Dr.WEB®
Anti-virus
for Linux

Defend what you create

User Manual

Dr.Web® Desktop Security Suite for Linux
Version 6.0.2
User Manual
25.11.2011

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Doctor Web

Doctor Web develops and distributes Dr.Web® information security solutions which provide efficient protection from malicious software and spam.

Doctor Web customers can be found among home users from all over the world and in government enterprises, small companies and nationwide corporations.

Dr.Web antivirus solutions are well known since 1992 for continuing excellence in malware detection and compliance with international information security standards. State certificates and awards received by the Dr.Web solutions, as well as the globally widespread use of our products are the best evidence of exceptional trust to the company products.

We thank all our customers for their support and devotion to the Dr.Web products!

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Document Conventions

The following conventions and symbols are used in this manual:

Convention	Description
Bold	Names of buttons and other elements of the graphical user interface (GUI), and required user input that must be entered exactly as given in the guide.
Green and bold	Names of **Dr.Web** products and components.
Green and underlined	Hyperlinks to topics and web pages.
`Monospace`	Code examples, input to the command line and application output.
Italic	Placeholders which represent information that must be supplied by the user. For command-line input, it indicates parameter values. In addition, it may indicate a term in position of a definition.
CAPITAL LETTERS	Names of keys and key sequences.
Plus sign ('+')	Indicates a combination of keys. For example, ALT+F1 means to hold down the ALT key while pressing the F1 key.
Exclamation mark	A warning about potential errors or any other important comment.

Chapter 1. Introduction

Thank you for purchasing **Dr.Web® Desktop Security Suite for Linux** (hereinafter the **Dr.Web Anti-Virus for Linux**). It offers reliable protection from various types of computer threats using the most advanced virus detection and neutralization technologies.

This manual is intended to help users of computers running GNU/Linux install and use **Dr.Web Anti-Virus for Linux** 6.0.2.

1.1 About Dr.Web Anti-Virus for Linux

Dr.Web Anti-Virus for Linux is an anti-virus solution designed to help users of computers running GNU/Linux protect their machines from viruses and other types of threats.

The core components of the program (*anti-virus engine* and *virus databases*) are not only extremely effective and resource-sparing, but also cross-platform, which allows specialists in **Doctor Web** to create outstanding anti-virus solutions for different operating systems. Components of **Dr.Web Anti-Virus for Linux** are constantly updated and virus databases are supplemented with new signatures to assure up-to-date protection. Also, a heuristic analyzer is used for additional protection against unknown viruses.

Dr.Web Anti-Virus for Linux consists of the following components each performing its own set of functions:

Component	Description
Scanner	This virus-detection component is used for: • Express, full and custom system scan on user demand or according to schedule. • Neutralization of detected threats (Cure, Delete, Quarantine). The action is either selected by the user manually, or automatically according to the **Dr.Web Anti-Virus for Linux** settings for the corresponding type of threat.
SpIDer Guard	This is a resident anti-virus component which checks all files (which are being used) in real time.
Quarantine	This is a special folder which is used for isolation of infected files and other threats so that they cannot do harm to the system.
Updater	This is an automated updating utility that is used for updating virus databases and other program components on user demand or according to schedule.
License Manager	This component is used to simplify management of key files, it allows to receive demo and license key files, view information about them and renew your license.
Scheduler	This component is required to perform system scanning and program updates according to schedule. **Scheduler** remains active even when you quit **Dr.Web Anti-Virus for Linux**.

Flexible settings of **Dr.Web Anti-Virus for Linux** allow to adjust sound notifications for various events, maximum size of **Quarantine**, list of files and folders excluded from scanning, etc.

Chapter 2. Installation and Removal

Below you can find detailed description of **Dr.Web Anti-Virus for Linux** solution installation and deinstallation procedures for UNIX systems. Administrator (root) privileges are necessary to perform all these operations.

You must carefully uninstall all packages of earlier product versions (delivered in rpm or deb formats) from any previous installations.

Dr.Web Anti-Virus for Linux solution distribution package for UNIX systems is delivered in EPM format (script-based distribution package with installation and removal scripts and standard install/uninstall GUIs) designed to use with ESP Package Manager (EPM). Please note, that all these scripts belong only to EPM-package itself, not to any of the components of **Dr.Web Anti-Virus for Linux**.

Installation, deinstallation and upgrade procedures for **Dr.Web Anti-Virus for Linux** solution can be carried out in the following ways:

- via install/uninstall GUIs;
- via install/uninstall console scripts.

During installation dependencies are supported, i.e. if for successful installation of any component some other components must be previously installed (e.g., `drweb-daemon` package requires `drweb-common` and `drweb-bases` packages to be previously installed), then they will be installed automatically.

If you install **Dr.Web Anti-Virus for Linux** solution to the computer, where some other **Dr.Web** products have been previously installed from EPM-packages, then at every attempt to remove some modules via uninstall GUI you will be prompted to remove absolutely all **Dr.Web** modules, including those from other products.

Please, pay special attention to the actions you perform and selections you make during deinstallation to avoid accidental removal of some useful components.

2.1 System Requirements

Dr.Web Anti-Virus for Linux can be installed and run on a computer which meets the following minimum requirements:

Component	Requirement
CPU	Fully compatible with the system of commands of x86 processor in 32-bit and 64-bit modes. In 64-bit systems a support of 32-bit applications must be enabled.
Hard disk space	At least 154 MB of free disk space + 70 MB for each user. More capacity may be required, depending on the amount and size of objects in the Quarantine.
Operating system	GNU/Linux distributions with kernel version 2.6.x.
Other	Internet connection is required to update **Dr.Web virus databases** and **Dr.Web Anti-Virus for Linux** components.

X server is required for successful operation of **Dr.Web Anti-Virus for Linux**. GUI installer requires X Window System. For automatic execution of interactive configuration script in graphical mode, `xterm` or `xvt` terminal emulator must be installed.

Also the following libraries and utilities must be installed on your system to enable operation of **Dr.Web Anti-Virus for Linux** :

- `libglade2`
- `libgtk2`
- `base64`
- `unzip`
- `crond`

2.2 Compatibility with Linux Distributions

Dr.Web Anti-Virus for Linux solution is compatible with x86 and x86-64 Linux distributions.

Operability of the complex has been tested on following distributions:

- ALT Linux versions 4 - 6 (32-bit), versions 5-6 (64-bit);
- Arch Linux (64-bit);
- ASPLinux versions 12 - 14 (32-bit);
- Debian versions 3.1 - 6 (32-bit), versions 4-6 (64-bit);
- Fedora 14 (64-bit);
- Gentoo;
- Mandriva Linux versions 2009, CS4 (32-bit), 2010.x (64-bit);
- Mandrake 10;
- openSUSE versions 10.3-11 (32/64-bit);
- PCLinuxOS 2010;
- Red Hat Enterprise Linux (RHEL) versions 4 - 6 (32-bit), versions 5 - 6 (64-bit);
- Suse Linux Enterprise Server versions 9 - 11 (32 -bit), versions 10-11 (64-bit);
- Ubuntu versions 7.04 - 11.04;

Other distributions that meet above requirements are also supported but were not tested. If you have any compatibility issues with your Linux distribution, please contact technical support at http://support.drweb.com/request/.

2.3 Package files location

Dr.Web Anti-Virus for Linux solution is installed by default to `/opt/drweb/`, `/etc/drweb/`, `/var/drweb/` and `~/.drweb/` directories. The following directory tree is created in these directories:

- `/opt/drweb/` - executable modules and updating package **Dr.Web Updater** (perl script `update.pl`);
- `/opt/drweb/lib/` - various service libraries for packages of **Dr.Web Anti-Virus for Linux**;
- `/opt/drweb/lib/ru_scanner.dwl` - language file for **Dr.Web Scanner** package;
- `/opt/drweb/doc/` - prototypes of user configuration files and documentation. All documentation is presented in plain text files in English and Russian (KOI8-R and UTF-8 encodings) languages;
- `/opt/drweb/man/` - MAN files for software components;
- `/opt/drweb/epm/` - executable file, language file and libraries for graphical uninstaller;
- `/etc/drweb/` - original configuration files of various components of the software complex: `drweb32.ini`, `drweb-spider.conf`;
- `/etc/drweb/drweb-spider/templates/` - templates of notifications generated and dispatched to various types of receivers when some malicious objects are detected or some errors in operation of the daemon occur;
- `/var/drweb/bases/*.vdb` - databases of known viruses;
- `/var/drweb/lib/` - antivirus engine as a loadable library (`drweb32.dll`);
- `~/.drweb/` - anti-virus engine, user configuration files, license key file, PID files of processes and log files;
- `~/.drweb/quarantine/` - user quarantine, where infected files are moved, when such reaction is specified in settings for infected or suspicious files;
- `~/.drweb/bases/*.vdb` - databases of known viruses in

user home directory.

For 64-bit systems `lib64` subdirectory is created in `/opt/drweb/`. It contains libraries necessary for operation of 64-bit modules.

2.4 Installation from Distribution Package for UNIX systems

Dr.Web Anti-Virus for Linux solution is distributed as a self-extracting package `drweb-workstations_[version number]~linux_x86.run` (for 32-bit systems) or `drweb-workstations_[version number]~linux_amd64.run` (for 64-bit systems).

The following components are included into this distribution:

- `drweb-common`: contains main configuration file `drweb32.ini`, libraries, documentation and directory structure. During installation of this component **drweb** user and **drweb** group will be created;
- `drweb-bases`: contains antivirus search engine and virus databases. It requires `drweb-common` package to be previously installed;
- `drweb-updater`: contains update utility for antivirus search engine and virus databases. It requires `drweb-common` and `drweb-libs` packages to be previously installed;
- `drweb-daemon`: contains **Dr.Web Daemon** executable files and its documentation. It requires `drweb-bases` and `drweb-libs` packages to be previously installed;
- `drweb-scanner`: contains **Dr.Web Scanner** executable files and its documentation. It requires `drweb-bases` and `drweb-libs` packages to be previously installed;
- `drweb-libs`: contains libraries common for all software components;
- `drweb-epm6.0.2-libs`: contains libraries for graphical installer and uninstaller. It requires `drweb-libs` package to be previously installed;
- `drweb-epm6.0.2-uninst`: contains files for graphical uninstaller. It requires `drweb-epm6.0.2-libs` package to be previously installed;
- `drweb-cc`: contains **Dr.Web Antivirus for Linux** executable files, necessary libraries and documentation. It

requires drweb-spider, drweb-scanner and drweb-updater packages to be previously installed;

- drweb-boost147: contains libraries used by **Dr.Web Antivirus for Linux** and **Dr.Web Spider** simultaneously. It requires drweb-libs package to be previously installed;
- drweb-agent: contains **Dr.Web Control Agent** executable files, necessary libraries and documentation. It requires drweb-boost147 and drweb-common packages to be previously installed;
- drweb-agent-es: contains files required to run **Dr.Web Agent** in central protection mode. It requires drweb-agent, drweb-updater and drweb-scanner to be previously installed;
- drweb-monitor: contains **Dr.Web Monitor** executable files, necessary libraries and documentation. It requires drweb-boost147 and drweb-common packages to be previously installed;
- drweb-spider: contains **Dr.Web Spider** executable files, necessary libraries and documentation. It requires drweb-boost147 and drweb-daemon packages to be previously installed.

In distributions for 64-bit systems two other packages are included: drweb-libs and drweb-libs32. They contain libraries for 64-bit components and 32-bit components correspondingly.

To install all the components of **Dr.Web Anti-Virus for Linux** solution automatically you may use either console (CLI) or the default file manager of your GUI-based shell. In the first case allow the execution of the corresponding self-extracting package with the following command:

```
# chmod +x drweb-workstations_[version number]~linux_x86.run
```

and then run it:

```
# ./drweb-workstations_[version number]~linux_x86.run
```

As a result drweb-workstations_[version number]

~linux_x86 directory will be created, and install GUI will be initialized. If startup has been performed without root privileges, then install GUI will try to gain appropriate privileges by itself.

If the install GUI has failed to start, then interactive install script will be automatically initialized in console.

If you want only to extract the content of the package without starting install GUI, use --noexec command line parameter:

```
# ./drweb-workstations_[version number]~linux_x86.run --noexec
```

After you extract the content, you may initialize install GUI and continue setup using the following command:

```
# drweb-workstations_[version number]~linux_x86/install.sh
```

Or if you want to use console installer, you may run corresponding script with the following command:

```
# drweb-workstations_[version number]~linux_x86/setup.sh
```

During the installation the following processes take place:

- original configuration files are recorded to the /etc/drweb/software/conf/ directory with the following names: *<configuration_file_name>.N*;
- operational copies of configuration files are placed to the corresponding directories of the installing software;
- other files are installed. If in the corresponding directory file with the same name already exists (e.g. after inaccurate removal of previous versions of the packages), it will be overwritten with the new file, and its copy will be saved as *<file_name>.O*. If some *<file_name>.O* file already exists in this directory, it will be replaced with the new file of the same name.

After installation is finished in **Applications** menu a **Dr.Web** group will appear, expanding to the submenu with options for startup and removal of **Dr.Web Anti-Virus for Linux** solution.

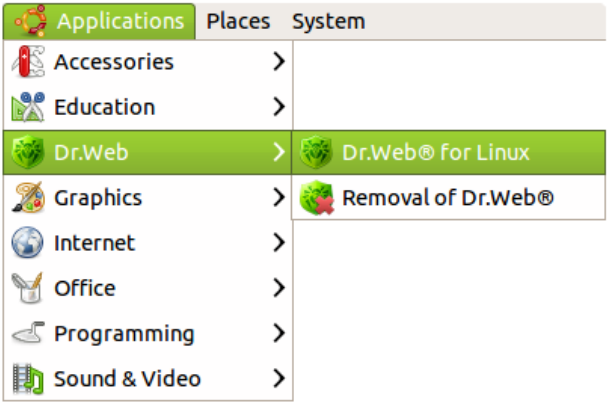


Figure 1. Dr.Web group and submenu option for startup and removal of Dr.Web Anti-Virus for Linux.

2.4.1 Using GUI Installer

1. When you run install GUI with the following command:

```
# drweb-workstations_[version number]~linux_x86/install.sh
```

setup program window appears.

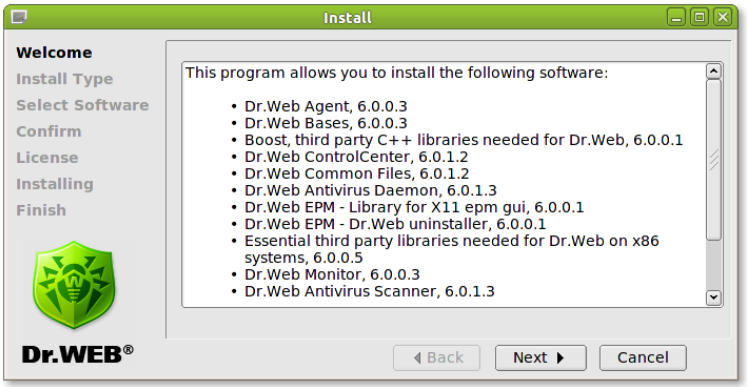


Figure 2. Welcome screen

Navigation is performed with **Back** and **Next** buttons. Setup can be aborted at any moment by clicking **Cancel** button.

2. In the current version of the program you can choose only one installation type: typical configuration of **Dr.Web Anti-Virus for Linux** with all the components selected by default.

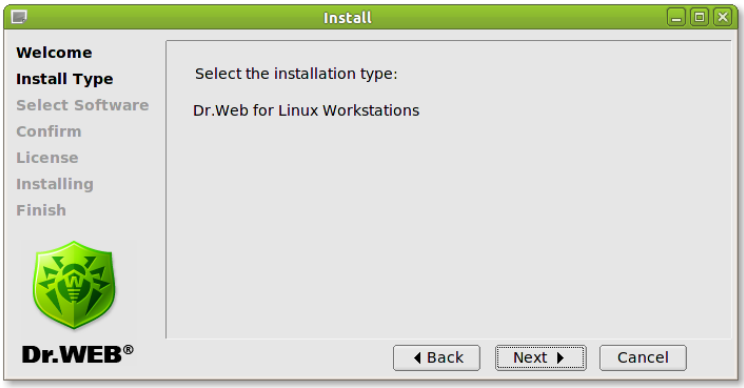


Figure 3. Install Type screen

3. On the **Confirm** screen you will be offered to overview and confirm your selection.

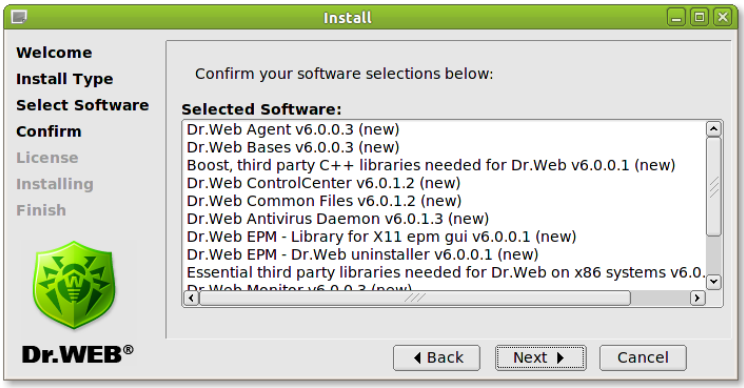


Figure 4. Confirm screen

4. On the next screen you will be offered to take notice of **Software License Agreement** and accept it to continue the installation. With **Select Language** menu you may choose preferred display language (English or Russian) for the **Software License Agreement**.

