ESET FILE SECURITY

Installation Manual and User Guide

(intended for product version 4.5 and higher)

Linux and FreeBSD

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ESET **FILE SECURITY**

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1. Introduction to ESET File Security

Thank you for using ESET File Security (ESETS) - the premier security system for Linux and FreeBSD.

ESET's state-of-the-art scanning engine has unsurpassed scanning speed and detection rates combined with a very small footprint that makes it the ideal choice for any server on Linux and FreeBSD.

1.1 Main functionality

On-demand scanner

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

On-access scanner

The On-access scanner is invoked whenever a user and/or operating system attempts to access file system objects. This also clarifies the use of the term *On-access*; because a scan is triggered by any attempt to access file system objects.

1.2 Key features of the system

Advanced engine algorithms

The ESET antivirus scanning engine algorithms provide the highest detection rate and the fastest scanning times.

Multi-processing

ESET File Security is developed to run on single- as well as multi-processor units.

Advanced Heuristics

ESET File Security includes unique advanced heuristics for Win32 worms, backdoor infections and other forms of malware.

Built-In features

Built-in archivers unpack archived objects without requiring any external programs.

Speed and efficiency

To increase the speed and efficiency of the system, ESET File Security's architecture is based on the running daemon (resident program) where all scanning requests are sent.

Enhanced security

All executive daemons (except esets_dac) run under a non-privileged user account to enhance security.

Selective configuration

The system supports selective configuration based on the user or client/server.

Multiple logging levels

Multiple logging levels can be configured to get information about system activity and infiltrations.

Web interface

Configuration, administration and license management are offered through an intuitive and user-friendly web interface.

Remote administration

The system supports ESET Remote Administrator for management in large computer networks.

No external libraries

The ESET File Security installation does not require external libraries or programs except for LIBC and several core utilities (ED, etc.).

User-specified notification

The system can be configured to notify specific users in the event of a detected infiltration or other important events.

Low system requirements

To run efficiently, ESET File Security requires just 250MB of hard-disk space and 256MB of RAM. It runs smoothly under the 2.6.x Linux OS kernel versions as well as under 5.x, 6.x FreeBSD OS kernel versions.

Performance and scalability

From lower-powered, small office servers to enterprise-class ISP servers with thousands of users, ESET File Security delivers the performance and scalability you expect from a UNIX based solution, in addition to the unequaled security of ESET security products.

1.3 What's new

We strongly recommend that you upgrade to the most recent version of ESET File Security.

ESET File Security 4.5.3.0

- Support for ESET Remote Administrator 6.1 and later
- Threat notifications enhancements
- Removed support for Sun Solaris 10 and NetBSD 4
- Bugfixes and compatibility issues resolved

ESET File Security 4.0.10.0

- Installation/upgrade method is easier and improved
- Samples submission system based on the *ThreatSense.Net* technology

ESET File Security 4.0.8.0

- Support for multi-license keys
- Web interface
- Support for FreeBSD 8
- Extended settings and improved cache behavior of On-access scanner
- New design of Web interface with extended functions
- Scheduler functionality added

2. Terminology and abbreviations

In this section, we will review the terms and abbreviations used in this document. Note that boldface font is reserved for product component names and also for newly defined terms and abbreviations. Terms and abbreviations defined in this chapter are expanded on later in this document.

ESETS

ESET Security is a standard acronym for all security products developed by ESET, spol. s r. o. for Linux and FreeBSD operating systems. It is also the name of the software package containing the products.

ESETS daemon

The main ESETS system control and scanning daemon: *esets_daemon*.

ESETS base directory

The directory where ESETS loadable modules containing the virus signature database are stored. The abbreviation *@BASEDIR@* will be used for future references to this directory. The *@BASEDIR@* value (depending on the operating system) is listed below:

```
Linux: /var/opt/eset/esets/lib
FreeBSD: /var/lib/esets
```

ESETS cache directory

The directory where ESETS cache and temporary files (such as quarantine files or reports) are stored. The *@CACHEDIR@* value (depending on the operating system) is listed below:

```
Linux: /var/opt/eset/esets/cache
FreeBSD: /var/cache/esets
```

ESETS configuration directory

The directory where all files related to the ESET File Security configuration are stored. The abbreviation *@ETCDIR@* will be used for future references to this directory. The *@ETCDIR@* value (depending on the operating system) is listed below:

```
Linux: /etc/opt/eset/esets
FreeBSD: /usr/local/etc/esets
```

ESETS configuration file

Main ESET File Security configuration file. The absolute path of the file is as follows:

@ETCDIR@/esets.cfg

ESETS binary files directory

The directory where the relevant ESET File Security binary files are stored. The abbreviation *@BINDIR@* will be used for future references to this directory. The *@BINDIR@* value (depending on the operating system) is listed below:

```
Linux: /opt/eset/esets/bin
FreeBSD: /usr/local/bin
```

ESETS system binary files directory

The directory where the relevant ESET File Security system binary files are stored. The abbreviation *@SBINDIR@* will be used for future references to this directory. The *@SBINDIR@* value (depending on the operating system) is listed below:

```
Linux: /opt/eset/esets/sbin
FreeBSD: /usr/local/sbin
```

ESETS object files directory

The directory where the relevant ESET File Security object files and libraries are stored. The abbreviation *@LIBDIR@* will be used for future references to this directory. The *@LIBDIR@* value (depending on the operating system) is listed below:

```
Linux: /opt/eset/esets/lib
FreeBSD: /usr/local/lib/esets
```

Note: In a 64-bit Linux operating system environment there are some 32-bit libraries available in the following directory (for example, the *libesets_pac.so* preload library to scan 32-bit binary files):

```
Linux: /opt/eset/esets/lib32
```

3. System requirements

The following hardware requirements must be met before the installation process in order to run ESET File Security properly:

- 250MB of hard-disk space
- 256MB of RAM
- glibc 2.3.6 or later
- 2.6.x and later Linux OS kernel versions

The following operating systems are officially supported:

Operating system	**x86**	**x64**
Ubuntu 12.04 LTS	Yes	Yes
Red Hat Enterprise Linux 6	Yes	Yes
Red Hat Enterprise Linux 7	No	Yes
FreeBSD 9	Yes	No

ESET File Security should also work on the most recent and frequently used open-source Linux distributions if:

- the hardware requirements criteria above are met,
- and software dependencies are not missing in the Linux distribution used.

Remote management via ESET Remote Administrator:

ESET Remote Administrator 5.x	ESET File Security 3.0.x ESET File Security 4.0.x ESET File Security 4.5.x
ESET Remote Administrator 6.1 and later	ESET File Security 4.0.x ESET File Security 4.5.x (recommended, fully functional)

4. Installation

After purchasing ESET File Security, you will receive your authorization data (Username, Password and License Key). These credentials identify you as an ESET customer, and are required to download updates for ESET File Security. Your license information is also required for downloading the initial installation package from ESET.com. ESET File Security is distributed as a binary file:

```
esets.arch.ext.bin
```

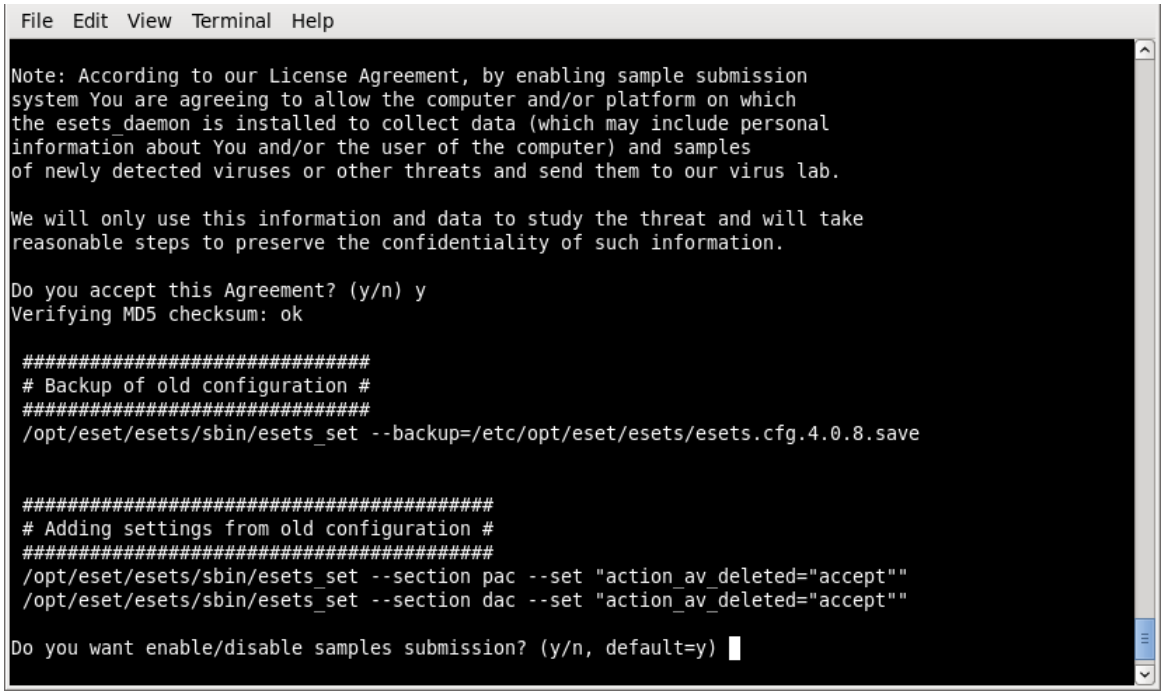
In the binary file shown above, *'ext'* is an Linux and FreeBSD OS distribution dependent suffix (for example, 'deb' for Debian, 'rpm' for RedHat, SuSE, 'tgz' for other Linux OS distributions and 'fbs9.tgz' for FreeBSD 9.x.)
The *'arch'* value represents a computer architecture, either 'i386' for 32-bit OS distributions or 'amd64', 'x86_64' for 64-bit.

To install or upgrade your product, run the ESET distribution script appropriate for the OS distribution and architecture that you have:

```
sh ./esets.i386.deb.bin
sh ./esets.i386.fbs9.tgz.bin
sh ./esets.amd64.deb.bin
sh ./esets.x86_64.rpm.bin
```

Once you accept the product License Agreement, you will be prompted to enable or disable the Samples submission system during the installation.

Figure 4-1. Installation of ESET File Security via Terminal.



