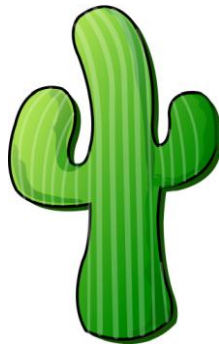


Cacti

SNMPAgent Plugin Version 0.1

Usage Guide



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1 Preface

During one of my latest projects I had to deal with the formal process being necessary to make SNMP notifications usable for foreign SNMP trap receivers. And while I spent some time reading more of the creation of MIBs, the different rules, the special syntax, et cetera, et cetera, I thought: “Hey, we already have a private enterprise number registered by IANA. It’s time to fill it with some content.”

But the creation of a MIB for Cacti is only one part of the story. The challenge is to parse that MIB and to provide the related data using SNMP. This was the birth of the SNMPagent plugin.

In the end SNMPagent became a basic Cacti plugin without any kind of GUI in its initial release. In combination with NET-SNMP it provides several stats of its Cacti host and in doing so, it allows foreign systems or Cacti itself to query these information directly via SNMP.

I’m looking forward to your feedback.

-Andreas Braun (aka browniebraun)

2 Cacti MIB Tree

2.1 Structure of Cacti's Management Information MIB

```

|
+- cactiAppl
+- cactiStats
+- cactiEvents
+- cactiPlugins

```

Revision: "201301270000Z"

2.2 Expanded Cacti MIB Tree

```

+- cactiAppl
|  |
|  +- cactiApplLastUpdate
|  +- cactiApplVersion
|  +- cactiApplSnmpVersion
|  +- cactiApplRrdtoolVersion
|  +- cactiApplPollerEnabled
|  +- cactiApplPollerType
|  +- cactiApplPollerInterval
|  +- cactiApplLoadBalance
|  +- cactiApplSpineMaxThreads
|  +- cactiApplSpineScriptServers
|  +- cactiApplSpineScriptTimeout
|  +- cactiApplSpineMaxOids
|  |
|  +- cactiApplDeviceTable
|  |  |
|  |  +- cactiApplDeviceEntry
|  |  |
|  |  +- cactiApplDeviceIndex
|  |  +- cactiApplDeviceDescription
|  |  +- cactiApplDeviceHostname
|  |  +- cactiApplDeviceStatus
|  |  +- cactiApplDeviceEventCount
|  |  +- cactiApplDeviceFailDate
|  |  +- cactiApplDeviceRecoveryDate
|  |  +- cactiApplDeviceLastError
|  |
|  +- cactiApplPollerTable
|  |  |
|  |  +- cactiApplPollerEntry
|  |  |
|  |  +- cactiApplPollerIndex
|  |  +- cactiApplPollerHostname
|  |  +- cactiApplPollerIpAddress
|  |  +- cactiApplPollerLastUpdate
|  |
|  +- cactiApplPluginTable
|  |  |
|  |  +- cactiApplPluginEntry
|  |

```

```
|      +- cactiApplPluginIndex
|      +- cactiApplPluginType
|      +- cactiApplPluginName
|      +- cactiApplPluginStatus
|      +- cactiApplPluginVersion
|
+- cactiStats
| |
| | +- cactiStatsLastUpdate
| | +- cactiStatsRecacheTime
| | +- cactiStatsRecachedHosts
| | +- cactiStatsLocalPollerRuntime
| | +- cactiStatsTotalsDevices
| | +- cactiStatsTotalsDataSources
| | +- cactiStatsTotalsGraphs
| | |
| | +- cactiStatsTotalsDeviceStatusTable
| | | |
| | | | +- cactiStatsTotalsDeviceStatusEntry
| | | | |
| | | | +- cactiStatsTotalsDeviceStatusIndex
| | | | +- cactiStatsTotalsDeviceStatusCounter
| | |
| | +- cactiStatsDeviceTable
| | | |
| | | | +- cactiStatsDeviceEntry
| | | | |
| | | | +- cactiStatsDeviceIndex
| | | | +- cactiStatsDeviceHostname
| | | | +- cactiStatsDeviceMinTime
| | | | +- cactiStatsDeviceMaxTime
| | | | +- cactiStatsdeviceCurTime
| | | | +- cactiStatsDeviceAvgTime
| | | | +- cactiStatsDeviceTotalPolls
| | | | +- cactiStatsDeviceFailedPolls
| | | | +- cactiStatsDeviceAvailability
| | |
| | +- cactiStatsPollerTable
| | | |
| | | | +- cactiStatsPollerEntry
| | | | |
| | | | +- cactiStatsPollerIndex
| | | | +- cactiStatsPollerHostname
| | | | +- cactiStatsPollerRunTime
| | | | +- cactiStatsPollerMethod
| | | | +- cactiStatsPollerConcurrentProcesses
| | | | +- cactiStatsPollerThreads
| | | | +- cactiStatsPollerHosts
| | | | +- cactiStatsPollerHostsPerProcess
| | | | +- cactiStatsPollerItems
| | | | +- cactiStatsPollerRrrdsProcessed
| | | | +- cactiStatsPollerUtilization
|
+- cactiEvents
+- cactiPlugins
```

Revision: "201301270000Z"

3 System Requirements

- Cacti 0.8.8a
- PIA 3.1
- Net-SNMP

4 Base Installation

The current manual is based on Cacti 0.8.8a and Plugin Architecture (PIA) 3.1. Due to the fact that this plugin is pretty new it requires a hand full of hooks that are not part of the latest Cacti release. Most probably all required code changes will be part of Cacti 0.8.9

Please download this plugin to the <cacti_path>/plugin directory. And unpack the archive (.tgz or zip), so that all files will reside in <cacti_path>/plugin/snmpagent.