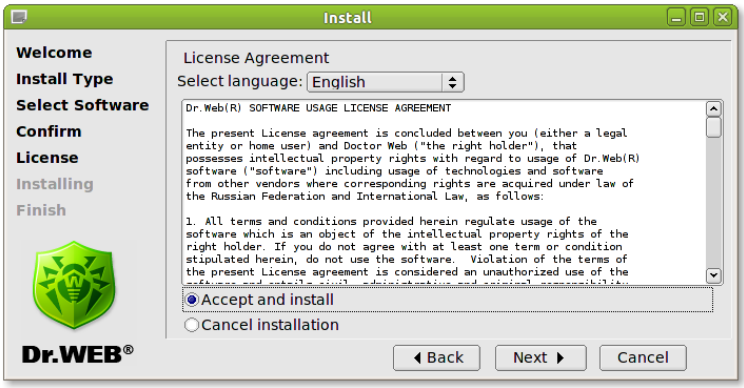


Figure 5. License screen

5. On the **Installing** screen log of installation process is output in real-time mode.

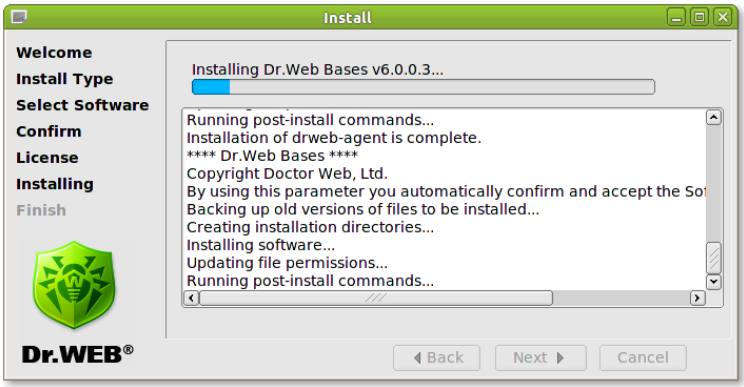


Figure 6. Installing screen

At the same time log of installation process is written to `install.log` file in the `drweb-workstations_[version number]~linux_x86` directory.

6. The last **Finish** screen contains information about the results of the installation process (whether it was successful or not).

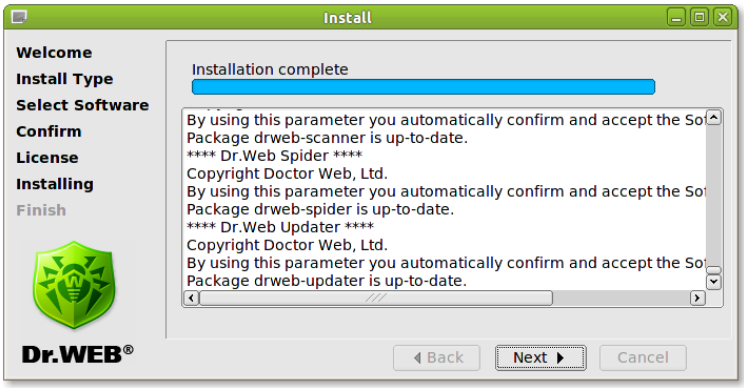


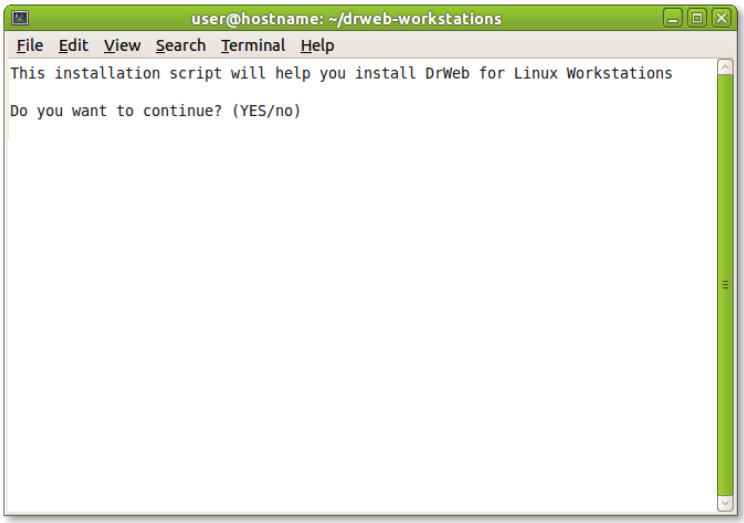
Figure 7. Finish screen

7. Click the **Close** button to close setup program window.

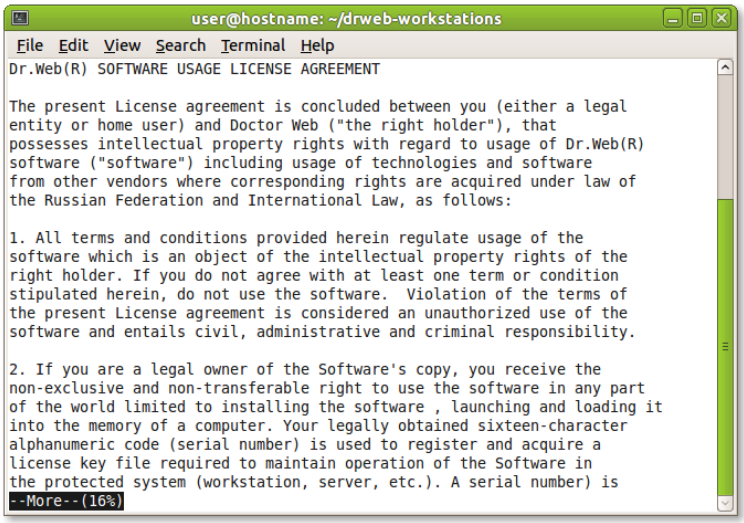
2.4.2 Using Console Installer

Console installer will be initialized automatically, if the install GUI fails to start.

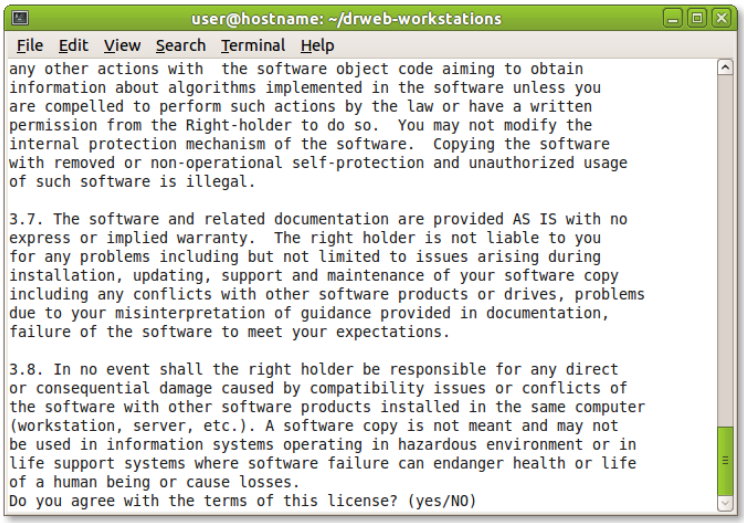
After initialization a conversation with console installer will begin.



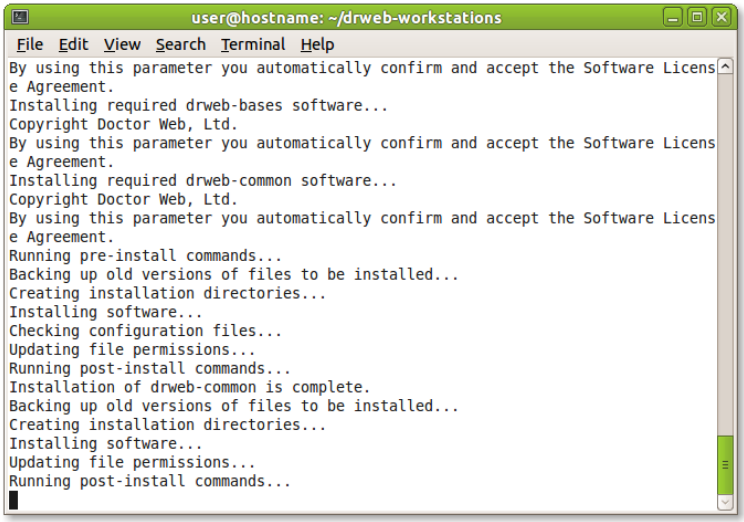
If you want to install **Dr.Web Anti-Virus for Linux**, specify **Y** or **Yes** in the input line (values are case insensitive) and press ENTER. Otherwise enter **N** or **No**.



On the next screen you will be offered to take notice of **Software License Agreement**. To browse through the text of the **Software License Agreement** use the SPACEBAR key.



To continue the installation you must accept the **Software License Agreement**. Specify **Y** or **Yes** in the input line and press ENTER. If you enter **N** or **No**, installation will be terminated.



After the acceptance of the **Software License Agreement** installation process will be started. Installation log will be output to console in real-time mode.

If console installer has failed to start automatically (for example, because it was unable to gain appropriate privileges), then you may try to start it manually with root privileges, using the following command:

```
# drweb-workstations_[version number]~linux_x86/setup.sh
```

2.5 Removal of Distribution Package for UNIX Systems

To remove all the components of **Dr.Web Anti-Virus for Linux** solution via uninstall GUI, initialize it with the following command:

```
# /opt/drweb/remove.sh
```

If startup has been performed without root privileges, uninstall GUI will try to gain appropriate privileges by itself.

If uninstall GUI fail to start, then interactive console uninstaller will be initialized.

After deinstallation you can also remove `drweb` user and `drweb` group from your system.

During the deinstallation the following actions are performed:

- Original configuration files are removed from the `/etc/drweb/software/conf/` directory.
- If operational copies of configuration files were not modified by the user, they are also removed. If the user has made any changes to them, they are preserved.
- Other **Dr.Web** files are removed. If a copy of some old file has been created at installation, this file will be restored under the name it had before the installation. Usually, such copies are named `[file_name].O`.
- License key files and log files are preserved in corresponding directories.
- the contents of the `~/.drweb` directory is also preserved (the user may delete it manually).

For operation according to schedules **Dr.Web Anti-Virus for Linux** turns to user `cron`. At startup and after registration of **Dr.Web Anti-Virus for Linux** an entry is made into the user `crontab` about periodicity of **Updater** operation. It looks like the following:

```
*/30 * * * * sh -c "(/home/user/.drweb/crontab-
check.sh /opt/drweb/scripts/drweb-cc/update.sh
2>&1)>>/home/user/.drweb/crontab-updater.log"
```

Scanner schedule entry to the `crontab` will made only after the corresponding function is enabled in **Settings** section of **Dr.Web Anti-Virus for Linux**. It may look like the following:

```
0 9 * * * sh -c "(DISPLAY=:0.0 /home/user/.
drweb/crontab-check.sh /opt/drweb/scripts/
drweb-cc/start-scanning.sh 2>&1)>>/home/user/.
drweb/crontab-scan.log"
```

When you uninstall the **Dr.Web Anti-Virus for Linux**, corresponding entries in the user `crontab` are not removed automatically and have to be deleted manually.

2.5.1 Using GUI Uninstaller

1. When you run uninstall GUI using the **Applications** -> **Dr. Web** -> **Removal of Dr.Web for Linux** menu or from console with the following command:

```
# /opt/drweb/remove.sh
```

deinstallation program window appears.

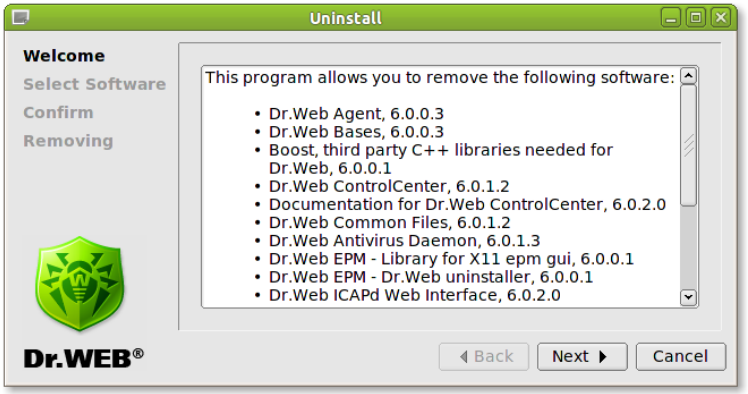


Figure 8. Welcome screen

Navigation is performed with **Back** and **Next** buttons. You can quit the program at any moment by clicking **Cancel** button.

2. On the **Select Software** screen you will be offered to select components for removal from the list. All corresponding dependencies will be selected for deinstallation automatically.

   If you installed **Dr.Web Anti-Virus for Linux** solution to the computer, where some other **Doctor Web** products have been previously installed from EPM-packages, then absolutely all modules will be included in the list of components available for removal, including those from other products. Pay special attention to the actions you perform and selections you make during deinstallation to avoid accidental removal of some useful components.

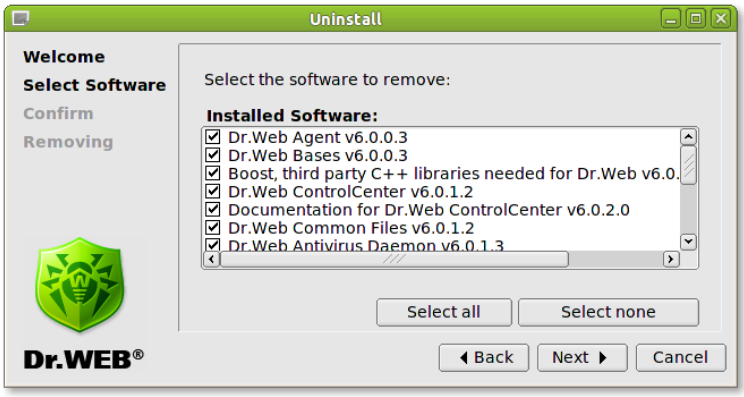


Figure 9. Select Software screen

If you click **Remove All** button, all components will be selected. If you click **Remove None** button, all selection marks will be removed.

3. When you select everything you consider necessary, you will be offered to overview and confirm all the choices made on the **Confirm** screen.

