

Install Cacti on Debian, CentOS, SuSE and Gentoo Linux - Tracking graphically server performance

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There are plenty of ways to [track graphically server performance in Web](#) (Nagios, Munin, Zabbix, OpenNMS) etc.

Though **Munin** and **Nagios** is a *great choice for people who prefer simplicity in installation and maintenance*. If you're **looking for customizable reports and time windows history on how server (network, cpu, memory, hdd or services) behaved** you will probably need to consider using **Cacti**.

Cacti is a complete network graphing solution designed to harness the power of [RRDTool](#)'s data storage and graphing functionality. *Cacti provides a fast poller, advanced graph templating, multiple data acquisition methods, and user management features out of the box*. All of this is wrapped in an intuitive, easy to use interface that makes sense for LAN-sized installations up to complex networks with hundreds of devices.

Cacti is very much like **Munin** except Cacti gives you the possibility to select and show statistics for periods in time, making it very convenient to check how server/servers services performed historically in time.

Cacti is a bunch of **PHP scripts** that gives a *nice frontend* to the famous [RRDTool](#), it *stores all gathered service statistics information in a MySQL database*. Web frontend queries the SQL to craete graphs and populate them with data . *Cacti has SNMP protocol support* for those used to creating traffic graphs with MRTG.

Its easily extendable, there is a "tree view", which allows you to **put graphs onto a hierarchical tree for organizational purposes**, there is a *user based management tool built in* so **you can add users and give them rights to certain areas of cacti**. You can create users that can change graph parameters, while others can only view graphs. Each user also maintains their own settings when it comes to viewing graphs.

Cacti has prebuilt packages for major Linux distributions as well as FreeBSD ports.
Native packages are available via distros repositories for:

Fedora, Debian, SuSE and Gentoo Linux

To work properly Cacti depends on following external packages to be installed:

- **Apache HTTPD**
- **MySQL**
- **PHP**
- **RRDTool**
- **Net-Snmp**
- **PHP-MySQL module**
- **PHP-Snmp module**

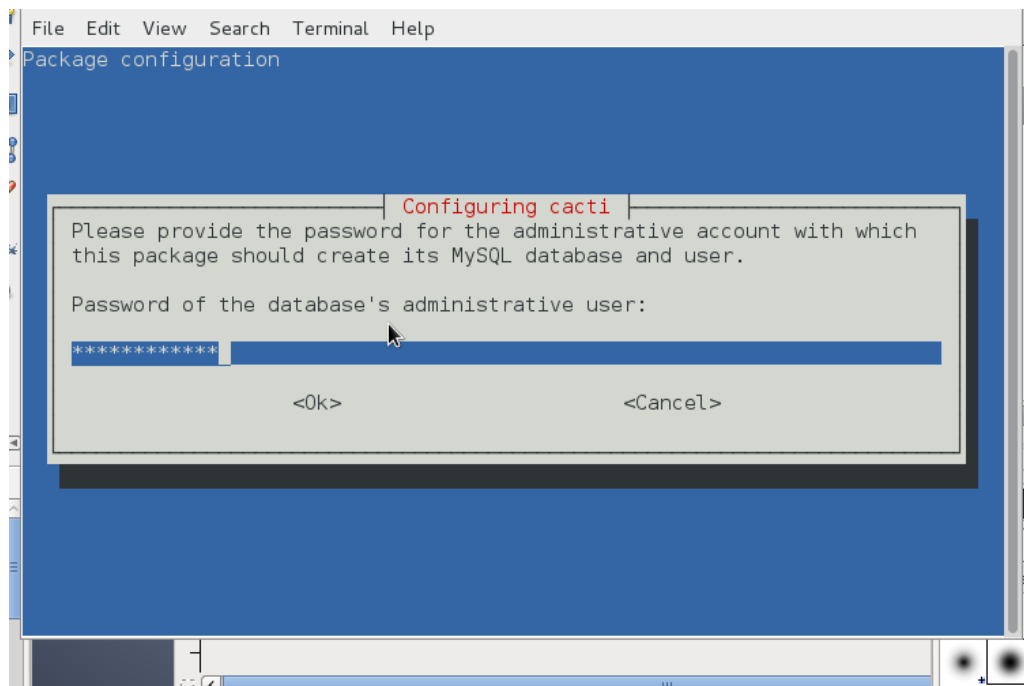
1. Install Cacti on Debian 7 or Ubuntu Linux

