



**STORMSHIELD**



GUIDE

# STORMSHIELD ENDPOINT SECURITY EVOLUTION

## ADMINISTRATION GUIDE

Version 2.2

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In the documentation, Stormshield Endpoint Security Evolution is referred to in its short form: SES Evolution.



# 1. Getting started

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Welcome to the Stormshield Endpoint Security Evolution administration guide version 2.2.

This guide contains all of the essential technical information to run and monitor the product in your environment.

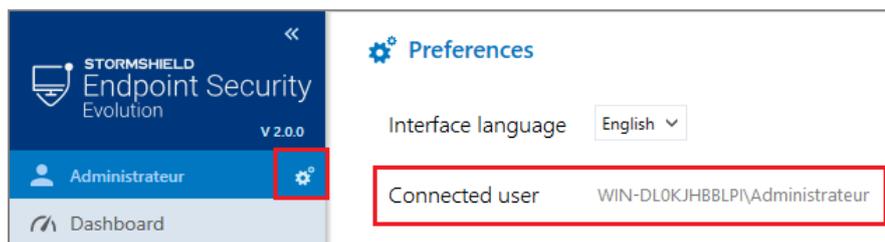
SES Evolution is a global security solution that offers comprehensive workstation protection in organizations of all sizes. The SES Evolution agent runs on workstations and transparently protects them from known and unknown attacks and intrusions. The agent is configured in an administration console and is in constant contact with SES Evolution agent handlers that distribute security policies.

In the administration console, users can also configure security policies and read event logs generated by workstations, making it possible to monitor their operation.



## 2. Connecting to the SES Evolution administration console

1. Connect to your workstation using your Microsoft Windows domain account.
2. Run the Stormshield Endpoint Security Evolution  administration console. You are now connected to the console with your Windows account. If the Windows account is not recognized or if the backend component cannot be reached, a connection window appears but the administration console does not open.
3. To see which user is connected to the console, click on the gear wheel in the panel on the left, or scroll over the name of the user in the same panel.



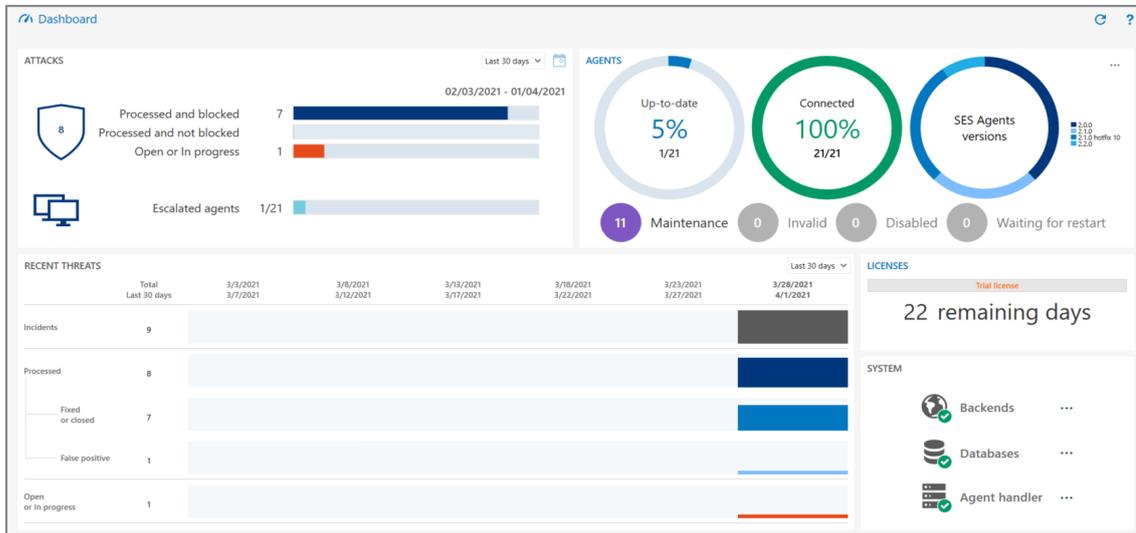
To connect with an account other than the one for which the Windows session was opened, the executable file of the console can also be launched using the option **Run as another user**.

The administration console appears in the language of your operating system. To change the language of the interface, click on the gear wheel in the panel on the left and select the desired language from the drop-down list.



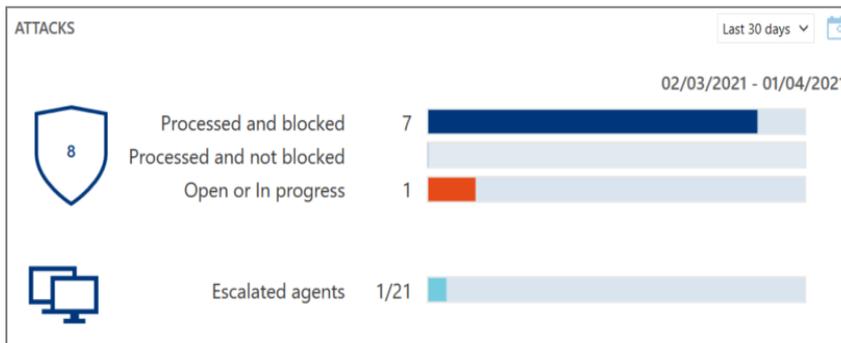
## 3. Understanding the dashboard

The SES Evolution dashboard provides an overview of the security status of your pool and how it is managed. You can identify the elements that cause issues at a glance, and access the various control or monitoring panels via shortcuts. The dashboard consists of several tiles.



### 3.1 Monitoring attacks

The **Attacks** tile displays the number of attacks that your pool has detected and the number of agents affected. Statistics on attacks over the past 30 days are shown by default, but you can select a particular month from the drop-down list at the top on the right.



The following statistics are available:

- **Processed and blocked:** Number of incidents in which attacks were blocked and that are **Fixed** or **Closed**.
- **Processed and not blocked:** Number of incidents in which attacks were not blocked and that are **Fixed** or **Closed**.
- **New and In progress:** Number of **New** or **Ongoing** incidents. **False positive** incidents are not listed in this tile.
- **Escalated agents:** Number of agents on which incidents were generated.

For more information on the various attacks and statuses, see the section [Managing logs](#).

Different colored bars indicate proportion within the total number of incidents.



If you have kept the past 30 days as the default period, an icon appears on the right of the colored bars, showing how the number of incidents has changed over the 30 days prior to the current period.

### 3.2 Monitoring recent threats

The **Recent threats** tile displays the number of threats that SES Evolution agents were exposed to, in the form of bar charts. Daily statistics on threats over the current week are shown by default, but you can select a particular period from the drop-down list at the top on the right.



The following statistics are available:

- **Incidents:** Total number of incidents.
- **Processed:** Number of **Fixed**, **False positive** or **Closed** incidents.
  - **Fixed or closed:** Number of **Fixed** or **Closed** incidents.
  - **False positive:** Number of **False positive** incidents.
- **Open or ongoing:** Number of **New** or **Ongoing** incidents.

For more information on the various statuses, see the section [Managing logs](#).

Scroll over the bar charts to show the corresponding number of incidents.

### 3.3 Checking agent status



The **Agents** tile shows the number of agents, their SES Evolution version and their status.



Status	Description
Up-to-date	The software, policy and configuration version of the agent matches the version defined in its agent group. The agent may sometimes have a higher software version if it cannot revert to an older version and if the agent was forced to update.
Connected	The agent connected back to its agent handler within the normal period defined in its group.
Disabled	The agent was disabled by a <a href="#">challenge</a> .
Waiting for restart	The agent had to be restarted to complete an installation, an update or to apply changes.
Maintenance	<a href="#">Maintenance mode</a> is enabled on the agent.
Invalid	The agent reported issues after an integrity check.

The **SES Evolution agent versions** diagram shows how software versions are distributed in your pool. Scroll over the part of the circle corresponding to a version to show the number of agents concerned.

Click on  to export the list of all agents in the pool, or a list of agents by status, in a .csv file.

The image above shows that the pool consists of 21 agents, 11 of which are in maintenance mode and only one is up to date. All of the agents are connected.

Click on **Agents** at the top left side of the tile to go to the general panel for agents. For more information, please refer to the section [Viewing agents in the console](#).



### 3.4 Monitoring licenses

The **Licenses** tile shows license information in a diagram.



The diagram will show the number of active agents and the proportion compared to the number of agents allowed in the license. An agent is considered active if it has connected to the agent handler within the past 10 days. The color of the diagram changes according to the proportion of licenses used.

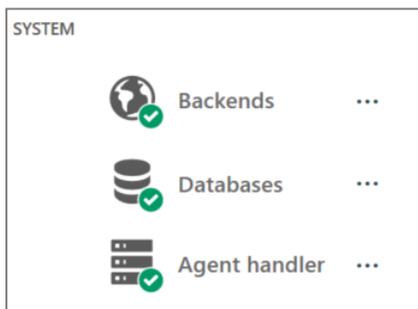
<b>Green</b>	The number of active agents is below 90% of licenses' full capacity.
<b>Orange</b>	The number of active agents is between 90% and 110% of licenses' full capacity.
<b>Red</b>	The tolerated threshold of 110% has been exceeded.
<b>Gray</b>	The license has expired.

License information is refreshed every hour and every time you access the dashboard.

Click on **Licenses** at the top left side of the tile to go to the panel for licenses. For further information, refer to the section [Managing SES Evolution licenses](#).

### 3.5 Checking server status

The **System** tile shows the statuses of various servers in different colors: backend server, databases and agent handlers. For more information, refer to the *SES Evolution Installation Guide*.



If an issue is detected on a server, SES Evolution will generate a system log, and the color of the server's icon changes.

#### 3.5.1 Backends

The backend is the application server that centralizes all operations performed in the SES

Evolution environment. The backend icon  changes color according to the amount of resources consumed:



<b>Green</b>	All backends are running,
<b>Orange</b>	The average RAM or CPU consumption of one or several backends exceeds 90% (moving average over one hour), or the disk space used exceeds 75%.
<b>Red</b>	The status of one or several backends has not been updated for more than 5 minutes or the task of deleting logs was not successfully carried out, or the disk space used exceeds 85%.

Click on to obtain more accurate information on each backend's resource consumption and the date of its last connection. The result of the log deletion task is also shown. If the task failed, move your mouse over the red cross of the **Task** column to show the exact error message. For more information on this task, refer to the section [Managing the size of the log database](#).

### 3.5.2 Databases

SES Evolution runs with several databases, including an administration database and one log database.

The color of database icons changes according to whether they can be reached, and the amount of disk space used:

<b>Green</b>	All databases can be reached and less than 70% of the disk space is used.
<b>Orange</b>	Between 70% and 80% of the disk space is used.
<b>Red</b>	One or several databases cannot be reached, or more than 80% of the disk space is used.

Click on to see when each database last connected.

### 3.5.3 Agent handlers

The agent handler receives data and logs directly from agents, and updates the administration database via the backend. The color of the agent handler icon changes according to its resource consumption:

<b>Green</b>	All agent handlers are operational.
<b>Orange</b>	The average RAM or CPU consumption of one or several agent handlers exceeds 90% (moving average over one hour), or the disk space used exceeds 75%.
<b>Red</b>	The status of one or several agent handlers has not been updated for more than 5 minutes, or the disk space used exceeds 80%.

Click on to obtain more accurate information on each agent handler's resource consumption and the date of its last connection.



## 4. Managing SES Evolution licenses

You have registered a license while installing your SES Evolution environment.

Licenses determine the number of active SES Evolution agents that you can manage with the solution, and have an expiry date.

Several licenses can be imported, in which case, the number of agents allowed is the total number of agents for all licenses.

### 4.1 Importing the license in SES Evolution

You must hold the **Licenses-Modify** privilege to be able to import licenses.

1. In the administration console dashboard, click on **Licenses**.
2. Click on **Add a license** and choose the license file (e.g., *SES-JCCA-WE9T-Q5RA.lic*). The **Capacity** field represents the number of active SES Evolution agents and the total number of agents allowed per license,

### 4.2 Reading license information

You must hold the **Licenses-Display** privilege to be able to read license information.

The **Licenses** section in the administration console dashboard shows the number of active agents and the proportion compared to the number of agents allowed. An agent is considered active if it has connected to the agent handler within the past 10 days.

The chart is green when the number of active agents is below 90% of the license's full capacity, orange when it is between 90% and 110%, and red when the tolerated threshold of 110% has been exceeded.

License information is refreshed every hour and every time you access the dashboard.



## 5. Managing users on the SES Evolution administration console

Users access the console with their Microsoft Windows accounts which must be on the same Active Directory domain as the backend component. If this is not the case, then a relationship of trust must be established between the domains.

By default, only the super administrator specified during installation can log in to the administration console. This administrator can then create other users who will also be able to log in.

### **i** NOTE

If you rename the Windows account of this super administrator, make sure that you have created a user beforehand with the new name in the SES Evolution administration console. Otherwise you will not be able to log in to the console. For further information, refer to the section [Adding users on the administration console](#).

Each user is assigned a role that defines the user's profile and restricts the features available in the administration console. Three roles are available by default: Audit, Helpdesk and Administration. New roles can also be created and customized.

Multiple users can connect simultaneously to consoles that manage the same pool.

### 5.1 Creating custom roles

You must hold the **Users-Write** privilege to be able to create roles.

1. Select the **Users** menu, then the **Roles** tab.
2. Click on **Create a role**.
3. Enter a name for the role and its description if necessary.
4. Click on **OK**. The new role appears in the list. The most restrictive privileges are applied by default.
5. For each privilege, choose the type of access that you want to grant. Every privilege corresponds to a panel in the administration console. By default, only the panels **Environment**, **Dashboard** and **Licenses** are accessible. The **Lock** privilege makes it possible to break locks set up by other users on panels in the console. For more information on locks, see the next section.

### 5.2 Adding users on the administration console

You must hold the **Users-Modify** privilege to be able to add users.

1. Select the **Users** menu, then the **Users** tab.
2. Click on **Create a user**.



3. Select the role to assign to this user:
  - **Audit:** this role makes it possible to view all panels in the console and edit the settings of the user's own account, but no other modification and deployment operations are possible. This role is dedicated to log reading and agent monitoring.
  - **Help desk:** This role holds the same privileges as the Audit role. In addition, it allows the user to respond to challenges and unlocks locked operations. This role is dedicated to the maintenance of the SES Evolution pool.
  - **Administration:** This role makes it possible to perform all operations accessible in the administration console without restrictions.
  - **Custom role**
4. Enter the ID of the Windows account in *domain\_name\user\_name* format. Ensure that the ID is accurate as checks will not be performed when the ID is entered. Any errors in the account will only be detected when the user attempts to log in.
5. Click on **Create a user**.

### 5.3 Managing the simultaneous connection of users to consoles that manage the same pool

Multiple users can simultaneously manage the same pool from different hosts.

When a user modifies any of the following resources, they will automatically be locked and no other users can modify them:

- Agent groups,
- Policies,
- Groups of agent handlers.

The entire panel is then locked, i.e., all agent groups, all agent handler groups, all policies or all users. For example, user 1 cannot modify policy A while user 2 modifies policy B.

New groups or new policies cannot be added as well when a panel is locked.

When a user saves or cancels changes, the panel will automatically be unlocked if there are no more objects being edited in this panel.

If a user attempts to modify a locked panel, a message appears in the upper banner indicating which user locked the panel and since when. The user therefore cannot modify anything.

However, if the user's role includes the **Lock - Unlock** privilege, the user can then break the lock on the panel using the **Break the lock** button that appears in the upper banner. This feature is particularly useful when a resource accidentally remains in edit mode for example.

As this operation releases the panel and cancels the other user's changes in progress, it must be used carefully. In this case, the user who held the lock first will be warned when s/he attempts to save changes.

To break the lock on a panel if you hold the privilege:

1. Click on **Break the lock** in the upper banner.
2. Confirm the operation in the window that appears.



## 6. Configuring SES Evolution agent handlers

Agent handlers are SES Evolution servers that make it possible to distribute security policies and software updates to agents. It is also possible to receive:

- agents' event logs, which can be saved and sent to a syslog server.
- the status of agent monitoring data and display them in the **General** tab of the agent group.

Every agent handler belongs to a group of agent handlers.

The parameters of each agent handler and each group must be defined. **Agent handlers-Modify** privileges are required.

### 6.1 Creating groups of agent handlers

A group of agent handlers consists of one or several agent handlers. When an agent must connect to an agent handler, the agent gives priority to the last handler that accepted its request. If the connection fails, the agent will randomly choose another handler from the group until its request is accepted.

After an agent handler is installed, it will automatically appear in the **Agent handlers** menu in the administration console. By default, it belongs to a group named *New Group (agent handler\_name)*. You can modify this default group or create others.

Agent logs can be sent to different syslog servers configured for each agent handler group. For example, configure several syslog servers to receive logs of varying levels of severity or with different content formats.

1. Choose the **Agent handlers** menu.
2. In the left panel, click on the + icon. The line *New group* appears.
3. Click on **Edit** in the upper banner.
4. In the **Agent handler group settings**, enter the **Name** of your agent handler group.
5. If you want to send agent logs from this agent handler group to syslog servers, click on **Add a server** and define the following parameters:
  - **Address**: enter the IP address or DNS name of the syslog server,
  - **Protocol**: choose TCP, UDP or TCP/TLS,
  - **Port**: enter the port number used for syslog; *TCP 1468* by default.
  - **Transfer type**: choose the parameter defined during the installation of the syslog server,
  - **Message format**: choose the message format:
    - simple text mode (like the messages displayed in the **Agent logs** menu),
    - raw JSON format containing all the technical data,
    - CEF format,
    - IDMEF format.
  - **Message language**: Select the language if necessary,
  - You can indicate a maximum message size in bytes,
  - Choose the minimum severity of logs to send to this server.
6. Click on **Save** in the upper banner.



### 6.1.1 Troubleshooting

#### A syslog server is not receiving logs that agents send

- **Situation:** One of the syslog servers configured in an agent handler group is not receiving any logs from agents.
- **Cause:** There may be an error in the TCP/TLS configuration of the syslog server.
- **Solution:** Start by checking that the syslog server is indeed running in TCP.  
If this is the case, check the logs that the agent handler generated. If there is an issue with the TCP/TLS configuration, the agent handler will generate a log identifying the malfunctioning syslog server, and describing the possible causes.  
If you do not see this log, try restarting the agent handler to force logging. Wait at least one minute after restarting.  
Based on the indications in the log, review the TCP/TLS configuration of the syslog server.  
You can also check the minimum log severity that you have set, so that they can be sent to the syslog server .

## 6.2 Configuring the parameters of agent handlers

After an agent handler is installed, it will automatically appear in the **Agent handlers** menu in the administration console. By default, it belongs to an agent handler group named *New Group (agent\_handler\_name)*.

1. Choose the **Agent handlers** menu.
2. Select the agent handler from the left panel.
3. Click on **Edit** in the upper banner.
4. Change the default **Name** of this agent handler if necessary.
5. Click on **Save** in the upper banner.



## 7. Managing SES Evolution agents

The SES Evolution agent is installed on all workstations to detect and protect against malicious attacks. As for the SES Evolution agent handler, it provides the security policy and applies the corresponding protections. Agents send their status and event logs to the agent handler as soon as these events occur, allowing you to track the status of your pool from the administration console.

The agent connects periodically to the agent handlers in the handler group assigned to it, with priority given to the last handler that accepted its request. If the connection fails, the agent will randomly choose another handler from the group until its request is accepted.

When the agent is not connected to a network or if none of its default or backup agent handlers can be accessed, it will run autonomously by applying the last known security policies.

The agent saves logs locally for the entire time it is disconnected from the network. When it reconnects, it sends its logs to the agent handler. Logs can also be exported to a `.cab` file and imported into the administration console to be read. For further information, refer to the section [Reading logs of offline agents](#).

### 7.1 Creating and configuring agent groups

An agent group is an SES Evolution agent template that you deploy on all workstations that need to share the same configuration, especially within the same security policy. Any later changes to the configuration of the agent group will be applied to all agents in the group.

#### EXAMPLE

Separate agent groups can be created for the following cases:

- Servers and workstations of users who are not on the same level of security,
- Departments in the company that require customized security rules,
- Laptops of mobile employees and desktop computers, etc.

After an SES Evolution agent is installed on a workstation, it will appear in the **Agents** menu of the administration console. It will be automatically placed in the agent group to which it belongs.

The **Agent groups - Modify** privilege is required to create and configure agents.

To create an agent group:

An agent group named *Default group* is created automatically in the console, but customized agent groups can also be created.

1. Select the **Agents** menu.
2. In the left panel, click on **Create a group**. The line *New group* appears.
3. In the **General** tab in the right panel, enter a **Name** for the group.
4. Click on **Configuration**.
5. Configure the agent group according to your preferences. You must select at least one policy.
6. Click on **Save** in the upper banner to save changes.



### 7.1.1 Applying security policies to agents

You must apply at least one security policy to every agent group. Several secondary policies can also be added, and will apply when certain conditions are met.

#### EXAMPLE

You can add a conditional policy for mobile users, which applies when some workstations are no longer located within the internal corporate network. You could also define a quarantine policy that applies as soon as an agent's health indicators reach unsatisfactory levels.

To apply one or several security policies to an agent group:

1. In an agent group's **Configuration** tab, go to the **Policies** section.
2. Choose the main security policy that you want to apply to all agents in the group from the **Policy** drop-down list.

#### TIP

A blank policy is offered in the drop-down list. When one is used, the protection of an agent group (except self-protection) can be temporarily disabled, for example for tests and troubleshooting.

3. Click on **Add a conditional policy** if you need one, and give the policy a name.
4. Choose the policy that will apply under certain conditions from the **Policy** drop-down list.
5. Click on **Add a condition** and give the condition a name.



6. Click on **Add a test** and choose from one of the following tests:

**IP address**

Enter an IP address, address range or subnet and choose whether it needs to be within range or out of range for the test to be validated.

You can define several ranges separated by commas, e.g.,

*172.16.16.0/0.0.0.24,10.10.0.0/16.*

**Reachable agent handler**

Enable this option to indicate that the agent must be able to reach the agent handler for the test to be validated.

**Ping**

Indicate the IP address or network name of the host that you want to reach using pings, whether the agent must be able to reach it for the test to be validated, number of tries, and frequency of tries.

**Result of custom script**

Click on  to add a script, and specify its path, arguments and where to run it. Indicate what its **Result** must be for the test to be validated. This result must correspond to an output code of the script.

It is best to use **Local service** as this is an account with restricted privileges. Do not choose **Interactive session** or **System** accounts unless absolutely necessary.

Do note that even if you have prevented scripts from being run in your security policies, SES Evolution will assume that your internal custom scripts are trustworthy and allow them to be executed.

**Login to a domain**

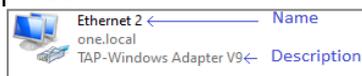
Enter the name of the domain and indicate whether the agent needs to be connected for the test to be validated. A value of *Not connected* indicates that:

- The agent is not linked to the domain in question,
- If the agent is linked to the domain, that it is not connected to the domain network.

**Status of a network interface**

Click on  to add a network interface, and specify its name, unique ID (GUID) or description. Indicate as well what its status must be for the test to be validated: **Connected** or **Offline or idle**.

The Name and Description of an interface can be seen in the Windows Network & Internet panel.



In Windows 10, to obtain all the information about an interface including its GUID, run the following Powershell command:

```
Get-NetAdapter | Select Name, InterfaceName, InterfaceGUID, InterfaceDescription, Status
```

7. Add other tests if necessary, and click on **OK**. The sequence of the tests does not matter because ALL tests must be validated before the condition can be met.
8. Add other conditions if necessary. As soon as one condition is met, the corresponding policy will apply.  
Conditions apply in the order of their appearance.
9. If you want to run a custom script every time the conditional policy is applied, click on **Add a task**. When the script is added, specify its path, arguments and where to run it.  
It is best to use **Local service** as this is an account with restricted privileges. Do not choose **Interactive session** or **System** accounts unless absolutely necessary.

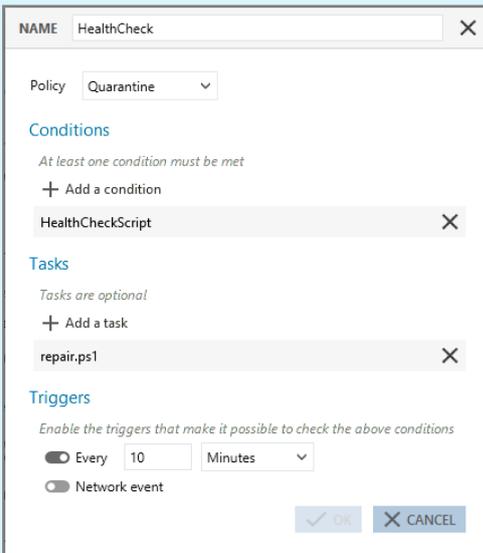


- Under **Triggers**, select one or several events that will trigger the verification of conditions:
  - Enable **Every** to check conditions at the regular interval that you specify.
  - Enable **Network event** to check conditions if the network interface does not stay the same on the workstation, e.g., if it is connected to a WiFi network, if it is a laptop plugged into a docking station, etc.
- Click on **Confirm**. A summary of the conditions will appear in the **Policies** section of the agent group configuration.
- Arrange the conditions in the sequence of your choice using the arrows on the left. The sequence of conditional policies is important.

#### EXAMPLE 1

Quarantining a workstation if its health indicators are unsatisfactory.

In this example, every 10 minutes, a script will run on the agents and check their health status. If an agent's results are unsatisfactory, the *Quarantine* policy will be applied to the agent and a second repair script will run. A quarantine policy isolates an agent by blocking, for example, its communications over the network and all removable devices, except those used by administrators.



NAME HealthCheck

Policy Quarantine

Conditions

At least one condition must be met

+ Add a condition

HealthCheckScript

Tasks

Tasks are optional

+ Add a task

repair.ps1

Triggers

Enable the triggers that make it possible to check the above conditions

Every 10 Minutes

Network event

OK CANCEL

#### EXAMPLE 2

Applying a specific policy for laptop computers.

In this example, every time a network event occurs on a workstation, SES Evolution will launch all the tests defined for this condition:

- The workstation is not connected to its domain network,
- The agent handler cannot be reached.

If the results of the tests are positive, the *Mobility* policy will be applied.



NAME: Outside domain

Policy: Mobility

Conditions

At least one condition must be met

+ Add a condition

Disconnected from domain network

Agent handler unreachable

Tasks

Tasks are optional

+ Add a task

Triggers

Enable the triggers that make it possible to check the above conditions

Every 60 Seconds

Network event

OK CANCEL

### 7.1.2 Creating scheduled tasks

Scheduled tasks make it possible to automatically run scripts on agents at regular intervals and/or when a network event occurs.

1. In the **Configuration** tab of the selected agent group, go to the section **Scheduled tasks** and click on **Add a scheduled task**.
2. Enter a name for the task in the **Run custom script** window.
3. To the right of the **Script** field, click on + to add the script to run.
4. In the **Arguments** field, specify the arguments to add when the script is run.
5. In the **Run in** list, choose **Local service** because this is an account with restricted privileges. Do not choose **Interactive session** or **System** accounts unless absolutely necessary.
6. Under **Triggers**, select one or several events that will trigger the execution of the script:
  - Enable **Every** to launch the script at the regular interval that you specify.
  - Enable **Network event** to launch the script if the network interface does not stay the same on the workstation, e.g., if it is connected to a WiFi network, if it is a laptop plugged into a docking station, etc.
7. Click on **Confirm**.

All scripts that were declared in SES Evolution appear in the **Script** list. Select an existing script

and click on  to view it or  to import a new version of the script.

### 7.1.3 Choosing agent update settings

1. In an agent group's **Configuration** tab, go to the **Version** section.
2. In **Version**, choose the version of the agent to apply to this agent group.
3. Enable the option **Allow downgrading to older version** to allow updates to lower versions of the agent.

This option is particularly useful if you notice operating issues with a version of the agent, as it allows you to go back to an earlier version in which the problem did not arise.

For further information, refer to the section [Updating agents](#).



### 7.1.4 Understanding self-protection on agents and performing maintenance operations

SES Evolution agents are equipped with a self-protection mechanism implemented by a set of rules that are transparent for administrators and users. With these rules, you can:

- guarantee that the security policies applied by administrators do not hinder the proper operation of agents (but does not prevent policies from hindering the operation of workstations when there are wrongly configured rules),
- protect agents from external attacks or malicious users who may attempt to disable or uninstall the agents.

However, to perform maintenance operations on agents in a group, they must first be switched to Maintenance mode to disable the self-protection system. To do so, you must allow Maintenance mode to be used in the group's configuration.

Administration privileges are required to enable Maintenance mode.

All maintenance operations performed will be logged while Maintenance mode is enabled.

The agent's automatic updates will also be suspended when Maintenance mode is enabled. They will be applied automatically when Maintenance mode ends. You can also apply forced updates. For more information, see the section [Forcing an update on agents](#).

#### WARNING

When Maintenance mode is enabled, the agent continues to protect the workstation because the security policy stays enabled. However, this mode must be used with caution and by trustworthy users.

1. In an agent group's **Configuration** tab, go to the **Maintenance** section.
2. Enable the parameter **Allow Maintenance mode**.
3. Deploy the configuration in the environment to apply the new configuration.

The user must enable Maintenance mode in the agent's interface, in the advanced settings of

the **Preferences** tab . For further information, refer to the section [Configuring preferences on the agent](#).

When maintenance operations are completed, remember to end Maintenance mode by clicking on **Disable** in the agent's interface to restore self-protection and security. The integrity of the agent's resources will then be checked. If anomalies are detected, the agent will launch repairs. The user may then be asked to restart the workstation.

You can also enable and disable Maintenance mode via a script, by launching EsGui ([...]\Stormshield\SES Evolution\Agent\Bin\Gui) with the command line options `/EnterMaintenanceMode` and `/LeaveMaintenanceMode`.

Administration privileges are not required to disable Maintenance mode.

You can also enable Maintenance mode individually on the workstation concerned using challenges. Administration privileges are not required. For further information, refer to the section [Resolving issues with challenges](#).

### 7.1.5 Allowing administrators to uninstall agents

The only way to uninstall an SES Evolution agent from a user workstation by default is via a challenge. For further information, refer to the section [Uninstalling an agent](#).

However, an agent group can be configured to allow a workstation administrator to uninstall the SES Evolution agent without a challenge.



1. In an agent group's **Configuration** tab, go to the **Uninstallation** section.
2. Enable the **Allow agent uninstallation** parameter and click on **Save**.
3. Deploy the configuration in the environment to apply the new configuration.

### 7.1.6 Choosing the features to enable on agents

To avoid incompatibility issues or duplicates with other installed programs, some features on SES Evolution may need to be disabled.

1. In an agent group's **Configuration** tab, go to the **Active features** section.
2. Unselect the features that you want to disable.  
After the new configuration is applied, a message on the agents' dashboard will indicate that these agents need to be restarted.

### 7.1.7 Choosing the agent handler groups assigned to agents

You can choose the agent handlers to which agents in a group must connect to send their information and retrieve various updates. If your infrastructure is spread out over several physical sites, it may be useful to distribute agent groups to the closest agent handlers.

Agents that are not associated with any agent handlers are known as standalone agents. All of their updates must be performed manually by generating an installer and running it on agents, in the same way as during their initial deployment. For further information, refer to [Installing agents on workstations](#).

1. In an agent group's **Configuration** tab, go to the **Agent handlers** section.
2. In **Default agent handler group**, add the agent handler group(s) to which the agents of this agent group must connect.
3. In **Backup agent handler group**, add the agent handler group(s) to which the agents can connect if default groups fail.

