for an individual computer.

To go to the local task settings for an individual computer:

1. In the Kaspersky Security Center Administration Console tree, expand the **Managed devices** node.
2. Select the group that the protected device belongs to.
3. In the results pane, select the **Devices** tab.
4. Open the **Properties: <Protected device name>** window in one of the following ways:

   - Double-click the name of the protected device.
   - in the context menu of the name of the protected device, select **Properties**.

   The **Properties: <Protected device name>** window opens.

5. Go to the **Tasks** section.
6. In the task list, select a local task to configure in one of the following ways:

   - double-click on the task name
   - select a task in the list and click the **Properties** button
   - in the context menu on the task name, select **Properties**.

   The **Properties: <Task name>** window opens.

To go to the general application settings for an individual computer:

1. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree and select the group that the protected device belongs to.
2. In the results pane, select the **Devices** tab.
3. Open the **Properties: <Protected device name>** window in one of the following ways:
   - Double-click the name of the protected device.
   - in the context menu of the name of the protected device, select **Properties**.

   The **Properties: <Protected device name>** window opens.
4. Go to the **Applications** section.
5. In the list of installed applications, select Kaspersky Embedded Systems Security in one of the following ways:
   - double-click the name of Kaspersky Embedded Systems Security
   - select Kaspersky Embedded Systems Security in the list and click the **Properties** button.
   - in the context menu of the name of Kaspersky Embedded Systems Security, select the **Properties** item.

   The **Settings** window of **Kaspersky Embedded Systems Security** opens.

Configuring group tasks in Kaspersky Security Center

To configure a group task for multiple protected devices:

1. In the Kaspersky Security Center Administration Console tree, expand the **Managed devices** node and select the administration group for which you want to configure the application tasks.
2. In the details pane of a selected administration group, open the **Tasks** tab.
3. In the list of previously created group tasks, select a task you want to configure.
4. Open the **Properties: <Task name>** window in one of the following ways:
   - Double-click the name of the task in the list of created tasks.
   - Select the name of the task in the list of created tasks and click the **Configure task** link.
   - Open the context menu of the task name in the list of created tasks and select the **Properties** item.
5. In the **Notification** section, configure the task event notification settings. For detailed information on configuring settings in this section, see Kaspersky Security Center Help.

6. Depending on the type of configured task, do one of the following:

   - To configure the *On-Demand Scan* task:
     - In the **Scan scope** section, configure a scan scope.
     - In the **Settings** section, configure the task priority level and integration with other software components.
   - To configure the *Update* task:
     - Go to the **Settings** section and specify the **Application databases and modules update settings**.
     - Choose an action to perform: copy and install critical updates of software modules or only check for them.
   - To configure the *Application Activation* task:
     - In the **Settings** section, specify the key file or activation code that you want to use to activate the application.
     - Select the **Use as additional key** check box if you want to add an activation code or key file for renewing the license.
   - To configure the *Rule Generator for Device Control* task, in the **Settings** section, specify the settings that you want to use to create the list of Device Control rules.

7. Configure the task schedule in the **Schedule** section.

8. In the **Account** section, specify the account whose rights will be used to run the task. For detailed information on configuring settings in this section, see Kaspersky Security Center Help.

9. If necessary, in the **Exclusions from task scope** section, specify objects that you want to exclude from the scope of the task. For detailed information on configuring settings in this section, see Kaspersky Security Center Help.

10. Click the **OK** button in the **Properties: <Task name>** window.

    The newly configured group task settings are saved.

Configurable settings of group tasks are listed below.

- Rule Generator for Applications Launch Control

  While configuring the *Rule Generator for Applications Launch Control* task settings, you can select how you want to create allowing rules on the **Rules** tab:

  - **Create allowing rules based on running applications**
  - **Create allowing rules for applications from the folders**

  You can specify the following actions to perform while creating Applications Launch Control allowing rules on the **Settings** tab:

  - **Use digital certificate**
  - **Use digital certificate subject and thumbprint**

- **If the certificate is missing, use**
- **Use SHA256 hash**
- **Generate rules for users and / or group of users**.

You can configure settings for configuration files with allowing rule lists that Kaspersky Embedded Systems Security creates upon task completion.

You can configure settings to start the task on a schedule.

- Rule Generator for Device Control
  - Select the operation mode: consider system data about all external devices that have ever been connected or consider currently connected external devices only.
  - Configure settings for configuration files with allowing rule lists that Kaspersky Embedded Systems Security creates upon task completion.
  - You can configure settings to start the task on a schedule.
- Application Activation
  - To activate the application or to renew the license, you can add a key file or activation code.
  - You can configure settings to start the task on a schedule.
- Update of databases and application modules
  - You can specify Kaspersky Security Center Administration Server or Kaspersky update servers as an application update source in the **Update source** settings block. You can also create a customized list of update sources: by adding custom HTTP and FTP servers or network folders manually and setting them as update sources.

    You can specify the usage of Kaspersky update servers, if manually customized servers are not available.
  - You can configure the settings for a feature that reduces the load on the disk subsystem:
    - **Lower the load on the disk I/O**
    - **RAM used for optimization, MB**.
  - You can specify the actions that Kaspersky Embedded Systems Security will perform if critical application module updates are needed, as well as after installation of critical updates is complete. In addition, you can specify whether Kaspersky Embedded Systems Security will receive information about available scheduled updates.
  - You can specify the set of updates to copy and a path to the folder that will be used by Kaspersky Embedded Systems Security to store copied updates.
  - You can configure settings to start the task on a schedule.

- On-Demand Scan
  - You can specify a scan scope for the On-Demand Scan task and configure security level settings.
  - In the **Heuristic analyzer** settings block, you can enable or disable use of the heuristic analyzer for the On-Demand Scan task and set the analysis level using a slider.
  - In the **Integration with other components** block, you can configure the following settings:
    - Start the scan task in background mode.
    - Consider task as critical areas scan.
    - Disable simultaneous launch of several scan tasks.
  - You can configure settings to start the task on a schedule.
- Application Integrity Control
  - You can configure settings to start the task on a schedule.
- Baseline System Integrity Monitor
  - You can configure the monitoring mode and the rules that specify actions to take on files, the registry, and devices.
  - You can configure settings to start the task on a schedule.

Application activation task

To configure the Application Activation task:

1. In the Kaspersky Security Center Administration Console tree, expand the **Managed devices** node and select the administration group for which you want to configure the application tasks.
2. In the details pane of a selected administration group, open the **Tasks** tab.
3. In the list of previously created group tasks, select a task you want to configure.
4. Open the **Properties: <Task name>** window in one of the following ways:
   - Double-click the name of the task in the list of created tasks.
   - Open the context menu of the task name in the list of created tasks and select the **Properties** item.

   In the **Notification** section, configure the task event notification settings. For detailed information on configuring settings in this section, see Kaspersky Security Center Help.
5. In the **Activation settings** section, specify the key file that you want to use to activate the application. Select the **Use as additional key** check box if you want to add a key to renew the license.
6. In the **Schedule** section, configure task schedule settings.

7. If required, specify the objects to exclude from the task scope in the **Exclusions from task scope** section.

   For detailed information on configuring settings in these sections, see Kaspersky Security Center Help.

8. Click the **OK** button in the **Properties: <Task name>** window.

The newly configured group task settings are saved.

Update task

To configure the Update task:

1. In the Kaspersky Security Center Administration Console tree, expand the **Managed devices** node and select the administration group for which you want to configure the application tasks.
2. In the details pane of a selected administration group, open the **Tasks** tab.
3. In the list of previously created group tasks, select a task you want to configure.
4. Open the **Properties: <Task name>** window in one of the following ways:
   - Double-click the name of the task in the list of created tasks.
   - Open the context menu of the task name in the list of created tasks and select the **Properties** item.
5. In the **Notification** section, configure the task event notification settings. For detailed information on configuring settings in this section, see Kaspersky Security Center Help.
6. In the **Settings** section do the following:
   a. Select an update source using the **Settings** button in the **Application databases and modules update settings** section:
      - Kaspersky Security Center Administration Server.
      - Kaspersky update servers.
      - Custom HTTP or FTP servers, or network folders.

      To use an SMB-shared folder as an update source, you need to specify a user account to start a task.

      You can specify the usage of Kaspersky update servers, if manually customized servers are not available.

   b. Configure the settings for a feature that reduces the load on the disk subsystem:
      - **Lower the load on the disk I/O**. This check box enables or disables the process whereby the disk subsystem is optimized by storing update files on a virtual drive in RAM. By default, the check box is cleared.
      - **RAM used for optimization, MB**

c. Specify actions that Kaspersky Embedded Systems Security should perform when critical updates of application modules are available or when there is information about planned updates.

d. Specify update copying settings.

7. Configure the task schedule in the **Schedule** section (you can configure a schedule for all task types except Update rollback).

8. In the **Account** section, specify the account whose rights will be used to run the task.

> For detailed information on configuring settings in these sections, see Kaspersky Security Center Help.

9. In the **Properties: <Task name>** window, click **OK**.

For the *Update rollback* task, you can configure only the standard task settings controlled by Kaspersky Security Center in the **Notifications** and **Exclusions from task scope** sections. For detailed information on configuring settings in these sections, see Kaspersky Security Center Help.

Application Integrity Control

To configure the Application Integrity Control group task:

1. In the Kaspersky Security Center Administration Console tree, expand the **Managed devices** node and select the administration group for which you want to configure the application tasks.

2. In the details pane of a selected administration group, open the **Tasks** tab.

3. In the list of previously created group tasks, select a task you want to configure.

4. Open the **Properties: <Task name>** window in one of the following ways:

   - Double-click the name of the task in the list of created tasks.

   - Open the context menu of the task name in the list of created tasks and select the **Properties** item.

5. In the **Notification** section, configure the task event notification settings. For detailed information on configuring settings in this section, see Kaspersky Security Center Help.

6. In the **Devices** section, select the devices for which you want to configure the *Application Integrity Control* task.

7. In the **Schedule** section, configure task schedule settings.

8. In the **Account** section, specify the account whose rights will be used to run the task.

9. If required, specify the objects to exclude from the task scope in the **Exclusions from task scope** section.

> For detailed information on configuring settings in these sections, see Kaspersky Security Center Help.

10. Click the **OK** button in the **Properties: <Task name>** window.

Scheduling tasks

To schedule tasks using the Administration Plug-in:

1. In the **Managed devices** folder in the Administration Console tree, open the folder with the name of the administration group to which the relevant client computer belongs.
2. In the workspace, select the **Devices** tab.
3. Double-click to open the computer properties window.
4. Go to the **Tasks** section.
5. Double-click to open the properties window for the task for which you want to configure the schedule.
6. Select the **Schedule** section.
7. Configure the schedule settings (see the table below) as needed.

   Fields with schedule settings for the On-Demand Scan and Update tasks are unavailable if scheduling of these tasks is blocked by a Kaspersky Security Center policy.

8. Click the **Apply** button to save the task start settings.

If you want to configure application settings for a single task using Kaspersky Security Center, see section "Configuring local tasks in the Application settings window of the Kaspersky Security Center".

Task schedule settings

Parameter	Description
Scheduled start	Select the task run mode: • **Every N hours**. The task will run periodically every few hours. Specify the start time of the task and the period in hours. • **Every N days**. The task will run periodically every few days. Specify the start time of the task and the period in days. • **Every N minutes**. The task will run periodically every few minutes. Specify the start time of the task and the period in minutes. • **Weekly**. The task will run on a certain day of the week. Specify the day of the week and the start time. • **Monthly**. The task will run on a certain day of the month. Specify the date and time of the start. • **Once**. The task will run once at the specified date and time. • **Manually**. Run mode in which you can start scan manually at a time when it is convenient for you. • **When new updates are downloaded to the repository**. The task will run every time updates are downloaded to the repository. • **On completing another task**. The task will run upon completion of another task. Select the task and its completion status. Kaspersky Embedded Systems Security does not support the **On completing another task** mode for scheduling local tasks. • **On virus outbreak**. The task will run if a virus attack is detected. • **At application start**. The task will run every time Kaspersky Embedded Systems Security starts.

Parameter	Description
Run missed tasks	If the check box is selected, Kaspersky Embedded Systems Security starts the skipped task as soon as it becomes possible. The task may be skipped, for example, if the computer was off at the scheduled task start time. When the application gets an opportunity to execute missed tasks, it runs the tasks randomly within a certain time interval to distribute the load on the computer. If the check box is cleared, Kaspersky Embedded Systems Security does not run skipped tasks. Instead, it carries out the next task in accordance with the current schedule.
Use automatically randomized delay for task starts	If this check box is selected, the task is run on computers at a random time within a certain time frame. Randomized start times help avoid a great number of computers simultaneously accessing the Administration Server when the task is run on schedule. If the check box is cleared, the task is run exactly at scheduled time.
Use randomized delay for task starts within an interval of (min)	If this check box is selected, the task is run on computers at a random time within a certain time frame. Randomized start times help avoid a great number of computers simultaneously accessing the Administration Server when the task is run on schedule. If the check box is cleared, the task is run exactly at scheduled time.
Turn on devices by using the Wake-on-LAN function before starting the task	If the check box is selected, the operating system of the computer is given a specified lead time to complete startup before the task is run. The default lead time is 5 minutes. Select the check box if you want to run the task on all computers including powered off computers.
Shut down the devices after completing the task	If this check box is selected, the computer will shut down after the task is completed. For example, you can enable this functionality to scan the computer on Fridays after working hours. When the task finishes, the application turns off the computer for the weekend.
Stop the task if it runs longer than	Limiting the task execution time. After the specified amount of time, Kaspersky Embedded Systems Security stops the task. The task is not marked as completed. Next time Kaspersky Embedded Systems Security runs the task, it will be run from the beginning and on schedule.
Pause task	You can specify a time interval during which the execution of a previously scheduled task will be paused. Once the specified time period is over, the task will resume. This may be necessary, for example, to minimize the impact of Kaspersky Embedded Systems Security on the performance of your computer during periods of peak usage. This functionality is available only for On-Demand Scan tasks.
Disable schedule from	If the check box is selected, Kaspersky Embedded Systems Security will stop running the scheduled task starting on the specified date. The task will be set to **Manually** mode. This functionality is available only for On-Demand Scan tasks.

Reports in Kaspersky Security Center

Reports in Kaspersky Security Center contain information about the status of managed devices. Reports are based on information stored on Administration Server.

Starting from Kaspersky Security Center 11, the following types of reports are available for Kaspersky Embedded Systems Security:

- Report on the status of application components
- Report on prohibited applications
- Report on prohibited applications in test mode

For detailed information on working with Kaspersky Security Center reports, please refer to the Kaspersky Security Center Help.

Report on the status of Kaspersky Embedded Systems Security components

You can monitor the protection status of all network devices and get a structured overview of the set of components on each device.

The report displays one of the following states for each component: *Running*, *Paused*, *Stopped*, *Not covered by license*.

Not Installed status refers to the component, not the application itself. If the application is not installed, Kaspersky Security Center assigns the N/A (Not available) status.

You can create component selections and use filtering to display network devices with a specified set of components and state.

See Kaspersky Security Center Help for detailed information about creating and using selections.

To review the component statuses in the application settings:

1. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree and select the administration group for which you want to configure application settings.
2. Select the **Devices** tab and open the **Application settings** window.
3. Select the **Components** section.
4. Review the status table.

To review a Kaspersky Security Center standard report:

1. Select the **Administration Server <Administration Server name>** node in the Administration Console tree.
2. Select the **Reports** tab.
3. Double-click the **Report on the status of application components** list item.

   A report is generated.

4. Review the following report details:

   - A graphical diagram.
   - A summary table of components and aggregated numbers of network devices where each of the components is installed, and groups they belong to.
   - A detailed table specifying the component status, version, device and group.

Reports on prohibited applications in active and test modes

Based on the results of the Applications Launch Control task, two types of reports can be generated: a report on prohibited applications (if the task is started in Active mode) and a report on prohibited applications in test mode (if the task is started in the Inform mode). These reports display information about blocked applications on the protected devices of the network. Each report is generated for all administration groups and accumulates data from all the Kaspersky applications installed on the protected devices.

To review a report on prohibited applications in the Inform mode:

1. Start the Applications Launch Control task in the Inform mode.
2. Select the **Administration Server <Administration Server name>** node in the Administration Console tree.
3. Select the **Reports** tab.
4. Double-click the **Report on prohibited applications in test mode** item.

   A report is generated.
5. Review the following report details:

   - A graphical diagram that displays the top 10 applications with the largest number of blocked starts.
   - A summary table of application blocks, specifying the executable file name, reason, time of blocking, and number of devices where the blocking occurred.
   - A detailed table specifying data about the device, file path and criteria for blocking.

To review a report on prohibited applications in Active mode:

1. Run the Applications Launch Control task in Active mode.
2. Select the **Administration Server <Administration Server name>** node in the Administration Console tree.
3. Select the **Reports** tab.
4. Double-click the **Report on prohibited applications** item.

   A report is generated.

This report consists of the same data about blocks as the report on prohibited applications in test mode.

Real-Time Protection status

Kaspersky Embedded Systems Security sends the setting **Real-time protection status** to the Kaspersky Security Center Administration Server; the value of this setting depends on the current state of application protection components on the protected device (see the table below).

Kaspersky Embedded Systems Security determines the real-time protection status based on the status of the following application components:

- Real-Time File Protection
- Device Control
- Firewall
- Network Threat Protection
- AMSI Scanner
- BadUSB Attack Prevention
- Remediation Engine
- Exploit Prevention.

You can check the real-time protection status of the application in a Kaspersky Security Center console.

How to find out the Real-Time Protection status in the Kaspersky Security Center Administration Console

1. Open the Kaspersky Security Center Administration Console.
2. In the console tree, select **Managed devices**.

   The current Real-Time Protection status is displayed in the list of devices, in the **Real-time protection status** column. If the **Real-time protection status** column is missing, manage column settings by clicking the **Add/Remove Columns** link.

1. Open the Kaspersky Security Center Administration Console.
2. In the console tree, select **Managed devices**.

   The current Real-Time Protection status is displayed in the list of devices, in the **Real-time protection status** column. If the **Real-time protection status** column is missing, manage column settings by clicking the **Add/Remove Columns** link.

How to find out the Real-Time Computer Protection in the Web Console

In the main window of the Web Console, select **Asset management** → **Assets (Devices)**.

The current Real-Time Protection status is displayed in the list of devices, in the **Real-time protection status** column. If the **Real-time protection status** is column missing, manage column settings (⚙).

Possible values of the Real-time protection status setting

Value	Description
Unknown	The Administration Server does not have information about the real-time protection status for this device.
Not installed	No components are installed.
Not supported by license	The application is not activated or the license does not allow the installed components to work.
Failed	One or more components have malfunctioned.
Stopped	One or more components are disabled.
Paused	One or more components are paused.
Starting	One or more components are being turned on.
Running	Application components are up and running.

If the value of the **Real-time protection status** setting in Kaspersky Security Center is different from *Running*, check that the installed components of Kaspersky Embedded Systems Security from the list are enabled and the application is activated.

Working with the Kaspersky Embedded Systems Security Console

This section provides information about the Kaspersky Embedded Systems Security Console and describes how to manage the application using the Application Console installed on the protected device or another device.

Starting the Application Console

To start the Application Console:

1. Open the Compact Diagnostic Interface in one of the following ways:

   - Run the avpui.exe file in the application installation folder on the protected device. By default, the file is located in C:\Program Files (x86)\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0.
   - Click the application icon in the taskbar notification area.

2. In the Compact Diagnostic Interface window that opens, click the **Kaspersky Embedded Systems Security Console** link.

   If you have already configured a connection to the protected device, the Application Console opens.

   If you are starting the Application Console for the first time, you are taken to the **Select protected device** window, in which you must configure the connection of the Application Console to the protected computer.

   The application console version 4.0 is not compatible with Kaspersky Embedded Systems Security version 4.1 and later. When attempting to connect, you will be prompted to install the compatibility pack for the Application Console. The compatibility pack will be downloaded from the device to which you are connecting.

Kaspersky Embedded Systems Security Console interface

This section describes the primary elements of the application interface.

Kaspersky Embedded Systems Security Console window

After a connection has been established to Kaspersky Embedded Systems Security installed on a different protected device, the name of the node is supplemented with the name of the protected device on which the application is installed and the name of the user account under which the connection has been established: **Kaspersky Embedded Systems Security <Name of protected device> as <account name>**. Upon connection to Kaspersky Embedded Systems Security installed on the same protected device with the Kaspersky Embedded Systems Security Console, the node name is Kaspersky Embedded Systems Security.

Console tree

The Application Console tree displays the **Kaspersky Embedded Systems Security** node and the child nodes of functional components of the application.

The **Kaspersky Embedded Systems Security** node includes the following child nodes:

- **Real-Time Computer Protection** allows configuring the following tasks:
  - **Real-Time File Protection**
  - **Kaspersky Security Network**
  - **Exploit Prevention**
  - **Network Threat Protection**
  - **Behavior Detection**
  - **Remediation Engine**
  - **AMSI Scanner**.
- **Computer Control**: control of applications running on the protected device and connected devices.
  - **Applications Launch Control**
  - **Device Control**
  - **Firewall**.
- **Automatic Rule Generation**: configuring automatic generation of group and system rules for the Applications Launch Control component and the Device Control component.
  - **Rule Generator for Applications Launch Control**
  - **Rule Generator for Device Control**

- Rule generation group tasks **<Task names>** (if any)

  Group tasks are created using Kaspersky Security Center. You cannot manage group tasks through Kaspersky Embedded Systems Security Console.

- **System Inspection**: configuring the settings of system integrity monitoring and Windows event log analysis.
  - **Log Inspection**
  - **System Integrity Monitoring**.
- **On-Demand Scan**: manages On-Demand Scan tasks. There is a separate node for each task:
  - **Critical Areas Scan**
  - **Application Integrity Control**
  - **Removable Drives Scan**
  - **Full Scan**
  - Custom tasks **<Task names>** (if any)

  The node displays system tasks created when the application is installed, custom tasks, and group on-demand scan tasks created and sent to a protected device using Kaspersky Security Center.

- **Update**: manages updates for Kaspersky Embedded Systems Security databases and application modules, and provides the possibility to roll back the last update:
  - **Update of databases and application modules**
  - **Last update rollback**
  - **Application update**.

  The node displays all custom and group update tasks created and sent to a protected device using Kaspersky Security Center.

- **Storages**: manages Backup settings and the list of blocked network sessions.
  - **Backup**
  - **Blocked network sessions**.
- **Logs and notifications**: manages local task logs and Kaspersky Embedded Systems Security System audit log.
  - **System Audit**
  - **Applications Launch Control**
  - **Device Control**
  - **Application Integrity Control**
  - **Log Inspection**

- **System Integrity Monitoring**
- **Network Threat Protection**
- **On-Demand Scan**
- **Firewall**
- **Exploit Prevention**
- **Behavior Detection**
- **AMSI Scanner**
- **Update**
- **Real-Time File Protection**
- **Backup**.

- **Licensing**: add or delete Kaspersky Embedded Systems Security keys, view license details.

Details pane

The details pane displays information about the selected node. If the **Kaspersky Embedded Systems Security** node is selected, the details pane displays information about the current device protection status and information about Kaspersky Embedded Systems Security, the protection status of its functional components, and the key status.

Context menu of the Kaspersky Embedded Systems Security node

You can use the items of the context menu of the **Kaspersky Embedded Systems Security** node to perform the following operations:

- **Pause protection**.
- **Configure Trusted zone settings**. View and configure Trusted Zone settings.
- **Removable Drives Scan**. Configure scanning of removable drives connected to the protected device via the USB port.
- **User access permissions for application management**. View and configure permissions to access Kaspersky Embedded Systems Security functions.
- **User access permissions for KESS Service management**. View and configure user rights to manage the Kaspersky Embedded Systems Security Service.
- **Storages**

- **Export settings**. Save the application settings in a configuration file in XML format. You can also perform this operation in context menus of application tasks.
- **Import settings**. Import application settings from a configuration file in XML format. You can also perform this operation in context menus of application tasks.
- **Refresh**. Refresh the contents of the Kaspersky Embedded Systems Security Console window. You can also perform this operation in context menus of application tasks.
- **Application properties**. View and configure settings of Kaspersky Embedded Systems Security or a selected task. You can also perform this operation in context menus of application tasks.

  To do so, you can also use the **Application properties** link in the details pane of the Kaspersky Embedded Systems Security node.

- **Help**. View information in Kaspersky Embedded Systems Security Help. You can also perform this operation in context menus of application tasks.

Toolbar and context menu of Kaspersky Embedded Systems Security tasks

You can manage the application tasks using the items of context menus of each task in the Kaspersky Embedded Systems Security Console tree.

You can use the items of the context menu to perform the following operations:

- **Resume**/**Pause**. Resume or pause task execution. To carry out these operations, you can also use the buttons on the toolbar. This operation is available for the Real-Time Protection tasks and the On-Demand Scan tasks.
- **Create task**. Create new custom task.
- **Delete task**. Delete custom task.
- **Export settings** / **Import settings**. Export or import task settings.
- **Properties**. Open the task settings window.
- **Help**. Open the corresponding online help topic.

System Tray Icon in the notification area

Immediately after installation of Kaspersky Embedded Systems Security, the application icon appears in the Microsoft Windows taskbar notification area.

If the application icon in the taskbar notification area is hidden, the administrator has disabled the display of the application interface in the policy.

The icon serves the following purposes:

- It indicates application activity.
- It acts as a shortcut to the context menu and main window of the application.

The following application icon statuses are provided for displaying application operating information:

- The icon signifies that critically important protection components of the application are enabled. Kaspersky Embedded Systems Security will display a warning if the user is required to perform an action, for example, restart the computer after updating the application.
- The icon signifies that critically important protection components of the application are disabled or have malfunctioned. Protection components may malfunction, for example, if the license has expired or as a result of an application error. Kaspersky Embedded Systems Security will display a warning with a description of the problem in computer protection.

You can open the context menu of the System Tray Icon by right-clicking it.

The context menu offers several commands to display application windows (see table below).

Context menu commands in System Tray Icon

Command	Description
Open Application Console	Opens Kaspersky Embedded Systems Security Console (if installed).
Open Compact Diagnostic Interface	Opens the Compact Diagnostic Interface.
About	Opens the **About** window containing information about Kaspersky Embedded Systems Security. For registered Kaspersky Embedded Systems Security users, the **About** window contains information about urgent updates that have been installed.
Hide	Hides the System Tray Icon in the toolbar notification area.

You can display the hidden System Tray Icon again at any time.

To display the System Tray Icon again,

in the Microsoft Windows **Start** menu, select **All Programs** > **Kaspersky Embedded Systems Security**. The icon will appear in the notification area of the Microsoft Windows taskbar.

The names of settings may vary depending on the installed operating system.

Configuring general settings via the Application Console

General settings and malfunction diagnostics settings of Kaspersky Embedded Systems Security establish the general operating conditions for the application. These settings allow you to control the number of working processes used by Kaspersky Embedded Systems Security, enable recovery of Kaspersky Embedded Systems Security tasks after an abnormal termination, maintain the log, enable creation of dump files of Kaspersky Embedded Systems Security processes after abnormal termination, and configure other general settings.

Application settings cannot be configured in the Kaspersky Embedded Systems Security Console if the active Kaspersky Security Center policy blocks changes to these settings.

To configure the general settings of Kaspersky Embedded Systems Security:

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and do one of the following:

   - Click the **Application properties** link in the results pane of the node.
   - Select **Application properties** in the node's context menu.

   The **Application properties** window opens.

2. On the **Interface** tab, specify which warnings you want to see on the Kaspersky Embedded Systems Security system tray icon.

3. On the **Security settings** tab, configure the following settings:

   - In the **General** section, configure the **Start the application on computer startup (recommended)** option.
   - Under **Self-Defense**, configure the protection of application modules and operating system services.
   - In the **Actions when switching to UPS backup power** section, specify limitations on protected device load created by Kaspersky Embedded Systems Security after switching to UPS power:
     - **Do not start scheduled scan tasks**
     - **Stop running scan tasks**
   - In the **Compatibility settings** section, configure the **Compatibility with remote administration software** setting.
   - In the **Scan settings** section, configure the CPU usage limit for scan tasks and allow conceding resources to other applications.

4. On the **Network settings** tab, configure the following settings:

   - In the **Proxy server** section, specify the proxy server settings: authentication type and details required for authentication on the proxy server.
   - Under **Monitored ports**, specify the network port monitoring option:
     - **Monitor all network ports**. In this network port monitoring mode the protection components monitor data streams that are transmitted via any open network ports of the computer.
     - **Monitor selected network ports only**. In this network port monitoring mode, the protection components monitor the selected ports of the computer and the network activity of the selected applications. The list of network ports that are normally used for transmission of email and network traffic is configured according to the recommendations of Kaspersky experts. If necessary you can edit the list of network ports.
   - Under **Port for remote connection**, if necessary, change the ports that the Application Console uses to connect to the computer with the application installed.

     The default port number for connection with Windows credentials is 13032, and the default port number for connection with credentials of manually created users is 13031. Range of possible port numbers: 1–65535.

The previously saved port numbers are used until the application is restarted.

5. On the **Malfunction diagnosis** tab, click **Settings** and configure the tracing and memory dumping of the application.

6. Click **OK**.

Kaspersky Embedded Systems Security settings are saved.

Managing Kaspersky Embedded Systems Security tasks

This section contains information about how to create, configure, start, and stop Kaspersky Embedded Systems Security tasks.

Kaspersky Embedded Systems Security task categories

Real-Time Computer Protection, Computer Control, Automatic Rule Generation, System Inspection, On-Demand Scan, Industrial Network Protection, Storage management and Update functions in Kaspersky Embedded Systems Security are implemented as tasks.

You can manage these tasks using the task context menu in the Kaspersky Embedded Systems Security Console tree, and the results pane. You can view task status information in the results pane. Task management operations are recorded in the system audit log.

There are two types of Kaspersky Embedded Systems Security tasks: *local* and *group*.

Local tasks

Local tasks can only be executed on the protected device they were created for. Depending on the start method, the following types of local tasks exist:

- **Local system tasks**. These tasks are created automatically during installation of Kaspersky Embedded Systems Security. You can change the settings of all local system tasks except the *Update rollback* task. Local system tasks cannot be renamed or deleted. You can run local system and custom On-Demand Scan tasks simultaneously.

- **Local custom tasks**. In the Application Console, you can create On-Demand Scan tasks, Update tasks, and Baseline System Integrity Monitor tasks. In Kaspersky Security Center, you can create On-Demand Scan tasks, Update tasks, etc. You can rename, configure, or delete custom tasks. You can run several custom tasks simultaneously.

Group tasks

You can manage group tasks and tasks for sets of protected devices from the Kaspersky Security Center. All group tasks are custom tasks. Group tasks are also displayed in the Application Console. In the Application Console, you can only view the status of group tasks. You cannot use the Application Console to manage or configure group tasks.

Starting, pausing, resuming, and stopping tasks manually

You can start, pause, resume or stop tasks manually. These options are not available for all Kaspersky Embedded Systems Security tasks.

To start, pause, resume or stop a task:

1. In the Application Console, open the context menu of the task.
2. Select one of the following commands: **Start**, or **Pause**.

The operation is performed and recorded in the system audit log.

Scheduling tasks

In the Kaspersky Embedded Systems Security Console, you can configure a schedule for running local system and user tasks. However, you cannot configure a schedule for running group tasks.

To schedule a task:

1. In the Console tree, select the task for which you want to configure the schedule.
2. In the results pane, click the **Properties** link.
3. In the window that opens, in the **Run mode** section, perform one of the following actions:
   - Select the **Manually** check box to run the task manually at a time that is convenient for you.
   - Select the **By schedule** check box if you want to enable scheduled task start.
4. If you select the **By schedule** option, configure the task schedule settings (see the table below).
5. If necessary, select the **Run task as** check box and specify the credentials of the user account that will be running the task.
6. Click **OK**.

The task schedule settings are saved.

Task schedule settings

Parameter	Description
Run mode	Select the task run mode: • **Minutes**. The task will run periodically every few minutes. Specify the start time of the task and the period in minutes. • **Hours**. The task will run periodically every few hours. Specify the start time of the task and the period in hours. • **Days**. The task will run periodically every few days. Specify the start time of the task and the period in days. • **Weeks**. The task will run on the specified days of the week at intervals of a specified number of weeks. Specify the schedule, use the check boxes to select the days of the week on which the task will run, and specify the start time for the task. • **Every month**. The task will run on a certain day of the month. Specify the date and time of the start. • **At a specified time**. The task will run once at the specified date and time. • **After every update**. The task will run every time updates are downloaded to the repository. • **After application startup**. The task will run every time Kaspersky Embedded Systems Security starts.
Run missed tasks	If the check box is selected, Kaspersky Embedded Systems Security starts the skipped task as soon as it becomes possible. The task may be skipped, for example, if the computer was off at the scheduled task start time. When the application gets an opportunity to execute missed tasks, it runs the tasks randomly within a certain time interval to distribute the load on the computer. If the check box is cleared, Kaspersky Embedded Systems Security does not run skipped tasks. Instead, it carries out the next task in accordance with the current schedule.
Use automatically randomized delay for task starts	If the check box is selected, the task is not run strictly on schedule, but randomly within a certain interval, that is, the start times of the task are spread out. Randomized start times help avoid a great number of computers simultaneously accessing the Administration Server when the task is run on schedule. The range of randomized start times is automatically calculated when the task is created, depending on the number of computers that have the task assigned. Subsequently, the task is always run at its calculated start time. However, whenever task settings are modified or the task is run manually, the calculated start time changes. If the check box is cleared, the task is run exactly at scheduled time.
Use randomized delay for task starts within an interval of (min)	If this check box is selected, the task is run on computers at a random time within a certain time frame. Randomized start times help avoid a great number of computers simultaneously accessing the Administration Server when the task is run on schedule. If the check box is cleared, the task is run exactly at scheduled time.
Pause task	You can specify a time interval during which the execution of a previously scheduled task will be paused. Once the specified time period is over, the task will resume. This may be necessary, for example, to minimize the impact of Kaspersky Embedded Systems Security on the performance of your computer during periods of peak usage. This functionality is available only for On-Demand Scan tasks.
Disable schedule from	If the check box is selected, Kaspersky Embedded Systems Security will stop running the scheduled task starting on the specified date. The task will be set to **Manually** mode. This functionality is available only for On-Demand Scan tasks.

Using user accounts to start tasks

You can start tasks under the system account or specify a different account.

About using accounts to start tasks

You can specify the account to run the following Kaspersky Embedded Systems Security tasks:

- *Rule Generator for Applications Launch Control*
- *Rule Generator for Device Control*

- *Log Inspection*
- *Application Integrity Control*
- *Update*.

By default, these tasks are run using system account permissions.

A different account with proper access permissions is recommended in the following cases:

- For the *Update* task:
  - If you specified a shared folder on a different device on the network as the update source.
  - If you use a proxy server with NTLM or Kerberos authentication for access to the update source.
- For the *Rule Generator for Applications Launch Control* task: if the generated rules are exported to a configuration file that the system account cannot access (for example, in a shared folder on the protected device).

You can start listed tasks with system account privileges. Kaspersky Embedded Systems Security performs these tasks and accesses shared folders on another device in the network if this device is registered in the same domain as the protected device. In this case, the system account must have access permissions for these folders. Kaspersky Embedded Systems Security accesses the device using permissions for the account **<domain name \ device_name>**.

Specifying a user account to start a task

The option to specify an account in the Application Console is not available for all tasks.

To specify an account to start a task:

1. In the Application Console tree, select the task you want to start with the rights of a specific account.
2. In the results pane, click the **Run mode** link.
   The **Schedule and run mode** window opens.
3. In the window that opens, in the **User** section, perform the following operations:
   a. Select the **Run task as** option.
   b. Enter the user name and password for the account you want to use.

      The selected user must be registered on the protected device or in the same domain as this computer.
4. Click **OK**.

The modified settings are saved.

Importing and exporting settings

This section explains how to export Kaspersky Embedded Systems Security settings. You will also learn how to export settings of certain application components to an XML configuration file, and how to import these settings from a configuration file back into the application.

About importing and exporting settings

You can export Kaspersky Embedded Systems Security settings to an XML configuration file and import settings into Kaspersky Embedded Systems Security from the configuration file. You can save all application settings or only settings for individual components to a configuration file.

When you export all settings of Kaspersky Embedded Systems Security to a file, the general application settings and settings of the following Kaspersky Embedded Systems Security components and functions are saved:

- Real-Time File Protection
- Exploit Prevention
- Network Threat Protection
- Behavior Detection
- Remediation Engine
- AMSI Scanner
- Applications Launch Control
- Device Control
- Firewall
- Rule Generator for Applications Launch Control
- Rule Generator for Device Control
- Log Inspection
- System Integrity Monitoring
- Critical Areas Scan
- Application Integrity Control
- Removable Drives Scan
- Full Scan
- Updating databases and application software modules

- Last update rollback
- Update

Also, you can save the general settings of Kaspersky Embedded Systems Security in the file, as well as the rights of user accounts.

If a Kaspersky Security Center policy is active at the time of export, the application exports the specified values used by that policy.

You cannot export group task settings.

Kaspersky Embedded Systems Security exports all passwords used by the application, for example, user account settings for running tasks or connecting to a proxy server. Exported passwords are saved in encrypted form in the configuration file. You can import passwords only using Kaspersky Embedded Systems Security installed on this protected device if it has not been reinstalled or updated.

You cannot import previously saved passwords using Kaspersky Embedded Systems Security installed on a different protected device. After settings have been imported on the protected device, all passwords must be entered manually.

If the **Request password to confirm critical actions** functionality was enabled when exporting settings, the password set on the device is exported and then automatically applied on the other device when importing settings.

Settings can be imported from a configuration file containing settings for individual Kaspersky Embedded Systems Security components (e.g. from a file created in Kaspersky Embedded Systems Security installed with an incomplete set of components). After the settings are imported, only those Kaspersky Embedded Systems Security settings that were contained in the configuration file are changed. All other settings remain the same.

Settings of an active Kaspersky Security Center policy that have been blocked do not change when importing the settings.

Exporting settings

To export settings to a configuration file:

1. To export all Kaspersky Embedded Systems Security settings, in the context menu of the **Kaspersky Embedded Systems Security** node, select the **Export settings** command.

   To export the settings of an individual component, click **Export settings** in the results pane.

   Kaspersky Security Network settings cannot be exported. Kaspersky Security Network must be configured manually.

2. In the window that opens, specify the name of the XML file to which you want to export the list of settings, and select the folder in which you want to save this file.

   You can use system environment variables when specifying the path, but not user environment variables.

   If a Kaspersky Security Center policy is active at the time of export, the application exports the settings used by that policy.

3. Save the file.

4. Click the **OK** button in the **Export of settings is successfully completed** window.

   Kaspersky Embedded Systems Security exports the list of settings to the XML file.

To export the list of trusted applications:

1. In the Application Console tree, open the context menu of the **Kaspersky Embedded Systems Security** node.

2. Select **Configure Trusted zone settings**.

3. The **Configure Trusted zone settings** window opens.

4. Go to the **Trusted applications** section and click **Settings**.

   This opens a window containing a list of trusted applications.

5. Select the trusted applications that you want to export.

   If you do not select any trusted application, Kaspersky Embedded Systems Security exports all trusted applications.

6. Click the arrow and in the drop-down list, select **Export**.

7. This opens a window; in that window, enter the name of the XML file to which you want to export the list of trusted applications, and select the folder in which you want to save this file.

8. Save the file.

   Kaspersky Embedded Systems Security exports the list of trusted applications to the XML file.

You can also export the Kaspersky Embedded Systems Security settings using the command line.

Importing settings

To import settings from a saved configuration file:

1. To import all Kaspersky Embedded Systems Security settings, in the context menu of the **Kaspersky Embedded Systems Security** node, select the **Import settings** command.

   To import the settings of an individual component, click **Import settings** in the results pane.

   After importing the general Kaspersky Embedded Systems Security settings or its functional component settings to the protected device, you cannot revert to the previous settings.

   Kaspersky Security Network settings cannot be imported. Kaspersky Security Network must be configured manually.

2. In the displayed window, select the XML configuration file from which you want to import settings and click **Open**.

3. Click the **OK** button in the **Import of settings is successfully completed** window.
4. In the Application Console toolbar, click the **Update** button.

   The Application Console window displays the imported settings.

Kaspersky Embedded Systems Security does not import passwords (account credentials for starting tasks or connecting to the proxy server) from a file created on another protected device or on the same protected device after Kaspersky Embedded Systems Security has been re-installed or updated on it. After import is complete, passwords must be entered manually.

To import the list of trusted applications:

1. In the Application Console tree, open the context menu of the **Kaspersky Embedded Systems Security** node.
2. Select **Configure Trusted zone settings**.
3. The **Configure Trusted zone settings** window opens.
4. Go to the **Trusted applications** section and click **Settings**.
5. Click the arrow and in the drop-down list, select **Import**.
6. This opens a window; in that window, select the XML file from which you want to import the list of trusted applications.
7. Open the file.

   If the computer already has a list of trusted applications, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.
8. The list is displayed on the **Trusted applications** tab. Click **OK**.

Viewing protection status and Kaspersky Embedded Systems Security information

To view information about the device protection status Kaspersky Embedded Systems Security,

select the **Kaspersky Embedded Systems Security** node in the Kaspersky Embedded Systems Security Console tree.

By default, information in the details pane of Kaspersky Embedded Systems Security Console is refreshed automatically:

- Every 10 seconds in case of a local connection.
- Every 15 seconds in case of a remote connection.

You can refresh information manually.

*To refresh information in the **Kaspersky Embedded Systems Security** node manually,*

select the **Refresh** command in the context menu of the **Kaspersky Embedded Systems Security** node.

The following application information is displayed in the details pane of Kaspersky Embedded Systems Security Console:

- Kaspersky Security Network Usage status.
- Device protection status.
- Information about database and application module updates.
- Actual diagnostics data.
- Data about protected device control tasks.
- License information.
- Status of integration with Kaspersky Security Center: details of the server with Kaspersky Security Center installed, to which the application is connected; information about application tasks controlled by the active policy.

Color coding is used to display the protection status:

- *Green*. The task is being run in accordance with the configured settings. Protection is active.
- *Yellow*. The task was not started, has been paused, or has been stopped. Security threats may occur. You are advised to configure and start the task.
- *Red*. The task completed with an error or a security threat was detected while the task was running. You are advised to start the task or take measures to eliminate the detected security threat.

Some details in this block (for example, task names or the number of threats detected) are links that, when clicked, take you to the node of the relevant task or open the task log.

The **KSN Usage** section displays current task status, for example, *Running*, *Stopped* or *Never performed*. The indicator can take the following values:

- Green color of the panel – signifies that the **KSN Usage** task is running and file requests for statuses are being send to KSN.
- Yellow color of the panel – one of the Statements is accepted, but the task is not running, or the task is running, but file requests are not sent to KSN.
- Red color of the panel – task failed.

Computer protection

The **Computer protection** section (see the table below) displays information about the current protection status of the device.

Information about device protection status

Section	Information
Device protection status indicator	The color of the panel with the name of the section reflects the status of tasks being performed in the section. The indicator can take the following values: • Green color of the panel – displayed by default and signifies that the Real-Time File Protection component is installed and the task is running. • Yellow color of the panel – signifies that the Real-Time File Protection component is not installed, and the *Critical Areas Scan* task has not been performed for a long time. • Red color of the panel – Real-Time File Protection tasks are not running.
Real-Time File Protection	**Status** – current status of the component, for example, *Running* or *Disabled*.
Critical Areas Scan	**Last scan date** – the date and time of the last Critical Areas Scan for viruses and other computer security threats. *Never performed* – an event that occurs when the *Critical Areas Scan* task has not been performed in the last 30 days or longer (default value). You can change the threshold for generating this event.
Network Threat Protection	**Status** – current status of the component, for example, *Running* or *Disabled*.
Exploit Prevention	**Status** – current status of the component, for example, *Running* or *Disabled*. **Operation mode** – one of the two available modes for the Exploit Prevention component: **Block** or **Inform**.
Behavior Detection	**Status** – current status of the component, for example, *Running* or *Disabled*. **Operation mode** – one of the three available modes for the Behavior Detection task: **Delete**, **Block** or **Inform**.

Update

The **Update** section (see the table below) displays information about how current databases and application modules are.

Information about the status of Kaspersky Embedded Systems Security databases and modules

Section	Information
Status indicator of databases and application modules	The color of the panel with the name of the section reflects the status of databases and application modules. The indicator can take the following values: • Green color of the panel – displayed by default and signifies that application databases are up to date and that the last database and modules update task was completed successfully. • Yellow color of the panel – signifies that databases are out of date, or the last database and modules update task failed. • Red color of the panel – the event *Databases are extremely out of date* or *Databases are up to date* has occurred.
Database status	The option can take the following values: • **Databases are up to date** – application databases were updated no more than 7 days ago (default). • **Databases are out of date** – application databases were updated between 7 and 14 days ago (default). • **Databases are extremely out of date** – application databases were updated more than 14 days ago (default). You can change the thresholds for generating the *Databases are out of date* and *Databases are extremely out of date* events.
Database release date	The date and time of release of the latest databases update. The date and time are specified in UTC format.
Status of the latest completed Database Update task	The date and time of the latest database update. The date and time are specified according to the local time of the protected device. The value in the field is colored red if the *Failed* event occurs.

Control

The **Control** section (see the table below) displays information about the Applications Launch Control, Device Control, and Firewall tasks.

Information about protected device control status

Section	Information
Status indicator for protected device control	The color of the panel with the name of the section reflects the status of tasks being performed in the section. The indicator can take the following values: • Green color of the panel – displayed by default and signifies that the Applications Launch Control component is installed and the task is running in Active mode; the Exploit Prevention component is installed and active. • The panel is yellow under one or more of the following conditions: Exploit Prevention is not running; the Applications Launch Control task is running in Inform mode; Exploit Prevention is running in Active mode, and the Applications Launch Control task is not running or failed. • Red color of the panel – the Applications Launch Control task is not running or failed, and Exploit Prevention is not running or is running in **Inform** mode.
Applications Launch Control	**Status** – current status of the component, for example, *Running* or *Disabled*. **Operation mode** – one of the available modes for the Applications Launch Control task: **Apply rules** or **Test rules**.
Device Control	**Status** – current status of the component, for example, *Running* or *Disabled*. **Operation mode** – one of the two available modes for the Device Control task: **By rules** or **Inform**.
Firewall	**Status** – current status of the component, for example, *Running* or *Disabled*.

Diagnostics

The **Diagnostics** section (see the table below) displays information about the System Integrity Monitoring and Log Inspection tasks.

Information about System Inspection status

Section	Information
Diagnostics status indicator	The color of the panel with the name of the section reflects the status of tasks being performed in the section. The indicator can take the following values: • Green – displayed by default and signifies that one or both system inspection components are installed and tasks are running. • Yellow – both components are installed, but one of the system inspection tasks is not running; the *Not running* event occurs. • Red – one of the tasks failed.
System Integrity Monitoring	**Status** – current status of the component, for example, *Running* or *Disabled*.
Log Inspection	**Status** – current status of the component, for example, *Running* or *Disabled*.

The Kaspersky Embedded Systems Security licensing information is displayed in the row in the bottom-left corner of the details pane of the **Kaspersky Embedded Systems Security** node.

You can configure Kaspersky Embedded Systems Security properties by following the Application properties link.

You can connect to a different protected device by following the Connect to a remote computer link.

How to configure Backup settings in the Application Console

To configure general Backup settings:

1. In the Application Console tree, open the context menu on the **Kaspersky Embedded Systems Security** node and select **Storages**.

2. Configure the settings described in the table below.

Storage settings

Parameter	Description
On the **Reports** tab, specify the reports settings:	
Store reports no longer than	If the check box is selected, the maximum report storage term is limited to the defined time interval. The default maximum storage term for reports is 30 days. After that period of time, Kaspersky Embedded Systems Security automatically deletes the oldest entries from the report file.
Limit the size of report file to	If the check box is selected, the maximum report file size is limited to the defined value. By default, the maximum file size is 1024 MB. To avoid exceeding the maximum report file size, Kaspersky Embedded Systems Security automatically deletes the oldest entries from the report file when the maximum report file size is reached.
On the **Backup** tab, specify the Backup settings:	
Store objects no longer than	If the check box is selected, the maximum file storage term is limited to the defined time interval. The default maximum storage term for files is 30 days. After expiration of the maximum storage term, Kaspersky Embedded Systems Security deletes the oldest files from Backup.
Limit the size of Backup to	If the check box is selected, the maximum storage size is limited to the defined value. By default, the maximum size is 400 MB. To avoid exceeding the maximum storage size, Kaspersky Embedded Systems Security automatically deletes the oldest files from storage when the maximum storage size is reached.
Threshold value for available space	The check box enables or disables the function that monitors the minimum amount of free space in Backup (the default value is 100 MB). If the amount of free space decreases below the specified threshold, Kaspersky Embedded Systems Security logs the *Backup free space threshold exceeded* event and issues a notification according to the settings for notifications about events of this type. If the check box is selected, Kaspersky Embedded Systems Security monitors the amount of free space in Backup. The **Threshold value for available space** check box is active if the **Limit the size of Backup to** check box is selected.

Working with the Web Plug-in from Web Console and Cloud Console

This section provides information about the Kaspersky Embedded Systems Security Administration Plug-in for Web Console and describes how to manage the application installed on a protected device or on a group of protected devices.

Managing Kaspersky Embedded Systems Security from Web Console and Cloud Console

You can centrally manage several protected devices that have Kaspersky Embedded Systems Security installed and are joined in an administration group using the Kaspersky Embedded Systems Security Web Plug-in. Kaspersky Security Center Web Console and Cloud Console also let you separately configure the settings of each protected device included in the administration group.

An *administration group* is created manually in Kaspersky Security Center Web Console. The group includes several devices with Kaspersky Embedded Systems Security installed for which you want to configure the same control and protection settings. For details on using administration groups, see Kaspersky Security Center Help.

Application settings for a single protected device are unavailable if the operation of Kaspersky Embedded Systems Security on the protected device is controlled by an active Kaspersky Security Center policy.

Kaspersky Embedded Systems Security can be managed from Kaspersky Security Center Web Console in the following ways:

- **Using Kaspersky Security Center policies**. Kaspersky Security Center policies can be used to remotely configure the same protection settings for a group of devices. Task settings specified in the active policy have priority over task settings configured locally in the Application Console or remotely in the Properties: <Protected device name> window of Kaspersky Security Center Web Console. Policies can be used to configure general application settings, settings for real-time computer protection tasks, activity control tasks on devices, network storage protection tasks and settings for starting local system tasks on a schedule.

- **Using Kaspersky Security Center group tasks**. Kaspersky Security Center group tasks allow remote configuration of common settings of tasks with an expiration period for a group of devices. You can use group tasks to activate the application, configure On-Demand Scan task settings, update task settings, and Rule Generator for Applications Launch Control task settings.

- **Using tasks for a set of devices**. Tasks for a set of devices allow remote configuration of common task settings with a limited execution period for protected devices that do not belong to any administration group.

- **Using the properties window of a single device**. In the device properties window, you can remotely configure the task settings for a single protected device included in an administration group. You can also configure both general application settings and settings for all Kaspersky Embedded Systems Security tasks if the selected protected device is not controlled by an active Kaspersky Security Center policy.

Kaspersky Security Center Web Console and Cloud Console allow you to configure application settings and advanced features, and also to work with logs and notifications. You can configure these settings for a group of protected devices and for individual protected devices.

Web Plug-in limitations

Kaspersky Embedded Systems Security Web Plug-in has the following limitations compared to Kaspersky Embedded Systems Security Administration Plug-in:

- The Applications Launch Control component rules cannot be created using digital certificate or Kaspersky Security Center events.
- The Device Control component rules cannot be generated based on connected devices or system data.

Managing application settings

This section contains information about configuring Kaspersky Embedded Systems Security general settings in the Kaspersky Security Center Web Console.

Configuring general application settings in Web Plug-in

You can configure Kaspersky Embedded Systems Security general settings in Web Plug-in for a group of protected devices or one protected device.

Configuring interface and scan settings in Web Plug-in

To configure application interface settings:

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the policy name you want to configure.
3. In the **<Policy name>** window that opens, select the **Application settings** tab.
4. Select the **Application Settings** section.
5. Click **Configure** in the **Interface settings** subsection.
6. Configure the settings described in the table below.

User interaction settings and scan settings

Parameter	Description
Interaction with user	**Do not display user interface**. On a client computer, no signs of Kaspersky Embedded Systems Security operation are displayed. The icon in the Windows notification area and notifications are not available. **Display user interface**. On the client computer, an icon is available in the Windows tray. In the context menu of the icon, the user can perform operations with Kaspersky Embedded Systems Security. Kaspersky Embedded Systems Security also displays notifications above the application icon. The context menu of the icon in the Windows system tray lets you open the Compact Diagnostic Interface. Clicking a link in the Compact Diagnostic Interface opens the Application Console.
Show application's status in notifications area	Select the check boxes opposite those categories of events about which you want to see notifications in the notification area of Microsoft Windows.

Configuring security and reliability settings in Web Plug-in

To configure security settings manually, take the following steps:

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the policy name you want to configure.
3. In the **<Policy name>** window that opens, select the **Application settings** tab.
4. Select the **Application Settings** section.
5. Click **Configure** in the **Security and reliability** subsection.
6. Configure the settings described in the table below.

Security and reliability settings

Parameter	Description
Start the application on computer startup (recommended)	When the check box is selected, Kaspersky Embedded Systems Security is started after the operating system loads, protecting the computer during the entire session. When the check box is cleared, Kaspersky Embedded Systems Security is not started after the operating system loads, until the user starts it manually. Computer protection is disabled and user data may be exposed to threats.
Protect application processes from external threats	When this check box is selected, Kaspersky Embedded Systems Security prevents alteration or deletion of application files on the hard drive, memory processes, and entries in the system registry.
Protect operating system services	If the protection of operating system services is enabled, third-party applications cannot act upon the processes of the operating system. If the protection of operating system services is disabled, third-party applications can act upon the processes of the operating system.

Parameter	Description
Postpone scheduled tasks while running on battery power	If this option is selected, power-saving mode is enabled. Kaspersky Embedded Systems Security postpones scheduled tasks. You can start a scan and update tasks manually, if necessary. When power-saving mode is enabled and a computer is running on battery power, the following tasks are not run, even if scheduled: • *Update of databases and application modules* • *Full Scan* • *Critical Areas Scan* • *Custom Scan* • *Application Integrity Control* • *IOC Scan*.
Computer status when settings are applied	Settings for displaying the statuses of client computers with Kaspersky Embedded Systems Security installed in the Web Console when errors occur while applying a policy or executing a task. The following statuses are available: *OK*, *Warning* and *Critical*.
Compatibility with remote administration software	If using Kaspersky Embedded Systems Security alongside Remote Administration Tools (RAT) causes problems, you can enable the compatibility mode. The problems may be related to the incompatibility of RATs with the Secure Desktop functionality of the application. The purpose of this functionality is to confirm actions that can potentially lower the security level of the computer. This functionality lets an application display a confirmation dialog that is isolated from other processes. This functionality uses elevated rights to secure the request. In this way, only the user can confirm the action and not the malware. If this option is selected, the RAT compatibility mode is enabled. The application displays a confirmation dialog without this functionality. This can reduce the security level of the computer. We do not recommend enabling the compatibility mode if Kaspersky Embedded Systems Security is not causing problems with your RAT. If this option is cleared, the RAT compatibility mode is disabled. By default, the check box is cleared. Example: When using the browser in RemoteApp mode, Kaspersky Embedded Systems Security may not display a confirmation window when visiting a website with an untrusted certificate because RemoteApp does not support the Secure Desktop functionality of the application. This can cause the browser to become unresponsive. For the browser to work correctly in RemoteApp mode, you must enable the compatibility mode. You can also try enabling the compatibility mode if you encounter problems with the Secure Desktop functionality when using other third-party software.
Limit CPU usage for scan tasks	Kaspersky Embedded Systems Security limits its use of the protected device CPU during on-demand scan tasks to the value specified in the **Upper limit** field. However, the application may use much more CPU time because of other components. Enabling this functionality may negatively affect the performance of Kaspersky Embedded Systems Security. By default, this function is disabled.
Yield resources to other applications	Consumption of computer resources by Kaspersky Embedded Systems Security when scanning the computer may increase the load on the CPU and hard drive subsystems. This may slow down other applications. To optimize the performance, Kaspersky Embedded Systems Security provides a mode for transferring resources to other applications. In this mode, the operating system can decrease the priority of Kaspersky Embedded Systems Security scan task threads when the CPU load is high. This allows redistributing operating system resources to other applications. Thus, scan tasks will receive less CPU time. As a result, Kaspersky Embedded Systems Security will take longer to scan the computer. By default, the application is configured to concede resources to other applications.

Configuring connection settings in Web Plug-in

The configured connection settings are used to connect Kaspersky Embedded Systems Security to update and activation servers and during integration of applications with Kaspersky Security Network services.

To configure the connection settings take the following steps:

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the policy name you want to configure.
3. In the **<Policy name>** window that opens, select the **Application settings** tab.
4. Select the **Application Settings** section.
5. Click **Configure** in the **Connection settings** subsection.
6. Configure the settings described in the table below.

Connection settings

Parameter	Description
Limit traffic on a metered connection	If this check box is selected, the application limits its own network traffic when the Internet connection is limited. Kaspersky Embedded Systems Security identifies a high-speed mobile Internet connection as a limited connection and identifies a Wi-Fi connection as an unlimited connection. Cost-Aware Networking works on computers running Windows 8 or later.
Do not use a proxy server	If this option is selected, Kaspersky Embedded Systems Security does not use a proxy server.
Automatically detect proxy server settings	If this option is selected, Kaspersky Embedded Systems Security uses proxy settings of the operating system.
Use specified proxy server settings	If this option is selected, Kaspersky Embedded Systems Security uses proxy server settings specified manually. Enter the IP address or symbolic name of the proxy server and the port number
Bypass a proxy server for local addresses	If this functionality is enabled, devices are accessed directly from the network that hosts the protected device with Kaspersky Embedded Systems Security installed. This option is enabled by default.
Proxy server authentication settings	To authenticate the application on the proxy server for internet access, you must enter the credentials of the user. Kaspersky Embedded Systems Security supports automatic authentication on the proxy server. If automatic authentication failed, the application prompts you to enter the credentials. **Do not use authentication** **NTLM authentication**. NTLM authentication with the current user account (default). **NTLM authentication with user name and password**. NTLM authentication with manually specified credentials. **User name and password**. Authentication with manually specified credentials. **Kerberos authentication**. Kerberos authentication with the current user account. To ensure the Kerberos authentication works correctly when using CNAME records for the proxy server address, you must register a Service Principal Name (SPN) for each CNAME record. **Kerberos authentication with user name and password**. Kerberos authentication with manually specified credentials. If Kerberos authentication is selected, Kaspersky Embedded Systems Security can, depending on the proxy server settings, perform authentication using either the Kerberos or NTLM protocol.
Monitor all network ports	In this network port monitoring mode the protection components monitor data streams that are transmitted via any open network ports of the computer.
Monitor selected network ports only	In this network port monitoring mode, the protection components monitor the selected ports of the computer and the network activity of the selected applications. The list of network ports that are normally used for transmission of email and network traffic is configured according to the recommendations of Kaspersky experts.
Use Kaspersky Security Center as a proxy server when activating the application	Indicate whether Kaspersky Security Center will be used as a proxy-server for application activation.

Configuring scheduled start of local tasks in Web Plug-in

You can use policies to allow or block the start of the local system On-Demand Scan task and the Update task. This is done according to the schedule configured locally on each protected device in the administration group:

- If the scheduled start of a specific type of local system task is prohibited by a policy, these tasks will not be performed on the protected device according to the schedule. You can start local system tasks manually.
- If the scheduled start of a specific type of local system task is allowed by a policy, these tasks will be performed in accordance with the scheduled parameters configured locally for this task.

By default, starting of local system tasks is prohibited by policy.

We recommend that you do not allow local system tasks to start if updates or on-demand scans are administered by Kaspersky Security Center group tasks.

If you do not use group update or on-demand scan tasks, allow local system tasks to be started in the policy: Kaspersky Embedded Systems Security will perform application database and module updates, and start all local system on-demand scan tasks in accordance with the default schedule.

You can use policies to allow or block the scheduled start of the following local system tasks:

- On-Demand Scan tasks: *Critical Areas Scan*, *Scan at Operating System Startup*, *Application Integrity Control*, *Baseline System Integrity Monitor*.
- The *Update* task.

If the protected device is excluded from the administration group, the local system tasks schedule will be enabled automatically.

To allow or block the scheduled start of Kaspersky Embedded Systems Security local system tasks in a policy:

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the policy name you want to configure.
3. In the **<Policy name>** window that opens, select the **Application settings** tab.
4. Select the **Application Settings** section.
5. Click **Configure** in the **Run local system tasks** subsection.
6. Configure the settings described in the table below.

Settings for launching local tasks

Parameter	Description
Allow use of local tasks	If the check box is selected, local tasks are displayed in the Kaspersky Embedded Systems Security local interface. When there are no additional policy restrictions, the user can configure and run tasks. However, configuring task run schedule remains unavailable for the user. The user can run tasks only manually. If the check box is cleared, use of local tasks is stopped. In this mode, local tasks do not run according to schedule. Tasks cannot be started or configured in the local interface of Kaspersky Embedded Systems Security, or when working with the command line.
Allow schedule management	The check box is available if the **Allow use of local tasks** check box is selected. If the check box is selected, the schedule management becomes available in the local task properties in the Application Console. By default, the check box is cleared.
Allow group tasks to be displayed	If the check box is selected, group tasks are displayed in the Kaspersky Embedded Systems Security local interface. The user can view the list of all tasks in the Application Console. If the check box is cleared, Kaspersky Embedded Systems Security displays an empty task list.
Allow management of group tasks	If the check box is selected, users can start and stop group tasks specified in Kaspersky Security Center. Users can start and stop tasks in the Application Console or in the simplified application interface. If the check box is cleared, Kaspersky Embedded Systems Security starts scheduled tasks automatically, or the administrator starts tasks manually in Kaspersky Security Center.

Configuring Backup settings in Web Plug-in

To configure general Backup settings in Kaspersky Security Center:

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the policy name you want to configure.
3. In the **<Policy name>** window that opens, select the **Application settings** tab.
4. Select the **Supplementary** section.
5. Click **Configure** in the **Storages** subsection.
6. Configure the settings described in the table below.

Storage settings

Parameter	Description
On the **Reports** tab, specify the reports settings:	
Store reports no longer than	If the check box is selected, the maximum report storage term is limited to the defined time interval. The default maximum storage term for reports is 30 days. After that period of time, Kaspersky Embedded Systems Security automatically deletes the oldest entries from the report file.
Limit the size of report file to	If the check box is selected, the maximum report file size is limited to the defined value. By default, the maximum file size is 1024 MB. To avoid exceeding the maximum report file size, Kaspersky Embedded Systems Security automatically deletes the oldest entries from the report file when the maximum report file size is reached.
On the **Backup** tab, specify the Backup settings:	
Store objects no longer than	If the check box is selected, the maximum file storage term is limited to the defined time interval. The default maximum storage term for files is 30 days. After expiration of the maximum storage term, Kaspersky Embedded Systems Security deletes the oldest files from Backup.
Limit the size of Backup to	If the check box is selected, the maximum storage size is limited to the defined value. By default, the maximum size is 400 MB. To avoid exceeding the maximum storage size, Kaspersky Embedded Systems Security automatically deletes the oldest files from storage when the maximum storage size is reached.

Parameter	Description
Threshold value for available space	The check box enables or disables the function that monitors the minimum amount of free space in Backup (the default value is 100 MB). If the amount of free space decreases below the specified threshold, Kaspersky Embedded Systems Security logs the Backup free space threshold exceeded event and issues a notification according to the settings for notifications about events of this type. If the check box is selected, Kaspersky Embedded Systems Security monitors the amount of free space in Backup. The **Threshold value for available space** check box is active if the **Limit the size of Backup to** check box is selected. The check box is selected by default.

Creating and configuring policies

This section provides information on using Kaspersky Security Center policies for managing Kaspersky Embedded Systems Security on several protected devices.

Global Kaspersky Security Center policies can be created for managing protection on several devices where Kaspersky Embedded Systems Security is installed.

A policy enforces the Kaspersky Embedded Systems Security settings, functions and specified tasks on all the protected devices for one administration group.

Several policies for one administration group can be created and enforced in turns. The policy currently active for a group has *Active* status in the Web Console.

Information on policy enforcement is logged in the Kaspersky Embedded Systems Security system audit log. This information can be viewed in the Application Console in the **Logs and notifications** node.

Kaspersky Security Center offers one way to apply policies on protected devices: *Prohibit changing the settings*. After a policy has been applied, Kaspersky Embedded Systems Security uses the settings for which you have selected the icon in the policy properties on protected devices. In this case, the selected settings are used instead of the settings in effect before the policy was applied. Kaspersky Embedded Systems Security does not apply the active policy settings for which the icon is selected in the policy properties.

If a policy is active, the values of settings marked with the icon in the policy are displayed in the Application Console but cannot be edited. The values of other settings (marked with the icon in the policy) can be edited in the Application Console.

The settings configured in the active policy and marked with the icon also block changes in Kaspersky Security Center for an individual protected device in the **Properties: <Protected device name>** window.

Settings that are specified and sent to the protected device using an active policy are saved in the local task settings after the active policy is disabled.

If a policy defines settings for any real-time computer protection task or network storage protection task that is currently running, the settings defined by the policy will change immediately after the policy is applied. If the task is not running, the settings are applied when it starts.

How to create a policy in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click **Add**.

3. The **New policy** window opens.
4. In the **Select application** section, select Kaspersky Embedded Systems Security.
5. Specify the modes of Kaspersky Embedded Systems Security on protected devices.
6. If necessary, specify files or folders as well as names of objects (according to the Virus Encyclopedia) that you want to exclude from scanning by all or some application components.
7. On the **General** tab, you can perform the following actions:
   - Change the policy name.

     The policy name cannot contain the following symbols: `" * < : > ? \ | .`

   - Select the policy status:
     - **Active**. After the next synchronization, the policy will be used as the active policy on the computer.
     - **Inactive**. Backup policy. If necessary, an inactive policy can be switched to active status.
     - **Out-of-office**. The policy is activated when a computer leaves the organization network perimeter.
   - Configure the inheritance of settings:
     - **Inherit settings from parent policy**. If this toggle button is switched on, the policy setting values are inherited from the top-level policy. Policy settings cannot be edited if is set for the parent policy.
     - **Force inheritance of settings in child policies**. If the toggle button is on, the values of the policy settings are propagated to the child policies. In the child policy settings the **Inherit settings from parent policy** check box is automatically selected. Child policy settings are inherited from the parent policy, except for the settings marked with . Child policy settings cannot be edited if is set for the parent policy.
8. On the **Application settings** tab, configure the policy settings as required.
9. Click **Save**.

After a new policy is created, a set of allowing rules is created to prevent applications from being blocked, ensuring their uninterrupted operation.

By default, Kaspersky Embedded Systems Security creates a set of rules for inbound network traffic when creating a new policy:

- Two allowing rules for the process of sharing the Windows desktop using Kaspersky Security Center Network Agent, which is located in the %Program Files% and %Program Files (x86)% folders. Status: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.
- Two allowing rules for local port 15000. State: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.

By default, Kaspersky Embedded Systems Security creates a set of outgoing network traffic rules when creating a new policy:

- Two allowing rules for the Kaspersky Embedded Systems Security service, which is located in the %Program Files% and %Program Files (x86)% folders. Status: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.
- Two allowing rules for the worker process of Kaspersky Embedded Systems Security, which is located in the %Program Files% and %Program Files (x86)% folders. Status: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.
- Two allowing rules for local port 13000. State: enabled. Allowed external addresses: all. Protocols: TCP and UDP, one rule per protocol.

Creating and configuring tasks using Kaspersky Security Center

This section contains information about Kaspersky Embedded Systems Security tasks, and how to create them, configure task settings, and start and stop them.

About task creation in Web Plug-in

You can create local and group tasks in the following ways:

- For one protected device: in the **Properties <Protected device name>** window in the **Tasks** section.
- For an administration group: in the details pane of the node of the selected group of protected devices on the **Tasks** tab.
- For a set of protected devices: in the details pane of the **Device selections** node.

You can use policies to disable schedules for *Update* and *On-Demand Scan* local system tasks on all protected devices in the same administration group.

General information on tasks in Kaspersky Security Center is provided in the Kaspersky Security Center Help.

Creating a task in Web Plug-in

To create a new task in the Kaspersky Security Center Web Console:

1. Start the task wizard in one of the following ways:

   - To create a local task:

     a. In the main window of the Web Console, select **Asset management** → **Assets (Devices)**.

     b. Click the protected device name.

     c. In the **<Device name>** window that opens, select the **Tasks** tab.

     d. Click **Add**.

   - To create a group task:

     a. In the main window of the Web Console, select **Asset management** → **Tasks**.

     b. Click **Add**.

   The task wizard window opens.

2. In the **Application** drop-down list, select **Kaspersky Embedded Systems Security**.

3. In the **Task type** drop-down list, select the type of the task to be created.

4. Depending on the selected task type, do one of the following:

   - Create an On-Demand Scan task.

   - To create an update task, configure task settings based on your requirements:

     a. You can specify Kaspersky Security Center Administration Server or Kaspersky update servers as an application update source in the **Update sources** block. You can also create a customized list of update sources: by adding custom HTTP and FTP servers or network folders manually and setting them as update sources.

     You can specify the usage of Kaspersky update servers, if manually customized servers are not available.

     b. Configure the settings for a feature that reduces the load on the disk subsystem:

     c. You can specify the actions that Kaspersky Embedded Systems Security will perform if critical application module updates are needed, as well as after installation of critical updates is complete. In addition, you can specify whether Kaspersky Embedded Systems Security will receive information about available scheduled updates.

     d. Specify the set of updates to copy and a path to the folder that will be used by Kaspersky Embedded Systems Security to store copied updates.

- To create the Application Activation task:

  a. In the **Selecting a license key** window, specify the key file or activation code that you want to use to activate the application.

  b. Select the **Use as a reserve key** check box if you want to create a task for renewing the license.

- Create and configure the Rule Generator for Applications Launch Control task.

- Create and configure the Rule Generator for Device Control task.

5. Click **Next**.

6. If the task is being created for a set of protected devices, select the network (or group) of protected devices on which this task will be executed.

7. Click **Next**.

8. In the **Finish task creation** window, select the **Open task details when creation is complete** check box if you want to configure task settings.

9. Click **Finish**.

The created task is displayed in the **Tasks** list.

Configuring group tasks in Web Plug-in

To configure a group task for multiple protected devices:

1. In the main window of the Web Console, select **Asset management** → **Tasks**.

2. Click the task name in the list of Kaspersky Security Center tasks.

   The **<Task name>** window opens.

3. Go to the **Application settings** tab.

4. Depending on the type of configured task, do one of the following:

   - To configure the *On-Demand Scan* task:

     a. In the **Scan scope** section, configure a scan scope.

     b. In the **Options** section, configure the level of heuristic analysis and integration with other application components.

   - To configure the *Update* task, adjust the task settings based on your requirements:

     a. In the **Update sources** section, configure update source settings.

     b. In the **Update settings** section, manage the disk subsystem optimization settings, specify the actions that you want Kaspersky Embedded Systems Security to perform if critical updates of application modules are available or if information about planned updates is available; specify the update copying settings.

- To configure the *Application Activation* task, apply the key file or activation code that you want to use to activate the application. Select the **Use as additional key** check box if you want to add an activation code or key file for renewing the license.

- To configure the automatic generation of allowing rules for Device Control, specify the settings that will be used to create the list of allowing rules.

5. Configure the task schedule in the **Schedule** section (you can configure a schedule for all task types except *Update rollback*).

6. On the **Settings** tab in the **Account** section, specify the account whose rights will be used to run the task. For detailed information on configuring settings in this section, see Kaspersky Security Center Help.

7. Click **Save**.

The newly configured group task settings are saved.

Configuring the Application activation task in Web Plug-in

To configure the Application Activation task:

1. In the main window of the Web Console, select **Asset management** → **Tasks**.

2. Click the task name in the list of Kaspersky Security Center tasks.

   The **<Task name>** window opens.

3. In the **Application settings** section, specify the key file that you want to use to activate the application. Select the **Use as a reserve key** check box if you want to add a key to renew the license.

4. Configure the task schedule in the **Schedule** section.

5. Click the **Save** button in the **<Task name>** window.

Configuring the Update task in Web Plug-in

To configure the Update task:

1. In the main window of the Web Console, select **Devices** → **Tasks**.

2. Click the task name in the list of Kaspersky Security Center tasks.

   The <Task name> window opens.

3. Select the **Application settings** tab.

4. In the **Update sources** section, configure update source settings:

   a. Specify Kaspersky Security Center Administration Server or Kaspersky update servers as an application update source. You can also create a customized list of update sources: by adding custom HTTP and FTP servers or network folders manually, and setting them as update sources.

      You can specify the usage of Kaspersky update servers, if manually customized servers are not available.

b. Configure the settings for a feature that reduces the load on the disk subsystem:

- Lower the load on the disk I/O
- RAM used for optimization, MB

c. Specify actions that Kaspersky Embedded Systems Security should perform when critical updates of application modules are available or when there is information about planned updates.

d. Specify update copying settings.

5. Configure the task schedule in the **Schedule** section (you can configure a schedule for all task types except *Update rollback*).

6. In the **<Task name>** window, click **OK**.

Scheduling tasks

You can schedule local system and custom tasks in the Web Console.

To schedule group tasks using the Web Console:

1. In the main window of the Web Console, select **Asset management** → **Tasks**.

2. Click the task name in the list of Kaspersky Security Center tasks.

   The **<Task name>** window opens.

3. Go to the **Schedule** section and configure the schedule settings (see the table below) as needed.

   Fields with schedule settings for the On-Demand Scan and Update tasks are unavailable if scheduling of these tasks is blocked by a Kaspersky Security Center policy.

4. Click the **Save** button to save the task start settings.

Task schedule settings

Parameter	Description
Scheduled start	Select the task run mode: • **Every N hours**. The task will run periodically every few hours. Specify the start time of the task and the period in hours. • **Every N days**. The task will run periodically every few days. Specify the start time of the task and the period in days. • **Every N minutes**. The task will run periodically every few minutes. Specify the start time of the task and the period in minutes. • **By days of week**. The task will run on the specified days of the week. Select the days of the week and specify the start time. If you need to run the task at intervals of several weeks, enter the desired value in the **Interval** field. • **Monthly**. The task will run on a certain day of the month. Specify the date and time of the start. • **Once**. The task will run once at the specified date and time. • **Manually**. Run mode in which you can start scan manually at a time when it is convenient for you. • **When new updates are downloaded to the repository**. The task will run every time updates are downloaded to the repository. • **On completing another task**. The task will run upon completion of another task. Select the task and its completion status. Kaspersky Embedded Systems Security does not support the **On completing another task** mode for scheduling local tasks. • **On virus outbreak**. The task will run if a virus attack is detected. • **Start in N minutes after application startup**. The task will run after a specified period of time every time Kaspersky Embedded Systems Security starts. Specify the number of minutes in the **Task start delay (min)** field.
Run missed tasks	If the check box is selected, Kaspersky Embedded Systems Security starts the skipped task as soon as it becomes possible. The task may be skipped, for example, if the computer was off at the scheduled task start time. When the application gets an opportunity to execute missed tasks, it runs the tasks randomly within a certain time interval to distribute the load on the computer. If the check box is cleared, Kaspersky Embedded Systems Security does not run skipped tasks. Instead, it carries out the next task in accordance with the current schedule.
Use automatically randomized delay for task starts	If this check box is selected, the task is run on computers at a random time within a certain time frame. Randomized start times help avoid a great number of computers simultaneously accessing the Administration Server when the task is run on schedule. If the check box is cleared, the task is run exactly at scheduled time.
Use automatically randomized delay for task starts within an interval of	If this check box is selected, the task is run on computers at a random time within a certain time frame. Randomized start times help avoid a great number of computers simultaneously accessing the Administration Server when the task is run on schedule. If the check box is cleared, the task is run exactly at scheduled time.
Turn on devices by using the Wake-on-LAN function before starting the task	If the check box is selected, the operating system of the computer is given a specified lead time to complete startup before the task is run. The default lead time is 5 minutes. Select the check box if you want to run the task on all computers including powered off computers.
Shut down the devices after completing the task	If this check box is selected, the computer will shut down after the task is completed. For example, you can enable this functionality to scan the computer on Fridays after working hours. When the task finishes, the application turns off the computer for the weekend.
Stop the task if it runs longer than	Limiting the task execution time. After the specified amount of time, Kaspersky Embedded Systems Security stops the task. The task is not marked as completed. Next time Kaspersky Embedded Systems Security runs the task, it will be run from the beginning and on schedule.

Parameter	Description
Pause task execution	You can specify a time interval during which the execution of a previously scheduled task will be paused. Once the specified time period is over, the task will resume. This may be necessary, for example, to minimize the impact of Kaspersky Embedded Systems Security on the performance of your computer during periods of peak usage. This functionality is available only for On-Demand Scan tasks.
End date	If the check box is selected, Kaspersky Embedded Systems Security will stop running the scheduled task starting on the specified date. The task will be set to **Manually** mode. This functionality is available only for On-Demand Scan tasks.

Reports in Kaspersky Security Center

Reports in Kaspersky Security Center contain information about the status of managed devices. Reports are based on information stored on Administration Server.

Starting from Kaspersky Security Center 11, the following types of reports are available for Kaspersky Embedded Systems Security:

- Report on the status of application components
- Report on prohibited applications
- Report on prohibited applications in test mode

See Kaspersky Security Center Help for detailed information about all Kaspersky Security Center reports and how to configure them.

Report on the status of Kaspersky Embedded Systems Security components

You can monitor the protection status of all network devices and get a structured overview of the set of components on each device.

The report displays one of the following states for each component: *Running*, *Paused*, *Stopped*, *Not covered by license*.

Not Installed status refers to the component, not the application itself. If the application is not installed, the Kaspersky Security Center Web Console assigns the N/A (Not available) status.

You can create component selections and use filtering to display network devices with a specified set of components and state.

See Kaspersky Security Center Help for detailed information about creating and using selections.

To view the status of components in the Kaspersky Security Center Web Console:

1. In the main window of the Web Console, select **Assets (Devices)** → **Managed Devices**.
2. Click the device name and go to the **Applications** section.
3. Click the application name of Kaspersky Embedded Systems Security.
4. In the window that opens, on the **General** tab, go to the **Components** section.
5. Review the status table.

To review a standard report in Kaspersky Security Center Web Console:

1. Select **Monitoring** → **Reports**.
2. In the list, select **Report on status of application components** and click it.

   A report is generated.
3. Review the following report details:

   - A graphical diagram.
   - A summary table of components and aggregated numbers of network devices where each of the components is installed, and groups they belong to.
   - A detailed table specifying the component status, version, device and group.

Reports on prohibited applications in active and test modes

Based on the results of the Applications Launch Control task, two types of reports can be generated: a report on prohibited applications (if the task is started in Active mode) and a report on prohibited applications in test mode (if the task is started in the Inform mode). These reports display information about blocked applications on the protected devices of the network. Each report is generated for all administration groups and accumulates data from all the Kaspersky applications installed on the protected devices.

To review a report on prohibited applications in the Inform mode:

1. Run the Applications Launch Control task in Inform mode.
2. Select **Monitoring** → **Reports**.
3. In the list, select **Report on prohibited applications in test mode** and click it.

   A report is generated.

4. Review the following report details:

   - A graphical diagram that displays the top 10 applications with the largest number of blocked starts.
   - A summary table of application blocks, specifying the executable file name, reason, time of blocking, and number of devices where the blocking occurred.
   - A detailed table specifying data about the device, file path and criteria for blocking.

To review a report on prohibited applications in Active mode:

1. Run the Applications Launch Control task in Active mode.
2. Select **Monitoring → Reports**.
3. In the list, select **Report on prohibited applications** and click it.

   A report is generated.

This report consists of the same data about blocks as the report on prohibited applications in test mode.

Application licensing

This section provides information about the main concepts related to licensing of the application.

About the End User License Agreement

The *End User License Agreement* is a binding agreement between you and AO Kaspersky Lab, stipulating the terms on which you may use the application.

Carefully review the terms of the End User License Agreement before you start using the application.

You can read the terms of the End User License Agreement and the Privacy Policy, that describes processing and transmission of data, in the following ways:

- During the installation of Kaspersky Embedded Systems Security.
- During the installation of Kaspersky Embedded Systems Security Console.
- By reading the file license.txt document included in the distribution kit.
- On the Kaspersky web site (https://www.kaspersky.com/business/eula).

By confirming that you agree with the End User License Agreement when installing the application, you signify your acceptance of the terms of the End User License Agreement. If you do not accept the terms of the End User License Agreement, you must abort application installation and must not use the application.

About the license

A *license* is a time-limited right to use the application, granted under the End User License Agreement.

A valid license entitles you to receive use of the application in accordance with the terms of the End User License Agreement as well as receive technical support when necessary.

The scope of service and the period of application use depend on the type of license used to activate the application.

You can activate the application in two ways:

- Using a key file, which grants you the usage under the commercial license
- Using an activation code to purchase a commercial license.

After the commercial license expires, only the following application components and tasks remain available without database updates:

- Real-Time File Protection
- System Integrity Monitoring
- On-Demand Scan tasks

To continue using all the features of Kaspersky Embedded Systems Security, you must renew your commercial license. It is recommended to extend the validity period of the license before its expiration date to ensure maximum protection.

If the license key is removed, the application will continue to run. The System Integrity Monitoring component remains available, and the rest of components, tasks, and Kaspersky Embedded Systems Security database updates become unavailable. The same happens if Kaspersky adds your license to the denylist.

About license certificate

A *license certificate* is a document transferred to the user together with a key file or activation code.

The license certificate contains the following license information:

- License ID or order number.
- Details of the user to whom the license is granted.
- Details of the application that can be activated using the license.
- Limitation on the number of licensed units (for example, the number of devices on which the application can be used under the license).
- License term start date.
- License expiration date or license term.
- License type.

About the key

A *key* is a sequence of bits with which you can activate and subsequently use the application in accordance with the terms of the End User License Agreement. A key is generated by Kaspersky.

You can add a key to the application by using a key file or an activation code. After you add a key to the application, the key is displayed in the application interface as a unique alphanumeric sequence.

Kaspersky can add a key to the denylist due to violations of the License Agreement. If your key is blocked, a different key must be added in order for the application to work.

There are two types of keys: active and reserve.

An *active key* is a key that is currently used by the application. A key for a commercial license may be added as the active key. The application cannot have more than one active key.

A *reserve key* is a key that entitles the user to use the application, but is not currently in use. A reserve key automatically becomes active when the license associated with the current active key expires. A reserve key can be added only if the active key is available.

About the key file

A *key file* is a file with the .key extension that you receive from Kaspersky. The purpose of a key file is to add a license key that activates the application.

You receive a key file at the email address you specified after purchasing Kaspersky Embedded Systems Security.

You do not need to connect to Kaspersky activation servers in order to activate the application with a key file.

You can recover a key file if it has been accidentally deleted. You may need a key file to register a Kaspersky CompanyAccount, for example.

To recover a key file, do one of the following:

- Contact the license seller.
- Obtain a key file on the Kaspersky website based on your existing activation code.

About activation code

An *activation code* is a unique sequence of 20 letters and numbers. You have to enter an activation code in order to add a key for activating Kaspersky Embedded Systems Security. You receive an activation code at the email address you specified after purchasing Kaspersky Embedded Systems Security.

To activate the application with an activation code, Internet access is required to connect to Kaspersky activation servers.

If you have lost your activation code after installing the application, it can be recovered. You may need the activation code to register a Kaspersky CompanyAccount, for example. To recover your activation code, contact the Kaspersky Lab partner from whom you purchased the license.

Comparison of application functionality depending on license type

The set of Kaspersky Embedded Systems Security functionality depends on the license type (see table below).

Comparison of Kaspersky Embedded Systems Security features

Feature	Kaspersky Embedded Systems Security	Kaspersky Embedded Systems Security Compliance Edition
Real-Time File Protection	✓	✓
On-Demand Scan	✓	✓
Applications Launch Control	✓	✓
Device Control	✓	✓
Firewall	✓	✓
File Integrity Monitor	–	✓
Log Inspection	–	✓

Activating the application with a key file

You can activate Kaspersky Embedded Systems Security by applying a key file.

To activate Kaspersky Embedded Systems Security by applying a key file:

1. In the Application Console tree, expand the **Licensing** node.
2. Click the **Add key** link in the results pane of the **Licensing** node.
3. In the window that opens, click the **Browse** button.
4. Select a key file with the .key extension.

   You can also add a key as a reserve key. To add a key as an additional key, select the **Use as additional key** check box.

5. Click **OK**.

The selected key file will be applied. In this case:

- If an active key has already been added to activate the application and you add another key as the active key, the new key replaces the previously added key. The previously added key is removed.
- If a reserve key has already been added to activate the application and you add another key as a reserve key, the new key replaces the previously added key. The previously added reserve key is removed.
- If an active key and a reserve key have already been added to activate the application and you add a new key as the active key, the new key replaces the previously added active key; the reserve key is not removed.

Information about the added key will be available on the **Licensing** node.

Activating the application with an activation code

To activate the application using an activation code, the protected device must be connected to the internet.

You can activate Kaspersky Embedded Systems Security by using an activation code.

When activating the application with this method, Kaspersky Embedded Systems Security sends data to the activation server to verify the entered code:

- If the activation code verification is successful, the application is activated.
- If the activation code verification fails, the corresponding notification is displayed. In this case, you must contact the software vendor from whom you purchased your Kaspersky Embedded Systems Security license.
- If the number of activations with the activation code is exceeded, the corresponding notification is displayed. The application activation procedure is interrupted, and the application prompts you to contact Technical Support.

You can activate Kaspersky Embedded Systems Security with an activation code using the Application Console, or by creating the *Application Activation* group task via the Administration Plug-in or via the Web Plug-in.

To activate Kaspersky Embedded Systems Security with an activation code using the Application Console:

1. In the Application Console tree, expand the **Licensing** node.
2. Click the **Add activation code** link in the results pane of the **Licensing** node.
3. In the window that opens, enter the activation code in the **Activation code** field.
   - If you want to use the activation code as a reserve key, select the **Use as additional key** check box.
   - To view information about a license, click the **Show license information** button. The information will be displayed in the **License information** block.
4. Click **OK**.

