ESET File Security for Linux

User guide

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Introduction

ESET's state-of-the-art scanning engine has unsurpassed scanning speed and detection rates combined with a tiny footprint that makes ESET File Security for Linux (EFSL) the ideal choice for any server on Linux.

The main functionality is covered by the On-demand scanner and On-access scanner (Real-time file system protection).

The On-demand scanner can be started by a privileged user (usually a system administrator) through the command line interface, the web interface, or the operating system's automatic scheduling tool (for example, cron). The term On-demand refers to file system objects being scanned by either user or system demand.

The On-access scanner is invoked whenever a user or operating system attempts to access file system objects. Thus a scan is triggered by any attempt to access file system objects.

Key features of the system

- Automatic product updater
- Redesigned web interface for easy management and overview of security of your system
- On-access scan by ESET's lightweight in-kernel module
- Comprehensive scan logs
- Redesigned, easy-to-use setup page with a search bar
- SELinux support
- Quarantine
- Manageable via ESET PROTECT

Release notes

ESET File Security for Linux version 8.0.375.0

- New: Process Exclusions
- New: SecureBoot support
- New: Amazon Linux and Oracle Linux support
- New: Protection status configuration
- New: Activation with business account credentials
- New: Detection exclusions wizard
- New: Submit sample for analysis

- New: Support for EncFS
- Improved: Capability of command line utilities for use with future Remote Monitoring & Management integration
- Improved: Admin can submit a sample for analysis directly from the Quarantine section
- Improved: Admin can copy a hash of quarantine section using the dropdown menu
- Improved: A column with a hash of a file is shown for all quarantined items
- Improved: Content of quarantine section is translated to supported languages
- Improved: Confirmation dialog appears when doing actions with quarantined files
- Improved: WebGUI user experience and polishing
- Fixed: Product activation through a proxy server returns "Activation successful", but the product remains not activated
- Fixed: In some scenarios product is unable to send log to the logging service
- Fixed: Exclusions ending without "/" works differently for real-time scan and on-demand scan
- Fixed: Error requiring kernel headers when HWE kernel is used on Ubuntu
- Other bug fixes and minor optimizations
- Removed: Redhat Enterprise Linux (RHEL) 6 and CentOS 6 support

System requirements

Hardware requirements depend on the server role. The following minimum hardware requirements are required for installation:

- Processor Intel/AMD x64
- 700MB of free hard disk space
- 256MB of free RAM
- Glibc 2.17 or later
- Linux OS kernel versions 3.10.0 and later
- en_US.UTF-8 encoding locale

Supported operating systems

ESET File Security for Linux (EFSL) has been tested and is supported on the latest minor releases of listed operating systems. Update your operating system before installing EFSL.

64-bit Operating System	Secure Boot supported	SELinux Support	Note
RedHat Enterprise Linux (RHEL) 7	✔	✔	EFSL SELinux module policy installation requires an installed selinux-policy-devel package. To start the OS without EFSL SELinux module, use the `eset_selinux=0` kernel parameter during OS boot.
RedHat Enterprise Linux (RHEL) 8	✔	✔	
CentOS 7	✔	✔	
CentOS 8	✔	✔	
Ubuntu Server 16.04 LTS	✔		
Ubuntu Server 18.04 LTS	✔		
Ubuntu Server 20.04 LTS	✔		
Debian 9			
Debian 10	✔		
SUSE Linux Enterprise Server (SLES) 12	✔		
SUSE Linux Enterprise Server (SLES) 15	✔		
Oracle Linux 8	✔ (stock kernel only)		If the Unbreakable Enterprise Kernel is used, the kernel-uek-devel package must be installed manually. In this case, Secure Boot is not supported.
Amazon Linux 2			

EFSL should work on the most recent and frequently used open-source Linux distributions if the hardware requirements listed above are met, and software dependencies are not missing in the Linux distribution used.

> **ELREPO kernel**
> Linux distributions with ELREPO kernel are not supported.

Remote management via ESET PROTECT.

Supported browsers

EFSL Web interface works in the following browsers:

- Google Chrome
- Mozilla Firefox
- Microsoft Edge
- Safari

Secure boot

To use real-time file system protection on a machine with Secure boot enabled, the ESET File Security for Linux (EFSL) kernel module must be signed with a private key. The corresponding public key must be imported to UEFI. EFSL version 8 comes with a built-in signing script, that operates in interactive or non-interactive mode.

Use the `mokutil` utility to verify Secure boot is enabled on the machine. Execute the following command from a Terminal window as a privileged user:

```
mokutil --sb-state
```

Interactive mode

If you do not have a public and private key to sign the kernel module, Interactive mode can generate new keys and sign the kernel module. It also helps enroll the generated keys in UEFI.

1. Execute the following command from a Terminal window as a privileged user:

```
/opt/eset/efs/lib/install_scripts/sign_modules.sh
```

2. When the script prompts you for keys, type N, then press **Enter**.

3. When prompted to generate new keys, type Y, then press **Enter**. The script signs the kernel module with the generated private key.

4. To enroll the generated public key to UEFI semiautomatically, type Y, then press **Enter**. To complete the enrollment manually, type N, press **Enter**, and follow the on-screen instructions.

5. When prompted, enter a password of your choice. Remember the password; you will need it when completing enrollment (approval of new Machine Owner Key [MOK]) in UEFI.

6. To save the generated keys to your hard drive for later use, type Y, enter the path to a directory, press **Enter**.

7. To reboot and access UEFI, type Y when prompted, and press **Enter**.

8. Press any key within 10 seconds when prompted to access UEFI.

9. Select **Enroll MOK**, press **Enter**.

10. Select **Continue**, press **Enter**.

11. Select **Yes**, press **Enter**.

12. To complete the enrollment and reboot the machine, type the password from step 5 and press **Enter**.

Non-interactive mode

Use this mode if you have a private and public key available on the target machine.

Syntax: `/opt/eset/efs/lib/install_scripts/sign_modules.sh [OPTIONS]`

Options - short form	Options - long form	Description
`-d`	`--public-key`	Set the path to a DER format public key to use for signing

Options - short form	Options - long form	Description
`-p`	`--private-key`	Set the path to the private key to use for signing
`-k`	`--kernel`	Set the name of the kernel whose modules have to be signed. If not specified, the current kernel is selected by default
`-a`	`--kernel-all`	Sign (and build) kernel modules on all existing kernels containing headers
`-h`	`--help`	Show help

1. Execute the following command from a Terminal window as a privileged user:

```
/opt/eset/efs/lib/install_scripts/sign_modules.sh -p <path_to_private_key> -
d <path_to_public_key>
```

Replace `<path_to_private_key>` and `<path_to_public_key>` with the path leading to a private key and public key respectively.

2. If the provided public key is not enrolled in UEFI yet, execute the following command as a privileged user:

```
mokutil --import <path_to_public_key>
```

`<path_to_public_key>` represents the provided public key.

3. Reboot the machine, access UEFI, select **Enroll MOK** > **Continue** > **Yes**.

Managing several devices

Suppose you manage several machines that use the same Linux kernel and have the same public key enrolled in UEFI. In that case, you can sign the EFSL kernel module on one of those machines containing the private key and then transfer the signed kernel module to the other machines. When the signing is complete:

1. Copy/paste the signed kernel module from `/lib/modules/<kernel-version>/eset/efs/eset_rtp` to the same path on the target machines.

2. Call `depmod <kernel-version>` on the target machines.

3. Restart ESET File Security for Linux on the target machine to update the modules table. Execute the following command as a privileged user:

```
systemctl restart efs
```

In all cases, replace `<kernel-version>` with the corresponding kernel version.

Installation

ESET File Security for Linux is distributed as a binary file (*.bin*).

Update your OS
Make sure your OS has the most recent updates installed before installation of ESET File Security for Linux.

Remove
If you have ESET File Security for Linux version 4.x installed, remove it first. ESET File Security for Linux is not compatible with ESET File Security for Linux version 4.x.
If you have been using ESET Remote Administrator to manage ESET File Security for Linux version 4, upgrade to ESET Security Management Center and then to ESET PROTECT to manage EFSL remotely.

Installation via Terminal

To install or upgrade your product, run the ESET distribution script with root privileges for the appropriate OS distribution that you have:

- `./efs.x86_64.bin`
- `sh ./efs.x86_64.bin`

See available command-line arguments.

To display the available parameters (arguments) of ESET File Security for Linux binary file, run the following command from a Terminal window:

```
bash ./efs.x86_64.bin -h
```

Available parameters

Short form	Long form	Description
`-h`	`--help`	Display command line arguments
`-n`	`--no-install`	Do not install after unpacking
`-y`	`--accept-license`	Do not show the license; the license has been accepted
`-f`	`--force-install`	Force installation via package manager without asking
`-g`	`--no-gui`	Do not setup/start GUI after installation
`-u`	`--unpack-ertp-sources`	Unpack 'ESET Real-time file system protection kernel module' sources, do not perform installation

Gain .deb or .rpm installation package
To gain `.deb` or `.rpm` installation package suitable for your OS, run ESET distribution script with "`-n`" command line argument:
`sudo ./efs.x86_64.bin -n`
or
`sudo sh ./efs.x86_64.bin -n`

To see the dependencies of the installation package, run one of the following commands:

- `dpkg -I <deb package>`
- `rpm -qRp <rpm package>`

Follow the on-screen instructions. Once you accept the product License Agreement, installation will complete and displays the Web interface login details.

The installer would inform you of any dependency problems.

Installation via ESET PROTECT

To deploy ESET File Security for Linux remotely on your computers, refer to the ESET PROTECT Software Install online help section.

To enable regular updates of detection modules, activate ESET File Security for Linux.

If needed, enable the Web interface remotely.

> **Third-party apps**
> A summary of third-party apps used by ESET File Security for Linux can be found in the `NOTICE_mode` file stored at `/opt/eset/efs/doc/modules_notice/`.

Reinstall

If the installation breaks for any reason, rerun the installer. Your settings will remain intact.

Uninstall

To uninstall your ESET product, use the Terminal window as a superuser to execute the command of removing packages corresponding to your Linux distribution.

Ubuntu/Debian based distributions:

- `apt-get remove efs`
- `dpkg --purge efs`

Red Hat based distributions:

- `yum remove efs`
- `rpm -e efs`

Mass deployment

This topic provides a high-level overview of mass deployment of ESET File Security for Linux via Puppet, Chef and Ansible. The code blocks below contain only basic examples of how packages could be installed. They might differ per linux distribution.

Package selection

Before you start the mass deployment of ESET File Security for Linux, you have to decide which package to use. ESET File Security for Linux is distributed as a .bin package. However, you can obtain deb/rpm package by running

the ESET distribution script with "`-n`" command line argument.

Puppet

Precondition

- bin or deb/rpm package available on puppet-master
- puppet-agent connected to puppet-master

Bin package

Deployment steps:

- copy the bin installation package to the desired machines
- run the bin installation package

Puppet manifest sample

```
node default {
    file {"/tmp/efs-8.0.1081.0.x86_64.bin":
           mode => "0700",
           owner => "root",
           group => "root",
           source => "puppet:///modules/efs/efs-8.0.1081.0.x86_64.bin"
          }
    exec {"Execute bin package installation":
           command => '/tmp/efs-8.0.1081.0.x86_64.bin -y -f'
          }
}
```

Deb/rpm package

Deployment steps:

- copy deb/rpm installation package according to distribution family to the desired machines
- run the deb/rpm installation package

Dependencies

Dependencies have to be resolved before starting the installation

Puppet manifest sample

```
node default {
if $osfamily == 'Debian' {
        file {"/tmp/efs-8.0.1081.0.x86_64.deb":
               mode => "0700",
               owner => "root",
               group => "root",
               source => "puppet:///modules/efs/efs-8.0.1081.0.x86_64.deb"
             }
        package {"efs":
               ensure => "installed",
               provider => 'dpkg',
               source => "/tmp/efs-8.0.1081.0.x86_64.deb"
             }
 }
if $osfamily == 'RedHat' {

        file {"/tmp/efs-8.0.1081.0.x86_64.rpm":
               mode => "0700",
               owner => "root",
               group => "root",
               source => "puppet:///modules/efs/efs-8.0.1081.0.x86_64.rpm"
             }

        package {"efs":
               ensure => "installed",
               provider => 'rpm',
               source => "/tmp/efs-8.0.1081.0.x86_64.rpm"
             }
  }
}
```

Chef

Precondition

- bin or deb/rpm package available on Chef server
- Chef client connected to Chef server

Bin package

Deployment steps:

- copy the bin installation package to the desired machines
- run the bin installation package

Chef recipe sample

```
cookbook_file '/tmp/efs-8.0.1084.0.x86_64.bin' do
        source 'efs-7.0.1084.0.x86_64.bin'
        owner 'root'
        group 'root'
        mode '0700'
        action :create
end

execute 'package_install' do
        command '/tmp/efs-8.0.1084.0.x86_64.bin -y -f'
end
```