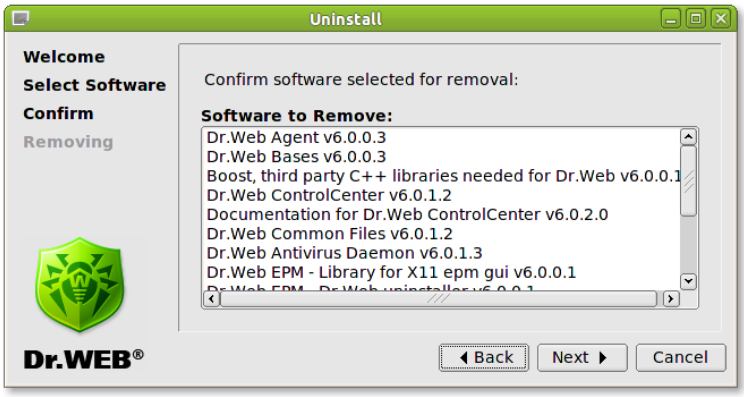


Figure 10. Confirm screen

4. On the last **Removing** screen log of deinstallation process is output in real-time mode.

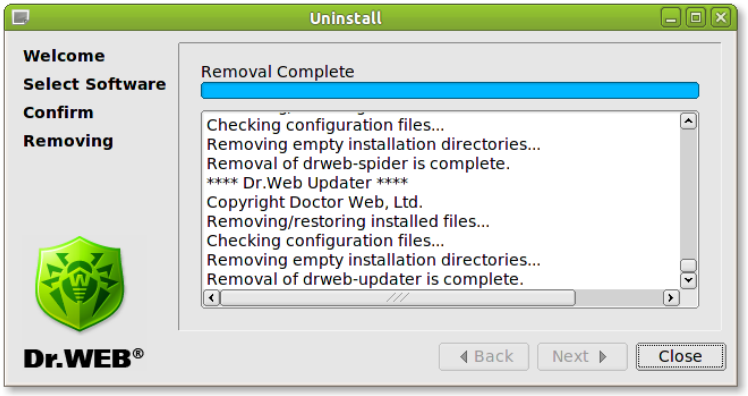


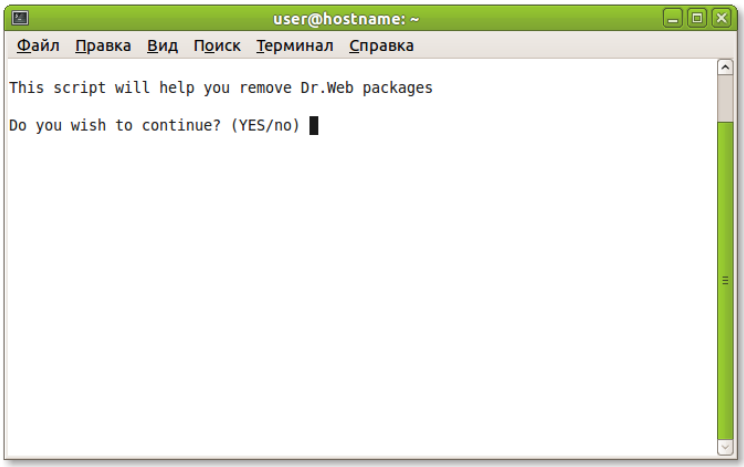
Figure 11. Removing screen

5. Click the **Close** button to close deinstallation program window.

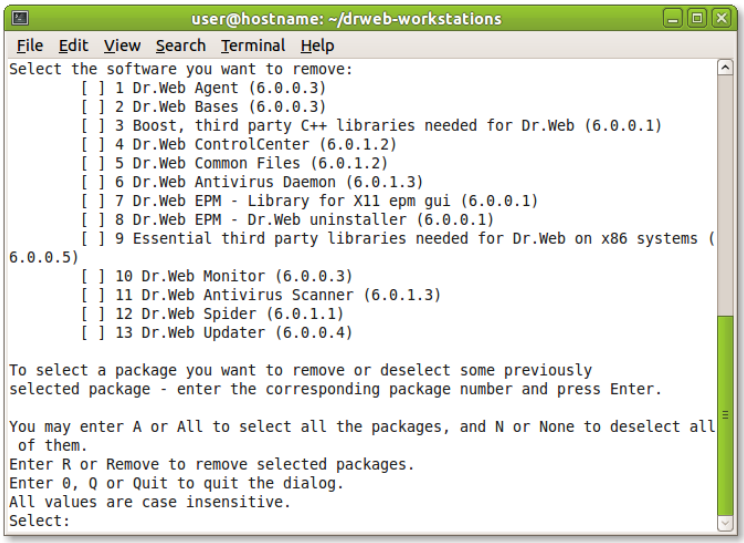
2.5.2 Using Console Uninstaller

Console uninstaller will be initialized automatically, if the uninstall GUI fails to start.

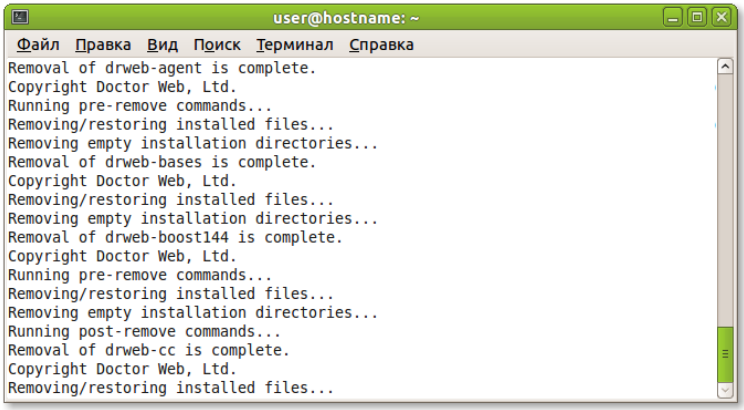
A conversation with console uninstaller will begin.



You will be offered to select from list all the necessary components for the subsequent deinstallation (follow the on-screen instructions).



To start the deinstallation procedure you must confirm the selection made on the previous stage. Specify **Y** or **Yes** in the input line (values are case insensitive) and press ENTER.



Deinstallation log will be output to console in real-time mode.

2.6 Installation from Native Packages

All packages are located in the **Dr.Web** official repository http://officeshield.drweb.com/drweb/. Once you have added the repository to the package manager of your system, you can install, update or remove necessary packages like any other program from repository. All dependencies will be resolved automatically.

All commands below for adding repositories, importing keys, installing and removing packages must be ran with administrator (root) privileges.

Debian, Ubuntu (apt)

Debian repository is signed by the digital key. For correct operation you need to import the key with command

```
wget -O - http://officeshield.drweb.com/drweb/drweb.key | apt-key add -
```

or

```
curl http://officeshield.drweb.com/drweb/drweb.key | apt-key add -
```

To add the repository to you system, add the following line to `/etc/apt/sources.list` file:

```
deb http://officeshield.drweb.com/drweb/debian stable non-free
```

To install **Dr.Web Anti-Virus for Linux** issue commands:

```
apt-get update
```

```
apt-get install drweb-cc
```

To remove **Dr.Web Anti-Virus for Linux** issue command:

```
apt-get remove drweb-cc
```

Alternatively, you can use graphical manager (e.g. Synaptic) to

install or remove the packages.

ALT Linux, PCLinuxOS (apt-rpm)

To add the repository to you system, add the following line to `/etc/apt/sources.list` file:

32-bit version:

```
rpm http://officeshield.drweb.com/drweb/altlinux stable/i386 drweb
```

64-bit version:

```
rpm http://officeshield.drweb.com/drweb/altlinux stable/x86_64 drweb
```

To install **Dr.Web Anti-Virus for Linux** issue commands:

```
apt-get update
```

```
apt-get install drweb-cc
```

To remove **Dr.Web Anti-Virus for Linux** issue command:

```
apt-get remove drweb-cc
```

Alternatively you can use graphical manager (e.g. Synaptic) to install or remove the packages.

Mandriva (urpmi)

Download repository key from http://officeshield.drweb.com/drweb/drweb.key and save it on disk. Then, import the key with command

```
rpm --import <path to repository key>
```

Open the following file:

http://officeshield.drweb.com/drweb/drweb-i386.urpmi-media

or

http://officeshield.drweb.com/drweb/drweb-x86_64.urpmi-media

and you will be offered to add repository to the system.

Alternatively, you can add the repository using console with command

```
urpmi.addmedia drweb http://officeshield.drweb.com/drweb/mandriva/stable/i386/
```

or

```
urpmi.addmedia drweb http://officeshield.drweb.com/drweb/mandriva/stable/x86_64/
```

To install **Dr.Web Anti-Virus for Linux** issue commands:

```
urpmi.update drweb
```

```
urpmi drweb-cc
```

To remove **Dr.Web Anti-Virus for Linux** issue command:

```
urpme drweb-cc
```

Alternatively, you can use graphical manager (e.g. rpmdrake) to install or remove the packages.

Red Hat Enterprise Linux, Fedora, CentOS (yum)

Add the file with following content to `/etc/yum.repos.d` directory

32-bit version:

```
[drweb]
name=DrWeb - stable
baseurl=http://officeshield.drweb.com/drweb/el5/stable/i386/
gpgcheck=1
enabled=1
```

```
gpgkey=http://officeshield.drweb.com/drweb/drweb.key
```

64-bit version:

```
[drweb]

name=DrWeb - stable
baseurl=http://officeshield.drweb.com/drweb/el5/
stable/x86_64/
gpgcheck=1
enabled=1
gpgkey=http://officeshield.drweb.com/drweb/drweb.key
```

To install **Dr.Web Anti-Virus for Linux** issue command:

```
yum install drweb-cc
```

To remove **Dr.Web Anti-Virus for Linux** issue command:

```
yum remove drweb-cc
```

Alternatively, you can use graphical manager (e.g. PackageKit, Yumex) to install or remove the packages.

Zypper package manager (SUSE Linux)

To add the repository, run the following command:

```
zypper ar -t YUM http://officeshield.drweb.com/drweb/el5/stable/i386/ drweb
```

or

```
zypper ar -t YUM http://officeshield.drweb.com/drweb/el5/stable/x86_64/
drweb
```

To install **Dr.Web Anti-Virus for Linux** issue commands:

```
zypper refresh

zypper install drweb-cc
```

To remove **Dr.Web Anti-Virus for Linux** issue command:

```
zypper remove drweb-cc
```

Alternatively, you can use graphical manager (e.g. YaST) to install or remove the packages.

2.7 Obtaining Key Files

After installation, you need to register **Dr.Web Anti-Virus for Linux** to confirm legitimacy of using the anti-virus and unlock the updating and constant protection features. When you run **Dr.Web Anti-Virus for Linux** for the first time, registration starts automatically. You can also launch registration from License Manager by clicking **Register using the serial number**.

Figure 12. License Manager window for registration of the software.

Select the necessary option and click **Continue**:

Column	Description
Demo version for 30 days	No serial number is needed because the demo key file is used for evaluation purposes and has a short term of usage.
Register using the serial number	You will need to specify the serial number which is included with the program.
Specify path to an existing key file	Select this option if you already have a valid key file present on the computer.

If you select one of the first two options, you will be asked to specify your personal information (name, e-mail address, country and city of residence). This information is used only by **Doctor Web** to generate the key file and is not passed on to anyone else. The key file which you will receive will contain this information for identification purposes. For more information, see Registering Anti-virus.

If no valid license or demo key file is found, **Dr.Web Anti-Virus for Linux** components are blocked. You can access License manager only in order to register the product and receive a key file.

Chapter 3. Getting Started with Dr.Web Anti-Virus for Linux

This chapter contains information on the main functions of **Dr.Web Anti-Virus for Linux**.

You can access all main functions from the **Dr.Web Anti-Virus for Linux** window (see picture below). This window consists of sections that helps you control and access anti-virus components:

Section	Descriptions
Dr.Web for Linux	In this section, you can: • Enable or disable the **SpIDer Guard** resident anti-virus component. For details, see Constant Anti-virus Protection. • Review information about the last update and start an update manually if necessary. For details, see Updating Anti-virus. • Open the **Scanner**, **Quarantine** or **Results** section.
Scanner	Lets you access the main on-demand anti-virus scanning component. For details, see Scanning System On Demand.
Quarantine	Lets you access and control the contents of **Quarantine**. For details, see Managing Quarantine.
Results	Lets you access and view operation statistics of **Dr.Web Anti-Virus for Linux** with a summary on detected threats and apply necessary actions. For details, see Viewing Results.
Tools	Provides access to program settings, logs and to the License Manager
Help	This menu provides access to information and reference materials.

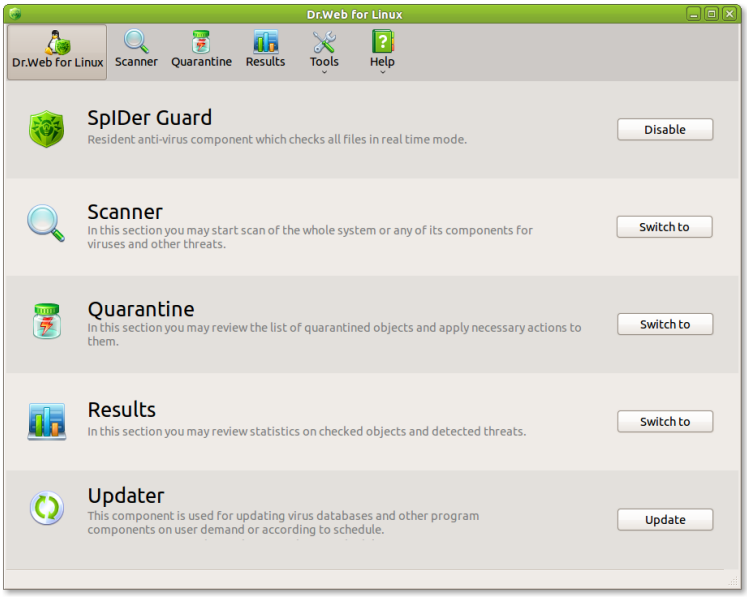


Figure 13. Main program window.

3.1 Starting and Quitting Anti-virus

To start Dr.Web Anti-Virus for Linux

Do one of the following:

- Open the **Applications->Dr.Web** menu and select **Dr. Web for Linux**.
- Run command in command line:

```
$ drweb-cc
```

At start **Dr.Web Anti-Virus for Linux** adds itself to the autoload list. So if you shut down your system without exiting the **Dr.Web Anti-Virus for Linux**, then it will be started automatically after you power on your system.

To quit Dr.Web Anti-Virus for Linux:

- Right-click the **Dr.Web Antivirus** icon  in the notification area and select **Quit**.

When you quit **Dr.Web Anti-Virus for Linux**, the **SpIDer Guard** and **Scheduler** components remain active. The former is a resident anti-virus monitor which checks all files in real time mode each time they are accessed, and the latter starts the scanning and updating processes according to schedule (for more details, see Adjusting Schedules).

Each user can run and use its own copy of **Dr.Web Anti-Virus for Linux**, and all this copies will operate simultaneously and independently.

3.2 Updating Anti-virus

New types of computer threats with new concealment features are being constantly developed by malefactors all over the world. Updating the components and virus databases of **Dr.Web Anti-Virus for Linux** ensures that your protection is always up to date and ready for those new threat types. Updating is performed by a special component called **Updater**.

You can periodically start **Updater** manually (see below) or configure **Scheduler** to update program components and virus databases according to a specified schedule (see Configuring Schedules).

To start Updater manually

Do one of the following

- In the **Updater** section of the **Dr.Web Anti-Virus for Linux** main window, click **Update**.
- Right-click the **Dr.Web Antivirus** icon  in the notification area and select **Update**.

3.3 Constant Anti-virus Protection

Constant anti-virus protection is carried out via a resident component called **SpIDer Guard** that checks all files accessed by the user or other programs in the system in real time. By default, it is enabled as soon as you install and register **Dr.Web Anti-Virus for Linux**. Whenever a threat is detected, **SpIDer Guard** displays a warning and applies actions according to the anti-virus preferences (see Configuring Automatic Actions).

To enable or disable SpIDer Guard

Do one of the following

- In the **SpIDer Guard** section of the main window, click **Enable** or **Disable**.
- Right-click the **Dr.Web Antivirus** icon  in the notification area and select and select the **Enable** or **Disable** item.

Be extremely cautious when using this option! While **SpIDer Guard** functions are disabled, avoid connecting to the Internet and check all removable media using **Scanner** before accessing.

When you exit **Dr.Web Anti-Virus for Linux SpIDer Guard** memorizes its last state (whether it was enabled or disabled) and restores it at the next start of **Dr.Web Anti-Virus for Linux**. So if the user disables the **SpIDer Guard** before exiting **Dr.Web Anti-**

Virus for Linux, then it will remain disabled after the next start of the software complex and must be enabled manually.

SpIDer Guard monitor implements scanning with rights of user, that started it. Considering this situations, when file or directory access is denied can appear because of lack of rights. In that case message about access denying would be written to report. To avoid this situation,you can exclude certain files and folders from scanning by **SpIDer Guard** and set up the maximum time for scanning one file in the anti-virus preferences (see Excluding Files from Scanning).

Increase of inotify subsystem limit

SpIDer Guard file monitor uses inotify kernel module for real-time file check. If inotify limit exceeds, following message will be written to **SpIDer Guard's** system log:

```
drweb-spider: WARNING: inotify limit is exceeded
```

Inotify limit is specified by `fs.inotify.max_user_watches` parameter. To see its current value, execute following command:

```
# sysctl -a | grep 'fs.inotify.max_user_watches'
```

As a result of execution following string will be displayed:

```
fs.inotify.max_user_watches = <digit>
```

where `<digit>` - inotify limit.

- To increase limit temporary execute the following:

  ```
  # sudo sysctl fs.inotify.max_user_watches=<digit>
  ```

  `<digit>` has to be more than current `fs.inotify.max_user_watches` parameter value.

  In this case, parameter value will take effect until you restart your computer.

- To increase limit permanently:

  1. Add the following string to `/etc/sysctl.conf`:

     ```
     fs.inotify.max_user_watches = <digit>
     ```

2. To accept changes, restart your computer or execute comand:

```
# sysctl -p
```

Administrator (root) privileges are necessary to perform all these operations.

