



RAV AntiVirus for Mail Servers (Unices and MacOS X)

Release Date: 5/27/2003

Product version: 8.4.2

User Guide revision: 2.5

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Part I: Introduction

Congratulations! You have just acquired a **RAV AntiVirus** product. **RAV AntiVirus** is one of the best antivirus programs, ranked among the first ten in the world.

RAV AntiVirus products and the documentation associated to these products are the exclusive property of GeCAD Software. The products are licensed to the users under the terms of the License Agreement accompanying each product, so please read carefully this document.

We suggest you to take a moment to fill the *Registration Form* attached to the *License Certificate* or register your product on the manufacturer's site. The personal data you fill in this form is strictly confidential and will only be recorded in our database of registered customers to keep you informed on new developments and updates and to activate your technical support account. Any suggestion you make will be taken into consideration for future versions.

Note: Because of the attention we pay to delivering highly efficient antivirus software, combined with the rapid evolution of viruses and implementation of features requested by our customers, this document may not be up to date. For latest info, please visit <http://www.ravantivirus.com/support/documentation.php>.

Structure of this document

This document is structured in four major components and two appendixes.

The first part, *Introduction*, includes information on the *Scope* of this document, its *Intended audience* and the *Related documentation*. You are also briefed on the manufacturer of **RAV AntiVirus**, GeCAD Software, and informed about modalities you can use to obtain the *Technical support* you might need for the product you have acquired.

The second part, *RAV AntiVirus Product Family*, is an overview of the products included in **RAV AntiVirus** product family (**RAV AntiVirus Desktop**, **RAV AntiVirus for Mail Servers** and **RAV AntiVirus for File Servers**). All these products are based on *RAV Engine*, a revolutionary antivirus engine. The cutting-edge technologies included in *RAV Engine* and the most important updates included in *RAV Engine* version 8.11 are also included in this *RAV AntiVirus Product Family* part.

The third part of the document, *RAV AntiVirus for Mail Servers*, includes some sections (*Short description*, *What can it do*, *How does it work*, *Who should use it*) briefly presenting **RAV AntiVirus for Mail Servers**, its functionality and the potential users. Sections describing the *Currently supported operating systems and MTAs* and the *Hardware and software requirements* are also included, as well as a section presenting in more detail the *features* of **RAV AntiVirus for Mail Servers**. An *Awards* section containing international acknowledgements gained by this product and a *Registration procedure* section, explaining the main principles fundamental for the license policy of our company, including a detailed description of the main differences between the three different phases in which you can use a **RAV AntiVirus** product (evaluation, registration and activation), are also included in this part of the document. The *Updates* section lets you know the available update servers for **RAV AntiVirus** products.

The fourth part of the document, *Configuration files and man pages*, includes the configuration file for **ravmd**, as well as the **man** pages for **ravmd**, **ravav**, **ravupdate**, and the external filters for the MTAs currently supported by **RAV AntiVirus for Mail Servers**.

Two appendixes (*Bug Report Form* and *Index*) are included at the end of the document.

Conventions used in this document

Headings are offered for a better structuring of the document.

Links indicate internal *bookmarks* (links to other sections of this document) or external *URLs*. Clicking on them offers an easier navigation and a more comprehensive understanding of the scope and meaning of this document.

Paths are denoting code lines and paths and are not click-enabled.

Notes contain explanations and are offered in the format below.

Note: This document must be read in connection with the related documentation.

Macros

Strings proceeded by the **\$** character (i.e. **\${BINDIR}**) are used as *macros* denoting paths that are specific to the operating system you are using. These macros have the following meaning:

\${BINDIR} - full path to directory containing the executable files for **ravmd**;

\${LIBDIR} - full path to directory containing the library files for **ravmd**;

\${ETCDIR} - full path to directory containing the configuration files for **ravmd**;

\${DATADIR} - full path to directory containing the logs, temporary files, quarantine folder, activation key, etc. for **ravmd**;

\${RAVEDIR} - full path to directory containing RAV Engine.

The corresponding paths should replace these macros as follows:

For Linux and Solaris:

\${BINDIR} = **/opt/rav/bin**

\${LIBDIR} = **/opt/rav/lib**

\${ETCDIR} = **/etc/opt/rav**

\${DATADIR} = **/var/opt/rav**

\${RAVEDIR} = **/var/opt/rav/rave** for products running on i386 platforms,
/var/opt/rav/s390rave for products running Linux on s390 platforms,
/var/opt/rav/spc_rave for products running on sparc platforms and
/var/opt/rav/ppc_rave for products running Linux on PowerPC platforms.

For FreeBSD, NetBSD, BSDi and MacOS X:

\${BINDIR} = **/usr/local/bin**

\${LIBDIR} = **/usr/local/lib/rav**

`${ETCDIR} = /usr/local/etc/rav`
`${DATADIR} = /var/rav`
`${RAVEDIR} = /var/rav/rave` for products running on i386 platforms.

For OpenBSD:

`${BINDIR} = /usr/local/bin`
`${LIBDIR} = /usr/local/lib/rav`
`${ETCDIR} = /etc/rav`
`${DATADIR} = /var/rav`
`${RAVEDIR} = /var/rav/rave` for products running on i386 platforms.

Scope

This document describes the features and functionality of **RAV AntiVirus for Unices and MacOS X Mail Servers** as of the version and date specified [here](#). Additional valuable documentation is also separately available. To make sure you will be efficiently using **RAV AntiVirus for Mail Servers** from the very beginning, we strongly recommend you to read carefully this *User Guide* and the [related documentation](#), even if you have been using a previous version of this product.

Intended audience

This *User Guide* is intended for administrators responsible with the installation of **RAV AntiVirus for Unices and MacOS X Mail Servers**. These persons should have a strong and comprehensive knowledge and an extensive working experience in the operating systems the product is designed for.

Related documentation

Here is a list of documents that should be used in connection with this document:

- **RAV AntiVirus for Mail Servers** – *Release Notes for version 8.4.2* (available [here](#));
- **RAV AntiVirus for Mail Servers** – *Release Notes for version 8.4.1* (available [here](#));
- **RAV AntiVirus for Mail Servers** – *Release Notes for version 8.4.0* (available [here](#));
- **RAV AntiVirus for Mail Servers** – *User Guide for version 8.4.2* (available [here](#));
- **RAV AntiVirus for Mail Servers** – *User Guide for version 8.4.1* (available [here](#));
- **RAV AntiVirus for Mail Servers** – *Product Sheet* (available [here](#));
- **RAV AntiVirus for CommuniGate Pro on Windows** - *User Guide* (available [here](#));
- **RAV AntiVirus for DMail on Windows** - *User Guide* (available [here](#));
- **RAVMD WebConfig** - *Technical Note for version 2.1* (available [here](#));
- **RAVMD WebConfig** - *Technical Note for version 2.0* (available [here](#));
- **RAVMD WebConfig** - *Release Notes for version 2.1* (available [here](#));
- **RAVMD WebConfig** - *Release Notes for version 2.0* (available [here](#));
- **RAVMD WebConfig** page (available [here](#));
- **Frequently asked questions** - (available [here](#)).

These documents and other up-to-date documentation concerning **RAV AntiVirus** products, as well as white papers on security policies and the latest information about viruses are available on our web site (<http://www.ravantivirus.com/support/documentation.php>).

About GeCAD Software

GeCAD Software is a leading technology company specialized in providing top anti-virus solutions for all categories of users. After releasing its first antivirus program, back in 1994, GeCAD Software has grown to be represented, by Distributors, Resellers and OEM Partners, on all the continents around the world. Our strong commitment towards quality has secured us a privileged position in a fast-evolving market, the key advantage being a state of art product based on cutting-edge technologies.

Established in 1992, GeCAD Software is headquartered in Bucharest, Romania, and its activity is focused on producing, developing and internationally distributing high-quality antivirus products.

Technical support

We value very much your opinion and try to fulfill our customers' requests as soon as possible. Only you, the user of **RAV AntiVirus**, can help us make the product better and more suitable to your needs. Therefore, your suggestions are more than welcomed.

For any details regarding the installation and the functionality of this product, please contact the [authorized partner](#) you have bought the product from. If you consider you do not receive an adequate technical support, please contact us.

For any suggestions or problems regarding the copyright, the guarantee and other aspects related to **RAV AntiVirus** products or data recovery from a destructive viral attack, please contact us at the following address:

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Technical support:	support@ravantivirus.com
Website:	http://www.ravantivirus.com/support

To keep in contact with other users of **RAV AntiVirus** products, join the *discussion lists* available for our products. You should also consider using the *Virus Encyclopedia* and our *Knowledge Base* and subscribing to *RAV Outbreak Security Service* and *RAV Newsletter*, services offered to you free of charge and described in the next sections.

RAV Discussion Lists

Interesting ideas and insights, installation and configuration scenarios, troubleshooting solutions and other information are also available *via* specialized *discussion lists* for RAV AntiVirus products:

- [rav-cgate](#) – RAV AntiVirus for CommuniGate Pro;
- [rav-courier](#) – RAV AntiVirus for Courier;
- [rav-desktop-unices](#) – RAV AntiVirus Desktop for Unices;
- [rav-desktop-windows](#) – RAV AntiVirus Desktop for Windows;
- [rav-dmail](#) – RAV AntiVirus for DMail;
- [rav-enterprise](#) – RAV AntiVirus Enterprise;
- [rav-exchange](#) – RAV AntiVirus for MS Exchange Server;
- [rav-exim](#) – RAV AntiVirus for Exim;
- [rav-mailfilter](#) – RAV AntiVirus MailFilter for POP3, IMAP, SMTP;
- [rav-novell](#) – RAV AntiVirus for Novell Networks;
- [rav-postfix](#) – RAV AntiVirus for Postfix;
- [rav-qmail](#) – RAV AntiVirus for Qmail;
- [rav-sendmail](#) – RAV AntiVirus for Sendmail;
- [rav-fileservers](#) – RAV AntiVirus for File Servers (Win32);
- [rav-samba](#) – RAV AntiVirus for File Server (Samba).

You can subscribe to these discussion lists by visiting our website at the following address: <http://www.ravantivirus.com/pages/discussions.php> or by sending an empty e-mail message to listname-subscribe@lists.ravantivirus.com (where "**listname**" should be replaced with the adequate discussion list you want to subscribe to).

RAV Newsletter

A free *newsletter*, containing virus alerts, advisories and other useful advices for avoiding virus disasters, as well as information regarding updates, tips and tricks and insights on RAV AntiVirus products, is also available from GeCAD Software. You can subscribe to this newsletter or browse the archive containing the previous issues using the following link: <http://www.ravantivirus.com/pages/newsletter.php>.

Knowledge Base

The **Knowledge Base** is a new service offered to you by the producer of RAV AntiVirus. You can access it at the following address: <http://www.ravantivirus.com/kb>. Here you can find technical information regarding the configuration and usage of all the products included in RAV AntiVirus family (RAV AntiVirus Desktop, RAV AntiVirus for Mail Servers and RAV AntiVirus for File Servers).

Virus Encyclopedia

The **Virus Encyclopedia** is a professional knowledge resource, specially designed to allow you being always up-to-date with the latest virus information and threats. The **Virus Encyclopedia** includes information on the most important and interesting viruses, including details such as *technical description*, *payload*, *likelihood*, *removal instructions* and other important info. The **Virus Encyclopedia** is available at the following address: <http://www.ravantivirus.com/encyclopedia>.

RAV Outbreak Security Service

RAV Outbreak Security Service is a free service offered by GeCAD Software as first-hand information alerting users in case of **virus outbreaks**. To subscribe to **RAV Outbreak Security Service**, visit <http://www.ravantivirus.com/pages/outbreak.php>, just enter your e-mail address in the corresponding text field and press on the **Subscribe** button. You will receive real-time customized notifications on the most recent and dangerous threats to your system's security.

Part II: RAV AntiVirus Product Family

The products

RAV AntiVirus product family is currently having the following members:

- RAV AntiVirus Desktop (for Windows and Unices) - includes RAV AntiVirus for Instant Messengers;
- RAV AntiVirus for Mail Servers (for Unices, Windows, MacOS and Novell GroupWise);
- RAV AntiVirus for File Servers (Windows, Linux-Samba, Novell Netware).



RAV AntiVirus for Mail Servers and all the other products included in RAV AntiVirus family are based on *RAV Engine*, now at version 8.11.

The Engine

RAV Engine combines the operational strength, the extensibility, the scalability, the scanning speed and the robustness needed in the fight against viruses and other malicious software (Trojans, worms, backdoors, etc.). At this writing, RAV Engine includes in its database 77970 distinct malware signatures and the RAV Antivirus Research Team daily adds new signatures to the RAV Engine's database. RAV Engine includes modules for scanning **inside 17 different types of common archives**, detecting infected files in archives inside archives for up to 64 levels. RAV Engine scans inside packed executables (i.e. **UPX**, **ASPack2000**, **ASProtect**, **tElock**, **Petite**, **PeCompact**, **FSG**, **wwpack**, **Pklite**, **Lglz**). Our Engine is also scanning and cleaning plain mail files (**MIME**), mail databases (**DBX**, **MBX**, **PST**), supporting various encoding methods (**Base64**, **UUE**, **Binhex**, **Tnef**). RAV Engine can also scan the processes in memory and IFS chains, because RAV Engine is working with **Virtual File**

Systems - thus detecting and cleaning memory-resident viruses like CIH. RAV Engine also implements two extra modules (**bulk mail** and **content filtering**) that should help the user customize the product to work the way he/she wants.

More info on RAV Engine

You can find more information about RAV Engine (version history, awards, and so on) by visiting this page: <http://www.ravantivirus.com/pages/engine.php>.

Cutting-edge technologies included in RAV Engine

RAV Engine, now at version 8.11, has some unique features, ranking it among the best antivirus engines in the world. Here is a short description of the cutting-edge technologies included in the latest version of RAV Engine.

The TPI (Total Platform Independent) technology

The same engine is used for detecting and cleaning malwares for each operating system and platform **RAV AntiVirus** is installed on. Thus, the intelligibility, the unity and the easy update of our programs are logically ensured for all the products from **RAV AntiVirus** family (**RAV AntiVirus Desktop**, **RAV AntiVirus for Mail Servers** and **RAV AntiVirus for File Servers**).

The MLES (Multi Layer Embedded Scanning) technology

RAV Engine is promptly responding to any threat, scanning embedded objects on multiple layers, without affecting the detection speed or slowing down the machine it is installed on.

The HMETH (heuristic method) technology

Using this technology for all electronic threats, RAV Engine can study the behavior of eventual malwares (malicious software, like worms, Trojans, backdoors, etc.) and propose different methods for handling it. Therefore, a virus can be detected and cleaned even if its signature does not exist in the database.

The BMS (Bulk Mail Stop) technology

Bulk messages are causing daily headaches to system administrators and other people. RAV Engine can help you get rid of these unsolicited messages, using a heuristic detection of bulk messages based on mail headers and bodies. The user can choose between four different levels of accuracy (**Low**, **Medium**, **High** and **Very High**) and can customize different actions (delete, block, reject) for each level. This technology is currently implemented only by the products from **RAV AntiVirus for Mail Servers** family.

The CF (Content filtering) technology

RAV Engine scans mail messages on three different levels: Subject, File Names and Body. Using regular expressions or different strings, the user can define different content filtering rules and define specific actions to be taken for each different level. This technology is currently implemented only by the products from **RAV AntiVirus for Mail Servers** family.

The IC (Integrity Checker) technology

When objects are scanned for the first time, the detection engine creates a database with all the information it has gathered during the scanning process. When a second scan on the same folder/path is executed, only the new or changed files are scanned, thus increasing the detection speed with over 50%.

The CUP (Cumulative Update Plug-ins) technology

The cumulative update is another advantage of RAV Engine, being used to add to the main signatures database only the latest available signatures. This procedure results in extremely small files used for the update (10-15Kb), very little download time (5-10 seconds for a 28,8Kbs connection speed) and better management of the virus signatures.

RAV Engine 8.11 vs. 8.9

In comparison with the precedent version of RAV Engine (8.9), RAV Engine 8.11 is enjoying the following improvements:

- The memory allocation was rewritten to improve allocation time and reduce memory fragmentation;
- RAV Engine 8.11 is fully thread-safe;
- Added scanning support for Mac Binary viruses;
- Added support for MacBinary embedded files;
- The heuristic methods for .NET viruses/worms/Trojans were improved;
- The heuristic methods for viruses/worms/Trojans written in Visual Basic 5 and 6 were improved;
- Improvements in the script engine to avoid false alarms and increase generic detection;
- The support for the CAB/Quantum compression method was added, as well as support for Quantum archives;
- Support for SIT archives was added;
- Support for ACE2 archives was added;
- Improved support for MIME files to handle several hand-crafted MIMEs;
- Improved support for ZIP handler to scan archives with names longer than 1024 characters;
- Fixed a few bugs in the MBX handler;

- Improved the parsing speed of PST mail databases, as well as large RAR/ARJ/ZIP archives;
- Support for several self-extracting archives was added;
- Improved support for a lot of packed executables and added support for several versions of AsProtect, as well as for some Linux executable packers;
- The support for the following Windows-based installers was added: Nullsoft, Gentee, Astrum, CreateInstall, Instyler, Setup Factory, Wise, Inno Setup, SetupSpecialist, Osl Setup;
- The code portability for 64-bit machines was improved;
- The overall scanning speed was also improved;
- When added as attachment, the advertising message in e-mails is now named "SecurityCheck.txt";
- The message replacing a deleted part from an e-mail (in warn.txt) can be configured to exclude the default message if it starts with the '-' character;
- The antispam module can now be updated just like the virus signature database (i.e. using the daily update);
- Detection for damaged PE executable files was improved.

Part III: RAV AntiVirus for Mail Servers

Short description

RAV AntiVirus for Mail Servers is a highly customizable award-winning antivirus program for mail servers using different operating systems on different platforms. Besides its main antivirus functionality, starting with its 8.4.0 version, **RAV AntiVirus for Mail Servers** also acts as **antispam** program, due to a combination between the new bulk mail module (available in RAV Engine starting with version 8.9) and features already implemented in older versions of **ravmd**, i.e. **Real-time Blackhole List (RBL)** and the **White/Black List (WBL)**.

What can the product do

RAV AntiVirus for Mail Servers scans and cleans mail messages and all types of attachments including archives, exe files, embedded files, etc. It helps you avoid Internet **malwares** (viruses, worms, Trojans, backdoors, etc.), **bulk mail** and **information leaks**. **RAV AntiVirus for Mail Servers** is scanning, detecting and removing any electronic threats from the messages flowing to/from your mail server, therefore protecting important data for your company and preventing your computers from being infected by viruses, worms, Trojans and other malwares.

When finding infected/suspicious objects, **customizable warning mails** can be sent to the sender, receiver(s) and system administrator(s), according to the specified settings.

The **content filtering** module of **RAV AntiVirus for Mail Servers** allows you to define different rules for filtering incoming/outgoing messages at different levels (subject, body, attachment file name and attachment contents) and specify actions to be taken for messages matching the content filtering rules.

How does it work

The product contains a daemon based on *RAV Engine* (**ravmd**, RAV mail daemon) and a filter module interfacing the daemon with your mail server (**ravcgate**, **ravcourier**, **ravdmail**, **ravexim**, **RAVMilter**, **ravpostfix**, **ravqmail** or **ravsendmail**).

When a mail message is reaching a mail server protected by **RAV AntiVirus for Mail Servers**, it is intercepted by the filter and sent to the daemon for scanning (the scan process is executed using RAV Engine).

Assuming the message is clean, it is sent back to the filter, which will decode and redirect it to the mail server. Then the message can be sent - scanned and cleaned - to the initial destination.

If the message is not clean, customizable actions are taken, according to the options set by the system administrator.

Who should use it

RAV AntiVirus for Mail Servers is targeting three categories of users:

- **large companies**, with heavy traffic on their mail servers and demanding security policies;
- **Internet Solution Providers** - RAV AntiVirus for Mail Servers is the perfect solution for ISPs are dealing with heavy traffic and large amount of clients. RAV AntiVirus for Mail Servers can improve the services ISPs are providing to their customers by scanning the mail flow and adding protection against viruses for the hosted domains; and
- **small companies** willing to protect their internet traffic at low cost.

No matter if you are a big or small company or an ISP, the protection offered by RAV AntiVirus for Mail Servers is always working on multiple levels:

- You are protected of viruses and other malwares that might try to infect your machines **coming** from the Internet, as mail attachments or mail messages.
- The **outgoing** flow is scanned for viruses and other malwares.
- You can also customize the outgoing mail flow for not allowing **sensible information** to leave your company.

Awards

Starting with March 1st, 2002, **RAV AntiVirus for Mail Servers (Linux)** is awarded the West Coast Labs'¹ Checkmark Certificate **Level 1** and **Level 2**, the two standards to be achieved by antivirus products. **RAV AntiVirus for Mail Servers** is the first (and so far the only) anti-virus software winning both certificates for Linux-based mail servers. The Checkmark Certificate system establishes standards for computer security products, giving end users a clear idea on reliable anti-virus products.



For a product to be certified to Anti-Virus Checkmark, *Level One*, the product must be able to detect all "in the wild" viruses. According to Checkmark, "In the Wild" viruses are currently defined as those appearing on The Wildlist Organization's "In the Wild" list and reported as such by more than one person. For a product to be certified to Anti-Virus Checkmark, *Level Two*, the product must be able to comply with Checkmark Level One and, in addition, disinfect all "in the wild" viruses capable of being disinfecting. The product must also detect all viruses on the wild list more than one month old.