### 7.1.8 Sending logs generated by agents

1. In an agent group's **Configuration** tab, go to **Logs** section.
2. Choose the severity level above which logs will be sent to the following destinations:
  - **Show on agent** in the **Help and support** panel, under the **Events** tab of the agent's interface,
  - **Show on console** in the **Agent logs** panel on the administration console, i.e., stored in the log database.

For example, if you choose *Informational* for the agent, all logs can be viewed in the agent's interface, except for *Debug* logs.

*Emergency* and *Alert* logs will always be sent to all destinations. Logs that are not sent can never be read.

If you are validating new software, a new workstation, etc., send *Informational* logs temporarily. During maintenance or troubleshooting, *Debug* logs will also come in useful. For more information on log severity levels, refer to the section [Monitoring SES Evolution agent activity](#).

To refine this global action, you can define the logs to send for each security rule. For further information, refer to the section [Configuring log management](#).

To configure how logs are sent to syslog servers, refer to the section [Creating groups of agent handlers](#).



3. SES Evolution checks the certificates of all signed applications by default and adds this information to logs. If you notice performance-related issues, enable the setting **Calculate certificates only when necessary**. Certificates will be checked only if security rules match the applications or drivers identified by certificates.  
We recommend that you keep the default behavior so that logs will contain as much information as possible.
4. Choose the maximum frequency (in seconds) with which the agent's logs will be sent to the agent handler:
  - **Urgent logs** correspond to *Emergency* and *Alert* logs.
  - **Standard logs** group all other levels.This parameter allows you to manage bandwidth use. Urgent logs are sent every 30 seconds by default and standard logs are sent every hour (3600 seconds).
5. Choose the frequency of the **Agent status update** in seconds. The agent connects automatically to the agent handler by default every 60 seconds to:
  - Send information about its status to refresh the agent group panel,
  - Retrieve new configurations, policies or updates if there are any.You can also manually force a connection to the agent handler and log sending by clicking on **Check for updates** in **Protection status** in the agent's interface.
6. Logs displayed on an agent are deleted from the disk by default based on the following criteria:
  - When logs exceed 500 MB. In this case, the oldest logs will be deleted until they occupy less than 500 MB.
  - When logs are older than 30 days.  
This duration can be modified in the field **Delete logs older than**. If this option is fully disabled, only the file size criterion will apply.
7. Specify whether to **Upload self-protection logs** from agents to the agent handler. These are logs collected from the various mechanisms that protect components essential to the integrity of the agent. When this parameter is disabled, self-protection logs will remain available on agents.

### 7.1.9 Configuring detailed incidents generated by agents

Detailed incidents are all the logs that the agent produced in an attack perimeter, including those that do not usually appear in the administration console. For example, even logs that remained local on the agent or that were sent to a syslog server are shown in the detailed Incidents. For further information, refer to the section [Analyzing incidents to understand attacks](#).

You can configure the size of such incidents, the maximum age of their logs and how they are sent to the agent handler.

1. In an agent group's **Configuration** tab, go to the **Detailed incidents** section.
2. Define the **Size limit** of a detailed context, which is 500 KB by default. This is the estimated size of data going through the network. If network connections are restricted between agents and the agent handler, reduce this size. Conversely, if you added highly verbose sets of audit rules, increase this size to ensure that you retrieve enough useful logs.
3. Define the **Oldest logs**. The default value is 10 minutes because most attacks happen quickly, but you can adjust it according to your preferences.



4. Choose how the **Reporting of detailed incident context** takes place from the agent to the agent handler. Reporting can be:
  - **Immediate:** incident logs are sent to the agent handler at the same time as the alert, and can be seen immediately in the administration console.
  - **Postponed:** incident logs are sent to the agent handler at a **Frequency** that can be defined, the default value being every hour. If you analyze attacks only once daily, increase this frequency to every two or three hours to avoid network congestion.
  - **On demand:** incident logs will not be sent to the agent handler automatically. You can download all this data manually when you intend to analyze an attack. For further information, refer to the section [Analyzing incidents to understand attacks](#).

### 7.1.10 Showing offline agents

In the table of the **General** tab, you can distinguish connected agents from offline agents. Offline agents are grayed out

Agents are considered offline if they have not connected to an agent handler for the duration defined in the agent group configuration.

You can customize this duration as well as how long agents can stay offline before they will be automatically deleted. For further information, refer to the section [Removing offline agents automatically](#).

To define this duration:

1. In an agent group's **Configuration** tab, go to the **Disconnection and automatic deletion of agents** section.
2. Set the value of the **Disconnection after** setting. By default, agents are considered offline if they have not connected to their agent handler for seven consecutive days.
3. Set the value of the **Automatic deletion after** parameter. Agents are deleted by default after 30 consecutive days of staying offline.

### 7.1.11 Enabling Windows shadow copies

SES Evolution's anti-ransomware protection mode keeps track of when files are modified and encrypted and blocks the process behind these operations if they are deemed malicious. Some files may nonetheless be encrypted before the process is effectively blocked.

If you enable anti-ransomware protection, you are strongly advised to enable the daily creation of shadow copies via SES Evolution. This feature, based on the Windows VSS service, will allow you to quickly restore the few lost files.

#### **WARNING:**

Activating shadow copies cannot replace regular backups. You must have a dedicated parallel backup solution.

## Requirements

You must meet the following Windows requirements in order to enable shadow copies in SES Evolution:

- Allow the creation of shadow copies for all NTFS volumes on all workstations protected by an SES Evolution agent.



- Reserve disk space for shadow copies on all local NTFS volumes on workstations protected by an SES Evolution agent.  
Use the Windows command `vssadmin resize shadowstorage` to set the size of this space.

For more information, refer to [Microsoft documentation](#).



#### EXAMPLE

Run the command:

```
vssadmin resize shadowstorage /For=C: /On=C: /MaxSize=15%
```

to reserve 15% of the space on the C:\ volume to store shadow copies on the C:\ volume.

### Enabling shadow copies

1. In an agent group's **Configuration** tab, go to **Daily shadow copies**.
2. Select the **Enable daily shadow copies** option.  
Every 24 hours, SES Evolution will make a shadow copy of local drives on the workstation running on an NTFS file system. Only the last five copies will be kept.

For more information on anti-ransomware protection and the process of restoring encrypted files, refer to:

- [Configuring threat protection](#)
- [Managing a ransomware attack](#)

### 7.1.12 Configuring the trust level of devices

SES Evolution monitors USB keys and other USB storage devices. Whenever a USB storage device is connected to an SES Evolution agent, it is detected and appears in the **Devices** panel in the administration console. In this panel, a trust level can be manually assigned to these devices. For further information, refer to the section [Changing the trust level of a USB device](#).

Some actions can also be applied automatically to all USB devices connected to agents in a group.

1. In an agent group's **Configuration** tab, go to the **Trusted devices** section.
2. Enable the option **Allow device identification** and select **Automatic** if you want SES Evolution to automatically assign trust level 1 to every USB device connected to an agent in the group.
3. Enable the option **Trust empty devices** to automatically assign trust level 2 to every empty USB device.
4. Enable the option **Automatically scan devices** to automatically assign trust level 2 to every USB device connected to an agent in the group.  
When this option is enabled, the antivirus module(s) installed on the workstation will scan the key when it is plugged in, and neutralize potentially malicious files. If the antivirus is able to scan all the files, the device will be considered trustworthy. However, if some files cannot be accessed, the device will not be granted trust level 2, but will keep its current level.

For more information, please refer to the section [Managing USB storage devices](#).



### 7.1.13 Showing Technical support information on agents

The information shown in the tab **Help and support > Contact** can be customized in the agent's interface.

1. In an agent group's **Configuration** tab, go to the **Help and support** section.
2. Enter the description that you want to display in the header of the **Contact** tab in the agent's interface, e.g., *"If you encounter issues with SES Evolution, feel free to get in touch with the IT department"*.
3. Enter the **E-mail address**, **Telephone** number and **Website** of the department that manages technical support for SES Evolution.

## 7.2 Installing agents on workstations

As soon as you have configured your agent groups, you must install agents on the workstations that you want to protect.

An SES Evolution agent can be installed on all types of hosts with compatible operating systems: servers or workstations, including domain controllers or machines that host one or several SES Evolution components (e.g., agent handlers, backends, etc.)

This installation is a two-step process. First, generate an installer that contains the whole configuration dedicated to the agent group. Next, deploy the agent on every workstation that must belong to this group. Once the agent is installed, it automatically becomes part of the agent group in question – the group's configuration and policy are applied to it.

If you have installed SES Evolution on a master, you also need to change the ID of the agents on which you are deploying it. For further information, refer to [Installing agents on workstations created from a master](#) in the Administration Guide.

### 7.2.1 System requirements for agents

To install and use Stormshield Endpoint Security Evolution version 2.2 in Microsoft Windows, agents must meet these minimum requirements.



Operating systems	<ul style="list-style-type: none"><li>• Windows 7 in 32 and 64 bits. Windows updates KB2533623, KB2922790, KB3147071 and KB4474419 are necessary. The update KB3191566 is required in order to use the protection against WMI Persistence.</li><li>• Windows 8.1 update 3 (August 2014) - 32 or 64 bits</li><li>• Windows 10 Enterprise 2015 LTSB - 32/64 bits</li><li>• Windows 10 Enterprise 2016 LTSB - 32 and 64 bits</li><li>• Windows 10 1909 – 32 and 64 bits</li><li>• Windows 10 20H2 – 32 and 64 bits</li><li>• Windows 10 21H1 – 32 and 64 bits</li><li>• Windows 10 21H2 – 32 and 64 bits</li><li>• Windows 11 21H2 – 64 bits</li><li>• Windows Server 2008 R2. Windows update KB2533623 is required. The update KB3191566 is required in order to use the protection against WMI Persistence.</li><li>• Windows Server 2012 R2*</li><li>• Windows Server 2016*</li><li>• Windows Server 2019*</li><li>• Windows Server 2022*</li></ul> <p>*All versions supported by Microsoft except Server Core.</p>
Processors for physical machines	<ul style="list-style-type: none"><li>• 32-bit processors: at least Intel Pentium 4 2 GHz or the equivalent,</li><li>• 64-bit processors: at least Intel Pentium 4 2 GHz with x86-64 support or the equivalent.</li></ul> <p>Itanium processors are not supported.</p>
Processors for virtual machines	<p>At least one virtual socket and a single 1 GHz core per socket. Stormshield recommends one virtual socket and two 2 GHz cores per socket. CPU reservation must be enabled on your hypervisor.</p>
Physical memory	<p>At least 1 GB. Or more if the operating system requires it. Stormshield recommends 2 GB.</p>
Disk space	<ul style="list-style-type: none"><li>• At least 100 MB for installation,</li><li>• At least 200 MB for data storage.</li></ul> <p>These are the disk space requirements for the NTFS file system. More space will be needed for updates and log storage.</p>
Network configuration	<ul style="list-style-type: none"><li>• Outgoing communication:<ul style="list-style-type: none"><li>◦ TCP 17000 (RPC)</li></ul></li></ul>
Software	<p>Framework .NET 4.6.2 or higher.</p>
Display	<p>At least 1024X768.</p>
Certificate	<ul style="list-style-type: none"><li>• <i>VeriSign Universal Root Certification Authority</i> certificate installed to verify the authenticity of SES Evolution updates. It must be installed in the Trusted root certification authorities or Third-party root certificate authorities certificate store.</li></ul>



The SES Evolution agent installer creates a Windows restore point just before copying files on the disk. So if there are any compatibility issues with another program, this will make it possible to revert to the state of the system as it was before SES Evolution as installed. A restore point will also be created when the agent is updated.

In order for the restore point to be created, the feature must be enabled in the System > System protection panel in Windows. For further information on restoration, refer to Windows documentation.

## 7.2.2 Installing the agent on standard workstations

The **Agent groups - Modify** privilege is required to generate an installer for agents.

1. Select the **Agents** menu.
2. Ensure that you have configured the agent group with your preferences and deployed the environment. For further information, refer to the section [Creating and configuring agent groups](#).
3. From the panel on the left, select the agent groups that you want to apply to the workstations.
4. In the **General** tab, click on **Installer > Generate an installer** and choose the 32- or 64-bit version.
5. Save the installation file *AgentSetup\_xxx.exe* at the location of your choice.
6. Next, deploy this file on workstations as you usually do (GPO, SCCM, etc.).

You can add the following options to your command line:

<code>/silent</code>	To make the installation transparent for the user of the workstation
<code>/installdir</code>	To copy the agent's installation files (binary and resource files) into a folder other than <code>%SYSTEMDRIVE%\Program Files</code> .
<code>/datadir</code>	To copy the agent's data files (logs, policies, scripts, etc.) into a folder other than <code>%SYSTEMDRIVE%\ProgramData</code> .

Both folders must be located on an NTFS partition on a local volume. Do not choose the same folder for installation files and data files.

7. As soon as the agent is installed, the icon  appears in the Windows status bar, indicating that the installation is not complete.
8. Restart the workstation. The icon  indicates that the agent is now fully functional.

During its initial connection to the agent handler, every deployed agent will get a unique identity. It will then appear in the panel of the corresponding agent group in the administration console. The whole configuration of the agent group will be applied to it, especially security policies.

## 7.2.3 Installing agents on workstations created from a master

Install an SES Evolution agent on a master by following the procedure for the [installation of a standard agent](#). After the master is deployed on workstations, they are immediately protected by SES Evolution. However, you must change the identifier of each agent to assign an individual identity to it.

There are two ways to assign a new identifier to an agent that was created from a master. On the workstations where the master was deployed::



- Delete the registry value of the agent's identifier (value: *AgentGuid*) located in: *HKEY\_LOCAL\_MACHINE\SOFTWARE\Stormshield\SES Evolution*. A new identifier will be generated the next time the agent connects to the agent handler.  
- or -
- Run the agent installer *AgentSetup\_xxx.exe* in command mode with the option */newagentid*. This command assigns a new identifier to the agent without the need to install one again.

## 7.2.4 Troubleshooting

### Failed to extract files from patch (0xa0050005)

**Situation:** When an agent is installed, this error appears:  
*Failed to extract files from patch (0xa0050005).*

**Cause:** The certificate required to verify the authenticity of the SES Evolution update could not be found on the machine.

**Solution:** Add the **VeriSign Universal Root Certification Authority** certificate to the *Trusted root certification authorities* or *Third-party root certificate authorities* certificate store.

- or -

Link up the machine to the Internet so that the certificate can be downloaded automatically.

## 7.3 Viewing agents in the console

The administration console allows you to track the status of agents in real time on all workstations. Agents can be classified by various criteria: operating system, domain, SES Evolution version, etc.

Agents can also be filtered, moved from one group to another and exported to a CSV file.

Users need to hold the **Agent groups - Display** privilege to view this panel.

### 7.3.1 Displaying the agent list

1. In the **Agents** menu, select **All agents** to view all agents regardless of their group.  
- or -  
Select an agent group from the left panel, then click on **General**. Every agent deployed via the agent group installer connects to the agent handler and appears in the table with the following information:
  - **Computer:** name of the workstation on which the SES Evolution agent is installed,
  - **IP address:** Main IP address if the computer has several network cards,
  - **Version:** version number of the SES Evolution agent,
  - **Operating system:** version of the operating system on the workstation,
  - **Host type:** desktop PC, laptop, server, virtual machine, or unknown,
  - **Policy:** name of the SES Evolution security policy applied to the workstation,
  - **Last connection:** date of the SES Evolution agent's last connection to the agent handler,
  - **Domain:** name of the Windows domain to which the workstation belongs,
  - **User:** name of the Windows account that last connected to the SES Evolution server from this workstation.



- **Group:** name of the agent group to which the agent belongs.
  - **Mode:** operating mode of the SES Evolution agent: normal, stopped or maintenance. Stopped mode means that SES Evolution no longer protects the workstation. For further information on Maintenance mode, refer to the section [Enabling Maintenance mode](#).
  - **Pinned:** the  icon means that the agent will remain in its agent group regardless of Active Directory assignment rules. If the column is empty, the agent will comply with Active Directory rules and it can be moved automatically from one group to another if its Active Directory criteria change. For further information, refer to the section [Automatically assigning agents to agent groups](#).
2. Click on a column title to sort the list of agents by this criterion. For example, click on **Group** to sort agents by their agent group.

### 7.3.2 Filtering the list of agents

1. In the **Filters** section of the **General** tab, enable filters to customize your list of agents. Every column corresponds to a type of filter and contains several values. Click on these values to enable the corresponding filter.  
The list of agents will be refreshed according to the active filters applied.
2. You can go back to the full list of agents at any time by clicking on **Reset filters**.

To filter by a computer's name, its GUID, date of last connection or by user, enter a character string in the search field at the top on the right.

### 7.3.3 Moving agents from one group to another

1. In the list of agents, select the agents that you want to move.
2. Click and choose **Move agents to > Name of desired group**. The name of the agent appears in blue and italics in the original group and target group to indicate that the agent is in the process of being moved.
3. Select the **Environment** menu and click on **Deploy** to apply the configuration and security policies of the new group to the agent.  
The name of the agent will turn back to black. The agent will be deleted from the first group and now belongs to the group to which it was moved.

If the agent was moved to its group by an Active Directory assignment rule and you move it manually, it will be pinned in its new group and the Active Directory assignment rule will no longer apply.

If the agent was pinned in its original group, it will be pinned in its destination group. For further information on Active Directory assignment rules and pinning, refer to the section [Automatically assigning agents to agent groups](#).

### 7.3.4 Exporting a list of agents

Information on agents can be exported to a CSV file so that it can be read and processed in a spreadsheet.



1. In the list of agents, select the agents that you want to export.
2. Right-click and choose **Export selected agents**. A file *ExportedAgents.csv* is created by default on the desktop. Change its name and destination if necessary.
3. Open the .csv file with the tool of your choice.

To monitor activity on your agents, you can view their logs. For further information, refer to the section [Viewing and managing agent logs in the administration console](#).

## 7.4 Automatically assigning agents to agent groups

Agents can be automatically assigned to an agent group based on the Active Directory groups or organizational units to which they belong.

If you are using this feature, a newly installed agent will automatically be assigned to an agent group based on the agent's Active Directory criteria. If the agent's Active Directory group or organizational unit changes later, the agent will be automatically moved to the corresponding agent group.

To automatically assign agents, you must create assignment rules based either on Active Directory groups or organizational units. Verifications will be based on the Active Directory criteria of the host, not of the connected user.

If you want agents to continue being in an agent group regardless of their Active Directory criteria, you can pin them manually to this group.

The **Agent groups - Modify** privilege is required to create assignment rules.

### 7.4.1 Creating an agent group assignment rule

1. Select **All agents** in the **Agents** menu, then the **Assignment rules** tab.
2. Click on **Edit** at the top right.
3. Click on **Add rule based on AD group** or **Add rule based on OU**.  
A new row appears.
4. Enter a **Description** that would make it easy to recognize this rule.
5. Click on  and select the desired group or OU in the window that appears.  
You can also manually enter the group or organizational unit using LDAP syntax, e.g., *OU=Paris,DC=Grey,DC=local*.
6. In the **Assign to agent group** list, select the agent group to which the workstations of this group or OU will belong.
7. Create other rules if necessary.
8. Change the order of rules by scrolling over them to show the arrows on the left. If there are several rules that match an agent's AD criteria, the agent will be assigned to the agent group in the first matching rule.
9. Click on **Save**.

The icon of the agent group in the left panel becomes , showing that at least one Active Directory assignment rule affects the group.

In the **General** tab of the agent groups concerned, the names of the assignment rules appear as links that provide direct access to the rules.

10. Select the **Environment** menu, and click on **Deploy**.  
An agent will be assigned to its group based on its AD create once the agent has retrieved the new configuration and sent back its AD criteria to the agent handler.



### 7.4.2 Pinning an agent to an agent group to ignore its Active Directory criteria

Manually pin agents to an agent group if you want them to keep their group regardless of their Active Directory criteria.

1. In the list of agents, select the agents that you want to pin.
2. Click on **Pin or unpin agents** > **Pin to group**.

The  icon appears in the **Pinned** column. The agent will continue to belong to this agent group no matter what, even if its Active Directory criteria change. It can only change groups if you move the agent manually or unpin it from the group.

3. Select the **Environment** menu, and click on **Deploy**.

### 7.4.3 Unpinning an agent from an agent group

Unpin an agent from an agent group if you want it to be assigned automatically to an agent group again based on its Active Directory criteria.

1. In the list of agents, select the agents that you want to unpin from the group.
2. Click on **Pin or unpin agents** > **Unpin from group**.

The  icon disappears from the **Pinned** column. The agent can now automatically change groups if an Active Directory assignment rule affects it.

3. Select the **Environment** menu, and click on **Deploy**.

## 7.5 Understanding the agent interface on workstations

The interface dedicated to agents displays information on the health status of each agent and analyzes event logs. This makes it possible to troubleshoot issues when they occur. A diagnostic tool is also included in this interface.

- To open the SES Evolution agent interface, double-click on  in the workstation taskbar.

### 7.5.1 Viewing the health status of an agent

The agent's **Protection status** dashboard shows the operational status of the agent's four protection modules and their components in the following color codes:

- **Green:** all modules are running,
- **Orange:** a component is shut down or pending reboot,
- **Red:** a module is not functioning,
- **Gray:** a component was disabled in the [agent group configuration](#).

The **Latest events** area shows the three most recent *Alert* or *Emergency* events that were raised on the agent.

The lower section of the dashboard provides details about the configuration of SES Evolution:

- **Agent:** version number of this agent,
- **Agent group:** name of the agent group to which this agent belongs,
- **Security policy:** name of the security policy applied to this agent,
- **Policy last updated on:** date on which this agent updated its security policy for the last time,



- **Last connection to agent handler:** date on which this agent connected to the agent handler for the last time.

The agent connects automatically to the agent handler by default as frequently as **configured**. Click on **Check for updates** if you want agents to connect to the agent handler and perform the following operations:

- Send data about the status of the agent to the agent handler, including logs,
- Retrieve new configurations, policies or updates if there are any.

You can also force the connection to the agent handler via a script, by launching EsGui ([...]\Stormshield\SES Evolution\Agent\Bin\Gui) with the command line option `/ForceConnection`.

## 7.5.2 Configuring preferences on the agent

1. Click on the  tab in the agent interface to open the **Preferences** panel.
2. Set the options according to your preferences. You can:
  - Choose the language of the agent interface,
  - Save the position and size of the agent interface window,
  - Show notifications in tool tips,
  - In **Advanced settings**, enable Maintenance mode if you need to disable self-protection on the agent to perform maintenance operations. Administrator privileges are required. For further information, refer to the section [Understanding self-protection on agents and performing maintenance operations](#).

### WARNING

If Maintenance mode is enabled, it must be disabled as soon as maintenance operations are over by clicking on **Disable** in the agent interface. This will restore self-protection and security on the workstation. In addition, the agent's automatic updates are suspended when Maintenance mode is enabled.

## 7.5.3 Getting help on the agent

- Click on the  tab in the agent interface to open the **Help and support** panel.

### Viewing information about the agent

In the **Contact** tab, locate the following information:

- **Technical support contact:** details of the service to get in touch with if you encounter issues with the SES Evolution agent. This information appears only if you have chosen to do so in the configuration of the agent group. For further information, refer to the section [Showing Technical support information on agents](#).
- **Information:** details about the agent installed on this workstation.

### Troubleshooting issues

The diagnostic feature makes it possible to capture series of operations that trigger abnormal behavior in SES Evolution and to send all the information to Stormshield's technical support department in the form of a `.cab` file.

The following information is obtained:



- Debugging logs that each module in the agent generates,
- All logs generated by the agent when operations are captured.

To debug an issue:

1. In the **Diagnosis** tab, choose the location for the diagnostic file *SES Evolution Diagnostic Result.cab*. This file is created by default on the Windows Desktop.
2. The diagnostic is run by default with administrator privileges. Unselect the checkbox if you want to capture only the logs that regular users can access.
3. Click on **Start tracing**.
4. Reproduce the event that triggered the abnormal behavior.
5. Click on **Stop tracing**.
6. Send the generated file to technical support.

If you perform another diagnosis later on, an additional *.cab* file will be generated.

The maximum size of a *.cab* file is 2 GB. For long diagnoses, you may need to launch the operation several times and send all the *.cab* files to technical support.

## Viewing event logs

Agents' logs can be read in the **Events** tab of each agent's interface. For further information, refer to the section [Viewing logs in the agents' interface](#).

The log levels that will be sent to the agent can be configured. For further information, refer to the section [Configuring log management](#).

Agent' logs can also be read on the administration console and the syslog server, if you have configured one.

## 7.6 Updating agents

When you have updated SES Evolution from the Installation Center, you can then apply this version to one or several agent groups via the administration console. If some agents are not connected to agent handlers, apply the new version **manually** to these agents.

We recommend that you apply an update to a test agent group first to test the version before applying it to your groups in production.

To downgrade agents to an earlier software version of SES Evolution, ensure that the option **Allow downgrading to older version** is enabled in [Choosing agent update settings](#).

The **Agent groups - Modify** privilege is required to update agents.

### 7.6.1 Applying updates to agents that are connected to the agent handler

1. Select the **Agents** menu, then select the agent group to be updated.
2. In the **Version** section of the **Configuration** tab, a message will inform you that a new version is available. Choose the new version to apply to agents in this group.
3. Click on **Save** at the top right of the window to save changes.



4. In the **Environment** menu, click on **Deploy**.  
The new configuration will be applied to agents in the group the next time they connect to the agent handler.  
You can apply the update to the agent more quickly by clicking on **Check for updates** in the agent interface. For further information, refer to [Understanding the agent interface on workstations](#).

### 7.6.2 Applying updates to agents that are not connected to the agent handler

If your agent is not connected to the agent handler, the new version cannot be applied to it automatically. Generate an installer and run it on the agent, in the same way as during their initial deployment. For further information, refer to [Installing agents on workstations](#).

During the update, not only will the new software version be applied to the agent, but the new configuration version as well, which includes the security policies and configuration of the agent groups.

To ensure a successful update:

- The updated agent must belong to the agent group for which the installer was generated,
- The version of the configuration (e.g., policies and agent group configuration) included in the update must be more recent than the version of the agent's configuration.

If you do not meet these conditions, force an update on the agent.

### 7.6.3 Forcing an update on agents

With a standard installer, the configuration of an agent group cannot be applied to agents that do not belong to this group. The installer also does not allow downgrades to an earlier configuration version. To enable these functions, force an update on the agent. It is better for the agent to be disconnected from the agent handler when you force an update, because the next time the agent connects to the agent handler, the agent will go back to the group that was initially assigned to it.

1. Select the **Agents** menu, then select the agent group that you want to apply to the agent.
2. Click on **Installer > Forced update > Generate an installer** and choose the 32- or 64-bit version.
3. Save the installation file *AgentSetup\_xxx.exe* at the location of your choice and run it on the agent in the same way as during their initial deployment. For further information, refer to [Installing agents on workstations](#).
4. If you want to prevent the agent from returning to its original agent group the next time it connects to the agent handler, move the agent to the desired group before it reconnects. For further information, refer to the section [Moving agents from one group to another](#).

Force an update if agents in Maintenance mode need to be updated. For further information on Maintenance mode, refer to the section [Understanding self-protection on agents and performing maintenance operations](#).

## 7.7 Managing a pool with agents in different versions

If you update SES Evolution to a new version, but some agents or agent groups stay in the older version, your pool will be disparate.

For further information on updating agents, refer to the section [Updating agents](#).



You can easily view the number of agents for each version in [the dashboard under the Agents diagram](#). This information can also be found in [the General tab of the Agents panel](#).

In a disparate pool, agents that kept the older version will not be equipped with all the new features. Information about incompatibility is shown as icons and descriptive tool tips in the **Agents** menu of the administration console.

Icon	Meaning
	The software version selected in the agent group does not support this feature. This is the case, for example, with the <b>Allow agent uninstallation</b> parameter in the configuration of an agent group.
	The software version selected in the agent group does not support a feature. This is the case, for example, with the <b>Enable daily shadow copies</b> parameter in the configuration of an agent group. If the icon is red, you cannot save the group's configuration.
	Some agents in the group are not yet equipped with the version required to use a feature. This is the case, for example, with the feature that automatically assigns agents to a group.

## 7.8 Removing obsolete agents from the console

When agents are no longer used on the company's workstations, they continue to appear in the monitoring table of the **Agents** tab in the console, and are counted in the number of agents that the license allows.

We recommend that you keep your agent list up to date to avoid exceeding the number of agents that your license allows, and populating the database with agents that no longer exist.

There are two ways in which you can clean up your list: automatically and periodically removing agents or merging duplicates.

The **Agent logs - Modify** privilege is required to delete obsolete logs.

### 7.8.1 Removing offline agents automatically

Offline agents can be deleted automatically. This feature is configured separately for each agent group and takes place at regular intervals. It addresses the following scenarios:

- When a workstation is remastered after an employee leaves the company, changes computers or because the workstation required an operating system update, for example.
- When a computer is no longer used in the company.
- When an agent was uninstalled on the workstation even though it was disconnected from the agent handler when it was uninstalled.

To schedule the periodic and automatic deletion of agents that have not connected to agent handlers for a specified duration:

1. Select an agent group in the **Agents** menu and click on **Edit** at the top right side.
2. In a group's **Configuration** tab, go to the **Disconnection and automatic deletion of agents** section.
3. Set the number of days for the **Automatic deletion after** parameter. The default value is 30 days.

Automatic deletion tasks are launched at 2 a.m. The time cannot be changed.

If an agent that was deleted from the console attempts to connect again to its agent handler, a new identity will be assigned to it.



## 7.8.2 Merging duplicate agents

Duplicates are merged globally on all agents. This operation is manual and with instantaneous results. It addresses the following scenarios:

- When a workstation is remastered but the same computer name is kept.
- When you do not want to wait until the next automatic deletion of offline agents.

To merge duplicate agents:

1. Select **All agents** in the **Agents** menu.
2. Go to the **Maintenance** tab.
3. Select a **Criterion for duplicate display**:
  - **Active Directory name**: when all the workstations are in the Active Directory, the Active Directory name is the best criterion as it guarantees the uniqueness of agents, so any duplicates detected can be deleted.
  - **Computer name or NetBIOS name**: these criteria can be chosen if some of the workstations are not in the Active Directory, because in general these are unique names.
  - **IP address**: this criterion can be chosen when several hosts in the company's pool have the same names. However, several hosts may share the same IP address, so use this criterion with caution.
4. Select one or several lines. Each line shows both agents; the one that connected most recently is shown first.
5. Click on **Merge**. All grayed out agents will be removed from the database.



## 7.9 Uninstalling agents

There are several ways to uninstall an agent. Administrator privileges are required, and the operation must also be allowed in the agent group configuration, except for the challenge-based method. For further information, refer to the section [Allowing administrators to uninstall agents](#).

- To uninstall several agents via GPO, SCCM, etc., run the executable *EsSetupWorker.exe* located in the *installation folder\SES Evolution\Agent\Bin*. The default installation folder is *C:\Program Files*.
- To uninstall an agent from an individual workstation, use the **Uninstall** menu in **Programs and Features** in the Windows control panel.
- To uninstall an agent without administration privileges, using challenges, refer to the section [Resolving issues with challenges](#).
- If none of the above methods work, force uninstall as follows:
  1. In safe mode, run the agent's installation binary, *AgentSetup\_xxx.exe /manualuninstall*, choosing option **1** Remove agent files, registry keys, and event logs.
  2. Then in normal mode, run the agent's installation binary again, *AgentSetup\_xxx.exe /manualuninstall*, choosing option **2** Remove agent network objects (Windows Filtering Platform objects).