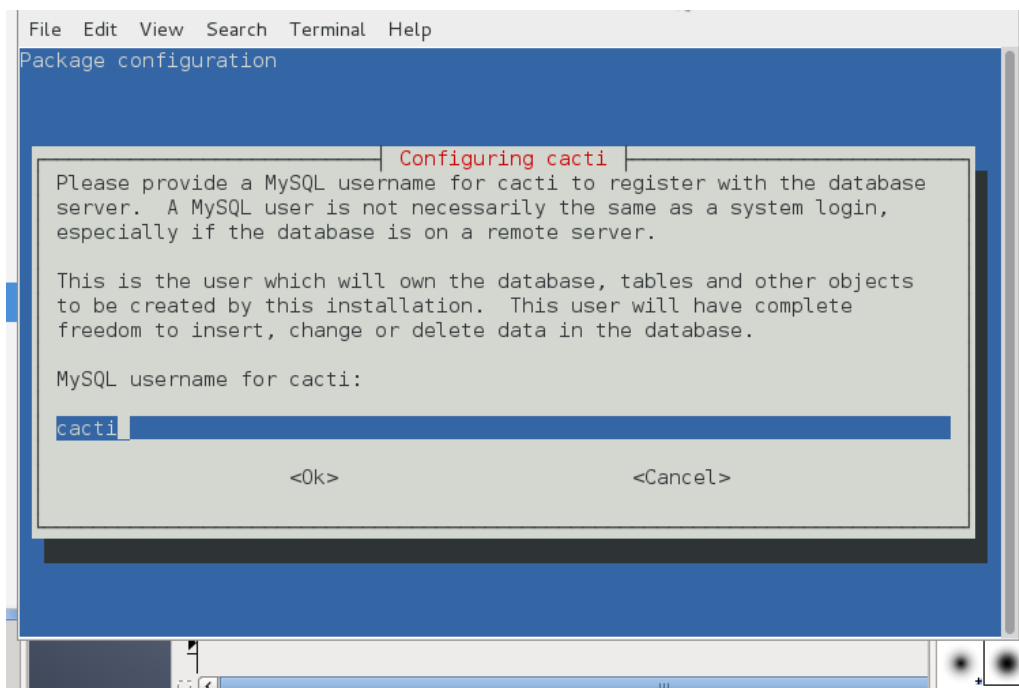
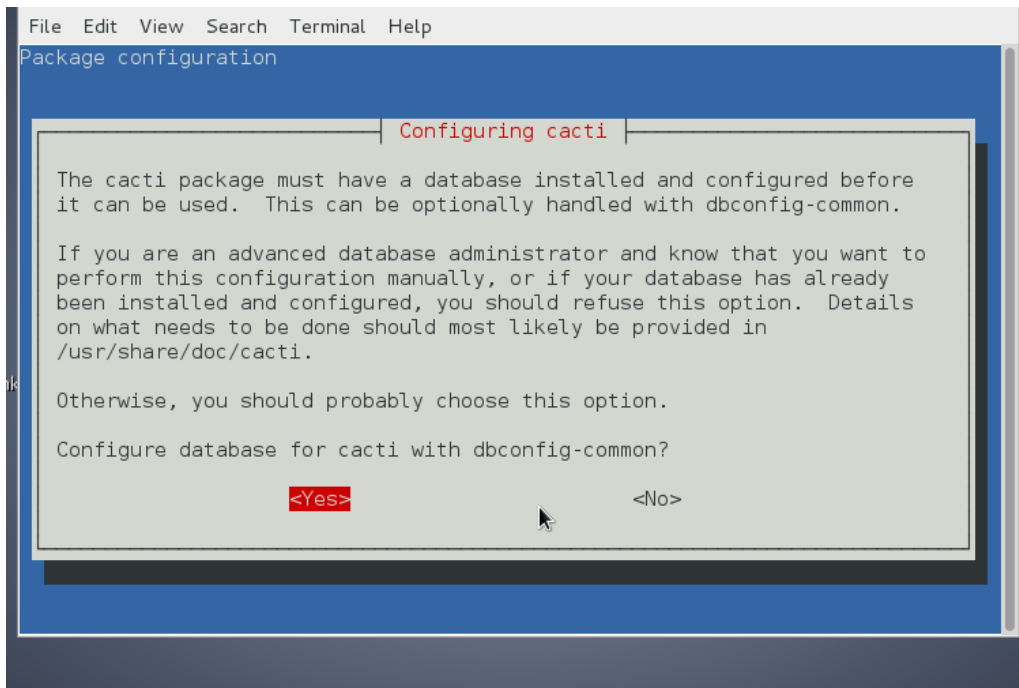
On Debian based distributions Installation of Cacti is super easy. If you're a debian admin it will save you time:

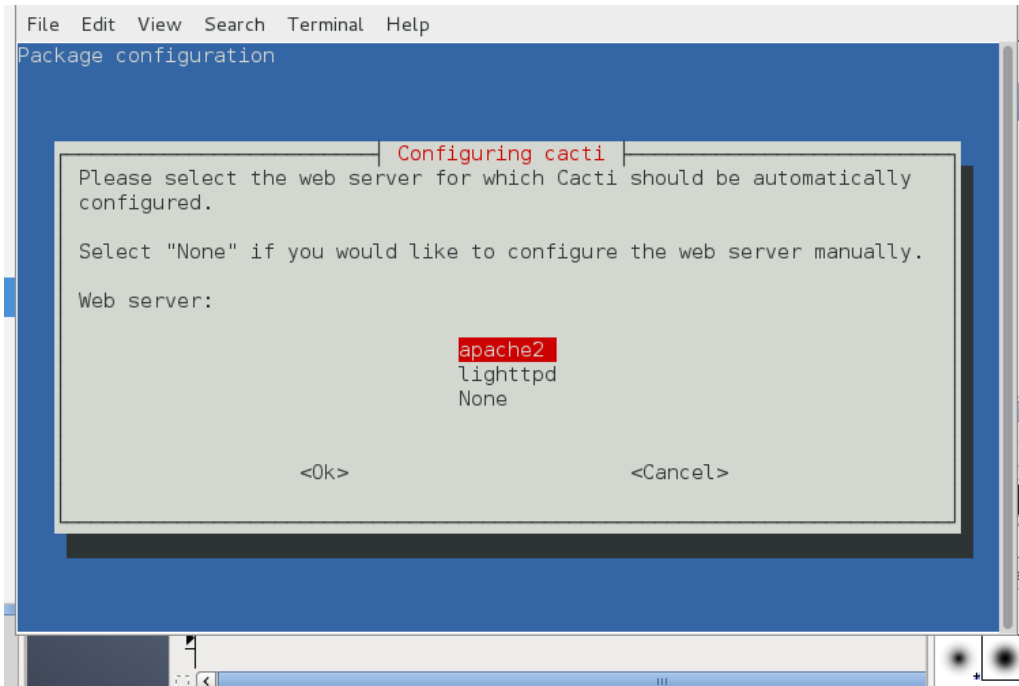
Cacti package is very well crafted on Debian to have it installed all you have to do is apt-get it:

apt-get install --yes cacti snmpd

You will be prompted a couple of screens requiring you to fill in your MySQL root password (necessery for connection and import of **cacti.sql** database and tables *skele* and creation of *new user with which cacti will query the db-server.*)







```
mv /etc/snmp/snmpd.conf /etc/snmp/snmpd.conf.bak
```

```
vi /etc/snmp/snmpd.conf
```

```
# this will make snmpd listen on all interfaces
agentAddress udp:161
```

```
# a read only community 'myCommunity' and the source network is defined
rocommunity myCommunity 192.168.10.5
rocommunity myCommunity 127.0.0.1
```

```
sysLocation Earth
sysContact email@your-domain.com
```

You will be next prompted to fill in user and password for cacti user, type whatever you like it to be and *save the password somewhere for later use.*

After installing it Cacti cron will automatically be added to collect cacti statistics on every 5 minutes, e.g.:

```
cat /etc/cron.d/cacti
```

```
MAILTO=root
*/5 * * * * www-data php /usr/share/cacti/site/poller.php >/dev/null 2>/var/log/cacti/poller-
error.log
```

Cacti Cron job script has to run multiple times until *Cacti Graphics gets generated* so wait for it 5, 10 minutes or run it manually with www-data user credentials

poller.php is making queries to MySQL and connecting to SNMP service on localhost querying information for configured monitoring from Console

rrd data is stored in /var/lib/cacti/rra

You will have to also create manually following files which will be used by cacti to store rrd data.