   Kaspersky Embedded Systems Security sends information about the applied activation code to the activation server.

Viewing information about current license

Viewing the license status

Information about the status of the current license is displayed in the details pane of the **Kaspersky Embedded Systems Security** node of the Application Console. License status can have the following values:

- **Checking the key status** – Kaspersky Embedded Systems Security is checking the added key file and is waiting for a response about the current status.
- **Expiration date** – Kaspersky Embedded Systems Security has been activated until the specified date. The status is highlighted in yellow in the following cases:
  - The license will expire in 30 days and no reserve key have been added.
  - The added key has been added to the denylist and is about to be blocked.

- **Application is not activated** – Kaspersky Embedded Systems Security is not activated because the key has not been added. The status is highlighted in red.
- **License has expired** – Kaspersky Embedded Systems Security is not activated because the license has expired. The status is highlighted in red.
- **End User License Agreement has been violated** – Kaspersky Embedded Systems Security is not activated because the terms of the End User License Agreement have been violated. The status is highlighted in red.
- **Key is in denylist** – the added key file has been blocked and added to the denylist by Kaspersky, for example, if the key was used by third parties to activate the application illegally. The status is highlighted in red.

Viewing information about current license

To view the information about the current license,

In the Application Console tree, expand the **Licensing** node.

General information about the current license is displayed in the details pane of the **Licensing** node (see the table below).

General information about the license in the Licensing node

Field	Description
Activation code status or key status	Activation code status or key status: *Active key* or *Reserve*.
Expiration date	Expiry date and time of the license associated with an active key.
License type	License type: *Commercial license*.
Activation status	The activation status information can take the following values: • **Applied** – if you have activated the application using a key. • **Application Activation** – if you have applied an activation code to activate the application, but the activation process has not been finalized yet. The status changes to **Applied** after activation of the application is complete and the contents of the node's details pane are refreshed. • **Activation error** – if application activation failed. You can view the cause of unsuccessful activation in the task log.
Key	The number of the key that you used to activate the application.

To view the detailed information about license,

in the details pane of the **Licensing** node open the context menu of the license you want view and select **Properties**.

Detailed license information in the Properties <Key number> window

Field	Description
Key	The number of the key that you used to activate the application.
Application	The name of the application that was activated with the added key.
License type	License type: commercial or trial.
License term	The number of days, starting from the application activation date, during which the license is valid.
Activation date	Date when the key was added to the application.
Expiration date	Expiry date of the license associated with an active key. If you activate the application under unlimited subscription, the field value is *Unlimited*. If Kaspersky Embedded Systems Security is unable to determine the license expiry date, the field value is set to *Unknown*.

Field	Description
Days till expiration	Number of days remaining until the expiry of the license associated with the active key.
Eligible for technical support	Information on whether Kaspersky or its partners will provide technical support for customers according to the license terms.
Support information	Contact details of Kaspersky or of its partner providing technical support. This field may be empty if technical support is not provided.
Owner information	Information about the license customer: a customer name and the name of an organization for which the license was acquired.
License information	Number and type of current license.
Functionality	Application features that are available under the license.

Renewing license

By default, Kaspersky Embedded Systems Security notifies you when the license has 30 days remaining before expiration.

You can renew the license before the expiration date using a reserve key. This ensures that your device remains protected after expiration of the current license and before you activate the application with a new license.

To renew a license:

1. Obtain a new activation code or a key file.
2. In the Application Console tree, select the **Licensing** node.
3. Perform one of the following actions in the results pane of the **Licensing** node:
   - If you want to renew a license using a key file:
     a. Click the **Add key** link.
     b. In the window that opens, click the **Browse** button.
     c. Select a new key file with the .key extension.
     d. Select the **Use as additional key** check box.
   - If you want to renew a license using an activation code:
     a. Click the **Add activation code** link.
     b. Enter the purchased activation code in the window that opens.
     c. Select the **Use as additional key** check box.

An Internet connection is required to apply an activation code.

4. Click **OK**.

The reserve key will be added and automatically applied upon expiration of the current Kaspersky Embedded Systems Security license.

Deleting the key

If you delete an added key, you can restore it by re-applying the key file.

To remove the previously added key:

1. In the Application Console tree, select the **Licensing** node.
2. In the results pane of the **Licensing** node in the table containing information on added keys, select the key that you want to remove.
3. In the context menu of the line containing information on the selected key, select **Remove**.
4. Click the **Yes** button in the confirmation window to confirm that you want to delete the key.

The selected key will be removed.

Starting and stopping Kaspersky Embedded Systems Security

This section contains information about starting and stopping Kaspersky Embedded Systems Security, as well as about starting Kaspersky Embedded Systems Security Console and Management Plug-in for the Kaspersky Security Center Administration Console.

Starting and stopping the application

After installing Kaspersky Embedded Systems Security to a user's computer, the application is started automatically. By default, Kaspersky Embedded Systems Security is started after operating system startup. It is not possible to configure automatic startup of the application in the operating system settings.

Downloading Kaspersky Embedded Systems Security anti-virus databases after the operating system starts can take up to two minutes depending on the capabilities of the computer. During this time, the level of computer protection is reduced. The downloading of anti-virus databases when Kaspersky Embedded Systems Security is started on an already started operating system does not cause a reduction in the level of computer protection.

How to configure the automatic application startup in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Application settings** → **Security and reliability** and click **Settings**.
4. On the **Security** tab, select or clear the **Start the application on computer startup (recommended)** check box to enable or disable autorun for the application.
5. Save your changes.

How to configure the automatic application startup in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Application Settings** → **Security and reliability**.
5. Click **Configure**.

   The **Security and reliability** window opens.

6. Use the **Start the application on computer startup (recommended)** check box to enable or disable automatic application startup.

7. Save your changes.

How to configure the automatic application startup in the Application Console

1. select the **Kaspersky Embedded Systems Security** node in the Application Console tree.

2. Select **Application properties** in the node's context menu.

3. This opens a window; in that window, select the **Security settings** tab.

4. Use the **Start the application on computer startup (recommended)** check box to enable or disable automatic application startup.

5. Save your changes.

You can start and stop Kaspersky Embedded Systems Security if you are a member of the Administrators group on the protected device.

How to start or stop the application in the Kaspersky Security Center Administration Console

1. In the **Managed devices** folder in the Administration Console tree, open the folder with the name of the administration group to which the relevant client computers belong.

2. In the workspace, select the **Devices** tab.

3. Double-click to open the computer properties window.

4. In the computer properties window, select the **Applications** section.

5. In the list of Kaspersky applications installed on the computer, select **Kaspersky Embedded Systems Security for Windows (4.0.1)**.

6. Do one of the following:

   - To start the application, click the button to the right of the list of Kaspersky applications.
   - To stop the application, click the button to the right of the list of Kaspersky applications.

How to start or stop the application in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Assets (Devices)**.

2. Click the name of the computer on which you want to start or stop Kaspersky Embedded Systems Security.

   The computer properties window opens.

3. Select the **Applications** tab.

4. Select the check box opposite **Kaspersky Embedded Systems Security for Windows (4.0.1)**.

5. Click the **Start** or **Stop** button.

How to start or stop the application in the Application Console

1. To stop Kaspersky Embedded Systems Security:

   a. Open the Application Console.

   > The user account must have permissions to access the **Exit the application** functionality.

   b. In the Application Console tree, open the context menu of the **Kaspersky Embedded Systems Security** node.

   c. Select **Stop application**.

   d. In the confirmation window, click the **Yes** button to confirm stopping the application.

   The application will be stopped.

2. To start **Kaspersky Embedded Systems Security**:

   a. Run the avpui.exe file in the Application Console installation folder on the protected device. By default, the file is located in the C:\Program Files (x86)\Kaspersky Lab\Kaspersky Embedded Systems Security Console folder.

   The **Select protected device** window opens.

   b. If Kaspersky Embedded Systems Security and the Application Console are installed on the same computer, select **Local computer (the computer on which the Application Console is running)**.

   c. If Kaspersky Embedded Systems Security and the Application Console are installed on different computers:

      1. Select **Another device**.

      2. Click **Browse** and specify the name of the computer where the application is installed.

      3. Specify the port for connecting to the computer with the installed application:

         - **Using Windows credentials**. A port for connecting with Windows credentials. The default value is 13032.

         - **Using credentials from manually created users**. A port for connecting manually created users with credentials. The default value is 13031.

   d. If necessary, enable the **Use authentication** functionality and enter the credentials to connect the Application Console to the computer where the application is installed. The specified user account must have permissions to access the **Read settings** and **Remote connection to application** functionalities on the computer where the application is installed.

   e. Click **Application management service**.

   f. In the window that opens, click the **Start** button.

   The application will be started.

The **Select protected device** window is also displayed if the connection to the computer on which the application is installed is lost or if the KESS service fails. You can restore the KESS service by clicking the **Start** button.

You can also start or stop the application on the command line.

Pausing and resuming computer protection and control

Pausing computer protection and control means disabling all protection and control components of Kaspersky Embedded Systems Security for some time.

The application status is displayed using the application icon in the taskbar notification area.

- The icon signifies that computer protection and control are paused.
- The icon signifies that computer protection and control are enabled.

Pausing or resuming computer protection and control does not affect scan or update tasks.

If any network connections are already established when you pause or resume computer protection and control, a notification about the termination of these network connections is displayed.

To pause computer protection and control:

1. In the Application Console tree, open the context menu of the **Kaspersky Embedded Systems Security** node.
2. Select **Pause protection**.
3. Select one of the following options:
   - **Pause for the specified time <time period>** – computer protection and control will resume after the amount of time that is specified in the drop-down list below.
   - **Pause until restart** – computer protection and control will resume after you restart the application or restart the operating system. Automatic startup of the application must be enabled to use this option.
   - **Pause** – computer protection and control will resume when you decide to re-enable them.

Kaspersky Embedded Systems Security will pause the operation of all protection and control components that are not marked by a lock () in the policy.

To resume computer protection and control:

1. Open the context menu of the application icon, located in the taskbar notification area.
2. In the context menu, select **Resume protection**.

You can resume computer protection and control at any time, regardless of the computer protection and control pause option that you selected previously.

Compact Diagnostic Interface

This section describes the use of Compact Diagnostic Interface.

About the Compact Diagnostic Interface

The Compact Diagnostic Interface component is installed and uninstalled along with the System Tray Icon component independently from the Application Console, and can be used when the Application Console is not installed on the protected device. The Compact Diagnostic Interface is started from the System Tray Icon or by running avpui.exe from the application folder on the protected device.

In the Compact Diagnostic Interface, you can do the following:

- Open the **About** window with the list of installed updates and available patches.
- Review information about the general application status.
- Review security incidents that have occurred.
- Review current activity on the protected device.
- Start or stop writing dump and trace files.
- Open the Application Console.

The Compact Diagnostic Interface is available even if access to Kaspersky Embedded Systems Security functions is password-protected. No password is required.

> The Compact Diagnostic Interface component cannot be configured via Kaspersky Security Center.

Reviewing the Kaspersky Embedded Systems Security status via the Compact Diagnostic Interface

To view the application status using the Compact Diagnostic Interface:

1. Open the Compact Diagnostic Interface in one of the following ways:
   - Run the avpui.exe file in the application installation folder on the protected device. By default, the file is located in C:\Program Files (x86)\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0.
   - Click the application icon in the taskbar notification area.
2. Review the current status of the key, Real-Time Computer Protection tasks, and Update tasks in the **Protection status** section. Different colors are used to notify the user about the protection status (see the table below).

Color indication in the Compact Diagnostic Interface window

Section	Status
Real-time protection status	The panel is *green* if the following conditions are met: • The Real-Time File Protection component is enabled. • The Applications Launch Control component is running in **Block** mode.
	The panel is *yellow* if one or more of the following conditions are met: • The Real-Time File Protection component is disabled. • The Applications Launch Control component is running in **Inform** mode.
	The panel is *red* if both of the following conditions are met: • The Real-Time File Protection component is disabled or not installed. • The Applications Launch Control component is not installed or is running in **Inform** mode.
Licensing	The panel is *green* if the current license is valid.
	A *yellow* panel signifies that one of the following events has occurred: • *Checking the license status.* • *The license will expire in 14 days and no additional key or activation code has been added.* • *The added key has been added to the denylist and is about to be blocked.*
	A *red* panel signifies that one of the following events has occurred: • *Application is not activated.* • *License has expired.* • *End User License Agreement has been violated.* • *Key is in denylist.*
Update	The panel is *green* when Application databases are up-to-date.
	The panel is *yellow* when Application databases are out of date.
	The panel is *red* when Application databases are extremely out of date.

Reviewing security event statistics

The **Statistics** section displays all security events. Each protection task statistic is displayed in a separate block specifying the number of incidents and the date, and time when the last incident occurred. When an incident is logged, the block color changes to red.

To view the statistics:

1. Open the Compact Diagnostic Interface in one of the following ways:

   - Run the avpui.exe file in the application installation folder on the protected device. By default, the file is located in C:\Program Files (x86)\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0.

   - Click the application icon in the taskbar notification area.

2. Go to the **Statistics** section.

3. Review the security incidents for the protection tasks.

Reviewing current application activity

To review the current application activity on the protected device:

1. Open the Compact Diagnostic Interface in one of the following ways:
    - Run the avpui.exe file in the application installation folder on the protected device. By default, the file is located in C:\Program Files (x86)\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0.
    - Click the application icon in the taskbar notification area.
2. Go to the **Current application activity** section.

Different colors are used to indicate the application activity status:

- In the **Tasks** section:
    - *Green*. There are no conditions that would require yellow or red.
    - *Yellow*. Critical areas have not been scanned for a long time.
    - *Red*. At least one of the following conditions is true:
        - No tasks are started and a start schedule is not set up for any of the tasks.
        - Application launch errors are logged as critical events.
- In the **Kaspersky Security Network** section:
    - *Green*. The **KSN Usage** task is started.
    - *Yellow*. The KSN Statement is accepted, but the task is not started.

Configuring application tracing and memory dump recording

To configure application tracing and memory dump recording:

1. Open the Compact Diagnostic Interface in one of the following ways:
    - Run the avpui.exe file in the application installation folder on the protected device. By default, the file is located in C:\Program Files (x86)\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0.
    - Click the application icon in the taskbar notification area.
2. Go to the **Malfunction diagnosis** section.
3. Use the **Enable dump and trace files protection** check box to enable or disable protection of dump files and trace files.

If protection of dump files and trace files is enabled, the files can be accessed by the following users:

- Dump files can be accessed by the system administrator and local administrator, and by the user that enabled the writing of dump files and trace files.
- Trace files can be accessed only by the system administrator and local administrator.

4. Use the **Write debug information to trace file** check box to enable or disable tracing of application operation.

   By default, application operation tracing is disabled.

5. If necessary, change the default folder to which Kaspersky Embedded Systems Security will save trace files. To do so, click the **Browse** button and select the required folder.

   > The folder must be created in advance and be writable by the SYSTEM account. You cannot specify a network folder, drive, or environment variables.

   In the selected folder, Kaspersky Embedded Systems Security creates a subfolder named logs-Kaspersky Embedded Systems Security-<uid> to store trace files, where <uid> is a unique 8-character log identifier.

6. Select the level of detail of debug information:

   - **Normal** means the trace file saves messages about all errors, warnings, as well as information about normal operation of the application (default).
   - **Critical** means the trace file saves only messages about fatal errors.
   - **Diagnostic** means the trace file saves messages about all errors as well as warnings.
   - **Important** means the trace file saves messages about all errors, warnings, and additional information.
   - **Detailed** means the trace file saves all information about the operation of the application.

   A Technical Support representative determines the detail level required to resolve any potential issues.

7. To delete old trace files, enable the **Remove the oldest trace files** functionality.

   If this functionality is enabled, configure the maximum size and number of trace files:

   a. Specify the **Maximum size of a trace file (MB)**.

      Available values: from 1 to 4095 MB. The default value is 100 MB.

   b. Specify the **Maximum number of trace files**.

      Available values: from 1 to 999. The default value is 5.

8. Use the **Create a dump file on malfunction to the folder** check box to enable or disable tracing of application operation.

   By default, memory dump recording is disabled.

9. If necessary, change the default folder to which Kaspersky Embedded Systems Security will save trace files. To do so, click the **Browse** button and select the required folder.

   The folder must be created in advance and be writable by the SYSTEM account. You cannot specify a network folder, drive, or environment variables.

10. Click **Apply**.

Kaspersky Embedded Systems Security self-defense

Self-Defense prevents other applications from performing actions that can interfere with the operation of Kaspersky Embedded Systems Security. The application has self-defense mechanisms that protect the application against modification or deletion of its folders, memory processes, and system registry entries. Kaspersky Embedded Systems Security supports the Antimalware Protected Process Light (AM-PPL) technology by Microsoft, which protects application processes from malicious activity. Additionally, the application allows managing user access permissions to application functionality and separately to the application service.

Enabling and disabling Self-Defense

Kaspersky Embedded Systems Security prevents alteration or deletion of application files on the hard drive, memory processes, and entries in the system registry.

The technology blocks access to the following application components:

- files in the Kaspersky Embedded Systems Security installation folder and other files of the application;
- registry keys with records belonging to the application;
- processes that the application runs.

> Self-defense mechanisms do not apply to Kaspersky Embedded Systems Security processes initiated by untrusted parent processes.

The Self-Defense mechanisms of Kaspersky Embedded Systems Security are enabled by default.

How to enable or disable Self-Defense in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Application settings** section.
4. In the **Security and reliability** block, click the **Settings** button.
5. This opens a window; in that window, select the **Security** tab.
6. In the **Self-Defense** block, use the **Protect application processes from external threats** check box to enable or disable Self-Defense.
7. Close the padlock to apply the policy to computers.
8. Click **OK** to save the changes.

How to enable or disable Self-Defense in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and in the results pane, follow the **Application properties** link.
2. This opens a window; in that window, select the **Security settings** tab.
3. In the **Self-Defense** block, use the **Protect application processes from external threats** check box to enable or disable Self-Defense.
4. Click **OK** to save the changes.

How to enable or disable Self-Defense in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Application Settings** section.
5. In the **Security and reliability** block, click the **Configure** button.

   The **Security and reliability** window opens.
6. In the **Self-Defense** block, use the **Protect application processes from external threats** check box to enable or disable Self-Defense.
7. Close the padlock to apply the policy to computers.
8. Click **OK** to save the changes.

Supporting AM-PPL technology

Kaspersky Embedded Systems Security supports Antimalware Protected Process Light technology (hereinafter referred to as "AM-PPL") from Microsoft. AM-PPL protects Kaspersky Embedded Systems Security processes against malicious actions (for example, terminating the application). AM-PPL allows only trusted processes to run. Kaspersky Embedded Systems Security processes are signed in accordance with Windows security requirements, and therefore they are trusted. For more details about AM-PPL technology, please visit the Microsoft website. AM-PPL technology is enabled by default.

Kaspersky Embedded Systems Security also has built-in mechanisms for protecting application processes. AM-PPL support lets you delegate process security functions to the operating system. You can thereby increase the speed of the application and reduce the consumption of computer resources.

The application registers the Kaspersky Embedded Systems Security (AVP) service and the Kaspersky Seamless Update Service (AVPSUS) service. The AM-PPL technology protects only the AVP service.

Keep the AM-PPL technology always active. AM-PPL is an important component of operating system protection. It is permissible to disable AM-PPL only in a separate testing environment for the purpose of troubleshooting the application.

AM-PPL technology is available for Windows 10 version 1703 (RS2) or later, and Windows Server 2019 operating systems.

To enable or disable AM-PPL technology:

1. Turn off the application's Self-Defense mechanism.

   The Self-Defense mechanism prevents modification and deletion of application processes in the computer memory, including changing the AM-PPL status.

2. Run the command line interpreter (cmd) as an administrator.

3. Go to the folder where the Kaspersky Embedded Systems Security executable file is located.

4. To enable support for AM-PPL technology, run the following command:

   ```
   klpsm.exe enable
   ```

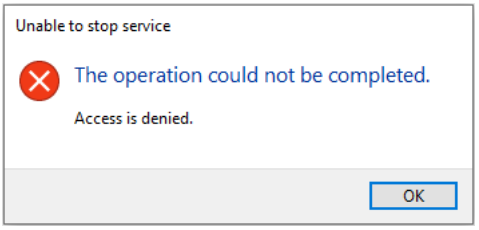
5. To disable support for AM-PPL technology, run the following command:

   ```
   klpsm.exe disable
   ```

6. Restart Kaspersky Embedded Systems Security.

7. Resume the application's Self-Defense mechanism.

As a result, when a user attempts to stop the AVP service, a system window with an error message appears. The user can only manage application services from the Kaspersky Embedded Systems Security interface.



Application services access error

Protecting operating system services

You can use the Protect operating system services functionality to allow or prohibit third-party applications from acting upon operating system services.

How to enable or disable operating system services protection in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Application settings** section.
4. In the **Security and reliability** block, click the **Settings** button.
5. This opens a window; in that window, select the **Security** tab.
6. Use the **Protect operating system services** check box to enable or disable protection of the operating system services.

   If the protection of operating system services is enabled, third-party applications cannot act upon the processes of the operating system.

   If the protection of operating system services is disabled, third-party applications can act upon the processes of the operating system.

   After enabling or disabling the function, you must restart your computer to apply the changes.
7. Close the padlock to apply the policy to computers.
8. Click **OK** to save the changes.

How to enable or disable operating system services protection in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and in the results pane, follow the **Application properties** link.
2. This opens a window; in that window, select the **Security settings** tab.
3. Use the **Protect operating system services** check box to enable or disable protection of the operating system services.

   If the protection of operating system services is enabled, third-party applications cannot act upon the processes of the operating system.

   If the protection of operating system services is disabled, third-party applications can act upon the processes of the operating system.

   After enabling or disabling the function, you must restart your computer to apply the changes.
4. Click **OK** to save the changes.

How to enable or disable operating system services protection in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management → Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Application Settings** section.

5. In the **Security and reliability** block, click the **Configure** button.

   The **Security and reliability** window opens.

6. Use the **Protect operating system services** check box to enable or disable protection of the operating system services.

   If the protection of operating system services is enabled, third-party applications cannot act upon the processes of the operating system.

   If the protection of operating system services is disabled, third-party applications can act upon the processes of the operating system.

   After enabling or disabling the function, you must restart your computer to apply the changes.

7. Close the padlock to apply the policy to computers.

8. Click **OK** to save the changes.

Configuring user permissions to manage Kaspersky Embedded Systems Security

By default, all features of Kaspersky Embedded Systems Security are accessible to the members of the Administrators group on the protected device, members of the ESS Administrators group created on the protected device when installing Kaspersky Embedded Systems Security, and the SYSTEM group.

Users who are not registered in the list of Kaspersky Embedded Systems Security users cannot open the Application Console.

You can allow or block access to specific functions of Kaspersky Embedded Systems Security for individual users or groups of users.

About access permissions for Kaspersky Embedded Systems Security functions

User rights	Description
Manage tasks	Ability to start / stop / pause / resume Kaspersky Embedded Systems Security tasks.
Create and delete tasks	Ability to create and delete On-Demand Scan tasks.
Edit settings	Ability to: • Import Kaspersky Embedded Systems Security settings from a configuration file. • Edit the application settings.
Read settings	Ability to: • View Kaspersky Embedded Systems Security general settings and task settings. • Export Kaspersky Embedded Systems Security settings to a configuration file. • View settings for task logs, system audit log, and notifications.
Manage storages	Ability to: • Move objects to Quarantine. • Remove objects from Quarantine and Backup. • Restore objects from Quarantine and Backup.
Manage logs	Ability to delete task logs and clear the system audit log.
Read logs	Ability to view Anti-Virus events in task logs and the system audit log.
Retrieve statistics	Ability to view statistics for each Kaspersky Embedded Systems Security task.
Manage application licensing	Ability to activate Kaspersky Embedded Systems Security.
Uninstall the application	Ability to uninstall Kaspersky Embedded Systems Security.
Read permissions	Ability to view the list of Kaspersky Embedded Systems Security users and user access privileges.

User rights	Description
Edit permissions	Ability to: • Edit the list of users with access to application management. • Edit user access permissions for Kaspersky Embedded Systems Security functions.
Remote connection to application	Ability to remotely connect to the application using the Application Console. For remote access, the user must also have the access rights to the **Read settings** functionality.
Exit the application	Ability to exit the application using the Application Console.
Disable Kaspersky Security Center policy	Ability to disable the Kaspersky Security Center policy.
Export settings	Ability to export Kaspersky Embedded Systems Security settings.
Edit Malfunction diagnosis	Ability to configure application tracing and memory dump recording settings.

How to configure user permissions to manage Kaspersky Embedded Systems Security in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Supplementary**.
4. In the **User access permissions for application management** section, click **Settings**.
5. This opens a window; in that window, select the **Allow confirmation of actions with the application using credentials from manually created users** check box and set a password for the KLAdmin user account. The user account is automatically added to the list of user accounts.
6. If necessary, add user accounts to which you want to grant access to application management. To do so, click **Add** in the table of user accounts.

   This opens the form for configuring user access permissions.
7. Select the method that you want to use to add users:

   - **Select a user / group from Active Directory**. You can grant Kaspersky Embedded Systems Security access to individual users or groups within the Active Directory domain. For example, if exiting the application is blocked for the Everyone group, you can grant the **Exit the application** permission to an individual user.
   - **Add a user / group of users manually**. You can create a user account that is not present in Active Directory and assign individual permissions to that user account. That is, you can create a *service user account* and use it instead of KLAdmin. This way, you do not need to share your KLAdmin password with other users or create new Active Directory user accounts. You can specify any user name and password. For example, you can grant the **Read logs** permission to the service user account. As a result, if viewing reports is prohibited to the 'All' group, you can open the reports using the service user account or the KLAdmin user account.

     To add a user or group of users manually, you must enable Password protection.
8. Select a user or group of users to which you want to grant access to managing the application.
9. In the **Permissions** list, configure user access permissions to application functionality.
10. Save your changes. To apply the policy on computers, close the padlocks.

How to configure user permissions to manage Kaspersky Embedded Systems Security in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **User access permissions for application management** from the context menu of the node.

2. This opens a window; in that window, select the **Allow confirmation of actions with the application using credentials from manually created users** check box and set a password for the KLAdmin user account. The user account is automatically added to the list of user accounts.

3. If necessary, add user accounts to which you want to grant access to application management. To do so, click **Add** in the table of user accounts.

   This opens the form for configuring user access permissions.

4. Select the method that you want to use to add users:

   - **Select a user / group from Active Directory**. You can grant Kaspersky Embedded Systems Security access to individual users or groups within the Active Directory domain. For example, if exiting the application is blocked for the Everyone group, you can grant the **Exit the application** permission to an individual user.

   - **Add a user / group of users manually**. You can create a user account that is not present in Active Directory and assign individual permissions to that user account. That is, you can create a *service user account* and use it instead of KLAdmin. This way, you do not need to share your KLAdmin password with other users or create new Active Directory user accounts. You can specify any user name and password. For example, you can grant the **Read logs** permission to the service user account. As a result, if viewing reports is prohibited to the 'All' group, you can open the reports using the service user account or the KLAdmin user account.

     To add a user or group of users manually, you must enable Password protection.

5. Select a user or group of users to which you want to grant access to managing the application.

6. In the **Permissions** list, configure user access permissions to application functionality.

7. Save your changes.

How to configure user access rights to manage Kaspersky Embedded Systems Security in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Supplementary** → **User access permissions for application management** and click the **Configure** button.

5. This opens a window; in that window, select the **Allow confirmation of actions with the application using credentials from manually created users** check box and set a password for the KLAdmin user account. The user account is automatically added to the list of user accounts.

6. If necessary, add user accounts to which you want to grant access to application management. To do so, click **Add** in the table of user accounts.

   This opens the form for configuring user access permissions.

7. Select the method that you want to use to add users:

   - **Select a user / group from Active Directory**. You can grant Kaspersky Embedded Systems Security access to individual users or groups within the Active Directory domain. For example, if exiting the application is blocked for the Everyone group, you can grant the **Exit the application** permission to an individual user.

   - **Add a user / group of users manually**. You can create a user account that is not present in Active Directory and assign individual permissions to that user account. That is, you can create a *service user account* and use it instead of KLAdmin. This way, you do not need to share your KLAdmin password with other users or create new Active Directory user accounts. You can specify any user name and password. For example, you can grant the **Read logs** permission to the service user account. As a result, if viewing reports is prohibited to the 'All' group, you can open the reports using the service user account or the KLAdmin user account.

     To add a user or group of users manually, you must enable Password protection.

8. Select a user or group of users to which you want to grant access to managing the application.

9. In the **Permissions** list, configure user access permissions to application functionality.

10. Save your changes. To apply the policy on computers, close the padlocks.

Configuring user access permissions to manage the Kaspersky Embedded Systems Security Service

During installation, Kaspersky Embedded Systems Security registers the application service, *Kaspersky Embedded Systems Security Service*, in Windows. Thus, the application includes functional components that start at operating system startup. To reduce the risk of third-party access to application functionality and security settings of the protected device using the application service, you can restrict the permissions to manage the Kaspersky Embedded Systems Security Service.

By default, the right to manage the Kaspersky Embedded Systems Security Service is granted to users in the Administrators group on the protected device. Read permissions are granted to the SERVICE and INTERACTIVE groups, and read and execute permissions are granted to the SYSTEM group.

You cannot delete the SYSTEM user account or edit permissions for this account. If the permissions for the SYSTEM account are edited, the maximum privileges are restored for this account when you save the changes.

Users that have access to functionality at the 'Edit permissions' level can grant access permissions for managing the Kaspersky Embedded Systems Security Service to other users registered on the protected device or included in the domain.

You can select one of the following preset levels of Kaspersky Embedded Systems Security Service management access for a Kaspersky Embedded Systems Security user or group:

- **Full control**: ability to view and edit general settings and user permissions for the Kaspersky Embedded Systems Security Service, and ability to start and stop the Kaspersky Embedded Systems Security Service.
- **Read**: ability to view general settings and user permissions of the Kaspersky Embedded Systems Security Service.
- **Edit**: ability to view and edit general settings and user permissions of the Kaspersky Embedded Systems Security Service.
- **Execute**: ability to start and stop the Kaspersky Embedded Systems Security Service.

You can also configure advanced access permissions: allow or deny access to specific Kaspersky Embedded Systems Security functions (see the table below).

Access permissions for the Kaspersky Embedded Systems Security Service functionality

Feature	Description
Read service settings	Ability to view general settings and user permissions of the Kaspersky Embedded Systems Security Service.
Request service status from Service Control Manager	Ability to request the execution status of the Kaspersky Embedded Systems Security Service from the Microsoft Windows Service Control Manager.
Request service status	Ability to request the service execution status from the Kaspersky Embedded Systems Security Service.
Read list of dependent services	Ability to view the list of services which the Kaspersky Embedded Systems Security Service depends on and which depend on the Kaspersky Embedded Systems Security Service.
Modify service settings	Ability to view and edit general settings and user permissions of the Kaspersky Embedded Systems Security Service.
Start service	Ability to start the Kaspersky Embedded Systems Security Service.
Stop service	Ability to stop the Kaspersky Embedded Systems Security Service.
Pause / resume service	Ability to pause and resume the Kaspersky Embedded Systems Security Service.
Read permissions	Ability to view the list of the Kaspersky Embedded Systems Security Service users and each user's access privileges.
Edit permissions	Ability to: • Add or remove the Kaspersky Embedded Systems Security Service users. • Edit user access permissions for the Kaspersky Embedded Systems Security Service.
Remove service	Ability to deregister the Kaspersky Embedded Systems Security Service in the Microsoft Windows Service Control Manager.
User defined requests to service	Ability to create and send user requests to the Kaspersky Embedded Systems Security Service.

You can edit the list of users and user groups allowed to manage the Kaspersky Embedded Systems Security Service, and also edit the access permissions of those users and user groups.

How to configure user permissions to manage the Kaspersky Embedded Systems Security Service in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Supplementary**.
4. In the **User access permissions for KESS Service management** section, click **Settings**.

   This opens the form for configuring user access permissions.

5. Add an Active Directory user or group for which you want to configure the Kaspersky Embedded Systems Security Service user permissions.

6. Select a user or group of users to which you want to grant access to managing the application.

7. In the list of permissions, configure user permissions to manage the Kaspersky Embedded Systems Security Service.

8. If necessary, configure special permissions for users:

    a. Click **Additional**.

    b. This opens a window; in that window, select a user account.

    c. Double-click to open the user account properties.

    d. This opens a window; in that window, click the **Show additional permissions** link.

    e. This opens a window; in that window, configure special permissions for the user.

9. Save your changes. To apply the policy on computers, close the padlocks .

How to configure user permissions to manage the Kaspersky Embedded Systems Security Service in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **User access permissions for KESS Service management** from the context menu of the node.

2. In the window that opens, in the **Permissions** block, click the **Add** button.

    This opens the form for configuring user access permissions.

3. Add an Active Directory user or group for which you want to configure the Kaspersky Embedded Systems Security Service user permissions.

4. Select a user or group of users to which you want to grant access to managing the application.

5. In the list of permissions, configure user permissions to manage the Kaspersky Embedded Systems Security Service.

6. If necessary, configure special permissions for users:

    a. Click **Additional**.

    b. This opens a window; in that window, select a user account.

    c. Double-click to open the user account properties.

    d. This opens a window; in that window, click the **Show additional permissions** link.

    e. This opens a window; in that window, configure special permissions for the user.

7. Save your changes.

How to configure user permissions to manage the Kaspersky Embedded Systems Security Service in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Supplementary** → **User access permissions for KESS Service management** and click the **Configure** button.

   The **User access permissions for KESS Service management** window opens.
5. Add an Active Directory user or group for which you want to configure the Kaspersky Embedded Systems Security Service user permissions.
6. Select a user or group of users to which you want to grant access to managing the application.

   > You cannot configure special permissions to manage the application service in the Web Console.
7. Save your changes. To apply the policy on computers, close the padlocks.

Password-protected access to Kaspersky Embedded Systems Security functionality

Configuring user rights lets you restrict access to application management and registered services by configuring user permissions. You can also set password protection in the Kaspersky Embedded Systems Security settings for additional protection of critical operations.

When a user attempts to perform a password-protected action, Kaspersky Embedded Systems Security prompts the user for the user name and password or to use a token for authentication.

User name and password

Password protection supports the following accounts:

- **KLAdmin**. An Administrator account with unrestricted access to Kaspersky Embedded Systems Security. The KLAdmin account has the right to perform any action that is password-protected. The permissions for the KLAdmin account cannot be revoked. When you enable password protection, Kaspersky Embedded Systems Security prompts you to set a password for the KLAdmin account.
- **Account added manually**. An account outside the Active Directory domain. You can use this service account instead of KLAdmin if you do not want to share the administrator password. You can set any user name and password and configure individual permissions.

- **The Everyone group**. A built-in Windows group that includes all users within the corporate network. Users in the Everyone group can access the application according to the permissions that are granted to them.
- **Individual users or groups**. User accounts for which you can configure individual permissions. For example, if an action is blocked for the Everyone group, you can allow this action for an individual user or a group.

The Kaspersky Embedded Systems Security interface disguises the specified password on screen. Kaspersky Embedded Systems Security stores the password as a checksum calculated when the password is entered.

Kaspersky Embedded Systems Security doesn't check password strength and doesn't block password entry after a number of failed attempts.

When creating a password, you are recommended to meet the following conditions:

- The password doesn't contain the account name or computer name.
- The password is at least 8 characters long.
- The password contains characters that match at least three of the following categories:
  - Uppercase Latin letters (A-Z)
  - Lowercase Latin letters (a-z)
  - Numerals (0-9)
  - Exclamation mark (!), dollar sign ($), pound sign (#) and percent sign (%)

Token

To access the Kaspersky Embedded Systems Security functionality, you must select the appropriate user certificate from the list of certificates stored on the connected token and enter your PIN. Token-based authentication is available only to users within the Active Directory domain. The administrator can configure permissions for an individual user or a group. For token-based authentication to work, you must deploy a trusted PKI infrastructure and install special software to manage the token.

How to password-protect access to Kaspersky Embedded Systems Security functionality in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Supplementary**.
4. In the **User access permissions for application management** section, click **Settings**.
5. In the window that opens, select the **Allow confirmation of actions with the application using credentials from manually created users** check box.
6. If necessary, clear the **Request password to confirm critical actions** check box.

If this functionality is enabled, the application requests a user name and password when deleting, modifying, or recovering the application, and when performing actions on the command line that may lower the protection level of the device.

If this functionality is disabled, and the current user has the necessary rights, Kaspersky Embedded Systems Security does not request credentials. This option is enabled by default.

> If an empty Windows password is set for the current user, you need to enter the credentials of a user that possesses the necessary rights and has a non-empty password.

7. Specify the password for the KLAdmin user account.
8. If necessary, add user accounts to which you want to grant access to application management:
   a. Click **Add**.
      This opens the form for configuring user access permissions.
   b. In the window that opens, select the method for adding users: **Add a user / group of users manually**.
   c. Specify a user name and password.
   d. In the **Permissions** list, configure user access permissions to application functionality.
9. Save your changes. To apply the policy on computers, close the padlocks.

How to password-protect access to Kaspersky Embedded Systems Security functionality in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **User access permissions for application management** from the context menu of the node.
2. In the window that opens, select the **Allow confirmation of actions with the application using credentials from manually created users** check box.
3. If necessary, clear the **Request password to confirm critical actions** check box.
   If this functionality is enabled, the application requests a user name and password when deleting, modifying, or recovering the application, and when performing actions on the command line that may lower the protection level of the device.
   If this functionality is disabled, and the current user has the necessary rights, Kaspersky Embedded Systems Security does not request credentials. This option is enabled by default.

> If an empty Windows password is set for the current user, you need to enter the credentials of a user that possesses the necessary rights and has a non-empty password.

4. Specify the password for the KLAdmin user account.
5. If necessary, add user accounts to which you want to grant access to application management:
   a. Click **Add**.
      This opens the form for configuring user access permissions.
   b. In the window that opens, select the method for adding users: **Add a user / group of users manually**.

c. Specify a user name and password.

d. In the **Permissions** list, configure user access permissions to application functionality.

6. Save your changes.

How to password-protect access to Kaspersky Embedded Systems Security functionality in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Supplementary** → **User access permissions for application management** and click the **Configure** button.

5. In the window that opens, select the **Allow confirmation of actions with the application using credentials from manually created users** check box.

6. If necessary, clear the **Request password to confirm critical actions** check box.

   If this functionality is enabled, the application requests a user name and password when deleting, modifying, or recovering the application, and when performing actions on the command line that may lower the protection level of the device.

   If this functionality is disabled, and the current user has the necessary rights, Kaspersky Embedded Systems Security does not request credentials. This option is enabled by default.

   > If an empty Windows password is set for the current user, you need to enter the credentials of a user that possesses the necessary rights and has a non-empty password.

7. Specify the password for the KLAdmin user account.

8. If necessary, add user accounts to which you want to grant access to application management:

   a. Click **Add**.

      This opens the form for configuring user access permissions.

   b. In the window that opens, select the method for adding users: **Add a user / group of users manually**.

   c. Specify a user name and password.

   d. In the **Permissions** list, configure user access permissions to application functionality.

9. Save your changes. To apply the policy on computers, close the padlocks.

This password cannot be recovered. Losing your password results in complete loss of control over the application. Moreover, you will not be able to remove the application from the protected device.

You can reset the password at any time. To do that, clear the **Allow confirmation of actions with the application using credentials from manually created users** check box and save changes. Password protection will be disabled and the old password checksum will be removed. Repeat the password creation process with a new password.

Secure Desktop notifications

Kaspersky Embedded Systems Security supports the (Secure Desktop) functionality. The purpose of this functionality is to confirm actions that can potentially lower the security level of the computer. This functionality lets an application display a confirmation dialog that is isolated from other processes. This functionality uses elevated rights to secure the request. In this way, only the user can confirm the action and not the malware.

Kaspersky Embedded Systems Security displays Secure Desktop notifications to confirm the following actions:

- Tracing enabled or disabled
- Application settings exported or imported
- Protection paused
- Application exited
- Active key deleted
- Kaspersky Embedded Systems Security uninstalled
- Device Control disabled
- Real-Time File Protection disabled
- Kaspersky Security Center policy disabled
- Reports viewed
- Files restored from Backup
- Kaspersky Embedded Systems Security settings modified
- Application tasks managed in ways other than starting

How to enable or disable Secure Desktop notifications in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Application settings** section.
4. In the **Security and reliability** block, click the **Settings** button.
5. This opens a window; in that window, select the **Security** tab.

6. In the **Self-Defense** block, select or clear the **Enable Secure Desktop notifications** check box to enable or disable Secure Desktop notifications.

   If Self-Defense mechanisms are disabled, the **Enable Secure Desktop notifications** check box is not available.

7. Close the padlock to apply the policy to computers.

8. Click **OK** to save the changes.

How to enable or disable Secure Desktop notifications in the Administration Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and in the results pane, follow the **Application properties** link.

2. This opens a window; in that window, select the **Security settings** tab.

3. In the **Self-Defense** block, select or clear the **Enable Secure Desktop notifications** check box to enable or disable Secure Desktop notifications.

   If Self-Defense mechanisms are disabled, the **Enable Secure Desktop notifications** check box is not available.

4. Click **OK** to save the changes.

How to enable or disable Secure Desktop notifications in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management → Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Select the **Application Settings** section.

5. In the **Security and reliability** block, click the **Configure** button.

   The **Security and reliability** window opens.

6. In the **Self-Defense** block, select or clear the **Enable Secure Desktop notifications** check box to enable or disable Secure Desktop notifications.

   If Self-Defense mechanisms are disabled, the **Enable Secure Desktop notifications** check box is not available.

7. Close the padlock to apply the policy to computers.

8. Click **OK** to save the changes.

Trusted zone

A *trusted zone* is a system administrator-configured list of objects and applications that Kaspersky Embedded Systems Security does not monitor when active.

The administrator forms the trusted zone independently, taking into account the features of the objects that are handled and the applications that are installed on the computer. It may be necessary to include objects and applications in the trusted zone when Kaspersky Embedded Systems Security blocks access to a certain object or application, if you are sure that the object or application is harmless. An administrator can also allow a user to create their own local trusted zone for a specific computer. This way, users can create their own local lists of exclusions and trusted applications in addition to the general trusted zone in a policy.

Predefined scan exclusions and trusted applications have been added to the trusted zone. Predefined scan exclusions and trusted applications help quickly configure Kaspersky Embedded Systems Security without manually creating a trusted zone.

Creating a scan exclusion

A *scan exclusion* is a set of conditions that must be fulfilled so that Kaspersky Embedded Systems Security will not scan a particular object for viruses and other threats.

Scan exclusions can be used by the following application components and tasks:

- Real-Time File Protection
- On-Demand Scan
- Behavior Detection
- AMSI Scanner
- Network Threat Protection

Kaspersky Embedded Systems Security does not scan an object if the drive or folder containing this object is included in the scan scope at the start of one of the scan tasks. However, the scan exclusion is not applied when a custom scan task is started for this particular object.

Kaspersky Embedded Systems Security does not support exclusion lists containing over 5000 objects.

How to create a scan exclusion in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Supplementary** → **Trusted zone** and click **Settings**.
4. Select the **Scan exclusions** tab.

5. Select the **Merge values when inheriting** check box if you want to create a consolidated list of exclusions for all computers in the company. The lists of exclusions in the parent and child policies will be merged. The lists will be merged provided that merging values when inheriting is enabled. Exclusions from the parent policy are displayed in child policies in a read-only view. Changing or deleting exclusions of the parent policy is not possible.

6. Select the **Allow use of local exclusions** check box if you want to enable the user to create a local list of exclusions. This way, a user can create their own local list of exclusions in addition to the general list of exclusions generated in the policy. An administrator can use Kaspersky Security Center to view, add, edit, or delete list items in the computer properties.

   If the check box is cleared, the user can access only the general list of exclusions generated in the policy. Also, if this check box is cleared, Kaspersky Embedded Systems Security hides the consolidated list of scan exclusions in the Application Console.

7. Click **Add** and select an action:

   - **Category**. You can group scan exclusions into separate categories. To create a new category, enter the name of the category and add at least one scan exclusion to the category.
   - **New exclusion**. Kaspersky Embedded Systems Security adds a new scan exclusion to the root of the list.
   - **New exclusion to selected category**. To add a new scan exclusion to a specific category, select a category.
   - **Select exclusion from list**. To quickly configure Kaspersky Embedded Systems Security, you can add exclusions from the list of predefined scan exclusions.

8. To exclude a file or folder from scan, select the **File or folder** check box. Click the **select file or folder** link to open a window, and in that window, select a file or folder by clicking **Browse**.

   You can also enter the path manually. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

   - The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.
   - Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.
   - The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

     You can use masks at the beginning, in the middle or at the end of the file path. For example, if you want to add a folder for all users to exclusions, enter the `?:\Users\*\Folder\` mask.

9. To exclude a predefined area from scan, select the **Predefined scope** check box. Click the **select predefined scope** link to open a window, and in that window, select one the standard scopes on the protected device.

10. To exclude the specific objects from scan, select the **Type of detected object** check box. Click the **enter object names** link, click the **Add** button, and in the displayed window, enter the name of the object type according to the Kaspersky Encyclopedia classification (for example, `Email-Worm`, `Rootkit`, or `RemoteAdmin`).

    You can use masks with the `?` character (replaces any single character) and the `*` character (replaces any number of characters). For example, if the `Client*` mask is specified, Kaspersky Embedded Systems Security excludes `Client-IRC`, `Client-P2P` and `Client-SMTP` objects from scans.

11. To exclude an individual file from scan, select the **Object hash** check box. Click the **enter object hash** link to open a window, and in that window, enter a file hash.

    If the file is modified, the file hash will also be modified. If this happens, the modified file will not be added to exclusions.

12. In the **Rule usage scope** block, select the components that you want the scan exclusion to apply to.

13. If necessary, in the **Comment** field, enter a brief comment on the scan exclusion that you are creating.

14. Save changes to add the exclusion to the list. You can disable the exclusion at any time using the check box next to the object.

How to create a scan exclusion in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

    The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Supplementary** → **Trusted zone** and click the **Configure** button.

5. Select the **Scan exclusions** tab.

6. Select the **Merge values when inheriting** check box if you want to create a consolidated list of exclusions for all computers in the company. The lists of exclusions in the parent and child policies will be merged. The lists will be merged provided that merging values when inheriting is enabled. Exclusions from the parent policy are displayed in child policies in a read-only view. Changing or deleting exclusions of the parent policy is not possible.

7. Select the **Allow use of local exclusions** check box if you want to enable the user to create a local list of exclusions. This way, a user can create their own local list of exclusions in addition to the general list of exclusions generated in the policy. An administrator can use Kaspersky Security Center to view, add, edit, or delete list items in the computer properties.

    If the check box is cleared, the user can access only the general list of exclusions generated in the policy. Also, if this check box is cleared, Kaspersky Embedded Systems Security hides the consolidated list of scan exclusions in the Application Console.

8. Click **Add** and select an action:

    - **Category**. You can group scan exclusions into separate categories. To create a new category, enter the name of the category and add at least one scan exclusion to the category.
    - **New exclusion**. Kaspersky Embedded Systems Security adds a new scan exclusion to the root of the list.
    - **Select exclusion from list**. To quickly configure Kaspersky Embedded Systems Security, you can add exclusions from the list of predefined scan exclusions.

9. If you want to exclude a file or folder from scanning, select **File or folder** and select the check box in the field with the same name. Specify the path to the file or folder.

   Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

   - The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.

   - Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.

   - The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

     You can use masks at the beginning, in the middle or at the end of the file path. For example, if you want to add a folder for all users to exclusions, enter the `?:\Users\*\Folder\` mask.

10. To exclude a predefined scope from scanning, select **Predefined scope**. In the drop-down list, select one of the standard scopes on the protected device.

11. If you want to exclude certain objects from scanning, select the **Type of detected object** check box and enter the name of the object type according to the Kaspersky Encyclopedia classification (for example, `Email-Worm`, `Rootkit`, or `RemoteAdmin`).

    You can use masks with the `?` character (replaces any single character) and the `*` character (replaces any number of characters). For example, if the `Client*` mask is specified, Kaspersky Embedded Systems Security excludes *Client-IRC*, *Client-P2P* and *Client-SMTP* objects from scans.

12. To exclude an individual file from scanning, select the **Object hash** check box and add a hash from a file or a list of events.

    If the file is modified, the file hash will also be modified. If this happens, the modified file will not be added to exclusions.

13. If necessary, in the **Comment** field, enter a brief comment on the scan exclusion that you are creating.

14. In the **Protection components** block, select the components that you want the scan exclusion to apply to.

15. The new exclusion will be added to the list. You can disable the exclusion at any time using the check box in the **Status** column.

16. Save your changes.

How to create a scan exclusion in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **Trusted zone** from the context menu of the node.

   The **Configure Trusted zone settings** window opens.

2. In the **Exclusions** section, click the **Settings** button next to the **Scan exclusions** block.

3. Click **Add** and select an action:

   - **Category**. You can group scan exclusions into separate categories. To create a new category, enter the name of the category and add at least one scan exclusion to the category.
   - **New exclusion**. Kaspersky Embedded Systems Security adds a new scan exclusion to the root of the list.
   - **New exclusion to selected category**. To add a new scan exclusion to a specific category, select a category.
   - **Select exclusion from list**. To quickly configure Kaspersky Embedded Systems Security, you can add exclusions from the list of predefined scan exclusions.

4. To exclude a file or folder from scan, select the **File or folder** check box. Click the **Select file or folder** link to open a window, and in that window, select a file or folder by clicking **Browse**.

   You can also enter the path manually. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

   - The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.
   - Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.
   - The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

     You can use masks at the beginning, in the middle or at the end of the file path. For example, if you want to add a folder for all users to exclusions, enter the `?:\Users\*\Folder\` mask.

5. To exclude a predefined area from scan, select the **Predefined scope** check box. Click the **select predefined scope** link to open a window, and in that window, select one the standard scopes on the protected device.

6. To exclude the specific objects from scan, select the **Type of detected object** check box. Click the **enter object names** link, click the **Add** button, and in the displayed window, enter the name of the object type according to the Kaspersky Encyclopedia classification (for example, `Email-Worm`, `Rootkit`, or `RemoteAdmin`).

   You can use masks with the `?` character (replaces any single character) and the `*` character (replaces any number of characters). For example, if the `Client*` mask is specified, Kaspersky Embedded Systems Security excludes `Client-IRC`, `Client-P2P` and `Client-SMTP` objects from scans.

7. To exclude an individual file from scan, select the **Object hash** check box. Click the **enter object hash** link to open a window, and in that window, enter a file hash.

   If the file is modified, the file hash will also be modified. If this happens, the modified file will not be added to exclusions.

8. In the **Rule usage scope** block, select the components that you want the scan exclusion to apply to.

9. If necessary, in the **Comment** field, enter a brief comment on the scan exclusion that you are creating.

10. Save changes to add the exclusion to the list. You can disable the exclusion at any time using the check box next to the object.

Path mask examples:
Paths to files located in any folder:

- The mask `*.exe` will include all paths to files that have the exe extension.
- The mask `example*` will include all paths to files named EXAMPLE.

Paths to files located in a specified folder:

- The `C:\dir\*.*` mask will include all paths to files located in the C:\dir\ folder, but not in the subfolders of C:\dir\.
- The mask `C:\dir\*` will include all paths to files located in the C:\dir\ folder, including subfolders.
- The mask `C:\dir\` will include all paths to files located in the C:\dir\ folder, including subfolders.
- The mask `C:\dir\*.exe` will include all paths to files with the .EXE extension located in the C:\dir\ folder, but not in the subfolders of C:\dir\.
- The mask `C:\dir\test` will include all paths to files named "test" located in the C:\dir\ folder, but not in the subfolders of C:\dir\.
- The mask `C:\dir\*\test` will include all paths to files named "test" located in the C:\dir\ folder and in the subfolders of C:\dir\.
- The mask `C:\dir1\*\dir3\` will include all paths to files in dir3 subfolders one level into the C:\dir1\ folder.
- The mask `C:\dir1\**\dirN\` will include all paths to files in dirN subfolders in the C:\dir1\ folder at any level.

Paths to files located in all folders with a specified name:

- The mask `dir\*.*` will include all paths to files in folders named "dir", but not in the subfolders of those folders.
- The mask `dir\*` will include all paths to files in folders named "dir", but not in the subfolders of those folders.
- The mask `dir\` will include all paths to files in folders named "dir", but not in the subfolders of those folders.
- The mask `dir\*.exe` will include all paths to files with the .EXE extension in folders named "dir", but not in the subfolders of those folders.
- The mask `dir\test` will include all paths to files named "test" in folders named "dir", but not in the subfolders of those folders.

Selecting types of detectable objects

To select types of detectable objects:

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and do one of the following:

   - Click the **Configure Trusted zone settings** link in the results pane of the node.
   - Select **Trusted zone** in the node's context menu.

   The **Configure Trusted zone settings** window opens.

2. In the **Types of detected objects** section, click **Settings**.

3. In the window that opens, select check boxes opposite the types of objects that you want Kaspersky Embedded Systems Security to detect:

- **Viruses and worms**

  Subcategory: viruses and worms (Viruses_and_Worms)

  Danger level: High

  Classic viruses and worms perform actions that are not authorized by the user. They can create copies of themselves which are able to self-replicate.

  Classic virus

  When a classic virus infiltrates a computer, it infects a file, activates, performs malicious actions, and adds copies of itself to other files.

  A classic virus multiplies only on local resources of the computer; it cannot penetrate other computers on its own. It can be passed to another computer only if it adds a copy of itself to a file that is stored in a shared folder or on an inserted CD, or if the user forwards an email message with an attached infected file.

  Classic virus code can penetrate various areas of computers, operating systems, and applications. Depending on the environment, viruses are divided into *file viruses*, *boot viruses*, *script viruses*, and *macro viruses*.

  Viruses can infect files by using a variety of techniques. *Overwriting* viruses write their code over the code of the file that is infected, thus erasing the file's content. The infected file stops functioning and cannot be restored. *Parasitic* viruses modify files, leaving them fully or partially functional. *Companion viruses* do not modify files, but instead create duplicates. When an infected file is opened, a duplicate of it (what is actually a virus) is started. The following types of viruses are also encountered: *link viruses*, *OBJ viruses*, *LIB viruses*, *source code* viruses, and many others.

  Worm

  As with a classic virus, the code of a worm is activated and performs malicious actions after it infiltrates a computer. Worms are so named because of their ability to "crawl" from one computer to another and to spread copies via numerous data channels without the user's permission.

  The main feature that allows differentiating between various types of worms is the way they spread. The following table provides an overview of various types of worms, which are classified by the way in which they spread.

  Ways in which worms spread

Type	Name	Description
Email-Worm	Email-Worm	They spread via email. An infected email message contains an attached file with a copy of a worm, or a link to a file that is uploaded to a website which may have been hacked or created exclusively for that purpose. When you open the attached file, the worm is activated. When you click the link, download, and then open the file, the worm also starts performing its malicious actions. After that, it goes on spreading copies of itself, searching for other email addresses and sending infected messages to them.
IM-Worm	IM client worms	They spread through IM clients. Usually, such worms send messages that contain a link to a file with a copy of the worm on a website, making use of the user's contact lists. When the user downloads and opens the file, the worm activates.

Type	Name	Description
IRC-Worm	Internet chat worms	They spread via Internet Relay Chats, service systems which allow communicating with other people over the Internet in real time. These worms publish a file with a copy of themselves or a link to the file in an Internet chat. When the user downloads and opens the file, the worm activates.
Net-Worm	Network worms	These worms spread over computer networks. Unlike other types of worms, a typical network worm spreads without the user's participation. It scans the local network for computers that contain programs with vulnerabilities. To do this, it sends a specially formed network packet (exploit) which contains the worm code or a part of it. If a "vulnerable" computer is on the network, it receives such a network packet. When the worm completely penetrates the computer, it activates.
P2P-Worm	File sharing network worms	They spread over peer-to-peer file sharing networks. To infiltrate a P2P network, the worm copies itself into a file sharing folder which is usually located on the user's computer. The P2P network displays information about this file so that the user may "find" the infected file on the network like any other file, and then download and open it. More sophisticated worms emulate the network protocol of a specific P2P network: they return positive responses to search queries and offer copies of themselves for download.
Worm	Other types of worms	Other types of worms include: • Worms that spread copies of themselves over network resources. By using the functions of the operating system, they scan available network folders, connect to computers on the Internet, and attempt to obtain full access to their disk drives. Unlike the previously described types of worms, other types of worms activate not on their own, but when the user opens a file that contains a copy of the worm. • Worms that do not use any of the methods described in the previous table to spread (for example, those that spread over cell phones).

- **Trojans**

  Subcategory: Trojans

  Danger level: High

  Unlike worms and viruses, Trojans do not self-replicate. For example, they penetrate a computer via email or a browser when the user visits an infected web page. Trojans are started with the user's participation. They begin performing their malicious actions right after they are started.

  Different Trojans behave differently on infected computers. The main functions of Trojans consist in blocking, modifying, or destroying information, and disabling computers or networks. Trojans can also receive or send files, run them, display messages on the screen, request web pages, download and install programs, and restart the computer.

  Hackers often use "sets" of various Trojans.

  Types of Trojan behavior are described in the following table.

  Types of Trojan behavior on an infected computer

Type	Name	Description
Trojan-ArcBomb	Trojans – "archive bombs"	When unpacked, these archives grow in size to such an extent that the computer's operation is impacted. When the user attempts to unpack such an archive, the computer may slow down or freeze; the hard disk may become filled with "empty" data. "Archive bombs" are especially dangerous to file and mail servers. If the server uses an automatic system to process incoming information, an "archive bomb" may halt the server.
Backdoor	Trojans for remote administration	They are considered the most dangerous type of Trojan. In their functions, they are similar to remote administration applications that are installed on computers. These programs install themselves on the computer without being noticed by the user, allowing the intruder to manage the computer remotely.

Type	Name	Description
Trojan	Trojans	They include the following malicious applications: • **Classic Trojans**. These programs perform only the main functions of Trojans: blocking, modifying or destroying information, and disabling computers or networks. They do not have any advanced features, unlike the other types of Trojans that are described in the table. • **Versatile Trojans**. These programs have advanced features typical of several types of Trojans.
Trojan-Ransom	Ransom Trojans	They take the user's information "hostage", modifying or blocking it, or impact the computer's operation so that the user loses the ability to use information. The intruder demands a ransom from the user, promising to send an application to restore the computer's performance and the data that had been stored on it.
Trojan-Clicker	Trojan clickers	They access web pages from the user's computer, either by sending commands to a browser on their own or by changing the web addresses that are specified in operating system files. By using these programs, intruders perpetrate network attacks and increase website visits, increasing the number of displays of banner ads.
Trojan-Downloader	Trojan downloaders	They access the intruder's web page, download other malicious applications from it, and install them on the user's computer. They can contain the file name of the malicious application to download, or receive it from the web page that is accessed.
Trojan-Dropper	Trojan droppers	They contain other Trojans which they install on the hard drive and then install. Intruders may use Trojan Dropper–type programs for the following goals: • Install a malicious application without being noticed by the user: Trojan Dropper–type programs display no messages, or display fake messages which inform, for example, of an error in an archive or an incompatible version of the operating system. • Protect another known malicious application from detection: not all anti-virus software can detect a malicious application within a Trojan Dropper–type application.
Trojan-Notifier	Trojan notifiers	They inform an intruder that the infected computer is accessible, sending the intruder information about the computer: IP address, number of opened port, or email address. They connect with the intruder via email, FTP, accessing the intruder's web page, or in another way. Trojan Notifier–type programs are often used in sets that are made of several Trojans. They notify the intruder that other Trojans have been successfully installed on the user's computer.
Trojan-Proxy	Trojan proxies	They allow the intruder to anonymously access web pages by using the user's computer; they are often used for sending spam.
Trojan-PSW	Password-stealing-ware	Password-stealing-ware is a kind of Trojan that steals user accounts, such as software registration data. These Trojans find confidential data in system files and in the registry and send it to the "attacker" by email, via FTP, by accessing the intruder's web page, or in another way. Some of these Trojans are categorized into separate types that are described in this table. These are Trojans that steal bank accounts (Trojan-Banker), steal data from users of IM clients (Trojan-IM), and steal information from users of online games (Trojan-GameThief).
Trojan-Spy	Trojan spies	They spy on the user, collecting information about the actions that the user makes while working at the computer. They may intercept the data that the user enters at the keyboard, take screenshots, or collect lists of active applications. After they receive the information, they transfer it to the intruder by email, via FTP, by accessing the intruder's web page, or in another way.
Trojan-DDoS	Trojan network attackers	They send numerous requests from the user's computer to a remote server. The server lacks resources to process all requests, so it stops functioning (Denial of Service, or simply DoS). Hackers often infect many computers with these programs so that they can use the computers to attack a single server simultaneously. DoS programs perpetrate an attack from a single computer with the user's knowledge. DDoS (Distributed DoS) programs perpetrate distributed attacks from several computers without being noticed by the user of the infected computer.
Trojan-IM	Trojans that steal information from users of IM clients	They steal account numbers and passwords of IM client users. They transfer the data to the intruder by email, via FTP, by accessing the intruder's web page, or in another way.
Rootkit	Rootkits	They mask other malicious applications and their activity, thus prolonging the applications' persistence in the operating system. They can also conceal files, processes in an infected computer's memory, or registry keys which run malicious applications. The rootkits can mask data exchange between applications on the user's computer and other computers on the network.
Trojan-SMS	Trojans in the form of SMS messages	They infect cell phones, sending SMS messages to premium-rate phone numbers.

Type	Name	Description
Trojan-GameThief	Trojans that steal information from users of online games	They steal account credentials from users of online games, after which they send the data to the intruder by email, via FTP, by accessing the intruder's web page, or in another way.
Trojan-Banker	Trojans that steal bank accounts	They steal bank account data or e-money system data; send the data to the hacker by email, via FTP, by accessing the hacker's web page, or by using another method.
Trojan-Mailfinder	Trojans that collect email addresses	They collect email addresses that stored on a computer and send them to the intruder by email, via FTP, by accessing the intruder's web page, or in another way. Intruders may send spam to the addresses they have collected.

- **Malicious tools**

  Subcategory: Malicious tools

  Danger level: Medium

  Unlike other types of malware, malicious tools do not perform their actions right after they are started. They can be safely stored and started on the user's computer. Intruders often use the features of these programs to create viruses, worms, and Trojans, perpetrate network attacks on remote servers, hack computers, or perform other malicious actions.

  Various features of malicious tools are grouped by the types that are described in the following table.

  Features of malicious tools

Type	Name	Description
Constructor	Constructors	They allow creating new viruses, worms, and Trojans. Some constructors boast a standard window-based interface in which the user can select the type of malicious application to create, the way of counteracting debuggers, and other features.
Dos	Network attacks	They send numerous requests from the user's computer to a remote server. The server lacks resources to process all requests, so it stops functioning (Denial of Service, or simply DoS).
Exploit	Exploits	An *exploit* is a set of data or a program code that uses vulnerabilities of the application in which it is processed, performing a malicious action on a computer. For example, an exploit can write or read files, or request "infected" web pages. Different exploits use vulnerabilities in different applications or network services. Disguised as a network packet, an exploit is transmitted over the network to numerous computers, searching for computers with vulnerable network services. An exploit in a DOC file uses the vulnerabilities of a text editor. It may start performing the actions that are preprogrammed by the hacker when the user opens the infected file. An exploit that is embedded in an email message searches for vulnerabilities in any email client. It may start performing a malicious action as soon as the user opens the infected message in this email client. Net-Worms spread over networks by using exploits. Nuker exploits are network packets that disable computers.
FileCryptor	Encryptors	They encrypt other malicious applications to conceal them from the anti-virus application.
Flooder	Programs for "contaminating" networks	They send numerous messages over network channels. This type of tools includes, for example, programs that contaminate Internet Relay Chats. Flooder-type tools do not include programs that "contaminate" channels that are used by email, IM clients, and mobile communication systems. These programs are distinguished as separate types that are described in the table (Email-Flooder, IM-Flooder, and SMS-Flooder).
HackTool	Hacking tools	They make it possible to hack the computer on which they are installed or attack another computer (for example, by adding new system accounts without the user's permission or by erasing system logs to conceal traces of their presence in the operating system). This type of tools includes some sniffers which feature malicious functions, such as password interception. Sniffers are programs that allow viewing network traffic.
Hoax	Hoaxes	They alarm the user with virus-like messages: they may "detect a virus" in an uninfected file or notify the user that the disk has been formatted, although this has not happened in reality.
Spoofer	Spoofing tools	They send messages and network requests with a fake address of the sender. Intruders use Spoofer-type tools to pass themselves off as the true senders of messages, for example.

Type	Name	Description
VirTool	Tools that modify malicious applications	They allow modifying other malware programs, concealing them from anti-virus applications.
Email-Flooder	Programs that "contaminate" email addresses	They send numerous messages to various email addresses, thus "contaminating" them. A large volume of incoming messages prevents users from viewing useful messages in their inboxes.
IM-Flooder	Programs that "contaminate" traffic of IM clients	They flood users of IM clients with messages. A large volume of messages prevents users from viewing useful incoming messages.
SMS-Flooder	Programs that "contaminate" traffic with SMS messages	They send numerous SMS messages to cell phones.

- **Adware**

  Subcategory: Advertising software (Adware)

  Danger level: Medium

  Adware displays advertising information to the user. Adware programs display banner ads in the interfaces of other programs and redirect search queries to advertising web pages. Some of them collect marketing information about the user and send it to the developer: this information may include the names of the websites that are visited by the user or the content of the user's search queries. Unlike Trojan-Spy–type programs, adware sends this information to the developer with the user's permission.

- **Auto-dialers**

  Subcategory: Auto-dialers (Dialer).

  Danger level: Medium

  Auto-dialers can surreptitiously establish phone connections using a modem.

- **Legitimate software that can be used by intruders to damage your computer or personal data**

  Subcategory: Legitimate software that can be used by intruders to damage your computer or personal data.

  Danger level: Medium

  Most of these applications are useful, so many users run them. These applications include IRC clients, auto-dialers, file download programs, computer system activity monitors, password utilities, and internet servers for FTP, HTTP, and Telnet.

  However, if intruders gain access to these programs, or if they plant them on the user's computer, some of the application's features may be used to violate security.

  These applications differ by function; their types are described in the following table.

Type	Name	Description
Client-IRC	Internet chat clients	Users install these programs to talk to people in Internet Relay Chats. Intruders use them to spread malware.
Downloader	Programs for downloading	They can download files from web pages in hidden mode.

Type	Name	Description
Monitor	Programs for monitoring	They allow monitoring activity on the computer on which they are installed (seeing which applications are active and how they exchange data with applications that are installed on other computers).
PSWTool	Password restorers	They allow viewing and restoring forgotten passwords. Intruders secretly implant them on users' computers with the same purpose.
RemoteAdmin	Remote administration programs	They are widely used by system administrators. These programs allow obtaining access to the interface of a remote computer to monitor and manage it. Intruders secretly implant them on users' computers with the same purpose: to monitor and manage remote computers. Legal remote administration programs differ from backdoor-type Trojans for remote administration. Trojans have the ability to penetrate the operating system independently and install themselves; legal programs are unable to do so.
Server-FTP	FTP servers	They function as FTP servers. Intruders implant them on the user's computer to open remote access to it via FTP.
Server-Proxy	Proxy servers	They function as proxy servers. Intruders implant them on the user's computer to send spam under the user's name.
Server-Telnet	Telnet servers	They function as Telnet servers. Intruders implant them on the user's computer to open remote access to it via Telnet.
Server-Web	Web servers	They function as web servers. Intruders implant them on the user's computer to open remote access to it via HTTP.
RiskTool	Tools for working at a local computer	They provide the user with additional options when working at the user's own computer. The tools allow the user to hide files or windows of active applications and terminate active processes.
NetTool	Network tools	They provide the user with additional options when working with other computers on the network. These tools allow restarting them, detecting open ports, and starting applications that are installed on the computers.
Client-P2P	P2P network clients	They allow working on peer-to-peer networks. They can be used by intruders for spreading malware.
Client-SMTP	SMTP clients	They send email messages without the user's knowledge. Intruders implant them on the user's computer to send spam under the user's name.
WebToolbar	Web toolbars	They add toolbars to the interfaces of other applications to use search engines.
FraudTool	Pseudo-programs	They pass themselves off as other programs. For example, there are pseudo-anti-virus programs that display messages about malware detection. However, in reality, they do not find or disinfect anything.

- **Packed objects whose packing may be used to protect malicious code**

  Subcategory: Packed files that may cause harm.

  Danger level: Medium.

  The file is packed using a special packer that is used for packing malware: viruses, worms, Trojans. Kaspersky Embedded Systems Security scans the unpacker module within SFX (self-extracting) archives.

  To hide malware from detection by an anti-virus, hackers pack it using special packers. Kaspersky experts have identified packers that are the most popular amongst hackers.

- **Multi-packed objects**

  Subcategory: Multi-packed files.

  Danger level: Medium.

  The file is packed with one or more packers three or more times.

  To hide malware from detection by an anti-virus, hackers may pack a file multiple times. Kaspersky Embedded Systems Security scans packed files.

4. Save your changes.

Editing the list of trusted applications

The *list of trusted applications* is a list of applications whose file and network activity (including malicious activity) and access to the system registry are not monitored by Kaspersky Embedded Systems Security. By default, Kaspersky Embedded Systems Security monitors objects that are opened, executed, or saved by any application process and controls the activity of all applications and network traffic that is generated by them. After an application is added to the list of trusted applications, Kaspersky Embedded Systems Security stops monitoring the application's activity.

The difference between scan exclusions and trusted applications is that for exclusions Kaspersky Embedded Systems Security does not scan files, while for trusted applications it does not control the initiated processes. If a trusted application creates a malicious file in a folder which is not included in scan exclusions, Kaspersky Embedded Systems Security will detect the file and eliminate the threat. If the folder is added to exclusions, Kaspersky Embedded Systems Security will skip this file.

For example, if you consider objects that are used by the standard Microsoft Windows Notepad application to be safe, meaning that you trust this application, you can add Microsoft Windows Notepad to the list of trusted applications so that the objects used by this application are not monitored. This will increase computer performance, which is especially important when using server applications.

In addition, certain actions that are classified by Kaspersky Embedded Systems Security as suspicious may be safe within the context of the functionality of a number of applications. For example, the interception of text that is typed from the keyboard is a routine process for automatic keyboard layout switchers (such as Punto Switcher). To take account of the specifics of such applications and exclude their activity from monitoring, we recommend that you add such applications to the trusted applications list.

Trusted applications help to avoid compatibility issues between Kaspersky Embedded Systems Security and other applications (for example, the problem of double-scanning of the network traffic of a third-party computer by Kaspersky Embedded Systems Security and by another anti-virus application).

At the same time, the executable file and process of the trusted application are still scanned for viruses and other malware. An application can be fully excluded from Kaspersky Embedded Systems Security scanning by means of scan exclusions.

Kaspersky Embedded Systems Security does not support trusted applications lists containing over 5000 objects.

How to add an application to the trusted list in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Supplementary**.
4. In the **Trusted zone** block, click the **Settings** button.
5. In the window that opens, select the **Trusted applications** tab.

   This opens a window containing a list of trusted applications.

6. Select the **Do not check file backup operations** check box if you want to skip the scan of file read operations if such operations are performed by backup tools installed on the protected device.

7. Select the **Merge values when inheriting** check box if you want to create a consolidated list of trusted applications for all computers in the company. The lists of trusted applications in the parent and child policies will be merged. The lists will be merged provided that merging values when inheriting is enabled. Trusted applications from the parent policy are displayed in child policies in a read-only view. Changing or deleting trusted applications of the parent policy is not possible

8. Select the **Allow editing of local trusted applications** check box if you want to enable the user to create a local list of trusted applications. This way, a user can create their own local list of trusted applications in addition to the general list of trusted applications generated in the policy. An administrator can use Kaspersky Security Center to view, add, edit, or delete list items in the computer properties.

   If the check box is cleared, the user can access only the general list of trusted applications generated in the policy. Also, if this check box is cleared, Kaspersky Embedded Systems Security hides the consolidated list of trusted applications in the Application Console.

9. Select the **Do not check file activity of the specified processes** check box to skip the scan of file operations for trusted processes.

10. Click **Add** and select an action:

    - **Category**. You can group trusted applications into separate categories. To create a new category, enter the name of the category and add at least one trusted application to the category.
    - **New exclusion**. Kaspersky Embedded Systems Security adds a new trusted application to the root of the list.
    - **New exclusion to selected category**. To add a new trusted application to a specific category, select a category.
    - **Select exclusion from list**. To quickly configure Kaspersky Embedded Systems Security, you can add applications from the list of predefined trusted applications.

11. In the window that opens, select the **Use full process path on disk to consider it trusted** check box and enter the path to the file to determine whether the process is trusted.

    Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

    > Kaspersky Embedded Systems Security does not support the `%userprofile%` environment variable when generating a list of trusted applications in the Kaspersky Security Center console. To apply the entry to all user accounts, you can use the * character (for example, `C:\Users\*\Documents\File.exe`). Whenever you add a new environment variable, you need to restart the application.

12. Configure the advanced settings for the trusted application (see the table below).

13. Click **OK**.

    The new trusted application will be added to the list. You can exclude an application from the trusted zone at any time using the check box next to the object.

14. Save your changes.

How to add an application to the trusted list in the Kaspersky Security Center Web Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
4. Select the **Application settings** tab.
5. Go to **Supplementary** → **Trusted zone** and click the **Configure** button.
6. In the window that opens, select the **Trusted applications** tab.
7. Select the **Do not check file backup operations** check box if you want to skip the scan of file read operations if such operations are performed by backup tools installed on the protected device.
8. Select the **Merge values when inheriting** check box if you want to create a consolidated list of trusted applications for all computers in the company. The lists of trusted applications in the parent and child policies will be merged. The lists will be merged provided that merging values when inheriting is enabled. Trusted applications from the parent policy are displayed in child policies in a read-only view. Changing or deleting trusted applications of the parent policy is not possible
9. Select the **Allow editing of local trusted applications** check box if you want to enable the user to create a local list of trusted applications. This way, a user can create their own local list of trusted applications in addition to the general list of trusted applications generated in the policy. An administrator can use Kaspersky Security Center to view, add, edit, or delete list items in the computer properties.

   If the check box is cleared, the user can access only the general list of trusted applications generated in the policy. Also, if this check box is cleared, Kaspersky Embedded Systems Security hides the consolidated list of trusted applications in the Application Console.
10. Select the **Do not check file activity of the specified processes** check box to skip the scan of file operations for trusted processes.
11. Click **Add** and select an action:

    - **Category**. You can group trusted applications into separate categories. To create a new category, enter the name of the category and add at least one trusted application to the category.
    - **New exclusion**. Kaspersky Embedded Systems Security adds a new trusted application to the root of the list.
    - **New exclusion to selected category**. To add a new trusted application to a specific category, select a category.
    - **Select exclusion from list**. To quickly configure Kaspersky Embedded Systems Security, you can add applications from the list of predefined trusted applications.
12. In the window that opens, select the **Use full process path on disk to consider it trusted** check box and enter the path to the file to determine whether the process is trusted.

    Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

Kaspersky Embedded Systems Security does not support the `%userprofile%` environment variable when generating a list of trusted applications in the Kaspersky Security Center console. To apply the entry to all user accounts, you can use the * character (for example, `C:\Users\*\Documents\File.exe`). Whenever you add a new environment variable, you need to restart the application.

13. Configure the advanced settings for the trusted application (see the table below).
14. Click **OK**.

    The new trusted application will be added to the list. You can exclude an application from the trusted zone at any time using the check box in the **Action** column.

15. Save your changes.

How to add an application to the trusted list in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **Trusted zone** from the context menu of the node.

   The **Configure Trusted zone settings** window opens.

2. In the **Exclusions** section, click the **Settings** button next to the **Trusted applications** block.
3. Click **Add** and select an action:

   - **Category**. You can group trusted applications into separate categories. To create a new category, enter the name of the category and add at least one trusted application to the category.
   - **New exclusion**. Kaspersky Embedded Systems Security adds a new trusted application to the root of the list.
   - **New exclusion to selected category**. To add a new trusted application to a specific category, select a category.
   - **Select exclusion from list**. To quickly configure Kaspersky Embedded Systems Security, you can add applications from the list of predefined trusted applications.

4. Select a file from the list or enter the path to the executable file of the trusted application.

   Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

   Kaspersky Embedded Systems Security supports environment variables. At the same time Kaspersky Embedded Systems Security converts the path in the local interface of the application. In other words, if you enter the file path `%userprofile%\Documents\File.exe`, a `C:\Users\Fred123\Documents\File.exe` record is added in local interface of the application for user Fred123. Accordingly, Kaspersky Embedded Systems Security ignores the `File.exe` trusted program for other users. To apply the entry to all user accounts, you can use the `*` character (for example, `C:\Users\*\Documents\File.exe`).

   Whenever you add a new environment variable, you need to restart the application.

5. Configure the advanced settings for the trusted application (see the table below).

6. Click **OK**.

   The new trusted application will be added to the list. You can exclude an application from the trusted zone at any time using the check box next to the object name.

7. Save your changes.

Trusted application settings

Parameter	Description
Use full process path on disk to consider it trusted	Kaspersky Embedded Systems Security uses the full path to the file to determine whether the process is trusted.
Use process file hash to consider it trusted	Kaspersky Embedded Systems Security uses the selected file's hash to determine the process's trust status. If the check box is cleared, the file hash is not used to determine the process's trust status.
Rule usage	You can configure a list of Kaspersky Embedded Systems Security components that will not monitor the activity of a trusted application: • **Real-Time File Protection**. If this functionality is enabled, Kaspersky Embedded Systems Security excludes from scanning all files opened using a trusted application. This option is enabled by default. • **Registry Access Monitoring**. If this functionality is enabled, Kaspersky Embedded Systems Security does not monitor changes to registry keys within the monitoring scope of the System Integrity Monitoring component that are made by a trusted application. By default, the functionality is disabled. • **Behavior Detection and Exploit Prevention**. If this functionality is enabled, Kaspersky Embedded Systems Security does not monitor the file and network activity of a trusted application in the operating system using the Behavior Detection and Exploit Prevention components. By default, the functionality is disabled. • **Interaction with AMSI Scanner component**. If this functionality is enabled, Kaspersky Embedded Systems Security does not monitor requests from a trusted application to the AMSI Scanner component. By default, the functionality is disabled. • **File Integrity Monitor**. If this functionality is enabled, Kaspersky Embedded Systems Security does not monitor changes made to files within the monitoring scope of the System Integrity Monitoring component by a trusted application. By default, the functionality is disabled. • **Applications Launch Control**. If this functionality is enabled, Kaspersky Embedded Systems Security does not monitor the launch of a trusted application through the Applications Launch Control component. By default, the functionality is disabled. For predefined trusted applications, all functionalities are enabled by default, except for **Applications Launch Control**.
Allow interaction with the application interface	Kaspersky Embedded Systems Security blocks all attempts to manage application services from a remote computer. If the check box is selected, the remote access application is allowed to manage Kaspersky Embedded Systems Security settings through the Kaspersky Embedded Systems Security interface.
Do not monitor child application activity	Kaspersky Embedded Systems Security will not monitor the file activity or network activity of applications that are started by this application. You can apply the exclusion recursively. In this case, the application does not monitor the activity of the entire chain of child applications.
Do not inherit restrictions from the parent process (application)	The restrictions configured for the parent process will not be applied by Kaspersky Embedded Systems Security to a child process. The parent process is started by an application for which application rights and application network rules are configured.
Do not scan process memory	Kaspersky Embedded Systems Security does not scan process memory.

Creating a local trusted zone

The user now can create their own local trusted zone for a specific computer. This way, the user can create their own local lists of scan exclusions and trusted applications in addition to the general trusted zone in a policy. An administrator can allow or block the use of local exclusions or local trusted applications in policy settings. To do so, use the **Allow use of local exclusions** and **Allow editing of local trusted applications** check boxes on the **Scan exclusions** and **Trusted applications** tabs in the **Trusted zone** section of the policy.

If creating a local trusted zone is allowed by an administrator, the user can add their own scan exclusions and trusted applications in the Application Console. At the same time, the user does not have permissions to modify or delete objects from the trusted zone configured in the policy. The administrator can also view, add, modify, or delete list items in the Kaspersky Security Center console if exclusions need to be added for an individual computer.

Kaspersky Embedded Systems Security hides the lists of scan exclusions and trusted applications in the Application Console if configuration of the trusted zone is blocked by the administrator in the console ("closed lock" symbol) and local scan exclusions and trusted applications are prohibited.

How to add an object to the local trusted zone in the Kaspersky Security Center Administration Console

1. In the **Managed devices** folder in the Administration Console tree, open the folder with the name of the administration group to which the relevant client computers belong.
2. In the workspace, select the **Devices** tab.
3. Double-click to open the computer properties window.
4. In the computer properties window, select the **Applications** section.
5. In the list of Kaspersky applications installed on the computer, select **Kaspersky Embedded Systems Security** and double-click to open the application properties.
6. In the application settings window, select **Supplementary → Trusted zone** and click **Settings**.
7. On the **Scan exclusions** tab, make a list of local scan exclusions.

   The rules for creating local scan exclusions are the same as for general exclusions. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:
8. On the **Trusted applications** tab, make a list of local trusted applications. This opens a window containing a list of local trusted applications.

   Rules for adding applications to the list of local trusted applications are the same as the rules for adding them to the general list. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:
9. Save your changes.

How to add an object to the local trusted zone in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management → Assets (Devices)**.
2. Click the name of the computer on which you want to allow a user to perform a blocked action.
3. Select the **Applications** tab.
4. Click **Kaspersky Embedded Systems Security**.

   This opens the local application settings.
5. Select the **Application settings** tab.
6. In the application settings window, select **Supplementary → Trusted zone** and click **Configure**.

   The **Exclusions and types of detected objects** window opens.

7. On the **Scan exclusions** tab, make a list of local scan exclusions.

   Rules for creating local exclusions are the same as the rules for creating general exclusions. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

8. On the **Trusted applications** tab, make a list of local trusted applications.

   Rules for adding applications to the list of local trusted applications are the same as the rules for adding them to the general list. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

9. Save your changes.

How to create a local scan exclusion in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **Trusted zone** from the context menu of the node.

   The **Configure Trusted zone settings** window opens.

2. In the **Scan exclusions and trusted applications** section, click the **Settings** button next to the **Local scan exclusions** block.

   > Kaspersky Embedded Systems Security hides the list of scan exclusions in the Application Console if configuration of scan exclusions is blocked by the administrator in the Kaspersky Security Center Administration Console ("closed lock" symbol) and local scan exclusions are prohibited (the **Allow use of local exclusions** check box is cleared).

3. Click **Add** and select an action:

   - **Category**. You can group scan exclusions into separate categories. To create a new category, enter the name of the category and add at least one scan exclusion to the category.
   - **New exclusion**. Kaspersky Embedded Systems Security adds a new scan exclusion to the root of the list.
   - **New exclusion to selected category**. To add a new scan exclusion to a specific category, select a category.
   - **Select exclusion from list**. To quickly configure Kaspersky Embedded Systems Security, you can add exclusions from the list of predefined scan exclusions.

4. Selecting **New exclusion** opens the **Scan exclusion** window.

5. To exclude a file or folder from scan, select the **File or folder** check box. Click the **Select file or folder** link to open a window, and in that window, select a file or folder by clicking **Browse**.

You can also enter the path manually. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

- The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.

- Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.

- The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

  You can use masks at the beginning, in the middle or at the end of the file path. For example, if you want to add a folder for all users to exclusions, enter the `?:\Users\*\Folder\` mask.

6. To exclude a predefined area from scan, select the **Predefined scope** check box. Click the **select predefined scope** link to open a window, and in that window, select one the standard scopes on the protected device.

7. To exclude the specific objects from scan, select the **Type of detected object** check box. Click the **enter object names** link, click the **Add** button, and in the displayed window, enter the name of the object type according to the Kaspersky Encyclopedia classification (for example, `Email-Worm`, `Rootkit`, or `RemoteAdmin`).

   You can use masks with the `?` character (replaces any single character) and the `*` character (replaces any number of characters). For example, if the `Client*` mask is specified, Kaspersky Embedded Systems Security excludes `Client-IRC`, `Client-P2P` and `Client-SMTP` objects from scans.

8. To exclude an individual file from scan, select the **Object hash** check box. Click the **enter object hash** link to open a window, and in that window, enter a file hash.

   If the file is modified, the file hash will also be modified. If this happens, the modified file will not be added to exclusions.

9. In the **Rule usage scope** block, select the components that you want the scan exclusion to apply to.

10. If necessary, in the **Comment** field, enter a brief comment on the scan exclusion that you are creating.

11. Save changes to add the exclusion to the list. You can disable the exclusion at any time using the check box next to the object.

How to add an application to the list of local trusted applications in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **Trusted zone** from the context menu of the node.

   The **Configure Trusted zone settings** window opens.

2. In the **Exclusions** section, click the **Settings** button next to the **Local trusted applications** block.

   Kaspersky Embedded Systems Security hides the consolidated list of trusted applications in the Application Console if configuration of trusted applications is blocked by the administrator in the Kaspersky Security Center Administration Console ("closed lock" symbol) and local trusted applications are prohibited (the **Allow editing of local trusted applications** check box is cleared).

3. Click **Add** and select an action:

   - **Category**. You can group trusted applications into separate categories. To create a new category, enter the name of the category and add at least one trusted application to the category.
   - **New exclusion**. Kaspersky Embedded Systems Security adds a new trusted application to the root of the list.
   - **New exclusion to selected category**. To add a new trusted application to a specific category, select a category.
   - **Select exclusion from list**. To quickly configure Kaspersky Embedded Systems Security, you can add applications from the list of predefined trusted applications.

4. Selecting **New exclusion** opens the **Scan exclusion** window.

5. Select the **Use full process path on disk to consider it trusted** check box and enter the path to the executable file of the trusted application.

   Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask:

   Kaspersky Embedded Systems Security supports environment variables. At the same time Kaspersky Embedded Systems Security converts the path in the local interface of the application. In other words, if you enter the file path `%userprofile%\Documents\File.exe`, a `C:\Users\Fred123\Documents\File.exe` record is added in local interface of the application for user Fred123. Accordingly, Kaspersky Embedded Systems Security ignores the `File.exe` trusted program for other users. To apply the entry to all user accounts, you can use the `*` character (for example, `C:\Users\*\Documents\File.exe`).

