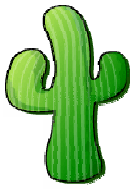
# Cacti The ULTIMATE Management Solution

## Cacti SNMP Management

Installation HOW-TO For Linux


Author: Lee Carter

Published: October 20th 2004
Version 2 Updated November 1, 2004



# Cacti SNMP Management

Installation How-to for Linux

## Table of Contents

# Purpose

The purpose of this document is to explain how to install Red Hat's Fedora Core 2 product and utilize a suite of applications for network based SNMP management. This document will take you thru step-by-step how-to install Linux on a new system and configure all the necessary tools that will get you a fully functional SNMP management station. SNMP management can be used to monitor just about anything on just about any IP enabled device.

# Requirements

Before you get started make sure you have the following things:

- Fedora Core 2 CD's 1 thru 3
- Active Connection to the Internet
- Computer that can be formatted and have a new OS installed from scratch
- About 3-4 hours of time

# How it works

Cacti uses a suite of applications to do visual web front end graphing of results pulled via SNMP. These SNMP values can range from input/output rates on network / server interfaces to the number of mac-addresses associated to a given access-point. Using SNMP to manage a network can provide a non-technical central point of consolidation and health monitoring of your infrastructure. As stated earlier, SNMP is something that is already or can easily be enabled on many IP capable devices. Using SNMP to constantly pull statistical information and graphing that information can be useful in tracking things like disk utilization, network activity and much more. The CACTI application requires several utilities to be configured to work together in order to present the information in a GUI web front end. These utilities include a web server, a database, PHP and RDTOOL. All of which is freely available for the Linux operating system.

# Installing Fedora Core 2

The following section will explain how to install Fedora Core2. I do not go through updating the packages on your box once it is installed because technically you don't need to do this for a successfully install. however, from a security prospective it is HIGHLY recommended that you update the system using the up2date utility provided within the GNOME GUI.

Insert Disk 1 and Boot the System (the system must be configured to boot from CDROM for this to work). This will start the install process that I will take you through below.

| Screen Name | Action Taken |
|---|---|
| Media Test | Select Skip and click OK |
| Welcome to Fedora Core | Click Next |
| Language Selection | Default=English<br>Click Next |

| Screen Name | Action Taken |
|---|---|
| Keyboard Configuration | Default=English<br>Click Next |
| Installation Type | Check Custom<br>Click Next |
| Disk Partitioning Setup | Default=Automatically Partition<br>Click Next |
| Automatic Partition | Check Remove All<br>Click Next<br>At Warning Screen Click Yes |
| Disk Setup | Click Next |
| Boot Loader Configuation | Click Next |
| Network Configuration | Set Desired IP settings<br>Click Next |
| Firewall Configuration | Default=Enable Firewall<br>Check WWW<br>Check SSH<br>Click Next |
| Additional Language Support | Default=English(USA)<br>Click Next |
| Time Zone Selection | Select your Time Zone<br>Click Next |
| Set Root Password | Set password<br>Click Next |
| Package Group Selection | See Below: |

## Package Group Selection

Ok, now it is time to setup the packages that you want to install in your new Fedora Core2 Installation. The packages I have selected will guarantee you a successful installation but you may choose to add / remove any packages that will suite your own environment.

Items with a + sign mean you are to add them from the default
Items with a – sign mean you are to remove them from the default

Items without anything mean to leave it alone

## Desktops

| Package Name | Action 1 | Action 2 |
|---|---|---|
| X-Windows | | |
| Gnome Desktop | | |
| KDE | | |
| **Package Name** | **Action 1** | **Action 2** |

## Applications

| Package Name | Action 1 | Action 2 |
|---|---|---|
| Editors | | |
| Engineering and Scientific | | |
| Graphical Internet | CLICK ON DETAILS | -EVOLUTION<br>-GAIM<br>+GFTP<br>-X CHAT |
| Text-based Internet | CLICK ON DETAUKS | -FETCH MAIL<br>+LYNX<br>-MUTT<br>-SLRN |
| Office / Productivity | UN-CHECK THE BOX | |
| Sound and Video | UN-CHECK THE BOX | |
| Authoring and publishing | | |
| Graphics | UN-CHECK THE BOX | |
| Games and Entertainment | UN-CHECK THE BOX | |
| **Package Name** | **Action 1** | **Action 2** |

## Servers

| Package Name | Action 1 | Action 2 |
|---|---|---|
| Server Configuration Tools | CHECK THE BOX AND CLICK ON DETAILS | +SYSTEM-CONFIG-BOOT |
| Web server | | |
| Mail server | | |
| Window File Server | CHECK THE BOX | |
| DNS name server | | |
| FTP Server | | |
| SQL Database Server | | |
| News Server | | |
| Network Servers | | |
| | | |

| | | |
|---|---|---|
| | | |
| | | |
| | | |
| **Package Name** | **Action 1** | **Action 2** |