In any case, the uninstallation is applied only after the workstation has been restarted. All files associated with the agent will be deleted except the registry key *HKEY\_LOCAL\_MACHINE\Software\Stormshield\SES Evolution* containing the agent's unique ID, which can be reused for a future installation.

The log file that captured the uninstallation will also be kept in the temporary folder of the user who uninstalled the agent.



## 8. Managing security policies

When security policies are applied to SES Evolution agents, they make it possible to control access to resources and protect workstations from malicious activity.

### 8.1 Understanding security policies

A security policy consists of audit and protection rule sets. Each rule set is a set of security rules that applies to applications, ACL resources, network resources, devices and threat protection, which can be made private, i.e., specific to a policy, or shared among several policies.

Rule sets make it possible to pool rules for several policies, and manage various versions of these rule sets to create pre-production and production policies. Aggregating these rule sets in a single policy also makes it possible to load common rules over rules that are specific to your company's environment.

#### EXAMPLE

You can alternate two policies based on a collaborator's location – one policy to manage access to internal resources, and one policy to manage access to resources when the collaborator logs in remotely. Both of these policies can share the same sets of rules, with only one differing set, so that they can block mobile devices from connecting to the network when they are not connected to their domain network. The different rule set allows these devices to log in to their domain via only VPN tunnels.

Once security policies are created, they will be linked to agent groups that will apply them to your pool. Only security policies can be linked to agent groups. Rule sets cannot be directly linked to agents.

Security rules can be disabled at any time. For more information, refer to the section [Disabling security rules](#).

#### 8.1.1 Understanding built-in and custom security policies

SES Evolution allows the use of two types of security policies: built-in or custom.

##### Built-in security policies

SES Evolution is equipped with several built-in security policies that can block the behavior and techniques used by most malicious programs, regardless of their purpose, e.g., Trojan horses, remote control tools, ransomware, password stealers, etc. The following are built-in policies:

- **Default Stormshield policy** - It functions on several stages in an attack cycle to guarantee deep defense. It detects attacks from as early as the initial infection – when an infected e-mail attachment is opened, for example – to when the attack is already entrenched in the information system. It therefore blocks attempts to disguise attacks, or persistent attacks, privilege escalation, password theft, the exploitation of vulnerabilities in the operating system, and even the attempts of ransomware to encrypt files. This security policy is applied by default to agent groups.



- **Backoffice component protection policy** - It guarantees the protection of SES Evolution backoffice components: the backend, agent handlers and the administration console. It contains the same protections as the default policy, but with the addition of several protection rules that strengthen the security of protected processes and block attempts to read or modify their configuration data.

You can apply this policy as is to agent groups that contain backoffice components.

Built-in policies consist of built-in rule sets. For more information, refer to the section [Understanding built-in rule sets](#).

### Custom security policies

If built-in policies do not cover all use cases, you can create custom security policies that adapt closely to your infrastructure. To do so, use the rule sets that make up the built-in policies or create your own rule sets. For more information, refer to the section [Creating security policies](#).



#### EXAMPLE

Create rules to manage access to the corporate network of your mobile collaborators, or manage the use of trusted devices in your pool.

## 8.1.2 Understanding the difference between protection rule sets and audit rule sets

There are two types of rule sets: audit and protection.

They serve different purposes depending on the rule set to which the security rules belong. In a protection rule set, the rules allow you to block attacks on workstations, detect privilege escalation attempts, and manage access to various applications, networks, devices, etc. In an audit rule set, they allow you to generate logs only to monitor activity in your pool, and if necessary, reconstruct the context of an attack.

The **Threats** tab in rule sets does not always list the same protections, as this depends on whether you are looking at a protection rule set or audit rule set. For more information, see the section [Managing vulnerability exploitation](#).

Likewise, temporary web access and Wi-Fi card activation can only be managed in a protection rule set.

### Understanding protection rule sets

In protection rule sets, the agent evaluates rules individually and in this order:

- If an action is prohibited for a resource, the agent will generate a log, block the action and stop scanning any other rules that apply to this resource.
- If an action is explicitly allowed for a resource, the agent will allow it and stop scanning any other rules that apply to this resource.
- If a rule does not apply to a resource, the agent will continue scanning the rules that follow.

Use this mode to protect your workstations from malicious activity, and restrict access to protect your device pool from dangerous user behavior.

In protection rule sets, all rules that control access to resources or devices have a **Passive rule** mode. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.

Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.



## Understanding audit rule sets

In audit rule sets, if **Audit** is selected as the action in a rule, the agent sends logs to indicate the actions performed by applications. The agent scans all the rules that follow in all cases. Use this mode to monitor access to certain resources and send relevant information to the administrator without blocking access, so that abnormal behavior can be detected.

Audit rules can also be configured to monitor collaborators' activity: the applications that they use most often, or the versions of the applications that they use for example.

To prevent too many logs from being generated, create precise rules that do not cover too wide a range of resources or applications.

Audit rules can be used transparently in SES Evolution if you choose not to show logs on the agent or console, or if you choose not to send them to a syslog server. However, during an attack, the logs generated and saved on the agent can help to reconstruct the context of the attack, which is illustrated in a chart. For further information, refer to the section [Analyzing incidents to understand attacks](#).

In audit rules, each action can be set to: **Allow** or **Audit**. **Allow** means that the rule will not do anything. It may be useful when you want to configure a default action and one or several specific actions in a rule. You can select **Audit** for specific actions and **Allow** for the default action. It is also useful when there are several actions available for a resource and you want to monitor only one type of action.

### 8.1.3 Organizing rules and rule sets in a policy

The agent evaluates protection and audit rules in the same order that rule sets appear in the policy, and in the same order as the rules inside these sets. If several rule sets apply to the same resources, ensure that the order of the rule sets is correct, as rules will no longer be evaluated once a rule is applied to the agent. This means that the rules highest up in the rule set are applied.

All rules in a policy, regardless of whether they belong to private or shared rule sets, are aggregated as if they were created in the same policy. If a policy contains two rule sets, all the rules from the first set will be read before the rules in the second set.

In general, if you use both protection and audit rule sets in the same policy, we recommend that you put audit rules before protection rules. This guarantees that logs will be generated for the actions that you want to monitor. If you put protection rule sets before audit rule sets, and both sets apply to the same resources, audit rules will not be read once a protection rule applies, and no audit logs will be generated.

Conversely, even when an audit rule applies, the agent continues to read rules, so protection rules will be evaluated.

If you want to create a policy that includes the audit and protection rule sets provided by Stormshield in the default security policy, and customized rule sets adapted to your environment, we recommend arranging your rule sets in the following order:

Order	Type	Rule sets	Recommended/Optional
1	Audit	Audits of attack contexts	Recommended
2	Audit	Windows Defender event forwarding	Optional
3	Audit	<i>Your own audit rule set</i>	Optional
4	Protection	Secured Wi-Fi hotspots	Optional



5	Protection	Advanced protections	Recommended
6	Protection	Anti-ransomware protection	Recommended
7	Protection	<i>Your own protection rule set</i>	Optional
8	Protection	Common applications hardening	Optional
9	Protection	Common network hardening	Optional
10	Protection	Data leak prevention	Recommended
11	Protection	Protection baseline	Recommended

Scroll over a rule set to show the arrows on the left of the rule set and change the order.

For further information on rule order, refer to the [Recommendations](#) in the SES Evolution release notes.

The order of rules in the same protection rule set also matters, as they follow the same evaluation criteria as those in rule sets. Rules are evaluated in order and will stop being evaluated once a rule applies. Rules that apply to specific resources must therefore be placed before more general rules. The same goes for specific behavior in a rule. Refer to the next section for more information on specific behavior.

#### 8.1.4 Using default behavior and specific behavior in rules

In [access control rules](#), you can apply a default behavior or action and one or several specific actions.

##### When to add specific behavior

Define specific actions if you want to allow or block access from identified applications to the resource targeted by the rule.

You can add several specific actions in the same rule: one for example, to allow certain applications, and one to block others. In this case, the order of specific actions matters: if an application in the first specific action can access the resource, the rule applies and the second specific action will not be read.

##### When to enable default behavior

In a protection rule set, enable default behavior when you want to ensure that access to the resource will be blocked or allowed, regardless of which rules follow.

##### EXAMPLE 1

In code execution rules:

- To prevent the DLL `*\xssmanager.dll` from running on all applications, enable default behavior with **Execution = Block**.
- To prevent the DLL `*\system.management.automation.dll` from running on all applications except legitimate applications, enable default behavior with **Execution = Block** and add a specific

**Action Legitimate applications = Allow.**

The screenshot shows two configuration cards for code execution. Each card has a header with 'Code execution', 'Passive rule', 'Generate an incident', and 'Description' (with a subtext 'Enter a description').

- Card 1:** Contains a list with one item: `*\\xssmanager.dll`. Below the list is a '+ Add a specific behavior' button, a 'Default behavior' toggle (which is off), and an 'Execute' dropdown menu set to 'Block'.
- Card 2:** Contains a list with one item: `*system.management.automation.dll`. Below the list is a '+ Add a specific behavior' button, an 'Execute' dropdown menu set to 'Allow', a '+ Legitimate applications' button, and a 'Default behavior' toggle (which is off) with an 'Execute' dropdown menu set to 'Block'.

**EXAMPLE 2**

In file access rules:

To always allow the account `NT SERVICE\TrustedInstaller` to run powershell scripts (`*.ps`), enable default behavior with **Read = Allow**.

In the examples above, access will ALWAYS be allowed or blocked. Enabling default behavior means that rules for the resource in question will no longer be read. As such, any rules placed after this rule will not apply.

In audit rules, the default behavior is ignored, and all rules will be read every time.

**When to disable default behavior**

In a protection rule set, disable default behavior when you want to ensure that the next rule affecting the same resource will be read.

**EXAMPLES**

- In the file access rules, to ensure that different log levels are generated according to which applications access the same resource, disable default behavior on the first rule, add a specific action to block certain applications, and apply a specific log level. Next, create a second rule with a different specific action and a different log level.
- In the process access rules, create the first rule to grant the Windows task manager all permissions to all processes and disable default behavior. With this configuration, the task manager will never be blocked by subsequent rules that may prohibit some applications from accessing some processes that may include the manager.

**8.2 Creating security policies**

A security policy consists of audit and protection rule sets. Each rule set is a set of security rules, which can be made private, i.e., specific to a policy, or shared among several policies.

For further information on security policies, refer to [Understanding security policies](#).

Several versions of policies or rule sets can coexist and you can choose which version to use at any time. For further information, refer to the section [Managing versions of a policy or a rule set](#).

Before you create security rules for your policy, create application, driver and network IDs first. For more information, refer to the section [Creating identifiers](#).



To build your policy based on the default built-in rules provided by Stormshield (i.e., Default Policy), or based on your own rules, follow the instructions below.

You must hold the **Policies-Modify** privilege to create and modify security policies and identifiers.

### 8.2.1 Understanding built-in rule sets

Stormshield provides a series of rule sets contained in [built-in security policies](#). You can also use them in your own custom policies. For more information, refer to the section [Creating a security policy](#).

To view built-in SES Evolution rule sets, select the **Policies** menu and click on **View shared rule sets**. Built-in rule sets are those that have the prefix Stormshield - .

Built-in rule sets are updated in each new SES Evolution version. SES Evolution 2.2.2 includes rule sets v2.2.2.2202a. The relating Release notes are available on your [Mystormshield](#) client area (*ses-en-release\_notes\_Stormshield\_rule\_sets.pdf*). Some new rule sets are regularly added by the security team in the Policies area of [Mystormshield](#).

Built-in rule sets can neither be modified nor deleted.



- The available protection rule sets are:

Rule set	Allows
Data leak prevention	Protection of the pool from theft of sensitive data by applying a defined list of applications.
Backend protection	Protection of the SES Evolution backend.
Agent handler protection	Protection of SES Evolution agent handlers.
Administration console protection	Protection of the SES Evolution administration console.
Protection baseline	Protection of the pool from any malicious activity.
Advanced protections	Detection and/or blocking of threats through a built-in heuristic analysis. Unlike protections that react to a strong individual event, advanced protections react to a pattern of several weak events, which when combined, represent a threat.
Secured Wi-Fi hotspots	Restriction of workstation connections to secure hotspots only.
Anti-ransomware protection	Protection of the pool from ransomware attacks. The rule set includes: <ul style="list-style-type: none"><li>◦ Rules that detect illegal encryption of files and block such attacks,</li><li>◦ Rules that protect volume shadow copies in order to allow file recovery if some files have been encrypted before the attack was blocked. For further information, refer to <a href="#">Managing a ransomware attack</a>.</li></ul>
Common applications hardening	Common applications to be prevented from performing potentially dangerous operations such as keylogging, application hooking or process access.
Common network hardening	Blocking of applications that may generate unwanted network traffic. This is the case of telemetry applications or non-Windows applications generating traffic used by zero-configuration networking for example.



- The available audit rule sets are:

Rule set	Allows
Audits of attack contexts	Monitoring of events that occur in a pool. If it is placed before the protection rule sets, all events can be monitored. If it is placed after them, events that are not identified by protection rules can also be monitored. It is essential in analyzing the attack context through incidents.
Windows Defender event forwarding	Reporting in SES Evolution Windows events relating to the <i>Virus and threat protection</i> feature. The event log analyzed is: Microsoft \ Windows \ Windows Defender \ Operational. SES Evolution assigns its own severity to these events, which is different from the Windows severity. Only the administrator can look up these events on the agent interface.

### 8.2.2 Creating shared rule sets

Shared rule sets make it possible to pool rules for several policies.

If you want to use shared rule sets in your security policies, you can create them earlier, either separately or directly in a policy.

If you are running in pre-production and production environments, you can test a private rule set in a pre-production policy and change it to a shared set once you are sure that it is effective, so that it can be used in a production policy.

To create a shared rule set separately from a policy:

1. Select the **Policies** menu.
2. Click on **View shared rule sets** at the top right side of the panel.
3. Click on **Create**. The **Create a rule set** window appears.
4. Select the type of set and name it.
5. Click on **Create**.
6. You are now about to create the rules for your rule set. Click on the new rule set and click on **Edit**.
7. Use the tabs **Threats**, **Application**, **ACL resources**, **Networks** and **Devices** to add security rules to your rule set. For further information on how to create rules, refer to the sections [Managing vulnerability exploitation](#) and [Defining access control rules](#).
8. Click on **Save** at the top right of the window to save changes.

Refer to [Creating a security policy](#) for details on how to use the rule set in a policy.

### 8.2.3 Creating a security policy

Audit rule sets and protection rule sets can be set up within the same security policy, for example when you are building pre-production and production policies.

You can create as many rule sets as you need. Rules from different categories can be created in the same set, or you can create a set for each rule category. The general panel of each policy shows how rule sets are built:



To create your own security policy:

1. Select the **Policies** menu.
2. Click on **Create**. A line entitled *New policy* appears.
3. Click on this line. The general panel of the new policy appears.
4. In the upper banner, click on **Edit**.
5. Enter a name and description for the policy. The description matters as it describes the various versions of the same policy.
6. In **Rule set**, click on **Add a shared rule set** to add an existing shared rule set, or on **Create a rule set** to add a new rule set.
7. If you are adding existing rule sets, select them in the order in which you want to see them appear in the policy. Their rank in the policy appears on the left next to their checkbox. For more information on the sequence of rules, refer to [Organizing rules and rule sets in a policy](#).
8. If you are creating a new rule set, in **Create a rule set**:
  - a. Select the type of set: **Protection or Audit**.
  - b. Select who can see it: Private or Shared. Private sets are used only in the current policy. Shared sets can be used in several policies.
  - c. Name the rule set.
  - d. Click on **Create**.
9. You are now about to create the rules for your rule set. Click on the new rule set and click on **Edit**.
10. Enter a description of the rule set. The description matters as it describes the various versions of the same set.
11. Use the tabs **Threats**, **Application**, **ACL resources**, **Networks** and **Devices** to add security rules to your rule set. For further information on how to create rules, refer to the sections [Managing vulnerability exploitation](#) and [Defining access control rules](#).
12. You can change the order of the rule sets in the general panel of the policy by scrolling over the rule sets to show the arrows on the left. The sequence of rule sets matters. For more information, refer to [Organizing rules and rule sets in a policy](#).
13. Click on **Save** at the top right of the window to save changes.

For further information on versions of policies and rule sets, refer to the section [Managing versions of a policy or a rule set](#).

Next, assign the security policy to the agent group you want this policy to apply to, then deploy it in your environment. For more information, refer to the sections [Assigning a security policy to agents](#) and [Deploying the SES Evolution environment](#)

### 8.2.4 Managing versions of a policy or a rule set

Several versions of policies or rule sets can coexist and you can choose which version to use at any time.

By managing several versions of a policy or rule set at the same time, you can set up pre-production and production policies and test how rule updates impact your pool. For example, your production policy can use a stable, i.e., tested and validated, version of rule sets while your pre-production policy uses a trial version that is more recent.



This feature also makes it possible to undo changes by redeploying an older version that worked correctly. E.g.: if you encounter a deployment issue in the environment, or if the deployment of a policy or rule set in your pool did not produce the expected results.

You can give your policies and rule sets accurate descriptions so that you can identify the various versions more easily.

When you export a policy or rule set, you export it in the version selected in the right side of the panel. For more information on importing and exporting policies and rule sets, refer to [Importing and exporting policies and rule sets](#).

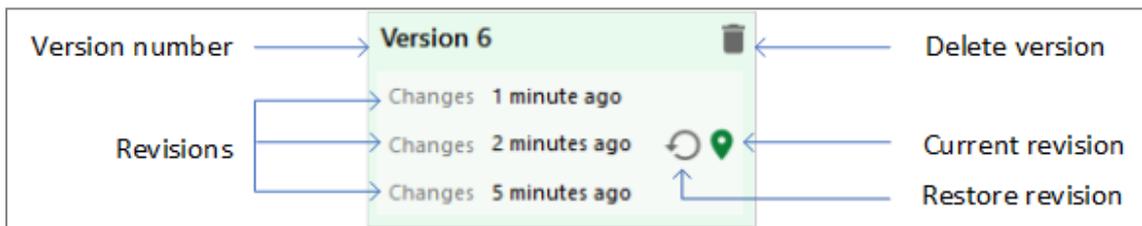
### Managing various versions of a policy

In the general panel of a policy, version numbers are shown in the path of the policy at the top of the page, and in the right column. The last version deployed in your environment appears in blue. The version you are currently working on appears in green, or yellow if it is being edited.

After a policy is deployed in your environment, the version number automatically increments whenever you modify it again, which means that you are working on a new version. The version of a deployed policy is always the latest version that was modified and saved.

For the latest version of the policy, successive changes are considered revisions of the same version of the policy. Click on a revision to go back to it at any time.

The  icon indicates the revision you are currently working on.



Only the latest version of a policy can be modified. Earlier versions must be restored before they can be modified.

#### Restoring a version of the policy:

1. Click on the desired version of the policy. The background will turn green.
2. Click on  to restore this version. A new version will automatically be created with the content from this restored version, which therefore becomes the most recent. If the policy contains several revisions, you can restore a particular revision.
3. Make your changes and save them. If you deploy the policy in the environment, this is the version that will be deployed.

For more information on deploying a policy in your environment, refer to [Deploying the SES Evolution environment](#).

### Managing versions of a rule set

In the general panel of a rule set, version numbers are shown in the path of the rule set at the top of the page, and in the right column. The last version deployed in your environment appears in blue. The version you are currently working on appears in green, or yellow if it is in edit mode.

After a policy is deployed in your environment, the version number automatically increments whenever you modify it again, which means that you are working on a new version.

For the latest version of the rule set, successive changes are considered revisions of the same version of the policy. Click on a revision to go back to it at any time.



The  icon indicates the version you are currently working on.

Only the latest version of a rule set can be modified. Earlier versions must be restored before they can be modified.

**Restoring a version of a rule set:**

1. Click on the desired version of the rule set. The background will turn green.
2. Click on  to restore this version. A new version will automatically be created with the content from this restored version, which therefore becomes the most recent. If the set contains several revisions, you can restore a particular revision.
3. Make your changes and save them.

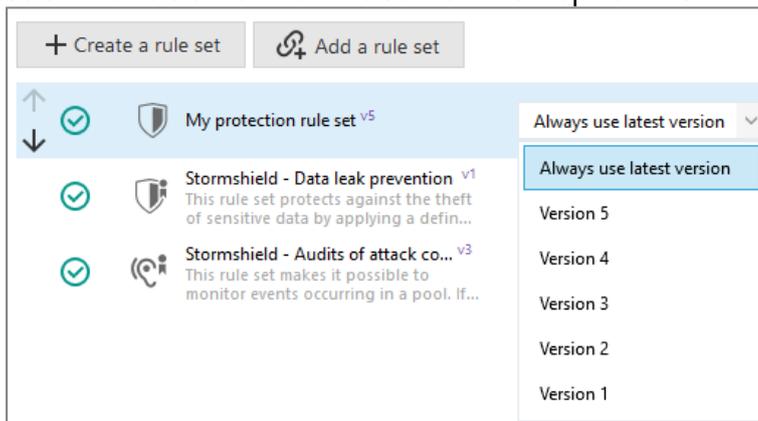
**Manually creating a new version of a rule set:**

- Click on **Create new version** at the top on the right.

The **General** tab of a rule set shows the policies in which the rule set is used and the version number of the rule set for each policy.

**Selecting the version of a rule set to use in a policy:**

1. Go to the main panel of the policy:
2. Click on **Edit** in the upper banner.
3. Select the version for each rule set from the drop-down list.

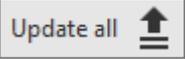


Multiple policies can therefore use various versions of the same rule set.

However, we recommend that you use a stable version of a rule set in your production environment.

**Updating policies with the latest version of a rule set:**

Perform this operation only after the rule set has been tested and validated.

- In the **General** tab of a rule set, click on  to update all policies that use the same version of a rule set or  to update all policies with the latest version of the rule set.

**Deleting a version of a policy or a rule set**

Versions of policies and rule sets can be deleted, including those provided by Stormshield.

However, a version currently being deployed, identified by the  icon, cannot be deleted.



1. Go to the main panel of a policy or rule set.
2. Click on the  icon of the version that you wish to delete and confirm.  
When a version of the policy is deleted, all versions of private rule sets used in this version will also be deleted. No versions of shared rule sets will be deleted.

## 8.3 Creating identifiers

Identifiers help to define the various applications, networks and drivers to which security rules apply. They are necessary when you create security rules, and must be created beforehand.

Each identifier consists of an unlimited number of entries linked by a logical “OR” operator, i.e., a security rule applies as soon as at least one of the identifier’s entries is recognized.

Identifier entries make it possible to group various resources under the same identifier in order to pool any rules that may concern these resources.

There is no difference between creating two identifiers with single entry each and a single identifier containing two entries if all identifiers are associated with the same rule.

### 8.3.1 Creating application identifiers

Application identifiers, or application IDs, help to define which audit and protection rules apply to which applications, i.e.:

- Applications to protect or to exclude from a protection,
- Applications likely to interact with a protected application, for both legitimate or illegitimate purposes.

Since IDs are specific to each rule set, you must create IDs in each set. You can however export all the IDs of a rule set to import and use them in another set. For more information, refer to the section [Importing and exporting identifiers](#).

#### EXAMPLE

If you want to prevent all applications from logging keystrokes on your web browser, except the virtualization tool, which has a legitimate need to log keystrokes. In this case, you need to create an application ID for the application you want to protect (web browser), and an ID for the legitimate keylogging application (virtualization tool).

Application IDs are necessary when you create rule sets, and must be created beforehand.

1. Select a policy in **Policies**, then select a set of rules.
2. Click on the **Identifiers** tab at the top right, then on the **Application IDs** tab.
3. Click on **Edit** in the upper banner, then on **Add an ID**.  
A blank ID appears below the existing IDs.
4. Click on **Edit** at the bottom right.
5. In the field **New application ID**, enter an ID name, then a description if needed.
6. Click on  and select all the ID criteria that you wish to use, e.g., **Path** and **Certificate**.



- Click outside the criteria window and define each ID criterion selected:

#### Paths

- Click on **Edit** then in the blue field at the bottom, enter the partial or full path to the application's executable file. This path may be a link or the path in the file system. The characters \* and ? are allowed. Enter for example \**Apache.exe* to identify the Apache application regardless of its location on the workstation. Full paths beginning with a letter (i.e., *E:\Data\Backup*) are not supported if the **Volume type** is remote or removable. Stormshield highly recommends using the [EsaRoots path roots](#) provided in SES Evolution instead of drive letters (i.e., *C:\...*), as these letters may vary from one workstation to another.
- You can also specify an alternate data stream. The ADSs of an executable file allow it to be looked up by several data streams. For further information, refer to Microsoft Windows documentation.
- Click on **Add**.
- Enter other paths in the blue field if necessary, then click on **Add**.
- Click **OK** to confirm the list of paths.

#### Hashes

Hashes make it possible to accurately identify a trusted binary, as any modification will change the hash, which will no longer be recognized. Hash-based identification can be used in the following cases:

- To guarantee that a legitimate binary has not been replaced or modified. However, this requires tedious maintenance as you will need to change IDs after every software update. It should therefore be used only on systems that do not undergo many changes.
- To identify malware programs that often change names but may keep the same hash. Import the list of the most common malware hashes to block them from running.

To add hashes:

- Click on **Edit** then on the pencil icon.
- In the blue field at the bottom, enter the MD5, SHA1 or SHA256 hash of the application's binary file and a description, then click on **Add**.  
To obtain the hash of a binary, you can use the following Powershell command. In this example, the SHA256 hash of all .exe files is obtained:

```
Get-ChildItem -Recurse -Filter '*.exe' | get-filehash -Algorithm SHA256 | select path, Hash
```

- Enter other hashes the blue field if necessary, then click on **Add**.
- Click on **OK**.
- You can also import a list of hashes from a CSV or text file. The file must contain one hash and a description per line separated by a comma, tab or semi-colon:
  - Hash (MD5, SHA1 or SHA2),
  - Description.

If there is an error or duplicate hash, SES Evolution will indicate it and only valid and unique hashes will be imported.

Once they have been entered and imported, the window shows the number of hashes for each algorithm.

- Click on **OK** to confirm the list of hashes.

#### Parent process



Select the process that launches the application. The application ID of this process must be created beforehand.

- Click on **Manage**.
- Search for the ID of the parent process(es) using the search field and select them from the list that appears.
- Click on **OK** to confirm the list of parent processes.

#### Certificate

Import the digital signature certificate provided by the application's vendor. Certificate-based identification can be used in the following cases:

- To strengthen the identification of a trusted binary by making it less restrictive than a hash because the certificate does not change with every new version of the binary. It is more reliable than using just a path because an attacker can always rename a malware program to *winword.exe* for example.
- To trust a vendor and therefore all software that it signs with its certificate. For example, you can allow the execution of all binaries signed by Microsoft, or even all binaries signed by a trusted certification authority.

To obtain a certificate, you can use the following Powershell command. In this example, we obtain the Acrobat Reader certificate, which we will name *Adobe.cer*:

```
(Get-AuthenticodeSignature -FilePath "C:\Program Files  
(x86)\Adobe\Acrobat Reader  
DC\Reader\AcroRd32.exe").SignerCertificate | Export-Certificate -  
FilePath Adobe.cer
```

To add certificates:

- Click on **Edit** then **Import**.
- Choose the certificates to import.
- Search for the certificates(s) using the search field and select them from the list that appears.
- Click on **OK** to confirm the list of certificates.

#### Run in

- Click on **Edit**.
- From the drop-down list at the bottom, select the type of account that launches the identified application (e.g., *NT\_AUTHORITY\System*), then click on **Add**.  
To define a very specific account, select **Specify a user SID**, and enter the SID (security identifier) of the account.

To obtain an SID, launch a command window with administration privileges and run the following command:

```
WMIC useraccount get name,sid
```

- Select other accounts if necessary and click on **Add**.
- Click on **OK** to confirm the list of accounts.

#### Volume type

Enable the volume type(s) on which this application runs: local disk on the workstation, network share (e.g., Samba/CIFS, DFS, etc.) or removable device (e.g., USB key, external hard disk, mobile phones depending on their configuration, etc.).

#### Command line

Filter applications by the arguments in their command line, making it possible to apply different rules to the same application, depending on how it is used. Refer to the [next section](#) for details on how to use the command line criterion.



Specifying more criteria will more accurately identify the application because all criteria must match.

**EXAMPLE**

By specifying the application *PowerShell.exe* signed by *Microsoft*, launched by the scheduled task *schtasks.exe*, running from the local disk via the account *NT\_AUTHORITY\System*, all five criteria must match for the application to be identified.

8. Click on **Add an entry** if you want to add another list of criteria for the same ID. Having several entries makes it possible to group various resources under the same ID, if the same security rules use them. For example, you can group various browsers together, or group various dangerous applications to set up a blacklist.
9. Enable the option **Include child applications of the applications identified below** so that when a rule is applied to an ID, it will also apply to all of its child applications. This option helps to identify installation programs that are extracted into a temporary folder and run executable files that have random names. By declaring the installation program a legitimate program, all the temporary files that it creates and launches will also be considered legitimate.
10. Click on **OK**.
11. If you have finished creating application identifiers, click on **Save** in the upper banner.
12. To show the contents of an application identifier without editing it, click on **View**.

**TIP**

Application identifiers can also be created directly from a rule. In a rule, click on , then on **Create a new identifier**.

Likewise, from a rule, you can click on a selected identifier to modify it. Changes will also apply to the identifier in the **Identifiers** tab.

### Filtering applications via command line arguments

In application IDs, you can indicate command line arguments as an identifying criterion which will make it possible to apply different rules to the same application, depending on how it is used. This will give you better control over the use of certain applications.

**EXAMPLE**

With this type of filtering, you can prevent PowerShell from running only when it is run as an invisible process, or when its command line arguments attempt to bypass Windows execution policies. Such behavior may indeed be deemed malicious.

### Managing compatibility with agent versions

This feature can be used with agents in at least version 2.2.2. If a group of agents in a version lower than 2.2.2 applies a policy that contains application IDs using the **Command line** criterion, indicators will appear in various parts of the console to indicate incompatibility. For more information, refer to the section [Managing a pool with agents in different versions](#).

To make your agent pool support this feature, the SES Evolution release notes explain the procedure of updating built-in security policies and agent pools in [Recommendations](#).

### Using the Command line criterion in an identifier

To create an application identifier based on command line arguments:



1. Select a policy in **Policies**, then select a set of rules.
2. Click on the **Identifiers** tab at the top right, then on the **Application IDs** tab.
3. Click on **Edit** in the upper banner, then on **Add an ID**.  
A blank ID appears below the existing IDs.
4. Click on **Edit** at the bottom right.
5. In the field **New application ID**, enter an ID name, then a description if needed.
6. Click on  and select **Command line**.
7. Click outside the criteria window.
8. Click on **Edit**.
9. Enter a name and select a mode:
  - **Custom parameters** (default mode): customize the parameters that the rule must search for in a command line.
  - **Contains at least one parameter**: the rule will apply every time it finds command lines containing at least one parameter.
  - **Without any parameter**: the rule will apply every time it finds command lines that do not contain any parameters.



10. If you have chosen **Custom parameters** mode, you will create one or several specifications by selecting options on the left, and by indicating command line parameters in the field on the right. If you are creating several specifications, they are linked by logical “AND” operators. This means that the rule using this identifier will apply if all the specified conditions are met.



- a. Choose from the following options:

---

**General**


---

**Not** The rule applies to all command lines that do not contain the parameter(s) indicated in the field on the right.

---

**Case sensitive** The rule applies only when it finds the parameter(s) in the case specified indicated in the field on the right.