In case of issues with cacti check that permissions of files in there are correct

To do su run:

```
su www-data -s /bin/sh
```

```
touch /var/lib/cacti/rra/localhost_mem_buffers_3.rrd
/var/lib/cacti/rra/localhost_load_1min_5.rrd
/var/lib/cacti/rra/localhost_users_6.rrd
/var/lib/cacti/rra/localhost_proc_7.rrd
```

2. Install Cacti on Fedora / CentOS Linux

Installation on Fedora is a little pain in the ass as there is plenty of things to do manually to have cacti working

a) Install pre-required RPM packages

```
yum -y install mysql-server mysql php-mysql php-pear php-common php-gd php-devel php php-
mbstring php-cli php-snmp php-pear-Net-SMTP php-mysql httpd net-snmp-utils php-snmp net-
snmp-libs
```

Note! that if you already have a server with Apache + PHP configured many of above packages will report to be installed.

Whether mysql-server was not existing previously, change your MySQL password to a new-one

```
mysqladmin -u root password NEWPASSWORD
```

Create database for Cacti to store collected data:

```
mysql -u root -p -e 'create database cacti'
```

Connect to mysql server and create cacti user:

```
mysql> GRANT ALL ON cacti.* TO cacti@localhost IDENTIFIED BY 'very-secret-password';  
mysql> FLUSH privileges;
```

Create SNMP configuration for Cacti and start SNMP

```
vi /etc/snmp/snmpd.conf
```

and paste into it:

```
com2sec local localhost public  
group MyRWGroup v1 local  
group MyRWGroup v2c local  
group MyRWGroup usm local  
view all included .1 80  
access MyRWGroup "" any noauth exact all all none  
syslocation Unknown (edit /etc/snmp/snmpd.conf)  
syscontact Root (configure /etc/snmp/snmp.local.conf)  
pass .1.3.6.1.4.1.4413.4.1 /usr/bin/ucd5820stat
```

Start SNMPD and make it start automatically on Fedora boot

```
# /etc/init.d/snmpd start  
# chkconfig snmpd on
```

Test whether SNMP server is properly working and returning info:

```
snmpwalk -v 1 -c public localhost IP-MIB::ipAdEntIfIndex
```

You should get output like:

```
IP-MIB::ipAdEntIfIndex.192.168.10.5 = INTEGER: 2
IP-MIB::ipAdEntIfIndex.217.xx.xx.xxx = INTEGER: 3
IP-MIB::ipAdEntIfIndex.127.0.0.1 = INTEGER: 1
```

Install Cacti package:

```
yum -y install cacti
```

Import Cacti initial SQL data:

- Check in RPM package where is default *cacti.sql*

```
rpm -ql cacti | grep cacti.sql
```

```
/usr/share/doc/cacti-0.8.7i/cacti.sql
```

```
mysql -u cacti -p very-secret-password
```

Configure Cacti:

```
vi /etc/cacti/db.php
```

```
/* make sure these values reflect your actual database/host/user/password */
$database_type = "mysql";
$database_default = "cacti";
$database_hostname = "localhost";
$database_username = "cacti";
$database_password = "very-secret-password";
$database_port = "3306";
```

A small note to make here is Cacti can be configured to also work with MariaDB backend but, I haven't tried it so far ...

Set Cacti cronjob to periodically update cacti stats

vi /etc/cron.d/cacti

***/* * * * * cacti /usr/bin/php /usr/share/cacti/poller.php > /dev/null 2>&1**

Make Cacti accessible from Web - add cacti alias in Apache

vi /etc/httpd/conf.d/cacti.conf

```
#  
# Cacti: An rrd based graphing tool  
#  
Alias /cacti /usr/share/cacti
```

```
Order Deny,Allow  
Deny from all  
Allow from 10.0.0.0/8
```

Restart Apache to load new config

/etc/init.d/httpd restart

3. Install Cacti on Gentoo Linux

Modify your /etc/make.conf so USE="" options looks like this:

USE="symlink mmx sse sse2 bash-completion vhosts xml sockets snmp"

Install Cacti, PHP and Apache and webapp-config with emerge (Gentoo package manager)

emerge apache php cacti webapp-config

Hopefully all should get installed properly, if you get an error like "Could not read settings from

webapp-config" run:

```
cd /etc/  
etc-update
```

Create a vhost if you don't already have one and then run the following. Then install cacti to the vhost using webapp-config. Remember to change the -h option to reflect the name of your vhost and that you may need to set a different cacti version number if cacti has been updated since I posted this article.

```
webapp-config -I -h yourdomain.com -d cacti cacti 0.8.7e-r1 mysqladmin -p --user=root create  
cacti mysql -p --user=root cacti
```

Add a cron entry to your tab to get Cacti to update. Add the following entry to your crontab updating the path as needed

```
crontab -u root -e
```

And paste

```
*/5 * * * * apache /usr/bin/php /var/www/yourdomain.com/htdocs/cacti/poller.php > /dev/null  
2>&1
```

Now open in a browser:

<http://yourdomain.com/cacti>

Login with user / pass admin / admin

After logging, Click Graphs tab (located on left top) corner and after a while your should see the graphs start to be drawn.

3. Install Cacti on OpenSuSE

Install Cacti from Yast suse package manager. A very good complete [instructions on OpenSuSE installation is here](#)

4. Configuring Cacti to draw statistics for host

So far so good now *Cacti* is installed but to make it generate its configuration its necessary to do some configuration tampering.

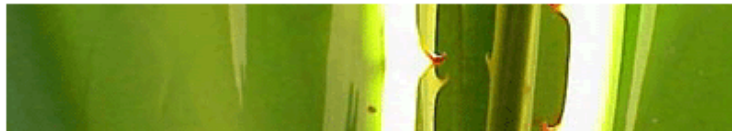
Cacti's configuration is pretty obscure and it needs time and a couple of tries until you have learned how to configure statistics generation.

Cacti's web interface is divided by two major parts Console (From which all kind of configuration is done) and Graphs (From here all configured graphs can be expected, and information for time periods *setted services, memory, CPU, hard drive*, etc. can be obtained).

To Complete Cacti installation and configuration using a web-browser

Access URL:

<http://your-domain.com/cacti/>



User Login

Please enter your Cacti user name and password below:

User Name:

Password:

Cacti Installation Guide

Make sure all of these values are correct before continuing.

[FOUND] RRDTool Binary Path: The path to the rrdtool binary.

[OK: FILE FOUND]

[FOUND] PHP Binary Path: The path to your PHP binary file (may require a php recompile to get this file).

[OK: FILE FOUND]

[FOUND] snmpwalk Binary Path: The path to your snmpwalk binary.

[OK: FILE FOUND]

[FOUND] snmpget Binary Path: The path to your snmpget binary.

[OK: FILE FOUND]

[FOUND] snmpbulkwalk Binary Path: The path to your snmpbulkwalk binary.

[OK: FILE FOUND]

[FOUND] snmpgetnext Binary Path: The path to your snmpgetnext binary.

[OK: FILE FOUND]

[FOUND] Cacti Log File Path: The path to your Cacti log file.

[OK: FILE FOUND]

SNMP Utility Version: The type of SNMP you have installed. Required if you are using SNMP v2c or don't have embedded SNMP support in PHP.

RRDTool Utility Version: The version of RRDTool that you have installed.

NOTE: Once you click "Finish", all of your settings will be saved and your database will be upgraded if this is an upgrade. You can change any of the settings on this screen at a later time by going to "Cacti Settings" from within Cacti.

Finish

By default Cacti is configured to have user admin with password admin. Login to Cacti and you will be prompted to change default password - set it to whatever you like.

Cacti Installation Guide

Thanks for taking the time to download and install cacti, the complete graphing solution for your network. Before you can start making cool graphs, there are a few pieces of data that cacti needs to know.

Make sure you have read and followed the required steps needed to install cacti before continuing. Install information can be found for [Unix](#) and [Win32](#)-based operating systems.

Also, if this is an upgrade, be sure to reading the [Upgrade](#) information file.