After rigorous tests, conducted in the West Coast Labs, **RAV AntiVirus for Mail Servers (Linux)** proved to successfully detect and disinfect 100% of all in-the-wild types of viruses. Anti-Virus Checkmark Level 2 being granted to **RAV AntiVirus for Mail Servers (Linux)** indemnify the users to have complete confidence in our product's abilities to prevent infection and disinfect all the viruses from the "In the Wild" list.

RAV AntiVirus for Mail Servers has also been awarded the "The most Innovative Romanian Product" award during IT&C event gala for 2002, which took place at the presidential Cotroceni Palace Bucharest. Please the corresponding press release at the following address: <http://www.ravantivirus.com/pages/shownews.php?i=145>.

And finally **RAV AntiVirus for Mail Servers** is a Mandrake-compliant product. The **MandrakeSoft Certificate of Compatibility** applies to **RAV AntiVirus for Mail Servers** and **RAV AntiVirus Desktop for Linux** and attests the consistency of this antivirus with the MandrakeLinux PowerPack 9.0 and MandrakeLinux ProSuite 9.0 distributions.



¹ West Coast Labs (<http://www.check-mark.com/>) is an independent organization testing information security products.

Currently supported operating systems, platforms and MTAs
































































































RAV AntiVirus for Mail Servers is currently available for the following platforms/operating systems:

- Linux (Slackware, Mandrake, SuSe, RedHat, e-Smith, Debian, etc.) on i386 platforms;
- Linux (SuSe, RedHat and Mandrake) on s390 platforms;
- Linux (Yellow Dog) on ppc platforms;
- Linux (Suse, Mandrake, Red Hat) on Sparc platforms;
- FreeBSD on i386 platforms;
- Open BSD (2.8, 2.9 and 3.x) on i386 platforms;
- Solaris on i386 platforms;
- Solaris on Sparc platforms;
- Unixware on i386 platforms;
- NetBSD on i386 platforms;
- Mac OS X on ppc platforms;
- BSDi on i386 platforms;
- Windows NT and Windows 2000 on i386 platforms.

RAV AntiVirus for Mail Servers is currently supporting the following MTAs:

- CommuniGate Pro
- Courier
- DMail
- Exim
- MS Exchange (5.5 and 2000)
- Postfix
- Qmail
- Sendmail
- Sendmail-Milter.

Below you can find a cross-table presenting the operating systems, platforms and MTAs supported by RAV AntiVirus for Mail Servers at [this writing](#).

	Linux i386	Linux s390	Linux (PowerPC)	Linux (Sparc)	FreeBSD	OpenBSD 2.8*	OpenBSD 2.9	OpenBSD 3.x	Solaris i386	Solaris (Sparc)	UnixWare 7.11*	NetBSD	WinNT/2000/XP*	MacOS X	BSDi (new)
Sendmail															
Sendmail Militer															
Qmail															
Postfix															
CommuniGate Pro															
Exim															
DMail															
Courier															
Exchange 5.5															
Exchange 2000															

Comment: * = does not currently include the Antispam module.

Further developments

GeCAD Software is currently working on developing antivirus solutions for other operating systems and platforms. For details on the developing process and other info about the characteristics of our products, please visit our website: <http://www.ravantivirus.com>.

Features of RAV AntiVirus for Mail Servers

Some of the distinctive features of **RAV AntiVirus for Mail Servers** are presented below:

- *Simple installation process:* The installation process is very simple and can be executed using an interactive install script (**install.sh**). If you want to manually install the product, you can find install instructions on the manufacturer's website;
- *Easy to configure and use:* **RAV AntiVirus for Mail Servers** is extremely easy to configure: options are available to order the actions to be taken by **RAV AntiVirus** when dealing with an infected file (**Clean, Move/Copy to Quarantine, Delete, Rename, Ignore, Reject**) or with a file containing suspicious code (**Move/Copy to Quarantine, Delete, Rename, Ignore, Reject**).
- *Complete antivirus protection:* **RAV AntiVirus for Mail Servers** scans all incoming and outgoing mail flow for the protected domains, removing malwares from all levels (subject, body, attachments). **RAV AntiVirus for Mail Servers** is also scanning archives inside archives, packed executables and multiple MIME-type encoding.
- *Enhanced e-mail traffic scanning:* **RAV AntiVirus for Mail Servers** is using the *Integrity Checker* technology: when the files are scanned for the first time, the detection engine creates a database with all the information it has gathered during the scanning process. When doing a second scan, only the new or changed files are scanned, therefore increasing the detection speed with over 50%.

- *Multi platform virus removal:* RAV Engine detects and removes Windows, Linux, Unix and DOS viruses, regardless of the operating system they're stored on or designed for.
- *Heuristic methods:* **RAV AntiVirus for Mail Servers** is using heuristic methods, to extend the protection offered to its users and act against new viruses and new versions of existing viruses.
- *Integration:* **RAV AntiVirus for Mail Servers** is an **integrated** suite, containing all the components (**antivirus, antispam, content filtering, group management**) in one single installation.
- *Enhanced virus scanning:* Mail attachments with multiple recipients are scanned only once, and not for all the recipients, therefore enhancing the scanning speed. Different technologies are also applied, in order to improve the speed and accuracy of the scanning process.
- *Content filtering:* All mail messages (incoming and outgoing) are scanned by **Subject, Attachment** and **Body**. This way, you can deny incoming mail messages containing suspicious objects and outgoing mail messages containing confidential information, reducing all types of threats to the very minimum. The available options for mail files matching the content filter are: **Move/Copy to Quarantine, Delete, Ignore, Reject**. For more details, please refer to the [RAVMD configuration file](#) section.
- *Group configuration:* The system administrator can define different groups of users and specify different settings for these groups. **RAV AntiVirus for Mail Servers** will scan these differently configured groups according to their specified scanning settings.
- *Antispam:* Using the bulk-mail module available in **RAV Engine** starting with version 8.9, **RAV AntiVirus for Mail Servers** can act as a customisable antispam program, blocking incoming spam and mail messages from certain addresses, according to the settings made by the server's administrator. Features like **Realtime Blackhole List** and **White/Black List**, available since **ravmd** 8.3.3, help you configure the bulk-mail module according to your needs and considerably reduce your efforts of fighting the spam. For more information, please read the [Antispam Definitions](#) section of this *User Guide*.
- *Information leaks pre-empted:* **RAV AntiVirus for Mail Servers** restricts the mail flow according to defined parameters/patterns. You can configure specific groups (for example one group named Accounting, including all the computers from your company's accounting department) and set **RAV AntiVirus for Mail Servers** to deny all outgoing mail messages containing certain attachment types or confidential information, according to the patterns set by your mail server's administrator.
- *Warning mails:* You can configure **RAV AntiVirus for Mail Servers** to send instantly warning mails when a virus alert occurs to the sender of the message, to the receiver and/or to a third party (i.e. RAV Research Team or the server's administrator).
- *Intelligent Update:* The update process can be performed on demand or on a scheduled basis, according to the administrator's settings. The latest versions of **RAV AntiVirus for Mail Servers** (including engine updates and documentation) can be found on the following ftp site: <ftp://ftp.ravantivirus.com/pub/rav/>. Mirror sites for **RAV AntiVirus** products and updates are available all over the world. A complete and updated list of these mirror sites can be found at the following address: <http://www.ravantivirus.com/kb/viewarticle.php?ano=1283>. Starting with version 8.3.3, the updates for **RAV AntiVirus for Mail Servers** are executed via **ftp** and **http** (with and without proxy) using **ravupdate**. This utility allows "on the fly" update from mirrors, guarantees the integrity of the downloaded files and is self-updateable. For more details, please refer to the [Update](#) section of this *User Guide*.

Software requirements

RAV AntiVirus for Mail Servers has been tested on the following flavors of Linux: Slackware 8.0, Mandrake 7.2, SuSE 6.4, RedHat 6.2, e-Smith (SME) and Debian Linux. The Linux kernel version (for the Linux flavors) should be 2.2 or later and the **zlib** version must be 1.1.3 or later.

Fully functional installation kits for some MTAs are also provided for the following operating systems: Free BSD (version 4.1 or later), Open BSD (version 2.8, 2.9 and 3.x), Net BSD (version 1.5 or later), Solaris 8 (i386 and SPARC), Unixware 7.1.1, BSDi and Win32.

For **RAV AntiVirus for Mail Servers** running on Win32 OSs, the requirements are as following: Windows 2000 with Service Pack 2 or Windows NT 4 with Service Pack 4.

For **RAV AntiVirus for Mail Servers** running on MacOS X, the software requirements are: Mac OS X version 10.1.1 or higher.

For **RAV AntiVirus for Mail Servers** running on BSD's, the software requirements are: BSD/OS version 4.3 or higher.

RAV AntiVirus for Mail Servers has been comprehensively tested on the following MTAs:

- CommuniGate Pro version 3.4b1 or later.
- Courier version 0.38.0 or later.
- DMail version 3.0 or later.
- Exim version 3.33 or later.
- Postfix version 20000531 or later.
- Qmail version 1.03 or later.
- Sendmail version 8.11 or later (for libmilter version only).
- Sendmail (any version).

Hardware requirements

RAV AntiVirus for Mail Servers will work on a computer meeting the minimal requirements for the installed Mail Server program.

For **RAV AntiVirus for Mail Servers** products running on **Intel-based** systems, this means:

Processor: Compatible Intel CPU, 150 MHz or better
Memory: 32 MB of RAM or more.

For **RAV AntiVirus for Mail Servers** products running on **sparc** platforms, the hardware requirements are:

Processor: SPARC V8 or later
Memory: 32 MB of RAM or more.

For **RAV AntiVirus for Mail Servers** products running on **MacOS X**, the hardware requirements are:

Processor: powerpc (G3 or higher recommended)
Memory: 32 MB of RAM or more.

For **RAV AntiVirus for Mail Servers** products running on **s390** platforms, the hardware requirements are:

Processor:	s390
Memory:	32 MB of RAM or more.

Note: In order to send warning messages, according to the settings made in your scanning configuration files, you must have a MTA running on the local machine and listening on port 25.

Registration procedure

Due to an extremely flexible licensing system, you can acquire different packages, depending on your needs of protection. **RAV AntiVirus for Mail Servers** is licensed *per domain*. The more domains you protect with **RAV AntiVirus for Mail Servers**, the less you pay per domain.

All the products included in **RAV AntiVirus** family are available under a license scheme with three different stages: *evaluation*, *registration* and *activation*. Each different stage has its own characteristics, described below.

Evaluation

The products included in **RAV AntiVirus** family are fully functional and their users benefit of complete update services and technical support for an *evaluation period* of 30 days. During this evaluation period, our potential customers should be able to evaluate all the functionalities and services provided by our products, in order to make a knowingly decision. For details regarding your rights and obligations pertaining to the usage of GeCAD Software's products during the evaluation phase, please read the *Evaluation license* section from the License Agreement.

During the evaluation period, each mail message scanned with a **RAV AntiVirus** product contains info about the number of days remaining for evaluation. After this evaluation period, the product expires. If you do not introduce a valid *Registration Code* during the evaluation period, you will not be able to use the product anymore. Introducing (anytime) a valid *Registration Code* extends *ad infinitum* the lifetime of the product.

RAV AntiVirus for Mail Servers can be used *free of charge* for *two domains* for an **evaluation period** of 30 days. During this evaluation period the product is **fully functional** and you can **update** free of charge its signatures database.

Registration

If you do not register your product within 30 days, you will no longer be able to use it for scanning your mail traffic (not even for the two domains you were protected in the evaluation period). In order to register your **RAV AntiVirus for Mail Servers**, you have to purchase it from an authorized RAV reseller/distributor. When you purchase **RAV AntiVirus for Mail Servers** from an authorized RAV reseller/distributor, you receive a *Registration Code*. If the purchasing involves physical delivery, the *License Certificate* will also be available. After registering your product, you have to *activate* it by installing an *Activation key* (please refer to the next section to see how you can do it). Activating your registered product is very important, because it offers you *free* updates, as well as technical support for *one year*.

Activation

The activation process is done free of charge for all **RAV AntiVirus** products, *upon request*, by visiting <https://register.ravantivirus.com> and filling in your End User information (or, you can fax this info to the number specified on the License Certificate). Subsequently, you will receive by e-mail an *Activation Key* and instructions for installing it. Installing this Activation Key enables you to use **RAV AntiVirus for Mail Servers** for the number of domains you have purchased the product for and offers you the advantage of the following *integrated services*:

- Free engine upgrades for one year;
- Free daily updates for one year;
- Full technical support for one year;
- Free virus alerts and security advisories.

You can extend the rights resulted from activating your product by purchasing annual **update extensions** available at special discounts. For additional information regarding the **Update Extension** please contact the nearest **RAV AntiVirus** partner (more information [here](#)) or our international sales department: international.sales@ravantivirus.com.

After the end of your subscription period, **ravmd** will no longer load the new virus signature databases and the new scanning engine files. However, **ravmd** is still functional based on the last update executed within the subscription period before expiration. Please note we will not provide any form of technical support after the expiration of your subscription period.

If you prefer to continue using **ravmd** AFTER the expiration of the subscription period (when no updates are available), please be aware that if you try to update (manually or automatically) to the newest virus signatures, your **RAV AntiVirus** product will be rendered inoperative. If you have an automatic updating script, you should remove it.

Updates

Given the present rate of appearance of new viruses, an antivirus program becomes obsolete in a few weeks (sometimes even days). In order to insure an efficient protection, the virus signatures database of any antivirus product (including **RAV AntiVirus for Mail Servers**) must be periodically *updated*. Our developing team is updating the signatures database of RAV Engine on a daily basis. The list with the latest virus additions to the signatures database of RAV Engine can be found at the following address: <http://www.ravantivirus.com/pages/dldupdate.php?type=Daily>.

As for the latest versions of **RAV AntiVirus** products, you can download them from the following ftp site: <ftp://ftp.ravantivirus.com/pub/rav/>. Mirror sites for **RAV AntiVirus** products and updates are available all over the world. A complete and updated list of these mirror sites can be found in the following **Knowledge Base** article: <http://www.ravantivirus.com/kb/viewarticle.php?ano=1283>.

If you would like to perform periodic updates for RAV Engine and its virus signatures, you should use a scheduling daemon (**cron**, **fcron**, **ucron**...) to execute the **ravmdupdate.sh** script located in `${BINDIR}`. We recommend configuring the scheduling process so that the update process is executed once or twice an hour. For more info, please read the following **Knowledge Base** article: <http://www.ravantivirus.com/kb/viewarticle.php?ano=1292>.

Part IV: Configuration files and man pages

In the following section you will find:

- The configuration file for **RAV AntiVirus for Mail Servers** (**ravmd.conf**);
- The **man** page for RAV mail scanning daemon (**ravmd**);
- The **man** page for **RAV AntiVirus** command line version (**ravav**);
- The **man** page for **ravupdate**;
- The **man** pages for the external filters for the MTAs supported by **RAV AntiVirus for Mail Servers**:
 - ✓ **ravcgate** – RAV external filter for CommuniGate Pro;
 - ✓ **ravcourier** – RAV external filter for Courier;
 - ✓ **ravdmail** – RAV external filter for DMail;
 - ✓ **ravexim** – RAV external filter for Exim;
 - ✓ **ravpostfix** – RAV external filter for Postfix;
 - ✓ **ravqmail** – RAV external filter for Qmail;
 - ✓ **ravsendmail** – RAV external filter for Sendmail;
 - ✓ **RAVMilter** – RAV external filter for Sendmail-Milter.

These files are not meant to represent an exclusive documentation for **RAV AntiVirus for Mail Servers**, as additional documentation might also be found:

- In the *tar.gz* files containing the installation kit for the product you are using. Here you can find the *ReadMe*, *Install* and *Uninstall* files providing valuable information for the distinct operating system and MTA you are using.
- In the **Knowledge Base** available on the manufacturer's website (<http://www.ravantivirus.com/kb/>). Here you can find additional information (i.e. Frequently Asked Questions or the latest product updates), as well as useful links to product documentation and other information regarding our products.

RAVMD configuration file

NAME

ravmd.conf - the configuration file for **ravmd** daemon

SYNOPSIS

This is the configuration file for **ravmd** daemon, **ravmd.conf**, and it contains info on the run-time configuration for **RAV AntiVirus** mail-scanning daemon. After installation, **ravmd.conf** resides in your `${ETCDIR}` directory.

Other documents containing valuable information are available:

- The *Install*, *Uninstall* and *ReadMe* files included in the **tar** or **tar.gz** files containing the setup programs;
- The configuration manuals for **ravmd** filter clients included in the *User's Guide for Mail Servers* and in the **tar** or **tar.gz** files containing the setup programs.

Structure

This configuration file consists of:

- Description of four declaration sections (the *Regular Expression Declaration* section, the *Action Definitions* section, the *Warning Mails Message Declarations* section and the *Antispam definitions* section),
- Group declarations, and
- Explanation of possible parameters.

The info included in this part of the documentation is for reference purposes. Other valuable sources of information are also available. Information pertaining to the installing and uninstalling processes, for instance, is included in the *Install* and *Uninstall* files provided in the **tar.gz** files containing the installation kit for the product you are using. Additional information about **RAV AntiVirus for Mail Servers** (hardware and software requirements, list of installed files, instructions for configuration and updating) is provided in the *ReadMe* file, included in the installation kit.

When presenting the possible parameters in **ravmd**, besides the default values and examples for these parameters *Frequently Asked Questions* are also provided, to help you better understand the functions of **ravmd** and know all the options available in it.

For the users of previous version of **RAV AntiVirus for Mail Servers**, please read section **What is new in ravmd 8.4.2** [below](#).

Macros

Strings preceded by the \$ character (i.e. `${BINDIR}`) are used as *macros* denoting paths that are specific to the operating system you are using.

These macros have the following meaning:

`${BINDIR}` - full path to directory containing the executable files for **ravmd**;

`${LIBDIR}` - full path to directory containing the library files for **ravmd**;

`${ETCDIR}` - full path to directory containing the configuration files for **ravmd**;

`${DATADIR}` - full path to directory containing the logs, temporary files, quarantine folder, activation key, etc. for **ravmd**;

`${RAVEDIR}` - full path to directory containing RAV Engine.

The corresponding paths should replace these macros as follows:

For Linux and Solaris:

`${BINDIR} = /opt/rav/bin`

`${LIBDIR} = /opt/rav/lib`

`${ETCDIR} = /etc/opt/rav`

`${DATADIR} = /var/opt/rav`

`${RAVEDIR} = /var/opt/rav/rave` for products running on i386 platforms,
`/var/opt/rav/s390rave` for products running Linux on s390 platforms,
`/var/opt/rav/spc_rave` for products running on sparc platforms and
`/var/opt/rav/ppc_rave` for products running Linux on PowerPC platforms.

For FreeBSD, NetBSD, BSDi and MacOS X:

`${BINDIR} = /usr/local/bin`

`${LIBDIR} = /usr/local/lib/rav`

`${ETCDIR} = /usr/local/etc/rav`

`${DATADIR} = /var/rav`

`${RAVEDIR} = /var/rav/rave` for products running on i386 platforms.

For OpenBSD:

`${BINDIR} = /usr/local/bin`

`${LIBDIR} = /usr/local/lib/rav`

`${ETCDIR} = /etc/rav`

`${DATADIR} = /var/rav`

`${RAVEDIR} = /var/rav/rave` for products running on i386 platforms.

For MacOS X:

`${BINDIR} = /usr/local/rav/bin`

`${LIBDIR} = /usr/local /rav/lib`

`${ETCDIR} = /usr/local/rav/etc`

`${DATADIR} = /usr/local/rav`

`${RAVEDIR} = /usr/local/rav/ppc_rave.`

What is new in ravmd 8.4.2

Version 8.4.2 of **ravmd** has been released mainly because some users of **RAV AntiVirus for Mail Servers** have asked, for legal reasons, the warning mails issued by our product to be sent as **Bcc** copies.

Here is a list of the new features included in version 8.4.2 of **ravmd**:

- **supervisor_addr**: New parameter in **ravmd** version 8.4.2 used for specifying the mail addresses of the administrators to be notified:
 - in case a **ravmd** malfunction is recorded; or
 - with 14 days before your license will expire; or
 - on each **ravmd** reload in the last 14 days before your license expires, until you extend your subscription period.
- **disclose_supervisor**: New parameter in **ravmd** used for specifying if the address of the supervisor will or will not be disclosed in the warning mail's header and body.
- **disclose_sender**, **disclose_receivers**, **disclose_admin**: New parameters in **ravmd** used for specifying if the addresses of the corresponding sender/receivers/administrators will or will not be disclosed in the warning mail's header and body.
- Before the 8.4.2 version of **ravmd**, the warning mails were all sent having their receivers listed in the **To:** header. Now all the warning mails are sent as **Bcc** messages because by default the value for the **disclose_receivers** parameter is **No**.
- String comparisons executed by WBL library for domain names and e-mail addresses are not case sensitive.
- Eliminating bug in parsing the mail header for obtaining the IP addresses used by WBL and RBL.

Definitions

Some concepts frequently used in the programming world might have different understandings for the purpose of this manual. Here you can find these terms and the meanings they are given in this document:

- A **variable** is a place where we can store data;
- A **string** is a sequence of characters ending with a new line or delimited by quotes;
- A **boolean** is one of the keywords: **yes/no**;
- An **enumeration** is a sequence of words separated by commas;

Note: The spaces are ignored by **ravmd**, except for **WBL**, where spaces are accepted instead of commas.