Within a sub-directory named “patches” you will find a folder containing all pre-patched files for Cacti 0.8.8a. Replace the original files of your local Cacti installation by that pre-patched ones or use the included patch file directly from the main cacti directory to update your system

Example:

```
browniebraun@ubuntudevbox:~/test/cacti-0.8.8a$
patch --dry-run -pl -i plugins/snmpagent/patches/cacti-0.8.8a/cacti088a.patch
patching file data_sources.php
patching file graphs.php
patching file host.php
patching file include/plugins.php
patching file lib/functions.php
patching file poller.php
patching file settings.php
browniebraun@ubuntudevbox:~/test/cacti-0.8.8a$
```

If successful:

```
patch -pl -i plugins/snmpagent/patches/cacti-0.8.8a/cacti088a.patch
```

Now open the plugin management console and hit the install icon to start the installation procedure. On large systems this should take a while, because the SNMPagent will build up a cache for all objects of the Cacti MIB during that step.

Plugin Management (Cacti Version: 0.8.8a, Plugin Architecture Version: 3.1)

Search:

Rows:

Default

Go

Clear

Showing All 1 Rows

Actions	Name	Version	Load Order	Description**	Type	Status	Author
	Snmpagent	0.1		Cacti SNMP Agent	System	Not Installed	The Cacti Group

Showing All 1 Rows

Install Plugin

It by 'Load Order' to change plugin load ordering.

NOTE: SYSTEM plugins can not be ordered.

By hitting the “enable” button the SNMPagent becomes active, which means it will start to update most stats just in time.

Please change the load order to ensure that the SNMPAgent will be loaded before all other plugins.

5 Extended Installation

On top of the traditional plugin installation described in chapter 4, the Cacti SNMPagent requires a special configuration of your Net-SNMP instance.

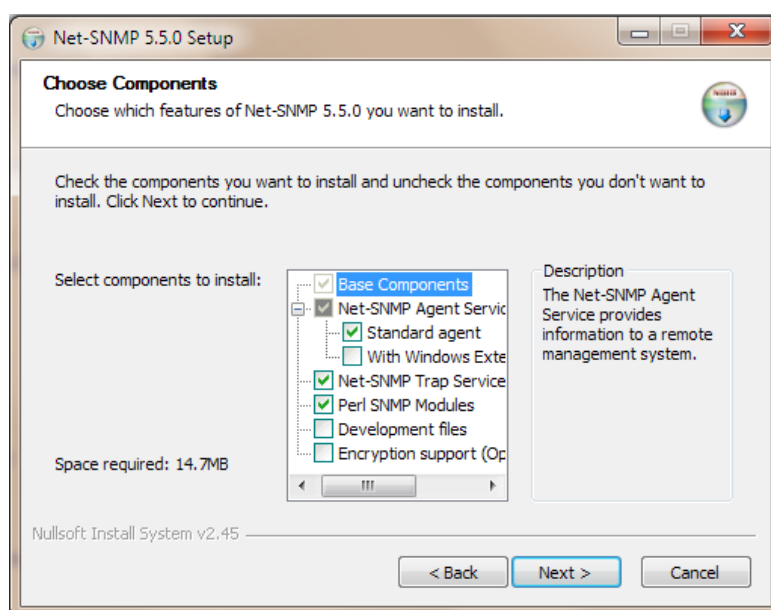
5.1 Background

Net-SNMP itself provides several methods to extend the SNMP agent for custom applications. The Cacti SNMPagent plugin focus on a method called “pass_persist”, because this way allows having a memory persistent PHP script running. In detail every SNMP request against the Cacti Enterprise OID will be automatically passed to the Cacti SNMPagent, which will respond to that query. Following steps will explain how you can setup your system to support that method.

5.2 Windows

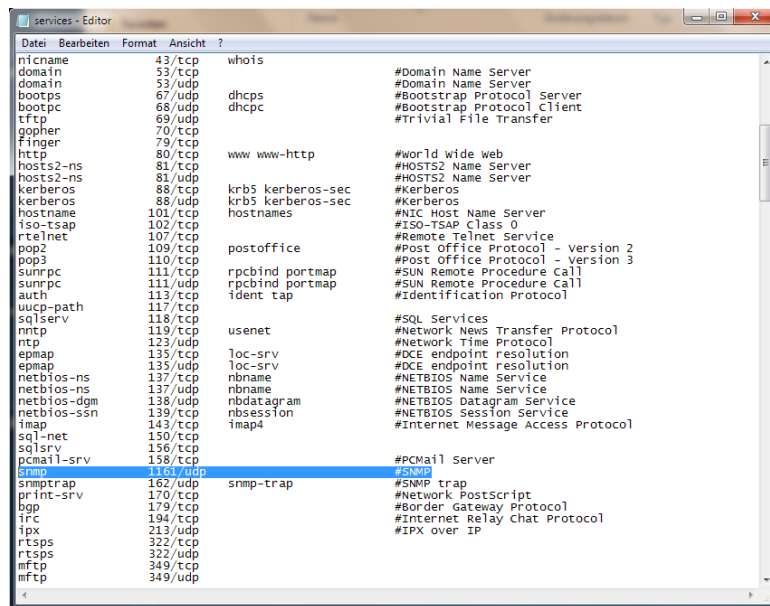
The setup of SNMP for Windows is a little bit tricky, because the common installation of Net-SNMP as a replacement for the Microsoft Windows Service does not support the extension of the SNMP agent using the pass_persist method.

An alternative to the use of the winExtDLL is to proxy requests from Net-SNMP to the Microsoft SNMP service. This means both services will run in co-existence to each other. In that case please install the Net-SNMP Agent Service as “Standard Agent” only.