3.4 OS protected by SELinux

If your operating system is protected by SELinux, you may encounter the following error after an attempt to launch **Dr.Web Scanner** and scan system for viruses:

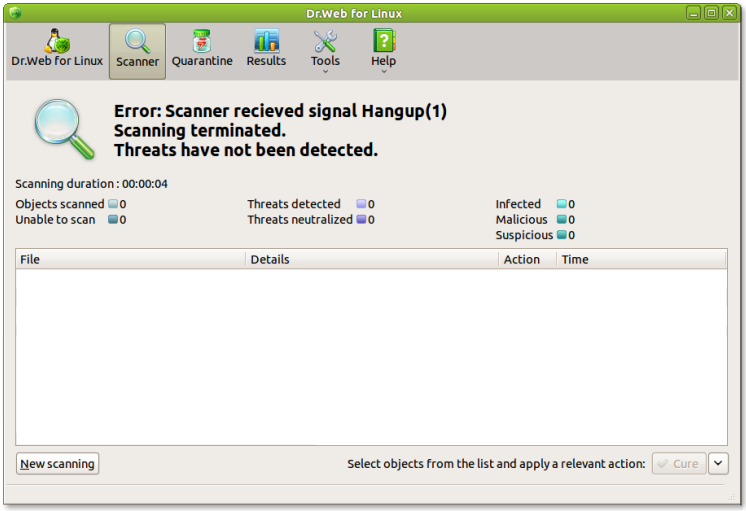


Figure 14. Scanner error

To set up successful operation of **Dr.Web Scanner** and **Dr.Web Daemon** components in OS protected by SELinux, you must compile politics for operation with corresponding modules drweb-scanner and drweb-daemon.

Please note, that templates used in compilation of modules for

politics may vary widely, depending on the type of Linux distribution, its version, set of SELinux politics and user settings. To receive more detailed information on compilation of politics you may refer to corresponding documentation on your Linux distribution.

To create necessary politics you may use `policygentool` command, which takes two parameters: the name of the policy module (interaction with which has to be adjusted) and the full path to the corresponding executable.

Example:

`# policygentool drweb-scanner /opt/drweb/drweb.real` - for Scanner.

`# policygentool drweb-daemon /opt/drweb/drwebd.real` - for Daemon.

You will be prompted to enter a few common domain characteristics, and for each module three files will be created: `[module_name].te`, `[module_name].fc` and `[module_name].if`.

To compile the `[module_name].te` file execute the following command:

```
checkmodule -M -m -o module-name [module_name].te
```

Please note, that for successful policy compilation a `checkpolicy` package must be installed to the system.

To compile a required policy execute the following command:

```
semodule_package -o [module_name].pp -m module-name
```

To install the new policy module into the module store execute the following command:

```
semodule -i [module_name].pp
```

3.5 Scanning System On Demand

On-demand scanning is performed by **Scanner**. It checks objects in the file system on your demand or according to a schedule and detects various threats that may be present in the system though inactive. It is necessary to run a system scan periodically using the **Scanner** section of the **Dr.Web Anti-Virus for Linux** window.

You can start scanning manually (see below) or configure **Scheduler** to scan the system according to a specified schedule (see Configuring Schedules).

Process load increases during scanning which may lead to rapid discharge of batteries. We recommend starting scans when portable computers are powered by mains electricity.

To scan system manually

1. Open the **Scanner** section of the **Dr.Web Anti-Virus for Linux** window.

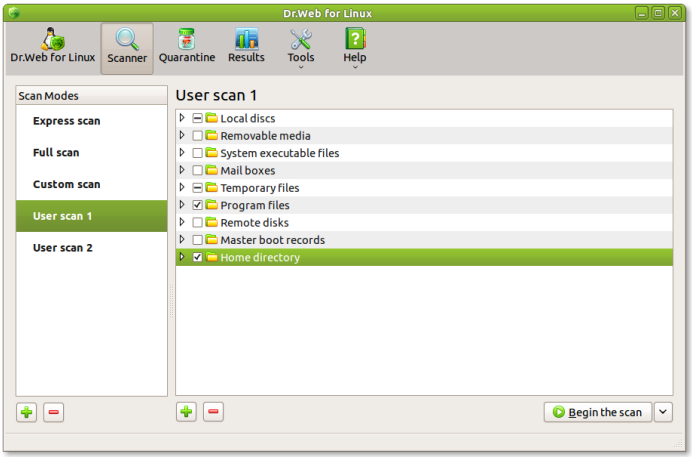


Figure 15. Displaying results of the current check.

2. Select a scan mode (for details, see the file system pane):
   - **Express scan** – run a quick check of the most vulnerable parts of the system only.
   - **Full scan** – perform a full scan of the entire file system.
   - **Custom scan** – manually specify files and folders that you want to check.
   - **User scan** (if added) – check previously specified files and folders.

   The first three modes are present by default. They are also called "scan sets" because they contain information about sets of objects to be scanned. You can create user scan modes. To add a new mode, click the  button under the list of scan modes and name the mode. You can create as many additional scan sets as you want and delete those that you do not need by selecting them and clicking the  button under the list of scan modes.

3. If you chose a **Custom scan** or user scan mode, select checkboxes next to the files and folders that you want to scan.

   You can add other objects to the scan by clicking the  button under the list of scan objects. To delete an object that you do not need, select the object and click the  button under the list of scan objects. When configuring a user scan mode, all settings are saved and then restored when you select the mode again (unlike when using the **Custom scan** mode).

4. Click the  button to select how to apply actions for detected threats. When automatic reaction is enabled, **Scanner** applies actions automatically as specified in the anti-virus preferences. In case of handling threats rights shortage automatic actions will not be applied. You can handle this threats manually, increased privileges previously. By default, **Scanner** allows you to select necessary action manually for each detected threat.

5. In the bottom right part of the **Scanner** section, click **Start.** After scan is started, information about a degree of completion of scanning process, name of the file being checked at the moment and some statistical information are displayed.

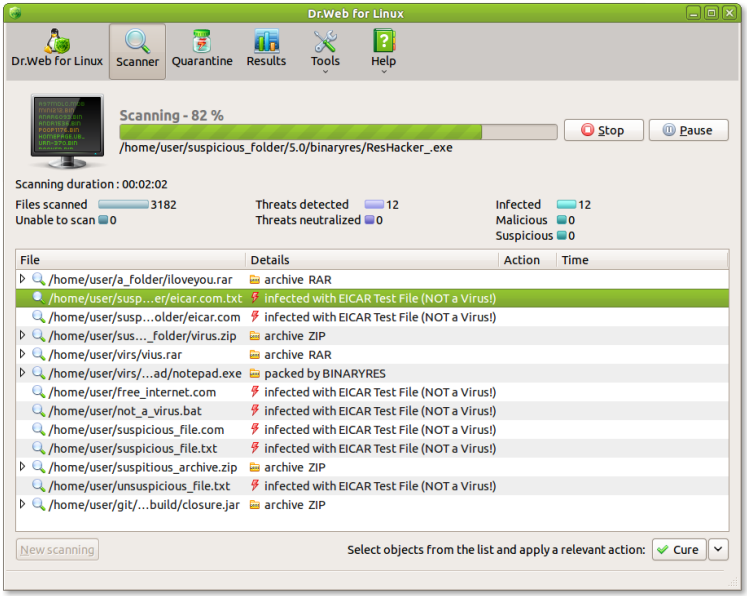


Figure 16. Displaying results of the current check.

At any stage of scanning process you can perform one of the following actions:

- pause check by pressing **Pause** button. To continue check press **Continue** button;
- stop the check completely by pressing **Stop** button.

When scanning is finished **Scanner** displays all found infected and suspicious files in the main window. Remember that in manual processing mode **Scanner** only informs the user about detected threats.

3.5.1 Eliminate Threats

In the middle of the window the table with the list of all detected threats is displayed:

Column	Description
File	Specify paths to detected infected or suspicious objects
Details	Contain information about the threat is displayed (for example, type of a threat or a virus name).
Action	Contain information about the action applied to a certain infected object is displayed (if the corresponding field is empty, then no action was applied to this object).
Time	Display the date when the threat was detected

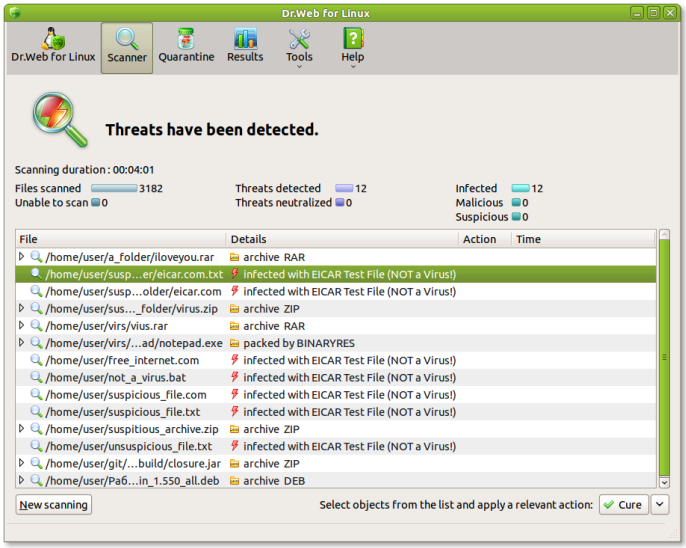


Figure 17. Displaying detected threats.

In automatic processing mode **Scanner** applies to detected threats

actions specified in its settings.

In manual processing mode **Scanner** only informs the user about detected threats. After scan is finished you may try to restore proper functionality of infected object (*cure* it), or eliminate the threat, if the object appears to be incurable (*delete* it).

Manual processing of threats

1. To apply some action to the threat (or to several threats of the same type) select the object from the list (hold the SHIFT key to select several objects in a row, or the CTRL key to select a few scattered objects).
2. Perform one of the following actions:
   - press **Cure** button to make an attempt to cure infected file;
   - press an arrow near the **Cure** button and select some other action from the list.
   - right-click an object and select a necessary action from the menu.

   In case of rights shortage while performing actions on detected threats, **Dr.Web Anti-Virus for Linux** will offer to increase privileges:

Figure 18. Dr.Web privilege granting settings.

If target file is a virus, then it can be deleted in consequence of successful application of **Cure** action.

There exist the following limitations on certain types of

actions:

- suspicious objects cannot be cured;
- moving, renaming or deletion of objects that are not files (e.g. boot sectors) is not allowed;
- none of the actions can be applied to a separate file in the archive or a container and to the part of mail message. In this case action is applied to the whole object (archive, container or mail message).

Suspicious files which were moved to **Quarantine** may be sent to the **Doctor Web** anti-virus department for analysis. You may use a special contact form at http://vms.drweb.com/sendvirus for this purpose.

3. After action is applied, **Dr.Web Anti-Virus for Linux** adds a correspondent entry to the **Action** column about the results of the operation.
4. To return to the main **Scanner** window press **New scanning** button.

3.6 Getting Help

To get help about the program you can use **Doctor Web Help**.

To access Dr.Web Help

- Click **Help** in the menu bar and then select your topic of interest.

If you cannot find a solution for your problem or necessary information about **Dr.Web Anti-Virus for Linux**, you can request direct assistance from Technical Support.

Chapter 4. Advanced Use

This chapter contains information on performing more advanced tasks with **Dr.Web Anti-Virus for Linux** and adjusting its settings.

Using additional features you will be able to:

- view anti-virus check results;
- process suspicious and incurable objects, moved to the special **Quarantine** directory during anti-virus check;
- specify a shedule for automatic scan and update of **Doctor Web virus databases**;
- specify actions to be applied to detected threats during regular automatic scan;
- specify exclusions for scan;
- set up notifications about system events.

4.1 Viewing Results

Dr.Web Anti-Virus for Linux collects statistics on malicious objects and other threats, detected on your computed during regular check performed by the **Scanner** or **SpIDer Guard** file monitor. In the **Results** section you may view this statistics and delete old entries, if necessary.

Viewing statistics

To view statistics on operation of **Dr.Web Anti-Virus for Linux**, select **Results** option in the menu bar.

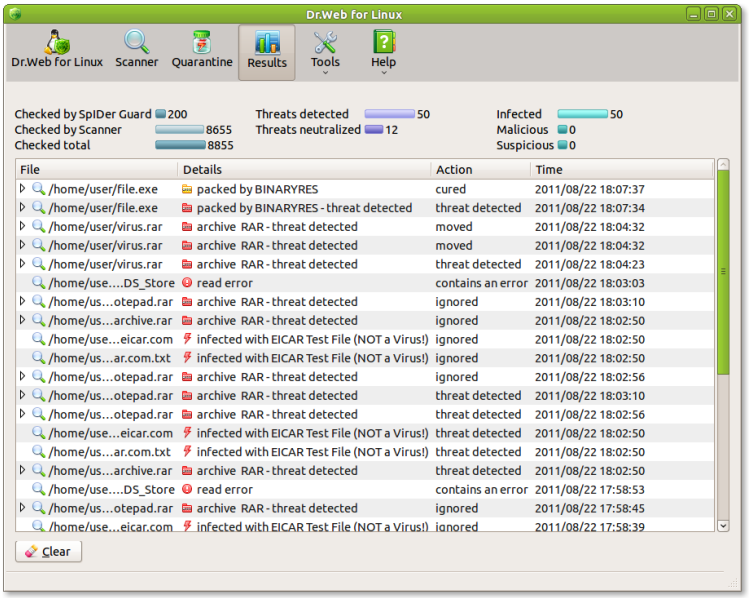


Figure 19. Viewing scanning results.

At the top of the **Results** window general statistics is displayed.

At the bottom of the **Results** window **Clear** button is located. Using this button you can delete all data from the Results page.

In the middle of the **Results** window the table with the list of all possible and obvious threats is displayed:

Column	Description
File	Contains the path and file name.
Details	Contains information about the threat (for example, name or type of the threat).
Action	Contains information about the action applied to the detected object. If it is empty, then no action was applied yet (see below for more information).
Date	Contains the date when the threat was detected.

When Dr.Web Anti-Virus for Linux operates in central protection mode, statistics is sended to central protection server. Statistics

can be transmited:

- By using **Clear** button. In this case all data from **Result** page will be deleted. Report about threats detected during the scan and actions applied on them can be sended to central protection server only once per scan session. It means that when you press the **Clear** button before threats being handled manualy, only information about detected threats and automatically applied actions will be sended to server.
- According to central protection server's schedule.

4.2 Managing Quarantine

Quarantine allows you to isolate detected malicious or suspicious objects that cannot be cured from the rest of the system in case you need them. Curing algorithms are being constantly improved, therefore these objects may become curable after one of the updates.

You can view and manage the contents of **Quarantine** using the **Quarantine** section of the main window (see picture below).

The following types of files are stored in **Quarantine**:

1. Temporary files, marked with  icon. This is backup copies of infected and suspicious files, for which **Treat** action had been chosen. Also this type includes files deleted according to corresponding settings (**Delete** action) that alllows to restore file from it's copies if necessary;
2. Permanent files, marked with  . This type include infected and suspicious files moved to **Quarantine** according to corresponding settings (**Move** action). As curing algorithms improve constantly, these files can be successfully cured later.

Files of the first type are stored in **Quarantine** for a limited period of time (it is specified in settings). When storage period expires, they are removed from **Quarantine** and permanently deleted. Also they are deleted (overwritten with new files), if there is no more free space left in **Quarantine**. Files of the second type can be deleted only by user intervention (**Delete** action).

By default **Quarantine** is located at `.drweb` subdirectory of user home directory.

Viewing objects in Quarantine

To proceed to **Quarantine** window select **Quarantine** option in the menu bar.

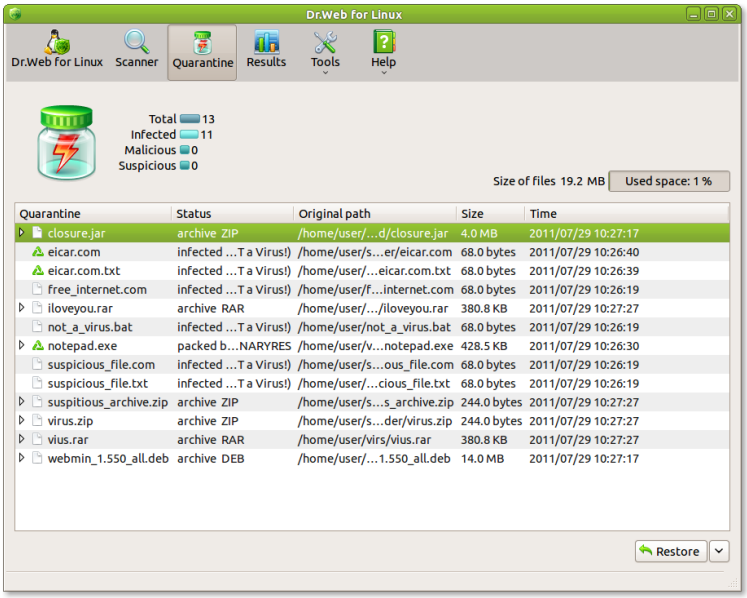


Figure 20. Quarantine window.

At the top of the **Quarantine** window general statistics on objects stored in **Quarantine** and amount of disc space allocated to them is displayed.