- A **regexp** is a POSIX regular expression.
- A **group** is a category of users (senders or receivers) that have different mail addresses and/or domains, but share the same action parameters for **ravmd**.

- A **macro** is a stored template of instructions to be replaced with actual values by **ravmd**;
- A **commented** line is a line beginning with a hash (#) character. All commented lines are ignored. All the lines containing only white spaces are also ignored;
- A **default** is a predefined value for one parameter. If that **parameter** is missing from **ravmd.conf** then it is considered to have that **default** value.

The values following the '=' sign in *parameters* may be: a **string**, a **boolean**, a **regex** or an **enumeration**.

Note: The section and parameter names are **not** case sensitive.

- An *object*, for the purpose of this *User Guide*, represents any type of file (archive, executable, **.dll**, etc.), a folder, a disk sector, the boot sector of a hard disk, the memory or any other hardware component that can be scanned by **ravmd**.
- An object is classified as *infected* when **ravmd** has detected a virus in that object (i.e. the virus signature is included in the signature database of **ravmd**).
- An object is classified as *suspicious* when it contains potentially dangerous code, but this code does not match to any virus in the current signature database of **ravmd**. This might be the case of a new virus or a new variant of a virus already included in the signature database of **ravmd**.
- An object is classified as *clean* if **ravmd** identifies no virus or suspicious code when scanning that object.
- An object is classified as *cleaned* when **ravmd** has identified a virus/suspicious code while scanning that object, but the program was able to disinfect it.
- An object is classified as *uncleaned* when **ravmd** has identified a virus/suspicious code while scanning that object, but the program was not able to disinfect it.

SECTION DESCRIPTIONS

Four different sections are included in `ravmd.conf`: the *Regular Expression Declarations* section, the *Action Definitions* section, the *Warning Mails Message Declarations* section and the *Antispam Configuration* section. These sections are presented below in the following format:

- Short description;
- Keyword representing the beginning of the section;
- Syntax;
- Example.

Some *Frequently Asked Questions* (FAQs) are also provided in connection with some relevant aspects of these sections. The *Frequently Asked Questions* are meant to help you with the practical aspects of using **RAV AntiVirus for Mail Servers**.

The *Frequently Asked Questions* were selected from the questions asked by users of **RAV AntiVirus for Mail Servers** on the mailing lists available for our products.

For more information, you can subscribe to these discussion lists - see the [corresponding](#) section in this *User Guide*.

Regular Expression Declaration section

In the *Regular Expression Declaration* section you can define all the regular expressions you will use for the content filtering feature. This section can appear anywhere in the configuration file, as long as it is placed before the group definitions.

The **Regular Expression Declaration** section begins with the following keyword:

```
_define_regular_expressions
```

Syntax

`variable = string`

or

`variable = regexp`

Example 1:

```
subject_filter = I love you
```

This regular expression defines a filter for all the mails including the string "I love you" in the **Subject** field.

Example 2:

```
file_regexp = .*\.exe
```

This regular expression defines a filter for all mail messages having **.exe** attachments.

Action Definitions section

In the *Action Definitions* section you can define the actions you want to be used by **ravmd**, depending on the file status (for more information, please refer to the [Definitions](#) section of this document). The *Action Definitions* section can appear anywhere in the configuration file as long as it is placed before group definitions.

This section starts with the keyword:

```
_define_actions
```

Syntax

variable = enumeration

Depending on the scanning status of the mail message (infected, suspicious, subject/attachment/content filter match), the variable will be associated with some different actions (*clean, move, copy, delete, rename, ignore, reject, discard*). The enumeration contains one or multiple actions separated by a comma. The actions from this enumeration are executed by **ravmd** in the order you specify.

Depending on the scanning status, the following valid actions are supported:

- for infected files: **clean, move, copy, delete, rename, ignore, reject, discard**.
- for suspicious files: **move, copy, delete, rename, ignore, reject, discard**.
- for mails matching the subject filter: **copy, ignore, reject, discard**.
- for files matching the attachment filter: **move, copy, delete, rename, ignore, reject, discard**.
- for mails matching the content filter: **move, copy, delete, ignore, reject, discard**.
- for mails tagged as spam: **save, embed, add_header, add_subject, deliver, reject, discard**.

Note 1: If the last action you define for infected mails is not one of the following: **Discard, Reject** or **Ignore**, the **Reject** action is automatically applied.

Note 2: If the last action you define for bulk mails is not one of the following: **Deliver, Reject** or **Discard**, the **Deliver** action is automatically applied.

For more information, please refer to the **actions** file included in your setup program.

The following table includes a description of all the actions available in **ravmd** (first column), a description of these actions (second column) and a listing of circumstances when each specific action is available (third column), depending on the scanning status:

Action	Description	Available for objects with status:
<i>Clean</i>	Ask ravmd to clean the infected file.	Infected
<i>Move</i>	Ask ravmd to move the file to quarantine (equivalent to Copy + Delete actions).	Infected, suspicious, attach match, content match
<i>Copy</i>	ravmd will copy the infected object to quarantine.	Infected, suspicious, subject match, attach match, content match
<i>Delete</i>	ravmd will delete the infected object and replace it with a new file automatically generated. The file's name is warn.txt and this file is customizable (for more details please refer to FAQ 3). Note that ravmd doesn't change the mail file size because some protocols (like IMAP) may request the mail size first and then the mail body. Therefore, the warn.txt file will be filled with spaces to fit the original file length.	Infected, suspicious, attach match, content match
<i>Rename</i>	The file will be renamed using the rename_ext extension specified in the configuration file.	Infected, suspicious, attach match
<i>Ignore</i>	The file is ignored, no action is taken and the e-mail is delivered.	Infected, suspicious, subject match, attach match, content match
<i>Reject</i>	The e-mail is rejected; it will not be delivered to any of its recipients, but will be bounced back to the sender.	Infected, suspicious, subject filter, attach match, content match, bulk mail
<i>Discard</i>	The e-mail is discarded; it will not be delivered to any of its recipients and will not be bounced back to the sender.	Infected, suspicious, subject filter, attach match, content match, bulk mail
<i>Deliver</i>	The original mail is delivered to its recipients even though it is tagged as Spam.	Bulk mail
<i>Save</i>	The bulk mail is saved in the Quarantine directory.	Bulk mail
<i>Embed</i>	Creates an embedded mail including a custom message and the bulk mail as attachment.	Bulk mail
<i>Forward</i>	New action available from version 8.4.1. The bulk mail tagged as Spam is forwarded to the mail addresses specified by the antispam forward_to parameter.	Bulk mail
<i>add_header</i>	Add a custom extra header to the bulk mail tagged as Spam.	Bulk mail
<i>add_subject</i>	Affix a custom string in the Subject field of a bulk mail tagged as Spam.	Bulk mail

Table 1: Actions available in **ravmd**.

The following *Frequently Asked Questions* will help you better understand the characteristics of the actions available in **ravmd**.

FAQ 1: Scanning existing mails

Question: I just installed **RAV AntiVirus for Mail Servers**. How can I scan mail messages existing prior to this installation?

Answer: If you wish to scan mail messages existing prior to the installation of **ravmd**, do the following:

```
${BINDIR}/ravav -AM --smart --report=/tmp/ravreport.txt [path to mail accounts]
```

This setting results in scanning a mailbox (with **Ignore** as default action) and delivering a report (**ravreport.txt**) in the **tmp** directory.

FAQ 2: Separate domain file

Question: Is it possible to put all domains to be scanned in a separate hash or normal file?

Answer: Create a **domains** file in **\${ETCDIR}** and operate the following changes:

In **ravmd.conf**, replace the "domains to scan (separate them with ',')"

```
domain1.com, domain2.com, domain3.net, domain4.com, domain5.org
```

Then use:

```
domain = _include ${ETCDIR}/domains.list
```

FAQ 3: Changing the contents of the warn.txt file

Question: Recipients who get a virus-infected email have their attachments replaced with a warning message set in the **warn.txt** file. How can I change the contents of this **warn.txt** file?

Answer: Please edit **\${ETCDIR}/languages/english** and customize the value of:

```
warn_txt_msg_english = "Your message".
```

Then restart **ravmd** with:

```
kill -HUP `cat ${DATADIR}/run/ravmd.pid`.
```

Please note that **warn.txt** has exactly the size of the deleted attachment and in some cases, because of the small size of the attachment, you will not be able to view your complete customized message.

FAQ 4: Modified message is not appearing in the warn.txt file

Question: I have modified the **warn.txt** message in my configuration but the modified message is not appearing in the **warn.txt** file. Why is that happening?

Answer: There are two possible reasons for this error:

- either you did not correctly change the `warn.txt` message, or
- the infected attachment file is too small to allow the entire `warn.txt` message to be displayed (see the answer to [FAQ 3](#) for more details).

Here are the steps to be followed for solving this problem:

- In `${ETCDIR}/languages/english` use: `warn_txt_msg_english = "Your message here"`
- In `${ETCDIR}/languages/english.equiv` use: `warn_txt_msg = warn_txt_msg_english`
- Finally, restart `ravmd` with: `kill -HUP `cat ${DATADIR}/run/ravmd.pid``

Warning Mails Message Declarations section

In the *Warning Mails Message Declarations* section you can define the subjects and the messages for the warning mails that will be sent to those interested. The *Warning Mails Message Declarations* section can be declared anywhere in the configuration file as long as it is placed before the group definitions.

This section starts with the keyword:

```
_define_strings
```

Syntax

`variable = string`

The string defining one warning mail should give the user some basic information such as: what file has caused the warning, the sender and the receiver, what is the warning about, what action was taken by `ravmd` and so on. One example of good warning message would be the following:

"That file coming from that sender and addressed to this user is infected with this virus. The action taken by ravmd was this."

The warning mails can be sent to: sender, receivers and administrators, according to your configuration. Before version 8.4.2 of `ravmd`, the warning mails were sent having all their receivers listed in the **To:** header. Now all the warning mails are sent by default as **Bcc** messages. For more information, please refer to the [Explaining the parameters - Warning messages](#) section of this *User Guide*.

Of course, not all the warning mails are about virus-infected files. There are some other situations when you might want to be alerted by `ravmd`. For instance, you might want `ravmd` to alert you when a mail containing one specific type of attachment has arrived on your mail server or when one of your users is trying to transmit a confidential document. Of course, in these cases the warning mail should change accordingly to that specific situation. However, in all the cases some information is *always* included (the name of the file causing the alert, the sender, the action, etc.).

Warning mails are also *automatically* sent to the mail addresses specified in the `supervisor_addr` parameter from the `[global]` group and to `postmaster@hostname` and `root@hostname`, where `hostname` is the value for the `on_host` parameter in the `[global]` group or the host name, as returned by the `gethostbyname()` function:

- in case a **ravmd** malfunction is recorded; or
- with 14 days before your license will expire; or
- on each **ravmd** reload in the last 14 days before your license expires, until you extend your subscription period.

The `supervisor_addr` parameter was introduced starting with version 8.4.2 of **ravmd**. For all prior versions, these messages were sent to all mail addresses specified in the `admin_addr` parameters from your groups.

The information included in a warning mail is always based on *macros*. One macro is (for the purpose of this document) a stored template of instructions containing one piece of info from the string representing the warning mail. **FILE_NAME**, for instance, is an example of macro containing the name of the file generating the warning mail. **ravmd** will replace this macro with the actual name of the trouble-making file. **VIRUS_NAME**, on the other hand, is a macro containing the name of the virus generating the warning mail. **ravmd** will replace this macro with the actual name of the virus.

The string that the warning message will be created from can contain the following macros:

FILE_NAME	The full path to the scanned file and its name.
ATTACH_NAME	The name of the attachment scanned by ravmd .
VIRUS_NAME	The name of the virus discovered by ravmd .
FROM_USER	The e-mail address of the sender.
ON_HOST	The host ravmd is running on.
TO_USER(S)	The e-mail addresses of the receivers.
SUBJECT	The mail's subject.
QUARANTINE_NAME	The name of the file saved to the Quarantine folder using the Move or Copy action.
SAVED_FILE_NAME	The name of the mail file saved to quarantine when <code>save_infected=yes</code> and/or <code>save_suspicious=yes</code> .
HEADER_RECEIVED	Macro replaced with the Received: lines in the received mail's header (if this information exists). This helps you finding the infected machine more easily.
HEADER	Macro is replaced with the entire received mail's header.

*Table 2: Macros available in **ravmd**.*

These macros are combined in one warning string that might look like this:

"The file `ATTACH_NAME` attached to mail (with subject:SUBJECT) sent by `FROM_USER` to `TO_USER(S)` is infected with virus: `VIRUS_NAME`".

Note: The macros `FROM_USER` and `VIRUS_NAME` can be used in the warning mail's subject too.

In this case, one attachment file is virus-infected. Info is provided about the attachment's name, the subject of the mail containing the infected attachment (this is an optional info), the sender's name, the addressees' names and the virus name.

To eliminate any mystification, here are some lines about the differences between the most confusing two pairs of macros:

1. `QUARANTINE_NAME` vs. `SAVED_FILE_NAME`

`QUARANTINE_NAME` represents the name of the infected object saved to Quarantine as a result of using the *Move* or *Copy* action. The file is saved by `ravmd` in the Quarantine directory with the extension `.qto`. The files are encrypted, but starting with version 8.3.3 `ravav` can decrypt them.

`SAVED_FILE_NAME` represents the name of the infected object saved in the Quarantine folder as a result of using the parameters `save_infected=yes` and `save_suspicious=yes`. The file is saved by `ravmd` in the Quarantine directory in the `UNIXTIME-RAV{PID_OF_RAV_FILTER}` format, where `RAV_FILTER` is `ravexim`, `ravpostfix`, etc. For sendmail, the file is saved in the `UNIXTIME-df{MESSAGE-ID}` format, and for sendmail-milter the format is `UNIXTIME-RAV{MESSAGE-ID}`.

2. `HEADER_RECEIVED` vs. `HEADER`

The `HEADER` macro is replaced with the entire mail header, while `HEADER_RECEIVED` is replaced only by the lines beginning with "Received:". Therefore, the lines *Message-Id*, *X-Sender* and *X-Mailer*, for instance, are only included in the `HEADER` macro is used, but not if the `HEADER_RECEIVED` macro is used.

The following *Frequently Asked Questions* will hopefully help you better understanding this very interesting feature of `ravmd`.

FAQ 5: Warning messages not sent

Question: Why am I no receiving the warning messages when viruses are found?

Answer: Most probably you did not correctly configure the `ravms` mail account. Here are the excerpts from the documentation that should help you:

"Default values:

```
ravms_name = ravms
```

```
on_host = the official name returned by the gethostbyname() function
```

```
smtp_server = same as host (IP address)
```

```
smtp_port = 25
```

```
ravms_full_name = displayed.name (RFC822)
```


Default values are provided and they will probably work. Define these fields only if warning mails are sent when a virus is found or if you want to use a different account instead of **ravms**. Specify **smtp_server** IP address only if that machine is behind a firewall and **ravmd** can't get its host name".

FAQ 6: Omitting the SUBJECT from warning mail

Question: Is it possible to define that **SUBJECT** should be omitted from the warning for specific viruses? Some of the viruses disclose potentially sensitive information from the victim's hard drive, and puts it in the subject of the email.

Answer: In `${ETCDIR}/languages/your_language` edit the following line:

```
infected_m_english = "The file ATTACH_NAME attached to mail (with
subject:SUBJECT) sent by FROM_USER to TO_USER(S)is infected with
virus: VIRUS_NAME."
```

and remove "with subject: SUBJECT".

The subject will not be displayed anymore in your warning mails. Please note that this solution will be applied to all mails, not just for specific viruses.

FAQ 7: Changing the warning message in case of attachment match

Question: When a mail with **.exe**, **.com** or other attachments of this type is sent, a warning message is also sent, which is OK, but it says the file is infected with the virus: **UNAUTHORIZED_MAIL_ATTACHMENT**, which seems to scare the average user. Can the message be modified?

Answer: Yes, the message can be modified:

- In the `${ETCDIR}/languages/your_language` file define the variable:

```
infected_m_attach_english = "The file ATTACH_NAME attached to
mail (with subject:SUBJECT) sent by FROM_USER to TO_USER(S) has
an unauthorized file extension."
```
- In section `_attachment_filter_warning_messages` of
`${ETCDIR}/languages/your_language.equiv` file use:

```
infected_msg=infected_m_attach_english
```
- Finally, restart **ravmd** with: `kill -HUP `cat ${DATADIR}/run/ravmd.pid``

The same procedure can be applied for **UNAUTHORIZED_MAIL_SUBJECT** and **UNAUTHORIZED_MAIL_CONTENT** warning messages, making the proper adjustments, as described in [FAQ 8](#) and [FAQ 9](#) below.

FAQ 8: Changing the warning message in case of subject match

Question: How can I change the warning message sent by **ravmd** in case of subject match?

Answer: Here is how you can do it:

- In the `${ETCDIR}/languages/your_language` file define the variable:

```
infected_m_subject_english = "The mail with subject:SUBJECT sent
by FROM_USER to TO_USER(S) has an unauthorized subject."
```

- In the `_subject_filter_warning_messages` section of `${ETCDIR}/languages/english.equiv` use:
`infected_msg=infected_m_subject_english`
- Restart `ravmd` with: `kill -HUP `cat ${DATADIR}/run/ravmd.pid`` and you're done.

FAQ 9: Changing the warning message in case of message's body content match

Question: How can I change the warning message sent by `ravmd` in case of content match?

Answer: In `${ETCDIR}/languages/your_language` define the variable:

```
infected_m_content_english = "The mail with subject:SUBJECT sent by
FROM_USER to TO_USER(S) has an unauthorized content."
```

- In the `content_filter_warning_messages` section of `${ETCDIR}/languages/english.equiv` use:
`infected_msg=infected_m_content_english`
- Restart `ravmd` with: `kill -HUP `cat ${DATADIR}/run/ravmd.pid``

FAQ 10: Offering information about viruses in the warning mails

Question: How can I add a link to a web page where users can easily find the information regarding the virus generating a warning mail?

Answer: Add the following link in your `${ETCDIR}/languages/<your_language_file>` file in the message for infected files:

[http://www.ravantivirus.com/virus/by-keyword.php?k=\\$VIRUS_NAME&sourceid=WM](http://www.ravantivirus.com/virus/by-keyword.php?k=$VIRUS_NAME&sourceid=WM)

Now, for every infected file in the warning mail you will receive the direct link for the viruses that can be found in our [Virus Encyclopedia](#). If the virus generating the warning mail cannot be found, the link will return the main page of the Virus Encyclopedia.

FAQ 11: Stopping update notifications

Question: How do I stop update notifications?

Answer: In order to stop the update notifications, in `${BINDIR}/ravmdupdate.sh` change:

```
#Specify when should the administrator be notified by the update
process
```

```
#VERBOSE="silent"
```

```
VERBOSE="noisy"
```

```
#VERBOSE="errors"
```

with:

```
#Specify when should the administrator be notified by the update
process
```

```
#VERBOSE="silent"
```

```
#VERBOSE="noisy"
```

```
VERBOSE="errors"
```

or with:

```
#Specify when should the administrator be notified by the update  
process
```

```
VERBOSE="silent"
```

```
#VERBOSE="noisy"
```

```
#VERBOSE="errors"
```

Antispam Definitions section

The **Antispam** module is available in **RAV AntiVirus for Mail Servers** starting with version 8.4.0. This feature is designed to protect the users of unsolicited mail messages.

The parameters pertaining to the antispam module of **RAV AntiVirus for Mail Servers** are described in the [Antispam parameters](#) sub-section of this document.

The Antispam functionality is based on the bulk mail module available in RAV Engine version 8.9 or later. This module is working in close co-operation with older features like **Real-time Blackhole List** (RBL) or **White-Black List** (WBL), available in **ravmd** since version 8.3.3.

How does it work

When a mail message reaches a RAV-protected mail server, it is first confronted with the **White/Black List** (WBL). This is a static configurable list that any system administrator can use for specifying the mail addresses from which he wants to automatically *accept* messages (**Static White List**) or the mail addresses from which he wants to automatically *reject* or *discard* messages (**Static Black List**).

If the mail just received by the RAV-protected mail server comes from an e-mail address found in the **Static White List**, then the search in the **RBL** is not executed anymore and **ravmd** jumps directly to the scanning process for the respective mail. Also, the antispam module is not used for the mail coming from addresses found in the **Static White List**. If the mail just received by the RAV-protected mail server comes from an e-mail address in the **Static Black List**, the mail is automatically *rejected* or *discarded* (according to the specified settings).

If the sender's e-mail address is not found in the **White/Black List** (WBL), the mail is confronted against the **Real-time Blackhole List** (RBL). This is a dynamic list (**rbl_site**) with sites containing listings of known spammers. If any of the IP addresses from the mail's header is listed on one of the websites defined in the **rbl_site**, the mail is automatically rejected. If no IP address from the mail's header is found in the **rbl_site** list or the **use_rbl** parameter is set to **No**, **ravmd** jumps to the scanning process for the respective mail. The system administrator can of course choose not to use these **WBL** and **RBL** features. In this case, **ravmd** scans directly the received messages, using the options defined for the corresponding groups.