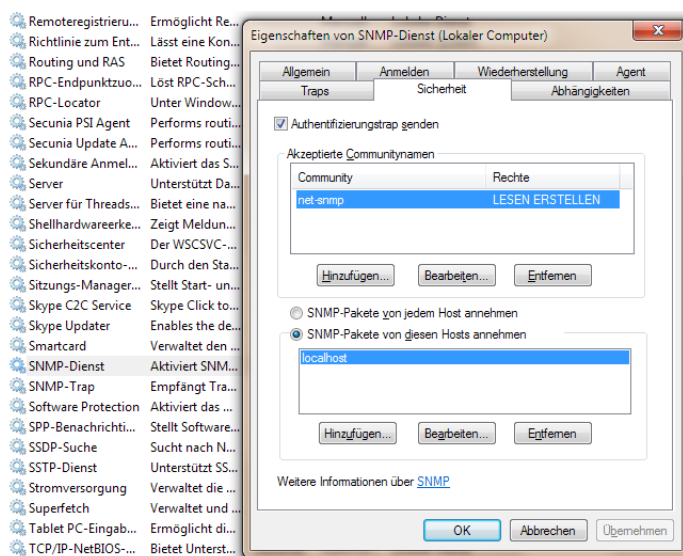


To allow both SNMP agents to run at the same time, it is necessary to change the default TCP/IP port on either the MS or Net-SNMP version. It depends on your environment which agent you want to modify, but in the following example we will modify the Microsoft SNMP agent to listen on another port and the Net-SNMP to work as a SNMP proxy:

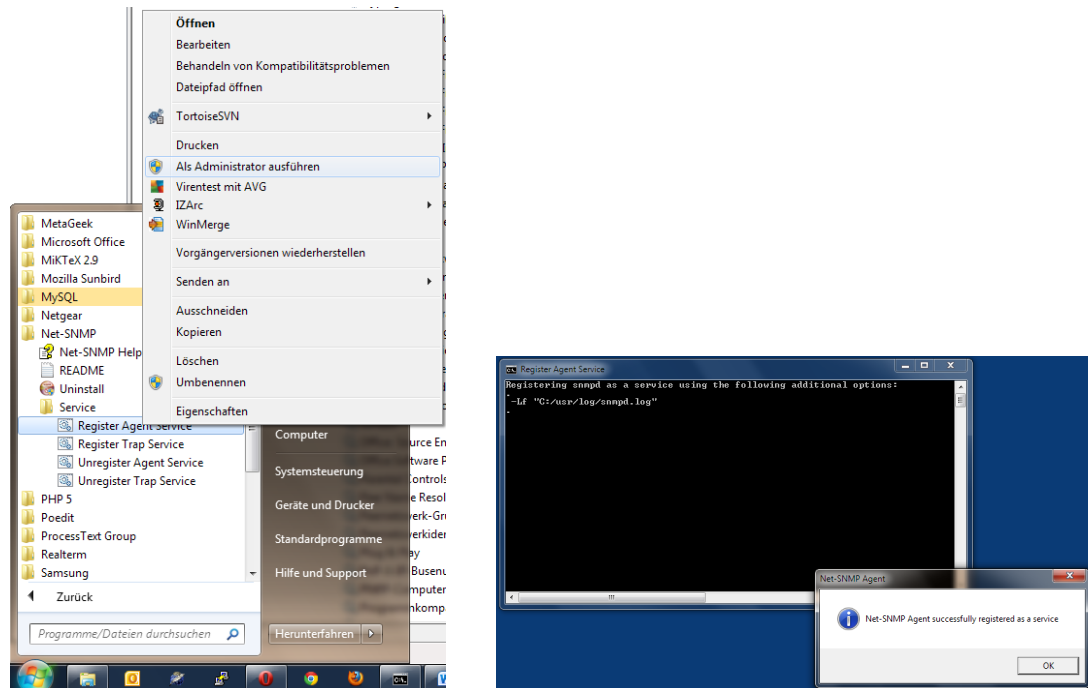
1. Edit with administrator permissions the SERVICES file located in %system-root%\system32\drivers\etc and change the default port for SNMP from 161 to 1161.



2. After saving that modification configure the Microsoft agent to only accept requests from localhost and add a read+create community string, which will later allow Net-SNMP to get full SNMP access:



3. Restart the Microsoft SNMP service. Note, that external services cannot query the MS agent directly anymore after that setup.
4. Now we can register the Net-SNMP service which will listen to the default port 161. Therefore execute as administrator the “Register Agent Service” script which is part of your Net-SNMP installation package.



5. Per default Net-SNMP does not include a configuration file for its SNMP daemon. With regard to the default installation paths of Net-SNMP go to C:\usr\etc\snmp and create a new file named “snmpd.conf”.

As long as you do not have to monitor special applications like MS Exchange running on the same server you only need a few lines to configure the Net-SNMP service:

```
proxy -v 1 -c net-snmp localhost:1161 .1.3
pass_persist .1.3.6.1.4.1.23925 php <cacti_path>\plugins\snmpagent\persist.php
rocommunity <your_community_string>
```

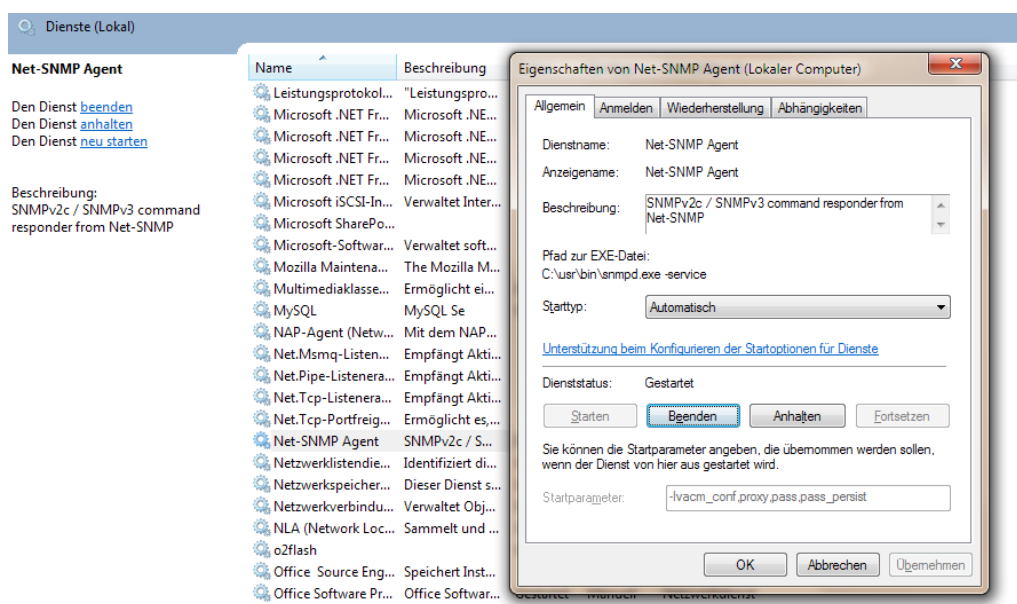
In that case the first line ensures that all requests below .1.3 will be forwarded automatically to the Microsoft SNMP agent. This is necessary to keep the monitoring of your server resources up and running within Cacti, due to the fact that the HOST-RESOURCE-MIB is not implemented in Net-SNMP.