   Whenever you add a new environment variable, you need to restart the application.

6. In the trusted application properties window, configure the advanced settings.

7. Save changes to add the exclusion to the list.

Exporting and importing the trusted zone

A *trusted zone* is a system administrator-configured list of objects and applications that Kaspersky Embedded Systems Security does not monitor when active. The trusted zone consists of the following lists: *scan exclusions* and *trusted applications*. Then you can modify the file to, for example, add a large number of exclusions of the same type. You can also use the export/import function to back up the list of exclusions and the list of trusted applications, or to migrate the lists to a different server.

The application uses XML format for exporting and importing the *list of exclusions* and trusted applications.

Kaspersky Embedded Systems Security does not support exclusion lists and trusted applications lists containing over 5000 objects.

How to export and import the trusted zone in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Supplementary** → **Trusted zone** and click **Settings**.
4. To export the list of rules:
   a. Select the **Scan exclusions** tab.
   b. If you want to export the entire list, click the button and select **Export**.
   c. If you want to export only part of the list, follow these steps:
      1. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.
      2. Click the button and select **Export selected**.
   d. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.
      Kaspersky Embedded Systems Security exports the list to the XML file.
5. To export the list of trusted applications:
   a. Select the **Trusted applications** tab.
   b. If you want to export the entire list, click the button and select **Export**.
   c. If you want to export only part of the list, follow these steps:
      1. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.
      2. Click the button and select **Export selected**.
   d. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.
      Kaspersky Embedded Systems Security exports the list to the XML file.
6. To import the list of exclusions:
   a. Select the **Scan exclusions** tab.
      This opens a window containing a list of exclusions.
   b. Click on the folder icon and select **Import** from the drop-down list.
   c. In the window that opens, select the XML file from which you want to import the list of exclusions.

d. Open the file.

If the computer already has a list of exclusions, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

7. To import a list of trusted applications:

a. Select the **Trusted applications** tab.

This opens a window containing a list of trusted applications.

b. Click **Import**.

c. This opens a window; in that window, select the XML file from which you want to import the list of trusted applications.

d. Open the file.

If the computer already has a list of trusted applications, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

8. Save your changes.

How to export and import the trusted zone in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Supplementary** → **Trusted zone** and click the **Configure** button.

5. To export the list of rules:

a. On the **Scan exclusions and trusted applications** tab, select the exclusions that you want to export.

b. Click the three dots and select **Export**.

c. Confirm that you want to export only the selected exclusions, or export the entire list of exclusions.

Kaspersky Embedded Systems Security exports the list to the XML file.

6. To export the list of trusted applications:

a. On the **Scan exclusions and trusted applications** tab, select the applications that you want to export.

b. Click the three dots and select **Export**.

c. Confirm that you want to export only the selected applications, or export the entire list.

Kaspersky Embedded Systems Security exports the list to the XML file.

7. To import the list of exclusions:

    a. On the **Scan exclusions and trusted applications** tab, click **Import from the previous version** if you want to import the list of exclusions from an XML file created in version 3.4 or earlier of the application.

    If you are importing rules from an XML file created in version 4.0 or later, click **Import**.

    b. If the computer already has a list of exclusions, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

    c. In the window that opens, select the XML file from which you want to import the list of exclusions.

    d. Click **Import**.

8. To import a list of trusted applications:

    a. On the **Scan exclusions and trusted applications** tab, click **Import from the previous version** if you want to import the list of trusted applications from an XML file created in version 3.4 or earlier of the application.

    If you are importing trusted applications from an XML file created in version 4.0 or later, click **Import**.

    b. If the computer already has a list of trusted applications, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

    c. This opens a window; in that window, select the XML file from which you want to import the list of trusted applications.

    d. Click **Import**.

9. Save your changes.

How to export or import the trusted zone in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **Trusted zone** from the context menu of the node.

    The **Configure Trusted zone settings** window opens.

2. To export the list of exclusions or trusted applications:

    a. In the **Exclusions** section, click the **Settings** button next to the **Scan exclusions** or **Trusted applications** blocks.

    This opens a window containing a list of scan exclusions or a list of trusted applications.

    b. If you want to export the entire list, click the button and select **Export**.

    c. If you want to export only part of the list, follow these steps:

        1. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.

        2. Click the button and select **Export selected**.

    d. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.

    Kaspersky Embedded Systems Security exports the list to the XML file.

3. To import a list of exclusions or trusted applications:

    a. In the **Exclusions** section, click the **Settings** button next to the **Scan exclusions** or **Trusted applications** blocks.

    b. Select the exclusions or trusted applications that you want to import.

    c. Click on the folder icon and select **Import**.

    d. This opens a window; in that window, select the XML file from which you want to import the list of exclusions or trusted applications.

    e. Open the file.

    If the computer already has a list of exclusions, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

4. Save your changes.

Using trusted system certificate storage

Use of system certificate storage lets you exclude applications signed by a trusted digital signature from virus scans. Kaspersky Embedded Systems Security automatically assigns such applications to the *Trusted* group.

How to configure the use of a trusted system certificate storage in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Supplementary → Trusted zone** and click **Settings**.
4. Select the **Trusted system certificate store** tab.
5. Select the **Use trusted system certificate store** check box, and in the drop-down list, select the system store that you want Kaspersky Embedded Systems Security to consider trusted.
6. Save your changes.

How to configure the use of a trusted system certificate storage in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management → Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

    The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Supplementary → Trusted zone** and click the **Configure** button.
5. Select the **Trusted system certificate store** tab.

6. Select the **Use trusted system certificate store** check box, and in the drop-down list, select the system store that you want Kaspersky Embedded Systems Security to consider trusted.

7. Save your changes.

How to configure the use of a trusted system certificate storage in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and select **Trusted zone** from the context menu of the node.

   The **Configure Trusted zone settings** window opens.

2. Under **Trusted system certificate store**, select the **Use trusted system certificate store** check box, and in the drop-down list, select the system store that you want Kaspersky Embedded Systems Security to consider trusted.

3. Save your changes.

Predefined scan exclusions and trusted applications

Predefined scan exclusions and trusted applications let you quickly add processes and files of the following software to the trusted zone:

- Microsoft Exchange Server
- Microsoft SQL Server
- Microsoft Hyper-V
- The data deduplication process in Microsoft Windows Server
- Microsoft System Center Configuration Manager

You can select predefined exclusions and trusted applications in the following ways:

- Installing the application.
  - Installing the application locally using the Wizard
  - Installation package properties
- Setting the policy.
  - New policy wizard
  - Policy properties: scan exclusions and trusted applications
  - On the command line.

Real-Time File Protection

The Real-Time File Protection component of Kaspersky Embedded Systems Security scans the following protected device objects when they are accessed:

- Files
- NTFS alternate data streams.
- Master boot records and boot sectors on local hard drives and external devices.
- Windows Server 2016 and Windows Server 2019 container files.

When any application writes or reads a file on the protected device, Kaspersky Embedded Systems Security intercepts the file, scans it for threats, and, if a threat is detected, performs a default action or an action you have specified: try to disinfect, move to Quarantine, or delete it. Before disinfection or deletion, Kaspersky Embedded Systems Security saves an encrypted copy of the source file to the Backup folder.

Kaspersky Embedded Systems Security intercepts file operations, executed in Windows Server 2016 and Windows Server 2019 containers.

A *container* is an isolated environment, which allows applications to run without direct interaction with the operating system. If container is located in the component protection scope, Kaspersky Embedded Systems Security scans container files, which are being accessed by users, for computer threats. When a threat is detected, the application attempts to disinfect the container. If disinfection succeeds, the container continues to work. If disinfection fails, the container is turned off.

Kaspersky Embedded Systems Security also detects malware for processes running under Windows Subsystem for Linux®. For such processes, the Real-Time File Protection component applies action defined by the current configuration.

About the task protection scope and security settings

By default, the Real-Time File Protection component protects all objects of the device file system. If there is no security requirement to protect all objects of the file system or you want to exclude any objects from the task scope, you can limit the protection scope.

In the Application Console, the protection scope is displayed as a list of the device's file resources that Kaspersky Embedded Systems Security can monitor.

Security settings

The task security settings can be configured as common settings for all nodes or items included in the protection scope, or as different settings for each node or item in the device's file resource list.

Security settings configured for the selected parent node are automatically applied to all its child nodes. The security settings of the parent node are not applied to child nodes that are configured separately.

The settings for a selected protection scope can be configured using one of the following methods:

- Selecting one of three predefined security levels.
- Configuring the security settings manually for the selected nodes or items in the file resource list (the security level changes to **Custom**).

Predefined protection scopes

The file resource list displays the nodes to which you have read-access based on the configured Microsoft Windows security settings.

Kaspersky Embedded Systems Security covers the following predefined protection scopes:

- **Local hard drives**. Kaspersky Embedded Systems Security protects files on the device hard drives.
- **Removable drives**. Kaspersky Embedded Systems Security protects files on external devices, such as CDs or removable drives. All removable drives, individual disks, folders or files can be included in or excluded from the protection scope.
- **Network**. Kaspersky Embedded Systems Security protects files that are written to network folders or read from them by applications running on the device. Kaspersky Embedded Systems Security does not protect files when such files are accessed by applications from other protected devices.

By default, you can view and configure predefined protection scopes in the scope list; you can also add predefined scopes to the list during its formation in the protection scope settings.

Connected network drives will also not be displayed in the protected device's file resource list. To include objects on network drives in the protection scope, specify the path to the folder that corresponds to this network drive in UNC (Universal Naming Convention) format.

About predefined security levels

One of the following predefined security levels for the nodes selected either in the protected device's file resource tree or file resource list can be applied: **Maximum performance**, **Recommended**, **Maximum protection**, and **Inform**. Each of these levels contains its own predefined set of security settings (see the table below).

Maximum performance

The **Maximum performance** security level is recommended if your network has additional protected device security measures, for example, firewalls and existing security policies, beyond using Kaspersky Embedded Systems Security on protected devices and workstations.

Recommended

The **Recommended** security level ensures the best combination of protection and performance impact on devices. Kaspersky experts recommend this level as adequate to protect devices on most corporate networks. The **Recommended** security level is set by default.

Maximum protection

The **Maximum protection** security level is recommended if your organization's network has elevated device security requirements.

Inform

The **Inform** security level is recommended if there are potentially many infected computers in the corporate network and blocking them could significantly disrupt the operation of the organization.

Preset security levels and corresponding setting values

Options	Security level			
	Maximum performance	Recommended	Maximum protection	Inform
Objects protection	Objects scanned according to list of extensions specified in anti-virus database	Objects scanned by format	Objects scanned by format	Objects scanned by format
Scan only new and modified files	Enabled	Enabled	Disabled	Enabled
Scan of compound files	Disabled	Scan files in Microsoft Office formats	Scan files in Microsoft Office formats	Scan files in Microsoft Office formats
Action to perform on infected and other objects	Block access and disinfect. Remove, if disinfection fails	Block access and perform action recommended by Kaspersky experts	Block access and disinfect. Remove, if disinfection fails	Inform
Apply the action to the selected object types	Disabled	Disabled	Disabled	Disabled
Entirely remove the compound file that cannot be modified by the application in case of embedded object detection	Disabled	Disabled	Enabled	Disabled
System-critical objects are files required for the operation of the operating system and Kaspersky Embedded Systems Security. These files can not be deleted. Processes associated with such objects cannot be terminated.				
Unpack in the background compound files larger than (MB)				
Stop scanning if it takes longer than (sec)	60 sec.	60 sec.	60 sec.	60 sec.
Do not scan compound objects larger than (MB)	8 MB	8 MB	Not set	8 MB

Options	Security level			
	Maximum performance	Recommended	Maximum protection	Inform
Use iSwift technology	Enabled	Enabled	Enabled	Enabled
Use iChecker technology	Enabled	Enabled	Enabled	Enabled

File extensions scanned by default by the Real-Time File Protection component

Kaspersky Embedded Systems Security scans files with the following extensions by default:

- *386;*
- *acm;*
- *ade, adp;*
- *asp;*
- *asx;*
- *ax;*
- *bas;*
- *bat;*
- *bin;*
- *chm;*
- *cla, clas*;*
- *cmd;*
- *com;*
- *cpl;*
- *crt;*
- *dll;*
- *dpl;*
- *drv;*
- *dvb;*
- *dwg;*
- *efi;*

- *emf;*
- *eml;*
- *.exe*
- *fon;*
- *fpm;*
- *hlp;*
- *hta;*
- *htm, html*;*
- *htt;*
- *ico;*
- *inf;*
- *ini;*
- *ins;*
- *isp;*
- *jpg, jpe;*
- *js, jse;*
- *lnk;*
- *mbx;*
- *msc;*
- *msg;*
- *msi;*
- *msp;*
- *mst;*
- *nws;*
- *ocx;*
- *oft;*
- *otm;*
- *pcd;*

- *pdf;*
- *php;*
- *pht;*
- *phtm*;*
- *pif;*
- *plg;*
- *png;*
- *pot;*
- *prf;*
- *prg;*
- *reg;*
- *rsc;*
- *rtf;*
- *scf;*
- *scr;*
- *sct;*
- *shb;*
- *shs;*
- *sht;*
- *shtm*;*
- *swf;*
- *sys;*
- *the;*
- *them*;*
- *tsp;*
- *url;*
- *vb;*
- *vbe;*

- *vbs;*
- *vxd;*
- *wma;*
- *wmf;*
- *wmv;*
- *wsc;*
- *wsf;*
- *wsh;*
- *do?;*
- *md?;*
- *mp?;*
- *ov?;*
- *pp?;*
- *vs?;*
- *xl?.*

Configuring Real-Time File Protection component

By default, the Real-Time File Protection component uses the settings described in the table below. You can change the values of these settings.

Real-Time File Protection component default settings

Parameter	Default value	Description
Protection scope	The entire protected device, excluding virtual drives.	Use this option to change the protection scope.
Security settings	Common settings for the entire protection scope correspond to the **Recommended** security level.	For nodes selected in the protected device's file resource list or tree, you can: • Select a different predefined security level • Manually change security settings You can save a group of security settings for a selected node as a template to use later for a different node.
Objects protection mode	**Smart mode**.	Use this option to select the protection mode, i.e. define the type of access attempts for which Kaspersky Embedded Systems Security scans objects.
Heuristic analyzer	The **Medium** security level is applied.	The Heuristic Analyzer can be enabled or disabled and the analysis level can be configured.
Block access to network shared resources for the sessions that show malicious activity	Not applied.	Use this option to block current session and to add host IP or host LUID for which malicious activity was detected in the Blocked hosts storage section.

Parameter	Default value	Description
Launch critical areas scan when active infection is detected	Applied.	When active infection is detected, Kaspersky Embedded Systems Security creates and launches Critical Areas Scan task.
Stop the container if disinfection fails	Applied.	The application may not have sufficient read and write rights for the detected object. In that case, disinfecting or deleting the detected object is impossible. If this check box is selected, the application blocks the detected object and stops the container. If this check box is cleared, the application only blocks the detected object.
Do not scan file operations executed in Windows containers	Applied.	If the check box is selected, the application scans the container only at the container startup. If the check box is cleared, the application scans the container continuously in real time.

How to enable virus scans of files in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Real-Time File Protection settings** section, click **Settings**.
5. Select the **Real-Time File Protection** check box.
6. In the **Objects protection mode** block, on the **General** tab, select the Real-Time File Protection operation mode:
   - **Smart mode**. Kaspersky Embedded Systems Security selects objects to be scanned on its own. An object is scanned on being opened and then again after being saved if the object has been modified. If the object is accessed multiple times and modified by the process, Kaspersky Embedded Systems Security rescans the object only after the object is saved by the process for the last time.
   - **On access and modification**. Kaspersky Embedded Systems Security scans an object when it is opened and rescans after it is saved, if the object was modified. This option is selected by default.
   - **On access**. Kaspersky Embedded Systems Security scans all objects when they are opened for reading, execution, or modification.
   - **When run**. Kaspersky Embedded Systems Security scans a file only when it is accessed to be executed.
7. Clear or select the **Use heuristic analysis** check box.
8. Select or clear the **Block access to network shared resources for the sessions that show malicious activity** check box.
9. Clear or select the **Launch critical areas scan when active infection is detected** check box.

   If the check box is selected, when active infection is detected, Kaspersky Embedded Systems Security runs the predefined *Critical Areas Scan* task. The check box is selected by default.
10. Specify settings for scanning file operations executed in Windows containers.
11. Save your changes.

How to enable virus scans of files in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Real-Time File Protection** and click the **Configure** button.
5. Select the **Enable Real-Time File Protection** check box.
6. In the **Objects protection mode** block, on the **General** tab, select the Real-Time File Protection operation mode:

   - **Smart mode**. Kaspersky Embedded Systems Security selects objects to be scanned on its own. An object is scanned on being opened and then again after being saved if the object has been modified. If the object is accessed multiple times and modified by the process, Kaspersky Embedded Systems Security rescans the object only after the object is saved by the process for the last time.
   - **On access and modification**. Kaspersky Embedded Systems Security scans an object when it is opened and rescans after it is saved, if the object was modified. This option is selected by default.
   - **On access**. Kaspersky Embedded Systems Security scans all objects when they are opened for reading, execution, or modification.
   - **When run**. Kaspersky Embedded Systems Security scans a file only when it is accessed to be executed.
7. Clear or select the **Use heuristic analysis** check box.
8. Select or clear the **Block access to network shared resources for the network sessions showing malicious activity** check box.
9. Clear or select the **Launch critical areas scan when active infection is detected** check box.

   If the check box is selected, when active infection is detected, Kaspersky Embedded Systems Security runs the predefined *Critical Areas Scan* task. The check box is selected by default.
10. Specify settings for scanning file operations executed in Windows containers.
11. Save your changes.

How to enable virus scans of files in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection** → **Real-Time File Protection**.
2. In the results pane of the **Real-Time File Protection** node, click **Properties**.

   The **Properties: Real-Time File Protection** window opens.
3. Select the **Real-Time File Protection** check box.

4. In the **Objects protection mode** block, on the **General** tab, select the Real-Time File Protection operation mode:

   - **Smart mode**. Kaspersky Embedded Systems Security selects objects to be scanned on its own. An object is scanned on being opened and then again after being saved if the object has been modified. If the object is accessed multiple times and modified by the process, Kaspersky Embedded Systems Security rescans the object only after the object is saved by the process for the last time.
   - **On access and modification**. Kaspersky Embedded Systems Security scans an object when it is opened and rescans after it is saved, if the object was modified. This option is selected by default.
   - **On access**. Kaspersky Embedded Systems Security scans all objects when they are opened for reading, execution, or modification.
   - **When run**. Kaspersky Embedded Systems Security scans a file only when it is accessed to be executed.

5. Clear or select the **Use heuristic analysis** check box.
6. Select or clear the **Block access to network shared resources for the sessions that show malicious activity** check box.
7. Clear or select the **Launch critical areas scan when active infection is detected** check box.

   If the check box is selected, when active infection is detected, Kaspersky Embedded Systems Security runs the predefined *Critical Areas Scan* task. The check box is selected by default.

8. Specify settings for scanning file operations executed in Windows containers.
9. Save your changes.

Configuring the protection scope for the Real-Time File Protection component

By default, the Real-Time File Protection component uses common security settings for the entire protection scope. These settings correspond to the **Recommended** predefined security level.

The default values of security settings can be modified by configuring them as common settings for the entire protection scope or as different settings for individual items in the device's file resource list.

> If the same object is included in multiple protection scope entries and these entries have different security levels, the last rule in the list takes priority. For example, consider a protection scope that includes two entries: **All hard drives** (security level **Inform**) and `*\Users\*\Downloads\*` (security level **Custom**). The application scans hard drives in accordance with the Inform level, except the `Downloads` folder. The application scans the `Downloads` folder in accordance with manually specified settings because this entry is the last in the list of the protection scope.

How to configure the protection scope for Real-Time File Protection in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.

3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Real-Time File Protection** section, click **Settings**.
5. Select the **Protection scope** tab.
6. In the list of file resource of the protected device, select items for which you want to set a predefined security level.
7. If the file share is not in the list, add it manually:
   a. Click **Add**.
   b. Use the folder tree to specify the path to the required object or enter the path in the **Object** field.
      If necessary, use special characters to enter the object path mask:
      - The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.
      - Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.
      - The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

      The **This PC** object in the list of file resources of the computer includes the following objects: **All hard drives**, **All network drives** and **All removable drives**.
   c. Click **OK**.
8. Make sure that the selected file resource is included in the protection scope.
9. Specify a predefined security level for the selected protection scope by clicking **Configure**. By default, the same security settings are applied to the whole protection scope. These settings correspond to the **Recommended** predefined security level. You can also edit the default security settings.
10. Save your changes.

How to configure the protection scope for Real-Time File Protection in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.

4. Go to **Real-Time Computer Protection** → **Real-Time File Protection** and click the **Configure** button.

5. Select the **Protection scope** tab.

6. In the list of file resource of the protected device, select items for which you want to set a predefined security level.

7. If the file share is not in the list, add it manually:

   a. Click **Add**.

   b. In the **Object type** list, select an option:

   For the **Mask** option, use special characters to enter the object path mask:

   - The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.

   - Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.

   - The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

   The **This PC** object in the list of file resources of the computer includes the following objects: **All hard drives**, **All network drives** and **All removable drives**.

   c. Click **OK**.

8. Make sure that the selected file resource is included in the protection scope by using the toggle switch next to the list item.

9. Specify a predefined security level for the selected protection scope by clicking **Edit**. By default, the same security settings are applied to the whole protection scope. These settings correspond to the **Recommended** predefined security level. You can also edit the default security settings.

10. Save your changes.

How to configure the protection scope for Real-Time File Protection in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection** → **Real-Time File Protection**.

2. In the results pane of the **Real-Time File Protection** node, click **Configure protection scope**.

   The **Properties: Real-Time File Protection** window opens.

3. In the list of file resource of the protected device, select items for which you want to set a predefined security level.

4. If the file share is not in the list, add it manually:

   a. Click **Add**.

   b. Use the folder tree to specify the path to the required object or enter the path in the **Object** field.

      If necessary, use special characters to enter the object path mask:

      - The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.

      - Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.

      - The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

      The **This PC** object in the list of file resources of the computer includes the following objects: **All hard drives**, **All network drives** and **All removable drives**.

   c. Click **OK**.

5. Make sure that the selected file resource is included in the protection scope.

6. Specify a predefined security level for the selected protection scope by clicking **Configure**. By default, the same security settings are applied to the whole protection scope. These settings correspond to the **Recommended** predefined security level. You can also edit the default security settings.

7. Save your changes.

Configuring security settings manually

By default Real-Time Computer Protection tasks use common security settings for the entire protection scope. These settings correspond to the **Recommended** predefined security level.

The default values of security settings can be modified by configuring them as common settings for the entire protection scope or as different settings for individual items in the device's file resource list or nodes in the tree.

When working with the protected device's file resource tree, security settings that are configured for the selected parent node are automatically applied to all child nodes. The security settings of the parent node are not applied to child nodes that are configured separately.

How to configure security settings manually in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.

2. Select the necessary policy and double-click to open the policy properties.

3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Real-Time File Protection** section, click **Settings**.
5. In the **Real-Time File Protection** window, go to the **Protection scope** tab.
6. Select the resource whose security settings you want to configure.
7. Click **Configure**.
8. In the window that opens, select the required security level and click **Settings**.
9. On the **General** tab, specify the following settings:
    - Objects that should be included in the protection scope:
        - **All objects**. Kaspersky Embedded Systems Security scans all objects.
        - **Objects scanned by format**. Kaspersky Embedded Systems Security scans only infectable objects based on file format. Kaspersky compiles the list of formats. It is included in the Kaspersky Embedded Systems Security databases.
        - **Objects scanned by the list of extensions specified in anti-virus databases**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. Kaspersky compiles the list of extensions. It is included in the Kaspersky Embedded Systems Security databases.
        - **Objects scanned by specified list of extensions**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. The list of extensions is specified manually by the user.
    - In the **Optimization** block, select or clear the Scan only new and modified files check box.
    - In the **Scan of compound files** section, specify the compound objects that you want to include in the scan scope:
        - Scan archives
        - Scan distribution packages
        - Scan files in Microsoft Office formats
        - Scan email format files
10. On the **Actions** tab, specify the following settings:
    - Select the action to be performed on infected and other detected objects:
        - Inform
        - Block
        - **Perform additional action**

Select the action from the drop-down list:

- **Disinfect**
- **Disinfect. Delete if disinfection fails**
- **Delete**
- **Recommended**

- Configure actions to be performed on objects depending on the type of object detected:

  a. Clear or select the **Apply the action to the selected object types** check box.

  b. Click **Settings** and select the types of objects to be detected.

- Configure actions on compound files that are not available for modification: clear or select the **Entirely remove the compound file that cannot be modified by the application in case of embedded object detection** check box.

11. On the **Optimization** tab, specify the following settings:

    - **Unpack in the background compound files larger than (MB)**
    - **Stop scanning if it takes longer than (sec)**
    - **Do not scan compound objects larger than (MB)**
    - **Use iSwift technology**
    - **Use iChecker technology**

12. Save the new security settings.

How to configure security settings manually in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Real-Time File Protection** and click the **Configure** button.
5. Select the **Protection scope** tab.
6. Do one of the following:

   - Click the **Add** button to add a new rule and specify security settings for it.
   - Select an existing rule and click **Edit** button.

   The **Edit scope** window opens.

7. Set the toggle switch to **Active**.

8. Select a security level and specify security settings as necessary.

9. In the **Objects protection mode** section, select the type of the object that you want to include in the protection scope:

   - Objects that should be included in the protection scope:

     - **All objects**. Kaspersky Embedded Systems Security scans all objects.

     - **Objects scanned by format**. Kaspersky Embedded Systems Security scans only infectable objects based on file format. Kaspersky compiles the list of formats. It is included in the Kaspersky Embedded Systems Security databases.

     - **Objects scanned by the list of extensions specified in anti-virus databases**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. Kaspersky compiles the list of extensions. It is included in the Kaspersky Embedded Systems Security databases.

     - **Objects scanned by specified list of extensions**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. The list of extensions is specified manually by the user.

10. In the **Optimization** section, select or clear the **Protect only new and modified files** check box.

11. In the **Compound objects protection** section, specify the compound objects that you want to include in the scan scope:

    - **Scan archives**
    - **Scan distribution packages**
    - **Scan files in Microsoft Office formats**
    - **Scan email format files**

12. Select the action to be performed on infected and other detected objects:

    - **Inform**
    - **Block**
    - **Perform additional action**

      Select the action from the drop-down list:

      - **Disinfect**
      - **Disinfect, delete if disinfection fails**
      - **Delete**
      - **Recommended**

13. Configure actions to be performed on objects depending on the type of object detected:

    a. Clear or select the **Apply the action to the selected object types** check box.

    b. If the check box is selected, click **Settings** and select the types of objects to be detected.

14. Configure actions on compound files that are not available for modification: clear or select the **Entirely remove the compound file that cannot be modified by the application in case of embedded object detection** check box.

15. In the **Optimization** section, configure the following settings:

    - **Unpack compound files in the background**
    - **Stop scanning if it takes longer than (sec)**
    - **Do not scan compound objects larger than (MB)**
    - **Use iSwift technology**
    - **Use iChecker technology**

16. Save the new security settings.

How to configure security settings manually in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection → Real-Time File Protection**.

2. In the results pane of the **Real-Time File Protection** node, click **Configure protection scope**.

   The **Properties: Real-Time File Protection** window opens.

3. Select the resource whose security settings you want to configure.

4. Click **Configure**.

5. In the window that opens, select the required security level and click **Settings**.

6. On the **General** tab, specify the following settings:

   - Objects that should be included in the protection scope:

     - **All objects**. Kaspersky Embedded Systems Security scans all objects.

     - **Objects scanned by format**. Kaspersky Embedded Systems Security scans only infectable objects based on file format. Kaspersky compiles the list of formats. It is included in the Kaspersky Embedded Systems Security databases.

     - **Objects scanned by the list of extensions specified in anti-virus databases**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. Kaspersky compiles the list of extensions. It is included in the Kaspersky Embedded Systems Security databases.

     - **Objects scanned by specified list of extensions**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. The list of extensions is specified manually by the user.

   - In the **Optimization** block, select or clear the **Protect only new and modified files** check box.

- In the **Scan of compound files** section, specify the compound objects that you want to include in the scan scope:
  - **Scan archives**. Scanning ZIP, GZIP, BZIP, RAR, TAR, ARJ, CAB, LHA, JAR, ICE, and other archives. The application scans archives not only by extension, but also by format. When checking archives, the application performs a recursive unpacking. This allows the detection of threats inside multi-level archives (an archive within an archive).
  - **Scan distribution packages**. This check box enables/disables scanning of third-party distribution packages.
  - **Scan files in Microsoft Office formats**. Scans Microsoft Office files (DOC, DOCX, XLS, PPT and other Microsoft extensions). Office format files include OLE objects as well. Kaspersky Embedded Systems Security scans office format files that are smaller than 1 MB, regardless of whether the check box is selected or not.
  - **Scan email format files**.

7. On the **Actions** tab, specify the following settings:
   - Select the action to be performed on infected and other detected objects:
     - **Inform**
     - **Block**
     - **Perform additional action**.

       Select the action from the drop-down list:
       - **Disinfect**
       - **Disinfect. Delete if disinfection fails**
       - **Delete**
       - **Recommended**
   - Configure actions to be performed on objects depending on the type of object detected:
     a. Clear or select the **Apply the action to the selected object types** check box.
     b. Click **Settings** and select the types of objects to be detected.
   - Configure actions on compound files that are not available for modification: clear or select the **Entirely remove the compound file that cannot be modified by the application in case of embedded object detection** check box.
8. On the **Optimization** tab, specify the following settings:
   - **Unpack in the background compound files larger than (MB)**
   - **Stop scanning if it takes longer than (sec)**
   - **Do not scan compound objects larger than (MB)**

- **Use iSwift technology**
- **Use iChecker technology**

9. Save the new security settings.

Container Scan

A *container* is an isolated environment in which an application can run without directly interacting with the operating system. Using containers involves the following risks:

- Hackers may be able to exploit containerization vulnerabilities to compromise applications inside the container.
- Hackers may exploit an insecure configuration of the container environment to gain unauthorized access to data on the computer or to compromise the integrity of the system.
- A successful attack on a container can allow a hacker to gain access to data on the computer.
- Hackers may exploit network vulnerabilities to intercept network traffic.

Kaspersky Embedded Systems Security is an external tool for detecting malicious activity inside containers. This allows maintaining the performance of containers and prevents conflicts with other applications inside the container. Installing Kaspersky Embedded Systems Security inside the container is not supported.

In addition to providing container security, Kaspersky Embedded Systems Security allows managing applications inside containers using the Applications Launch Control component. The Applications Launch Control component is configured for containers in the same way as for applications installed on the computer. The System Integrity Monitoring component also supports containers.

Container requirements

- The container must be a Docker container. Other containerization tools are not supported.
- The container must run in process isolation mode. The Hyper-V isolation mode is not supported.
- The container must be placed on a Windows Server 2016, 2019, or 2022 server (Docker Host).
- The container must include a Windows image (Docker Image). Windows 10 and 11 are not supported. Linux images are not supported.
- Scanning containers running in WSL2 – Windows Subsystem for Linux v2 (Docker Wine) mode is not supported.

Action on threat detection

If a threat is detected inside a container, the application applies the action selected for the Real-Time File Protection component. The container scan has additional settings (see the instructions below). If a threat is detected, the application blocks the malicious activity and performs the selected action (for example, attempts to disinfect the object). Kaspersky Embedded Systems Security can stop the container if it fails to disinfect the detected object. By default, container stopping is enabled.

How to configure scan of containers in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Real-Time File Protection** section, click **Settings**.
5. In the **Scan of file operations executed in Windows containers** block, configure the container scan settings:
   - **Stop the container if disinfection fails**. The application may not have sufficient read and write rights for the detected object. In that case, disinfecting or deleting the detected object is impossible. If this check box is selected, the application blocks the detected object and stops the container. If this check box is cleared, the application only blocks the detected object.
   - **Do not scan file operations executed in Windows containers**. If the check box is selected, the application scans the container only at the container startup. If the check box is cleared, the application scans the container continuously in real time.
6. Save the new security settings.

How to configure scan of containers in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Real-Time File Protection** and click the **Configure** button.
5. In the **Scan of file operations executed in Windows containers** block, configure the container scan settings:
   - **Stop the container if disinfection fails**. The application may not have sufficient read and write rights for the detected object. In that case, disinfecting or deleting the detected object is impossible. If this check box is selected, the application blocks the detected object and stops the container. If this check box is cleared, the application only blocks the detected object.
   - **Do not scan file operations executed in Windows containers**. If the check box is selected, the application scans the container only at the container startup. If the check box is cleared, the application scans the container continuously in real time.
6. Save the new security settings.

How to configure scan of containers in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection → Real-Time File Protection**.

2. In the results pane of the **Real-Time File Protection** node, click **Properties**.

   The **Properties: Real-Time File Protection** window opens.

3. In the **Scan of file operations executed in Windows containers** block, configure the container scan settings:

   - **Stop the container if disinfection fails**. The application may not have sufficient read and write rights for the detected object. In that case, disinfecting or deleting the detected object is impossible. If this check box is selected, the application blocks the detected object and stops the container. If this check box is cleared, the application only blocks the detected object.

   - **Do not scan file operations executed in Windows containers**. If the check box is selected, the application scans the container only at the container startup. If the check box is cleared, the application scans the container continuously in real time.

4. Save your changes.

KSN Usage

To protect your computer more effectively, Kaspersky Embedded Systems Security uses data that is received from users around the globe. Kaspersky Security Network is designed for obtaining this data.

KSN functionality may not be available in the application in the U.S.

Kaspersky Security Network (KSN) is an infrastructure of cloud services providing access to the online Kaspersky Knowledge Base that contains information about the reputation of files, web resources, and software. The use of data from Kaspersky Security Network ensures faster responses by Kaspersky Embedded Systems Security to new threats, improves the performance of some protection components, and reduces the likelihood of false positives. If you are participating in Kaspersky Security Network, KSN services provide Kaspersky Embedded Systems Security with information about the reputation of scanned web addresses, as well as information about the category and reputation of scanned files. For more details on configuring access to KSN, refer to the Kaspersky Security Center Help.

Use of Kaspersky Security Network is voluntary. The application prompts you to use KSN during initial configuration of the application. Users can begin or discontinue participation in KSN at any time.

For more detailed information about sending Kaspersky statistical information that is generated during participation in KSN, and about the storage and destruction of such information, please refer to the Kaspersky Security Network Statement and the Kaspersky website. The ksn_<language ID>.txt file with the text of the Kaspersky Security Network Statement is included in the application distribution kit.

The infrastructure of Kaspersky reputation databases

Kaspersky Embedded Systems Security supports the following infrastructure solutions for working with Kaspersky reputation databases:

- *Kaspersky Security Network (KSN)* is the solution that is used by most Kaspersky applications. KSN participants receive information from Kaspersky and send Kaspersky information about objects detected on the user's computer to be analyzed additionally by Kaspersky analysts and to be included in the reputation and statistical databases.

- *Kaspersky Private Security Network (KPSN)* is a solution that enables users of computers hosting Kaspersky Embedded Systems Security or other Kaspersky applications to obtain access to Kaspersky reputation databases, and to other statistical data without sending data to Kaspersky from their own computers. KPSN is designed for corporate customers who are unable to participate in Kaspersky Security Network for any of the following reasons:

  - Local workstations are not connected to the Internet.

  - Transmission of any data outside the country or outside the corporate LAN is prohibited by law or restricted by corporate security policies.

Enabling the use of Kaspersky Security Network

How to enable the use of Kaspersky Security Network.in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Network Administration Console tree, select the **Policies** folder.
2. Select the necessary policy of Kaspersky Embedded Systems Security and double-click to open the policy properties.
3. This opens a window; in that window, in the list of sections, select **Real-Time Computer Protection → KSN Usage**.
4. Click **Settings**.
5. Select the **Kaspersky Security Network** check box to enable the component.

   If you enabled the use of KSN, Kaspersky Embedded Systems Security will display the Kaspersky Security Network Statement. Please read and accept the Kaspersky Security Network (KSN) Statement terms of use if you agree to them.

   By default, Kaspersky Embedded Systems Security uses the Extended mode of Kaspersky Security Network. The Extended Kaspersky Security Network mode is a mode in which Kaspersky Embedded Systems Security sends additional data to Kaspersky.
6. If necessary, clear the **Enable extended KSN mode** check box.
7. Save your changes.

If the use of Kaspersky Security Network is enabled, Kaspersky Embedded Systems Security uses information about the reputation of files, web resources, and applications received from Kaspersky Security Network.

How to enable the use of Kaspersky Security Network in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, expand the **Real-Time Computer Protection** node.
2. Select the **Kaspersky Security Network** child node.
3. In the main application window, click **Properties**.
4. Select the **Kaspersky Security Network** check box to enable the component.

   If you enabled the use of KSN, Kaspersky Embedded Systems Security will display the Kaspersky Security Network Statement. Please read and accept the Kaspersky Security Network (KSN) Statement terms of use if you agree to them.

   By default, Kaspersky Embedded Systems Security uses the Extended mode of Kaspersky Security Network. The Extended Kaspersky Security Network mode is a mode in which Kaspersky Embedded Systems Security sends additional data to Kaspersky.
5. If necessary, clear the **Enable extended KSN mode** check box.
6. Save your changes.

If the use of Kaspersky Security Network is enabled, Kaspersky Embedded Systems Security uses information about the reputation of files, web resources, and applications received from Kaspersky Security Network.

How to enable the use of Kaspersky Security Network in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to the **Real-Time Computer Protection** → **KSN Usage** section and click the **Configure** button.
5. In the displayed window, select the **Enable Kaspersky Security Network** check box to enable the component.

   If you enabled the use of KSN, Kaspersky Embedded Systems Security will display the Kaspersky Security Network Statement. If you agree, accept the Kaspersky Security Network terms of use.

   By default, Kaspersky Embedded Systems Security uses the Extended mode of Kaspersky Security Network. The Extended Kaspersky Security Network mode is a mode in which Kaspersky Embedded Systems Security sends additional data to Kaspersky.
6. If necessary, clear the **Enable extended KSN mode** check box.
7. Save your changes.

As a result, if the use of Kaspersky Security Network is enabled, Kaspersky Embedded Systems Security uses information about the reputation of files, web resources, and applications received from Kaspersky Security Network.

Kaspersky Security Network usage statistics

While the *KSN Usage* task is running, you can view real-time information about the number of objects processed by Kaspersky Embedded Systems Security from the moment when the task was started up until now.

To view KSN usage statistics:

1. In the Application Console tree, select the **Real-Time Computer Protection** section.
2. Select the **Kaspersky Security Network** child node.

   In the results pane, in the **Statistics** section, the task statistics is displayed (see the table below).

KSN statistics

Field	Description
File requests sent	Number of object reputation queries sent by Kaspersky Embedded Systems Security to KSN.
Files untrusted in KSN	Number of objects with an untrusted reputation assigned by KSN.
Request sending errors	Number of KSN requests processed with an error.
Statistics formed	Number of generated statistic packages sent to KSN.
Objects removed	Number of objects successfully deleted by Kaspersky Embedded Systems Security.

Field	Description
Objects not removed	Number of objects that Kaspersky Embedded Systems Security attempted to delete unsuccessfully, because, for example, access to the object was blocked by another application.
Moved to Backup	Number of objects successfully copied to backup by Kaspersky Embedded Systems Security.
Objects not moved to Backup	Number of objects that Kaspersky Embedded Systems Security could not copy to backup, for example due to insufficient disk space. The application does not disinfect or delete files that it could not move to Backup.
Limited mode	The status signifies whether the application sends file reputation requests in a limited mode. In a limited mode Kaspersky Embedded Systems Security sends only a part of file reputation requests according to Kaspersky experts recommendation.

Values of the **Objects removed**, **Objects not removed**, **Moved to Backup**, **Objects not moved to Backup** fields are generated from the statistics of the Real-Time File Protection component.

Limitations of Kaspersky Private Security Network

Kaspersky Private Security Network (KPSN) is a solution that enables users of computers hosting Kaspersky Embedded Systems Security or other Kaspersky applications to obtain access to Kaspersky reputation databases, and to other statistical data without sending data to Kaspersky from their own computers. Kaspersky Private Security Network lets you use your own local reputation database to check the reputation of objects (files or web addresses). The reputation of an object added to the local reputation database has a higher priority than one added to KSN/KPSN. For example, imagine that Kaspersky Embedded Systems Security is scanning a computer and requests the reputation of a file in KSN/KPSN. If the file has an *Untrusted* reputation in the local reputation database but has a *Trusted* reputation in KSN/KPSN, Kaspersky Embedded Systems Security will detect the file as *Untrusted* and will take the action defined for detected threats.

However, in some cases Kaspersky Embedded Systems Security might not request the reputation of an object in KSN/KPSN. If this is the case, Kaspersky Embedded Systems Security will not receive data from the local reputation database of KPSN. Kaspersky Embedded Systems Security might not request the reputation of an object in KSN/KPSN for the following reasons:

- Kaspersky applications are using offline reputation databases. Offline reputation databases are designed to optimize resources during operation of Kaspersky applications and to protect critically important objects on the computer. Offline reputation databases are created by Kaspersky experts based on data from Kaspersky Security Network. Kaspersky applications update offline reputation databases with anti-virus databases of the specific application. If offline reputation databases contain information about an object being scanned, the application does not request the reputation of this object from KSN/KPSN.

- Scan exclusions (trusted zone) are configured in the application settings. If this is the case, the application does not take into account the reputation of the object in the local reputation database.

- The application uses scan optimization technologies, such as iSwift or iChecker, or is caching reputation requests to KSN/KPSN. If this is the case, the application might not request the reputation of previously scanned objects.

- To optimize its workload, the application scans files of a certain format and size. The list of relevant formats and size limits are determined by Kaspersky experts. This list is updated with the application's anti-virus databases.

KSN Proxy settings

User computers managed by Kaspersky Security Center Administration Server can interact with KSN via the KSN Proxy service.

The KSN Proxy service provides the following capabilities:

- The user's computer can query KSN and submit information to KSN even without direct access to the Internet.
- The KSN Proxy service caches processed data, thereby reducing the load on the external network communication channel and speeding up receipt of the information that is requested by the user's computer.

By default, after KSN is enabled and the KSN Statement is accepted, the application uses a proxy server to connect to Kaspersky Security Network. The proxy server used by the application is the Kaspersky Security Center Administration Server via TCP port 13111. Thus, if KSN Proxy is unavailable, you must check the operation of the device as a KSN proxy server. You must check the following:

- The *ksnproxy* service is running on the Administration Server.
- The Firewall on the computer is not blocking port 13111.

You can configure the use of KSN Proxy as follows: enable or disable KSN Proxy, and configure the port for the connection. To do so, you need to open the Administration Server properties. For details on KSN Proxy configuration, please refer to the Kaspersky Security Center Help. You can also enable or disable KSN Proxy for individual computers in the Kaspersky Embedded Systems Security policy.

How to enable KSN Proxy in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy of Kaspersky Embedded Systems Security and double-click to open the policy properties.
3. This opens a window; in that window, in the list of sections, select **Real-Time Computer Protection → KSN Usage**.
4. Click **Settings**.
5. In the **KSN Proxy Settings** block, use the **Use Administration Server as a KSN proxy server** check box to enable or disable KSN Proxy.
6. If necessary, select the **Use Kaspersky Security Network servers if the KSN proxy server is unavailable** check box.

   If the check box is selected, Kaspersky Embedded Systems Security uses KSN servers when the KSN Proxy service is unavailable. KSN servers may be located both on the side of Kaspersky and on the side of third parties (when Kaspersky Private Security Network is used).
7. Save your changes.

How to enable KSN Proxy in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, expand the **Real-Time Computer Protection** node.
2. Select the **Kaspersky Security Network** child node.
3. In the main application window, click **Properties**.
4. In the **KSN Proxy Settings** block, use the **Use Administration Server as a KSN proxy server** check box to enable or disable KSN Proxy.
5. If necessary, select the **Use Kaspersky Security Network servers if the KSN proxy server is unavailable** check box.

   If the check box is selected, Kaspersky Embedded Systems Security uses KSN servers when the KSN Proxy service is unavailable. KSN servers may be located both on the side of Kaspersky and on the side of third parties (when Kaspersky Private Security Network is used).
6. Save your changes.

How to enable KSN Proxy in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **KSN Usage** and click the **Configure** button.
5. Select or clear the **Use Administration Server as a KSN proxy server** check box to enable or disable KSN Proxy.
6. If necessary, select the **Use Kaspersky Security Network servers if the KSN proxy server is unavailable** check box.

   If the check box is selected, Kaspersky Embedded Systems Security uses KSN servers when the KSN Proxy service is unavailable. KSN servers may be located both on the side of Kaspersky and on the side of third parties (when Kaspersky Private Security Network is used).
7. Save your changes.

The KSN Proxy address matches the Administration Server address. When the Administration Server domain name is changed, you need to manually update the KSN Proxy address.

Exploit Prevention

Kaspersky Embedded Systems Security provides the ability to protect process memory from exploits. This functionality is implemented by the Exploit Prevention component which you can use to change the activity status of the component and configure the protection of processes from exploits.

The Exploit Prevention component detects program code that takes advantage of vulnerabilities on a computer to exploit administrator privileges or to perform malicious activities. For example, exploits can utilize a buffer overflow attack. To do so, the exploit sends a large amount of data to a vulnerable application. When processing this data, the vulnerable application executes malicious code. As a result of this attack, the exploit can start an unauthorized installation of malware. When there is an attempt to run an executable file from a vulnerable application that was not performed by the user, Kaspersky Embedded Systems Security blocks this file from running or notifies the user. The component protects process memory from exploits by inserting an external Process Protection Agent in the protected process.

A *Process Protection Agent* (hereinafter also referred to as *Agent*) is a dynamically loaded Kaspersky Embedded Systems Security module that is inserted in protected processes to monitor their integrity and reduce the risk of being exploited.

The Agent's operation within the protected process requires starting and stopping the process: the initial loading of the Agent into a process added to the protected process list is only possible if the process is restarted. Additionally, after a process has been removed from the protected process list, the Agent can be unloaded only after the process has been restarted.

The Agent must be stopped to unload it from protected processes: if the Exploit Prevention component is uninstalled, the application freezes the environment and forces the Agent to be unloaded from protected processes. If during uninstallation of the component Agent is inserted in any of the protected processes, you must terminate the affected process. A protected device restart may be required (for example, if system process is being protected).

If evidence of an exploit attack in a protected process is detected, Kaspersky Embedded Systems Security performs one of the following actions:

- Terminates the process if an exploit attempt is made.
- Reports the fact that the process has been compromised.

You can stop process protection using one of the following methods:

- Uninstalling the component.
- Removing the process from the list of protected processes and restarting the process.

Exploit Prevention mode

You can select one of the following modes to configure actions taken to reduce risks that vulnerabilities will be exploited in protected processes:

- **Block**. If this mode is selected, Kaspersky Embedded Systems Security terminates a protected process upon detecting an exploit attempt if an active impact reduction technique has been applied to the process.

  Upon detecting an attempt to exploit a vulnerability in a protected critical operating system process, Kaspersky Embedded Systems Security does not terminate the process, regardless of the mode indicated in the Exploit Prevention component settings.

- **Inform** (when working in the Kaspersky Security Center Web Console – **Inform**). Apply this mode to receive information about instances of exploits in protected processes using events in the Security log. The abused process continues to run.

  If this mode is selected, Kaspersky Embedded Systems Security creates events to log all attempts to exploit vulnerabilities. Selected by default.

Enabling and disabling Exploit Prevention

Kaspersky Embedded Systems Security allows monitoring executable files being run by vulnerable applications. If Kaspersky Embedded Systems Security detects that an executable file from a vulnerable application was run by something other than the user, Kaspersky Embedded Systems Security will perform the selected action (for example, will block the operation).

How to enable or disable Exploit Prevention in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy of Kaspersky Embedded Systems Security and double-click to open the policy properties.
3. This opens a window; in that window, in the list of sections, select **Real-Time Computer Protection → Exploit Prevention**.
4. Click **Settings**.
5. Select the **Exploit Prevention** check box to enable the component.
6. On the **General** tab, select an exploit prevention mode: **Block** or **Inform**.
7. If necessary, clear the **Exploit Prevention** check box to disable the component.
8. Save your changes.

How to enable or disable Exploit Prevention in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, expand the **Real-Time Computer Protection** node.
2. Select the **Exploit Prevention** child node.
3. In the main application window, click **Properties**.
4. Select the **Exploit Prevention** check box to enable the component.
5. On the **General** tab, select an exploit prevention mode: **Block** or **Inform**.
6. If necessary, clear the **Exploit Prevention** check box to disable the component.
7. Save your changes.

How to enable or disable Exploit Prevention in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Exploit Prevention** and click the **Configure** button.
5. This opens a window; in that window, under **Exploit Prevention mode**, select the **Prevent vulnerable processes exploit** check box to enable the component.
6. Select an exploit prevention mode: **Block** or **Inform**.
7. If necessary, clear the **Prevent vulnerable processes exploit** check box to disable the component.
8. Save your changes.

Enabling and disabling memory protection

Kaspersky Embedded Systems Security blocks external processes that attempt to gain access to system processes. By default, protection of system process memory is enabled.

How to enable or disable memory protection in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy of Kaspersky Embedded Systems Security and double-click to open the policy properties.
3. This opens a window; in that window, in the list of sections, select **Real-Time Computer Protection** → **Exploit Prevention**.
4. Click **Settings**.

5. On the **General** tab, select the **Enable system process memory protection** check box.
6. If necessary, clear the **Enable system process memory protection** check box.
7. Save your changes.

How to enable or disable memory protection in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, expand the **Real-Time Computer Protection** node.
2. Select the **Exploit Prevention** child node.
3. In the main application window, click **Properties**.
4. On the **General** tab, select the **Enable system process memory protection** check box.
5. If necessary, clear the **Enable system process memory protection** check box.
6. Save your changes.

How to enable or disable memory protection in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Exploit Prevention** and click the **Configure** button.
5. In the window that opens, in the **System processes memory protection** block, select the **System processes memory protection** check box.
6. If necessary, clear the **System processes memory protection** check box to disable system process memory protection.
7. Save your changes.

Creating the list of protected processes

By default, the Exploit Prevention component protects multiple processes. The application can generate the list of protected processes automatically. You can also add or remove processes manually.

How to manage the list of protected processes in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy of Kaspersky Embedded Systems Security and double-click to open the policy properties.
3. This opens a window; in that window, in the list of sections, select **Real-Time Computer Protection** → **Exploit Prevention**.

4. Click **Settings**.

5. On the **Protected processes** tab, select one of the following options to protect processes from malicious code injection:

   - **Automatically detect protected processes**. If you select this option, the application automatically creates a list of protected processes.

   - **Protect only processes from the list below**. If you select this option, you can select processes that you want to be protected.

6. If you selected **Protect only processes from the list below**, you can edit the list of protected processes by doing one of the following:

   - If necessary, click **Add** and select a process that you want to add to the list of protected processes.

   - If you want to delete a process from the created list of protected processes, select the process in the list and click **Delete**.

     The **Delete** button becomes available after you select one or more processes in the list.

7. Save your changes.

How to manage the list of protected processes using Kaspersky Embedded Systems Security Console

1. In the Application Console tree, expand the **Real-Time Computer Protection** node.

2. Select the **Exploit Prevention** child node.

3. In the main application window, click **Properties**.

4. On the **Protected processes** tab, select one of the following options to protect processes from malicious code injection:

   - **Automatically detect protected processes**. If you select this option, the application automatically creates a list of protected processes.

   - **Protect only processes from the list below**. If you select this option, you can select processes that you want to be protected.

5. If you selected **Protect only processes from the list below**, you can edit the list of protected processes by doing one of the following:

   - If necessary, click **Add** and select a process that you want to add to the list of protected processes.

   - If you want to delete a process from the created list of protected processes, select the process in the list and click **Delete**.

     The **Delete** button becomes available after you select one or more processes in the list.

6. Save your changes.

How to manage the list of protected processes in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to the **Real-Time Computer Protection** → **Exploit Prevention** section and click the **Configure** button.
5. Under **Protected processes list**, select one of the following options to protect processes from malicious code injection:

   - **Automatically detect protected processes**. If you select this option, the application automatically creates a list of protected processes.
   - **Protect only processes from the list below**. If you select this option, you can add, edit, and remove processes that you want to be protected.
6. If you selected **Protect only processes from the list below**, do one of the following:

   - Click **Add** to open the **Protected process** window, and in that window:

     a. Select the **Protected process** check box.

     b. In the **Process name** field, enter the name of the process.

     c. Save your changes.
   - If necessary, edit process settings in the list of protected processes. To do this, perform the following actions:

     a. Select a process in the list of protected processes.

     b. Click **Edit**. The **Edit** button becomes available after you select one or more processes in the list.

     c. In the **Protected process** window, select or clear the **Protected process** check box.

     d. If necessary, edit the name of the process in the **Process name** field.

     e. Save your changes.
   - If necessary, you can remove a process from the list of protected processes. To do this, perform the following actions:

     a. Select one or more processes in the list of protected processes.

     b. Click **Delete**. The **Delete** button becomes available after you select one or more processes in the list.
7. Save your changes.

Remediation Engine

The Remediation Engine lets Kaspersky Embedded Systems Security roll back actions that have been performed by malware in the operating system.

When rolling back malware activity in the operating system, Kaspersky Embedded Systems Security performs the following actions:

- **File activity**
  - Deletes executable files that were created by malware on all media except network drives.
  - Deletes executable files that were created by programs that have been infiltrated by malware.
  - Restores files that have been modified or deleted by malware.

  The file recovery feature has a **number of limitations**.
  - The application restores files only on devices that have the NTFS or FAT32 file system.
  - The application can restore files with the following extensions: odt, ods, odp, odm, odc, odb, doc, docx, docm, wps, xls, xlsx, xlsm, xlsb, xlk, ppt, pptx, pptm, mdb, accdb, pst, dwg, dxf, dxg, wpd, rtf, wb2, pdf, mdf, dbf, psd, pdd, eps, ai, indd, cdr, jpg, jpe, dng, 3fr, arw, srf, sr2, bay, crw, cr2, dcr, kdc, erf, mef, mrw, nef, nrw, orf, raf, raw, rwl, rw2, r3d, ptx, pef, srw, x3f, der, cer, crt, pem, pfx, p12, p7b, p7c, 1cd.
  - It is not possible to restore files residing on network drives or on rewritable CD/DVD discs.
  - It is not possible to restore files that were encrypted with the Encryption File System (EFS). For more details on EFS operation, please visit the Microsoft website.
  - The application does not monitor modifications to files performed by processes at the level of the operating system kernel.
  - The application does not monitor modifications made to files over a network interface (for example, if a file is stored in a shared folder and a process is started remotely from another computer).
- **Registry activity**
  - Deletes registry keys that were created by malware.

  Kaspersky Embedded Systems Security does not restore registry keys that have been modified or deleted by malware.
- **System activity**
  - Terminates processes that have been initiated by malware.
  - Terminates processes into which a malicious application has penetrated.

  Kaspersky Embedded Systems Security does not resume processes that have been halted by malware.

- **Network activity**
  - Blocks the network activity of malware.
  - Blocks the network activity of processes that have been infiltrated by malware.

A rollback of a malicious application's actions can be initiated by the Real-Time File Protection component or during an On-Demand Scan.

Rolling back malware operations affects a strictly defined set of data. Rollback has no adverse effects on the operating system or on the integrity of your computer data.

How to enable or disable the Remediation Engine component in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Real-Time Computer Protection** section.
4. In the **Remediation Engine** block, click the **Settings** button.
5. The **Remediation Engine** window opens on the **General** tab.
6. Do one of the following:
   - Select the **Remediation Engine** check box if you want to enable the Remediation Engine component.
   - Clear the **Remediation Engine** check box if you want to disable the Remediation Engine component.
7. Click the **OK** button in the **Remediation Engine** window.
8. Click the **OK** button in the **Properties: <Policy name>** window.

How to enable or disable the Remediation Engine component in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Real-Time Computer Protection** section.
5. In the **Remediation Engine** block, click the **Configure** button.
6. The **Remediation Engine** window opens.

7. Do one of the following:

   - Select the **Remediation Engine** check box if you want to enable the Remediation Engine component.
   - Clear the **Remediation Engine** check box if you want to disable the Remediation Engine component.

8. Click the **OK** button in the **Remediation Engine** window.
9. Click the **Save** button in the **<Policy name>** window.

How to enable or disable the Remediation Engine component in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Real-Time Computer Protection** → **Remediation Engine** section.
2. Click the **Properties** link in the results pane.
   The **Remediation Engine** window opens on the **General** tab.
3. Do one of the following:

   - Select the **Remediation Engine** check box if you want to enable the Remediation Engine component.
   - Clear the **Remediation Engine** check box if you want to disable the Remediation Engine component.

4. Click the **OK** button in the **Remediation Engine** window.

Behavior Detection

The Behavior Detection component receives data on the actions of applications on your computer and provides this information to other protection components, to improve their performance. The Behavior Detection component utilizes Behavior Stream Signatures (BSS) for applications. If application activity matches a behavior stream signature, Kaspersky Embedded Systems Security performs the selected responsive action. Kaspersky Embedded Systems Security functionality based on behavior stream signatures provides proactive defense for the computer.

Enabling and disabling encryption protection for local folders

How to enable or disable the Behavior Detection component in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Behavior Detection** section, click **Settings**.
5. Select or clear the **Behavior Detection** check box to enable or disable the component.
6. Go to the **General** tab.
7. Use the **Enable protection of local folders against external encryption** check box to enable or disable the option. If this check box is selected, Kaspersky Embedded Systems Security responds to malicious activity with the action specified below.
8. Select the relevant action in the **Action on malware activity detection** block:
   - **Delete**. If this item is selected, on detecting malicious activity Kaspersky Embedded Systems Security deletes the executable file of the malicious application and creates a backup copy of the file in Backup.
   - **Block**. If this item is selected, on detecting malicious activity Kaspersky Embedded Systems Security terminates this application.
   - **Inform**. If this item is selected and malware activity of an application is detected, Kaspersky Embedded Systems Security adds information about the malware activity of the application to the list of active threats.
9. Save your changes. To apply the policy on computers, close the padlocks .

How to enable or disable the Behavior Detection component in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Behavior Detection** and click the **Configure** button.

   The **Behavior Detection** window opens.
5. Use the **Enable Behavior Detection** check box to enable or disable the component.
6. Go to the **General** tab.
7. Use the **Enable protection of local folders against external encryption** check box to enable or disable the option. If this check box is selected, Kaspersky Embedded Systems Security responds to malicious activity with the action specified below.
8. Select the relevant action in the **Upon detection of external encryption of shared folders** block:

   - **Delete**. If this item is selected, on detecting malicious activity Kaspersky Embedded Systems Security deletes the executable file of the malicious application and creates a backup copy of the file in Backup.
   - **Block**. If this item is selected, on detecting malicious activity Kaspersky Embedded Systems Security terminates this application.
   - **Inform**. If this item is selected and malware activity of an application is detected, Kaspersky Embedded Systems Security adds information about the malware activity of the application to the list of active threats.
9. Save your changes. To apply the policy on computers, close the padlocks.

How to enable or disable the Behavior Detection component in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection** → **Behavior Detection**.
2. In the results pane of the **Behavior Detection** node, click **Properties**.

   This opens the **Properties: Behavior Detection** window.
3. Select the **Behavior Detection** check box.
4. Go to the **General** tab.
5. Use the **Enable protection of local folders against external encryption** check box to enable or disable the option. If this check box is selected, Kaspersky Embedded Systems Security responds to malicious activity with the action specified below.

6. Select the relevant action in the **Upon detection of external encryption of shared folders** block:

   - **Delete**. If this item is selected, on detecting malicious activity Kaspersky Embedded Systems Security deletes the executable file of the malicious application and creates a backup copy of the file in Backup.
   - **Block**. If this item is selected, on detecting malicious activity Kaspersky Embedded Systems Security terminates this application.
   - **Inform**. If this item is selected and malware activity of an application is detected, Kaspersky Embedded Systems Security adds information about the malware activity of the application to the list of active threats.

7. Save your changes.

Protection of shared folders against external encryption

The component monitors operations performed only with those files that are stored on mass storage devices with the NTFS file system and that are not encrypted with EFS.

Protection of shared folders against external encryption provides for the analysis of activity in shared folders. If this activity matches a behavior stream signature that is typical for external encryption, Kaspersky Embedded Systems Security performs the selected action.

If an attempt to modify files in shared folders is detected, Kaspersky Embedded Systems Security performs the following actions:

- Blocks access to file modification for the session that initiated the malicious activity (the file will be read-only).
- Creates backup copies of files that are being modified.
- Adds an entry to local application interface reports and sends information about the detected malicious activity to Kaspersky Security Center.
- Also, if the Remediation Engine component is enabled, the modified files are restored from backup copies.

Enabling and disabling protection of shared folders against external encryption

By default, protection of shared folders against external encryption is enabled and working as recommended by Kaspersky experts. To configure this functionality, you can create a protection scope and configure exclusions, if necessary. By default, the application automatically identifies shared folders and monitors file activity in all folders. If an attempt at external encryption of files in shared folders is detected, Kaspersky Embedded Systems Security blocks the session of the remote user for one hour (by default).

After Kaspersky Embedded Systems Security is installed, the protection of shared folders against external encryption will be limited until the computer is restarted.

How to enable or disable the protection of shared folders against external encryption in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Behavior Detection** section, click **Settings**.
5. Select or clear the **Behavior Detection** check box to enable or disable the component.
6. Go to the **Protection of shared folders** tab.
7. Use the **Protect shared folders** check box to enable or disable the option.
8. Select the relevant action in the **Protection of shared folders against external encryption** block:
   - **Block connection for N min**. If this option is selected, when Kaspersky Embedded Systems Security detects an attempt to modify files in shared folders, it blocks access to file modification (read only) for the session that initiated the malicious activity and creates backup copies of the modified files.

     If the Remediation Engine component is enabled and the **Block connection for N min** option is selected, modified files are restored from backup copies.

   - **Inform**. If this option is selected, then if an attempt to modify files in shared folders is detected, Kaspersky Embedded Systems Security adds information about this file modification attempt in shared folders to the list of active threats, adds a record to reports of the local interface of the application, and sends information about malicious activity detection to Kaspersky Security Center.
9. If necessary, create a protection scope and configure exclusions.
10. Save your changes. To apply the policy on computers, close the padlocks.

How to enable or disable the protection of shared folders against external encryption in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management → Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection → Behavior Detection** and click the **Configure** button.

   The **Behavior Detection** window opens.
5. Use the **Enable Behavior Detection** check box to enable or disable the component.
6. Go to the **Protection of shared folders** tab.
7. Use the **Enable protection of shared folders against external encryption** check box to enable or disable the option.

8. Select the relevant action in the **Detection of external encryption** block:

   - **Block connection**. If this option is selected, when Kaspersky Embedded Systems Security detects an attempt to modify files in shared folders, it blocks access to file modification (read only) for the session that initiated the malicious activity and creates backup copies of the modified files.

     If the Remediation Engine component is enabled and the **Block connection** option is selected, modified files are restored from backup copies.

   - **Inform**. If this option is selected, then if an attempt to modify files in shared folders is detected, Kaspersky Embedded Systems Security adds information about this file modification attempt in shared folders to the list of active threats, adds a record to reports of the local interface of the application, and sends information about malicious activity detection to Kaspersky Security Center.

9. If necessary, create a protection scope and configure exclusions.

10. Save your changes. To apply the policy on computers, close the padlocks.

How to enable or disable the protection of shared folders against external encryption in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection → Behavior Detection**.

2. In the results pane of the **Behavior Detection** node, click **Properties**.

   This opens the **Properties: Behavior Detection** window.

3. Select the **Behavior Detection** check box.

4. Go to the **Protection of shared folders** tab.

5. Use the **Protect shared folders** check box to enable or disable the option.

6. Select the relevant action in the **Protection of shared folders against external encryption** block:

   - **Block connection for N min**. If this option is selected, when Kaspersky Embedded Systems Security detects an attempt to modify files in shared folders, it blocks access to file modification (read only) for the session that initiated the malicious activity and creates backup copies of the modified files.

     If the Remediation Engine component is enabled and the **Block connection for N min** option is selected, modified files are restored from backup copies.

   - **Inform**. If this option is selected, then if an attempt to modify files in shared folders is detected, Kaspersky Embedded Systems Security adds information about this file modification attempt in shared folders to the list of active threats, adds a record to reports of the local interface of the application, and sends information about malicious activity detection to Kaspersky Security Center.

7. If necessary, create a protection scope and configure exclusions.

8. Save your changes.

Editing the protection scope

A *protection scope* is a list of paths to shared folders in which Kaspersky Embedded Systems Security monitors file activity. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask: By default, the application automatically identifies shared folders and monitors file activity in all folders.

Excluding a folder from the protection scope can reduce the amount of false positives if your organization uses data encryption when exchanging files using shared folders. For example, the Behavior Detection component can raise false positives when the user works with files with the ENC extension in a shared folder. Such activity matches a behavioral pattern that is typical for external encryption. If you have encrypted files in a shared folder to protect data, add that folder to exclusions.

> You can also exclude computers if you want attempts of external encryption coming from them to be ignored.

How to configure the protection scope in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Behavior Detection** section, click **Settings**.
5. Select or clear the **Behavior Detection** check box to enable or disable the component.
6. Go to the **Protection of shared folders** tab.
7. In the **Protection scope** block, click the **Configure** button.
8. In the window that opens, select the **Only specified shared folders** mode.
9. Click **Add**.
10. This opens a window; in that window, enter the path to the shared folder that you want to include in the protection scope (for example, `C:\Share`).

    > To add a shared folder to the protection scope, use a local path.

11. Click **OK**.
12. If necessary, define protection scope exclusions:
    a. In the **Exclusions** block, click the **Configure** button.
    b. In the window that opens, click the **Add** button.
    c. In the displayed window, enter the path to the folder or file.

Use masks:

- The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.

- Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.

- The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

You can exclude an object from scans without removing it from the list of objects in the protection scope. To do so, clear the check box next to the object.

13. Save your changes. To apply the policy on computers, close the padlocks.

How to configure the protection scope in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Behavior Detection** and click the **Configure** button.

   The **Behavior Detection** window opens.
5. Use the **Enable Behavior Detection** check box to enable or disable the component.
6. Go to the **Protection of shared folders** tab.
7. Under **Protection scope**, select the **Only specified shared folders** mode.
8. Click **Add**.
9. This opens a window; in that window, enter the path to the shared folder that you want to include in the protection scope (for example, `C:\Share`).

   To add a shared folder to the protection scope, use a local path.
10. Click **OK**.

11. If necessary, define protection scope exclusions:

    a. In the **Object to exclude** block, click the **Add** button.

    b. In the displayed window, enter the path to the folder or file.

    Use masks:

    - The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.

    - Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.

    - The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

    You can exclude an object from scans without removing it from the list of objects in the protection scope. To do so, clear the check box next to the object.

12. Save your changes. To apply the policy on computers, close the padlocks.

How to configure the protection scope in the Application Console

1. In the policy properties window, select **Real-Time Computer Protection**.
2. In the **Behavior Detection** section, click **Settings**.
3. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection** → **Behavior Detection**.
4. In the results pane of the **Behavior Detection** node, click **Properties**.

   This opens the **Properties: Behavior Detection** window.
5. Select or clear the **Behavior Detection** check box to enable or disable the component.
6. Go to the **Protection of shared folders** tab.
7. In the **Protection scope** block, click the **Configure** button.
8. In the window that opens, select the **Only specified shared folders** mode.
9. In the **Protection scope** block, click the **Add** button.
10. This opens a window; in that window, enter the path to the shared folder that you want to include in the protection scope (for example, `C:\Share`).

    To add a shared folder to the protection scope, use a local path.

11. Click **OK**.

12. If necessary, define protection scope exclusions:

    a. In the **Exclusions** block, click the **Settings** button.

    b. In the displayed **Exclusions by mask** window, click the **Add** button.

    c. In the displayed window, enter the path to the folder or file.

    Use masks:

    - The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders.

    - Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask.

    - The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.

    You can exclude an object from scans without removing it from the list of objects in the protection scope. To do so, clear the check box next to the object.

13. Save your changes.

Adding trusted computers for external data encryption

If your organization uses external data encryption in its file exchange workflow, you must create a list of trusted computers. Kaspersky Embedded Systems Security does not monitor data encryption from trusted computers.

On protected devices running Windows XP or Windows Server 2003, Kaspersky Embedded Systems Security will monitor attempts to encrypt shared folders, even if you add a remote computer to the list of trusted computers.

The Audit Logon service must be enabled to enable exclusions of addresses from protection of shared folders against external encryption. By default, the Audit Logon service is disabled (for detailed information about enabling the Audit Logon service, please visit the Microsoft website).

The functionality for excluding addresses from shared folder protection does not work on a remote computer if the remote computer was turned on before Kaspersky Embedded Systems Security was started. You can restart this remote computer after Kaspersky Embedded Systems Security is started to ensure that the functionality for excluding addresses from shared folder protection works on this remote computer.

How to add a trusted computer for external encryption of data in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Behavior Detection** section, click **Settings**.
5. Go to the **Protection of shared folders** tab.
6. In the **IP address exclusions** block, click the **Configure** button.
7. In the window that opens, click the **Add** button.
8. Enter the IP address or name of the computer from which external encryption attempts must not be handled.
9. Save your changes. To apply the policy on computers, close the padlocks .

How to add a trusted computer for external encryption of data in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Behavior Detection** and click the **Configure** button.
   The **Behavior Detection** window opens.
5. Go to the **Protection of shared folders** tab.
6. In the **Exclusions** block, click the **Add** button.
7. Enter the IP address or name of the computer from which external encryption attempts must not be handled.
8. Save your changes. To apply the policy on computers, close the padlocks .

How to add a trusted computer for external encryption of data in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection** → **Behavior Detection**.
2. In the results pane of the **Behavior Detection** node, click **Properties**.
   This opens the **Properties: Behavior Detection** window.
3. Go to the **Protection of shared folders** tab.
4. In the **IP address exclusions** block, click the **Configure** button.
5. In the window that opens, click the **Add** button.

6. Enter the IP address or name of the computer from which external encryption attempts must not be handled.
7. Save your changes.

Configuring the blocking period of an untrusted computer

An *untrusted computer* is a remote computer that is engaging in malicious activity or data encryption. By default, Kaspersky Embedded Systems Security blocks a remote user's session for one hour. When the blocking period expires, Kaspersky Embedded Systems Security removes the computer from the block list and restores access to the shared folder.

How to configure the blocking period of an untrusted computer in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Behavior Detection** section, click **Settings**.
5. Select or clear the **Behavior Detection** check box to enable or disable the component.
6. Go to the **Protection of shared folders** tab.
7. Under **Upon detection of external encryption of shared folders**, configure the blocking period of an untrusted computer that is engaging in malicious activity or data encryption.
8. Save your changes. To apply the policy on computers, close the padlocks .

How to configure the blocking period of an untrusted computer in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Behavior Detection** and click the **Configure** button.

   The **Behavior Detection** window opens.
5. Use the **Enable Behavior Detection** check box to enable or disable the component.
6. Go to the **Protection of shared folders** tab.
7. Under **Detection of external encryption**, configure the blocking period of an untrusted computer that is engaging in malicious activity or data encryption.
8. Save your changes. To apply the policy on computers, close the padlocks .

How to configure the blocking period of an untrusted computer in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection → Behavior Detection**.
2. In the results pane of the **Behavior Detection** node, click **Properties**.

   This opens the **Properties: Behavior Detection** window.
3. Select the **Behavior Detection** check box.
4. Go to the **Protection of shared folders** tab.
5. Under **Protection of shared folders against external encryption**, configure the blocking period of an untrusted computer that is engaging in malicious activity or data encryption.
6. Save your changes.

Exporting and importing a list of exclusions from protection of shared folders against external encryption

You can export the list of exclusions to an XML file. Then you can modify the file to, for example, add a large number of addresses of the same type. You can also use the export/import function to back up the list of exclusions or to migrate the list to a different server.

How to export and import a list of exclusions in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Real-Time Computer Protection**.
4. In the **Behavior Detection** section, click **Settings**.
5. Go to the **Protection of shared folders** tab.
6. In the **IP address exclusions** block, click the **Configure** button.
7. To export the list of rules:

   a. If necessary, select the exclusions that you want to export.

   b. Click the button and select the export mode: export the whole list of exclusions or only selected exclusions.

   c. In the window that opens, specify the name of the XML file to which you want to export the list of exclusions, and select the folder in which you want to save this file.

   d. Save the file.

   Kaspersky Embedded Systems Security exports the list of exclusions to the XML file.

8. To import the list of exclusions:

    a. Click the → **Import** button.

    In the window that opens, select the XML file from which you want to import the list of exclusions.

    b. Open the file.

    Kaspersky Embedded Systems Security imports the exclusions.

9. Save your changes. To apply the policy on computers, close the padlocks.

How to export and import a list of exclusions in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

    The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Behavior Detection** and click the **Configure** button.

    The **Behavior Detection** window opens.
5. Use the **Enable Behavior Detection** check box to enable or disable the component.
6. Go to the **Protection of shared folders** tab.
7. To export the list of exclusions in the **Exclusions** block:

    a. If necessary, select the exclusions that you want to export.

    b. Click the **Export** button and select the export mode: export the whole list of exclusions or only selected exclusions.

    c. Save the file.

    Kaspersky Embedded Systems Security exports the list of exclusions to the XML file.
8. To import the list of exclusions in the **Exclusions** block:

    a. Click the **Import** button and select an import mode: add or replace.

    b. In the window that opens, select the XML file from which you want to import the list of exclusions.

    c. Open the file.

    Kaspersky Embedded Systems Security imports exclusions according to the selected mode.
9. Save your changes. To apply the policy on computers, close the padlocks.

Network Threat Protection

The Network Threat Protection component scans inbound network traffic for activity that is typical of network attacks. Upon detecting an attempted network attack that targets your computer, Kaspersky Embedded Systems Security blocks network activity from the attacking computer. Descriptions of currently known types of network attacks and ways to counteract them are provided in the application databases. The list of network attacks that the Network Threat Protection component detects is updated during database and application module updates.

By default, the *Network Threat Protection* task runs in the **Block** mode. In this mode, Kaspersky Embedded Systems Security blocks connection to computers that display activity typical of network attacks, and in some cases adds IP addresses of such computers to the list of blocked network sessions.

You can view the list of blocked hosts in the Blocked Hosts storage.

Kaspersky Embedded Systems Security clears the block list when the application is restarted and when the Network Threat Protection settings are changed.

You can restore access to blocked hosts, and specify the number of days, hours, and minutes after which hosts regain access to network file resources after being blocked by configuring the Blocked Hosts storage settings.

The IP addresses of hosts showing activity typical of network attacks are deleted from the list of blocked hosts in the following cases:

- Kaspersky Embedded Systems Security is uninstalled.
- The IP address was deleted manually from the list of blocked hosts.
- Host blocking term has expired.
- The **Block** mode was turned off.

Enabling and configuring Network Threat Protection

How to enable and configure Network Threat Protection in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Network activity control** section.
4. In the **Network Threat Protection** block, click the **Settings** button.
5. In the window that opens, select the **Network Threat Protection** check box.

6. Select the task mode in the **Operating mode** section:

   - **Block**. If this mode is selected, Kaspersky Embedded Systems Security scans inbound network traffic for activity that is typical of network attacks, blocks connection to computers that display such activity, and in some cases adds IP addresses of computers to the list of blocked network sessions. The application also logs events about detected activity typical of network attacks in the component log.

   - **Inform**. If this mode is selected, Kaspersky Embedded Systems Security scans inbound network traffic for activity that is typical of network attacks, but does not block connection to computers that display such activity, and does not add IP addresses of computers to the list of blocked network sessions. The application logs events about detected activity typical of network attacks in the component log.

7. Use the **Treat port scanning and network flooding as attacks** check box to enable or disable the detection of the corresponding attacks.

8. If necessary, select the **Block attacking devices for N min** check box.

9. In the **MAC spoofing protection** block, select or clear the **Enable protection against MAC spoofing attacks** check box.

10. If necessary, you can add exclusions from blocking.

11. Save your changes.

How to enable and configure Network Threat Protection in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Select **Network activity control** → **Network Threat Protection**.

5. On the **General** tab, select the **Enable Network Threat Protection** check box.

6. Select the task operating mode:

   - **Block**. If this mode is selected, Kaspersky Embedded Systems Security scans inbound network traffic for activity that is typical of network attacks, blocks connection to computers that display such activity, and in some cases adds IP addresses of computers to the list of blocked network sessions. The application also logs events about detected activity typical of network attacks in the component log.

   - **Inform**. If this mode is selected, Kaspersky Embedded Systems Security scans inbound network traffic for activity that is typical of network attacks, but does not block connection to computers that display such activity, and does not add IP addresses of computers to the list of blocked network sessions. The application logs events about detected activity typical of network attacks in the component log.

7. Use the **Treat port scanning and network flooding as attacks** check box to enable or disable the detection of the corresponding attacks.

8. If necessary, select the **Block attacking devices for N min** check box.

9. Select or clear the **Enable protection against MAC spoofing attacks** check box.

10. If necessary, you can add exclusions from blocking.

11. Save your changes.

How to enable and configure Network Threat Protection in the Application Console

1. In the Application Console tree, select the **Real-Time Computer Protection → Network Threat Protection** node.

2. Click the **Properties** link in the results pane.

   The **Properties: Network Threat Protection** window opens.

3. Select the **Network Threat Protection** check box.

4. Select the task mode in the **Operation mode** section:

   - **Block**. If this mode is selected, Kaspersky Embedded Systems Security scans inbound network traffic for activity that is typical of network attacks, blocks connection to computers that display such activity, and in some cases adds IP addresses of computers to the list of blocked network sessions. The application also logs events about detected activity typical of network attacks in the component log.

   - **Inform**. If this mode is selected, Kaspersky Embedded Systems Security scans inbound network traffic for activity that is typical of network attacks, but does not block connection to computers that display such activity, and does not add IP addresses of computers to the list of blocked network sessions. The application logs events about detected activity typical of network attacks in the component log.

5. Use the **Treat port scanning and network flooding as attacks** check box to enable or disable the detection of the corresponding attacks.

6. If necessary, select the **Block attacking devices for N min** check box.

7. In the **MAC spoofing protection** block, select or clear the **Enable protection against MAC spoofing attacks** check box.

8. If necessary, you can add exclusions from blocking.

9. Save your changes.

Creating an exclusion from blocking

Kaspersky Embedded Systems Security can recognize a network attack and block an unsecured network connection that is transmitting a large number of packets (for example, from surveillance cameras). To work with trusted devices, you can add the IP addresses of these devices to the list of exclusions. You can also select the protocol and port that are used for communication and allow specific network activities.

The ability to select protocols and ports for exclusions was added in Kaspersky Embedded Systems Security 4.0. Make sure the application and the management plug-in are updated to version 4.0 or later. If you are using an earlier version of the application or the management plug-in, Kaspersky Embedded Systems Security can allow network activities only by IP address.

How to create an exclusion from blocking in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Network activity control** section.
4. In the **Network Threat Protection** block, click the **Settings** button.
   The **Network Threat Protection** window opens.
5. Go to the **Exclusions** tab.
6. Select the **Do not control excluded addresses** check box to prevent Kaspersky Embedded Systems Security from scanning inbound network traffic for excluded IP addresses.
7. Click **Add**.
8. In the **Exclusion** window, enter the IP address of the device network attacks from which will not be blocked.
9. If required, select the protocol and specify ports through which data is transmitted.
10. Click **OK**.
11. Perform steps c-f for every added exclusion.
12. Save your changes.

How to create an exclusion from blocking in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management → Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select **Network activity control → Network Threat Protection** and click the **Configure** button.
5. Go to the **Exclusions** tab.
6. Select the **Do not control excluded IP addresses** check box to prevent Kaspersky Embedded Systems Security from scanning inbound network traffic for excluded IP addresses.
7. Click **Add**.
8. In the **Add exclusion** window, enter the IP address of the device network attacks from which will not be blocked.
9. If required, select the protocol and specify ports through which data is transmitted.
10. Click **OK**.
11. Perform steps c-f for every added exclusion.
12. Save your changes.

How to create an exclusion from blocking in the Application Console

1. In the Application Console tree, select the **Real-Time Computer Protection → Network Threat Protection** node.
2. Click the **Properties** link in the results pane.

   The **Properties: Network Threat Protection** window opens.
3. Go to the **Exclusions** tab.
4. Select the **Do not control excluded addresses** check box to prevent Kaspersky Embedded Systems Security from scanning inbound network traffic for excluded IP addresses.
5. Click **Add**.
6. In the **Exclusion** window, enter the IP address of the device network attacks from which will not be blocked.
7. If required, select the protocol and specify ports through which data is transmitted.
8. Click **OK**.
9. Perform steps c-f for every added exclusion.
10. Save your changes.

Exporting and importing a list of exclusions from protection of shared folders against external encryption

You can export the list of exclusions to an XML file. Then you can modify the file to, for example, add a large number of addresses of the same type. You can also use the export/import function to back up the list of exclusions or to migrate the list to a different server.

How to export and import a list of exclusions in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Network activity control** section.
4. In the **Network Threat Protection** block, click the **Settings** button.

   The **Network Threat Protection** window opens.
5. Go to the **Exclusions** tab.

6. To export the list of rules, perform one of the following actions:

   - Using check boxes, select the exclusions that you want to export. Click the arrow and in the drop-down list select **Export selected**.
   - To export the entire list of exclusions, click the arrow and in the drop-down list select **Export**.

     Kaspersky Embedded Systems Security saves a file named networkExclusions.xml in the standard download folder.

7. To import the list of exclusions:

   a. Click the arrow and select **Import**.

   b. In the window that opens, select the XML file from which you want to import the list of exclusions.

   c. Open the file.

   If the computer already has a list of exclusions, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

8. Save your changes.

How to export and import a list of exclusions in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Network Threat Protection** and click the **Configure** button.
5. In the window that opens, select the **Exclusions** tab.
6. To export the list of rules:

   a. If necessary, select the exclusions that you want to export.

   b. Click the **Export** button and select the export mode: export the whole list of exclusions or only selected exclusions.

   c. Click **Export**.

   Kaspersky Embedded Systems Security saves a file named networkExclusions.xml in the standard download folder.

7. To import the list of exclusions:

   a. Click the **Import** button and select an import mode: **Add to existing entries** or **Overwrite existing entries**.

   b. In the window that opens, select the XML file from which you want to import the list of exclusions.

c. Open the file.

Kaspersky Embedded Systems Security imports exclusions according to the selected mode.

8. Save your changes.

AMSI Scanner

When the AMSI Scanner task is running, Kaspersky Embedded Systems Security controls the execution of scripts created using Microsoft Windows scripting technologies (Active Scripting) such as VBScript or JScript. The application can also process PowerShell scripts and scripts run in the Microsoft Office applications on operating systems with the Antimalware Scan Interface (AMSI) installed.

AMSI allows applications and services to integrate with any antimalware application installed on a device in order for all the executed scripts to be intercepted and scanned by the antimalware. You can find more information about AMSI functionality on the Microsoft website.

In component settings, you can allow or deny the running of dangerous scripts. If Kaspersky Embedded Systems Security identifies a script as dangerous, it blocks or allows execution of the script according to your selected action. If you select the **Block** action, the application blocks dangerous scripts and allows other scripts.

Kaspersky Embedded Systems Security supports the AMSI technology in Microsoft Windows 10 and Microsoft Windows Server 2016 and later.

Enabling and disabling AMSI Scanner

How to enable or disable AMSI Scanner in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Real-Time Computer Protection** section.
4. In the **AMSI Scanner** block, click the **Settings** button.
   The **AMSI Scanner** window opens on the **General** tab.
5. Do one of the following:
   - Select the **AMSI Scanner** check box if you want to enable the AMSI Scanner.
   - Clear the **AMSI Scanner** check box if you want to disable the AMSI Scanner.
6. Save your changes.

How to enable AMSI Scanner in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Real-Time Computer Protection** → **AMSI Scanner** section.
2. Click the **Properties** link in the results pane.
   The **AMSI Scanner** window opens on the **General** tab.

3. Do one of the following:

   - Select the **AMSI Scanner** check box if you want to enable the AMSI Scanner.
   - Clear the **AMSI Scanner** check box if you want to disable the AMSI Scanner.

4. In the **AMSI Scanner** window, click the **OK** button.

How to enable AMSI Scanner in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Real-Time Computer Protection** section.
5. In the **AMSI Scanner** block, click the **Configure** button.
   The **AMSI Scanner** window opens.
6. Do one of the following:

   - Select the **AMSI Scanner** check box if you want to enable the AMSI Scanner.
   - Clear the **AMSI Scanner** check box if you want to disable the AMSI Scanner.

7. Save your changes.

AMSI Scanner settings

How to configure AMSI Scanner settings in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Real-Time Computer Protection** section.
4. In the **AMSI Scanner** block, click the **Settings** button.
   The **AMSI Scanner** window opens on the **General** tab.
5. Select the action that you want Kaspersky Embedded Systems Security to perform when a dangerous script is run:

   - **Inform**. The application allows running probably dangerous scripts. A corresponding event is logged in the task log.
   - **Block**. The application blocks probably dangerous scripts.

6. In the **Scan of compound files** block, specify the types of compound files that you want to scan: archives, distribution package, or files in office formats.

7. In the **Size limit** block, do one of the following:

   - To block the AMSI Scanner component from unpacking large compound files, select the **Do not unpack large compound files** check box and specify the required value in the **Maximum file size (MB)** field. The AMSI Scanner component will not unpack compound files that are larger than the specified size.

   - To allow the AMSI Scanner component to unpack large compound files, clear the **Do not unpack large compound files** check box.

   The AMSI Scanner component scans large files that are extracted from archives, regardless of whether the **Do not unpack large compound files** check box is selected.

8. In the **AMSI Scanner** window, click the **OK** button.

9. Click the **OK** button in the **Properties: <Policy name>** window.

How to configure AMSI Scanner settings in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Real-Time Computer Protection** → **AMSI Scanner** section.

2. Click the **Properties** link in the results pane.

   The **AMSI Scanner** window opens on the **General** tab.

3. Select the action that you want Kaspersky Embedded Systems Security to perform when a dangerous script is run:

   - **Inform**. The application allows running probably dangerous scripts. A corresponding event is logged in the task log.