Deb/rpm package

Deployment steps:

- copy deb/rpm installation package according to distribution family to the desired machines
- run the deb/rpm installation package

Dependencies

Dependencies have to be resolved before starting the installation

Chef recipe sample

```
cookbook_file '/tmp/efs-8.0.1084.0.x86_64.deb' do
        source 'efs-8.0.1084.0.x86_64.deb'
        owner 'root'
        group 'root'
        mode '0700'
        action :create
        only_if { node['platform_family'] == 'debian'}
end

cookbook_file '/tmp/efs-8.0.1084.0.x86_64.rpm' do
                source 'efs-8.0.1084.0.x86_64.rpm'
                owner 'root'
                group 'root'
                mode '0700'
                action :create
                only_if { node['platform_family'] == 'rhel'}

dpkg_package 'efsu' do
        source '/tmp/efs-8.0.1084.0.x86_64.deb'
        action :install
        only_if { node['platform_family'] == 'debian'}
end

rpm_package 'efsu' do
        source '/tmp/efs-8.0.1084.0.x86_64.rpm'
        action :install
        only_if { node['platform_family'] == 'rhel'}
end
```

Ansible

Precondition

- bin or deb/rpm package available on Ansible server
- ssh access to target machines

Bin package

Deployment steps:

- copy the bin installation package to the desired machines
- run the bin installation package

Playbook task sample

```
....
- name: "INSTALL: Copy configuration json files"
  copy:
    src: efs-8.0.1084.0.x86_64.bin
    dest: /home/ansible/

- name : "Install product bin package"
  shell: bash ./efs-8.0.1084.0.x86_64.bin -y -f -g
.....
```

Deb/rpm package

Deployment steps:

- copy deb/rpm installation package according to distribution family to the desired machines
- run the deb/rpm installation package

Playbook task sample

```
....
      - name: "Copy deb package to VM"
        copy:
          src: ./efs-8.0.1085.0.x86_64.deb
          dest: /home/ansible/efs-8.0.1085.0.x86_64.deb
          owner: ansible
          mode: a+r
        when:
          - ansible_os_family == "Debian"

      - name: "Copy rpm package to VM"
        copy:
          src: ./efs-8.0.1085.0.x86_64.rpm
          dest: /home/ansible/efs-8.0.1085.0.x86_64.rpm
          owner: ansible
          mode: a+r
        when:
          - ansible_os_family == "RedHat"

      - name: "Install deb package"
        apt:
          deb: /home/ansible/efs-8.0.1085.0.x86_64.deb
          state: present
        when:
          - ansible_os_family == "Debian"

      - name: "Install rpm package"
        yum:
          name: /home/ansible/efs-8.0.1085.0.x86_64.rpm
          state: present
        when:
          - ansible_os_family == "RedHat"
....
```

Update and upgrade

Update modules

Product modules, including detection modules, are updated automatically.

To manually update detection modules, click **Modules update** > **Check and update**.

If an ESET File Security for Linux update was not stable, roll back the module updates to a previous state. Click **Dashboard** > **Modules update** > **Module rollback**, select the desired duration, click **Rollback now**.

To update all product modules from a Terminal window, execute the following command:

```
/opt/eset/efs/bin/upd -u
```

Update and rollback via Terminal

Options - short form	Options - long form	Description
`-u`	`--update`	Update modules

Options - short form	Options - long form	Description
`-c`	`--cancel`	Cancel downloading modules
`-e`	`--resume`	Unblock updates
`-r`	`--rollback=VALUE`	Rolls back to the oldest snapshot of the scanner module and blocks all updates for VALUE hours
`-l`	`--list-modules`	Display the list of product modules
	`--check-app-update`	Check the availability of new product version in the repository
	`--download-app-update`	Download new product version if available
	`--perform-app-update`	Download and install new product version if available
	`--accept-license`	Accept license changes

upd limitation
The `upd` utility cannot be used to make changes in product configuration.

To stop updates for 48 hours and roll back to the oldest snapshot of the scanner module, execute the following command as a privileged user:
```
sudo /opt/eset/efs/bin/upd --rollback=48
```
To resume automatic updates of the scanner module, execute the following command as a privileged user:
```
sudo /opt/eset/efs/bin/upd --resume
```
To update from a mirror server available at IP address "192.168.1.2" and port "2221", execute the following command as a privileged user:
```
sudo /opt/eset/efs/bin/upd --update --server=192.168.1.2:2221
```

Upgrade ESET File Security for Linux to a later version

New versions of ESET File Security for Linux are issued to implement improvements or fix issues that cannot be resolved by automatic updates to program modules.

No direct upgrade from ESET File Security for Linux version 4
You cannot upgrade from ESET File Security for Linux version 4 to ESET File Security for Linux version 8 and later. A new installation is required. Version 4 settings cannot be imported to version 8 and later.

Determine the installed product version

There are two methods to determine the ESET File Security for Linux product version:

- In the Web interface, click **Help** > **About**.
- Execute `/opt/eset/efs/sbin/setgui -v` in a Terminal window.

Upgrade ESET File Security for Linux locally

- Run an OS-related installation package as described in the Installation section.
- In the Web interface, click **Dashboard** > **Product update** > **Check for update**.
- Use the `upd` utility with the `--perform-app-update` parameter.
- Configure automatic updates/upgrades.

Upgrade ESET File Security for Linux remotely

If you use ESET PROTECT to manage ESET File Security for Linux, you can initiate an upgrade in the following ways:

- Software install task.
- In the Web interface, click **Dashboard** > **ESET Applications** > right-click ESET File Security for Linux > **Update installed ESET products**.
- Configure automatic updates/upgrades.

Update mirror

Several ESET security products (ESET PROTECT, ESET Endpoint Antivirus, etc.) allow you to create copies of update files that can be used to update other workstations on the network. The use of a mirror— a copy of the update files in the LAN environment—is convenient because the update files do not need to be downloaded from the vendor update server repeatedly by each workstation. Updates are downloaded to the local mirror server and then distributed to all workstations to avoid the risk of network traffic overload. Updating client workstations from a mirror optimizes network load balance and saves internet connection bandwidth.

Configure ESET File Security for Linux to use an update mirror

1. In the Web interface navigate to **Setup** > **Update** > **Primary Server**.
2. In the **Basic** section, switch the toggle next to **Choose automatically** to turn it off.
3. In the **Update server** field, type the URL address of the mirror server in one of the following forms:

   a. `http://<IP>:<port>`

   b. `http://<hostname>:<port>`
4. Enter the applicable username and password.
5. Click **Save**.

If there are more mirror servers available in your network, repeat the steps above to configure the secondary update servers.

Automatic product updates

Activate automatic product component updates, including upgrade to later product versions:

1. In the Web interface, click **Setup** > **Update**.
2. In the **Program Update** section, select **Auto-update** from the **Update mode** list-box.
3. If you prefer to use a custom update server for product component updates:

   a. Define the server address in the **Custom server** field.

   b. Enter the **Username** and **Password** in the corresponding fields.

4. Click **Save**.

If managing ESET File Security for Linux via ESET PROTECT, configure the above mentioned automatic updates through Policies.

To alter the configuration of ESET File Security for Linux:

1. In ESET PROTECT, click **Policies** > **New policy** and type a name for the policy.
2. Click **Settings** and select **ESET File/Server Security for Linux (V7+)** from the drop-down menu.
3. Adjust the desired settings.
4. Click **Continue** > **Assign**, select the desired group of computers the policy will apply to.
5. Click **Finish**.

> **Restart Recommended**
> If a remotely managed computer has the automatic updates turned on, and the new package is automatically downloaded, the protection status in ESET PROTECT will be **Restart Recommended**.

Update mode

Auto-update - new packages are automatically downloaded and then installed upon the next restart of OS. If there have been updates to the End User License Agreement, the user must accept the updated End User License Agreement before downloading the new package.

Never-update - new packages are not downloaded, but the product displays the availability of new packages in the **Dashboard**.

Activate ESET File Security for Linux

Activate your ESET File Security for Linux (EFSL) using a license obtained from your ESET distributor.

Activate using the Web interface

1. Log in to the Web interface.
2. Click **Dashboard** > **License** tile and select the desired method of activation:

   a. Activate with License Key – For users who purchased an ESET File Security for Linux License Key.

   b. ESET Business Account – For registered ESET Business Account (EBA) users who have an ESET File Security for Linux license imported to EBA. Your EBA (or ESET MSP Administrator (EMA)) username and password are required.

   c. Offline license – Use this option if ESET File Security for Linux cannot connect to the internet and EFSL will

be used in an offline environment.

d.ESET PROTECT

If the license expires, you can change the license to a different one at the same location.

Using EBA or EMA login credentials to activate EFSL

1. Log in to the Web interface.

2. Click **Dashboard** > **License** tile and select **ESET Business Account**.

3. Enter your EBA or EMA login credentials.

4. If there is only a single EFSL license in your EBA or EMA account and no sites are created, the activation will complete instantly. Otherwise, you have to select a particular license or a site (license pool) to active EFSL.

5. Click **Activate**.

Activate using the Terminal

Use the `/opt/eset/efs/sbin/lic` utility as a privileged user to activate ESET File Security for Linux from a Terminal window.

Syntax: `/opt/eset/efs/sbin/lic [OPTIONS]`

Examples

The commands below have to be executed as a privileged user.

Activation using a License Key

`/opt/eset/efs/sbin/lic -k XXXX-XXXX-XXXX-XXXX-XXXX`

or

`/opt/eset/efs/sbin/lic --key XXXX-XXXX-XXXX-XXXX-XXXX`

while `XXXX-XXXX-XXXX-XXXX-XXXX` represents your ESET File Security for Linux License Key.

Activation using an EBA or EMA account

1. Execute

`/opt/eset/efs/sbin/lic -u your@username`

where `your@username` represents your EBA or EMA account username.

2. Type in your password, and press **Enter**.

3. If there is only a single EFSL license in your EBA or EMA account and no sites are created, the activation will complete instantly. Otherwise, a list of available EFSL licenses and sites (license pool) will display.

4. Execute one of the following commands:

`/opt/eset/efs/sbin/lic -u your@username -p XXX-XXX-XXX`

while `XXX-XXX-XXX` represents a public license ID enclosed in square brackets next to each license in the list displayed earlier

`/opt/eset/efs/sbin/lic -u your@username -i site_ID`

while `site_ID` represents an alphanumeric string displayed in square brackets next to each site in the list displayed earlier

5. Enter your password, and press **Enter**.

Activate using ESET PROTECT

Log in to ESET PROTECT Web interface, navigate to **Client Tasks** > **Product Activation**, and follow the instructions on Product Activation.

When the activation is complete, access the Web interface to launch the initial scan of your system or to configure ESET File Security for Linux.

Where can I find my license

If you purchased a license, you should have received two emails from ESET. The first email contains information about the ESET Business Account portal. The second email contains details about your License Key (XXXXX-XXXXX-XXXXX-XXXXX-XXXXX) or Username (EAV-xxxxxxxxxx) and Password when applicable, Public License ID (xxx-xxx-xxx), product name (or list of products) and quantity.

I have a Username and a Password

If you have a Username and a Password, convert them to a License Key at the ESET Business Account License converter page:

https://eba.eset.com/LicenseConverter

Check the activation status

To verify the activation status and license validity, use the `lic` utility. Execute the following commands as a privileged user:

Syntax: `/opt/eset/efs/sbin/lic [OPTIONS]`

The commands below must be executed by a privileged user:
`/opt/eset/efs/sbin/lic -s`
or
`/opt/eset/efs/sbin/lic --status`

Output when the product is activated:
```
Status: Activated
Public Id: ABC-123-DEF
License Validity: 2020-03-29
```

Output when the product is not activated:
```
Status: Not activated
```

Using ESET File Security for Linux

If the installation is complete, log in to the Web interface at the URL address the installer displayed, along with the login credentials.

The Web interface is available in the following languages:

- English
- French
- Spanish

- Spanish (Latin)
- German
- Japanese
- Polish

If you complete the installation of ESET File Security for Linux remotely via ESET PROTECT, the Web interface is not enabled.
If you want to access the Web interface on the particular machine, run the following command from a Terminal window:

```
sudo /opt/eset/efs/sbin/setgui -gre
```

The final output will show the URL address of the Web interface and the access credentials.
To make the Web interface available at a custom IP address and port, for example, 10.1.184.230:9999, run the following command from a Terminal window:

```
sudo /opt/eset/efs/sbin/setgui -i 10.1.184.230:9999
```

To enable the Web interface via ESET PROTECT, use the Run Command task to execute the following command:

```
/opt/eset/efs/sbin/setgui -re --password=<password>
```

where `<password>` represents the desired password defined by you.