Always import a license file before you start the ESETS daemon:

```
@SBINDIR@/esets_lic --import file.lic
```

To enable regular updates of virus signature database, enter your Username and Password into the global section of the ESET configuration file using a text editor:

```
vi @ETCDIR@/esets.cfg
```

Edit the **Update options** section of the ESETS configuration file.

```
av_update_username = "EAV-12345678"
av_update_password = "yourpassword"
```

Start the main daemon service:

Linux OS:
`/etc/init.d/esets start`
Systemd distributions:
`systemctl start esets`
	BSD OS:
	`/usr/local/etc/rc.d/esets.sh start`

Once the package is installed, you can verify that the main ESETS service is running by using the following command:

Linux OS:	BSD OS:
`ps -C esets_daemon`	`ps -ax | grep esets_daemon`

After pressing ENTER, you should see the following (or similar) message:

```
 PID TTY          TIME CMD
2226 ?        00:00:00 esets_daemon
2229 ?        00:00:00 esets_daemon
```

At least two ESETS daemon processes are running in the background. The first PID represents the process and threads manager of the system. The other represents the ESETS scanning process.

To help you easily integrate ESET Security with your system, you can also use the ESET Security interactive automated install script. Note that automated installation is not available for File Servers. For more information, see */opt/eset/esets/share/doc* for general instructions. . A list of available ESET File Security installations/uninstallations according to imported licenses will be displayed.

```
@SBINDIR@/esets_setup
```

4.1 Upgrading to a more recent version

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

Which product version is currently installed?

To determine the product version of ESET File Security, you have two options:

1. In Web interface, navigate to **Home** > **Product version**. To determine whether a new version of ESET File Security is available, click **Check for new version**.
2. Run an ESET command-line program with the `--version` parameter.

How to upgrade?

To upgrade to a more recent version, run an OS-related installation package as described in the Installation section. All parameters from the ESETS configuration file are set automatically under normal circumstances during the upgrade.

4.2 Uninstall

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

❑ Ubuntu/debian: `dpkg --purge esets`

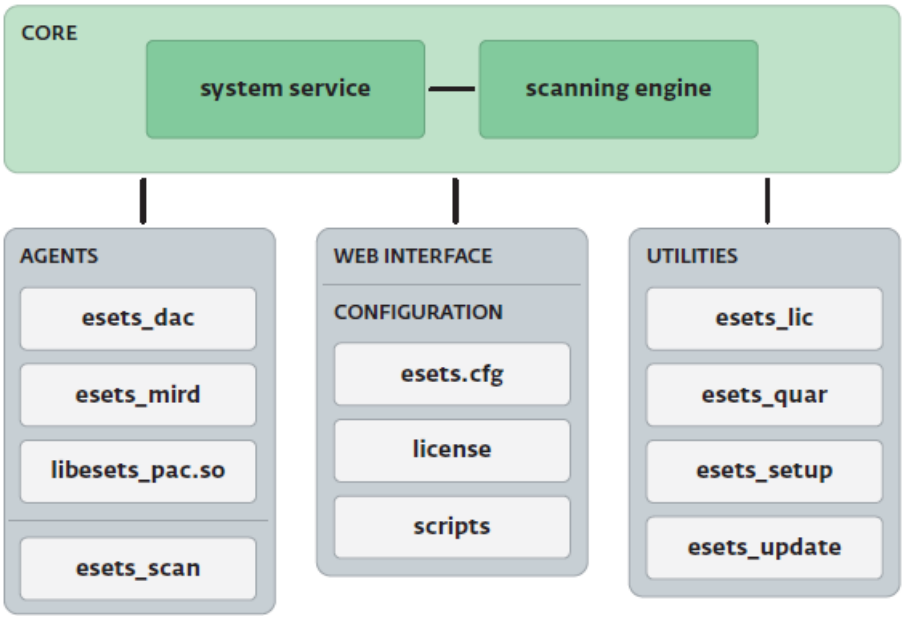
❑ Freebsd: `pkg_delete esets-*`

❑ Suse, Fedora, Mandriva, Redhat: `rpm -e esets`

5. Architecture Overview

Once ESET File Security is successfully installed, you should become familiar with its architecture.

Figure 4-1. Structure of ESET File Security.



The structure of ESET File Security is shown in Figure 4-1. The system is comprised of the following parts:

CORE

The core of ESET File Security is the ESETS daemon (esets_daemon). The daemon uses ESETS API library libesets.so and ESETS loading modules em00X_xx.dat to provide base system tasks such as scanning, maintenance of the agent daemon processes, maintenance of the samples submission system, logging, notification, etc. Please refer to the *esets_daemon(8)* man page for details.

AGENTS

The purpose of ESETS agent modules is to integrate ESETS with the Linux and FreeBSD server environment.

UTILITIES

The utility modules provide simple and effective system management. They are responsible for system tasks such as license management, quarantine management, system setup and update.

CONFIGURATION

Proper configuration is the most important aspect of your security system; the remainder of this chapter is dedicated to explaining all related components. A thorough understanding of the *esets.cfg* file is also highly recommended, as this file contains information essential to the configuration of ESET File Security.

After the product is successfully installed, all its configuration components are stored in the ESETS configuration directory. The directory consists of the following files:

@ETCDIR@/esets.cfg

This is the most important configuration file, as it controls all major aspects of the product's functionality. The esets.cfg file is made up of several sections, each of which contains various parameters. The file contains one global and several "agent" sections, with all section names enclosed in square brackets. Parameters in the global section are used to define configuration options for the ESETS daemon as well as default values for the ESETS scanning engine configuration. Parameters in agent sections are used to define configuration options of modules used to intercept various data flow types in the computer and/or its neighborhood, and prepare it for scanning. Note that in addition to the various parameters used for system configuration, there are also rules governing the organization of the file. For detailed information on the most effective way to organize this file, please refer to the *esets.cfg(5)* and *esets_daemon(8)* man pages, as well as relevant agents' man page.

@ETCDIR@/certs

This directory is used to store the certificates used by the ESETS web interface for authentication. Please see the *esets_wwwi(8)* man page for details.

@ETCDIR@/license

This directory is used to store the product(s) license key(s) you have acquired from your vendor. Note that the ESETS daemon will check only this directory for a valid license key.

@ETCDIR@/scripts/license_warning_script

If enabled by the Scheduler task named *License expiration*,this script will be executed 30 days (once per day) before product license expiration, sending an email notification about the expiration status to the system administrator.

@ETCDIR@/scripts/daemon_notification_script

If enabled by the Scheduler task named *Threat notification*, this script is executed in the event of a detected infiltration by the antivirus system. It is used to send email notification about the event to the system administrator.

6. Integration with File System services

This chapter describes the On-demand and On-access scanner configuration which will provide the most effective protection from virus and worm file system infections. ESET File Security's scanning power is derived from the On-demand scanner command *'esets_scan'* and the On-access scanner command *'esets_dac'*. The Linux version of ESET File Security offers an additional On-access scanner technique which uses the preloaded library module *libesets_pac.so*. All of these commands are described in the following sections.

6.1 On-demand scanner

The On-demand scanner can be started by a privileged user (usually a system administrator) through the command line interface, web interface or by the operating system's automatic scheduling tool (e.g., cron). The term *On-demand* refers to file system objects which are scanned on user or system demand.

The On-demand scanner does not require special configuration in order to run. After the ESETS package has been properly installed and a valid license has been moved to the license keys directory (@ETCDIR@/license), the On-demand scanner can be run immediately using the command line interface or the Scheduler tool. To run the On-demand scanner from the command line, use the following syntax:

```
@SBINDIR@/esets_scan [option(s)] FILES
```

where FILES is a list of directories and/or files to be scanned.

Multiple command line options are available using ESETS On-demand scanner. To see the full list of options, please see the *esets_scan(8)* man page.

6.2 On-access scanner using preload LIBC library

The On-access scanner is invoked by user(s) access and/or operating system access to file system objects. This also explains the term *On-access*; the scanner is triggered on any attempt to access a selected file system object.

In the following sections, we will also describe the integration of the On-access scanner powered by Dazuko with Linux/BSD file system services. Using Dazuko may not be feasible in all situations, including system administrators who maintain critical systems where:

- the source code and/or configuration files related to the running kernel are not available,
- the kernel is more monolithic than modular,
- the Dazuko module simply does not support the given OS.

In any of these cases, the On-access scanning technique based on the preload LIBC library should be used. See the following topics in this section for detailed information. Please note that this section is relevant only for Linux OS users and contains information regarding the operation, installation and configuration of the On-access scanner using the preload library *'libesets_pac.so'*.

6.2.1 Operation principle

The On-access scanner *libesets_pac.so* (ESETS Preload library based file Access Controller) is a shared objects library which is activated at system start up. This library is used for LIBC calls by file system servers such as FTP server, Samba server etc. Every file system object is scanned based on customizable file access event types. The following event types are supported by the current version:

Open events

This file access type is activated if the word *'open'* is present in the *'event_mask'* parameter in the esets.cfg file (**[pac]** section).

Create (close) events

This file access type is activated if the word *'create'* is present in the *'event_mask'* parameter in the esets.cfg file (**[pac]** section). In this case, all file descriptor and FILE stream create/close functions of the LIBC are intercepted.

Exec events

This file access type is activated if the word *'exec'* is present in the *'event_mask'* parameter in the esets.cfg (**[pac]** section). In this case, all exec functions of the LIBC are intercepted.

All opened, closed and executed files are scanned by the ESETS daemon for viruses. Based on the result of such scans, access to given files is denied or allowed.

6.2.2 Installation and configuration

The *libesets_pac.so* library module is installed using a standard installation mechanism of the preloaded libraries. You need to define the environment variable *'LD_PRELOAD'* with the absolute path to the *libesets_pac.so* library, or apply it systemwide in `/etc/ld.so.preload`. For more information, please refer to the *ld.so(8)* man page.

To ensure that only relevant file access calls within a given file system are intercepted, executable statements can be overridden using the following line:

```
LD_PRELOAD=@LIBDIR@/libesets_pac.so COMMAND COMMAND-ARGUMENTS
```

where 'COMMAND COMMAND-ARGUMENTS' is the original executable statement.