Assuming the mail is passing OK through the virus-scanning process (i.e. the message is clean or **ravmd** has cleaned it), the antispam search is executed. **ravmd** is looking for patterns known to be specific to spammers on the **Header** and **Body** levels of the mail message. **ravmd** applies the same antispam criteria (about 500, at this writing) for each mail message confronted with the antispam module. Depending on its specifics, the message receives a number of points and is tagged as **Spam** or **No spam** message. Depending on the number of points they receive, the mail messages *tagged as spam* are classified in one of the following *accuracy levels*: **Low**, **Medium**, **High** and **Very High**.

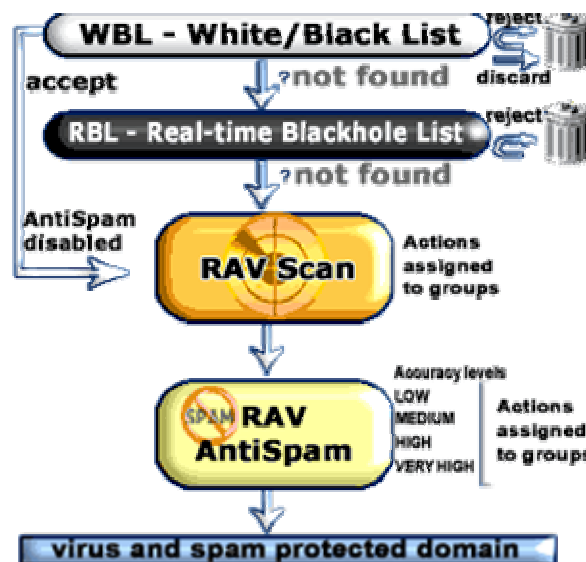
A „low“ accuracy level means that **ravmd** reports the suspected mail message as spam even if only few spam patterns exist. This means that you might get some „false alarms“, but no spam messages will pass by **ravmd**.

A „medium“ accuracy level means that **ravmd** reports the suspected mail message as spam if several spam patterns exist. This means that the number of „false alarms“ is lower than in case of low accuracy spam, but several spam messages might pass by **ravmd**.

A „high” accuracy level means that **ravmd** reports the suspected mail message as spam if more spam patterns exist. This means that the number of „false alarms” is low, but some spam messages might pass by **ravmd**.

A “very high” accuracy level means that **ravmd** reports the suspected mail message as spam only if lots of spam patterns exist. Therefore, it is unlikely for **ravmd** to report false alarms, but more spam messages will probably pass by **ravmd**.

Below you can find a scheme detailing the flow described above.



For each of the four accuracy levels specified above you can configure different strings and separate actions to be used/taken by **ravmd**. As mentioned in the [corresponding](#) table, the actions specific to the Antispam module of **ravmd** are: **save**, **embed**, **add_header**, **add_subject**, **reject**, **discard**, **deliver**, **forward**. All these actions are documented in the table below.

Action	Significance
save	The original message mail is saved in the Quarantine folder, for further analysis, before any other action is executed on the respective mail. The Quarantine folder for bulk mails is different than the Quarantine folder for suspicious files.
embed	The messages tagged as spam are sent as embedded mail. For more information on the re-injection process in the MTA queue, please read this note.
add_header	A header is added to the mail tagged as spam.
add_subject	A user-defined variable is prefixed in the Subject field of the mail tagged as spam.
reject	The message tagged as spam is rejected.
discard	The message tagged as spam is discarded, i.e. rejected with no bounce back to the sender). Please note that some MTAs (i.e. Courier or Dmail) do not support the discard feature. In this case, the reject action is applied instead.
deliver	The message tagged as spam is delivered to its recipients.
forward	The message tagged as spam is forwarded to the addresses specified by the forward_to parameter.

A default configuration is included in the `${ETCDIR}/antispam` file. Here you should define your rules and the actions to be taken (for each accuracy level), and then you should include in each group's configuration file the following parameter:

```
antispam_configuration = rule_name_1, rule_name_2, rule_name_3,
rule_name_4
```

where `rule_name_x` is the rule name you defined in the `antispam` file.

Here is the checklist to be followed when using the antispam module of `ravmd`:

- define the name of the section, flanked by two "@" symbols (i.e. `@bulk_detection_low@`) in `ravmd.conf` (after the **Regular Expression Declarations**, **Action Definitions** and **Warning messages** sections and before the **Group configuration** section);
- Define the accuracy level. This should be one of the following four keywords: `accuracy_low`, `accuracy_medium`, `accuracy_high`, `accuracy_very_high`;
- define the strings that will be used by the `extra_header`, `extra_subject` and `embedded_msg` parameters;
- define the actions to be executed for each of the four bulk detection levels;
- define the path to the **Quarantine** folder where bulk mails are saved when using the **Save** action.

Important: If no action is defined for one specific accuracy level, `ravmd` will automatically assume the actions defined for the level having the immediate lower priority.

Here is one example for Linux:

```
@bulk_high_precision@
accuracy_high
extra_header = bulk_header_high_english
extra_subject = bulk_subject_high_english
embedded_msg = bulk_embedded_high_english
actions = bulk_actions_high
quarantine = ${DATADIR}/bulk
```

Then, in the groups you want to use the actions you just defined to mails tagged as spam with level accuracy "high", include the following line:

```
antispam_configuration = bulk_high_precision
```

For more details, please refer to the corresponding [Antispam parameters](#) sub-section of this document. The `bulk_header_high_english`, `bulk_subject_high_english` and `bulk_embedded_high_english` (and the other similar parameters) are to be defined in the selected language files (i.e. `${ETCDIR}/languages/english`) and the `bulk_actions_high` parameter - in the `_define_actions` section of `ravmd.conf` or in the `actions` file.

Group Declarations

What is a group

A group is a category of users (senders or receivers) having different mail addresses and/or domains, but share the same configuration parameters for **ravmd**. Using the group feature of **ravmd**, you can use the same characteristics (for the scanning engine or the update process, for instance) and the same actions (filters, warning mails and so on) for users having different mail addresses and mail domains. This group structure is very useful in case you use **ravmd** in a network with hundreds of mailboxes.

In **ravmd** you have one default group, called `[global]`, containing at the beginning all the users and mail domains protected by **ravmd**. When you define a new group, its members are taken away from the `[global]` group and included in the new group, for which you have to define new group-specific options.

Warning: Make sure when defining groups not to include the same user in different groups.

The `[global]` group

This is the default group, which contains all the users and mail domains that are not defined in the other groups. The `[global]` group must NOT contain any member declaration parameters.

Defining other groups

A new group definition begins with the group name written between square brackets "`[]`". The group definition must be followed by the member declarations (it is mandatory that the members are declared before any other parameters) and the group options.

THE `_include` DIRECTIVE

In order to keep the configuration file more readable you can use the `_include` directive to insert other files in the main one. This can be very useful if you have a large number of groups. Defining them on a single configuration file will make the future maintenance difficult. Instead of using a single large configuration file, you can split it in more small files.

If you want to add a new group called `[mygroup]`, all you have to do is to append the following line to the main configuration file:

```
_include ${ETCDIR}/groups/mygroup_file
```

Then define the group in the `mygroup` configuration file:

```
[mygroup]
sender = user_1@domain.com
```

If you want to add another group called `[yourgroup]`, append to the main configuration file:

```
_include ${ETCDIR}/groups/yourgroup_file
```

Then define that group in the `yourgroup` configuration file:

```
[yourgroup]
sender = user_2@domain.com
```

Note: You can use the `_include` directive to include as many groups you wish in the main configuration file. However, you should keep in mind that **ravmd** will apply for each mail only the rules defined for the first matched group using the `_include` directive. For instance, when analyzing a mail with multiple recipients, one in **mygroup** and one in **yourgroup**, **ravmd** will apply the actions defined for the first matched group (**mygroup** in this case).

How do I configure groups

The configuration file must include the `[global]` group, containing the default options for all mail scanning processes. Besides the `[global]` group, you can customize **ravmd** by creating additional groups, with different configurations.

If no value is specified for one parameter in the configuration file for one group, **ravmd** will use the *default value* for that parameter. If no *default value* is defined, **ravmd** will use the value specified in the `[global]` group for that parameter, with the following exceptions:

```
filter_subject,    filter_attachment,    filter_content,    warn_sender,
warn_receivers,    warn_admin,    do_not_warn,    do_not_show,    admin_addr,
do_not_scan,    cf_do_not_scan_extensions,    advertising_msg,    wbl_reject,
wbl_accept,        wbl_discard,        use_rbl,        embed_clean_mail,
embed_cleaned_mail,    embed_unclean_mail,    use_embedded_msg,
use_embedded_warning,    antispam_configuration.
```

How do I configure separate antispam options for my groups

If you intend to use the antispam feature of **ravmd**, you should specify what *antispam configuration* you want to use for the targeted groups. You can achieve that by using the `antispam_configuration` parameter, described in the [Group-specific parameters](#) section of this *User Guide*.

The following *Frequently Asked Questions* are providing the answers for some of the confusions of the existing users of **RAV AntiVirus for Mail Servers** in aspects pertaining to group configuration.

FAQ 12: Creating different rules for a domain

Question: How do I create different rules for a domain?

Answer: You can define different rules for a domain by creating a group in which you specify `from_host` and/or `to_host`. Then specify the actions that **ravmd** can perform for the newly created domain. Here are the steps you should follow for creating different rules for a domain under Linux, Solaris and MacOS X. For BSDs, the process is identical, except for the paths to the `my_domain` file:

- In the `actions` file use:
`act_for_my_domain = clean, delete, ..`
- At the end of `ravmd.conf` define the group:


```
[my_domain]
_include ${ETCDIR}/groups/my_domain
```

- Create the `${ETCDIR}/groups/my_domain` file and edit it:
`#from_host=a.com`
`to_host=a.com`
`infected_actions=act_for_my_group`

FAQ 13: Example on how to set the domains and the IP addresses

Question: I need an example on how to set the domains and the IP addresses.

Answer: In the `[global]` section of `ravmd.conf` use:

```
domain = localhost, your.host.com
```

In order to receive the warning mails, in the `${ETCDIR}/groups/global` file use:

```
ravms_name = ravms
on_host = your.host.com
smtp_server = ip.address.of.host
ravms_full_name = displayed.name (RFC822)
```

FAQ 14: Global group configuration

Question: How is the `[global]` group configured?

Answer: Please define in the `${ETCDIR}/groups/global` file the following options:

```
ravms_name=ravms
on_host=your.host.com
smtp_server=127.0.0.1 (IP address)
smtp_port=25
ravms_full_name = displayed.name (RFC822)
```

Then start **ravmd** with `/etc/init.d/ravmail start` for Linux, Solaris and MacOS X and with `/usr/local/etc/rc.d/ravmail.sh` for BSDs.

Note: In `/etc/hosts` you should have defined at least: `127.0.0.1 localhost.localdomain localhost`

FAQ 15: Excluding one particular account

Question: I need to exclude one account in particular as I receive a daily email of over 60 MB in size and I don't want RAV to try to process that file. What do I get it done?

Answer: You can create a group with that sender and choose not to scan that mail. To do that, in `ravmd.conf` add at the end of the file:

```
[group1]
_include ${ETCDIR}/groups/group1
```

Then create the file `${ETCDIR}/groups/group1` and edit it:

```
sender=sender@host.com
do_not_scan=yes
```

Then restart **ravmd** with: `kill -HUP `cat ${DATADIR}/run/ravmd.pid``

The Advanced Content Filtering feature

A common mail message is considered to have the following components: **Subject**, **Body** and **Attachments**. However, when talking about **ravmd**'s content filtering module, things are a little bit different. Specifically, the **Body** level consists of the mail's body and the attachments' contents, while the **Attachment** level is only represented by attachments' names.

What is the Advanced Content Filtering feature of ravmd

The **Advanced Content Filtering** is a very powerful feature of **ravmd** that can help you configure the product to answer your specific needs. Using this feature, you can define **filters** on the following levels:

- Subject
- Body
- Attachment name and
- Attachment contents.

You can afterwards define **specific actions** for the mail messages matching the rules you specify. For instance, you can instruct **ravmd** to deny incoming mail messages containing one specific string in the **Subject** field (i.e. "I love you"), deny outgoing mail messages containing user-specified strings (i.e. "confidential", "balance sheet") and deny incoming/outgoing mail containing attachment with user-specified file types/names.

How does it work

The *Content Filtering* module of **ravmd** is using:

- **POSIX regular expressions** for searches executed on the *Subject* and *Attachment* (attachment file names) levels;
- **User-defined strings** for searches executed on the *Body* level - message's body and the attachments contents.

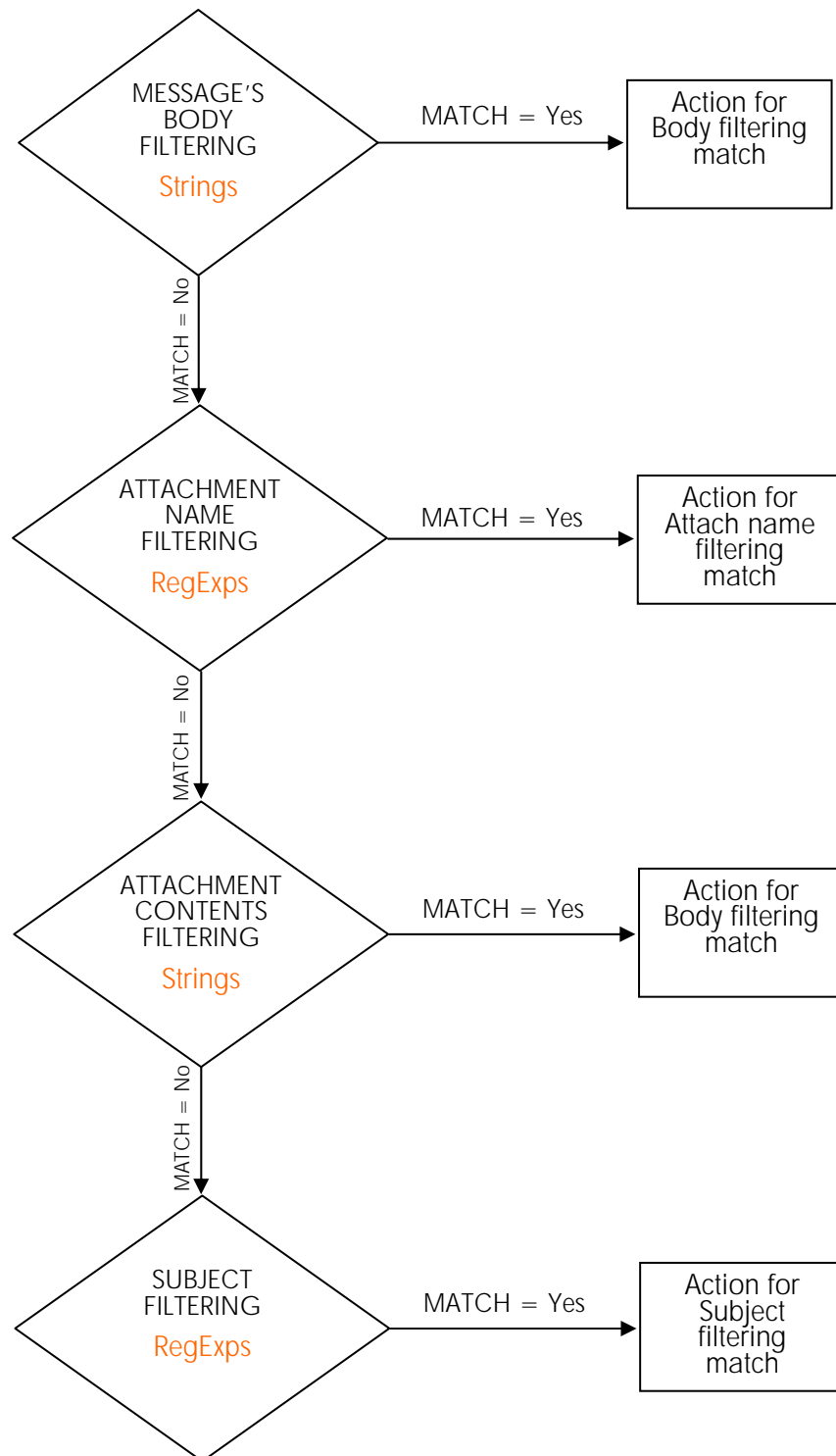
Note: The user-defined string-based body filtering is only used starting with version 8.4.0 of **ravmd**; previous versions of **ravmd** have used POSIX regular expressions for body filtering.

The rules you define are processed in the following order:

- Message body,
- Attachment file names,
- Attachment contents,
- Subject.

If you define more rules for one single component, the rules will be processed in the order you are defining them.

If more than one component are matched by a body filtering rule, for instance, the action defined by the system administrator is executed for all the matched components.



The scheme above is illustrating the different content filtering modules of **ravmd** and the way they basically work (using POSIX regular expressions or user-defined strings).

Here are some *Frequently Asked Questions* users of **RAV AntiVirus for Mail Servers** have asked about the *Advanced Content Filtering* feature of **ravmd**. You can even find an example of configuring a content filter for mail messages containing one specific string.

FAQ 16: Rejecting double extension files

Question: Has anyone setup the configuration file to reject any attachment with a double extension?

Answer: Please use in your **regexp** file from your `${ETCDIR}` directory:

```
var_regexp = .*\..*\.*
```

Then define the action to be taken by **ravmd** in your **actions** file from your `${ETCDIR}` directory:

```
var_action = reject
```

In all the groups for which you want to reject the messages containing double extension attachments use:

```
filter_attachment var_regexp var_action
```

Please note that this restrictive action will also filter the **.tar.gz** files, for instance.

FAQ 17: Denying certain attachment extensions

Question: How can I deny incoming messages containing attachment with extensions known to be dangerous?

Answer: The attachment name filtering feature of **ravmd** can help you if you want to deny incoming messages containing attachment with specific extensions. The attachment name filtering module of **ravmd** is using POSIX regular expressions.

Here is an example for how to deny **.exe** attachment files:

Please use in the **regexp** file from your `${ETCDIR}` directory:

```
file_regexp = .*\.exe
```

In the **actions** file from your `${ETCDIR}` define:

```
file_action = delete, reject
```

In all the groups for which you want to reject the messages with **.exe** attachments use:

```
filter_attachment file_regexp file_action
```

To add other types of attachments separate them with a **|** symbol in the **regexp** definition.

Example:

```
file_regexp = .*\.((vbs)|(vbe)|(js)|(exe)|(com)|(pif)|
  |(lnk)|(scr)|(bat)|(shs)|(sh))
```

As is the case for each change in the configuration files (**ravmd.conf**, **global**, **english**, **english.equiv**), you must restart **ravmd**:

```
kill -HUP `cat ${DATADIR}/run/ravmd.pid`.
```

FAQ 18: Example of subject filtering

Question: Can I have an example of subject filtering for mail messages containing one specific expression in their **Subject** field?

Answer: Yes, you can. Here you can find how to create a content filtering rule for mail subjects containing the "xxx" expression. Please note that this feature is not available in **ravsendmail**.

The following options are available for the mail messages matching the subject filtering rule: **copy, ignore, reject, discard**.

For this scenario, the mail will be allowed to pass **RAV AntiVirus for Mail Servers**. The sender and the receiver will not receive warnings, but a warning will be sent to the administrator.

- In the **regexp** file from your **\${ETCDIR}**, define the **xxx** expression:
`subjxxx_regexp = xxx`
- Define the action for **xxx** in the **actions** file:
`define xxxsubj_action = ignore`

This will allow the **xxx** mail to pass the content filtering module of **ravmd**.

- To add other words, separate them with a **|** symbol in the **regexp** definition.

Example:

```
subjxxx_regexp = (word1)|(word2)|(word3)
```

- Edit the file **\${ETCDIR}/groups/global** file.
- Specify the administrator's mail address for alerting him that a mail matching the subject filtering rule is entering the company:
`admin_addr=administrator@yourcompany.com`
- Activate the subject filtering rule by adding the following line:
`filter_subject subjxxx_regexp xxxsubj_act`

As is the case for each change in the configuration files (**ravmd.conf**, **global**, **english**, **english.equiv**), you must restart **ravmd**:
`kill -HUP `cat ${DATADIR}/run/ravmd.pid`.`

FAQ 19: Example of body filtering

Question: Can I have an example of body filtering for mail messages containing one specific expression in their bodies?

Answer: Here is one example from which you can find how to create a body filtering rule for mail messages containing the following expressions in their bodies: "confidential", "salaries" and "balance sheet".

For this scenario, the mail messages matching the body filtering rule will not be allowed to pass **ravmd**. The sender and the receiver will not receive warnings, but a warning will be sent to the administrator.

- In the `regexp` file from your `${ETCDIR}`, define the string `confidential`:
`bodyconfidential_string = confidential`
- To add other words, separate them with a `|` symbol on the `string` definition.
Example:
`bodyconfidential_string = confidential|salaries|balance sheet`
- Define the action for `confidential` in the `actions` file from your `${ETCDIR}`:
`bodyconfidential_action = reject`

This will not allow the mail messages containing to pass the content filtering module of `ravmd`.

- Edit the file `${ETCDIR}/groups/global` file.
- Specify the administrator's mail address for alerting him that a mail matching a body filtering rule is entering the company:
`admin_addr=administrator@yourcompany.com`
- Activate the content filter by adding the following line:
`filter_subject bodyconfidential_string bodyconfidential_action`

As is the case for each change in the configuration files (`ravmd.conf`, `global`, `english`, `english.equiv`), always remember to restart `ravmd`: `kill -HUP `cat ${DATADIR}/run/ravmd.pid``.