The second configuration line instructs the Net-SNMP agent to forward all requests against the Cacti MIB tree to the memory persistent script the Cacti SNMP-agent includes.

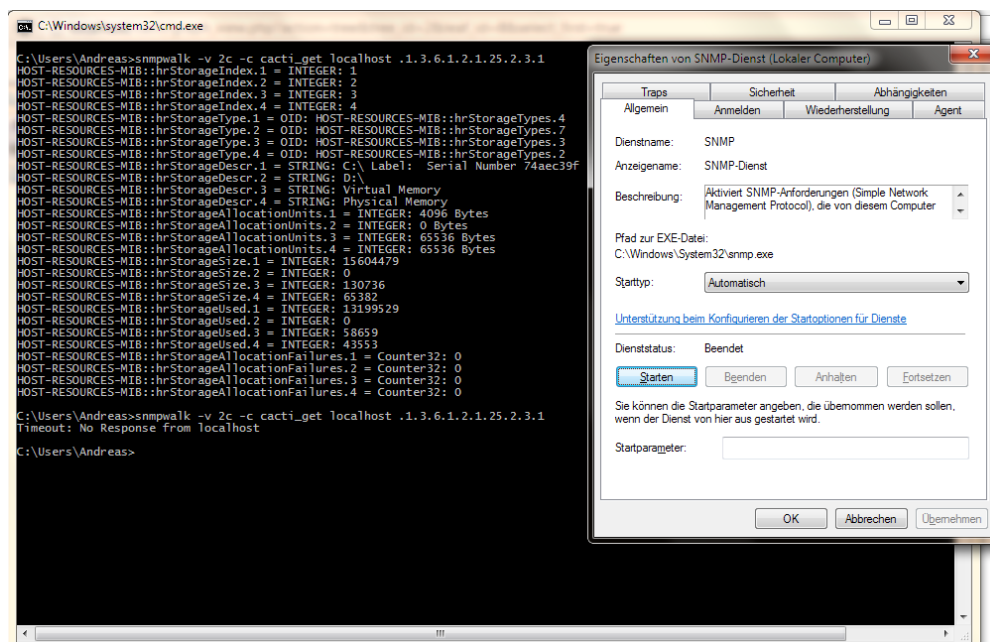
The example ends up with a community string that allows Cacti or another application to run SNMP queries against this server.

6. Start the Net-SNMP service by using start parameter

"-Ivacm_conf,proxy,pass,pass_persist". This specifies the modules that should be initialized when the agents starts.

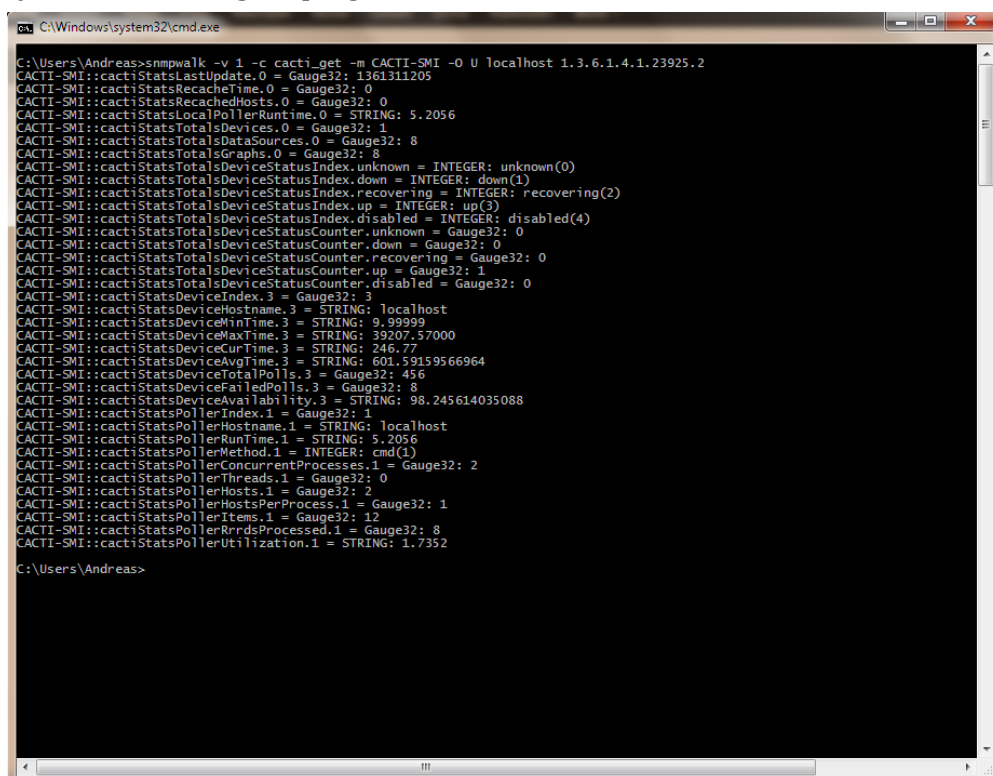


7. Test the Net-SNMP agent to verify that requests against the host MIB will be forwarded to the MS agent. As shown below you can check that easily by running a snmpwalk against the Net-SNMP service querying the host MIB.