Review and edit the **[global]** and **[pac]** sections of the ESETS configuration file (esets.cfg). In order for the On-access scanner to function correctly, you must define the file system objects (i.e. directories and files) that are required to be under control of the preload library. This can be achieved by defining the parameters of the *'ctl_incl'* and *'ctl_excl'* options in the **[pac]** section of the ESETS configuration file. After making changes to the esets.cfg file, you can force the newly created configuration to be re-read by reloading the ESETS daemon.

6.2.3 Tips

In order to activate the On-access scanner immediately after file system start up, the *'LD_PRELOAD'* environment variable must be defined within the appropriate network file server initialization script.

Example: Let's assume we want to have the On-access scanner to monitor all file system access events immediately after starting the Samba server. Within the Samba daemon initialization script (/etc/init.d/smb), we would replace the statement

```
daemon /usr/sbin/smbd $SMBDOPTIONS
```

with the following line:

```
LD_PRELOAD=@LIBDIR@/libesets_pac.so daemon /usr/sbin/smbd $SMBDOPTIONS
```

In this way, selected file system objects controlled by Samba will be scanned at system start-up.

6.3 On-access scanner powered by Dazuko

The technique used by ESETS On-access scanner can be also powered by the Dazuko (da-tzu-ko) kernel module and is based on the interception of kernel calls. The Dazuko project is open source, which means that its source code is freely distributed. This allows users to compile the kernel module for their own custom kernels. Note that the Dazuko kernel module is not a part of any ESETS product and must be compiled and installed into the kernel prior to using the On-access command *esets_dac*. The Dazuko technique makes On-access scanning independent from the file system type used. It is also suitable for scanning of file system objects via Network File System (NFS), Nettalk and Samba.

Important: Before we provide detailed information related to On-access scanner configuration and use, it should be noted that the scanner has been primarily developed and tested to protect externally mounted file systems. If there are multiple file systems that are not externally mounted, you will need to exclude them from file access control in order to prevent system hang ups. An example of a typical directory to exclude is the *'/dev'* directory and any directories used by ESETS.

6.3.1 Operation principle

The On-access scanner *esets_dac* (ESETS Dazuko-powered file Access Controller) is a resident program which provides continuous monitoring and control over the file system. Every file system object is scanned based on customizable file access event types. The following event types are supported by the current version:

Open events

To activate this file access type, set the value of the *'event_mask'* parameter to open in the **[dac]** section of the esets.cfg file. This will enable the ON_OPEN bit of the Dazuko access mask.

Create (close) events

To activate this file access type, set the value of the *'event_mask'* parameter to close in the **[dac]** section of the esets.cfg file. This will enable the ON_OPEN bit of the Dazuko access mask. This will enable the ON_CLOSE and ON_CLOSE_MODIFIED bits of the Dazuko access mask.

Note: Some OS kernel versions do not support the interception of ON_CLOSE events. In these cases, close events will not be monitored by *esets_dac*.

Exec events

To activate this file access type, set the value of the *'event_mask'* parameter to exec in the **[dac]** section of the esets.cfg file. This will enable the ON_EXEC bit of the Dazuko access mask.

The On-access scanner ensures that all opened, closed and executed files are first scanned by the esets_daemon for viruses. Depending on the scan results, access to specific files is denied or allowed.

6.3.2 Installation and configuration

The Dazuko kernel module must be compiled and installed within the running kernel before initializing *esets_dac*. For details on how to compile and install Dazuko, please see:

http://www.dazuko.org

Once Dazuko is installed, review and edit the **[global]** and **[dac]** sections of the ESETS configuration file (esets.cfg). Note that for the On-access scanner properly function, it is dependent upon configuration of the *'agent_enabled'* option within the **[dac]** section of this file. Additionally, you must define the file system objects (i.e. directories and files) that are to be monitored by the On-access scanner. This can be accomplished by defining the parameters of the *'ctl_incl'* and *'ctl_excl'* options, which are also located within the **[dac]** section. After making changes to the esets.cfg file, you can force the newly created configuration to be re-read by reloading the ESETS daemon.

6.3.3 Tips

To ensure that the Dazuko module loads prior to initialization of the *esets_dac* daemon, follow these steps:

Place a copy of the Dazuko module in either of the following directories reserved for kernel modules:

```
/lib/modules
```

or

```
/modules
```

Use the kernel utilities 'depmod' and 'modprobe' (For BSD OS, use 'kldconfig' and 'kldload') to handle dependencies and successfully initialize the newly added Dazuko module.

In the esets_daemon initialization script '/etc/init.d/esets_daemon', insert the following line before the daemon initialization statement:

```
/sbin/modprobe dazuko
```

For BSD OS's the line

```
/sbin/kldconfig dazuko
```

must be inserted into the '/usr/local/etc/rc.d/esets_daemon.sh' script.

Warning! It is extremely important that these steps are executed in the exact order given. If the kernel module is not located within the kernel modules directory it will not properly load, causing the system to hang.

7. Important ESET File Security mechanisms

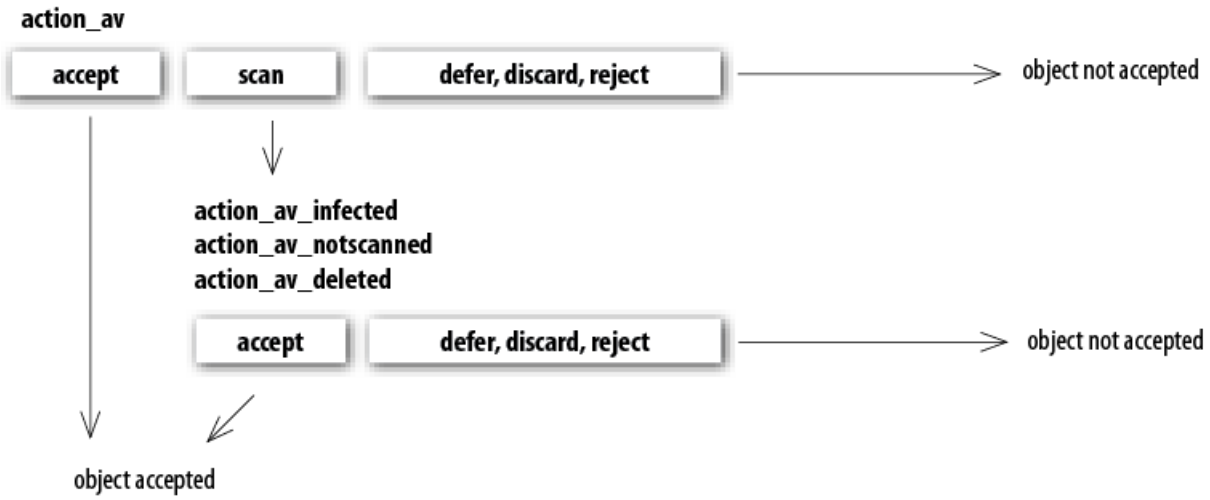
7.1 Handle Object Policy

The Handle Object Policy (see figure 6-1) mechanism provides filtering for scanned objects based on their status. This functionality is based on the following configuration options:

- action_av
- action_av_infected
- action_av_notscanned
- action_av_deleted

For detailed information on these options, please refer to the *esets.cfg(5)* man page.

Figure 6-1. Scheme of Handle Object Policy mechanism.



Every processed object is first handled according to the configuration of the *'action_av'* option. If this option is set to *'accept'* (or *'defer'*, *'discard'*, *'reject'*) the object is accepted (or deferred, discarded, rejected). If the option is set to *'scan'* the object is scanned for virus infiltrations, and if the *'av_clean_mode'* option is set to *'standard'* (or '*strict*', or '*rigorous*'), the object is also cleaned. In addition, the configuration options *'action_av_infected'*, *'action_av_notscanned'* and *'action_av_deleted'* are taken into account to further evaluate object handling. If an *'accept'* action has been taken as a result of these three action options, the object is accepted. Otherwise, the object is blocked.

7.2 User Specific Configuration

The purpose of the User Specific Configuration mechanism is to provide a higher degree of customization and functionality. It allows the system administrator to define ESETS antivirus scanner parameters based on the user who is accessing file system objects.

A detailed description of this functionality can be found in the *esets.cfg(5)* man page. In this section we will provide only a short example of a user-specific configuration.

In this example, the goal is to use the *esets_dac* module to control the ON_OPEN and ON_EXEC access events for an external disc mounted under the /home directory. The module can be configured in the **[dac]** section of the ESETS configuration file. See below:

```
[dac]
agent_enabled = yes
event_mask = "open"
ctl_incl = "/home"
action_av = "scan"
```

To specify scan settings for an individual user, the *'user_config'* parameter must specify the special configuration filename where the individual scanning rules will be stored. In the example shown here, the special configuration file is called *'esets_dac_spec.cfg'* and is located within the ESETS configuration directory (This directory is based on your operating system. Please see Terminology and abbreviations page).

```
[dac]
agent_enabled = yes
event_mask = "open"
ctl_incl = "/home"
action_av = "scan"
user_config = "esets_dac_spec.cfg"
```

Once the *'user_config'* file parameter is specified within the **[dac]** section, the *'esets_dac_spec.cfg'* file must be created in the ESETS configuration directory. Finally, add the desired scanning rules.

```
[username]
action_av = "reject"
```

At the top of the special section, enter the username to which the individual rules will be applied. This configuration will allow all other users attempting to access the file-system to be processed normally. i.e., all file system objects accessed by other users will be scanned for infiltrations, except for the user *'username'*, whose access will be rejected (blocked).

7.3 Samples Submission System

The Samples submission system is an intelligent *ThreatSense.Net* technology that collects infected objects that have been detected by advanced heuristics and delivers them to the samples submission system server. All virus samples collected by the sample submission system will be processed by the ESET virus laboratory and if necessary, added to the ESET virus signature database.

Note: According to our license agreement, by enabling the sample submission system you are agreeing to allow the computer and/or platform on which the esets_daemon is installed to collect data (which may include personal information about you and/or other users of the computer) and samples of newly detected viruses or other threats and send them to ESET virus laboratory. This feature is disabled by default. All information collected will be used only to analyze new threats and will not be used for any other purpose.

In order to enable sampling, the samples submission system cache must be initialized. This can be achieved by selecting *'samples_enabled'* in the **[global]** section of the ESETS configuration file.

For more information on the Samples Submission System and its options, please refer to the *esets_daemon(8)* mane page.

7.4 Scheduler

The Scheduler's functionality includes running scheduled tasks at a specified time or on a specific event, managing and launching tasks with predefined configuration and properties and more. Task configuration and properties can be used to influence launch dates and times, but also to expand the application of tasks by introducing the use of custom profiles during task execution.