Available options for the setgui command.

Options - short form	Options - long form	Description
`-g`	`--gen-password`	Generate a new password to access the Web interface
`-p`	`--password=PASSWORD`	Define a new password to access the Web interface
`-f`	`--passfile=FILE`	Set a new password read from a file to access the Web interface
`-r`	`--gen-cert`	Generate a new private key and a certificate
`-a`	`--cert-password=PASSWORD`	Set certificate password
`-l`	`--cert-passfile=FILE`	Set certificate password read from file
`-i`	`--ip-address=IP:PORT`	Server address (IP and port number)
`-c`	`--cert=FILE`	Import certificate
`-k`	`--key=FILE`	Import private key
`-d`	`--disable`	Disable Web interface
`-e`	`--enable`	Enable Web interface

ESET File Security for Linux Web Interface certificate

ESET File Security for Linux Web console uses a self-signed certificate. Accessing the Web interface for the first time will result in a certificate issue message unless you add a certificate exception.

- Add a certificate exception in Mozilla Firefox:

1. Click **Advanced** > **Add Exception...**.
2. In the **Add Security Exception** window, verify **Permanently store this exception** is selected.
3. Click **Confirm Security Exception**.

- Add a certificate exception in Google Chrome:

1. Click **Advanced**.
2. Click **Proceed to <web address of EFSL Web interface> (unsafe)**.
3. At this point Google Chrome remembers the exception.

To use a custom SSL certificate for the Web interface, generate a certificate and import it to ESET File Security for Linux.

1. Generate an SSL certificate:

```
openssl req -newkey rsa:2048 -new -nodes -x509 -days 3650 -keyout privatekey.pem -
out certificate.pem
```

2. Import the SSL certificate to ESET File Security for Linux:

```
sudo /opt/eset/efs/sbin/setgui -c certificate.pem -k privatekey.pem -e
```

If you activated your instance of ESET File Security for Linux, update the detection modules (click **Dashboard > Module update > Check and update**) and run an initial scan of your file system.

Dashboard

The **Dashboard** provides an overview of protection status, module updates, license information and product activation options, and displays a summary of notifications.

Protection status

When everything is working without any issues, the protection status is green. If there are options to improve the protection status of your system, or insufficient protection status is detected, you will see "Attention required" on the **Protection status** tile. Click the tile to see the details.

> **Mute or un-mute protection status alerts**
> Each non-green protection status alert can be muted by clicking **Mute this alert**. The protection module status will turn grey, and the protection module tile will be moved to the bottom of the list. Click **Un-mute this alert** to turn the status notification back on.
> If the protection status is disabled via ESET PROTECT, neither **Un-mute this alert**, nor **Enable** is available in the **Dashboard**.

Module update

If all modules are up to date, the **Module update** tile is green. If module updates are suspended temporarily, the tile turns orange. If the update fails, the tile color changes to red. Click the tile to see the details.

To launch the update of detection modules manually, click **Module update** > **Check and update**, and wait till the update completes.

Product update

If all product components are up to date, the **Product update** tile is green. Click the tile to see more details on the current version and last check for updates.

If a new version of the product is available, the tile is light-blue. To see the changelog or to upgrade to the new version, click **Product update**, then click **See changelog** or **Accept & Update now**.

To check the availability of new updates manually, click **Product update** > **Check for updates**.

See more details on configuring automatic product updates.

License

If the license is close to expiration, the **License** tile turns orange. If the license is expired, the tile turns red. Click the tile to see available options on changing the license.

Scans

Launch a new scan of all local drives manually from **Scans** > **New Scan** > **Scan all local drives**.

Select **Custom scan...** where you can choose scan profile, define the location to be scanned. If you select **Scan with Cleaning**, the cleaning level of selected scan profile will be applied to each detected threat. To scan everything, including the configured exclusions, select **Scan exclusions**.

Custom scan targets

- Local drives
- Network drives
- Removable media
- Boot sectors — the boot sector of every mounted drive/media will be scanned.
- Custom target — type in the desired path to be scanned and press the **Tab** key on your keyboard.

Each executed scan is recorded in the **Scans** screen, including the information about the number of found and cleaned threats. If the **Cleaned** column is highlighted red, some infected files were not cleaned/deleted. To view more details of an entry, click it, then click **Show details**.

The **Scan detail** screen includes three tabs:

- **Overview** - Shows the same information as seen in the **Scans** screen, plus the number of disks scanned.
- Detections - Shows the details of detected infiltration and action taken against it.
- **Not scanned files** - Displays the details and reason of files that could not be scanned.

Run On-demand scan from a Terminal window

To run on-demand scan from a Terminal window, use the /opt/eset/efs/bin/odscan command.

Syntax: `/opt/eset/efs/bin/odscan [OPTIONS..]`

Options - short form	Options - long form	Description
`-l`	`--list`	Show currently running scans
	`--list-profiles`	Show all available scan profiles
	`--all`	Show also scans executed by other user (requires root privileges)
`-r`	`--resume=session_id`	Resume previously paused scan identified by session_id
`-p`	`--pause=session_id`	Pause scan identified by session_id
`-t`	`--stop=session_id`	Stop scan identified by session_id
`-s`	`--scan`	Start scan
	`--profile=PROFILE`	Scan with selected PROFILE
	`--profile-priority=PRIORITY`	Task will be run with the specified priority. Priority can be: normal, lower, lowest, idle
	`--readonly`	Scan without cleaning
	`--local`	Scan local drives
	`--network`	Scan network drives
	`--removable`	Scan removable media
	`--boot-local`	Scan the boot sectors of local drive
	`--boot-removable`	Scan the boot sectors of removable media
	`--boot-main`	Scan the main boot sector
	`--exclude=FILE`	Skip selected file or directory
	`--ignore-exclusions`	Scan also excluded paths and extensions

The `odscan` utility ends with an exit code upon completed scan. Execute `echo $?` in the Terminal window upon completed scan to display the exit code.

Exit codes

Exit code	Meaning
0	No threat found
1	Threat found and cleaned
10	Some files could not be scanned (may be threats)
50	Threat found
100	Error

Exclusion paths

*/root/** - The "*root*" directory and all of its sub-directories and their content.

/root - The "*root*" file only.

/root/file.txt - The file.txt in "*root*" directory only.

Wildcards in the middle of a path

We highly recommend that you do not use wildcards in the middle of a path (for example */home/user/*/data/file.dat*) unless your system infrastructure requires it. See the following Knowledgebase article for more information.
There are no restrictions to using wildcards in the middle of a path when using detection exclusions.

Example

Run On-demand scan of */root/* directory recursively with "@Smart scan" scan profile as a background process:

```
/opt/eset/efs/bin/odscan --scan --profile="@Smart scan" /root/ &
```

Run On-demand scan with "@Smart scan" scan profile regarding multiple destinations recursively:

```
/opt/eset/efs/bin/odscan --scan --profile="@Smart scan" /root/ /tmp/ /home/
```

List all running scans

```
/opt/eset/efs/bin/odscan -l
```

Pause scan with session-id "15". Each scan has its own unique session-id generated when it is started.

```
/opt/eset/efs/bin/odscan -p 15
```

Stop scan with session-id "15". Each scan has its own unique session-id generated when it is started.

```
/opt/eset/efs/bin/odscan -t 15
```

Run On-demand scan with an excluded directory */root/exc_dir* and an excluded file */root/eicar.com*:

```
/opt/eset/efs/bin/odscan --scan --exclude=/root/exc_dir --exclude=/root/eicar.com
```

Scan the boot sector of removable devices. Execute the command below as a privileged user.

```
sudo /opt/eset/efs/bin/odscan --scan --profile="@In-depth scan" --boot-removable
```

Scan profiles

Your preferred scan parameters (Threatsense parameters) can be saved for future scanning. We recommend that you create a different profile (with various scan targets, scan methods and other parameters) for each regularly used scan.

To create a new profile, click **Setup** > **Detection engine** > **Malware scans** > **On-demand scan** > **List of profiles**.

Exclusions

File extension exclusions

This type of exclusion can be set up for Real-time file system protection, On-demand scans and Remote scanning.

1.In the Web interface, click **Setup** > **Detection Engine**.

2.Click:

- **Real-time file system protection** > **Threatsense parameters** to modify exclusions related to Real-time file system protection
- **Malware scans** > **On-demand scan** > **Threatsense parameters** to modify exclusions related to On-demand scan (custom scan)
- **Remote scanning** > **Threatsense parameters** to modify exclusions related to Remote scanning

3.Next to **File extensions excluded from scanning**, click **Edit**.

4.Click **Add** and type the extension to exclude. To define several extensions at once, click **Enter multiple values**, and type the applicable extensions separated by a new line or another separator you selected.

5.Click **OK**, then click **Save** to close the dialog.

6.Click **Save** to save the changes.

Performance exclusions

By excluding paths (folders) from being scanned, the time needed to scan the file system for the presence of malware can be significantly decreased.

1.In the Web interface, click **Setup** > **Detection Engine** > **Basic**.

2.Next to **Performance exclusions**, click **Edit**.

3.Click **Add**, define the **Path** to be skipped by the scanner. Optionally add a comment for your information.

4.Click **OK**, then click **Save** to close the dialog.

5.Click **Save** to save the changes.

Exclusion paths

*/root/** - The "*root*" directory and all of its sub-directories and their content.

/root - The "*root*" file only.

/root/file.txt - The file.txt in "*root*" directory only.

> **Wildcards in the middle of a path**
> We highly recommend that you do not use wildcards in the middle of a path (for example */home/user/*/data/file.dat*) unless your system infrastructure requires it. See the following Knowledgebase article for more information.
> There are no restrictions to using wildcards in the middle of a path when using detection exclusions.

Detection exclusions criteria

- **Path** – Detection exclusion for a specified path (or any if left empty)

- **Detection name** – A detected object will be excluded if it matches the defined detection name. If the file is later infected with other malware, its detection name will change; thus, it will be detected as infiltration, and proper action will be taken against it. If **Path** is defined, only files located at that path and matching the **Detection name** will be excluded from detection. To add such detections to the exclusion list, use the detection exclusion wizard. Alternatively, navigate to **Quarantine**, click a quarantined file, and select **Restore and exclude**. This option is displayed only for items the detection engine evaluated as eligible for exclusion.

- **Hash** – Excludes a file based on a specified hash (SHA1), regardless of the file type, location, name, or extension

Detections

Every threat detected by the On-access scanner and action taken against it is recorded in the **Detections** screen.

Threats detected by the On-demand scanner and actions taken are recorded in **Scans** > select a completed scan > **Show details** > **Detections**.

If a threat has been detected but not cleaned, the whole row will be highlighted red.

Available actions

- To attempt cleaning of a detected malicious file, click the particular row, select **Rescan with cleaning**.

- To locate the file that has been detected as malicious but not deleted yet, click the corresponding row, select **Copy path** and use a file browser to look up the file.

- To create a detection exclusion based on the SHA-1 hash manually, select **Copy hash**.

- To invoke the exclusion wizard, select **Create exclusion**.

To apply **Rescan with cleaning** or **Create exclusion** action to multiple detections at once:

1. Select the checkbox of relevant detections.

2. Click Actions, select the desired action.

Quarantine

The main function of the quarantine is to safely store infected files. Files should be quarantined if they cannot be cleaned, if it is not safe or advisable to delete them, or if they are falsely detected by ESET File Security for Linux. You can choose to quarantine any file. This is advisable if a file behaves suspiciously but is not detected by the antivirus scanner. Quarantined files can be submitted for analysis to the ESET Virus Lab.

Manage quarantined items through the Web interface

The **Quarantine** screen displays a list of files stored in the quarantine folder. The list displays:

- date and time of quarantine
- path to the original location of the quarantined file
- detection name (empty for manually quarantined items)
- reason of moving the file to quarantine (empty for manually quarantined items)
- number of threats (for example, if it is an archive containing multiple infiltrations)
- size and hash of quarantined item

Click the quarantined item to display the available actions:

- **Restore** — Restore the quarantined item to its original location
- **Restore and Exclude** — Restore the quarantined item to its original location and create a detection exclusion matching the path and detection name
- **Copy path** — Copy the original path of the file to the clipboard
- **Copy hash** — Copy the SHA-1 hash of the file to the clipboard
- **Download** — Download the quarantined item to your hard drive
- **Delete from quarantine** — Delete the quarantined item permanently
- **Submit for analysis** — Submit a copy of the quarantined item for analysis to ESET

The **Restore and Exclude** option is displayed only for items the detection engine evaluated as eligible for exclusion.