   - **Block**. The application blocks probably dangerous scripts.

4. In the **Scan of compound files** block, specify the types of compound files that you want to scan: archives, distribution package, or files in office formats.

5. In the **Size limit** block, do one of the following:

   - To block the AMSI Scanner component from unpacking large compound files, select the **Do not unpack large compound files** check box and specify the required value in the **Maximum file size (MB)** field. The AMSI Scanner component will not unpack compound files that are larger than the specified size.

   - To allow the AMSI Scanner component to unpack large compound files, clear the **Do not unpack large compound files** check box.

   The AMSI Scanner component scans large files that are extracted from archives, regardless of whether the **Do not unpack large compound files** check box is selected.

6. In the **AMSI Scanner** window, click the **OK** button.

How to configure AMSI Scanner settings in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Real-Time Computer Protection** section.
5. In the **AMSI Scanner** block, click the **Configure** button.

   The **AMSI Scanner** window opens.
6. Select the action that you want Kaspersky Embedded Systems Security to perform when a dangerous script is run:

   - **Inform**. The application allows running probably dangerous scripts. A corresponding event is logged in the task log.
   - **Block**. The application blocks probably dangerous scripts.
7. In the **Scan of compound files** block, specify the types of compound files that you want to scan: archives, distribution package, or files in office formats.
8. In the **Size limit** block, do one of the following:

   - To block the AMSI Scanner component from unpacking large compound files, select the **Do not unpack large compound files** check box and specify the required value in the **Maximum file size (MB)** field. The AMSI Scanner component will not unpack compound files that are larger than the specified size.
   - To allow the AMSI Scanner component to unpack large compound files, clear the **Do not unpack large compound files** check box.

   The AMSI Scanner component scans large files that are extracted from archives, regardless of whether the **Do not unpack large compound files** check box is selected.
9. Click the **OK** button in the **AMSI Scanner** window.
10. Click the **Save** button in the **<Policy name>** window.

Applications Launch Control

The Applications Launch Control component of Kaspersky Embedded Systems Security protects devices from unauthorized application launches. Applications Launch Control relies on the Default Deny principle, which means that any applications that are not allowed in the component settings will be blocked automatically. You can allow launching applications by creating component allowing rules for them.

If the Applications Launch Control rules are created to the fullest extent possible, Kaspersky Embedded Systems Security blocks the launch of all new applications that are not verified by the administrator of the organization's local network, but ensures the performance of the operating system and verified applications that users need to perform their job duties. You can receive information about applications installed on protected devices using the *Rule Generator for Applications Launch Control* task.

If the Applications Launch Control component is enabled, Kaspersky Embedded Systems Security intercepts every operating system event related to a request to create a process that occurs when an executable file is launched on a protected device. The application then collects information about the executable file, script, or MSI package being launched and compares it with the conditions for triggering the Applications Launch Control rules. If all conditions of at least one allowing rule are met, Kaspersky Embedded Systems Security allows the startup of the application. If the application being launched does not meet the conditions of any allowing rule, or if a blocking rule is triggered, Kaspersky Embedded Systems Security blocks the attempt to start the application by canceling the process creation.

All attempts to start applications are recorded in the component's log.

The Applications Launch Control component can operate in one of two modes:

- **Block**. Kaspersky Embedded Systems Security controls the launch of applications using Applications Launch Control rules. The scope of Applications Launch Control rules is specified in the general settings of the Applications Launch Control component. If an application satisfies Applications Launch Control rules, but none of the rules matches the scope of Applications Launch Control rules, such applications are prevented from running.

  Running applications that are not covered by Applications Launch Control rules is prohibited.

  The Applications Launch Control component cannot be started in Active mode if no Applications Launch Control rules have been created or if more than 65,535 Applications Launch Control rules exist for one protected device.

- **Inform**. Kaspersky Embedded Systems Security allows the startup of all applications. Only information is recorded about all application launches, rules that cover the launched applications, and actions that would be performed if the task was running in **Block** mode. This mode is set by default.

When creating Applications Launch Control rules, we recommend making sure that they do not block your operating system's applications from running.

Kaspersky Embedded Systems Security also intercepts processes launched under the Windows Subsystem for Linux (except for scripts run from the UNIX™ shell, or command line interpreters). For such processes, the Applications Launch Control component applies the actions defined by the current configuration. The *Rule Generator for Applications Launch Control* task detects application launches and generates corresponding rules for applications running under the Windows Subsystem for Linux.

About Applications Launch Control rules

How Applications Launch Control rules work

The operation of Applications Launch Control rules is based on the following components:

- Type of rule.

  Applications Launch Control rules can allow or deny the start of applications. Accordingly, they are called *allowing* or *denying* rules.

- Rule usage scope.

  Applications Launch Control rules can be applied to *executable files*, *scripts*, and *MSI packages*.

- Rule-triggering conditions.

  Applications Launch Control rules regulate the launch of files that satisfy at least one trigger conditions specified in the rule settings. For example, executable files are signed with the specified *digital certificate*, have the specified *SHA256 hash*, are located at the specified *path*, match the specified *command line* arguments. You must add at least one rule triggering condition. Otherwise, the Application Launch Control rule is not added.

- Exclusions from the rule.

  You can configure exclusions for the Applications Launch Control rule, which may be based on the same criteria as the rule triggering conditions. Exclusions to Applications Launch Control rules may be required for certain allowing rules: for example, if you want to allow users to start applications from the C:\Windows path, while blocking launch of the Regedit.exe file.

- User or group of users.

  Applications Launch Control rules can control the start of specified applications by specified users and / or user groups.

When creating Applications Launch Control rules, we recommend making sure that the new rules do not block your operating system's applications from running.

Managing Applications Launch Control rules

You can perform the following actions with Applications Launch Control rules:

- Add manually.
- Generate and add rules automatically.
- Delete.

- Import and export.
- Filter the list of rules.

About Software Distribution Control

Generating Applications Launch Control may become more complicated if you want to control the distribution of software. For example, you may want to do it on protected devices where installed software are automatically updated on a regular basis. In this case, the list of allowing rules must be updated after each software update for newly created files to be considered in the Applications Launch Control component settings. To simplify launch control in software distribution scenarios, you can use Software Distribution Control.

An *installation package* (hereinafter referred to as package) represents one or several applications to be installed on a protected device. An installation package may also contain updates and individual commands.

The Software Distribution Control subsystem is implemented as an additional list of exclusions. When an installation package is added to the list, it becomes trusted. Unpacking is allowed for trusted packages, and automatic startup is allowed for applications installed or updated from trusted packages. The extracted files can inherit the trusted attribute of the primary distribution package. A *primary distribution package* is a package that has been added to the list of Software Distribution Control exclusions by a user and has become a trusted package.

Kaspersky Embedded Systems Security controls only the full cycle of application distribution and cannot correctly process the launch of files modified by a trusted package if, when the package is started for the first time, Software Distribution Control is turned off or the Applications Launch Control component is not installed.

To use Software Distribution Control, you must enable the **Apply rules to executable files** functionality in the Applications Launch Control component general settings.

Software distribution cache

Kaspersky Embedded Systems Security uses a dynamically generated software distribution cache (hereinafter referred to as distribution cache) to establishes the relationship between trusted packages and files created during software distribution. When a package is first started, Kaspersky Embedded Systems Security detects all files created by the package during the software distribution process and stores file checksums and paths in the distribution cache. Then, by default, all files that have information saved in the distribution cache are allowed to start.

You cannot review, delete, or manually modify the distribution cache via the user interface. The cache is populated and controlled by Kaspersky Embedded Systems Security.

You can export the distribution cache to a configuration file (XML format) or delete the distribution cache on the command line.

Kaspersky Embedded Systems Security updates the distribution cache every 24 hours. If the checksum of a previously allowed file is changed, the application deletes the record for this file from the distribution cache. If the Applications Launch Control component is running in Active mode, subsequent attempts to start this file will be blocked. If the full path to the previously allowed file is changed, subsequent attempts to start this file will not be blocked, because the checksum is stored within the distribution cache.

Processing the extracted files

Extracted files and packages created by a primary trusted distribution package (at the first level of nesting) inherit the trusted attribute when their checksums are added to the distribution cache when the software distribution package in the exclusion list is opened for the first time. Hence, the distribution package itself and all files extracted from this package will also be trusted.

For example, if test.msi, a package containing several packages and applications, is added to the list of exclusions and the **Allow launching of all child files as trusted distribution packages** functionality is enabled, all packages and applications contained in the test.msi package can be unpacked and run, even if they contain other nested files. This scenario works for extracted files on all nested levels.

If the test.msi package is added to the list of exclusions, and the **Allow launching of all child files as trusted distribution packages** functionality is disabled, the application assigns the trusted attribute only to those packets and executable files that have been extracted directly from the trusted packet (at the first level of nesting). The checksums of such files are stored in the distribution cache. All files on the second level of nesting and beyond will be blocked by the Default Deny principle.

Extracted files will retain the trusted attribute after the operating system restarts.

To remove the inheritance attribute from all extracted files, you must delete the distribution cache and disable the **Allow launching of all child files as trusted distribution packages** functionality before you run the trusted installation package again.

Working with the Applications Launch Control rule list

The list of trusted packages of Software Distribution Control is a list of exclusions, which amplifies, but does not replace the general list of applications launch control rules.

Denying applications launch control rules have the highest priority: trusted package decompression and start of new or modified files will be blocked, if these packages and files are affected by the applications launch control denying rules.

Software distribution control exclusions are applied both for trusted packages and files created or modified by these packages, if no denying rules in the applications launch control list are applied for those packages and files.

About the Rule Generator for Applications Launch Control

You can create lists of Applications Launch Control rules using Kaspersky Security Center tasks and policies simultaneously for all protected devices and groups of protected devices on the corporate network. The scenarios listed below are recommended if the corporate network does not have a reference machine and you are unable to create a list of allowing rules based on applications installed on the template machine.

You can run the *Rule Generator for Applications Launch Control* task locally via the Application Console to create a list of rules based on the applications running on a single protected device.

You can create lists of Applications Launch Control rules on the side of Kaspersky Security Center in one of the following ways:

- Using the *Rule Generator for Applications Launch Control* group task.

  The*Rule Generator for Applications Launch Control* task, depending on the settings, can collect information about applications running on protected devices, as well as executable files and scripts located in the specified scopes. Based on the collected information, the task generates a list of allow rules for the Applications Launch Control component.

  You can configure automatic import of generated rules to the list of Applications Launch Control component rules, or import the generated rules manually.

  This scenario is recommended when you need to quickly create lists of Applications Launch Control rules. We recommend that you configure the scheduled launch of the *Rule Generator for Applications Launch Control* task only if the allowing rules usage scope includes folders and files you know to be safe.

- Based on the event report generated in Kaspersky Security Center for the Applications Launch Control component, running in *Inform* mode.

  Under this scenario, Kaspersky Embedded Systems Security does not deny the launch of applications. Instead, with the Applications Launch Control component running in the *Inform* mode, it reports all allowed and denied application launches across all network protected devices in the **Events** tab of the Administration Server node's workspace in the Kaspersky Security Center. Kaspersky Security Center uses the reports to generate a single list of events in which application launches were denied.

  While the component is running, all possible scenarios for protected devices and protected device groups must be executed, including at least one restart of a protected device. You can then import application launch data from the saved Kaspersky Security Center event report (TXT format) and generate Applications Launch Control allowing rules for such applications based on this data.

  This scenario is recommended if a corporate network includes a large number of protected devices of different type (with a different software installed).

- Based on denied application launch events received through Kaspersky Security Center, without creating and importing a configuration file.

  To use this feature, the Applications Launch Control component on the protected device must be running under an active Kaspersky Security Center policy. In this case, all events on the protected device are sent to the Administration Server.

We recommend that you update the list of rules when the set of applications installed on network protected devices changes (for example, when updates are installed or operating systems are reinstalled). We recommend that you generate an updated list of rules by running the *Rule Generator for Applications Launch Control* task or the Applications Launch Control component in the *Inform* mode on protected devices in the test administration group. The test administration group includes the protected devices required to test the launch of new applications before they are installed on network protected devices.

XML files containing lists of allowing rules are created based on an analysis of applications started on the protected device. To account for all applications used on the network when generating lists of rules you are advised to start the *Rule Generator for Applications Launch Control* task and the Applications Launch Control component in the *Inform* mode on a template machine.

Before generating allowing rules based on the applications launched on a reference machine, make sure that the template machine is secure and there is no malware on it.

Before adding allowing rules, select one of the available rule application modes. The list of Kaspersky Security Center policy rules displays only rules specified by the policy, regardless of the rule application mode. The local rule list includes all applied rules — both local rules and rules added through a policy.

Enabling and configuring Applications Launch Control

How to enable and configure general settings for Applications Launch Control in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Local activity control** section.
4. In the **Applications Launch Control** block, click the **Settings** button.
   The **Applications Launch Control** window opens on the **General** tab.
5. Select the **Applications Launch Control** check box.
6. In the **Operating mode for blocking rules** block, select the component operating mode:
   - **Block**. Kaspersky Embedded Systems Security applies all created Applications Launch Control rules.
   - **Inform**. Kaspersky Embedded Systems Security does not use Applications Launch Control rules. It only records information about the start of applications in the component's log. All applications are allowed to start. You can use this mode to generate a list of Applications Launch Control rules based on the information about denied application launches recorded in the component's log.
7. Configure component settings (see the table below).
8. Save your changes.

Kaspersky Embedded Systems Security immediately applies the new component settings. Information about the date and time when the settings were modified, and the values of the settings before and after modification, are saved in the system audit log.

How to enable and configure general settings for Applications Launch Control in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Computer Control** → **Applications Launch Control** section.
2. Click the **Properties** link in the results pane.

   The **Applications Launch Control** window opens on the **General** tab.
3. Select the **Applications Launch Control** check box.
4. In the **Operating mode for blocking rules** block, select the component operating mode:

   - **Block**. Kaspersky Embedded Systems Security applies all created Applications Launch Control rules.
   - **Inform**. Kaspersky Embedded Systems Security does not use Applications Launch Control rules. It only records information about the start of applications in the component's log. All applications are allowed to start. You can use this mode to generate a list of Applications Launch Control rules based on the information about denied application launches recorded in the component's log.
5. Configure component settings (see the table below).
6. Save your changes.

Kaspersky Embedded Systems Security immediately applies the new component settings. Information about the date and time when the settings were modified, and the values of the settings before and after modification, are saved in the system audit log.

How to enable and configure general settings for Applications Launch Control in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Local activity control** section.
5. In the **Applications Launch Control** block, click the **Configure** button.

   The **Applications Launch Control** window opens on the **General** tab.
6. Select the **Enable Applications Launch Control** check box.
7. In the **Operating mode for blocking rules** block, select the component operating mode:

   - **Block**. Kaspersky Embedded Systems Security applies all created Applications Launch Control rules.
   - **Inform**. Kaspersky Embedded Systems Security does not use Applications Launch Control rules. It only records information about the start of applications in the component's log. All applications are allowed to start. You can use this mode to generate a list of Applications Launch Control rules based on the information about denied application launches recorded in the component's log.

8. Configure component settings (see the table below).

9. Save your changes.

Kaspersky Embedded Systems Security immediately applies the new component settings. Information about the date and time when the settings were modified, and the values of the settings before and after modification, are saved in the system audit log.

Applications Launch Control general settings

Parameter	Description
Repeat action taken for the first file launch on all the subsequent launches for this file	The option enables or disables launch control for the second and subsequent attempts to start applications based on the event information stored in the cache. If the option is enabled, Kaspersky Embedded Systems Security allows or denies subsequent launches of an application based on the component's conclusion regarding the first launch of the application. For example, if the first application launch was allowed by the rules, information about this decision will be stored in the cache, and the second and all subsequent launches will also be allowed without rechecking. If the application is installed on a computer running Windows XP, when working with files through Explorer, the first application startup conclusions may be overwritten, causing the function to not work properly. If the option is disabled, Kaspersky Embedded Systems Security analyzes an application every time a launch is attempted.
Deny the command interpreters launch with no command to execute	If this functionality is enabled, Kaspersky Embedded Systems Security denies launching of a command-line interpreter when any of the following conditions is met: • The launch of a command-line interpreter is denied by Applications Launch Control rules. • The command-line interpreter starts without parameters. If the option is disabled, Kaspersky Embedded Systems Security only considers allowing rules when launching a command line interpreter. Launch is blocked if none of the Applications Launch Control allow rules is applicable. If the allowing rule of Applications Launch Control applies, a command line interpreter can be launched with or without a command to execute. Kaspersky Embedded Systems Security controls the launch of the following command interpreters: • cmd.exe • powershell.exe • python.exe • perl.exe • wscript.exe By default, the functionality is disabled.
Apply rules to executable files	The option either enables or disables launch control of executable files. If this functionality is enabled, Kaspersky Embedded Systems Security allows or denies the launch of executable files using Applications Launch Control rules. If this functionality is disabled, Kaspersky Embedded Systems Security does not control the launch of executable files using Applications Launch Control rules. Startup of executable files is allowed. This option is enabled by default.
Monitor loading of DLL modules	Controlling loading of DLL modules may affect the performance of the operating system. This functionality is available if the **Apply rules to executable files** functionality is enabled. This functionality enables or disables the control of loading of DLL modules. If this functionality is enabled, Kaspersky Embedded Systems Security allows or denies the loading of DLL modules using Applications Launch Control rules. If this functionality is disabled, Kaspersky Embedded Systems Security does not control the loading of DLL modules using Applications Launch Control rules. Loading of DLL modules is allowed. By default, the functionality is disabled.
Apply rules to scripts and MSI packages	The option either enables or disables launch of scripts and MSI packages. If this functionality is enabled, Kaspersky Embedded Systems Security allows or denies the launch of scripts and MSI packages using Applications Launch Control rules. If the check box is cleared, Kaspersky Embedded Systems Security does not control the launch of MSI scripts and packages using Applications Launch Control rules. Start of scripts and MSI packages is allowed. This option is enabled by default.

Parameter	Description
Ignore a missing signature timestamp when validating certificates	If this functionality is enabled, Kaspersky Embedded Systems Security allows launching applications that are signed with certificates that have expired or have an undefined expiration date. If this functionality is disabled, Kaspersky Embedded Systems Security denies launching applications that are signed with certificates that have expired or have an undefined expiration date. By default, the functionality is disabled.

Configuring Software Distribution Control

How to configure Software Distribution Control in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Local activity control** section.
4. In the **Applications Launch Control** block, click the **Settings** button.

   The **Applications Launch Control** window opens on the **General** tab.
5. Select the **Software Distribution Control** tab.
6. Enable the **Automatically allow software distribution via applications and packages listed** functionality. This functionality automatically creates exclusions for all files launched using executable files and installation packages specified in the list.

   You can enable the **Automatically allow software distribution via applications and packages listed** functionality if on the **General** tab, the **Apply rules to executable files** functionality is enabled.
7. If necessary, disable the **Always allow software distribution via Windows Installer** functionality. This functionality automatically creates exclusions for all files launched using the Windows installer.

   Turning off this function may cause issues with updating operating system files and also prevent the launch of files extracted from a distribution package.
8. If necessary, enable the **Always allow software distribution via SCCM using the Background Intelligent Transfer Service** functionality. This functionality allows distributing software using the System Center Configuration Manager solution.

   If this functionality is enabled, Kaspersky Embedded Systems Security allows Microsoft Windows deployment using the System Center Configuration Manager. The application allows software distribution only via the Background Intelligent Transfer Service. The application controls the launch of executable files with .EXE and .MSI extensions.

   The application controls the software distribution cycle on the protected device — from package delivery to installation or update. The application does not control processes if any stage of distribution was performed before installation of Kaspersky Embedded Systems Security on the protected device.

9. Add executable files and installation packages that you want to allow to launch:

- **Add one manually**

  a. In the context menu of the **Add** button, select **Add one distribution package**.

  b. In the window that opens, click the **Browse** button.

  c. Select the executable file or distribution package.

  Fields under **Trusting criteria** are automatically populated with information about the selected file.

  d. If necessary, enable the **Allow launching of all child files as trusted distribution packages** functionality.

  e. Select the criterion that will decide that the executable file or installation package is trusted: **Certificate details** or **SHA256 hash**.

  f. Click **OK**.

  The executable file or installation package is added to the list.

- **Add several by hash**

  a. In the context menu of the **Add** button, select **Add several packages by hash**.

  b. This opens a window; in that window, select any number of files or installation packages.

  c. Click **Open**.

  Executable files or installation packages are added to the list. The SHA256 hash is specified in their properties.

- **Import from file**

  a. Click **Import**.

  b. In the window that opens, select a .TXT file with information about executable files and installation packages.

  c. Click **Open**.

  Executable files or installation packages are added to the list. The SHA256 hash is specified in their properties.

If you create a trusted distribution package based on an executable file and, providing you added a process in the Trusted Zone settings based on that same executable file and made it trusted for the Applications Launch Control component, the Trusted Zone settings have a higher priority. Kaspersky Embedded Systems Security blocks this executable file from starting, but considers the executable file's process to be trusted.

10. If necessary, edit the list of added executable files and installation packages by clicking the **Edit** button.

11. If necessary, remove the added executable files and installation packages by clicking the **Delete** button. In this case, unpacked executable files are allowed to run.

    To prevent the execution of unpacked executable files, you must remove Kaspersky Embedded Systems Security from the protected device or create Applications Launch Control deny rules for the unpacked files.

12. Click **OK**.

How to configure Software Distribution Control in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Computer Control** → **Applications Launch Control** section.
2. Click the **Properties** link in the results pane.

   The **Applications Launch Control** window opens on the **General** tab.
3. Select the **Software Distribution Control** tab.
4. Enable the **Automatically allow software distribution via applications and packages listed** functionality. This functionality automatically creates exclusions for all files launched using executable files and installation packages specified in the list.

   You can enable the **Automatically allow software distribution via applications and packages listed** functionality if on the **General** tab, the **Apply rules to executable files** functionality is enabled.

5. If necessary, disable the **Always allow software distribution via Windows Installer** functionality. This functionality automatically creates exclusions for all files launched using the Windows installer.

   Turning off this function may cause issues with updating operating system files and also prevent the launch of files extracted from a distribution package.

6. If necessary, enable the **Always allow software distribution via SCCM using the Background Intelligent Transfer Service** functionality. This functionality allows distributing software using the System Center Configuration Manager solution.

   If this functionality is enabled, Kaspersky Embedded Systems Security allows Microsoft Windows deployment using the System Center Configuration Manager. The application allows software distribution only via the Background Intelligent Transfer Service. The application controls the launch of executable files with .EXE and .MSI extensions.

   The application controls the software distribution cycle on the protected device — from package delivery to installation or update. The application does not control processes if any stage of distribution was performed before installation of Kaspersky Embedded Systems Security on the protected device.

7. Add executable files and installation packages that you want to allow to launch:

   - **Add one manually**

     a. In the context menu of the **Add** button, select **Add one distribution package**.

     b. In the window that opens, click the **Browse** button.

c. Select the executable file or distribution package.

Fields under **Trusting criteria** are automatically populated with information about the selected file.

d. If necessary, enable the **Allow launching of all child files as trusted distribution packages** functionality.

e. Select the criterion that will decide that the executable file or installation package is trusted: **Certificate details** or **SHA256 hash**.

f. Click **OK**.

The executable file or installation package is added to the list.

- **Add several by hash**

a. In the context menu of the **Add** button, select **Add several packages by hash**.

b. This opens a window; in that window, select any number of files or installation packages.

c. Click **Open**.

Executable files or installation packages are added to the list. The SHA256 hash is specified in their properties.

- **Import from file**

a. Click **Import**.

b. In the window that opens, select a .TXT file with information about executable files and installation packages.

c. Click **Open**.

Executable files or installation packages are added to the list. The SHA256 hash is specified in their properties.

If you create a trusted distribution package based on an executable file and, providing you added a process in the Trusted Zone settings based on that same executable file and made it trusted for the Applications Launch Control component, the Trusted Zone settings have a higher priority. Kaspersky Embedded Systems Security blocks this executable file from starting, but considers the executable file's process to be trusted.

8. If necessary, edit the list of added executable files and installation packages by clicking the **Edit** button.

9. If necessary, remove the added executable files and installation packages by clicking the **Delete** button. In this case, unpacked executable files are allowed to run.

To prevent the execution of unpacked executable files, you must remove Kaspersky Embedded Systems Security from the protected device or create Applications Launch Control deny rules for the unpacked files.

10. Click **OK**.

How to configure Software Distribution Control in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Local activity control** section.
5. In the **Applications Launch Control** block, click the **Configure** button.

   The **Applications Launch Control** window opens on the **General** tab.
6. Select the **Software Distribution Control** tab.
7. Enable the **Automatically allow software distribution via applications and packages listed** functionality. This functionality automatically creates exclusions for all files launched using executable files and installation packages specified in the list.

   > You can enable the **Automatically allow software distribution via applications and packages listed** functionality if on the **General** tab, the **Apply rules to executable files** functionality is enabled.
8. If necessary, disable the **Always allow software distribution via Windows Installer** functionality. This functionality automatically creates exclusions for all files launched using the Windows installer.

   > Turning off this function may cause issues with updating operating system files and also prevent the launch of files extracted from a distribution package.
9. If necessary, enable the **Always allow software distribution via SCCM using the Background Intelligent Transfer Service** functionality. This functionality allows distributing software using the System Center Configuration Manager solution.

   If this functionality is enabled, Kaspersky Embedded Systems Security allows Microsoft Windows deployment using the System Center Configuration Manager. The application allows software distribution only via the Background Intelligent Transfer Service. The application controls the launch of executable files with .EXE and .MSI extensions.

   > The application controls the software distribution cycle on the protected device — from package delivery to installation or update. The application does not control processes if any stage of distribution was performed before installation of Kaspersky Embedded Systems Security on the protected device.
10. Add executable files and installation packages that you want to allow to launch:

    - **Manually**

      a. Click the **Add** button.

      b. Under **Trusting criteria**, select the criterion that will decide that the executable file or installation package is trusted: **Use digital certificate** or **Use SHA256 hash**.

c. If you selected **Use digital certificate**, enter the header and thumbprint of the certificate that the executable file or installation package is signed with, and also the name of the executable file or installation package.

d. If you selected **Use SHA256 hash**, click **Browse** to select the executable file or installation package.

e. If necessary, enable the **Allow launching of all child files as trusted distribution packages** functionality.

f. Click **OK**.

The executable file or installation package is added to the list.

- **Import from file**

a. Click **Import**.

b. In the window that opens, select a .TXT file with information about executable files and installation packages.

c. Click the **Open** button.

Executable files or installation packages are added to the list. The SHA256 hash is specified in their properties.

If you create a trusted distribution package based on an executable file and, providing you added a process in the Trusted Zone settings based on that same executable file and made it trusted for the Applications Launch Control component, the Trusted Zone settings have a higher priority. Kaspersky Embedded Systems Security blocks this executable file from starting, but considers the executable file's process to be trusted.

11. If necessary, edit the list of added executable files and installation packages by clicking the **Edit** button.
12. If necessary, remove the added executable files and installation packages by clicking the **Delete** button. In this case, unpacked executable files are allowed to run.

    To prevent the execution of unpacked executable files, you must remove Kaspersky Embedded Systems Security from the protected device or create Applications Launch Control deny rules for the unpacked files.

13. Click **OK**.
14. Click the **OK** button in the **Applications Launch Control** window.

Working with Applications Launch Control rules

This section provides instructions for creating a list of rules for Applications Launch Control.

Adding Applications Launch Control rules

How to add Applications Launch Control rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Local activity control** section.
4. In the **Applications Launch Control** block, click the **Settings** button.

   The **Applications Launch Control** window opens on the **General** tab.
5. Select the **Rules** tab.
6. In the **Rule usage** drop-down list, select the rule application mode:

   - **Add policy rules to the local rules**. The application applies the rule list specified in a policy together with local rule lists.
   - **Replace local rules with policy rules**. The application applies the rule list specified in the policy for application launch control on a group of protected devices. Local rule lists cannot be created, edited, or applied.
7. If necessary, enable the **Deny modification of local rules by users** functionality.

   If this functionality is enabled, the application does not allow editing Applications Launch Control rules locally in the Application Console. By default, the functionality is disabled.
8. Add Applications Launch Control rules in any of the following ways:

   - **Manually**

     a. Click **Add**.

     The **Applications Launch Control** window opens.

     b. In the **Name** field, enter the name of the rule.

     c. If necessary, in the **Description** field, enter a description of the rule.

     d. In the **Type** drop-down list, select the rule type:

     - **Allowing** if you want the rule to allow running applications described by the rule.
     - **Denying** if you want the rule to block the launch of applications described by the rule.

     e. In the **Scope** drop-down list, select the type of files whose execution will be controlled by the rule:

     - **Executable files**, if you want the rule to control launch of executable files.
     - **Scripts and MSI packages**, if you want the rule to control launch of scripts and MSI packages. Files with the following extensions are supported: .js, .vbs, .cmd, .bat, .py, .ps1, .pl, .msi, .msp, .mst, .com, .vbe, .jse, .psd1, .psm1, .pyd, .pyc, .pm, .hta, .chm, .wsf, .wsc, .wsh, .sct.

f. Select the **Trusted Updaters** check box if you want Kaspersky Embedded Systems Security to consider applications matching the rule trigger conditions as trusted updaters. Trusted Updaters are applications that are allowed to create other executable files that will be allowed to run subsequently.

If an application triggers multiple rules, Kaspersky Embedded Systems Security sets the *Trusted Updaters* flag if the following conditions are satisfied:

- All rules allow the application to run.
- At least one rule has the **Trusted Updaters** check box selected.

g. Add trigger conditions for the Applications Launch Control rule.

h. Add exclusions from trigger conditions for the Applications Launch Control rule.

i. Add users and/or groups of users that are allowed or forbidden to launch applications that satisfy the rule.

j. Click **OK**.

- **By importing an XML file containing Applications Launch Control rules**

a. In the context menu of the button, select the **Import → From XML file** item.

b. Choose how to add Device Control rules from an XML file to those available in the policy:

- **Replace existing rules**, if you want to replace the existing rules with the imported rules.
- **Add to existing rules**, if you want to add the imported rules to the list of existing rules. Rules with identical settings are duplicated.
- **Merge with existing rules**, if you want to add the imported rules to the list of existing rules. Rules with identical settings are not duplicated. If at least one rule setting is unique, the rule is added.

c. In the window that opens, specify the path to the XML file that was created after the completion of local task or group task for *Rule Generator for Applications Launch Control*.

d. Click **Open**.

- **Based on Kaspersky Security Center events using a request**

a. In the context menu of the button, select the **Import → Create allowing rules based on Kaspersky Security Center events (request)** item.

b. Select the principle for adding the rules to the list of previously created Application Launch Control rules:

- **Add to existing rules**, if you want to add the imported rules to the list of existing rules. Rules with identical settings are duplicated.
- **Replace existing rules**, if you want to replace the existing rules with the imported rules.
- **Merge with existing rules**, if you want to add the imported rules to the list of existing rules. Rules with identical settings are not added; the rule is added if at least one rule parameter is unique.

The **Applications launch control rules generation** window opens.

c. Select the event types based on which the application will create Applications Launch Control rules:

- **Application launch denied**.
- **Statistics only mode: application launch denied**.

d. Select a period from the **Request events that were generated within the period** drop-down list.

e. Clear or select the **Prioritize the use of hash when generating rules** check box.

If the check box is selected, Kaspersky Embedded Systems Security uses the checksum of the file to generate the rule when both the checksum and the certificate of the file are available.

If the check box is cleared, Kaspersky Embedded Systems Security uses the digital certificate of the file to generate the rule when both the checksum and the certificate of the file are available.

f. Click **Generate rules**.

g. Click **OK**.

- **By importing a TXT file with a selection of Kaspersky Security Center blocked application events**

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Logs and notifications** section.
4. In the **Task logs** block, click the **Settings** button.

The **Notifications** window opens.

5. Expand the **Local activity control** node.
6. Select the **Applications Launch Control** section.
7. In the list of Applications Launch Control events, in the **Send events to Kaspersky Security Center** column, select check boxes next to *Application startup prohibited* and *Application startup prohibited in test mode*.
8. Save your changes.
9. In the **Event configuration** section of the policy, make sure that the event storage duration specified in the **Store in the Administration Server database for (days)** field is greater than the period for which you plan to gather information about prevented application launches (the default is 30 days).

Once the Applications Launch Control component log retention period expires, logged events will be deleted and will not appear in the report.

10. Activate the policy configured to collect data about denied application launches.
11. If required, modify the Applications Launch Control component operating mode.

12. When the period for gathering information about prevented application launches expires, make a selection from *Application startup prohibited* and *Application startup prohibited in test mode* events and export it to a TXT file. For details, refer to the "Event selections" section in the Kaspersky Security Center Help.

13. Open the exported TXT file.

14. If necessary, edit the list of events.

Added Applications Launch Control rules are displayed in the list.

9. If necessary, perform step 5 to add more Applications Launch Control rules.

10. If necessary, edit the added Applications Launch Control rules by clicking the **Edit** button.

11. If necessary, delete the added Applications Launch Control rules by clicking the **Delete** button.

12. Click **OK**.

How to add Applications Launch Control rules in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Computer Control** → **Applications Launch Control** section.

2. Click the **Properties** link in the results pane.
   The **Applications Launch Control** window opens on the **General** tab.

3. Select the **Rules** tab.

4. Add Applications Launch Control rules in any of the following ways:

   - **Manually**

     a. Click **Add**.
     The **Applications Launch Control** window opens.

     b. In the **Name** field, enter the name of the rule.

     c. If necessary, in the **Description** field, enter a description of the rule.

     d. In the **Type** drop-down list, select the rule type:

     - **Allowing** if you want the rule to allow running applications described by the rule.
     - **Denying** if you want the rule to block the launch of applications described by the rule.

     e. In the **Scope** drop-down list, select the type of files whose execution will be controlled by the rule:

     - **Executable files**, if you want the rule to control launch of executable files.
     - **Scripts and MSI packages**, if you want the rule to control launch of scripts and MSI packages. Files with the following extensions are supported: .js, .vbs, .cmd, .bat, .py, .ps1, .pl, .msi, .msp, .mst, .com, .vbe, .jse, .psd1, .psm1, .pyd, .pyc, .pm, .hta, .chm, .wsf, .wsc, .wsh, .sct.

f. Select the **Trusted Updaters** check box if you want Kaspersky Embedded Systems Security to consider applications matching the rule trigger conditions as trusted updaters. Trusted Updaters are applications that are allowed to create other executable files that will be allowed to run subsequently.

If an application triggers multiple rules, Kaspersky Embedded Systems Security sets the *Trusted Updaters* flag if the following conditions are satisfied:

- All rules allow the application to run.
- At least one rule has the **Trusted Updaters** check box selected.

g. Add trigger conditions for the Applications Launch Control rule.

h. Add exclusions from trigger conditions for the Applications Launch Control rule.

i. Add users and/or groups of users that are allowed or forbidden to launch applications that satisfy the rule.

j. Click **OK**.

- **By importing an XML file containing Applications Launch Control rules**

a. In the context menu of the button, select the **Import** → **From XML file** item.

b. Choose how to add Device Control rules from an XML file to those available in the policy:

- **Replace existing rules**, if you want to replace the existing rules with the imported rules.
- **Add to existing rules**, if you want to add the imported rules to the list of existing rules. Rules with identical settings are duplicated.
- **Merge with existing rules**, if you want to add the imported rules to the list of existing rules. Rules with identical settings are not duplicated. If at least one rule setting is unique, the rule is added.

c. In the window that opens, specify the path to the XML file that was created after the completion of local task or group task for *Rule Generator for Applications Launch Control*.

d. Click **Open**.

Added Applications Launch Control rules are displayed in the list.

5. If necessary, perform step 5 to add more Applications Launch Control rules.
6. If necessary, edit the added Applications Launch Control rules by clicking the **Edit** button.
7. If necessary, delete the added Applications Launch Control rules by clicking the **Delete** button.
8. Click **OK**.

How to add Applications Launch Control rules in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Select the **Local activity control** section.

5. In the **Applications Launch Control** block, click the **Configure** button.

   The **Applications Launch Control** window opens on the **General** tab.

6. Select the **Rules** tab.

7. In the **Application of rules** drop-down list, select the rule application mode:

   - **Add policy rules to the local rules**. The application applies the rule list specified in a policy together with local rule lists.

   - **Replace local rules with policy rules**. The application applies the rule list specified in the policy for application launch control on a group of protected devices. Local rule lists cannot be created, edited, or applied.

8. If necessary, enable the **Deny modification of local rules by users** functionality.

   If this functionality is enabled, the application does not allow editing Applications Launch Control rules locally in the Application Console. By default, the functionality is disabled.

9. Add Applications Launch Control rules in any of the following ways:

   - **Manually**

     a. Click **Add**.

        The **Rule settings** window opens.

     b. In the **Name** field, enter the name of the rule.

     c. In the **Type** drop-down list, select the rule type:

        - **Allowing** if you want the rule to allow running applications described by the rule.

        - **Denying** if you want the rule to block the launch of applications described by the rule.

     d. In the **Scope** drop-down list, select the type of files whose execution will be controlled by the rule:

        - **Executable files**, if you want the rule to control launch of executable files.

        - **Scripts and MSI packages**, if you want the rule to control launch of scripts and MSI packages.

     e. Select the **Deny for other users** check box if you want the application to block the launch of the applications described by the rule for all users that are not listed on the **User or group** tab.

     f. Select the **Trusted Updaters** check box if you want Kaspersky Embedded Systems Security to consider applications matching the rule trigger conditions as trusted updaters. Trusted Updaters are applications that are allowed to create other executable files that will be allowed to run subsequently.

If an application triggers multiple rules, Kaspersky Embedded Systems Security sets the *Trusted Updaters* flag if the following conditions are satisfied:

- All rules allow the application to run.
- At least one rule has the **Trusted Updaters** check box selected.

g. Add trigger conditions for the Applications Launch Control rule.

h. Add exclusions from trigger conditions for the Applications Launch Control rule.

i. **Add users and/or groups of users that are allowed or forbidden to launch applications that satisfy the rule**.

a. Select the **User or group** tab.

b. Click **Add**.

c. This opens a window; in that window, enter or select the name of a user or group of users.

d. Click **Select**.

e. Complete steps b through d for every user or group of users.

j. Click **OK**.

Added Applications Launch Control rules are displayed in the list.

- **By importing an XML file containing Applications Launch Control rules**

a. Click **Import**.

b. In the displayed **Import from file** window, click the **Select** button.

c. Specify the path to the XML file that was created after the completion of local task or group task for *Rule Generator for Applications Launch Control*.

d. Click **Open**.

e. Click **Import**.

Imported Applications Launch Control rules are added to the list of existing rules. Rules with identical settings are not duplicated. If at least one rule setting is unique, the rule is added.

- **By importing an XML file containing Kaspersky Embedded Systems Security 3.4 Applications Launch Control rules**

a. Click **Import from the previous version**.

b. In the displayed **Import from file** window, click the **Select** button.

c. Specify the path to the XML file with Applications Launch Control rules that was exported from Kaspersky Embedded Systems Security 3.4.

d. Click **Open**.

e. Click **Import**.

Imported Applications Launch Control rules are added to the list of existing rules. Rules with identical settings are not duplicated. If at least one rule setting is unique, the rule is added.

- **By importing rules from a Kaspersky Security Center report file**

  a. Click **Import from KSC report**.

  b. In the window that opens, select the TXT file into which the events from the report were exported.

  c. Click **Open**.

  Rules based on the Kaspersky Security Center report are added to the list of rules in the policy.

- **Based on Kaspersky Security Center events using a request**

  a. Click **Allowing rules from KSC events**.

  The **Rule Generator for Applications Launch Control** window opens.

  b. Select the type of events based on which the application will create Applications Launch Control rules:

  - **All events**.
  - **Application launch denied**.
  - **Statistics only mode: application launch denied**.

  c. Select a period from the **Use events generated within the period** drop-down list.

  d. Clear or select the **Prioritize the use of hash when generating rules** check box.

  If the check box is selected, Kaspersky Embedded Systems Security uses the checksum of the file to generate the rule when both the checksum and the certificate of the file are available.

  If the check box is cleared, Kaspersky Embedded Systems Security uses the digital certificate of the file to generate the rule when both the checksum and the certificate of the file are available.

  e. If necessary, specify the name of the group of managed devices in the **Use events generated for a group of managed devices** field.

  f. Click **Generate rules**.

  g. From the **Rule for adding to the main list** drop-down list, select the principle for adding the rules to the list of previously created Application Launch Control rules:

  - **Add to existing rules**, if you want to add the imported rules to the list of existing rules. Rules with identical settings are duplicated.
  - **Replace existing rules**, if you want to replace the existing rules with the imported rules.

h. Select rules that you want to export into Application Launch Control rules of the policy and click the **Export** button.

i. Save your changes.

10. If necessary, perform step 5 to add more Applications Launch Control rules.

11. If necessary, edit the added Applications Launch Control rules by clicking the **Edit** button.

12. If necessary, delete the added Applications Launch Control rules by clicking the **Delete** button.

13. Click **OK**.

Adding trigger conditions for the Applications Launch Control rule

How to add trigger conditions for the Applications Launch Control rule in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.

2. Select the necessary policy and double-click to open the policy properties.

3. In the policy properties window, go to the **Local activity control** section.

4. In the **Applications Launch Control** block, click the **Settings** button.
   The **Applications Launch Control** window opens on the **General** tab.

5. Select the **Rules** tab.

6. Do one of the following:

   a. Click the **Add** button if you are adding a new Applications Launch Control rule.

   b. In the list of Applications Launch Control rules, select the rule for which you want to add triggering conditions, and click the **Edit** button.

   The **Applications Launch Control** window opens.

7. On the **Conditions** tab, in the context menu of the **Add** button, select a triggering condition for the Applications Launch Control rule:

   - **Information from file**. **Information from the selected file** is used as the rule triggering condition.

     a. Click the **Browse** button in the **Information from file** window.
        The standard Microsoft Windows **Open File** window opens.

     b. Select the file.

     c. Click **Open**.
        Information about the selected file is displayed in the **Information from file** window.

d. Select at least one option:

- **Certificate details**. If this check box is selected, the rule does not control the launch of applications signed with a digital certificate that has the specified data.
- **Metadata**. If this check box is selected, the rule does not control the launch of applications that have the specified metadata.
- **File hash**. If this check box is selected, the rule does not control the launch of applications that have the specified SHA256 hash.
- **File path**. If this check box is selected, the rule does not control the launch of applications at the specified path.

e. If necessary, in the **Command line** field, enter the command for starting the application on the command line. The rule controls the launch of this application. You can use ? and * characters to enter a mask.

> Kaspersky Embedded Systems Security does not recognize paths that contain slashes ("/"). Use the backslash character ("\") in paths.

f. Click **OK**.

- **Drive type**. The rule controls the launch of applications from all removable drives connected to the protected computer.
- **KL category**. The rule controls the launch of applications that belong to the selected KL categories.
- **Trusted by KSN**. The rule controls the launch of applications that are trusted in KSN.
- **Untrusted by KSN**. The rule controls the launch of applications that are untrusted in KSN.
- **Trusted by OS**. The rule controls the launch of applications that are trusted in the operating system.

The added condition will be displayed in the list.

8. If necessary, perform the previous step of the instructions for each of the subsequent rule triggering conditions.
9. If necessary, edit rule triggering conditions by clicking the **Edit** button.
10. Save your changes.

How to add trigger conditions for the Applications Launch Control rule in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Computer Control** → **Applications Launch Control** section.
2. Click the **Properties** link in the results pane.

   The **Applications Launch Control** window opens on the **General** tab.
3. Select the **Rules** tab.

4. Do one of the following:

   a. Click the **Add** button if you are adding a new Applications Launch Control rule.

   b. In the list of Applications Launch Control rules, select the rule for which you want to add triggering conditions, and click the **Edit** button.

   The **Applications Launch Control** window opens.

5. On the **Conditions** tab, in the context menu of the **Add** button, select a triggering condition for the Applications Launch Control rule:

   - **Information from file**. **Information from the selected file** is used as the rule triggering condition.

     a. Click the **Browse** button in the **Information from file** window.

     The standard Microsoft Windows **Open File** window opens.

     b. Select the file.

     c. Click **Open**.

     Information about the selected file is displayed in the **Information from file** window.

     d. Select at least one option:

     - **Certificate details**. If this check box is selected, the rule does not control the launch of applications signed with a digital certificate that has the specified data.
     - **Metadata**. If this check box is selected, the rule does not control the launch of applications that have the specified metadata.
     - **File hash**. If this check box is selected, the rule does not control the launch of applications that have the specified SHA256 hash.
     - **File path**. If this check box is selected, the rule does not control the launch of applications at the specified path.

     e. If necessary, in the **Command line** field, enter the command for starting the application on the command line. The rule controls the launch of this application. You can use ? and * characters to enter a mask.

     > Kaspersky Embedded Systems Security does not recognize paths that contain slashes ("/"). Use the backslash character ("\") in paths.

     f. Click **OK**.

   - **Drive type**. The rule controls the launch of applications from all removable drives connected to the protected computer.
   - **KL category**. The rule controls the launch of applications that belong to the selected KL categories.
   - **Trusted by KSN**. The rule controls the launch of applications that are trusted in KSN.
   - **Untrusted by KSN**. The rule controls the launch of applications that are untrusted in KSN.
   - **Trusted by OS**. The rule controls the launch of applications that are trusted in the operating system.

The added condition will be displayed in the list.

6. If necessary, perform the previous step of the instructions for each of the subsequent rule triggering conditions.

7. If necessary, edit rule triggering conditions by clicking the **Edit** button.

8. Save your changes.

How to add trigger conditions for the Applications Launch Control rule in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Select the **Local activity control** section.

5. In the **Applications Launch Control** block, click the **Configure** button.

   The **Applications Launch Control** window opens on the **General** tab.

6. Select the **Rules** tab.

7. Click **Add**.

   The **Rule settings** window opens.

8. On the **Conditions** tab, click the **Add** button.

   The **Rule settings** window opens.

9. Select a triggering condition for the Applications Launch Control rule:

   - **Information from file**. **Information from the file** is used as the rule triggering condition.

     a. Under **Rule triggering criteria**, specify a value for at least one criterion:

     - **Digital certificate**. If this check box is selected, the rule does not control the launch of applications signed with a digital certificate that has the specified data.

     - **Metadata**. If this check box is selected, the rule does not control the launch of applications that have the specified metadata.

     - **SHA256 hash**. If this check box is selected, the rule does not control the launch of applications that have the specified SHA256 hash.

     - **File path**. If this check box is selected, the rule does not control the launch of applications at the specified path.

     b. Click **OK**.

   - **From KL category**. The rule controls the launch of applications that belong to the selected KL categories.

- **Removable drive**. The rule controls the launch of applications from all removable drives connected to the protected computer.
- **Trusted by OS**. The rule controls the launch of applications that are trusted in the operating system.

The added condition will be displayed in the list.

10. If necessary, perform steps 4 through 5 of the instructions for each of the subsequent rule triggering conditions.
11. If necessary, edit rule triggering conditions by clicking the **Edit** button.
12. Save your changes.

Adding exclusions from an Applications Launch Control rule scope

How to add exclusions from the scope of the Applications Launch Control rule in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Local activity control** section.
4. In the **Applications Launch Control** block, click the **Settings** button.
   The **Applications Launch Control** window opens on the **General** tab.
5. Select the **Rules** tab.
6. Do one of the following:
   a. Click the **Add** button if you are adding a new Applications Launch Control rule.
   b. In the list of Applications Launch Control rules, select the rule for which you want to add exclusions, and click the **Edit** button.

   The **Applications Launch Control** window opens.
7. On the **Exclusions** tab, in the context menu of the **Add** button, select a criterion for creating an exclusion from the scope of the Applications Launch Control rule:
   - **Information from file**. **Information from the selected file** is used as the criterion.
     a. Click the **Browse** button in the **Information from file** window.
        The standard Microsoft Windows **Open File** window opens.
     b. Select the file.
     c. Click **Open**.
        Information about the selected file is displayed in the **Information from file** window.

d. Select at least one option:

- **Certificate details**. If this check box is selected, the rule does not control the launch of applications signed with a digital certificate that has the specified data.
- **Metadata**. If this check box is selected, the rule does not control the launch of applications that have the specified metadata.
- **File hash**. If this check box is selected, the rule does not control the launch of applications that have the specified SHA256 hash.
- **File path**. If this check box is selected, the rule does not control the launch of applications at the specified path.

e. If necessary, in the **Command line** field, enter the command for starting the application on the command line. The rule does not control the launch of this application. You can use ? and * characters to enter a mask.

> Kaspersky Embedded Systems Security does not recognize paths that contain slashes ("/"). Use the backslash character ("\") in paths.

f. Click **OK**.

- **Drive type**. The rule does not control the launch of applications from all removable drives connected to the protected computer.
- **KL category**. The rule does not control the launch of applications that belong to the selected KL categories.
- **Trusted by KSN**. The rule does not control the launch of applications that are trusted in KSN.
- **Untrusted by KSN**. The rule does not control the launch of applications that are untrusted in KSN.
- **Trusted by OS**. The rule does not control the launch of applications that are trusted in the operating system.

The added exclusion will be displayed in the list.

8. If necessary, perform the previous step of the instructions to add each subsequent exclusion from the scope of the Applications Launch Control rule.
9. If necessary, edit exclusions by clicking the **Edit** button.
10. Save your changes.

How to add exclusions from the scope of the Applications Launch Control rule in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Computer Control** → **Applications Launch Control** section.
2. Click the **Properties** link in the results pane.

   The **Applications Launch Control** window opens on the **General** tab.
3. Select the **Rules** tab.

4. Do one of the following:

   a. Click the **Add** button if you are adding a new Applications Launch Control rule.

   b. In the list of Applications Launch Control rules, select the rule for which you want to add exclusions, and click the **Edit** button.

   The **Applications Launch Control** window opens.

5. On the **Exclusions** tab, in the context menu of the **Add** button, select a criterion for creating an exclusion from the scope of the Applications Launch Control rule:

   - **Information from file**. **Information from the selected file** is used as the criterion.

     a. Click the **Browse** button in the **Information from file** window.

     The standard Microsoft Windows **Open File** window opens.

     b. Select the file.

     c. Click **Open**.

     Information about the selected file is displayed in the **Information from file** window.

     d. Select at least one option:

     - **Certificate details**. If this check box is selected, the rule does not control the launch of applications signed with a digital certificate that has the specified data.
     - **Metadata**. If this check box is selected, the rule does not control the launch of applications that have the specified metadata.
     - **File hash**. If this check box is selected, the rule does not control the launch of applications that have the specified SHA256 hash.
     - **File path**. If this check box is selected, the rule does not control the launch of applications at the specified path.

     e. If necessary, in the **Command line** field, enter the command for starting the application on the command line. The rule does not control the launch of this application. You can use ? and * characters to enter a mask.

     > Kaspersky Embedded Systems Security does not recognize paths that contain slashes ("/"). Use the backslash character ("\") in paths.

     f. Click **OK**.

   - **Drive type**. The rule does not control the launch of applications from all removable drives connected to the protected computer.
   - **KL category**. The rule does not control the launch of applications that belong to the selected KL categories.
   - **Trusted by KSN**. The rule does not control the launch of applications that are trusted in KSN.

- **Untrusted by KSN**. The rule does not control the launch of applications that are untrusted in KSN.
- **Trusted by OS**. The rule does not control the launch of applications that are trusted in the operating system.

The added exclusion will be displayed in the list.

6. If necessary, perform the previous step of the instructions to add each subsequent exclusion from the scope of the Applications Launch Control rule.
7. If necessary, edit exclusions by clicking the **Edit** button.
8. Save your changes.

How to add exclusions from the scope of the Applications Launch Control rule in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Local activity control** section.
5. In the **Applications Launch Control** block, click the **Configure** button.

   The **Applications Launch Control** window opens on the **General** tab.
6. Select the **Rules** tab.
7. Click **Add**.

   The **Rule settings** window opens.
8. On the **Exclusions** tab, click the **Add** button.

   The **Rule settings** window opens.
9. Select a criterion for creating an exclusion from the scope of the Applications Launch Control rule:
   - **Information from file**. The rule does not control the launch of applications whose data matches the **data in the file**.

     a. Under **Rule triggering criteria**, specify a value for at least one criterion:

     - **Digital certificate**. If this check box is selected, the rule does not control the launch of applications signed with a digital certificate that has the specified data.
     - **Metadata**. If this check box is selected, the rule does not control the launch of applications that have the specified metadata.

- **SHA256 hash**. If this check box is selected, the rule does not control the launch of applications that have the specified SHA256 hash.
- **File path**. If this check box is selected, the rule does not control the launch of applications at the specified path.

b. Click **OK**.

- **KL category**. The rule does not control the launch of applications that belong to the selected KL categories.
- **Drive type**. The rule does not control the launch of applications from all removable drives connected to the protected computer.
- **Trusted by OS**. The rule does not control the launch of applications that are trusted in the operating system.

The added condition will be displayed in the list.

10. If necessary, perform steps 4 through 5 of the instructions to add each subsequent exclusion from the scope of the Applications Launch Control rule.
11. If necessary, edit exclusions by clicking the **Edit** button.
12. Save your changes.

Permitting all applications to run

You can allow launching all applications using specially configured Applications Launch Control allow rules.

To allow launching all applications:

1. Manually add two Applications Launch Control allow rules with the following parameters:
   - Rule type: *Allow*, Scope: *Executable files*, File path: `?:\`.
   - Rule type: *Allow*, Scope: *Scripts and MSI packages*, File path: `?:\`.
2. If Applications Launch Control deny rules have been added, delete these deny rules.
3. For all previously created Applications Launch Control allow rules, delete exclusions.
4. Save your changes.

Exporting Applications Launch Control rules

You can export the list of Applications Launch Control rules and the list of Software Distribution Control trusted installation packages to an XML file. You can use the export function to back up the list of Applications Launch Control rules or to migrate the list to a different server.

Exporting Applications Launch Control rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Local activity control** section.
4. In the **Applications Launch Control** block, click the **Settings** button.

   The **Applications Launch Control** window opens on the **General** tab.
5. Go to the **Rules** tab to export Applications Launch Control rules, or to the **Software Distribution Control** tab to export Software Distribution Control rules.
6. If you want to export the entire list, click the button and select **Export**.
7. If you want to export only part of the list, follow these steps:

   a. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.

   b. Click the button and select **Export selected**.
8. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.

Kaspersky Embedded Systems Security exports the list of rules to the XML file.

Exporting Applications Launch Control rules in the Kaspersky Embedded Systems Security Console

1. In the Application Console tree, select the **Computer Control** → **Applications Launch Control** section.
2. Click the **Properties** link in the results pane.

   The **Applications Launch Control** window opens on the **General** tab.
3. Go to the **Rules** tab to export Applications Launch Control rules, or to the **Software Distribution Control** tab to export Software Distribution Control rules.
4. If you want to export the entire list, click the button and select **Export**.
5. If you want to export only part of the list, follow these steps:

   a. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.

   b. Click the button and select **Export selected**.
6. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.

Kaspersky Embedded Systems Security exports the list of rules to the XML file.

Exporting Applications Launch Control rules in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Local activity control** section.
5. In the **Applications Launch Control** block, click the **Configure** button.

   The **Applications Launch Control** window opens on the **General** tab.
6. Go to the **Rules** tab to export Applications Launch Control rules, or to the **Software Distribution Control** tab to export Software Distribution Control rules.
7. Using check boxes, select the rules that you want to export.
8. Click the **Export** button.This opens a window; in that window, specify whether you want to export selected rules or all rules, then click **Export**.

   If you did not select any rule, Kaspersky Embedded Systems Security will export all rules.

Kaspersky Embedded Systems Security exports the list of rules to the XML file.

Generating a TXT file with a selection of Kaspersky Security Center blocked application events

You can export a selection of Kaspersky Security Center blocked application events to a TXT file and then import this data to generate a list of Applications Launch Control allow rules in a policy that you are configuring.

How to generate a TXT file with a selection of Kaspersky Security Center blocked application events using the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Logs and notifications** section.
4. In the **Task logs** block, click the **Settings** button.

   The **Notifications** window opens.
5. Expand the **Local activity control** node.
6. Select the **Applications Launch Control** section.
7. In the list of Applications Launch Control events, in the **Send events to Kaspersky Security Center** column, select check boxes next to *Application startup prohibited* and *Application startup prohibited in test mode*.
8. Save your changes.

9. In the **Event configuration** section of the policy, make sure that the event storage duration specified in the **Store in the Administration Server database for (days)** field is greater than the period for which you plan to gather information about prevented application launches (the default is 30 days).

   Once the Applications Launch Control component log retention period expires, logged events will be deleted and will not appear in the report.

10. Activate the policy configured to collect data about denied application launches.

11. If required, modify the Applications Launch Control component operating mode.

12. When the period for gathering information about prevented application launches expires, make a selection from *Application startup prohibited* and *Application startup prohibited in test mode* events and export it to a TXT file. For details, refer to the "Event selections" section in the Kaspersky Security Center Help.

13. Open the exported TXT file.

14. If necessary, edit the list of events.

How to generate a TXT file with a selection of Kaspersky Security Center blocked application events using the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Select the **Logs and notifications** section.

5. In the **Task logs** block, click the **Configure** button.

   The **Task logs** window opens.

6. Select the **Applications Launch Control** section.

7. In the list of Applications Launch Control events, in the **Send events to Kaspersky Security Center** column, select check boxes next to *Application startup prohibited* and *Application startup prohibited in test mode*.

8. Save your changes.

9. On the **Event configuration** tab of the policy that you are configuring, make sure that the event storage duration specified in the **Store in the Administration Server database for (days)** field is greater than the period for which you plan to gather information about prevented application launches (the default is 30 days).

   Once the Applications Launch Control component log retention period expires, logged events will be deleted and will not appear in the report.

10. Activate the policy configured to collect data about denied application launches.

11. If required, modify the Applications Launch Control component operating mode.

12. When the period for gathering information about prevented application launches expires, make a selection from *Application startup prohibited* and *Application startup prohibited in test mode* events and export it to a TXT file. For details, refer to the "Event selections" section in the Kaspersky Security Center Help.

13. Open the exported TXT file.

14. If necessary, edit the list of events.

Configuring Rule Generator for Applications Launch Control group task

How to configure the Rule Generator for Applications Launch Control group task in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, expand the **Managed devices** node.

2. Select the administration group for which you want to configure the task.

3. Select the **Tasks** tab.

4. In the list of group tasks, open the *Rule Generator for Applications Launch Control* task by double-clicking the name of the task.

   The **Properties: Rule Generator for Applications Launch Control** window opens.

5. Go to the **Options** section.

6. If necessary, on the **Rules** tab, enter a prefix for rule names.

7. Under **Allowing rule usage scope**, specify the method you want to use for creating allow rules:

   - Create allowing rules based on running applications
   - Create allowing rules for applications from the folders

8. On the **Settings** tab, select the criterion that the task will apply when creating Applications Launch Control allow rules:

   - **Use digital certificate**.

     If this option is selected, the presence of a digital certificate is specified as a rule triggering criterion in the settings of the newly generated allowing rules for Applications Launch Control. Kaspersky Embedded Systems Security will allow files that have a digital certificate. We recommend this option if you want to allow the start of any applications that are trusted in the operating system. This option is selected by default.

   - Use digital certificate subject and thumbprint
   - If the certificate is missing, use

- **Use SHA256 hash**.

  If this option is selected, the checksum of the file used to generate the rule is specified as a rule triggering criterion in the settings of the newly generated allowing rules for Applications Launch Control. Kaspersky Embedded Systems Security will allow applications launched using files with a specified checksum. Using a SHA256 checksum as a rule triggering criterion restricts the rule usage scope to one file.

9. Configure the **Add a file path for rules generated based on hash sums** setting.

   If this check box is selected, when exporting rules, Kaspersky Embedded Systems Security adds full paths to executable files to the XML file. The full paths can help you tell which software an executable file belongs to.

   If the check box is cleared, the XML file contains only names and SHA256 hashes of executable files. By default, the check box is cleared.

10. Add users and/or groups of users that will be allowed to launch applications that satisfy the rules created using the task:

    a. In the context menu of the **Add** button, select the method for adding users or groups.

    b. This opens a window; in that window, enter or select the name of a user or group of users.

    c. Click **OK**.

    d. Complete steps a through c for every user or group of users.

11. In the **After task completes** block, configure the following settings:

    - Add allowing rules to the list of Applications Launch Control rules
    - Principle of adding
    - **Export allowing rules to file**.
    - Add protected device details to the file name

12. If necessary, on the **Exclusions** tab, specify objects that you want to exclude from the scope of the task.

13. Click the **OK** button in the **Properties: Rule Generator for Applications Launch Control** window.

How to configure the Rule Generator for Applications Launch Control group task in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Tasks**.

2. In the list of group tasks, open the Rule Generator for Applications Launch Control task.

   The **Rule Generator for Applications Launch Control** window opens.

3. Open the **Application settings** tab.

4. If necessary, in the **Allowing rule usage scope** section, enter a prefix for rule names.

5. Under **Allowing rule usage scope**, specify the method you want to use for creating allow rules:

   - Create allowing rules based on running applications
   - Create allowing rules for applications from the folders

6. On the **Parameters** tab, select the criterion that the task will apply when creating Applications Launch Control allow rules:

   - **Use digital certificate**
   - **Use digital certificate subject and thumbprint**
   - **If the certificate is missing, use**
   - **Use SHA256 hash**

7. Configure the **Add a file path for rules generated based on hash sums** setting.

   If this check box is selected, when exporting rules, Kaspersky Embedded Systems Security adds full paths to executable files to the XML file. The full paths can help you tell which software an executable file belongs to.

   If the check box is cleared, the XML file contains only names and SHA256 hashes of executable files. By default, the check box is cleared.

8. Add users and/or groups of users that will be allowed to launch applications that satisfy the rules created using the task:

   a. Click **Add user or group**.

   b. This opens a window; in that window, enter or select the name of a user or group of users.

   c. Click **Select**.

   d. Complete steps a through c for every user or group of users.

9. In the **After task completes** block, configure the following settings:

   - **Add allowing rules to the list of Applications Launch Control rules**
   - **Principle of adding**
   - **The allowing rules will be exported to a file**. In the **Specify the full path to a file with .xml extension** field, you can specify a path to which Kaspersky Embedded Systems Security will export allow rules to an XML file when the Rule Generator for Applications Launch Control task finishes.
   - **Add protected device details to the file name**

10. If necessary, on the **Exclusions** tab, specify objects that you want to exclude from the scope of the task.

11. Click the **OK** button in the **Rule Generator for Applications Launch Control** window.

Creating rules using a Rule Generator for Applications Launch Control group task.

To create rules using a Rule Generator for Applications Launch Control group task:

1. Create a *Rule Generator for Applications Launch Control* group task or select an existing task.
2. Configure the Rule Generator for Applications Launch Control task.
3. Run the Rule Generator for Applications Launch Control task.

After the task finishes, depending on task settings:

- If you specified the **Add allowing rules to the list of Applications Launch Control rules** action on task completion, the generated Applications Launch Control rules are added to the list in Applications Launch Control settings in the Application Console.
- If you specified the **The allowing rules will be exported to a file** action on task completion, the generated Applications Launch Control rules are saved to an XML file at the path specified in task settings.

The lists contain allowing rules for launching applications whose type matches the settings of the Rule Generator for Applications Launch Control group task.

Device Control

Device Control manages user access to devices that are installed on or connected to a computer (for example, hard drives, cameras, or Wi-Fi modules). This lets you protect the computer from infection when such devices are connected, and prevent data loss or data leaks.

Device Control provides the following functionality:

- Managing user access permissions to storage devices (for example, removable drives, mobile phones, CD/DVD drives, and so on).
- Controlling the connection of devices without a file system (for example, external modems, Bluetooth adapters, USB keyboards, and so on).
- Managing Wi-Fi connections.

By default, Device Control is disabled. When you enable Device Control, Kaspersky Embedded Systems Security denies access by default to the following device types:

- Removable drives (including USB flash drives)
- Floppy disks
- CD/DVD drives
- Portable devices (MTP)
- Modems.
- Smart card readers
- External network adapters
- Bluetooth (except input devices)

Device Control levels

Kaspersky Embedded Systems Security controls device access on the following levels:

1. **Device type**.

   When connecting a device to the computer, the operating system determines the type of the device: printer, removable drive, CD/DVD drive, and so on. On this level, you can allow or deny the connection of devices by type.

2. **Connection bus**.

   A *connection bus* is an interface used for connecting devices to the computer. Some device types have multiple connection interfaces. For example, you can connect a printer to USB or serial (COM) port.

   At this level, you can allow or deny access to devices depending on connection bus.

For example, suppose you denied access via USB. Kaspersky Embedded Systems Security denies access to all device types with **Depends on connection bus** mode when connected via USB.

If the **Allow** or **Block** access mode is selected for the device, access control disregards the connection bus of the device.

3. **Trusted devices**.

   Trusted devices are devices to which users that are specified in the trusted device settings have full access at all times.

Device Control operating modes

Device Control can work in the following modes:

- **Active mode**.

  Kaspersky Embedded Systems Security denies or allows devices based on configured device access rules. The application also allows access to trusted devices. The application registers device connection and disconnection events.

- **Inform**.

  Kaspersky Embedded Systems Security allows all devices and logs corresponding events. All devices are allowed. This mode is set by default. You can enable this mode to conduct an audit of devices in your organization and use this information to draft a list of trusted devices.

Device Access Rules

A *device access rule* is a group of settings that determine how users can access devices that are installed or connected to the computer. These settings include access to a specific device, an access schedule, read or write permissions and others. The group of settings for an access rule differs depending on the type of device.

Access rule settings

Devices	Assignment of users and/or a group of users	Schedule for access to a device	Read/write permission	Connection bus monitoring
Hard drives	✓	✓	✓	✓
Removable drives (including USB flash drives)	✓	✓	✓	✓
Floppy disks	✓	✓	✓	✓
CD/DVD drives	✓	✓	✓	✓
Portable devices (MTP)	✓	✓	✓	✓
Local printers	✓	–	–	✓
Network printers	✓	–	–	–
Modems	–	–	–	✓
Streamers	–	–	–	✓
Multifunctional devices	–	–	–	✓
Smart card readers	–	–	–	✓

Devices	Assignment of users and/or a group of users	Schedule for access to a device	Read/write permission	Connection bus monitoring
Windows CE USB ActiveSync devices	–	–	–	✓
External network adapters	–	–	–	✓
Bluetooth	–	–	–	–
Cameras and scanners	–	–	–	✓
Wi-Fi	–	–	–	–
USB keyboards	–	–	–	✓
USB mice	–	–	–	✓

Managing access to devices by type

Device Control allows managing access to devices by type. The type of the device is determined by the operating system when the device is connected. You can look up the device type using the Device Manager tool built into the operating system. To manage access to devices, you must configure rules. A *device access rule* is a group of settings that determine how users can access devices that are installed or connected to the computer. These settings include access to a specific device, an access schedule, read or write permissions and others. The group of settings for an access rule differs depending on the type of device.

You can configure device access as follows:

- **Allow**.

  Kaspersky Embedded Systems Security grants full access to devices to all users.

- **Block**.

  Kaspersky Embedded Systems Security blocks device connection. The application allows connecting only trusted devices.

- **Depends on connection bus**.

  Kaspersky Embedded Systems Security identifies the connection bus of the device and performs access control in accordance with the access mode of the connection bus. The application also allows connecting trusted devices.

- **By rules**.

  For some device types, you can select users or a group of users that will be allowed to use devices, configure a device access schedule, and read and write permissions. The application also allows connecting trusted devices.

Be careful when configuring access to devices of the **Hard drives** type. If you block access to the system disk, the application may cause a crash (BSOD) when booting the operating system.

If a device does not fit in the Device Control classification scheme, access to such a device cannot be restricted.

How to control access to devices by type in Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.

2. Select the necessary policy and double-click to open the policy properties.

3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Select the **Device Control** check box.
6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
7. Under **Device Control settings**, select the **Types of devices** tab.

   The **Types of devices** tab shows access rules for all devices that are included in the Device Control classification.
8. Configure the device access rules:

   a. Select access mode: **Allow**, **Block**, **Depends on connection bus**, **By rules**.

   To select the **By rules** access mode, you must double-click to open access rule properties.

   b. If you selected the **Depends on connection bus** access mode, go to the **Connection buses** tab and configure access rules for connection interfaces.

   c. For storage devices (for example, removable drives), you can configure access rights of individual users. You can also configure a device access schedule and configure read and write permissions.

   d. If necessary, configure the printing rules.

   e. If necessary, configure Wi-Fi connection rules.
9. Save your changes. To apply the policy on computers, close the padlocks.

How to control access to devices by type in Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.
5. Select the **Enable Device Control** check box.
6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
7. In the **Device Control Settings** block, click **Access rules for devices and Wi-Fi networks**.

   A window opens with access rules for all devices that are included in the Device Control component classification.
8. Configure the device access rules:

   a. Select access mode: **Allow**, **Block**, **Depends on connection bus**, **By rules**.

   If the access mode is not available in the drop-down menu, open the properties of the access rule by double-clicking the device type.

b. If you select the **Depends on connection bus** access mode, you must go back to the window with general Device Control settings, click **Connection buses**, and configure access rules for connection interfaces.

c. For storage devices (for example, removable drives), you can configure access rights of individual users. You can also configure a device access schedule and configure read and write permissions.

d. If necessary, configure the printing rules.

e. If necessary, configure Wi-Fi connection rules.

9. Save your changes. To apply the policy on computers, close the padlocks.

How to control device access by type in Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.

2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.

3. Select the **Device Control** check box.

4. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.

5. Under **Device Control settings**, select the **Types of devices** tab.

   A window opens with access rules for all devices that are included in the Device Control component classification.

6. Configure the device access rules:

   a. Select access mode: **Allow**, **Block**, **Depends on connection bus**, **By rules**.

      To select the **By rules** access mode, you must double-click to open access rule properties.

   b. If you select the **Depends on connection bus** access mode, you must configure access rules for connection interfaces on the **Connection buses** tab.

   c. For storage devices (for example, removable drives), you can configure access rights of individual users. You can also configure a device access schedule and configure read and write permissions.

   d. If necessary, configure the printing rules.

   e. If necessary, configure Wi-Fi connection rules.

7. Save your changes.

As a result, when a user attempts to gain access to a device, the application blocks access in accordance with the rules. Kaspersky Embedded Systems Security also logs the corresponding event. If you want to grant access to individual devices, you can add these devices to the list of trusted devices.

Control of Wi-Fi connections

Device Control allows managing the Wi-Fi connection of the computer (terminal). Public Wi-Fi networks may be insecure, and using such networks can result in data loss. Device Control lets you block a user from connecting to Wi-Fi or allow connecting only to trusted networks. For example, you can allow connecting only to the corporate Wi-Fi network that is sufficiently secure. Device Control will block access to all Wi-Fi networks except those specified in the trusted list.

On computers running Windows 11, you need to enable Location services in order to control Wi-Fi connections. To do this, you need to enable the **Location services** switch in the operating system settings (**Settings** → **Privacy & security** → **Location**). If Location services are disabled, Kaspersky Embedded Systems Security does not control connections to Wi-Fi networks.

How to restrict Wi-Fi connections in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Select the **Device Control** check box.
6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
7. Under **Device Control settings**, select the **Types of devices** tab.

   The **Types of devices** tab shows access rules for all devices that are included in the Device Control classification.
8. For **Wi-Fi** devices, configure an access rule:

   a. Select an access mode: **Allow**, **Block**, **Block with exceptions**.

   b. If you selected the **Block with exceptions** mode, you must create a list of trusted Wi-Fi networks:

      1. Double-click the **Wi-Fi** device type to open the list of trusted Wi-Fi networks.
      2. In the window that opens, click the **Add** button.
      3. This opens a window; in that window, configure the trusted Wi-Fi network:

         - **Network name**. Name or SSID (Service Set Identifier) of the Wi-Fi network.
         - **Authentication type**. Authentication type used when connecting to the Wi-Fi network.
         - **Encryption type**. Encryption type used to protect the Wi-Fi traffic.
         - **Comment**. Further info about the added Wi-Fi network.

You can view the settings of the trusted Wi-Fi network in router settings.

A Wi-Fi network is considered trusted if its settings match all settings specified in the rule.

9. Save your changes. To apply the policy on computers, close the padlocks.

How to restrict Wi-Fi connections in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.
5. Select the **Enable Device Control** check box.
6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
7. In the **Device Control Settings** block, click **Access rules for devices and Wi-Fi networks**.

   A window opens with access rules for all devices that are included in the Device Control component classification.
8. Double-click the **Wi-Fi** device type to open access rule properties.
9. Select an access mode: **Allow**, **Block**, **Block with exceptions**.
10. If you selected the **Block with exceptions** mode, you must create a list of trusted Wi-Fi networks:
    1. In the **Trusted Wi-Fi networks** block, click the **Add** button.
    2. This opens a window; in that window, configure the trusted Wi-Fi network:
       - **Network name**. Name or SSID (Service Set Identifier) of the Wi-Fi network.
       - **Authentication type**. Authentication type used when connecting to the Wi-Fi network.
       - **Encryption type**. Encryption type used to protect the Wi-Fi traffic.
       - **Comment**. Further info about the added Wi-Fi network.

    You can view the settings of the trusted Wi-Fi network in router settings.

    A Wi-Fi network is considered trusted if its settings match all settings specified in the rule.
11. Save your changes. To apply the policy on computers, close the padlocks.

How to restrict Wi-Fi connections in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.
2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.
3. Select the **Device Control** check box.
4. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
5. Under **Device Control settings**, select the **Types of devices** tab.

   A window opens with access rules for all devices that are included in the Device Control component classification.
6. For **Wi-Fi** devices, configure an access rule:

   a. Select an access mode: **Allow**, **Block**, **Block with exceptions**.

   b. If you selected the **Block with exceptions** mode, you must create a list of trusted Wi-Fi networks:

      1. Double-click the **Wi-Fi** device type to open the list of trusted Wi-Fi networks.
      2. In the window that opens, click the **Add** button.
      3. This opens a window; in that window, configure the trusted Wi-Fi network:

         - **Network name**. Name or SSID (Service Set Identifier) of the Wi-Fi network.
         - **Authentication type**. Authentication type used when connecting to the Wi-Fi network.
         - **Encryption type**. Encryption type used to protect the Wi-Fi traffic.
         - **Comment**. Further info about the added Wi-Fi network.

   You can view the settings of the trusted Wi-Fi network in router settings.

   > A Wi-Fi network is considered trusted if its settings match all settings specified in the rule.
7. Save your changes.

As a result, when a user tries connecting to a Wi-Fi network that is not listed as trusted, the application blocks the connection.

Control of printing

Device Control allows configuring user access to local and network printers.

Local printer control

Kaspersky Embedded Systems Security controls local printer connection over the following buses: USB, Serial Port (COM), Parallel Port (LPT).

> Kaspersky Embedded Systems Security controls the connection of local printers to COM and LPT ports only on the level of the bus. That is, to prevent the connection of printers to COM and LPT ports, for the **Local printers** device type, select the **Depends on connection bus** mode and prohibit the connection of devices to COM and LPT buses.

For printers connected to USB, the application exercises control on two levels: device type (local printers) and connection bus (USB).

You can select one of the following access modes to local printers via USB:

- **Allow**. Kaspersky Embedded Systems Security grants full access to local printers to all users. Users can connect printers and print documents using the means that the operating system provides.
- **Block**. Kaspersky Embedded Systems Security blocks the connection of local printers. The application allows connecting only trusted printers.
- **Depends on connection bus**. Kaspersky Embedded Systems Security allows connecting to local printers in accordance with the USB bus connection status (**Allow** or **Block**).
- **By rules**. To control printing, you must add *printing rules*. In the rules, you can select users or a group of users for which you want to allow or block access to printing documents on local printers.

Network printer control

Kaspersky Embedded Systems Security allows configuring access to printing on network printers. You can select one of the following access modes to network printers:

- **Allow and do not log**. Kaspersky Embedded Systems Security does not control printing on network printers. The application grants access to printing to all users and does not save information about printing to the event log.
- **Allow**. Kaspersky Embedded Systems Security grants access to printing on network printers to all users.
- **Block**. Kaspersky Embedded Systems Security restricts access to network printers for all users. The application allows access only to trusted printers.
- **By rules**. To control printing, you must add *printing rules*. In the rules, you can select users or a group of users for which you want to allow or block access to printing documents on network printers.

Adding printing rules for printers

How to add printing rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Select the **Device Control** check box.
6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
7. Under **Device Control settings**, select the **Types of devices** tab.

   The **Types of devices** tab shows access rules for all devices that are included in the Device Control classification.
8. Configure the printer access rules:

   a. For **Local printers** and **Network printers** device types, configure access rules: **Allow**, **Block**, **Allow and do not log** (only for network printers), **Depends on connection bus** (only for local printers), **By rules**.

   b. If you selected the **Depends on connection bus** access mode, go to the **Connection buses** tab and configure access rules for connection interfaces.

   c. If you select the **By rules** access mode, you must configure printing rules:

      1. Double-click the **Local printers** and **Network printers** device type to open access rule properties.
      2. Select the users or groups of users to which you want to apply the printing rule. To do so, click the **Add** button.

         This opens a window for adding a new printing rule.
      3. Assign a priority to the *rule entry*. A rule entry includes the following attributes: user account, action (allow/block), and priority.

         A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

         For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

         The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.
      4. Under **Action**, configure user access to printing on the printer.

5. Click **Users and groups** and select users or groups of users for access to printing. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.

6. Click **OK**.

9. Save your changes. To apply the policy on computers, close the padlocks .

How to add printing rules in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.

5. Select the **Enable Device Control** check box.

6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.

7. In the **Device Control Settings** block, click **Access rules for devices and Wi-Fi networks**.

   A window opens with access rules for all devices that are included in the Device Control component classification.

8. Configure the printer access rules:

   a. For **Local printers** and **Network printers** device types, select an access mode: **Allow**, **Block**, **Allow and do not log** (only for network printers), **Depends on connection bus** (only for local printers), **By rules**.

   If the access mode is not available in the drop-down menu, open the properties of the access rule by double-clicking the device type.

   b. If you select the **Depends on connection bus** access mode, you must go back to the window with the Device Control component general settings, click **Connection buses**, and configure access rules for connection interfaces.

   c. If you need to configure printing:

      1. Double-click the **Local printers** or **Network printers** device type to open access rule properties.

      2. Select the **By rules** access mode.

      3. Select the users or groups of users to which you want to apply the printing rule. To do so, click the **Add** button.

         This opens a window for adding a new printing rule.

      4. Assign a priority to the *rule entry*. A rule entry includes the following attributes: user account, action (allow/block), and priority.

A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.

5. Under **Action**, configure user access to printing on the printer.

6. Under **Users and groups**, click **Add** and select users or groups of users for access to printing. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.

7. Click **OK**.

9. Save your changes. To apply the policy on computers, close the padlocks.

How to add printing rules in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.

2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.

3. Select the **Device Control** check box.

4. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.

5. Under **Device Control settings**, select the **Types of devices** tab.

   A window opens with access rules for all devices that are included in the Device Control component classification.

6. Configure the printer access rules:

   a. For **Local printers** and **Network printers** device types, configure access rules: **Allow**, **Block**, **Allow and do not log** (only for network printers), **Depends on connection bus** (only for local printers), **By rules**.

   b. If you selected the **Depends on connection bus** access mode, go to the **Connection buses** tab and configure access rules for connection interfaces.

   c. If you select the **By rules** access mode, you must configure printing rules:

      1. Double-click the **Local printers** and **Network printers** device type to open access rule properties.

      2. Select the users or groups of users to which you want to apply the printing rule. To do so, click the **Add** button.

         This opens a window for adding a new printing rule.

      3. Assign a priority to the *rule entry*. A rule entry includes the following attributes: user account, action (allow/block), and priority.

A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.

4. Under **Action**, configure user access to printing on the printer.
5. Click **Users and groups** and select users or groups of users for access to printing. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.
6. Click **OK**.

7. Save your changes.

Input device control (HID)

Input devices include keyboards, mice, trackballs, touchpads, and other such devices. You can connect input devices using the following interfaces: USB, Bluetooth, PS/2 port, RS-232 (COM) port, IR port, etc.

Kaspersky Embedded Systems Security allows controlling USB and Bluetooth mice and keyboards. Device Control logs input device connection and disconnection devices.

When Bluetooth devices are connected or disconnected, the application may create multiple events about the device. The reason is that the operating system may detect a Bluetooth device as multiple devices of different types. Kaspersky Embedded Systems Security also manages the Bluetooth adapter through which the device is connected as a separate device. That is why the application creates an event for each of the detected devices.

Kaspersky Embedded Systems Security lets you allow or prohibit using an input device, as well as make a list of trusted devices.

How to enable Device Control in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Select the **Device Control** check box.
6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.

7. Under **Device Control settings**, select the **Types of devices** tab.

   The **Types of devices** tab shows access rules for all devices that are included in the Device Control classification.

8. For the **Bluetooth** device type, select an access mode: **Allow**, **Block**, **Allow and do not log**.

   You can block or allow all Bluetooth devices or you can allow connecting only Bluetooth input devices (HID (Human Interface Devices) class).

   > You can allow connecting input devices only in the Kaspersky Security Center Web Console. You cannot allow connecting input devices in Administration Console (MMC) or Kaspersky Embedded Systems Security Console.

9. For **USB keyboards** and **USB mice** device types, select an access mode: **Allow**, **Block**, **Depends on connection bus**.

10. Save your changes. To apply the policy on computers, close the padlocks.

How to enable Device Control in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.

5. Select the **Enable Device Control** check box.

6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.

7. In the **Device Control Settings** block, click **Access rules for devices and Wi-Fi networks**.

   A window opens with access rules for all devices that are included in the Device Control component classification.

8. Click the **Bluetooth** device type to open access rule properties.

9. Select an access mode: **Allow**, **Block**, **Allow and do not log**.

   You can block or allow all Bluetooth devices or you can allow connecting only Bluetooth input devices (HID (Human Interface Devices) class).

10. For **USB keyboards** and **USB mice** device types, select an access mode: **Allow**, **Block**, **Depends on connection bus**.

11. Save your changes. To apply the policy on computers, close the padlocks.

How to configure Device Control in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.
2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.
3. Select the **Device Control** check box.
4. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
5. Under **Device Control settings**, select the **Types of devices** tab.

   A window opens with access rules for all devices that are included in the Device Control component classification.
6. For the **Bluetooth** device type, select an access mode: **Allow**, **Block**, **Allow and do not log**.

   You can block or allow all Bluetooth devices or you can allow connecting only Bluetooth input devices (HID (Human Interface Devices) class).

   > You can allow connecting input devices only in the Kaspersky Security Center Web Console. You cannot allow connecting input devices in Administration Console (MMC) or Kaspersky Embedded Systems Security Console.
7. For **USB keyboards** and **USB mice** device types, select an access mode: **Allow**, **Block**, **Depends on connection bus**.
8. Save your changes.

Managing access to mobile devices

Kaspersky Embedded Systems Security allows you to control access to data on mobile devices running Android and iOS. Mobile devices belong to the category of portable devices (MTP). Therefore, to configure data access on mobile devices, you need to edit the access settings for portable devices (MTP).

When a mobile device is connected to the computer, the operating system determines the device type. If iTunes or similar applications are installed on the computer Android Debug Bridge (for more information about the ADB application, see the Knowledge Base and the Android Technical Support website), the operating system identifies mobile devices as ADB or iTunes devices. In all other cases, the operating system may identify the mobile device type as a portable device (MTP) for file transfer, a PTP device (camera) for image transfer, or another device. The device type depends on the model of the mobile device and the selected USB connection mode. Kaspersky Embedded Systems Security lets you configure individual access permissions for data on mobile devices in ADB applications, iTunes, or the file manager. In all other cases, Device Control allows access to mobile devices in accordance with portable devices (MTP) access rules.

Access to mobile devices

Mobile devices belong to the category of portable devices (MTP), therefore the settings for them are the same. You can select one of the following modes of access to mobile devices:

- **Allow**. Kaspersky Embedded Systems Security grants full access to mobile devices. You can open, create, modify, copy, or delete files on mobile devices using the file manager or the ADB and iTunes applications. You can also charge the battery of the device by connecting the mobile device to a USB port of the computer.
- **Block**. Kaspersky Embedded Systems Security restricts access to mobile devices in the file manager and in the ADB and iTunes applications. The application allows access only to trusted mobile devices. You can also charge the battery of the device by connecting the mobile device to a USB port of the computer.
- **Depends on connection bus**. Kaspersky Embedded Systems Security allows connecting to mobile devices in accordance with the USB bus connection status (**Allow** or **Block**).
- **By rules**. Kaspersky Embedded Systems Security restricts access to mobile devices in accordance with the rules. In the rules, you can configure access permissions (read/write), select users or a group that have access to mobile devices, and configure a schedule for access to mobile devices. You can also restrict access to data on mobile devices via the ADB and iTunes applications.

Configuring mobile device access rules

Access rules for portable devices (MTP), ADB devices, and iTunes devices are configured differently. For portable devices (MTP) and ADB devices, you can configure rules for individual users or groups of users and create a schedule for when the rules will apply. For iTunes devices, you cannot do that. You can only allow or deny access to data through the iTunes application for all users.

How to configure mobile device access rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Under **Device Control settings**, select the **Types of devices** tab.

   The table lists access rules for all devices that are present in the classification of the Device Control component.
6. In the context menu for the **Portable devices (MTP)** device type, configure the mobile device access mode: **Allow**, **Block**, or **Depends on connection bus**.
7. To configure mobile device access rules, double-click to open the list of rules.

8. Configure the mobile device access rule:

   a. In the **Access rules** block, click the **Add** button.

      This opens a window for adding a new mobile device access rule.

   b. In the **Priority** field, set the rule write priority. A rule includes the following attributes: user account, schedule, permissions (read / write / ADB access), and priority.

      A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

      For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

      The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.

   c. Under **Rule for users and groups**, select users or groups of users. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.

   d. Click **OK**.

9. Under **Schedules for the selected access rule**, configure a mobile device access schedule for users.

   Configuring a separate access schedule for ADB devices is not possible. You can configure a common access schedule for ADB devices and portable devices (MTP).

10. Configure users' access permissions to mobile devices in the file manager (**Read** / **Write**).

11. Configure the access to data on a mobile device through the ADB application using the **Access via ADB** check box.

    If the check box is cleared, when the mobile device is connected, the ADB application is prevented from detecting the device.