The *'scheduler_tasks'* option is commented by default, causing the default scheduler configuration to be applied. In the ESETS configuration file all parameters and tasks are semicolon-separated. Any other semicolons (and backslashes) must be backslash escaped. Each task has 6 parameters and the syntax is as follows:

- id – Unique number.
- name – Task description.
- flags – Special flags to disable the specified scheduler task can be set here.
- failstart – Instructs what to do if task could not be run on scheduled date.
- datespec – A regular date specification with 6 (crontab like year-extended) fields, recurrent date or an event name option.
- command – Can be an absolute path to a command followed by its arguments or a special command name with the '@' prefix (e.g. anti-virus update: *@update*).

```
#scheduler_tasks = "id;name;flags;failstart;datespec;command;id2;name2;...";
```

The following event names can be used in place of the datespec option:

- start – Daemon startup.
- startonce – Daemon startup but at most once a day.
- engine – Successful engine update.
- login – Web interface logon startup.
- threat – Threat detected.
- notscanned – Not scanned email or file.
- licexp – 30 days before license expiration.

To display the current scheduler configuration, use the Web interface or run the following command:

```
cat @ETCDIR@/esets.cfg | grep scheduler_tasks
```

For a full description of Scheduler and its parameters refer to the Scheduler section of the *esets_daemon(8)* man page.

7.5 Web Interface

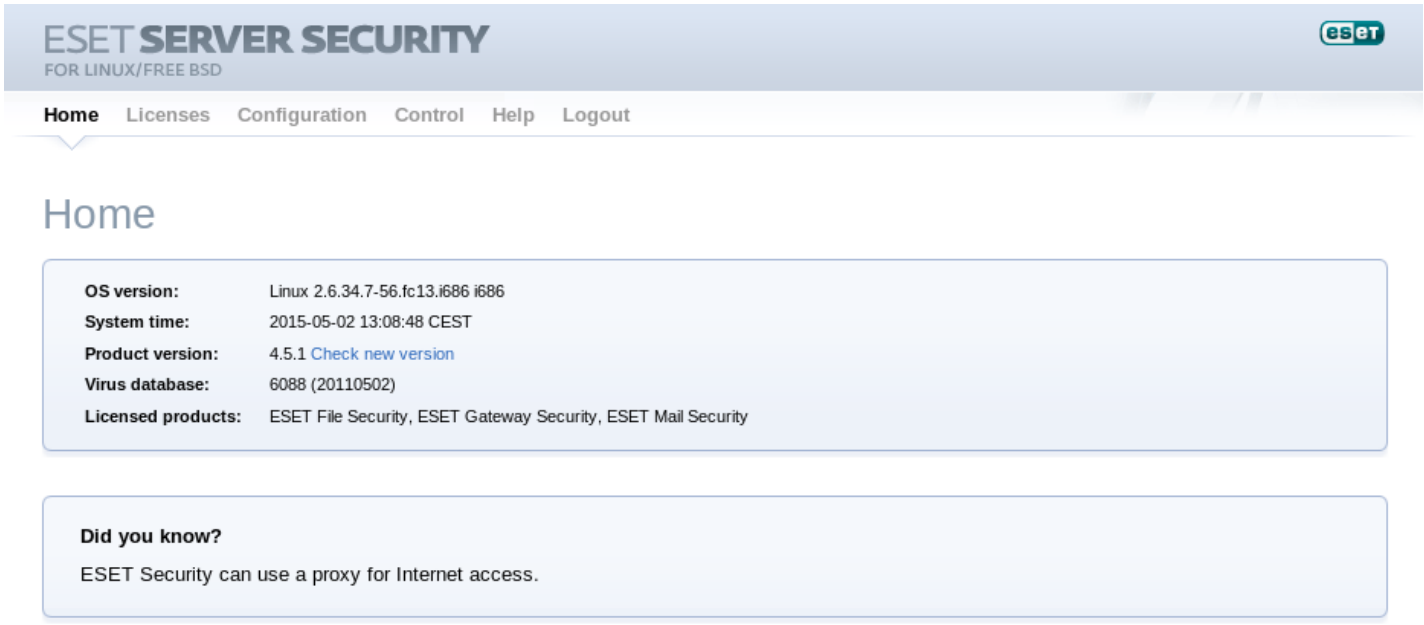
The web interface allows user-friendly configuration, administration and license management of ESET Security systems. This module is a standalone component and must be enabled before it can be accessed. To quickly configure the web interface, configure the following options in the ESETS configuration file as shown below and restart the ESETS daemon:

```
[wwwi]
agent_enabled = yes
listen_addr = address
listen_port = port
username = name
password = pass
```

Replace the text in italics with your own values and direct your browser to *'https://address:port'* (note the https). Login with *'username/password'*. Basic usage instructions can be found in the **Help** section of the web interface and technical details about *esets_wwwi* can be found in the *esets_wwwi(1)* man page.

The web interface allows you to remotely access the ESETS daemon and deploy it easily. This powerful utility makes it easy to read and write configuration values.

Figure 6-1. ESET Security for Linux - Home screen.



The web interface window of ESET File Security is divided into two main sections. The primary window, which displays the contents of the selected menu option, and the main menu. A horizontal bar on the top lets you navigate between the following main options:

- **Home** – provides basic system and ESET product information
- **Licenses** – a license management utility, see the following chapter for mode details
- **Configuration** – you can change the ESET File Security system configuration here
- **Control** – allows you to run simple tasks and view global statistics about objects processed by esets_daemon
- **Help** – provides detailed usage instructions for the ESET File Security web interface
- **Logout** – use to end your current session

Important: Make sure you click **Save changes** after making any changes in the **Configuration** section of the web interface to save your new settings. To apply your settings, restart the ESETS daemon by clicking **Apply changes** on the left pane.

We recommend that you limit access to this interface for a specific range of IP addresses. This can be done two ways:

1. By adding only one interface under the `listen_addr` parameter (not using 0.0.0.0)
2. Using a firewall rule (such as *iptables*).

7.5.1 License management

You can upload a new license using the web interface, as shown in Figure 6-2.

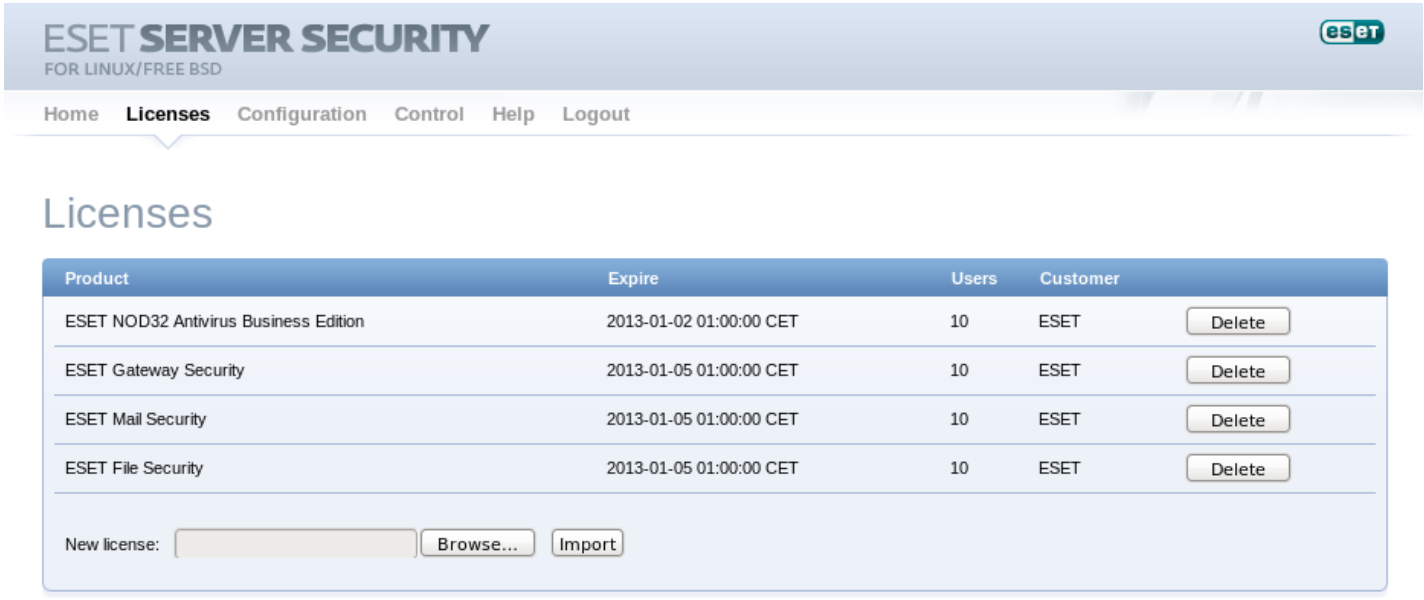
If you want to display licenses in the console, use the following command:

```
@SBINDIR@/esets_lic --list
```

If you want to import new license files, use the following command:

```
@SBINDIR@/esets_lic --import *.lic
```

Figure 6-2. ESET Licenses.



You can enable the license notification option in the Scheduler section options. If enabled, this functionality will notify you 30 days prior to your license expiration.

Note: If you have an ESET-issued License key and a license file is not available, you can generate a legacy license file using ESET License Administrator using the following instructions.