Path to quarantine directory: */var/opt/eset/efs/cache/quarantine/root/*

To submit a quarantined file for analysis:

1. Select an item and select **Submit for analysis**.
2. Select an appropriate **Reason for submitting the sample**.
   - **Suspicious file**: A file that cannot be cleaned during a scan or has unusual characteristics

- **False positive file**: A file falsely identified as malware
- **Other**

3. Enter your email address or select **Send anonymously**.
4. Click **Next**.
5. Provide any additional information.
6. Click **Send**.

Manage quarantined items via Terminal

Syntax: `/opt/eset/efs/bin/quar [OPTIONS]`

Options - short form	Options - long form	Description
`-i`	`--import`	Import file to quarantine
`-l`	`--list`	Display list of files in quarantine
`-r`	`--restore=id`	Restore quarantined item identified by id to path defined by --restore-path
`-e`	`--restore-exclude=id`	Restore quarantined item identified by id and marked by 'x' in the excludable column
`-d`	`--delete=id`	Delete quarantined item identified by id
`-f`	`--follow`	Wait for new items and append them to the output
	`--restore-path=path`	New path to restore a quarantined item to
`-h`	`--help`	Show help
`-v`	`--version`	Show version information and quit

Example

Delete a quarantined item with id "0123456789":

```
/opt/eset/efs/bin/quar -d 0123456789
```

or

```
/opt/eset/efs/bin/quar --delete=0123456789
```

Restore a quarantined item with id "9876543210" to the *Download* folder of the logged in user and rename it to *restoredFile.test* :

```
/opt/eset/efs/bin/quar -r 9876543210 --restore-
path=/home/$USER/Download/restoredFile.test
```

or

```
/opt/eset/efs/bin/quar --restore=9876543210 --restore-
path=/home/$USER/Download/restoredFile.test
```

Restore a quarantined item with id "9876543210" which is marked "**x**" in the **excludable** column to the *Download* folder:

```
/opt/eset/efs/bin/quar -e 9876543210 --restore-
path=/home/$USER/Download/restoredFile.test
```

or

```
/opt/eset/efs/bin/quar --restore-exclude=9876543210 --restore-
path=/home/$USER/Download/restoredFile.test
```

Restore file from quarantine via Terminal

1. List quarantined items.
`/opt/eset/efs/bin/quar -l`

2. Look up the ID and name of the quarantined object you want to restore and run the following command:
`/opt/eset/efs/bin/quar --restore=ID_OF_OBJECT_TO_RESTORE --restore-path=/final/path/of/restored/file`

Events

Important actions taken in ESET File Security for Linux Web interface, failed login attempts to Web interface, ESET File Security for Linux related commands executed via Terminal and some more information is logged in the **Events** screen.

Each recorded action includes the following information: time the event occured, component (if available), event, user

Display events via Terminal

To display the content of **Events** screen via a Terminal window, use the `lslog` command line tool.

Syntax: `/opt/eset/efs/bin/lslog [OPTIONS]`

Options - short form	Options - long form	Description
`-f`	`--follow`	Wait for new logs and append them to the output
`-o`	`--optimize`	Optimize logs
`-c`	`--csv`	Display logs in CSV format

Options - short form	Options - long form	Description
`-e`	`--events`	List Event logs
`-s`	`--scans`	List On-Demand scan logs
	`--with-log-name`	Display Log name column in addition
	`--ods-details=log-name`	Display details of an on-demand scan identified by log name
	`--ods-detections=log-name`	Display detections of an on-demand scan identified by log name
	`--ods-notscanned=log-name`	Display not scanned items of an on-demand scan identified by log name
`-d`	`--detections`	List Detection Log records

Examples

Display all event logs:

```
/opt/eset/efs/bin/lslog -e
```

Save all event logs in CSV format to a file in the *Documents* directory of current user:

```
/opt/eset/efs/bin/lslog -ec > /home/$USER/Documents/eventlogs.csv
```

Submit sample for analysis

If you find a suspicious file on your computer or a suspicious site on the internet, you can submit it to the ESET Research Lab for analysis.

To submit a sample for analysis:

1. Click **Help** > **Submit sample for analysis**.
2. Select a **Reason for submitting the sample**.
   - **Suspicious file**: A file that cannot be cleaned during a scan or has unusual characteristics
   - **Suspicious site**: A website infected by malware
   - **False positive site**: A website falsely identified as infected by malware
   - **False positive file**: A file falsely identified as malware
   - **Other**
3. Add the site address or file path.
4. Enter your email address or select **Send anonymously**.

5. Click **Next**.

6. Provide additional information.

7. Click **Send**.

You can also submit quarantined files for analysis.

Configuration

To alter the default configuration of ESET File Security for Linux navigate to the **Setup** screen. You can adjust the detection behavior, alter product update and connection settings, or change the password and certificate of Web interface. To apply the changes, click **Save** in the **Setup** screen.

If you have configured ESET File Security for Linux according to your requirements and you want to save the configuration for later use (or to use it with another instance of ESET File Security for Linux), you can export it to an *.xml* file.

Execute the following commands with root privileges from a Terminal window.

Export configuration

```
/opt/eset/efs/sbin/cfg --export-xml=/tmp/export.xml
```

Import configuration

```
/opt/eset/efs/sbin/cfg --import-xml=/tmp/export.xml
```

Available options

Short form	Long form	Description
	`--import-xml`	import settings
	`--export-xml`	export settings
`-h`	`--help`	show help
`-v`	`--version`	show version information

Detection engine

The default setup of detection behavior provides the essential level of security which includes:

- Real-time file system protection
- Smart optimization (most efficient combination of system protection and scanning speed)
- ESET LiveGrid reputation system

To turn on additional protection features, click **Setup** > **Detection engine**:

- Detection of potentially unwanted applications

- Detection of potentially unsafe applications (for example key loggers, password-cracking tools)
- Enable submission of suspicious or infected samples
- Configure exclusions (files, directories left out of scan) to speed up scan
- Adjust cleaning level
- Turn on Shared local cache

Every threat detected and action taken against it is logged in the **Detections** screen.

Shared local cache

ESET Shared local cache will boost performance in virtualized environments by eliminating duplicate scanning in the network. This ensures that each file will be scanned only once and stored in the shared cache. Turn on the Caching option switch to save information about scans of files and folders on your network to the local cache. If you perform a new scan, ESET File Security for Linux will search for scanned files in the cache. If files match, they will be excluded from scanning.

Cache server setup contains the following:

- Hostname - Name or IP address of the computer where the cache is located.
- Port - Number of the port used for communication (same as was set in Shared local cache).
- Password - Specify the Shared local cache password if required.

Exclusions

File extension exclusions

This type of exclusion can be set up for Real-time file system protection, On-demand scans and Remote scanning.

1. In the Web interface, click **Setup** > **Detection Engine**.
2. Click:

- **Real-time file system protection** > **Threatsense parameters** to modify exclusions related to Real-time file system protection
- **Malware scans** > **On-demand scan** > **Threatsense parameters** to modify exclusions related to On-demand scan (custom scan)
- **Remote scanning** > **Threatsense parameters** to modify exclusions related to Remote scanning

3. Next to **File extensions excluded from scanning**, click **Edit**.
4. Click **Add** and type the extension to exclude. To define several extensions at once, click **Enter multiple values**, and type the applicable extensions separated by a new line or another separator you selected.

5.Click **OK**, then click **Save** to close the dialog.

6.Click **Save** to save the changes.

Performance exclusions

By excluding paths (folders) from being scanned, the time needed to scan the file system for the presence of malware can be significantly decreased.

1.In the Web interface, click **Setup** > **Detection Engine** > **Basic**.

2.Next to **Performance exclusions**, click **Edit**.

3.Click **Add**, define the **Path** to be skipped by the scanner. Optionally add a comment for your information.

4.Click **OK**, then click **Save** to close the dialog.

5.Click **Save** to save the changes.

Exclusion paths

*/root/** - The "*root*" directory and all of its sub-directories and their content.

/root - The "*root*" file only.

/root/file.txt - The file.txt in "*root*" directory only.

> **Wildcards in the middle of a path**
> We highly recommend that you do not use wildcards in the middle of a path (for example */home/user/*/data/file.dat*) unless your system infrastructure requires it. See the following Knowledgebase article for more information.
> There are no restrictions to using wildcards in the middle of a path when using detection exclusions.

Processes exclusions

The Processes exclusions feature enables you to exclude application processes from Real-time file system protection.

Backup solutions strive to improve speed, process integrity, and service availability. They usually use techniques known to conflict with file-level malware protection to achieve it. Similar problems can occur when attempting to complete a live migration of virtual machines. Usually, the only effective way to avoid such situations is to deactivate Anti-Malware software.

By excluding specific processes (for example, those of the backup solution), all file operations attributed to such excluded processes are ignored and considered safe, thus minimizing interference with the backup process. We recommend using caution when creating exclusions – an excluded backup tool can access infected files without triggering an alert, which is why extended permissions are only allowed in the real-time protection module.

This feature was designed to exclude backup tools. Excluding the backup tool's scanning process ensures system stability and does not affect backup performance as the backup is not slowed down while it is running. Ultimately,

it minimizes the risk of potential conflicts.

Add binaries to the list of excluded processes

1. Click **Setup** > **Detection Engine** > **Real-time file system protection**.
2. In the **Basic** > **Processes exclusions** section, click **Edit** next to **Processes to be excluded from scanning**.
3. Click **Add**.
4. Enter the absolute path of the binary.
5. Click **Save** twice.
6. In the **Setup** screen, click **Save**.

As soon as a binary is added to the exclusions, ESET File Security for Linux stops monitoring its activity. Scans do not run on any file operations performed by that binary.

You can also **Edit** existing processes or **Delete** them from exclusions.

Export/import detection exclusions

To share the configured processes exclusions with another instance of ESET File Security for Linux that is not managed remotely, export the configuration:

1. Click **Setup** > **Detection Engine** > **Real-time file system protection**.
2. In the **Basic** > **Processes exclusions** section, click **Edit** next to **Processes to be excluded from scanning**.
3. Click **Export**.
4. Click the download icon  next to **Download exported data**.
5. If the browser prompts to open or save the file, select **Save**.

To import the exported processes exclusions file:

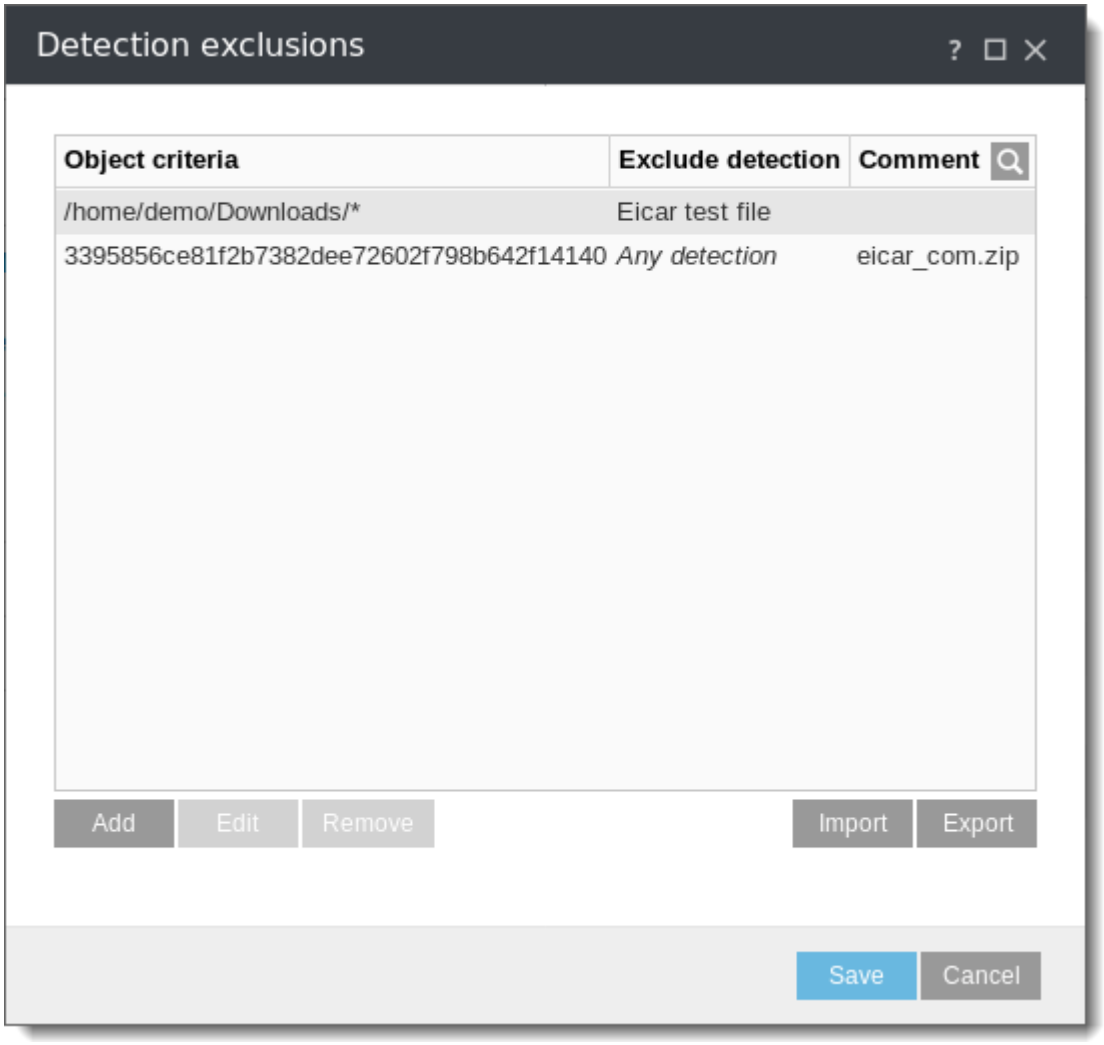
1. Click **Setup** > **Detection Engine** > **Real-time file system protection**.
2. In the **Basic** > **Processes exclusions** section, click **Edit** next to **Processes to be excluded from scanning**.
3. Click **Import**, then the browse icon  to browse for the exported file, click **Open**.
4. Click **Import** > **OK** > **Save**.
5. In the **Setup** screen, click **Save**.