---

**Command** After the specified parameter, the rest of the command line is interpreted as a nested command line. Such command lines are introduced with the `-Command` parameter for PowerShell or the `/c` parameter for cmd for example.

---

**Parameter type**


---

**String** The parameter is a character string.

---

**Flag** The parameter is found in a command line option beginning with `/` or `-` for example.  
To create an identifier corresponding for example to the editor of the registry that silently runs a .reg file, i.e. `regedit /s` in command line:

1. Create a **Path** criterion and enter `*\regedit.exe`.
2. Create a **Command line** criterion, select the **Flag** and **Is equal to** options, then enter `s` in the field on the right.

The `/` or `-` characters do not need to be entered.  
Take note that the double dash `--` is not supported. For example, to search for the `--arg` argument, you must select **String** as the type of parameter.

---

**Check**


---

**Is equal to** The parameter must be the same as the character string indicated in the field on the right.

---

**Begins with** The parameter must begin with the character string indicated in the field on the right.

---

**Ends with** The parameter must end with the character string indicated in the field on the right.

---

**Contains** The parameter must contain the character string indicated in the field on the right.

---

**Is prefixed with** The value that the rule recognizes rule may be a prefix of the character string indicated in the field on the right. For example, the character string "version" will match the values "v", "ve", "ver", etc., up to "version".

---

**Position (visible from the second specification onwards)**


---

**None** There is no position criterion.

---

**Followed by** The parameter searched for follows the previous parameter.

---

**Immediately followed by** The parameter searched for immediately follows the previous parameter.

---



- b. Enter one or several parameters in the field on the right. In the same specification, parameters are linked by logical "OR" operators. This means that the rule using this identifier will apply if at least one of the specified conditions is met.
- 11. When you have created all the specifications, confirm the creation of the "Command line" criterion.
- 12. Confirm the creation of the identifier.

**Use case**

As part of SES Evolution's anti-ransomware protection mode, this criterion type makes it possible to set **Process creation** rules on applications that may attempt to delete Windows shadow copies, among other operations. However, these shadow copies must be protected so that files encrypted by a ransomware program can be retrieved. For further information, refer to [Managing a ransomware attack](#). These rules are included in the built-in **Anti-ransomware protection** rule set.

**EXAMPLE**

The use of VSSAdmin to manage Windows shadow copies can be allowed in your pool, except when it attempts to delete a shadow copy, for example. Indeed, a ransomware program may carry out such an action.

In this case, create an application ID by indicating the following values for the **Path** criterion:

Next, indicate the following values for the Command line criterion:

The ID will then include the following entry:



The ID can then be used in a blocking Process creation rule that kills the VSSAdmin application when it detects an attempt to delete a Windows shadow copy.

### 8.3.2 Creating driver identifiers

Driver identifiers, or IDs, make it possible to define legitimate drivers that you can exclude from rootkit detection.

Driver IDs are necessary when you create audit rules for rootkit detection, and must be created beforehand.

For more information, refer to the section [Rootkit detection](#).

Since IDs are specific to each rule set, you must create IDs in each set. You can however export all the IDs of a rule set to import and use them in another set. For more information, refer to the section [Importing and exporting identifiers](#).

1. Select a policy in **Policies**, then select a set of rules.
2. Click on the **Identifiers** tab at the top right, then on the **Driver IDs** tab.
3. Click on **Edit** in the upper banner, then on **Add an ID**.  
A blank ID appears below the existing IDs.
4. Click on **Edit** at the bottom right side of the entry.
5. In the field **New driver ID**, enter an ID name, then a description if needed.
6. Click on  and select all the ID criteria that you wish to use, e.g., **Path** and **Hashes**.



7. Click outside the criteria window and define each ID criterion selected:

#### Paths

- a. Click on **Edit** then in the blue field at the bottom, enter the partial or full path to the driver file. This path may be a link or the path in the file system. The characters \* and ? are allowed. For example, enter `*\drivers\Stormshield Endpoint Security Agent\es*.sys` to include Stormshield drivers. Full paths beginning with a letter (i.e., `E:\Data\Backup`) are not supported if the **Volume type** is remote or removable. Stormshield highly recommends using the [EsaRoots path roots](#) provided in SES Evolution instead of drive letters (i.e., `C:\...`), as these letters may vary from one workstation to another.
- b. You can also specify an alternate data stream. A file's ADS contains metadata and makes it possible to find out the origin of the file. For further information, refer to Microsoft Windows documentation.
- c. Click on **Add**.
- d. Enter other paths in the blue field if necessary, then click on **Add**.
- e. Click **OK** to confirm the list of paths.

#### Hashes

Hashes make it possible to accurately identify a trusted driver, as any modification will change the hash, which will no longer be recognized. Hash-based identification can be used in the following cases:

- To guarantee that a legitimate driver has not been replaced or modified. However, this requires tedious maintenance as you will need to change IDs after every software update. It should therefore be used only on systems that do not undergo many changes.
- To identify malware programs that often change names but may keep the same hash. Import the list of the most common malware hashes to block them from running.

To add hashes:

- a. Click on **Edit** then on the pencil icon.
- b. In the blue field at the bottom, enter the MD5, SHA1 or SHA256 hash of the driver and a description, then click on **Add**.  
To obtain the hash of a binary, you can use the following Powershell command. In this example, the SHA256 hash of all .sys files is obtained:

```
Get-ChildItem -Recurse -Filter '*.sys' | get-filehash -  
Algorithm SHA256 | select path, Hash
```

- c. Enter other hashes the blue field if necessary, then click on **Add**.
- d. Click on **Confirm**.
- e. You can also import a list of hashes from a CSV or text file. The file must contain one hash and a description per line separated by a comma, tab or semi-colon:
  - Hash (MD5, SHA1 or SHA2),
  - Description

If there is an error or duplicate hash, SES Evolution will indicate it and only valid and unique hashes will be imported.

Once they have been entered and imported, the window shows the number of hashes for each algorithm.

- f. Click on **OK** to confirm the list of hashes.

**Owner**

- a. Click on **Manage**.
- b. From the drop-down list at the bottom, select the type of account that launches the identified driver (e.g., `NT_AUTHORITY\System`), then click on **Add**. To obtain an SID, launch a command window with administration privileges and run the following command:

```
WMIC useraccount get name,sid
```

- c. Select other accounts if necessary and click on **Add**.
- d. Click on **OK** to confirm the list of accounts.

Specifying more criteria will more accurately identify the driver because all criteria must match.

8. Click on **Add an entry** if you want to add another list of criteria for the same ID. Having several entries makes it possible to group various resources under the same ID, if the same security rules use them. For example, you can group all legitimate drivers to compile a whitelist.
9. Click on **Confirm**.
10. If you have finished creating driver identifiers, click on **Save** in the upper banner.
11. To show the contents of a driver ID without editing it, click on **View**.

### 8.3.3 Creating network identifiers

Network IDs make it possible to define the network resources that you want to protect: IP addresses, ports, IP address ranges, or port ranges.

Network IDs are necessary when you create network rules, and must be created beforehand.

Since IDs are specific to each rule set, you must create IDs in each set. You can however export all the IDs of a rule set to import and use them in another set. For more information, refer to the section [Importing and exporting identifiers](#).

For more information, refer to the section [Controlling network access](#).

1. Select a policy in **Policies**, then select a set of rules.
2. Click on the **Identifiers** tab at the top right, then on the **Network IDs** tab.
3. Click on **Add an ID**.  
A blank ID appears.
4. Click on **Edit** at the bottom right side of the entry.
5. In the field **New network ID**, enter an ID name, then a description if needed.
6. If you want the network ID to include all IP addresses EXCEPT the ones specified, enable the option **Invert identifier scope**.
7. The ID includes all IPv4 and IPv6 addresses by default. To specify certain addresses in particular, click on **No addresses added** and manually enter the values in the text field that appears. You can also add a description if necessary.
  - To add several addresses at one go, separate them with commas in the text field and press Enter. Example: 192.168.128.254,192.168.95.15.
  - To add an address range, separate the first value and last value with a dash and press Enter. Example: 192.168.131.0-192.168.131.100.
8. Click on **Finish changes**.
9. If you have finished creating application identifiers, click on **Save** in the upper banner.



### 8.3.4 Using path roots in identifiers

The workstations in your SES Evolution environment do not all have the same Windows installation. For example, the user profile and applications may be located in different drives from one workstation to another. SES Evolution provides variables in the form of path roots that allow rules to be adapted to each user, regardless of their drive names and trees.

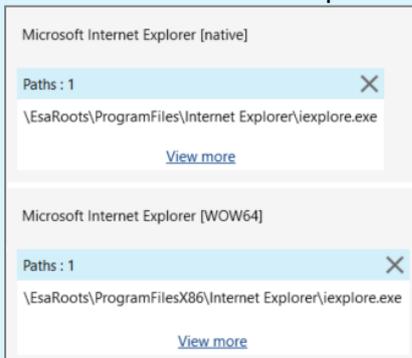
Stormshield highly recommends the use of such roots in the **Path** field during the creation of application identifiers and file rules, especially to identify applications found in the *Programs* or *System32* folder.

Use the root...	To reference...
\EsaRoots\SystemDrive	The volume on which Windows is installed, typically C:
\EsaRoots\SystemRoot	The Windows folder, typically C:\Windows
\EsaRoots\UserProfiles	The Users folder
\EsaRoots\ProgramData	The folder in which applications automatically store data regardless of the user
\EsaRoots\ProgramFiles \EsaRoots\ProgramFilesX86	Folders in which 64-bit and 32-bit applications are installed respectively. On a 32-bit operating system, both symbolic links point to the same location.



#### EXAMPLE 1

Use the paths `\EsaRoots\ProgramFiles\Internet Explorer\iexplore.exe` and `\EsaRoots\ProgramFilesX86\Internet Explorer\iexplore.exe` to **create the application identifier** of the Microsoft Internet Explorer browser.



#### EXAMPLE 2

Use the path `\EsaRoots\SystemRoot\System32\drivers\etc\hosts` to identify the *hosts* file when



### creating a file access rule.

Name etc\hosts

**Path**  
Resource path: file or folder. The generic characters \* and ? are accepted.  
Examples: \*.exe, C:\Windows\system32\\*

\EsaRoots\SystemRoot\System32\drivers\etc\hosts

**Volume type**  
File location: Local for a static volume on the host, Remote for a network share, or Removable for any removable storage device (USB key, external hard disk, etc.).

Local  
 Remote  
 Removable

### 8.3.5 Importing and exporting identifiers

The identifiers of applications, drivers and networks can be exported to a *json* file that can be re-imported later. This makes it possible to:

- Use identifiers created for a rule set in a different rule set without the need to create them again.
- Transfer the list of identifiers to SES Evolution's technical support to make it easier to debug issues.

You can import/export lists of application, driver and network identifiers separately. However, you cannot select only some identifiers from the same list. They will all be imported/exported.

#### Exporting a list of identifiers

1. Select a policy in **Policies**, then select a set of rules.
2. Click on the **Identifiers** tab at the top right, then on the **Application IDs, Driver IDs or Network IDs** tab.  
The list of IDs appears.
3. Click on **Export IDs** and choose the name of the *json* file and the folder to which you want to export the file. All the IDs on the list will be exported.

#### Importing a list of identifiers

1. Select a policy in **Policies**, then select a set of rules.
2. Click on the **Identifiers** tab at the top right, then on the **Application IDs, Driver IDs or Network IDs** tab.  
The list of IDs appears.
3. Click on **Import IDs** and choose the *json* file you want to import.

## 8.4 Managing vulnerability exploitation

Hackers use many malicious techniques such as heap spraying and process hollowing to exploit vulnerabilities on workstations. Threat protection rules on Stormshield Endpoint Security Evolution make it possible to detect these attack techniques and/or block them effectively.

Depending on the severity of threats, some protections are available only in audit rule sets or only in protection rule sets, while some are relevant in both cases.



In protection rule sets, incidents are always generated for most rules. In audit rule sets, this is an option that you can choose to enable or disable.

The Stormshield Default Policy implements a specific number of protection and audit rules, but you can create your own custom rules. For every rule type, you can define:

- Default behavior,
- Specific behavior for certain applications.

For more information on audit and protection rule sets, and default and specific behavior, refer to [Understanding security policies](#).

Security rules can be disabled at any time. For more information, refer to the section [Disabling security rules](#).

### 8.4.1 Protection against various threats

SES Evolution provides rules that help you to detect the main threats and protect yourself from them. In this section, we briefly explain the characteristics of each type of threat. Refer to [Configuring threat protection](#) for information on how to implement protection against the various threats.

#### Process hollowing

The process hollowing protection mechanism detects and blocks malicious executables that attempt to disguise themselves as legitimate processes on the system (e.g., explorer.exe) so that they can run without being detected by Windows. It counters attacks such as RunPE and Process Doppelgänger.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert by default
<b>Incident generation</b>	Always
<b>Recommendations</b>	Enable this protection by default and disable it only for properly identified internal applications that use the process hollowing technique for legitimate purposes.

#### Stack pivoting

Stack pivoting attacks exploit buffer overflows so that they can hijack an application’s execution flow to make a legitimate application run malicious code.

The stack pivoting protection mechanism regularly monitors memory. If SES Evolution detects abnormal behavior on an agent, especially a different stack address, it will stop the process to prevent the code from being executed.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert
<b>Incident generation</b>	Always
<b>Recommendations</b>	Enable this protection by default for all applications.



### Execution flow hijacking

The execution flow hijacking protection mechanism detects and neutralizes malicious shellcodes that exploit buffer overflows to use the addresses of system functions in the dynamic library kernel32.dll.

<b>Rule set type</b>	Protection
<b>Log level</b>	Error
<b>Incident generation</b>	Always
<b>Recommendations</b>	Enable this protection by default for all applications.

### Heap spray

Heap spraying is a technique that consists of allocating large amounts of memory to facilitate the execution of malicious code after a vulnerability is exploited. Since heap spraying can only be used on 32-bit applications, the SES Evolution protection mechanism is not enabled on 64-bit applications.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert
<b>Incident generation</b>	Always
<b>Recommendations</b>	Enable this protection by default for all applications.

### Access token manipulation

The operating system assigns a security token to every process; among other data, this token contains the account with which the process was run and the privileges associated with this process.

Some attack techniques manage to steal or duplicate the security tokens of high-privilege processes, thereby gaining access to resources or privileges that would not normally be granted to them.

The token protection mechanism on SES Evolution makes it possible to block such attacks by stopping the process that stole the token.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert
<b>Incident generation</b>	Always
<b>Recommendations</b>	Enable this protection by default for all processes.

### Application-defined hooks installation

The Windows SetWindowsHookEx API allows a program to be notified when certain events occur on the system or on applications, e.g., mouse movements, keystrokes, etc. A DLL is injected into target applications for this purpose.

Even though this is a legitimate mechanism, hackers may use it to inject malicious code so that a user's operations can be observed, e.g., the keystrokes when the user enters various passwords.



<b>Rule set type</b>	Protection and Audit
<b>Log level</b>	Protection: Error Audit: Information
<b>Incident generation</b>	Up to user (Yes by default)
<b>Recommendations</b>	Enable auditing by default to identify legitimate applications. Enable protection by default and disable it only for properly identified applications that use this mechanism for legitimate purposes.

When this rule is enabled, it controls all applications that use SetWindowsHookEx. If you do not want to completely block access to this API, do not enable this rule, but make the necessary adjustments in the Keylogging application rule.

### Privilege escalation

This protection mode makes it possible to monitor applications' attempts to escalate privileges by using the Debug privilege. When this mode is enabled, SES Evolution compares the privileges usually granted to the application with those requested. If the requested privileges are higher, SES Evolution will consider the request a privilege escalation and may block the action.

<b>Rule set type</b>	Protection and Audit
<b>Log level</b>	Protection: Error Audit: Information
<b>Incident generation</b>	Up to user (Yes by default)
<b>Recommendations</b>	Up to user

### Rootkit detection

A rootkit is a program that modifies the behavior of the operating system so that the system does not notice this program has been executed. Its aim is to gain and keep access to a computer, usually with malicious intentions.

Rootkit detection on SES Evolution makes it possible to monitor driver loading and verify their integrity.

<b>Rule set type</b>	Audit
<b>Log level</b>	Emergency
<b>Incident generation</b>	Up to user (Yes by default)
<b>Recommendations</b>	Enable these rules by default and disable them only for legitimate drivers.

#### Driver loading

The driver loading protection mechanism detects drivers that the operating system loads and generates a log for each driver.

#### Driver integrity

The driver integrity protection mechanism regularly verifies every driver to ensure that its integrity has not been potentially compromised, i.e., whether its major function table has been modified. If changes are detected, SES Evolution will identify the driver behind the attack and generates a log. For example, if a malicious driver could modify an antivirus driver, it would prevent files from being analyzed.



However, some drivers make legitimate changes, as is the case with some virtualization tools. These drivers must be excluded from the audit rule.

### Advanced protections

Stormshield also provides a set of advanced protections against some types of threats. These protections are natively built into the administration console.

Advanced protections make it possible to detect and block malicious behavior on SES Evolution agents. They are based on heuristic analyses, which can be updated without the need to update the SES Evolution software.

To view advanced protections in the console:

1. Select the **Policies** menu.
2. Click on **View advanced protections** at the top right side of the home panel of the policies.

Refer to [Configuring threat protection](#) for information on how to implement advanced protection against the various threats.

Advanced protections have version numbers and can be updated via Stormshield when necessary. During updates, you can therefore re-import them in the **Advanced protections** panel. All previous versions of a protection remain available in the administration console.

#### Kerberos ticket protection

Prevents the retrieval of Kerberos tickets from memory, as they may be used later to launch pass-the-ticket attacks.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert by default
<b>Incident generation</b>	Always

#### Protection against ARP spoofing

Prevents network traffic from being intercepted, modified or stopped through ARP spoofing attacks.

<b>Rule set type</b>	Audit
<b>Log level</b>	Alert by default
<b>Incident generation</b>	No

#### WMI Persistence

This protection prevents malware programs from persisting on computers through WMI (Windows Management Instrumentation).

It relies on the *Microsoft-Windows-WMI-Activity/Operational* event log. In Windows 7 and Server 2008, the Windows update KB3191566 is needed for this log to be present.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert by default
<b>Incident generation</b>	Always

#### Protection against malicious use of certutil

This protection mode protects users from the malicious use of the Windows program certutil, which allows certificates to be managed. Using this protection may generate false positives, as



the files that certutil handles need to be opened in read-only mode. If such files cannot be accessed due to insufficient privileges, the operation on the certificates will be considered malicious, even though it is legitimate.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert by default
<b>Incident generation</b>	Always

#### Environment discovery

This protection prevents the use of the built-in Windows tools that collect information on the host and system with the aim of performing malicious operations.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert by default
<b>Incident generation</b>	Always

#### Ransomware

This protection mode keeps track of when files are modified and encrypted. If a particular number of such events occurs in the space of three seconds, the process in question will be stopped. This mode also makes it easier to retrieve data that the ransomware encrypts, by enabling:

- the identification of files modified by the ransomware,
- the restoration of the identified files, based on Windows shadow copies.

<b>Rule set type</b>	Protection
<b>Log level</b>	Alert by default
<b>Incident generation</b>	Always

### 8.4.2 Configuring threat protection

The security rules that Stormshield provides include audit or protection rules that you can configure to protect your network from major attack classes that threaten workstations.

For more information on the attacks that SES Evolution thwarts, refer to the section [Protection against various threats](#).

All threat protection rules are disabled by default. If there are several protection rule sets in your security policy, ensure that you enable the policy only for the set(s) in which you want to configure threat protection, and arrange your rule sets in the right order in the policy. If you configure threat protection in a rule set near the top of the policy, this rule may overload and cancel the effect of the threat protection configuration in the rule sets that follow.

#### Requirements

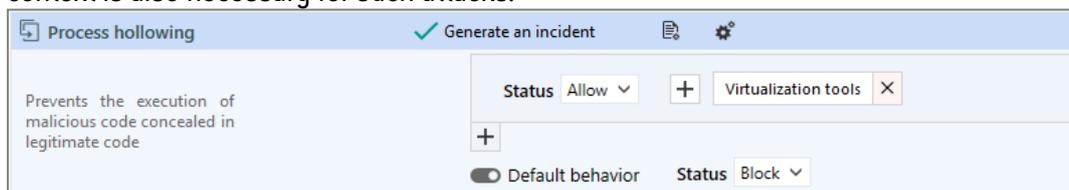
- For [Driver loading](#) and [Driver integrity](#) audit rules, you must create a driver ID beforehand for every legitimate driver to ignore.  
For more information, refer to the section [Creating driver identifiers](#).



- For all other protection types, application identifiers must be created beforehand for every application to be protected and for every approved application to be excluded from the protection rules.  
For more information, refer to the section [Creating application identifiers](#).

### Creating threat protection rules

1. Select **Policies** and click on your policy.
2. Select the protection or audit rule set to which you want to add your rule.  
The main page of the rule set appears.
3. Click on the **Threats** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Enable the desired rule by clicking on  on the left.
6. In the **Status** field in **Default behavior**, there are three or four statuses for each protection mode. Select:
  - **Allow**: SES Evolution does not block malicious actions and does not generate any logs.
  - **Detect only**: As in audit mode, SES Evolution detects malicious actions without blocking them, and generates logs for the administrator. But unlike audit mode, this option stops evaluating the rules that follow, and ignores them.
  - **Block**: SES Evolution blocks malicious actions and generates logs for the administrator.
  - **Block and kill**: SES Evolution blocks malicious actions and shuts down the process that launched the action.For audit rules, the available actions are always **Allow**, which does not do anything, and **Audit**, which generates a log and evaluates the next rule.
7. Click on **+ Add a specific behavior** to add the IDs of the applications for which the protection must behave differently. In *process hollowing* for example, you can enable the protection by default, and disable it specifically for your internal applications, such as virtualization tools, that use this operating mode.
8. In the upper banner in the rule, you can:
  - Indicate whether the rule must **generate an incident** when it is applied. For some protection types, an incident is automatically generated because in addition to logs, a context is also necessary for such attacks.



- Select the **log settings** that this rule will send.
- Specify whether an action must be performed **when a log is sent** for this rule.



#### NOTE:

If you want logs to be managed differently by application, your rules must be spread out into different rule sets. Rule sets cannot contain several rules for the same threat.

9. Once the first protection type is configured, repeat steps 5 to 8 to configure the other



protection types.

10. Click on **Save** at the top right of the window to save changes.

### Configuring advanced protection

Advanced protection modes are available in the same panel as rules against threats described earlier. For more information, refer to the section [Advanced protections](#).

To enable and configure advanced protection:

1. In the desired policy, select the protection or audit rule set to which you want to add your rule.
2. Click on the **Threats** tab.
3. If you are in read-only mode, click on **Edit** in the upper banner.
4. Enable the desired rule by clicking on  on the left.
5. In the **Version** drop-down list, indicate the version of the protection that you wish to run - either a version in particular or **Always use latest version**.
6. In the **Status** field, there are three or four statuses for each protection mode. Select:
  - **Allow**: SES Evolution does not block malicious actions and does not generate any logs.
  - **Detect only**: As in audit mode, SES Evolution detects malicious actions without blocking them, and generates logs for the administrator. But unlike audit mode, this option stops evaluating the rules that follow, and ignores them.
  - **Block**: SES Evolution blocks malicious actions and generates logs for the administrator.
  - **Block and kill**: SES Evolution blocks malicious actions and shuts down the process that launched the action.
7. In the upper banner in the rule, you can:
  - Select the version of the protection. All versions are kept in databases and remain available in the administration console.
  - Select the [log settings](#) that this rule will send.
  - Specify whether an action must be performed [when a log is sent](#) for this rule.



8. Rules against **WMI persistence**, **Malicious use of certutil**, **Environment discovery** and **Ransomware** each have specific parameters:

<b>WMI Persistence</b>	Compatibility list: in this section, list the consumers that represent legitimate WMI events and which the protection mode must not block.
<b>Protection against malicious use of certutil</b>	Compatibility list: in this section, add the IDs of applications likely to use <i>certutil.exe</i> for legitimate purposes and which the protection mode must not block.
<b>Environment discovery</b>	<ul style="list-style-type: none"> <li>Interval: indicate the interval in seconds (minimum five seconds) between the first command and the last command, and the interval after which discovery operations must be ignored.</li> <li>Compatibility list: in this section, add the IDs of applications allowed to run commands similar to discovery operations and which the protection mode must not block.</li> <li>Sensitivity: select the threshold above which the protection will be triggered.</li> </ul>
<b>Ransomware</b>	<ul style="list-style-type: none"> <li>Compatibility list: here, add the IDs of legitimate encryption applications that the protection mode must not block, such as <i>Stormshield Data Security</i>.</li> <li>Sensitivity: select the threshold above which the protection will be triggered. With a <b>Very low</b> level, the protection mode will be triggered if a ransomware program encrypted at least 20 files within 3 seconds. With a <b>Low</b> level, the threshold will be 15 files, and with the <b>Moderate</b> level, 10 files.</li> </ul> <p>If you enable this anti-ransomware protection mode, ensure that you also <a href="#">Enabling Windows shadow copies</a> so that you can restore lost files if necessary. For further information on restoration, refer to <a href="#">Managing a ransomware attack</a>.</p>

9. Click on **Save** at the top right of the window to save changes.

#### **i** NOTE

If subsequently, you want to change the version of an advanced protection, a deployment is required after the change is made.

## 8.5 Defining access control rules

To protect hosts and resources, SES Evolution makes it possible to control access to the registry base, files, processes, networks, volumes, devices and Wi-Fi access points. To do so, create security rule sets that will allow you to control access to these resources and build a security policy.

For every rule, you can define:

- How all applications behave by default with the resource targeted in the rule,
- Specific behavior for certain applications.

For more information on application behavior, refer to [Using default behavior and specific behavior in rules](#).

The sequence of rule in a policy matters, because as soon as a rule matches a packet, the rules that are placed after this rule may not necessarily be read. The most specific rules must therefore be placed before more general rules. For more information on the sequence of rules, refer to [Organizing rules and rule sets in a policy](#).

Access control rules can be created in the **Policies** menu in the console, under the **Application**, **ACL resources**, **Networks** and **Devices** tabs in rule sets.



Most access control rules function in the same way:

- In the left section of the rule, define the resources that you want the rule to cover,
- In the right section, define the actors in the rule (specific behavior) and grant or deny them access privileges to the targeted resources. The actions that can be performed on various resources are different for each rule type, depending on whether you are in a protection rule set or an audit rule set. In audit rule sets, each action can be set to **Allow** and **Audit**.

In both cases, resources and actors are represented by the identifiers that must be created beforehand or created directly in the rule for some types of rules. For more information, refer to the section [Creating identifiers](#).

Security rules can be disabled at any time. For more information, refer to the section [Disabling security rules](#).

### 8.5.1 Controlling process creation

Malicious programs can strike by creating their own processes or creating them through third-party applications.

SES Evolution enables protection from such attacks.

#### Requirements

An application identifier must be created beforehand for the processes to be protected and for legitimate processes allowed to create other processes. For more information, refer to the section [Creating application identifiers](#).

#### Creating a process creation rule

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Application > Process creation** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (Process creation)**.  
A new row appears.
6. Click on  in the application ID area and select the process(es) to protect.
7. In the **Create** field in the **Default behavior** area, choose what you want the protection rule to do:
  - **Allow** to allow the creation of the process by default,
  - **Block** to block the creation of the process by default,
  - **Request** so that the user will be asked by default before deciding whether to allow or block process creation. For this option to function, an interactive session must be opened on the physical workstation. Remote desktop access sessions, for example, do not allow this function to run.
  - **Block and kill** to block the creation of the process by default, and shut down the process that launched the action.
8. Click on **+ Add a specific behavior** and choose the process(es) that you want to exclude from the default behavior. In the associated **Create** field, choose whether to allow or block process creation, ask the administrator, or block process creation and kill the process that performs the action.



9. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
10. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
11. Click on **Save** at the top right of the window to save changes.

**EXAMPLE**

You can restrict the creation of the *rundll32* process only to Microsoft applications. In this case, select *rundll32* from the processes to be protected, select **Block** as the default behavior, then allow Microsoft applications in the specific behavior.

### 8.5.2 Controlling code execution

This protection type allows or prohibits the loading of executable code from executable files or DLL libraries.

The files or libraries in question are identified in rules by a path, alternate data stream, owner and/or volume type.

**EXAMPLE**

These rules make it possible for example to allow the execution of only binary files installed by the operating system or by administrators of the agent pool, or to prevent dangerous applications from executing certain DLL files.

#### Prerequisites

An application identifier must be created beforehand for applications that are allowed or not allowed to run files or libraries. For more information, refer to the section [Creating application identifiers](#).

#### Creating a code execution rule

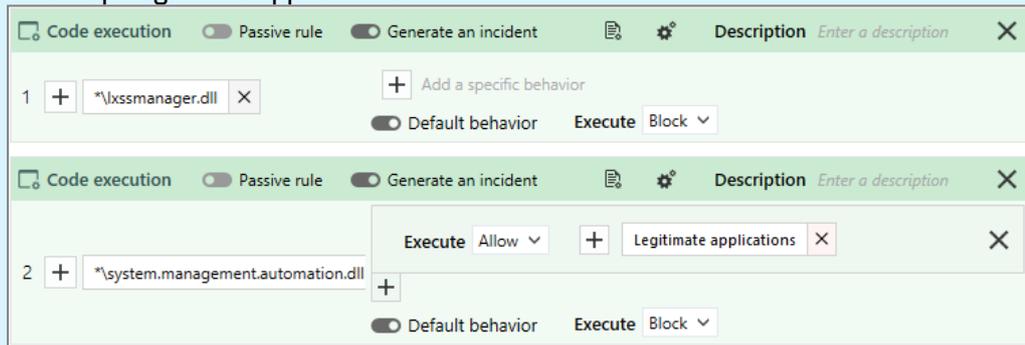
1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Application > Code execution** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (Code execution)**. A new row appears.
6. Click on  in the area on the left to show the window where IDs of restricted access executable or DLL files are created.
7. Enter the ID name.



8. Enter a path, an extension or name of an executable or DLL file. The generic characters "?" and "\*" are allowed in this field.
9. Choose the type of volume on which the file or DLL is located.
10. You can specify the Windows account that owns the files in advanced settings, provided that these files are located on a local volume. You can also manually enter a Security ID (SID) to indicate a personal Windows account. This option makes it possible to allow or prevent the execution of files or DLLs hosted on certain accounts.
11. You can also specify an alternate data stream. A file's alternate data stream contains metadata and makes it possible to find out the origin of the file. For example, by specifying the alternate data stream "zone.identifier", rules can be created for files originating from the Internet. The alternate data stream can also be an attack vector by harboring malicious code. The generic characters "?" and "\*" are allowed in this field.
12. Click on **OK** to close the ID creation window. Scroll over the name of the ID to see a summary of the settings.

#### EXAMPLES

- Prevent `*\xssmanager.dll` from running on all applications.
- Prevent `*\system.management.automation.dll` from running on all applications except legitimate applications.



The screenshot displays two configuration panels for security rules. Each panel includes a header with 'Code execution', 'Passive rule', 'Generate an incident', and a 'Description' field. Rule 1 is for `*\xssmanager.dll` with a default behavior of 'Execute Block'. Rule 2 is for `*\system.management.automation.dll` with a default behavior of 'Execute Block' and an exception for 'Legitimate applications' where the behavior is 'Execute Allow'.

13. In the **Execution** field in the **Default behavior** area, choose what you want the protection rule to do:
  - **Allow** to allow code execution by default,
  - **Block** to block code execution by default,
  - **Block and kill** to block code execution by default, and shut down the process that launched the action.
14. Click on **+ Add a specific behavior** and choose the resource(s) that you want to exclude from the default behavior. In the associated **Execution** field, choose whether code execution must be allowed or blocked. You can also choose to block it and shut down the process that launched the action.



15. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
16. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
17. Click on **Save** at the top right of the window to save changes.

### 8.5.3 Controlling access to processes

Malicious programs can strike by accessing legitimate processes to retrieve sensitive data or inject malicious code into them.

Rules that regulate access to SES Evolution processes enable protection against such attacks without completely blocking inter-process communication, some of which is legitimate.

Access to a process or thread cannot be fully blocked, but you can restrict privileges during this operation.

These rules apply only to applications, not drivers.

#### EXAMPLE

Blocking access to the memory of a process can prevent passwords from being stolen from a browser's memory when it is open.  
Other examples are given at the end of this section.

### Requirements

An application identifier must be created beforehand for the processes to be protected and for legitimate processes allowed to access other processes. For more information, refer to the section [Creating application identifiers](#).

### Creating a rule for access to processes

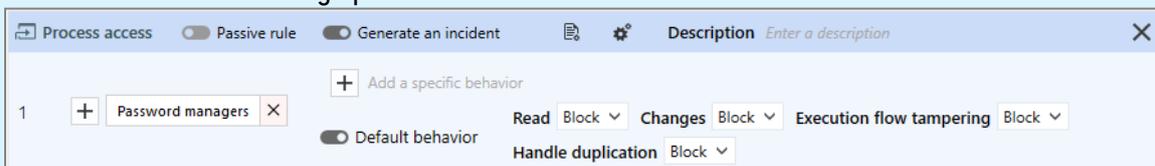
1. Select **Policies** and click on your policy.
2. Select a rule set.
3. Click on the **Application > Process access** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (Process access)**.  
A new row appears.
6. Click on  in the application ID area and select the process(es) to protect.



7. In **Default behavior**, choose the behavior for each action (in audit rule sets, only the **Read** action can be configured):
  - **Read**: choose what the rule must do when it reads the memory of the process.
  - **Changes**: choose what the rule must do when it modifies the memory of the process.
  - **Execution flow tampering**: a program that takes control of a process can modify its execution pointer. Choose what the rule must do when the execution flow of the process is tampered with.
  - **Handle duplication**: choose what the rule must do when a process attempts to duplicate a resource that belongs to another process.**Block and kill** makes it possible to block all actions and shut down the process that launched the action.
8. Click on **+ Add a specific behavior** and choose the process(es) that you want to exclude from the default behavior. Select the behavior for each case.
9. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
10. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
11. Click on **Save** at the top right of the window to save changes.

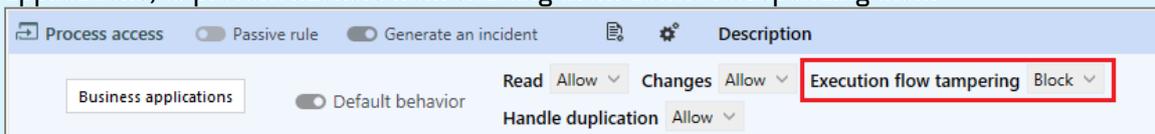
### EXAMPLES

You can block any application from accessing the password manager to prevent hackers from accessing passwords or injecting code into its process. In this case, choose the password manager from the list of processes to be protected and select **Block** for all actions in the default behavior. Do not define any specific behavior.



The screenshot shows a configuration window for a security rule. At the top, there are several toggle switches: 'Process access' (checked), 'Passive rule' (unchecked), and 'Generate an incident' (unchecked). To the right is a 'Description' field with the placeholder text 'Enter a description'. Below this, there is a '+ Add a specific behavior' button. The main area shows a table with one row: '1 | + Password managers | X'. Underneath this row, there are settings for 'Default behavior': 'Read' is set to 'Block', 'Changes' is set to 'Block', 'Execution flow tampering' is set to 'Block', and 'Handle duplication' is set to 'Block'.

You can also block execution flow tampering for major applications such as business applications, to prevent hackers from shutting them down or suspending them.



The screenshot shows a configuration window for a security rule. At the top, there are several toggle switches: 'Process access' (checked), 'Passive rule' (unchecked), and 'Generate an incident' (unchecked). To the right is a 'Description' field with the placeholder text 'Enter a description'. Below this, there is a '+ Add a specific behavior' button. The main area shows a table with one row: 'Business applications | X'. Underneath this row, there are settings for 'Default behavior': 'Read' is set to 'Allow', 'Changes' is set to 'Allow', 'Execution flow tampering' is set to 'Block' (highlighted with a red box), and 'Handle duplication' is set to 'Allow'.



### 8.5.4 Protecting against code injection

Code can be injected into an application to make it run code from another application. SES Evolution makes it possible to protect your applications against the injection of malicious code.

#### EXAMPLE

There are two possible approaches, illustrated as follows:

- Use case 1: No applications are allowed to inject code, except clearly identified legitimate applications (e.g., antivirus, Windows error reporting, etc.). This is the most commonly used approach.
- Use case 2: No applications are allowed to inject code in the password manager.

#### Prerequisites

An application identifier must be created beforehand for every application to be protected and for every application allowed to inject legitimate code. For more information, refer to the section [Creating application identifiers](#).

#### Creating a rule to protect against code injection

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Application > Code injection** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (Code injection)**.  
A new row appears.
6. Click on  in the application ID area and select the application(s) affected by the default behavior.  
For use case 1, do not add any applications since you will be protecting all of them.  
For use case 2, add the password manager.
7. In the **Access** field in the **Default behavior** area, choose what you want the protection rule to do:
  - **Allow** to allow code injection by default,
  - **Block** to block code injection by default,
  - **Block and kill** to block code injection by default, and shut down the process that launched the action.  
For use cases 1 and 2, choose **Block** or **Block and kill** by default.

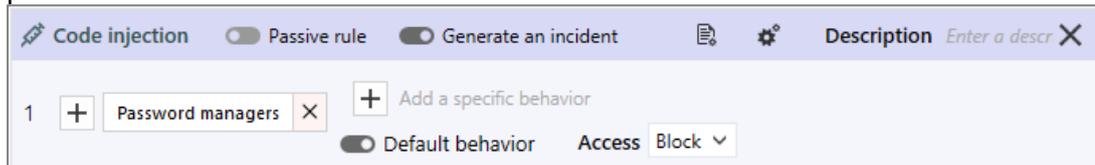


8. Click on **+ Add a specific behavior** and choose the application(s) that you want to exclude from the default behavior.

For use case 1, add the applications that inject legitimate code (e.g., antivirus, Windows error reporting, etc.) and in **Access**, choose **Allow**.



For use case 2, do not add any applications since the password manager will be fully protected.



9. In the upper banner in the rule, you can:
- Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
10. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
11. Click on **Save** at the top right of the window to save changes.

### 8.5.5 Protecting against keyloggers

Keylogging makes it possible for a hacker to capture all of a user's keystrokes in order to steal passwords, confidential data, etc. These are targeted applications.

SES Evolution prevents foreground applications from sending their keystrokes to other applications. However, it can receive its own keystrokes.

For more global protection against any use of the SetWindowsHookEx API, enable protection against application hooking instead. For more information, refer to [Application-defined hooks installation](#) and [Configuring threat protection](#).

#### EXAMPLE

You can use this protection to block keylogging on web browsers, password managers, and the Windows file explorer. Allow them only for legitimate applications such as virtualization and remote control tools.

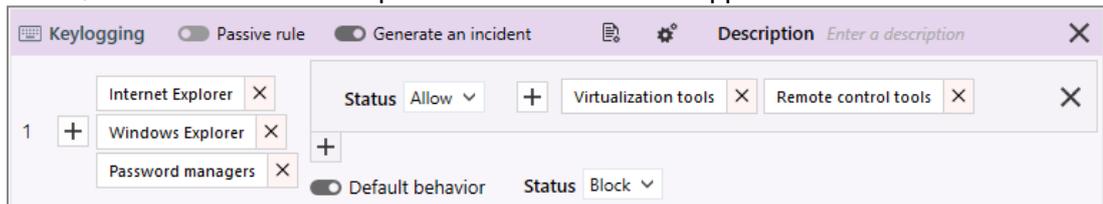
#### Requirements



An application identifier must be created beforehand for every application to be protected and for every application allowed to log keystrokes. For more information, refer to the section [Creating application identifiers](#).

### Creating a rule to protect against keyloggers

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Application > Keylogging** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (Keylogging)**.  
A new row appears.
6. Click on **+** in the application ID area and select the application(s) to protect. Add *Internet Explorer*, *Windows Explorer* and *password manager* for example.
7. In the **Status** field in the **Default behavior** area, choose what you want the protection rule to do:
  - **Allow** to allow keylogging by default.
  - **Block** to block keylogging by default.
  - **Block and kill** to block keylogging and kill the process that attempted to log keystrokes.
8. Click on **+ Add a specific behavior** and choose the application(s) that you want to allow. Add applications that legitimately log keystrokes, e.g., *remote control tools*, and in the **Status**, select **Allow** so that the protection will allow these applications.



9. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
10. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
11. Click on **Save** at the top right of the window to save changes.

### 8.5.6 Controlling access to files

This protection mode makes it possible to control specific applications' access to files. These files are identified in rules by a path, alternate data stream, owner and/or volume type.

**EXAMPLE**

You can protect all your Microsoft Office files and other sensitive files so that they can be modified only by legitimate applications such as Windows Explorer, Office suite, Windows tools, etc. Other applications will be granted read-only access to these files.

**Requirements**

An application identifier must be created beforehand for applications that are allowed to access files and for those that you want to block. For more information, refer to the section [Creating application identifiers](#).

**Creating a file access rule**

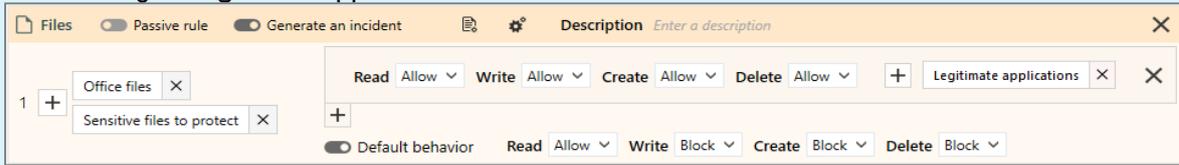
1. Select the **Policies** menu and click on your policy.
  2. Select a rule set.
  3. Click on the **ACL resources > File** tab.
  4. If you are in read-only mode, click on **Edit** in the upper banner.
  5. Click on **Add a rule (Files)**.  
A new row appears.
  6. Click on  in the area on the left to show the window where IDs of restricted access files are created.
  7. Enter the ID name.
  8. Enter a file, path or extension. The generic characters "?" and "\*" are allowed in this field. Full paths beginning with a letter (i.e., *E:\Data\Backup*) are not supported if the **Volume type** is remote or removable.  
Stormshield highly recommends using the [EsaRoots path roots](#) provided in SES Evolution instead of drive letters (i.e., *C:\...*), as these letters may vary from one workstation to another.
- 
- NOTE**
- You can enter a path that contains the letter of a local hard disk or SSD drive in this field. However, if users change the letter of the drive or add one, you must restart the workstation or modify the policy that the agent applies so that the drive can be detected.
9. Choose the type of volume on which the file or file type is located.
  10. You can specify the Windows account that owns the files in advanced settings, provided that these files are located on a local volume. You can also manually enter a Security ID (SID) to indicate a personal Windows account. This option makes it possible to allow or prevent access to files hosted on certain accounts.
  11. You can also specify an alternate data stream. A file's alternate data stream contains metadata and makes it possible to find out the origin of the file. For example, by specifying the alternate data stream "zone.identifier", rules can be created for files originating from the Internet. The alternate data stream can also be an attack vector by harboring malicious code. The generic characters "?" and "\*" are allowed in this field.
  12. Click on **OK** to close the ID creation window. Scroll over the name of the ID to see a summary of the settings.



13. In **Default behavior**, choose the behavior of each action in a protection rule:
  - **Allow** to allow the action by default,
  - **Block** to block the action by default,
  - **Block and kill** to block the action by default, and shut down the process that launched the action.
14. Click on + **Add a specific behavior** and choose the resource(s) that you want to exclude from the default behavior. Select the behavior for each case.

#### EXAMPLE

Block the ability to modify or delete Office files and other sensitive files by default. Allow these actions only for legitimate applications.



The screenshot shows a configuration window for a 'Files' rule. At the top, there are checkboxes for 'Passive rule' (checked) and 'Generate an incident' (checked). A 'Description' field contains the text 'Enter a description'. Below this, there are two rows of configuration. The first row is for 'Office files' and 'Sensitive files to protect', with actions set to 'Allow' for Read, Write, Create, and Delete. The second row is for 'Default behavior', with actions set to 'Block' for Read, Write, Create, and Delete. A '+ Legitimate applications' button is also visible.

15. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked. Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
16. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
17. Click on **Save** at the top right of the window to save changes.

### 8.5.7 Controlling access to the registry base

This protection type makes it possible to control specific applications' access to keys and values in the registry base. As such, access to particularly sensitive keys can be protected, as they are a prime target of malicious programs.

#### EXAMPLE

To prevent a malware program from disabling Windows security tools via the registry base, you can protect their registry keys so that they can only be modified by legitimate Windows applications.

Every registry path can be a full path or contain the generic characters "?" and "\*".

#### Requirements

Application identifiers must be created beforehand for applications that are allowed to access registry and for those that you want to block. For more information, refer to the section [Creating application identifiers](#).



## Creating a registry access rule

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **ACL resources > Registry** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on  in the area on the left to show the window in which registry key IDs are created.
6. Enter the ID name.
7. Enter the path to the key.



### TIP

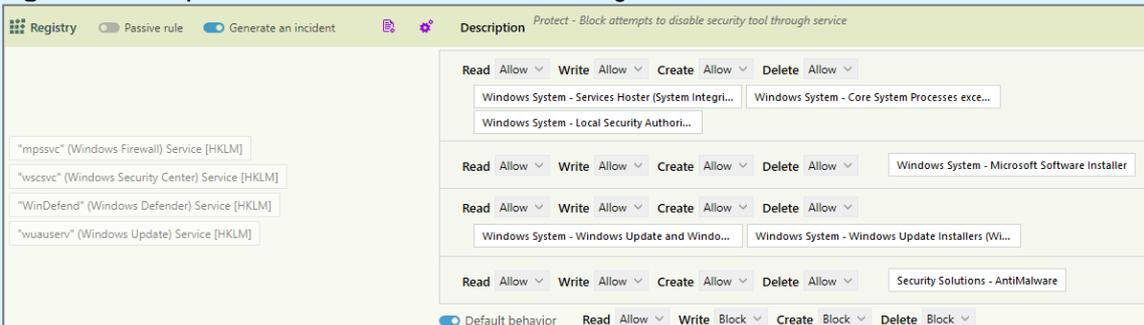
The path to the key can be copied from the registry base and pasted in the **Key** field.

8. Choose where to apply these rules:
  - **Key and Values.** These rules cater to the most frequent protection needs. If you do not enter a value, all the values of the key will be protected, including the key itself. If you enter a single value, the other values of the key will not be protected.
  - **Key:** These rules provide more advanced protection. Only the key is protected, but its values are not.
  - **Values:** These rules also provide more advanced protection. Only the values are protected, but the rule does not protect the key itself. Even if the values of a key are protected from deletion, if the deletion of the key itself is allowed, the values may be deleted together with the key.
9. Click on **OK** to close the ID creation window. Scroll over the name of the ID to see a summary of the settings.
10. In **Default behavior**, choose the behavior of each action in a protection rule:
  - **Allow** to allow the action by default,
  - **Block** to block the action by default,
  - **Block and kill** to block the action by default, and shut down the process that launched the action.
11. Click on **+ Add a specific behavior** and choose the resource(s) that you want to exclude from the default behavior. Select the behavior for each case.



### EXAMPLE

By default, block access to the registry keys of Windows security tools such as Windows Defender, Windows Firewall, etc. Allow only legitimate processes to perform these operations, e.g., Windows update and software installer, security solutions, etc.



Key	Read	Write	Create	Delete
"mpssvc" (Windows Firewall) Service [HKLM]	Allow	Allow	Allow	Allow
"wscsvc" (Windows Security Center) Service [HKLM]	Allow	Allow	Allow	Allow
"WinDefend" (Windows Defender) Service [HKLM]	Allow	Allow	Allow	Allow
"wuauaserv" (Windows Update) Service [HKLM]	Allow	Allow	Allow	Allow
Windows System - Services Host (System Integri...	Allow	Allow	Allow	Allow
Windows System - Local Security Authori...	Allow	Allow	Allow	Allow
Windows System - Microsoft Software Installer	Allow	Allow	Allow	Allow
Windows System - Windows Update and Windo...	Allow	Allow	Allow	Allow
Windows System - Windows Update Installers (Wl...	Allow	Allow	Allow	Allow
Security Solutions - AntiMalware	Allow	Allow	Allow	Allow



12. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
13. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
14. Click on **Save** at the top right of the window to save changes.

### 8.5.8 Controlling access to the volume

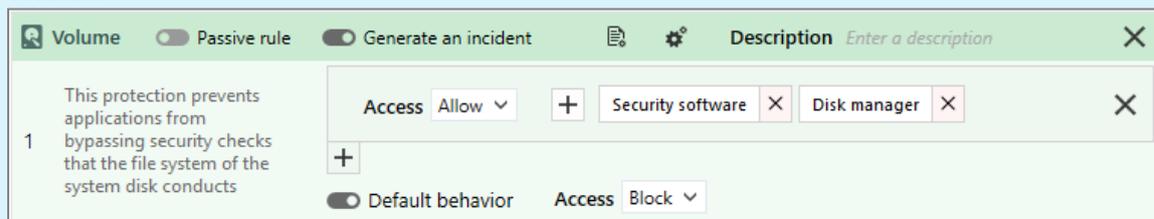
This protection prevents applications from bypassing security checks that the file system of the system disk conducts, and makes it possible to access the raw volume directly.

In the rules, you can allow or prohibit access to the raw volume by the applications of your choice.

A single rule may suffice in whitelist mode to allow access to certain applications and block it for all other applications. You must create several rules if you want to select different **log settings**. In this case, define “Block” as the default behavior in only the last rule.

#### EXAMPLE

Example of a rule prohibiting all applications, except legitimate applications, from accessing the volume.



#### Prerequisites

An application identifier must be created beforehand for applications that are allowed or not allowed to access the raw volume. For more information, refer to the section **Creating application identifiers**.

#### Creating a volume access rule

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **ACL resources > Volume** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (Volume)**. A new row appears.



6. In the **Access** field in the **Default behavior** area of a protection rule, select the behavior that applies to all applications that may access the raw volume:
  - **Allow** to allow access to the volume by default,
  - **Block** to block access to the volume by default,
  - **Block and kill** to block access to the volume by default, and shut down the process that launched the action.
7. Click on **+ Add a specific behavior** and choose the resource(s) that you want to exclude from the default behavior. In the associated **Access** field, choose whether access to the volume must be allowed or blocked. You can also choose to block it and shut down the process that launched the action.
8. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
9. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
10. Click on **Save** at the top right of the window to save changes.

### 8.5.9 Controlling network access

This protection mode makes it possible to control specific applications' incoming or outgoing access to networks.

Access can be filtered by:

- Network events such as "bind", "accept" (server rule) and "connect" (client rule),
- TCP and UDP protocols,
- Specific ports,
- Specific IPv4 or IPv6 addresses.

Communications between the SES Evolution server and agents do not need to be explicitly opened as the agent's self-protection mechanism guarantees that no security rules can block communications.



#### EXAMPLE

Network rules make it possible to:

- Protect a server by controlling access to the host,
- Force users of a service in the company to use a specific application to access a given network resource.

#### Prerequisites

The following must be created beforehand:



- Application IDs for allowed applications or applications that cannot access the network. For more information, refer to the section [Creating application identifiers](#).
- Network IDs for the IP addresses that you want to protect. For more information, refer to the section [Creating network identifiers](#).

### Creating a network access rule

There are two types of rules; client rules and server rules.

- As part of a rule set that applies to workstations, client rules allow or do not allow applications to connect to remote resources (**Remote** field) by controlling the “connect” network event. They also make it possible to cater to specific subnets for example (**Local** field).
- As part of a rule set that applies to servers, server rules allow or do not allow applications to open ports and accept incoming connections (**Local** field) by controlling the “bind” and “accept” network events. They also make it possible to specify the source of connections (**Remote** field).

To create a network access rule:

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Networks > firewall** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Choose whether to add a client network rule or a server network rule by clicking on one of the **Add a rule** buttons. A new row appears.
6. Choose the network IDs of the resources you want to protect in the left side of the rule:
  - **Include (Local)**: local resource impacted by the rule. E.g., if the workstation has several network cards, you can specify which card is impacted.
  - **Exclude (Local)**: local resource excluded from the rule.
  - **Include (Remote)**: remote resource impacted by the rule. E.g., the internet.
  - **Exclude (Remote)**: remote resource excluded from the rule.
7. In the **Ports** field, indicate the ports affected by the network rule. These ports are the destination ports for client rules and local ports for server rules.
  - To add several ports at one go, separate them with commas. Example: 8080.8081.
  - To add a port range, separate the first value and last value with a dash. Example: 80-90
  - Leave the field empty to specify that all ports are concerned.
8. Choose the TCP or UDP transport protocol, or both.



9. In **Default behavior**, choose the behavior of each Connect, Accept or Bind network event:

- **Accept** (for server rules): allows or does not allow specified applications to receive incoming connections on the network resource(s) indicated,
- **Bind** (for server rules): allows or does not allow specified applications to open connections on the network resource(s) indicated,
- **Connect** (for client rules): allows or does not allow specified applications to connect to the network resource(s) indicated.

Protection rules can behave as follows:

- **Allow** to allow the action by default,
- **Block** to block the action by default,
- **Block and kill** to block the action by default, and shut down the process that launched the action.

10. Click on + **Add a specific behavior** and choose the application identifiers of resource(s) that you want to exclude from the default behavior.

#### EXAMPLE

This is the client rule that can **block** connections from the network card on the unprotected network card to the internet and the protected network over ports 80, 443 and 8080 and TCP. Only the web server specified in the protected network can be accessed.

Include (Local)	Include (Remote)	Ports	Protocol
+ Unprotected network X	+ Internet X Protected network X	80,443,8080	TCP v
+ Add a specific behavior			
Exclude (Local)	Exclude (Remote)		
+ No IDs selected	+ Web server on VM X		

Default behavior:  Default behavior **Connect** Block v

11. In the upper banner in the rule, you can:

- Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
- Indicate whether the rule must **generate an incident** when it is applied.
- Select the **log settings** that this rule will send.
- Specify whether an action must be performed **when a log is sent** for this rule.
- Enter a description to explain what this rule aims to achieve.

12. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.

13. Click on **Save** at the top right of the window to save changes.

### 8.5.10 Controlling Wi-Fi access

This protection mode controls how mobile workstations access Wi-Fi networks by:

- Allowing or preventing the use of Wi-Fi connections and defining a whitelist of Wi-Fi access points in the form of rules, based on the SSID of the Wi-Fi network and/or MAC address of the Wi-Fi access point,



- Allowing or preventing the use of ad hoc Wi-Fi connections,
- Forcing the use of secure authentication protocols.

Wi-Fi connections are disabled by default in protection rule sets. If there are several protection rule sets in your security policy, ensure that you enable the policy only for the set(s) in which you want to configure Wi-Fi access, and arrange your rule sets in the right order in the policy. If you enable and allow Wi-Fi access in a rule set near the top of the policy, this rule may overload and cancel the effect of the Wi-Fi access configuration in the rule sets that follow.

Depending on certain events, the block policy for Wi-Fi connections inside or outside a perimeter can be enabled using conditional policies. For more information, refer to the section [Assigning a security policy to agents](#).

### Allowing or blocking Wi-Fi connections

To allow or block the Wi-Fi connection feature on workstations:

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Networks > Wi-Fi** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. The first **Wi-Fi connection** rule cannot be deleted, and is disabled by default. This rule makes it possible to allow or block the use of Wi-Fi network cards on workstations and appears

only in protection rule sets. Enable the rule by clicking on  on the left, then allow or block access.



If you disable or block Wi-Fi access and your policy contains rules regarding access to Wi-Fi networks, these rules will not be scanned.

For more granular management of access to Wi-Fi networks, allow Wi-Fi connections and create **Wi-Fi network** rules.

### Controlling access to Wi-Fi networks

After you allow the Wi-Fi connection in the first rule of a protection rule set, create rules to block or allow access to certain Wi-Fi networks, or create rules to audit access to Wi-Fi in an audit rule set. By default, if no rules are defined, access to all Wi-Fi networks is allowed and rules can therefore be used to block access to networks in blacklist mode. If you prefer to operate in whitelist mode, i.e., explicitly allowing access to certain networks, create a rule that blocks access to all networks other than those allowed, and place this rule at the end.

To create Wi-Fi network rules:

1. In the **Wi-Fi** tab, click on **Add a rule (Wi-Fi network)**. A new row appears.
2. In the left side of the rule, click on  to add a Wi-Fi network.



3. Enter the following information:
  - Network name,
  - SSID (Service Set Identifier). Generic characters can be used (e.g., *stormshield\**) and are case-insensitive,
  - MAC address of the access point(s) in hexadecimal. To indicate several, click on the + icon,
  - WiFi connection mode,
  - Authentication type, to secure communications with the Wi-Fi access point(s).
4. In the **Connection** field, select **Allow** or **Block**.
5. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
6. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
7. Click on **Save** at the top right of the window to save changes.

### 8.5.11 Allowing temporary web access

The temporary web access mechanism allows a user to bypass **Network** protection rules in the policy, with specific applications and for a duration that you define.

#### EXAMPLE

Temporary web access makes it possible to manage mobile users who want to log in to their corporate network via a VPN tunnel from unsecure networks. When these workstations are outside the corporate network, the security policy that applies may prevent communications over the network. Temporary web access therefore allows them to temporarily unblock the VPN client and browser upon users' request, so that the client can log in to the corporate network and switch to the internal security policy. Users will then be able to use their workstations normally.

Temporary access only needs to be allowed on one of the policies assigned to an agent group for this feature to be available on the agent side.

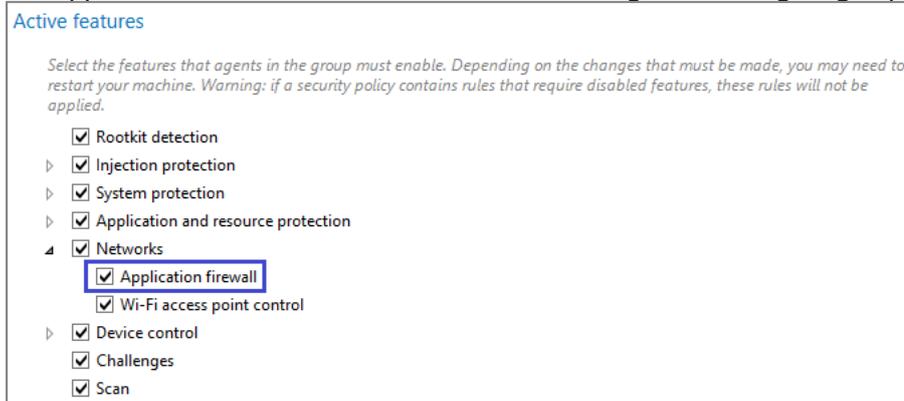
The temporary web access feature is available only in protection rule sets.

This feature is disabled by default. If there are several protection rule sets in your security policy, ensure that you enable the policy only for the set(s) in which you want to configure temporary web access, and arrange your rule sets in the right order in the policy. If you enable and allow temporary web access in a rule set near the top of the policy, this rule may overload and cancel the effect of the temporary web access configuration in the rule sets that follow.



## Prerequisites

- Application identifiers must be created beforehand for applications allowed to access unrestricted networks when temporary web access is enabled. For more information, refer to the section [Creating application identifiers](#).
- The application firewall must be enabled in the configuration of agent groups:



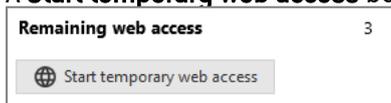
## Allowing temporary web access

1. Select the **Policies** menu and click on a policy.
2. Select a protection rule set.
3. Click on the **Networks > Temporary web access** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Enable the feature.
6. Allow temporary web access.
7. Select one or several application identifiers allowed to access the web. These applications will be allowed to connect to all IP addresses over all ports.
8. Choose the maximum duration of web access.
9. Choose the number of access authorizations. The counter will be reset when the user restarts the workstation.
10. If necessary, create a shortcut on the user's desktop. Users have several ways to enable temporary access on their workstations. For more information, see the next section.
11. Click on **Save** at the top right of the window to save changes.

## Accessing the web temporarily from the agent

The SES Evolution agent provides the user with several ways to enable temporary web access:

- A **Start temporary web access** button in the  tab of the agent's interface,



- A pop-up menu that appears by right-clicking on the agent's  icon in the taskbar.
- A desktop icon, if the feature is enabled in the temporary web access settings,
- The command `/GrantWebAccess` to be inserted into a script, for example.

When the user's temporary web access is in progress, a banner at the bottom of the agent's interface indicates the remaining time.

The user can stop temporary access:



- via the agent's interface,
- via the pop-up menu of the agent's icon in the taskbar.

### 8.5.12 Controlling access to devices

SES Evolution allows you to control access to all types of devices that can be connected to users' workstations.

[Controlling access to general devices](#)

[Controlling access to Bluetooth devices](#)

[Controlling access to USB devices](#)

[Controlling storage on USB devices](#)

[Controlling application execution from removable devices](#)

## 8.6 Defining rules for external events

External event audit rules allow you to collect certain events that occur on workstations, but which did not originate from standard SES Evolution components:

- Windows events,
- Events that the OSSEC analysis engine reported.

When the rule is enabled, collected external events will appear as logs in the **Agent logs** panel of the administration console and on the SES Evolution agent interface.

### 8.6.1 Forwarding Windows events in SES Evolution

The forwarding of Windows events consists of indicating in a rule which logs and which Windows events SES Evolution must collect and display.

#### EXAMPLE

You can choose to forward events relating to user connections on workstations, to monitor who logged in and when.

Create an event forwarding rule:

1. Select **Policies** and click on your policy.
2. Select an audit rule set.
3. Click on **External events > Event forwarding**.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (Event forwarding)**.  
A new row appears.



6. Click on + **Monitored events** and provide the following information:

**Log name**

Enter the name of the Windows log, e.g., *Security*, *Microsoft-Windows-Windows Defender/Operational*. To find out the name of a log, look up its properties in the Windows Event Viewer.

Logs that are not enabled in Windows can still be monitored. In this case, SES Evolution will automatically enable it. However, keep in mind that if there are too many events in this log, it may impact the performance of Windows.

If you enter a filter request in XML in the next field, the **Log name** is not completely necessary.

**Filter request**

If needed, enter a filter request to collect only some events in the log. To obtain a request:

1. Open the Windows Event Viewer.
2. Right-click on the log of your choice > **Filter the current log**.
3. In the **Filter** tab, select your filtering options.
4. Copy the contents of the **XML** tab and paste it in the **Filter request** field in the window of the event forwarding rule.

You can also manually enter a request in XPath. Enter for example the log name *Security* and the filter request `*[System[(EventID=4625)]]` to retrieve all events with the ID 4625 in the Security log.

**Description**

Enter a description if necessary.

You can also import a custom Windows events view, which will automatically fill in all fields with the desired values. To do so, go to the Windows Event Viewer and export the desired custom view in XML, and import it by clicking on the arrow on the right .