12. Under **Access via iTunes**, configure access to data on the mobile device through the iTunes application.

    Kaspersky Embedded Systems Security applies the settings for mobile device access through the iTunes application for all users. Configuring a separate access schedule for iTunes devices is not possible.

13. Save your changes.

How to configure mobile device access rules in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.

5. In the **Device Control Settings** block, click the **Access rules for devices and Wi-Fi networks** link.

   The table lists access rules for all devices that are present in the classification of the Device Control component.

6. Select the **Portable devices (MTP)** device type.

   This opens portable devices (MTP) access rights.

7. Configure the mobile devices access mode: **Allow**, **Block**, **Depends on connection bus**, or **By rules**.

8. Under **Access via iTunes**, configure access to data on the mobile device through the iTunes application.

   Kaspersky Endpoint Security applies the settings for mobile device access through the iTunes application for all users. Configuring a separate access schedule for iTunes devices is not possible.

9. If you select the **By rules** mode, you must add access rules for devices. To do so, under **Users**, click the **Add** button and configure the mobile device access rule:

   a. In the **Priority** field, set the rule write priority. A rule includes the following attributes: user account, schedule, permissions (read / write / ADB access), and priority.

      A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

      For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

      The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.

   b. Under **Users**, select users or groups of users for access to mobile devices. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.

   c. Under **Schedule for access to devices**, configure a mobile device access schedule for users.

      Configuring a separate access schedule for ADB devices is not possible. You can configure a common access schedule for ADB devices and portable devices (MTP).

   d. Configure users' access permissions to mobile devices in the file manager (**Read** / **Write**).

e. Configure the access to data on a mobile device through the ADB application using the **Access via ADB** check box.

If the check box is cleared, when the mobile device is connected, the ADB application is prevented from detecting the device.

10. Save your changes.

How to configure mobile device access rules in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.
2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.
3. Select the **Types of devices** tab.

   A window opens with access rules for all devices that are included in the Device Control component classification.
4. In the context menu for the **Portable devices (MTP)** device type, configure the mobile device access mode: **Allow**, **Block**, or **Depends on connection bus**.
5. To configure mobile device access rules, double-click to open the list of rules.
6. Configure the mobile device access rule:

   a. In the **Access rules** block, click the **Add** button.

   This opens a window for adding a new mobile device access rule.

   b. In the **Priority** field, set the rule write priority. A rule includes the following attributes: user account, schedule, permissions (read / write / ADB access), and priority.

   A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

   For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

   The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.

   c. Under **Rule for users and groups**, select users or groups of users. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.

   d. Click **OK**.
7. Under **Schedules for the selected access rule**, configure a mobile device access schedule for users.

   Configuring a separate access schedule for ADB devices is not possible. You can configure a common access schedule for ADB devices and portable devices (MTP).

8. Configure users' access permissions to mobile devices in the file manager (**Read** / **Write**).

9. Configure the access to data on a mobile device through the ADB application using the **Access via ADB** check box.

   If the check box is cleared, when the mobile device is connected, the ADB application is prevented from detecting the device.

10. Under **Access via iTunes**, configure access to data on the mobile device through the iTunes application.

    Kaspersky Embedded Systems Security applies the settings for mobile device access through the iTunes application for all users. Configuring a separate access schedule for iTunes devices is not possible.

11. Save your changes.

As a result, user access to mobile devices is restricted in accordance with rules. If you have prohibited access to mobile devices in the ADB and iTunes applications, when you connect a mobile devices, the ADB and iTunes applications are prevented from detecting the mobile device.

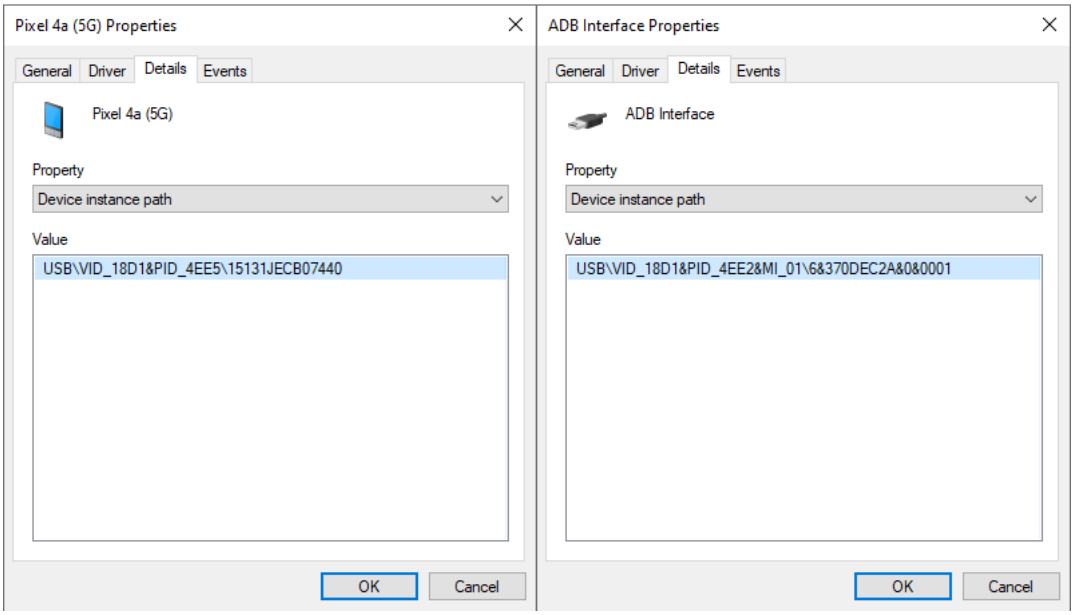
Trusted mobile devices

The procedure for adding a trusted mobile device is exactly the same as for other types of trusted devices. You can add a mobile device by ID or by device model.

To add a trusted mobile device by ID, you will need a unique ID (Hardware ID – HWID). You can find the ID in device properties by using operating system tools (see figure below). The Device Manager tool lets you do this. IDs of portable devices (MTP) and ADB, iTunes devices are different even for the same mobile device. The ID of a portable device (MTP) may look like this: `15131JECB07440`. The ID of an ADB device may look like this: `6&370DEC2A&0&0001`. Adding devices by ID is convenient if you want to add several specific devices. You can also use masks.

If you installed the ADB or iTunes applications after connecting a device to the computer, the unique ID of the device may be reset. That is, Kaspersky Embedded Systems Security identifies this device as new. If a device is trusted, add the device to the trusted list again.

To add a trusted mobile device by device model, you will need its Vendor ID (VID) and Product ID (PID). You can find the IDs in device properties by using operating system tools (see figure below). Template for entering the VID and PID: `VID_18D1&PID_4EE5`. Adding devices by model is convenient if you use devices of a certain model in your organization. This way, you can add all devices of this model.



Device ID in Device Manager

Monitoring usage of removable drives

Monitoring usage of removable drives includes:

- Monitoring operations on files on removable drives.
- Monitoring connection and disconnection of trusted removable drives.

  Kaspersky Embedded Systems Security allows monitoring connection and disconnection of all trusted devices and not only removable drives. You can turn on event logging in notification settings for the Device Control component. Events have the *Informational* severity level.

How to enable monitoring of file operations on removable drives in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Select the **Device Control** check box.
6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
7. Under **Device Control settings**, select the **Types of devices** tab.

   The **Types of devices** tab shows access rules for all devices that are included in the Device Control classification.

8. Select the **Removable drives** device type and click the **Logging** button.

   This opens the event logging window.

9. Select the **Enable logging** check box.

10. In the **File operations** block, select the operations that you want to monitor: **Write**, **Delete**.

11. In the **Filter by file formats** block, select the formats of files whose associated operations should be logged by Device Control.

12. Select the users or group of users whose use of removable drives you want to monitor.

13. Save your changes. To apply the policy on computers, close the padlocks.

How to enable monitoring of file operations on removable drives in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.

5. Select the **Enable Device Control** check box.

6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.

7. In the **Device Control Settings** block, click **Access rules for devices and Wi-Fi networks**.

   A window opens with access rules for all devices that are included in the Device Control component classification.

8. Double-click the **Removable drives** device type to open access rule properties.

9. In the window that opens, select the **Logging** tab.

10. Set the toggle switch to **Logging ENABLED**.

11. In the **File operations** block, select the operations that you want to monitor: **Write**, **Delete**.

12. In the **Filter by file formats** block, select the formats of files whose associated operations should be logged by Device Control.

13. Select the users or group of users whose use of removable drives you want to monitor.

14. Save your changes. To apply the policy on computers, close the padlocks.

How to enable monitoring of file operations on removable drives in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.
2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.
3. Select the **Device Control** check box.
4. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
5. Under **Device Control settings**, select the **Types of devices** tab.

   A window opens with access rules for all devices that are included in the Device Control component classification.
6. Select the **Removable drives** device type and click the **Logging** button.

   This opens the event logging window.
7. Select the **Enable logging** check box.
8. In the **File operations** block, select the operations that you want to monitor: **Write**, **Delete**.
9. In the **Filter by file formats** block, select the formats of files whose associated operations should be logged by Device Control.
10. Select the users or group of users whose use of removable drives you want to monitor.
11. Save your changes.

As a result, when users write to files located on removable drives or delete files from removable drives, Kaspersky Embedded Systems Security will save information about such operations to the event log and send events to Kaspersky Security Center. You can view events associated with files on removable drives in the Kaspersky Security Center Console in the workspace of the **Administration Server** node on the **Events** tab. For events to be displayed in the local Kaspersky Embedded Systems Security event log, you must select the **File operation performed** check box in the notifications settings for the Device Control component.

Managing access to Bluetooth devices

Kaspersky Embedded Systems Security allows managing access to Bluetooth devices. Bluetooth devices include wireless keyboards, mice, headsets, printers, etc. You can also uses Bluetooth for communication e.g. with a mobile device.

When Bluetooth devices are connected or disconnected, the application may create multiple events about the device. The reason is that the operating system may detect a Bluetooth device as multiple devices of different types. Kaspersky Embedded Systems Security also manages the Bluetooth adapter through which the device is connected as a separate device. That is why the application creates an event for each of the detected devices.

You can select one of the following modes of access to Bluetooth devices:

- **Allow and do not log**. Kaspersky Embedded Systems Security allows connecting any Bluetooth devices and does not save information about the connection in the event log. You can connect Bluetooth input devices (keyboards, mice, etc), send data over Bluetooth, manage other Bluetooth devices (headset, headphones, etc).
- **Allow**. Kaspersky Embedded Systems Security allows connecting any Bluetooth devices. You can connect Bluetooth input devices (keyboards, mice, etc), send data over Bluetooth, manage other Bluetooth devices (headset, headphones, etc).
- **Block**. Kaspersky Embedded Systems Security restricts access to Bluetooth devices. You can allow connecting only Bluetooth input devices (the Human Interface Devices class). These devices include keyboards, mice, joysticks, etc.

It is not possible to create a list of trusted Bluetooth devices. If you have restricted access to Bluetooth devices, you can only connection of Bluetooth input devices.

You can allow connecting input devices only in the Application Console or in Kaspersky Security Center Web Console. You cannot allow connecting input devices in the Kaspersky Security Center Administration Console.

How to configure Bluetooth device access rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Local activity control** → **Device Control** and click **Settings**.
4. Under **Device Control settings**, select the **Types of devices** tab.

   The table lists access rules for all devices that are present in the classification of the Device Control component.
5. In the context menu for the **Bluetooth** device type, configure the Bluetooth device access mode: **Allow**, **Block**, **Allow and do not log**.

   If you blocked access to Bluetooth devices, you can allow connecting input devices (keyboards, mice, etc) only in the Application Console or in Kaspersky Security Center Web Console. You cannot allow connecting input devices in the Kaspersky Security Center Administration Console.
6. Save your changes.

How to configure Bluetooth device access rules in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. In the policy window, select **Local activity control** → **Device Control** and click **Settings**.

5. In the **Device Control Settings** block, click the **Access rules for devices and Wi-Fi networks** link.

   The table lists access rules for all devices that are present in the classification of the Device Control component.

6. Select the **Bluetooth** device type.

   This opens the Bluetooth device access settings.

7. Configure the Bluetooth device access mode: **Allow**, **Block**, **Allow and do not log**.

8. If you select the **Block** mode, you can allow connecting only Bluetooth input devices (keyboards, mice, etc). To do so, under **Exclusions**, select the **Input devices (mice and keyboards)** check box.

9. Save your changes.

How to configure Bluetooth device access rules in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.

2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.

3. Under **Device Control settings**, select the **Types of devices** tab.

   The table lists access rules for all devices that are present in the classification of the Device Control component.

4. Under **Access**, configure the Bluetooth device access mode: **Allow**, **Block**, **Allow and do not log**.

5. If you select the **Block** mode, you can allow connecting only Bluetooth input devices (keyboards, mice, etc). To do so, under **Exclusions**, select the **Input devices (mice and keyboards)** check box.

6. Save your changes.

Differentiation of user access rights to devices

You can configure user access rights by device type or to trusted devices.

Differentiation of user access rights by device type

Device Control allows configuring user access rights to data on *storage devices*. For such devices, you can configure write and read permissions. Device Control supports the following types of storage devices:

- Hard drives
- Removable drives
- Floppy disks

- CD/DVD drives
- Portable devices (MTP) Portable devices (MTP) include, for example, mobile devices, photo cameras, media players, and so on.

In this way you can, for example, allow using removable media only to the group of administrators. For other device types, you can deny or allow access for all users. You can also configure user access rights to use printers.

How to configure user access rights to data on removable drives in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Select the **Device Control** check box.
6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
7. Under **Device Control settings**, select the **Types of devices** tab.

   The **Types of devices** tab shows access rules for all devices that are included in the Device Control classification.
8. To configure storage device access rules, double-click to open the list of rules.
9. Configure the storage device access rule:

   a. In the **Access rules** block, click the **Add** button.

      This opens a window for adding a new storage device access rule.

   b. In the **Priority** field, set the *rule write* priority. A rule includes the following attributes: user account, schedule, permissions (read/write), and priority.

      A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

      For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

      The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.

   c. Under **Rule for users and groups**, select users or groups of users. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.

   d. Click **OK**.

10. Under **Schedules for the selected access rule**, configure a storage device access schedule for users.

    For example, you can allow users to use storage devices only during working hours.

11. Configure users' access permissions to storage devices in the file manager (**Read** / **Write**).

12. Save your changes. To apply the policy on computers, close the padlocks .

How to configure user access rights to data on storage devices in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.

5. Select the **Enable Device Control** check box.

6. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.

7. In the **Device Control Settings** block, click **Access rules for devices and Wi-Fi networks**.

   A window opens with access rules for all devices that are included in the Device Control component classification.

8. In the **Access To Storage Devices** block, open the properties of the storage device access rule.

9. Configure the storage device access rule:

   a. In the **Users** block, click the **Add** button.

      This opens a window for adding a new storage device access rule.

   b. In the **Priority** field, set the *rule write* priority. A rule includes the following attributes: user account, schedule, permissions (read/write), and priority.

      A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

      For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

      The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.

   c. Under **Users**, select users or groups of users. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.

d. Under **Schedule for access to devices**, configure a storage device access schedule for users.

For example, you can allow users to use storage devices only during working hours.

e. Configure users' access permissions to storage devices in the file manager (**Read** / **Write**).

f. Click **OK**.

10. Save your changes. To apply the policy on computers, close the padlocks.

How to configure user access rights to data on storage devices in the Kaspersky Embedded Systems Security Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.
2. In the results pane of the **Device Control** node, click **Properties**.

The **Properties: Device Control** window opens.

3. Select the **Device Control** check box.
4. In the **Operating mode for blocking rules** block, select **Block** or **Inform**.
5. Under **Device Control settings**, select the **Types of devices** tab.

A window opens with access rules for all devices that are included in the Device Control component classification.

6. To configure storage device access rules, double-click to open the list of rules.
7. Configure the storage device access rule:

a. In the **Access rules** block, click the **Add** button.

This opens a window for adding a new storage device access rule.

b. In the **Rule priority** field, set the *rule write* priority. A rule includes the following attributes: user account, schedule, permissions (read/write), and priority.

A rule has a specific priority. If a user has been added to multiple groups, Kaspersky Embedded Systems Security regulates device access based on the rule with the highest priority. Kaspersky Embedded Systems Security allows you to assign priority from 0 to 10,000. The higher the value, the higher the priority. In other words, an entry with the value of 0 has the lowest priority.

For example, you can grant read-only permissions to the Everyone group and grant read/write permissions to the administrators group. To do so, assign a priority of 1 for the administrators group and assign a priority of 0 for the Everyone group.

The priority of a block rule is higher than the priority of an allow rule. In other words, if a user has been added to multiple groups and the priority of all rules are the same, Kaspersky Embedded Systems Security regulates device access based on any existing block rule.

c. Under **Rule for users and groups**, select users or groups of users. You can select users in Active Directory or enter a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts.

d. Click **OK**.

8. Under **Schedules for the selected access rule**, configure a storage device access schedule for users.

For example, you can allow users to use storage devices only during working hours.

9. Configure users' access permissions to storage devices in the file manager (**Read** / **Write**).

10. Save your changes.

Differentiation of user access rights to trusted devices

Trusted devices are devices to which users that are specified in the trusted device settings have full access at all times. To work with trusted devices, you can grant access to an individual user, to a group of users, or to all users of the organization. You can configure user access rights in the properties of the trusted device.

About Rule Generator for Device Control

You can generate Device Control rules using Kaspersky Security Center tasks and policies simultaneously for all protected devices and groups of protected devices on the corporate network. To create a list of trusted devices, you must conduct an audit of external devices in your organization.

To create a list of rules based on the list of devices connected to an individual protected device, you can run the *Rule Generator for Device Control* task locally using the Application Console.

You can create Device Control rules using Kaspersky Security Center in the following ways:

- Using the *Rule Generator for Device Control* task.

  Depending on its settings, the *Rule Generator for Device Control* task, can collect information about all devices that have ever been connected to the computer, and for which information is stored in the operating system; or about devices that are connected at the moment when the task is started. Based on the collected information, the task generates a list of allow rules for the Device Control component. You can configure automatic import of generated rules to the list of Device Control component rules, or import the generated rules manually.

  This scenario can be used, for example, if you need to quickly create allow rules for trusted devices that you have used in the past before running the Device Control component for the first time.

  How to run the Rule Generator for Device Control task in the Kaspersky Security Center Administration Console

  1. Open the Kaspersky Security Center Administration Console.

  2. In the console tree, select **Tasks**.

  3. Select the *Rule Generator for Device Control* task and double-click to open the task properties.

     If necessary, create a new task.

  4. In the **Mode** section, select the mode of the task:

     - **Consider system data about all external devices that have ever been connected**.

       The application gets information about all devices that have been connected to the computer from operating system memory.

     - **Consider currently connected external devices only**.

       The application gets information about devices that are connected when the task is started.

5. Enter the path where you want to save the file with data.

6. If you run the task on multiple computers, we recommend selecting the **Add protected device details to the file name** check box.

7. Save your changes.

8. Run the task.

How to run a Rule Generator for Device Control task in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Tasks**.

   The list of tasks opens.

2. Select the *Rule Generator for Device Control* task and double-click to open the task properties.

   If necessary, create a new task.

3. In the **Mode** section, select the mode of the task:

   - **Consider system data about all external devices that have ever been connected**.

     The application gets information about all devices that have been connected to the computer from operating system memory.

   - **Consider currently connected external devices only**.

     The application gets information about devices that are connected when the task is started.

4. Enter the path where you want to save the file with data.

5. If you run the task on multiple computers, we recommend selecting the **Add protected device details to the file name** check box.

6. Save your changes.

7. Run the task.

How to run a Rule Generator for Device Control task in the Web Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Automatic Rule Generation** → **Rule Generator for Device Control**.

2. In the results pane of the **Rule Generator for Device Control** node, click **Properties**.

   The **Properties: Rule Generator for Device Control** window opens.

3. In the **Mode** section, select the mode of the task:

   - **Consider system data about all external devices that have ever been connected**.

     The application gets information about all devices that have been connected to the computer from operating system memory.

   - **Consider currently connected external devices only**.

     The application gets information about devices that are connected when the task is started.

4. In the **After task completes** section, select application actions after the task is completed:

   - **Add allowing rules to the list of Device Control rules**. The list of device control rules is available in the Device Control component settings.

     If this check box is selected, the application adds the rules generated by the task to the list of Device Control rules based on the selected principle for adding rules.

     If this check box is cleared, the application does not add the newly generated allowing rules to the list of Device Control rules. The application only exports rules to a file.

   - **Principle of adding**. A method used to add the newly generated allowing rules to the list of Device Control rules:

     - **Add to existing rules**. The application adds a rule to the list of existing rules. In this case, the application duplicates identical rules.

     - **Replace existing rules**. The application adds new rules instead of existing rules.

     - **Merge with existing rules**. The application adds a rule to the list of existing rules. In this case, the application merges identical rules.

   - **Export allowing rules to file**. The application exports allowing rules to the file specified in the field below. You can then import the file in the application settings on other computers to distribute the allowing rules. The file can also be used to back up the allowing rules.

   - **Add protected device details to the file name**. In addition to the date and time, the application adds the computer name to the exported file name. It is convenient if you collect allowing rules from several computers.

5. Save your changes.

As a result, Kaspersky Embedded Systems Security conducts an audit of external devices and saves the information in the registry of Kaspersky Security Center. The external device list is available when adding trusted devices.

> The *Rule Generator for Device Control* task does not collect information about network printers and Wi-Fi networks connected to devices. For devices of these types, you need to create rules manually.

- Based on the event report generated in Kaspersky Security Center for the Device Control component, running in **Inform** mode.

  Under this scenario, Kaspersky Embedded Systems Security does not block access to devices. When the component Device Control runs in the **Inform** mode, the application allows all devices to be used and logs external device connection and disconnection events.

  How to enable Device Control in Inform mode in the Kaspersky Security Center Administration Console

  1. In the Kaspersky Security Center Administration Console tree, select **Policies**.

  2. Select the necessary policy and double-click to open the policy properties.

  3. In the policy properties window, select **Local activity control**.

  4. In the **Device Control** section, click **Settings**.

  5. Select the **Device Control** check box.

6. Under **Operating mode for blocking rules**, select **Inform**.
7. Save your changes. To apply the policy on computers, close the padlocks.

How to enable Device Control in Inform mode in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Local activity control** → **Device Control** and click the **Configure** button.
   The **Device Control** window opens.
5. Select the **Enable Device Control** check box.
6. Under **Operating mode for blocking rules**, select **Inform**.
7. Save your changes. To apply the policy on computers, close the padlocks.

How to enable Device Control in Inform mode in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.
2. In the results pane of the **Device Control** node, click **Properties**.
   The **Properties: Device Control** window opens.
3. Select the **Device Control** check box.
4. Under **Operating mode for blocking rules**, select **Inform**.
5. Save your changes.

While the component is running, all possible scenarios for protected devices and protected device groups must be executed. Then you can import the information from the Kaspersky Security Center event report to a TXT file and, after reviewing the report, add trusted devices.

This scenario is recommended if a corporate network includes a large number of protected devices of different type with a different set of external devices.

Adding trusted devices

Trusted devices are devices to which users that are specified in the trusted device settings have full access at all times.

To work with trusted devices, you can grant access to an individual user, to a group of users, or to all users of the organization.

For example, if your organization does not allow the use of removable drives but administrators use removable drives in their work, you can allow removable drives only for a group of administrators. To do so, add removable drives to the trusted list and configure user access permissions.

It is not recommended to add more than 1000 trusted devices, as this can cause system instability.

How to add a trusted device in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Under **Devices monitoring settings**, select the **Trusted devices** tab.

   This opens the list of trusted devices.
6. Select the **Merge values when inheriting** check box if you want to create a consolidated list of trusted devices for all computers in the company.

   The lists of trusted devices in the parent and child policies will be merged. The lists will be merged provided that merging values when inheriting is enabled. Trusted devices from the parent policy are displayed in child policies in a read-only view. Changing or deleting trusted devices of the parent policy is not possible.
7. Click the **Add** button and select a method for adding a device to the trusted list:

   - **Generate rules based on connected devices**.
   - **Generate rules based on system data**.
   - **Generate rules based on Kaspersky Security Center registry**.

   If the list of devices is empty, you must conduct an audit of external devices. To do so, run the *Rule Generator for Device Control* task.

   Kaspersky Embedded Systems Security does not support adding devices of the **Floppy disks** type to the trusted list.
8. Click **Add rules for selected devices**.
9. Save your changes. To apply the policy on computers, close the padlocks.

How to add a trusted device in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.

4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.

5. In the **Device Control Settings** block, click **Trusted devices**.

   This opens the list of trusted devices.

6. Select the **Merge values when inheriting** check box if you want to create a consolidated list of trusted devices for all computers in the company.

   The lists of trusted devices in the parent and child policies will be merged. The lists will be merged provided that merging values when inheriting is enabled. Trusted devices from the parent policy are displayed in child policies in a read-only view. Changing or deleting trusted devices of the parent policy is not possible.

7. Click **From KSC registry**.

   If the list of devices is empty, you must conduct an audit of external devices. To do so, run the *Rule Generator for Device Control* task.

   > Kaspersky Embedded Systems Security does not support adding devices of the **Floppy disks** type to the trusted list.

8. Save your changes. To apply the policy on computers, close the padlocks.

How to add a trusted device in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.

2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.

3. Under **Device Control settings**, select the **Trusted devices** tab.

   This opens the list of trusted devices.

4. Click the **Add** button and select a method for adding a device to the trusted list:

   - **Generate rules based on connected devices**.
   - **Generate rules based on system data**.
   - **Generate rules based on Kaspersky Security Center registry**.

   If the list of devices is empty, you must conduct an audit of external devices. To do so, run the *Rule Generator for Device Control* task.

   > Kaspersky Embedded Systems Security does not support adding devices of the **Floppy disks** type to the trusted list.

5. Click **Add rules for selected devices**.

6. Save your changes.

Exporting and importing the list of trusted devices

To distribute the list of trusted devices to other computers in your organization, you can use the export/import procedure. You can export the list of trusted devices to an XML file. Then you can modify the file to, for example, add a large number of devices of the same type. You can use the export/import function to back up the list of trusted devices or to migrate the list to a different server.

Kaspersky Embedded Systems Security allows importing the list of trusted devices from Kaspersky Endpoint Security for Windows. The XML file format for these applications is the same.

How to export and import a list of trusted devices in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Local activity control**.
4. In the **Device Control** section, click **Settings**.
5. Under **Device Control settings**, select the **Trusted devices** tab.

   This opens the list of trusted devices.
6. To export the list of trusted devices:

   a. If you want to export the entire list, click the button and select **Export**.

   b. If you want to export only part of the list, follow these steps:

      1. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.
      2. Click the button and select **Export selected**.

   c. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.

      Kaspersky Embedded Systems Security exports the list of trusted devices to the XML file.
7. To import the list of trusted devices:

   a. Click **Add** → **Import rules from XML file** and select an import mode: add or replace.

      In the window that opens, select the XML file from which you want to import the list of trusted devices.

      In merge mode, the application checks the lists of trusted devices and removes duplicate entries. In add mode, the application adds entries to the trusted application list without checking for duplicates.

   b. Open the file.

      Kaspersky Embedded Systems Security imports trusted devices according to the selected mode.
8. Save your changes. To apply the policy on computers, close the padlocks.

How to export and import a list of trusted devices in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Local activity control** → **Device Control** and click the **Configure** button.

   The **Device Control** window opens.
5. In the **Device Control Settings** block, click **Trusted devices**.

   This opens the list of trusted devices.
6. To export the list of trusted devices:

   a. Select the trusted devices that you want to export.

   b. Click the **Export** button and select the export mode: export the whole list of trusted devices or only selected trusted devices.

   c. Save the file.

   Kaspersky Embedded Systems Security exports the list of web resource addresses to a XML file.
7. To import the list of trusted devices:

   a. Click the **Import** button and select an import mode: add or replace.

   b. In the window that opens, select the XML file from which you want to import the list of web resources.

   c. Open the file.

   Kaspersky Embedded Systems Security imports trusted devices according to the selected mode.
8. Save your changes. To apply the policy on computers, close the padlocks.

How to export and import a list of trusted devices in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Device Control**.
2. In the results pane of the **Device Control** node, click **Properties**.

   The **Properties: Device Control** window opens.
3. Under **Device Control settings**, select the **Trusted devices** tab.

   This opens the list of trusted devices.

4. To export the list of trusted devices:

   a. If you want to export the entire list, click the button and select **Export**.

   b. If you want to export only part of the list, follow these steps:

      1. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.

      2. Click the button and select **Export selected**.

   c. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.

      Kaspersky Embedded Systems Security exports the list of trusted devices to the XML file.

5. To import the list of trusted devices:

   a. Click **Add** → **Import rules from XML file** and select an import mode: add or replace.

      In the window that opens, select the XML file from which you want to import the list of web resources.

      In merge mode, the application checks the lists of trusted devices and removes duplicate entries. In add mode, the application adds entries to the trusted application list without checking for duplicates.

   b. Open the file.

      Kaspersky Embedded Systems Security imports trusted devices according to the selected mode.

6. Save your changes.

Firewall

The Firewall component can work in the following modes:

- **Observe the state of Windows Firewall**. The mode is intended for smooth transition from the logic of the Firewall Management task in the application version 3.4 and earlier to the full-featured Firewall in the application version 4.0 and later. When you upgrade the application version 3.4 and earlier, the rules of the Firewall Management task integrated into the Windows Firewall are retained. But the Firewall component no longer interacts with Windows Firewall, but only monitors Windows Firewall traffic filtering and records the corresponding events in the component's operation log. You can then create Firewall rules and/or import Windows Firewall rules and change the Firewall operating mode to **Inform**.

- **Inform**. The application only monitors the operation of the Firewall rules and records the corresponding events in the component's operation log. The mode is intended for testing the Firewall rules. You can evaluate their applicability using the Firewall operation log. Then, if necessary, you can adjust the Firewall rules and change the Firewall operation mode to **Block**.

- **Block**. The application filters network traffic in accordance with the component settings and records the corresponding events in the component's operation log.

About Firewall rules

If the **Block** mode is selected, the Firewall component filters network traffic using Firewall rules.

Firewall rules for applications control network connections for specified applications. The triggering criterion for these rules is based on the path to an executable application file.

Firewall port rules control network connections for specified ports and protocols (TCP / UDP). The triggering criteria for such rules are protocol type and port or port range.

> Port rules involve a broader scope than application rules. By allowing network connections based on port rules, you lower the security level of the protected computer.

Configuring the Firewall

This section provides instructions on configuring general settings of the Firewall component and creating and configuring Firewall rules.

Configuring general Firewall settings

Configuring general settings of the Firewall component in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the **Network activity control** section, click the **Settings** button in the **Firewall** subsection.

   The **Firewall** window opens.
4. On the **General** tab in the **Operating mode for blocking rules** block, select the component operating mode:

   - **Observe the state of Windows Firewall**. The mode is intended for smooth transition from the logic of the Firewall Management task in the application version 3.4 and earlier to the full-featured Firewall in the application version 4.0 and later. When you upgrade the application version 3.4 and earlier, the rules of the Firewall Management task integrated into the Windows Firewall are retained. But the Firewall component no longer interacts with Windows Firewall, but only monitors Windows Firewall traffic filtering and records the corresponding events in the component's operation log. You can then create Firewall rules and/or import Windows Firewall rules and change the Firewall operating mode to **Inform**.
   - **Inform**. The application only monitors the operation of the Firewall rules and records the corresponding events in the component's operation log. The mode is intended for testing the Firewall rules. You can evaluate their applicability using the Firewall operation log. Then, if necessary, you can adjust the Firewall rules and change the Firewall operation mode to **Block**.
   - **Block**. The application filters network traffic in accordance with the component settings and records the corresponding events in the component's operation log.
5. In the **Inbound connections** block, configure the settings for incoming network connections:

   - Use the **Action for inbound connections** drop-down list to specify the action that the application performs for all incoming network connections, unless otherwise defined in the Firewall rules for incoming connections.
   - If necessary, add Firewall rules for incoming connections.

     Firewall rules for incoming connections perform the role of exclusions. For example, if you configure an allowing rule for incoming network connections, and you select **Block** in the **Action for inbound connections** drop-down list, the application allows incoming network connections that match the rule criteria.

6. In the **Outbound connections** block, configure the settings for outgoing network connections:

   - Use the **Action for outbound connections** drop-down list to specify the action that the application performs for all outgoing network connections, unless otherwise defined in the Firewall rules for outgoing connections.

   - If necessary, add Firewall rules for outgoing connections.

     Firewall rules for outgoing connections perform the role of exclusions. For example, if you configure a blocking rule for outgoing network connections, and select **Allow** in the **Action for outbound connections** drop-down list, the application blocks outgoing network connections that match the rule criteria.

7. Save your changes.

Kaspersky Embedded Systems Security applies the new settings. The date and time when the settings were changed are saved in the system audit log.

Configuring general settings of the Firewall component in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. In the **Network activity control** section, click the **Configure** button in the **Firewall** subsection.

   The **Firewall** window opens.

5. Set the toggle switch to **Firewall ENABLED**.

6. In the **Operating mode for blocking rules** block, select the component operating mode:

   - **Observe the state of Windows Firewall**. The mode is intended for smooth transition from the logic of the Firewall Management task in the application version 3.4 and earlier to the full-featured Firewall in the application version 4.0 and later. When you upgrade the application version 3.4 and earlier, the rules of the Firewall Management task integrated into the Windows Firewall are retained. But the Firewall component no longer interacts with Windows Firewall, but only monitors Windows Firewall traffic filtering and records the corresponding events in the component's operation log. You can then create Firewall rules and/or import Windows Firewall rules and change the Firewall operating mode to **Inform**.

   - **Inform**. The application only monitors the operation of the Firewall rules and records the corresponding events in the component's operation log. The mode is intended for testing the Firewall rules. You can evaluate their applicability using the Firewall operation log. Then, if necessary, you can adjust the Firewall rules and change the Firewall operation mode to **Block**.

   - **Block**. The application filters network traffic in accordance with the component settings and records the corresponding events in the component's operation log.

7. In the **Inbound connections** block, configure the settings for incoming network connections:

   - Use the **Action for inbound connections** drop-down list to specify the action that the application performs for all incoming network connections, unless otherwise defined in the Firewall rules for incoming connections.

   - If necessary, add Firewall rules for incoming connections.

     Firewall rules for incoming connections perform the role of exclusions. For example, if you configure an allowing rule for incoming network connections, and you select **Block** in the **Action for inbound connections** drop-down list, the application allows incoming network connections that match the rule criteria.

8. In the **Outbound connections** block, configure the settings for outgoing network connections:

   - Use the **Action for outbound connections** drop-down list to specify the action that the application performs for all outgoing network connections, unless otherwise defined in the Firewall rules for outgoing connections.

   - If necessary, add Firewall rules for outgoing connections.

     Firewall rules for outgoing connections perform the role of exclusions. For example, if you configure a blocking rule for outgoing network connections, and select **Allow** in the **Action for outbound connections** drop-down list, the application blocks outgoing network connections that match the rule criteria.

9. Save your changes.

Kaspersky Embedded Systems Security applies the new settings. The date and time when the settings were changed are saved in the system audit log.

Configuring general settings of the Firewall component in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Firewall**.

2. In the results pane of the **Firewall** node, click **Properties**.

   The **Properties: Firewall** window opens.

3. Select the **Firewall** check box.

4. In the **Operating mode for blocking rules** block, select the component operating mode:

   - **Observe the state of Windows Firewall**. The mode is intended for smooth transition from the logic of the Firewall Management task in the application version 3.4 and earlier to the full-featured Firewall in the application version 4.0 and later. When you upgrade the application version 3.4 and earlier, the rules of the Firewall Management task integrated into the Windows Firewall are retained. But the Firewall component no longer interacts with Windows Firewall, but only monitors Windows Firewall traffic filtering and records the corresponding events in the component's operation log. You can then create Firewall rules and/or import Windows Firewall rules and change the Firewall operating mode to **Inform**.

   - **Inform**. The application only monitors the operation of the Firewall rules and records the corresponding events in the component's operation log. The mode is intended for testing the Firewall rules. You can evaluate their applicability using the Firewall operation log. Then, if necessary, you can adjust the Firewall rules and change the Firewall operation mode to **Block**.

   - **Block**. The application filters network traffic in accordance with the component settings and records the corresponding events in the component's operation log.

5. In the **Inbound connections** block, configure the settings for incoming network connections:

   - Use the **Action for inbound connections** drop-down list to specify the action that the application performs for all incoming network connections, unless otherwise defined in the Firewall rules for incoming connections.

   - If necessary, add Firewall rules for incoming connections.

     Firewall rules for incoming connections perform the role of exclusions. For example, if you configure an allowing rule for incoming network connections, and you select **Block** in the **Action for inbound connections** drop-down list, the application allows incoming network connections that match the rule criteria.

6. In the **Outbound connections** block, configure the settings for outgoing network connections:

   - Use the **Action for outbound connections** drop-down list to specify the action that the application performs for all outgoing network connections, unless otherwise defined in the Firewall rules for outgoing connections.

   - If necessary, add Firewall rules for outgoing connections.

     Firewall rules for outgoing connections perform the role of exclusions. For example, if you configure a blocking rule for outgoing network connections, and select **Allow** in the **Action for outbound connections** drop-down list, the application blocks outgoing network connections that match the rule criteria.

7. Save your changes.

Kaspersky Embedded Systems Security applies the new settings. The date and time when the settings were changed are saved in the system audit log.

Creating and configuring Firewall rules

Creating and configuring Firewall rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the **Network activity control** section, click the **Settings** button in the **Firewall** subsection.

   The **Firewall** window opens.
4. In the **Inbound connections** block, click the **Rules list** button.

   The **Rules for inbound connections** window opens.
5. **Create and configure Firewall rules for incoming connections**.

   1. On the **Applications** tab, click the **Add** button.

      The **Rule for an application** window opens.

2. Configure the rule settings:

   a. In the **Rule name** field, enter the name of the rule.

      The name of the rule, regardless of the case of characters, must not match the reserved names All, ICMPv4, and ICMPv6; it must be unique in the list of all rules for inbound network connections.

   b. In the **Action** list, select one of the options:

      - **Allow**. If this option is selected, the application allows incoming network connections for the application.
      - **Block**. If this option is selected, the application blocks incoming network connections for the application.

   c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

   d. In the **Ports** and **Ports** blocks, specify a port or range of ports.

   e. In the **Application path** field, manually or by using the **Browse** button, specify the path to the executable file of the application for which you are configuring the rule.

   f. In the **Service name** field, if necessary, specify the name of the service for which the rule will be applied.

   g. In the **Rule usage scope** field, specify network addresses. The application monitors incoming connections from the specified network addresses in accordance with the rule settings.

      Only the IPv4 format is supported for IP addresses.

   h. In the **Network adapters** block, specify the list of network adapters.

   i. Click the **OK** button to save the rule.

3. On the **Ports** tab, click the **Add** button.

   The **Rule for ports** window opens.

4. Configure the rule settings:

   a. In the **Rule name** field, enter the name of the rule.

   b. In the **Action** list, select one of the options:

      - **Allow**. If this option is selected, the application allows incoming network connections for the ports.
      - **Block**. If this option is selected, the application blocks incoming network connections for the ports.

   c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

   d. In the **Ports** and **Ports** blocks, specify a port or range of ports.

e. In the **Rule usage scope** field, specify network addresses. The application monitors incoming connections from the specified network addresses in accordance with the rule settings.

> Only the IPv4 format is supported for IP addresses.

f. In the **Network adapters** block, specify the list of network adapters.

g. Click the **OK** button to save the rule.

5. Click the **OK** button in the **Rules for inbound connections** window.

6. In the **Outbound connections** block, click the **Rules list** button.

   The **Rules for outbound connections** window opens.

7. **Create and configure Firewall rules for outgoing connections**.

   1. On the **Applications** tab, click the **Add** button.

      The **Rule for an application** window opens.

   2. Configure the rule settings:

      a. In the **Rule name** field, enter the name of the rule.

      > The name of the rule, regardless of the case of characters, must not match the reserved names All, ICMPv4, and ICMPv6; it must be unique in the list of all rules for outbound network connections.

      b. In the **Action** list, select one of the options:

      - **Allow**. If this option is selected, the application allows outgoing network connections for the application.
      - **Block**. If this option is selected, the application blocks outgoing network connections for the application.

      c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

      d. In the **Ports** and **Ports** blocks, specify a port or range of ports.

      e. In the **Application path** field, manually or by using the **Browse** button, specify the path to the executable file of the application for which you are configuring the rule.

      f. In the **Service name** field, if necessary, specify the name of the service for which the rule will be applied.

      g. In the **Rule usage scope** field, specify network addresses. The application monitors outgoing connections to the specified network addresses in accordance with the rule settings.

      > Only the IPv4 format is supported for IP addresses.

h. In the **Network adapters** block, specify the list of network adapters.

i. Click the **OK** button to save the rule.

3. On the **Ports** tab, click the **Add** button.

   The **Rule for ports** window opens.

4. Configure the rule settings:

   a. In the **Rule name** field, enter the name of the rule.

   b. In the **Action** list, select one of the options:

   - **Allow**. If this option is selected, the application allows outgoing network connections for the ports.
   - **Block**. If this option is selected, the application blocks outgoing network connections for the ports.

   c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

   d. In the **Ports** and **Ports** blocks, specify a port or range of ports.

   e. In the **Rule usage scope** field, specify network addresses. The application monitors outgoing connections to the specified network addresses in accordance with the rule settings.

   > Only the IPv4 format is supported for IP addresses.

   f. In the **Network adapters** block, specify the list of network adapters.

   g. Click the **OK** button to save the rule.

5. Click the **OK** button in the **Rules for outbound connections** window.

8. If you want to import or export custom rules from an XML file, use the **Import** or **Export** buttons in the **Import and export of rules** block.

9. Save your changes.

Kaspersky Embedded Systems Security applies the new settings. The date and time when the settings were changed are saved in the system audit log.

Creating and configuring Firewall rules in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. In the **Network activity control** section, click the **Configure** button in the **Firewall** subsection.

   The **Firewall** window opens.

5. Set the toggle switch to **Firewall ENABLED**.

6. In the **Inbound connections** block, click the **Configure** button.

   The **Rules for inbound connections** window opens.

7. **Create and configure Firewall rules for incoming connections**.

   1. On the **Ports** tab, click the **Add** button.

      The **Rule for ports** window opens.

   2. Configure the rule settings:

      a. In the **Rule name** field, enter the name of the rule.

      b. In the **Action** list, select one of the options:

      - **Allow**. If this option is selected, the application allows incoming network connections for the ports.
      - **Deny**. If this option is selected, the application blocks incoming network connections for the ports.

      c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

      d. In the **Local ports** and **Remote ports** blocks, specify a port or range of ports.

      e. In the **Rule usage scope** field, specify network addresses. The application monitors incoming connections to the specified network addresses in accordance with the rule settings.

      > Only the IPv4 format is supported for IP addresses.

      f. In the **Network adapters** block, specify the list of network adapters.

      g. Click the **OK** button to save the rule.

   3. On the **Applications** tab, click the **Add** button.

      The **Rule for applications** window opens.

   4. Configure the rule settings:

      a. In the **Rule name** field, enter the name of the rule.

      > The name of the rule, regardless of the case of characters, must not match the reserved names All, ICMPv4, and ICMPv6; it must be unique in the list of all rules for inbound network connections.

      b. In the **Action** list, select one of the options:

      - **Allow**. If this option is selected, the application allows incoming network connections for the application.
      - **Deny**. If this option is selected, the application blocks incoming network connections for the application.

c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

d. In the **Local ports** and **Remote ports** blocks, specify a port or range of ports.

e. In the **Application path** field, manually specify the path to the executable file of the application for which you are configuring the rule.

f. In the **Service name** field, if necessary, specify the name of the service for which the rule will be applied.

g. In the **Rule usage scope** field, specify network addresses. The application monitors incoming connections from the specified network addresses in accordance with the rule settings.

> Only the IPv4 format is supported for IP addresses.

h. In the **Network adapters** block, specify the list of network adapters.

i. Click the **OK** button to save the rule.

5. Click the **OK** button in the **Rules for inbound connections** window.

8. In the **Outbound connections** block, click the **Configure** button.

   The **Rules for outbound connections** window opens.

9. **Create and configure Firewall rules for outgoing connections**.

   1. On the **Ports** tab, click the **Add** button.

      The **Rule for ports** window opens.

   2. Configure the rule settings:

      a. In the **Rule name** field, enter the name of the rule.

      b. In the **Action** list, select one of the options:

      - **Allow**. If this option is selected, the application allows outgoing network connections for the ports.
      - **Deny**. If this option is selected, the application blocks outgoing network connections for the ports.

      c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

      d. In the **Local ports** and **Remote ports** blocks, specify a port or range of ports.

      e. In the **Rule usage scope** field, specify network addresses. The application monitors outgoing connections to the specified network addresses in accordance with the rule settings.

      > Only the IPv4 format is supported for IP addresses.

      f. In the **Network adapters** block, specify the list of network adapters.

      g. Click the **OK** button to save the rule.

3. On the **Applications** tab, click the **Add** button.

   The **Rule for applications** window opens.

4. Configure the rule settings:

   a. In the **Rule name** field, enter the name of the rule.

   > The name of the rule, regardless of the case of characters, must not match the reserved names All, ICMPv4, and ICMPv6; it must be unique in the list of all rules for outbound network connections.

   b. In the **Action** list, select one of the options:

   - **Allow**. If this option is selected, the application allows outgoing network connections for the application.
   - **Deny**. If this option is selected, the application blocks outgoing network connections for the application.

   c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

   d. In the **Local ports** and **Remote ports** blocks, specify a port or range of ports.

   e. In the **Application path** field, manually specify the path to the executable file of the application for which you are configuring the rule.

   f. In the **Service name** field, if necessary, specify the name of the service for which the rule will be applied.

   g. In the **Rule usage scope** field, specify network addresses. The application monitors outgoing connections to the specified network addresses in accordance with the rule settings.

   > Only the IPv4 format is supported for IP addresses.

   h. In the **Network adapters** block, specify the list of network adapters.

   i. Click the **OK** button to save the rule.

5. Click the **OK** button in the **Rules for outbound connections** window.

10. If you want to import or export custom rules from an XML file, use the **Import of rules** or **Export of rules** buttons in the **Import and export of rules** block.

11. Save your changes.

Kaspersky Embedded Systems Security applies the new settings. The date and time when the settings were changed are saved in the system audit log.

Creating and configuring Firewall rules in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Firewall**.
2. In the results pane of the **Firewall** node, click **Properties**.

   The **Properties: Firewall** window opens.
3. In the **Inbound connections** block, click the **Rules list** button.

   The **Rules for inbound connections** window opens.
4. **Create and configure Firewall rules for incoming connections**.

   1. On the **Applications** tab, click the **Add** button.

      The **Rule for an application** window opens.
   2. Configure the rule settings:

      a. In the **Rule name** field, enter the name of the rule.

      > The name of the rule, regardless of the case of characters, must not match the reserved names All, ICMPv4, and ICMPv6; it must be unique in the list of all rules for inbound network connections.

      b. In the **Action** list, select one of the options:

      - **Allow**. If this option is selected, the application allows incoming network connections for the application.
      - **Block**. If this option is selected, the application blocks incoming network connections for the application.

      c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

      d. In the **Ports** and **Ports** blocks, specify a port or range of ports.

      e. In the **Application path** field, manually or by using the **Browse** button, specify the path to the executable file of the application for which you are configuring the rule.

      f. In the **Service name** field, if necessary, specify the name of the service for which the rule will be applied.

      g. In the **Rule usage scope** field, specify network addresses. The application monitors incoming connections from the specified network addresses in accordance with the rule settings.

      > Only the IPv4 format is supported for IP addresses.

      h. In the **Network adapters** block, specify the list of network adapters.

      i. Click the **OK** button to save the rule.
   3. On the **Ports** tab, click the **Add** button.

      The **Rule for ports** window opens.

4. Configure the rule settings:

    a. In the **Rule name** field, enter the name of the rule.

    b. In the **Action** list, select one of the options:

    - **Allow**. If this option is selected, the application allows incoming network connections for the ports.
    - **Block**. If this option is selected, the application blocks incoming network connections for the ports.

    c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

    d. In the **Ports** and **Ports** blocks, specify a port or range of ports.

    e. In the **Rule usage scope** field, specify network addresses. The application monitors incoming connections from the specified network addresses in accordance with the rule settings.

    > Only the IPv4 format is supported for IP addresses.

    f. In the **Network adapters** block, specify the list of network adapters.

    g. Click the **OK** button to save the rule.

5. Click the **OK** button in the **Rules for inbound connections** window.

5. In the **Outbound connections** block, click the **Rules list** button.

   The **Rules for outbound connections** window opens.

6. **Create and configure Firewall rules for outgoing connections**.

    1. On the **Applications** tab, click the **Add** button.

       The **Rule for an application** window opens.

    2. Configure the rule settings:

        a. In the **Rule name** field, enter the name of the rule.

        > The name of the rule, regardless of the case of characters, must not match the reserved names All, ICMPv4, and ICMPv6; it must be unique in the list of all rules for outbound network connections.

        b. In the **Action** list, select one of the options:

        - **Allow**. If this option is selected, the application allows outgoing network connections for the application.
        - **Block**. If this option is selected, the application blocks outgoing network connections for the application.

        c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

d. In the **Ports** and **Ports** blocks, specify a port or range of ports.

e. In the **Application path** field, manually or by using the **Browse** button, specify the path to the executable file of the application for which you are configuring the rule.

f. In the **Service name** field, if necessary, specify the name of the service for which the rule will be applied.

g. In the **Rule usage scope** field, specify network addresses. The application monitors outgoing connections to the specified network addresses in accordance with the rule settings.

> Only the IPv4 format is supported for IP addresses.

h. In the **Network adapters** block, specify the list of network adapters.

i. Click the **OK** button to save the rule.

3. On the **Ports** tab, click the **Add** button.

   The **Rule for ports** window opens.

4. Configure the rule settings:

   a. In the **Rule name** field, enter the name of the rule.

   b. In the **Action** list, select one of the options:

   - **Allow**. If this option is selected, the application allows outgoing network connections for the ports.
   - **Block**. If this option is selected, the application blocks outgoing network connections for the ports.

   c. Select the **Protocol** check box, to select the protocol type for which the application controls incoming network connections.

   d. In the **Ports** and **Ports** blocks, specify a port or range of ports.

   e. In the **Rule usage scope** field, specify network addresses. The application monitors outgoing connections to the specified network addresses in accordance with the rule settings.

   > Only the IPv4 format is supported for IP addresses.

   f. In the **Network adapters** block, specify the list of network adapters.

   g. Click the **OK** button to save the rule.

5. Click the **OK** button in the **Rules for outbound connections** window.

7. If you want to import or export custom rules from an XML file, use the **Import** or **Export** buttons in the **Import and export of rules** block.

8. To import Windows Firewall rules, click **Import Windows Firewall rules**.

   On Windows 11 24H2 computers, the application may skip certain Windows Firewall rules. Because of special features of this version of the operating system, Kaspersky Embedded Systems Security may not recognize the parameters of some rules for application packets.

9. Save your changes.

Kaspersky Embedded Systems Security applies the new settings. The date and time when the settings were changed are saved in the system audit log.

Enabling and disabling Firewall rules

Enabling and disabling Firewall rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the **Network activity control** section, click the **Settings** button in the **Firewall** subsection.

   The **Firewall** window opens.
4. In the window that opens, click the **Rules list** button in the **Inbound connections** or **Outbound connections** section, depending on the type of rule whose status you want to change.
5. In the window that opens, select the **Applications** or **Ports** tab.

   In the rule list, select the rule whose status you want to modify and perform one of the following actions:

   - If you want to enable a disabled rule, select the check box to the left of the rule name.

     The selected rule is enabled.
   - If you want to disable an enabled rule, clear the check box to the left of the rule name.

     The selected rule is disabled.
6. To delete rules from the list, select the rules and click **Delete**.
7. Save your changes.

Enabling and disabling Firewall rules in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. In the **Network activity control** section, click the **Configure** button in the **Firewall** subsection.

   The **Firewall** window opens.

5. In the window that opens, click the **Configure** button in the **Inbound connections** or **Outbound connections** section, depending on the type of rule whose status you want to change.

6. In the window that opens, select the **Ports** or **Applications** tab.

   In the rule list, select the rule whose status you want to modify and perform one of the following actions:

   - If you want to enable a disabled rule, select the check box to the left of the rule name.

     The selected rule is enabled.

   - If you want to disable an enabled rule, clear the check box to the left of the rule name.

     The selected rule is disabled.

7. To delete rules from the list, select the rules and click **Delete**.

8. Save your changes.

Enabling and disabling Firewall rules in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Computer Control** → **Firewall**.

2. In the results pane of the **Firewall** node, click **Properties**.

   The **Properties: Firewall** window opens.

3. In the window that opens, click the **Rules list** button in the **Inbound connections** or **Outbound connections** section, depending on the type of rule whose status you want to change.

4. In the window that opens, select the **Applications** or **Ports** tab.

   In the rule list, select the rule whose status you want to modify and perform one of the following actions:

   - If you want to enable a disabled rule, select the check box to the left of the rule name.

     The selected rule is enabled.

   - If you want to disable an enabled rule, clear the check box to the left of the rule name.

     The selected rule is disabled.

5. To delete rules from the list, select the rules and click **Delete**.

6. Save your changes.

BadUSB Attack Prevention

The BadUSB Attack Prevention component is not installed by default. You can add a component during application installation or change the set of application components after the application is installed.

Some viruses modify the firmware of USB devices to trick the operating system into detecting the USB device as a keyboard. As a result, the virus may execute commands under your user account to download malware, for example.

The BadUSB Attack Prevention component prevents infected USB devices emulating a keyboard from connecting to the computer.

When a USB device is connected to the computer and identified as a keyboard by the operating system, the application prompts the user to enter a numerical code generated by the application from this keyboard or using On-Screen Keyboard if available. This procedure is known as keyboard authorization.

If the code has been entered correctly, the application saves the identification parameters—VID/PID of the keyboard and the number of the port to which it has been connected—in the list of authorized keyboards. Keyboard authorization does not need to be repeated when the keyboard is reconnected or after the operating system is restarted.

When the authorized keyboard is connected to a different USB port of the computer, the application shows a prompt for re-authorization of this keyboard.

If the numerical code has been entered incorrectly, the application generates a new code. You can configure the number of attempts for entering the numerical code. If the numerical code is entered incorrectly several times or the keyboard authorization window is closed, the application blocks input from this keyboard. When the USB device blocking time elapses or the operating system is restarted, the application prompts the user to perform keyboard authorization again.

The application allows use of an authorized keyboard and blocks a keyboard that has not been authorized.

USB devices identified by the operating system as keyboards and connected to the computer before installation of the BadUSB Attack Prevention component are considered authorized after installation of the component.

How to enable and configure the BadUSB Attack Prevention component in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Local activity control** section.
4. In the **BadUSB Attack Prevention** block, click the **Settings** button.

   The **BadUSB Attack Prevention** window opens.
5. Use the **BadUSB Attack Prevention** check box to enable or disable the component.

6. In the **Authorization of USB devices** section, configure the following settings:

   - **Maximum number of USB device authorization attempts**. Automatically blocking the USB device if the authorization code is entered incorrectly the specified number of times. Valid values are 1 to 10. For example, if you allow five attempts to enter the authorization code, the application blocks the USB device after the fifth unsuccessful attempt. Kaspersky Embedded Systems Security displays the blocking duration for the USB device. After this time elapses, you can have five attempts to enter the authorization code.

   - **Timeout when reaching the maximum number of attempts (minutes)**. Blocking duration of the USB device after the specified number of failed attempts to enter the authorization code. Valid values are 1 to 180 (minutes).

7. In the **USB device authorization upon connection** section, configure the following settings:

   - **Prohibit use of On-Screen Keyboard for authorization of USB devices**. If the check box is selected, the application blocks use of On-Screen Keyboard for authorization of USB devices from which an authorization code cannot be entered (e.g. barcode scanners).

   - **Prohibit use of a barcode for authorization of USB devices**. If the check box is selected, the application does not show the barcode in the barcode scanner authorization notification.

8. Close the padlocks to apply the policy to computers.

9. Click **OK** to save the changes.

How to enable and configure the BadUSB Attack Prevention component in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Select the **Local activity control** section.

5. In the **BadUSB Attack Prevention** block, click the **Configure** button.

   The **BadUSB Attack Prevention** window opens.

6. Use the **BadUSB Attack Prevention** toggle to enable or disable the component.

7. Enable or disable the **Prohibit use of On-Screen Keyboard for authorization of USB devices ENABLED** toggle switch to allow or block the use of On-Screen Keyboard for authorization of USB devices from which an authorization code cannot be entered (e.g. barcode scanners).

8. Enable or disable the **Prohibit use of a barcode for authorization of USB devices ENABLED** toggle switch to allow or block the display of a barcode in the notification for barcode scanner authorization.

9. In the **Authorization of USB devices** section, configure the following settings:

    - **Maximum number of USB device authorization attempts (1-10)**. Automatically blocking the USB device if the authorization code is entered incorrectly the specified number of times. Valid values are 1 to 10. For example, if you allow five attempts to enter the authorization code, the application blocks the USB device after the fifth unsuccessful attempt. Kaspersky Embedded Systems Security displays the blocking duration for the USB device. After this time elapses, you can have five attempts to enter the authorization code.

    - **Timeout when reaching the maximum number of attempts in minutes (1-180)**. Blocking duration of the USB device after the specified number of failed attempts to enter the authorization code. Valid values are 1 to 180 (minutes).

10. Close the padlocks to apply the policy to computers.

11. Click **OK** to save the changes.

How to enable and configure the BadUSB Attack Prevention component in the Application Console

1. In the Application Console tree, select the **Computer Control** → **BadUSB Attack Prevention** section.

2. Click the **Properties** link in the results pane.

    The **BadUSB Attack Prevention** window opens.

3. Use the **BadUSB Attack Prevention** check box to enable or disable the component.

4. In the **Authorization of USB devices** section, configure the following settings:

    - **Maximum number of USB device authorization attempts**. Automatically blocking the USB device if the authorization code is entered incorrectly the specified number of times. Valid values are 1 to 10. For example, if you allow five attempts to enter the authorization code, the application blocks the USB device after the fifth unsuccessful attempt. Kaspersky Embedded Systems Security displays the blocking duration for the USB device. After this time elapses, you can have five attempts to enter the authorization code.

    - **Timeout when reaching the maximum number of attempts (minutes)**. Blocking duration of the USB device after the specified number of failed attempts to enter the authorization code. Valid values are 1 to 180 (minutes).

5. In the **USB device authorization upon connection** section, configure the following settings:

    - **Prohibit use of On-Screen Keyboard for authorization of USB devices**. If the check box is selected, the application blocks use of On-Screen Keyboard for authorization of USB devices from which an authorization code cannot be entered (e.g. barcode scanners).

    - **Prohibit use of a barcode for authorization of USB devices**. If the check box is selected, the application does not show the barcode in the barcode scanner authorization notification.

6. Click **OK** to save the changes.

System Integrity Monitoring

Kaspersky Embedded Systems Security 4.0 now includes the System Integrity Monitoring component instead of the File Integrity Monitor component. System Integrity Monitoring includes all functionality of File Integrity Monitor and additionally allows monitoring registry changes and connection of external devices.

System Integrity Monitoring monitors changes in the operating system that may indicate computer security breaches. When such changes are detected, Kaspersky Embedded Systems Security generates corresponding events and alerts the administrator. System Integrity Monitoring can operate in real-time mode and can also perform system integrity checks on demand.

Real-Time System Integrity Monitoring

In real-time mode, System Integrity Monitoring tracks changes in objects that you included in the component's scope (the monitoring scope). System Integrity Monitoring also allows blocking unauthorized access to such objects in real time.

On-Demand System Integrity Check

On-Demand System Integrity Check is a task that you can run manually or on a schedule. To run the **Baseline System Integrity Monitor** task, you must configure the scope of the component (the monitoring scope) and create a baseline. A baseline is a recorded state of objects in the system, which the application uses as reference when comparing to the current state. A baseline is created when the task is first started.

Migrating File Integrity Monitor settings

When you update Kaspersky Embedded Systems Security version 3.4 or earlier to version 4.1, File Integrity Monitor and Registry access monitoring settings are migrated automatically. As part of the migration, the application moves the monitoring rules to System Integrity Monitoring.

About System Integrity Monitoring rules

For System Integrity Monitoring to work, you must add at least one rule. A *System Integrity Monitoring rule* is a set of criteria that define the access of users to files or the registry. System Integrity Monitoring detects changes in the files or the registry within the specified *monitoring scope*. The monitoring scope is one of the criteria of a System Integrity Monitoring rule.

System Integrity Monitoring allows monitoring the following objects:

- Files
- Registry
- External devices

Special considerations involved in file monitoring

System Integrity Monitoring monitors changes in files and folders as well as files being added to the monitoring scope or removed from it. These changes may indicate a computer security breach. We recommend adding rarely modified objects or objects that only the administrator has access to. This helps reduce the number of System Integrity Monitoring events.

Kaspersky Embedded Systems Security monitors the changes of files and folders only on those disks that were connected when Real-Time System Integrity Monitoring began operating. If a disk was not connected when Real-Time System Integrity Monitoring began operating, the application does not monitor the changes of files and folders on that disk even if the files and folders are added to the monitoring scope.

The application generates the Object creation event when one of the following actions is recorded: creating a file, increasing file size, rewriting file data, or truncating a file. Accordingly, if the Object creation event is generated for a file during Applications Launch Control blocking rules operation, this may result from either prohibited file creation or prohibited file modification, including operations such as increasing file size, rewriting data, and truncating.

Special considerations involved in registry monitoring

System Integrity Monitoring monitors the registry. These changes may indicate a computer security breach.

System Integrity Monitoring monitors the following root keys of the registry:

- `HKCR`
- `HKLM`
- `HKU`
- `HKCC`
- `HKEY_CLASSES_ROOT`
- `HKEY_LOCAL_MACHINE`

- HKEY_USERS
- HKEY_CURRENT_CONFIG

System Integrity Monitoring does not support the HKEY_CURRENT_USER key. You can specify a key under HKEY_USERS as HKEY_USERS\<user profile ID>\<key>.

Special considerations involved in external device monitoring

System Integrity Monitoring monitors connection and disconnection of external devices. This is necessary to protect the computer from security threats that can result from file exchange with such devices. System Integrity Monitoring does not monitor access to external devices and does not block file exchange. You can configure access to devices using a different application component, Device Control.

When running the *Baseline System Integrity Monitor* task, the application ignores the reconnection of external devices if the devices have the same drive letter in the operating system. To be logged, the reconnected devices must have different drive letters.

System Integrity Monitoring monitors the connection of the following types of external devices:

- Removable drive (including USB flash drives)
- Hard drive
- External network adapter
- CD/DVD/Blu-ray drive
- Scanner / camera

Real-Time System Integrity Monitoring

System Integrity Monitoring allows tracking changes in the operating system in real time. You can track changes that may indicate security breaches on the computer. The component allows blocking these changes or merely logging change events.

For System Integrity Monitoring to work, you must add at least one rule. A System Integrity Monitoring rule is a set of criteria that define the access of users to files and the registry. System Integrity Monitoring detects changes in the files and the registry within the specified monitoring scope. The monitoring scope is one of the criteria of a System Integrity Monitoring rule.

How to enable and configure Real-Time System Integrity Monitoring in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.

3. In the policy properties window, select **System Inspection**.

4. In the **System Integrity Monitoring** section, click **Settings**.

5. Select the **System Integrity Monitoring** check box.

6. Configure the File Integrity Monitor:

   a. Select the **Monitor files** check box on the **Files** tab.

   b. Under **Operating mode for blocking rules**, select a File Integrity Monitor mode:

      - **Block**. In this mode, the application performs actions on files in accordance with File Integrity Monitor rules and generates corresponding events in the System Integrity Monitoring log.

      - **Inform**. In this mode, the application only generates events about triggered File Integrity Monitor rules in the System Integrity Monitoring log.

   c. Add File Integrity Monitor rules manually using the **Add** button or by importing them from an XML file. File Integrity Monitor rule settings are described in the following table.

   d. In the list of File Integrity Monitor rules, manage check boxes to leave the rules that you need enabled.

7. Configure the Registry Access Monitor:

   a. Select the **Monitor the registry** check box on the **Registry** tab.

   b. Under **Operating mode for blocking rules**, select a mode for Registry Access Monitor:

      - **Block**. In this mode, the application blocks actions with the registry in accordance with Registry Access Monitor rules and generates corresponding events in the System Integrity Monitoring log.

      - **Inform**. In this mode, the application only generates events about triggered Registry Access Monitor rules in the System Integrity Monitoring log.

   c. Add Registry Access Monitor rules manually using the **Add** button or by importing them from an XML file. Registry Access Monitor rule settings are described in the following table.

   d. In the list of Registry Access Monitor rules, manage check boxes to leave the rules that you need enabled.

8. Configure external device monitoring:

   a. Select the **Monitor devices** check box on the **Devices** tab.

   b. In the **Event severity level** drop-down list, select the importance level of external device monitoring events: *Informational*, *Warning*, *Critical*.

      After applying the external device monitoring settings, the application remembers the current external device connections. Subsequently, when an external device is connected or disconnected, the application generates a corresponding event in the System Integrity Monitor log.

9. Save your changes.

How to enable and configure Real-Time System Integrity Monitoring in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **System Inspection** → **System Integrity Monitoring** and click the **Configure** button.
5. Select the **System Integrity Monitoring** check box.
6. Configure the File Integrity Monitor:
   a. Select the **Monitor files** check box on the **Files** tab.
   b. Under **Operating mode for blocking rules**, select a File Integrity Monitor mode:
      - **Block**. In this mode, the application performs actions on files in accordance with File Integrity Monitor rules and generates corresponding events in the System Integrity Monitoring log.
      - **Inform**. In this mode, the application only generates events about triggered File Integrity Monitor rules in the System Integrity Monitoring log.
   c. Add File Integrity Monitor rules manually using the **Add** button or by importing them from an XML file. File Integrity Monitor rule settings are described in the following table.
   d. In the list of File Integrity Monitor rules, manage check boxes in the **Status** column to leave the rules that you need enabled.
7. Configure the Registry Access Monitor:
   a. Select the **Monitor the registry** check box on the **Registry** tab.
   b. Under **Operating mode for blocking rules**, select a mode for Registry Access Monitor:
      - **Block**. In this mode, the application blocks actions with the registry in accordance with Registry Access Monitor rules and generates corresponding events in the System Integrity Monitoring log.
      - **Inform**. In this mode, the application only generates events about triggered Registry Access Monitor rules in the System Integrity Monitoring log.
   c. Add Registry Access Monitor rules manually using the **Add** button or by importing them from an XML file. Registry Access Monitor rule settings are described in the following table.
   d. In the list of Registry Access Monitor rules, manage check boxes in the **Status** column to leave the rules that you need enabled.

8. Configure external device monitoring:

    a. Select the **Monitor devices** check box on the **Devices** tab.

    b. In the **Event severity level** drop-down list, select the importance level of external device monitoring events: *Informational*, *Warning*, *Critical*.

    System Integrity Monitoring records the current connection of external devices. The application begins to monitor connection and disconnection of external devices after the component is enabled in the application settings. Subsequently, when an external device is connected or disconnected, the application generates a corresponding event.

9. Save your changes.

How to enable and configure Real-Time System Integrity Monitoring in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **System Inspection → System Integrity Monitoring**.

2. In the results pane of the **System Integrity Monitoring** node, click **Properties**.

    The **Properties: System Integrity Monitoring** window opens.

3. Select the **System Integrity Monitoring** check box.

4. Configure the File Integrity Monitor:

    a. Select the **Monitor files** check box on the **Files** tab.

    b. Under **Operating mode for blocking rules**, select a File Integrity Monitor mode:

    - **Block**. In this mode, the application performs actions on files in accordance with File Integrity Monitor rules and generates corresponding events in the System Integrity Monitoring log.

    - **Inform**. In this mode, the application only generates events about triggered File Integrity Monitor rules in the System Integrity Monitoring log.

    c. Add File Integrity Monitor rules manually using the **Add** button or by importing them from an XML file. File Integrity Monitor rule settings are described in the following table.

    d. In the list of File Integrity Monitor rules, manage check boxes to leave the rules that you need enabled.

5. Configure the Registry Access Monitor:

    a. Select the **Monitor the registry** check box on the **Registry** tab.

    b. Under **Operating mode for blocking rules**, select a mode for Registry Access Monitor:

    - **Block**. In this mode, the application blocks actions with the registry in accordance with Registry Access Monitor rules and generates corresponding events in the System Integrity Monitoring log.

    - **Inform**. In this mode, the application only generates events about triggered Registry Access Monitor rules in the System Integrity Monitoring log.

c. Add Registry Access Monitor rules manually using the **Add** button or by importing them from an XML file. Registry Access Monitor rule settings are described in the following table.

d. In the list of Registry Access Monitor rules, manage check boxes to leave the rules that you need enabled.

6. Configure external device monitoring:

a. Select the **Monitor devices** check box on the **Devices** tab.

b. In the **Event severity level** drop-down list, select the importance level of external device monitoring events: *Informational*, *Warning*, *Critical*.

After applying the external device monitoring settings, the application remembers the current external device connections. Subsequently, when an external device is connected or disconnected, the application generates a corresponding event in the System Integrity Monitor log.

7. Save your changes.

System Integrity Monitoring rules settings

Parameter	Description
Monitor file operations for the scope	The scope to which you want to apply File Integrity Monitoring. This field is mandatory. Use masks: Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask: The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders. Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask. The `?` (question mark) character, which takes the place of any single character, except the \ and / characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.
Monitored objects	Here you can specify the name or value of a registry key. Use masks: Kaspersky Embedded Systems Security supports the `*` and `?` characters when entering a mask:
Operations with files	• **Detect**. The application allows actions on files in the monitoring scope. • **Detect and block**. What the application does depends on the selected File Integrity Monitor mode. If you selected the *Block* mode, System Integrity Monitoring blocks actions with files from the monitoring scope. If you selected the *Inform* mode, System Integrity Monitoring allows actions with files from the monitoring scope.
Trusted users and / or user groups	A trusted user is a user that is allowed to perform actions with files and registry keys in the monitoring scope. If Kaspersky Embedded Systems Security detects an action performed by a trusted user, System Integrity Monitoring generates an Informational event. You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually.
File operation markers / Actions	Markers characterizing the action with files or registry keys that the application will monitor.
Detect file operations based on all recognized markers / Detect registry operations based on all recognized markers	By default, Kaspersky Embedded Systems Security detects all file / registry operation markers.
Detect file operations based on the following markers / Detect registry operations based on the following markers	In the list of available file / registry operations select the check boxes next to the operations you want to monitor.

Parameter	Description
Calculate a checksum after a file operation, if possible. The checksum will be indicated in the task log	If the check box is selected, Kaspersky Embedded Systems Security calculates the checksum of the modified file, if a file operation with at least one selected marker was detected. If the file operation is detected by several markers, only the checksum of the final file after all modifications is calculated. If the check box is cleared, Kaspersky Embedded Systems Security does not calculate the checksum of modified files. No checksum calculation is performed in the following cases: • If the file has become unavailable (for example, due to a change of access permissions). • If the file operation was detected in a file that was subsequently removed. By default, the check box is cleared.
Checksum computing algorithm	Select one of the checksum calculation algorithms from the drop-down list: • MD5 hash • SHA256 hash
Exclusions	On the **Exclusions** tab, you can add objects that you want to exclude from the monitoring scope: • For a File Integrity Monitor rule, you can specify a list of folders. • For a Registry Access Monitoring rule, you can specify registry keys or values. Use masks: **Files** List of files and folders monitored by the component. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask: The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders. Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask. The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters. **Registry** Kaspersky Embedded Systems Security supports the `*` and `?` characters when entering a mask: Exclusion entries have a higher priority than monitoring scope entries.
Event severity level	Kaspersky Embedded Systems Security logs file modification events whenever a file or registry key in the monitoring scope is modified. The following event severity levels are available: **Informational**, **Warning**, **Critical**.

On-Demand System Integrity Check

On-Demand System Integrity Check is a task that you can run manually or on a schedule. When running the *Baseline System Integrity Monitor* task, the application compares the current state of the objects included in the monitoring scope with their *baseline* state. A baseline is created when the task is first started.

For System Integrity Monitoring to work, you must add at least one rule. A System Integrity Monitoring rule is a set of criteria that define the access of users to files and the registry. System Integrity Monitoring detects changes in the files and the registry within the specified monitoring scope. The monitoring scope is one of the criteria of a System Integrity Monitoring rule.

Configuring the monitoring scope for the Baseline System Integrity Monitor task

By default, the monitoring scope of the *Baseline System Integrity Monitor* task is the same as the monitoring scope of System Integrity Monitoring. You can configure a different monitoring scope for the task.

System Integrity Monitoring does not support the import of `HKEY_CURRENT_USER` and `HKEY_CURRENT_CONFIG` keys for the *System Integrity Check* task. If the monitoring scope of the task contains these keys, the application generates the *Monitoring scope includes incorrect objects* event.

How to configure a different monitoring scope for the Baseline System Integrity Monitor task in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Tasks**.
2. Select the necessary *Baseline System Integrity Monitor* task and double-click it to open the task properties.
3. In the window that opens, select **Settings**.
4. Configure file monitoring:
   a. Select the **Monitor files** check box on the **Files** tab.
   b. Select rules in the list by selecting check boxes.
   c. If necessary, add a new rule by clicking the **Add** button. Baseline System Integrity Monitor rule settings are described in the following table.
   d. You can also import rules from another source.
5. Configure registry monitoring:
   a. Select the **Monitor the registry** check box on the **Registry** tab.
   b. Select rules in the list by selecting check boxes.
   c. If necessary, add a new rule by clicking the **Add** button. Baseline System Integrity Monitor rule settings are described in the following table.
   d. You can also import rules from another source.
6. Configure external device monitoring:
   a. Select the **Monitor devices** check box on the **Devices** tab.
   b. In the **Event severity level** drop-down list, select the importance level of external device monitoring events: *Informational*, *Warning*, *Critical*.

      The Baseline System Integrity Monitor task records information about connected external devices at the time when the baseline is created. Subsequently, when an external device is connected, the application generates a corresponding event. When running the task, the application does not monitor the disconnection of external devices.
7. Save your changes.

How to configure a different monitoring scope for the Baseline System Integrity Monitor task in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Tasks**.
2. Select the necessary *Baseline System Integrity Monitor* task and double-click it to open the task properties.
3. In the window that opens, select **Application settings**.
4. Configure file monitoring:
   a. Select the **Monitor files** check box.
   b. Select rules in the list by selecting check boxes.
   c. If necessary, add a new rule by clicking the **Add** button. Baseline System Integrity Monitor rule settings are described in the following table.
   d. You can also import rules from another source.
5. Configure registry monitoring:
   a. Select the **Monitor the registry** check box.
   b. Select rules in the list by selecting check boxes.
   c. If necessary, add a new rule by clicking the **Add** button. Baseline System Integrity Monitor rule settings are described in the following table.
   d. You can also import rules from another source.
6. Configure external device monitoring:
   a. Select the **Monitor devices** check box.
   b. In the **Event severity level** drop-down list, select the importance level of external device monitoring events: *Informational*, *Warning*, *Critical*.

      The *Baseline System Integrity Monitor* task records information about connected external devices at the time when the baseline is created. Subsequently, when an external device is connected, the application generates a corresponding event. When running the task, the application does not monitor the disconnection of external devices.
7. Save your changes.

How to configure a different monitoring scope for the Baseline System Integrity Monitor task in the Application Console

Properties of the **Baseline System Integrity Monitor** task are editable in the Kaspersky Embedded Systems Security Console if the task was created locally or if the **Allow use of local tasks** check box is selected in the **Application settings** → **Run local system tasks** section of policy properties.

1. In the Kaspersky Embedded Systems Security Console tree, select **System Inspection** → **Baseline System Integrity Monitor**.
2. In the results pane of the **Baseline System Integrity Monitor** node, click **Properties**.

   The **Properties: Baseline System Integrity Monitor** window opens.
3. Configure file monitoring:
   a. Select the **Monitor files** check box on the **Files** tab.
   b. Select rules in the list by selecting check boxes.
   c. If necessary, add a new rule by clicking the **Add** button. Baseline System Integrity Monitor rule settings are described in the following table.
   d. You can also import rules from another source.
4. Configure registry monitoring:
   a. Select the **Monitor the registry** check box on the **Registry** tab.
   b. Select rules in the list by selecting check boxes.
   c. If necessary, add a new rule by clicking the **Add** button. Baseline System Integrity Monitor rule settings are described in the following table.
   d. You can also import rules from another source.
5. Configure external device monitoring:
   a. Select the **Monitor devices** check box on the **Devices** tab.
   b. In the **Event severity level** drop-down list, select the importance level of external device monitoring events: *Informational*, *Warning*, *Critical*.

      The Baseline System Integrity Monitor task records information about connected external devices at the time when the baseline is created. Subsequently, when an external device is connected, the application generates a corresponding event. When running the task, the application does not monitor the disconnection of external devices.
6. Save your changes.

Parameter	Description
Monitor file operations for the scope	The scope to which you want to apply File Integrity Monitoring. This field is mandatory. Use masks: Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask: The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders. Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask. The `?` (question mark) character, which takes the place of any single character, except the \ and / characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters.
Monitored objects	Here you can specify the name or value of a registry key. Use masks: Kaspersky Embedded Systems Security supports the `*` and `?` characters when entering a mask:
Exclusions	On the **Exclusions** tab, you can add objects that you want to exclude from the monitoring scope: • For a File Integrity Monitor rule, you can specify a list of folders. • For a Registry Access Monitoring rule, you can specify registry keys or values. Use masks: **Files** List of files and folders monitored by the component. Kaspersky Embedded Systems Security supports environment variables and the `*` and `?` characters when entering a mask: The `*` (asterisk) character, which takes the place of any set of characters, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\*\*.txt` will include all paths to files with the TXT extension located in folders on the C: drive, but not in subfolders. Two consecutive `*` characters take the place of any set of characters (including an empty set) in the file or folder name, including the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\**\*.txt` will include all paths to files with the TXT extension located in folders nested within the `Folder`, except the `Folder` itself. The mask must include at least one nesting level. The mask `C:\**\*.txt` is not a valid mask. The `?` (question mark) character, which takes the place of any single character, except the `\` and `/` characters (delimiters of the names of files and folders in paths to files and folders). For example, the mask `C:\Folder\???.txt` will include paths to all files residing in the folder named `Folder` that have the TXT extension and a name consisting of three characters. **Registry** Kaspersky Embedded Systems Security supports the `*` and `?` characters when entering a mask: Exclusion entries have a higher priority than monitoring scope entries.
Event severity level	Kaspersky Embedded Systems Security logs file modification events whenever a file or registry key in the monitoring scope is modified. The following event severity levels are available: **Informational**, **Warning**, **Critical**.

Running the Baseline System Integrity Monitor task

The **Baseline System Integrity Monitor** task allows checking files or registry keys for changes and also checking the connection of external devices. To check files for changes, you can run the **Baseline System Integrity Monitor** task in the following modes:

- **Full Scan**. In this mode, the application checks all attributes and hashes of files.
- **Quick Scan**. In this mode, the application checks only attributes of files.

The mode the task runs in does not affect the checking of the registry or external devices.

How to run the Baseline System Integrity Monitor task in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Tasks**.

   The list of tasks opens.

2. Click **New task**.

   The Task Wizard starts. Follow the instructions of the Wizard.

3. Select **Kaspersky Embedded Systems Security → Baseline System Integrity Monitor**. Select a System Integrity Monitoring mode:

   - **Full Scan**. In this mode, the application checks all attributes and hashes of files.
   - **Quick Scan**. In this mode, the application checks only attributes of files.

4. Select the computers on which the task will be performed. The following options are available:

   - Select computers detected by the Administration Server in the network: unassigned devices. The specific devices can include devices in administration groups as well as unassigned devices.
   - Specify device addresses manually, or import addresses from a list. You can specify NetBIOS names, IP addresses, and IP subnets of devices to which you want to assign the task.
   - Specify the selection of devices for which you want to run the task.
   - Assign the task to an administration group. In this case, the task is assigned to computers included in a previously created administration group.

5. Select an account to run the task. By default, Kaspersky Embedded Systems Security starts the task with the rights of a local user account.

6. Configure a schedule for the task, for example, manually or on a certain day of the week.

7. Enter a name for the task.

8. Finish the wizard. If necessary, select the **Run the task after the wizard finishes** check box. You can monitor the progress of the task in the task properties.

How to run a Baseline System Integrity Monitor task in the Web Console

1. In the main window of the Web Console, select **Asset management → Tasks**.

   The list of tasks opens.

2. Click **Add**.

   The Task Wizard starts.

3. Configure the task settings:

   a. In the **Application** drop-down list, select Kaspersky Embedded Systems Security.

   b. In the **Task type** drop-down list, select **Baseline System Integrity Monitor**.

   c. In the **Task name** field, enter a brief description, for example, *Weekly System Integrity Check*.

4. In the **Devices to which the task will be assigned** block, select the task scope.

5. Select devices according to the selected task scope option. Go to the next step.

6. Select the checksum calculation algorithm.

7. Select an account to run the task. By default, Kaspersky Embedded Systems Security starts the task with the rights of a local user account.

8. Finish the wizard.

   A new task will be displayed in the list of tasks.

9. Click the new task.

   The task properties window opens.

10. Select the **Application settings** tab.

11. Select a System Integrity Check mode:

    - **Full Scan**. In this mode, the application checks all attributes and hashes of files.
    - **Quick Scan**. In this mode, the application checks only attributes of files.

12. Save your changes.

13. Select the check box next to the task.

14. Click **Start**.

Exporting and importing System Integrity Monitoring rules

You can export the list of System Integrity Monitoring rules to an XML file. Then you can modify the file to, for example, add a large number of records of the same type. You can use the export/import function to back up the list of System Integrity Monitoring rules or to migrate the list to a different server.

> System Integrity Monitoring does not support the import of `HKEY_CURRENT_USER` and `HKEY_CURRENT_CONFIG` keys for the *System Integrity Check* task. If the monitoring scope of the task contains these keys, the application generates the *Monitoring scope includes incorrect objects* event.

How to export and import a list of System Integrity Monitoring rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.

2. Select the necessary policy and double-click to open the policy properties.

3. In the policy properties window, select **System Inspection**.

4. In the **System Integrity Monitoring** section, click **Settings**.

5. Depending on which rules you want to export or import, go to the **Files** or **Registry** tab.

6. To export a list of file rules and registry rules:

   a. If you want to export the entire list, click the button and select **Export**.

   b. If you want to export only part of the list, follow these steps:

      1. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.

      2. Click the button and select **Export selected**.

   c. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.

      Kaspersky Embedded Systems Security exports the list of rules to the XML file.

7. To import file/registry rules:

   a. Click **Import**.

      In the window that opens, select the XML file from which you want to import the list of rules.

   b. Open the file.

      If the computer already has a list of rules, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

8. Save your changes.

How to export and import a list of System Integrity Monitoring rules in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **System Inspection** → **System Integrity Monitoring** and click the **Configure** button.

   The **System Integrity Monitoring settings** window opens.

5. To export file/registry rules:

   a. On the **File** or **Registry** tab, select the rules that you want to export.

   b. Click the **Export** button.This opens a window; in that window, specify whether you want to export selected rules or all rules, then click **Export**.

      If you did not select any rule, Kaspersky Embedded Systems Security will export all rules.

6. Kaspersky Embedded Systems Security exports the list of rules to the XML file.

7. To import file/registry rules:

   a. On the **File** or **Registry** tab, click the **Import from the previous version** button if you want to import rules from an XML file created in version 3.4 or earlier of the application.

      If you are importing rules from an XML file created in version 4.0 or later, click **Import**.

b. If the computer already has a list of rules, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

c. In the window that opens, select the XML file from which you want to import the list of rules.

d. Click **Import**.

8. Save your changes.

How to export and import a list of System Integrity Monitoring rules in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **System Inspection → System Integrity Monitoring**.

2. In the results pane of the **System Integrity Monitoring** node, click **Properties**.

   The **Properties: System Integrity Monitoring** window opens.

3. Depending on which rules you want to export or import, go to the **Files** or **Registry** tab.

4. To export a list of file rules and registry rules:

   a. If you want to export the entire list, click the button and select **Export**.

   b. If you want to export only part of the list, follow these steps:

      1. Select the list items you want to export using the **CTRL** or **SHIFT** keys. To select all items, press **CTRL+A**.

      2. Click the button and select **Export selected**.

   c. In the window that opens, specify the name of the XML file you want to export to, and select a folder to save the file in. Click the **Save** button.

      Kaspersky Embedded Systems Security exports the list of rules to the XML file.

5. To import file/registry rules:

   a. Click **Import**.

      In the window that opens, select the XML file from which you want to import the list of rules.

   b. Open the file.

      If the computer already has a list of rules, Kaspersky Embedded Systems Security will prompt you to delete the existing list or add new entries to it from the XML file.

6. Save your changes.

Viewing System Integrity Monitoring reports

To analyze the performance of System Integrity Monitoring rules, you can look at reports and events generated by the application. Kaspersky Embedded Systems Security generates the following reports regarding the component:

- Report on computers on which monitoring rules were triggered the greatest number of times
- Report on most frequently triggered monitoring rules

To generate a Report on most frequently triggered monitoring rules, the application logs the following events:

- *File or folder change was detected*
- *Statistics only: prohibited file operation in controlled area*
- *Allowed file operation in a controlled area performed by a trusted user*
- *Uncontrolled file operation in controlled area*.

To configure the storage duration of these events, in the **Event configuration** section of the policy, specify the duration for the general System Integrity Monitoring event: *File or folder change was detected*.

By default, a report is created for the previous 30 days, including the date when the report is created.

How to view System Integrity Monitoring reports in the Kaspersky Security Center Administration Console

1. Open the Kaspersky Security Center Administration Console.
2. In the **Administration Server** node of the Administration Console tree, select the **Reports** tab.
3. Click **New report template**.

   The New Report Template Wizard starts.
4. Follow the instructions of the Report Template Wizard. At the **Selecting the report template type** step, select the a System Integrity Monitoring report (the **Other** section):

   - **Top 10 devices with File Integrity Monitor / System Integrity Monitoring rules most frequently triggered**.
   - **Top 10 rules of File Integrity Monitor / System Integrity Monitoring that were triggered on devices most frequently**.