After the first run has returned valid results, you can turn off the Microsoft agent and rerun that query. We expect a timeout error in that case, because the Net-SNMP agent does not support that MIB as mentioned before. Once this test has been passed you should not forget to enable the agent again.

8. Now let's have a look at branch "cactiStats". This answer will be generated by Cacti's SNMPagent plugin. 😊

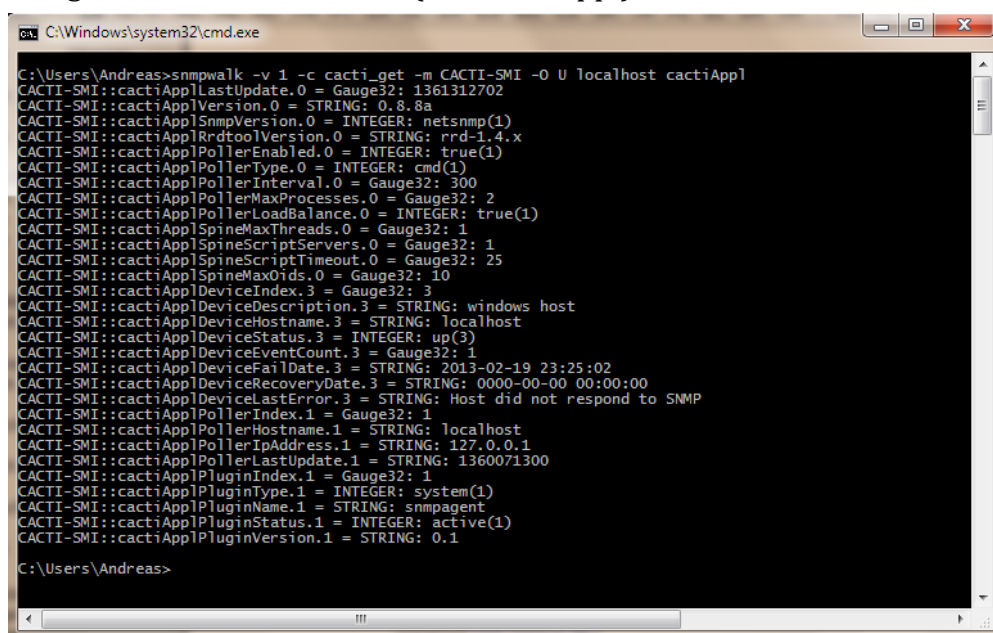


```

C:\Windows\system32\cmd.exe
C:\Users\Andreas>snmpwalk -v 1 -c cacti_get -m CACTI-SMI -O U localhost 1.3.6.1.4.1.23925.2
CACTI-SMI::cactiStatsLastUpdate.0 = Gauge32: 1361311205
CACTI-SMI::cactiStatsRecacheTime.0 = Gauge32: 0
CACTI-SMI::cactiStatsRecachedHosts.0 = Gauge32: 0
CACTI-SMI::cactiStatsLocalPollerRuntime.0 = STRING: 5.2056
CACTI-SMI::cactiStatsTotalsDevices.0 = Gauge32: 1
CACTI-SMI::cactiStatsTotalsDataSources.0 = Gauge32: 8
CACTI-SMI::cactiStatsTotalsGraphs.0 = Gauge32: 8
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.unknown = INTEGER: unknown(0)
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.down = INTEGER: down(1)
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.recovering = INTEGER: recovering(2)
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.up = INTEGER: up(0)
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.disabled = INTEGER: disabled(4)
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.unknown = Gauge32: 0
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.down = Gauge32: 0
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.recovering = Gauge32: 0
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.up = Gauge32: 1
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.disabled = Gauge32: 0
CACTI-SMI::cactiStatsDeviceIndex.3 = Gauge32: 3
CACTI-SMI::cactiStatsDeviceHostname.3 = STRING: localhost
CACTI-SMI::cactiStatsDeviceMinTime.3 = STRING: 9.99999
CACTI-SMI::cactiStatsDeviceMaxTime.3 = STRING: 39207.57000
CACTI-SMI::cactiStatsDeviceCurTime.3 = STRING: 246.77
CACTI-SMI::cactiStatsDeviceAvgTime.3 = STRING: 601.59159566964
CACTI-SMI::cactiStatsDeviceTotalPolls.3 = Gauge32: 456
CACTI-SMI::cactiStatsDeviceFailedPolls.3 = Gauge32: 8
CACTI-SMI::cactiStatsDeviceAvailability.3 = STRING: 98.245614035088
CACTI-SMI::cactiStatsPollerIndex.1 = Gauge32: 1
CACTI-SMI::cactiStatsPollerHostname.1 = STRING: localhost
CACTI-SMI::cactiStatsPollerRunTime.1 = STRING: 5.2056
CACTI-SMI::cactiStatsPollerMethod.1 = INTEGER: cmd(1)
CACTI-SMI::cactiStatsPollerConcurrentProcesses.1 = Gauge32: 2
CACTI-SMI::cactiStatsPollerThreads.1 = Gauge32: 0
CACTI-SMI::cactiStatsPollerHosts.1 = Gauge32: 2
CACTI-SMI::cactiStatsPollerHostsPerProcess.1 = Gauge32: 1
CACTI-SMI::cactiStatsPollerItems.1 = Gauge32: 12
CACTI-SMI::cactiStatsPollerRrdsProcessed.1 = Gauge32: 8
CACTI-SMI::cactiStatsPollerUtilization.1 = STRING: 1.7352
C:\Users\Andreas>