7.5.2 On-Access scanner (DAC) configuration example

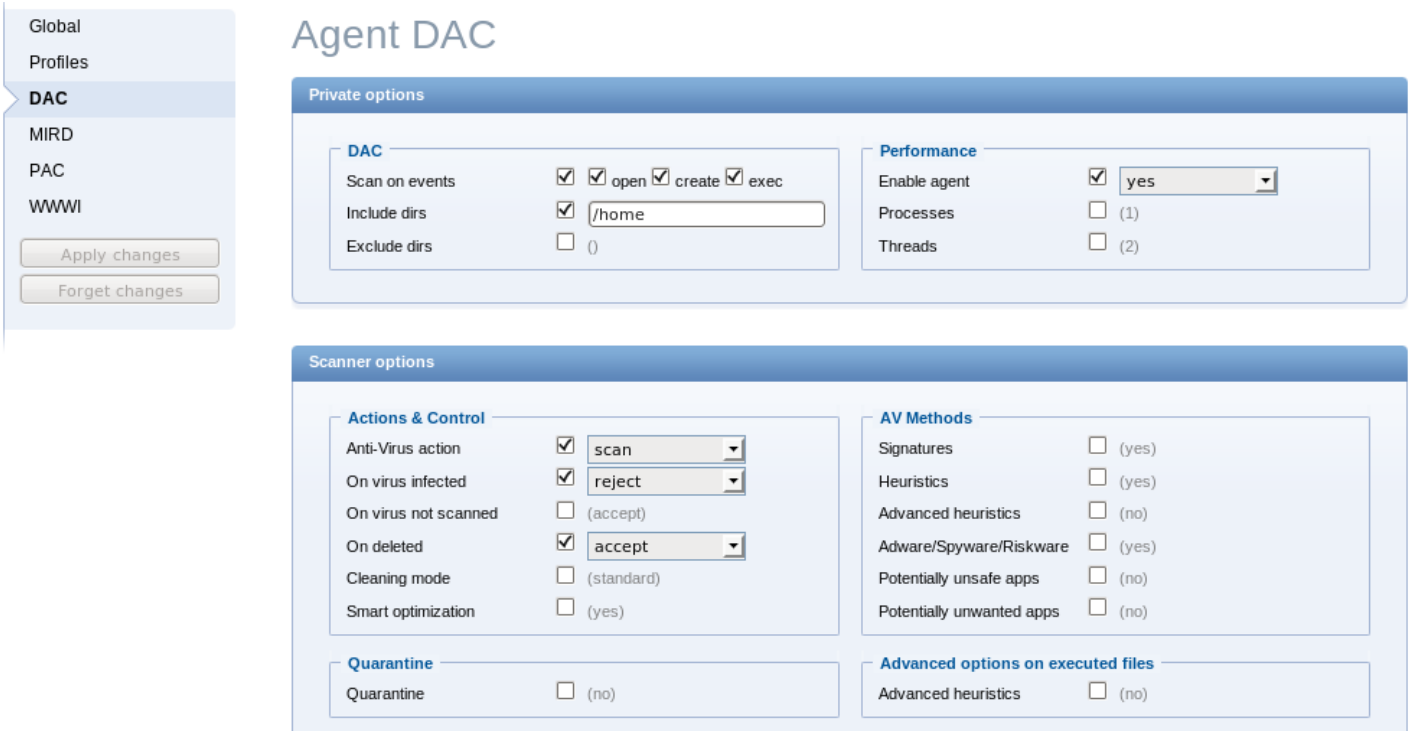
There are two ways you can to configure ESETS. In our example, we will demonstrate how to use either of them to setup the DAC module, described in the On-access scanner powered by Dazuko chapter. You can choose the option that best suits you.

- Using the ESETS configuration file:

```
[dac]
agent_enabled = yes
event_mask = "open"
ctl_incl = "/home"
action_av_deleted = "reject"
action_av = "scan"
action_av_infected = "reject"
```

- Using the web interface:

Figure 6-3. ESETS - Configuration > On-Access scanner.



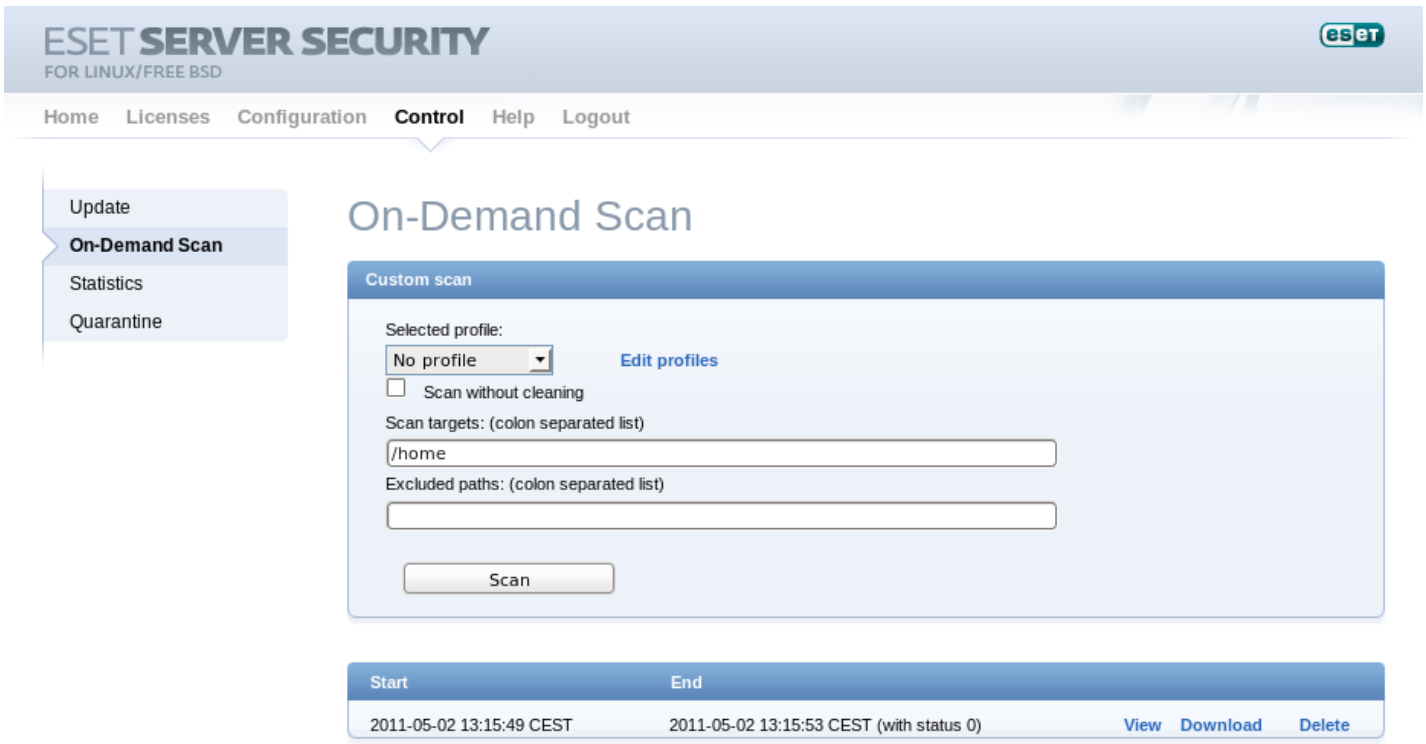
When changing settings in the web interface, always remember to save your configuration by clicking **Save changes**. To apply your new changes, click the **Apply changes** button in the **Configuration** sections panel.

7.5.3 On-Demand scanner

This section comprises an example on how to run the On-Demand scanner to scan for viruses:

- Navigate to **Control > On-Demand Scan**
- Enter the path to the directory you want to scan
- Execute the command-line scanner by clicking the **Scan** button

Figure 6-4. ESETS - Control > On-Demand scanner.

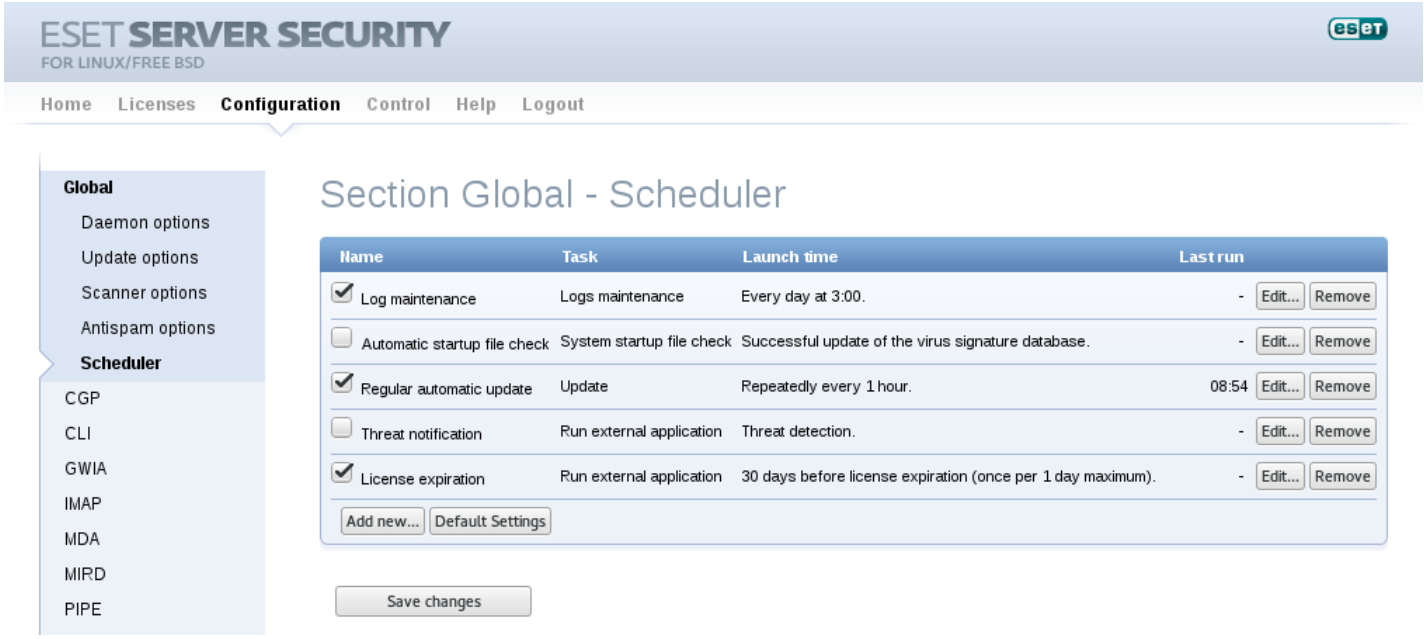


ESET Command-line scanner will automatically run in the background. To see the scanning progress, click the **View** link. A new browser window will open.

7.5.4 Scheduler

You can manage the scheduler tasks either via ESET configuration file (see chapter Scheduler) or using the web interface.

Figure 6-5. ESETS - Global > Scheduler.



Click the checkbox to enable/disable a scheduled task. By default, the following scheduled tasks are displayed:

Log maintenance – The program automatically deletes older logs in order to save hard disk space. The Scheduler will start defragmenting logs. All empty log entries will be removed during this process. This will improve the speed when working with logs. The improvement will be more noticeable if the logs contain a large number of entries.