Cacti is licensed under the GNU General Public License, you must agree to its provisions before continuing:

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Next >>

Configure Cacti to do SNMP data collection

Cacti will use SNMP protocol to obtain server traffic statistics and visualize them.

Click on:

Devices -> Add

Fill in only fields (and let the rest as it is):

Description: *Pc-freak.net*

hostname: *127.0.0.1*

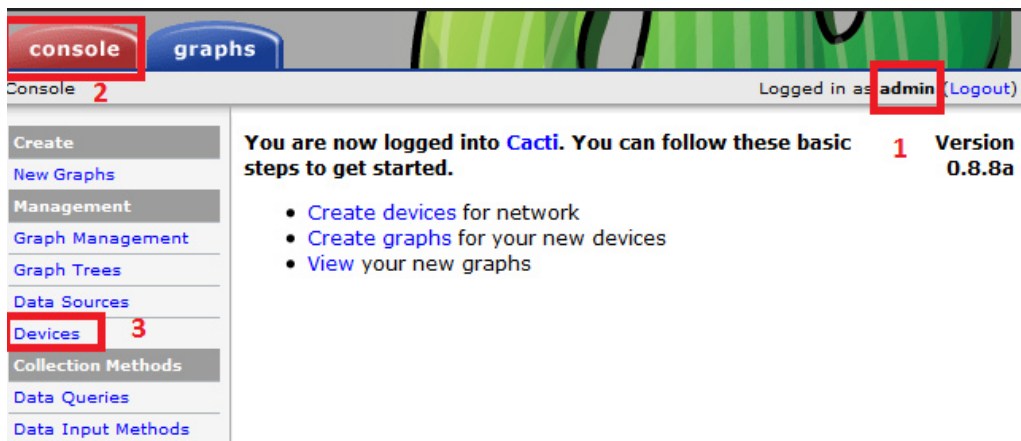
Select for SNMP Version (drop down menu): SNMP Version 2

and then click on

Create button (located right down)

Ping timeout value The timeout value to use for host ICMP and UDP ping. This host SNMP timeout value applies for SNMP pings.	<input type="text" value="400"/>
Ping Retry Count After an initial failure, the number of ping retries Cacti will attempt before failing.	<input type="text" value="1"/>
SNMP Options	
SNMP Version Choose the SNMP version for this device.	<input type="text" value="Version 2"/>
SNMP Community SNMP read community for this device.	<input type="text" value="myCommunity"/>
SNMP Port Enter the UDP port number to use for SNMP (default is 161).	<input type="text" value="161"/>
SNMP Timeout The maximum number of milliseconds Cacti will wait for an SNMP response (does not work with php-snmp support).	<input type="text" value="500"/>
Maximum OID's Per Get Request Specified the number of OID's that can be obtained in a single SNMP Get request.	<input type="text" value="10"/>
Additional Options	

Here I've used *localhost (127.0.0.1)* as a hostname, because localhost server is to be monitored for remote monitoring of cacti set the REMOTE IP or hostname instead.



In field Associated Data queries add Data query for:

SNMP - Get Mounted Partitions

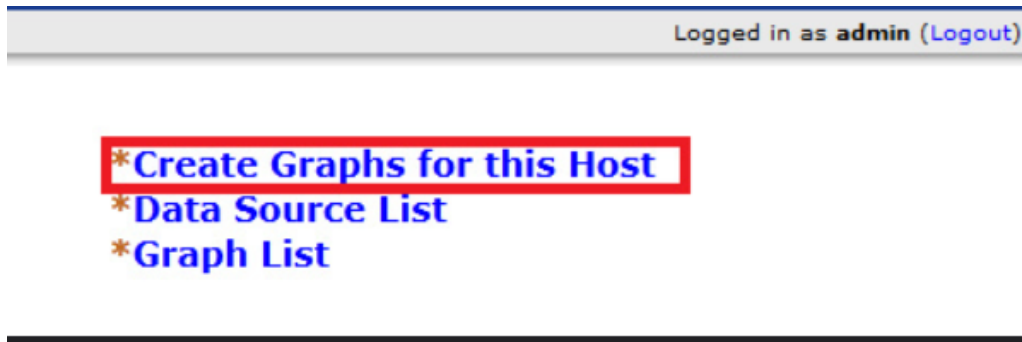
SNMP - Get Process Information

SNMP - Interface statistisc

P.S. Use the Add button for all this ..