In the middle of the **Quarantine** window the table with the list of objects in the **Quarantine** is displayed:

Column	Description
Quarantine	Contains the path and file name.
Status	Contains information about the threat (for example, name or type of the threat).
Original path	Contains path to the directory from which the certain file was moved to **Quarantine**
Date and Time	Contains the date and time when the object was moved to **Quarantine**.
Type	Specifies whether the object is stored in the system or user **Quarantine** (there is one common system **Quarantine** and separate ones for each user).

Processing objects in Quarantine

1. To apply an action to one or several objects in **Quarantine** select them from the list (hold the SHIFT key to select several objects in a row, or the CTRL key to select a few scattered objects).
2. Perform one of the following actions:
   - press **Restore** button to move the quarantined file back to the place in the file system where it was moved from;
   - press an arrow near the **Restore** button and select **Restore to** action to move the file from **Quarantine** to the directory of your choice;
   - press an arrow near the **Restore** button and select **Remove** action to delete the file from **Quarantine**.

Adjusting Quarantine parameters

1. To open a settings section of **Dr.Web Anti-Virus for Linux** select **Setting** item from the **Tools** menu.

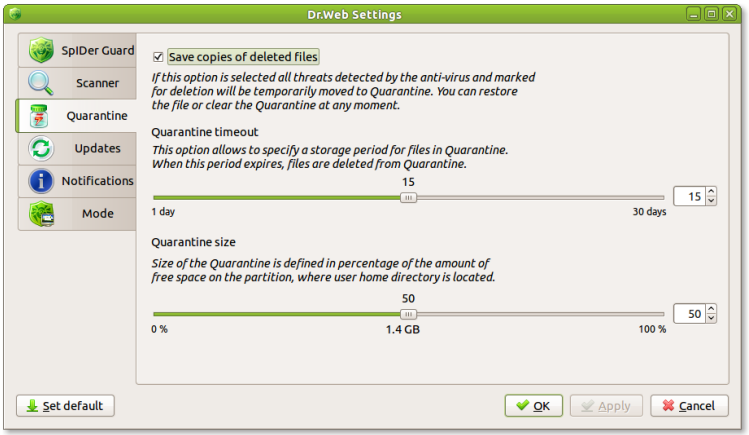


Figure 21. Quarantine settings.

2. Select **Quarantine** tab.
3. Select a **Save copies of deleted files** check box to enable preservation of deleted infected files in **Quarantine**. Deselect this check box to allow permanent deletion of infected objects and disable a possibility to restore them from **Quarantine**. Quarantined copies of deleted files have icon.
4. Specify limits for a storage period for objects in **Quarantine** and for a size of **Quarantine** itself.

When you specify a size of the **Quarantine**, it does not reserve any disk space. So even if you allow **Quarantine** to use 100% of free space on the partition, current size of the **Quarantine** will be equal to the total size of quarantined files.

4.3 Configuring Schedules

Scheduler is used to set up schedules for automatic scanning and updating. It is configured via the **Scanner** and **Update** sections of the anti-virus preferences.

To configure scheduled scans

1. In the **Tools** menu, click **Setting**, select **Scanner** and open the **Scheduler** tab.
2. Select the checkbox at the top, select checkboxes next to the files and folders that you want to scan specify the time and interval between scanning sessions in days.

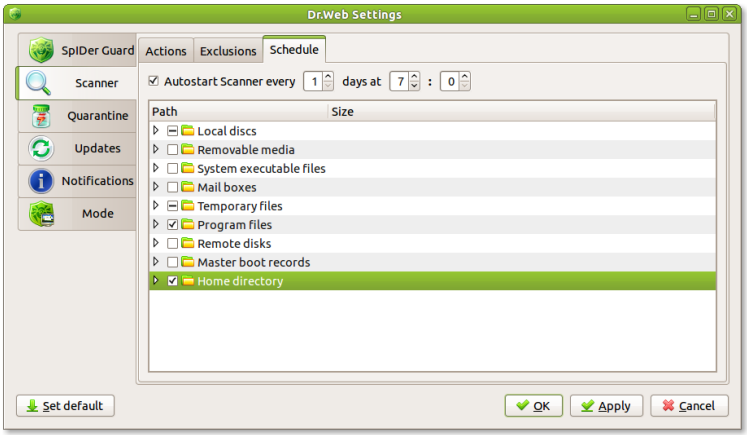


Figure 22. "Schedule" tab for a Scanner.

To configure scheduled updates

1. In the **Tools** menu, click **Setting** and select **Update** in the left part of the window.

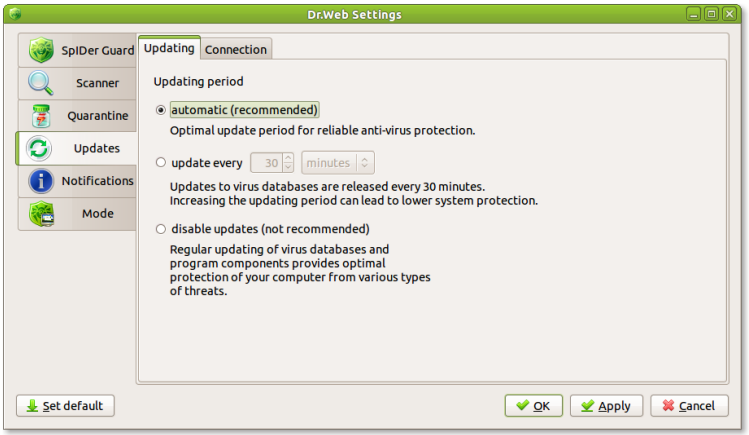


Figure 23. "Updates" tab.

2. Select one of the following options:
   - **Automatic** – update with the recommended default interval**.**
   - **Update every** – specify an interval for updating.
   - **Disable updates** – disable automatic updates, select . When operating in this mode, remember to manually update **Dr.Web Anti-Virus for Linux** regularly.

4.4 Configuring Automatic Actions

You can specify actions to be applied to various types of computer threats automatically, if manual processing of detected malicious objects appears to be disabled. You can set different automatic reaction for **Scanner** and **SpIDer Guard**.

For various types of threats you can specify one of the following actions:

- **Cure** (available only for infected files) - try to cure the object infected with known virus. If it turns out to be impossible to cure this file, then an action for incurable files is applied. This action is used by default for infected files.

- **Delete** - delete infected or suspicious file.
- **Move** - move infected or suspicious file to the Quarantine directory. This action is used by default for incurable files.
- **Report** - notify the user about a detected threat. When this action is selected, all operation with detected malicious objects must be performed manually. This action is used by default for suspicious files and riskware, such as hacktools, jokes etc.
- **Ignore** (available for suspicious files and all types of riskware) - pass the file (a notification will be output to log that a certain file is infected).

Default settings specified on **Actions** tab provide optimal protection for your system. It is not recommended to modify them unless it is necessary.

To configure automatic actions

1. To open automatic reaction settings for **Dr.Web Anti-Virus for Linux** components, do one of the following:
   - To configure automatic actions for **Scanner**, in the **Tools** menu, click **Settings**, select **Scanner** and open the **Actions** tab.

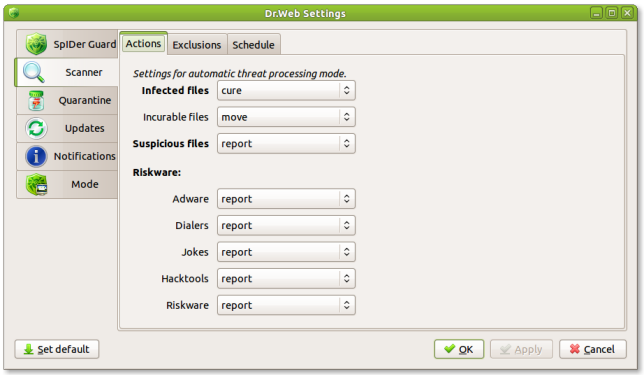


Figure 24. "Actions" tab for a Scanner

   - To configure automatic actions for **SpIDer Guard**, in the **Tools** menu, click **Settings**, select **SpIDer Guard**

and open the **Actions** tab.

2. Select necessary action for each type of threats.
3. After editing all the necessary settings press **OK** button to save the changes or **Cancel** button to discard all changes.

4.5 Excluding Files from Scanning

You can make up a list of files and directories which should be excluded from scanning. Exclusions can be adjusted both for the **Scanner** and the **SpIDer Guard** using the same procedure.

The **Quarantine** directory (usually it is `/.drweb` subdirectory in the user home directory) is in the exclusions list by default because it is used to isolate detected threats and, as access to it is blocked, there is no use scanning it.

Default settings in the **Exclusions** tab are considered optimal for a perfect protection of your system, and it is not recommended to change them unless it is necessary and you know what you are doing.

To configure exclusions

1. To open exclusion settings for **Dr.Web Anti-Virus for Linux** components, do one of the following:
   - To configure exclusions for **Scanner**, in the **Tools** menu, click **Settings**, select **Scanner** and open the **Exclusions** tab.

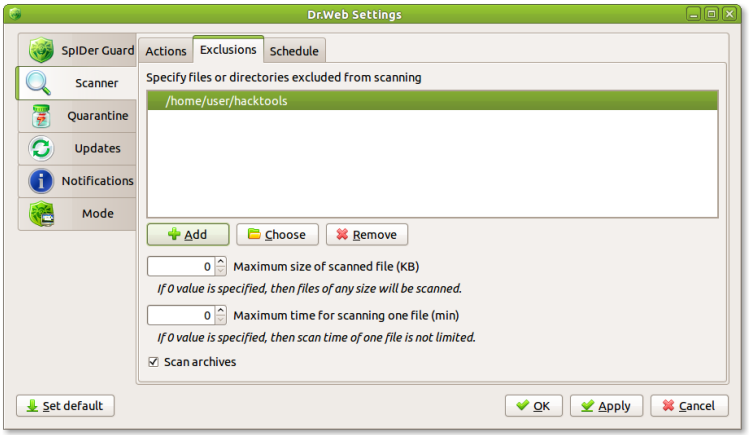


Figure 25. "Exclusions" tab for a Scanner.

- To configure exclusions for **SpIDer Guard**, in the **Tools** menu, click **Settings**, select **SpIDer Guard** and open the **Exclusions** tab.

By default, the **Quarantine** folders are excluded from scans of both components, because they are used to isolate detected threats and, as access to it is blocked, there is no use scanning it.

2. If necessary, modify notification the list of exclusions:
   - To add a file or folder to the list, click the Add button and select the object. To change selection press Choose.
   - To exclude archives of all types from scanning, disable flag **Scan archives**.
   - For **SpIDer Guard**, you can also specify a time limit for scanning one file, so the resident monitor does not "hang up" scanning corrupted files.
   - For **Scanner**, you can also configure displaying of unchecked files in the scan results.
3. After editing all the necessary settings press **OK** button to save the changes or **Cancel** button to discard all changes.

4.6 Configuring Notifications

Dr.Web Anti-Virus for Linux can notify you about various events that may occur during its operation.

There are two types of notifications:

- On-screen messages displayed by **SpIDer Guard**.
- Sound alerts that are used both by **Scanner** and **SpIDer Guard**.

To configure Scanner notifications

1. In the **Tools** menu, click **Settings** and select **Notifications** item.

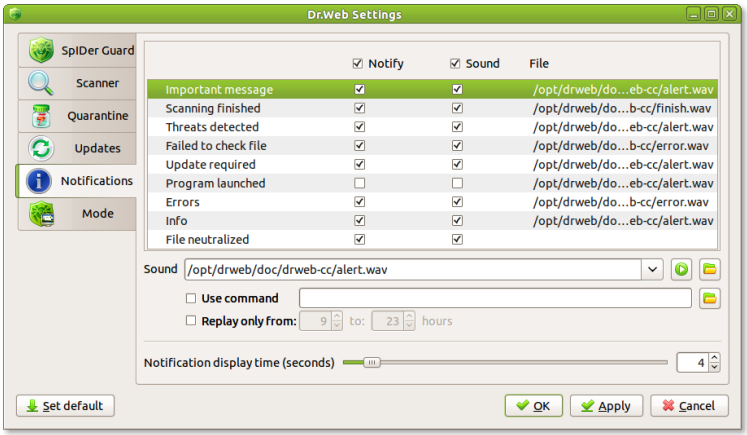


Figure 26. "Notifications" tab.

2. If necessary, modify settings for sound notifications:
   - To disable or enable sound notifications, clear or select the **Sound** checkbox at the top of the tab.
   - To enable or disable sound notifications for particular event select or deselect a corresponding check box in the **Sound** column.

- To assign a particular sound for an event, select the event and pick a sound from the **Sound** list. To add another sound to the list, click **Choose** and select a sound file. You can also specify a special command for playback and a time interval during the day for which sound alerts will be enabled. To playback the selected file press **Play sound**  button

3. If necessary, modify settings for on-screen notifications:
   - Use the slider to set the time for messages to remain on the screen after they are reviewed.
   - To disable or enable on-screen notifications, clear or select the **Notify** checkbox at the top of the tab.
   - To enable or disable on-screen notification for particular event select or deselect a corresponding check box in the **Notify** column.

4.7 Simultaneous use of Dr.Web Anti-Virus for Linux by several users

On the same computer different users can start and use their separate copies of **Dr.Web Anti-Virus for Linux**, and all these copies will operate simultaneously and independently.

When any user starts the **Dr.Web Anti-Virus for Linux** for the first time, in user home directory (in `~/.drweb`) the following files and directories are created:

- copy of the main configuration file `drweb32.ini`, where user settings for **Doctor Web Scanner** will be stored;
- copies of configuration files for **SpIDer Guard** and **Dr.Web Antivirus for Linux** components (`drweb-spider.conf` and `drweb-cc.conf` correspondingly), where their settings for a specific user will be stored;
- symbolic link to the license key file `/opt/drweb/drweb32.key` (whether there exists this file or not). If this file exists at the specified location, it will be available for all users by default, otherwise the user will be offered to get license key

file via the **License Manager**;

- symbolic link to the **Doctor Web Engine** `/var/drweb/lib/drweb32.dll`. **Updater** module may replace this symbolic link with the real `drweb32.dll` file later on, after some regular update;
- sockets for **SpIDer Guard** and **Dr.Web Antivirus for Linux**;
- directories where user virus databases and temporary files will be stored, and the **Quarantine** directory.

When **Dr.Web Anti-Virus for Linux** operating in central protection mode, complex settings are the same for all users.

4.8 Configuring Operation Mode

If necessary, you can use your installation of **Dr.Web Anti-Virus for Linux** to connect to corporate networks managed by **Dr.Web Enterprise Suite** . To operate in such central protection mode, you do not need to install additional software or uninstall **Dr.Web Anti-Virus for Linux**.

To use central protection mode

1. Contact an anti-virus network administrator of your company for a public key file and parameters of connection to the central protection server.
2. In the **Tools** menu, click **Settings** and select **Mode**.
3. To connect to central protection server of your company, select the **Use central protection server** checkbox.

   In the central protection mode, the option of manual start and configuring updates is blocked. Some features and settings of **Dr.Web Anti-Virus for Linux**, particularly concerning the constant protection and on-demand scanning, may be modified and blocked for compliance with the company security policy. A key file for operation in this mode is received from central protection server. Your personal key file is not used.

4. On switching to the central protection mode **Dr.Web Anti-Virus for Linux** restores parameters of the previous connection. If you are connecting to the server for the first

time or connection parameters have changed, do the following:

- Enter the IP address of the central protection server provided by administrator of anti-virus network.
- Enter the port number that is used to connect to the server.
- Drag the public key file to the settings window, or double-click the public key area and browse to select the file.
- As an option, enter the authentification parameters: station ID, which is assigned to your computer for registration at the server, and password. The entered values are saved with Keychain system. Therefore, you need not enter them again when reconnecting to the server.

To use standalone mode

1. In the **Tools** menu, click **Settings** and select **Mode**.
2. To switch to the standalone mode, clear the **Use central protection server** checkbox.

   On switching to this mode, all settings of **Dr.Web Anti-Virus for Linux** are unlocked and restored to their previous or default values. You can once again access all features of anti-virus.

3. For correct operation in standalone mode, **Dr.Web Anti-Virus for Linux** requires a valid personal key file. The key files received from central protection server cannot be used in this mode. If necessary, you can receive or update a personal key file with License Manager.

4.9 Using License Manager

License Manager is a component that simplifies management of your key files (see License Key File). You should install a key file after installation because it unlocks updating, constant protection and on-demand scanning features. If you have not received a key file or it has expired, you can use **License Manager** to get a new one.

To open License Manager

- In the **Tools** menu, click **License Manager**.