Automatic startup file check – Scans memory and running services after a successful update of the virus signature database.

Regular automatic update – Regularly updating ESET File Security's virus signature database and antispam modules is the best method of keeping the maximum level of security on your computer. See ESETS update utility for more information.

Threat notification – By default, each threat will be logged into syslog. In addition, ESETS can be configured to run an external (notification) script to notify a system administrator via email about threat detection.

License expiration – If enabled, this functionality will notify you 30 days prior to your license expiration. This task will run the *@ETCDIR@/scripts/license_warning_script* shell script, which sends an email to the email address of the root user account. The script can be customized to reflect specific server needs.

7.5.5 Statistics

You can view statistics for all of active ESETS agents here. The **Statistics** summary refreshes every 10 seconds.

Figure 6-6. ESETS - Control > Statistics.

NOTE: When viewing scan statistics in ESET Mail Security, the number of **Scanned**, **Cleaned** and **Infected** items includes all email attachments scanned. For example, if an email with 2 attachments is scanned, 3 scanned objects will be shown because the email message itself without attachments counts as 1 object.

The number of **Accepted**, **Differed**, **Discarded** and **Rejected** items refers to email messages only and does not include attachments. For example, if an email containing 2 attachments is rejected, 1 rejected item will display. For this reason, the sum of **Accepted**, **Differed**, **Discarded**, **Rejected** items may not match the number of **Scanned** items.

7.6 Remote Administration

ESETS supports remote administration for server security management in large computer networks. The ESETS Remote Administration Client (RACL) is part of the main ESETS daemon and performs the following functions:

- Communicates with ERA Server and provides you with system information, configuration, protection statuses and several other features
- Allows client configurations to be viewed/modified using the ESET Remote Administrator policies and configuration tasks
- Can perform *Update Now* tasks
- Performs computer scans as requested, and submits the results back to the ERA Server scan log
- Sends all non-debug messages to event logs

These functionalities are not supported:

- Firewall logging
- Remote installation

For more specific information, please read the ESET Remote Administrator manual or visit our Online help.

7.6.1 Connecting with ESET Remote Administrator

Before commencing any remote administration process, ensure your system fulfills the three following prerequisites:

- Running ERA Server
- Running ERA Console
- Installed and running ERA Agent (ESET Remote Administrator version 6.x and higher)
- Enable RA Client in the ESETS daemon. Ensure that firewall settings do not block traffic to ERA Server or vice versa.

To setup the basics, specify the address of your ERA Server in the *'racl_server_addr'* parameter first. If you are using a password to access the ERA Console password, you must edit the value of the *'racl_password'* parameter accordingly. Change the value of the *'racl_interval'* parameter to adjust the frequency of connections to ERA Server (in minutes).

Note: All applicable ESET Remote Administration Client variables are listed on the *esets_daemon(8)* man page.

7.6.2 ESET Remote Administrator usage example (6.1 and later)

Installing ERA Agent

ERA Agent must be installed to allow communication with the ERA Server. ESET File Security communicates with the ERA Agent through the *localhost* connection, and then ERA Agent relays information to ESET Remote Administrator via Internet or LAN.

Username/Password data is not required to download the ERA Agent installation package from ESET.com.

- To install ERA Agent please refer to:
  Agent installation - Linux (ESET Remote Administrator 6.x manual)

Enabling RACL

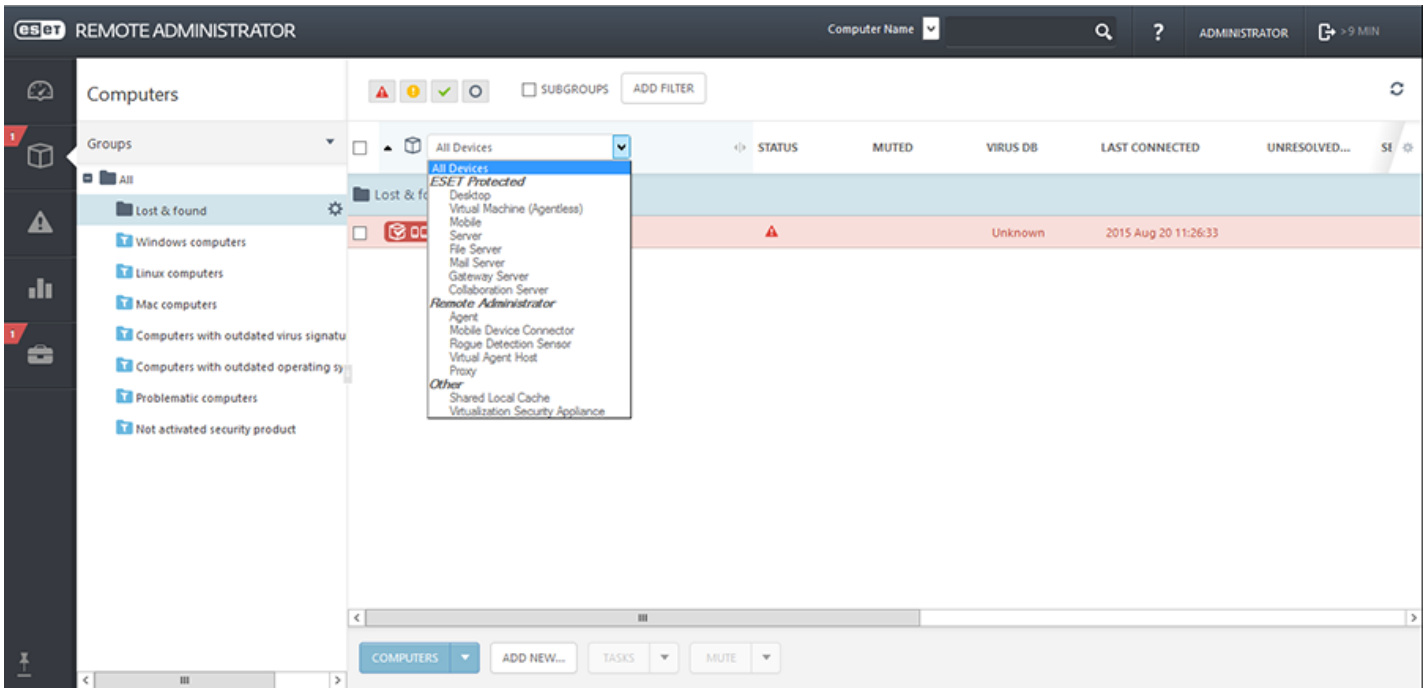
You can either use the web interface (see the previous chapter) to apply the new configuration, or you can adjust these parameters in the **[global]** section of the ESETS configuration file as follows:

```
racl_server_addr = "localhost"
racl_server_port = 2225
racl_password = "yourPassword"
racl_interval = 1
```

ERA Web Console

After the ESETS daemon configuration is be reloaded, ERA Agent is installed, and RACL can connect to ERA Server (or ERA Proxy) through ERA Agent, you should see a newly connected client in the **Computers** > **Lost & found** section of the ERA Web Console.

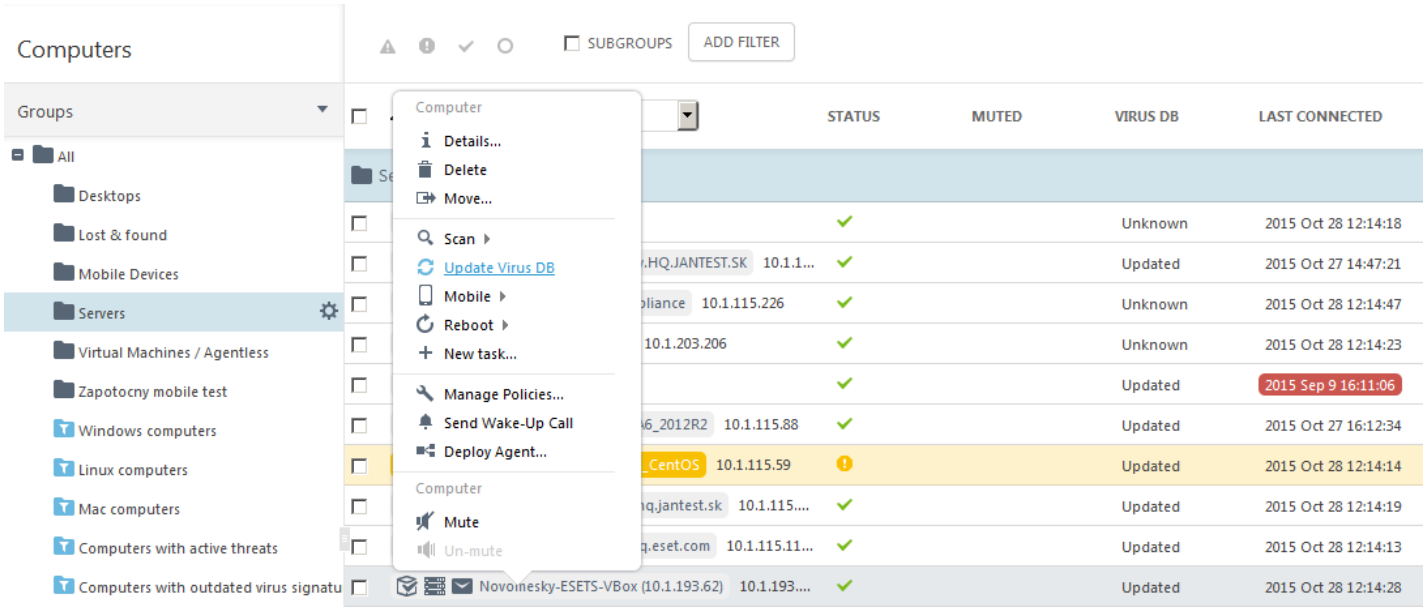
Figure 6-7. ERA Web Console.



Using the Web Console, you can create a client task to ESETS daemon by:

- Clicking the connected client.
- Selecting a task from **Admin** > **Client tasks**, for example **Update virus DB**.