Detection exclusions

Detection exclusions allow you to exclude objects from cleaning (deletion or moving to quarantine) by filtering the detection name, object path or its hash.

How detection exclusions work

Detection exclusions do not exclude files and folders from scanning as **Performance exclusions** do.
Detection exclusions exclude objects from being quarantined/deleted only when they are detected by the detection engine and an appropriate rule is present in the exclusion list.
See the sample rules in the image below. The rule in the first row will exclude an object that is detected as *Eicar test file* and is located at */home/demo/Download/some.file*. The rule in the second row will exclude every detected object that has the corresponding SHA-1 hash, regardless the detection name.



Detection exclusions object criteria

- **Path** – Detection exclusion for a specified path (or any if left empty)

- **Detection name** – A detected object will be excluded if it matches the defined detection name. If the file is later infected with other malware, its detection name will change; thus, it will be detected as infiltration, and proper action will be taken against it. If **Path** is defined, only files located at that path and matching the **Detection name** will be excluded from detection. To add such detections to the exclusion list, use the detection exclusion wizard. Alternatively, navigate to **Quarantine**, click a quarantined file, and select **Restore and**

exclude. This option is displayed only for items the detection engine evaluated as eligible for exclusion.

- **Hash** – Excludes a file based on a specified hash (SHA1), regardless of the file type, location, name, or extension

Add or Edit detection exclusions

Manually define detection exclusions

1. Click **Setup** > **Detection engine**.

2. Click **Edit** next to **Detection exclusions**, click **Add**.

3. Define the exclusion criteria:

- **Path** – Detection exclusion for a specified path (or any if left empty)

- **Detection name** – A detected object will be excluded if it matches the defined detection name. If the file is later infected with other malware, its detection name will change; thus, it will be detected as infiltration, and proper action will be taken against it. If **Path** is defined, only files located at that path and matching the **Detection name** will be excluded from detection. To add such detections to the exclusion list, use the detection exclusion wizard. Alternatively, navigate to **Quarantine**, click a quarantined file, and select **Restore and exclude**. This option is displayed only for items the detection engine evaluated as eligible for exclusion.

- **Hash** – Excludes a file based on a specified hash (SHA1), regardless of the file type, location, name, or extension

4. Click **OK** and then click **Save**.

5. In the **Setup** screen, click **Save**.

Use the detection exclusion wizard

1. Select a detection and select **Create exclusion**.

2. Select the appropriate exclusion criteria:

    - **Exact file** - Exclude a file by SHA-1 hash

    - **Detection** - Exclude a file by detection name

    - **Path + Detection** - Exclude a file matching the path and detection name

3. Enter a comment if applicable. It displays in the list of detection exclusions at **Setup** > **Detection engine** > click **Edit** next to **Detection exclusions**.

4. Click **Create exclusion**.

Edit or remove a detection exclusion

1. Click **Setup** > **Detection engine**.
2. Click **Edit** next to **Detection exclusions**.
3. Select an exclusion, click **Edit** or **Remove**.
4. Save your changes.

Export/import detection exclusions

To share the configured detection exclusions with another instance of ESET File Security for Linux that is not managed remotely, export the configuration:

1. Click **Setup** > **Detection engine**.
2. Click **Edit** next to **Detection exclusions**, click **Export**.
3. Click the download icon  next to **Download exported data**.
4. If the browser prompts to open or save the file, select **Save**.

To import the exported detection exclusions file:

1. Click **Setup** > **Detection engine**.
2. Click **Edit** next to **Detection exclusions**, click **Import**.
3. Click the browse icon  to browse for the exported file, click **Open**.
4. Click **Import** > **OK** > **Save**.
5. In the **Setup** screen, click **Save**.

Real-time file system protection

Real-time file system protection controls all antivirus-related events in the system. All files are scanned for malicious code when they are opened, created, or run on your computer. By default, Real-time file system protection launches at system start-up and provides uninterrupted scanning.

> Real-time file system protection does not scan the content of archive files. It scans the content of certain self-extracting archives when downloaded to the hard drive.

In exceptional cases (for example, if there is a conflict with another real-time scanner), real-time protection can be disabled:

1. Click **Setup** > **Detection engine** > **Real-time file system protection** > **Basic**.

2. Disable **Enable Real-time file system protection**.

Media to scan

By default, all types of media are scanned for potential threats:

- **Local drives** - Controls all system hard drives.
- **Removable media** - Controls CD/DVD's, USB storage, Bluetooth devices, etc.
- **Network drives** - Scans all mapped drives.

We recommend that you use default settings and only modify them in specific cases, such as when scanning certain media significantly slows data transfers.

Scan on

By default, all files are scanned upon opening, creation, or execution. We recommend that you keep these default settings, as they provide the maximum level of real-time protection for your computer:

- **File open** - Enables or disables scanning when files are opened.
- **File creation** - Enables or disables scanning when files are created.
- **Removable media access** - Enables or disables automatic scan of removable media when it is connected to the computer.

Real-time file system protection checks all types of media and is triggered by various system events such as accessing a file. Using ThreatSense technology detection methods (as described in the section of ThreatSense parameters), Real-time file system protection can be configured to treat newly created files differently than existing files. For example, you can configure Real-time file system protection to more closely monitor newly created files.

To ensure a minimal system footprint when using real-time protection, files that have already been scanned are not scanned repeatedly (unless modified). Files are scanned again immediately after each detection engine database update. This behavior is controlled using **Smart optimization**. If **Smart optimization** is disabled, all files are scanned each time they are accessed. To modify this setting:

1. In the Web interface, click **Setup** > **Detection engine** > **Real-time file system protection** > **ThreatSense parameters**.

2. Enable or disable **Enable Smart optimization**.

3. Click **Save**.

ThreatSense parameters

ThreatSense is comprised of many complex threat detection methods. This technology is proactive, which means it also protects during the early spread of a new threat. It uses a combination of code analysis, code emulation, generic signatures, and virus signatures which work in unity to enhance system security significantly. The scanning engine is capable of controlling several data streams simultaneously, maximizing efficiency and detection rate.ThreatSense technology also successfully eliminates rootkits.

ThreatSense engine setup options allow you to specify several scan parameters:

- File types and extensions to be scanned
- The combination of various detection methods
- Cleaning levels, etc.

To enter the setup window, click **Setup** > **Detection engine**, select one of the modules mentioned below, click **ThreatSense parameters**. Different security scenarios may require different configurations. With this in mind, ThreatSense is individually configurable for the following protection modules:

- **Real-time file system protection**
- **Malware scans**
- **Remote scanning**

ThreatSense parameters are highly optimized for each module, and their modification can significantly influence system operation. For example, changing parameters to scan runtime packers always or enabling advanced heuristics in the Real-time file system protection module could result in system slow-down (usually, only newly-created files are scanned using these methods).

Objects to scan

This section allows you to define which computer components and files will be scanned for infiltrations.

- **Boot sectors/UEFI** – Scans boot sectors/UEFI for the presence of viruses in the master boot record
- **Email files** – The program supports the following extensions: DBX (Outlook Express) and EML
- **Archives** – The program supports the following extensions: ARJ, BZ2, CAB, CHM, DBX, GZIP, ISO/BIN/NRG, LHA, MIME, NSIS, RAR, SIS, TAR, TNEF, UUE, WISE, ZIP, ACE, and many others
- **Self-extracting archives** – Self-extracting archives (SFX) are archives that can extract themselves
- **Runtime packers** – After being executed, runtime packers (unlike standard archive types) decompress in memory. In addition to standard static packers (UPX, yoda, ASPack, FSG, etc.), the scanner is able to recognize several additional types of packers through the use of code emulation

> Real-time file system protection does not scan the content of archive files. It scans the content of certain self-extracting archives when downloaded to the hard drive.

Scan options

Select the methods used when scanning the system for infiltrations. The following options are available:

- **Heuristics** – A heuristic is an algorithm that analyzes the (malicious) activity of programs. The main advantage of this technology is the ability to identify malicious software which did not exist, or was not covered by the previous virus signatures database. The disadvantage is a (very small) probability of false alarms
- **Advanced heuristics/DNA signatures** – Advanced heuristics are a unique heuristic algorithm developed by ESET, optimized for detecting computer worms and trojan horses and written in high-level programming languages. The use of advanced heuristics greatly increases the threat detection capabilities of ESET products. Signatures can reliably detect and identify viruses. Utilizing the automatic update system, new signatures are available within a few hours of a threat discovery. The disadvantage of signatures is that they only detect

viruses they know (or slightly modified versions of these viruses)

Exclusions

An extension is the part of a file name delimited by a period. An extension defines the type and content of a file. This section of the ThreatSense parameter setup lets you define the types of files to be excluded from scan.

Other

ThreatSense engine parameters setup for a On-demand computer scan, the following options in **Other** section are also available:

- **Scan alternate data streams (ADS)** – Alternate data streams used by the NTFS file system are file and folder associations which are invisible to ordinary scanning techniques. Many infiltrations try to avoid detection by disguising themselves as alternate data streams

- **Run background scans with low priority** – Each scanning sequence consumes a certain amount of system resources. If you work with programs that place a high load on system resources, you can activate low priority background scanning and save resources for your applications

- **Enable Smart optimization** – With Smart Optimization enabled, the most optimal settings are used to ensure the most efficient scanning level, while simultaneously maintaining the highest scanning speeds. The various protection modules scan intelligently, making use of different scanning methods and applying them to specific file types. If the Smart Optimization is disabled, only the user-defined settings in the ThreatSense core of the particular modules are applied when performing a scan.

- **Preserve last access timestamp** – Select this option to keep the original access time of scanned files instead of updating them (for example, for use with data backup systems)

Limits

The **Limits** section allows you to specify the maximum size of objects and levels of nested archives to be scanned.

Object settings

To modify object settings, disable **Default object settings**.

- **Maximum object size** – Defines the maximum size of objects to be scanned. The given antivirus module will then scan only objects smaller than the size specified. This option should only be changed by advanced users who may have specific reasons for excluding larger objects from scanning. Default value: unlimited

- **Maximum scan time for object (sec.)** – Defines the maximum time value for scanning of an object. If a user-defined value has been entered here, the antivirus module will stop scanning an object when that time has elapsed, regardless of whether the scan has finished. Default value: unlimited

Archive scan setup

To modify archive scan settings, disable **Default archive scan settings**.

- **Archive nesting level** – Specifies the maximum depth of archive scanning. Default value: 10

• **Maximum size of file in archive** – This option allows you to specify the maximum file size for files contained in archives (when they are extracted) that are to be scanned. Default value: unlimited

> **Default values**
> We do not recommend changing the default values; under normal circumstances, there should be no reason to modify them.

Additional ThreatSense parameters

The probability of infection in newly-created or modified files is comparatively higher than in existing files. For this reason, the program checks these files with additional scanning parameters. Advanced heuristics, which can detect new threats before module update is released, are also used along with standard signature-based scanning methods. In addition to newly-created files, scanning is performed on self-extracting archives (.sfx) and runtime packers (internally compressed executable files). By default, archives are scanned up to the 10th nesting level and are checked regardless of their actual size. To modify archive scan settings, disable **Default archive scan settings**.

Cloud-based protection

ESET LiveGrid® is an advanced early warning system comprised of several cloud-based technologies. It helps to detect emerging threats based on reputation and improves scanning performance utilizing whitelisting.