```

Including Cacti's new MIB you can also take a look at the environment by using the name of the branch (here cactiAppI).



```

C:\Windows\system32\cmd.exe
C:\Users\Andreas>snmpwalk -v 1 -c cacti_get -m CACTI-SMI -O U localhost cactiAppI
CACTI-SMI::cactiAppILastUpdate.0 = Gauge32: 1361312702
CACTI-SMI::cactiAppIVersion.0 = STRING: 0.8.8a
CACTI-SMI::cactiAppISnmpVersion.0 = INTEGER: netsnmp(1)
CACTI-SMI::cactiAppIRrdtoolVersion.0 = STRING: rrd-1.4.x
CACTI-SMI::cactiAppIRrdtoolEnabled.0 = INTEGER: true(1)
CACTI-SMI::cactiAppIPollerType.0 = INTEGER: cmd(1)
CACTI-SMI::cactiAppIPollerInterval.0 = Gauge32: 300
CACTI-SMI::cactiAppIPollerMaxProcesses.0 = Gauge32: 2
CACTI-SMI::cactiAppIPollerLoadBalance.0 = INTEGER: true(1)
CACTI-SMI::cactiAppISpineMaxThreads.0 = Gauge32: 1
CACTI-SMI::cactiAppISpineScriptServers.0 = Gauge32: 1
CACTI-SMI::cactiAppISpineScriptTimeout.0 = Gauge32: 25
CACTI-SMI::cactiAppISpineMaxOids.0 = Gauge32: 10
CACTI-SMI::cactiAppIDeviceIndex.3 = Gauge32: 3
CACTI-SMI::cactiAppIDeviceDescription.3 = STRING: windows host
CACTI-SMI::cactiAppIDeviceHostname.3 = STRING: localhost
CACTI-SMI::cactiAppIDeviceStatus.3 = INTEGER: up(3)
CACTI-SMI::cactiAppIDeviceEventCount.3 = Gauge32: 1
CACTI-SMI::cactiAppIDeviceFailDate.3 = STRING: 2013-02-19 23:25:02
CACTI-SMI::cactiAppIDeviceRecoveryDate.3 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiAppIDeviceLastError.3 = STRING: Host did not respond to SNMP
CACTI-SMI::cactiAppIPollerIndex.1 = Gauge32: 1
CACTI-SMI::cactiAppIPollerHostname.1 = STRING: localhost
CACTI-SMI::cactiAppIPollerIpAddress.1 = STRING: 127.0.0.1
CACTI-SMI::cactiAppIPollerLastUpdate.1 = STRING: 1360071300
CACTI-SMI::cactiAppIPluginIndex.1 = Gauge32: 1
CACTI-SMI::cactiAppIPluginType.1 = INTEGER: system(1)
CACTI-SMI::cactiAppIPluginName.1 = STRING: snmpagent
CACTI-SMI::cactiAppIPluginStatus.1 = INTEGER: active(1)
CACTI-SMI::cactiAppIPluginVersion.1 = STRING: 0.1
C:\Users\Andreas>

```

With a short look to the Linux configuration part, I'm pretty sure some of you Windows guys will be a little bit surprised. But don't be disappointed and go forward to chapter 6. ;)

5.3 Linux

Fortunately Linux admins don't have to run multiple SNMP agents in parallel. In most cases it should be enough to configure the SNMP daemon, so let's start by editing its configuration file (/etc/snmp/snmpd.conf).

At first we have to ensure that access to the Cacti MIB tree will be granted.

```
#####
#
# ACCESS CONTROL
#
# system + hrSystem groups only
#view systemonly included .1.3.6.1.2.1.1
#view systemonly included .1.3.6.1.2.1.25.1
view all included .1.3.6.1.4.1.23925
# Full access from the local host
#rocommunity public localhost
# Default access to basic system info
rocommunity <your_community_string>
```

Additionally add a read community string if necessary before we have to register the pass_persist script of the SNMPagent.

```
#####
#
# EXTENDING THE AGENT
#
#
# Arbitrary extension commands
#
# extend test1 /bin/echo Hello, world!
# extend-sh test2 echo Hello, world! ; echo Hi there ; exit 35
#extend-sh test3 /bin/sh /tmp/shtest

# Note that this last entry requires the script '/tmp/shtest' to be created first,
# containing the same three shell commands, before the line is uncommented

# Walk the NET-SNMP-EXTEND-MIB tables (nsExtendConfigTable, nsExtendOutput1Table
# and nsExtendOutput2Table) to see the resulting output

# Note that the "extend" directive supercedes the previous "exec" and "sh" directives
# However, walking the UCD-SNMP-MIB::extTable should still returns the same output,
# as well as the fuller results in the above tables.

#
# "Pass-through" MIB extension command
#
#pass .1.3.6.1.4.1.8072.2.255 /bin/sh PREFIX/local/passtest
#pass .1.3.6.1.4.1.8072.2.255 /usr/bin/perl PREFIX/local/passtest.pl
pass_persist .1.3.6.1.4.1.23925 <cacti_path>/plugins/snmpagent/persist.php
```

Make sure that the pass_persist script is executable

```
chmod a+x <cacti_path>/plugins/snmpagent/persist.php
```

before you restart the snmp daemon.

```
e.g.: sudo /etc/init.d/snmpd restart
```