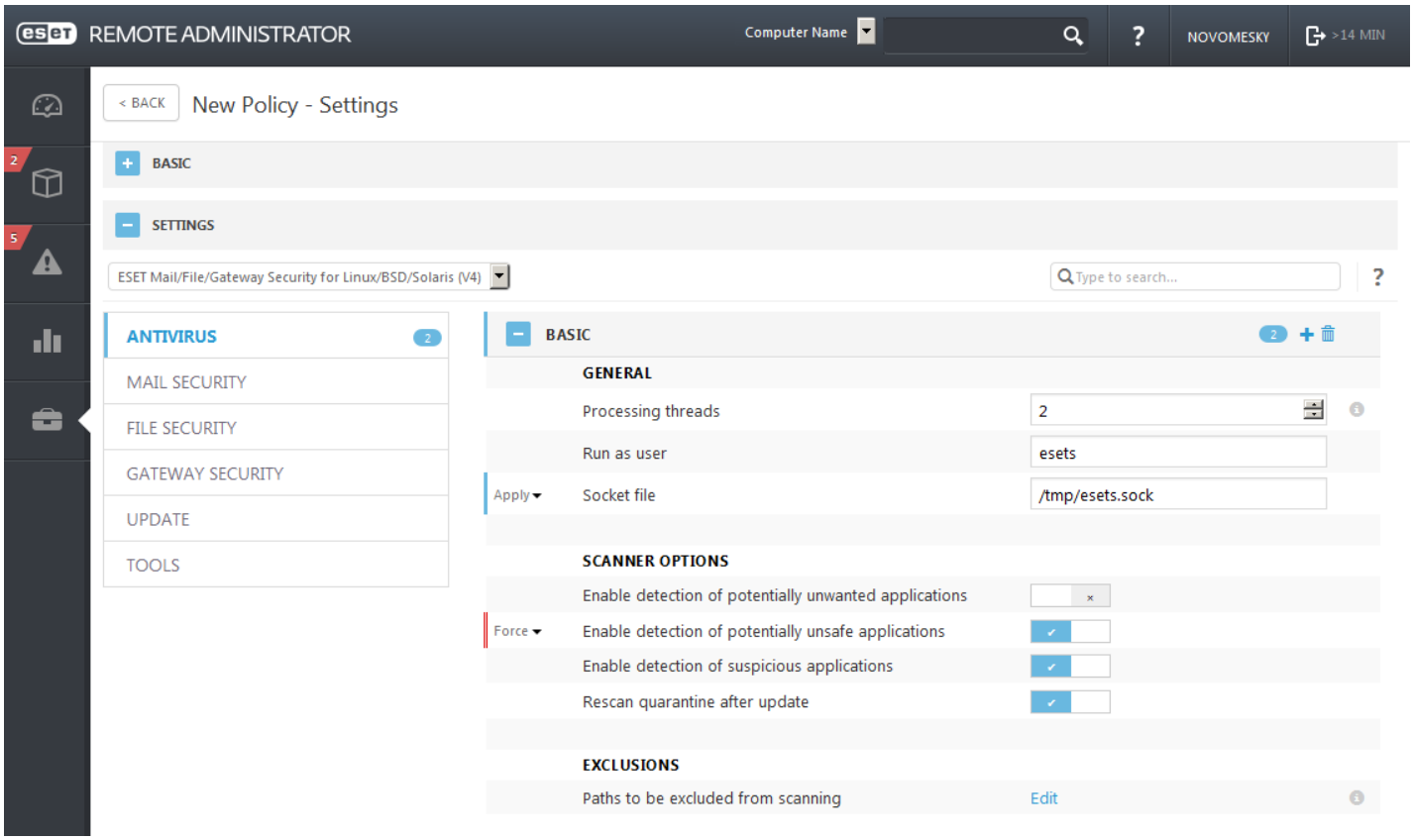
Figure 6-8. ERA Client task from ERA Web Console.



An ERA policy can be used to push and enforce specific configurations to ESET File Security. For example, you can enforce detection of potentially unsafe applications so that it cannot be overridden locally on ESET File Security. To do so,

1. From the ERA Web Console navigate to **Admin** > **Policies** > **New**
2. In the **Settings** section select **ESET Mail/File/Gateway Security for Linux/... (V4)**
3. Under **Antivirus,** select the check box next to **Enable detection of potentially unsafe applications** and select the check box next to **Force**
4. Select your ESET File Security server as the policy target and click **Finish**.

Figure 6-9. Enforcing a policy in ERA Web Console.



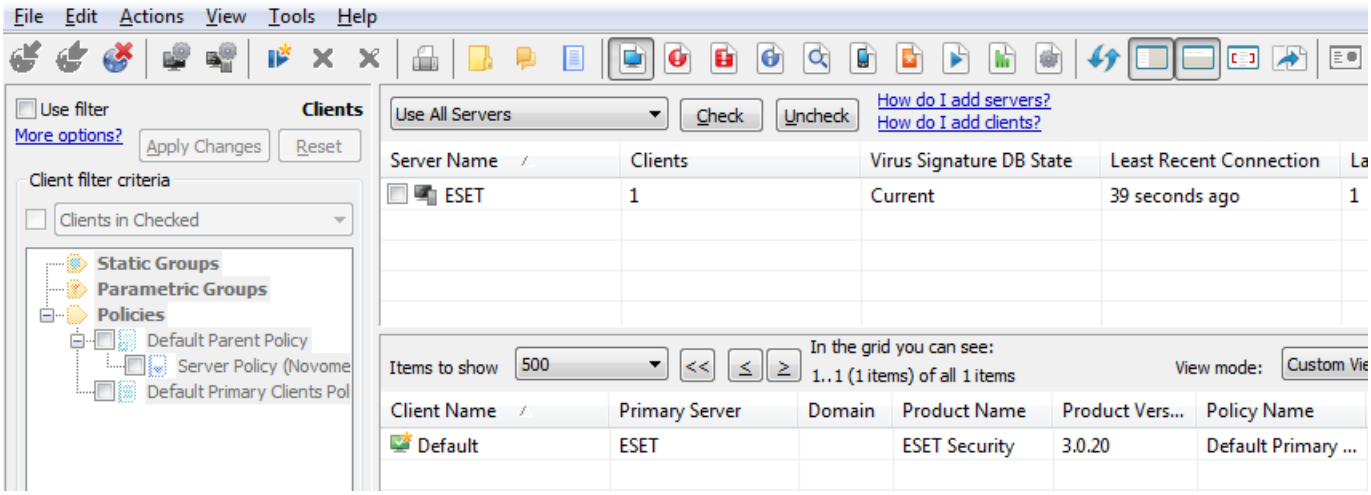
7.6.3 ESET Remote Administrator usage example (5.x)

You can either use the web interface (see also previous chapter) to apply the new configuration, or you can adjust these parameters in the **[global]** section of the ESETS configuration file as follows:

```
racl_server_addr = "your_ERA5_Server_IP_Address_or_Hostname"
racl_server_port = 2222
racl_password = "yourPassword"
racl_interval = 1
```

After the ESETS daemon configuration will be reloaded and RACL will connect to ERA Server, you will be able to see a newly connected client in your ERA Console. Press the F5 button (or **Menu** > **View** > **Refresh**) to manually refresh the list of connected clients.

Figure 6-10. ERA Console.

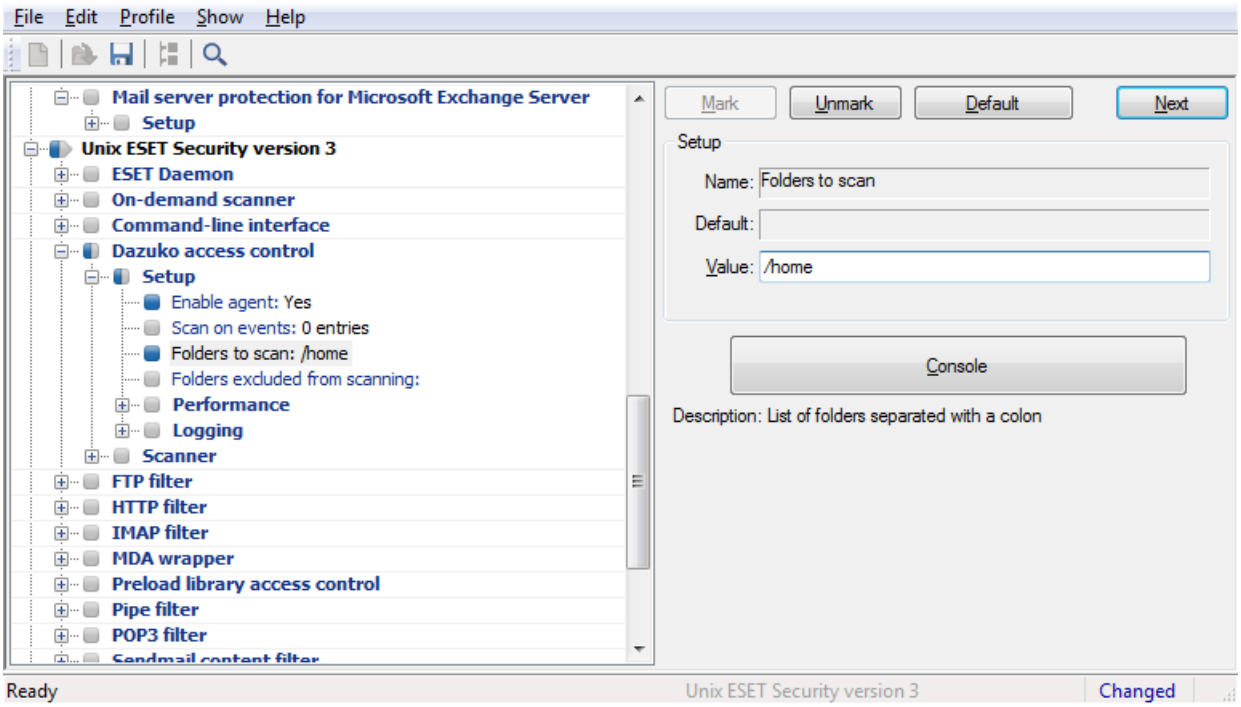


By using ERA Console you can create a configuration task to ESETS daemon from ERA Console:

- Right-click the connected **Client Name**
- Navigate to **New Task** > **Configuration Task** > **Create...**
- Expand the **Unix ESET Security** tree

For an example of a configuration task by the DAC agent, see below:

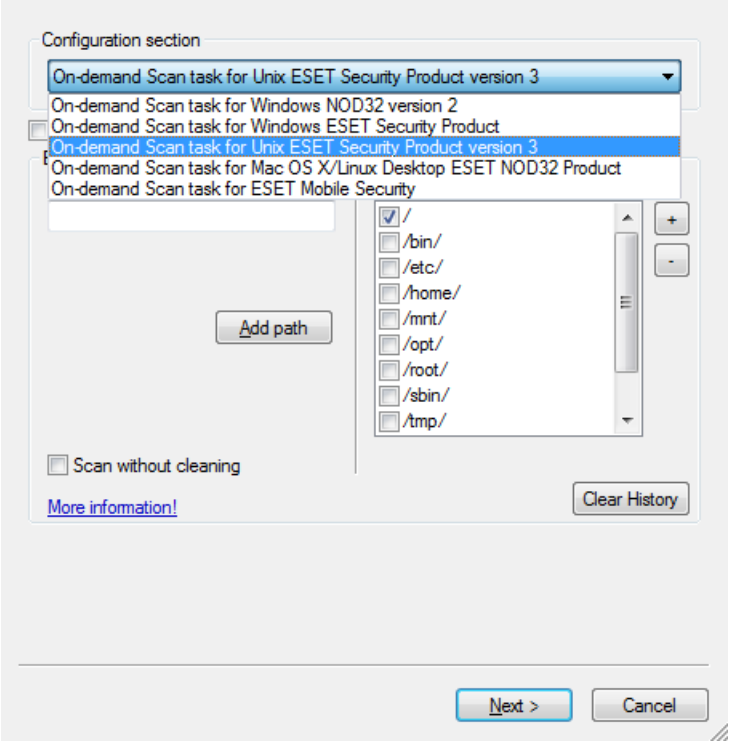
Figure 6-11. ERA Configuration Editor.



