

**Package RRDTOOL - Collect Data And  
Display Graphs About It  
Version 4.0.0-testing-x86\_64-r60780**

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# 1. Documentation For Package RRDTOOL

## 1.1. RRDTOOL - Collect Data And Display Graphs About It

### 1.1.1. Description

The package RRDTOOL collects system data and stores it in rrd-databases by the help of the 'collected' daemon. In the web interface of the fli4l router graphics for download or display are generated from it by rrdtool.

For example, the following data is recorded and displayed:

- Under System Status
  - CPU load
  - System load
  - System uptime
  - RAM usage
  - Number of processes
- Under Harddisk Status
  - Partition usage of the root partition
  - Usage of the partition /boot
  - Usage of the partition /data (if existing)
  - Usage of the partition /opt (if existing)
- Under Network Status
  - For each network interface amount of data sent and received
- Under Interrupts
  - The number of interrupts
- Under Active Connections
  - The number of connections

Optionally, also the acquisition and display of temperatures and voltages of the motherboard, WLAN informations, the values from an APC UPS, PING values of hosts or VPN endpoints a.s.o. is possible, depending on the configuration or the installed packages.

### 1.1.2. Hint concerning RRDTOOL versions

RRD database files that were created with the old version of rrdtool can not be used with the current version. The daemon uses a different data format and thus the files are incompatible.

### 1.1.3. Hint concerning the use of RRDTOOL on different architectures

If fli4l's processor architecture is switched (eg from 32 bit to 64 bit) the rrdtool database files have to be converted manually by the user. Direct conversion is not possible.

The old database has to be exported to XML files and imported then to the new architecture instead. It is important to do the XML export while the old architecture is still in use.

A german HowTo article on this topic can be found at <https://ssl.networks.org/wiki/display/f/rrdtool-Datenbanken>.

### 1.1.4. Configuration Of the Package RRDTOOL

The configuration is done by adapting the file `Path/fli4l-4.0.0-testing-x86_64-r60780/<config>/rrdtool.tx` to your own needs, as with all FLI4L packages.

**OPT\_RRDTOOL** The setting 'no' deactivates OPT\_RRDTOOL completely. No changes to your `rootfs.img` resp. `opt.img` are made. Furthermore, OPT\_RRDTOOL will never overwrite other parts of the fli4l installation.

To activate OPT\_RRDTOOL set the variable OPT\_RRDTOOL to 'yes'.

**RRDTOOL\_DB\_PATH** Default Setting: `RRDTOOL_DB_PATH='/data/rrdtool/db'`

Path to RRDTOOL's database files. These files should always be located on a persistent disk. It is no a problem to store the data on a CompactFlash card as appropriate caching mechanisms are used in the package RRDTOOL to minimize the number of disk accesses. When using OPT\_QOS please ensure to use ext2/ext3/ext4 as file system in the path's target because only these support the characters used in the file name.

**RRDTOOL\_CACHETIME** This optional configuration parameter can set after how many seconds cached values will be written to the RRD database by the rrdcached daemon. With smaller values, the cache file will be smaller in the ramdisk which is recommended for routers with a rather small amount of RAM, but the disk will be accessed more often then. Without activation of the variable, this is done after 3600 seconds or on shutdown of fli4l.

The following values are possible:

- 3600
- 1800
- 1200
- 900
- 600
- 450
- 300

**RRDTOOL\_NET** Setting this variable to 'yes' activates the network plugin of collectd. This makes it possible to transfer the data detected/collected by collectd to another computer on the network with active collectd-plugin running in server mode.

**RRDTOOL\_NET\_HOST** FQDN or IP address of the computer running collectd with network plugin in server mode.

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- RRDTOOL\_NET\_PORT** This optional variable configures the port on which the server is listening to incoming connections.
- RRDTOOL\_UNIXSOCK** Setting this to 'yes' activates the unixsock plugin of collectd. On this socket other data collecting services/processes can transfer data to collectd.
- RRDTOOL\_PING\_N** Specifies the number of hosts where network ping times should be determined.
- RRDTOOL\_PING\_x** Defines the host for which network ping times should be determined. Can be set as a FQDN or an IP address.
- RRDTOOL\_PING\_x\_LABEL** Optionally defines a different description (label) for the ping target.
- RRDTOOL\_PING\_x\_GRPNR** Assigns this ping target to the group defined in **RRDTOOL\_PINGGROUP\_x\_LABEL** by the number of the index.
- RRDTOOL\_PINGGROUP\_N** Number of ping target groups. Each group defined will be displayed on a separate tab in the web interface.
- RRDTOOL\_PINGGROUP\_x\_LABEL** Name of the ping target group.
- RRDTOOL\_APCUPS** Activates resp. deactivates the collecting of data from an APC-USV. For data collection the apcupsd daemon has to be active on a host reachable via network.
- RRDTOOL\_APCUPS\_HOST** Host on which the apcupsd daemon is running.
- RRDTOOL\_APCUPS\_PORT** Network port on which the apcupsd daemon can be accessed. Normally this is port 3351.
- RRDTOOL\_PEERPING\_N** Sets the number of Peer-Ping targets. A Peer-Ping target is i.e. the target of a VPN tunnel.
- RRDTOOL\_PEERPING\_x** Defines the Peer-Ping target.  
Possible targets are for example tun0, tun1, pppoe, a.s.o. Alias- resp. circuit names can be used as well.
- RRDTOOL\_PEERPING\_x\_LABEL** Optionally defines a different description (label) for the ping target.
- RRDTOOL\_OWFS** Activates resp. deactivates the collecting and graphical display of data generated from package OW.
- RRDTOOL\_OWFS\_HOST** Host the OWFS service is running on. Usually this is the router itself. Thus the value '127.0.0.1' has to be entered.
- RRDTOOL\_OWFS\_PORT** Network port on which the OWFS service is reachable. Usually this is port 4304.
- RRDTOOL\_NTP** Activates resp. deactivates the collecting and graphical display of data generated from package NTP.

# **A. Appendix For Package RRDTOOL**

## **A.1. Appendix For Package RRDTOOL**

### **A.1.1. URL Of The Software Used**

COLLECTD:

<http://www.collectd.org/> <http://oss.oetiker.ch/rrdtool>

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