 **EXAMPLE**

Event forwarding   Description *Enter a description* 

+ Monitored events  

Enabled	Log name	Filter request	Description
<input checked="" type="checkbox"/>	System	Select : *[System[(EventID >= 350 and EventID <= 381)]]] Suppress : *[System[(EventID=376)]]	

Here, the event IDs 350 to 381 in the System log will be forwarded, except for ID 376.



7. In the upper banner in the rule, you can:
- Select the **log settings** that this rule will send. The severity of a log depends on its severity in Windows. Both severity levels are mapped as follows:

Windows event type	SES Evolution log
Audit	Information
Critical	Critical
Error	Error
Warning	Warning
Information	Information
Verbose	Diagnosis

- Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
8. Add other event forwarding rules if necessary.
9. Click on **Save** at the top right of the window to save changes.
- SES Evolution makes up for the Windows events that were generated when it was inactive, such as when the machine is restarting.

### 8.6.2 Importing OSSEC security rules

OSSEC is a host-based intrusion detection system, or a HIDS. It includes a monitoring and log analysis module. For more information, visit the [OSSEC](#) website.

SES Evolution is equipped with a similar analysis engine, which can monitor the following in real time:

- Log files from third-party applications,
- Windows events in event logs.

The aim of this type of monitoring is to extract information about SES Evolution agents in events and log lines, and to classify such information to identify abnormal or suspicious activity and generate alarms.



#### EXAMPLE

You can monitor password-based authentication attempts on a FileZilla server from the same IP address, and raise alarms when there are multiple failures followed by a successful authentication.



#### NOTE

OSSEC analysis options will not be covered in detail in this document. Please refer to the relevant OSSEC documentation.

The Stormshield analysis engine and OSSEC differ in several ways:

- OSSEC collects logs on agents and analyzes them on the server while SES Evolution analyzes each agent. Events of the same nature occurring on separate agents therefore cannot be correlated.



- Unlike OSSEC, SES Evolution does not allow decoders and custom rules to be compiled. However, the rule *is\_simple\_http\_request*, which OSSEC provides as an example but uses in standard configurations, is supported in SES Evolution.

For further information regarding all the OSSEC functions that SES Evolution supports, refer to [Supported OSSEC functions](#)

### Configuring OSSEC rules

Configuring an OSSEC rule consists of indicating which log files and/or Windows events must be monitored and which decoder file and OSSEC rule to apply to them.

1. In an audit rule set, click on **External events > OSSEC rules**.
2. Click on **Add a rule (OSSEC)**.
3. If you want to monitor a log file from a third-party application, click on + **Monitored file** and provide the following information:

#### Path

Enter the file path. You can use:

- Environment variables, only in the folder path up to the last \ of the path,
- File name specifications in *strftime* format only at the **end** of the path, after the last \ of the path.



#### EXAMPLE

If you enter the path `%PROGRAMFILES%\Filezilla Server\Logsfzs-%Y-%m-%d.log`, SES Evolution will analyze any log line added to any file with a name in the form `fzs-YYYY-MM-DD.log`.

#### Encoding

Choose the type of encoding expected in the file. This depends on the application that generates logs. The supported encoding formats are:

- ANSI code pages, depending on the system locale,
- UTF8,
- UTF-16LE.

#### Description

Enter a description (optional). It will not impact the operation of the analysis in any way.



4. If you want to monitor a log or certain Windows events, click on + **Monitored event** and provide the following information:  
**Log name**  
Enter the name of the Windows log, e.g., *System*, *Microsoft-Windows-Windows Defender/Operational*. To find out the name of a log, look up its properties in the Windows Event Viewer.

**i NOTE**

Logs that are not enabled in Windows can still be monitored. SES Evolution will automatically enable it. However, this operation may affect the performance of the host.

**Filter request**

If needed, enter a filter request to monitor only some events in the log. To obtain a request:

- a. Open the Windows Event Viewer.
- b. Right-click on the log of your choice > **Filter the current log**.
- c. In the **Filter** tab, select your filtering options.
- d. Copy the contents of the **XML** tab and paste it in the **Filter request** field in the OSSEC rule window.

**Description**

Enter a description if necessary. It will not impact the operation of the analysis in any way.

5. Click on + **OSSEC decoder** and choose your *etc/decoder.xml* file. With an OSSEC decoder file, you can indicate which types of logs need to be analyzed and which values to extract. For more information, refer to OSSEC documentation  
If you are importing several decoder files, ensure that they are in the right sequence, using the arrows on the left.
6. Click on + **OSSEC rule sets** and choose your *etc-rules/\*.xml* files. Ensure that they are in the right sequence. The *rules\_config.xml* file is mandatory and must be the first. It contains OSSEC rules 1 to 7 which must be the first rules declared.  
You can also choose an OSSEC *.conf* file, in which case you must also specify the folder containing the rule files. Rules will be automatically imported in the same order.
7. Click on **Check the rule** to check the consistency of your OSSEC analysis configuration. The following aspects in particular will be checked:
  - Validation of regular expressions found in the decoder files and rule files,
  - Presence of decoders,
  - Presence of rules 1 to 7,
  - Validity of decoder files and rule files,
  - Usage of OSSEC options that are not supported and therefore ignored.The result of the verification shows errors, warnings and information messages:
  - If errors are found, they will prevent the OSSEC configuration from being validated,
  - Warnings will not prevent the configuration from being applied but may impact the evaluation of rules.
  - Information messages indicate potential issues in the configuration and how they were resolved.

By default, the OSSEC analysis engine in SES Evolution retrieves Windows events generated when it is not enabled, e.g., when the machine is starting up. However, it does not retrieve log files.



### Viewing logs generated by OSSEC

The external event logs that the SES Evolution analysis engine generates can be read like other SES Evolution logs in the administration console and on the agent. They are visible only to host administrators on the agent. For more information, refer to [Viewing and managing agent logs in the administration console](#) and [Viewing logs in the agents' interface](#).

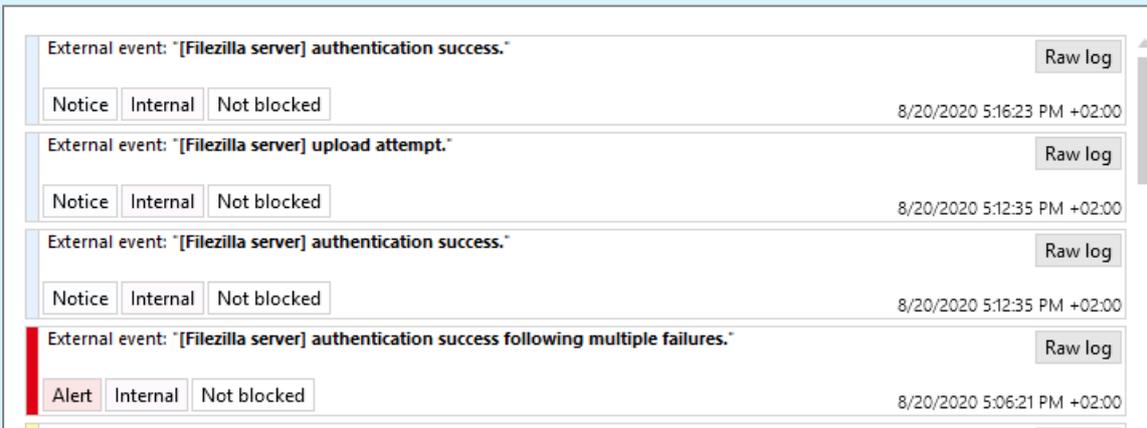
The logs contain all the fields collected during OSSEC decoding.

The severity of the log depends on the level of the OSSEC rule that specified the log:

Log level in the OSSEC rule	SES Evolution log severity
0	No log
1	Diagnosis
2	Information
3, 4, 5	Notice
6, 7, 8 and 9	Warning
10	Error
11, 12	Critical
13, 14	Alert
15	Emergency

#### EXAMPLE

The image below shows Filezilla logs extracted by the analysis engine and reported in the agent's interface. It detects password-based authentication attempts on a FileZilla server from the same IP address, and raises alarms when there are multiple failures followed by a successful authentication.



## 8.7 Disabling security rules

All security rules can be disabled individually. Once a rule is disabled, the SES Evolution agent ignores it, as it is no longer part of the security policy.

Disable a rule if you want to stop using it temporarily without deleting it, or if you want to test the behavior of the agent without this rule.



Some types of rules are disabled by default when a new rule set is created. If such rules were enabled in several rule sets, they may overload and cancel the effect of the configuration due to the order of the sets. This is the case for threats, Wi-Fi connections, temporary web access and general devices.

To disable a rule:

1. Click on **Edit** in the upper banner.
2. To the left of each rule, switch off . The rule will be grayed out.

Disabling a rule is different from enabling **Passive rule** mode. For more information on passive rules, refer to the section [Understanding the difference between protection rule sets and audit rule sets](#).

## 8.8 Configuring log management

The agent generates logs whenever user actions are blocked or when the agent conducts an audit. Depending on their severity, these logs can be sent to three different destinations. The various settings of this process can be defined in the configuration of agent groups. For further information, refer to the section [Sending logs generated by agents](#).

In addition, for every security rule that you create, you can specify:

- The severity of the logged events,
- The destinations of these logs.

### NOTE

In any case, even if no destination has been configured for the logs in question, they can be found in the detailed context of incidents when an attack occurs. For further information on incident analysis, refer to [Understanding the types of contexts](#).

### 8.8.1 Recommendations

The severity of events logged by a rule can be adjusted in the following cases:

- If you have highly sensitive applications, raise the severity of their logs. *Emergency* and *Alert* logs take priority over other logs sent to agent handlers, and are sent more frequently (every 30 seconds by default, every hour for other log levels),
- If a security rule generates too many irrelevant logs, lower their severity.

### 8.8.2 Configuring logs in a security rule

1. Select your security policy in the **Policies** tab of the administration console, then select your set of rules. The main page of the rule set appears.
2. Click on the tab of the rule that you want to modify.
3. If you are in read-only mode, click on **Edit** in the upper banner.
1. In the banner at the top of the rule, click on . The **Log settings** window appears.
4. In the **Log severity** field, assign the level to logs generated by this rule.



- In the **Show on agent** field, choose whether logs from this rule can be seen on the agent:
  - Inherit**: the overall behavior defined for the agent group applies. In the example above, logs can be seen on the agent because this is the case for logs of all levels from *Notice* upwards.
  - Never**: logs can never be seen on the agent regardless of the overall behavior.
  - Always**: logs can always be seen on the agent regardless of the overall behavior.
- In the **Show on console** field, choose whether logs from this rule can be seen on the administration console.
- In the **Send to Syslog** field, choose whether to send logs from this rule to the Syslog server if one has been configured. For more information, see section
- Click on **Confirm**.
- Save the changes made to the rule.

## 8.9 Configuring actions triggered by rules

When a protection rule blocks an operation performed on an SES Evolution agent, it will be logged, and you can **determine the severity and destination** of the log.

The generation of this log can trigger other actions if you want it to. There are two types of action:

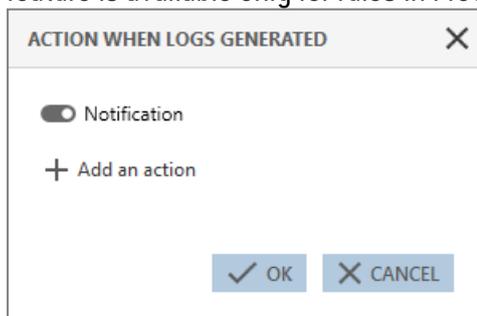
- Show a notification on the agent. This notification will appear at the bottom right of the screen, indicating that a prohibited action was blocked by a protection rule.
- Run custom scripts.



### EXAMPLE

This feature may be useful in triggering an antivirus analysis the moment the incident is logged, or it can move a malicious file to a specific folder.

- Select your security policy in the **Policies** tab, then select the set of rules. The main page of the rule set appears.
- Click on the tab of the rule that you want to modify.
- If you are in read-only mode, click on **Edit** in the upper banner.
- In the banner at the top of the rule, click on . The window **Action when logs generated** appears.
- Enable a notification on the agent, if you wish to, for every time this rule triggers a log. This feature is available only for rules in Protection mode.



- If you wish to run a script whenever this rule generates a log, click on **Add an action**.
- Enter a name for the action in the **Run custom script** window.



- To the right of the **Script** field, click on + to add the script to run.
- In the **Arguments** field, specify the arguments to add when the script is run.
- In the **Run in** list, choose **Local service** because this is an account with restricted privileges. Do not choose **Interactive session** or **System** accounts unless absolutely necessary.

Do note that scripts cannot be run during interactive sessions on a server with several remotely connected users.

- Click on **Confirm**.

All scripts that were declared in SES Evolution appear in the **Script** list. Select an existing script and click on  to view it or  to import a new version of the script.

## 8.10 Assigning a security policy to agents

The Stormshield Default Policy is applied by default to agent groups, but customized security policies can also be assigned to agent groups.

- Select the **Agents** menu.
- Select an agent group from the left panel.
- In the upper banner, click on **Edit**.
- In an agent group's **Configuration** tab, go to the **Policies** section.
- Choose the security policy that you want to apply to all agents in the group from the **Policy** drop-down list.  
For further information, refer to the section [Creating and configuring agent groups](#).
- In the upper banner, click on **Save**.
- To deploy the policy on all agents in the group so that they apply this policy, go to the **Environment** menu and click on **Deploy**.

## 8.11 Importing and exporting policies and rule sets

Full policies or only rule sets can be exported to a *.cab* file that contains *.json* files. The *.cab* file can then be re-imported later. This makes it possible to:

- Transfer a security policy from a pre-production environment to a production environment,
- Transfer a policy or rule set to SES Evolution's technical support to make it easier to debug issues.

When you export a policy or rule set, you export the version selected in the right side of the panel, represented by the  icon. When you import a custom policy or rule set that already exists, its version number will be incremented each time.

For further information on how to manage versions of policies and rule sets, refer to the section [Managing versions of a policy or a rule set](#).

### 8.11.1 Exporting all security policies in the list

- In **Policy**, click on **Export-Export all** at the top of the panel.
- Select the folder to which you want to export the file.  
The latest version of each policy will be exported in the form of an individual file named *policy\_name.cab*.



### 8.11.2 Exporting one or several security policies

1. Select the policy(ies) to export in **Policies**.
2. By default, the latest version of a policy will be exported. If you wish to export another version, select it in the right column of the policy's general panel.
3. Click on **Export-Export the selection** and choose the folder to which you want to export the file.  
Each policy will be exported in the form of an individual file named *policy\_name.cab*.

### 8.11.3 Importing one or several security policies

- To import a single policy or several policies at one go, select **Policies** and click on **Import** at the top of the panel.  
Importing an existing policy will automatically create a new version of this policy, unless it is a built-in policy.

### 8.11.4 Exporting rule sets

1. Double-click on the policy in **Policies**, then select a set of rules.
2. By default, the latest version of rule set will be exported. If you wish to export another version, select it in the right column.
3. Click on **Export** and choose the name of the file and the folder to which you want to export the file.

### 8.11.5 Exporting a selection of shared rule sets

1. In **Policies**, click on **View shared rule sets** at the top on the right.
2. Select the rule sets that you want to export, and/or filter the list of rule sets by using the search field at the top right side.
3. Click on **Export-Export all** to export all the rule sets shown in the list, or **Exporter-Export the selection** if you have selected only a few rule sets.
4. Select the folder to which you want to export the rule sets.  
Each rule set will be exported in the form of an individual file named *set\_name.cab*.

You cannot export several private rule sets at the same time.

### 8.11.6 Importing rule sets

1. Double-click on the policy of your choice in **Policies**.
2. In the general panel of the policy, click on **Import** and choose the *.cab* file of the rule set(s) that you want to import.  
Importing an existing rule set will automatically create a new version of this set.  
If it is a built-in rule set, it will create a new version only if it does not already exist.



## 9. Deploying the SES Evolution environment

To apply the configuration of agent groups, security policies and new software versions of the agent to your pool of agents, the environment must be deployed.

Doing so will generate for each agent group the information to send to agents. Configuration and policy packages are generated and stored in databases. Agents log in regularly to their agent handlers to update their statuses. The agent handler then detects updates to apply to agents when they become available.

Agents connect to their handlers every 60 seconds by default. This means that it takes less than a minute to apply a new deployment. This duration can be modified in the configuration of agent groups using the **Agent status update** setting. For further information, refer to the section [Sending logs generated by agents](#).

The environment must be deployed again every time you make changes in the administration console to the following items and you wish to apply them to the pool:

- Policies and rule sets,
- Agent group configuration,
- Agent handler configuration,
- Configuration of a USB key's trustworthiness.

Ensure that you hold the **Environment-Deploy** privilege to perform this action.

To deploy the environment on agents in the pool:

1. Change one or several of the configuration items mentioned above.  
An orange dot appears on the right next to the **Environment** menu, meaning that new elements must be deployed in order to be operational.
2. Select the **Environment** menu, and click on **Deploy**.  
The orange dot disappears and the **Deploy** button turns gray until the next time the configuration is edited.

If the environment cannot be deployed, the interface shows a message providing the reason or the actions that must be performed before it can be deployed.

The environment can be deployed from the console only on agents connected to agent handlers. To apply configuration or software updates to agents that are not connected to agent handlers, refer to the section [Updating agents](#).



## 10. Managing devices

SES Evolution allows you to control access to all types of devices that can be connected to users' workstations, based on their type, trustworthiness, content, etc.

The following table sets out the list of protections that apply to each device type, and the security rules that allow them to be configured.

Device	I'd like to:	I need to use:
USB	Filter the use of some types of USB devices based on their characteristics, e.g., class, vendor, serial number, etc. <b>Example:</b> Allow only wireless USB mice issued by the organization, or prohibit the connection of any USB key.	The access control rules for USB devices in the <b>Policies</b> menu, <a href="#">Devices &gt; USB</a> rules.
	Block access to any unknown device that has never been monitored by a decontamination station.	<ul style="list-style-type: none"> <li>The configuration of agent groups in <b>Agents &gt; Configuration &gt; Trusted devices</b>.</li> <li>The control rules for storing data on USB devices in the <b>Policies</b> menu, <a href="#">Devices &gt; USB storage</a> rules.</li> <li>The control panel for trusted USB devices in the <b>Devices</b> menu.</li> </ul>
	Filter access to data on a USB mass storage device. <b>Example:</b> Allow access only to office files.	<ul style="list-style-type: none"> <li>The access control rules for files in the <b>Policies</b> menu, <a href="#">ACL resources &gt; File</a> rules. Select the <b>Removable</b> option in the identifier's volume type.</li> <li>- or -</li> <li>The control rules for storing data on USB devices in the <b>Policies</b> menu, <a href="#">Devices &gt; USB storage</a> rules.</li> </ul>
	Filter the execution of an application from a removable mass storage device. <b>Example:</b> Allow only a specific software program from the IT department to run.	<ul style="list-style-type: none"> <li>The application identifiers in the <b>Policies</b> menu, <a href="#">Identifiers &gt; Application identifiers</a> rules. Select the <b>Removable</b> option in the volume type.</li> <li>- or -</li> <li>The control rules for storing data on USB devices in the <b>Policies</b> menu, <a href="#">Devices &gt; USB storage</a> rules.</li> </ul>
Bluetooth	Filter the use of some types of Bluetooth devices based on their class. <b>Example:</b> Allow only Bluetooth headsets issued by the organization.	The access control rules for Bluetooth devices in the <b>Policies</b> menu, <a href="#">Devices &gt; Bluetooth</a> rules.
CD/DVD	Filter the use of CDs and DVDs.	The access control rules for general devices in the <b>Policies</b> menu, <a href="#">Devices &gt; General</a> rules.
Floppy disk	Filter the use of floppy disks.	
Serial port	Filter the use of devices on serial ports.	



## 10.1 Controlling access to devices

SES Evolution allows you to control access to all types of devices that can be connected to users' workstations, based on their type, trustworthiness, content, etc.

### 10.1.1 Controlling access to general devices

This protection type allows you to control how floppy disk drives, CD/DVD drives and serial ports are used on physical or virtual user workstations. Floppy disk drives and serial ports are found mostly in industrial environments.

For every type of device, you have the option of allowing, blocking (in a protection rule set) or simply monitoring its use (in an audit rule set).

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Devices > General** tab. Access to all devices is allowed by default and rules are



disabled. Enable them by clicking on  on the left if you want to block access (Protection mode) or monitor access (Audit mode). Ensure that your rule sets are in the right order if these rules are enabled in several rule sets, as they may overload and cancel the effect of the general device access configuration in the rule sets that follow.

4. For every device type, select the action to apply whenever the device is used or plugged in. If you select **Block** or **Audit**, logs will only be generated the first time this device is used.
5. In the banner at the top of the rule:
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.

Floppy disks or CD/DVDs inserted into external USB drives, and serial ports linked by a USB cable are considered both USB devices and floppy disk or CD/DVD drives, or internal serial ports. They can therefore be blocked either from the **General** tab or the **USB** tab.

### 10.1.2 Controlling access to Bluetooth devices

This protection type allows you to control how Bluetooth devices are used on user workstations.

SES Evolution makes it possible to monitor when Bluetooth devices are connected and disconnected, by generating logs if Audit mode is enabled in an audit rule set. Access to Bluetooth devices can also be blocked in a protection rule set.

Security rules can be configured to filter Bluetooth devices based on their class. To understand Bluetooth classes, refer to the IEEE standard on Bluetooth.

#### NOTE

If a multifunction Bluetooth device is blocked by a rule, all of its functions will be blocked. For example, if a rule blocks the use of the microphone class, headsets will also be blocked.

To create rules for Bluetooth devices:

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Devices > Bluetooth** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.



5. Click on **Add a rule (Bluetooth devices)**. A new row appears.
6. On the left side of the rule, click on **+** to add Bluetooth device identifiers.
7. Enter a name for each identifier.
8. Select the device's service class and major class.
9. Click on **OK**.
10. In the **Access** field, select **Allow** or **Block** if you are in a protection rule set, or **Allow** or **Audit** if you are in an audit rule set.
11. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
12. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
13. Click on **Save** at the top right of the window to save changes.  
If you only want to monitor the use of Bluetooth devices in the pool:
  1. Create a Bluetooth device rule in an audit rule set.
  2. Create an identifier that includes all Bluetooth device classes.
  3. Select **Audit** as the action in the **Access** field.
  4. Analyze logs that are generated every time a device is connected and disconnected.

### 10.1.3 Controlling access to USB devices

This protection type allows you to control how USB devices are used on user workstations. It applies to devices that are connected after the workstation has started. Devices that were already connected at startup are systematically allowed.

Rules may apply to USB device classes (printer, video, audio, storage, etc.) and/or vendors, models or device serial numbers.

For every USB device category, you can:

- Allow their use,
- Block their use,
- Display a message for the user to confirm whether or not to use the device when it is connected,
- Monitor the use of USB devices in a set of audit rules.



#### EXAMPLE 1

SES Evolution also allows the detection of *Rubber Ducky* USB keys. Such keys act as keyboards, run malicious scripts and save data on micro SD cards. If you create a rule that asks for user confirmation every time an HD device is plugged in, a message will indicate that a keyboard has just been plugged in. The user can then deny access to this malicious device that appears to be a USB key.

**EXAMPLE 2**

You can choose to allow only headsets, speakers and mobile phones provided by your company's IT department.

If you choose to apply a whitelist, you must create rules to allow the use of certain devices in your pool. The last rule must block all other devices. We recommend that you choose the **Passive rule** mode for the last rule to avoid blocking devices that allow workstations to run properly. Doing so will allow you to test the rules you want to apply to USB devices in a production environment, and refine them later after checking the logs.

To create rules for USB devices:

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Devices > USB** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (USB device)**. A new row appears.
6. In the left side of the rule, click on  to indicate one or several device identifiers to which the rule applies. Depending on whether you want to filter a specific device or a device category, fill in some or all of these properties:
  - Enter a name for this device,
  - Select the USB class of the device from the drop-down list. Click on  to enter a value manually if necessary.
  - Enter the USB sub-class consisting of two hexadecimal characters.
  - Enter the first few letters of the vendor name to show the list and select the desired vendor. You can also enter the four standardized hexadecimal characters corresponding to the vendor.
  - Select the product from the list of this vendor's products or enter the four hexadecimal characters.
  - Enter the serial number of the product.
7. In the **Access** field, select **Allow**, **Block** or **Request** if you are in a protection rule set, or **Allow** or **Audit** if you are in an audit rule set.

USB devices		Passive rule	Description
			Enter a description
1	<input type="checkbox"/> HIP - Human Interface Device		Access: Request

8. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked.  
Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
9. The row number of each rule appears on its left. Rearrange the sequence of your rules if you



need to, by clicking on the arrows above and below the row number.

10. Click on **Save** at the top right of the window to save changes.

To find out the vendor or product IDs, or the serial numbers of devices, look up the Windows device manager when the device in question is plugged in or use the dedicated utilities.

Refer to the international USB standard to find out the identifiers of USB device sub-classes.

### 10.1.4 Controlling storage on USB devices

This protection makes it possible to control access to files stored on USB storage devices (external hard disks, USB keys, etc.).

Rules may cover devices filtered by vendor ID or product ID, or devices known to SES Evolution with a trust level.

If overall access to USB devices is blocked, files on USB mass storage devices cannot be accessed even when a rule specifically applying to these devices allows it. To monitor overall access, refer to the section [Controlling access to USB devices](#).

For more information on trust levels, refer to the section [Managing USB storage devices](#).

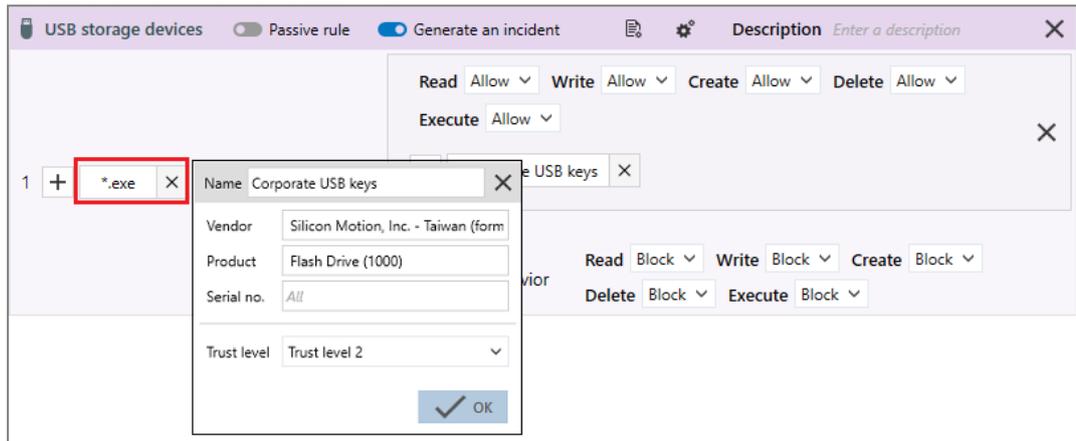
The left side of a rule covers files that may be found on USB devices, while the right side covers the devices themselves.

To create rules that regulate access to files on USB storage devices:

1. Select the **Policies** menu and click on your policy.
2. Select a rule set.
3. Click on the **Devices > USB storage** tab.
4. If you are in read-only mode, click on **Edit** in the upper banner.
5. Click on **Add a rule (USB storage device)**. A new row appears.
6. In the left side of the rule, click on  to add file identifiers. Files can be identified by a path or an [alternate data stream](#). Generic characters are allowed in this field.
7. Click on **Apply** to add the ID.
8. For each type of operation, select the default behavior that applies to the devices when files match the rule: allow or block (protection rule).



9. To exclude specific devices from the default behavior, click on + **Add a specific behavior**:
  - a. Add one or several device IDs. Devices can either be identified by their vendor or product IDs, or the trust level that SES Evolution assigned to the device.
    - To find out the vendor or product IDs, or the serial numbers of devices, look up the Windows device manager when the device in question is plugged in or use the dedicated utilities.
    - For more information on trust levels, refer to the section [Managing USB storage devices](#).
  - b. Select the behavior for these IDs.



10. In the upper banner in the rule, you can:
  - Make the rule passive. Passive rules behave like standard rules but do not actually block any actions. The agent only generates logs that indicate which actions security rules would have blocked. Use this mode to test new restriction rules, find out their impact, and make the necessary adjustments before disabling **Passive rule** mode.
  - Indicate whether the rule must **generate an incident** when it is applied.
  - Select the **log settings** that this rule will send.
  - Specify whether an action must be performed **when a log is sent** for this rule.
  - Enter a description to explain what this rule aims to achieve.
11. The row number of each rule appears on its left. Rearrange the sequence of your rules if you need to, by clicking on the arrows above and below the row number.
12. Click on **Save** at the top right of the window to save changes.

### 10.1.5 Controlling application execution from removable devices

SES Evolution makes it possible to control the execution of applications found on USB storage media. Two methods are available depending on the use case:

- Use case 1: I want to request confirmation from users when they attempt to run an application on a USB storage device.
- Use case 2: I want to allow the execution of applications only from a certain type of USB key that the company provides to employees. These keys are identified by their vendor IDs and product IDs and/or trust level.

Both of these use cases can also be combined.

#### Requesting user confirmation



1. Create an application identifier that indicates:
  - The applications for which you want to request confirmation. Type the **Path\*.exe** for example to indicate that all applications are concerned.
  - The type of volume in question. Enable only **Removable** in this case.

For more information, refer to the section [Creating application identifiers](#).

2. Create a process creation rule that indicates:
  - The application identifier created above,
  - That users must confirm whenever they execute applications from a removable device. Select **Request** as the default behavior.

For further information, refer to the section [Controlling process creation](#).

Once this rule is created, the user will be able to run applications from removable devices only after confirming that the action is deliberate. The request for confirmation and the user's response will be logged in the agent.

### Allowing application execution only for certain key types

Create a USB storage rule that indicates:

- The application(s) that you want to prohibit if they are found on a USB storage device. In the section on the left, type the **Path\*.exe** for example to indicate that all applications are concerned.
- The desired default behavior. Choose **Block** from the **Execution** drop-down list to block the execution of applications.
- The type of keys on which applications are allowed to run. In the right side of the rule, enter the hardware information of this type of key and/or the desired trust level.

For further information, refer to the section [Controlling storage on USB devices](#).

Once this rule is created, applications will be prohibited from running on USB storage devices except for trust level 2 devices.



## 10.2 Managing USB storage devices

With SES Evolution, USB storage devices such as external hard disks and USB keys can be monitored. In this section, the term *USB device* is used to refer to such devices.

Whenever a USB storage device is connected to an SES Evolution agent, a log is generated and appears in the **Devices** panel in the administration console. In this panel, you will be able to view all USB devices that were plugged into your appliance pool and find out their level of trust. You can also modify the level of trust of various devices and manually pre-declare devices.

Some operations on devices can be automated for an agent group. For further information, refer to the section [Configuring the trust level of devices](#)

Depending on whether you want to make changes or only view the **Devices** panel, you must have the **Removable devices-Modify** or **Removable devices-Display** privilege.

### 10.2.1 Viewing USB devices

1. Select the **Devices** menu. You will see the list of all USB devices that have ever been plugged in when SES Evolution agents are used.
2. Refer to the specific information about devices. In addition to the name, size and hardware information, the following details are provided:
  - **Status:** new or modified,
  - **Workstation:** last workstation on which the device was plugged in,
  - **Session:** user session opened the last time the device was plugged in,
  - **Trust level,**
  - **Last seen:** date of the last time the device was plugged in on an SES Evolution agent,
  - **Unique ID**
  - **First seen:** date of the first time the device was plugged in on an SES Evolution agent.
  - **Description:** custom comments that you added when you modified the device in SES Evolution,
3. Not all columns are displayed by default. To show additional columns, right-click on the row of column headers and select the ones you want to display.
4. In the **Filters** area, select the USB devices that you wish to show in the list by filtering them according to their **current** and/or **desired trust level**. Click on **Reset filters** at the top right side to display all USB devices again.