By default, ESET File Security for Linux is configured to submit suspicious files to the ESET Virus Lab for analysis. Files with certain extensions such as *.doc* or *.xls* are always excluded. You can also add other extensions if there are particular files that you or your organization want to avoid sending.

Alter the configuration at **Setup** > **Detection engine** > **Cloud-based protection**.

Cloud-based protection

Enable ESET LiveGrid® reputation system (recommended)

The ESET LiveGrid® reputation system improves the efficiency of ESET anti-malware solutions by comparing scanned files to a database of whitelisted and blacklisted items in the cloud.

Enable ESET LiveGrid® feedback system

Data will be sent to the ESET Research Lab for further analysis.

Submit crash reports and diagnostic data

Submit data such as crash reports, modules or memory dumps.

Help improve the product by submitting anonymous usage statistics

Allow ESET to collect information about newly detected threats such as the threat name, date and time of detection, detection method and associated metadata, scanned files (hash, file name, origin of the file, telemetry), blocked and suspicious URL's, product version and configuration, including information about your system.

Contact email (optional)

Your contact email can be included with any suspicious files and may be used to contact you if further information is required for analysis. Please note that you will not receive a response from ESET unless more information is needed.

Submission of samples

Automatic submission of detected samples

This will submit all infected samples to ESET for analysis and to improve future detection.

- All infected samples
- All samples except documents
- Do not submit

Automatic submission of suspicious samples

Suspicious samples resembling threats, and/or samples with unusual characteristics or behavior are submitted to ESET for analysis.

- **Executable** -Includes executable files: *.exe, .dll, .sys*
- **Archives** - Includes archive file types: *.zip, .rar, .7z, .arch, .arj, .bzip2, .gzip, .ace, .arc, .cab*
- **Scripts** - Includes script file types: *.bat, .cmd, .hta, .js, .vbs, .ps1*
- **Other** - Includes file types: *.jar, .reg, .msi, .swf, .lnk*
- **Documents** - Includes documents created in Microsoft Office, Libre Office or other office tool, or PDF's with active content.

Exclusions

Click **Edit** next to **Exclusions** to configure how threats are submitted to ESET Virus Labs for analysis.

Maximum size of samples (MB)

Define the maximum size of samples to be scanned.

Malware scans

This section provides options to select scan parameters for **On-demand scan**.

Selected profile

A particular set of parameters used by the On-demand scanner. You can use one of the predefined scan profiles or create a new profile. The scan profiles use different ThreatSense engine parameters.

List of profiles

To create a new one, click **Edit**. Enter a profile name and click **Add**. The new profile will display in the **Selected**

profile drop-down menu that lists existing scan profiles.

Remote scanning (ICAP scan)

To protect external ICAP compatible devices/software remotely, enable and configure **Remote scanning**.

1. In the Web interface navigate to **Setup** > **Detection Engine** > **Remote Scanning**.
2. Turn on the toggle key next to **Enable remote scanning using ICAP service**.
3. Click **Edit** next to **Listen addresses and ports**, click **Add**, define the address and port of ICAP server. Cilck **OK**, then click **Save**.
4. Optionally, review and adjust ThreatSense parameters.
5. Click **Save**.

See how to integrate ICAP server with EMC Isilon.

Supported ICAP clients

- Dell EMC Isilon
- Citrix ShareFile
- EFT Enterprise
- Nutanix

Cleaning levels

- **No cleaning** – Infected files are not cleaned automatically. The number of found threats is highlighted red in the **Detections occurred** column. The **Cleaned** column is highlighted red but displays 0.
- **Normal cleaning** – The program attempts to automatically clean or delete infected files, except those that would cause loss of useful data, for example, an archive file containing a mix of infected and clean files. The number of detected files in the archive file count towards **Detections occurred**, and the **Cleaned** column is highlighted red.
- **Strict cleaning** – The program cleans or deletes all infected files. The only exceptions are the system files.
- **Rigorous cleaning** – The program cleans or deletes all infected files without exception.
- **Delete** – The program deletes all infected files without exception.

Update

By default, the **Update type** is set to **Regular update**. This ensures the detection signature database and product modules are updated automatically daily from ESET update servers.

Pre-release updates include the most recent bug fixes and detection methods available to the general public soon. However, they might not be stable at all times; therefore, it is not recommended to use them in a production environment.

Delayed updates allow updating from special update servers providing new versions of virus databases with a delay of at least X hours (that is, databases tested in a real environment and considered stable).

If an ESET File Security for Linux update was not stable, roll back the module updates to a previous state. Click **Dashboard** > **Modules update** > **Module rollback**, select the desired duration, click **Rollback now**.

By default, only one snapshot of modules is stored locally. To store more snapshots, increase the **Number of locally stored snapshots** to the desired number.

Product Update

By default, ESET File Security for Linux (EFSL) does not update product components automatically. Activate automatic updates by selecting **Auto-update** from the **Update mode** list-box.

Update mode

Auto-update - new packages are automatically downloaded and then installed upon the next restart of OS. If there have been updates to the End User License Agreement, the user must accept the updated End User License Agreement before downloading the new package.

Never-update - new packages are not downloaded, but the product displays the availability of new packages in the **Dashboard**.

Custom server, Username, Password

If you manage several EFSL instances and prefer update from a custom location, define the address and applicable access credentials of an HTTP(S) server, local drive, or removable drive.

Tools

In **Setup** > **Tools** section of ESET File Security for Linux Web interface you can modify the general configuration of ESET File Security for Linux.

- Define the details of a Proxy server to connect to the internet
- Change the password and/or certificate of Web interface
- Configure how log files are handled

You can also schedule on-demand scan.

Proxy Server

Configure ESET File Security for Linux to use your proxy server to connect to the internet or the defined update servers (mirror). To adjust parameters, click **Setup** > **Tools** > **Proxy server**.

Web Interface

To change the IP address and port of ESET File Security for Linux Web interface, or add additional addresses on which the Web interface is supposed to be available, click **Edit** next to **Listen addresses and ports**. Click **Add**, type in the proper address and port, click **OK** and then click **Save**. Click **Save** in the **Setup** screen.

To update the Web interface password, click **Change password**. Type in a new password, click **Save**.

To import a new certificate and corresponding private key, use the **Certificate** and **Private key** buttons. If the certificate is password protected, type the password to the **Certificate password** field. Click **Save** in the **Setup** screen.

Disable and enable the Web interface

If you switch the toggle next to **Enable web interface** and click **Save** in the Setup screen, you will be logged out immediately and the Web interface will not be available anymore.

You can enable the Web interface again via a Terminal window.

If you complete the installation of ESET File Security for Linux remotely via ESET PROTECT, the Web interface is not enabled.

If you want to access the Web interface on the particular machine, run the following command from a Terminal window:

```
sudo /opt/eset/efs/sbin/setgui -gre
```

The final output will show the URL address of the Web interface and the access credentials.

To make the Web interface available at a custom IP address and port, for example, 10.1.184.230:9999, run the following command from a Terminal window:

```
sudo /opt/eset/efs/sbin/setgui -i 10.1.184.230:9999
```

To enable the Web interface via ESET PROTECT, use the Run Command task to execute the following command:

```
/opt/eset/efs/sbin/setgui -re --password=<password>
```

where `<password>` represents the desired password defined by you.

Available options for the setgui command.

Options - short form	Options - long form	Description

Options - short form	Options - long form	Description
`-g`	`--gen-password`	Generate a new password to access the Web interface
`-p`	`--password=PASSWORD`	Define a new password to access the Web interface
`-f`	`--passfile=FILE`	Set a new password read from a file to access the Web interface
`-r`	`--gen-cert`	Generate a new private key and a certificate
`-a`	`--cert-password=PASSWORD`	Set certificate password
`-l`	`--cert-passfile=FILE`	Set certificate password read from file
`-i`	`--ip-address=IP:PORT`	Server address (IP and port number)
`-c`	`--cert=FILE`	Import certificate
`-k`	`--key=FILE`	Import private key
`-d`	`--disable`	Disable Web interface
`-e`	`--enable`	Enable Web interface

Listen address and port

ESET File Security for Linux allows you to configure a custom IP address and port for both, the Web interface and ICAP server.

Log files

Modify the configuration of ESET File Security for Linux logging.

Minimum logging verbosity

Logging verbosity defines the level of details the log files include regarding ESET File Security for Linux.

- **Critical warnings** - Includes only critical errors (for example, failed to start antivirus protection).
- **Errors** - Errors such as "Error downloading file" will be recorded in addition to critical warnings.
- **Warnings** - Critical errors and warning messages will be recorded in addition to errors.
- **Informative records** - Record informative messages, including successful update messages, plus all records above.
- **Diagnostic records** - Include information needed to fine-tune the program and all records above.

Automatically delete records older than (days)

To hide log entries older than the specified number of days from the **Events**, or **Detections** screen or log list (`lslog`):

1. Turn on **Automatically delete records older than (days)**.

2. Adjust the day to specify the age of files to be hidden.

3. Click **Save**.

Hidden logs cannot be displayed again. Log entries of On-demand scan are deleted right away. To prevent piling up of hidden logs, turn on the automatic optimization of log files.

Optimize log files automatically

When engaged, log files will automatically be defragmented if the fragmentation percentage is higher than value specified in the **If the number of unused records exceeds (%)** field. Unused records stand for hidden logs. All empty log entries are removed to improve performance and log processing speed. This improvement can be observed especially if the logs contain a large number of entries.

Syslog Facility

Syslog facility is a syslog logging parameter which is used to group similar log messages. For example, logs from daemons (which collect logs via syslog facility daemon) can go to */var/log/daemon.log* if configured so. With recent switch to systemd and its journal, syslog facility is less important but still can be used for filtering logs.

Scheduler

ESET File Security for Linux v8 allows periodic weekly custom scans on defined days and times.

Schedule a scan

1. In the Web interface, click **Setup** > **Tools** > **Scheduler**.

2. Next to **Tasks**, click **Edit**.

3. Click **Add**.

4. Name the schedule, set a time, and select the days when the custom scan will be automatically triggered. Click **Next**.

5. Select a scan profile.

6. Select **Scan targets**, and/or define custom targets separated by a new line.

7. Select/deselect available **Options** (Scan with cleaning, Scan exclusions).

8. Click **Finish**, then click **Save** to close the dialog.

9. Click **Save** to save all changes.

To modify any scheduled task, in step 3 above, select the particular task and click **Edit**. Continue with the remainder of steps.

To remove a scheduled task, in step 3 above, select the particular task and click **Remove**. Continue with steps 8 and 9.

Execution of scheduled tasks
The scheduler takes use of cron, and is executed if the applicable computer is running. If the computer is off, the task will run at the next scheduled time the computer is on.

User interface

To configure Protection status notifications:

1. In the Web interface, click **Setup** > **User interface** > **User interface elements**.
2. Click **Edit** next to **Display in Protection status**.
3. Select the applicable app status.
4. Click **OK** and then click **Save**.

Notes
Not selected status is muted in Protection status. All changes apply only locally.

If you manage ESET File Security for Linux remotely, see display statuses in ESET PROTECT.

Statuses

Each selected status in **Setup** > **User interface** > **Display in Protection status** > **Edit** displays a notification in **Dashboard** > **Protection status** if the related module is disabled, non-functional, or missing.

Notes
Not selected status is muted in Protection status. All changes apply only locally.

Display statuses in ESET PROTECT

To display statuses in ESET PROTECT when managing ESET File Security for Linux remotely:

1. In ESET PROTECT, click **Policies** > **New policy** and type a name for the policy.
2. Click **Settings** and select **ESET File/Server Security for Linux (V7+)** from the drop-down menu.
3. Click **User interface** > **User interface elements**.
4. Click **Edit** next to **Send to ESET PROTECT**.
5. Select the appropriate statuses and click **OK**.
6. Click **Save** in each dialog where you made a change, and then click **Finish**.

Remote Management

To manage ESET File Security for Linux remotely, connect the computer hosting your ESET security product to ESET PROTECT.

1. Deploy the ESET Management Agent.

2. Add the computer to ESET PROTECT.

From this time on you can execute applicable client tasks regarding ESET File Security for Linux.

Use case examples

In this chapter we will cover most common use cases of ESET File Security for Linux.

Integrate ICAP server with EMC Isilon

Overview

You can scan the files you store on an Isilon cluster for computer viruses, malware, and other security threats by integrating with ESET File Security for Linux (EFSL) through the Internet Content Adaptation Protocol (ICAP).

Prerequisite

1. efs is installed and its Web interface is enabled.

2. Isilon OneFS is installed.

Enable ICAP server in EFSL

In this example ICAP server will listen on IP address 10.1.169.28 and on port 1344.

1. Click **Setup** > **Detection Engine** > **Remote scanning**, turn on both **Enable remote scanning using ICAP service** and **Dell EMC Isilon compatibility**.