After that SNMPagent's persist script should respond to a snmpquery against the Cacti Enterprise OID.

```
browniebraun@ubuntudevbox:~$ snmpwalk -v 2c -c cacti_get localhost -m CACTI-SMI .1.3.6.1.4.1.23925
CACTI-SMI::cactiApplLastUpdate.0 = Gauge32: 1361994605 seconds
CACTI-SMI::cactiApplVersion.0 = STRING: 0.8.8a
CACTI-SMI::cactiApplSnmpVersion.0 = INTEGER: netsnmp(1)
CACTI-SMI::cactiApplRrdtoolVersion.0 = STRING: rrd-1.4.x
CACTI-SMI::cactiApplPollerEnabled.0 = INTEGER: true(1)
CACTI-SMI::cactiApplPollerType.0 = INTEGER: cmd(1)
CACTI-SMI::cactiApplPollerInterval.0 = Gauge32: 300 seconds
CACTI-SMI::cactiApplPollerMaxProcesses.0 = Gauge32: 2 processes
CACTI-SMI::cactiApplPollerLoadBalance.0 = INTEGER: true(1)
CACTI-SMI::cactiApplSpineMaxThreads.0 = Gauge32: 1 threads
CACTI-SMI::cactiApplSpineScriptServers.0 = Gauge32: 1 instances
CACTI-SMI::cactiApplSpineScriptTimeout.0 = Gauge32: 25 seconds
CACTI-SMI::cactiApplSpineMaxOids.0 = Gauge32: 10 oids
CACTI-SMI::cactiApplDeviceIndex.1 = Gauge32: 1
CACTI-SMI::cactiApplDeviceIndex.3 = Gauge32: 3
CACTI-SMI::cactiApplDeviceIndex.7 = Gauge32: 7
CACTI-SMI::cactiApplDeviceIndex.8 = Gauge32: 8
CACTI-SMI::cactiApplDeviceIndex.9 = Gauge32: 9
CACTI-SMI::cactiApplDeviceIndex.10 = Gauge32: 10
CACTI-SMI::cactiApplDeviceIndex.13 = Gauge32: 13
CACTI-SMI::cactiApplDeviceDescription.1 = STRING: VM Ubuntu Enterprise Server
CACTI-SMI::cactiApplDeviceDescription.3 = STRING: Draytek
CACTI-SMI::cactiApplDeviceDescription.7 = STRING: Netgear GS108Tv2
CACTI-SMI::cactiApplDeviceDescription.8 = STRING: Netgear GS108Tv1
CACTI-SMI::cactiApplDeviceDescription.9 = STRING: TP-LINK AP 901
CACTI-SMI::cactiApplDeviceDescription.10 = STRING: Brother HL-2250DN
CACTI-SMI::cactiApplDeviceDescription.13 = STRING: VM Windows Host
CACTI-SMI::cactiApplDeviceHostname.1 = STRING: 127.0.0.1
CACTI-SMI::cactiApplDeviceHostname.3 = STRING: 192.168.1.1
CACTI-SMI::cactiApplDeviceHostname.7 = STRING: 192.168.1.3
CACTI-SMI::cactiApplDeviceHostname.8 = STRING: 192.168.1.2
CACTI-SMI::cactiApplDeviceHostname.9 = STRING: 192.168.1.254
CACTI-SMI::cactiApplDeviceHostname.10 = STRING: 192.168.1.15
CACTI-SMI::cactiApplDeviceHostname.13 = STRING: 192.168.1.50
CACTI-SMI::cactiApplDeviceStatus.1 = INTEGER: up(3)
CACTI-SMI::cactiApplDeviceStatus.3 = INTEGER: down(1)
CACTI-SMI::cactiApplDeviceStatus.7 = INTEGER: up(3)
CACTI-SMI::cactiApplDeviceStatus.8 = INTEGER: up(3)
CACTI-SMI::cactiApplDeviceStatus.9 = INTEGER: up(3)
CACTI-SMI::cactiApplDeviceStatus.10 = INTEGER: up(3)
CACTI-SMI::cactiApplDeviceStatus.13 = INTEGER: unknown(0)
CACTI-SMI::cactiApplDeviceEventCount.1 = Gauge32: 0
CACTI-SMI::cactiApplDeviceEventCount.3 = Gauge32: 3873
CACTI-SMI::cactiApplDeviceEventCount.7 = Gauge32: 0
CACTI-SMI::cactiApplDeviceEventCount.8 = Gauge32: 0
CACTI-SMI::cactiApplDeviceEventCount.9 = Gauge32: 0
CACTI-SMI::cactiApplDeviceEventCount.10 = Gauge32: 0
CACTI-SMI::cactiApplDeviceEventCount.13 = Gauge32: 0
CACTI-SMI::cactiApplDeviceFailDate.1 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceFailDate.3 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceFailDate.7 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceFailDate.8 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceFailDate.9 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceFailDate.10 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceFailDate.13 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceRecoveryDate.1 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceRecoveryDate.3 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceRecoveryDate.7 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceRecoveryDate.8 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceRecoveryDate.9 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceRecoveryDate.10 = STRING: 0000-00-00 00:00:00
CACTI-SMI::cactiApplDeviceRecoveryDate.13 = STRING: 0000-00-00 00:00:00
```



```
CACTI-SMI::cactiApplDeviceLastError.1 = STRING: Host did not respond to SNMP
CACTI-SMI::cactiApplDeviceLastError.3 = STRING: Host did not respond to SNMP
CACTI-SMI::cactiApplDeviceLastError.7 = STRING:
CACTI-SMI::cactiApplDeviceLastError.8 = STRING:
CACTI-SMI::cactiApplDeviceLastError.9 = STRING:
CACTI-SMI::cactiApplDeviceLastError.10 = STRING: Host did not respond to SNMP
CACTI-SMI::cactiApplDeviceLastError.13 = STRING:
CACTI-SMI::cactiApplPollerIndex.1 = Gauge32: 1