### 10.2.2 Adding a description to a USB device

1. Select the **Devices** menu. You will see the list of all USB devices that have ever been plugged in when SES Evolution agents are used.
2. Select one or several devices and click on **Change selection**.
3. Click on  in **Description** to add a comment.
4. In the **Trust level** area, select **Keep trust level** as the action.
5. Click **OK**. The added comment will appear in the **Description** column of the USB device.

### 10.2.3 Changing the trust level of a USB device

There are three trust levels for USB devices in SES Evolution:



- **Level 0:** The device was plugged into an SES Evolution agent but is not recognized because it does not have an SES Evolution identifier.
- **Level 1:** SES Evolution assigned an identifier to the device. SES Evolution therefore recognizes this device. However, its contents were not analyzed.
- **Level 2:** An antivirus analyzed the contents of the device on a decontamination station, and found that the contents of the device were always modified within your SES Evolution pool. The device therefore does not contain any malicious files and is considered trustworthy.

The trust level of a device is recognized throughout your SES Evolution pool, and does not depend on agent groups.

Once the trust levels are assigned, use them to filter the USB devices allowed in your pool. For example, you can protect your pool by creating a rule that allows only level 2 USB devices. For further information, refer to the section [Controlling storage on USB devices](#).

### Granting trust level 1 to USB devices

1. Select the **Devices** menu. You will see the list of all USB devices that have ever been plugged in when SES Evolution agents are used.
2. Select one or several devices and click on **Change selection**.
3. In the **Trust level** area, select **Raise the trust level of level 0 devices** as the action.
4. Click on **Confirm**.

The new trust level appears in the corresponding column in the **Devices** panel. The



icon means that the level 0 device will switch to level 1 the next time it is connected to an SES Evolution agent.

5. To apply this change to agents, select the **Environment** menu and click on **Deploy**.
6. Connect the modified device to an SES Evolution agent (or disconnect and reconnect it if it had stayed connected). It will appear in the panel of devices with its new trust level 1 .

Level 1 can also be automatically granted to any device that is connected to an SES Evolution agent if the option **Allow device identification** was enabled in the configuration of the agent group. For further information, refer to the section [Configuring the trust level of devices](#).

### Granting trust level 2 to USB devices

Trust level 2 can only be granted after the USB device has been connected to a decontamination station. A decontamination station is a dedicated SES Evolution agent on which USB devices in the pool are analyzed and granted the highest trust level if they are considered trustworthy. In general, it is equipped with one or several antiviruses that are more powerful than the other agents in the pool, and a specific SES Evolution security policy.

1. Configure your SES Evolution agent as a decontamination station:
  - Add it to an agent group in which it will be the only agent.
  - Configure the agent group by enabling the options **Trust empty devices** and **Automatically scan devices**.
  - Deploy the policy on the agent from the **Environment** menu.
2. Plug the USB device into the decontamination station.  
If it is considered trustworthy, it will appear directly in the **Devices** panel with the highest trust level. It will lose this trust level as soon as its contents are modified outside the SES Evolution pool. Plug it into the decontamination workstation again to restore the highest trust level.



## Untrusting USB devices

Untrusting a USB device means that its trust level will be brought down to 0.

1. Select the **Devices** menu. You will see the list of all USB devices that have ever been plugged in when SES Evolution agents are used.
2. Select one or several devices and click on **Change selection**.
3. In the **Trust level** area, select **Untrust level 1 or 2 devices** as the action.
4. Click on **Confirm**.

The new trust level appears in the corresponding column in the **Devices** panel. The



icon means that the level 1 device will switch to level 0 the next time it is connected to an SES Evolution agent.

5. To apply this change to agents, select the **Environment** menu and click on **Deploy**.
6. Connect the modified device to an SES Evolution agent (or disconnect and reconnect it if it had stayed connected). It will appear in the panel of devices with its new trust level 0

### 10.2.4 Pre-declaring USB devices

When USB devices are pre-declared, they will be easier to identify. When they are connected to an SES Evolution agent, it will recognize these devices and automatically grant them the predefined trust level. For example, you can pre-declare devices distributed to coworkers in order to automatically assign trust level 1 to them the first time they connect to an SES Evolution agent.

1. Select the **Devices** menu.
2. Click the **Add** button.
3. Specify the **Vendor** and **Product** IDs of the device.
4. Enter its **Serial number** and a **Description** if you wish to (optional).

To find out these identifiers or the serial numbers of devices, look up the Windows device manager when the device in question is plugged in or use the dedicated utilities.

5. Choose the **Trust level** that will automatically be assigned to this device when it is connected to an SES Evolution agent: Trust level 0 or 1.
6. Click on **OK**.  
A line corresponding to this new device appears in the **Devices** panel. You will see only the information that you have specified.
7. To send information about pre-declared devices to agents, select the **Environment** menu and click on **Deploy**.  
When the device is connected to an SES Evolution agent, it will be identified and information found in the **Devices** panel will be filled in.

### 10.2.5 Removing USB devices

1. Select the **Devices** menu.
2. Right-click on the USB device you want to remove, and select **Delete**.  
The device will no longer appear in the list.

The next time it is connected to an SES Evolution agent, the device will appear once again in



the **Devices** panel with the same level of trust that it had when it was deleted.

### 10.2.6 Importing and exporting a list of USB devices

You can import or export a list of USB devices in a CSV file in the **Devices** panel.

#### Importing a list of USB devices

1. Select the **Devices** menu.
2. Click on **Import** and select the file to import.  
The file must be in CSV format with one device per line. The syntax is as follows:  
Product ID, Serial number, Vendor ID, Trust level, Description

Product IDs, vendor IDs (in hexadecimal) and trust level are mandatory.



#### EXAMPLE

The line `5834,,0A5C,2,Stormshield key` will import a key with the following properties:

Product ID	5834
Serial number	not entered
Vendor ID	0A5C
Trust level	1
Description	Stormshield key

#### Exporting a list of USB devices

1. Select the **Devices** menu.
2. To export all the devices in the list, click on **Export**.  
- or -  
To export only some devices, select them from the list, then click on the arrow of the **Export** > **Export the selection** button.
3. Choose the name of the file and the folder to which you want to export the file.

### 10.3 Use case: Managing access to files on a USB key

Access to files on a USB key can be blocked at several levels. SES Evolution verifies in this order:

USB device rules:

- Verification of the USB key: USB class and sub-class, vendor ID, product ID and serial number.

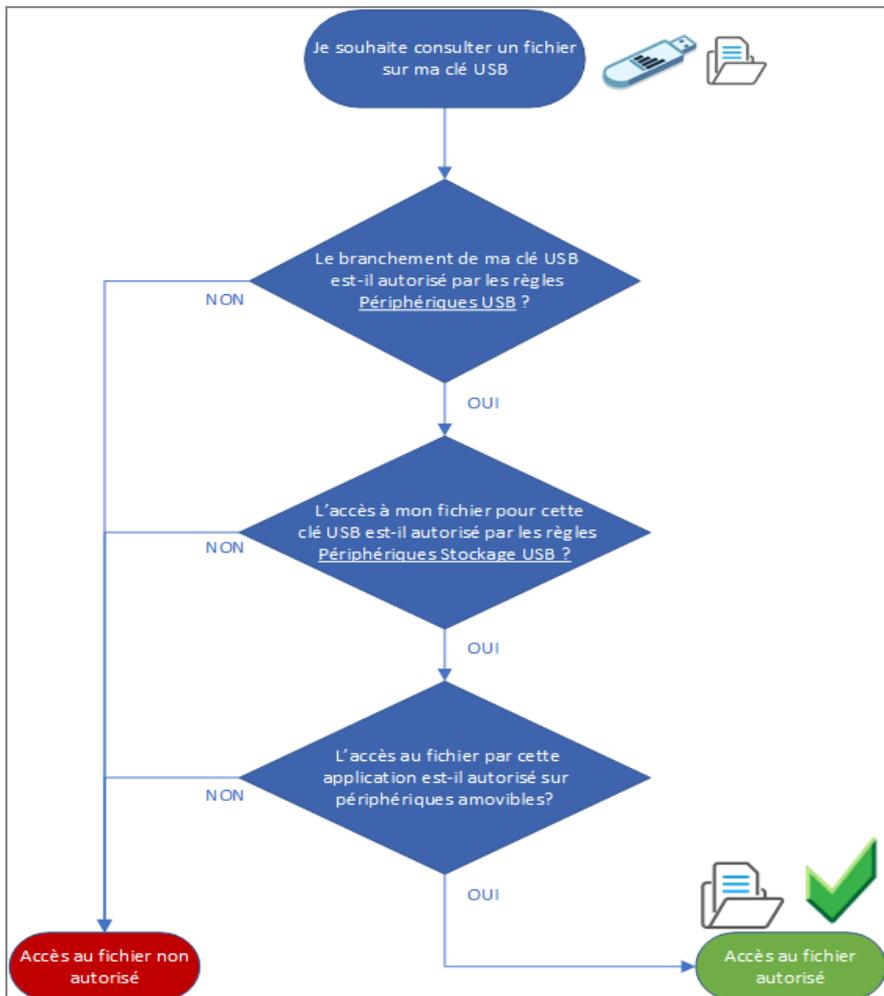
USB storage device rules

- Verification of the path and file name,
- Verification of the USB key's vendor, product and serial number,
- Verification of the USB key's trustworthiness.

File/application ID ACL resource rules



- Verification of the file's or application's accessibility when it is located on a removable device.



## 10.4 Use case: Blocking access to USB keys that have not been decontaminated

Many malware programs can be spread through USB keys. To safely monitor USB keys plugged into your pool, you can make it mandatory to decontaminate all keys with contents that were modified outside the organization. To do so, set up air-gapped workstations equipped with antivirus solutions that analyze the plugged in devices. Next, configure SES Evolution so that it automates this analysis and guarantees that only USB keys with the appropriate level of trust are allowed on SES Evolution agents.

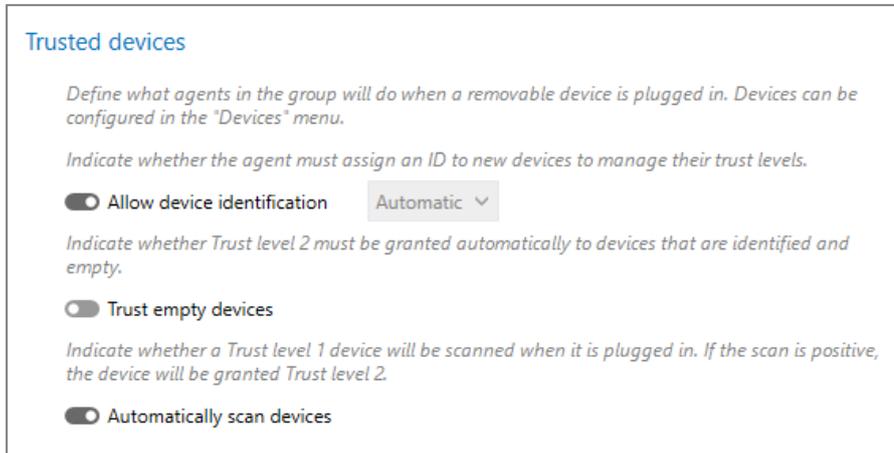
USB keys that are modified on a SES Evolution-protected workstation keep their trust level and do not need to be decontaminated.

### 10.4.1 Creating an agent group for air-gapped workstations

1. Create a *Decontamination* agent group of all the workstations used as USB key decontamination airlocks. For further information, refer to the section [Creating and configuring agent groups](#).



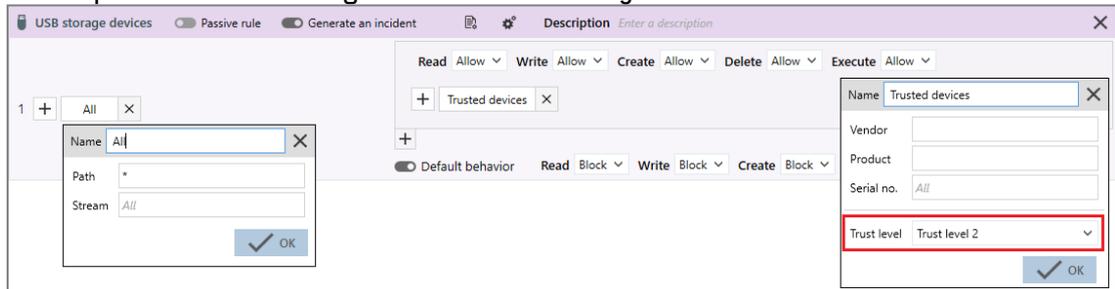
2. Enable the following options in the **Trusted devices** section:
  - **Allow device identification - Automatic,**
  - **Automatically scan devices.**



For further information, refer to the section [Configuring the trust level of devices](#)

### 10.4.2 Blocking USB keys based on their trust level

1. Create a **USB storage** security rule.
2. In the left section of the rule, add an *All* file ID that corresponds to all files.
3. Block all access in the default behavior.
4. Add a specific behavior that grants full access to keys with Trust level 2.



With this rule, full access can be granted to Trust level 2 devices, and those with a lower level will be blocked.

5. Apply this rule to all agent groups if you want to monitor the trust level of their USB keys.
- For further information, refer to the section [Controlling storage on USB devices](#).



## 11. Monitoring SES Evolution agent activity

SES Evolution offers an accurate view of SES Evolution agent and console activity through various types of logs classified by severity.

Among other data, logs contain the time of an event, the agent on which it occurred, the identity of the process that performed the operation, and if operations are blocked, information about the block.

### 11.1 Requirements

No short file names in MS-DOS 8.3 format must appear in SES Evolution logs. Windows short file name creation must be disabled on all SES Evolution agents.

- To do so, set the value of the *NtfsDisable8dot3NameCreation* registry key to 1 in *HKKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\FileSystem*.

### 11.2 Various log types

SES Evolution agents generate several types of logs:

- Event logs** are simple logs without an attached context. They provide information, for example, on blocked user actions that are prohibited by security policies, which then makes it possible to audit certain operations, etc. Events fall under several types:

Protection events	Generated when operations are blocked or audited by a security rule. For example, the process <i>illegimate_process.exe</i> attempted to run the process <i>abused_process.exe</i> .
Self-protection events	Generated when suspicious events are detected on the Windows system that are not associated with a security rule. For example, the user attempted to delete a protected file.
Operational events	Generated when events relating to the global operation of SES Evolution are detected. For example, the agent applied a new policy.
External events	Generated when events relating to <i>External event forwarding</i> and <i>OSSEC</i> audit rules are detected.
Windows Defender events	Generated when Windows events relating to the <i>Virus and threat protection</i> feature are reported. These logs are displayed only when the security policy contains <i>Stormshield - Windows Defender event forwarding</i> rule sets.

- Alert logs** indicate that an attack occurred. Such logs come with a context that makes it possible to analyze the events that led up to the malicious action.
- Context logs** are captured continuously on agents and represent an overall audit of actions performed on a workstation. They are not kept and are sent only when an alert is detected. These logs provide information on activity on the workstation just before and after the attack.

Agent logs can be read on the administration console and the agent's interface. They can also be read on the syslog server if you have configured one.



Depending on whether you want to make changes or only view the **Agent logs** panel, you must have the **Agent logs-Modify** or **Agent logs-Display** privilege.

You can configure the log levels that will be sent to the configure, agent and syslog server. For further information, refer to the sections **Sending logs generated by agents** and **Configuring log management**.

### 11.3 Viewing and managing agent logs in the administration console

All logs that have been configured to appear in the console can be seen in the **Agent logs** panel. In this panel, you will be able to analyze, filter and manage logs, and add exceptions so that certain logs will no longer be generated. You can also [Analyzing incidents to understand attacks](#).

The screenshot shows the 'Agent logs' interface. At the top, there's a 'Refresh' button and a date range selector set to '14/12/2021 17:27:47 - 15/12/2021 17:27:47'. Below that, there are buttons for 'Edit selected logs' and 'Add exceptions'. A 'FILTERS' section is visible, with 'Status: New, In progress' and 'Log type: Incident'. The filter table has columns for Log type, Severity, Status, Attribute, Category, Agent group, and Agent. Below the filters, there's a table of log entries with columns: DATE, BLOCKED, AGENT, TYPE, MESSAGE, POLICY, STATUS, and ACTIONS. Three log entries are shown, all with a severity of 'High' (indicated by a red circle with an exclamation mark) and a status of 'New'. The messages describe the 'explorer.exe' process attempting to write to a file in the 'C:\tmp' directory.

If an agent is offline and its logs were not sent to the agent handler, you can export its logs so that you can import and view them later in the **Agent logs** panel.

The **Agent logs - Modify** privilege is required to manage logs and create exceptions.

#### 11.3.1 Reading logs

1. Choose the **Agent Logs** menu.  
Logs from all components appear according to the active filters applied. The first time the log panel is opened, the logs displayed will be all the logs that were generated over the past 24 hours.
2. Click on the **Date** button to select the period that you want to view, and click on **Apply**. With the double arrow, select the period from a calendar. The cross to the right of the **Date** field resets the period to the last 24 hours.

The list of logs generated during the selected period appears.

The color on the left side of a log line indicates its severity: there are eight levels of severity that correspond to the levels on the syslog protocol. Every level is assigned a color:



	Urgence		Avertissement
	Alerte		Remarque
	Critique		Information
	Erreur		Diagnostic

The **Type** column refers to the type of log represented by the following icons:

	Fichier
	Interne
	Réseau
	Périphériques
	Processus
	Registre
	Menace

The **Policy** column shows the name and version of the security policy that generated the log. If the log did not originate from a policy, its attribute will be shown (e.g., Internal, Audit, Protection or Self-protection).

- In the **Agent** column, click on the gear wheel to choose the information to display about the agent: Host name, user name and/or IP address.
- In the **Action** column, click on  if you want to see or modify the rule that generated the log. This rule will stand out from other rules in the rule panel because it is grayed out and shows a blue bar on its left.
- Click on the small arrow to the left of the log to open it and display additional information:
  - Details** tab: full description of the processes, actions, etc. that caused the generation of the log.
  - Raw log** tab: code of the log in JSON format.

If you suspect an issue and need to display more logs, change the log settings in the [agent group logs](#) or in the [security rule](#).

### 11.3.2 Filtering logs



- In the **Filters** table of the **Agent logs** panel, enable filters to customize your list of logs. Every column corresponds to a type of filter and contains several values. Click on these values to enable the corresponding filter. In this image, for example, only *New* incidents that involve a *Device* security rule are displayed.

FILTERS								Default filters	Advanced filters
Log type	Severity	Status	Attribute	Category	Agent group	Agent	Application		
Event (2)	Very high (0)	<b>New (2)</b>	Self-protection (0)	Threats (0)	Groupe par défaut (2)	WIN-DL0KJHBBLPI (2)	No application		
<b>Incident (2)</b>	High (0)	In progress (1)	Protection (2)	File (0)					
	Medium (2)	False positive (0)	Internal (0)	Registry (0)					
	Low (0)	Fixed (0)	Audit (0)	Process (0)					
		Closed (0)		Network (0)					
				<b>Device (2)</b>					
				Internal (0)					
						Enter agent name			

DATE	BLOCKED	AGENT	TYPE	MESSAGE	POLICY	STATUS	ACTIONS
29/04/2020 17:10:44		WIN-DL0KJHBBLPI			Standard policy v21	New	
29/04/2020 15:57:26		WIN-DL0KJHBBLPI			Standard policy v21	New	

- The **Severity** column shows all the log levels:
    - Very high:** Emergency and Alert logs,
    - High:** Error and Critical logs,
    - Medium:** Notice and Warning logs,
    - Low:** Debug and Informational logs.
  - The **Status** column allows you to filter logs by the status that you assigned. Refer to the section [Managing logs](#).
  - You can look for agents in the **Agent** column by entering full or partial names in the search field.
  - In the **Application** column, logs can be filtered by the applications that were involved in blocked actions.
- Click on **Advanced filters** to add other more specific filters that will refine your list of logs. In the advanced filter window:
    - Click on **Add filter**.
    - Select the desired filter type. A line appears in the advanced filter window.
    - Enter the value of the filter by selecting it from a list or by entering it manually.
    - Specify whether the filter must include or exclude the value. This filter is inclusive by default – it displays all logs that match the chosen value. Click on to make this an exclusive filter.
    - Add other filters if necessary. More advanced filters means fewer results in the list of logs.
    - Click on **OK**.

You can go back to your initial filtering at any time, by clicking on **Default filters**: only *New* or *In progress* logs will be displayed.

### 11.3.3 Managing logs

When you manage log analysis, you can assign a status to each log and indicate the name of the user who analyzed it. Log status is important information that can be seen on the administration console dashboard under **Recent threats**.



1. In the **Agent logs** panel, select one or several logs, then click on **Edit selected logs**. The **Edit logs** window appears.
2. Select the status that you want to assign to the logs in the **Status** list:
  - **New**: default status of a log. The log has never been analyzed.
  - **In progress**: the log is being analyzed.
  - **False positive**: the log has been identified as a false positive – a security rule triggered this log but it does not represent a malicious action. This status is automatically assigned to logs for which you have added an exception. For further information, refer to the section [Adding exceptions for logs](#).
  - **Fixed**: the issue described in the log has been fixed.
  - **Closed**: the analysis of the log is complete. No further action is required.
3. In the **User** list, select the name of the user who changed the status of the log. This list shows all users declared in SES Evolution. For further information, refer to the section [Managing users on the SES Evolution administration console](#).
4. In the **Comments** field, enter additional information if necessary about the log or your action. If anything is entered in this field, a tool tip will appear in the **Status** column in the list if logs.
5. Click on **OK**.

### 11.3.4 Adding exceptions for logs

After you have analyzed a log and decide that the action that triggered the log was not malicious and should not have been blocked, you can add an exception for this log. Doing so will prevent this action from being blocked and/or logged again in the future.

1. In the **Agent logs** panel, select one or several incident logs that you no longer wish to generate in the future, then click on **Add exceptions**. This will automatically:
  - Add one or several protection rules in the *Exception rule set* of the security policy in question. These rules will prevent these incidents from being blocked under the same circumstances. The application IDs needed for such rules will also be created.
  - Assign a **False positive** status to the log in question, and identify the user who added the exception.
  - Add the comment *“Automatic exception created from this log”* to the log.
2. If necessary, you can look up or edit the exception rule created from the log:
  - a. Show your log by enabling the **False positive** filter.

b. In the **Action** column, click on the  icon.

DATE	BLOCKED	AGENT #	TYPE	MESSAGE	POLICY	STATUS	ACTIONS
> 24/11/2021 16:21:20	<input checked="" type="checkbox"/>	VM-SES-EVO		The 'explorer.exe' process attempted to write the file 'C:\tmp'	Custom policy v4	False positive VM-SES-EVO\Administrator	
> 24/11/2021 16:21:06	<input checked="" type="checkbox"/>	VM-SES-EVO		The 'explorer.exe' process attempted to write the file 'C:\tmp'	Custom policy v4	New	
> 24/11/2021 16:19:03	<input checked="" type="checkbox"/>	VM-SES-EVO		The 'explorer.exe' process attempted to write the file 'C:\tmp' (source process aborted)	Custom policy v3	False positive VM-SES-EVO\Administrator	
> 24/11/2021 16:17:42	<input checked="" type="checkbox"/>	VM-SES-EVO VM-SES-EVO\Administrator		The 'explorer.exe' process attempted to write the file 'C:\tmp' (source process aborted)	Custom policy v2 Protection	False positive VM-SES-EVO\Administrator	
> 24/11/2021 16:16:16	<input checked="" type="checkbox"/>	VM-SES-EVO VM-SES-EVO\Administrator		The 'explorer.exe' process attempted to write the file 'C:\tmp' (source process aborted)	Custom policy v2 Protection	New	

The exception rule that matches this log will appear. It will stand out from other rules in the rule panel because it is grayed out with a blue bar on its left.

If this rule cannot be found, this means that it was deleted in the meantime.

### 11.3.5 Reading logs of offline agents



When an agent is unable to access the agent handler, its logs cannot be sent to the administration console, and will therefore not appear in the **Agent logs** panel. You can export these logs to import them later into the console and read them in the same way as other logs.

Exported logs remain on the agent.

1. Log in to the agent workstation as an administrator.
2. Double-click on the  icon in the status bar.  
The SES Evolution agent interface appears.
3. In the **Help and support**  tab, click on **Events**.  
The list of logs from this workstation appears.
4. Click on **Export events...** and choose the destination folder.  
A *cab* file is generated.
5. Copy it to a USB key or send it by e-mail.
6. Copy this *cab* file to the import folder of the agent handler, e.g.,  
*C:\ProgramData\Stormshield\SES Evolution\Server\AgentLogs\Import*. After around ten seconds, the file will disappear from the *Import* folder and the logs that it contains will appear in the **Agent logs** panel.

 **TIP**

You can also export logs via a script, by launching EsGui ([...]\Stormshield\SES Evolution\Agent\Bin\Gui) with the command line option `/ExportLogs`.

## 11.4 Viewing logs in the agents' interface

1. On the workstation, click on  in the status bar.  
The agent interface appears.
2. In the **Help and support**  tab, click on **Events**.  
The list of logs from this workstation appears.  
The color on the left in a row of logs indicates its **severity**.  
The various color labels indicate:
  - The severity of the log, (e.g., Alert, Notice, etc.),
  - The type of log, (e.g., Internal, Self-protection, etc.),
  - The implemented protection, (e.g., Registry, etc.),
  - The action that SES Evolution applied (e.g., Block, etc.).
3. By default, you see only the logs accessible to the user who opened the session. Click on **Show all logs (administrator only)** to also see logs accessible to administrators. For example, if several users connect to the same workstation, you can view logs for all sessions with this option.
4. Filter the list of logs to show only those that are relevant to you:
  - Click on one of the labels of a log to show only the list of logs that have this label. For example, click on *Registry* to display all logs relating to this registry base.  
Active filters appear at the top of the window. Delete all filters to display all logs again.
  - In the **Search** field, enter one or several character strings and press Enter to show only logs that contain these strings.

If you suspect an issue and need to display even more logs, change the log settings in the **agent group logs** or in the **security rule**.



SES Evolution keeps 100 MB of log history. When this capacity is reached, the oldest logs will be deleted, beginning with logs of the lowest priority.

## 11.5 Analyzing incidents to understand attacks

Incidents in SES Evolution make it possible to thoroughly analyze the context in which attacks occur on agents, and determine what these attacks consist of, where they come from and how they strike. To get this feature, your security policy must contain the built-in rule set *Stormshield - Audits of attack contexts*. For more information, refer to the section [Understanding built-in rule sets](#).

### EXAMPLE

If the Execution flow hijacking protection mode blocks a malware program, analyzing the incident will reveal which file caused the malware to launch, and where the file came from.

### 11.5.1 Understanding the types of contexts

Incidents consist of two types of contexts:

- The **simple** context shows only alerts and logs regarding the creation and killing of all processes that were run on the agent within the attack perimeter. The simple context is shown by default in the detailed incident report.
- The **detailed** context shows all the logs that the agent produced in the attack perimeter, including those that do not usually appear in the administration console. For example, even logs that remained local on the agent or that were sent to a syslog server can be seen in the detailed context. They are generated by the *Stormshield - Audits of attack contexts* rule set of the default policy.  
Depending on the agent group configuration, the display of the full context may need to be manually enabled.

### 11.5.2 Configuring incidents

- When protection is enabled against certain threats, it systematically generates incidents during an attack. This is especially the case for process hollowing, execution flow hijacking and heap spraying, among others. In addition, protection rules are configured by default to generate incidents when actions are blocked, or even during suspected attacks that are not severe enough to be blocked. For more information, see the section [Managing vulnerability exploitation](#).
- In the detailed context of incidents, the size, perimeter, type and frequency of reporting to the agent handler can be configured for each individual agent group. For further information, refer to the section [Configuring detailed incidents generated by agents](#).

### 11.5.3 Analyzing incidents to understand attacks

1. Choose the **Agent Logs** menu.  
The full list of logs from all agents appears.
2. Click on the small arrow to the left of the Incident log to open it. The log contains lines of standard logs. For further information on how to read standard logs, refer to the section [Viewing and managing agent logs in the administration console](#).



3. Click on  to the right of the incident to display the detailed view of the incident. This view consists of three sections:
  - **Attack chart:** represents the attack launched on the agent in the form of a graph. It shows all the processes involved in the incident and how processes are linked to one another.
  - **Context logs:** lists all the logs of events surrounding the attack. The **Alerts only** button is enabled by default and only alerts are shown. Click on the button to show context logs as well.
  - **Information** or **Raw logs** view: additional information about the item selected in the graph. Raw logs are generated in JSON format.
4. When the view is opened, the attack chart highlights with a small blue shield the item that was attacked. Click on the processes that come before it (i.e., parent processes) and read the related information in the right pane. The **Hash** is particularly useful in checking whether this process was already identified as malicious in the database of known malware. A red struck-through seal on a process means that it was not signed by a digital signature certificate when it was compiled.

 **EXAMPLE**

In our example, several indicators show that the first process is suspicious:

- There is a red seal on its icon, meaning that the process is not signed,
  - Its **Name** was randomly generated,
  - It was executed by Winword, which does not usually execute such processes,
  - Its **Path** `C:\Users\abott\AppData\Local\Temp` shows that it was run in a temporary folder.
5. Depending on the agent group configuration, the detailed context may not appear automatically. If you need more context, click on **Request more details** so that the agent will report all information to the agent handler. For further information on configuration, refer to the section [Configuring detailed incidents generated by agents](#).



- 6. To search for context logs, enter your character string in the **Search** field. The search syntax is as follows:

**Help**

**General points**

The search is performed in the event type, in the message, and in the raw log.

- The search is not case-sensitive
- The space ( ' ') is regarded as an implicit 'AND' operator
- The minus sign ('-') excludes the keyword that follows
- Put keywords between double quotes (" ") to keep the spaces

**JSON fields**

You can search JSON fields in the raw log based on the field values.

- Expression: json\_property **[operator]** json\_value
- The period ('.') indicates a sub-property
- Available operators are:

Operator	Symbol	Applies to
Equal to	=	All types of characters
Contains	%	All types of characters
Greater than	>	Numbers only
Lower than	<	Numbers only
Greater than or equal to	>=	Numbers only
Lower than or equal to	=<	Numbers only

**Example**

```
explorer.exe -"process execution" type>=11 severity<4
createdprocess.processguid=539FE70B-688B-449B-98C9-0520366C5362
```

Searches will cover context logs.  
Only logs that match the search will remain displayed in the list. Searches have no impact on the attack chart.

**EXAMPLE**

In our example, the command line of the *WINWORD.exe* process indicates that a file *invoice.doc* was created. Searching for the string *invoice.doc "file creation"* will display all logs that include these terms and also reveal that *chrome.exe* created this file.

- 7. If you have identified a log that may help you understand the attack, pin it to the chart by clicking on . This log will be added to the chart as a new event, and modifies the chart as a result.

To list only logs that match items in the chart, click on **Pinned only**.

**EXAMPLE**

In our example, if you pin the log that mentions the creation of the *invoice.doc* file, you can understand how the attack was performed: the malware was launched on the workstation by an infected Word document (*invoice.doc*) that the user downloaded via



Chrome and opened. It was a phishing attempt blocked by SES Evolution.