   After you have finished with the New Report Template Wizard, the new report template appears in the table on the **Reports** tab.
5. Open the report by double-clicking it.

The report generation process starts. The report is displayed in a new window.

How to view System Integrity Monitoring reports in the Web Console

1. In the main window of the Web Console, select **Monitoring** → **Reports**.
2. Click **Add**.

   The New Report Template Wizard starts.
3. Under **Template**, in the **Other** section, select a System Integrity Monitoring report:

   - **Top 10 devices with File Integrity Monitor / System Integrity monitoring rules most frequently triggered**.
   - **Top 10 rules of File Integrity Monitor / System Integrity Monitoring that were triggered on devices most frequently**.

After you have finished with the New Report Template Wizard, the new report template appears in the table.

4. Select and run the report.

The report generation process starts. The report is displayed in a new window.

To view events generated by the application, you can also use event selections in the Kaspersky Security Center console.

Log Inspection

Log Inspection monitors the integrity of the protected environment based on the Windows event log analysis. When the application detects signs of atypical behavior in the system, it informs the administrator, as this behavior may indicate an attempted cyber attack.

Kaspersky Embedded Systems Security analyzes Windows event logs and detects violation in accordance with rules. The component includes predefined rules. Predefined rules are powered by heuristic analysis. You can also add your own rules (custom rules). When a rule triggers, the application creates an event with the *Critical* status.

If you want to use Log Inspection, make sure the security audit policy is configured and the system is logging the relevant events (for details, see the Microsoft technical support website.).

Parameter	Description
Predefined rules	List of Log Inspection rules. Predefined rules include templates of abnormal activity on the protected computer. Abnormal activity can signify an attempted attack.
Custom rules	List of Log Inspection rules added by the user. You can set your own Log Inspection rule triggering criteria. To do so, you must enter an event ID and select an event source. You can select an event source from among the standard logs: *Application*, *Security* or *System*. You can also specify the log of a third-party application.

Adding custom rules

You can set your own Log Inspection rule triggering criteria. To do so, you must enter an event ID and select an event source. You can look up the event ID on the Microsoft technical support website. You can select an event source from among the standard logs: *Application*, *Security* or *System*. You can also specify the log of a third-party application. You can find out the name of the third-party application log using the Event Viewer tool. Third-party application logs are kept in the Application and Services Logs folder (for example, the *Windows PowerShell* log).

The application does not check if the specified log is actually present in the Windows event log. If there is a mistake in the name of the log, the application does not monitor events from that log.

The list of custom rules already includes several rules created by Kaspersky experts.

How to add a custom rule in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **System Inspection**.
4. In the **Log Inspection** section, click **Settings**.
5. Select the **Log Inspection** check box.
6. On the **Custom rules** tab, select the **Apply custom rules for Log Inspection** check box.

7. Select the check boxes next to the custom rules that you want to enable.
8. If necessary, click **Add** to create your own custom rules.
9. This opens a window; in that window, configure the custom rule:
    - **Rule name**.
    - **Log name**. Windows Event Logs. The following logs are available: *Application*, *Security*, *System*.
    - **Source**. Third-party application logs. You can find out the name of the third-party application log using the Event Viewer tool. Third-party application logs are kept in the Application and Services Logs folder (for example, the Windows PowerShell log).
    - **Event identifiers**. Event IDs in the Windows Event Log. You can look up the event ID in the Microsoft technical documentation.
10. Save your changes.

How to add a custom rule in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **System Inspection** → **Log Inspection** and click the **Configure** button.
5. Select the **Enable Log Inspection** check box.
6. On the **Custom rules** tab, select the **Apply custom rules for Log Inspection** check box.
7. Configure custom rules using the toggles:
8. If necessary, click **Add** to create your own custom rules.
9. This opens a window; in that window, configure the custom rule:
    - **Rule name**.
    - **Windows Event Log name**. Windows Event Logs. The following logs are available: *Application*, *Security*, *System*.
    - **Source**. Third-party application logs. You can find out the name of the third-party application log using the Event Viewer tool. Third-party application logs are kept in the Application and Services Logs folder (for example, the Windows PowerShell log).
    - **Event ID**. Event IDs in the Windows Event Log. You can look up the event ID in the Microsoft technical documentation.
10. Save your changes.

How to add a custom rule in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **System Inspection** → **Log Inspection**.
2. In the results pane of the **Log Inspection** node, click **Properties**.
   This opens the **Properties: Log Inspection** window.
3. Select the **Log Inspection** check box.
4. On the **Custom rules** tab, select the **Apply custom rules for Log Inspection** check box.
5. Select the check boxes next to the custom rules that you want to enable.
6. If necessary, click **Add** to create your own custom rules.
7. This opens a window; in that window, configure the custom rule:
   - **Rule name**.
   - **Log name**. Windows Event Logs. The following logs are available: *Application*, *Security*, *System*.
   - **Source**. Third-party application logs. You can find out the name of the third-party application log using the Event Viewer tool. Third-party application logs are kept in the Application and Services Logs folder (for example, the Windows PowerShell log).
   - **Event identifiers**. Event IDs in the Windows Event Log. You can look up the event ID in the Microsoft technical documentation.
8. Save your changes.

As a result, when the rule triggers, Kaspersky Embedded Systems Security creates *Critical* event.

Configuring predefined rules

Predefined rules include templates of abnormal activity on the protected computer. Abnormal activity can signify an attempted attack. Predefined rules are powered by heuristic analysis. Seven predefined rules are available for Log Inspection. You can enable or disable any of the rules. Predefined rules cannot be deleted.

You can configure the triggering criteria for rules that monitor events for the following operations:

- Password brute-force detection
- Network login detection

How to configure predefined rules in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **System Inspection**.
4. In the **Log Inspection** section, click **Settings**.

5. Select the **Log Inspection** check box.

6. On the **Predefined rules** tab, select the **Apply predefined rules for Log Inspection** check box.

7. Select or clear check boxes to configure predefined rules:

   - **There are patterns of a possible brute-force attack in the system**.
   - **There is an atypical activity detected during a network logon session**.
   - **There are patterns of a possible Windows Event Log abuse**.
   - **Atypical actions detected on behalf of a new service installed**.
   - **Atypical logon that uses explicit credentials detected**.
   - **There are patterns of a possible Kerberos forged PAC (MS14-068) attack in the system**.
   - **Suspicious changes detected in the privileged built-in Administrators group**.

8. If necessary, configure the **There are patterns of a possible brute-force attack in the system** rule:

   a. Click the **Settings** button next to the rule.

   b. In the window that opens, specify the number of attempts and a time period within which attempts to enter a password must be performed for the rule to trigger.

   c. Click **OK**.

9. If you selected the **There is an atypical activity detected during a network logon session** rule, you need to configure its settings:

   a. Click the **Settings** button next to the rule.

   b. In the window that opens, in the **Network logon detection** block, specify the start and the end of the time interval.

   Kaspersky Embedded Systems Security considers logon attempts performed during the defined interval as abnormal activity.

   By default, the interval is not set and the application does not monitor logon attempts. For the application to continuously monitor logon attempts, set the interval to 12:00 AM – 11:59 PM. The start and the end of the interval must not coincide. If they are the same, the application does not monitor logon attempts.

   c. Create the list of trusted users and trusted IP addresses (IPv4 and IPv6).

   You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts. Kaspersky Embedded Systems Security does not monitor logon attempts for these users and computers.

   > Excluding trusted computers by IP address does not work in the application running on Windows XP.

   d. Click **OK**.

10. Save your changes.

How to configure predefined rules in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **System Inspection** → **Log Inspection** and click the **Configure** button.
5. Select the **Enable Log Inspection** check box.
6. On the **Predefined rules** tab, select the **Apply predefined rules for Log Inspection** check box.
7. Configure predefined rules using the toggles:
   - **There are patterns of a possible brute-force attack in the system**.
   - **There is an atypical activity detected during a network logon session**.
   - **There are patterns of a possible Windows Event Log abuse**.
   - **Atypical actions detected on behalf of a new service installed**.
   - **Atypical logon that uses explicit credentials detected**.
   - **There are patterns of a possible Kerberos forged PAC (MS14-068) attack in the system**.
   - **Suspicious changes detected in the privileged built-in Administrators group**.
8. On the **Extended** tab, configure the following settings:
   - Number of attempts and a time period within which attempts to enter a password must be performed for the rule **There are patterns of a possible brute-force attack in the system** to trigger.
   - For the **There is an atypical activity detected during a network logon session** rule to trigger, specify the start and end of the time interval during which the application considers all logon attempts as abnormal activity.

     By default, the interval is not set and the application does not monitor logon attempts. For the application to continuously monitor logon attempts, set the interval to 12:00 AM – 11:59 PM. The start and the end of the interval must not coincide. If they are the same, the application does not monitor logon attempts.
9. Create the list of trusted users and trusted IP addresses (IPv4 and IPv6) on the corresponding tabs.

   You can select users from the list of accounts, or enter a local user name manually.

   > Excluding trusted computers by IP address does not work in the application running on Windows XP.
10. Save your changes.

How to configure predefined rules in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **System Inspection** → **Log Inspection**.
2. In the results pane of the **Log Inspection** node, click **Properties**.

   This opens the **Properties: Log Inspection** window.
3. Select the **Log Inspection** check box.
4. On the **Predefined rules** tab, select the **Apply predefined rules for Log Inspection** check box.
5. Select or clear check boxes to configure predefined rules:

   - **There are patterns of a possible brute-force attack in the system**.
   - **There is an atypical activity detected during a network logon session**.
   - **There are patterns of a possible Windows Event Log abuse**.
   - **Atypical actions detected on behalf of a new service installed**.
   - **Atypical logon that uses explicit credentials detected**.
   - **There are patterns of a possible Kerberos forged PAC (MS14-068) attack in the system**.
   - **Suspicious changes detected in the privileged built-in Administrators group**.
6. If necessary, configure the **There are patterns of a possible brute-force attack in the system** rule:

   a. Click the **Settings** button next to the rule.

   b. In the window that opens, specify the number of attempts and a time period within which attempts to enter a password must be performed for the rule to trigger.

   c. Click **OK**.
7. If you selected the **There is an atypical activity detected during a network logon session** rule, you need to configure its settings:

   a. Click the **Settings** button next to the rule.

   b. In the window that opens, in the **Network logon detection** block, specify the start and the end of the time interval.

   Kaspersky Embedded Systems Security considers logon attempts performed during the defined interval as abnormal activity.

   By default, the interval is not set and the application does not monitor logon attempts. For the application to continuously monitor logon attempts, set the interval to 12:00 AM – 11:59 PM. The start and the end of the interval must not coincide. If they are the same, the application does not monitor logon attempts.

   c. Create the list of trusted users and trusted IP addresses (IPv4 and IPv6).

   You can select users in Active Directory, in the list of accounts in Kaspersky Security Center, or by entering a local user name manually. Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts. Create the list of users from Active Directory. Kaspersky Embedded Systems Security does not monitor logon attempts for these users and computers.

Excluding trusted computers by IP address does not work in the application running on Windows XP.

d. Click **OK**.

8. Save your changes.

As a result, when the rule triggers, Kaspersky Embedded Systems Security creates *Critical* event.

On-Demand Scan

This section provides information about On-Demand Scan tasks, and instructions on configuring On-Demand Scan task settings and security settings on the protected device.

About On-Demand Scan tasks

Kaspersky Embedded Systems Security scans the specified area for viruses and other computer security threats. Kaspersky Embedded Systems Security scans protected device files, RAM, and autorun objects.

Kaspersky Embedded Systems Security provides the following On-Demand Scan tasks:

- By default, the *Critical Areas Scan* task is performed weekly on a schedule. Kaspersky Embedded Systems Security scans objects in critical areas of the operating system: autorun objects, boot sectors and master boot records of hard drives and removable drives, system memory and process memory. Kaspersky Embedded Systems Security applies security settings that correspond to the **Inform** level. You can modify the settings of the *Critical Areas Scan* task.

- The *Application Integrity Control* task is performed daily. It provides the option of checking Kaspersky Embedded Systems Security modules for damage or modification. The application installation folder is checked. The task execution statistics indicate the number of modules checked and the number of modules found to be corrupted. The values of the task settings are defined by default and cannot be edited. The task start schedule settings can be edited.

- The *Removable Drives Scan* task scans all files that you run or copy, even if the file is located on a removable drive. To prevent the spread of viruses and other malware, you can configure automatic scans of removable drives when they are connected to the computer.

- The *Full Scan* task is performed weekly. The task ensures a thorough scan of the protected device, including system backup storage, boot sectors and mail databases.

Additionally, you can create custom On-Demand Scan tasks, for example, a task for scanning shared folders on the protected device.

Kaspersky Embedded Systems Security may run several On-Demand Scan tasks at the same time.

About the task scan scope and security settings

In the Application Console, the scan scope of the selected On-Demand Scan task is displayed as a list of the protected device file resources that Kaspersky Embedded Systems Security can control.

The items or nodes are displayed in a list-view mode of the protected device file resources as follows:

☑ The node is included in the scan scope.

☐ The node is excluded from the scan scope.

Security settings

In the selected On-Demand Scan task, the default security settings can be modified by configuring them as common settings for the entire protection or scan scope, or as different settings for different nodes or items in the device's file resource list.

If the same object is included in multiple protection scope entries and these entries have different security levels, the last rule in the list takes priority. For example, consider a protection scope that includes two entries: **All hard drives** (security level **Inform**) and `*\Users\*\Downloads\*` (security level **Custom**). The application scans hard drives in accordance with the Inform level, except the `Downloads` folder. The application scans the `Downloads` folder in accordance with manually specified settings because this entry is the last in the list of the protection scope.

Security settings configured for the selected parent node are automatically applied to all child nodes. The security settings of the parent node are not applied to child nodes that are configured separately.

The settings for a selected scan scope or protection scope can be configured using one of the following methods:

- Select one of three predefined security levels (**Maximum performance**, **Recommended**, or **Maximum protection**).
- Manually change the security settings for the selected nodes or items in the list of the protected device's file resources (the security level changes to **Custom**).

Predefined scan scopes

The list of protected device file resources for the selected On-Demand Scan task is displayed in the **Scan scope** window.

The file resource list displays the nodes to which you have read-access based on the configured Microsoft Windows security settings.

Kaspersky Embedded Systems Security contains the following predefined scan scopes:

- **All hard drives**. Kaspersky Embedded Systems Security scans objects on a protected device hard drives. All hard drives, individual disks, folders or files can be included in or excluded from the scan scope.
- **All removable drives**. Kaspersky Embedded Systems Security scans files on external devices, such as CDs or removable drives. All removable drives, individual disks, folders or files can be included in or excluded from the scan scope.

- **All network drives**. Network folders or files can be added to the scan scope by specifying their path in UNC (Universal Naming Convention) format. The account used to start the task must have permissions to access the added network folders and files. By default, On-Demand Scan tasks run under the system account.

  Connected network drives will also not be displayed in the protected device's file resource tree. To include objects on network drives in the scan scope, specify the path to the folder that corresponds to the network drive in UNC format.

- **Kernel Memory**. Kaspersky Embedded Systems Security scans the executable files and modules of the processes running in the operating system when the scan is initiated.

- **Running processes and Startup Objects**. Kaspersky Embedded Systems Security scans objects referred to by registry keys and configuration files, for example WIN.INI or SYSTEM.INI, as well as the application's modules that are started automatically at protected device startup.

- **Disk boot sectors**. Kaspersky Embedded Systems Security scans boot sectors of hard drives and removable media.

- **System Backup**. Kaspersky Embedded Systems Security scans the contents of the System Volume Information folder.

  In Kaspersky Embedded Systems Security 4.1, email is excluded from the application scan scope. If you are using an earlier version of the management plug-in, the application excludes email from the scan scope, even if the policy includes it.

Standard scan scopes are displayed in the tree of network file resources by default. They can be added to the list of network file resources when it is created in the scan scope settings.

By default, On-Demand Scan tasks are run under the following scopes:

- *Critical Areas Scan* task:
  - **All hard drives** (excluding Windows folders)
  - **All removable drives**.
  - **Kernel Memory**.
  - **Running processes and Startup Objects**.
- *On-Demand Scan* task:
  - **All hard drives** (excluding Windows folders)
  - **All removable drives**.
  - **Kernel Memory**.
  - **Running processes and Startup Objects**.

- *Full Scan* task:
  - **All hard drives** (excluding Windows folders)
  - **All removable drives**.
  - **Kernel Memory**.
  - **Running processes and Startup Objects**.
  - **System Backup**.
  - **Disk boot sectors**.

Online storage file scanning

About cloud files

Kaspersky Embedded Systems Security can interact with Microsoft OneDrive cloud files. The application supports the new OneDrive Files On-Demand feature.

> Kaspersky Embedded Systems Security does not support other online storages.

OneDrive Files On-Demand helps you access all your OneDrive files without having to download all of them and use storage space on your device. You can download files to your hard drive when you need to.

When the OneDrive Files On-Demand feature is on, you see status icons next to each file in the **Status** column in File Explorer. Each file has one of the following statuses:

This status icon indicates that the file is *only available online*. Online-only files are not physically stored on your hard drive. You can't open online-only files when your device is not connected to the Internet.

This status icon indicates that a file is *locally available*. This happens when you open an online-only file and it downloads to your device. You can open a locally available file anytime, even without Internet access. To clear up space you can change the file back to online-only.

This status icon indicates that a file is *stored on your hard drive and is always available*.

Cloud file scanning

Kaspersky Embedded Systems Security can only scan cloud files that are stored locally on a protected device. Such OneDrive files have the and statuses. The files are skipped during scanning, since they are not physically located on the protected device.

> Kaspersky Embedded Systems Security does not automatically download files from the cloud during the scanning, even if they are included in the scan scope.

Cloud files are processed by several Kaspersky Embedded Systems Security tasks in various scenarios depending on the task type:

- Real-time cloud file scanning: you can add folders containing cloud files to the Real-Time File Protection component protection scope. A file is scanned when it is accessed by the user. If a file is accessed by the user, it is downloaded, becomes locally available, and its status changes to . This allows the file to be processed by the Real-Time File Protection component.
- On-demand cloud file scanning: you can add folders containing cloud files to the On-Demand Scan task's scan scope. The task scans files with the and statuses. If any files are found in the scope, they will be skipped during scanning and an informational event will be recorded in the task log, indicating that the scanned file is only a placeholder for a cloud file and does not exist on a local drive.
- Generating and using applications launch control rules: you can create allowing and denying rules for and files using the *Rule Generator for Applications Launch Control* task. The Applications Launch Control component applies the Default Deny principle and created rules to process and block cloud files.

  > The Applications Launch Control component blocks the start of all cloud files, irrespective of their status. The files are not included in the rule generation scope by the application, as they are not physically stored on your hard drive. Since allowing rules cannot be created for such files, they are subject to the Default Deny principle.

When a threat is detected in a OneDrive cloud file, the application applies the action specified in the settings of the task performing the scanning. Thus, the file may be removed, disinfected, moved to quarantine, or backed up.

> Changes to local files are synchronized with the copies stored on OneDrive in accordance with the principles outlined in the relevant Microsoft OneDrive documentation.

About predefined security levels

> The **Use heuristic analysis** security setting is not included in the settings for the preset security levels. Changing this setting will not change the default security level you have selected.

You can apply one of four predefined security levels to a node selected in the device's file resource tree: **Maximum performance**, **Recommended**, **Maximum protection**, or **Inform**. Each of these levels contains its own predefined security settings (see the table below).

Maximum performance

The **Maximum performance** security level is recommended if your network has additional protected device security measures, for example, firewalls and existing security policies, beyond using Kaspersky Embedded Systems Security on protected devices and workstations.

Recommended

The **Recommended** security level ensures the best combination of protection and performance impact on devices. Kaspersky experts recommend this level as adequate to protect devices on most corporate networks. The **Recommended** security level is set by default.

Maximum protection

The **Maximum protection** security level is recommended if your organization's network has elevated device security requirements.

Inform

The **Inform** security level is recommended if there are potentially many infected computers in the corporate network and blocking them could significantly disrupt the operation of the organization.

Predefined security levels and corresponding security setting values

Options	Security level			
	Maximum performance	Recommended	Maximum protection	Inform
Object types	Objects scanned by format	All objects	All objects	All objects
Scan only new and modified files	Enabled	Disabled	Disabled	Disabled
Action to perform on infected and other objects	Disinfect. Delete if disinfection fails	Perform action recommended by Kaspersky experts	Disinfect. Delete if disinfection fails	Inform
Scan of compound files	Scan distribution packages and files in Microsoft Office formats	Scan all archives, distribution packages and files in Microsoft Office formats	Scan all archives, distribution packages and files in Microsoft Office formats	Scan all archives, distribution packages and files in Microsoft Office formats
System-critical objects are files required for the operation of the operating system and Kaspersky Embedded Systems Security. These files can not be deleted. Processes associated with such objects cannot be terminated.				
Apply the action to the selected object types	By default, all object types are scanned	By default, all object types are scanned	By default, all object types are scanned	By default, all object types are scanned
Entirely remove the compound file that cannot be modified by the application in case of embedded object detection	No	No	No	No
Exclude files	No	No	No	No
Do not detect objects by type	No	No	No	No
Stop scanning if it takes longer than (sec)	60 sec.	No	No	No
Do not scan compound objects larger than (MB)	8 MB	No	No	No

Options	Security level			
	Maximum performance	Recommended	Maximum protection	Inform
Use iSwift Technology	Yes	Yes	Yes	Yes
Use iChecker technology	Yes	Yes	Yes	Yes

Removable drives scan

You can configure scanning of removable drives connected to the protected device via a USB port.

Kaspersky Embedded Systems Security scans connected removable drives when they are registered as USB external devices in the operating system. The application does not scan a removable drive if the connection is blocked by the Device Control component.

Kaspersky Embedded Systems Security allows access to removable drives during scanning.

Scan results for each removable drive are available in the task log for the On-Demand Scan task created when the removable drive is connected.

You can change the settings of the Removable Drives Scan component (see the table below).

Removable Drives Scan settings

Parameter	Default value	Description
Scan removable drives on connection via USB	Cleared	You can turn on or turn off scanning of removable drives when they are connected to the protected device via USB.
Scan removable drive if its size does not exceed (MB)	4096 MB	You can reduce the component's scope by setting the maximum volume of data on the scanned drive. Kaspersky Embedded Systems Security does not scan a removable drive if the volume of stored data exceeds the specified value.
Scan with security level	Maximum protection	You can configure created On-Demand Scan tasks by selecting one of three security levels: • **Maximum protection** • **Recommended** • **Maximum performance** • **Inform**. The algorithm used when infected, probably infected, and other objects are detected, as well as the other scan settings for each security level, correspond to the predefined security levels in the On-Demand Scan tasks.

Default On-Demand Scan tasks settings

By default On-Demand Scan tasks have the settings described in the table below. You can configure local system and custom On-Demand Scan tasks.

Default On-Demand Scan tasks settings

Parameter	Default value	Description
Scan scope	Applied in local system and custom tasks: • **Critical Areas Scan**: the entire protected device, excluding shared folders and certain operating system files. • **On-Demand Scan** (custom tasks): the entire protected device. • **Full Scan**: a thorough scan of the protected device.	You can change the scan scope. The scan scope cannot be configured for the **Removable Drives Scan** and **Application Integrity Control** local system tasks.
Security settings	Common settings for the entire scan scope correspond to the **Recommended** security level.	For nodes selected in the protected device's file resource list, you can: • Select a different predefined security level • Manually change security settings
Use heuristic analysis	Applied with the **Medium** analysis level for *Critical Areas Scan*, *On-Demand Scan* and *Full Scan* tasks.	Heuristic Analyzer can be enabled or disabled and the analysis level can be configured.
Settings to start a task with specific permissions	The task is started under a system account.	You can edit settings to start tasks with specific account permissions for all system and custom On-Demand Scan tasks, except the *Application Integrity Control* task.
Perform task in background mode	Not applied	You can configure the priority level of On-Demand Scan tasks.
Consider task as Critical Areas Scan	Applied for *On-Demand Scan*, *Critical Areas Scan* and *Full Scan* tasks.	You can configure the priority level of On-Demand Scan tasks.
Do not run multiple scan tasks at the same time	Not applied	You can configure the priority level of On-Demand Scan tasks.
Task start schedule	Applied in local system tasks: *Critical Areas Scan*, *Application Integrity Control* and *Full Scan* – **Monthly**.	You can configure the settings for scheduled task startup.

Managing On-Demand Scan tasks

This section describes creating and configuring the *On-Demand Scan* task on the protected device.

Creating an On-Demand Scan task

Creating an On-Demand Scan task in the Kaspersky Security Center Administration Console

1. Start the New Task Wizard.
2. In the **Select task type** window, select **On-Demand Scan** and click **Next**.
3. Create a scan scope in the **Scan scope** window:

By default, the scan scope includes critical areas of the protected device. Scan scopes are marked in the table with the icon ☑. Excluded scan scopes are marked with the ☐ icon in the table. You can change the scan scope: add specific preset scan scopes, disks, folders, network objects and files and assign specific security settings for each scope added.

- To exclude some scope from scanning, select the corresponding list item and click **Delete**.
- To include a predefined scan scope, disk, folder, network object, or file in the scan scope:
  a. Click **Add**.
  b. In the **Select scan scope** window, select the predefined scan scope from the list and click **OK**.
- To exclude subfolders or files from the scan scope:
  a. Select an added folder (or disk) in the **Scan scope** window.
  b. Click **Edit**.
  c. Disable **Include subfolders** checkbox
- To change scan scope security settings:
  a. Select the scan scope for which you want to edit settings and click **Configure**.
  b. This opens a window; in that window, select one of the predefined security levels, or click the **Settings** button to configure security settings manually.

Security settings are configured the same way as for the Real-Time File Protection task.

4. Configure the heuristic analyzer and integration with other components:
   - Configure the use of the heuristic analyzer
   - Select the **Perform task in background mode** check box if you want to assign a *Low* priority to the working process that the task will run in.

     By default, the working processes in which Kaspersky Embedded Systems Security tasks are run have *Medium* (Normal) priority.

   - Select the **Consider task as Critical Areas Scan** check box if you want to use the task as a *Critical Areas Scan* task.
   - Select the **Do not run multiple scan tasks at the same time** check box to optimize the load on the computer.
5. In the **Select devices to which the task will be assigned** window, specify the list of devices and click **Next**.
6. In the **Selecting an account to run the task** window, specify an account and click **Next**.
7. In the **Configure task schedule** window, configure the task schedule and click **Next**.

8. Enter a name for the task.

   The task name should be no longer than 100 characters and cannot contain the following symbols: " * < > & \ : |

9. The **Finish task creation** window opens. Click the **Finish** button to finish creating the task.

   The new *On-Demand Scan* task will be created for the selected protected device or a group of protected devices.

Creating an On-Demand Scan task in the Kaspersky Security Center Web Console

1. Start the New Task Wizard.
2. In the **New task** window, in the **Application** drop-down list, select **Kaspersky Embedded Systems Security**.
3. In the **Task type** drop-down list, select **On-Demand Scan** and click **Next**.
4. Select the scope of the task and click **Next**.
5. In the **Selecting an account to run the task** window, specify an account and click **Next**.
6. Enter a name for the task.

   The task name should be no longer than 100 characters and cannot contain the following symbols: " * < > & \ : |

7. The **Finish task creation** window opens. Click the **Finish** button to finish creating the task.

   The new *On-Demand Scan* task will be created for the selected protected device or a group of protected devices.

Creating an On-Demand Scan task in the Application Console

Custom tasks for a single protected device can be created in the **On-Demand Scan** node.

To create and configure a new On-Demand Scan task:

1. In the Application Console tree, open the context menu of the **On-Demand Scan** node.
2. Select the **Create task** option.

   The **Create task** window opens.

3. Enter a name for the task and click **OK**.

The *On-Demand Scan* task for an individual protected device is created.

Running an On-Demand Scan task in the background

By default the processes in which Kaspersky Embedded Systems Security tasks are executed are assigned the *Medium (Normal)* priority.

A process that will run an *On-Demand Scan* task can be assigned *Low* priority. Demoting the process priority increases the time required to execute the task, but may have a beneficial effect on the performance of the processes of other running programs.

Multiple background tasks can be running in a single worker process with low priority.

To change the priority of an existing *On-Demand Scan* task, select or clear the **Perform task in background mode** check box in the task settings.

Configured task settings are saved and applied immediately to a running task. If the task is not running, the modified settings are applied at next start.

Registering execution of a Critical Areas Scan

By default, the device protection status is displayed in the results pane of the **Kaspersky Embedded Systems Security** node and is updated weekly after the *Critical Areas Scan* task is performed.

The time when the device protection status is updated is linked to the schedule of the On-Demand Scan task for which the **Consider task as Critical Areas Scan** check box is selected.

Configuring the scan scope in the On-Demand Scan task

If you modify the scan scope in the *Scan at Operating System Startup* and *Critical Areas Scan* tasks, you can restore the default scan scope for these tasks by repairing Kaspersky Embedded Systems Security using the Setup Wizard.

Configuring the scan scope for the On-Demand Scan task in the Kaspersky Security Center Administration Console

1. In the **Managed devices** folder in the Administration Console tree, open the folder with the name of the administration group to which the relevant client computer belongs.
2. In the workspace, select the **Devices** tab.
3. Double-click to open the computer properties window.
4. Go to the **Tasks** section.
5. Double-click to open the properties window of the **On-Demand Scan** task.
6. Select the **Scan scope** section.
7. To add scopes to the scan scope, select check boxes next to them.
8. If you want to add a scan scope that is not on the list:
    a. Click **Add**.
    b. In the displayed window, select a scope, an individual disk, a folder, or a network location.
    c. If you want to include subfolders in the scan scope, select the **Include subfolders** check box.

9. To exclude individual nodes from the scan scope, clear the check boxes next to the names of these nodes.
10. To edit a scan scope, select the scan scope in the list and click **Edit**.
11. To hide a previously added scan scope from the list of network file resources, select the scan scope and click **Delete**.

    The scan scope is excluded from the On-Demand Scan task scope when it is removed from the network file resource list.

12. Click **OK**.

The scan scope settings window closes. The newly configured settings are saved.

Configuring the scan scope for the On-Demand Scan task in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Assets (Devices)**.
2. Click the name of the computer on which you want to configure the task.
3. Select the **Tasks** section.
4. This opens a window; in that window, double-click to open the properties of the **On-Demand Scan** task.
5. Select the **Application settings** tab.
6. To add scopes to the scan scope, enable the switches next to them.
7. If you want to add a scan scope that is not on the list:
   a. Click **Add**.
   b. In the displayed window, select a scope, an individual disk, a folder, or a network location.
   c. If you want to include subfolders in the scan scope, select the **Subfolders** check box.
8. To exclude individual nodes from the scan scope, clear the check boxes next to the names of these nodes.
9. To edit a scan scope, select the scan scope in the list and click **Edit scope**.
10. To hide a previously added scan scope from the list of network file resources, select the scan scope and click **Delete**.

    The scan scope is excluded from the On-Demand Scan task scope when it is removed from the network file resource list.

11. Click **Save**.

The scan scope settings window closes. The newly configured settings are saved.

Configuring the scan scope of the On-Demand Scan task in the Application Console

1. In the Application Console tree, expand the **On-Demand Scan** node.
2. Select the child node corresponding to an On-Demand Scan task that you want to configure.
3. In the results pane of the selected node click the **Configure protection scope** link.
4. In the displayed window, to add scopes to the scan scope, select check boxes next to them.
5. If you want to add a scan scope that is not on the list:
   a. Click **Add**.
   b. In the displayed window, select a scope, an individual disk, a folder, or a network location.
   c. If you want to include subfolders in the scan scope, select the **Include subfolders** check box.
6. To exclude individual nodes from the scan scope, clear the check boxes next to the names of these nodes.
7. To edit a scan scope, select the scan scope in the list and click **Edit scope**.
8. To hide a previously added scan scope from the list of network file resources, select the scan scope and click **Delete**.

   The scan scope is excluded from the On-Demand Scan task scope when it is removed from the network file resource list.

9. Click **OK**.

The scan scope settings window closes. The newly configured settings are saved.

Configuring the On-Demand Scan task settings

How to configure the On-Demand Scan task in the Kaspersky Security Center Administration Console

1. In the **Managed devices** folder in the Administration Console tree, open the folder with the name of the administration group to which the relevant client computer belongs.
2. In the workspace, select the **Devices** tab.
3. Double-click to open the computer properties window.
4. Go to the **Tasks** section.
5. Double-click to open the properties window of the **On-Demand Scan** task.
6. Select the **Options** section.
7. Clear or select the **Use heuristic analysis** check box.
8. If necessary, change the analysis level.

9. Select the **Perform task in background mode** check box if you want to assign a *Low* priority to the working process that the task will run in.

   By default, the working processes in which Kaspersky Embedded Systems Security tasks are run have *Medium* (Normal) priority.

10. Select the **Consider task as Critical Areas Scan** check box if you want to use the task as a *Critical Areas Scan* task.

11. Select the **Do not run multiple scan tasks at the same time** check box to optimize the load on the computer.

12. Save your changes.

How to configure the On-Demand Scan task in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Assets (Devices)**.

2. Click the name of the computer on which you want to configure the task.

3. Select the **Tasks** section.

4. This opens a window; in that window, double-click to open the properties of the **On-Demand Scan** task.

5. Select the **Application settings** section.

6. Go to the **Settings** section.

7. Clear or select the **Use heuristic analysis** check box.

8. If necessary, select the level of analysis in the **Heuristic analysis level** drop-down list.

9. Select the **Run only when the computer is idle** check box if you want to assign a *Low* priority to the working process that the task will run in.

   By default, the working processes in which Kaspersky Embedded Systems Security tasks are run have *Medium* (Normal) priority.

10. Select the **Consider task as Critical Areas Scan** check box if you want to use the task as a *Critical Areas Scan* task.

11. Select the **Do not run multiple scan tasks at the same time** check box to optimize the load on the computer.

12. Save your changes.

How to configure the On-Demand Scan task in the Application Console

1. In the Application Console tree, expand the **On-Demand Scan** node.

2. Select the child node corresponding to an On-Demand Scan task that you want to configure.

3. In the results pane of the selected node, click **Properties**.

4. Select the **Task settings** tab.

5. Clear or select the **Use heuristic analysis** check box.
6. If necessary, change the analysis level.
7. Select the **Perform task in background mode** check box if you want to assign a *Low* priority to the working process that the task will run in.

   By default, the working processes in which Kaspersky Embedded Systems Security tasks are run have *Medium* (Normal) priority.

8. Select the **Consider task as Critical Areas Scan** check box if you want to use the task as a *Critical Areas Scan* task.
9. Select the **Do not run multiple scan tasks at the same time** check box to optimize the load on the computer.
10. Save your changes.

Configuring Removable Drives Scan

Configuring the Removable Drives Scan in the Kaspersky Security Center Administration Console

1. Expand the **Managed devices** node in the Kaspersky Security Center Administration Console tree.
2. Select the administration group for which you want to configure the task.
3. Select the **Policies** tab.
4. Double-click the policy name you want to configure.

   In the policy properties window, go to the **Supplementary** section.
5. Click **Settings** in the **Removable Drives Scan** subsection.

   The **Removable Drives Scan** window opens.
6. Do the following:

   - Select the **Scan removable drives on connection via USB** check box, if you want Kaspersky Embedded Systems Security to automatically scan removable drives when they are connected.
   - If required, select the **Scan removable drive if its size does not exceed (MB)** and specify the maximum value in the field on the right.
   - In the **Scan with security level** drop-down list, specify the security level with the settings that you want for Removable Drive Scan tasks.
7. Click **OK**.

The specified settings are saved and applied.

Configuring the Removable Drives Scan in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to the **Supplementary** section.
5. Click **Configure** under **Removable Drives Scan**.

   The **Removable Drives Scan** window opens.
6. Do the following:

   - Select the **Scan removable drives on connection via USB** check box, if you want Kaspersky Embedded Systems Security to automatically scan removable drives when they are connected.
   - If required, select the **Scan removable drive if its size does not exceed (MB)** and specify the maximum value in the field on the right.
   - In the **Scan with security level** drop-down list, specify the security level with the settings that you want for Removable Drive Scan tasks.
7. Click **OK**.

The specified settings are saved and applied.

Configuring the Removable Drives Scan in the Application Console

1. In the Application Console tree, open the context menu on the **Kaspersky Embedded Systems Security** node and select **Removable Drives Scan**.

   The **Removable Drives Scan** window opens.
2. Do the following:

   - Select the **Scan removable drives on connection via USB** check box, if you want Kaspersky Embedded Systems Security to automatically scan removable drives when they are connected.
   - If required, select the **Scan removable drive if its size does not exceed (MB)** and specify the maximum value in the field on the right.
   - In the **Scan with security level** drop-down list, specify the security level with the settings that you want for Removable Drive Scan tasks.
3. Click **OK**.

Selecting predefined security levels for On-Demand Scan tasks

You can apply one of the following three predefined security levels to a node selected in the protected device's file resource list: **Maximum performance**, **Recommended**, and **Maximum protection**.

Select one of the predefined security levels in the Kaspersky Security Center Administration Console

1. In the **Managed devices** folder in the Administration Console tree, open the folder with the name of the administration group to which the relevant client computer belongs.
2. In the workspace, select the **Devices** tab.
3. Double-click to open the computer properties window.
4. Go to the **Tasks** section.
5. Double-click to open the properties window of the **On-Demand Scan** task.
6. Select the **Scan scope** section.
7. In the list of the protected device's list, select an item included in the scan scope in order to set a predefined security level.
8. Click **Configure**.
9. This opens a window; in that window, on the **Security level** tab, select the security level to be applied.
10. Click **OK**.
11. In the **Properties: On-Demand Scan** window, click the **OK** button.

Configured task settings are saved and applied immediately to a running task. If the task is not running, the modified settings are applied at next start.

Select one of the predefined security levels in the Application Console

1. In the Application Console tree, expand the **On-Demand Scan** node.
2. Select the child node corresponding to an On-Demand Scan task that you want to configure.
3. In the results pane of the selected node, click **Configure protection scope**.
4. In the network file resource list of the protected device, select a node or item for which you want to set the predefined security level.
5. Make sure that the selected node or item is included in the scan scope.
6. Click **Configure**.
7. This opens a window; in that window, select the security level of your choice.

   The window displays the list of security settings corresponding to the selected security level.
8. Click **OK**.

The task settings are saved and applied immediately to the running task. If the task is not running, the modified settings are applied at the next start.

Configuring security settings manually

By default, On-Demand Scan tasks use common security settings for the entire scan scope.

These settings correspond to the **Recommended** predefined security level.

The default values of security settings can be modified by configuring them as common settings for the entire scan scope or as different settings for different items in the protected device's file resource list or nodes in the tree.

Manually managing security settings in the Kaspersky Security Center Administration Console

1. In the **Managed devices** folder in the Administration Console tree, open the folder with the name of the administration group to which the relevant client computer belongs.
2. In the workspace, select the **Devices** tab.
3. Double-click to open the computer properties window.
4. Go to the **Tasks** section.
5. Double-click to open the properties window of the **On-Demand Scan** task.
6. Select the **Scan scope** section.
7. In the list of protected devices, select an item included in the scan scope to manage security settings.
8. Click **Configure**.
9. This opens a window; in that window, on the **Security level** tab, select the security level to be applied.
10. Select the resource whose security settings you want to configure.
11. Click **Configure**.
12. In the window that opens, select the required security level and click **Settings**.
13. On the **General** tab, specify the following settings:

    - Objects that should be included in the protection scope:

        - **All objects**. Kaspersky Embedded Systems Security scans all objects.
        - **Objects scanned by format**. Kaspersky Embedded Systems Security scans only infectable objects based on file format. Kaspersky compiles the list of formats. It is included in the Kaspersky Embedded Systems Security databases.
        - **Objects scanned by the list of extensions specified in anti-virus databases**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. Kaspersky compiles the list of extensions. It is included in the Kaspersky Embedded Systems Security databases.
        - **Objects scanned by specified list of extensions**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. The list of extensions is specified manually by the user.

- In the **Optimization** block, select or clear the **Protect only new and modified files** check box.
- In the **Scan of compound files** section, specify the compound objects that you want to include in the scan scope:
  - **Scan archives**
  - **Scan distribution packages**
  - **Scan files in Microsoft Office formats**
  - **Scan email format files**

14. On the **Actions** tab, specify the following settings:

- Select the action to be performed on infected and other detected objects:
  - **Disinfect**
  - **Disinfect. Delete if disinfection fails**
  - **Delete**
  - **Recommended**
  - **Inform**
- Configure actions to be performed on objects depending on the type of object detected:
  a. Clear or select the **Apply the action to the selected object types** check box.
  b. Click **Settings** and select the types of objects to be detected.
- Configure actions on compound files that are not available for modification: clear or select the **Entirely remove the compound file that cannot be modified by the application in case of embedded object detection** check box.

15. On the **Optimization** tab, specify the following settings:

- In the **Exclusions** block:
  - Clear or select the **Exclude files** check box.
  - Clear or select the **Do not detect objects by type** check box.
    Click the **Edit** button for each setting to add exclusions.
- In the **Advanced settings** block:
  - **Stop scanning if it takes longer than (sec)**
  - **Do not scan compound objects larger than (MB)**
  - **Use iSwift technology**

- Use iChecker technology

16. Save the new security settings.

Manually managing security settings in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Assets (Devices)**.
2. Click the name of the computer on which you want to configure the task.
3. Select the **Tasks** section.
4. This opens a window; in that window, double-click to open the properties of the **On-Demand Scan** task.
5. Select the **Application settings** section.
6. Go to the **Scan scope** section.
7. In the network file resource list of the protected device, select an item for which you want to manage security settings. Make sure that the selected item is included in the scan scope.
8. Click **Edit**.
9. Select an objects protection mode in the drop-down list:
   - **All objects**. Kaspersky Embedded Systems Security scans all objects.
   - **Objects scanned by format**. Kaspersky Embedded Systems Security scans only infectable objects based on file format. Kaspersky compiles the list of formats. It is included in the Kaspersky Embedded Systems Security databases.
   - **Objects scanned by the list of extensions specified in anti-virus databases**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. Kaspersky compiles the list of extensions. It is included in the Kaspersky Embedded Systems Security databases.
   - **Objects scanned by specified list of extensions**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. The list of extensions is specified manually by the user.
10. Select or clear the Protect only new and modified files check box and specify if you want to include Subfolders in the scan.
11. Manage compound object protection settings:
    - Scan archives
    - Scan distribution packages
    - Scan files in Microsoft Office formats
    - Scan email format files
12. Select the action to be performed on infected and other detected objects:
    - **Disinfect**
    - **Disinfect. Delete if disinfection fails**

- Delete
- Recommended
- Inform

13. Configure actions to be performed on objects depending on the type of object detected:
    a. Clear or select the Apply the action to the selected object types check box.
    b. Click **Settings** and select the types of objects to be detected.
14. Configure actions on compound files that are not available for modification: clear or select the Entirely remove the compound file that cannot be modified by the application in case of embedded object detection check box.
15. In the **Exclusions** block:
    - Clear or select the Exclude files check box.
    - Clear or select the Do not detect objects by type check box.
16. In the **Add key** block:
    - Stop scanning if it takes longer than (sec)
    - Do not scan compound objects larger than (MB)
    - Use iSwift technology
    - Use iChecker technology
17. Save the new security settings.

Manually managing security settings in the Application Console

1. In the Application Console tree, expand the **On-Demand Scan** node.
2. Select the child node corresponding to an On-Demand Scan task that you want to configure.
3. In the results pane of the selected node, click **Configure protection scope**.
4. In the network file resource list of the protected device, select an item for which you want to manage security settings.
5. Make sure that the selected item is included in the scan scope.
6. Click **Configure**.
7. In the window that opens, select the required security level and click **Settings**.

8. On the **General** tab, specify the following settings:

- Objects that should be included in the protection scope:
  - **All objects**. Kaspersky Embedded Systems Security scans all objects.
  - **Objects scanned by format**. Kaspersky Embedded Systems Security scans only infectable objects based on file format. Kaspersky compiles the list of formats. It is included in the Kaspersky Embedded Systems Security databases.
  - **Objects scanned by the list of extensions specified in anti-virus databases**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. Kaspersky compiles the list of extensions. It is included in the Kaspersky Embedded Systems Security databases.
  - **Objects scanned by specified list of extensions**. Kaspersky Embedded Systems Security scans only infectable objects based on file extension. The list of extensions is specified manually by the user.
- In the **Optimization** block, select or clear the **Protect only new and modified files** check box.
- In the **Scan of compound files** section, specify the compound objects that you want to include in the scan scope:
  - **Scan archives**
  - **Scan distribution packages**
  - **Scan files in Microsoft Office formats**
  - **Scan email format files**

9. On the **Actions** tab, specify the following settings:

- Select the action to be performed on infected and other detected objects:
  - **Disinfect**
  - **Disinfect. Delete if disinfection fails**
  - **Delete**
  - **Recommended**
  - **Inform**
- Configure actions to be performed on objects depending on the type of object detected:
  a. Clear or select the **Apply the action to the selected object types** check box.
  b. Click **Settings** and select the types of objects to be detected.
- Configure actions on compound files that are not available for modification: clear or select the **Entirely remove the compound file that cannot be modified by the application in case of embedded object detection** check box.

10. On the **Optimization** tab, specify the following settings:

    - In the **Exclusions** block:
        - Clear or select the **Exclude files** check box.
        - Clear or select the **Do not detect objects by type** check box.

      Click the **Edit** button for each setting to add exclusions.

    - In the **Advanced settings** block:
        - **Stop scanning if it takes longer than (sec)**
        - **Do not scan compound objects larger than (MB)**
        - **Use iSwift technology**
        - **Use iChecker technology**

11. Save the new security settings.

On-Demand Scan task statistics

While the *On-Demand Scan* task is being executed, you can view information about the number of objects processed by Kaspersky Embedded Systems Security since it was started.

This information remains available even if the task is paused. You can view the task statistics in the task log.

To view the On-Demand Scan task statistics:

1. In the Application Console tree, expand the **On-Demand Scan** node.
2. Select the On-Demand Scan task whose statistics you want to view.

   Task statistics are displayed in the **Statistics** section of the results pane of the selected node.

Information about objects processed by Kaspersky Embedded Systems Security since it was started is presented in the table below.

On-Demand Scan task statistics

Field	Description
Detected	Number of objects detected by Kaspersky Embedded Systems Security. For example, if Kaspersky Embedded Systems Security detects one malicious object in five files, the value in this field increases by one.
Infected and other objects	Number of objects that Kaspersky Embedded Systems Security found and classified as infected or number of found legitimate software files that were not excluded from the scan scope and were classified as legitimate software that can be used by intruders to damage your device or personal data.
Objects not disinfected	Number of objects that Kaspersky Embedded Systems Security did not disinfect for the following reasons: • The detected object is of a type that cannot be disinfected. • An error occurred during disinfection.
Objects disinfected	Number of objects disinfected by Kaspersky Embedded Systems Security.
Objects removed	Number of objects successfully deleted by Kaspersky Embedded Systems Security.

Field	Description
Objects not scanned	Number of objects in the protection scope that Kaspersky Embedded Systems Security failed to scan, because, for example, access to the object was blocked by another application.
Archives	Number of archives scanned by Kaspersky Embedded Systems Security.
Packed objects	Number of packed objects scanned by Kaspersky Embedded Systems Security.
Password-protected objects	Number of objects (archives, for example) that Kaspersky Embedded Systems Security skipped because they were password protected.
Corrupted objects	Number of objects skipped by Kaspersky Embedded Systems Security because their format was corrupted.
Processing errors	Number of objects whose processing resulted in an error.
Objects not removed	Number of objects that Kaspersky Embedded Systems Security attempted to delete unsuccessfully, because, for example, access to the object was blocked by another application.
Objects not processed	Total number of objects that were not processed by Kaspersky Embedded Systems Security.

You can also view the On-Demand Scan task statistics in the selected task log by clicking the **Open task log** link in the **Management** section of the results pane.

We recommend that you manually process the events recorded on the **Events** tab in the task log upon task completion.

Kaspersky Embedded Systems Security database and software modules update

This section contains information about update tasks and rollback of Kaspersky Embedded Systems Security updates, as well as task configuration instructions.

Updates functionality (including providing anti-virus signature updates and codebase updates) may not be available in the application in the U.S.

Updating databases and application modules

Updating the databases and application modules of Kaspersky Embedded Systems Security ensures up-to-date protection on your computer. New viruses and other types of malware appear worldwide on a daily basis. Kaspersky Embedded Systems Security databases contain information about threats and ways of neutralizing them. To detect threats quickly, you are urged to regularly update the databases and application modules.

Regular updates require a license in effect. If there is no current license, you will be able to perform an update only once.

Kaspersky Embedded Systems Security downloads updates of application databases and modules from Kaspersky's HTTP or FTP update servers, Kaspersky Security Center Administration Server, or other update sources.

You can download updates to each protected device or use one protected device as an intermediary. Updates will be copied to it, and then distributed to protected devices. If you manage your organization's device security centrally with Kaspersky Security Center, you can leverage the Administration Server to act as a proxy for downloading updates.

If the update download process is interrupted or results in an error Kaspersky Embedded Systems Security will automatically switch back to using the databases from the last installed updates. If the Kaspersky Embedded Systems Security databases become corrupted, they can be manually rolled back to previously installed updates.

While performing an update, the following objects are downloaded and installed on your computer:

- Kaspersky Embedded Systems Security databases. Computer protection is provided using databases that contain signatures of viruses and other threats and information on ways to neutralize them. Protection components use this information when searching for and neutralizing infected files on your computer. The databases are constantly updated with records of new threats and methods for counteracting them. Therefore, we recommend that you update the databases regularly.

  In addition to the Kaspersky Embedded Systems Security databases, the network drivers that enable the application's components to intercept network traffic are updated.

- Application modules. Updating the application modules fixes vulnerabilities in Kaspersky Embedded Systems Security, adds new functions, or enhances existing functions.

While updating, the application modules and databases on your computer are compared against the up-to-date version at the update source. If your current databases and application modules differ from their respective up-to-date versions, the missing portion of the updates is installed on your computer.

If the databases are obsolete, the update package may be large, which may cause additional internet traffic (up to several dozen MB).

Information about the current state of the Kaspersky Embedded Systems Security databases is displayed in the main application window or the tooltip that you see when you hover the cursor over the icon of the application in the notification area.

Information on update results and on all events that occur during the performance of the update task is logged in the update task log.

About Update tasks

Kaspersky Embedded Systems Security has two update tasks: *Update* and *Update rollback*.

Update

By default, Kaspersky Embedded Systems Security copies databases and, if available, application modules from the update source to the device and immediately starts using them in protection components. The On-Demand Scan tasks start using the updated database at the next start.

You can configure the settings of the *Update* task. When task settings are modified, Kaspersky Embedded Systems Security will apply the new values at the next task start.

By default, the *Update* task is set to **Manually** mode. You are not allowed to pause and resume Update tasks.

Update rollback

The task makes Kaspersky Embedded Systems Security go back to the previous databases and application modules.

The *Update rollback* task is disabled by default.

Kaspersky Embedded Systems Security databases and modules update schemes

The choice of update source in the *Update* task depends on the update scheme for databases and software modules used in the organization.

Kaspersky Embedded Systems Security databases and modules can be updated on the protected devices using the following schemes:

- Download updates directly from the Internet to each protected device (Scheme 1).
- Download updates from the Internet to an intermediate device and distribute updates to protected devices from that device.

  Any device on which the following applications are installed can serve as an intermediary:

  - Kaspersky Embedded Systems Security (Scheme 2).
  - Kaspersky Security Center Administration Server (Scheme 3).

  > Updating using an intermediate device not only reduces Internet traffic, but also provides additional network protected device security.

- Download database updates to each protected device via a secure removable drive (scheme 4).

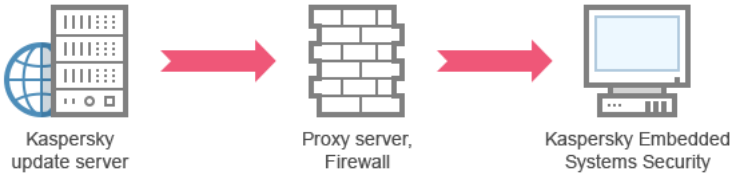
The update schemes listed are described below.

Scheme 1. Updating databases and modules directly from the Internet

To configure Kaspersky Embedded Systems Security updates directly from the Internet:

on each protected device in the settings of the *Update* task specify Kaspersky's update servers as the source of updates.

Other HTTPS or HTTP servers that have an update folder can be configured as the update source.



Scheme 1: Updating databases and modules directly from the Internet

Scheme 2. Updating databases and modules via one of the protected devices

To configure receiving updates for Kaspersky Embedded Systems Security via one of the protected devices:

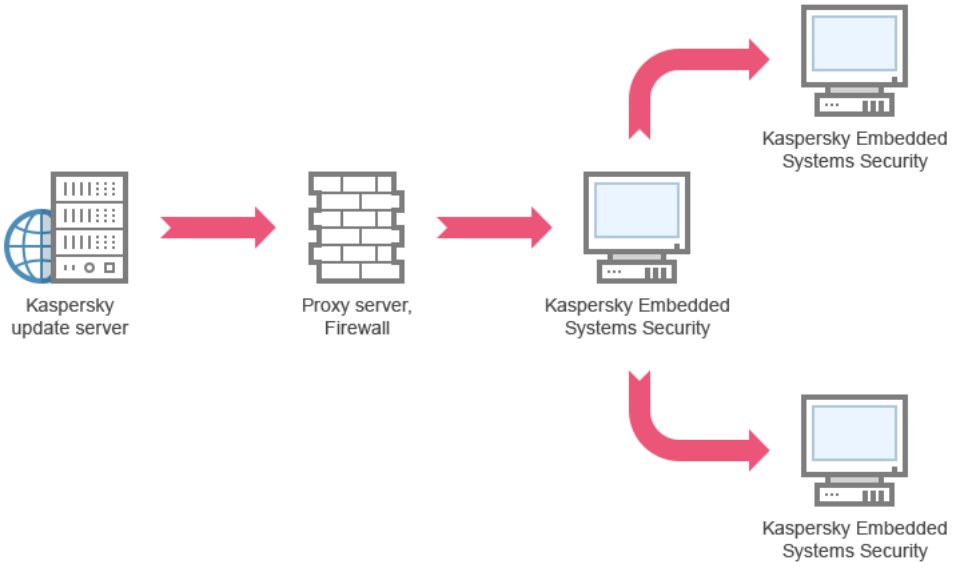
1. Copy updates to the selected protected device.
   - Configure the *Update* task settings on the selected protected device:
     a. Specify Kaspersky's update server as the update source.
     b. Specify a shared folder to be used as the folder where updates are saved.

2. Distribute updates to other protected devices:

- Configure the *Update* task on each of the protected devices.

  For the update source, specify a folder on the intermediate device's drive to which updates will be downloaded.

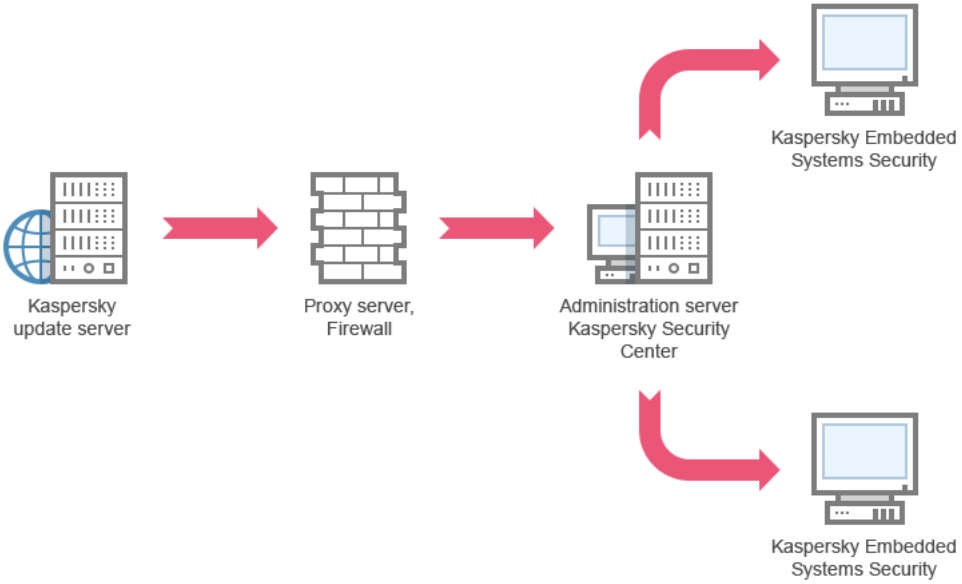
Kaspersky Embedded Systems Security will obtain updates via one of the protected devices.



Scheme 2: Updating databases and modules via one of the protected devices

Scheme 3. Updating databases and modules via Kaspersky Security Center Administration Server

If you are using Kaspersky Security Center to centrally manage antivirus protection for devices, you can download updates via the Kaspersky Security Center Administration Server installed on your local network.



Scheme 3: Updating databases and modules via Kaspersky Security Center Administration Server

In order to configure receiving updates for Kaspersky Embedded Systems Security via the Kaspersky Security Center Administration Server:

1. Install the Network Agent on each of the protected devices. The Network Agent is a software component included in the Kaspersky Security Center distribution kit. This ensures interaction between the Administration Server and Kaspersky Embedded Systems Security on the protected device. Detailed information about Network Agent and its configuration using Kaspersky Security Center is provided in the *Kaspersky Security Center Help*.

2. Download updates from Kaspersky update servers to Kaspersky Security Center Administration Server.

   - Configure the *Download updates to the Administration Server repository* task for the specified set of protected devices.

     Specify Kaspersky's update server as the update source.

3. Distribute updates to protected devices. To do so, perform one of the following actions:

   - On the Kaspersky Security Center configure an Anti-Virus database (application module) update group task to distribute updates to protected devices:

   - Configure the *Update* task on each of the protected devices:

     a. Specify the Kaspersky Security Center Administration Server as the update source.

     b. Configure the task schedule if necessary.

Kaspersky Embedded Systems Security will obtain updates via the Kaspersky Security Center Administration Server.

Scheme 4. Updating application databases from a secure removable drive

To update the Kaspersky Embedded Systems Security databases using a secure removable drive:

1. Connect the secure removable drive to the device on which Kaspersky Embedded Systems Security is installed and which has access to the application database updates.

2. Add an allowing rule of the Device Control component for the connected removable drive.

3. In the Application Console, configure and run the *Secure copying of application databases* task.

4. Connect the secure removable drive containing the database updates to the device on which you need to update the application databases.

5. In the Application Console, configure and run the *Secure update of application databases* task.

Kaspersky Embedded Systems Security will receive the updated application databases from the secure removable drive.

Configuring Update tasks

How to configure the Update task in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console, go to the local or group update task that you want to configure.
2. Open the **Settings** section.
3. Under **Update settings for local mode** for Kaspersky Embedded Systems Security connected to the Kaspersky Security Center Administration Server, configure update sources:
   a. Click **Settings**.
      The **Update of databases and application modules** window opens.
   b. Select the check box next to update sources that you want to use:
      - Kaspersky Security Center Administration Server
      - Kaspersky update servers

      If necessary, click the **Add** button to add a custom update source.
   c. If you select multiple update sources, use the **Up** and **Down** buttons to order the update sources by priority. Kaspersky Embedded Systems Security accesses the update sources strictly following the configured order and performs the update task using the update package from the first available update source.
      By default, Kaspersky Embedded Systems Security uses the Kaspersky Security Center server as the first update source. This helps conserve traffic when updating. If a policy is not applied to the computer, Kaspersky servers are selected as the first update source in the settings of the local *Update* task because the application may not have access to Kaspersky Security Center.
   d. If you selected **Kaspersky update servers** as the update source, select the principle that Kaspersky Embedded Systems Security must follow when selecting a Kaspersky update server:
      - **Detect automatically**. The application uses the nearest available Kaspersky update server.
      - **Select from the list**. The application uses the Kaspersky update server in the country selected in the list.
   e. In the **Update of databases and application modules** window, click the **OK** button.
4. Configure application database updates:
   a. Select or clear the **Download updates of application databases** check box.
   b. Select or clear the **Lower the load on the disk I/O** check box. This check box enables or disables the process whereby the disk subsystem is optimized by storing update files on a virtual drive in RAM. By default, the check box is cleared.
   c. If you selected the **Lower the load on the disk I/O** check box, in the **RAM used for optimization, MB** field, specify the amount of RAM in megabytes. The operating system temporarily allocates the specified RAM volume to store update files while running the task. The default RAM size is 640 MB. The minimum RAM size is 400 MB.

When running the *Update* task with the disk subsystem optimization feature enabled, one of the following may occur:

- If the value is too small, the allocated amount of RAM might be insufficient to complete the database update task (for example, during the first update), which will lead to the completion of the task with an error.

  In this case, it is recommended to allocate more RAM for the disk subsystem optimization feature.

- If the value is too large, at the start of the Database Update task, it might be impossible to create a virtual drive of a selected size in RAM. As a result, the disk subsystem optimization feature automatically disables, and the Database Update task runs without the optimization feature.

  In this case, it is recommended to allocate less RAM for the disk subsystem optimization feature.

5. Configure application software module updates:

   a. Select or clear the **Download updates of application modules** check box.

   If the check box is selected, Kaspersky Embedded Systems Security notifies the user about available application module updates and includes application module updates in the update package while running the *Update* task. The type of application module updates that will be applied is configured separately. The check box is selected by default.

   b. Select the application module update type that you want to apply.

   - **Install critical and approved updates**. If this option is selected, when application module updates are available Kaspersky Embedded Systems Security installs critical updates automatically and all other application module updates only after their installation is approved locally via the application interface or on the side of Kaspersky Security Center.

   - **Install only approved updates**. If this option is selected, when application module updates are available Kaspersky Embedded Systems Security installs them only after their installation is approved locally via the application interface or on the side of Kaspersky Security Center. This option is selected by default.

   If application module updates require reviewing and accepting the terms of the End User License Agreement, the application installs updates after the terms of the End User License Agreement have been accepted.

6. Configure the copying of updates to a folder for local storage:

   a. Select or clear the **Copy updates to a folder for local storage** check box.

   b. Select the contents of updates that you want the application to copy to the local storage folder:

   - **Copy database updates**. The application downloads only database updates.

   - **Copy critical application modules updates**. The application downloads only critical application module updates.

   - **Copy database updates and critical updates of application modules**. The application downloads database updates and critical application module updates.

   c. Specify the local or network folder to which Kaspersky Embedded Systems Security will be distributing downloaded updates.

7. Save your changes.

How to configure the Update task in the Application Console

1. In the Application Console tree, open the **Update** → **Update of databases and application modules** node.
2. Click the **Properties** link in the results pane.

   The **Properties: Update of databases and application modules** window opens.
3. Under **Update settings for local mode** for Kaspersky Embedded Systems Security connected to the Kaspersky Security Center Administration Server, configure update sources:

   a. Click **Settings**.

   The **Update of databases and application modules** window opens.

   b. Select the check box next to update sources that you want to use:

   - Kaspersky Security Center Administration Server
   - Kaspersky update servers

   If necessary, click the **Add** button to add a custom update source.

   c. If you select multiple update sources, use the **Up** and **Down** buttons to order the update sources by priority. Kaspersky Embedded Systems Security accesses the update sources strictly following the configured order and performs the update task using the update package from the first available update source.

   By default, Kaspersky Embedded Systems Security uses the Kaspersky Security Center server as the first update source. This helps conserve traffic when updating. If a policy is not applied to the computer, Kaspersky servers are selected as the first update source in the settings of the local *Update* task because the application may not have access to Kaspersky Security Center.

   d. If you selected **Kaspersky update servers** as the update source, select the principle that Kaspersky Embedded Systems Security must follow when selecting a Kaspersky update server:

   - **Detect automatically**. The application uses the nearest available Kaspersky update server.
   - **Select from the list**. The application uses the Kaspersky update server in the country selected in the list.

   e. In the **Update of databases and application modules** window, click the **OK** button.
4. Configure application database updates:

   a. Select or clear the **Download updates of application databases** check box.

   b. Select or clear the **Lower the load on the disk I/O** check box. This check box enables or disables the process whereby the disk subsystem is optimized by storing update files on a virtual drive in RAM. By default, the check box is cleared.

   c. If you selected the **Lower the load on the disk I/O** check box, in the **RAM used for optimization, MB** field, specify the amount of RAM in megabytes. The operating system temporarily allocates the specified RAM volume to store update files while running the task. The default RAM size is 640 MB. The minimum RAM size is 400 MB.

When running the *Update* task with the disk subsystem optimization feature enabled, one of the following may occur:

- If the value is too small, the allocated amount of RAM might be insufficient to complete the database update task (for example, during the first update), which will lead to the completion of the task with an error.

  In this case, it is recommended to allocate more RAM for the disk subsystem optimization feature.

- If the value is too large, at the start of the Database Update task, it might be impossible to create a virtual drive of a selected size in RAM. As a result, the disk subsystem optimization feature automatically disables, and the Database Update task runs without the optimization feature.

  In this case, it is recommended to allocate less RAM for the disk subsystem optimization feature.

5. Configure application software module updates:

   a. Select or clear the **Download updates of application modules** check box.

   If the check box is selected, Kaspersky Embedded Systems Security notifies the user about available application module updates and includes application module updates in the update package while running the *Update* task. The type of application module updates that will be applied is configured separately. The check box is selected by default.

   b. Select the application module update type that you want to apply.

   - **Install critical and approved updates**. If this option is selected, when application module updates are available Kaspersky Embedded Systems Security installs critical updates automatically and all other application module updates only after their installation is approved locally via the application interface or on the side of Kaspersky Security Center.

   - **Install only approved updates**. If this option is selected, when application module updates are available Kaspersky Embedded Systems Security installs them only after their installation is approved locally via the application interface or on the side of Kaspersky Security Center. This option is selected by default.

   If application module updates require reviewing and accepting the terms of the End User License Agreement, the application installs updates after the terms of the End User License Agreement have been accepted.

6. Configure the copying of updates to a folder for local storage:

   a. Select or clear the **Copy updates to a folder for local storage** check box.

   b. Select the contents of updates that you want the application to copy to the local storage folder:

   - **Copy database updates**. The application downloads only database updates.

   - **Copy critical application modules updates**. The application downloads only critical application module updates.

   - **Copy database updates and critical updates of application modules**. The application downloads database updates and critical application module updates.

   c. Specify the local or network folder to which Kaspersky Embedded Systems Security will be distributing downloaded updates.

7. Save your changes.

How to configure the Update task in the Kaspersky Security Center Web Console

1. In the Web Console, go to the local or group *Update* task that you want to configure.
2. Open the **Settings** section.
3. Select the **Local mode** tab to configure the *Update* task for Kaspersky Embedded Systems Security connected to the Kaspersky Security Center Administration Server.
4. Configure update sources:
   a. Under **Update sources**, select the check box next to update sources that you want to use:
      - Kaspersky Security Center Administration Server
      - Kaspersky update servers

      If necessary, click the **Add** button to add a custom update source.
   b. If you select multiple update sources, use the **Up** and **Down** buttons to order the update sources by priority. Kaspersky Embedded Systems Security accesses the update sources strictly following the configured order and performs the update task using the update package from the first available update source.

      By default, Kaspersky Embedded Systems Security uses the Kaspersky Security Center server as the first update source. This helps conserve traffic when updating. If a policy is not applied to the computer, Kaspersky servers are selected as the first update source in the settings of the local *Update* task because the application may not have access to Kaspersky Security Center.
5. Configure application database updates:
   a. Select or clear the **Download updates of application databases** check box.
   b. Select or clear the **Lower the load on the disk I/O** check box. This check box enables or disables the process whereby the disk subsystem is optimized by storing update files on a virtual drive in RAM. By default, the check box is cleared.
   c. If you selected the **Lower the load on the disk I/O** check box, in the **RAM used for optimization, MB** field, specify the amount of RAM in megabytes. The operating system temporarily allocates the specified RAM volume to store update files while running the task. The default RAM size is 640 MB. The minimum RAM size is 400 MB.

      When running the *Update* task with the disk subsystem optimization feature enabled, one of the following may occur:

      - If the value is too small, the allocated amount of RAM might be insufficient to complete the task (for example, during the first update), which will lead to the completion of the task with an error.

        In this case, it is recommended to allocate more RAM for the disk subsystem optimization feature.
      - If the value is too large, at the start of the task, it might be impossible to create a virtual drive of a selected size in RAM. As a result, the disk subsystem optimization feature automatically disables, and the Database Update task runs without the optimization feature.

        In this case, it is recommended to allocate less RAM for the disk subsystem optimization feature.

6. Configure application software module updates:

   a. Select or clear the **Download updates of application modules** check box.

      If the check box is selected, Kaspersky Embedded Systems Security notifies the user about available application module updates and includes application module updates in the update package while running the *Update* task. The type of application module updates that will be applied is configured separately. The check box is selected by default.

   b. Select the application module update type that you want to apply.

      - **Install critical and approved updates**. If this option is selected, when application module updates are available Kaspersky Embedded Systems Security installs critical updates automatically and all other application module updates only after their installation is approved locally via the application interface or on the side of Kaspersky Security Center.

      - **Install only approved updates**. If this option is selected, when application module updates are available Kaspersky Embedded Systems Security installs them only after their installation is approved locally via the application interface or on the side of Kaspersky Security Center. This option is selected by default.

      If application module updates require reviewing and accepting the terms of the End User License Agreement, the application installs updates after the terms of the End User License Agreement have been accepted.

7. Configure the copying of updates to a folder for local storage:

   a. Select or clear the **Copy updates to folder** check box.

   b. Select the contents of updates that you want the application to copy to the local storage folder:

      - **Copy database updates**. The application downloads only database updates.

      - **Copy critical application modules updates**. The application downloads only critical application module updates.

      - **Copy database updates and critical updates of application modules**. The application downloads database updates and critical application module updates.

   c. Specify the local or network folder to which Kaspersky Embedded Systems Security will be distributing downloaded updates.

8. Save your changes.

SMU update of the application

To update the application using the Kaspersky update service (Seamless Update; SMU), you do not need to run the installer, in contrast to other update methods. Kaspersky Embedded Systems Security gets the new version of the application alongside anti-virus databases from the same source.

An SMU update allows updating the application on all computers of your organization to the latest version. Before applying an SMU update, we recommend testing the new version of the application on a few computers. To do so, you must update the application on these computers manually (for example, locally using the Setup Wizard). You cannot select individual computers when performing an SMU update.

The update schedule for the application is determined by Kaspersky staff. To make sure the new version of the application is running smoothly, Kaspersky makes updates available on a step by step basis. This means you may get your SMU update up to two months later than a new version is released.

You can manage the SMU update of the application using the *Update* task. To have the new version of the application included in the same package as the anti-virus databases, you must allow updating *application modules* in *Update* task settings.

Steps of an SMU update of the application

1. **After a new version of the application is released or a module is updated, Kaspersky distributes an update.**
2. **The user approves the update of the application.**

   If the computer is connected to the Kaspersky Security Center, the update is available in the Kaspersky Security Center, in the **Updates for Kaspersky databases and software modules** section. For more details on approving updates, refer to the Kaspersky Security Center Help.

   If the computer is not connected to Kaspersky Security Center, the update is available in the Application Console. To approve the update, go to the **Update** → **Application update** section, select an application version and, if necessary, accept the terms and conditions of agreements.
3. **Kaspersky Embedded Systems Security runs the Update task on a schedule.**

As a result, Kaspersky Embedded Systems Security updates the application in "silent" mode.

Secure copying of application databases

The task can only be configured in the Application Console. This task cannot be configured in the Kaspersky Security Center Management Console or Kaspersky Security Center Web Console.

To configure and start the Secure copying of application databases task:

1. In the Application Console tree, in the context menu of the **Update** node, select **Start secure copying of databases**.

   The welcome window of the secure application databases copy wizard opens.

2. Click **Next >**.

3. Under **Update source**, select an update source:

   - **Kaspersky Security Center Administration Server**.

     You can only select this option if Kaspersky applications on your network are administered using the Kaspersky Security Center remote access system and if Network Agent (the Kaspersky Security Center component that provides the connection between protected devices and Administration Server) is installed on the protected device.

     This option is selected by default.

   - **Kaspersky update servers**.

     Kaspersky HTTP and HTTPS servers from which Kaspersky applications download database and application module updates.

   - **Custom HTTP or FTP servers, or network folders**.

4. If at the previous step you selected **Kaspersky Security Center Administration Server**, configure the **Use Kaspersky update servers if specified servers are not available** functionality. If this option is enabled, Kaspersky Embedded Systems Security will use Kaspersky update servers as an update source if the Kaspersky Security Center Administration Server is unavailable.

5. Under **Update source connection settings**, configure the use of a proxy server for connecting to update sources.

6. Click **Next >**.

7. From the drop-down list, choose the connected secure Rutoken removable drive where you want to save the application anti-virus databases.

   Only a Rutoken removable drive that has been specifically authorized through a rule of the Device Control component can be used as a secure removable drive.

8. Under **Security settings**, in the **Enter the current administrator PIN code** field, enter the administrator PIN code set on the Rutoken removable drive to protect its contents from being read, copied, or written by potential intruders.

9. To change the current administrator PIN code:

   a. Select the **Change the current administrator PIN code (only digits and Latin symbols are allowed)** check box.

   b. Enter the new PIN.

   c. Confirm the new PIN.

10. Set a user PIN. This PIN will be required by the employee who will update the application databases using the *Secure update of application databases* task and the selected Rutoken removable drive:

    a. Enter the user PIN.

    b. Confirm the user PIN.

11. Click **Next >**.

Secure copying of application databases to the Rutoken removable drive is started. The settings are saved and applied while the task is running.

Secure update of application databases

The *Secure update of application databases* task is necessary to update the application databases using a secure removable drive protected from reading, copying, and writing by potential intruders, in a closed corporate network and on devices that do not have access to the application databases.

This task can only be started via the Application Console installed on the same device as Kaspersky Embedded Systems Security. Configuring the task in the Administration Console or Web Console is not possible.

To run the Secure update of application databases task:

1. In the Application Console tree, in the context menu of the **Update** node, select **Start secure update of databases**.

   The welcome window of the secure application database update wizard opens. Click the **Next >** button.

2. From the drop-down list, choose the connected secure removable drive containing the application anti-virus databases.

   Only a Rutoken removable drive that has been specifically authorized through a rule of the Device Control component can be used as a secure removable drive.

3. Enter the PIN for the Rutoken removable drive, specified during the application database copying step.

4. Click **Finish**.

The secure update of application databases task starts. The application databases will be copied from the Rutoken removable drive.

Rolling back Kaspersky Embedded Systems Security database updates

Before database updates are performed, Kaspersky Embedded Systems Security creates backup copies of the previously used databases. If an update is interrupted or results in an error, Kaspersky Embedded Systems Security will automatically return to using the previously installed databases.

If any problems arise after you have updated the databases, you can roll back to the previously installed updates through the *Last update rollback* task.

To run the Last update rollback task:

1. In the Application Console tree, open the **Update** → **Last update rollback** section.
2. In the results pane, click the **Start** link.

Update task statistics

While the Update task is running, the real-time information is displayed about the amount of data downloaded since the task started, as well as other task execution statistics.

When the task is complete or stopped, the information is available in the task log.

To view the Update task statistics:

In the Application Console tree, open the **Update** → **Update of databases and application modules** section.

The results panel, under **Statistics**, you can find information about the total amount of obtained data.

Making backup copies of objects

This section provides information about backing up detected malicious objects before disinfection or deletion.

Making backup copies of objects. Backup

Kaspersky Embedded Systems Security saves encrypted copies of disinfected or deleted objects in the Backup folder.

If the object is a part of a compound object (for example, part of an archive), Kaspersky Embedded Systems Security will save the compound object in its entirety in Backup. For example, if Kaspersky Embedded Systems Security has detected that one of the objects from a mail database is infected, it will back up the entire mail database.

Large objects placed in Backup by Kaspersky Embedded Systems Security can slow down the system and reduce available disk space on the hard drive.

Files can be restored from Backup either to their original folder or to a different folder on the protected device. A file can be restored from Backup, for example, if an infected file contains important information, but Kaspersky Embedded Systems Security is unable to disinfect it without damaging its integrity and losing the information.

Restoring files from Backup may lead to an infection of the protected device.

Viewing objects in Backup

This section provides information on how to view the list of files in Backup.

How to view Backup objects in the Kaspersky Security Center Administration Console

1. Open the Kaspersky Security Center Administration Console.
2. In the console tree, select **Additional** → **Storages**.
3. Go to the **Backup** folder.
4. Information about objects placed in Backup is displayed in the right pane of the console.

How to view Backup objects in the Kaspersky Security Center Web Console

1. Open the Web Console.
2. In the console tree, select **Operations** → **Storages**.

3. Go to the **Backup** folder.

4. Information about objects placed in Backup is displayed in the right pane of the console.

How to view Backup objects in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Storages** → **Backup**.

2. Information about objects placed in Backup is displayed in the right pane of the console.

To find the necessary object in the list of objects in Backup,

sort the objects or filter the objects.

Restoring files from Backup

Kaspersky Embedded Systems Security stores files in the Backup folder in encrypted form to shield the protected device against possible harmful effects.

Any file can be restored from Backup.

A file may need to be restored in the following cases:

- The original infected file contained important information and Kaspersky Embedded Systems Security failed to keep its integrity so, as a result, the information in the file became unavailable.

- You consider the file harmless to the protected device and want to use it. If you do not want Kaspersky Embedded Systems Security to consider this file infected, during subsequent scans you can exclude it from processing in the Real-Time File Protection task and On-Demand Scan tasks.

Restoring files from Backup may lead to an infection of the protected device.

When you restore a file you can select where it will be saved: the original location (default), the special folder for restored objects on the protected device, or a custom folder on the protected device where the Application Console is installed.

By default when Kaspersky Embedded Systems Security restores a file, it makes a copy of it in Backup. The file copy can be deleted from Backup after it is restored.

Restoring files from Backup in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select the **Additional** → **Storages** folder.

2. Go to the **Backup** folder.

3. Do one of the following:

   - To restore one object, select **Restore** in the context menu of the name of the object.
   - To restore multiple objects, select the objects that you want to delete using the **CTRL** or **SHIFT** key, right-click one of the selected objects, and select **Restore** from the context menu.

4. The object will be restored to the original folder.

Restoring files from Backup in the Kaspersky Security Center Web Console

1. Open the Web Console.
2. In the console tree, select **Operations** → **Storages**.
3. Go to the **Backup** folder.
4. Select objects from the list and click the **Restore** button.
5. The object will be restored to the original folder.

Restoring files from Backup in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Storages** → **Backup**.
2. Perform one of the following actions in the results pane of the **Backup** node:

   - To restore one object, select **Restore** from the context menu of the object that you want to restore.
   - To restore multiple objects, select the objects you wish to restore using the **CTRL** or **SHIFT** key, right-click one of the selected objects, and select **Restore** from the context menu.

3. In the **Restore object** window, specify the folder in which the object being restored will be saved for each selected object.

   The name of the object is displayed in the **Object** field in the upper part of the window. If you selected several objects, the name of the first object in the list of selected objects will be displayed.

4. Do one of the following:

   - To restore an object to its original location, select **Restore to the source folder**.
   - To restore an object to the folder specified as the location for restored objects during application installation, select **Restore to the default folder for restoration**.
   - To save an object to a different folder on the protected device where the Application Console is installed, select **Restore to a folder on your local computer** and then select the required folder or specify the path to it.

5. If you do not want to save a copy of the file in the Backup folder after it is restored, select the **Remove objects from storage after they are restored** check box (by default, this check box is cleared).
6. To apply the specified restoration conditions to the rest of the selected objects, check the **Apply to all selected objects** box.

7. Click **OK**.

8. Kaspersky Embedded Systems Security will start restoring the first of the selected objects.

9. If an object with this name already exists in the specified location, the **Object with this name already exists** window opens.

   a. Select one of the following Kaspersky Embedded Systems Security actions:

   - **Replace**, to replace the existing object with the restored object.
   - **Rename**, to save the restored object under a different name. In the entry field, enter the new restored object's filename and full path.
   - **Rename by adding suffix**, to rename the restored object by adding a suffix to its filename. Enter the suffix in the entry field.

   b. If you selected several objects to be restored, then select the **Apply to all selected objects** check box to apply the selected action (**Replace** or **Rename**) to the rest of the selected objects. If you selected **Rename**, the **Apply to all selected objects** check box will be unavailable.

   c. Click **OK**.

   The object will be restored. Information about the restoration operation will be recorded in the system audit log.

If you did not select **Apply to all selected objects** in the **Restore object** window, the **Restore object** window may open again. Use this window to specify the location where the next selected object will be saved.

Deleting files from Backup

Deleting files in Backup in the Kaspersky Security Center Administration Console

1. Open the Kaspersky Security Center Administration Console.

2. In the console tree, select **Additional** → **Storages**.

3. Go to the **Backup** folder. The right pane displays the list of objects in Backup.

4. Do one of the following:

   - To delete one object, select **Delete** in the context menu of the object.
   - To delete multiple objects, select the objects that you want to delete using the **CTRL** or **SHIFT** key, right-click one of the selected objects, and select **Delete** from the context menu.

5. The selected objects are deleted from Backup.

Deleting files from Backup in the Kaspersky Security Center Web Console

1. Open the Web Console.

2. In the console tree, select **Operations** → **Storages**.

3. Go to the **Backup** folder.

4. Select objects from the list and click the **Delete** button.

5. The selected objects are deleted from Backup.

Removing files from Backup in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Storages** → **Backup**.

2. The right pane displays the list of objects in Backup.

3. Do one of the following:

   - To delete one object, select **Delete** in the context menu of the object.

   - To delete multiple objects, select the objects that you want to delete using the **CTRL** or **SHIFT** key, right-click one of the selected objects, and select **Delete** from the context menu.

4. The selected objects are deleted from Backup.

Sending probably infected objects to Kaspersky for analysis

If the behavior of an object gives you a reason to suspect that it contains a threat, and Kaspersky Embedded Systems Security considers the object to be clean, you may have encountered an unknown threat whose signature has not yet been added to the databases. You can send this object to Kaspersky for analysis. Kaspersky's Anti-Virus analysts will analyze it and, if they detect a new threat, will add a record identifying it in the databases. When you rescan the object after the database has been updated, it is likely that Kaspersky Embedded Systems Security will identify the object as infected and will be able to disinfect it. You will not only be able to keep the object, but will also prevent a virus outbreak.

To send an object for analysis to Kaspersky experts in the Kaspersky Security Center Administration Console

1. Open the Kaspersky Security Center Administration Console.

2. In the console tree, select **Additional** → **Storages**.

3. Go to the **Backup** folder.

4. Do one of the following:

   - To send one object, select **Send to Kaspersky** in the context menu of the name of the object.

   - To send multiple objects, select the objects that you want to send using the CTRL or SHIFT key, right-click one of the selected objects, and select **Send to Kaspersky** from the context menu.

5. Select the folder for saving the object on your computer.

6. After this, you are prompted to go to the Kaspersky Threat Intelligence Portal and upload the saved object to get full information about it.

To send an object for analysis to Kaspersky experts in the Kaspersky Security Center Web Console

1. Open the Web Console.

2. In the console tree, select **Operations** → **Storages**.

3. Go to the **File backups** folder.
4. Select objects from the list and click the **Send to Kaspersky** button.
5. Select the folder for saving the object on your computer.
6. After this, you are prompted to go to the Kaspersky Threat Intelligence Portal and upload the saved object to get full information about it.

Kaspersky Security Center Web Console or Administration Console cannot be used to send Backup objects to Kaspersky for analysis if they were migrated after upgrading version 3.4 or earlier of the application to version 4.0 or later.

Configuring Backup settings

How to configure Backup settings in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Supplementary** → **Storages** and click **Settings**.
4. Go to the **Backup** tab.
5. Specify the Backup settings (see the table below).
6. Save your changes.

How to configure Backup settings in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select **Supplementary** → **Storages** and click the **Configure** button.
5. Go to the **Backup** tab.
6. Specify the Backup settings (see the table below).
7. Save your changes.

How to configure Backup settings in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Storages** → **Backup**.
2. In the results pane of the **Backup** node, click **Properties**.

3. In the **Properties: Backup** window, specify the Backup settings (see the table below).

4. Save your changes.

Backup settings

Parameter	Description
Store objects no longer than	If this functionality is enabled, the maximum file storage term is limited to the defined time interval. The default maximum storage term for files is 30 days. After expiration of the maximum storage term, Kaspersky Embedded Systems Security deletes the oldest files from Backup.
Limit the size of Backup to	If this functionality is enabled, Kaspersky Embedded Systems Security monitors the total size of objects placed in Backup. If the specified value is exceeded (the default value is 400 MB), Kaspersky Embedded Systems Security logs the *Maximum Backup size exceeded* event and issues a notification according to the settings for notifications about events of this type. If this functionality is enabled, Kaspersky Embedded Systems Security does not monitor the total size of objects placed in Backup. By default, the functionality is disabled.
Limit threshold value for available space to	If this functionality is enabled, Kaspersky Embedded Systems Security monitors the minimum amount of free space in Backup (the default value is 100 MB). If the amount of free space decreases below the specified threshold, Kaspersky Embedded Systems Security logs the *Backup free space threshold exceeded* event and issues a notification according to the settings for notifications about events of this type. The **Limit threshold value for available space to** check box is active if the **Limit the size of Backup to** check box is selected. This option is enabled by default.

If the size of objects in Backup exceeds the maximum Backup size or exceeds the available space threshold, Kaspersky Embedded Systems Security will notify you about this while continuing to place objects in Backup.

Backup statistics

You can view information about the current status of Backup, i.e. Backup statistics.

To view Backup statistics:

1. In the Kaspersky Embedded Systems Security Console tree, select **Storages** → **Backup**.

2. In the results pane of the **Backup** node, click **Statistics**.

   This opens the **Backup. Statistics** window. The **Backup: Statistics** window displays information about the current Backup status (see the table below).

Information about the current Backup status

Field	Description
Current backup size	Total size of data in the Backup folder; the application calculates the file size in encrypted form.
Total number of objects	Current total number of objects in Backup.

Blocking access to network resources. Blocked network sessions

This section describes how to block remote devices and configure the settings for the List of blocked network sessions.

List of blocked network sessions

By default, the List of blocked network sessions is available for use if any of the following components is installed: Network Threat Protection or Behavior Detection. These components discover remote attempts to encrypt, open or execute objects on the protected device or network attached storage shared folders in accordance with the list of blocked network sessions. Information about blocked network sessions from all protected devices is sent to the Kaspersky Security Center. Kaspersky Embedded Systems Security blocks current session and, in terms of current session, makes shared folders or network attached storage folders unavailable.