FAQ 20: Digging even deeper in string-based body filtering

Question: I still have some problems with body filtering. Can you give me more details?

Answer: Below you can find some examples that should help you.

Example 1

To filter **complete words**, please follow the steps described below:

- Insert the following line in your `${ETCDIR}/regexp` file:

```
custom_body_string = | word1 | word2 |
```

Please note that there is a `<SPACE>` character before *and* after each of these words:

```
| <SPACE>word1<SPACE> | <SPACE>word2<SPACE> |
```

Note: `<SPACE>` is the ASCII character with decimal code `#32`.

- Insert the following line in your `${ETCDIR}/actions` file:
`custom_body_action = discard`
- Insert the following line in your `${ETCDIR}/groups/global` file:
`filter_content custom_body_string custom_body_action`

This will filter all occurrences of the strings ' word1 ' or ' word2 ', as in the following example:

`Content filtering example using word1 and word2 strings`

Example 2

To filter words at the **beginning/end** of a text string, please follow the steps described below:

- Insert the following line in your `${ETCDIR}/regexp` file:

```
custom_body_string = |word1 | word2|
```

Please note again the `<SPACE>` character:

```
|word1<SPACE>|<SPACE>word2|
```

Note: `<SPACE>` is the ASCII character with decimal code #32.

- Insert the following line in your `${ETCDIR}/actions` file:

```
custom_body_action = discard
```

- Insert the following line in your `${ETCDIR}/groups/global` file:

```
filter_content custom_body_string custom_body_action
```

This will filter all the occurrences of string 'word1 ' or 'word2 ', as in the following example:

```
Content filtering example using_word1 and word2_strings
```

The filter from the first example cannot filter the body string described above.

Example 3

To filter **any occurrence** of any word in a string, follow the steps described below:

- Insert the following line in your `${ETCDIR}/regexp` file:

```
custom_body_string = |word1|word2|
```

Please note again the `<SPACE>` character:

```
|word1<SPACE>|<SPACE>word2|
```

Note: `<SPACE>` is the ASCII character with decimal code #32.

- Insert the following line in your `${ETCDIR}/actions` file:

```
custom_body_action = discard
```

- Insert the following line in your `${ETCDIR}/groups/global` file:

```
filter_content custom_body_string custom_body_action
```

This will filter all occurrences of 'word1' and 'word2', as in the following examples:

```
Content filtering example_using_word1_and_word2_strings
```

or:

```
ContentFilteringExampleUsingWord1AndWord2Strings
```

Explaining the parameters

The parameters included in this configuration file for **ravmd** (**ravmd.conf**) have different functions. Some are used for specifying the domain parameters, other for specifying the group members, the actions for the scanning engine, the warning messages and the sender of warning messages and so one. All the parameters have been grouped below depending on their function.

Some of these parameters are group-specific, meaning that they are different for each defined group. Other parameters are common for different groups and/or are inherited from the **[global]** group. This classification is also important for understanding the way **ravmd** is working.

Domain parameters

domain = enumeration

Description: This parameter specifies the domains scanned by RAV AntiVirus.

Note: During the evaluation period of 30 days you can set only two domains. Mails to/from other domains are delivered normally, without being scanned.

This parameter is a global one. It is sufficient to define it in the **[global]** group.

Important: You **must** specify at least one domain name, or else **ravmd** will not start. Starting with the 8.3.3 version of **ravmd**, the following default groups are provided: **machine.name** and **domain.name**.

Example:

```
domain = mail.domain.com, domain.com
domain = second.domain.net
```

Important: In the acceptance of **ravmd** and according to the **License Agreement**, a 'domain' is defined as "the string which follows the '@' symbol in a mail address".

Group members

sender = enumeration

Description: Parameter used for specifying the mail addresses of the senders who will be members in the actual group.

Example:

```
sender = user1@domain1.com, user2@domain1.net
sender = user3@domain2.org
```

receiver = enumeration

Description: Parameter used for specifying the mail addresses of the receivers who will be members in the actual group.

Example:

```
receiver = user4@domain4.com, user5@domain4.org
receiver = user5@domain2.org
```


from_host = enumeration

Description: Parameter used for specifying the hosts that are members in the actual group.

Example:

```
from_host = mail.domain1.com, domain1.net  
from_host = domain2.org
```

to_host = enumeration

Description: Parameter used for specifying the receiving host names members in the actual group.

Example:

```
to_host = domain3.com, domain3.net  
to_host = domain3.com
```

Engine actions

The following parameters are used for defining the actions for the scanning engine: **infected_actions**, **suspicious_actions**. The **infected_actions** parameter helps you define the actions to be performed when an infected object is found, and the **suspicious_actions** parameter - the actions to be performed when a suspicious object is found.

infected_actions = variable

Description: Parameter used for specifying a variable name defined in the **actions** file, which contains the actions to be performed when an infected object is found. If this parameter is not defined then the *reject* action is used for the infected mails.

Example:

```
infected_actions = act_for_infected_files
```

Where:

```
act_for_infected_files = clean, move, delete, reject, discard
```

In this example, when an infected file is detected, **ravmd** tries first to *clean* that file. If the cleaning action is completed successfully, **ravmd** moves to the next file. If the cleaning action fails, **ravmd** tries to *move* (*copy* to quarantine and *delete* that file from mail) the file. If the moving action is completed successfully, **ravmd** moves to the next file. If the moving action fails, **ravmd** tries to *delete* the file, and so on. The *ignore*, *reject* and *discard* actions **always** return success.

Note: **ravmd** appends a *reject* action to the actions enumeration by default.

suspicious_actions = variable

Description: Parameter used for specifying a variable name defined in the **actions** file, which contains the actions to be performed when a suspicious object is found. If this parameter is not defined then the *reject* action is used for the suspicious mails.

Example:

```
suspicious_actions = act_for_suspicious_files
```

Where:

```
act_for_suspicious_files = move, rename, delete, ignore
```

As in the previous example, when **ravmd** detects a suspicious file, it tries successively to *move*, *rename* and *delete* that file. If the move action fails, **ravmd** tries to rename the file (see below the description for **rename_ext**). If the *rename* action fails, **ravmd** tries to *delete* the file. If one of the previous actions is successfully completed, **ravmd** moves to the next file. Eventually, if all of the actions (*move*, *rename*, *delete*) fail, **ravmd** will ignore that file.

Engine parameters

use_heuristics = boolean

Description: This parameter is used to control the heuristic methods for detecting new viruses.

Default value: Yes.

Example:

```
use_heuristics = no
```

use_cf_inside_embedded_objects = boolean

Description: Use this parameter to specify if **ravmd** will use the content filtering feature for embedded objects (i.e. files included in archives, scripts inside HTML files, OLE objects).

Default value: Yes.

Example:

```
use_cf_inside_embedded_objects = no
```

Note: Setting the `use_cf_inside_embedded_objects` to **No** will determine **ravmd** to exclude files inside attachments from the content filtering search.

cf_do_not_scan_extensions = enumeration

Description: Use this parameter to instruct **ravmd** not to apply the content filter feature to the specified attachment file types.

Default value: -not defined-.

Accepted values: Valid file extensions (preceded by dot and separated by blank spaces and/or commas) plus **All** (if the `cf_do_not_scan_extensions` parameter is set to **All**, all the attachment files will be excluded from content filtering).

Example 1:

```
cf_do_not_scan_extensions = .jpg .jpeg .gif .mpeg
```

Example 2:

```
cf_do_not_scan_extensions = All
```

scan_packed_executables = boolean

Description: This parameter is used to control the scanning process for packed executables (i.e. **vvpack**, **ucexe**, **pepack**, etc.)

Default value: Yes.

Example:

```
scan_packed_executables = no
```

scan_archives = boolean

Description: This parameter is used to control scanning in archive files, like **ZIP**, **ARJ**, **RAR**, **LHA**, **LHZ**, **ACE**, **CAB**, etc. If the Boolean value is set to **Yes**, **ravmd** will scan inside archives.

If the Boolean value is set to **No**, **ravmd** will not scan inside archives.

Default value: **Yes**.

Example:

```
scan_archives = yes
```

rename_ext = string

Description: Parameter used for specifying the *extension* used to *rename* the infected/suspicious files. This function is necessary for preventing inexperienced users from accessing by accident infected/suspicious files moved to Quarantine.

Default extension is: **_??**

Example:

```
rename_ext = _??
```

smart_scan = boolean

Description: Parameter used for specifying the scanning modes for **ravmd**. The available options are:

- scan all files,
- let **ravmd** decide what files to scan.

Note: If **smart_scan** is not defined, **ravmd** will scan ALL files. By default, the smart scanning is enabled.

Example:

```
smart_scan = yes
```

Warning messages

These parameters help you define the messages used when creating warning mails in case of virus found, subject filtering match, attachment name filtering match, content filtering match, etc. The warning messages are inherited from the `[global]` group. If one or more warning messages are not specified there, **ravmd** uses a default string (`<<not defined>>`).

`_virus_warning_messages`

Description: Section used for specifying the contents of the warning mails sent by **ravmd** when a *virus* is found in one mail message.

`_subject_filter_warning_messages`

Description: Section used for specifying the contents of the warning mail sent by **ravmd** when the content filtering is enabled and the search in the mail's **Subject** field has yielded a *match* with one of the user-defined rules.

`_attachment_filter_warning_messages`

Description: Section used for specifying the contents of the warning mail sent by **ravmd** when the content filtering is enabled and the search in the mail's **Attachment's name** field has yielded a *match* with one of the user-defined rules.

`_content_filter_warning_messages`

Description: Section used for specifying the *content* of the warning mail sent by **ravmd** when the content filtering is enabled and the search in the mail's **Body** or **Attachment** has yielded a *match* with one of the user-defined rules.

`warning_mail_subj = variable`

Description: Parameter used for specifying the *subject* of the warning mails.

Example:

```
warning_mail_subj = wm_sbj
```

Note: In the **Warning Mails Message Declarations** section you should specify:

```
wm_sbj = "RAV AntiVirus scan results."
```

`infected_msg = variable`

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when an *infected* file is detected.

Example:

```
infected_msg = wm_inf_msg
```

Where:

```
wm_inf_msg = "The file ATTACH_NAME attached to mail (with
subject:SUBJECT) sent by FROM_USER to TO_USER(S) is infected with
virus: VIRUS_NAME."
```

suspicious_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when a *suspicious* file is detected.

Example:

```
suspicious_msg = wm_sus_msg
```

Where:

```
wm_sus_msg = "The file ATTACH_NAME attached to mail (with subject:
SUBJECT) sent by FROM_USER to TO_USER(S) contains suspicious code."
```

ignored_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when an *infected/suspicious* mail file is ignored.

Example:

```
ignored_msg = wm_ign_msg
```

Where:

```
wm_ign_msg = "All the defined actions have failed. Do not use this
file."
```

rejected_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when an *infected/suspicious* mail file is rejected.

Example:

```
rejected_msg = wm_rej_msg
```

Where:

```
wm_rej_msg = "The mail was rejected because it contains dangerous
code."
```

discarded_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when an *infected/suspicious* mail file is discarded. **Discard** is a new action available starting with **ravmd** version 8.3.3.

The value for **variable** must be declared in the language file and the **language.equiv** file must be included in the group file. So, in the `${ETCDIR}/languages/english.equiv` file, define:

```
_virus_warning_messages
discarded_msg=discarded_m_english
.....
_subject_filter_warning_messages
discarded_msg=discarded_m_english
```

.....
_content_filter_warning_messages
discarded_msg=discarded_m_english
_attachment_filter_warning_messages
discarded_msg=discarded_m_english

Example:

```
discarded_msg = discarded_m_english
```

Where:

```
discarded_m_english = "This mail was discarded. Please contact your  
system administrator."
```

cleaned_msg = variable

Description: Parameter used for specifying the *body* of the info mail sent by **ravmd** when a file is *cleaned*.

Example:

```
cleaned_msg = clean_ok
```

Where:

```
clean_ok = "The file was successfully cleaned by RAV AntiVirus."
```

moved_msg = variable

Description: Parameter used for specifying the *body* of the info mail sent by **ravmd** when a file is *moved*.

Example:

```
moved_msg = move_ok
```

Where:

```
move_ok = "The file was successfully moved to quarantine with name:  
QUARANTINE_NAME."
```

copied_msg = variable

Description: Parameter used for specifying the *body* of the info mail sent by **ravmd** when a file is *copied*.

Example:

```
copied_msg = copy_ok
```

Where:

```
copy_ok = "The file was successfully copied to quarantine with name:  
QUARANTINE_NAME."
```

deleted_msg = variable

Description: Parameter used for specifying the *body* of the info mail sent by **ravmd** when a file is *deleted*.

Example:

```
deleted_msg = delete_ok
```

Where:

```
delete_ok = "The file was successfully deleted by RAV AntiVirus."
```

renamed_msg = variable

Description: Parameter used for specifying the *body* of the info mail sent by **ravmd** when a file is *renamed*.

Example:

```
renamed_msg = rename_ok
```

Where:

```
rename_ok = "The file was successfully renamed by RAV AntiVirus."
```

saved_inf_msg = variable

saved_sus_msg = variable

Description: Parameters used for specifying the string used in the warning mail when an infected/suspicious file is *saved* to quarantine.

Example:

```
saved_inf_msg = save_ok
```

```
saved_sus_msg = save_ok
```

Where:

```
save_ok = "The mail file SAVED_FILE_NAME was saved to quarantine."
```

cannot_clean_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when a file *cannot be cleaned*.

Example:

```
cannot_clean_msg = not_cleaned
```

Where:

```
not_cleaned = "Cannot clean this file."
```

cannot_move_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when a file *cannot be moved*.

Example:

```
cannot_move_msg = not_moved
```

Where:

```
not_moved = "Cannot move this file."
```

cannot_copy_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when a file *cannot be copied*.

Example:

```
cannot_copy_msg = not_copied
```

Where:

```
not_copied = "Cannot copy this file."
```

cannot_delete_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when a file *cannot be deleted*.

Example:

```
cannot_delete_msg = not_deleted
```

Where:

```
not_deleted = "Cannot delete this file."
```

cannot_rename_msg = variable

Description: Parameter used for specifying the *body* of the warning mail sent by **ravmd** when a file *cannot be renamed*.

Example:

```
cannot_rename_msg = not_renamed
```

Where:

```
not_renamed = "Cannot rename this file."
```

cannot_save_inf_msg = variable

cannot_save_sus_msg = variable

Description: Parameters used for specifying the *string* used in the warning mail when the infected/suspicious file cannot be saved to quarantine.

Example:

```
cannot_save_inf_msg = not_saved
```

```
cannot_save_sus_msg = not_saved
```

Where:

```
not_saved= "The infected mail file cannot be saved to quarantine."
```

supervisor_addr = enumeration

Description: Parameter available from version 8.4.2 of **ravmd** used for specifying a list (separated by commas) of mail addresses of the administrators to be notified:

- in case a **ravmd** malfunction is recorded; or
- with 14 days before your license will expire; or
- on each **ravmd** reload in the last 14 days before your license expires, until you extend your subscription period.

This parameter should be declared only in the **[global]** group.

Besides the addresses specified in the **supervisor_addr** parameter from the **[global]** group, warning mails are also automatically sent (in all the above-mentioned cases) to **postmaster@hostname** and **root@hostname**, where **hostname** is the value for the **on_host** parameter in the **[global]** group or the host name, as returned by the **gethostbyname()** function:

Default: No value.

Example:

```
supervisor_addr = postmaster@domain1.com, postmaster@domain2.net
```

disclose_supervisor=boolean

Description: Parameter used for specifying if the addresses of the supervisor will or will not be disclosed in the warning mail's **To:** header.

Default: **No**.

This parameter should be declared only in the **[global]** group.

Specifying the sender of the warning mails

`ravms_name = string`

`on_host = string`

`smtp_server = string`

`smtp_port = number`

`ravms_full_name = string`

Description: Using these parameters you can define the mail address for the sender of the warning mails. *Default values* are provided and they will probably work.

Define these fields only if warning mails are sent when a virus is found or if you want to use a different account instead of **ravms**. Specify the **smtp_server** IP address only if that machine is behind a firewall and **ravmd** can't get its host name. If you are using Postfix as MTA then you can set **ravmd** to use a specified port when sending warning mails. Setting **smtp_port** on 10026 (in our configuration example) will make Postfix to send those mails without being scanned.

ravms_full_name is a parameter included in **ravmd** starting with version 8.3.3. This parameter is used for compiling the sender's mail address according to RFC822, the standard for the format of ARPA Internet text messages.

Default values:

`ravms_name = ravms`

`on_host = official host name`

`smtp_server = official host IP address`

`smtp_port = 25`

`ravms_full_name = RAV AntiVirus`

Example:

```
ravms_name = ravms
on host = ravantivirus.com
smtp_server = 127.0.0.1
smtp_port = 25
ravms_full_name = RAV AntiVirus Scanner
```

The mail address displayed in the warning mail will be: "RAV AntiVirus Scanner" <ravms@ravantivirus.com>.

`no_subject = string`

Description: Parameter used for specifying the string replacing the **SUBJECT** macro in the warning mail if **ravmd** does not find a valid subject in the infected email.

Default value: --no subject found--.

Example:

```
no_subject = "original mail didn't contain any subject field"
```

mailer_daemon = string

Description: Parameter used for specifying the name that will replace the **FROM_USER** macro when the mail sender is <>.

Default value: --unknown--.

Example:

```
mailer_daemon= "MAILER-DAEMON"
```

Antispam parameters

The parameters pertaining to the antispam module of **ravmd** are described below.

The default configuration is included in the **antispam** file that you can find in the `${ETCDIR}` directory.

accuracy_low

accuracy_medium

accuracy_high

accuracy_very_high

Description: Keywords designating the accuracy level.

quarantine = string

Description: String specified in the **_define_strings** section defining the location where the messages meeting certain spam patterns will be saved for the groups where the **save** action is configured.

Default value: `${DATADIR}/bulk`.

extra_header = string

Description: String specified in the **_define_strings** section, defining the extra-header that will be added to the message tagged as spam.

The *default values* depend on the corresponding bulk detection accuracy level.

Example:

```
extra_header = bulk_header_high_english
```

extra_subject = string

Description: String specified in the **_define_strings** section, defining the extra-subject that will be added in the **Subject** field of the messages meeting certain spam patterns.

The *default values* depend on the corresponding bulk detection accuracy level.

Example:

```
extra_subject= bulk_subject_high_english
```

embedded_msg = string

Description: String specified in the **_define_strings** section, defining the message that will be used for the embedded mail body.

The *default values* depend on the corresponding bulk detection accuracy level.

Example:

```
embedded_msg= bulk_embedded_high_english
```

forward_to = enumeration

Description: List of mail addresses where the spam mail is to be forwarded. This parameter is available only from version 8.4.1 of **ravmd**.

Example:

```
forward_to = admin@domain.com
```

actions = variable

Description: String defined in **actions** file specifying the actions to be taken by **ravmd** for the corresponding bulk detection level.

The *default values* depend on the corresponding bulk detection accuracy level.

```
bulk_actions_low = add_subject, add_header, deliver
```

```
bulk_actions_medium = add_subject, add_header, deliver
```

```
bulk_actions_high = embed, add_subject, add_header, deliver
```

```
bulk_actions_very_high = save, discard
```

Example:

```
actions = bulk_actions_high
```

Note: When using this feature of **ravmd**, the messages tagged as spam are reinjected in the MTA queue using the following syntax:

```
cat <modified_mail> | sendmail -i -f<sender> <receivers>
```

(you must have 'sendmail' executable in your search path for commands - environment variable PATH).

If the sendmail binary is not corresponding to the binary of your MTA, then you should make the link manually in **/usr/sbin** (for example) by using (example for Qmail MTA):

```
ln -sf /var/qmail/bin/sendmail /usr/sbin/sendmail
```

This command assumes that you have the Qmail's binaries in **/var/qmail/bin**.

Real-time Blackhole List parameters

Real-time Blackhole List (RBL) is a feature available in **RAV AntiVirus for Mail Servers** starting with version 8.3.3. This functionality is implemented in `librbl.so` and it consists in defining a dynamic list (`rbl_site`) with sites containing listings of known spammers.

Note: The `rbl_site` list has to be configured and updated by your system administrators.

When this feature is enabled, **RAV AntiVirus for Mail Servers** checks if any of the IP addresses from the mail's header is listed on one of the websites defined in the `rbl_site`. If it does, the mail is automatically rejected.

No warning mail is sent; no file is saved to **RAV Quarantine** folder. The `librbl.so` library is loaded only if at least one site is included in `rbl_site`.

The `rbl` options are used for the `[global]` group. You cannot set different values for different groups. If you do not want the mails for one of your groups to be checked against the **Real-time Blackhole List**, you should use the following parameter in the configuration for that group:

```
use_rbl = no
```

Below you can find the parameters associated with this feature.

`use_rbl = boolean`

Description: Use this parameter to specify if the Real-time Blackhole List (RBL) feature is used or not for one specific group.

Accepted values: **Yes** or **No**.

Default value: **No**.

`rbl_site = enumeration`

Description: List containing the sites where **ravmd** will be looking for IP addresses for known spammers to be checked against the IP addresses from the mail's header.

`rbl_cache_file = string`

Description: Variable containing the path where **ravmd** cache is saved when the program is stopped. When **ravmd** is restarted, the cache is re-loaded from this path.