## Development

| Package Name | Action 1 | Action 2 |
|---|---|---|
| Development Tools | CHECK THE BOX | |
| Kernel Development | CHECK THE BOX | |
| X Software Development | CHECK THE BOX | |
| Gnome Software Development | CHECK THE BOX | |
| KDE Software Development | | |
| **Package Name** | **Action 1** | **Action 2** |

## System

| Package Name | Action 1 | Action 2 |
|---|---|---|
| Administration Tools | CHECK THE BOX | |
| System Tools | CHECK THE BOX AND CLICK DETAILS | -CKERMIT<br>+ETHEREAL-GNOME<br>+NMAP-FRONTEND<br>+TSCLIENT<br>-XDELTA |
| Printing Support | UN-CHECK THE BOX | |
| **Package Name** | **Action 1** | **Action 2** |

Click Next When you are ready to go.

During the install you will be asked to insert disk 2, and 3 (since disk 1 is already in the PC you won't be asked for that one obviously. On my system (Celeron 733 with 256 RAM It took approximately 15 minutes before it asked for Disk 2 and 20 minutes before it asked for Disk 3. Disk 3 finished in approximately 5 minutes making the entire install time (after the initial setup and package selections) to be around 40 minutes.

After it is finished with Disk 3 it will automatically eject the CD and you will need to click REBOOT.

Now that Fedora Core 2 is installed on your system you will have to go thorough an initial setup on the first boot. Here you will need to provide information about License agreement, Date/Time, Display settings, User Accounts, Sound Card, Additional CD's and finally Finish setup. Go through these prompts and when you are finished you should be prompted with a gui login. For the rest of this install login as root until you are finished updating and installing software on the system. After that you can login as the user you created to do everything else.

## Show me the Files

You are now ready to begin downloading the files necessary to install and run Cacti. This can be done via the command line (CLI) using a command called wget. Before we start downloading the files we must first create a directory that we want to download the files to. For sake of this how-to that directory will be located under the root file system (/) in a directory called cacti-install. *(Remember you should be logged in as root for the duration of this how-to. After all is setup you can login as a normal user and sudo for root privileged commands if you wish).*

| **Run these commands as root** |
| --- |
| mkdir /cacti-install<br>cd /cacti-install<br>wget http://apache.mirrors.versehost.com/httpd/httpd-2.0.52.tar.gz<br>wget http://us4.php.net/get/php-4.3.8.tar.gz/from/this/mirror<br>wget http://dev.mysql.com/get/Downloads/MySQL-4.0/mysql-4.0.21.tar.gz/from/http://www.signal42.com/mirrors/mysql/<br>wget http://people.ee.ethz.ch/~oetiker/webtools/rrdtool/pub/rrdtool-1.0.49.tar.gz<br>wget http://unc.dl.sourceforge.net/sourceforge/net-snmp/net-snmp-5.1.2.tar.gz<br>wget http://www.cacti.net/downloads/cacti-0.8.6b.tar.gz |
| **File Download Script** |

Once you have downloaded the files it is HIGHLY recommended to check the directory and make sure all the files are actually downloaded. As noted earlier version numbers change and the location of the files may change so the wget script will fail if that is the case. If they fail during download you must fine a new location

# Install MySQL

**Run these commands as root**

```
cd /cacti-install
tar -zxvf mysql*
cd mysql*
./configure --prefix=/usr/local/mysql
make
make install
groupadd mysql
useradd -g mysql mysql
scripts/mysql_install_db
chown -R root /usr/local/mysql
chown -R mysql /usr/local/mysql/var
chgrp -R mysql /usr/local/mysql
rm -f /etc/my.cnf
cp support-files/my-medium.cnf /etc/my.cnf
echo /usr/local/mysql/lib/mysql >> /etc/ld.so.conf
echo /usr/local/lib >> /etc/ld.so.conf
ldconfig –v
cp support-files/mysql.server /etc/init.d/mysql
/usr/local/mysql/bin/mysqld_safe --user=mysql &

Echo
cd /etc/rc3.d/
ln -s ../init.d/mysql S85mysql
ln -s ../init.d/mysql K85mysql
cd /etc/rc5.d/
ln -s ../init.d/mysql S85mysql
ln -s ../init.d/mysql K85mysql
cd /etc/init.d/
chmod 755 mysql
```

**MySQL Install Script**

# Install Apache

**Run these commands as root**

```
cd /cacti-install
tar -zxvf httpd*
cd httpd*
./configure --prefix=/www –enable-so
make
make install
cd /www/bin
cp apachectl /etc/init.d/httpd
y
cd /etc/rc3.d/
ln -s ../init.d/httpd S85httpd
ln -s ../init.d/httpd K85httpd
cd /etc/rc5.d/
ln -s ../init.d/httpd S85httpd
ln -s ../init.d/httpd K85httpd
/www/bin/apachectl start
```