The **License Manager** window displays details of your current key file and provides you the following license management options:

Column	Description
Demo version for 30 days	No serial number is needed because the demo key file is used for evaluation purposes and has a short term of usage.
Register using the serial number	You will need to specify the serial number which is included with the program.
Specify path to an existing key file	Select this option if you already have a valid key file present on the computer.

4.9.1 License Key File

Use rights for **Dr.Web Anti-Virus for Linux** are regulated by a special file called the *key file*. The key file contains the following information:

- Duration of the anti-virus license
- List of components a user is allowed to use
- Other restrictions (for example, the number of users allowed to use the application)

The key file has the .key extension and it can be received at first launch of **Dr.Web Anti-Virus for Linux** via the License Manager:

- For evaluation purposes you can use a demo key file. The demo key file provides full functionality of the main anti-virus components, but has a limited term of usage.
- To get a license key file, you will need the product's serial number. You can purchase any **Dr.Web** anti-virus product or the serial number for it via our partners or the online store.

The key file is delivered as a file with the .key extension or as a ZIP archive containing such file.

The parameters of the key file which specify the user's rights are set in accordance with the License agreement. The file also contains information on the user and seller of the anti-virus.

License key file is digitally signed to prevent its editing. Edited license key file becomes invalid. It is not recommended to open your license key file in text editors to avoid its accidental corruption.

When the license key file expires, to) continue using **Dr.Web Anti-Virus for Linux** you have to get a new key file and replace the old one with it (see Registration and Renewal of License).

4.9.2 Registration and Renewal of License

By default, the key file should be located in the /home/<user name>/.drweb. **Dr.Web Anti-Virus for Linux** verifies the file regularly. Do not edit or otherwise modify the file to prevent the license from compromise.

If no valid license or demo key file is found or a license expires, all components are blocked until you renew the license or get a new one.

License Manager helps you register the use of **Dr.Web Anti-Virus for Linux** by installing a previously received license from file, or obtaining a new license via the Internet using the registration procedure.

To start registration from **License Manager**, click **Get new license**. When running **Dr.Web Anti-Virus for Linux** for the first time, the registration procedure start automatically.

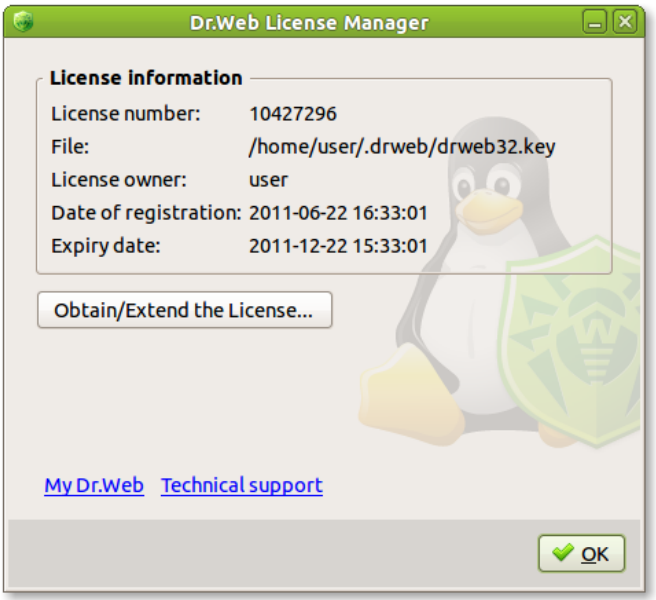


Figure 27. License Manager main window.

To install existing key files

1. On the first step of the procedure, select **Specify path to an existing key file**.
2. Select a key file. If you received the key file in an archive, you may select an archive.

   Dr.Web Anti-Virus for Linux automatically switches to using the new key file.

To get a new key file

1. On the first step of the registration procedure, do one of the following:

- If you have a registration serial number, select **Register using the serial number** and click **Next**.
- If you installed **Dr.Web Anti-Virus for Linux** with demonstration purposes, select **Demo version for 30 days**, click **Next** and proceed to step 4.

Figure 28. Registration Type screen

2. Enter a serial number to receive a license key file and click **Next**.

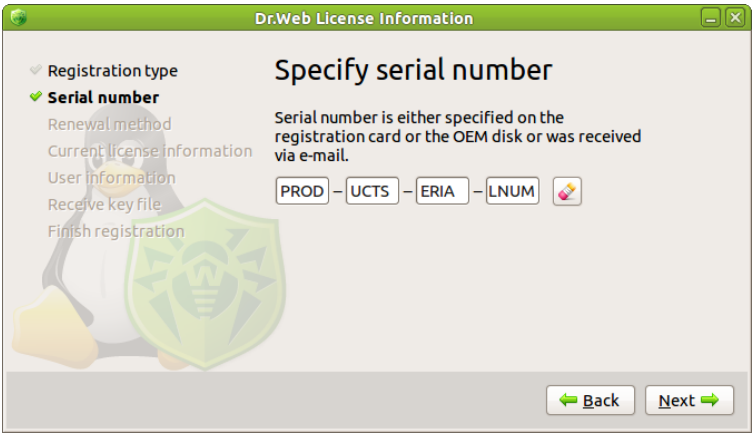


Figure 29. Enter Serial Number screen

3. After you specify the serial number or upload the key file,

the **Dr.Web** license server determines if you are using **new license** or **renewal licence**

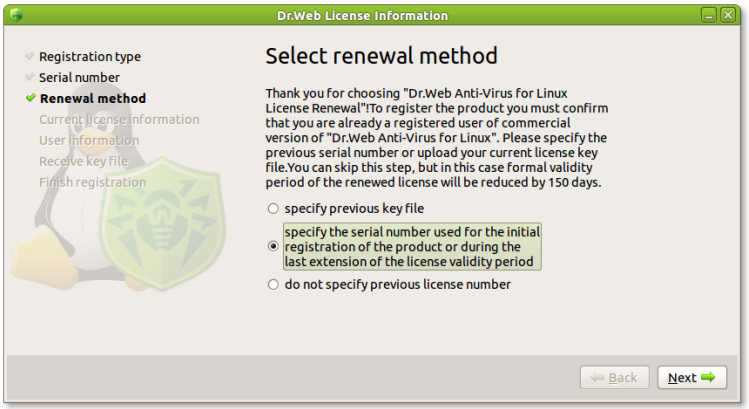


Figure 30. Selection of renewal method for new license

If you have been a user of **Dr.Web Anti-Virus for Linux** in the past and are registering a new license, you are eligible for extension of your new license for another 150 days. If you are registering a renewal license and fail to provide a previous license key file, your new license period will be reduced.

Click **Next**.

Specify the previous serial number or upload your current license key

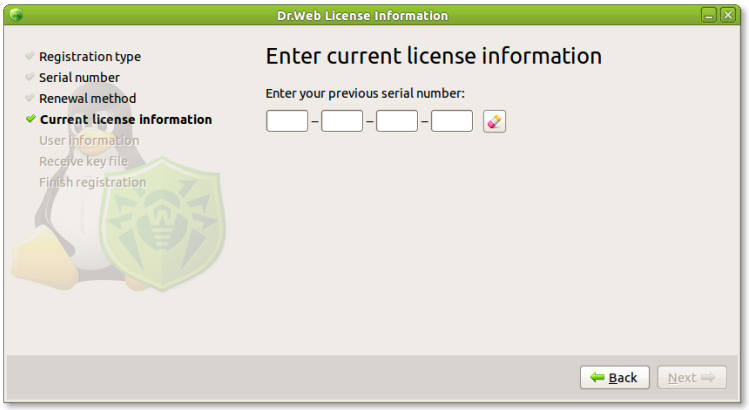


Figure 31. Previous serial number window

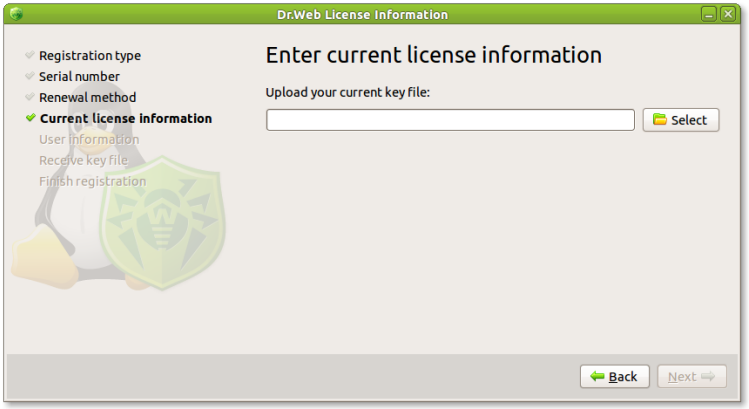


Figure 32. Current licence key file window

If you select **do not specify previous licence number** warning about the absence of rebate appears.

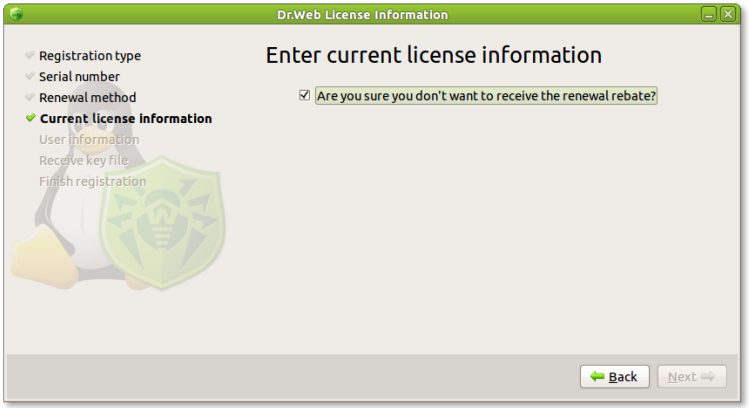


Figure 33. Warning window

4. To receive a key file, enter personal data (your given name, family name, and e-mail address), select the country and enter the city name. All the fields listed are obligatory and should be filled in. If you want to receive news about Doctor Web by e-mail, select the corresponding checkbox.
5. To download and install your key file, click **Next**. Usually, this procedure does not require your active participation. If you successfully receive your license key file, **Dr.Web Anti-Virus for Linux** will start to use it automatically.

Figure 34. Registration Finish window

If download fails, **Updater** provides you with information on the error. Check you Internet connection and try again.

It is recommended to keep the key file until it expires. If you re-install the product or install it on several computers, you will be able to use the previously registered license key file.

Please note, that in case of receiving key file through using the serial number, following warning may appears on startup:

```
ERROR: Dr.Web ® Updater: key file not found !
See Dr.Web ® Updater log file for details.
```

To disable this notification, comment out the line in /etc/cron.d/drweb-update, which is responsible for the startup of Updater:

```
# */30 * * * * drweb /opt/drweb/update.pl
```

Subsequent Registration

If a key file is lost, you should register again. In this case, input the personal data which you provided during the previous registration. You may use a different e-mail address. In this case, the key file will be sent to the address specified.

When recovering a demo key file, you will receive the same key file as during the previous registration. Demo key files for the same computer cannot be received more often then once in 4 months.

The number of requests for a key file receipt is limited. One serial number can be registered not more than 25 times. If more requests are sent, the key file will not be delivered. In this case, to receive a lost key file, contact Technical Support describing your problem in detail, stating your personal data input during the registration and the serial number.

4.10 Central Anti-virus Protection

Solutions for central protection from **Doctor Web** help automate and simplify configuring and managing information security of computers within logical structures (for example, company computers that access each other from both inside and outside of company's local networks). Protected computers are united in an *anti-virus network* which security is monitored and managed from central sever by administrators. Connection to centralized anti-virus systems guarantees high level of protection while requiring minimum efforts from end-users.

Logical Structure of Anti-virus Networks

Solutions for central protection from **Doctor Web** use client-server model.

Workstations and servers are protected by *local anti-virus*

components (agents, or clients; herein, **Dr.Web Anti-Virus for Linux**) installed on them, which provides for anti-virus protection of remote computers and ensures easy connection to central protection server.

Local computers are updated and configured from *central server*. The stream of instructions, data and statistics in the anti-virus network goes also through the central protection server. The volume of traffic between protected computers and the central server can be quite sizeable, therefore solutions provide options for traffic compression. To prevent leak of sensitive data or substitution of software downloaded onto protected computers, encryption is also supported.

All necessary updates are downloaded to central protection server from **Dr.Web Global Update System** servers.

Local anti-virus components are configured and managed from central protection server according to commands from *anti-virus network administrators*. Administrators manage central protection servers and topology of anti-virus networks (for example, validate connections to central protection server from remote computers) and configure operation of local anti-virus components when necessary.

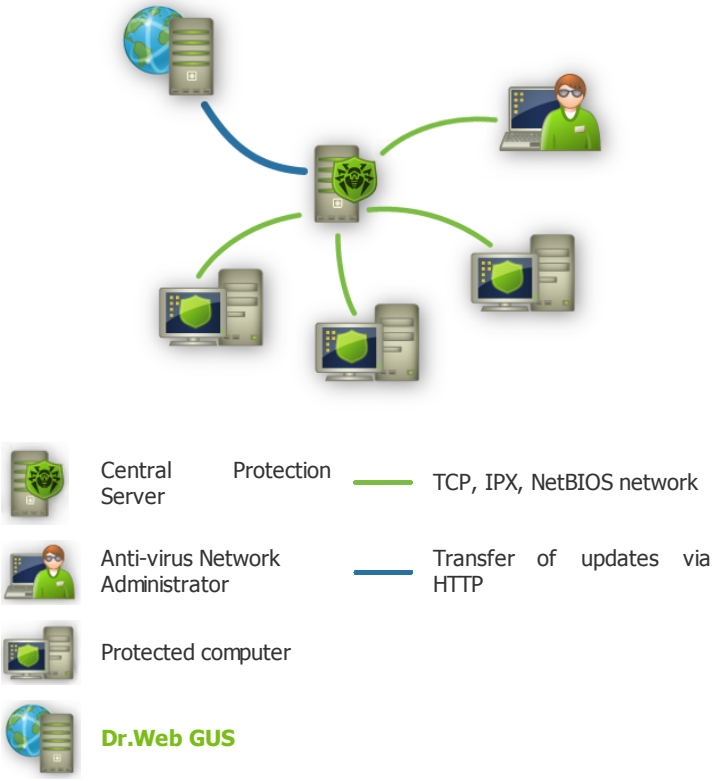


Figure 35. Logical structure of anti-virus networks.

Central Protection Solutions

Dr.Web® Enterprise Suite

Dr.Web® Enterprise Suite is a complex solution for corporate networks of any size that provides reliable protection of workstations, mail and file servers form all types of modern computer threats. This solution also provides diverse tools for anti-virus network administrators that allow them to keep track and

manage operation of local anti-virus components including components deployment and update, network status monitoring, statistics gathering, and notification on virus events.

4.10.1 Configuring Central Protection Mode

If necessary, you can use your installed **Dr.Web Anti-Virus for Linux** anti-virus solution to connect to corporate networks protected with **Dr.Web® Enterprise Suite**. To operate in such central protection mode, you do not need to install additional software or uninstall **Dr.Web Anti-Virus for Linux**.

To run **Dr.Web Agent** in central protection mode `drweb-agent-es` package must be installed.

To use central protection mode

1. Contact an anti-virus network administrator for a public key file and parameters of connection to the central protection server.
2. Open a settings section by selecting **Settings** item from the **Tools** menu.
3. Select **Mode** tab.

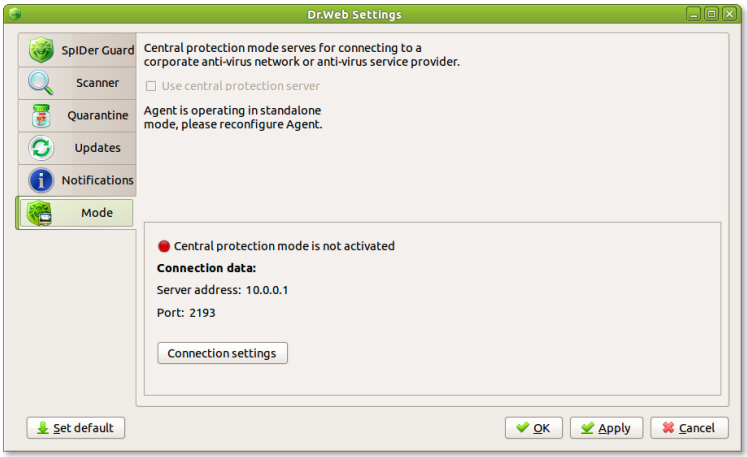


Figure 36. "Mode" tab.

4. To connect to central protection server of your company select the **Use central protection server** checkbox.
5. On switching to the central protection mode **Dr.Web Anti-Virus for Linux** restores parameters of the previous connection. If you are connecting to the server for the first time or connection parameters have changed, do the following:
   - Press the **Connection Settings** button to open a window with parameter settings for establishing connection with the central protection server.