The **New Task** context menu contains On-demand scanning options (enabled/disabled cleaning).

You can select the desired product that you wish to set the task for in the **On-Demand Scan** pop-up window in the **Configuration Section** drop-down menu. Make sure that you select the **On-demand Scan task for Unix ESET Security Product** option (i.e. the product that is installed on your target workstation).

Figure 6-12. ERA On-demand scan.



7.7 Logging

ESETS provides system daemon logging via syslog. *Syslog* is a standard for logging program messages and can be used to log system events such as network and security events.

Messages refer to a facility:

```
auth, authpriv, daemon, cron, ftp, lpr, kern, mail, ..., local0, ..., local7
```

Messages are assigned a priority/level by the sender of the message:

```
Error, Warning, Summall, Summ, Partall, Part, Info, Debug
```

This section describes how to configure and read the logging output of syslog. The *'syslog_facility'* option (default value *'daemon'*) defines the syslog facility used for logging. To modify syslog settings edit the ESETS configuration file or use the Web interface. Modify the value of the *'syslog_class'* parameter to change the logging class. We recommend you modify these settings only if you are familiar with syslog. For an example syslog configuration, see below:

```
syslog_facility = "daemon"
syslog_class = "error:warning:summall"
```

The name and location of the log file depend on your syslog installation and configuration (e.g. rsyslog, syslog-ng, etc.). Standard filenames for syslog output files are for example *'syslog'*, *'daemon.log'*, etc. To follow syslog activity, run one of the following commands from the console:

```
tail -f /var/log/syslog
tail -100 /var/log/syslog | less
cat /var/log/syslog | grep esets | less
```

Systemd uses a different logging approach. To display activity run one of the following command:

```
journalctl --since today
journalctl | grep esets | less
```

If you enable ESET Remote Administration, ERA log entries older than given days by the option *'racl_logs_lifetime'* will be automatically deleted.

7.8 Command-line programs

ESETS commands can be launched using the command line – manually (@SBINDIR@/esets_*) or with a batch (".sh") script. ESETS command-line usage:

esets_daemon	ESET Security Daemon is the main ESET'S system control and scanning Daemon module. It reads all the ESET'S scanner configuration from the main ESET'S configuration file and provides all the main tasks. Usage: `@SBINDIR@/esets_daemon [OPTIONS..]`
esets_inst	ESET system integrator can be used to display and optionally execute commands that integrate ESET'S with your system. Usage: `@SBINDIR@/esets_inst [OPTIONS..] [COMMAND]`
esets_lic	ESET'S license management utility features management options, which allow you to display information about your licenses, import license files to the license directory or remove expired licenses. Usage: `@SBINDIR@/esets_lic [OPTIONS..] [COMMAND] [FILES..]`
esets_quar	ESET'S quarantine management utility module allows you to import any file system object into the quarantine storage area. Usage: `@SBINDIR@/esets_quar ACTIONS [RULES] [OBJECTS..]`
esets_scan	ESET Command-line scanner is an on-demand anti-virus scanning module, which provides scanning of the file system objects upon user request using command line interface. Usage: `@SBINDIR@/esets_scan [OPTIONS..] FILES..`
esets_set	ESETS configuration file SET-up utility allows you to modify the ESET'S configuration file as requested by given command. Usage: `@SBINDIR@/esets_set [OPTIONS..] [COMMAND]`
esets_setup	ESET'S setup utility is an interactive automated install script to help you easily integrate ESET Security with your system. Usage: `@SBINDIR@/esets_setup [OPTIONS..] [COMMAND]`
esets_update	ESET'S update utility is a system utility for the creation, update and maintenance of the ESET'S modules storage mirrors as well as for update of ESET'S system. Usage: `@BINDIR@/esets_update [OPTIONS..]`

8. ESET Security system update

8.1 ESETS update utility

To maintain the effectiveness of ESET File Security, the virus signature database must be kept up to date. The *esets_update* utility has been developed specifically for this purpose. See the *esets_update(8)* man page for details. To launch an update, the configuration options *'av_update_username'* and *'av_update_password'* must be defined in the **[global]** section of the ESETS configuration file. In the event that your server accesses the Internet via HTTP proxy, the additional configuration options *'proxy_addr'*, *'proxy_port'* must be defined. If access to the HTTP proxy requires a username and password, the *'proxy_username'* and *'proxy_password'* options must also be defined in this section. To initiate an update, enter the following command:

@SBINDIR@/esets_update

To provide the highest possible security for the end user, the ESET team continuously collects virus definitions from all over the world - new patterns are added to the virus signature database in very short intervals. For this reason, we recommend that updates be initiated on a regular basis. To be able to specify the frequency of updates, you need to configure the *'@update'* task in the *'scheduler_tasks'* option in the **[global]** section of the ESETS configuration file. You can also use the Scheduler to set the update frequency. The ESETS daemon must be up and running in order to successfully update the virus signature database.

8.2 ESETS update process description

The update process consists of two stages: First, the precompiled update modules are downloaded from the ESET server. If *'av_mirror_enabled'* is set to **yes** in the **[global]** section of the ESETS configuration file, copies (or mirrors) of these update modules are created in the following directory:

@BASEDIR@/mirror

'av_mirror_pcu' allows you to download Program Component Update (PCU) modules for Windows-based ESET security products. These modules can be mirrored from the ESET server.

Note: To enable the mirror and download PCUs for ESET NOD32 Antivirus, ESET Smart Security, ESET Endpoint Antivirus or ESET Endpoint Security, you have to:

- set your Username and Password for update purposes (as described in the topic above),
- import a license for your specific ESET product.

The second stage of the update process is the compilation of modules loadable by the ESET File Security scanner from those stored in the local mirror. Typically, the following ESETS loading modules are created: loader module (em000.dat), scanner module (em001.dat), virus signature database module (em002.dat), archives support module (em003.dat), advanced heuristics module (em004.dat), etc. The modules are created in the following directory:

@BASEDIR@

This is the directory where the ESETS daemon loads modules from and thus can be redefined using the *'base_dir'* option in the **[global]** section of the ESETS configuration file.

8.3 ESETS mirror http daemon

The http mirror daemon in ESET File Security allows you to create copies of update files which can be used to update other workstations located in the network. Creation of the "mirror" – a copy of the update files in the LAN environment is convenient, since the update files need not be downloaded from the vendor update server repeatedly and by each workstation. They are downloaded centrally to the local mirror server and then distributed to all workstations, therefore avoiding the potential risk of network traffic overload. This is also a typical feature of ESET Remote Administrator.

The http mirror daemon needs to be properly configured to start and enable the mirror. In the example below *esets_mird* is configured to listen on port 2221 of a computer with the local network IP address 192.168.1.10. The following parameters in the **[mird]** section of the ESETS configuration file need to be specified:

```
agent_enabled = yes
listen_addr = "192.168.1.10"
listen_port = 2221
```

Options *'listen_port'* and *'listen_addr'* define the port (default 2221) and address (default: all local tcp addresses) where the http server listens. If you set the value of the *'auth_mode'* switch from 'none' to 'basic', the mirror will require authentication. The options *'username'* and *'password'* allow the administrator to define the login and password required to access the Mirror.

9. Let us know

We hope this guide has provided you with a thorough understanding of the requirements for ESET File Security installation, configuration and maintenance. It is our goal to continually improve the quality and effectiveness of our documentation.

For additional assistance with your ESET product, please visit our online Knowledgebase at the following URL:

- http://support.eset.com

If you feel that any sections in this guide are unclear or incomplete or you are unable to resolve your issue, please let us know by using the support form directly:

- http://www.eset.com/support/contact

We are dedicated to provide the highest level of support and look forward to helping you should you experience any problems concerning this product.

10. Appendix A. ESETS setup and configuration

10.1 Setting ESETS $PATH environment variable

To access ESETS command-line programs without typing a full @BINDIR@ or @SBINDIR@ path, you can export the *$PATH* variable directly from a Unix command line using the following command:

```
export PATH=$PATH:/opt/eset/esets/bin:/opt/eset/esets/sbin
```

After performing this command, typing a full path to ESETS command-line programs is not be required:

Before:	After:
`/opt/eset/esets/bin/esets_update`	`esets_update`

Note that this command will be active only for a current shell session. You have to save this command to the *~/.bashrc* file, or somewhere to */etc*, depending on a type of a Unix operating system you use.

10.2 Setting ESETS for Samba (Ubuntu upstart)

Upstart is an event-based init daemon used in Ubuntu Linux which starts tasks and services during boot, stops them during shutdown and supervises them while the system is running.

To scan files using the Samba daemon, follow the steps below to use the LIBC preload method:

1. Replace the original command in the Samba service configuration file */etc/init/smbd.conf* with the following:
   ```
   exec env LD_PRELOAD=@LIBDIR@/libesets_pac.so smbd -F
   ```
2. Save the Samba service configuration file and restart the service:
   ```
   stop smbd && start smbd
   ```

11. Appendix B. PHP License

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