The List of blocked network sessions is populated when at least one of the following tasks is started in active mode (under specified conditions):

- For the *Network Threat Protection* task: activity typical of network attacks is detected.

  Kaspersky Embedded Systems Security clears the block list when the application is restarted and when the Network Threat Protection settings are changed.

- For the *Behavior Detection* task: malicious encryption by a device accessing network file resources is detected.

After malicious activity or an encryption attempt is detected, the task sends information about the attacking network session to the List of blocked network sessions and the application creates a *Warning* event for current session of the attacking host. Any attempts by this session to access the protected shared network folders will be blocked.

If the locally unique identifier (LUID) of a host that initiated the attacking network session is added to the List of blocked network sessions, Kaspersky Embedded Systems Security determines the IP address of the host and adds it to the List of blocked network sessions instead of the LUID of the attacking host.

By default, Kaspersky Embedded Systems Security removes blocked network sessions from the list 30 minutes after they were added to the list. Access to network file resources is restored automatically after the network sessions are deleted from the List of blocked network sessions. You can specify the period of time after which blocked network sessions are automatically unblocked.

Note that when you restrict access to storage management for any user account, the List of blocked network sessions will still be available. The settings for blocked network sessions cannot be changed unless the selected user account has **Edit permissions** for managing Kaspersky Embedded Systems Security.

Managing the list of blocked network sessions

To add network sessions showing any malicious or encrypting activity to the List of blocked network sessions and block access to network file resources for those sessions, at least one of the following components should be enabled:

- Network Threat Protection
- Behavior Detection.

Enabling blocking of untrusted hosts in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Network activity control** → **Network Threat Protection settings** and click **Settings**.
4. In the window that opens, select the **Network Threat Protection** check box.
5. On the **General** tab, enable the **Block** mode.
6. Select the **Block attacking devices for** check box and specify the blocking duration.
7. Save your changes.

To configure the blocking of untrusted network sessions for the Behavior Detection component in policy properties:

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy window, select **Real-Time Computer Protection** → **Behavior Detection** and click **Settings**.
4. In the window that opens, select the **Behavior Detection** check box.
5. Go to the **Protection of shared folders** tab and select the **Protect shared folders** check box.
6. Select **Block connection for** and specify the blocking duration.
7. If necessary, specify the protection scopes and exclusions by IP address and mask.
8. Save your changes.

Enabling blocking of untrusted hosts in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.
4. Go to **Network activity control** → **Network Threat Protection** and click the **Configure** button.
5. In the window that opens, select the **Enable Network Threat Protection** check box.
6. Enable the **Block** mode.
7. Select the **Block attacking devices for** check box and specify the blocking duration.
8. If necessary, specify exclusions by IP address.
9. Save your changes.

To configure the blocking of untrusted network sessions for the Behavior Detection component:

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Real-Time Computer Protection** → **Behavior Detection** and click the **Configure** button.
5. In the window that opens, select the **Enable Behavior Detection** check box.
6. Go to the **Protection of shared folders** tab and select the **Enable protection of shared folders against external encryption** check box.
7. Select **Block connection** and specify the blocking duration in the **Upon detection of external encryption of shared folders.** section.
8. If necessary, specify the protection scopes and exclusions by IP address and mask.
9. Save your changes.

Enabling blocking of untrusted hosts in the Application Console

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection** → **Network Threat Protection**.
2. In the results pane of the **Network Threat Protection** node, click **Properties**.
   The **Properties: Network Threat Protection** window opens.
3. In the window that opens, select the **Network Threat Protection** check box.
4. On the **General** tab, enable the **Block** mode.
5. Select the **Block attacking devices for** check box and specify the blocking duration.
6. Save your changes.

To configure the blocking of untrusted network sessions for the Behavior Detection component:

1. In the Kaspersky Embedded Systems Security Console tree, select **Real-Time Computer Protection → Anti-Cryptor**.
2. In the results pane of the **Behavior Detection** node, click **Properties**.
3. In the window that opens, select the **Behavior Detection** check box.
4. Go to the **Protection of shared folders** tab and select the **Protect shared folders** check box.
5. Select **Block connection for** and specify the blocking duration.
6. If necessary, specify the protection scopes and exclusions by IP address and mask.
7. Save your changes.

Configuring the list of blocked sessions in the Application Console

1. In the Application Console tree, expand the **Storages** node.
2. Select the **Blocked network sessions** child node.
3. In the results pane, click the **Properties** button.
4. In the window that opens, select the **Block attacking devices for** check box and specify the blocking duration.
5. To restore access to all blocked network sessions, click **Unblock all** in the upper part of the window.

   All network sessions will be removed from the list and unblocked.
6. To remove network sessions from the list of blocked network sessions, in the list in the results pane, select one or more sessions and click **Unblock selected** in the upper part of the window.

   The selected network sessions are unblocked.

Event registration. Kaspersky Embedded Systems Security logs

This section provides information about working with Kaspersky Embedded Systems Security logs.

Ways to register Kaspersky Embedded Systems Security events

Events of Kaspersky Embedded Systems Security are divided into two groups:

- Events related to the operation of application components, processing of objects in Kaspersky Embedded Systems Security tasks.
- Events related to the administration of Kaspersky Embedded Systems Security, such as starting the application, creating or deleting tasks, or editing task settings.

Kaspersky Embedded Systems Security uses the following methods to log events:

- **Application components operation logs**. Logs contain information about events that occurred during the operation of application components.
- **System audit log**. The system audit log contains information about events related to the administration of Kaspersky Embedded Systems Security. And also contains information about events associated with security breaches or attempted security breaches on the protected device.
- **Event Log**. The Event Log contains information about events required to diagnose failures in the operation of Kaspersky Embedded Systems Security. The Event Log is available in Microsoft Windows Event Viewer.

Files that can be downloaded by the following links contain tables with the full lists of Kaspersky Embedded Systems Security events of the following categories:

- Events that Kaspersky Embedded Systems Security writes to the Event Log.

  DOWNLOAD WEL-EVENTS.ZIP
- Events that Kaspersky Embedded Systems Security sends to the Administration Server.

  DOWNLOAD KSC-EVENTS.ZIP

Configuring the log settings

You can edit the following settings of Kaspersky Embedded Systems Security logs:

- Length of the storage period for events in task logs and the system audit log.
- Location of the folder in which Kaspersky Embedded Systems Security stores task log files and the system audit log file.
- Events generation thresholds for *Databases are out of date*, *Databases are extremely out of date* and *Critical areas scan has not been performed for a long time*.
- Events that Kaspersky Embedded Systems Security saves in task logs, the system audit log, and the event log of Kaspersky Embedded Systems Security in Event Viewer.
- Events that Kaspersky Embedded Systems Security sends to the SIEM server.

How to configure the log settings in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Logs and notifications**.
4. In the **Task logs** section, click **Settings**.
   The **Notifications** window opens.
5. In this window, select the log that you want to configure and specify settings for individual events:
   - Where the events are saved: local report or Windows Event Log.
   - Event notifications: Notify by email, Notify by using terminal service, and/or Notify by running executable file.
   - Whether you want to send the event to a SIEM server and/or to Kaspersky Security Center.
6. Configure event generation thresholds by clicking **Event generation thresholds settings**.
7. This opens a window; in that window, specify the number of days after which the following events must be registered: *Databases are out of date*, *Databases are extremely out of date*, and *Critical areas scan has not been performed for a long time*.
8. Configure email notifications by clicking **Email notification settings**.
9. Save your changes.

How to configure the log settings in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.
   The policy properties window opens.

3. Select the **Application settings** tab.
4. Go to **Logs and notifications** → **Task logs** and click the **Configure** button.
5. This opens a window; in this window, on the **Notifications** tab, select the log that you want to configure and specify settings for individual events:
   - Where the events are saved: local report or Windows Event Log.
   - Event notifications: Notify by email, Notify by using terminal service, and/or Notify by running executable file.
   - Whether you want to send the event to a SIEM server and/or to Kaspersky Security Center.
6. Configure email notifications on the **Email notification settings** tab.
7. Save your changes.

How to configure the log settings in the Application Console:

1. In the Application Console tree, open the context menu of the **Logs and notifications** node.
2. Select **Properties**.
   The **Notifications** window opens.
3. In this window, select the log that you want to configure and specify settings for individual events:
   - Where the events are saved: local report or Windows Event Log.
   - Event notifications: Notify by email, Notify by using terminal service, and/or Notify by running executable file.
   - Whether you want to send the event to a SIEM server and/or to Kaspersky Security Center.
4. Configure event generation thresholds by clicking **Event generation thresholds settings**.
5. This opens a window; in that window, specify the number of days after which the following events must be registered: *Databases are out of date (days)*, *Databases are extremely out of date (days)*, and *Critical areas scan has not been performed for a long time (days)*.
6. Configure email notifications by clicking **Email notification settings**.
7. Save your changes.

Sorting events in the log

By default, events in the log are displayed in reverse chronological order.

To sort events in the log:

1. In the Application Console tree, open the context menu of the **Logs and notifications** node.
2. Select the required log.
3. In the results pane, select the header of the column that you want to use to sort the events in the list.

The sorted results will be saved for the next time you view the log.

Filtering events in the log

You can configure the log to display only the records of events that meet the filtering conditions (filters) that you have specified.

To filter events in the log:

1. In the Application Console tree, expand the **Logs and notifications** node.
2. Select the log for which you want to configure a filter, and in the results pane, click **Filter**.

   The **Filter settings** window opens.
3. To add a filter, perform the following steps:

   a. In the **Field name** list, select the column you want to use to filter events.

   b. In the **Operator** list, select the filtering condition. Filtering conditions vary depending on the item selected in the **Field name** list.

   c. In the **Field value**, select a value for the filter.

   d. Click **Add**.

   The filter you added will appear in the list of filters in the **Filter settings** window.
4. If necessary, perform one of the following actions:

   - To combine multiple filters using the logical operator "AND", select **If all conditions are met**.
   - To combine multiple filters using the logical operator "OR", select **If any condition is met**.
5. Click the **OK** button to save the filtering conditions for log events.

The list of events of the log displays only events that meet the filtering conditions. The filtered results will be saved for the next time you view the log.

To disable the filter:

1. In the Application Console tree, expand the **Logs and notifications** node.
2. Select the log for which you want to remove a filter, and click **Remove filter**.

The log will then display all events.

Deleting events from the log

By default, Kaspersky Embedded Systems Security retains log records for 30 days. You can change the storage period for records in a log.

To delete events from the log:

1. In the Application Console tree, expand the **Logs and notifications** node.
2. Select the log from which you want to delete events, and in the results pane, click **Clear**.
3. Confirm the clearing operation.

The log is cleared.

Exporting information from the log

You can export data from logs into a CSV or TXT file.

To export events from logs:

1. In the Application Console tree, expand the **Logs and notifications** node.
2. Select a log and in the results pane, click the **Export log** button.
   The **Save as** window opens.
3. Specify the name, location, and type of the file to which you want to export data from the log.
4. Click **Save**.

Information from the logs is saved to the specified file.

System audit log

Kaspersky Embedded Systems Security performs a system audit of events related to the administration of Kaspersky Embedded Systems Security. The application logs information about start of the application, starts and stops of Kaspersky Embedded Systems Security tasks, changes in task settings, and creation and deletion of On-Demand Scan tasks. The application also logs information about events associated with security breaches or attempted security breaches on the protected device. Records of all those events are displayed in the results pane when you select the **System Audit** node in the Application Console.

By default, Kaspersky Embedded Systems Security stores records in the system audit log for 30 days. You can change the storage period for records in a log.

You can specify a folder that Kaspersky Embedded Systems Security will use to store files containing system audit log other than the default one.

Component and task logs

Information about the operation of Kaspersky Embedded Systems Security components and tasks is displayed in the Application Console in the results pane when you select a node with the component or task name in the **Logs and notifications** section.

By default, Kaspersky Embedded Systems Security keeps records in the logs of components and tasks for 30 days. For tasks - from the moment of their completion. You can change the storage period for records in task logs and component logs.

You can specify a folder that Kaspersky Embedded Systems Security will use to store files containing task logs and component logs, other than the default one. You can also select events that Kaspersky Embedded Systems Security will record in task logs and component logs.

In task logs, you can view detailed information about all events that have occurred in tasks since they started, as well as task execution statistics and task settings.

To view statistics and information about a Kaspersky Embedded Systems Security task:

1. In the Application Console tree, expand the **Logs and notifications** node.
2. Select a task and in the results pane, select the **Statistics** tab.

Viewing the event log of Kaspersky Embedded Systems Security in Event Viewer

You can view the event log of Kaspersky Embedded Systems Security using the Microsoft Windows Event Viewer snap-in for Microsoft Management Console. The log contains events registered by Kaspersky Embedded Systems Security and required to diagnose failures in its operation.

Events that will be registered in the event log can be selected based on the following criteria:

- **by event types**.
- **by level of detail**. The level of detail corresponds to the importance level of the events registered in the log (informational, important, or critical events). The most detailed is the Informational level, which registers all events. The least detailed is the Critical level, which registers only critical events.

To view the Kaspersky Embedded Systems Security event log:

1. Click the **Start** button, enter the `mmc` command at the search bar, and press **ENTER**.

   Microsoft Management Console opens.
2. Select **File** > **Add or remove snap-in**.

   The **Add or remove snap-ins** window opens.
3. In the list of available snap-ins, select the **Event Viewer snap-in** and click the **Add** button.

   The **Select computer** window opens.

4. In the **Select computer** window, specify the protected device on which Kaspersky Embedded Systems Security is installed, and click **OK**.

5. In the **Add and remove snap-ins** window, click **OK**.

   In the Microsoft Management Console tree, the **Event Viewer** node appears.

6. Expand the **Event Viewer** node and select the **Applications and Services Logs** > **Kaspersky Embedded Systems Security** child node.

The Kaspersky Embedded Systems Security event log opens.

About SIEM integration

To reduce the load on low-performance devices and to reduce the risk of system degradation as a result of increased application log sizes, you can configure the publication of audit events and task performance events to the *syslog server* via the Syslog protocol.

A syslog server is an external server for aggregating events (SIEM). It stores and analyzes received events and performs other log management actions.

You can use SIEM integration in two modes:

- Duplicate events on the syslog server: in this mode, all task performance events whose publication is configured in log settings, as well as all system audit events, continue to be stored on the protected device even after they are sent to the SIEM server.

  We recommend that you use this mode to reduce the load on the protected device as much as possible.

- Delete local copies of events: in this mode, all events that are registered during application operation and published to the SIEM server will be deleted from the protected device.

  > The application never deletes local versions of the security log.

Kaspersky Embedded Systems Security can convert events in application logs into formats supported by the syslog server so that those events can be transmitted and successfully recognized by the SIEM server. The application supports conversion into structured data format and into JSON format.

We recommend that you select the format of events based on the configuration of the utilized SIEM server.

Configuring SIEM integration settings

By default, SIEM integration is not used. You can enable and disable SIEM integration, and configure relevant settings.

You can reduce the risk of events failing to be sent to the SIEM server by configuring connections to multiple SIEM servers.

Kaspersky Embedded Systems Security connects to the first SIEM server in the list. If a connection attempt fails, Kaspersky Embedded Systems Security attempts to connect to other servers from the list, one by one.

Kaspersky Embedded Systems Security also uses system audit events to notify you about unsuccessful attempts to connect to the SIEM server and about errors while sending events to the SIEM server.

How to configure SIEM integration in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. Select the **Logs and notifications** section.
4. In the **SIEM Integration** block, click the **Settings** button.

   The **SIEM Integration** window opens.
5. In the **Integration settings** block, select the **Enable security events transmission to a SIEM server** check box.
6. Configure SIEM server connection in the **Settings for connecting to SIEM servers** block:

   a. Click **Add**.

   b. This opens the **Add server** window; in that window, enter the SIEM server address (IPv4, DNS), port, and connection protocol.

   c. Click **TCP connection security settings**.

   d. This opens the **TCP connection security settings** window; in that window, manage the SIEM server connection settings (see the table below).
7. If necessary, select the **Remove local copies for events that have been sent to a remote syslog server** check box in the **Settings for event transmission to a SIEM server** block. If the check box is selected, the application deletes the local copies of events after they have been successfully published to the SIEM server. This mode is recommended on low-performance devices. If the check box is cleared, the application only sends events to the SIEM server. Copies of logs continue to be stored locally. By default, the check box is cleared.

   > The application never deletes local versions of the security log.
8. In the **Events format** block, select the format to which you want to convert application events so that they can be sent to the SIEM server. The **Convert events to STRUCTURED-DATA** option is selected by default. We recommend that you select the format of events based on the configuration of the utilized SIEM server.
9. Close the padlock to apply the policy to computers.
10. Click **OK** to save the changes.

How to configure SIEM integration in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management → Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Logs and notifications** section.

5. In the **SIEM Integration** block, click the **Configure** button.

   The **SIEM Integration** window opens.

6. Select the **Enable security events transmission to a SIEM server** check box.

7. Configure SIEM server connection in the **Settings for connecting to SIEM servers** block:

   a. Click **Add**.

   b. This opens the **SIEM server** window; in that window, enter the SIEM server address (IPv4, DNS), port, and connection protocol.

   c. In the **Connection protection** block, click the **Settings for connecting to SIEM servers** link.

   d. This opens the **Settings for connecting to SIEM servers** window; in that window, manage the SIEM server connection settings (see the table below).

   e. In the **Events format** block, select the format to which you want to convert application events so that they can be sent to the SIEM server. The **Convert events to STRUCTURED-DATA** option is selected by default. We recommend that you select the format of events based on the configuration of the utilized SIEM server.

   f. If necessary, select the **Remove local copies for events that have been sent to a remote syslog server** check box in the **Connection settings** block. If the check box is selected, the application deletes the local copies of events after they have been successfully published to the SIEM server. This mode is recommended on low-performance devices. If the check box is cleared, the application only sends events to the SIEM server. Copies of logs continue to be stored locally. By default, the check box is cleared.

   > The application never deletes local versions of the security log.

8. Close the padlock to apply the policy to computers.

9. Click **OK** to save the changes.

How to configure SIEM integration in the Application Console

1. In the Application Console tree, open the context menu of the **Logs and notifications** node.

2. Select **SIEM Integration**.

   The **SIEM Integration** window opens.

3. In the **Integration settings** block, select the **Enable security events transmission to a SIEM server** check box.

4. Configure SIEM server connection in the **Settings for connecting to SIEM servers** block:

   a. Click **Add**.

   b. This opens the **Add server** window; in that window, enter the SIEM server address (IPv4, DNS), port, and connection protocol.

   c. Click **TCP connection security settings**.

   d. This opens the **TCP connection security settings** window; in that window, manage the SIEM server connection settings (see the table below).

5. If necessary, select the **Remove local copies for events that have been sent to a remote syslog server** check box in the **Settings for event transmission to a SIEM server** block. If the check box is selected, the application deletes the local copies of events after they have been successfully published to the SIEM server. This mode is recommended on low-performance devices. If the check box is cleared, the application only sends events to the SIEM server. Copies of logs continue to be stored locally. By default, the check box is cleared.

   The application never deletes local versions of the security log.

6. In the **Events format** block, select the format to which you want to convert application events so that they can be sent to the SIEM server. The **Convert events to STRUCTURED-DATA** option is selected by default. We recommend that you select the format of events based on the configuration of the utilized SIEM server.

7. Click **OK** to save the changes.

SIEM server connection settings

Parameter	Description
Timeout (sec)	Maximum SIEM server response timeout. When the timeout runs out, Kaspersky Embedded Systems Security tries to connect to a different SIEM server.
Server TLS certificate	TLS certificate for establishing a trusted connection with the SIEM server. You can get a TLS certificate using the SIEM management interface.
Use two-way authentication	Two-way authentication when establishing a secure connection between Kaspersky Embedded Systems Security and SIEM. To use two-way authentication, you need to enable two-way authentication in the SIEM settings, then get a crypto-container and set a password to protect the crypto-container. A crypto-container is a PFX archive with a certificate and a private key. After configuring SIEM settings, you need to enable two-way authentication in Kaspersky Embedded Systems Security settings using a check box and load a password-protected crypto-container. The crypto-container must be password-protected. It is not possible to add a crypto-container with a blank password.

Administrator and user notification methods

You can configure the application to notify the administrator and users who access the device about the following events in the operation of Kaspersky Embedded Systems Security and the anti-virus protection status on the device.

- The administrator can receive information about events of selected types.
- LAN users who access a device and terminal device users can receive information about events of the *Object detected* type in the Real-Time File Protection task.

Administrator or user notifications can be activated using several methods:

- Terminal service tools.

  You can apply this method for notifying terminal protected device users if the protected device is used as terminal.

- Running an executable file.

  This method runs an executable file stored on the protected device's local drive when an event occurs.

- Sending by email.

  This method uses email to transmit messages.

You can create the text of a message for individual event types. It can include an information field to describe an event. By default, the application uses a default message to notify users.

Configuring administrator and user notifications

Event notification settings give you a choice of methods for configuring and composing a message text.

How to configure event notifications in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Logs and notifications**.
4. In the **Task logs** section, click **Settings**.

   The **Notifications** window opens.
5. Select the event for which you want to select a notification method, and click **Notification settings**.

   The **Notification settings** window opens.
6. For an email notification, on the **Email** tab, you can add the text of the event notification message.

   To add fields with information about an event, click the **Variable** button and select the relevant fields from the drop-down list. Fields with event information are described in the table in this section.

   To restore the default event message text, click the **By default** button.
7. For a notification by running an executable file, on the **Executable file** tab, select a file on the local drive of the protected device or enter the full path to it. This file will be run on the protected device when the event occurs. Enter the user name and password which will be used to execute the file.

   System environment variables can be used when the path to the executable file is specified; user environment variables are not allowed.
8. For a notification using the terminal service, on the **Terminal service** tab, you can add the text of the event notification message.

   To add fields with information about an event, click the **Variable** button and select the relevant fields from the drop-down list. Fields with event information are described in the table in this section.

   To restore the default event message text, click the **By default** button.
9. Save your changes.

How to configure event notifications in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to **Logs and notifications** → **Task logs** and click the **Configure** button.

5. This opens a window; in that window, click the event for which you want to select a notification method.

   The **Notification settings** window opens.

6. For an email notification, in the **Notify users** section, select the **By sending email** check box and add the text of the event notification message.

   To add fields with information about an event, click the **Add variable** button and select the relevant items from the list. Fields with event information are described in the table in this section.

   To restore the default event message text, click the **Reset** button.

7. For a notification by running an executable file, in the **Notify administrators** section, select the **By running executable file** check box and enter the full path to a file on a local disk of the protected device. This file will be run on the protected device when the event occurs. Enter the user name and password which will be used to execute the file.

   System environment variables can be used when the path to the executable file is specified; user environment variables are not allowed.

8. For a notification using the terminal service, in the **Notify administrators** section, select the **By using terminal service** check box and add the text of the event notification message.

   To add fields with information about an event, click the **Add variable** button and select the relevant items from the list. Fields with event information are described in the table in this section.

   To restore the default event message text, click the **Reset** button.

9. Save your changes.

How to configure event notifications in the Application Console

1. In the Application Console tree, open the context menu of the **Logs and notifications** node.

2. Select **Properties**.

   The **Notifications** window opens.

3. Select the event for which you want to select a notification method, and click **Notification settings**.

   The **Notification settings** window opens.

4. For an email notification, on the **Email** tab, you can add the text of the event notification message.

   To add fields with information about an event, click the **Variable** button and select the relevant fields from the drop-down list. Fields with event information are described in the table in this section.

   To restore the default event message text, click the **By default** button.

5. For a notification by running an executable file, on the **Executable file** tab, select a file on the local drive of the protected device or enter the full path to it. This file will be run on the protected device when the event occurs. Enter the user name and password which will be used to execute the file.

   System environment variables can be used when the path to the executable file is specified; user environment variables are not allowed.

6. For a notification using the terminal service, on the **Terminal service** tab, you can add the text of the event notification message.

   To add fields with information about an event, click the **Variable** button and select the relevant fields from the drop-down list. Fields with event information are described in the table in this section.

   To restore the default event message text, click the **By default** button.

7. Save your changes.

Fields with event information

Variable	Description
%EVENT_TYPE%	Event type.
%EVENT_TIME%	Event time.
%EVENT_SEVERITY%	Importance level.
%OBJECT%	Object name (in Real-Time Computer Protection and On-Demand Scan tasks). The Software Modules Update task includes the name of the update and the address of the web page with information on the update.
%VIRUS_NAME%	The name of the object according to the Virus Encyclopedia classification. This name is included in the full name of a detected object that Kaspersky Embedded Systems Security returns on detecting an object. You can view the full name of a detected object in the task log.
%VIRUS_TYPE%	The type of detected object according to the Kaspersky classification, such as "virus" or "trojan". It is included in the full name of a detected object, which is returned by Kaspersky Embedded Systems Security when it finds an object infected or probably infected. You can view the full name of a detected object in the task log.
%USER_COMPUTER%	In the *Real-Time File Protection* task, the name of the protected device of the user who accessed the object on the device.
%USER_NAME%	In the *Real-Time File Protection* task, the name of the user who accessed the object on the device.
%FROM_COMPUTER%	Name of the protected device where the notification originated.
%EVENT_REASON%	Reason the event occurred (some events do not have this field).
%ERROR_CODE%	Error code (only for the "internal task error" event).
%TASK_NAME%	Task name (only for events related to task performance).
%PROTOCOL%	The protocol that is being used.
%MESSAGE%	Text of the message.
%DEVICE_INSTANCEPATH%	Path to the instance of the device.
%DEVICE_VID%	Device vendor
%DEVICE_PID%	Type of the controller.
%DEVICE_SERIALNUMBER%	Serial number of the device.

Configuring email notifications

How to configure email notifications in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, select **Logs and notifications**.
4. In the **Task logs** section, click **Settings**.
   The **Notifications** window opens.
5. Click **Email notification settings**.
6. In the window that opens, select the **Send event notifications** check box.
7. Under **Sending notifications on behalf of**, specify sender information: sender address, SMTP server, SMTP server port, user name and password.
8. Under **Notification recipient**, specify the recipient email address.

9. To test the settings, click the **Send test message** button.

   The test message functionality is available only in the Kaspersky Security Center Administration Console and the Application Console.

10. Specify the send mode: **If event occurs** or **By schedule (schedule not specified)**. To configure the schedule, click **Edit**.

11. Save your changes.

How to configure email notifications in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. Go to **Logs and notifications** → **Task logs** and click the **Configure** button.

5. This opens a window; in that window, select the **Email notification settings** tab.

6. Select the **Send event notifications** check box.

7. Specify sender information: sender address, SMTP server, SMTP server port, user name and password.

8. Specify the recipient email address.

9. Specify the send mode: **If events occur** or **By schedule**. If applicable, configure the schedule.

10. Save your changes.

How to configure email notifications in the Application Console

1. In the Application Console tree, open the context menu of the **Logs and notifications** node.

2. Select **Properties**.

   The **Notifications** window opens.

3. Click **Email notification settings**.

4. In the window that opens, select the **Send event notifications** check box.

5. Under **Sending notifications on behalf of**, specify sender information: sender address, SMTP server, SMTP server port, user name and password.

6. Under **Notification recipient**, specify the recipient email address.

7. To test the settings, click the **Send test message** button.

   The test message functionality is available only in the Kaspersky Security Center Administration Console and the Application Console.

8. Specify the send mode: **If event occurs** or **By schedule (schedule not specified)**. To configure the schedule, click **Edit**.

9. Save your changes.

Configuring interaction with the Administration Server

You must select the types of objects about which Kaspersky Embedded Systems Security sends information to the Kaspersky Security Center Administration Server.

How to configure the integration with the Administration Server in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.

2. Select the necessary policy and double-click to open the policy properties.

3. In the **Logs and notifications** section, click the **Settings** button in the **Interaction with Administration Server** subsection.

4. This opens a window; in that window, choose the types of objects about which Kaspersky Embedded Systems Security will send information to the Kaspersky Security Center Administration Server:

   - **About files in Backup**
   - **About unprocessed files**
   - **About installed devices**
   - **About a threat development chain**

5. Save your changes.

   Kaspersky Embedded Systems Security will send information about the selected object types to the Administration Server.

How to configure the interaction with the Administration Server in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.

2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.

3. Select the **Application settings** tab.

4. In the **Logs and notifications** section, click the **Configure** button in the **Interaction with Administration Server** subsection.

5. This opens a window; in that window, choose the types of objects about which Kaspersky Embedded Systems Security will send information to the Kaspersky Security Center Administration Server:

   - **Backup files**
   - **About unprocessed files**
   - **Blocked network sessions**
   - **Installed devices**

6. Save your changes.

BitLocker Full Disk Encryption management

BitLocker is an encryption technology built into Windows operating systems. Kaspersky Embedded Systems Security allows you to control and manage Bitlocker using Kaspersky Security Center. BitLocker encrypts logical volumes. For more details on BitLocker, refer to the Microsoft documentation.

Kaspersky Embedded Systems Security does not support managing BitLocker on Windows Vista and Windows Server 2008 computers.

When encrypting the disk, BitLocker puts the boot loader and other auxiliary files in the system partition. This partition is not encrypted. The operating system creates the system partition automatically during the installation of Windows. If the disk is fully partitioned before installing Windows, the operating system cannot create a system partition. In this case, when you start BitLocker disk encryption, the operating system prompts you to repartition the disk and create a system partition. After creating a system partition, the operating system starts BitLocker encryption.

Kaspersky Embedded Systems Security does not support BitLocker encryption of removable drives.

BitLocker provides secure storage of access keys by using a trusted platform module. A *Trusted Platform Module* (TPM) is a microchip developed to provide basic functions related to security (for example, to store encryption keys). A Trusted Platform Module is usually installed on the computer motherboard and interacts with all other system components via the hardware bus. Using TPM is the safest way to store BitLocker access keys, since TPM provides pre-startup system integrity verification. You can still encrypt drives on a computer without a TPM. In this case, the access key will be encrypted with a password. BitLocker uses the following authentication methods:

- TPM.
- TPM and PIN.
- Password.

Before encrypting a drive, BitLocker creates a recovery key. Kaspersky Embedded Systems Security reads and sends the recovery key to Kaspersky Security Center, allowing you to restore access to the disk, for example, if a user has forgotten the password.

After encrypting the system hard drive, the user needs to go through BitLocker authentication to boot the operating system. After authentication, BitLocker allows the user to log in. BitLocker does not support single sign-on technology (SSO).

If a user encrypts a disk using BitLocker, Kaspersky Embedded Systems Security will send information about disk encryption and the recovery key to Kaspersky Security Center.

If you are using Windows group policies, turn off BitLocker management in the policy settings. Windows policy settings may conflict with Kaspersky Embedded Systems Security policy settings. When encrypting a drive, errors may occur.

Starting BitLocker Drive Encryption

Prior to starting full disk encryption, you are advised to make sure that the computer is not infected. To do so, start the Full Scan or Critical Areas Scan task. Performing full disk encryption on a computer that is infected by a rootkit may cause the computer to become inoperable.

To use BitLocker Drive Encryption on computers running Windows operating systems for servers, installing the BitLocker Drive Encryption component may be required. Install the component using the operating system tools (Add Roles and Components Wizard). For more information about installing BitLocker Drive Encryption, refer to the Microsoft documentation.

How to run BitLocker Drive Encryption in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. Select the **Data Encryption** section.
4. In the **Encryption mode** drop-down list, select **Encrypt all hard drives**.

   If the computer has several operating systems installed, after encryption you will be able to load only the operating system in which the encryption was performed.

5. Configure advanced BitLocker Drive Encryption options (see table below).
6. Click **OK** to save the changes.

How to run BitLocker Drive Encryption in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to the **Data Encryption** section.
5. Click the **Configure** button in the **Full Disk Encryption** subsection.
6. In the **Encryption mode** drop-down list, select **Encrypt all hard drives**.

   If the computer has several operating systems installed, after encryption you will be able to load only the operating system in which the encryption was performed.

7. Configure advanced BitLocker Drive Encryption options (see table below).

8. Click **OK** to save the changes.

You can use the Application Console to control the disk encryption or decryption process on a user computer.

After applying a policy, depending on the authentication settings, the application displays the following requests in the Compact Diagnostic Interface window or the Application Console:

- TPM only. No user input required. The disk will be encrypted when the computer restarts.
- TPM + PIN / Password. If a TPM module is available, a PIN code prompt window appears. If a TPM module is not available, you will see a password prompt window for preboot authentication.
- Password only. You will see a password prompt window for preboot authentication.

If the Federal Information Processing standard compatibility mode is enabled for computer operating system, then in Windows 8 and earlier versions of operating system, a request for connecting a storage device is displayed to save the recovery key file. You can save multiple recovery key files on a single storage device.

After setting a password or a PIN code, BitLocker prompts for a restart of the user's computer to check the compatibility of the computer with BitLocker. Kaspersky Embedded Systems Security displays a corresponding notification in the Compact Diagnostic Interface window or the Application Console. Next, the user needs to go through the BitLocker authentication procedure. After the authentication procedure, the user must log on to the system. After the operating system has loaded, BitLocker starts the encryption.

If there is no access to encryption keys, the user may request the local network administrator to provide a recovery key (if the recovery key was not saved earlier on the storage device or was lost).

BitLocker Drive Encryption component settings

Parameter	Description
Enable use of BitLocker authentication requiring pre-boot keyboard input on tablets	Using authentication that requires data input in a preboot environment, even if the platform does not have the capability for preboot input (for example, with touchscreen keyboards on tablets). The touchscreen of tablet computers is not available in the preboot environment. To complete BitLocker authentication on tablet computers, the user must connect a USB keyboard, for example. If the check box is selected, use of authentication requiring preboot input is allowed. We recommend using this setting only for devices that have alternative data input tools in a preboot environment, such as a USB keyboard in addition to touchscreen keyboards. If the check box is cleared, BitLocker Drive Encryption is not possible on tablets.
Use hardware encryption (Windows 8 and later versions)	If the check box is selected, the application applies hardware encryption. This lets you increase the speed of encryption and use fewer computer resources.
Encrypt used disk space only (Windows 8 and later versions)	This check box enables / disables the option that limits the encryption area to only occupied hard drive sectors. This limit lets you reduce encryption time. Enabling or disabling the **Encrypt used disk space only (Windows 8 and later versions)** feature after starting encryption does not modify this setting until the hard drives are decrypted. You must select or clear the check box before starting encryption. If the check box is selected, only portions of the hard drive that are occupied by files are encrypted. Kaspersky Embedded Systems Security encrypts new data automatically as they are added. If the check box is cleared, the entire hard drive is encrypted, including residual fragments of previously deleted and modified files. This option is recommended for new hard drives whose data has not been modified or deleted. If you are applying encryption on a hard drive that is already in use, it is recommended to encrypt the entire hard drive. This ensures protection of all data, even deleted data that is potentially recoverable. By default, the check box is cleared.

Parameter	Description
Authentication method	**Trusted platform module (TPM)** If this option is selected, BitLocker uses a Trusted Platform Module (TPM). A Trusted Platform Module (TPM) is a microchip developed to provide basic functions related to security (for example, to store encryption keys). A Trusted Platform Module is usually installed on the computer motherboard and interacts with all other system components via the hardware bus. For computers running Windows 7 or Windows Server 2008 R2, only encryption using a TPM module is available. If a TPM module is not installed, BitLocker encryption is not possible. Use of a password on these computers is not supported. A device equipped with a Trusted Platform Module can create encryption keys that can be decrypted only with the device. A Trusted Platform Module encrypts encryption keys with its own root storage key. The root storage key is stored within the Trusted Platform Module. This provides an additional level of protection against attempts to hack encryption keys. This action is selected by default. You can set an additional layer of protection for access to the encryption key, and encrypt the key with a password or a PIN: **Use PIN for TPM**. If this check box is selected, a user can use a PIN code to obtain access to an encryption key that is stored in a Trusted Platform Module (TPM). If this check box is cleared, users are prohibited from using PIN codes. To access the encryption key, a user must enter the password. **Trusted platform module (TPM), or password if TPM is unavailable** If this option is selected, the user can use a password to obtain access to encryption keys when a Trusted Platform Module (TPM) is not available. If the check box is cleared and the TPM is not available, full disk encryption will not start. **Only password (Windows 8 and later versions)** If this option is selected, Kaspersky Embedded Systems Security prompts the user for a password when the user attempts to access an encrypted drive. This option can be selected when a Trusted Platform Module (TPM) is not being used. The selected authentication method must be configured by specifying password or PIN requirements: • **Minimum PIN length (characters)**. • **Use enhanced PIN (letters and numbers)**. Enhanced PIN allows using other characters in addition to numerical characters: uppercase and lowercase Latin letters, special characters, and spaces. • **Minimum password length (characters)**. • **Limit password / PIN validity period for TPM (days)**.
Automatically recreate recovery key (days)	Automatically update the password to restore access to a drive protected by BitLocker. If the check box is selected, specify the validity period of the recovery key password.

Decrypting a hard drive protected by BitLocker

Users can decrypt a disk using the operating system (the *Turn Off BitLocker* function). After this, Kaspersky Embedded Systems Security prompts to re-encrypt the disk. Kaspersky Embedded Systems Security will be prompting to encrypt the disk unless you enable disk decryption in the policy.

How to decrypt a hard drive protected by BitLocker using the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. Select the **Data Encryption** section.
4. In the **Encryption mode** drop-down list, select **Decrypt all hard drives**.
5. Click **OK** to save the changes.

How to decrypt a hard drive protected by BitLocker using the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Go to the **Data Encryption** section.
5. Click the **Configure** button in the **Full Disk Encryption** subsection.
6. In the **Encryption mode** drop-down list, select **Decrypt all hard drives**.
7. Click **OK** to save the changes.

You can use the Application Console to control the disk encryption or decryption process.

Restoring access to a drive protected by BitLocker

If a user has forgotten the password for accessing a hard drive encrypted by BitLocker, you need to start the recovery procedure (Request-Response).

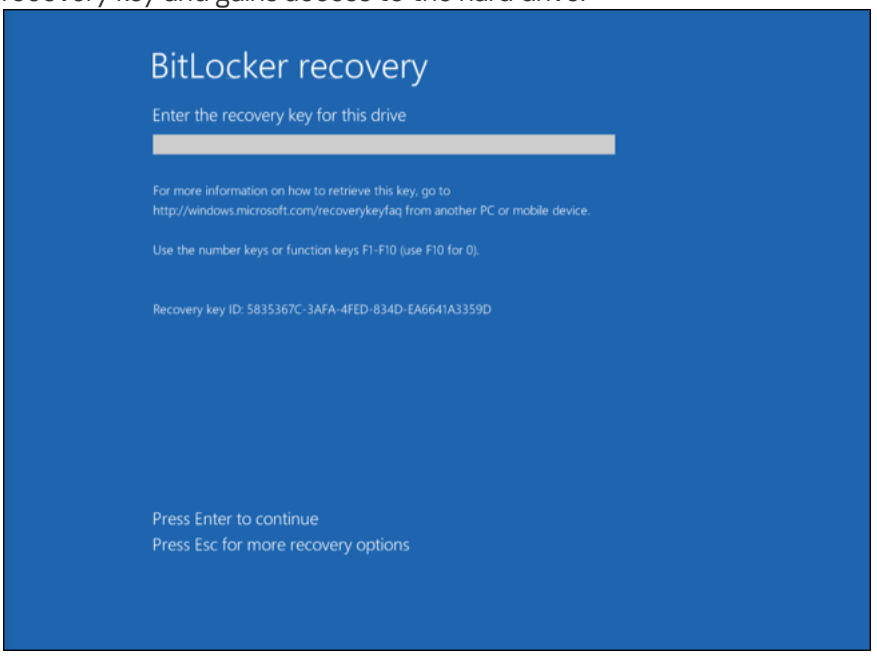
If the computer's operating system has Federal Information Processing standard (FIPS) compatibility mode enabled, then in Windows 8 and older the recovery key file is saved to the removable drive before encryption. To restore access to the drive, insert the removable drive and follow the on-screen instructions.

Restoring access to a hard drive encrypted by BitLocker consists of the following steps:

1. The user tells the administrator the recovery key ID (see the figure below).
2. The administrator verifies the ID of the recovery key in the computer properties in Kaspersky Security Center. The ID that the user provided must match the ID that is displayed in the computer properties.

   If the recovery key IDs match, the administrator hands over the recovery key to the user.

3. The user enters the recovery key and gains access to the hard drive.



Restoring access to a hard drive encrypted by BitLocker

Restoring access to a system drive

To start the recovery procedure, the user needs to press the **Esc** key at the pre-boot authentication stage.

How to view the recovery key for a system drive encrypted by BitLocker in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Managed devices**.
2. Go to the **Devices** tab.
3. Open the context menu of the user computer that requested encrypted data access recovery.
4. In the context menu, select **Grant access in offline mode**.
5. Ask the user for the recovery key ID indicated in the BitLocker password input window, and compare it with the ID in the **Recovery key ID** field on the **Access to a BitLocker-protected system drive** tab.

   If the IDs do not match, this key is not valid for restoring access to the specified system drive. Make sure that the name of the selected computer matches the name of the user's computer.

6. Send the user the key that is indicated in the **Recovery key** field.

How to view the recovery key for a system drive encrypted by BitLocker in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Assets (Devices)**.
2. Select the check box next to the name of the computer whose drive you want to restore access to.
3. Click **Grant access to the device in offline mode**.

4. Verify the recovery key ID. The ID provided by the user must match the ID that is displayed in the computer settings.

   If the IDs do not match, this key is not valid for restoring access to the specified system drive. Make sure that the name of the selected computer matches the name of the user's computer.

5. Click **Receive key**.

6. Send the user the key that is indicated in the **Recovery key** field.

After the operating system is loaded, Kaspersky Embedded Systems Security prompts the user to change the password or PIN code. After you set a new password or PIN code, BitLocker creates a new recovery password, which the application sends to Kaspersky Security Center.

Restoring access to a non-system drive

To start the recovery procedure, the user needs to click the **Forgot your password** link in the window providing access to the drive. After gaining access to the encrypted drive, the user can enable automatic unlocking of the drive during Windows authentication in the BitLocker settings.

How to view the recovery key for a non-system drive encrypted by BitLocker in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select the **Advanced → Data encryption and protection → Encrypted drives** folder.

2. In the workspace, select the encrypted device for which you want to create an access key file, then in the context menu of the device, click **Get access to the device in Kaspersky Embedded Systems Security**.

3. Prompt the user for the recovery key ID indicated in the BitLocker password input window, and compare it with the ID in the **Recovery key ID** field.

   If the IDs do not match, this key is not valid for restoring access to the specified drive. Make sure that the name of the selected computer matches the name of the user's computer.

4. Send the user the key that is indicated in the **Recovery key** field.

How to view the recovery key for a non-system drive encrypted by BitLocker in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Operations → Data encryption and protection → Encrypted drives**.

2. Select the check box next to the name of the computer whose drive you want to restore access to.

3. Click **Grant access to the device in offline mode**.

   This starts the Wizard for granting access to a device.

4. Follow the instructions of the Wizard for granting access to a device:

   a. Select the Kaspersky Embedded Systems Security plug-in.

   b. Verify the recovery key ID. The ID provided by the user must match the ID that is displayed in the computer settings.

      If the IDs do not match, this key is not valid for restoring access to the specified system drive. Make sure that the name of the selected computer matches the name of the user's computer.

   c. Click **Receive key**.

5. Send the user the key that is indicated in the **Recovery key** field.

Pausing BitLocker protection to update software

There are a number of special considerations for updating the operating system, installing update packages for the operating system, or updating other software with BitLocker protection turned on. Installing updates may require restarting the computer multiple times. After each restart, the user must complete BitLocker authentication. To make sure updates install correctly, you can temporarily turn off BitLocker authentication. In this case the disk stays encrypted and the user has access to data after signing in to the system. To manage BitLocker authentication, you can use the *BitLocker Protection Management* task. You can use this task to specify the number of computer restarts that do not require BitLocker authentication. In this way, after updates are installed and the *BitLocker Protection Management* task is complete, BitLocker authentication is automatically enabled. You can enable BitLocker authentication at any time.

How to pause BitLocker protection in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Tasks**.

   The list of tasks opens.

2. Click **New task**.

The Task Wizard starts. Follow the instructions of the Wizard.

Step 1. Selecting task type

Select **Kaspersky Embedded Systems Security for Windows (4.1)** → **BitLocker Protection Management**.

Step 2. BitLocker Protection Management

Configure BitLocker authentication. To pause BitLocker protection, select **Temporarily allow skipping BitLocker authentication** and enter the number of restarts without BitLocker authentication (1 to 15 times). If necessary, enter an expiration date and time for the task. At the specified time, the task is automatically turned off, and the user must complete BitLocker authentication when the computer is restarted.

Step 3. Selecting the devices to which the task will be assigned

Select the computers on which the task will be performed. The following options are available:

- Assign the task to an administration group. In this case, the task is assigned to computers included in a previously created administration group.
- Select computers detected by the Administration Server in the network: *unassigned devices*. The specific devices can include devices in administration groups as well as unassigned devices.
- Specify device addresses manually, or import addresses from a list. You can specify NetBIOS names, IP addresses, and IP subnets of devices to which you want to assign the task.

Step 4. Defining the task name

Enter the name of the task, for example *Updating to Windows 10*.

Step 5. Completing task creation

Finish the wizard. If necessary, select the **Run the task after the wizard finishes** check box. You can monitor the progress of the task in the task properties.

How to pause BitLocker protection using Web Console

1. In the main window of the Web Console, select **Asset management → Tasks**.

   The list of tasks opens.

2. Click **Add**.

The Task Wizard starts. Follow the instructions of the Wizard.

Step 1. Configuring general task settings

Configure the general task settings:

1. In the **Application** drop-down list, select **Kaspersky Embedded Systems Security**.
2. In the **Task type** drop-down list, select **BitLocker Protection Management**.
3. In the **Task name** field, enter a brief description, for example, *Updating to Windows 10*.
4. In the **Devices to which the task will be assigned** block, select the task scope.

Step 2. BitLocker Protection Management

Configure BitLocker authentication. To pause BitLocker protection, select **Temporarily allow skipping BitLocker authentication** and enter the number of restarts without BitLocker authentication (1 to 15 times). If necessary, enter an expiration date and time for the task. At the specified time, the task is automatically turned off, and the user must complete BitLocker authentication when the computer is restarted.

Step 3. Completing task creation

Finish the wizard. A new task will be displayed in the list of tasks.

To run a task, select the check box opposite the task and click the **Start** button.

As a result, when the task is running, after the next restart of the computer, BitLocker does not prompt the user for authentication. After each restart of the computer without BitLocker authentication, Kaspersky Embedded Systems Security generates a corresponding event and records the number of remaining restarts.

When the specified number of restarts or the expiration time of the task is reached, BitLocker authentication is automatically turned on. To gain access to data, the user must complete BitLocker authentication.

On computers running Windows 7, BitLocker cannot count computer restarts. Counting restarts on Windows 7 computers is handled by Kaspersky Embedded Systems Security. Thus to automatically turn on BitLocker authentication after each restart, Kaspersky Embedded Systems Security must be started.

To turn on BitLocker authentication ahead of time, open the *BitLocker Protection Management* task properties and select **Request authentication each time in preboot**.

Integrating with third-party systems

This section describes integration of Kaspersky Embedded Systems Security with third-party features and technologies.

Performance counters for System Monitor

Performance Counters is a component of Kaspersky Embedded Systems Security that you can use to monitor application performance during the operation of protection components. Kaspersky Embedded Systems Security registers performance counters during installation.

It is possible to review the application performance counters using the "System Monitor" application, available in the Windows Control Panel. For detailed information on using performance counters, refer to the Microsoft Technical Support website.

Using performance counters, you can, for example, identify resource shortages when Kaspersky Embedded Systems Security is running alongside other applications, as well as diagnose crashes and identify undesirable settings of Kaspersky Embedded Systems Security.

Number of requests not processed due to a lack of resources

Number of requests not processed due to a lack of resources

Description	Total number of requests from the file interception driver which were not processed because of a lack of system resources (for example, RAM); counted from the time Kaspersky Embedded Systems Security was last started. Kaspersky Embedded Systems Security skips object processing requests that are not processed by the file interception driver.
Purpose	This counter can be used to detect and eliminate potentially lower quality in Real-Time Computer Protection that occurs because of low system resources.
Normal / threshold value	0 / 1
Recommended reading interval	1 hour.
Recommendations for configuration if value exceeds the threshold	If the counter value is anything other than zero, the Kaspersky Embedded Systems Security process needs more RAM to process requests. Active processes of other applications may be using all available RAM.

Number of requests submitted for processing

Number of requests submitted for processing

Description	The number of objects waiting to be processed by work processes.
Purpose	This counter can be used to monitor the load on Kaspersky Embedded Systems Security work processes and the overall level of file activity on the protected device.
Normal / threshold value	The counter may vary depending on the level of file activity on the protected device.

Recommended reading interval	1 minute.
Recommendations for configuration if value exceeds the threshold	N/A

Number of objects processed per second

Number of objects processed per second

Description	Number of objects processed divided by the amount of time that it took to process those objects (calculated over equal time intervals).
Purpose	This counter reflects the speed of object processing; it can be used to detect and eliminate low points in protected device performance that occur because of insufficient processor time being allotted to the Kaspersky Embedded Systems Security process or errors in Kaspersky Embedded Systems Security operation.
Normal / threshold value	Varies / No.
Recommended reading interval	1 minute.
Recommendations for configuration if value exceeds the threshold	The values of this counter depend on the values set in Kaspersky Embedded Systems Security settings and the load on the protected device from other applications' processes. Observe the average counter value over an extended period of time. If the average counter value decreases, one of the following situations is possible: • The Kaspersky Embedded Systems Security process does not have enough processor time to process the objects. Make sure Kaspersky Embedded Systems Security receives additional processor time (by reducing other applications' load on the protected device, for example). • Kaspersky Embedded Systems Security has experienced an error (several streams are idle). Restart Kaspersky Embedded Systems Security.

Number of elements in the infected objects queue

Number of elements in the infected objects queue

Description	Number of infected objects currently waiting to be processed (disinfected or deleted).
Purpose	This counter can help you detect: • Interruption of Real-Time Computer Protection due to potential failures of file interception dispatchers. • Overloading of processes due to uneven distribution of processor time among different work processes and Kaspersky Embedded Systems Security. • Virus outbreaks.
Normal / threshold value	This value may be something other than zero while Kaspersky Embedded Systems Security is processing infected or probably infected objects but will return to zero after processing is finished / The value remains non-zero for an extended period of time.
Recommended reading interval	1 minute.
Recommendations for configuration if value exceeds the threshold	If the value of the counter does not return to zero for an extended period of time: • Kaspersky Embedded Systems Security is not processing objects (the file interception dispatcher may have crashed). Restart Kaspersky Embedded Systems Security. • There may be insufficient processor time to process the objects. Make sure Kaspersky Embedded Systems Security receives additional processor time (by reducing other applications' load on the protected device, for example). • There has been a virus outbreak. A large number of infected or probably infected objects in the Real-Time File Protection component is also a sign of a virus outbreak. You can view information about the number of detected objects in the component statistics or component logs.

Total number of requests denied

Total number of requests denied

Description	**Total number of object processing requests made by the file interception driver and not accepted by the application processes; counted from the time Kaspersky Embedded Systems Security was last started.** **The application skips objects for which processing requests are denied by Kaspersky Embedded Systems Security processes.**
Purpose	This counter can help you detect: • Reduced Real-Time Computer Protection because Kaspersky Embedded Systems Security processes are overworked. • Interruption of Real-Time Computer Protection because of failures of file interception dispatchers.
Normal / threshold value	0 / 1
Recommended reading interval	1 hour.
Recommendations for configuration if value exceeds the threshold	The number of denied processing requests corresponds to the number of skipped objects. The following situations are possible depending on counter behavior: • The counter shows a few requests denied for a long time: the Kaspersky Embedded Systems Security process was working at full capacity. The application was unable to scan the objects. To prevent objects being skipped, increase system resources allocated to the application. • The number of request denied significantly exceeds the critical threshold and is growing quickly: the file interception dispatcher has crashed. Kaspersky Embedded Systems Security is not scanning objects when they are accessed. Restart Kaspersky Embedded Systems Security.

Total number of requests skipped

Total number of requests skipped

Description	The total number of object processing requests made by the file interception driver that have been received by Kaspersky Embedded Systems Security and have not generated events indicating that processing is complete; this number is counted starting from the moment when the application was last started. If an object processing request is accepted by one of the work processes but does not send an event indicating that processing is complete, the driver will transfer the request to another process and the value of the **Total Number of Skipped Requests** counter will increase by 1. If the driver has gone through all of the work processes and none of them has accepted the processing request (all were busy) or has not sent an event indicating that processing is complete, Kaspersky Embedded Systems Security will skip the object, so the value of the **Total Number of Skipped Requests** counter will increase by 1.
Purpose	This counter enables you to detect drops in performance due to failures of file interception dispatchers.
Normal / threshold value	0 / 1
Recommended reading interval	1 hour.
Recommendations for configuration if value exceeds the threshold	If the counter is anything other than zero, this means that one or more file interception dispatcher streams have frozen and are down. The counter value corresponds to the number of streams currently down. If the scan speed is not satisfactory, restart Kaspersky Embedded Systems Security to restore the off-line streams.

Maximum number of file interception dispatcher streams

Starting from Kaspersky Embedded Systems Security version 4.1, the "Maximum number of file interception dispatcher streams" counter is not supported.

Average number of file interception dispatcher streams

Starting from Kaspersky Embedded Systems Security version 4.1, the "Average number of file interception dispatcher streams" counter is not supported.

Kaspersky Embedded Systems Security SNMP counters and traps

If you included the SNMP Protocol Support component in the set of anti-virus components to be installed, you can view Kaspersky Embedded Systems Security counters and traps using Simple Network Management Protocol (SNMP).

To view Kaspersky Embedded Systems Security counters and traps from the administrator's workstation, start SNMP Service on the protected device and start SNMP and SNMP Trap Services on the administrator's workstation.

Kaspersky Embedded Systems Security SNMP counters

This section contains tables with a description of the settings for Kaspersky Embedded Systems Security SNMP counters.

Performance counters

Performance counters

Counter	Definition
currentRequestsAmount	Number of requests submitted for processing
currentInfectedQueueLength	Number of elements in the infected objects queue
currentObjectProcessingRate	Number of objects processed per second
currentWorkProcessesNumber	Current number of work processes used by Kaspersky Embedded Systems Security

Backup counter

Backup counter

Counter	Definition
currentBackupStorageSize	Total amount of data in Backup (MB)

General counters

General counters

Counter	Definition
lastCriticalAreasScanAge	The time interval in seconds since the task *Critical Areas Scan* was completed.
licenseExpirationDate	License expiration date. If an active and additional key have been added, the date of expiry of the license associated with the additional key is displayed.
currentApplicationUptime	The amount of time that Kaspersky Embedded Systems Security has been running since it was last started, in hundredths of seconds.

Update counter

Update counter

Counter	Definition
avBasesAge	Time elapsed in hundredths of seconds since the creation date of the latest installed database updates.

Real-Time File Protection counters

Real-Time File Protection counters

Counter	Definition
totalObjectsProcessed	Total number of objects scanned since the last launch of the Real-Time File Protection component
totalInfectedObjectsFound	Total number of infected and other objects detected since the last launch of the Real-Time File Protection component
totalSuspiciousObjectsFound	Total number of probably infected objects detected since the last launch of the Real-Time File Protection component
totalVirusesFound	Total number of objects detected since the last launch of the Real-Time File Protection component
totalObjectsQuarantined	Total number of infected, probably infected and other objects which were placed into Quarantine by Kaspersky Embedded Systems Security; calculated from the time the Real-Time File Protection component was last launched
totalObjectsNotQuarantined	Total number of infected or probably infected objects Kaspersky Embedded Systems Security attempted to quarantine but was unable to; calculated from the time the Real-Time File Protection component was last launched
totalObjectsDisinfected	Total number of infected objects disinfected by Kaspersky Embedded Systems Security; calculated from the time the Real-Time File Protection component was last launched
totalObjectsNotDisinfected	Total number of infected and other objects which Kaspersky Embedded Systems Security attempted to disinfect but was unable to; calculated from the time the Real-Time File Protection component was last launched
totalObjectsDeleted	Total number of infected, probably infected and other objects which were deleted by Kaspersky Embedded Systems Security; calculated from the time the Real-Time File Protection component was last launched
totalObjectsNotDeleted	Total number of infected, probably infected and other objects which Kaspersky Embedded Systems Security attempted to delete but was unable to; calculated from the time the Real-Time File Protection component was last launched
totalObjectsBackedUp	Total number of infected objects and other which were placed into Backup by Kaspersky Embedded Systems Security; calculated from the time the Real-Time File Protection component was last launched
totalObjectsNotBackedUp	Total number of infected objects and other which Kaspersky Embedded Systems Security attempted to place into Backup but was unable to; calculated from the time the Real-Time File Protection component was last launched

Counter	Definition
currentFileMonitorTaskStatus	Status of the Real-Time File Protection component: • `1` means the component is enabled and is providing protection. • `0` means the component is not providing protection. For example: disabled, not installed, the License Agreement has been violated.

AMSI Scanner counters

AMSI Scanner counters

Counter	Definition
currentScriptCheckerTaskStatus	Status of the AMSI Scanner component: • `1` means the component is enabled and is providing protection. • `0` means the component is not providing protection. For example: disabled, not installed, the License Agreement has been violated.
totalScriptsProcessed	Number of scripts processed since the last launch of the AMSI Scanner component.
totalInfectedIDangerousScriptsFound	Number of dangerous scripts detected since the last launch of the AMSI Scanner component.
totalSuspiciousScriptsFound	Total number of suspicious scripts detected since the last launch of the AMSI Scanner component.
totalScriptsBlocked	Total number of scripts blocked since the last launch of the AMSI Scanner component. The counter value changes if the component is enabled in the **Block**, and is equal to the value of the totalInfectedIDangerousScriptsFound counter.

Kaspersky Embedded Systems Security SNMP traps and their options

The SNMP traps options in Kaspersky Embedded Systems Security are summarized as follows:

- eventThreatDetected: Object detected.

  The trap has the following options:

  - eventDateAndTime
  - eventSeverity
  - computerName
  - userName
  - objectName
  - threatName
  - detectType
  - detectCertainty

- eventBackupStorageSizeExceeds: Maximum Backup size exceeded. The total amount of data in Backup exceeds the value specified by **Limit the size of Backup to**. Kaspersky Embedded Systems Security continues to back up infected objects.

The trap has the following options:

- eventDateAndTime
- eventSeverity
- eventSource

- eventThresholdBackupStorageSizeExceeds: Backup free space threshold exceeded. The amount of free space in Backup is less than or equal to the value specified by **Threshold value for available space (MB)**. Kaspersky Embedded Systems Security continues to back up infected objects.

  The trap has the following options:

  - eventDateAndTime
  - eventSeverity
  - eventSource

- eventObjectNotBackuped: Object not backed up.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource
  - objectName
  - userName
  - computerName
  - storageObjectNotAddedEventReason

- eventBackupInternalError: Backup error.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource
  - eventReason

- eventAVBasesOutdated: Databases are out of date. Number of days since the last time the *Update* task (local task, group task, or task for sets of protected devices) was run.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime

- eventSource
- days

- eventAVBasesTotallyOutdated: Databases are extremely out of date. Number of days since the last time the *Update* task (local task, group task, or task for sets of protected devices) was run.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource
  - days

- eventApplicationStarted: Application started.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource

- eventApplicationShutdown: Application stopped.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource

- eventCriticalAreasScanWasntPerformForALongTime: Critical areas scan has not been performed for a long time. The number of days since the *Critical Areas Scan* task was last completed.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource
  - days

- eventLicenseHasExpired: License expired.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource

- eventLicenseExpiresSoon: License expires soon. Calculated as the number of days until the expiration date for the license.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource
  - days

- eventTaskInternalError: Task completion error.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - eventSource
  - errorCode
  - knowledgeBaseId
  - taskName

- eventUpdateError: Error while running the *Update* task.

  The trap has the following options:

  - eventSeverity
  - eventDateAndTime
  - taskName
  - updaterErrorEventReason
  - eventSource

Kaspersky Embedded Systems Security SNMP traps options descriptions and possible values

Descriptions of the traps options and their possible values are given below:

- eventDateAndTime: event date and time
- eventSeverity: importance level

The option can take the following values:

- critical (1) – critical
- warning (2) – warning
- info (3) – informational

- userName: user name (for example, the name of a user that attempted to access an infected file).
- computerName: protected device name (for example, the name of a protected device from which a user attempted to access an infected file).
- eventSource: functional component that generated the event.

  The option can take the following values:

  - unknown (0) – Functional component unknown
  - quarantine (1) – Quarantine
  - backup (2) – Backup
  - reporting (3) – Task logs
  - updates (4) – Update
  - realTimeProtection (5) – Real-Time File Protection
  - onDemandScanning (6) – On-Demand Scan
  - product (7) – event related to operation of Kaspersky Embedded Systems Security as a whole rather than operation of individual components
  - systemAudit (8) – system audit log
- eventReason: event trigger: what triggered the event.

  The option can take the following values:

  - reasonUnknown (0) – reason is unknown.
  - reasonInvalidSettings (1) – only for Backup and Quarantine events. Displayed if the Quarantine or Backup folder is unavailable (insufficient access permissions or an invalid folder is specified in the Quarantine settings, for example, a network path is specified). In this case, Kaspersky Embedded Systems Security will use the default Backup or Quarantine folder.
- objectName: an object name (for example, the name of the file where the virus was detected).
- threatName: The name of the object according to the Virus Encyclopedia classification. This name is included in the full name that Kaspersky Embedded Systems Security returns on detecting an object. You can view the full name of a detected object in the task log.
- detectType: type of object detected.

The option can take the following values:

- undefined (0) – Not defined
- virware – Classic viruses and network worms
- trojware – Trojans
- malware – Other malicious applications
- adware – Advertising software
- pornware – Pornographic software
- riskware – Legitimate applications that may be used by intruders to damage the user's device or personal data

- detectCertainty: certainty level for threat detection.

  The option can take the following values:

  - Suspicion (probably infected) – Kaspersky Embedded Systems Security has detected a partial match between a section of object code and a known section of malicious code.
  - Sure (infected) – Kaspersky Embedded Systems Security has detected a complete match between a section of code in the object and a known section of malicious code.

- days: number of days (for example, the number of days until the license expiration date).
- errorCode: an error code.
- taskName: task name.
- updaterErrorEventReason: the reason for the update error.

  The option can take the following values:

  - reasonUnknown(0) – reason is unknown.
  - reasonAccessDenied – access denied.
  - reasonUrlsExhausted – the list of update sources has been exhausted.
  - reasonInvalidConfig – invalid configuration file.
  - reasonInvalidSignature – invalid signature.
  - reasonCantCreateFolder – folder cannot be created.
  - reasonFileOperError – file error.
  - reasonDataCorrupted – object corrupted.
  - reasonConnectionReset – connection reset.
  - reasonTimeOut – connection timeout exceeded.

- reasonProxyAuthError – proxy authentication error.
- reasonServerAuthError – server authentication error.
- reasonHostNotFound – device not found.
- reasonServerBusy – server unavailable.
- reasonConnectionError – connection error.
- reasonModuleNotFound – object not found.
- reasonBlstCheckFailed (16) – error while checking the key denylist. It is possible that database updates were being published at the time of the update; please repeat the update in a few minutes.

- storageObjectNotAthreatddedEventReason: the reason why the object was not put in Backup or Quarantine.

  The option can take the following values:

  - reasonUnknown (0) – reason is unknown.
  - reasonStorageInternalError – database error; Kaspersky Embedded Systems Security must be restored.
  - reasonStorageReadOnly – database is read-only; Kaspersky Embedded Systems Security must be restored.
  - reasonStorageIOError – input-output error: a) Kaspersky Embedded Systems Security is corrupted and needs to be restored; b) the disk where Kaspersky Embedded Systems Security files are stored is corrupted.
  - reasonStorageCorrupted – storage is corrupted; Kaspersky Embedded Systems Security must be restored.
  - reasonStorageFull – database is full; free disk space is required.
  - reasonStorageOpenError – database file could not be opened; Kaspersky Embedded Systems Security must be restored.
  - reasonStorageOSFeatureError – some operating system features do not correspond to Kaspersky Embedded Systems Security requirements.
  - reasonObjectNotFound – object being placed in Quarantine does not exist on the disk.
  - reasonObjectAccessError – insufficient permissions to use Backup API: the account being used to perform the operation does not have Backup Operator permissions.
  - reasonDiskOutOfSpace – not enough space on the disk.

WMI Integration

Kaspersky Embedded Systems Security supports integration with Windows Management Instrumentation (WMI): you can use client systems that use WMI to receive data via the Web-Based Enterprise Management (WBEM) standard in order to receive information about the status of Kaspersky Embedded Systems Security and its components.

When Kaspersky Embedded Systems Security is installed, it registers a proprietary module on the system to create a Kaspersky Embedded Systems Security namespace on the protected device. A Kaspersky Embedded Systems Security namespace lets you work with Kaspersky Embedded Systems Security classes and instances and their properties.

The values of some instance properties depend on task types.

A *non-periodic task* is an application task that is not time-limited and can either be constantly running or stopped. Such tasks have no execution progress. The task results are logged continuously while the task is running as single events (for example, detection of an infected object by any Real-Time Computer Protection tasks). This type of tasks is managed via Kaspersky Security Center policies.

A *periodic task* is an application task that is time-limited and has execution progress displayed as a percentage. The task results are generated when the task is complete and are represented as a single item or changed application state (for example, completed application database update, generated configuration files for rule generation tasks). Several periodic tasks of the same type can run on a single protected device simultaneously (e.g. three On-Demand scan tasks with different scan scopes). Periodic tasks can be managed via Kaspersky Security Center as group tasks.

If you use tools to generate WMI namespace queries and receive dynamic data from WMI namespaces on your corporate network, you will be able to receive information about the current application state (see the table below).

Information about the application state

Instance property	Description	Values
`ProductName`	Name of the installed application.	Full name of the application without version number.
`ProductVersion`	Full version number of the installed application.	Full application version number, including the build number.
`InstalledPatches`	Set of display names for installed patches.	List of critical fixes installed for the application.
`IsLicenseInstalled`	Application activation status.	Status of the key used to activate the application. Possible values: • `False` No license key has been added. • `True` A license key has been added.
`LicenseDaysLeft`	Shows how many days are left before a current license expiration.	Number of days remaining before expiration of the current license. Possible non-positive values: • `0` License has expired. • `-1` Unable to get information on the current key or the specified key cannot be used to activate the application (for example, it is blocked based on key denylist).
`AVBasesDatetime`	Timestamp for the current anti-virus database version.	Date and time of the creation of the anti-virus databases currently in use. If the installed application does not use anti-virus databases, then the field has the `{Not installed}` value.
`IsExploitPreventionEnabled`	Status of the Exploit Prevention component.	Status of the Exploit Prevention component. Possible values: • `True` The Exploit Prevention component is enabled and is providing protection. • `False` The Exploit Prevention component is not providing protection. For example: disabled, not installed, the License Agreement has been violated.
`ProtectionTasksRunning`	Set of protection tasks that are currently running.	List of protection, control, and monitoring tasks currently running. This field should account for all running non-periodic tasks. If no non-periodic task is running, the field has the `{No}` value.

Instance property	Description	Values
`IsAppControlRunning`	Status of the Applications Launch Control component.	Possible values • `True` The Applications Launch Control component is enabled and is providing protection. • `False` The Applications Launch Control component is not providing protection. For example: disabled, not installed, the License Agreement has been violated.
`AppControlMode`	The Applications Launch Control component operating mode.	Possible values: • `Active` The **Block** mode is specified in component settings. • `Statistics Only` The **Inform** mode is specified in component settings. • `Not installed` The Applications Launch Control component is not installed. • `Unknown` The component is disabled.
`AppControlRulesNumber`	Total number of applications launch control rules.	The number of rules specified in the settings of the Applications Launch Control component at the current moment.
`AppControlLastBlocking`	The timestamp for the last application launch blocking by the Applications Launch Control component in any mode.	Date and time for the last application launch blocking by the Applications Launch Control component. This field includes all blocked applications, regardless of the operating mode of the component. If no instances of blocked application launches are registered at the time the WMI query is processed, the field is assigned the `{No}` value.
`PeriodicTasksRunning`	Set of periodic tasks that are currently running.	List of On-Demand Scan, Update, and inventory-taking tasks currently running. This field should include all running periodic tasks. If no periodic tasks are currently running, then the field has the `{No}` value.
`ConnectionState`	Status of the connection between the WMI Provider component and the Kaspersky Embedded Systems Security Service.	Information about the status of the connection between the WMI Provider component and the Kaspersky Embedded Systems Security Service. Possible values: • `Success` Connection was successfully established: the WMI client can receive the application status. • `Failed. Error Code: <code>` Connection could not be established due to an error with the specified code.
`IsDumpingEnabled`	Memory dump recording status.	Possible values • `True` Memory dump recording is enabled. • `False` Memory dump recording is disabled.
`DumpsFolder`	Folder for storing dump files.	Full folder path. If dump recording is disabled, this field is empty.
`IsTracingEnabled`	Application tracing status.	Possible values • `True` Application tracing is enabled. • `False` Application tracing is disabled.
`TraceFolder`	Folder for storing trace files.	Full folder path. If application tracing is disabled, this field is empty.
`AllTasksState`	The status of all tasks.	Information about the status of tasks in the `{<profile-name_1>, <profile-type_1>, <profile-state_1>,...<profile-name_N>, <profile-type_N>, <profile-state_N>}` format, where `profile-name` is the name of the task, `profile-type` is the type of the task, and `profile-state` is the current status of the task. Possible status values: • `not started` The task has not been started yet. • `running` The task is running. • `running ma` The task is running; a fault occurred while running. • `paused` The task is paused. • `stopped` The task is stopped. • `completed` The task has completed successfully. • `failed` The task ended with an error. • `disabled` The task is disabled and cannot be run. • `starting` The task is in the process of starting. • `pausing` The task is in the process of being paused. • `stopping` The task is in the process of being stopped. • `<unknown>` Cannot determine the status.

Instance property	Description	Values
`IsDevControlRunning`	Status of the Device Control component.	Possible values: • `True` The Device Control component is enabled and is providing protection. • `False` The Device Control component is not providing protection. For example: disabled, not installed, the License Agreement has been violated.
`IsKSNRunning`	Status of the Kaspersky Security Network component.	Possible values: • `True` The Kaspersky Security Network component is enabled and is providing protection. • `False` The Kaspersky Security Network component is not providing protection. For example: disabled, not installed, the License Agreement has been violated.
`IsOASRunning`	Status of the Real-Time File Protection component.	Possible values: • `True` The Real-Time File Protection component is enabled and is providing protection. • `False` The Real-Time File Protection component is not providing protection. For example: disabled, not installed, the License Agreement has been violated.

This data represents instance properties `KasperskySecurity_ProductInfo.ProductName=Kaspersky Embedded Systems Security`, where:

- `KasperskySecurity_ProductInfo` is the name of the Kaspersky Embedded Systems Security class.
- `.ProductName=Kaspersky Embedded Systems Security` are key properties of Kaspersky Embedded Systems Security.

The class is instantiated in the `ROOT\Kaspersky\Security` namespace.

Managed Detection and Response

Kaspersky Embedded Systems Security supports integration with the Managed Detection and Response solution.

Kaspersky Managed Detection and Response (also referred to as MDR) delivers round-the-clock protection from the growing volume of threats that circumvent automated security barriers to organizations who struggle to find the expertise and staff or possess limited in-house resources. Unlike similar offerings on the market, this service leverages a proven track record of effective targeted attack research to ensure continuous defense against even the most complex threats. The service helps improve your corporate resilience to cyberthreats, while freeing up your existing resources to focus their attention on other tasks.

MDR uses telemetry data received from endpoints and machine learning. MDR sends incident data to Kaspersky experts. The experts can then process the incident and, for example, add a new entry to Anti-Virus databases. Alternatively, the experts can issue recommendations on processing the incident and, for example, suggest isolating computer from the network. For detailed information about how the solution works, please refer to the Kaspersky Managed Detection and Response Help.

Configuring MDR integration

Integration with Kaspersky Managed Detection and Response consists of the following steps:

1. **Installing the Managed Detection and Response component**

   For integration of Kaspersky Embedded Systems Security with the Managed Detection and Response solution, the Managed Detection and Response component is used. To install this component using the installation package settings or the Setup Wizard, or by changing the set of the application components in the Windows Control Panel, select **Managed Detection and Response**. You can also install the component using the *Change Kaspersky Embedded Systems Security components* task.

   > To install the Managed Detection and Response component without restarting the computer using the *Change Kaspersky Embedded Systems Security components* task, you need to disable the **Check for incompatible third-party applications** option in the task settings.

2. **Configuring Kaspersky Private Security Network**

   Starting with the July 2025 update, the Managed Detection and Response solution supports operation without the KPSN configuration file. For detailed information on how the MDR solution uses Kaspersky Security Network, refer to the Kaspersky Managed Detection and Response Help.

   If your configuration does not meet the requirements for running without KPSN configuration files, upload the KPSN configuration file in the Administration Server properties. The KPSN configuration file is located inside the ZIP archive of the MDR configuration file. You can also upload the KPSN configuration file using the command line.

   For details on configuring Kaspersky Private Security Network, please refer to the Kaspersky Security Center Help.

3 Activating Kaspersky Managed Detection and Response

To activate the Managed Detection and Response solution in Kaspersky Embedded Systems Security, you need a separate license for Kaspersky Managed Detection and Response for Embedded Systems Security Add-on. For detailed information on activating the solution, refer to the Kaspersky Managed Detection and Response Help.

> Kaspersky Embedded Systems Security does not support MDR configuration files (BLOB files). All assets will be placed in the root tenant.

4 Enabling the Managed Detection and Response component

How to enable the Managed Detection and Response component in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. Select the **Telemetry collection servers** section.
4. In the **Managed Detection and Response** block, click the **Settings** button.

   The **Managed Detection and Response** window opens.
5. Select the **Managed Detection and Response** check box.
6. Save your changes.

How to enable the Managed Detection and Response component in the Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Telemetry collection servers** section.
5. In the **Managed Detection and Response** block, click the **Settings** button.

   The **Managed Detection and Response** window opens.
6. Select the **Managed Detection and Response DISABLED** check box.
7. Save your changes.

How to enable the Managed Detection and Response component in the Application Console

1. In the Application Console tree, select the **Telemetry collection servers** → **Managed Detection and Response** section.
2. Click the **Properties** link in the results pane.

   The **Managed Detection and Response** window opens on the **General** tab.

3. Select the **Managed Detection and Response** check box.

4. Save your changes.

You can also enable the Managed Detection and Response component using the command line.

5. **Configuring other components of the application to receive telemetry**

You must enable the following components for Kaspersky Managed Detection and Response to work:

- Kaspersky Security Network (extended mode).
- Real-Time File Protection.
- AMSI Scanner.
- Behavior Detection.
- Exploit Prevention.
- Network Threat Protection.
- Firewall.
- On-Demand Scan.

For Kaspersky Managed Detection and Response to work with Administration Server via Kaspersky Security Center Web Console, you must also establish a new secure connection, a *background connection*. Kaspersky Managed Detection and Response prompts you to establish a background connection when you deploy the solution. Make sure the background connection is established.

Establishing a background connection in Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Settings** → **Integration**.

2. Go to the **Integration** section.

3. Turn on the **Background connection for integration Enabled** toggle.

4. Save your changes.

Managing Kaspersky Embedded Systems Security on the command line

You can manage and administer Kaspersky Embedded Systems Security on the command line.

To manage Kaspersky Embedded Systems Security on the command line:

1. On the device, run a command line interpreter (for example, cmd.exe) with the permissions of the local administrator.

2. Using the `cd` command, navigate to the folder where the kavshell.exe file is located.

   Example

   ```
   cd C:\Program Files (x86)\Kaspersky Lab\Kaspersky Embedded Systems Security.4.1.0
   ```

   You can also add the executable file path to the %PATH% system variable during the application installation phase and run the command without navigating to the application folder.

3. Use the following template to execute the command:

   ```
   KAVSHELL <command> [options]
   ```

   You can view the list of commands for managing the application by running the `KAVSHELL HELP` command. To read about the syntax of a specific command, enter `KAVSHELL HELP <command>`.

As a result, Kaspersky Embedded Systems Security performs the specified action.

APPCONTROL. Importing Applications Launch Control rules

The `KAVSHELL APPCONTROL` command allows importing rules of the Applications Launch Control component from an XML file, and removing all rules from the rule list of the component. To generate an XML file with rules, you can use a local or group *Rule Generator for Applications Launch Control* task.

Command syntax

```
KAVSHELL APPCONTROL /APPEND <path to XML file> | /REPLACE <path to XML file> | /MERGE <path to XML file> | /CLEAR
/PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/APPEND | /REPLACE | /MERGE | /CLEAR`	Required argument. Importing Applications Launch Control rules from the specified XML file: • `/APPEND` adds all rules from the file to the rule list of the component. If a rule is already in the list, it will be duplicated. • `/REPLACE` replaces the entire existing rule list of the component with the rules from the file. • `/MERGE` merges the rules from the file with the existing rule list. If a rule is already in the list, it will not be duplicated. To remove all rules of the Applications Launch Control component, use `/CLEAR`.
`<path to XML file>`	Required if `/APPEND`, `/REPLACE`, and `/MERGE` are passed. Full path to the XML file with rules.
`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL APPCONTROL /APPEND c:\rules\appctrlrules.xml /PWD:p@ssw0rd
```

APPCONTROL /CONFIG. Configuring the Applications Launch Control component

The `KAVSHELL APPCONTROL /CONFIG` command lets you manage the settings of the Applications Launch Control component.

Command syntax

```
KAVSHELLKAVSHELL APPCONTROL /CONFIG [/MODE:<applyrules|statistics>] [/DLL:<no|yes>] [/SAVETOFILE:<path to XML file>] [/SDC] [/CLEARSDC] /PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/MODE: <applyrules|statistics>`	Optional argument. The Applications Launch Control component operating mode: • `applyrules`: Kaspersky Embedded Systems Security controls the launch of applications using Applications Launch Control rules. • `statistics` (default value): Kaspersky Embedded Systems Security allows the startup of all applications. In this mode, the application only records information about all application launches, the rules that apply to the launched applications, and the actions that would have been performed if the component was running in `applyrules` mode.
`/DLL:<no|yes>`	Optional argument. DDL loading monitoring: • `no` (default value): Kaspersky Embedded Systems Security does not control the loading of DLL modules using Applications Launch Control rules. Loading of DLL modules is allowed. • `yes`: If this functionality is enabled, Kaspersky Embedded Systems Security allows or denies the loading of DLL modules using Applications Launch Control rules.
`/SAVETOFILE:<path to XML file>`	Optional argument. Saving the list of Applications Launch Control rules to the specified XML file.

`/SDC`	Optional argument. Export the application distribution cache to an XML configuration file specified by the `/SAVETOFILE` option.
`/CLEARSDC`	Optional argument. Deleting software distribution cache.
`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL APPCONTROL /CONFIG /mode:applyrules /dll:<no> /savetofile:c:\appcontrol\config.xml /PWD:p@ssw0rd
```

APPCONTROL /GENERATE. Rule Generator for Applications Launch Control

You can use the `KAVSHELL APPCONTROL /GENERATE` command to manage the *Rule Generator for Applications Launch Control* task.

Command syntax

```
KAVSHELL APPCONTROL /GENERATE <path to folder> | /SOURCE:<path to file with folders list> [/MASKS:<edms>]
[/RUNAPP] [/RULES:<ch|cp|h>] [/STRONG] [/USER:<user or group of users>] [/EXPORT:<path to XML file>] [/IMPORT:
<a|r|m>] [/PREFIX:<prefix for rules names>] [/UNIQUE] [/ADDPATH] /PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
`<path to folder>`	Required if `/SOURCE` is not passed. Path to a folder with executable files, MSI packages, and scripts. The task will create allow rules if files of the specified types and in the specified folders are launched.
`/SOURCE:<path to file with folders list>`	Required if `<path to folder>` is not passed. Path to a TXT file with a list of folders with executable files for which allowing rules will be automatically generated.
`/MASKS:<edms>`	Optional argument. Extensions of executable files for which allowing rules will be automatically generated. You can include files with the following extensions in the task scope: • `e` for EXE files • `d` for DLL files • `m` for MSI files • `s` for scripts
`/RUNAPP`	Optional argument. Create allow rules based on running applications.
`/RULES:<ch|cp|h>`	Optional argument. The criterion that the task will apply when creating Applications Launch Control allow rules: • `ch` to use the digital certificate. If the certificate is missing, use the SHA256 hash. • `cp` to use the digital certificate. If the certificate is missing, use the path to the executable file. • `h` to use the SHA256 hash.

`/STRONG`	Optional argument. Use of the subject and thumbprint of the file's digital certificate as a criterion for triggering the allowing rules for Applications Launch Control. Used together with the `/RULES:<ch|cp>` parameter.
`/USER:<user or group of users>`	Optional argument. Name of the user or group of users for which the rules will be applied.
`/EXPORT:<path to XML file>`	Optional argument. Path and name of the XML file to which you want to save the specified rules.
`/IMPORT:<a|r|m>`	Optional argument. Import generated rules into the list of Application Launch Control rules: • `a` adds all rules from the file to the rule list of the component. If a rule is already in the list, it will be duplicated. • `r` replaces the entire existing rule list of the component with the rules from the file. • `m` merges the rules from the file with the existing rule list. If a rule is already in the list, it will not be duplicated.
`/PREFIX:<prefix for rules names>`	Specifying a prefix for the names of Applications Launch Control allowing rules.
`/UNIQUE`	Adding information to the rules about the protected device, based on which the Applications Launch Control allowing rules are generated.
`/ADDPATH`	Add a path to an executable file to rules generated based on hashes.
`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL KAVSHELL APPCONTROL /GENERATE c:\folder /masks:edms /export:c\rules\appctrlrules.xml /PWD:p@ssw0rd
```

CONFIG. Supporting AM-PPL technology

The `KAVSHELL CONFIG` command allows you to manage application process protection using AM-PPL technology.

For the command to work properly, you need to disable Self-Defense mechanism.

Command syntax

```
KAVSHELL CONFIG /PPL:<ON|OFF> /PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/PPL:<ON|OFF>`	Required argument. Enables or disables AM-PPL technology support: • `ON` – enable support for AM-PPL technology. • `OFF` – disable support for AM-PPL technology.

`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL CONFIG /PPL:ON
KAVSHELL CONFIG /PPL:OFF
```

DEVCONTROL. Importing Device Control rules

The `KAVSHELL DEVCONTROL` command lets you import rules of the Device Control component from an XML file produced by the *Rule Generator for Device Control* command or remove all rules from the rule list of the component.

Command syntax

```
KAVSHELL DEVCONTROL /APPEND <path to XML file> | /REPLACE <path to XML file> | /MERGE <path to XML file> | /CLEAR
/PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/APPEND | /REPLACE | /MERGE | /CLEAR`	Required argument. Importing Device Control rules from the specified XML file: • `/APPEND` adds all rules from the file to the rule list of the component. If a rule is already in the list, it will be duplicated. • `/REPLACE` replaces the entire existing rule list of the component with the rules from the file. • `/MERGE` merges the rules from the file with the existing rule list. If a rule is already in the list, it will not be duplicated. To remove all rules of the Device Control component, use `/CLEAR`.
`<path to XML file>`	Required if `/APPEND`, `/REPLACE`, and `/MERGE` are passed. Full path to the XML file with rules.
`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL DEVCONTROL /MERGE c:\rules\appctrlrules.xml /PWD:p@ssw0rd
```

DUMP. Recording memory dumps

The `KAVSHELL DUMP` command lets you enable or disable memory dumping.

Command syntax

```
KAVSHELL DUMP </ON /F:<dump_file_folder> | /SNAPSHOT /F:<dump_file_folder> /P:<process_ID> | /OFF > [/PWD:
<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/ON`	Enable dump file creation.
`/F:<dump_file_folder>`	Required argument. Sets the folder in which the dump files are saved.
`/SNAPSHOT`	Creates a memory dump of a running process with the specified ID. The dump file is saved to the folder specified by the `/F` option.
`/P:<process_ID>`	Required if `/SNAPSHOT` is passed. Sets a process ID. You can find out the process ID by using the `tasklist` command.
`/OFF`	Disable dump file creation.
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL DUMP /ON /F:"C:\Dumps and others"
KAVSHELL DUMP /SNAPSHOT /F:"C:\Dumps and others" /P:1234 /PWD:p@ssw0rd
KAVSHELL DUMP /OFF
```

EXITPOLICY. Disabling policy on the device

The `KAVSHELL EXITPOLICY` command disables the Kaspersky Security Center policy on the device. After disabling the policy, all Kaspersky Embedded Systems Security settings become available for configuration, including the settings marked in the policy with a closed padlock (🔒).

Command syntax

```
KAVSHELL EXITPOLICY [/PWD:<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.

`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL EXITPOLICY /PWD:p@ssw0rd
```

EXPORT. Exporting application settings

The `KAVSHELL EXPORT` command lets you export Kaspersky Embedded Systems Security settings from a configuration file in XML format. You can save all application settings or only settings for individual components to a configuration file.

Command syntax

```
KAVSHELL EXPORT <profile> <file name> [/LOGIN:<user name>] [/PWD:<password>]
```

Command options

Parameter	Description
`<profile>`	Required argument. Enter the export settings profile name. A profile is a component, task, or functionality of Kaspersky Embedded Systems Security. You can view the list of available profiles by running the `KAVSHELL EXPORT /?` command. To export all application settings, specify the `product` profile.
`<file name>`	Required argument. Specify the file name in XML format to export the profile settings. You can also specify the file path. Example: `C:\Test\settings.xml` • If only a file name is specified in the command, the application attempts to place the file in the installation folder of the application. If the Self-Defense mechanisms of the application are enabled, the export will fail because the application's self-protection blocks the creation of a new file in the application folder. To export application settings, specify the file path.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.

Example

```
KAVSHELL EXPORT product C:\Test\settings.xml /LOGIN:Admin /PWD:p@ssw0rd
```

FBRESET. Clearing iSwift base

Kaspersky Embedded Systems Security can use the iSwift technology, which lets the application avoid rescanning files that have not been modified since the last scan. The `KAVSHELL FBRESET` command clears the database that stores information about scanned uninfected files. After the database is cleared, Kaspersky Embedded Systems Security scans all files that it accesses for the first time.