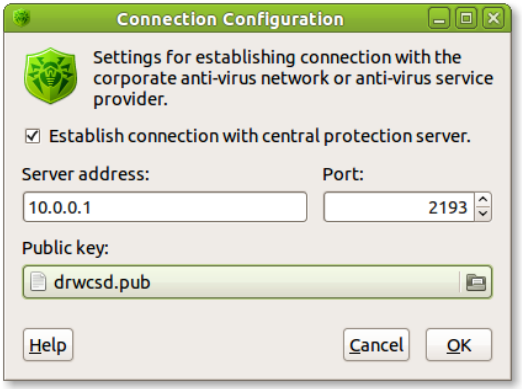


Figure 37. Adjusting connection settings.

- Enter the IP address of the central protection server.
- Enter the port number that is used to connect to the server.
- Specify the public key file by double-clicking the public key area and browsing to select the required file.

6. If you want to connect to another server, do the following:
   - Press the **Connection Settings** button. In the appeared window set new connection parameters similar to item 5 and and click OK to change settings
   - To confirm new settings, re-open Connection Settings window. In the appeared window click OK. After this, new connection settings will take effect.

   Please note, that administrative privileges are required to change connection settings. In general, you will be prompted to specify `root` password for **su** or user password for **sudo** (if user `sudo` profile is set up correctly). In some operating systems based on GNU/Linux other mode/password combinations may be used: for example, `root` password may be used for **sudo**.

Figure 38. Selecting authentication method.

In the central protection mode, some features and settings of **Dr.Web Anti-Virus for Linux** may be modified and blocked for compliance with the company security policy or according to the list of purchased services. A key file for operation in this mode is received from central protection server. Your personal key file is not used.

4.10.2 Creating New Account on the Central Protection Server

Interaction between **Dr.Web Anti-Virus for Linux** anti-virus solution and central protection server is performed via the **Dr.Web Control Agent** component. When connection with the server is set up, all corresponding changes are made to configuration file of the **Agent** automatically.

According to the connection policy for new working stations, new workstation can be connected to the central protection server in two different ways:

- when new account is created by the server automatically;
- when corresponding account is created by administrator manually.

If new account is created automatically

1. When **Agent** is first started in central protection mode, it sends a request for the account details (station ID and password) to the server.
2. If central protection server is set to `Approve access`

`manually` mode, system administrator must confirm registration of new station via web interface.

3. After first start **Agent** records hash of station ID and password to the special file (default path is `/var/drweb/agent/pwd`). Encryption key is made from the name of the host where **Agent** is running.
4. Data from this file is used every time **Dr.Web Anti-Virus for Linux** solution connects to the central protection server.
5. If you delete password file, repeated registration request will be made to the server after the next start of the **Agent**.

When new account is created manually

1. Create new account on the central protection server: station ID is generated automatically and password must be specified manually.
2. In corresponding fields of the window with connection settings specify login (station ID) and password.

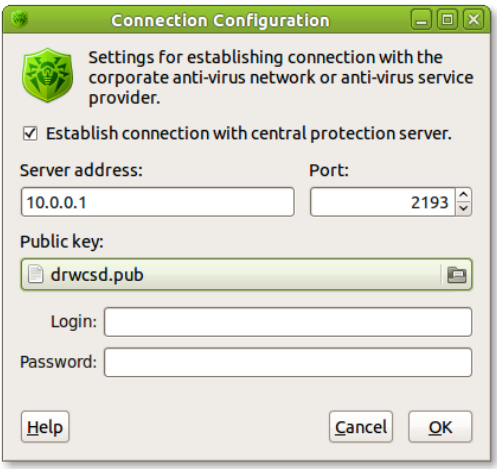


Figure 39. Adjusting connection settings.

Agent records the hash of the station ID and password to the special file (default path is `/var/drweb/agent/pwd`). Encryption key is made from the name of the host, where **Agent** is running.

3. Data from this file is used every time **Dr.Web Anti-Virus for Linux** solution connects to the central protection server.
4. If you delete password file, the registration must be performed once again.

4.10.3 Configuring Components via Web Interface of the Central Protection Server

Anti-virus networks operated by **Dr.Web Enterprise Security Suite** provide for centralized configuring of anti-virus packages on workstations and allows:

- to set the configuration parameters of anti-virus programs;
- to schedule tasks on workstations;
- launch scanning the computer independently of schedule settings;
- to update workstations, also after an updating error, in this case the error state will be reset.

Every time **Dr.Web Anti-Virus for Linux** starts, **Agent** requests and receives configuration of **Dr.Web for Linux** software complex components and **Dr.Web SpIDer Guard** resident anti-virus component from the central protection server. So, configuration of this components can be performed via web interface of the central protection server.

Please pay your attention that **Dr.Web Anti-Virus for Linux** in the terminology of **Dr.Web Enterprise Suite** is denoted as **Dr.Web Scanner for Linux.**

If the user have sufficient privileges to change settings of **Dr.Web Scanner** and **Dr.Web SpIDer Guard** components, than all changes made via the **Dr.Web Anti-Virus for Linux** interface will be automatically exported to the central protection server.

The configuration of workstations can be modified even when they are temporarily disconnected from the **Server**. These changes will be accepted by the workstations as soon as they are reconnected to the **Server**.

4.10.4 Configuring Standalone Mode

If necessary, you can disconnect **Dr.Web Anti-Virus for Linux** from the corporate networks protected with **Dr.Web® Enterprise Suite** by switching **Dr.Web Anti-Virus for Linux** to the standalone mode.

To use standalone mode

1. Contact an anti-virus network administrator of your company for a permission to disconnect from the central protection server (corresponding privileges must be granted to the user via the web-interface of the server).
2. Open a settings section by selecting **Settings** item from the **Tools** menu.
3. Select **Mode** tab.

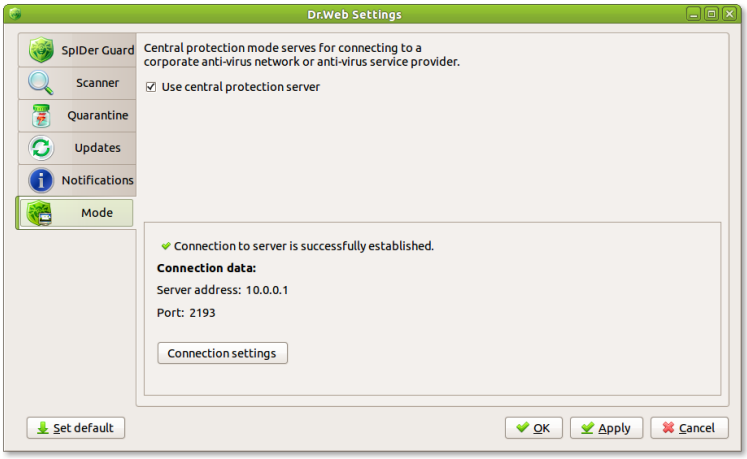


Figure 40. "Mode" tab.

4. To switch to the standalone mode, clear the **Use central protection server** checkbox.
5. On switching to this mode all settings of **Dr.Web Anti-Virus for Linux** are unlocked. You can once again access all features of anti-virus including those of configuring and running updates manually and managing **SpIDer Guard**.

Please note, that for correct operation in standalone mode, **Dr.Web Anti-Virus for Linux** requires a valid personal key file. The key files received from central protection server cannot be used in this mode. If necessary, you can receive or update a personal key file with License Manager.

4.10.5 Additional Settings for Standalone Mode

When settings for establishing connection with the central protection server are adjusted, configuration files of some **Dr.Web Anti-Virus for Linux** components (**Dr.Web Monitor** and **Dr.Web Agent**) are modified. Corresponding files: `monitor.conf` and `agent.conf` - are stored in the `/etc/drweb/` directory.

For the **Dr.Web Monitor**:

In `[Monitor]` section of the configuration file value of **RunAppList** parameter is changed: **Agent** module is added to the list of modules started by **Monitor** (`AGENT` value).

For the **Dr.Web Agent**:

In `[EnterpriseMode]` section of the configuration file **UseEnterpriseMode** parameter value is changed to `Yes`, host name of the central protection server is specified in **ServerHost** parameter and port number is specified in **ServerPort** parameter.

So, when **Dr.Web Anti-Virus for Linux** is switched to **Standalone** mode, it may become necessary to change manually values of those parameters. To restore default values specify **RunAppList** = `AGENT` (or leave it empty), **UseEnterpriseMode** = `No`, **ServerHost** = `127.0.0.1`, **ServerPort** = `2193`.

To disable **Monitor** change the value of **ENABLE** variable from `1` to `0` in the `/etc/drweb/drweb-monitor.enable` file.

Chapter 5. Command Line Parameters

Doctor Web Scanner, **SpIDer Guard** and **Dr.Web Antivirus for Linux** components support numerous command line parameters. They are separated from specified path by white space and are prefixed by hyphen «-». To get complete list of parameters, start the corresponding component (`drweb`, `drweb-spider` or `drweb-cc`) with `-h` or `--help` parameters.

5.1 Doctor Web Antivirus for Linux Parameters

To get complete list of parameters for **Dr.Web Antivirus for Linux** start the `drweb-cc` component with `-h` or `--help` parameters.

Parameter	Description
-a, --agent = <path>	Set agent location (with "local:" or "unix:" prefix)
-e, --es	Enable central protection mode.
-c, --conf = <file>	Specify path to the configuration file.
-d, --debug = <Errors | Alerts | Info | Verbose | Debug>	Set up log verbosity level (possible values: Errors, Alerts, Info, Verbose, Debug).
-v, --version	Output component's version number.

Parameter	Description
-s, --scan <path1 path2>	If paths for scan are specified, then corresponding directories will be scanned. If paths for scan are not specified, then directories listed in schedule will be scanned. If the **Scheduler** is disabled or no directories are selected in the schedule list for scan, then the Scanner will initialize and immediately stop its operation (for lack of objects for check).
-g, --guard	Start **Dr.Web SpIDer Guard**.
-t, --tray	Hide to a tray.
-f, --fork	Run in the background.
-h, --help	Output help on the program.

5.2 SpIDer Guard Parameters

To get complete list of parameters for **SpIDer Guard**, start the `drweb-spider` component with `-h` or `--help` parameters.

Parameter	Description
-c, --conf = <*path to file*>	Specify path to the configuration file.
-r, --restart	Restart **SpIDer Guard**, if it is already running.
-s, --stdout	Do not enter the daemon mode and continue output operation log to stdout.
-d, --debug = <level>	Set up log verbosity level. Possible values are taken from an interval [0...10], where: 0 - quiet, 2 - error, 4 - alert, 6 - info, 8 - verbose, 10 - debug.
-i, --idle	**SpIDer Guard** will not check files.
-v, --version	Output component's version number.
-h, --help	Output help on the program.

5.3 Command Line Parameters

Command line parameters are separated by a white space and are prefixed with a hyphen '-'. To list all parameters, run **Console Scanner** with the **-?**, **-h** or **-help** parameters.

The **Console Scanner** parameters can be divided into the following groups:

- Scan area parameters
- Diagnostics parameters
- Action parameters
- Interface parameters

Scan Area Parameters

These parameters determine where to perform a virus scan:

Parameter	Description
<path> or [disk://]<path to device file>	Sets scan path. You can specify several paths in one parameter. If in startup options path is specified with following prefix: `disk://<path to device file>` then boot sector of appropriate device will be checked and cured, if necessary.
-@[**+**]<*file*>	Instructs to scan objects listed in the specified file. Add a plus '+' if you do not want the list-file to be deleted when scanning completes. List file may contain paths to directories that must be scanned regularly, or list of files to be checked only once.
--	Instructs to read list of objects to scan from the standard input (STDIN).
-sd	Sets recursive search for files to scan in subfolders.
-fl	Instructs to follow symbolic links to both files and folders. Links causing loops are ignored.

Parameter	Description
-mask	Instructs to ignore masks for filenames.

Diagnostics Parameters

These parameters determine which types of objects to scan for viruses:

Parameter	Description
-al	Instructs to scan all objects defined by scan paths regardless of their file extension and structure. Scan paths are specified in the **-path** parameter. This parameter is opposite in effect to the **-ex** parameter.
-ex	Instructs to search scan paths for threats presented by files of certain types and ignore objects of other types. The list of file types should be specified in the **FileTypes** variable of the configuration file. The configuration file is defined by the **-ini** parameter. By default, objects with the following file extensions are scanned: EXE, COM, DLL, SYS, VXD, OV?, BAT, BIN, DRV, PRG, BOO, SCR, CMD, 386, FON, DO?, XL?, WIZ, RTF, CL*, HT*, VB*, JS*, INF, PP?, OBJ, LIB, PIF, HLP, MD?, INI, MBR, IMG, CSC, CPL, MBP, SH, SHB, SHS, SHT*, CHM, REG, XML, PRC, ASP, LSP, MSO, OBD, THE*, NWS, SWF, MPP, OCX, VS*, DVB, CPY, BMP, RPM, ISO, DEB, AR?, ZIP, R??, GZ, Z, TGZ, TAR, TAZ, CAB, LHA, LZH, BZ2, MSG, EML, 7Z, CPIO. Scan paths are specified in the **-path** parameter. This parameter is opposite in effect to the **-al** parameter.
-ar[**d**|**m**|**r**][**n**]	Instructs to scan contents of archives (ARJ, CAB, GZIP, RAR, TAR, ZIP, etc.), both simple (*.tar) and compressed (*.tar.bz2, *.tbz). If you do not supplement the parameter with an additional **d**, **m** or **r** modifier, **Console Scanner** only informs you about detected malicious or suspicious

Parameter	Description
	files in archives. Otherwise, it applies appropriate actions to avert detected threats.
-cn[**d**|**m**|**r**][**n**]	Instructs to scan contents of files containers (HTML, RTF, PowerPoint). If you do not supplement the parameter with an additional **d**, **m** or **r** modifier, **Console Scanner** only informs you about detected malicious or suspicious files in containers. Otherwise, it applies appropriate actions to avert detected threats.
-ml[**d**|**m**|**r**][**n**]	Instructs to scan contents of mail files. If you do not supplement the parameter with an additional **d**, **m** or **r** modifier, **Console Scanner** only informs you about detected malicious or suspicious elements of mail files. Otherwise, it applies appropriate actions to avert detected threats.
-upn	Scan executable files packed with LZEXE, DIET, PKLITE, EXEPACK with compression type output disabled
-ha	Enables heuristic analyser that help detect possible unknown threats.

For some parameters, you can use the following additional modifiers:

- Add **d** to delete objects to avert the threat
- Add **m** to move objects to **Quarantine** to avert the threat
- Add **r** to rename objects to avert the threat (that is, replace the first character of the file's extension with '#')
- Add **n** to disable output of the archive, container, mail file or packer type

For more information on actions, see Fighting Computer Threats.

If malicious objects are detected within complex objects such as archives, containers, packed or mail files, then the reaction is applied to the complex object as a whole, and not to the included malicious object only.

Action Parameters

These parameters determine which actions to apply to infected (or suspicious) objects:

Parameter	Description
-cu[**d**|**m**|**r**]	Defines an action to apply to infected files and boot sectors. If you do not supplement the parameter with an additional modifier, **Console Scanner** cures infected objects and deletes incurable files (if another action is not specified in the **-ic** parameter). Otherwise, it applies appropriate action to infected curable object, and processes incurable files as specified in the **-ic** parameter.
-ic[**d**|**m**|**r**]	Defines an action to apply to incurable files. If you do not supplement the parameter with an additional modifier, **Console Scanner** only informs you about the threat.
-sp[**d**|**m**|**r**]	Defines an action to apply to suspicious files. If you do not supplement the parameter with an additional modifier, **Console Scanner** only informs you about the threat.
-adw[**d**|**m**|**r**|**i**]	Defines an action to apply to adware. If you do not supplement the parameter with an additional modifier, **Console Scanner** only informs you about the threat.
-dls[**d**|**m**|**r**|**i**]	Defines an action to apply to dialers. If you do not supplement the parameter with an additional modifier, **Console Scanner** only informs you about the threat.
-jok[**d**|**m**|**r**|**i**]	Defines an action to apply to joke programs. If you do not supplement the parameter with an additional modifier, **Console Scanner** only informs you about the threat.
-rsk[**d**|**m**|**r**|**i**]	Defines an action to apply to potentially dangerous programs. If you do not supplement the parameter with an additional modifier, **Console Scanner** only informs you about the threat.

Parameter	Description
-hck[**d**|**m**|**r**|**i**]	Defines an action to apply to hacktools. If you do not supplement the parameter with an additional modifier, **Console Scanner** only informs you about the threat.
Additional modifiers indicate actions that should be applied for averting threats: • Add **d** to delete objects. • Add **m** to move objects to **Quarantine**. • Add **r** to rename objects, that is, replace the first character of extension with '#'. • Add **i** to ignore threats (available for minor threats only such as adware etc), that is, apply no action and do not list such threats in the report. For more information on actions, see Fighting Computer Threats. If malicious objects are detected within complex objects such as archives, containers, packed or mail files, then the reaction is applied to the complex object as a whole, and not to the included malicious object only.	

