

NAME

rsyslogd – reliable and extended syslogd

SYNOPSIS

```
rsyslogd [ -4 ] [ -6 ] [ -A ] [ -d ] [ -D ] [ -f config file ]
[ -i pid file ] [ -l hostlist ] [ -n ] [ -N level ]
[ -q ] [ -Q ] [ -s domainlist ] [ -u userlevel ] [ -v ] [ -w ] [ -x ]
```

DESCRIPTION

Rsyslogd is a system utility providing support for message logging. Support of both internet and unix domain sockets enables this utility to support both local and remote logging.

Note that this version of rsyslog ships with extensive documentation in html format. This is provided in the `./doc` subdirectory and probably in a separate package if you installed rsyslog via a packaging system. To use rsyslog's advanced features, you **need** to look at the html documentation, because the man pages only cover basic aspects of operation. **For details and configuration examples, see the `rsyslog.conf` (5) man page and the online documentation at <http://www.rsyslog.com/doc>**

Rsyslogd(8) is derived from the `sysklogd` package which in turn is derived from the stock BSD sources.

Rsyslogd provides a kind of logging that many modern programs use. Every logged message contains at least a time and a hostname field, normally a program name field, too, but that depends on how trusty the logging program is. The rsyslog package supports free definition of output formats via templates. It also supports precise timestamps and writing directly to databases. If the database option is used, tools like `phpLogCon` can be used to view the log data.

While the **rsyslogd** sources have been heavily modified a couple of notes are in order. First of all there has been a systematic attempt to ensure that rsyslogd follows its default, standard BSD behavior. Of course, some configuration file changes are necessary in order to support the template system. However, rsyslogd should be able to use a standard `syslog.conf` and act like the original `syslogd`. However, an original `syslogd` will not work correctly with a rsyslog-enhanced configuration file. At best, it will generate funny looking file names. The second important concept to note is that this version of rsyslogd interacts transparently with the version of `syslog` found in the standard libraries. If a binary linked to the standard shared libraries fails to function correctly we would like an example of the anomalous behavior.

The main configuration file `/etc/rsyslog.conf` or an alternative file, given with the `-f` option, is read at startup. Any lines that begin with the hash mark (“#”) and empty lines are ignored. If an error occurs during parsing the error element is ignored. It is tried to parse the rest of the line.

OPTIONS

- A** When sending UDP messages, there are potentially multiple paths to the target destination. By default, **rsyslogd** only sends to the first target it can successfully send to. If `-A` is given, messages are sent to all targets. This may improve reliability, but may also cause message duplication. This option should be enabled only if it is fully understood.
- 4** Causes **rsyslogd** to listen to IPv4 addresses only. If neither `-4` nor `-6` is given, **rsyslogd** listens to all configured addresses of the system.
- 6** Causes **rsyslogd** to listen to IPv6 addresses only. If neither `-4` nor `-6` is given, **rsyslogd** listens to all configured addresses of the system.
- c *version***
This option has been obsoleted and has no function any longer. It is still accepted in order not to break existing scripts. However, future versions may not support it.
- D** Runs the Bison config parser in debug mode. This may help when hard to find syntax errors are reported. Please note that the output generated is deeply technical and originally targeted towards developers.

- d** Turns on debug mode. See the **DEBUGGING** section for more information.
- f config file**
Specify an alternative configuration file instead of */etc/rsyslog.conf*, which is the default.
- i pid file**
Specify an alternative pid file instead of the default one. This option must be used if multiple instances of rsyslogd should run on a single machine.
- I hostlist**
Specify a hostname that should be logged only with its simple hostname and not the fqdn. Multiple hosts may be specified using the colon (":") separator.
- n** Avoid auto-backgrounding. This is needed especially if the **rsyslogd** is started and controlled by **init(8)**.
- N level**
Do a coNfig check. Do NOT run in regular mode, just check configuration file correctness. This option is meant to verify a config file. To do so, run rsyslogd interactively in foreground, specifying **-f <config-file>** and **-N level**. The level argument modifies behaviour. Currently, 0 is the same as not specifying the **-N** option at all (so this makes limited sense) and 1 actually activates the code. Later, higher levels will mean more verbosity (this is a forward-compatibility option). **rsyslogd** is started and controlled by **init(8)**.
- q add hostname if DNS fails during ACL processing**
During ACL processing, hostnames are resolved to IP addresses for performance reasons. If DNS fails during that process, the hostname is added as wildcard text, which results in proper, but somewhat slower operation once DNS is up again.
- Q do not resolve hostnames during ACL processing**
Do not resolve hostnames to IP addresses during ACL processing.
- s domainlist**
Specify a domainname that should be stripped off before logging. Multiple domains may be specified using the colon (":") separator. Please be advised that no sub-domains may be specified but only entire domains. For example if **-s north.de** is specified and the host logging resolves to *satu.infodrom.north.de* no domain would be cut, you will have to specify two domains like: **-s north.de:infodrom.north.de**.
- u userlevel**
This is a "catch all" option for some very seldomly-used user settings. The "userlevel" variable selects multiple things. Add the specific values to get the combined effect of them. A value of 1 prevents rsyslogd from parsing hostnames and tags inside messages. A value of 2 prevents rsyslogd from changing to the root directory. This is almost never a good idea in production use. This option was introduced in support of the internal testbed. To combine these two features, use a userlevel of 3 (1+2). Whenever you use an **-u** option, make sure you really understand what you do and why you do it.
- v** Print version and exit.
- w** Suppress warnings issued when messages are received from non-authorized machines (those, that are in no AllowedSender list).
- x** Disable DNS for remote messages.