The screenshot displays the 'Agent logs > Incident' view. The 'ATTACK CHART' shows a process flow starting with 'explores.exe', followed by 'chrome.exe', which opens 'invoice.doc'. This leads to 'WINWORD.EXE', which then interacts with 'WINWORD.SERVICE' and 'Execution Flow'. The 'CONTEXT LOGS' table below the chart lists various file creation events, such as 'The 'chrome.exe' process created the file 'C:\Users\test\Downloads\invoice.doc' at 7/24/2020 4:43:52 PM. The 'INFORMATION' panel on the right provides details for 'chrome.exe' (PID 7996), including its command line, certificate signature status (Trusted), process creation date (7/24/2020 4:43:52 PM), path, hash, and certificates.

8. To examine a specific part of the chart more closely, move your mouse and zoom using the buttons at the bottom right of the chart. You can also use the left button on the mouse together with the scroll wheel.
9. Since identical processes are grouped by default, disable **Group events** at the top on the right to deploy items and analyze them individually.
10. Once you have completed your analysis, click on the back arrow at the top on the left to return to the standard log panel. All your changes will be saved and appear the next time you open the incidents view.

## 11.6 Managing a ransomware attack

SES Evolution protects your organization's workstations from ransomware attacks. It can detect operations that ransomware applications usually perform on a system, such as file modification or encryption, and quickly stop them. If a workstation is under attack, SES Evolution logs allow you to find out whether files have been encrypted, and which ones. The procedure below explains how to retrieve lost data.

### **!** WARNING

SES Evolution's creation of shadow copies cannot replace regular backups. You must have a dedicated parallel backup solution.

### 11.6.1 Requirements

To block ransomware attacks, SES Evolution must be configured as follows:



- **Enable ransomware protection.** If you are using *Default policy* or *Backoffice component protection* policies, this protection mode is enabled by default in the Anti-ransomware protection rule set.
- **Enable Windows shadow copies.**
- Optional: Prohibit the execution of malicious commands that specially aim to delete shadow copies. To do so, use **application filtering via command line arguments**. If you are using *Default policy* or *Backoffice component protection* policies, this protection mode is enabled by default in the Anti-ransomware protection rule set.

### 11.6.2 Detecting a ransomware attack

If you have enabled SES Evolution anti-ransomware protection and chosen the **Block and kill** option, every ransomware attack generates an Alert level log and an incident:

*"The process `process_name` attempted to run a ransomware attack. Look up the list of encrypted files in the `file_path` file.*

The log contains:

- The name of the process behind the attack,
- The path of the remediation file that identifies all the files that the ransomware encrypted before it was blocked. This file will be kept for 30 days in `PROGRAMDATA%\Stormshield\SES Evolution\Agent\Diagnostics\Ransomware Protection`.
- The list of the first ten encrypted files (in the detailed log).

### 11.6.3 Retrieving lost data

If you have set up the **requirements**, you can retrieve lost data with the help of the *ShadowCopyExpose* utility developed by Stormshield. It allows you to display the contents of shadow copies on a workstation and retrieve an earlier version of lost files.

Stormshield recommends that you retrieve the data 5 days later as SES Evolution will continue to create shadow copies daily after an attack. Since only the last five copies will be kept, new shadow copies containing encrypted files will overwrite older shadow copies.

To retrieve lost data:

1. Open the remediation file that matches the date and time of the attack. It contains the name and location of all the files that the ransomware encrypted.
2. Download the *ShadowCopyExpose.exe* utility from your **personal area**. You will find it in **Downloads > Downloads**, then in **Stormshield Endpoint Security Evolution > Evolution > Resources**.
3. On the workstation that came under the ransomware attack, in a Windows or Powershell command window, go to the folder in which you downloaded the utility.
4. Run the following command as an administrator:

```
ShadowCopyExpose.exe --list
```

The list of shadow copies from this workstation appears.

5. Using the timestamp, identify the latest shadow copy made before the attack, and copy its GUID, including the curly brackets.



6. Display the contents of the shadow copy in an unused drive by running the command:

```
ShadowCopyExpose.exe --expose "{GUID}" drive_letter
```

 **EXAMPLE**

```
ShadowCopyExpose.exe --expose "{12A8B00F-E89F-44E7-BC30-DC85CAC470A2}" R:
```

- or -

- Display the contents of the shadow copy in an existing empty folder by running the command:

```
ShadowCopyExpose.exe --expose "{GUID}" folder_path
```

 **EXAMPLE**

```
ShadowCopyExpose.exe --expose "{12A8B00F-E89F-44E7-BC30-DC85CAC470A2}" C:\Recovery
```

The contents of the shadow copy will appear in the drive or folder.

7. Using the remediation file, identify the files that were encrypted and retrieve them via Windows Explorer in the specified drive or folder.
8. Stop the display of the shadow copy by running the command:

```
ShadowCopyExpose.exe --unexpose "{GUID}"
```

The table below lists all the parameters in the *ShadowCopyExpose* utility:

Parameter	Description
--list	Lists the shadow copies with contents that can be displayed in the file system. All copies that SES Evolution creates can be displayed and therefore appear on this list.
--list -v	Displays additional information about the shadow copies.
--list -a	Lists all the shadow copies found on the system, including those that cannot be displayed in the file system.
--expose {GUID} drive_letter folder_path	Displays the contents of the shadow copy identified by its GUID in the specified drive or empty folder.
--unexpose	Stops the display of the shadow copy. The contents of a shadow copy can only be displayed in one place at a time. If they are already displayed in a drive, you must first stop the display before you can display them in an empty folder, for example.
--help	Shows help.
--readme	Shows document about the utility.



## 12. Managing backoffice components

The SES Evolution server consists of several backoffice components:

- One or several **agent handlers**,
- One or several **backends**,
- Two SQL Server databases: one for administration data and the other for logs,
- One or several **administration consoles**,

Logs generated by SES Evolution can be consulted when an event occurs on any of these components.

The size of the log database can also be controlled by configuring the retention period of SES Evolution logs.

### 12.1 Monitoring the activity of SES Evolution backoffice components

The activity of backoffice components installed by SES Evolution generates logs that can be looked up in the administration console.

The **System logs - Show** privilege is required to read and filter logs.

The screenshot shows the 'Component logs' interface. At the top, there is a 'Refresh' button, a 'Date' selector showing the range '18/09/2020 00:23:37 - 24/09/2020 15:19:22', and a search bar labeled 'Search in logs'. Below this, there is a 'FILTERS' section with a 'Default filters' button. The filters are organized into columns: Component type (Console (17), Backend (12), Agent handler (7)), Severity (Error (4), Warning (3), Informational (29)), Category (Status (10), Login (6), Update (6), Policy management (4), Unexpected behavior (4), Administration (3), Agent group management (2)), Event type (Console login (5), Backend start (4), Backend error (4), Agent handler start (3), Backend stop (2), Modify policy (2), Modify role (2)), Machine name (VM-SES-EVO (36)), and User name (VM-SES-EVO\Administrator (15)). Below the filters is a table of log entries with columns for Date, Machine Name, Event Type, and Message.

DATE	MACHINE NAME	EVENT TYPE	MESSAGE
> 24/09/2020 14:35:49	VM-SES-EVO VM-SES-EVO\Administrator	Console login	The user VM-SES-EVO\Administrator logged in
> 24/09/2020 14:35:31	VM-SES-EVO VM-SES-EVO\Administrator	Console login	The user VM-SES-EVO\Administrator logged in
> 24/09/2020 14:34:52	VM-SES-EVO	Agent handler start	Agent handler in version 2.1.0.155 starts
> 24/09/2020 14:34:33	VM-SES-EVO	Backend start	Backend in version 2.1.0.155 starts
> 24/09/2020 14:34:12	VM-SES-EVO	Backend stop	Backend in version 2.1.0.152 stops

To read system logs:

1. Select the **System logs** menu.  
Logs from all components appear according to the active filters applied. The first time the log panel is opened, the logs displayed will be all the logs that were generated over the past 24 hours.
2. Click on the **Date** button to select the period that you want to view, and click on **Apply**. With the double arrow, select the period from a calendar. The cross to the right of the **Date** field resets the period to the last 24 hours.  
The list of logs generated during the selected period appears.



3. In the **Filters** table, enable filters to customize your list of logs. Every column corresponds to a type of filter and contains several values. Click on these values to enable the corresponding filter.  
You can look for hosts and users in the **Machine** and **User** columns by entering full or partial names in the search field.

You can go back to your initial filtering at any time, by clicking on **Default filters**: all logs will be displayed again.

The color on the left in a row of logs indicates its severity:

- Blue: Information,
  - Yellow: Notice,
  - Orange: Error.
4. Click on the small arrow to the left of the log to open it and display additional information:
    - **Details** tab: Full description of the event that caused the generation of the log.
    - **Raw log** tab: code of the log in JSON format.

## 12.2 Managing the size of the log database

SES Evolution uses an administration database and a log database. Depending on the configuration of your security policies and the desired amount of logs, the volume of the log database may grow quickly and reach a critical threshold. Logs are kept by default for 12 months on SQL Server Enterprise, and two months on SQL Server Express. You can customize this value, either when installing SES Evolution or via the administration console.

Logs that are too old are deleted daily at midnight by a task that runs on the backend.

### 12.2.1 Configuring the duration of log retention

1. Select the **System** menu and click on **Edit** in the upper banner.
2. In the **Log database** section, change the log retention parameters, which differ depending on whether you have SQL Server Enterprise or SQL Server Express.
3. For each log type - agent events or system logs - enter the number of months for which you want to keep them. Logs can also be kept forever on SQL Server Enterprise.
4. Click **Save**.

### 12.2.2 Viewing the results of the log deletion task

Every day at midnight, a task will run to delete logs older than the number of months specified.

This task will generate a log in the system log panel. For more information, see the section [Monitoring the activity of SES Evolution backoffice components](#).

You can also view the results of the task in the **System** tile in the **Dashboard**. For further information, refer to the section [Understanding the dashboard](#).



## 13. Resolving issues with challenges

When users encounter issues on their workstations or need to perform operations that they cannot perform while the SES Evolution agent is running, they can ask the security administrator to temporarily disable or uninstall the agent.



### EXAMPLES

- Self-protection may need to be disabled on the agent in order to debug potential compatibility issues with other programs.
- The agent may need to be temporarily stopped on an offline workstation for the duration of maintenance operations such as the installation or update of an ERP.

As the security administrator, your responsibility is to choose which action to run on the user's workstation and you must hold a role that includes the **Challenge-response** privilege.

The challenge mechanism is based on a question/answer system between the agent and the console.

A user on the workstation generates a character string (the question) from the agent that they communicate to you by telephone or e-mail. You then enter this string in the console, which generates another character string (the response) containing the definition of the action to allow. You forward this response to the user so they can enter it in the agent's interface. The action will then be allowed for the duration that you have defined.

The mechanism functions even when the agent is not connected to the network.

Three operations are possible using challenges:

- Enabling maintenance mode,
- Stopping the agent,
- Uninstalling the agent.

Administration privileges are not required on the user's workstation to enable these three operations via the challenge mechanism.

For further information on Maintenance mode, refer to the section [Understanding self-protection on agents and performing maintenance operations](#).

### 13.1 Enabling Maintenance mode

Maintenance mode disables self-protection on the agent so that maintenance operations or tests can be conducted.



### EXAMPLE

You can use this mode to change permissions on certain registry keys.

To enable this mode using a challenge, ask the user to:

1. Open the agent interface by double-clicking on  in the taskbar.
2. Go to  to open the **Help and support** panel.
3. Click on **Request a challenge** in the **Debug** tab.



4. Send you the challenge code generated.
5. Keep the **New challenge** window open.

On your side:

1. Open the **Challenges** menu in the console.
2. Enter the challenge code.
3. Select **Maintenance mode**.
4. Select a duration.
5. Click on **Generate**.
6. Send the response code to the user.
7. Ask the user to enter the response code in the **New challenge** window, then click on **Start the challenge**.

The user can stop the challenge in progress at any time in the lower banner in the agent's interface.

Maintenance mode can also be enabled in the **Preferences** tab in the agent's interface, under **Advanced settings**. It must be enabled beforehand in the agent group configuration, and the user of the workstation must have administration privileges to enable this mode. For further information on disabling self-protection and Maintenance mode, refer to the section [Understanding self-protection on agents and performing maintenance operations](#).

## 13.2 Stopping an agent

If certain issues on an agent persist even though you enabled Maintenance mode, the agent may need to be stopped temporarily. Stopping the agent makes it possible to disable the protection applied by rules in the security policy in addition to self-protection rules.

To stop an agent using a challenge, ask the user to:

1. Open the agent interface by double-clicking on  in the taskbar.
2. Go to  to open the **Help and support** panel.
3. Click on **Request a challenge** in the **Debug** tab.
4. Send you the challenge code generated.
5. Keep the **New challenge** window open.

On your side:

1. Open the **Challenges** menu in the console.
2. Enter the challenge code.
3. Select **Stop agent**.
4. Select a duration.
5. Click on **Generate**.
6. Send the response code to the user.
7. Ask the user to enter the response code in the **New challenge** window, then click on **Start the challenge**.

The user can stop the challenge in progress at any time in the lower banner in the agent's interface.



### 13.3 Uninstalling an agent

If another program is incompatible with the SES Evolution agent and prevents the user from working, for example, the only solution is to uninstall the agent.

To uninstall an agent using a challenge, ask the user to:

1. Open the agent interface by double-clicking on  in the taskbar.
2. Go to  to open the **Help and support** panel.
3. Click on **Request a challenge** in the **Debug** tab.
4. Send you the challenge code generated.
5. Keep the **New challenge** window open.

On your side:

1. Open the **Challenges** menu in the console.
2. Enter the challenge code.
3. Select **Uninstall the agent**.
4. Click on **Generate**.
5. Send the response code to the user.
6. Ask the user to enter the response code in the **New challenge** window, then click on **Start the challenge**.

Once the challenge has started, it cannot be stopped and there is no way to go back. Users must restart their workstations to properly end the process.

The agent can also be uninstalled through the standard procedure of uninstalling programs, provided that the agent group conf allows it. Administration privileges are required. For further information, refer to the sections [Allowing administrators to uninstall agents](#) and [Uninstalling agents](#).



# Annexe A. Supported OSSEC functions

There are several differences between the SES Evolution analysis engine and OSSEC, especially with regard to supported configuration items. This appendix indicates whether SES Evolution supports each listed OSSEC decoder or rule item.

For more information on using the analysis engine, refer to [Importing OSSEC security rules](#).

## A.1 Decoder file items

### Supported decoder items

Configuration item	Remarks
<code>&lt;decoder name=" . . . "&gt;</code>	The decoder name is mandatory.
<code>&lt;decoder name="..."&gt; &lt;parent&gt;...&lt;/parent&gt; &lt;/decoder&gt;</code>	Makes it possible to link the decoder to a higher level decoder.  <b>NOTE</b> SES Evolution allows more than two levels of decoders.
<code>&lt;decoder name="..."&gt; &lt;prematch&gt;...&lt;/prematch&gt; &lt;/decoder&gt;</code>	Advanced OSSEC regular expression that can be used to quickly verify whether the decoder is suitable for the log message.
<code>&lt;decoder name="..."&gt; &lt;prematch_pcre2&gt;...&lt;/prematch_pcre2&gt; &lt;/decoder&gt;</code>	PCRE2 regular expression that can be used to quickly verify whether the decoder is suitable for the log message.
<code>&lt;decoder name="..."&gt; &lt;program_name&gt;...&lt;/program_name&gt; &lt;/decoder&gt;</code>	Simple OSSEC regular expression targeting the <i>program_name</i> field extracted during the pre-decoding phase, which can be used to quickly verify whether the decoder is suitable for the log message.
<code>&lt;decoder name="..."&gt; &lt;program_name_pcre2&gt;...&lt;/program_name_pcre2&gt; &lt;/decoder&gt;</code>	PCRE2 regular expression targeting the <i>program_name</i> field extracted during the pre-decoding phase, which can be used to quickly verify whether the decoder is suitable for the log message.
<code>&lt;decoder name="..."&gt; &lt;regex&gt;...&lt;/regex&gt; &lt;order&gt;...&lt;/order&gt; &lt;/decoder&gt;</code>	Extracts fields from the log using an advanced OSSEC regular expression with capture groups. SES Evolution makes it possible to extract to any field name.
<code>&lt;decoder name="..."&gt; &lt;pcre2&gt;...&lt;/pcre2&gt; &lt;order&gt;...&lt;/order&gt; &lt;/decoder&gt;</code>	Extracts fields from the log using a PCRE2 regular expression with capture groups. SES Evolution makes it possible to extract to any field name.
<code>&lt;decoder name="..."&gt; &lt;use_own_name&gt;...&lt;/use_own_name&gt; &lt;/decoder&gt;</code>	Makes it possible to write rules later that target the name of this decoder when it is not at the first level. SES Evolution ignores this option but supports decoders from all levels in the <i>decoded_as</i> option in rules.



<code>&lt;decoder name="..."&gt; &lt;type&gt;...&lt;/type&gt; &lt;/decoder&gt;</code>	Allows the decoder to be classified. The supported values are: <i>firewall, ids, web-log, syslog, squid, windows, host-information</i> and <i>OSSEC</i> . The first seven mandatory rules (in <i>rules.config.xml</i> ) correspond to all of these types except <i>host-information</i> .
<code>&lt;decoder name="..."&gt; &lt;fts&gt;...&lt;/fts&gt; &lt;/decoder&gt;</code>	Allows <i>n-tuple</i> fields to be cached to see whether their values have already been observed together.

## Unsupported decoder items

Configuration item	Remarks
<code>&lt;decoder status="..."&gt;</code>	Even though OSSEC contains code to read this field, any configuration that contains it is invalid.
<code>&lt;decoder id="..."&gt;</code>	OSSEC contains code to read this field, but does not use its value.
<code>&lt;decoder type="..."&gt;</code>	OSSEC contains code to read this field, but does not use its value.
<code>&lt;decoder name="..."&gt; &lt;plugin_decoder&gt;...&lt;/plugin_decoder&gt; &lt;/decoder&gt;</code>	Allows users to compile their own decoders for specific needs.
<code>&lt;decoder name="..."&gt; &lt;accumulate/&gt; &lt;/decoder&gt;</code>	Supports logs that span several lines with common fields.

## A.2 Rule file items

### Supported rule items

Configuration item	Remarks
<code>&lt;var name="FREQ"&gt;8&lt;/var&gt; ... &lt;group name="..."&gt; &lt;rule ... frequency="\$FREQ"&gt; ...</code>	Declares constants at the top of the file.
<code>&lt;group name="..."&gt; &lt;rule ...&gt; ... &lt;/rule&gt; &lt;/group&gt;</code>	<code>&lt;rule&gt;</code> items must be under a <code>&lt;group&gt;</code> item. The <i>name</i> attribute is mandatory and ends with a comma. Used in classifying rules found in the group.
<code>&lt;rule id="123456"&gt;</code>	The <i>id</i> attribute of a rule is mandatory, with a value between 1 and 999999 inclusive.
<code>&lt;rule overwrite="yes no"&gt;</code>	Makes it possible to do away with a unique <i>id</i> attribute, replaces a rule that was defined earlier.
<code>&lt;rule level="0..15"&gt;</code>	Mandatory. Assigns a level of severity to the rule; level 0 rules are evaluated on a higher priority than others.



<code>&lt;rule accuracy="0"&gt;</code>	Gives rules containing this attribute lower priority than others.
<code>&lt;rule maxsize="0..9999"&gt;</code>	Makes it possible for the rule to apply only to logs with a message that is at least as long as the value of this attribute.
<code>&lt;rule timeframe="..." frequency="..."&gt;</code>	Declares a composite rule that is triggered if an event occurs several times within the defined time frame.
<code>&lt;rule noalert="..."&gt;</code>	Considers that a rule does not apply if no child rules apply.
<code>&lt;rule ignore="..."&gt;</code>	Inhibits the rule for a set number of seconds after it is triggered.
<code>&lt;rule id="..." level="..."&gt; &lt;decoded_as&gt;...&lt;/decoded_as&gt; &lt;/rule&gt;</code>	Indicates the first-level decoder (or second-level using the <i>use_own_name</i> option) that must have been used for the message. SES Evolution supports decoder names from all levels and ignores the <i>use_own_name</i> option.
<code>&lt;rule id="..." level="..."&gt; &lt;if_sid&gt;...&lt;/if_sid&gt; &lt;/rule&gt;</code>	Links a rule to a parent rule with a rule ID.
<code>&lt;rule id="..." level="..."&gt; &lt;if_group&gt;...&lt;/if_group&gt; &lt;/rule&gt;</code>	Links a rule to parent rules with a group name.
<code>&lt;rule id="..." level="..."&gt; &lt;if_level&gt;...&lt;/if_level&gt; &lt;/rule&gt;</code>	Links a rule to parent rules with a minimum level of severity.
<code>&lt;rule id="..." level="..."&gt; &lt;regex&gt;...&lt;/regex&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt; &lt;match&gt;...&lt;/match&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt; &lt;pcre2&gt;...&lt;/pcre2&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt; &lt;match_pcre2&gt;...&lt;/match_pcre2&gt; &lt;/rule&gt;</code>	Simple/advanced OSSEC/PCRE2/PCRE2 regular expression targeting the log message to determine whether the rule matches.  <b>NOTE</b> The last two variants are synonymous.
<code>&lt;rule id="..." level="..."&gt; &lt;user&gt;...&lt;/user&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt; &lt;user_pcre2&gt;...&lt;/user_pcre2&gt; &lt;/rule&gt;</code>	Simple OSSEC/PCRE2 regular expression targeting the <i>srcuser</i> decoded field, or if there isn't one, the <i>dstuser</i> decoded field, to determine whether the rule matches.



<pre>&lt;rule id="..." level="..."&gt;   &lt;srcip&gt;...&lt;/srcip&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;dstip&gt;...&lt;/dstip&gt; &lt;/rule&gt;</pre>	<p>IPv4 or IPv6 address specification (individual addresses, ranges, networks with mask length, etc.) compared to the <i>srcip</i> or <i>dstip</i> fields to determine whether the rule matches.</p> <p>The specification can be expressed as a negative by placing an exclamation mark in front of it.</p>
<pre>&lt;rule id="..." level="..."&gt;   &lt;srcport&gt;...&lt;/srcport&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;srcport_pcre2&gt;...&lt;/srcport_pcre2&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;dstport&gt;...&lt;/dstport&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;dstport_pcre2&gt;...&lt;/dstport_pcre2&gt; &lt;/rule&gt;</pre>	<p>Simple OSSEC/PCRE2 regular expressions targeting the <i>srcport</i> and <i>dstport</i> decoded fields to determine whether the rule matches.</p>
<pre>&lt;rule id="..." level="..."&gt;   &lt;id&gt;...&lt;/id&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;id_pcre2&gt;...&lt;/id_pcre2&gt; &lt;/rule&gt;</pre>	<p>Simple OSSECPCRE2 regular expression targeting the <i>id</i> decoded field to determine whether the rule matches.</p>
<pre>&lt;rule id="..." level="..."&gt;   &lt;status&gt;...&lt;/status&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;status_pcre2&gt;...&lt;/status_pcre2&gt; &lt;/rule&gt;</pre>	<p>Simple OSSEC/PCRE2 regular expression targeting the <i>status</i> decoded field to determine whether the rule matches.</p>
<pre>&lt;rule id="..." level="..."&gt;   &lt;hostname&gt;...&lt;/hostname&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;hostname_pcre2&gt;...&lt;/hostname_pcre2&gt; &lt;/rule&gt;</pre>	<p>Simple OSSEC/PCRE2 regular expression targeting the <i>hostname</i> pre-decoded field to determine whether the rule matches.</p>
<pre>&lt;rule id="..." level="..."&gt;   &lt;extra_data&gt;...&lt;/extra_data&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;extra_data_pcre2&gt;...&lt;/extra_data_pcre2&gt; &lt;/rule&gt;</pre>	<p>Simple OSSEC/PCRE2 regular expression targeting <i>data</i> decoded field to determine whether the rule matches.</p>



```
<rule id="..." level="...">
  <program_name>...</program_name>
</rule>
<rule id="..." level="...">
  <program_name_pcre2>...</program_name_pcre2>
</rule>
```

Simple OSSEC/PCRE2 regular expression targeting the *program\_name* pre-decoded field to determine whether the rule matches.

```
<rule id="..." level="...">
  <url>...</url>
</rule>
<rule id="..." level="...">
  <url_pcre2>...</url_pcre2>
</rule>
```

Simple OSSEC/PCRE2 regular expression targeting the *url* decoded field to determine whether the rule matches.

```
<rule id="..." level="...">
  <action>...</action>
</rule>
```

Exact value compared to the *action* decoded field to determine whether the rule matches.

```
<rule id="..." level="...">
  <field name="...">...</field>
</rule>
```

Advanced OSSEC regular expression targeting the decoded field indicated, to determine whether the rule matches.

```
<rule id="..." level="...">
  <time>...</time>
</rule>
```

Specifies the time slot during which the rule applies. Supports any format that OSSEC supports.

#### EXAMPLE

```
<time>1:30-17:45</time> ; <time>1 am - 12:30 PM</time> ; <time>!08:00-17:30</time>
```

SES Evolution uses the system time zone to evaluate local time.

```
<rule id="..." level="...">
  <weekday>...</weekday>
</rule>
```

Specifies the days of the week when the rule is enabled. Supports any format that OSSEC supports.

#### EXAMPLE

```
<weekday>wed fri sun</weekday> ;
<weekday>weekdays sunday</weekday> ;
<weekday>! tue wed</weekday>
```

SES Evolution uses the system time zone to evaluate local time, and therefore the day.

```
<rule id="..." level="...">
  <cve>...</cve>
</rule>
<rule id="..." level="...">
  <info type="cve">...</info>
</rule>
```

Describes the rule by associating it with a known vulnerability.



<pre>&lt;rule id="..." level="..."&gt;   &lt;info type="text"&gt;...&lt;/info&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;info type="link"&gt;...&lt;/info&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;info type="osvdb"&gt;...&lt;/info&gt; &lt;/rule&gt;</pre>	Describes the rule using text, a link or an Open Source Vulnerability Database item. SES Evolution supports only a single item of each type in the same rule.
<pre>&lt;rule id="..." level="..."&gt;   &lt;group&gt;...&lt;/group&gt; &lt;/rule&gt;</pre>	Adds groups that the rule belongs to, in addition to those specified in the rule's parent <group> node.
<pre>&lt;rule id="..." level="..."&gt;   &lt;description&gt;...&lt;/description&gt; &lt;/rule&gt;</pre>	Mandatory description of the event to which the rule applies. SES Evolution uses this description in the log summary that appears in the agent and console.
<pre>&lt;rule id="..." level="..."&gt;   &lt;category&gt;...&lt;/category&gt; &lt;/rule&gt;</pre>	Links the rule to one of the decoder types. Option used for rules 1 to 7 in the file <i>rules_config.xml</i> .
<pre>&lt;rule id="..." level="..."&gt;   &lt;if_fts/&gt; &lt;/rule&gt;</pre>	Makes the rule effective only if a decoder has detected (with the fts option) that a set of fields had values seen together for the first time.
<pre>&lt;rule id="..." level="..."&gt;   &lt;ignore&gt;...&lt;/ignore&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;check_if_ignored&gt;...&lt;/check_if_   ignored&gt; &lt;/rule&gt;</pre>	Makes it possible to cache sets of field values, and disable a rule later for the same value sets.
<pre>&lt;rule id="..." level="..."&gt;   &lt;check_diff/&gt; &lt;/rule&gt;</pre>	Allows you to ignore two consecutive and identical logs.
<pre>&lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;if_matched_regex&gt;...&lt;/if_matched_   regex&gt; &lt;/rule&gt;</pre>	Makes it possible to trigger a composite rule if several logs generated recently can be described with an advanced OSSEC regular expression.
<pre>&lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;if_matched_group&gt;...&lt;/if_matched_   group&gt; &lt;/rule&gt;</pre>	Makes it possible to trigger a composite rule if several logs generated recently were described with a rule in a given group
<pre>&lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;if_matched_sid&gt;...&lt;/if_matched_   sid&gt; &lt;/rule&gt;</pre>	Makes it possible to trigger a composite rule if several logs generated recently were described with a rule that has a given ID.



```

<rule id="..." level="..."
frequency="..." timeframe="...">
  <same_source_ip/>
</rule>
<rule id="..." level="..."
frequency="..." timeframe="...">
  <same_src_port/>
</rule>
<rule id="..." level="..."
frequency="..." timeframe="...">
  <same_dst_port/>
</rule>
<rule id="..." level="..."
frequency="..." timeframe="...">
  <same_id/>
</rule>
<rule id="..." level="..."
frequency="..." timeframe="...">
  <same_user/>
</rule>

```

Makes it possible to trigger a composite rule if several logs sharing the same *srcip*, *srcport*, *dstport*, *id* or *user* field are found.

```

<rule id="..." level="..."
frequency="..." timeframe="...">
  <different_srcip/>
</rule>
<rule id="..." level="..."
frequency="..." timeframe="...">
  <different_url/>
</rule>

```

Makes it possible to trigger a composite rule if several logs with separate vales are found for the same *srcip* or *url* field.

### Unsupported rule items

Configuration item	Supported	Remarks
<pre> &lt;rule id="..." level="..."&gt;   &lt;srcgeoip&gt;...&lt;/srcgeoip&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;srcgeoip_pcre2&gt;...&lt;/srcgeoip_ pcre2&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;dstgeoip&gt;...&lt;/dstgeoip&gt; &lt;/rule&gt; &lt;rule id="..." level="..."&gt;   &lt;dstgeoip_pcre2&gt;...&lt;/dstgeoip_ pcre2&gt; &lt;/rule&gt; </pre>	No	SES Evolution does not use the <i>libgeoip library</i> .
<pre> &lt;rule id="..." level="..."&gt;   &lt;list lookup="..." field="..."&gt;...&lt;/list&gt; &lt;/rule&gt; </pre>	No	Quick search for a field in a CDB (container database). SES Evolution does not use the CDB library.



<pre>&lt;rule id="..." level="..."&gt;   &lt;compiled_rule&gt;...&lt;/compiled_rule&gt; &lt;/rule&gt;</pre>	Partial	<p>Allows users to compile their own rules for specific needs.</p> <p>SES Evolution supports the <i>is_simple_http_request</i> function, which serves as an example, but is used in standard rule sets.</p>
<pre>&lt;rule id="..." level="..."&gt;   &lt;options&gt;...&lt;/options&gt; &lt;/rule&gt;</pre>	Partial	<p>SES Evolution supports only the <i>no_log</i> option; e-mail alerts or active responses are not supported.</p>
<pre>&lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;not_same_source_ip/&gt; &lt;/rule&gt; &lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;not_same_id/&gt; &lt;/rule&gt; &lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;not_same_user/&gt; &lt;/rule&gt;</pre>	No	<p>Unnecessary OSSEC options in a configuration with the sole purpose of canceling a <i>&lt;same_...&gt;</i> option written earlier in the same rule: you are advised to remove the previous option.</p>
<pre>&lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;same_location/&gt; &lt;/rule&gt; &lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;not_same_agent/&gt; &lt;/rule&gt;</pre>	No	<p>SES Evolution analyzes and correlates logs at the agent level instead of the server level. As a result, multiple agent logs cannot be correlated; these options will therefore be ignored.</p>
<pre>&lt;rule id="..." level="..." frequency="..." timeframe="..."&gt;   &lt;different_srcgeop/&gt; &lt;/rule&gt;</pre>	No	<p>SES Evolution does not use the <i>libgeop</i> library.</p>



## 14. Further reading

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Additional information and answers to questions you may have about SES Evolution are available on the [Documentation](#) website and in the [Stormshield knowledge base](#) [authentication required].



**STORMSHIELD**

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