**Apache Install Script**

# Install PHP

| Run these commands as root |
| --- |
| cd /cacti-install<br>tar -zxvf php*<br>cd php*<br>./configure --prefix=/www/php --with-apxs2=/www/bin/apxs --with-config-file-path=/www/php --enable-sockets --with-mysql=/usr/local/mysql --with-zlib-dir=/usr/include –with-gd<br>make<br>make install<br>cp php.ini-dist /www/php/php.ini<br>cp /www/conf/httpd.conf /www/conf/httpd.conf.backup<br>echo ######################## >> /www/conf/httpd.conf<br>echo # Added via Lee Carter's Script >> /www/conf/httpd.conf<br>echo ######################## >> /www/conf/httpd.conf<br>echo AddType application/x-tar .tgz >> /www/conf/httpd.conf<br>echo AddType application/x-httpd-php .php >> /www/conf/httpd.conf<br>echo AddType image/x-icon .ico >> /www/conf/httpd.conf<br>echo DirectoryIndex index.php index.html index.html.var >> /www/conf/httpd.conf<br>service httpd stop<br>service httpd start |
| **PHP Install Script** |

## Configure MySQL

| Run these commands as root |
| --- |
| cd /cacti-install<br>group-add cacti<br>useradd -g cacti cactiuser<br>/usr/local/mysql/bin/mysql<br>mysql> set password for *root@localhost*=password('rootpw');<br>mysql> create database cactidb;<br>mysql> grant all on cactidb.*  to root;<br>mysql> grant all on cactidb.* to *root@localhost*;<br>mysql> grant all on cactidb.* to cactiuser;<br>mysql> grant all on cactidb.* to *cactiuser@localhost;*<br>mysql> set password for cactiuser@localhost=password('cactipw');<br>mysql> exit |
| **MySQL Configure Script** |

## Install RRDTOOL

| Run these commands as root |
| --- |
| cd /cacti-install<br>tar -zxvf rrdtool*<br>cd rrdtool*<br>./configure --prefix=/usr/local/rrdtool<br>make<br>make install |
| **RRDTOOL Install Script** |

# Install NET-SNMP

| Run these commands as root |
| --- |
| cd /cacti-install<br>tar -zxvf net-snmp*<br>cd net-snmp*<br>./configure |
| **NET-SNMP Install Script Part 1** |

At the end of the ./configure script you will be required to go thru a set of prompts to setup snmp on your linux box. Below is an avreviated version of what you will see and what I have used as answers to the questions. If ther is nothing after the : then that means I used the default and simply hit enter.

**Setup Menu:**
Default Version of SNMP (3): 1
System Contact Information (root@): New Cacti User
System Location (Unknown): Data Center Rack 2A1
Location to write logfile (/var/log/snmpd.log):
Location to write presistant information (/var/net-snmp):

After you are finished with the configure script that runs. You can continue on to compiling and installing net-snmp.

| Run these commands as root |
| --- |
| make<br>make install |
| **NET-SNMP Install Script Part 2** |

.

# Install Cacti

| Run these commands as root |
| --- |
| cd /cacti-install<br>cp cacti* /www/htdocs/<br>cd /www/htdocs/<br>tar -zxvf cacti*<br>mv cacti-0.8.6b cacti/<br>cd /cacti<br>/usr/local/mysql/bin/mysql --user=root --password=rootpw cactidb < cacti.sql<br>chown -R cactiuser rra/ log/ |
| **Cacti Install Script** |

Now edit your /www/htdocs/cacti/include/config.php

The finished product should look like so:

```
$database_defaut = “cactidb”;
$database_hostname = “localhost”;
$database_username = “cactiuser”;
$database_password = “cactipw”;
```

Now add the following line in your /etc/ctrontab

The finished product should look like so:

```
*/5 * * * * cactiuser /www/php/bin/php /www/htdocs/cacti/poller.php > /dev/null 2>&1
```

NOTE*** DO NOT RUN THE ABOVE COMMAND. LET THE CRONTAB FILE RUN IT.

If you run the above command as root there will be several files created under ...../rra and ..../log that will now be owned by the user ROOT and your graphs will NOT populate correctly. So the moral is... JUST TYPE IN WHAT YOU SEE ABOVE AND SAVE THE FILES. DONT RUN THEM.

## Finalize Setup

You are now ready to finalize the setup process for cacti. To do this you will need to point your browser to the IP address of the cacti system like so:

http://localhost/cacti

or

http://remoteIP/cacti

1. Click Next
2. Default (New Install) -> Click Next
3. Two errors locating php and rrdtool to Fix them replace what they have with:

    RRDTOOL = /usr/local/rrdtool/bin/rrdtool

    PHP = /www/php/bin/php

4. Click Finish
5. Login admin/admin
6. Change Password for user admin
7. Click Save

That's it! Your done. Congratulations on your new install. You can now start playing with the cacti utility it's self. I highly recommend going to the message boards to find add-ons and helpful hints when trying to do any advanced things in cacti. This is a highly versatile utility and is really only limited to your imagination.