SIGNALS

Rsyslogd reacts to a set of signals. You may easily send a signal to **rsyslogd** using the following:

```
kill -SIGNAL $(cat /var/run/rsyslogd.pid)
```

Note that **-SIGNAL** must be replaced with the actual signal you are trying to send, e.g. with **HUP**. So it then becomes:

kill -HUP \$(cat /var/run/rsyslogd.pid)

HUP This lets **rsyslogd** perform close all open files. Also, in v3 a full restart will be done in order to read changed configuration files. Note that this means a full rsyslogd restart is done. This has, among others, the consequence that TCP and other connections are torn down. Also, if any queues are not running in disk assisted mode or are not set to persist data on shutdown, queue data is lost. HUPing rsyslogd is an extremely expensive operation and should only be done when actually necessary. Actually, it is a rsyslogd stop immediately followed by a restart. Future versions will remove this restart functionality of HUP (it will go away in v5). So it is advised to use HUP only for closing files, and a "real restart" (e.g. /etc/rc.d/rsyslogd restart) to activate configuration changes.

TERM, INT, QUIT

Rsyslogd will die.

USR1 Switch debugging on/off. This option can only be used if **rsyslogd** is started with the **-d** debug option.

CHLD Wait for childs if some were born, because of wall'ing messages.

SECURITY THREATS

There is the potential for the rsyslogd daemon to be used as a conduit for a denial of service attack. A rogue program(mer) could very easily flood the rsyslogd daemon with syslog messages resulting in the log files consuming all the remaining space on the filesystem. Activating logging over the inet domain sockets will of course expose a system to risks outside of programs or individuals on the local machine.

There are a number of methods of protecting a machine:

1. Implement kernel firewalling to limit which hosts or networks have access to the 514/UDP socket.
2. Logging can be directed to an isolated or non-root filesystem which, if filled, will not impair the machine.
3. The ext2 filesystem can be used which can be configured to limit a certain percentage of a filesystem to usage by root only. **NOTE** that this will require rsyslogd to be run as a non-root process. **ALSO NOTE** that this will prevent usage of remote logging on the default port since rsyslogd will be unable to bind to the 514/UDP socket.
4. Disabling inet domain sockets will limit risk to the local machine.

Message replay and spoofing

If remote logging is enabled, messages can easily be spoofed and replayed. As the messages are transmitted in clear-text, an attacker might use the information obtained from the packets for malicious things. Also, an attacker might replay recorded messages or spoof a sender's IP address, which could lead to a wrong perception of system activity. These can be prevented by using GSS-API authentication and encryption. Be sure to think about syslog network security before enabling it.

DEBUGGING

When debugging is turned on using the **-d** option, **rsyslogd** produces debugging information according to the **RSYSLOG_DEBUG** environment variable and the signals received. When run in foreground, the information is written to stdout. An additional output file can be specified using the **RSYSLOG_DEBUGLOG** environment variable.

FILES

/etc/rsyslog.conf

Configuration file for **rsyslogd**. See **rsyslog.conf(5)** for exact information.

/dev/log

The Unix domain socket to from where local syslog messages are read.

/var/run/rsyslogd.pid

The file containing the process id of **rsyslogd**.

prefix/lib/rsyslog

Default directory for **rsyslogd** modules. The *prefix* is specified during compilation (e.g. /usr/local).

ENVIRONMENT

RSYSLOG_DEBUG

Controls runtime debug support. It contains an option string with the following options possible (all are case insensitive):

Debug Turns on debugging and prevents forking. This is processed earlier in the startup than command line options (i.e. -d) and as such enables earlier debugging output. Mutually exclusive with DebugOnDemand.

DebugOnDemand

Enables debugging but turns off debug output. The output can be toggled by sending SIGUSR1. Mutually exclusive with Debug.

LogFuncFlow

Print out the logical flow of functions (entering and exiting them)

FileTrace

Specifies which files to trace LogFuncFlow. If not set (the default), a LogFuncFlow trace is provided for all files. Set to limit it to the files specified. FileTrace may be specified multiple times, one file each (e.g. export RSYSLOG_DEBUG="LogFuncFlow FileTrace=vm.c FileTrace=expr.c")

PrintFuncDB

Print the content of the debug function database whenever debug information is printed (e.g. abort case)!

PrintAllDebugInfoOnExit

Print all debug information immediately before rsyslogd exits (currently not implemented!)

PrintMutexAction

Print mutex action as it happens. Useful for finding deadlocks and such.

NoLogTimeStamp

Do not prefix log lines with a timestamp (default is to do that).

NoStdOut

Do not emit debug messages to stdout. If RSYSLOG_DEBUGLOG is not set, this means no messages will be displayed at all.

Help Display a very short list of commands - hopefully a life saver if you can't access the documentation...

RSYSLOG_DEBUGLOG

If set, writes (almost) all debug message to the specified log file in addition to stdout.

RSYSLOG_MODDIR

Provides the default directory in which loadable modules reside.

BUGS

Please review the file BUGS for up-to-date information on known bugs and annoyances.

Further Information

Please visit <http://www.rsyslog.com/doc> for additional information, tutorials and a support forum.

SEE ALSO

rsyslog.conf(5), **logger(1)**, **syslog(2)**, **syslog(3)**, **services(5)**, **savelog(8)**

COLLABORATORS

rsyslogd is derived from **sysklogd** sources, which in turn was taken from the BSD sources. Special thanks to Greg Wettstein (greg@wind.enjellie.com) and Martin Schulze (joey@linux.de) for the fine **sysklogd** package.

Rainer Gerhards
Adiscon GmbH
Grossrinderfeld, Germany
rgerhards@adiscon.com