2. Click **Edit** next to **Listen addresses and ports**.

3. Click **Add**.

4. Type the applicable IP address and port. In our example, the IP address is 10.1.168.28, and port is 1344.

5. Click **Save**.

Enabling ICAP server in OneFS

1. Log in to OneFS administration panel, click **Data Protection** > **Antivirus** > **ICAP Servers** > **Add an ICAP Server**.

2. Select Enable ICAP Server, and enter the URL address of ICAP server to the **ICAP Server URL** field using the following pattern: `icap://<IP_ADDRESS>:<PORT>/scan`
In our example: `icap://10.1.168.28:1344/scan`

3. Click **Add Server**.

4. Click **Settings**, select **Enable Antivirus Service**.

5. Type into **Path prefixes** the path to scan. To scan all paths, type "`/ifs`" (without quotation marks).

6. Click **Save changes**.

Scan-related settings on EMC Isilon

- File size, file name or file extension restrictions
- On-access scanning or on-demand scanning via policy
- Threat response settings

How does it work?

When a file is written to (or accessed on) the EMC Isilon cluster, OneFS queues the file to be scanned, and sends the file to the ICAP server configured in both OneFs and EFSL. EFSL scans the file and provides feedback on the scanned file to EMC Isilon. OneFS decides how to deal with the scanned files based on threat response settings.

Test your setup

To test your setup, you need to have access from your computer to OneFS cluster through one of the supported protocols. In our example, we will use the NFS protocol.

1. Configure NFS:

   a.Log in to OneFS administration panel, click **Protocols** > **UNIX Sharing (NFS)** > **Create Export**.

   b.Leave the default settings, verify the path is `/ifs`, click **Save**.

2. Mount NFS share on your Linux machine:

```
mkdir isilon
sudo mount -t nfs <IP address of OneFS cluster>:/ifs isilon
```

3. Complete a test scan:

   a.Get eicar antivirus test file from www.eicar.org, copy it to Isilon's NFS share and try to read its content.

```
wget www.eicar.org/download/eicar.com
cp eicar.com isilon
```

```
cat isilon/eicar.com
```

b.Based on your OneFS antivirus settings, the result will be either permission denied on that file (default), or the file will be truncated or deleted. For example:

```
cat: isilon/eicar.com: Permission denied
```

c.To check the detected threat, log in to OneFS administration panel, click **Data Protection** > **Antivirus**.

Retrieve module information

Use the `upd` utility with `-l` parameter in a Terminal window to list all modules and their versions.

```
/opt/eset/efs/bin/upd -l
```

Schedule scan

ESET File Security for Linux v8 has a built-in scheduler to execute periodic custom scans on defined days and times. To set up a periodic custom scan without the built-in scheduler, follow the instructions below.

In Unix-based systems, use cron to schedule an On-demand scan at a custom period.

To set up a scheduled task, edit the cron table (crontab) via a Terminal window.

If you are editing the cron table for the first time, you will be presented with the option to choose an editor by pressing the corresponding number. Select an editor you have experience with; for example, we refer to the Nano editor below when saving changes.

Schedule in-depth full disk scan every Sunday at 2am

1. To edit the cron table, execute the following command from a Terminal window as a privileged user who can access the folders to be scanned:

```
sudo crontab -e
```

2. Use the arrow keys to navigate below the text in crontab, and type the following command:

```
0 2 * * 0 /opt/eset/efs/bin/odscan --scan --profile="@In-depth scan" / &>/dev/null
```

3. To save changes, press CTRL+X, type Y, and press **Enter**.

Schedule smart scan of a particular folder every night at 11 pm

In this example we schedule to scan the */var/www/download/* folder every night.

1. To edit the cron table, execute the following command from a Terminal window as a privileged user who can access the folders to be scanned:

```
sudo crontab -e
```

2. Use the arrow keys to navigate below the text you see in crontab, and type the following command:

```
0 23 * * 0 /opt/eset/efs/bin/odscan --scan --
profile="@Smart scan" /var/www/download/ &>/dev/null
```

3. To save changes, press CTRL+X, type Y, and press **Enter**.

File and folder structure

This topic details the file and folder structure of ESET File Security for Linux, in case ESET Technical Support asked you to access files for troubleshooting purposes. The list of deamons and command line utilities is available further below.

Base directory

The directory where ESET File Security for Linux loadable modules containing the virus signature database are stored.

```
/var/opt/eset/efs/lib
```

Cache directory

The directory where cache of ESET File Security for Linux and temporary files (such as quarantine files or reports) are stored.

```
/var/opt/eset/efs/cache
```

Binary files directory

The directory where the relevant ESET File Security for Linux binary files are stored.

```
/opt/eset/efs/bin
```

There you find the following utilities:

- lslog — use it to display logs gathered by ESET File Security for Linux
- odscan — use it to run on-demand scan via a Terminal window

- quar — use it to manage quarantined items
- upd — use it to manage module updates or to modify update settings

System binary files directory

The directory where the relevant ESET File Security for Linux system binary files are stored.

```
/opt/eset/efs/sbin
```

There you find the following utilities:

- cfg — use it to import/export ESET File Security for Linux settings
- collect_logs.sh — use it to generate all essential logs as an archive file to the home folder of being logged in user
- lic — use it to activate ESET File Security for Linux with the purchased license key or to check the activation status and license validity
- setgui — use it to enable/disable ESET File Security for Linux Web interface and manage related operations.
- startd — use it to start ESET File Security for Linux daemon manually in case it was stopped.

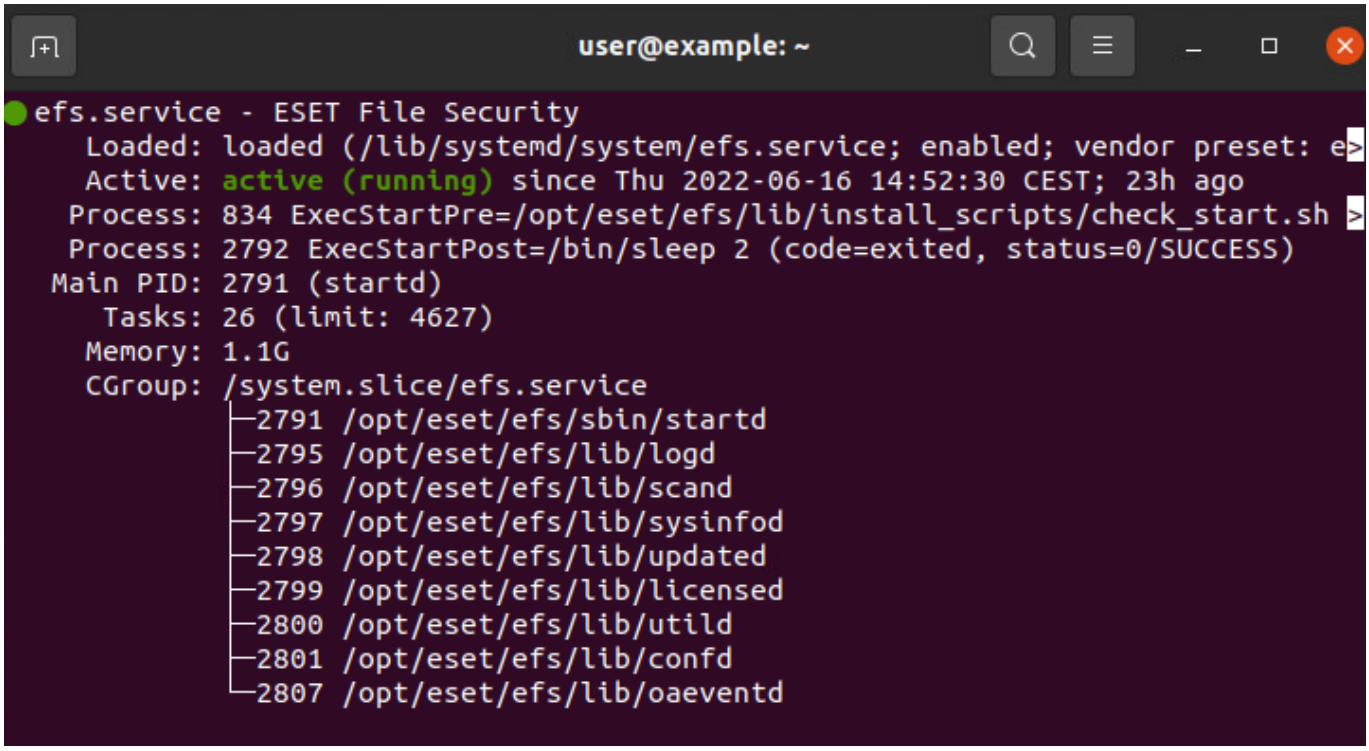
To see if ESET File Security for Linux service is active, run the following command from a Terminal window with root privileges:

```
systemctl status efs.service
```

or

```
/etc/init.d/efs status
```

Sample output from `systemctl`:



Daemons

- sbin/startd – Main daemon, starts and manages other daemons
- lib/scand – Scanning daemon
- lib/oaeventd – On-access event interception service (using eset_rtp kernel module)
- lib/confd – Configuration management service
- lib/logd – Logs management service
- lib/licensed – Activation and licensing service
- lib/updated – Module update service
- lib/execd+odfeeder – On-demand scanning helpers
- lib/utild – Utility service
- lib/sysinfod – OS and media detection service
- lib/icapd – ICAP service for NAS scanning
- lib/webd – https server and Web interface

Command-line utilities

- bin/lslog – Logs listing utility
- bin/odscan – On-demand scanner

- sbin/cfg – Configuration utility
- sbin/lic – Licensing utility
- bin/upd – Module update utility
- bin/quar – Quarantine management utility
- sbin/setgui – Basic Web interface setup
- sbin/collect_logs.sh – Script to generate essential logs as an archive file if requested by ESET customer care.

Troubleshooting

This section describes how to troubleshoot the various issues below.

- Activation issues (English only)
- Forgotten password
- Update failed
- Using the noexec flag
- Real-time protection deamon unable to start
- Collect logs

Collect logs

If ESET Technical Support requests logs from ESET File Security for Linux, use the *collect_logs.sh* script available at `/opt/eset/efs/sbin/` to generate the logs.

Launch the script from a Terminal window with root privileges. For example, in Ubuntu run the following command:

```
sudo /opt/eset/efs/sbin/collect_logs.sh
```

The script generates all essential logs as an archive file to the home folder of being logged in user, and it will display the path to it. Send that file to ESET Technical Support via e-mail.

Activation logs

To help you troubleshoot product activation issues, related logs might be requested by ESET Technical Support.

1. To enable activation logs, open `/var/opt/eset/efs/licensed/license_cfg.json` for editing. The example below uses `nano` editor. Execute the following command from a Terminal window as a privileged user:

```
sudo nano -w /var/opt/eset/efs/licensed/license_cfg.json
```

2. Change `"Logging":false` to `"Logging":true`.

3. Save your changes by pressing Ctrl+X, type Y, and press **Enter**.

4. Restart the `efs` service. Execute the following command from a Terminal window as a privileged user:

```
sudo systemctl restart efs
```

5. Try the activation process again. If it fails, run the log collecting script as a privileged user:

```
sudo /opt/eset/efs/sbin/collect_logs.sh
```

6. Change `"Logging":true` to `"Logging":false`.

7. Save your changes by pressing Ctrl+X, type Y, and press **Enter**.

8. Restart the `efs` service. Execute the following command from a Terminal window as a privileged user:

```
sudo systemctl restart efs
```

Forgot my password

To reset the Web interface password, open a Terminal window on the machine where ESET File Security for Linux is installed.

- To generate a new password, run the following command with root privileges:
  `/opt/eset/efs/sbin/setgui -g`

- To define a new password, run the following command with root privileges:
  `/opt/eset/efs/sbin/setgui --password=`PASSWORD
  while PASSWORD is supposed to be replaced with the desired password.

The final output will show the URL address of the Web interface and access credentials.

Update failed

If for any reason product modules fail to update, information will be provided in the dashboard.

Recent update attempts failed - ESET File Security for Linux has not been able to connect to the update server recently to check for the latest virus signature updates. Check your network connectivity and then try to update the modules again by clicking **Check and update**.

Detection Engine out of date - The Detection Engine has not been updated for some time. Check your network connectivity and then try to update the modules again by clicking **Check and update**.

Using the noexec flag

If you have the */var* and */tmp* paths mounted with `noexec` flag, the installation of ESET File Security for Linux fails with the following error message:

```
Invalid value of environment variable MODMAPDIR. Modules cannot be loaded.
```

Workaround

The commands below are executed in a Terminal window.