Default value: `${DATADIR}/rbl.cache`.

`rbl_cache_size= number`

Description: Library caching the latest IP addresses **rbl** has been looked for. The parameter following the '=' sign specifies how many IP addresses are included in this cache.

Default value: **10007**.

rbl_timeout = number

Description: Number specifying how many seconds **ravmd** will be waiting for one site to answer to its DNS request.

Accepted values: **minim=2, maxim=30.**

Default value: **5.**

rbl_retry = number

Description: Number specifying how many times the DNS request is sent to the same server in case of timeout.

Accepted values: **minim=1, maxim=5.**

Default value: **4.**

White/Black List parameters

wbl_accept IP, IP/MASK, IP/netmask, mail@address, mail.domain

wbl_reject IP, IP/MASK, IP/netmask, mail@address, mail.domain

wbl_discard IP, IP/MASK, IP/netmask, mail@address, mail.domain

Description: These parameters are used for specifying the parameters for the **Static White/Black List**, a feature included in **ravmd** starting with version 8.3.3. **wbl_discard** is available only from version 8.4.1. When using this parameter, the corresponding mails are discarded (rejected with no bounce back to the sender, saving therefore valuable bandwidth for users).

Using the **White/Black List** feature you can define IP addresses and mail addresses/domains to be included in the **Static White List** (mail messages to be received) or in the **Static Black List** (mail messages to be rejected). The keyword **wbl_accept** anticipates the IP addresses and mail addresses/domains added to the **Static White List**. The keyword **wbl_reject** anticipates the IP addresses and mail addresses/domains added to the **Static Black List**.

The rules are applied in the order you define them. The first rule to match will give the result of the **wbl** search: *accept* or *reject*. The **wbl** options are not inherited from the **[global]** group. The **wbl** search is done *before* the **rbl** search. If there is a **reject** rule match for the current mail, the message is automatically rejected. If there is a **wbl_accept** rule match for the current mail, no **rbl** search is executed *and* no antispam filtering is executed. If no rule is found in the **wbl** for the current mail, the **rbl** search is executed (unless you specified **use_rbl=no** for the corresponding group).

No warning mail is sent; no file is saved to **RAV Quarantine** folder. The **libwbl.so** library is loaded only if at least one **wbl** rule is defined for one group.

Example:

1. If you want to accept mail messages only from the IP address 193.230.245.100 and to reject all mail messages from the entire class 193.230.245.0/24 (193.230.245.0/255.255.255.0), use:

```
wbl_accept 193.230.245.100
```

```
wbl_reject 193.230.245.100/24
```

2. If you want to accept mail messages only from the **user@domain.com** mail address and to reject all mail messages from the other mail addresses from the **domain.com**, use:

```
wbl_accept user@domain.com
```

```
wbl_reject domain
```

Miscellaneous parameters

These parameters are inherited by additional groups from the `[global]` group.

warn_header_msg = variable

Description: Parameter used for specifying the text used as a header in the warning mail.

Example:

```
warn_header_msg = notification_header
```

Where:

```
notification_header = "This message is automatically generated by RAV  
AntiVirus."
```

warn_footer_msg = variable

Description: Parameter used for specifying the text used as footer in the warning mail.

Example:

```
warn_footer_msg = notification_footer
```

Where:

```
notification_footer = "The mail scanned was received from:  
HEADER_RECEIVED."
```

warn_txt_msg = variable

Description: Parameter used for specifying the text appended after the default one in the `warn.txt` file.

Example:

```
warn_txt_msg = append_to_warn_txt
```

Where:

```
append_to_warn_txt = "Please contact your system administrator for  
more information."
```

For more information about the `warn.txt`, please refer to [FAQ 4](#).

charset = string

Description: Parameter (available beginning with version 8.3.3 of **ravmd**) used for specifying the value of the **charset** field used in the MIME header of the warning mails. If the warning mails contain strings with a character encoding system different from ASCII you should specify the respective encoding using the **charset** parameter.

Default value: **US-ASCII**.

Example:

```
charset = iso-2022-jp
```

custom_msg = number

The warning mails are created using the strings defined by the user in the `_define_strings` section and RAV-related information (always added during the evaluation period). A warning mail looks like this:

*RAV AntiVirus for OSTYPE version: x.x.x (snapshot-yyyymmdd)
Copyright (c) 1996-2001 GeCAD The Software Company. All rights reserved.
X more days to evaluate. (or: Registered version for N domain(s).)
Running on host: HOSTNAME*

*The file **ATTACHED_NAME** attached to mail (with subject: **SUBJECT**) sent by **FROM_USER** to **TO_USER(S)** is infected with virus: **VIRUS_NAME**. The file was successfully deleted by RAV AntiVirus.*

*Scan engine 8.7 () for i386.
Last update: Thu, 27 Jun 2002 15:44:53 +0300
Scanning for 68249 malwares (viruses, trojans and worms).*

*To get a free 30-days evaluation version of RAV AntiVirus v8 (fully functional) please visit:
<http://www.ravantivirus.com>*

The macros are replaced with their corresponding values. In the registered version of **RAV AntiVirus for Mail Servers**, all RAV-related information can be omitted, except for the first header line.

In the registered version the warning mails can be customized.

Default value: 255 (use all RAV information).

Accepted values:

- = 0 – No information.
- + 1 – Add "Registered version ..."
- + 2 – Add "Running on host ..."
- + 4 – Add "Scan engine ..."
- + 8 – Add "Last update ..."
- +16 – Add "Scanning for ..."
- +32 – Add "To get a free 30-days ..."
- +64 – Add "Copyright ..."
- +128 – Add "RAV AntiVirus for ..."

Example:

`custom_msg = 136`

*RAV AntiVirus for OSTYPE version: x.x.x (snapshot-yyyymmdd)
The file **ATTACHED_NAME** attached to mail (with subject: **SUBJECT**) sent by **FROM_USER** to **TO_USER(S)** is infected with virus: **VIRUS_NAME**.
The file was successfully deleted by RAV AntiVirus.
Last update: Thu, 27 Jun 2002 15:44:53 +0300*

max_processes = number

Description: Parameter used for specifying the maximum number of **ravmd** scanning processes running at the same time.

Accepted values: 1 to 128.

Default value: 24.

Example:

`max_processes = 80`

timeout_per_file = number

timeout_per_mega = number

Description: These parameters are used to specify the maximum time in seconds that a scanning process can spend on a file. The total timeout is computed using the following formula:

$$\text{timeout_per_file} + \text{timeout_per_mega} * \text{filesize}/1\text{Mb}$$

Accepted values: 10-600 (for **timeout_per_file**) and 5-600 (for **timeout_per_mega**).

Default values: 300 for **timeout_per_file** 60 for **timeout_per_mega**.

Example:

```
timeout_per_file = 120
```

```
timeout_per_mega = 25
```

save_infected = boolean

save_suspicious = boolean

Description: Parameter used for specifying if infected/suspicious mail files are saved to the local disk before executing any action. You can set these options to **Yes** or **No**.

Default value: **Yes**.

Note: The infected/suspicious messages will be placed in the quarantine regardless of the defined **infected_actions** and **suspicious_actions**.

Example:

```
save_infected = no
```

```
save_suspicious = yes
```

quarantine = string

Description: String used to specify the directory where the infected/suspicious mails are saved.

Default value: **\${DATADIR}/quarantine**.

Example:

```
quarantine = /tmp/rav/quarantine
```

RAV logging system

When **ravmd** is launched, it logs some information in the system mail info file (using **syslog**) then it switches to the internal log. By default the **log** files are created in: `${DATADIR}/log`. It is possible to use a different log file for every group, with different options for it. For this you have to declare one of the log options in that group. If a group doesn't contain any log options then the log data for the `[global]` group will be used. Here are the parameters used for **ravmd**'s logging system:

log_file_name = string

Description: Parameter used for specifying the path to and the name of the log file used by **ravmd**. If the path to the log file is not valid, **ravmd** will exit and inform the user that the log file could not be created.

Default value: `${DATADIR}/log/group_name`.

Example:

```
log_file_name = ${DATADIR}/log/global
log_file_name = ${DATADIR}/log/my_group
```

log_max_length = {number}(Kb|Mb)

Description: Parameter used for specifying the maximum log file size.

Default value: **500Kb**.

Accepted values: **10-1000Kb** and **1-10Mb**. Starting with version 8.4.0 beta 2 of **ravmd**, the **0** value is also accepted, assigning an unlimited length to the log file used by **ravmd**.

log_rotate_after = {number}(m|h|d)

Description: Parameter used for specifying the period of time elapsing before creating a new log file.

Default value: **6h** (hours). *Accepted values:* **10-60m** (minutes, with 23m rounded to 20m, 25m rounded to 30m), **1-24h** (hours) or and **1-30d** (days). Starting with version 8.4.0 beta 2 of **ravmd**, the **0** value is also accepted, determining **ravmd** not to rotate the log file anymore.

log_delete_after = {number}(h|d|m)

Description: Parameter used to specify the period elapsing before deleting log files older than the specified period.

Default value: **7d** (days).

Accepted values: **1-24h** (hours), **1-30d** (days) and **1-12m** (months). Starting with version 8.4.0 beta 2 of **ravmd**, the **0** value is also accepted, determining **ravmd** not to delete the log file anymore.

log_use_zip = boolean

Description: Parameter used for specifying if the log files should be archived (using the **zlib** library) or not.

Default value: **Yes**.

log_level = number

Description: Number controlling the logging level used by **ravmd**.

Default value: **2047** (use all **ravmd** information).

Accepted values:

0 – No log information.

+ **1** – Add error messages (i.e. “can't fork”, “error reading from socket”, etc.).

+ **2** – Add the name of the mail file.

+ **4** – Add mime part scanned.

+ **8** – Add final scan result.

+ **16** – Add actions taken during scanning.

+ **32** – Add the mail addresses of the sender and the first receiver.

+ **64** – Add the group name matched.

+ **128** – Add information generated by the external triggered update.

+ **256** – Add LICENSE LIMIT warnings.

+ **512** – Add **WBL** logs.

+ **1024** – Add **RBL** logs.

+ **2048** - Add actions performed for bulk mails (this log level is available only from version 8.4.1).

+ **4096** - Add all IPs from the **Received:** mail header field (this log level is available only from version 8.4.1).

+ **8192** - Add the rule matched by the content filtering (this log level is available only from version 8.4.1).

Example:

To set **ravmd** to display only **RBL** logs, set the value for **log_level** to 1024. To set **ravmd** to display error messages *and* **RBL** logs, set the value for **log_level** to 1025 (1 + 1024).

Group-specific parameters

The following parameters must have **different** values for every defined group. If these parameters are not defined for each group, their values are **NOT** copied from the `[global]` group. The *default values* are specified for each of these parameters in the following section.

filter_subject variable_1 variable_2

Description: This parameter is used for *subject filtering*. **variable_1** is a regular expression defined in the `regexp` file from your `${ETCDIR}` directory. **variable_2** is a variable defined in the `actions` file from your `${ETCDIR}` directory. If this parameter is not defined then the **subject filtering** is disabled.

Example:

```
filter_subject subj_regexp subj_actions
```

Where:

```
subj_regexp = I love you
subj_actions = reject
```

Using this rule, mails having the "I love you" string in the **Subject** field will be rejected. Please note that you can use here a regular expression, not only a simple string.

filter_attachment variable_1 variable_2

Description: This parameter is used to filter the mail's attachments names. **variable_1** is a regular expression defined in the `regexp` file from your `${ETCDIR}` directory. **variable_2** is a variable defined in the `actions` file from your `${ETCDIR}` directory. If this parameter is not defined then the **attachment names filtering** is disabled.

Example:

```
filter_attachment file_regexp file_actions
```

Where:

```
file_regexp = .*((vbs)|(exe)|(com))
file_actions = delete, reject
```

This filtering rule deletes all the attached files with extension ".vbs", ".exe" or ".com" from all mail messages. If a file cannot be deleted then the entire mail message is rejected.

filter_content variable_1 variable_2

Description: This parameter is used to filter the mail's *body* and the *attachment's contents*. **variable_1** is a string defined in the `regexp` file from your `${ETCDIR}` directory. **variable_2** is a variable defined in the `actions` file from your `${ETCDIR}` directory. If this parameter is not defined, then the **body filtering** (inside the *mail body* and the *attachment's contents*) is disabled.

Example:

```
filter_content body_string_1 body_actions_1
filter_content body_string_2 body_actions_2
filter_content body_string_3 body_actions_3
filter_content body_string_4 body_actions_4
filter_content body_string_5 body_actions_5
filter_content body_string_6 body_actions_6
```

Where:

```
body_string_1 = confidential
body_string_2 = salaries
body_string_3 = balance sheet
body_string_4 = tax
body_string_5 = income
body_string_6 = revenue
```

and:

```
body_actions_1 = delete, reject
body_actions_2 = delete, reject
body_actions_3 = delete, reject
body_actions_4 = copy, ignore
body_actions_5 = copy, ignore
body_actions_6 = copy, ignore
```

In this case the content filtering module of **ravmd** is looking for user-specified strings. A priority is assigned to each rule. The rule with the highest priority is the first one you specify (**body_string_1**). This rule has a priority of 1. The next rules receive lower priority levels (2...n), depending on the order you are specifying them (**body_string_2** has a priority of 2, **body_string_3** has a priority of 3 and so on). In our example, **ravmd** will start searching for all the strings defined by the user (**confidential**, **salaries**, **balance sheet**, **tax**, **income** and **revenue**) in the same time. If the first match is found for one string having the highest priority level (**confidential**, in this example), the search stops and the actions from **body_actions_1** are executed. If the first match is found for one string having a lower priority level (**tax** for instance), the search will continue for the rest of the mail, looking for eventual matches for **confidential**, **salaries** and **balance sheet**, strings with higher priority. If a match is found, **ravmd** will execute **body_actions_1** if the match is for **confidential**. If the match is not for **confidential** but for **salaries** for instance, **ravmd** will keep looking for **confidential**. If a match with **confidential** is found, **ravmd** will execute **body_actions_1**. If no match with **confidential** is found, **ravmd** will execute **body_actions_2** (actions corresponding to **salaries**). **ravmd** will ignore the first match (for **tax**) in all these cases.

If after finding a match for **tax** no match with higher priority strings (**confidential**, **salaries** or **balance sheet**) is found, **ravmd** will execute **body_actions_4** (the actions corresponding to **tax**).

Because **body_actions_1**, **body_actions_2** and **body_actions_3** are identical (**delete, reject**) and **body_actions_4**, **body_actions_5** and **body_actions_6** are also identical (**copy, ignore**), you can significantly simplify your work using:

```
body_string_1 = confidential|salaries|balance sheet
body_string_2 = tax|income|revenue
```


and:

```
body_actions_1 = delete, reject
```

```
body_actions_2 = delete, reject
```

The behaviour of **ravmd** is in this case the same as explained above.

Note: If you want to define content filtering rules for mail bodies containing strings that include the „|“ character, use „||“ (i.e. `body_string = confidential||salaries` will return matches for mail bodies containing the „confidential|salaries“ expression).

warn_sender = enumeration

Description: Use this parameter to specify when to send warnings to the mail sender. The valid keywords are explained in the table below.

warn_receiver = enumeration

Description: Use this parameter to specify when to send warnings to the mail receivers. The valid keywords are explained in the table below.

warn_admin = enumeration

Description: Use this parameter to specify when to send warnings to the mail receivers. The valid keywords are explained in the table below.

You have to specify *who* is warned by **ravmd** and *when*. If one of these parameters is not defined then the respective user category will **not** receive warnings. The valid keywords are specified in the table below.

Keyword	Meaning
found_virus	Send alert to the defined recipients when a virus is found.
found_subject	Send alert to the defined recipients when the subject matches a content filtering rule.
found_attach	Send alert to the defined recipients when an attached file name matches a content filtering rule.
found_content	Send alert to the defined recipients when the mail body contains a string matched by a content filtering rule.
always	Send alert to the defined recipients in all the above-mentioned situations.
never	Never send alert.
match_all_flags	Send alert to the defined recipients only when <i>ALL</i> the previously defined rules (found_virus , found_subject , found_attach or found_content) are matched.
warn_domains	New flag available from version 8.4.1. When using warn_domains , only the users from RAV-protected domains (specified in the domain parameter) are notified. You should use this flag for the warn_sender parameter, in order to avoid warning mails from being sent to fictive addresses used by some viruses.

Table 3: Keywords for warning messages.

Please note that these values are not inherited from the [global] group. This way you can specify different notification policies for different groups. For more info, please read the following examples.

Example 1:

```
warn_sender = found_virus, found_subject, found_attach, found_content
warn_receivers = found_virus
warn_admin = always
```

In this example, the sender is warned whenever a virus is found *or* the subject matches a content filtering rule *or* an attached file name matches a content filtering rule *or* the mail body contains a string matched by a content filtering rule. The receivers are warned *only* when a virus is found. The administrator is *always* warned.

Example 2:

```
warn_sender = found_virus, found_subject, match_all_flags
```

In this example, the sender is warned whenever a virus is found *AND* the subject matches a content filtering rule.

Example 3:

```
warn_receiver = found_virus, found_subject, found_content,
match_all_flags
```

In this example, the receivers are warned whenever a virus is found *AND* the subject matches a content filtering rule *AND* the mail body contains a content filtering rule match.

Example 4:

```
warn_sender = found_virus, found_subject, found_content,
match_all_flags, warn_domains
```

In this example, only the senders from RAV-protected domains are warned whenever a virus is found *AND* the subject matches a content filtering rule *AND* the mail body contains a content filtering rule match.

do_not_scan = boolean

Description: Parameter used for specifying if the mail files for the current group are scanned or not. This way it is possible to exclude some mail addresses and/or domains from the scanning process.

Default value: No.

Example:

```
do_not_scan = yes
```

do_not_warn = enumeration

Description: Parameter used for specifying the mail addresses that will not be notified.

do_not_show = enumeration

Description: Parameter used for specifying the mail addresses that will be hidden in all warning mails.

Note: Why is this parameter required? There may be cases when one user should not be notified or his mail address should not be displayed in the warning mails. This parameter will help you solve the problem. Note that only the receiver's mail address is compared against the specified address.

`do_not_warn` and `do_not_show` parameters have no *default values* (no comparison will be made).

Example:

```
do_not_warn = user3@domain2.org
do_not_show = user1@domain1.com, user2@domain1.com
```

admin_addr = enumeration

Description: Parameter used for specifying the mail addresses of the administrators to be notified when infected or suspicious files are detected. The warning mail contains messages created using the strings specified for each situation. This parameter has no *default value*.

Example:

```
admin_addr      =      postmaster@domain1.com,      postmaster@domain2.net,
user1@domain1.com
admin_addr = ravmails@stats.ravantivirus.com
```

Note: Forwarding warning mails to ravmails@stats.ravantivirus.com in case of virus infections is highly recommended. This will help RAV Research Team to determine the level of spreading for new viruses or pinpoint potential detection problems. The Technical Support team at GeCAD Software may also diagnose potential problems for the user, such as old updates of the virus signatures database. In any case, the user will be informed about the best solution for solving his problem. GeCAD Software treats each mail in strict confidence.

disclose_sender = boolean**disclose_receivers = boolean****disclose_admin = boolean**

Description: Parameters used for specifying if the addresses of the corresponding sender/receivers/administrators will or will not be disclosed in the warning mail's **To:** header and body.

Default: **No** (for all three parameters). If no value is specified for any of these parameters, they are inherited from the `[global]` group.

antispam_configuration = enumeration

Description: Using the `antispam_configuration` parameter you can set the desired actions for the four different accuracy levels available (**low**, **medium**, **high** and **very high**). In the **enumeration** part you should specify `name_conf_antispam1`, `name_conf_antispam2`, `name_conf_antispam3` and `name_conf_antispam4`, corresponding to the four different accuracy levels.

```
antispam_configuration = name_conf_antispam1, name_conf_antispam2,
name_conf_antispam3, name_conf_antispam4
```

advertising_msg = variable

Description: Using the `advertising_msg` parameter you can append a personal message to each mail message scanned by **ravmd**. The length of the mail message will grow accordingly when using this feature.

The `advertising_msg` parameter must be declared in the group file or even in the `[global]` group. The value for **variable** must be declared in the language file and the `language.equiv` file must be included in the group file.

Note 1: RAV AntiVirus for Mail Servers cannot append the text to any mail due to the MIME format of the mail and the `advertising_msg` feature is not supported by **ravcgate**.

Note 2: The `advertising_msg` parameter is not supported by **ravcgate**.

Example:

- In the group file (that might be even the `[global]` one) define:

```
_include ${ETCDIR}/languages/english.equiv
advertising_msg = my_advertising
```
- In `${ETCDIR}/languages/english` define:

```
my_advertising = "COMPANY_NAME maintains mail messages virus
free"
```

update_executable= string

Description: Parameter used for specifying the name of the executable file used by **ravmd** to start the update process. You must specify the full path to the executable file. The update process is started only if **ravmd** is receiving an update mail sent by RAV Team (triggered update - feature available from **ravmd** version 8.4.0). If you want to receive update mails, please send a request to: updates-l-subscribe@lists.ravantivirus.com

Default value: `${BINDIR}/ravmdupdate.sh`.

Example:

The following line disables the **update executable** feature:

```
update_executable = null
```

The following line executes the specified script file every time an update mail is processed by **ravmd**:

```
update_executable = /home/ravms/ravmdupdate.sh
```

Embedded messages

`embed_clean_mail = boolean`

Default value: **No**.