Create SNMP graphs collection for first time

Click on Create Graphs for this Host see - *top right side*.



pc-freak.net (127.0.0.1)

Host: Graph Types: [*Edit this Host](#) [*Create New Host](#)

Graph Templates

Graph Template Name:

Create:

Data Query [Network - Get Processor Information]

This data query returned 0 rows, perhaps there was a problem executing this data query. You can [run this data query in debug mode](#) to get more information.

Data Query [SNMP - Get Mounted Partitions]

Index	Description	Storage Allocation Units	<input type="checkbox"/>
1	Physical memory	1024	<input checked="" type="checkbox"/>
3	Virtual memory	1024	<input checked="" type="checkbox"/>
6	Memory buffers	1024	<input checked="" type="checkbox"/>
7	Cached memory	1024	<input checked="" type="checkbox"/>
8	Shared memory	1024	<input checked="" type="checkbox"/>
10	Swap space	1024	<input checked="" type="checkbox"/>
31	/dev	4096	<input checked="" type="checkbox"/>
32	/	4096	<input checked="" type="checkbox"/>

Data Query [SNMP - Interface Statistics]

Index	Status	Description	Name (IF-MIB)	Alias (IF-MIB)	Type	Speed	High Speed	Hardware Address	IP Address	<input type="checkbox"/>
1	Up	lo	lo		24	10000000	10		127.0.0.1	<input type="checkbox"/>

Select on SNMP - Interface Statistics

Choose a graph type (for exmp. In/Out bytes with total bandwidth)

To Finalize click Create button

Create Graphs for this host

Save Successful.

Localhost (127.0.0.1)
SNMP Information
System: Linux pc-freak 2.6.32-5-amd64 #1 SMP Sun Sep 23 11:33 UTC 2012 x86_64
Uptime: 9543 (0 days, 0 hours, 1 minutes)
Hostname: pc-freak
Location: Earth
Contact: email@domain.tld

[*Create Graphs for this Host](#)
[*Data Source List](#)
[*Graph List](#)

Devices [edit: Localhost]
General Host Options

Description Give this host a meaningful description.	Localhost
Hostname Fully qualified hostname or IP address for this device.	127.0.0.1
Host Template Choose what type of host, host template this is. The host template will govern what kinds of data should be gathered from this type of host.	Local Linux Machine
Disable Host Check this box to disable all checks for this host.	<input type="checkbox"/> Disable Host

Creating Graph Trees

Use Console -> Graph Trees -> Add -> Sample Tree

Choose:

Setting type: *Manual Ordering (No Sorting)*

Tree Item Type: *Graph*

Graph: *Server Name - Traffic eth0*

Then press Create (button)

To verify the graphs are drawn correctly in a while go to:

Graphs -> Sample Tree (or whatever you named the tree during creation)

Interface Graphs and 64-bit Counters

By default, Cacti uses 32-bit counters in SNMP queries. 32-bit counters are sufficient for most bandwidth graphs, but they do not work correctly for graphs greater than 100 Mbps. If it is known that the bandwidth will exceed more than 100 Mbps, it is always advisable to use 64-bit counters.

Using 64-bit counters is not hard at all.

Note! It takes usually around 15 minutes for Cacti to populate new graphs. There is no option to run cacti on cron manually but you have to wait

After some time of Cacti running, you will end up with nice graphics like this:



If you get some issues and even after 15 / 20 minutes you still don't have the graphics drawn to debug the issues check for errors in:

/var/log/apache2/error.log - If there are missing rra files this should be logged here

/var/log/cacti/cacti.log

/var/log/cacti/poller-error.log - If the reason for not drawing the graphics is permissions errors will be here

/var/log/rrd.log - should contain rrd related errors

Important thing to mention is Cacti is requiring php exec() option to be functional. On hosts which has disabled exec(); function for security reasons cacti will fail to produce graphs.

References and thanks to:

<http://xmodulo.com/2013/11/monitor-linux-servers-snmp-cacti.html>

http://openmaniak.com/cacti_tutorial.php <http://www.cacti.net/>

<http://www.debianhelp.co.uk/cacti.htm>