Command syntax

```
KAVSHELL FBRESET
```

FIM /BASELINE. Baseline System Integrity Monitor

You can use the `KAVSHELL FIM /BASELINE` command to manage the *Baseline System Integrity Monitor* task.

```
KAVSHELL FIM /BASELINE [[/CREATE {<monitoring scope>|/L:<path to TXT file containing the list of monitoring
areas>}] [/MD5 | /SHA256] [/SF] [/W:<file name>] [/ANSI]] [/SCAN {[/BL:<id baseline>] | [/ALIAS:<existing task
id>]} [/W:<file name>] [/ANSI]] [/CLEAR [/BL:<id baseline>] | [/ALIAS:<existing task id>]] [/SHOW [[/BL:<id
baseline>] | [/ALIAS:<existing task id>]]] [/EXPORT:<path to folder>[[/BL:<id baseline>] | [/ALIAS:<existing task
id>]]] [/PWD:<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/CREATE`	Starting a new *Baseline System Integrity Monitor* task that will create a snapshot of the system state.
`/SCAN`	Run *Baseline System Integrity Monitor* tasks with the ID of the system snapshot or an alternate name of an existing task.
`/CLEAR`	Deleting baseline. Specify the ID of a system snapshot or the alternative name of the task that created the snapshot. If neither an alternate task name nor a snapshot ID is specified, the application deletes all snapshots.
`/EXPORT`	Export data of all snapshots or the snapshot specified using the `/BL` option to the specified folder in a TXT file.
`/SHOW`	Display data from all snapshots of system state or the snapshot specified by the `/BL` option.
`<monitoring scope>`	Required if /L is not specified. Sets the monitoring scope of the task. You can use `*` and `?` characters to enter a path mask.
`/L`	Required if `<monitoring scope>` is not specified. Allows you to specify the path to the TXT file containing the list of monitoring scopes.
`/MD5`	Optional argument. Cannot be used together with the `/SHA256` parameter. Sets the MD5 algorithm for calculating the checksum. The MD5 algorithm is used by default.
`/SHA256`	Optional argument. Cannot be used together with the `/MD5` parameter. Sets the SHA256 algorithm for calculating the checksum. The MD5 algorithm is used by default.
`/SF`	Optional argument. Includes all subfolders in the monitoring scope of the task. By default, subfolders are not included in the monitoring scope.

`/ALIAS:<existing task id>`	Required if `/BL` is not specified. Task alias. You can find out the task alias by using the `KAVSHELL FIM /BASELINE /SHOW` command.
`/BL:<id baseline>`	Required if `/ALIAS` is not specified. Sets the ID of the system snapshot. You can find out the baseline ID by using the `KAVSHELL FIM /BASELINE /SHOW` command.
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL FIM /BASELINE /CREATE "c:\program files\*" /MD5 /SF
KAVSHELL FIM /BASELINE /CREATE /L:c:\programdata\mytask\list.txt /ALIAS:SystemIntegrityMonitorOnDemandTask$001
/MD5 /SF
KAVSHELL FIM /BASELINE /SCAN /ALIAS:SystemIntegrityMonitorOnDemandTask$001
KAVSHELL FIM /BASELINE /EXPORT:c:\programdata\mytask\baselines\
```

HELP. Displaying command help

To display the list of all available Kaspersky Embedded Systems Security commands, run one of the following commands:

```
KAVSHELL
KAVSHELL HELP
KAVSHELL /?
```

To display a description of a command and its syntax, run one of the following commands:

```
KAVSHELL HELP <command>
KAVSHELL <command> /?
```

Example

```
KAVSHELL HELP SCAN
```

IMPORT. Importing application settings

The `KAVSHELL IMPORT` command lets you import Kaspersky Embedded Systems Security settings from a configuration file in XML format. A configuration file can be created using the `KAVSHELL EXPORT` command.

Command syntax

```
KAVSHELL IMPORT <file_name> /PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
`<file name>`	Required argument. Specify the full path to the XML file, including its name and extension, from which you want to import settings.
`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL IMPORT C:\Test\settings.xml /PWD:p@ssw0rd
```

Command return values:

- 0: The operation completed successfully.
- -2: Service not running.
- -3: Insufficient permissions for running the command.
- -4: Object not found.
- -9: Attempt to run the managed device under a different user account failed.
- -99: Unknown error.
- -501: Operation successful, but an error or warning occurred during execution (for example, the application did not import the settings of some components).
- -502: Import file is missing or has an unrecognized format.
- -503: Incompatible settings (configuration file exported from a different application or a later and incompatible version of Kaspersky Embedded Systems Security).

KSN. Using KSN/KPSN

You can use the `KAVSHELL KSN` command to select a Kaspersky solution for determining the reputation of files or websites. Kaspersky Embedded Systems Security supports the following infrastructure solutions for working with Kaspersky reputation databases:

- *Kaspersky Security Network (KSN)* is the solution that is used by most Kaspersky applications. KSN participants receive information from Kaspersky and send Kaspersky information about objects detected on the user's computer to be analyzed additionally by Kaspersky analysts and to be included in the reputation and statistical databases.

- *Kaspersky Private Security Network (KPSN)* is a solution that enables users of computers hosting Kaspersky Embedded Systems Security or other Kaspersky applications to obtain access to Kaspersky reputation databases, and to other statistical data without sending data to Kaspersky from their own computers. KPSN is designed for corporate customers who are unable to participate in Kaspersky Security Network for any of the following reasons:

  - Local workstations are not connected to the Internet.

  - Transmission of any data outside the country or outside the corporate LAN is prohibited by law or restricted by corporate security policies.

Command syntax

```
KAVSHELL KSN /GLOBAL|/PRIVATE <settings-file> /PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/GLOBAL`	Switching to using Kaspersky Security Network.
`/PRIVATE <settings-file>`	Switching to using Kaspersky Private Security Network. Specify the name of the configuration file containing Kaspersky Private Security Network settings. This file has the .PKCS7 or .PEM extension.
`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL KSN /GLOBAL /PWD:p@ssw0rd
KAVSHELL KSN /PRIVATE c:\settings.pkcs7 /PWD:p@ssw0rd
```

LICENSE. Application activation

Kaspersky Embedded Systems Security keys and activation codes can be managed using the `KAVSHELL LICENSE` command.

Command syntax

```
KAVSHELL LICENSE [/ADD:<key_file | activation code> [/R]|/DEL:<license key serial number>|/REFRESH:<license id>]
/PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
No options specified.	The command returns the following information about added keys: • Key. • License type (commercial). • Duration of the license associated with the key. • Key status (active or additional). If the status is *, the key was added as an additional key.
`/ADD:<key_file | activation code>`	Activating Kaspersky Embedded Systems Security with a key file. If the application is already activated, the key will be added as a reserve one.
`/R`	If the `/R` option is passed, the activation code or key is added as a reserve code or key.
`/DEL:<license key serial number>`	Delete the specified key or activation code.
`/REFRESH:<license id>`	Update the status of the specified license.
`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Command return values:

- 0: The operation completed successfully.
- -2: Service not running.
- -3: Insufficient permissions for running the command.
- -4: Key with specified number not found.
- -5: Syntax error.
- -6: Invalid operation (key already added).
- -99: Unknown error.
- -301: License is invalid.
- -303: License is for a different application.

MDR. Configuring the Managed Detection and Response integration

The `KAVSHELL MDR` command lets you configure the integration of Kaspersky Embedded Systems Security with the Managed Detection and Response solution.

Command syntax

```
KAVSHELL MDR /ENABLE [/PWD:<password>] [/LOGIN:<user name>] | /DISABLE [/PWD:<password>] [/LOGIN:<user name>] |
/SHOW
```

Command options

Parameter	Description
`MDR /<enable|disable|show>`	Required argument. Lets you enable, disable, or view the current settings of the Managed Detection and Response component.
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL MDR /ENABLE /PWD:p@ssw0rd
KAVSHELL MDR /DISABLE /PWD:p@ssw0rd
KAVSHELL MDR /SHOW
```

OMSINFO. Creating a JSON file with information about the application

The `KAVSHELL OMSINFO` command lets you create a JSON file with information about the current status of the application and detected threats, which you can then upload to monitoring systems.

Command syntax

```
KAVSHELL OMSINFO <oms_info_json_file_name>
```

Command options

Parameter	Description
`<oms_info_json_file_name>`	Full path to the JSON file including its name and extension.

Example

```
KAVSHELL OMSINFO "C:\Dumps and others\omsinfo.json"
```

PASSWORD. Password-protected access to Kaspersky Embedded Systems Security functionality

The `KAVSHELL PASSWORD` command allows you to manage password-protected access to Kaspersky Embedded Systems Security functionality. If this functionality is enabled, the application requests a user name and password when deleting, modifying, or recovering the application, and when performing actions on the command line that may lower the protection level of the device.

Command syntax

```
KAVSHELL PASSWORD /SET /NEW:<new password> | /RESET /PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/SET`	Enables the password prompt to confirm critical actions.

`/NEW:<new password>`	Required if `/SET` is passed.
	Sets a new password.
	When creating a password, you are recommended to meet the following conditions:
	• The password doesn't contain the account name or computer name.
	• The password is at least 8 characters long.
	• The password contains characters that match at least three of the following categories:
	  • Uppercase Latin letters (A-Z)
	  • Lowercase Latin letters (a-z)
	  • Numerals (0-9)
	  • Exclamation mark (!), dollar sign ($), pound sign (#) and percent sign (%)

`/RESET`	Disables the password prompt to confirm critical actions.
`/PWD:<password>`	Required argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

PATCHCOMPATIBILITYRESET. Removing a patch from the list of incompatible patches

The `KAVSHELL PATCHCOMPATIBILITYRESET` command lets you remove a patch with the specified GUID from the list of incompatible patches. You can specify multiple GUIDs separated by spaces.

Command syntax

```
KAVSHELL PATCHCOMPATIBILITYRESET <GUID> [GUID...]
```

Example

```
KAVSHELL PATCHCOMPATIBILITYRESET 01234567-890A-BCDE-F012-34567890ABCD
```

REMOTEACCESS. Managing Application Console remote connection settings

The `KAVSHELL REMOTEACCESS` command lets you manage remote connection settings of the Application Console to the device with Kaspersky Embedded Systems Security installed.

Command syntax

```
KAVSHELL REMOTEACCESS /SET /PORT=<new_port> [/PWD:<password>] [/LOGIN:<user name>] | /RESET UIKLPORT [/PWD:
<password>] [/LOGIN:<user name>] | /SHOW
```

Command options

Parameter	Description
`/SET [UIPORT | UIKLPORT]`	Set the port number: • `UIPORT` is the port for connecting with Windows credentials. • `UIKLPORT` is the port for connecting manually created users with credentials.
`/PORT=<new_port>`	Required if `/SET` is passed. Port number. Range of possible values: 1–65535.
`/RESET UIKLPORT`	Close the port for connecting manually created users with credentials.
`/SHOW`	Output the current port numbers.
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL REMOTEACCESS /SET UIPORT /PORT=50000
KAVSHELL REMOTEACCESS /RESET UIKLPORT
```

```
KAVSHELL REMOTEACCESS /SHOW
```

RESETMDRMACHINEID. Resetting device ID

The `KAVSHELL RESETMDRMACHINEID` command lets you reset the device ID used by the Managed Detection and Response solution.

Command syntax

```
KAVSHELL RESETMDRMACHINEID [/PWD:<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

ROLLBACK. Last update rollback

The `KAVSHELL ROLLBACK` command starts the *Last update rollback* task.

Command syntax

```
KAVSHELL ROLLBACK [/PWD:<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL ROLLBACK
```

Command return values:

- 0: The operation completed successfully.
- -2: Service not running.

- -3: Insufficient permissions for running the command.
- -99: Unknown error.
- -221: Backup copy of database not found or corrupted.
- -222: Backup copy of database corrupted.

RTP. Real-Time File Protection

The `KAVSHELL RTP` command lets you enable or disable the Real-Time File Protection component.

Command syntax

```
KAVSHELL RTP </START|/STOP> [/PWD:<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`</START|/STOP>`	Enable or disable the Real-Time File Protection component: • `/START` enables the component. • `/STOP` disables the component.
`/PWD:<password>`	Required option for the `KAVSHELL RTP /STOP` command. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL RTP STOP /PWD:p@ssw0rd
```

SCAN. On-Demand Scan

You can use the `KAVSHELL SCAN` command to create and start the *On-Demand Scan* task. To start an existing On-Demand Scan task from the command line, use the `KAVSHELL TASK` command.

Command syntax

```
KAVSHELL SCAN <scan_scope> [/MEMORY|/SHARED|/STARTUP|/REMDRIVES|/FIXDRIVES|/MYCOMP] [/L:<file_name>][/F<A|C|E>]
[/NEWONLY][/AI:<DISINFECT|DISINFDEL|DELETE|REPORT|AUTO>] [/AS:<QUARANTINE|DELETE|REPORT|AUTO>] [/DISINFECT|DELETE]
[/E:<ABMSPO>] [/EM:<"masks">] [/ES:<size>] [/ET:<s>][/TZOFF] [/NOICHECKER][/NOISWIFT][/NOCHECKMSSIGN]
[/ANALYSERLEVEL] [/W:<report_file>] [/ANSI] [/ALIAS:<alternate name>]
```

Parameter	Description
`<scan_scope>`	Required argument. Space-delimited list of files, folders, network paths, or standard scan scopes. Standard scan scopes: • `/MEMORY` scans all memory processes. • `/SHARED` scans shared folders. • `/STARTUP` scans startup objects. • `/REMDRIVES` scans removable drives. • `/FIXDRIVES` scans all local hard drives. • `/MYCOMP` scans the entire computer. You can specify multiple values separated by spaces.
`/L:<file_name>`	Optional argument. Path to file with a list of scan scopes. The file must be created manually and saved in TXT format. The file must be saved with UTF-8 encoding without BOM.
`/F<A|C|E>`	Optional argument. Objects that should be included in the scope: • `/FA`: Scan all objects. The application scans all files without exception (all formats and extensions). • `/FC`: Scan objects by format. The application scans only objects whose formats are included in the list of formats of infectable objects. • `/FE`: Scan objects by extension. The application scans only objects with extensions included into the list of extensions of infectable objects.
`/NEWONLY`	Optional argument. Scan only new and modified files. If this argument is not passed, Kaspersky Embedded Systems Security scans all objects.
`/AI:` `<DISINFECT|DISINFDEL|DELETE|REPORT|AUTO>`	Optional argument. The action that you want the application to perform on infected and other objects: • `DISINFECT`: Disinfect, inform if disinfection fails. • `DISINFDEL`: Disinfect, delete if disinfection fails. • `DELETE`: Delete. • `REPORT` (default value): Inform. • `AUTO`: Recommended.
`/AS:<QUARANTINE|DELETE|REPORT|AUTO>`	Optional argument. The action that you want the application to perform on infected objects: • `QUARANTINE`: Move to Quarantine. • `DELETE`: Delete. • `REPORT` (default value): Inform. • `AUTO`: Recommended.
`/E:<ABMSPO>`	Exclude the specified object types. Possible values: • `A`: ZIP, CAB, RAR, and ARJ archives and other archive formats. • `B`: Microsoft Outlook and Microsoft Outlook Express mail database files. • `M`: files in mail formats, such as Microsoft Outlook and Microsoft Outlook Express messages. • `S`: self-extracting archives. • `P`: executable files packed by binary code packers, such as UPX or ASPack. • `O`: objects embedded in files (such as Microsoft Word macros, or email message attachments). You can specify several parameter values.
`/EM=<file mask>`	Files that match the file mask are excluded from the scan scope. For example: • The *.exe mask will include all paths to files that have the EXE extension. • The example* mask will include all paths to files named EXAMPLE.
`/ET=<scan duration in seconds>`	Files that take longer to scan than the specified time limit (in seconds) are excluded from the scan scope. The default value is 60 seconds.

Parameter	Description
`/ES=<size in megabytes>`	Files that are larger than the specified size limit (in megabytes) are excluded from the scan scope. The default value is 100 MB.
`/TZOFF`	Do not apply Trusted Zone exclusions.
`/NOICHECKER`	Disabling the use of iChecker (enabled by default).
`/NOISWIFT`	Disabling the use of iSwift (enabled by default).
`/NOCHECKMSSIGN`	Do not scan files that are digitally signed by Microsoft.
`/ANALYSERLEVEL`	Enable Heuristic Analyzer, configure analysis level. The following heuristic analysis levels are available: • `1`: light. • `2`: medium. • `3`: deep. If this argument is not passed, the application does not use Heuristic Analyzer.
`/EXCLUDE=<list of exlusion`	List of files, folders, or network paths that will be excluded from the scope of the scan task. You can specify multiple values separated by spaces.
`/W=<file path>`	Path and name of the task log file. Restarting the command with the same log settings will overwrite the existing log file.
`/ANSI`	Use the ANSI encoding for events written to the task log. The `/ANSI` parameter will not be applied if the `/W` parameter is not passed. If the `/ANSI` parameter is not specified, Unicode is used to generate the task log.
`/ALIAS:<alternate name>`	Assign a temporary name to the task that it can be referred by while running. For example, task statistics can be viewed using the `KAVSHELL TASK` command. The alternate task name must be unique among all alternate task names in the application. If this argument is not passed, the task name is assigned as follows: scan_<kavshell_pid>. For example: scan_1234.

Example

```
KAVSHELL SCAN Folder56 D:\Folder1\Folder2\Folder3\ C:\Folder1\ C:\Folder2\003.exe "\\another server\Shared\"
F:\123\*.fgb /SHARED /AI:DISINFDEL /AS:QUARANTINE /FA /E:ABM /EM:"*.xtx;*.fff;*.ggg;*.bbb;*.info" /NOICHECKER
/NOISWIFT /W:log.log
KAVSHELL SCAN /L:scan_objects.lst /W:log.log
```

Command return values:

- 0: Operation completed successfully (no threats detected).
- 1: Operation canceled.
- -2: Service not running.
- -3: Insufficient permissions for running the command.
- -4: Object not found (file with the list of scan scopes not found).
- -5: Syntax error or scan scope not set.
- -80: Infected objects detected.
- -81: Probably infected objects detected.
- -82: Object processing errors during scan.
- -83: Unscanned objects detected.

- -84: Damaged objects detected.
- -85: Failed to create task log.
- -99: Unknown error.
- -301: License is invalid.

SCANCRITICAL. Critical Areas Scan

The `KAVSHELL SCANCRITICAL` command starts the *Critical Areas Scan* task.

Command syntax

```
KAVSHELL SCANCRITICAL [/W:<path to task log file>] [/PWD:<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/W`	Optional argument. Specify a file name with the .LOG extension for the exported task log. You can also specify the file path. If only a file name is specified in the command, the application attempts to place the file in the installation folder of the application. If the Self-Defense mechanisms of the application are enabled, the export will fail because the application's self-protection blocks the creation of a new file in the application folder. To export the log, specify the file path.
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL SCANCRITICAL /W:scancritical.log
```

SERVERBINDINGDISABLE. Disabling Administration Server connection protection

The `KAVSHELL SERVERBINDINGDISABLE` command locally disables the protection of the connection to the Administration Server. The command starts the *Administration Server connection protection* task, which removes the password of the computer's connection to the Administration Server.

Command syntax

```
KAVSHELL SERVERBINDINGDISABLE [/PWD:<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

START. Starting the application service

The `KAVSHELL START` command starts the Kaspersky Embedded Systems Security Service service.

Command syntax

```
KAVSHELL START
```

STARTPOLICY. Enabling policy

The `KAVSHELL STARTPOLICY` command enables the Kaspersky Security Center policy on the protected device. The application settings will be configured according to the policy.

Command syntax

```
KAVSHELL STARTPOLICY
```

STOP. Stopping the application service

The `KAVSHELL STOP` command stops the Kaspersky Embedded Systems Security Service service.

Command syntax

```
KAVSHELL STOP [/PWD:<password>] [/LOGIN:<user name>]
```

Command options

Parameter	Description
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Command return values:

- 0: The operation completed successfully.
- -3: Insufficient permissions for running the command.
- -5: Syntax error.
- -6: Invalid operation (the Kaspersky Embedded Systems Security Service is already stopped).
- -7: Service not registered
- -8: Automatic Service startup disabled.
- -9: Attempt to run the managed device under a different user account failed.
- -99: Unknown error.

TASK. Managing tasks

You can use the `KAVSHELL TASK` command to manage Kaspersky Embedded Systems Security tasks: run, pause, resume and stop the task and view the current task status and statistics.

Command syntax

```
KAVSHELL TASK [<alternative name> </START | /STOP | /STATE | /STATISTICS>] /PWD:<password> [/LOGIN:<user name>]
```

Command options

Parameter	Description
No parameters	Return the list of all existing Kaspersky Embedded Systems Security tasks. The list contains the following fields: the alternate name of the task (an additional brief name that Kaspersky Embedded Systems Security for Windows assigns to tasks), the category of the task (system or user), and the current status of the task.
`<alternative name>`	Alternate name for the task that you want to manage. To view Kaspersky Embedded Systems Security task aliases, enter the `KAVSHELL TASK` command without any parameters.
`/START`	Starting a task.
`/STOP`	Stopping a task.
`/STATE`	Display the current state of the task.
`/STATISTICS`	Display task statistics.
`/PWD:<password>`	Required option for the `KAVSHELL TASK /STOP` command. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Command syntax

```
KAVSHELL TASK on-access /START
KAVSHELL TASK user-task_1 /STOP
KAVSHELL TASK scan-critical /STATE
```

Command return values:

- 0: The operation completed successfully.
- -2: Service not running.
- -3: Insufficient permissions for running the command.
- -4: Object not found (task not found).
- -5: Syntax error or scan scope not set.
- -6: Invalid operation (for example, task not running, already running, or cannot be paused).
- -99: Unknown error.
- -301: License is invalid.
- 401: task not started (for the `KAVSHELL TASK <task name> /STATE` command).
- 402: task already started (for the `KAVSHELL TASK <task name> /STATE` command).
- 403: task paused (for the `KAVSHELL TASK <task name> /STATE` command).
- -404: Operation failed (a change in task status resulted in a crash).

TRACE. Tracing application operation

The `KAVSHELL TRACE` command lets you enable or disable tracing for the application.

Command syntax

```
KAVSHELL TRACE </ON /F:<traces_folder:>[/S:<traces_size_in_MB>] [/LVL:<debug|info|warning|error|critical>] /R:<max trace files to rotate> | /OFF > [/LOGIN:<user name>] [/PWD:<password>]
```

Command options

Parameter	Description
`</ON | /OFF>`	Required argument. Enable or disable tracing for the application.
`/F:<traces_folder>`	Required if `/ON` is passed. Path to the folder in which the trace files will be saved.
`/S:<traces_size_in_MB>`	Optional argument. Maximum size of the trace file in megabytes. Available values: from 1 to 4095 MB. The default value is 100 MB.
`/LVL: <debug|info|warning|error|critical>`	Optional argument. Level of detail of debug information. • `critical` means the trace file saves only messages about fatal errors. • `error` means the trace file saves messages about all errors as well as warnings. • `warning` means the trace file saves messages about all errors, warnings, and additional information. • `info` (default value) means the trace file saves messages about all errors, warnings, as well as information about normal operation of the application. • `debug` means the trace file saves all information about the operation of the application.

`/R:<max trace files to rotate>`	Optional argument. Maximum number of files in a trace log. Available values: from 1 to 999. The default value is 5.
`/PWD:<password>`	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
`/LOGIN:<user name>`	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Example

```
KAVSHELL TRACE /ON /F:"C:\Trace Folder" /LVL:info /R:50 /PWD:p@ssw0rd
KAVSHELL TRACE /OFF
```

UPDATE. Updating databases and application software modules

You can use the `KAVSHELL UPDATE` command to manage the *Update* task.

Command syntax

```
KAVSHELL UPDATE <update_source | /AK | /KL> [/NOUSEKL] [/PROXY:<IP address>:<port>] [/AUTHTYPE:<0-2>] [/PROXYUSER:
<user_name>] [/PROXYPWD:<password>] [/NOPROXYFORKL] [/USEPROXYFORCUSTOM] [/USEPROXYFORLOCAL] [/NOFTPPASSIVE]
[/TIMEOUT:<s>] [/REG:<code_by_iso3166>] [/W:<report_file>] [/ANSI] [/ALIAS:<alternate name>]
```

Command options

Parameter	Description
`<update_source | /AK | /KL>`	Required argument. Select update source: • `<update_source>` to use custom update sources. You can specify the path to a folder on the protected device, the path to a network folder in UNC format, or the address of an HTTP or FTP server on which the folder with updates is located. • `/AK` to use the Kaspersky Security Center Administration server as the update source. • `/KL` to use the Kaspersky update servers as the update source. You can specify multiple values separated by spaces.
`/NOUSEKL`	Optional argument. Do not use Kaspersky update servers if other update sources are not available (default value).
`/PROXY:<IP address>:<port>`	Optional argument. IP address or symbolic name of the proxy server and the port number.
`/AUTHTYPE:<0-2>`	Optional argument. Proxy server authentication type: • `0` for NTLM authentication with the current user account. • `1` for NTLM authentication with a user account whose user name and password are specified by the `/PROXYUSER` and `/PROXYPWD` options. • `2` for authentication with the user name and password specified by the `/PROXYUSER` and `/PROXYPWD` options.
`/PROXYUSER:<user_name>`	Required parameter if the `/AUTHTYPE:1` or `/AUTHTYPE:2` parameters are passed. User name that will be used to access the proxy server. If `/AUTHTYPE:0` is specified, then the `/PROXYUSER:<user_name>` and `/PROXYPWD:<password>` options are ignored.

/PROXYPWD:<password>	Required parameter if the /AUTHTYPE:1 or /AUTHTYPE:2 parameters are passed. User password that will be used to access the proxy server. If /AUTHTYPE:0 is specified, then the /PROXYUSER:<user_name> and /PROXYPWD:<password> options are ignored. If the /PROXYUSER parameter is specified and the /PROXYPWD parameter is omitted, the password will be considered an empty string.
/NOPROXYFORKL	Optional argument. Do not use proxy server settings to connect to Kaspersky update servers.
/USEPROXYFORCUSTOM	Optional argument. Use proxy server settings to connect to user-defined update sources.
/USEPROXYFORLOCAL	Optional argument. Use proxy server settings to connect to local update sources.
/NOFTPPASSIVE	Optional argument. If this option is specified, Kaspersky Embedded Systems Security uses the active mode for the FTP server connection. If this option is not passed, Kaspersky Embedded Systems Security uses the passive connection mode, if possible.
/TIMEOUT:<s>	Optional argument. FTP or HTTP server connection timeout in seconds. Default value: 10 seconds.
/REG:<code_by_iso3166>	Optional argument. The code of the country in which the protected device is located, in accordance with the ISO 3166-1 standard. Example: /REG:GR. If this parameter is omitted or an invalid country code is specified, Kaspersky Embedded Systems Security determines the location based on the regional settings of the protected device where the Application Console is installed. The application uses location information when selecting an update server.
/W=<file path>	Path and name of the task log file. Restarting the command with the same log settings will overwrite the existing log file.
/ANSI	Use the ANSI encoding for events written to the task log. The /ANSI parameter will not be applied if the /W parameter is not passed. If the /ANSI parameter is not specified, Unicode is used to generate the task log.
/ALIAS:<alternate name>	Assign a temporary name to the task that it can be referred by while running. For example, task statistics can be viewed using the KAVSHELL TASK command. The alternate task name must be unique among all alternate task names in the application. If this argument is not passed, the task name is assigned as follows: update_<kavshell_pid>. For example: update_1234.
/PWD:<password>	Optional argument. Password of the KLAdmin user account or a user account with sufficient permissions. If this option is not specified, the application prompts you for the password on the next line.
/LOGIN:<user name>	Optional argument. User account name with sufficient permissions. If this option is not specified, the application prompts you for the user name on the next line. You do not need to enter this value if you entered the KLAdmin password.

Command syntax

```
KAVSHELL UPDATE "\\Server\kav bases\" ftp://bases.company.com /USEPROXYFORCUSTOM /PROXY:proxy.company.com:8080
/AUTHTYPE:2 /PROXYUSER:inetuser /PROXYPWD:p@ssw0rd /TIMEOUT:100 /REG:ru /W:"C:\KAVREPORTS\daily update.log"
KAVSHELL UPDATE "\\Server\kav bases\" ftp://bases.company.com /NOUSEKL /USEPROXYFORCUSTOM
/PROXY:proxy.company.com:8080 /AUTHTYPE:2 /PROXYUSER:inetuser /PROXYPWD:p@ssw0rd
KAVSHELL UPDATE /AK /NOUSEKL
```

```
KAVSHELL UPDATE /KL /W:"C:\KAVREPORTS\daily update.log"
KAVSHELL UPDATE /AK /W:"C:\KAVREPORTS\daily update.log"
```

Command return values:

- 0: The operation completed successfully.
- 200: All objects are up to date.
- -2: Service not running.
- -3: Insufficient permissions for running the command.
- -5: Syntax error.
- -99: Unknown error.
- -206: Extension files are missing in the specified source or have unknown format.
- -209: Error while connecting to the update source.
- -232: Authentication error while connecting to proxy server.
- -234: Kaspersky Security Center connection error.
- -235: Kaspersky Embedded Systems Security was not authenticated when connecting to the update source.
- -236: Application databases are corrupted.
- -301: License is invalid.

Contacting Technical Support

This section describes the ways to receive technical support and the conditions on which it is available.

How to get technical support

If you cannot find a solution to your problem in the documentation or in other sources of information about Kaspersky Embedded Systems Security, we recommend that you contact Technical Support. Technical Support will answer your questions about installing and using Kaspersky Embedded Systems Security.

Kaspersky provides support for Kaspersky Embedded Systems Security during the application's life cycle (refer to the application life cycle page). Before contacting Technical Support, please read the support rules.

You can contact Technical Support in one of the following ways:

- By visiting the Technical Support website
- By sending a request to Kaspersky Technical Support through the Kaspersky CompanyAccount portal

Technical Support via Kaspersky CompanyAccount

Kaspersky CompanyAccount is a portal for companies that use Kaspersky applications. Kaspersky CompanyAccount is designed to facilitate interaction between users and Kaspersky specialists via online requests. Kaspersky CompanyAccount lets you monitor the progress of electronic request processing by Kaspersky specialists and store a history of electronic requests.

You can register all of your organization's employees under a single user account on Kaspersky CompanyAccount. A single account lets you centrally manage electronic requests from registered employees to Kaspersky and also manage the privileges of these employees via Kaspersky CompanyAccount.

Kaspersky CompanyAccount is available in the following languages:

- English
- Spanish
- Italian
- German
- Polish
- Portuguese
- Russian

- French
- Japanese

You can learn more about Kaspersky CompanyAccount on the Technical Support website.

Providing extended diagnostic information to Technical Support specialists

For more effective support and troubleshooting of application problems, Technical Support specialists may ask you to change application settings temporarily for purposes of debugging during diagnostics. This may require doing the following:

- Activating the functionality that processes and stores extended diagnostic information.
- Fine-tuning the settings of individual software components, which are not available via standard user interface elements.
- Changing the settings of storage and transmission of diagnostic information that was processed.
- Configuring the interception and logging of network traffic.

All information required to perform the listed actions (description of the sequence of steps, changeable settings, configuration files, scripts, additional command line features, debugging modules, specialized utilities, etc.), as well as the composition of data analyzed for debugging purposes, will be announced by the Technical Support specialists. The advanced diagnostic information is stored on the user computer. Automatic transfer of the stored data to Kaspersky is not performed.

After you report a problem to Technical Support specialists, they may ask you to generate a report with information about the operation of Kaspersky Embedded Systems Security and to send it to Technical Support. Kaspersky Technical Support specialists may also ask you to create a trace file, send a memory dump file, and provide a report from the Kaspersky Get System Info utility.

After analyzing the data you send, Technical Support specialists can create an AVZ script and send it to you. With AVZ scripts, it is possible to analyze active processes for threats, scan the computer for threats, disinfect or delete infected files, and create system scan reports.

The actions listed above can only be performed under the guidance of the Technical Support specialists following the instructions received from them. Unassisted modification of the application settings in the ways not described in the application documentation or in the recommendations from the Technical Support specialists can lead to slowdowns and malfunctions of the operating system, decrease of the computer protection level, as well as to a violation of the availability and integrity of the processed information.

Tracing application operation

Application tracing is a detailed record of actions performed by the application and of messages about events that occur during operation of the application. During the tracing process, the application creates a set of files with data about the operation of different application components.

Application tracing should be performed under the supervision of Kaspersky Technical Support.

Trace files allow tracing the process of performing application commands step by step and determining the stage of application operation at which an error occurs.

How to enable and configure application tracing in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.
3. In the policy properties window, go to the **Malfunction diagnosis** section.
4. In the **Malfunction diagnosis settings** block, click the **Settings** button.

   The **Malfunction diagnosis settings** window opens on the **Application tracing settings** tab.
5. Use the **Enable tracing** check box to enable or disable tracing of application operation.

   By default, application operation tracing is disabled.
6. If necessary, change the default folder to which Kaspersky Embedded Systems Security will save trace files. To do so, specify the full path to the local folder in the **Trace files folder** field.

   The folder must be created in advance and be writable by the SYSTEM account. You cannot specify a network folder, drive, or environment variables.

   In the selected folder, Kaspersky Embedded Systems Security creates a subfolder named logs-Kaspersky Embedded Systems Security-<uid> to store trace files, where <uid> is a unique 8-character log identifier.
7. Select the level of detail of debug information:

   - **Normal** means the trace file saves messages about all errors, warnings, as well as information about normal operation of the application (default).
   - **Critical** means the trace file saves only messages about fatal errors.
   - **Diagnostic** means the trace file saves messages about all errors as well as warnings.
   - **Important** means the trace file saves messages about all errors, warnings, and additional information.
   - **Detailed** means the trace file saves all information about the operation of the application.

   A Technical Support representative determines the detail level required to resolve any potential issues.

8. To delete old trace files, enable the **Remove the oldest trace files** functionality.

   If this functionality is enabled, configure the maximum size and number of trace files:

   a. Specify the **Maximum size of a trace file (MB)**.

      Available values: from 1 to 4095 MB. The default value is 100 MB.

   b. Specify the **Maximum number of files for one trace log**.

      Available values: from 1 to 999. The default value is 5.

9. Save your changes.

How to enable and configure application tracing in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and do one of the following:

   - Click the **Application properties** link in the results pane of the node.
   - Select **Application properties** in the node's context menu.

   The **Application properties** window opens.

2. Select the **Malfunction diagnosis** tab.

3. In the **Malfunction diagnosis settings** block, click the **Settings** button.

   The **Malfunction diagnosis settings** window opens.

4. Select the tracing settings tab:

   - **Application tracing settings**. Kaspersky Embedded Systems Security starts tracing for the application.
   - **Application Console tracing settings**. If Application Console and Kaspersky Embedded Systems Security are installed on different computers, you can start tracing only for the Application Console.

5. Use the **Enable tracing** check box to enable or disable tracing of application operation.

   By default, application operation tracing is disabled.

6. If necessary, change the default folder to which Kaspersky Embedded Systems Security will save trace files. To do so, click the **Browse** button and select the required folder.

   > The folder must be created in advance and be writable by the SYSTEM account. You cannot specify a network folder, drive, or environment variables.

   In the selected folder, Kaspersky Embedded Systems Security creates a subfolder named logs-Kaspersky Embedded Systems Security-<uid> to store trace files, where <uid> is a unique 8-character log identifier.

7. Select the level of detail of debug information:

   - **Normal** means the trace file saves messages about all errors, warnings, as well as information about normal operation of the application (default).
   - **Critical** means the trace file saves only messages about fatal errors.

- **Diagnostic** means the trace file saves messages about all errors as well as warnings.
- **Important** means the trace file saves messages about all errors, warnings, and additional information.
- **Detailed** means the trace file saves all information about the operation of the application.

A Technical Support representative determines the detail level required to resolve any potential issues.

8. To delete old trace files, enable the **Remove the oldest trace files** functionality.

   If this functionality is enabled, configure the maximum size and number of trace files:

   a. Specify the **Maximum size of a trace file (MB)**.

      Available values: from 1 to 4095 MB. The default value is 100 MB.

   b. Specify the **Maximum number of files for one trace log**.

      Available values: from 1 to 999. The default value is 5.

9. Save your changes.

How to enable and configure application tracing in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management → Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Malfunction diagnosis** section.
5. In the **Malfunction diagnosis settings** block, use the **Enable application tracing** check box to enable or disable tracing of application operation.

   By default, application operation tracing is disabled.
6. If necessary, change the default folder to which Kaspersky Embedded Systems Security will save trace files. To do so, specify the full path to the local folder in the **Traces folder (full path to folder, for example C:\\Traces\\)** field.

   > The folder must be created in advance and be writable by the SYSTEM account. You cannot specify a network folder, drive, or environment variables.

   In the selected folder, Kaspersky Embedded Systems Security creates a subfolder named logs-Kaspersky Embedded Systems Security-<uid> to store trace files, where <uid> is a unique 8-character log identifier.
7. Select the level of detail of debug information:
   - **Normal** means the trace file saves messages about all errors, warnings, as well as information about normal operation of the application (default).
   - **Critical** means the trace file saves only messages about fatal errors.
   - **Diagnostic** means the trace file saves messages about all errors as well as warnings.

- **Important** means the trace file saves messages about all errors, warnings, and additional information.
- **Detailed** means the trace file saves all information about the operation of the application.

A Technical Support representative determines the detail level required to resolve any potential issues.

8. To delete old trace files, enable the **Remove older trace files** functionality.

   If this functionality is enabled, configure the maximum size and number of trace files:

   a. Specify the **Maximum size of trace files (MB)**.

      Available values: from 1 to 4095 MB. The default value is 100 MB.

   b. Specify the **Maximum number of files for one trace log**.

      Available values: from 1 to 999. The default value is 5.

9. Save your changes.

You can also enable and configure application tracing in the Compact Diagnostic Interface and on the command line.

Contents and storage of trace files

> You are personally responsible for the security of the data that is stored on your computer, particularly for monitoring and restricting access to the data until it is submitted to Kaspersky.

Trace files are stored on the computer as long as the application is in use, and are deleted permanently when the application is removed.

Trace files are stored in the following folder: %ProgramData%\Kaspersky Lab\KESS.4.1\Traces.

Trace files are named as follows: KESS<4.1_dateXX.XX_timeXX.XX_pidXXX.><trace file type>.log.

You can view data saved in trace files.

All trace files contain the following common data:

- Event time
- Number of the thread of execution
- Application component that caused the event
- Degree of event severity (informational event, warning, critical event, error)
- A description of the event involving command execution by a component of the application and the result of execution of this command.

Contents of SRV.log, GUI.log, and ALL.log trace files

SRV.log, GUI.log and ALL.log trace files may store the following information in addition to general data:

- Personal data, including the last name, first name, and middle name, if such data is included in the path to files on the local computer.
- The user name and password if they were transmitted openly. This data can be recorded in trace files during Internet traffic scanning.
- The user name and password if they are contained in HTTP headers.
- The name of the Microsoft Windows account if the account name is included in a file name.
- Your email address or a web address containing the name of your account and password if they are contained in the name of the object detected.
- Proxy server address, computer name, port, IP address, and user name used to sign in to the proxy server. This data is written to trace files if the application uses a proxy server.
- Remote IP addresses to which your computer established connections.
- Network traffic data. This data is written to trace files if traffic monitoring components are enabled.
- Data received from Kaspersky servers (such as the version of anti-virus databases).
- Statuses of Kaspersky Embedded Systems Security components and their operating data.
- Data on user activity in the application.
- Operating system events.

Contents of HST.log, BL.log, Dumpwriter.log, WD.log, AVPCon.dll.log trace files

In addition to general data, the HST.log trace file contains information about the execution of a database and application module update task.

In addition to general data, the BL.log trace file contains information about events occurring during operation of the application, as well as data required to troubleshoot application errors. This file is created if the application is started with the avp.exe –bl parameter.

In addition to general data, the Dumpwriter.log trace file contains service information required for troubleshooting errors that occur when the application dump file is written.

In addition to general data, the WD.log trace file contains information about events occurring during operation of the avpsus service, including application module update events.

In addition to general data, the AVPCon.dll.log trace file contains information about events occurring during the operation of the Kaspersky Security Center connectivity module.

Contents of the AMSI Scanner component trace file

In addition to general data, the AMSI.log trace file contains information about the results of scans performed on requests from third-party applications.

Contents of trace files of the application web plug-in

Trace files of the application web plug-in are stored on the computer on which Kaspersky Security Center Web Console is deployed, in the folder Program Files\Kaspersky Lab\Kaspersky Security Center Web Console\logs.

Trace files of the application web plug-in are named as follows: logs-ess_windows-<type of trace file>.DESKTOP-<date of file update>.log. Web Console begins writing data after installation and deletes the trace files after Web Console is removed.

Trace files of the application web plug-in contain the following information in addition to general data:

- KL Admin user password for unlocking the Kaspersky Embedded Systems Security interface.
- Temporary password for unlocking the Kaspersky Embedded Systems Security interface.
- User name and password for the SMTP mail server.
- User name and password for the proxy server.
- User name and password for the *Change application components* task.
- Account credentials and paths specified in Kaspersky Embedded Systems Security tasks and policy properties.

Recording memory dumps

The memory dump file contains all information about the working memory of Kaspersky Embedded Systems Security processes at the moment of application failure.

Memory dump files are stored on the computer as long as the application is in use, and are deleted permanently when the application is removed.

> Saved dump files may contain confidential data. To control access to data, you must independently ensure the security of memory dump files.

By default, memory dump files are stored in the following folder: %ProgramData%\Kaspersky Lab\KESS.4.1\Traces.

How to enable or disable memory dump recording in the Kaspersky Security Center Administration Console

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.
2. Select the necessary policy and double-click to open the policy properties.

3. In the policy properties window, go to the **Malfunction diagnosis** section.
4. In the **Malfunction diagnosis settings** block, click the **Settings** button.

   The **Malfunction diagnosis settings** window opens on the **Application tracing settings** tab.
5. Select the **Application dump settings** tab.
6. Use the **Create a dump file** check box to enable or disable tracing of application operation.

   By default, memory dump recording is disabled.
7. If necessary, change the default folder to which Kaspersky Embedded Systems Security will save trace files. To do so, specify the full path to the local folder in the **Dump files folder** field.

   The folder must be created in advance and be writable by the SYSTEM account. You cannot specify a network folder, drive, or environment variables.
8. Save your changes.

How to enable or disable memory dump recording in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and do one of the following:

   - Click the **Application properties** link in the results pane of the node.
   - Select **Application properties** in the node's context menu.

   The **Application properties** window opens.
2. Select the **Malfunction diagnosis** tab.
3. In the **Malfunction diagnosis settings** block, click the **Settings** button.

   The **Malfunction diagnosis settings** window opens.
4. Select the dump settings tab:

   - **Application dump settings**. Kaspersky Embedded Systems Security records all dumps of the application.
   - **Application Console dump settings**. If Application Console and Kaspersky Embedded Systems Security are installed on different computers, you can record dumps only for the Application Console.
5. Use the **Create a dump file** check box to enable or disable tracing of application operation.

   By default, memory dump recording is disabled.
6. If necessary, change the default folder to which Kaspersky Embedded Systems Security will save trace files. To do so, click the **Browse** button and select the required folder.

   The folder must be created in advance and be writable by the SYSTEM account. You cannot specify a network folder, drive, or environment variables.
7. Save your changes.

How to enable or disable memory dump recording in the Kaspersky Security Center Web Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Malfunction diagnosis** section.
5. In the **Dump file settings** block, use the **Create a dump file** check box to enable or disable tracing of application operation.

   By default, memory dump recording is disabled.
6. If necessary, change the default folder to which Kaspersky Embedded Systems Security will save trace files. To do so, specify the full path to the local folder in the **Dump file folder (full path to folder, for example, C:\\Dumps\\)** field.

   > The folder must be created in advance and be writable by the SYSTEM account. You cannot specify a network folder, drive, or environment variables.
7. Save your changes.

You can also enable or disable memory dump recording in the Compact Diagnostic Interface.

Protecting dump files and trace files

Dump files and trace files contain information about the operating system, and may also contain user data. To prevent unauthorized access to such data, you can enable protection of dump files and trace files.

If protection of dump files and trace files is enabled, the files can be accessed by the following users:

- Dump files can be accessed by the system administrator and local administrator, and by the user that enabled the writing of dump files and trace files.
- Trace files can be accessed only by the system administrator and local administrator.

How to enable protection of dump files and trace files in the Kaspersky Security Center Administration Console

1. In the main window of the Web Console, select **Asset management** → **Policies**.
2. Click the name of the Kaspersky Embedded Systems Security policy.

   The policy properties window opens.
3. Select the **Application settings** tab.
4. Select the **Malfunction diagnosis** section.

5. Use the **Enable dump and trace files protection** check box to enable or disable protection of dump files and trace files.

6. Save your changes.

1. In the Kaspersky Security Center Administration Console tree, select **Policies**.

2. Select the necessary policy and double-click to open the policy properties.

3. In the policy properties window, go to the **Malfunction diagnosis** section.

4. In the **Malfunction diagnosis settings** block, click the **Settings** button.

5. The **Malfunction diagnosis settings** window opens.

6. Use the **Enable dump and trace files protection** check box to enable or disable protection of dump files and trace files.

7. Save your changes.

How to enable protection of dump files and trace files in the Application Console

1. In the Application Console tree, select the **Kaspersky Embedded Systems Security** node and do one of the following:

   - Click the **Application properties** link in the results pane of the node.
   - Select **Application properties** in the node's context menu.

   The **Application properties** window opens.

2. Select the **Malfunction diagnosis** tab.

3. In the **Malfunction diagnosis settings** block, click the **Settings** button.
   The **Malfunction diagnosis settings** window opens.

4. Use the **Enable dump and trace files protection** check box to enable or disable protection of dump files and trace files.

5. Save your changes.

You can also enable or disable protection of dump files and trace files in the Compact Diagnostic Interface.

Dump files and trace files that were written while protection was active remain protected even after this function is disabled.

Obtaining OS data (Kaspersky Get System Info)

After the Kaspersky Embedded Systems Security application is installed, the operating system or an application may not function correctly. There is a conflict between the application and the software or drivers of the computer components.

To identify the cause of the problem, Kaspersky Technical Support requires a report from the Kaspersky Get System Info utility (hereinafter referred to as GSI). For detailed information on using the utility, refer to the Kaspersky Knowledge Base.

Sources of information about Kaspersky Embedded Systems Security

You can use the following sources to find information about Kaspersky Embedded Systems Security:

- Kaspersky Embedded Systems Security page on the Kaspersky website
- Kaspersky Embedded Systems Security page on the Technical Support website (Knowledge Base)
- Online help
- Discussing the application on the Forum

An Internet connection is required to use online information sources.

It may not be possible to view the online help in a browser that does not support modern encryption protocols.

If you did not find a solution to your problem, contact Kaspersky Technical Support.

Kaspersky Embedded Systems Security page on the Kaspersky website

On the Kaspersky Embedded Systems Security page, you can review general information about the application and its functions and features.

The Kaspersky Embedded Systems Security page contains a link to the online store. There you can purchase the application or renew your license.

Kaspersky Embedded Systems Security page in the Knowledge Base

The Knowledge Base is a section of the Technical Support website.

On the Kaspersky Embedded Systems Security page in the Knowledge Base, you can find articles that provide useful information, recommendations, and answers to frequently asked questions about how to purchase, install, and use the application.

Knowledge Base articles can answer questions relating to not only Kaspersky Embedded Systems Security but also other Kaspersky applications. Knowledge Base articles can also include Technical Support news.

Kaspersky Embedded Systems Security Help

The online help contains information about configuring and using Kaspersky Embedded Systems Security.

Discussing the application on the Forum

If your question does not require an urgent answer, you can discuss it with Kaspersky experts and other users in our Forum.

In the Forum, you can view existing topics, post your own comments, and create new discussion topics.

Appendices

This section contains information that supplements the body of the document.

File extensions for quick scan

com – executable file of an application no larger than 64 KB

exe – executable file or self-extracting archive

sys – Microsoft Windows system file

prg – program text for dBase™, Clipper or Microsoft Visual FoxPro®, or a WAVmaker program

bin – binary file

bat – batch file

cmd – command file for Microsoft Windows NT (similar to a bat file for DOS), OS/2

dpl – compressed Borland Delphi library

dll – dynamic link library

scr – Microsoft Windows splash screen

cpl – Microsoft Windows control panel module

ocx – Microsoft OLE (Object Linking and Embedding) object

tsp – program running in split-time mode

drv – device driver

vxd – Microsoft Windows virtual device driver

pif – program information file

lnk – Microsoft Windows link file

reg – Microsoft Windows system registry key file

ini – configuration file which contains configuration data for Microsoft Windows, Windows NT, and some applications

cla – Java class

vbs – Visual Basic® script

vbe – BIOS video extension

js, jse – JavaScript source text

htm – hypertext document

htt – Microsoft Windows hypertext header

hta – hypertext program for Microsoft Internet Explorer®

asp – Active Server Pages script

chm – compiled HTML file

pht – HTML file with integrated PHP scripts

php – script that is integrated into HTML files

wsh – Microsoft Windows Script Host file

wsf – Microsoft Windows script

the – Microsoft Windows 95 desktop wallpaper file

hlp – Win Help file

msg – Microsoft Mail email message

plg – email message

mbx – saved Microsoft Office Outlook email message

doc* – Microsoft Office Word documents, such as: doc for Microsoft Office Word documents, docx for Microsoft Office Word 2007 documents with XML support, and docm for Microsoft Office Word 2007 documents with macro support

dot* – Microsoft Office Word document templates, such as: dot for Microsoft Office Word document templates, dotx for Microsoft Office Word 2007 document templates, dotm for Microsoft Office Word 2007 document templates with macro support

fpm – database program, Microsoft Visual FoxPro start file

rtf – Rich Text Format document

shs – Windows Shell Scrap Object Handler fragment

dwg – AutoCAD® drawing database

msi – Microsoft Windows Installer package

otm – VBA project for Microsoft Office Outlook

pdf – Adobe Acrobat document

swf – Shockwave® Flash package object

jpg, jpeg – compressed image graphics format

emf – Enhanced Metafile format file;

ico – object icon file

ov? – Microsoft Office Word executable files

xl* – Microsoft Office Excel documents and files, such as: xla, the extension for Microsoft Office Excel, xlc for diagrams, xlt for document templates, xlsx for Microsoft Office Excel 2007 workbooks, xltm for Microsoft Office Excel 2007 workbooks with macro support, xlsb for Microsoft Office Excel 2007 workbooks in binary (non-XML) format, xltx for Microsoft Office Excel 2007 templates, xlsm for Microsoft Office Excel 2007 templates with macro support, and xlam for Microsoft Office Excel 2007 plug-ins with macro support

pp* – Microsoft Office PowerPoint® documents and files, such as: pps for Microsoft Office PowerPoint slides, ppt for presentations, pptx for Microsoft Office PowerPoint 2007 presentations, pptm for Microsoft Office PowerPoint 2007 presentations with macros support, potx for Microsoft Office PowerPoint 2007 presentation templates, potm for Microsoft Office PowerPoint 2007 presentation templates with macro support, ppsx for Microsoft Office PowerPoint 2007 slide shows, ppsm for Microsoft Office PowerPoint 2007 slide shows with macro support, and ppam for Microsoft Office PowerPoint 2007 plug-ins with macro support

md* – Microsoft Office Access® documents and files, such as: mda for Microsoft Office Access workgroups and mdb for databases

sldx – a Microsoft PowerPoint 2007 slide

sldm – a Microsoft PowerPoint 2007 slide with macro support

thmx – a Microsoft Office 2007 theme

User accounts in application component rules

To configure some application components, you need to add special rules where you can select the users for whom the application will apply the rule.

Rules must be added to configure the following application components:

- Applications Launch Control
- Device Control
- Behavior Detection
- System Integrity Monitoring

You can add users in the following ways:

- Select from Active Directory (recommended)
- Select from the Kaspersky Security Center user list
- Add manually

Kaspersky recommends using local user accounts only in special cases when it is not possible to use domain user accounts. For details about the security risks of using local accounts, see the Microsoft Knowledge Base. You bear full responsibility for the security of a computer if local user accounts are used; in particular this includes the responsibility for controlling and restricting access to the application settings.

The application uses the SID (Security Identifier) of the user to identify users. When using user accounts from Active Directory or from the Kaspersky Security Center user list, the application determines the SID on the Administration Server. This means the application does not place extra load on the computer to identify a user. If you added more than 1000 local user accounts to an application rule, the applications contacts the domain controller to identify the user. This means the load on the computer is increased. To optimize the performance impact on the computer, we recommend using user accounts from Active Directory or the Kaspersky Security Center user list.

Kaspersky Embedded Systems Security supports embedded user and group accounts (for example, the "Everyone" group) in rules. Due to specifics of user SID detection, the application allows using embedded accounts added from Active Directory or from the Kaspersky Security Center user list only. Rules where the embedded account is added manually do not work.

Legal Information

Data provision

This section contains information about the data that the Kaspersky Embedded Systems Security application may store on the device and automatically transmit to Kaspersky during its operation.

Received information is protected by Kaspersky in accordance with the law and the requirements and applicable regulations of Kaspersky. Data is transmitted over encrypted communication channels.

Data provision under the End User License Agreement

The License Agreement for Kaspersky Embedded Systems Security, specifically the section entitled "Terms of data processing", specifies the terms, liability, and procedure for sending and processing the data indicated in this Guide. Before accepting the License Agreement, carefully review its terms as well as all documents linked to by the License Agreement.

The data Kaspersky receives from you when you use the application is protected and processed in accordance with the Privacy Policy available at www.kaspersky.com/Products-and-Services-Privacy-Policy.

The terms of the License Agreement and Privacy Policy are available during installation of Kaspersky Embedded Systems Security as a part of distribution kit and from the **Start** menu (**All programs** > **Kaspersky Embedded Systems Security** > **EULA and Privacy Policy**) after the installation.

During the Kaspersky Embedded Systems Security uninstallation, all the data stored by Kaspersky Embedded Systems Security on the protected device is deleted.

By accepting the terms of the End User License Agreement, you agree to automatically send the following data to Kaspersky:

- To support the mechanism for receiving updates – information about the installed application and its activation: identifier of the application being installed and its full version, including build number, type, and license identifier, installation identifier, update task identifier.

- To use the ability to navigate to Knowledge Base articles when application errors occur (Redirector service): information about the application and link type: the name, locale, and full version number of the application, type of redirecting link, and error identifier.

- To manage confirmations for data processing: information about the status of acceptance of license agreements and other documents, that stipulate data transferring terms: identifier and version of the License Agreement or other document, as a part of which the data processing terms are accepted or declined; an attribute, signifying the user's action (confirmation or recall of the terms acceptance); date and time of status changes of the data processing terms acceptance.

Local data processing

While executing the application's primary functions described in this Guide, Kaspersky Embedded Systems Security locally processes and stores a set of data on the protected device.

The table below contains information about local processing and storing by Kaspersky Embedded Systems Security of data contained in reports.

Processing and storing of data contained in reports

Functional area	Event registration
Type of use	Kaspersky Embedded Systems Security stores the data locally and sends the data to the Administration Server. The Administration Server database stores information about application events that occur on the managed protected devices.
Storage	• %ALLUSERSPROFILE%\Kaspersky Lab\Kaspersky Security for Windows Server\<product version>\Reports • %SystemRoot%\System32\Winevt\Logs\Kaspersky Security.evtx • Administration Server's database
Security measures	Access-control list.
Storage period	Kaspersky Embedded Systems Security stores the data until the uninstallation of Kaspersky Embedded Systems Security. During the Kaspersky Embedded Systems Security uninstallation, all the data stored by Kaspersky Embedded Systems Security on the protected device is deleted.
Purpose	Providing primary functionality.

Kaspersky Embedded Systems Security does not delete events in the Windows Event Log including events that occur when uninstalling Kaspersky Embedded Systems Security.

In order to provide event registration functionality, Kaspersky Embedded Systems Security processes the following data locally:

- Names, checksums (MD5, SHA-256) and attributes of processed files and full paths to them on the scanned media.
- Actions taken on scanned files by Kaspersky Embedded Systems Security.
- User actions taken on scanned files on the protected device.
- Information about accounts of users performing any actions on the protected network or protected device.
- Device Instance Path values for devices added to the Device Control rules.
- Information about processes and scripts running on the system: checksums (MD5, SHA-256) and full paths to executable files, information about digital certificates.
- Windows Firewall settings.
- Windows Event Log entries.
- Names of user accounts taking actions on scanned files on the protected device.
- Instances of executable files being started, and the types, names, checksums, and attributes of these files.

- Information about network activity:
  - The IP addresses of blocked external devices.
  - Processed IP addresses.
- Information about the Windows USN Journal status.

The following table contains information about the service data processed by the Kaspersky Embedded Systems Security. The service data includes: program parameters, quarantined and backup files, information in the program's service databases, license data.

The table below contains information about local processing and storing by Kaspersky Embedded Systems Security of data about parameters specified by a user.

Processing and storing of data about parameters specified by a user

Functional area	All Kaspersky Embedded Systems Security functionality
Type of use	Kaspersky Embedded Systems Security stores the data locally and sends the data to the Administration Server. The data is stored in Administration Server database. The data processed by the application locally is not automatically sent to Kaspersky or other third-party systems.
Storage	• %ALLUSERSPROFILE%\Kaspersky Lab\Kaspersky Security for Windows Server\<product version>\ • Administration Server's database
Security measures	Access-control list.
Processing period	Kaspersky Embedded Systems Security stores the data until the uninstallation of Kaspersky Embedded Systems Security. During the Kaspersky Embedded Systems Security uninstallation, all the data stored by Kaspersky Embedded Systems Security on the protected device is deleted. Kaspersky Embedded Systems Security does not delete the data about parameters exported into configuration file. Kaspersky Embedded Systems Security does not delete Quarantine objects and Backup objects if the **Export quarantine objects** and **Export Backup objects** check boxes are selected in the Setup Wizard.
Purpose	Providing primary functionality.

For the specified purposes, Kaspersky Embedded Systems Security processes the following data locally:

- Objects placed in Quarantine or Backup.
- Information about user accounts (usernames and passwords) under which Kaspersky Embedded Systems Security runs tasks.
- Kaspersky Embedded Systems Security password.
- IP addresses and identifiers of blocked logon sessions.
- Windows Firewall settings and Windows Firewall rules settings.
- Checksums (MD5, SHA-256) and paths to executable files added to the Application Launch Control rules.
- Device Instance Path values for devices added to the Device Control rules.
- Information about files and folders included in scopes of Kaspersky Embedded Systems Security tasks.
- IP addresses included or excluded from the protection scope.
- Information about events in the Windows Event Log.

- Information about detections with the use of iSwift or iChecker technology.
- Checksums (MD5, SHA-256), full paths and masks specified in exclusions settings.
- Information about processes added to the Trusted Zone.
- Information about added license keys.
- Information about digital certificates.
- Files unpacked from an archive or other composite object during the scan.

Kaspersky Embedded Systems Security processes and stores data as part of the application's basic functionality, including to log application events and receive diagnostic data. Locally processed data is protected in accordance with the configured and applied application settings.

Kaspersky Embedded Systems Security lets you configure the level of protection for data processed locally. You can change user privileges to access processed data, change data retention periods for such data, entirely or partially disable functionality that involves data logging, and change the path and attributes of the folder on the drive where data is logged.

The data processed by the application locally is not automatically sent to Kaspersky or other third-party systems.

By default, all data locally processed by the application during operation is removed after Kaspersky Embedded Systems Security is uninstalled from the protected device.

Files with diagnostic information (trace and dump files), application events in the Windows Event Log, and files with exported Kaspersky Embedded Systems Security settings are an exception. We recommend that you delete these files manually.

You can find the detailed information about working with files containing diagnostic data of the application in the corresponding sections of this Guide.

You can delete Windows Event Log files containing Kaspersky Embedded Systems Security application events using standard operating system tools.

Local data processing by means of the application auxiliary components

The Kaspersky Embedded Systems Security installation package comprises the application auxiliary components, which can be installed on your device even if Kaspersky Embedded Systems Security is not installed on it. Such auxiliary components are:

- The Application Console. The component is a Microsoft Management Console snap-in.
- The Administration Plug-in. This component provides a full integration with Kaspersky Security Center application.

While performing the main functions of the application described in this Guide, the application auxiliary components locally process and store a set of data on the protected device where they are installed, even if they are installed separately from Kaspersky Embedded Systems Security.

The application components locally process and store the following data:

- The Application Console: the name of the protected device with Kaspersky Embedded Systems Security installed (IP address or domain name) to which the Application Console last connected remotely; display parameters configured in the Microsoft Management Console snap-in; data about the last folder in which the user selected objects via the Application Console (using a system dialog opened by clicking the **Browse** button). The Application Console trace files can also contain the following data: the name of the protected device with Kaspersky Embedded Systems Security installed to which the remote connection was established, the name of the user account under which the remote connection was established.

- The Administration Plug-in can process and temporarily store data processed by Kaspersky Embedded Systems Security; for example, configured settings of application tasks and components, settings of Kaspersky Security Center policies, data sent in network lists.

The table below contains information about local processing and storing by Kaspersky Embedded Systems Security of data written in dump and trace files.

Kaspersky Embedded Systems Security locally processes and stores the following data written in dump and trace files:

- Information about actions performed by Kaspersky Embedded Systems Security on the protected device.

- Information about objects processed by Kaspersky Embedded Systems Security.

- Information about activity on the protected device that is processed by Kaspersky Embedded Systems Security.

- Information about errors that occurred during the running of Kaspersky Embedded Systems Security.

The data processed by the auxiliary components is not automatically sent to Kaspersky or other third-party systems.

By default, all data locally processed by the application auxiliary components during the operation is deleted after removal of these components.

The exception is trace files of auxiliary application components. We recommend that you delete these files manually.

Data in trace and dump files

Kaspersky Embedded Systems Security can, in accordance with the settings, write debug information to trace files for the purposes of technical support during the operation of Kaspersky Embedded Systems Security.

Kaspersky Embedded Systems Security dump files are generated by the operating system during application crashes and are overwritten by the next crash.

Trace and dump files can include any personal data of a user or confidential data of your organization.

Do not use Kaspersky Embedded Systems Security on devices for which data submission is prohibited by the policy of your organization.

By default, Kaspersky Embedded Systems Security does not record debug information.

Trace and dump files are not automatically submitted beyond the host on which they were generated. The content of trace files can be viewed using standard text file viewers. Trace and dump files are kept indefinitely and are not deleted when uninstalling Kaspersky Embedded Systems Security.

Debug information can be useful for Technical Support.

No special mechanisms are provided for limiting access to trace and dump files. The administrator can configure this data to be written to a protected folder.

The path to the trace and dump file folder is not configured by default. To use the trace and dump folder, the administrator must specify it.

Data in trace and dump files can contain:

- Information about actions performed by Kaspersky Embedded Systems Security on the protected device.
- Information about objects processed by Kaspersky Endpoint Agent.
- Errors arising during the operation of Kaspersky Endpoint Agent.

Data provision when using Kaspersky Security Network

The set of data that Kaspersky Embedded Systems Security sends to Kaspersky depends on the type of license and the Kaspersky Security Network usage settings.

Use of KSN under license on no more than 4 computers

By accepting the Kaspersky Security Network Statement, you agree to automatically transmit the following information:

- information about KSN configuration updates: identifier of the active configuration, identifier of the configuration received, error code of the configuration update;
- information about files and URL addresses to be scanned: checksums of the scanned file (MD5, SHA2-256, SHA1) and file patterns (MD5), the size of the pattern, type of the detected threat and its name according to Rightholder's classification, identifier for the anti-virus databases, URL address for which the reputation is being requested, as well as the referrer URL address, the connection's protocol identifier and the number of the port being used;
- ID of the scan task that detected the threat;
- information about digital certificates being used needed to verify their authenticity: the checksums (SHA256) of the certificate used to sign the scanned object and the certificate's public key;
- identifier of the Software component performing the scan;
- IDs of the anti-virus databases and of the records in these anti-virus databases;

- Information about activation of the Software on the Computer: signed header of the ticket from the activation service (identifier of the regional activation center, checksum of the activation code, checksum of the ticket, ticket creation date, unique identifier of the ticket, ticket version, license status, start/end date and time of ticket validity, unique identifier of the license, license version), identifier of the certificate used to sign the ticket header, checksum (MD5) of the key file;

- Information about the Rightholder's Software: full version, type, version of the protocol used to connect to Kaspersky services.

Use of KSN under license on 5 or more computers

By accepting the Kaspersky Security Network Statement, you agree to automatically transmit the following information:

If the **Kaspersky Security Network** check box is selected and the **Enable extended KSN mode** check box is cleared, the application sends the following information:

- information about KSN configuration updates: identifier of the active configuration, identifier of the configuration received, error code of the configuration update;

- information about files and URL addresses to be scanned: checksums of the scanned file (MD5, SHA2-256, SHA1) and file patterns (MD5), the size of the pattern, type of the detected threat and its name according to Rightholder's classification, identifier for the anti-virus databases, URL address for which the reputation is being requested, as well as the referrer URL address, the connection's protocol identifier and the number of the port being used;

- ID of the scan task that detected the threat;

- information about digital certificates being used needed to verify their authenticity: the checksums (SHA256) of the certificate used to sign the scanned object and the certificate's public key;

- identifier of the Software component performing the scan;

- IDs of the anti-virus databases and of the records in these anti-virus databases;

- Information about activation of the Software on the Computer: signed header of the ticket from the activation service (identifier of the regional activation center, checksum of the activation code, checksum of the ticket, ticket creation date, unique identifier of the ticket, ticket version, license status, start/end date and time of ticket validity, unique identifier of the license, license version), identifier of the certificate used to sign the ticket header, checksum (MD5) of the key file;

- Information about the Rightholder's Software: full version, type, version of the protocol used to connect to Kaspersky services.

If the **Enable extended KSN mode** check box is selected in addition to the **Kaspersky Security Network** check box, the application sends the following information in addition to the information listed above:

- information about the results of categorization of the requested web-resources, which contains the processed URL and IP address of the host, the version of the Software's component that performed the categorization, the method of categorization and set of the categories defined for the web-resource;

- information about the software installed on the Computer: names of the software applications and software vendors, registry keys and their values, information about files of the installed software components (checksums (MD5, SHA2-256, SHA1), name, path to the file on the Computer, size, version and the digital signature);

- information about the state of anti-virus protection of the Computer: the versions and the release timestamps of the anti-virus databases being used, the ID of the task and the ID of Software that performs scanning;

- information about files being downloaded by the End User: the URL and IP addresses of the download and the download pages, download protocol identifier and connection port number, the status of the URLs as malicious or not, file's attributes, size and checksums (MD5, SHA2-256, SHA1), information about the process that downloaded the file (checksums (MD5, SHA2-256, SHA1), creation/build date and time, autoplay status, attributes, names of packers, information about signatures, executable file flag, format identifier, and entropy), file name and its path on the Computer, the file's digital signature and timestamp of its generation, the URL address where detection occurred, the script's number on the page that appears to be suspicious or harmful, information about HTTP requests generated and the response to them;

- information about the running applications and their modules: data about processes running on the system (process ID (PID), process name, information about the account the process was started from, the application and command that started the process, the sign of trusted program or process, the full path to the process's files and their checksums (MD5, SHA2-256, SHA1), and the starting command line, level of the process's integrity, a description of the product that the process belongs to (the name of the product and information about the publisher), as well as digital certificates being used and information needed to verify their authenticity or information about the absence of a file's digital signature), and information about the modules loaded into the processes (their names, sizes, types, creation dates, attributes, checksums (MD5, SHA2-256, SHA1), the paths to them on the Computer), PE-file header information, names of packers (if the file was packed);

- information about all potentially malicious objects and activities: name of the detected object and full path to the object on the computer, checksums of processed files (MD5, SHA2-256, SHA1), detection date and time, names and sizes of infected files and paths to them, path template code, executable file flag, indicator of whether the object is a container, names of the packer (if the file was packed), file type code, file format ID, list of actions performed by malware and the decision made by the software and user in response to them, IDs of the anti-virus databases and of the records in these anti-virus databases that were used to make the decision, indicator of a potentially malicious object, the name of the detected threat according to the Rightholder's classification, the level of danger, the detection status and detection method, reason for inclusion into the analyzed context and sequence number of the file in the context, checksums (MD5, SHA2-256, SHA1), the name and attributes of the executable file of the application through which the infected message or link was transmitted, depersonalized IP addresses (IPv4 and IPv6) of the host of the blocked object, file entropy, file autorun indicator, time when the file was first detected in the system, the number of times the file has been run since the last statistics were sent, information about the name, checksums (MD5, SHA2-256, SHA1) and size of the mail client through which the malicious object was received, ID of the software task that performed the scan, indicator of whether the file reputation or signature was checked, file processing result, checksum (MD5) of the pattern collected for the object, the size of the pattern in bytes, and the technical specifications of the applied detection technologies;

- information about scanned objects: the assigned trust group to which and/or from which the file has been placed, the reason the file was placed in that category, category identifier, information about the source of the categories and the version of the category database, the file's trusted certificate flag, name of the file's vendor, file version, name and version of the software application which includes the file;

- information about vulnerabilities detected: the vulnerability ID in the database of vulnerabilities, the vulnerability danger class;

- information about emulation of the executable file: file size and its checksums (MD5, SHA2-256, SHA1), the version of the emulation component, emulation depth, an array of properties of logical blocks and functions within logical blocks obtained during the emulation, data from the executable file's PE headers;

- the IP addresses of the attacking computer (IPv4 and IPv6), the number of the port on the Computer that the network attack is directed at, identifier of the protocol of the IP packet containing the attack, the attack's target (organization name, website), flag for the reaction to the attack, the attack's weight, trust level;

- information about attacks associated with spoofed network resources, the DNS and IP addresses (IPv4 and IPv6) of visited websites;

- DNS and IP addresses (IPv4 or IPv6) of the requested web resource, information about the file and web client accessing the web resource, the name, size and checksums (MD5, SHA2-256, SHA1) of the file, full path to the file and path template code, the result of checking its digital signature, and its status in KSN;

- information about rollback of malware actions: data on the file whose activity was rolled back (name of the file, full path to the file, its size and checksums (MD5, SHA2-256, SHA1)), data on successful and unsuccessful actions to delete, rename and copy files and restore the values in the registry (names of registry keys and their values), and information about system files modified by malware, before and after rollback;

- Information about the exclusions set for the Adaptive Anomaly Control component: the ID and status of the rule that was triggered, the action performed by the Software when the rule was triggered, the type of user account under which the process or the thread performs suspicious activity, information about the process that performed or was subject to the suspicious activity (script ID or process file name, full path to the process file, path template code, checksums (MD5, SHA2-256, SHA1) of the process file); information about the object that performed the suspicious actions and about the object that was subject to the suspicious actions (registry key name or file name, full path to the file, path template code, and checksums (MD5, SHA2-256, SHA1) of the file).

- information about loaded software modules: name, size and checksums (MD5, SHA2-256, SHA1) of the module file, full path to it and the path template code, digital signature settings of the module file, data and time of signature creation, name of the subject and organization that signed the module file, ID of the process in which the module was loaded, name of the module supplier, and the sequence number of the module in the loading queue;

- information about the quality of Software interaction with the KSN services: start and end date and time of the period when the statistics were generated, information about the quality of requests and connection to each of the KSN services used (KSN service ID, number of successful requests, number of requests with responses from cache, number of unsuccessful requests (network problems, KSN being disabled in the Software settings, incorrect routing), time spread of the successful requests, time spread of the cancelled requests, time spread of the requests with exceeded time limit, number of connections to KSN taken from cache, number of successful connections to KSN, number of unsuccessful connections to KSN, number of successful transactions, number of unsuccessful transactions, time spread of the successful connections to KSN, time spread of the unsuccessful connections to KSN, time spread of the successful transactions, time spread of the unsuccessful transactions);

- if a potentially malicious object is detected, information is provided about data in the processes' memory: elements of the system object hierarchy (ObjectManager), data in UEFI BIOS memory, names of registry keys and their values;

- information about events in the systems logs: the event's timestamp, the name of the log in which the event was found, type and category of the event, name of the event's source and the event's description;

- information about network connections: version and checksums (MD5, SHA2-256, SHA1) of the file from which process was started that opened the port, the path to the process's file and its digital signature, local and remote IP addresses, numbers of local and remote connection ports, connection state, timestamp of the port's opening;

- information about the date of Software installation and activation on the Computer: the ID of the partner that sold the license, the serial number of the license, the signed header of the ticket from the activation service (the ID of a regional activation center, the checksum of the activation code, the checksum of the ticket, the ticket creation date, the unique ID of the ticket, the ticket version, the license status, the ticket start/end date and time, the unique ID of the license, the license version), the ID of the certificate used to sign the ticket header, the checksum (MD5) of the key file, the unique ID of Software installation on the Computer, the type and ID of the application that gets updated, the ID of the update task;

- information about the set of all installed updates, and the set of most recently installed/removed updates, the type of event that caused the update information to be sent, duration since the installation of last update, information about any currently installed anti-virus databases;

- information about software operation on the computer: data on CPU usage, data on memory usage (Private Bytes, Non-Paged Pool, Paged Pool), number of active threads in the software process and pending threads, and the duration of software operation prior to the error;

- number of software dumps and system dumps (BSOD) since the Software was installed and since the time of the last update, the identifier and version of the Software module that crashed, the memory stack in the Software's process, and information about the anti-virus databases at the time of the crash;

- data on the system dump (BSOD): a flag indicating the occurrence of the BSOD on the Computer, the name of the driver that caused the BSOD, the address and memory stack in the driver, a flag indicating the duration of the OS session before the BSOD occurred, memory stack of driver that crashed, type of stored memory dump, flag for the OS session before BSOD lasted more than 10 minutes, unique identifier of the dump, timestamp of the BSOD;

- information about errors or performance problems that occurred during operation of the Software components: the status ID of the Software, error type, code and cause as well of the time when the error occurred, the IDs of the component, module and process of the product in which the error occurred, the ID of the task or update category during which the error occurred, logs of drivers used by the Software (error code, module name, name of the source file and the line where the error occurred);

- information about updates of anti-virus databases and Software components: the name, date and time of index files downloaded during the last update and being downloaded during the current update;

- information about abnormal termination of the Software operation: the creation timestamp of the dump, its type, the type of event that caused the abnormal termination of the Software operation (unexpected power-off, third-party application crash), date and time of the unexpected power-off;

- information about the compatibility of Software drivers with hardware and Software: information about OS properties that restrict the functionality of Software components (Secure Boot, KPTI, WHQL Enforce, BitLocker, Case Sensitivity), type of download Software installed (UEFI, BIOS), Trusted Platform Module (TPM) identifier, TPM specification version, information about the CPU installed on the Computer, operating mode and parameters of Code Integrity and Device Guard, operating mode of drivers and reason for use of the current mode, version of Software drivers, software and hardware virtualization support status of the Computer;

- information about third-party applications that caused the error: their name, version and localization, the error code and information about the error from the system log of applications, the address of the error and memory stack of the third-party application, a flag indicating the occurrence of the error in the Software component, the length of time the third-party application was in operation before the error occurred, checksums (MD5, SHA2-256, SHA1) of the application process image, in which the error occurred, path to the application process image and template code of the path, information from the system log with a description of the error associated with the application, information about the application module, in which an error occurred (exception identifier, crash memory address as an offset in the application module, name and version of the module, identifier of the application crash in the Rightholder's plug-in and memory stack of the crash, duration of the application session before crash);

- version of the Software updater component, number of crashes of the updater component while running update tasks over the lifetime of the component, ID of the update task type, number of failed attempts of the updater component to complete update tasks;

- information about the operation of the Software system monitoring components: full versions of the components, date and time when the components were started, code of the event that overflowed the event queue and number of such events, the total number of queue overflow events, information about the file of the process of the initiator of the event (file name and its path on the Computer, template code of the file path, checksums (MD5, SHA2-256, SHA1) of the process associated with the file, file version), identifier of the event interception that occurred, the full version of the interception filter, identifier of the type of the intercepted event, size of the event queue and the number of events between the first event in the queue and the current event, number of overdue events in the queue, information about the file of the process of the initiator of the current event (file name and its path on the Computer, template code of the file path, checksums (MD5, SHA2-256, SHA1) of the process associated with the file), duration of the event processing, maximum duration of the event processing, probability of sending statistics, information about OS events for which the processing time limit was exceeded (date and time of the event, number of repeated initializations of anti-virus databases, date and time of the last repeated initialization of anti-virus databases after their update, event processing delay time for each system monitoring component, number of queued events, number of processed events, number of delayed events of the current type, total delay time for the events of the current type, total delay time for all events);

- information from the Windows event tracing tool (Event Tracing for Windows, ETW) in the event of Software performance problems, suppliers of SysConfig / SysConfigEx / WinSATAssessment events from Microsoft: information about the Computer (model, manufacturer, form factor of the housing, version), information about Windows performance metrics (WinSAT assessments, Windows performance index), domain name, information about physical and logical processors (number of physical and logical processors, manufacturer, model, stepping level, number of cores, clock frequency, CPUID, cache characteristics, logic processor characteristics, indicators of supported modes and instructions), information about RAM modules (type, form factor, manufacturer, model, capacity, granularity of memory allocation), information about network interfaces (IP and MAC addresses, name, description, configuration of network interfaces, breakdown of number and size of network packages by type, speed of network exchange, breakdown of number of network errors by type), configuration of IDE controller, IP addresses of DNS servers, information about the video card (model, description, manufacturer, compatibility, video memory capacity, screen permission, number of bits per pixel, BIOS version), information about plug-and-play devices (name, description, device identifier [PnP, ACPI], information about disks and storage devices (number of disks or flash drives, manufacturer, model, disk capacity, number of cylinders, number of tracks per cylinder, number of sectors per track, sector capacity, cache characteristics, sequential number, number of partitions, configuration of SCSI controller), information about logical disks (sequential number, partition capacity, volume capacity, volume letter, partition type, file system type, number of clusters, cluster size, number of sectors per cluster, number of empty and occupied clusters, letter of bootable volume, offset address of partition in relation to the start of the disk), information about BIOS motherboard (manufacturer, release date, version), information about motherboard (manufacturer, model, type), information about physical memory (shared and free capacity), information about operating system services (name, description, status, tag, information about processes [name and PID]), energy consumption parameters for the Computer, configuration of interrupt controller, path to Windows system folders (Windows and System32), information about the OS (version, build, release date, name, type, installation date), size of page file, information about monitors (number, manufacturer, screen permission, resolution capacity, type), information about video card driver (manufacturer, release date, version);

- information from ETW, suppliers of EventTrace / EventMetadata events from Microsoft: information on the sequence of system events (type, time, date, time zone), metadata about the file with tracing results (name, structure, tracing parameters, breakdown of number of trace operations by type), information about the OS (name, type, version, build, release date, start time);

- information from ETW, suppliers of Process / Microsoft Windows Kernel Process / Microsoft Windows Kernel Processor Power events from Microsoft: information about started and completed processes (name, PID, start parameters, command line, return code, power management parameters, start and completion time, access token type, SID, SessionID, number of descriptors installed), information about changes in thread priorities (TID, priority, time), information about disk operations of the process (type, time, capacity, number), history of changes to the structure and capacity of usable memory processes;

- information from ETW, suppliers of StackWalk / Perfinfo events from Microsoft: information about performance counters (performance of individual code sections, sequence of function calls, PID, TID, addresses and attributes of ISRs and DPCs);

- information from ETW, supplier of KernelTraceControl-ImageID events from Microsoft: information on executable files and dynamic libraries (name, image size, full path), information on PDB files (name, identifier), VERSIONINFO resource data for executable files (name, description, creator, localization, application version and identifier, file version and identifier);

- information from ETW, suppliers of FileIo / DiskIo / Image / Windows Kernel Disk events from Microsoft: information on file and disk operations (type, capacity, start time, completion time, duration, completion status, PID, TID, driver function call addresses, I/O Request Packet (IRP), Windows file object attributes), information about files involved in file and disk operations (name, version, size, full path, attributes, offset, image checksum, open and access options);

- information from ETW, supplier of PageFault events from Microsoft: information on memory page access errors (address, time, capacity, PID, TID, attributes of Windows file object, memory allocation parameters);

- information from ETW, supplier of Thread events from Microsoft: information on thread creation/completion, information on threads started (PID, TID, size of stack, priorities and allocation of CPU resources, I/O resources, memory pages between threads, stack address, address of init function, address of Thread Environment Block (TEB), Windows service tag);

- information from ETW, supplier of Microsoft Windows Kernel Memory events from Microsoft: information about memory management operations (completion status, time, quantity, PID), memory allocation structure (type, capacity, SessionID, PID);

- information about Software operation in the event of performance problems: Software installation identifier, type and value of drop in performance, information about the sequence of events within the Software (time, time zone, type, completion status, Software component identifier, Software operating scenario identifier, TID, PID, function call addresses), information about network connections to be checked (URL, direction of the connection, size of network package), information about PDB files (name, identifier, image size of executable file), information about files to be checked (name, full path, checksum), Software performance monitoring parameters;

- information about the last unsuccessful OS restart: the number of unsuccessful restarts since OS installation, data on the system dump (code and parameters of an error, name, version and checksum (CRC32) of the module that caused an error in the OS operation, error address as an offset in the module, checksums (MD5, SHA2-256, SHA1) of the system dump);

- information to verify authenticity of digital certificates being used to sign files: the certificate's fingerprint, the checksum algorithm, the certificate's public key and serial number, the name of the issuer of the certificate, the result of certificate validation and the certificate's database identifier;

- information about the process executing the attack on the Software's self-defense: the name and size of the process file, its checksums (MD5, SHA2-256, SHA1), the full path to the process file and the template code of the file path, the creation/build timestamps, executable file flag, attributes of the process file, information about the certificate used to sign the process file, code of the account used to launch the process, ID of operations performed to access the process, type of resource with which the operation is performed (process, file, registry object, FindWindow search function), name of resource with which the operation is performed, flag indicating success of the operation, the status of the file of the process and its signature according to the KSN;

- information about the Rightholder's Software: full version, type, localization and operation state of Software used, versions of the installed Software components and their operation state, information about the installed Software updates, the value of the TARGET filter, the version of the protocol used to connect to the Rightholder's services;

- information about hardware installed on the Computer: type, name, model name, firmware version, parameters of built-in and connected devices, the unique identifier of the Computer with the installed Software;

- information about the versions of the operating system and installed updates, the word size, edition and parameters of the OS run mode, version and checksums (MD5, SHA2-256, SHA1) of the OS kernel file, and OS startup date and time;

- executable and non-executable files, either entirely or partly;

- portions of the Computer's RAM;

- sectors involved in the process of booting the OS;

- network traffic data packets;

- web pages and emails containing suspicious and malicious objects;

- description of the classes and instances of classes of the WMI repository;

- application activity reports:

  - the name, size and version of the file being sent, its description and checksums (MD5, SHA2-256, SHA1), file format identifier, the name of the file's vendor, the name of the product to which the file belongs, full path to the file on the Computer, template code of the path, the creation and modification timestamps of the file;

  - start and end date/time of the validity period of the certificate (if the file has a digital signature), the date and the time of the signature, the name of the issuer of the certificate, information about the certificate holder, the fingerprint, the certificate's public key and appropriate algorithms, and the certificate's serial number;

  - the name of the account from which the process is running;

  - checksums (MD5, SHA2-256, SHA1) of the name of the Computer on which the process is running;

  - titles of the process windows;

  - Identifier for the anti-virus databases, name of the detected threat according to the Rightholder's classification;

  - data about the installed license, its identifier, type and expiration date;

  - local time of the Computer at the moment of the provision of information;

- names and paths of the files that were accessed by the process;
- names of registry keys and their values that were accessed by the process;
- URL and IP addresses that were accessed by the process;
- URL and IP addresses from which the running file was downloaded.

Compliance with European Union legislation (GDPR)

Kaspersky Embedded Systems Security may transmit data to Kaspersky under the following scenarios:

- Using Kaspersky Security Network.
- Activating the application with an activation code.
- Updating application modules and anti-virus databases.
- Following links in the Application Console.

Irrespective of the data classification and territory from which the data is received, Kaspersky adheres to high standards for data security and employs various legal, organizational and technical measures to protect the data of users, to guarantee data security and confidentiality, and also to ensure the fulfillment of users' rights as guaranteed by applicable legislation. The text of the Privacy Policy is included in the application distribution kit and is available on the Kaspersky website.

Prior to using Kaspersky Embedded Systems Security, please carefully read the description of transmitted data in the End User License Agreement and Kaspersky Security Network Statement (listed in the Kaspersky Security Network Statement). If specific data transmitted from Kaspersky Embedded Systems Security under any of the described scenarios may be classified as personal data according to your local legislation or standard, you must ensure that such data is processed legally and obtain the consent of end users for the collection and transmission of such data.

Read the End User License Agreement and visit the Kaspersky website to learn more about how we receive, process, store, and destroy information about application usage after you accept the End User License Agreement and consent to the Kaspersky Security Network Statement. The license.txt and ksn_<language ID>.txt files contain the text of the End User License Agreement and Kaspersky Security Network Statement and are included in the application distribution kit.

If you do not want to transmit data to Kaspersky, you can disable data provision.

Using Kaspersky Security Network

By using Kaspersky Security Network, you agree to automatically provide the data listed in the Kaspersky Security Network Statement. If you do not agree to provide this data to Kaspersky, use Kaspersky Private Security Network (KPSN) or disable the use of KSN.

Activating the application with an activation code

By using an activation code, you agree to automatically provide the data under the End User License Agreement. If you do not agree to provide this data to Kaspersky, use a key file to activate Kaspersky Embedded Systems Security.

Updating application modules and anti-virus databases

By using Kaspersky servers, you agree to automatically provide the data under the End User License Agreement. Kaspersky requires this information to verify that Kaspersky Embedded Systems Security is being legitimately used. If you do not agree to provide this information to Kaspersky, use Kaspersky Security Center for database updates.

Following links in the Application Console.

By using links in the Application Console, you agree to automatically provide the data under the End User License Agreement. The precise list of data transmitted in each specific link depends on where the link is located in the Application Console and which problem it aims to resolve. If you do not agree to provide this information to Kaspersky, disable the display of the application interface.

Information about third-party code

Information about third-party code is contained in the legal_notices.txt file, located in the application installation folder.

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