`embed_cleaned_mail = boolean`

Default value: **No**.

`embed_unclean_mail = boolean`

Default value: **No**.

`use_embedded_msg = boolean`

Default value: **No**.

`use_embedded_warning = boolean`

Default value: **No**.

Description: These parameters are used for specifying what messages you want to be send as embedded mails. Embedded mails are a new feature available in **ravmd** version 8.3.3. After being scanned, the original message can be attached to a new mail message, created by **ravmd**, and sent to its recipients. When the new mail is accepted by the MTA, the original mail is discarded (if the MTA is supporting the **discard** feature) or rejected (if the MTA does not support the **discard** feature, i.e. Courier or Dmail). When the new mail is not accepted by the MTA, the original message is sent instead.

You can specify the mail messages to be encapsulated:

- **embed_clean_mail**: encapsulate all clean mails (mail messages that were not infected/did not contain suspicious code),
- **embed_cleaned_mail**: encapsulate all cleaned mails (mail messages that were infected/did contain suspicious code, but they were cleaned by **RAV AntiVirus for Mail Servers**), or
- **embed_unclean_mail**: encapsulate all uncleaned mails (mail messages that were infected/did contain suspicious code and RAV AntiVirus was not able to disinfect them).

For each status described above the administrator can send a customized message using the `embedded_clean_msg`, `embedded_cleaned_msg` and `embedded_unclean_msg` parameters (described below).

- **use_embedded_msg**: when using this parameter, `embedded_clean_msg`, `embedded_cleaned_msg` and/or `embedded_unclean_msg` are added to the encapsulated mail.
- **use_embedded_warning**: when using this parameter, the warning mail is added to the encapsulated mail only if the original mail is infected.

The rules for embedded mails are not inherited from the `[global]` group. Therefore you will have to define the corresponding parameters for all the adequate groups.

embedded_clean_msg=variable

embedded_cleaned_msg=variable

embedded_unclean_msg=variable

Definition: These three parameters are used for specifying the customized message send when embedding clean/cleaned/uncleaned messages.

The newly created message will therefore include, besides the original message:

- the customized message (when defined by the administrator); and
- the customized warning messages (when defined by the administrator).

embed_queue = string

Definition: The path on the local disk where **ravmd** is temporarily saving the embedded mail messages, before sending them.

Default value: `${DATADIR}/tmp`.

Note: When using this feature of **ravmd**, the messages tagged as spam are reinjected in the MTA queue using the following syntax:

```
cat <modified_mail> | sendmail -i -f<sender> <receivers>
```

(you must have 'sendmail' executable in your search path for commands - environment variable PATH).

If the sendmail binary is not corresponding to the binary of your MTA, then you should make the link manually in `/usr/sbin` (for example) by using (example for Qmail MTA):

```
ln -sf /var/qmail/bin/sendmail /usr/sbin/sendmail
```

This command assumes that you have the Qmail's binaries in `/var/qmail/bin`.

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd(8), ravav(8)

RAVMD file

NAME

ravmd - rav mail scanning daemon

SYNOPSIS

```
${BINDIR}/ravmd [-cdfhtvugsLTBlEDR] [--config=config_file]
[--dump_conf=config_file][--foreground] [--help]
[--testconf=config_file] [--version] [--user=user_name]
[--group=group_name][--syslog] [--license] [--temp-path=directory]
[--bin-path=directory] [--lib-path=directory][--etc-path=directory]
[--data-path=directory] [--rave-path=directory]
```

DESCRIPTION

When **ravmd** starts, it loads its configuration from `${ETCDIR}/ravmd.conf`. In case of error (i.e. missing or bad format of these files), **ravmd** exits with non-zero status. In all the other cases, **ravmd** starts in background and binds an UNIX socket (`${DATADIR}/run/_ravmdcom`) and listens it for "filter clients" queries. When a "filter client" connects to this socket, **ravmd** forks and the child will process "filter client" commands.

When started with `--syslog`, the daemon uses the system mail info log file for logging. The following command should display that file:

```
cat /etc/syslog.conf |grep -e ^\[^\#].*mail\[^\#].*acdenw | \
awk '{print $2}'
```

If you would like to perform periodic updates for RAV Engine and its virus signatures, you should use a scheduling daemon (**cron**, **fcron**, **ucron**...) to execute the **ravmdupdate.sh** script located in `${BINDIR}`. Please modify that script file to fit your configuration. We recommend configuring the scheduling process so that the update process is executed once or twice an hour. For more info, please read the following Knowledge Base article: <http://www.ravantivirus.com/kb/viewarticle.php?ano=1292>.

Example for **fcron**:

```
su
fcrontab -e
```

Insert the following line to run **ravmdupdate.sh** every 30 minutes:

```
@ 30 ${BINDIR}/ravmdupdate.sh
```

Example for *cron*:

```
su
crontab -e
```

Insert the following line to run `ravmdupdate.sh` every 30 minutes:

```
*/30 * * * * ${BINDIR}/ravmdupdate.sh
```

DEFINITIONS

“filter client”

A program that resides in the `${BINDIR}` directory and whose name depends on your MTA (i.e. `ravexim`, `ravsendmail`, `ravpostfix`, etc.). Its function is to hook the MTA's e-mail flux and pass every mail to `ravmd` for scanning. Depending on the response the “filter client” is receiving from `ravmd`, it will deliver or discard the respective mail message.

`ravmd` is powered by the platform independent *RAV Engine*, so it can detect and clean all malwares detected by this (i.e. Linux, Windows, DOS or Unices-based, viruses, macros, Trojans, backdoors, etc.). The program can scan e-mail files in MIME format containing attachments encoded with: **base64**, **quoted-printable**, **uuencode**, **7bit**, **8bit**.

`ravmd` also supports:

- e-mail *content filtering* for the e-mail subject, attachment file names and message body; and
- an antispam functionality, based on the new bulk mail module, integrated in `ravmd` starting with its version 8.4.0, and older features like **Real-time Blackhole List** (RBL) or **White-Black List** (WBL), available in `ravmd` since version 8.3.3. For more details, please read the *ravmd configuration file* section in the *User Guide for RAV AntiVirus for Mail Servers*, available [here](#).

OPTIONS

Arguments are mandatory for both long and sort options.

-c, --config=config_file

Use the `config_file` instead of `${ETCDIR}/ravmd.conf`.

-d, --dumpconf=config_file

Print the configuration from `config_file` to `stdout`.

-f, --foreground

Run the daemon in foreground instead of background.

-h, --help

Display the help screen.

-t, --testconf=config_file

Test the specified **config_file** configuration file.

-v, --version

Display the version of **ravmd**.

-u, --user=user_name**-g, --group=group_name**

Use **user_name** and **group_name** as real user and real group for **ravmd** processes. By default the current user *uid* and *gid* are used.

Important: For security reasons, when **ravmd** is executed as root, it is highly recommended to use these options in order to drop the superuser privileges to an unprivileged user.

-s, --syslog

Use **syslog** daemon instead of RAV logging system.

-L, --license

Display the current license.

-T, --temp-path=directory

The temporary directory used to unpack large mail attachments (i.e. archived files).

-B, --bin-path=directory

The path to RAV binaries. The default value is **\${BINDIR}**.

-l, --lib-path=directory

The path to RAV libraries. The default value is **\${LIBDIR}**.

-E, --etc-path=directory

The path to RAV configuration files. The default value is **\${ETCDIR}**.

-D, --data-path=directory

The path to RAV data files (**rave**, **log**, **run**, **tmp**, **ravmd.key**, etc.). The default value is **\${DATADIR}**.

-R, --rave-path=directory

The path to RAV Engine directory (**rave**). The default value is `${DATADIR}/rave`.

EXIT STATUS

On error it returns non-zero, else returns zero.

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

`ravmd.conf(5)`, `ravav(8)`, `syslogd(8)`

RAVAV configuration file

NAME

ravav - RAV AntiVirus command-line version

SYNOPSIS

```
${BINDIR}/ravav [OPTION ...] TARGET [TARGET ...]
```

DESCRIPTION

ravav is a command line antivirus being able to detect and remove known and unknown computer viruses, Trojans and worms. It uses the same engine as all the **RAV AntiVirus** products, with daily updates available on our web site: <http://www.ravantivirus.com/pages/dldupdate.php?type=Daily>.

OPTIONS

The following parameters are currently recognized by **ravav**:

-h, --help

Print the help screen to the console.

-v, --version

Display **ravav** version.

-V, --virlist

Print the list of viruses.

-D, --decode_qto=file_name

Decode the specified file from **RAV Quarantine**.

--license=AuthorizationCode

Licenses **ravav** using the Authorization Code provided by your supplier, as a string.

-u, --update=engine|full

Start the updating process.

--host=host_name

Download files from **host_name**. The latest versions of **RAV AntiVirus** products can be found on the following ftp site: <ftp://ftp.ravantivirus.com/pub/rav/>. Mirror sites for **RAV AntiVirus** products and updates are available all over the world. A complete and updated list of these mirror sites can be found [here](#).

--ravepath=engine_dir

The path to RAV Engine directory (**rave**). Default value for **engine_dir** is `${DATADIR}/rave`.

--hostpath=dirname

RAV path on **ftp** host. Default value for **dirname** is `/pub/rav`.

--ftpuser=username

The user name used on the ftp connection. Default value for **ftpuser** is "ftp".

--ftppass=password

The password used on the ftp connection. Default value for **ftppass** is "rave@".

--all

Scan all files.

--smart

Use smart scan mode (enabled by default).

--ask

Ask the user what settings to be used for scanning.

--clean

Clean viruses from infected objects.

--delete

Delete infected and suspicious files

--copy

Copy infected/suspicious objects to quarantine.

--move

Move infected/suspicious objects to quarantine.

--rename

Rename infected/suspicious using the extension defined with **-R** option.

-A, --archive=on|off

Scan inside archives. Default value: **On**.

-M, --mail=on|off

Scan mail files. Default value: **On**.

-H, --heuristics=on|off

Boolean controlling the heuristic scanning. Default value: **On**.

-I, --integrity_check=on|off

Enable/disable integrity checker. Default value: **Off**.

-Q, --quarantine=dir_name

Specify the path to the Quarantine folder. Default value for **dir_name** is `${DATADIR}/quarantine`.

-R, --rename_ext=extension

Specify the extension used for rename action. Default extension is `"_?"`.

-T, --temp-path=directory

Specify the temporary directory used by **ravav** to unpack large archived files.

-l, --listall

List all scanned files.

--report=filename

Report names of viruses found in the **filename** file.

--rptall

Include all scanned files in the **filename** file.

--append

Append information to the **filename** file.

EXIT STATUS

ravav returns the status of the last executed action:

1	The file is clean.
2	Infected file.
3	Suspicious file.
4	The file was cleaned.
5	Clean failed.
6	The file was deleted.
7	Delete failed.
8	The file was successfully copied to quarantine.
9	Copy failed.
10	The file was successfully moved to quarantine.
11	Move failed.
12	The file was renamed.
13	Rename failed.
20	No TARGET is defined.
30	Engine error.
31	Syntax error.
32	Help message.
33	Viruses list.
34	The updating process was successfully completed.
35	The updating process failed.
36	Already updated.
37	The licensing process was successfully completed.
38	The licensing process failed.

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd(8)

RAVUPDATE configuration file

NAME

ravupdate - Update utility for RAV AntiVirus products.

SYNOPSIS

```
{BINDIR}/ravupdate [-adfhStTvVY] [--help] [--ftp-passive=on|off] [--usage] [--use-proxy=on|off] [--dump] [--serverresponse] [--tries=number] [--proxy=http://[user[:password]@]sever:port] [--timeout=secs] [--verbose] [--version]
```

DESCRIPTION

With new viruses appearing daily, your antivirus software (no matter what company is producing it) will become obsolete in weeks or even days, being unable to protect you from new threats. Updating your antivirus software is therefore a pre-requisite in the fight against malwares.

ravupdate is a utility helping you securely update your RAV AntiVirus for Mail Servers (**ravmd**). It has the following features:

- Works with the **ftp** and **http** (with and without proxy) protocols;
- Allows updating from mirrors;
- Guarantees the integrity of the downloaded files;
- Allows “on the fly” update;
- Auto-update;
- Default configuration.

Supported protocols

ravupdate currently works with the **ftp** and **http** (with and without proxy) protocols. If you have any suggestions concerning new protocols to be supported by **ravmd**, please send us an e-mail (ravteam@ravantivirus.com).

FTP

The FTP protocol allows the update procedure to be executed via one ftp server or one HTTP proxy.

The following options are customizable:

- User name;
- Password;

- Server;
- Transfer type (active/passive);
- Timeout;
- Number of tries (in case of failure – how many times **ravupdate** will retry to execute the update procedure before returning an error message).

HTTP

The FTP protocol allows the update procedure to be executed via HTTP (with or without proxy).

The following options are customizable:

- User name;
- Password
- Server;
- Transfer type (active/passive)
- Timeout

Number of tries (in case of failure – how many times **ravupdate** will retry to execute the update procedure before returning an error message).

Updating from mirrors

ravupdate is designed to work with different servers implementing a certain type of protocol. This functionality was made possible using a minimal set of characteristics from each protocol.

For example, for a FTP protocol the mirror must implement the following commands: **USER**, **TYPE**, **PASV**, **PORT**, **RETR**, **REST**, **ABOR**, **QUIT**, **CWD**.

For HTTP, the web server (proxy) must support the 1.1 version of the HTTP protocol.

Integrity of the downloaded files

ravupdate guarantees the integrity of the updated files by downloading at first a file containing information about the package needing to be updated/downloaded. The file initially downloaded by **ravupdate** is called **infofile**.

The program uses the information contained in this infofile to find out what files will be updated. The initially downloaded file is also used to check the integrity of the other downloaded files. Only after all the files needed for the update procedure are correctly downloaded **ravupdate** moves to the next phase: installing the updated files.

"On the fly" update

If the product is working when the update procedure is undergone, **ravupdate** is trying its best to make sure that the impact of the update procedure on the programs using the updated files is minimal. For instance, in case the engine of **RAV AntiVirus for Mail Servers** is updated, **ravupdate** sends a **SIGHUP** signal to the **ravmd** daemon, forcing it to reload the updated engine. The programs already launched will continue the scanning process using the old engine, but new processes will make use of the updated engine. In case we are talking about updating the scanning daemon (quite rarely however), the daemon must be stopped and restarted using the updated program.

Auto-update

In case a bug is reported in **ravupdate** or a new version of this program is launched, the file containing info about the package to be updated also contains information about the version of **ravupdate**. The program will update itself, reload and start the update procedure for the selected package.

Default configuration

ravupdate is shipped with a default configuration that allows running the update procedure on most of the computers using **RAV AntiVirus for Mail Servers**. However, for an enhanced performance of **ravupdate**, we advise you to customize the configuration of **ravupdate** according to your specifications.

USAGE

Definitions

Module

Data containing information about one or more file logically grouped to obtain a certain functionality in **RAV AntiVirus for Mail Servers**.

Package

Data (transmitted in one communication session) containing one or more modules.

Example:

RAV for Qmail is a package that might contain the following modules:

- **rav engine** – containing the files from the rave folder
- **ravmd** – containing the **ravmd** file and the scripts allowing you to launch/stop/restart/reload **ravmd** while it is working.
- **ravqmail** – containing the RAV filter for Qmail, linking **ravmd** to Qmail.

Description

At the beginning, **ravupdate** downloads a file containing information about the package you want to be updated. Depending on the modules you selected to be updated and the information from this file, **RAV AntiVirus for Mail Servers** checks every file susceptible to be updated. A list containing the files needing to be updated is created and the downloading process for these files begins.

After checking the integrity of the downloaded files **ravupdate** begins the install process for each of the modules needing update, in a precise order. In the example given above, first the updated engine is installed and then the updated **ravmd** and the filer are installed.

The installation procedure contains three different stages. For some modules, depending on their peculiarities, one or two of these stages might be skipped. However, the order these stages are executed is always as follows:

- **Pre-install.** The purpose of this step is to insure the successful of the install procedure. During this pre-install phase usually the correct permissions are checked and it is established if some programs have to be shut down.
- **Install.** The downloaded files are copied to a temporary location allowing the product to operate correctly.
- **Post-install.** **RAV AntiVirus for Mail Servers** is restarted or, in case the restart is not necessary, the user is notified the update procedure has successfully ended.

Example:

Here is a brief example of what each phase is doing in case of updating the **engine** module containing the scanning engine.

- During the *Pre-install* phase: **ravupdate** is checking if you have writing permissions for copying the downloaded files in the folder containing the old engine
- During the *Install* phase: **ravupdate** is copying the new files to the rave folder;
- During the *Post-install* phase: **ravupdate** is sending a **SIGHUP** signal to the **ravmd** process (if active), forcing it to reload the new engine.

Security and ravupdate

As far as the process security is concerned, we have to keep in mind that, in most cases, the update is made for a product under execution. Therefore, it is very important to ensure the authentication and the integrity of the files being updated. **ravupdate** answers this demanding request using the following mechanism:

- The **infofile** is digitally signed using an asymmetric system. The public key is encoded in the update program. This update program is only using files signed with the corresponding private key.
- The **infofile** contains the following information about the files used in the update process:
 - The file's size;
 - The date of the last modification in the file;
 - The path of the file (on the server used for updating **ravmd**);

- The path on the file (on the local disk, where the update is being executed);
- A digital signature of the file.

The update process uses this info to check each file downloaded from the update mirror in terms of precision (*is this the file I have to download?*), integrity (*does the downloaded file have the size specified in the initially downloaded file?*) and identity (is the digital signature recognized?). Only if the checking is returning the expected values the update process itself is launched. If the checking procedure for the downloaded files fails, the updating process returns an error code. Usually, this means the file was not correctly downloaded from the mirror site or this site is just executing its resynchronisation procedure.

CONFIGURATION

ravupdate can be configured:

- using a configuration file;
- using command-line parameters.

Note: The command-line parameters are overwriting the parameters from the configuration file.

SECTION DESCRIPTION

The configuration file for **ravupdate** contains *sections* and these sections contain *attributes*, *names* and *values*.

The values can be: numbers, strings or Booleans.

The [global] section

The **[global]** section contains the attributes managing the general behaviour of **ravupdate**:

CONFDIR

Description: String containing the install path for the configuration files. *Default value:* `${ETCDIR}`.

DATADIR

Description: String containing the path to data required by RAV AntiVirus programs. *Default value:* `${DATADIR}`.

PLATFORM

Description: String describing the platform on which you wish to execute the update procedure. The available options are: i386, ppc, sparc, s390, etc.

The default value is usually correct.

Note 1: Selecting a different platform than the one on which the update procedure is executing might determine the update process to fail.

Note 2: The **PLATFORM** parameter has no correspondent in the command-line.

alarm

Description: Number specifying the time (in seconds) allowed for one process to end the update procedure.

Note 1: In case the program is not ending the update procedure in the specified period of time, the program will return a corresponding error message.

Note 2: The **alarm** parameter has no correspondent in the command-line.

proxy

Description: String with the following format: **http://proxy_server_name:port_number** (the **port_number** parameter may be overlooked) specifying the proxy server used in the update procedure.

Note 1: In case you wish to use a proxy, the **use-proxy** parameter has to be configured to **Yes**.

Note 2: The **proxy** parameter from the *config* file can be overwritten from the command-line using the following parameters (in short or long form): **-p, --proxy=http://port:name**

Note 3: When the **port_number** parameter is overlooked, **ravupdate** is using the default value (**80**).

proxy-auth

Description: String helping to authenticate the proxy user.

Default value: **None**. This is currently the only available value. Some other values will be implemented in future versions of **ravupdate**.

Note: The **proxy-auth** parameter can be overwritten from the command-line using: **-a, --proxy-auth=none|basic|digest**

serverresponse

Description: Boolean. When set to **Yes** the program will display the commands it is sending and the answers received from the server.

Note 1: The **serverresponse** parameter is useful to establish the potential causes for an eventual failure of the update procedure, so it is advisable to set it to **Yes**.

Note 2: The **serverresponse** parameter can be activated from the command line using: **-s, --server-response**

temppath

Description: String containing a valid path for the folder used to save the temporary files downloaded from the mirror site.

Note 1: A file named **update.start** is created in the specified **temppath**. This file is used for synchronizing/blocking/using more than one update process. It is advisable that only update program has accessing right for this file.

Note 2: The **temppath** parameter has no correspondent in the command-line.

timeout

Description: Number specifying the time (in seconds) allowed for a writing/reading operation to end successfully.

Default value: 0 (no timeout).

Note 1: We do not advise you to set for this parameter values over 20.

Note 2: The **timeout** parameter can be overwritten from the command-line using: **-T, --timeout=nr**

tries

Description: Number specifying the number of tries allowed for the communication protocol before the update procedure fails.

Note 1: In case the value for tries is set to 0, the **alarm** parameter is the one responsible for establishing the time allowed for one process to complete.

Note 2: The **tries** parameter can be overwritten from the command-line using: **-t, --tries=nr**

use-proxy

Description: Boolean enabling/disabling the usage of the proxy server for one specific protocol.

Note: The **use-proxy** parameter can be enabled from the command-line using: **-Y, --use-proxy**

verbose

Description: Boolean allowing or not **ravupdate** to display more information about the process.

Note 1: The **verbose** parameter can be useful when debugging or studying the behaviour of **ravupdate**.