Interface Parameters

These parameters configure **Console Scanner** output:

Parameter	Description
-v, **-version**, **--version**	Instructs to output information about the product and scan engine versions and exit **Console Scanner**.
-ki	Instructs to output information about the license and its owner (in UTF8 encoding only).
-go	Instructs to run **Console Scanner** in batch mode when all questions implying answers from a user are skipped and all decisions implying a choice are taken automatically. This mode is useful for automatic scanning of files, for example, during a daily (or weekly) check of the hard drive.
-ot	Instructs to use the standard output (STDOUT).
-oq	Disables information output.

Parameter	Description
-ok	Instructs to list all scanned objects in the report and mark "clean" object with **Ok**.
-log=[**+**]*<path to file>*	Instructs to log **Console Scanner** operations in the specified file. The file name is mandatory to turn on logging. Add a plus '+' if you want to append the log file instead of overwriting it.
-ini=*<path to file>*	Instructs to use the specified configuration file. No configuration file is supplied with **Console Scanner** by default.
-lng=*<path to file>*	Instructs to use the specified language file. The default language is English.
-a = *<Control Agent address>*	Run **Scanner** in central protection mode.
-ni	Disables the use of the configuration file for setting up scanning options. **Console Scanner** is configured with parameters from the command line only.
-ns	Disables interruption of scanning process including the use of interruption signals (SIGINT).
--only-key	Nothing but key file is received from the Control Agent at start.

You can use hyphen «-» postfix to disable the following parameters:

```
-ar -cu -ha -ic -fl -ml -ok -sd -sp
```

For example, if you start **Scanner** with the following command:

```
$ drweb -path <path> -ha-
```

heuristic analysis (enabled by default) will be disabled.

For the `-cu`, `-ic` and `-sp` parameters, the negative form disables any action specified with additional modifiers, that is, negative form of these parameters instruct to report on detection of infected or suspicious objects, but take no actions to avert threats.

The `-al` and `-ex` parameters have no negative for, but cancel one

another.

By default (if **Scanner** configuration was not customized and no parameters were specified) **Scanner** starts with the following parameters:

```
-ar -ha -fl- -ml -sd
```

Default **Scanner** parameters (including scan of archives, packed files and mailboxes, recursive search, heuristic analysis, etc.) is sufficient for everyday diagnostics and can be used in typical cases. You can also use hyphen «-» postfix to disable some parameters, as it was explained above.

Disabling scan of archives and packed files will significantly decrease antivirus protection level, because in archives (especially, self-extracting) enclosed in e-mail attachments viruses are distributed. Office documents potentially susceptible to infection with macro viruses (Word, Excel) are also dispatched via e-mail in archives and containers.

When you run **Scanner** with default parameters, no **cure** actions and no actions for incurable and suspicious files are taken. For these actions to be performed, you must specify corresponding command line parameters explicitly.

Set of actions parameters may vary in particular cases. We recommend the following:

- `cu` – cure infected files and system areas without deletion, moving or renaming infected files;
- `icd` – delete incurable files;
- `spm` – move suspicious files;
- `spr` – rename suspicious files.

When **Scanner** is started with **Cure** action specified, it will try to restore the previous state of infected object. It is possible only if detected virus is known virus, and cure instructions for it are available in virus database, though even in this case cure attempt may fail if infected file is seriously damaged by virus.

If infected files are found inside archives they will not be cured,

deleted, moved or renamed. To cure such files you must manually unpack archives to the separate directory and instruct **Scanner** to check it.

When **Scanner** is started with action **Delete** specified, it will delete all infected files from disk. This option is suitable for incurable (irreversibly damaged by virus) files.

Action **Rename** makes **Scanner** replace file extension with a certain specified extension («*. #??» by default, i.e. first extension symbol is replaced with «#» symbol). Enable this parameter for files of other OS (e.g., DOS/Windows) detected heuristically as suspicious. Renaming helps to avoid accidental startup of executable files in these OS and therefore prevents infection by possible virus and its further expansion.

With action **Move** enabled **Scanner** will move infected or suspicious files to the quarantine directory.

Appendices

Appendix A. Types of Computer Threats

Herein, the term "threat" is defined as any kind of software potentially or directly capable of inflicting damage to a computer or network and compromising the user's information or rights (that is, malicious and other unwanted software). In a wider sense, the term "threat" may be used to indicate any type of potential danger to the security of the computer or network (that is, vulnerabilities that can result in hacker attacks).

All of the program types stated below have the ability to endanger the user's data or confidentiality. Programs that do not conceal their presence (e.g. spam distribution software and various traffic analyzers) are usually not considered as computer threats, although they can become threats under certain circumstances.

In **Doctor Web** classification, all threats are divided according to the level of severity into two types:

- **Major threats** – classic computer threats that may perform destructive and illegal actions in the system on their own (erase or steal important data, crash networks, etc.). This type of computer threats consists of software that is traditionally referred to as malware (malicious software), that is, viruses, worms and Trojans.
- **Minor threats** – computer threats that are less dangerous than major threats, but may be used by a third person to perform malicious activity. Also, mere presence of minor threats in the system indicates its low protection level. Among IT security specialists this type of computer threats is sometimes referred to as grayware or PUP (potentially unwanted programs) and consists of the following program types: adware, dialers, jokes, riskware, hacktools.

Major threats

Computer Viruses

This type of computer threats is characterized by the ability to implement its code into other objects. Such implementation is called infection. In most cases, the infected file becomes a virus carrier itself and the implemented code does not necessarily match the original. Most viruses are intended to damage or destroy data in the system.

In **Doctor Web** classification, viruses are divided by the type of objects which they infect:

- **File viruses** infect files of the operating system (usually executable files and dynamic libraries) and activate upon launching of the infected file.
- **Macro-viruses** are viruses that infect documents used by Microsoft® Office and some other applications supporting macro commands (usually, written in Visual Basic). Macro commands are a type of implemented programs (macros) written in a fully functional programming language. For instance, in Microsoft® Word macros can automatically initiate upon opening (closing, saving, etc.) a document.
- **Script viruses** are created using script languages and usually infect other scripts (e.g. service files of an operating system). They are also able to infect other file formats that allow execution of scripts and thus take advantage of scripting vulnerabilities in Web applications.
- **Boot viruses** infect boot records of diskettes and partitions or master boot records of fixed disks. They require very little memory and remain ready to continue performing their tasks until a system roll-out, restart or shut-down occurs.

Most viruses have some kind of protection against detection. Protection methods are being constantly improved and ways to overcome them are constantly being developed. All viruses may also be classified according to the type of protection that they use:

- **Encrypted viruses** cipher their code upon every infection to hamper their detection in a file, boot sector or memory. All

copies of such viruses contain only a small common code fragment (the decryption procedure) that can be used as a virus signature.

- **Polymorphic viruses** also encrypt there code, but besides that they also generate a special decryption procedure that is different in every copy of the virus. This means that such viruses do not have byte signatures.
- **Stealth viruses** perform certain actions to disguise their activity and thus conceal their presence in an infected object. Such viruses gather the characteristics of an object before infecting it and then plant these "dummy" characteristics that mislead the scanner searching for modified files.

Viruses can also be classified according to the programming language in which they are written (in most cases, it is Assembler, high-level programming languages, script languages, etc.) or according to affected operating systems.

Computer Worms

Worms have become a lot more widespread than viruses and other types of computer threats recently. Like viruses, they are able to reproduce themselves and spread their copies, but they do not infect other programs and files (that is, they do not need host files to spread). A worm infiltrates a computer from a worldwide or local network (usually via an attachment to an e-mail) and distributes its functional copies to other computers in the network. It can begin distributing itself either upon a user's action or in an automatic mode choosing which computers to attack.

Worms do not necessarily consist of only one file (the worm's body). Many of them have an infectious part (the shellcode) that loads into the main memory (RAM) and then downloads the worm's body as an executable file via the network. If only the shellcode is present in the system, the worm can be deleted by simply restarting the system (at which the RAM is erased and reset). However, if the worm's body infiltrates the computer, then only an anti-virus program can cope with it.

Worms have the ability to cripple entire networks even if they do not bear any payload (i.e. do not cause any direct damage) due to their intensive distribution.

In **Doctor Web** classification, worms are divided by the method of distribution:

- Net worms distribute their copies via various network and file-sharing protocols.
- Mail worms spread themselves using e-mail protocols (POP3, SMTP, etc.).
- Chat worms use protocols of popular messengers and chat programs (ICQ, IM, IRC, etc.).

Trojan Programs (Trojans)

This type of computer threats cannot reproduce itself or infect other programs. A Trojan substitutes a program that is used a lot and performs its functions (or imitates its operation). At the same time, it performs some malicious actions in the system (damages or deletes data, sends confidential information, etc.) or makes it possible for hacker to access the computer without permission, for example, to harm the computer of a third party.

A Trojan's masking and malicious facilities are similar to those of a virus. A Trojan may even be a component of a virus. However, most Trojans are distributed as separate executable files (through file-exchange servers, removable data carriers or e-mail attachments) that are launched by users or system tasks.

It is very hard to classify Trojans due to the fact that they are often distributed by viruses or worms and also because many malicious actions that can be performed by other types of threats are ascribed to Trojans only. Here are some Trojan types which are distinguished as separate classes in **Doctor Web**:

- **Backdoors** are Trojans that make it possible for an intruder to log on into the system or obtain privileged functions bypassing any existing access and security measures. Backdoors do not infect files, but they write themselves into the registry modifying the registry keys.
- **Rootkits** are used to intercept system functions of an operating system in order to conceal themselves. Besides, a rootkit can conceal processes of other programs (e.g. other threats), registry keys, folders and files. It can be distributed either as an independent program or as a component of

another malicious program. There are two kinds of rootkits according to the mode of operation: User Mode Rootkits (UMR) that operate in user mode (intercept functions of the user mode libraries) and Kernel Mode Rootkits (KMR) that operate in kernel mode (intercept functions on the level of the system kernel, which makes it harder to detect).

- **Keyloggers** are used to log data that users enter by means of a keyboard. The aim of this is to steal personal information (i.e. network passwords, logins, credit card data, etc.).
- **Clickers** redirect hyperlinks to certain addresses in order to increase traffic of Web sites or perform DDoS attacks.
- **Proxy Trojans** provide anonymous Internet access through a victim's computer.

Trojans may also perform other malicious actions besides those stated above, for example, change the start page in a Web browser or delete certain files. However, other actions can also be performed by other types of threats (viruses and worms).

Minor Threats

Hacktools

Hacktools are programs designed to assist the intruder with hacking. The most common among them are port scanners that detect vulnerabilities in firewalls and other components of computer protection system. Besides hackers, such tools are used by administrators to check security of their networks. Occasionally, common software that can be used for hacking and various programs that use social engineering techniques are designated as among hacktools as well.

Adware

Usually, this term refers to a program code implemented into freeware programs that force display of advertisements to users. However, sometimes such codes can be distributed via other malicious programs and show advertisements in Web browsers. Many adware programs operate with data collected by spyware.

Jokes

Like adware, this type of minor threats can not be used to inflict any direct damage to the system. Joke programs usually just generate messages about errors that never occurred and threaten to perform actions that will lead to data loss. Their purpose is to frighten or annoy users.

Dialers

These are special programs that are designed to scan a range of telephone numbers and find those where a modem answers. These numbers are then used to mark up the price of telephoning facilities or to connect the user to expensive telephone services.

Riskware

These programs were not intended as computer threats, but can potentially cripple or be used to cripple system security due to certain features and, therefore, are classified as minor threats. Riskware programs are not only those that can accidentally damage or delete data, but also ones that can be used by crackers or some malicious programs to do harm to the system. Among such programs are various remote chat and administrative tools, FTP-servers, etc.

Suspicious Objects

These are possible computer threats detected by the heuristic analyzer. Such objects can potentially be any type of threat (even unknown to IT security specialists) or turn out safe in case of a false detection.

Suspicious objects should be sent for analysis to the **Dr.Web Virus Laboratory**.

Appendix B. Fighting Computer Threats

There are many methods of detecting and averting computer threats. All **Dr.Web products** combine these methods for the most reliable protection of computers and networks using flexible user-friendly settings and comprehensive approach towards security assurance.

Detection methods

Signature checksum scanning

This method is a type of signature analysis. A signature is a continuous finite byte sequence unique to a certain computer threat. If a signature from the virus database is found in a program's code which is being scanned, then a detection occurs.

Signature checksum scanning implies comparison of signature checksums rather then signatures themselves. This helps to reduce the size of the virus databases considerably and maintain reliability of traditional signature analysis.

Execution emulation

The program code execution emulation method is used to detect polymorphic and encrypted viruses in cases when implementation of signature checksum analysis is impracticable or extremely difficult (due to impossibility of extracting a reliable signature from a sample). This is how the method is performed: an emulator, which is a software model of the CPU, simulates execution of an analyzed code sample; instructions are executed in protected memory space (emulation buffer) and are not passed on to the CPU for actual execution; when an infected file is processed by the emulator, the result is a decrypted virus body, which can be easily defined via signature checksum analysis.

Heuristic analysis

Heuristic analysis is used to detect newly created unknown

computer threats, whose byte signatures have not yet been added to virus databases. Operation of the heuristic analyzer is based on defining and calculating the summary weight of certain features which are either typical for computer threats or, on the contrary, very rarely found in them. These features are characterized by their weight (a figure which defines the importance of a feature) and sign (positive sign means that the feature is typical for computer threats; negative means that the feature is not relevant for them). If the sum of these features for an object exceeds a certain operation threshold, the heuristic analyzer concludes that the object may be a threat and defines it as suspicious.

As with other hypothesis checking systems, heuristic analysis assumes the possibility of false positives (that is, type I errors when a threat is overlooked) and false negatives (that is, type II errors of a false detection).

Origins Tracing™

Origins Tracing™ is a unique non-signature threat detection algorithm developed by **Doctor Web** and used only in **Dr.Web products**. Combined with traditional signature-based scanning and heuristic analysis, it significantly improves detection of unknown threats. The .Origin extension is added to names of objects detected using the **Origins Tracing** algorithm.

Actions

To avert computer threats, **Dr.Web products** use a number of actions that can be applied to malicious objects. A user can leave the default settings, configure which actions to apply automatically, or choose actions manually upon every detection. Below is a list of possible actions:

- **Cure** is an action that can only be applied to major threats (viruses, worms and Trojans). It implies deletion of malicious code from infected objects as well as recovery of their structure and operability to the state in which it was before the infection if possible. Sometimes malicious objects are made of malicious code only (for example, Trojans or functional copies of computer worms) and for such objects to

cure the system means to remove the whole object completely. Not all files infected by viruses can be cured, but curing algorithms evolve all the time.

- **Quarantine** (Move to Quarantine) is an action when the detected threat is moved to a special folder and isolated from the rest of the system. This action is preferable in cases when curing is impossible and for all suspicious objects. It is recommended to send copies of such files to the **Dr.Web Virus Laboratory** for analysis.
- **Delete** is the most effective action for averting computer threats. It can be applied to any type of computer threat. Note that deletion will sometimes be applied to certain objects for which the Cure action was selected. This will happen in cases if the object consists of only malicious code and have no useful information (for example, curing a computer worm implies deletion of all its functional copies).
- **Rename** is an action when the extension of an infected file is changed according to a specified mask (by default, the fist character of the extension is replaced with #). This action may be appropriate for files of other operating systems (such as MS-DOS® or Microsoft® Windows®) detected heuristically as suspicious. Renaming helps to avoid accidental startup of executable files in these operating systems and therefore prevents infection by a possible virus and its further expansion.
- **Ignore** is an action applicable to minor threats only (that is, adware, dialers, jokes, hacktools and riskware) that instructs to skip the threat without performing any action or displaying information in report.
- **Report** means that no action is applied to the object and the threat is only listed in results report.

Appendix C. Contacting Support

Support is available to customers who have purchased a commercial version of **Dr.Web** products. Visit **Doctor Web Technical Support** website at http://support.drweb.com/.

If you encounter any issues installing or using company products, take advantage of the following **Doctor Web** support options:

- Download and review the latest manuals and guides at http://download.drweb.com/
- Read the frequently asked questions at http://support.drweb.com/
- Look for the answer in Dr.Web knowledge database at http://wiki.drweb.com/
- Browse Dr.Web official forum at http://forum.drweb.com/

If you have not found solution for the problem, you can request direct assistance from **Doctor Web Technical Support** by filling in the web-from in the corresponding section of the support site at http://support.drweb.com/.

For regional office information, visit the **official Doctor Web website** at http://company.drweb.com/contacts/moscow.