1. Create a folder where exec is enabled with the following owner and permission set:
   `/usr/lib/efs drwxrwxr-x. root eset-efs-daemons`

2. Execute the following commands:

```
# mkdir /usr/lib/efs
# chgrp eset-efs-daemons /usr/lib/efs
# chmod g+w /usr/lib/efs/
```

   a. In case SELinux is enabled, set the context for this folder:

```
# semanage fcontext -a -t tmp_t /usr/lib/efs
# restorecon -v /usr/lib/efs
```

3. Compile the essential modules:

```
# MODMAPDIR=/usr/lib/efs /opt/eset/efs/bin/upd --compile-nups
```

4. Set `MODMAPDIR` in */usr/lib/systemd/system/efs.service* by adding a line to the `[Service]` block:

```
Environment=MODMAPDIR=/usr/lib/efs
```

5. Reload systemd service configuration:

```
# systemctl daemon-reload
```

6. Restart the efs service:

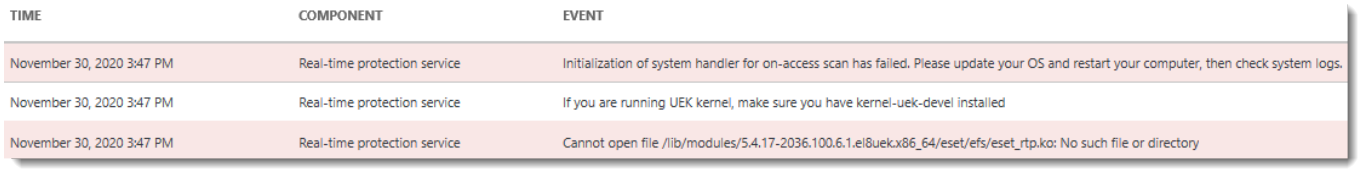
```
# systemctl restart efs
```

Real-time protection cannot start

Issue

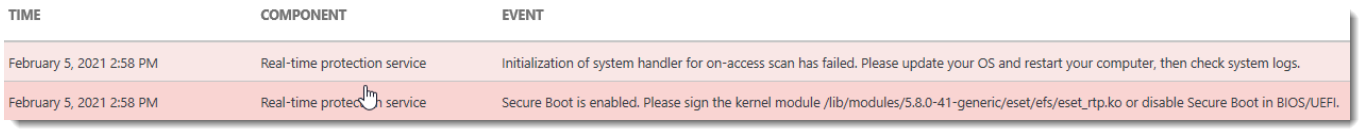
Real-time protection cannot start due to missing kernel files or enabled Secure Boot.

The **Events** screen in the Web interface of ESET File Security for Linux (EFSL)version 8 displays an error message.



TIME	COMPONENT	EVENT
November 30, 2020 3:47 PM	Real-time protection service	Initialization of system handler for on-access scan has failed. Please update your OS and restart your computer, then check system logs.
November 30, 2020 3:47 PM	Real-time protection service	If you are running UEK kernel, make sure you have kernel-uek-devel installed
November 30, 2020 3:47 PM	Real-time protection service	Cannot open file /lib/modules/5.4.17-2036.100.6.1.el8uek.x86_64/eset/efs/eset_rtp.ko: No such file or directory

Missing kernel files



TIME	COMPONENT	EVENT
February 5, 2021 2:58 PM	Real-time protection service	Initialization of system handler for on-access scan has failed. Please update your OS and restart your computer, then check system logs.
February 5, 2021 2:58 PM	Real-time protection service	Secure Boot is enabled. Please sign the kernel module /lib/modules/5.8.0-41-generic/eset/efs/eset_rtp.ko or disable Secure Boot in BIOS/UEFI.

Secure Boot is enabled

In system logs, a corresponding error message is displayed:

```
Nov 30 15:47:02 localhost.localdomain efs[373639]: ESET File Security error: cannot
find kernel sources directory for kernel version 5.4.17-2036.100.6.1.el8uek.x86_64

Nov 30 15:47:02 localhost.localdomain efs[373641]: ESET File Security error: please
check if kernel-devel (or linux-
headers) package version matches the current kernel version

Nov 30 15:47:04 localhost.localdomain oaeventd[373656]: ESET File Security Error: Ca
nnot open file /lib/modules/5.4.17-2036.100.6.1.el8uek.x86_64/eset/efs/eset_rtp.ko:
No such file or directory

Nov 30 15:47:04 localhost.localdomain oaeventd[373656]: ESET File Security Warning:
If you are running UEK kernel, make sure you have kernel-uek-devel installed

Nov 30 15:47:04 localhost.localdomain oaeventd[373656]: ESET File Security Error: In
itialization of system handler for on-
access scan has failed. Please update your OS and restart your computer, then check
system logs.
```

Missing kernel files

```
Feb 05 14:58:47 ubuntu2004 efs[52262]: ESET File Security Error: Secure Boot require
s signed kernel modules. Please run "/opt/eset/efs/lib/install_scripts/sign_modules.
sh" to sign our modules.

Feb 05 14:58:50 ubuntu2004 oaeventd[52303]: ESET File Security Error: Secure Boot is
 enabled. Please sign the kernel module /lib/modules/5.8.0-41-
generic/eset/efs/eset_rtp.ko or disable Secure Boot in BIOS/UEFI.

Feb 05 14:58:50 ubuntu2004 oaeventd[52303]: ESET File Security Error: Initialization
 of system handler for on-
access scan has failed. Please update your OS and restart your computer, then check
system logs.
```

Secure Boot is enabled

Solution

If the machine with EFSL installation has Secure Boot enabled, refer to the Secure Boot section.

Method 1 - Requires operating system restart

1. Upgrade your operating system packages to the latest version. On CentOS 7, execute the following command from a Terminal window as a privileged user:

```
yum upgrade
```

2. Restart the operating system.

Method 2

1. Install the latest kernel-devel modules (on RPM-based Linux distributions) or the latest linux-headers (on DEB based Linux distributions). On Ubuntu Linux, execute the following command from a Terminal window as a privileged user:

```
apt-get install linux-headers-`uname -r`
```

2. Restart the EFSL service. Execute the following command from a Terminal window as a privileged user:

```
systemctl restart efs
```

Method 3 - OS with Unbreakable Enterprise Kernel

If the Unbreakable Enterprise Kernel is used, the kernel-uek-devel package must be installed manually.

1. On Oracle Linux, execute the following command from a Terminal window as a privileged user:

```
yum install kernel-uek-devel-`uname -r` kernel-headers
```

2. Restart the EFSL service. Execute the following command from a Terminal window as a privileged user:

```
systemctl restart efs
```

Disable Real-time protection at boot

If a machine protected by ESET File Security for Linux is slow to respond and the CPU is constantly overloaded, you can disable Real-time protection at boot for troubleshooting purposes.

1. Start the computer and wait for the GRUB menu to appear.

2. Highlight the kernel you want to use and press E.

3. Go down to the line starting with `linux` and add the `eset_rtp=0` parameter to the end of the line.

4. To boot, press CTRL+X.

NOTE
Modifying the GRUB might slightly differ on some Linux distributions.

Known issues

ESET File Security for Linux v8.0

- No known issues

Glossary

- **Daemon**: A type of program on Unix-like operating systems that runs unobtrusively in the background, rather than under the direct control of a user, waiting to be activated by the occurrence of a specific event or condition.

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c) Nothing in the Agreement is intended, and nothing should be interpreted or construed, to induce or require either party to act or refrain from acting (or to agree to act or refrain from acting) in any manner which is inconsistent with, penalized, or prohibited under any applicable Trade Control Laws.

20. **Notices**. All notices and return of the Software and Documentation must be delivered to: ESET, spol. s r. o., Einsteinova 24, 851 01 Bratislava, Slovak Republic.

21. **Applicable law**. This Agreement shall be governed by and construed in accordance with the laws of the Slovak Republic. The End User and the Provider hereby agree that the principles of the conflict of laws and the United Nations Convention on Contracts for the International Sale of Goods shall not apply. You expressly agree that any disputes or claims ensuing from this Agreement with respect to the Provider or any disputes or claims relating to use of the Software shall be settled by Bratislava I District Court and You expressly agree to the said court exercising jurisdiction.

22. **General provisions**. Should any of the provisions of this Agreement be invalid or unenforceable, this shall not affect the validity of the other provisions of the Agreement, which shall remain valid and enforceable under the conditions stipulated therein. In case of a discrepancy between language versions of this Agreement, the English version shall prevail. This Agreement may only be modified in written form, signed by an authorized representative of the Provider, or a person expressly authorized to act in this capacity under the terms of a power of attorney.

This is the entire Agreement between the Provider and You relating to the Software and it supersedes any prior representations, discussions, undertakings, communications or advertising relating to the Software.

EULA ID: BUS-STANDARD-20-01

Privacy Policy

ESET, spol. s r. o., having its registered office at Einsteinova 24, 851 01 Bratislava, Slovak Republic, registered in the Commercial Register administered by Bratislava I District Court, Section Sro, Entry No 3586/B, Business Registration Number: 31333532 as a Data Controller ("ESET" or "We") would like to be transparent when it comes to processing of personal data and privacy of our customers. To achieve this goal, We are publishing this Privacy Policy with the sole purpose of informing our customer ("End User" or "You") about following topics:

- Processing of Personal Data,
- Data Confidentiality,
- Data Subject's Rights.

Processing of Personal Data

Services provided by ESET implemented in our product are provided under the terms of End User License Agreement ("EULA"), but some of them might require specific attention. We would like to provide You with more details on data collection connected with the provision of our services. We render various services described in

the EULA and product documentation such as update/upgrade service, ESET LiveGrid®, protection against misuse of data, support, etc. To make it all work, We need to collect the following information:

- Update and other statistics covering information concerning installation process and your computer including platform on which our product is installed and information about the operations and functionality of our products such as operation system, hardware information, installation IDs, license IDs, IP address, MAC address, configuration settings of product.
- One-way hashes related to infiltrations as part of ESET LiveGrid® Reputation System which improves the efficiency of our anti-malware solutions by comparing scanned files to a database of whitelisted and blacklisted items in the cloud.
- Suspicious samples and metadata from the wild as part of ESET LiveGrid® Feedback System which enables ESET to react immediately to needs of our end users and keep us responsive to the latest threats providing. We are dependent on You sending us
  - infiltrations such as potential samples of viruses and other malicious programs and suspicious; problematic, potentially unwanted or potentially unsafe objects such as executable files, email messages reported by You as spam or flagged by our product;
  - information about devices in local network such as type, vendor, model and/or name of device;
  - information concerning the use of internet such as IP address and geographic information, IP packets, URLs and ethernet frames;
  - crash dump files and information contained.

We do not desire to collect your data outside of this scope but sometimes it is impossible to prevent it. Accidentally collected data may be included in malware itself (collected without your knowledge or approval) or as part of filenames or URLs and We do not intend it to form part of our systems or process it for the purpose declared in this Privacy Policy.

- Licensing information such as license ID and personal data such as name, surname, address, email address is required for billing purposes, license genuineness verification and provision of our services.
- Contact information and data contained in your support requests may be required for service of support. Based on the channel You choose to contact us, We may collect your email address, phone number, license information, product details and description of your support case. You may be asked to provide us with other information to facilitate service of support.

Data Confidentiality

ESET is a company operating worldwide via affiliated entities or partners as part of our distribution, service and support network. Information processed by ESET may be transferred to and from affiliated entities or partners for performance of the EULA such as provision of services or support or billing. Based on your location and service You choose to use, We might be required to transfer your data to a country with absence of adequacy decision by the European Commission. Even in this case, every transfer of information is subject to regulation of data protection legislation and takes place only if required. Standard Contractual Clauses, Binding Corporate Rules or another appropriate safeguard must be established without any exception.

We are doing our best to prevent data from being stored longer than necessary while providing services under the EULA. Our retention period might be longer than the validity of your license just to give You time for easy and comfortable renewal. Minimized and pseudonymized statistics and other data from ESET LiveGrid® may be further processed for statistical purposes.

ESET implements appropriate technical and organizational measures to ensure a level of security which is appropriate to potential risks. We are doing our best to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems and Services. However, in case of data breach resulting in a risk to your rights and freedoms, We are ready to notify supervisory authority as well as data subjects. As a data subject, You have a right to lodge a complaint with a supervisory authority.

Data Subject's Rights

ESET is subject to regulation of Slovak laws and We are bound by data protection legislation as part of European Union. Subject to conditions laid down by applicable data protection laws, You are entitled to following rights as a data subject:

- right to request access to your personal data from ESET,
- right to rectification of your personal data if inaccurate (You also have the right to have the incomplete personal data completed),
- right to request erasure of your personal data,
- right to request restriction of processing your personal data,
- right to object to processing,
- right to lodge a complaint as well as,
- right to data portability.

If You would like to exercise your right as a data subject or You have a question or concern, send us a message at:

ESET, spol. s r.o.
Data Protection Officer
Einsteinova 24
85101 Bratislava
Slovak Republic
dpo@eset.sk