Note 2: The **verbose** parameter can be enabled from the command-line using: **-v**

The [ftp] section

The [ftp] section contains the following parameters used for the configuring the ftp connections: **passive**, **password**, **port**, **username**.

passive

Description: Boolean establishing if the update program or the ftp server is initiating the connection.

Available values: Off/On.

Default value: Off.

The ftp protocol uses two connections for transferring files between the ftp server and the ftp client. The first connection is used to send commands and receive answers. The second connection is created for each transferred file. Closing this second connection usually marks the ending the file transfer. For this second connection, the ftp server or the ftp client has to initiate the connection and send information, in order to allow the other to connect.

The **passive** parameter is managing this connection:

- When set to **On**, the update program is establishing the connection with the ftp server and is sending the information the ftp server needs for connecting.
- When set to **Off**, the ftp server is establishing the connection and send the client the available information in the first transmission.

Note 1: Some ftp servers are using passive connections; other ftp servers are using active connections. Please make sure you have all the required information before configuring the **passive** parameter.

Note 2: The **passive** parameter can be overwritten from the command-line using: **-f, --ftp-passive=on|off**

password

Description: String used by the ftp server to identify the user executing the update process.

The *default value* for **password** depends on the version of the program you are using.

Note: The **password** parameter has no correspondent in the command-line.

port

Description: Number used to specify the default port used by the ftp protocol.

Default value: 21.

username

Description: String used by the ftp server to identify the user executing the update process.

Default value: ftp.

Note: The **username** parameter has no correspondent in the command-line.

The [http] section

The [http] section contains the following parameters used for the configuring the http connections: **password**, **port**, **username**.

password

Description: String used by the http server to identify the user executing the update process.

Default value: `ravupdate(snapshot-20020528)@ravantivirus.com`.

Note: The password parameter has no correspondent in the command-line.

port

Description: Number used to specify the default port used by the http protocol.

Default value: `80`.

username

Description: String used by the http server to identify the user executing the update process.

Default value: `anonymous`.

Note: The username parameter has no correspondent in the command-line.

The [host] section

The [host] section contains information about the infofile.

host

Description: String representing the name or the IP address of the server used for updating RAV AntiVirus for Mail Servers.

Note: The host parameter has to be customized to the closest server.

infofile

Description: String containing the relative path to infofile.

protocol

Description: String containing the name of the protocol used for the updating process.

Default value: `ftp`.

Note: The protocol parameter has no correspondent in the command-line.

The `[modules]` section

engine

Description: Boolean specifying if the user wants to update only the engine of RAV AntiVirus for Mail Servers.

Available options: **On/Off**.

Default value: **On**.

Important: The `[modules]` section will contain other parameters ('ravcgate', 'ravdmail', 'ravexim', 'ravmd', 'RAVMilter', 'ravpostfix', 'ravqmail' and 'ravsendmail') for specifying if the modules for rav clients will also be updated. These options are not yet implemented. The *default value* for these parameters is **Off**.

EXIT STATUS

- 0 Update has been successfully completed.
- 1 There are no files to update - you have latest files.
- 2 Configuration error - check your **rup.conf** file
- 3 Another **ravupdate** process is running.
- 4 Can't find the temporary directory or the temporary directory does not exist.
- 5 System error (e.g fork, malloc etc).
- 6 Other error. Please manually run **ravupdate** with **-s** and **-v** to see what is wrong.

FILES

`${ETCDIR}/rup.conf`

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd(8)

RAVCGATE configuration file

NAME

ravcgate - RAV AntiVirus external filter for CommuniGate Pro.

SYNOPSIS

`${BINDIR}/ravcgate`

DESCRIPTION

This is the external filter program executed by CommuniGate Pro server in order to scan all messages for virus protection and/or content filtering. The program runs as a “filter client” for **ravmd**.

USAGE

- Set your domain names as values for the domain field in the **domains** file (you can find it in `${ETCDIR}`).
- Open your web browser and connect to the CommuniGate Pro's web administration interface. If you installed CommuniGate Pro using the default values, type <http://127.0.0.1:8010> in the address bar.
- Open **Settings->General->Helpers**.
- Check **Content filtering** and add the following path in **Program Path**:
`${BINDIR}/ravcgate`.
- Click on the **Update** button.
- Go to **Settings->Rules** and create a new rule (i.e. **rav**) and choose **Action** as **External Filter**.
- Create the **ravms** account (this account will be used for sending warning mails via the SMTP local port opened by CommuniGate Pro): **Go to Accounts->Create Account ravms**

Important: For more details on how to make a rule for an External Filter, visit <http://www.stalker.com/CommuniGatePro/VirusScan.html#Scanning>.

Note: RAV AntiVirus can scan multiple files in parallel. To activate this facility you must select more processors in **SETTINGS->Queue->Message Enqueuer**.

ENVIRONMENT

RAV_DATA_PATH

Starting with version 8.4.1 of **ravmd** the installation directories can be relocated. The environment variable must be declared before starting the CommuniGate Pro server and must point to the new location of RAV data files (**rave**, **log**, **run**, **tmp**, **ravmd.key**, etc.).

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd(8), **ravmd.conf(5)**, **ravav(8)**

RAVCOURIER configuration file

NAME

ravcourier - external filter for the Courier MTA

SYNOPSIS

`${BINDIR}/ravcourier`

DESCRIPTION

This is the external filter program executed by the Courier MTA in order to scan all messages for virus protection and/or content filtering. The program runs as a “filter client” for **ravmd**.

USAGE

Here is a checklist for installing and using **ravcourier**:

- Install ravcourier: `/usr/lib/courier/sbin/filterctl start ravcourier`
- Uninstall ravcourier: `/usr/lib/courier/sbin/filterctl stop ravcourier`
- Start global message filtering for Courier:
`/usr/lib/courier/sbin/courierfilter start`

Filter configuration

When **ravcourier** is started, the program reads its runtime parameters from the `${ETCDIR}/ravcourier.conf` file.

If the configuration file doesn't exist then the following default values will be used instead.

nthreads

Description: Working threads started in parallel.

Accepted values: between 1 and 128.

Default value: 20.

max_connections

Description: Maximum accepted connections.

Accepted values: between 1 and 256.

Default value: 100.

use_allfilters

Description: Install the filter in the 'allfilters' directory. If you specify "No" here, the filter will be installed in the 'filters' directory.

Default value: Yes.

filters_dir

Description: The full path to the **filters** root directory.

Default value: /usr/lib/courier/var.

queue_dir

Description: The full path to the **queue** directory.

Default value: "". This parameter must be used only if Courier is configured to use relative paths to its queue files.

Important: If you want to modify some of these parameters, then you have to edit the `${ETCDIR}/ravcourier.conf` file and reinstall the filter:

```
/usr/lib/courier/sbin/filterctl stop ravcourier  
/usr/lib/courier/sbin/filterctl start ravcourier
```

FILES

`${ETCDIR}/ravcourier.conf`

ENVIRONMENT

RAV_DATA_PATH

Starting with version 8.4.1 of **ravmd** the installation directories can be relocated. The environment variable must be declared before starting **ravcourier** and must point to the new location of RAV data files (**rave**, **log**, **run**, **tmp**, **ravmd.key**, etc.).

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd(8), **ravmd.conf(5)**, **ravav(8)**

RAVDMAIL configuration file

NAME

ravdmail - external filter for DMail.

SYNOPSIS

`${BINDIR}/ravdmail`

DESCRIPTION

This is the external filter program executed by **DMail** server in order to scan all messages for virus protection and/or content filtering. The program runs as a “**filter client**” for **ravmd**.

USAGE

Add the following line in the DMail configuration file: **virus_robot** `${BINDIR}/ravdmail`. After adding this line, the SMTP server configuration has to be reloaded: **tellsmtpl reload**.

ENVIRONMENT

RAV_DATA_PATH

Starting with version 8.4.1 of **ravmd** the installation directories can be relocated. The environment variable must be declared before starting the DMail server and must point to the new location of RAV data files (**rave**, **log**, **run**, **tmp**, **ravmd.key**, etc.).

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

RAVEXIM configuration file

NAME

ravexim - RAV AntiVirus filter client" for Exim.

SYNOPSIS

```
${BINDIR}/ravexim rav_data_full_path $sender_address $recipients
```

DESCRIPTION

The program is executed by the **exim** system filter each time a new message is processed. **ravexim** is used for scanning all incoming/outgoing e-mails for virus protection and/or content filtering. It runs as a "filter client" for **ravmd**.

USAGE

rav_data_full_path

Starting with version 8.4.1, the users can change the default location of RAV directories. When doing so, **rav_data_full_path** must point to the location containing the RAV data files (**rave**, **log**, **run**, **tmp**, **ravmd.key**, etc.).

Default value for **rav_data_full_path** is **\${DATADIR}**.

The following parameters are **exim** internal variables:

\$sender_address

The e-mail sender address.

\$recipients

A list with the recipient addresses of a message.

EXIT CODES

The program returns some of the exit codes defined in the **sysexits.h** file:

0 - EX_OK

Successful termination.

64 - EX_USAGE

The command line parameters are not specified correctly.

66 - EX_NOINPUT

Cannot open a temporary file.

69 - EX_UNAVAILABLE

The **sendmail** executable is not found. You have to create a symbolic link to the **exim** executable:

```
ln -s /usr/exim/bin/exim /usr/sbin/sendmail
```

71 - EX_OSERR

Cannot create a pipe or a new process.

73 - EX_CANTCREAT

Cannot create a temporary file.

74 - EX_IOERR

An error has occurred on a read/write operation.

75 - EX_TEMPFAIL

Temporary error: **ravmd** is not running or it doesn't temporarily accept connections.

77 - EX_NOPERM

The e-mail file is infected and its delivery is denied.

Note: You can easily find out the other exit codes. They are the same as those returned by the following command:

```
sendmail -oMr mail-ok -i -f $sender $recipients
```

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd.conf(5), **ravmd(8)**

RAVPOSTFIX configuration file

NAME

ravpostfix - RAV AntiVirus “filter client” for Postfix.

SYNOPSIS

```
${BINDIR}/ravpostfix [-hvSsCctflug] [--help] [--version]
[--server_ip=IP_ADDRESS][--server_port=PORT] [--client_ip=IP_ADDRESS]
[--client_port=PORT][--timeout=SECONDS][--foreground]
[--log_level=NUMBER] [--user=user_name] [--group=group_name]
```

DESCRIPTION

This is an external filter program integrated with **postfix** MTA and used for scanning all incoming/outgoing messages for virus protection and/or content filtering. It implements the protocol described in the **FILTER_README** file from **postfix** snapshot ≥ 20000531 . The program runs as **filter client** for **ravmd**.

USAGE

-h, --help

Displays the help screen.

-v, --version

Displays **ravpostfix** version.

-S, --server_ip=IP_ADDRESS

The computer IP address where **ravpostfix** is running. Default: 127.0.0.1

-s, --server_port=PORT

Inet port on **server_ip** where **ravpostfix** is listening. Default: 10025

-C, --client_ip=IP_ADDRESS

The IP address of the computer where the second postfix SMTP server is running. Default: 127.0.0.1

-c, --client_port=PORT

Inet port where second **postfix** SMTP server is listening. Default: **10026**.

-t, --timeout=SECONDS

The timeout in seconds used by **ravpostfix** for SMTP communication. Default: **120s**.

-f, --foreground

Runs the daemon in foreground instead of background (background is default value).

-l, --log_level=0|1|2

Control the logging details.

Default value: 1.

-u, --user=user_name

-g, --group=group_name

Use **user_name** and **group_name** as real user and real group for **ravpostfix** processes. By default the current user *uid* and *gid* are used.

Important: For security reasons, when executing **ravpostfix** as root, it is highly recommended to use these options in order to drop the superuser privileges to an unprivileged user.

ENVIRONMENT

RAV_DATA_PATH

Starting with version 8.4.1 of **ravmd** the installation directories can be relocated. The environment variable must be declared before starting **ravpostfix** and must point to the new location of RAV data files (**rave**, **log**, **run**, **tmp**, **ravmd.key**, etc.).

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd(8), **ravmd.conf(5)**, **ravav(8)**

RAVQMAIL configuration file

NAME

ravqmail - RAV AntiVirus "filter client" for **qmail**.

SYNOPSIS

`${BINDIR}/ravqmail`

INSTALL

In order to install **ravqmail** you must have installed **qmail-1.03** or newer in directory `/var/qmail`. You must stop **qmail-send** from sending it the **SIGTERM** signal. After this you must rename the original **qmail-queue** to **qmail-queue.orig** and make a symbolic link named **qmail-queue** to **ravqmail**:

```
mv /var/qmail/bin/qmail-queue /var/qmail/bin/qmail-queue.orig
```

```
ln -s ${BINDIR}/ravqmail /var/qmail/bin/qmail-queue
```

USAGE

After installing **ravqmail** you must start **ravmd** daemon. Then you can start **qmail** system.

UNINSTALL

In order to uninstall **ravqmail** you must stop **qmail-send** from sending it the **SIGTERM** signal. After this you must remove the link file **qmail-queue** and copy the original **qmail-queue.orig** in **qmail-queue**:

```
rm -f /var/qmail/bin/qmail-queue
```

```
mv /var/qmail/bin/qmail-queue.orig /var/qmail/bin/qmail-queue
```

For more details, please read the [Notes](#) section below.

FILES

After the installation process, `${BINDIR}/ravqmail` must have the same owner, group and permissions as `/var/qmail/bin/qmail-queue.orig`. The `${DATADIR}/tmp` and `${DATADIR}/run` directories must have the same owner and group as `/var/qmail/bin/qmail-queue.orig` and the permissions set to **0750**.

EXIT CODES

The same as **qmail-queue(8)**.

NOTES

There are some programs or scripts automating the starting and stopping processes. If you are using one of them it might be wrong to send **SIGTERM** signal to **qmail-send** instead of using them to stop **qmail-send**, since these programs might re-spawn the **qmail-send** during the installation process therefore your **qmail** won't be able to place e-mails in its queue.

When a mail message is handled by **qmail** first it is put in queue by using the **qmail-queue** program. Because in the installation process the original **qmail-queue** is replaced with **ravqmail** the e-mail is first scanned and after that **ravqmail** passes the e-mail to the **qmail-queue.orig** and replies with **qmail-queue.orig** exit code.

If **ravmd** is not started or **ravqmail** can't communicate with **ravmd**, it doesn't pass the e-mail to the original **qmail-queue.orig** and will exit with error code **71**, meaning that the mail server temporarily refuses to send the messages to any of the recipients.

Also if **ravmd** is configured to reject the e-mails that cannot be cleaned **ravqmail** doesn't pass the e-mail to **qmail-queue.orig** and exits with error code **31** meaning that the mail server permanently refuses to send the message to any recipients.

If there is a license limit **ravmd** will not scan the e-mails not belonging to the domains specified in the configuration file. These e-mails will be passed **unchanged** to **qmail-queue.orig**.

ENVIRONMENT

RAV_DATA_PATH

Starting with version 8.4.1 of **ravmd** the installation directories can be relocated. The environment variable must be declared before starting the Qmail server and must point to the new location of RAV data files (**rave**, **log**, **run**, **tmp**, **ravmd.key**, etc.).

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd.conf(5), **ravmd(8)**, **qmail-queue(8)**

RAVSENDMAIL configuration file

NAME

ravsendmail - RAV AntiVirus “filter client” for Sendmail.

SYNOPSIS

```
${BINDIR}/ravsendmail rav_data_full_path $h $f $u $i
```

DESCRIPTION

The program will be executed by Sendmail MTA as a local mailer. It is used to scan all incoming/outgoing e-mails for virus protection and/or content filtering. The program runs as a “filter client” for **ravmd**.

USAGE

rav_data_full_path

Starting with version 8.4.1, the users can change the default location of RAV directories. When doing so, **rav_data_full_path** must point to the location containing the RAV data files (**rave**, **log**, **run**, **tmp**, **ravmd.key**, etc.).

Default value for **rav_data_full_path** is **\${DATADIR}**.

The following parameters are **sendmail** internal macros:

\$h

The recipient host.

\$f

The sender's e-mail address.

\$u

The recipient e-mail address.

\$i

Queue ID used to identify an e-mail file in the queue.

FILES

`/etc/mail/sendmail.cf`

NOTES

This product uses two sendmail executables running at the same time. It can introduce a significant delay in the e-mail delivery process depending on how often the queues are processed. This is why it is highly recommended to use the **RAVMilter** product instead of **ravsendmail**.

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

`ravmd(8)`, `ravmd.conf(5)`, `ravav(8)`, `sendmail(8)`

RAVMILTER configuration file

NAME

RAVMilter - RAV AntiVirus “filter client” for sendmail with libmilter.

SYNOPSIS

```
${BINDIR}/RAVMilter [-dV] [-C sendmail.cf] [-g] [-X] [--daemon]
[--configuration=sendmail.cf] [--debug=0|1|2|3] [--addheader[=on|off]]
[--help] [--usage] [--version]
```

DESCRIPTION

This is an external filter program used by **sendmail** (compiled with **libmilter** feature) MTA in order to scan all the incoming/outgoing messages for virus protection and/or content filtering. It uses the **libmilter** feature included in sendmail version 8.11 or later. The program runs as a client for **ravmd**.

USAGE

-d, --daemon

Run as daemon.

-g, --debug=0|1|2|3

Enable debug features. *Available options:* 0 (silent), 1, 2 and 3 (verbose). *Default value:* 0.

Note: When **-g, --debug** is set to 0, RAVMilter will not log anything. When **-g, --debug** is set to 1, RAVMilter will log the deletion of the temporary file containing the message scanned by RAVMilter. Example:

```
RAVMilter[1941]: File "/var/opt/rav/tmp/->(RAVh3I9fO4a001946)" unlinked
```

When **-g, --debug** is set to 3, RAVMilter will log the deletion of the temporary file containing the message scanned by RAVMilter and also the scanning process and the corresponding result. Example:

```
RAVMilter[2132]: scanning file </var/opt/rav/tmp/->(RAVh3I9pb4a002137)>
RAVMilter[2132]: scanned.
RAVMilter[2132]: File "/var/opt/rav/tmp/->(RAVh3I9pb4a002137)" unlinked
```

-C, --configuration=sendmail.cf

Read additional information from this file. If you are not using this parameter, RAVMilter will look for its configuration in the **sendmail.cf** file from the **/etc/mail** folder. For more information, please read the **NOTES** section below.

-X, --addheader[=on|off]

Add a **X-Version** header to each message scanned. Available options: **On/Off**. Default value: **On**.

-V, --version

Print to **stdout** RAVMilter version and exits.

--help

Print the help screen to the console.

--usage

Display information about RAVMilter usage.

NOTES

The **Sendmail** version must be 8.11 or later to compile the **libmilter** feature of **sendmail**. Please read the **libmilter/README** file from the **sendmail** package for instructions on how to compile **sendmail** with this feature. After compiling **sendmail** and installing it with the **libmilter** feature, you can proceed with the installation of **ravmd**.

To configure **RAVMilter**, you must add the following two lines into **/etc/mail/sendmail.mc**:

```
define(`FRR_MILTER', `true')
INPUT_MAIL_FILTER(`RAVMilter',`S=local:/var/opt/rav/run/RAVMilter.sock, F=R, T=S:10s;R:5m;E:5m')
```

Now generate **/etc/mail/sendmail.cf** with the following command:

```
m4 /etc/mail/sendmail.mc > etc/mail/sendmail.cf
```

When started, **RAVMilter** will parse **/etc/mail/sendmail.cf** to find out what socket to bind (in our example it will bind the UNIX socket **\${DATADIR}/run/RAVMilter.sock**).

ENVIRONMENT**RAV_DATA_PATH**

Starting with version 8.4.1 of **ravmd** the installation directories can be relocated. The environment variable must be declared before starting **RAVMilter** and must point to the new location of RAV data files (**rave**, **log**, **run**, **ravmd.key**, etc.).

BUGS

Please mail bug reports and suggestions to: ravteam@ravantivirus.com

SEE ALSO

ravmd(8), **ravmd.conf(5)**, **ravav(8)**, **sendmail(8)**

Appendix A: Bug Report Form

Although we have extensively tested **RAV AntiVirus for Mail Servers**, some bugs may get by us, or you may have incompatible hardware or software that we did not test.

If you experience any problems with **RAV AntiVirus for Mail Servers**, please print out this form and mail it to:

GeCAD Software S.R.L.
223, Mihai Bravu Blvd, 3rd district
Bucharest, ROMANIA,

or fax it at +40-21-3217803.

Alternatively, copy the **Bug Report Form** to your word processor, fill in the blanks and email the text file to support@ravantivirus.com or to betatest@ravantivirus.com (when the product you are reporting the bugs for has been beta released).

Thank you!

Today's Date: ____/____/____ (MM/DD/YY)

Title: ☐ Mrs. ☐ Miss ☐ Ms ☐ Mr. ☐ Other: _____

Name:

Company (if applicable):

Mail:

Address:

City:

State/Province:

ZIP/Postal Code:

Country:

Telephone (with Area & Country Codes):

Fax (with Area & Country Codes):

Program Name: RAV AntiVirus for Mail Servers version: _____ **Registration Code:** _____

Bugs, suggestions & comments:

(Please be as specific as possible about bugs. If we cannot duplicate your problem, we cannot help you fix it. Before sending a Bug Report, please read carefully the product documentation.)

SYSTEM CONFIGURATION

Type of CPU:

CPU frequency:

OS version:

Memory:

Hard disk:

Other:

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