CACTI-SMI::cactiApplPollerHostname.1 = STRING: localhost
CACTI-SMI::cactiApplPollerIpAddress.1 = STRING: 127.0.0.1
CACTI-SMI::cactiApplPollerLastUpdate.1 = STRING: 1359307502
CACTI-SMI::cactiApplPluginIndex.1 = Gauge32: 1
CACTI-SMI::cactiApplPluginIndex.2 = Gauge32: 2
CACTI-SMI::cactiApplPluginIndex.3 = Gauge32: 3
CACTI-SMI::cactiApplPluginIndex.4 = Gauge32: 4
CACTI-SMI::cactiApplPluginType.1 = INTEGER: system(1)
CACTI-SMI::cactiApplPluginType.2 = INTEGER: system(1)
CACTI-SMI::cactiApplPluginType.3 = INTEGER: default(2)
CACTI-SMI::cactiApplPluginType.4 = INTEGER: default(2)
CACTI-SMI::cactiApplPluginName.1 = STRING: snmpagent
CACTI-SMI::cactiApplPluginName.2 = STRING: settings
CACTI-SMI::cactiApplPluginName.3 = STRING: weathermap
CACTI-SMI::cactiApplPluginName.4 = STRING: evolution
CACTI-SMI::cactiApplPluginStatus.1 = INTEGER: active(1)
CACTI-SMI::cactiApplPluginStatus.2 = INTEGER: installed(4)
CACTI-SMI::cactiApplPluginStatus.3 = INTEGER: disabledold(-2)
CACTI-SMI::cactiApplPluginStatus.4 = INTEGER: notinstalled(0)
CACTI-SMI::cactiApplPluginVersion.1 = STRING: 0.1
CACTI-SMI::cactiApplPluginVersion.2 = STRING: 0.71
CACTI-SMI::cactiApplPluginVersion.3 = STRING: 0.97a
CACTI-SMI::cactiApplPluginVersion.4 = STRING: 0.1
CACTI-SMI::cactiStatsLastUpdate.0 = Gauge32: 1361994605 seconds
CACTI-SMI::cactiStatsRecacheTime.0 = Gauge32: 0 seconds
CACTI-SMI::cactiStatsRecachedHosts.0 = Gauge32: 0
CACTI-SMI::cactiStatsLocalPollerRuntime.0 = STRING: 3.1879 seconds
CACTI-SMI::cactiStatsTotalsDevices.0 = Gauge32: 7
CACTI-SMI::cactiStatsTotalsDataSources.0 = Gauge32: 32
CACTI-SMI::cactiStatsTotalsGraphs.0 = Gauge32: 24
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.unknown = INTEGER: unknown(0)
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.down = INTEGER: down(1)
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.recovering = INTEGER: recovering(2)
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.up = INTEGER: up(3)
CACTI-SMI::cactiStatsTotalsDeviceStatusIndex.disabled = INTEGER: disabled(4)
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.unknown = Gauge32: 1
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.down = Gauge32: 1
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.recovering = Gauge32: 0
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.up = Gauge32: 5
CACTI-SMI::cactiStatsTotalsDeviceStatusCounter.disabled = Gauge32: 0
CACTI-SMI::cactiStatsDeviceIndex.1 = Gauge32: 1
CACTI-SMI::cactiStatsDeviceIndex.3 = Gauge32: 3
CACTI-SMI::cactiStatsDeviceIndex.7 = Gauge32: 7
CACTI-SMI::cactiStatsDeviceIndex.8 = Gauge32: 8
CACTI-SMI::cactiStatsDeviceIndex.9 = Gauge32: 9
CACTI-SMI::cactiStatsDeviceIndex.10 = Gauge32: 10
CACTI-SMI::cactiStatsDeviceIndex.13 = Gauge32: 13
CACTI-SMI::cactiStatsDeviceHostname.1 = STRING: 127.0.0.1
CACTI-SMI::cactiStatsDeviceHostname.3 = STRING: 192.168.1.1
CACTI-SMI::cactiStatsDeviceHostname.7 = STRING: 192.168.1.3
CACTI-SMI::cactiStatsDeviceHostname.8 = STRING: 192.168.1.2
CACTI-SMI::cactiStatsDeviceHostname.9 = STRING: 192.168.1.254
CACTI-SMI::cactiStatsDeviceHostname.10 = STRING: 192.168.1.15
CACTI-SMI::cactiStatsDeviceHostname.13 = STRING: 192.168.1.50
CACTI-SMI::cactiStatsDeviceMinTime.1 = STRING: 0.07000 milliseconds
CACTI-SMI::cactiStatsDeviceMinTime.3 = STRING: 7.17000 milliseconds
CACTI-SMI::cactiStatsDeviceMinTime.7 = STRING: 6.53000 milliseconds
CACTI-SMI::cactiStatsDeviceMinTime.8 = STRING: 7.03000 milliseconds
CACTI-SMI::cactiStatsDeviceMinTime.9 = STRING: 4.90000 milliseconds
CACTI-SMI::cactiStatsDeviceMinTime.10 = STRING: 5.06000 milliseconds
CACTI-SMI::cactiStatsDeviceMinTime.13 = STRING: 9.99999 milliseconds
CACTI-SMI::cactiStatsDeviceMaxTime.1 = STRING: 40.31000 milliseconds
CACTI-SMI::cactiStatsDeviceMaxTime.3 = STRING: 64.82000 milliseconds
CACTI-SMI::cactiStatsDeviceMaxTime.7 = STRING: 87.15000 milliseconds
CACTI-SMI::cactiStatsDeviceMaxTime.8 = STRING: 193.36000 milliseconds
CACTI-SMI::cactiStatsDeviceMaxTime.9 = STRING: 175.94000 milliseconds
CACTI-SMI::cactiStatsDeviceMaxTime.10 = STRING: 85.11000 milliseconds
CACTI-SMI::cactiStatsDeviceMaxTime.13 = STRING: 0.00000 milliseconds
CACTI-SMI::cactiStatsDeviceCurTime.1 = STRING: 21.18 milliseconds
CACTI-SMI::cactiStatsDeviceCurTime.3 = STRING: 30.33000 milliseconds
CACTI-SMI::cactiStatsDeviceCurTime.7 = STRING: 16.6 milliseconds
CACTI-SMI::cactiStatsDeviceCurTime.8 = STRING: 14.95 milliseconds
CACTI-SMI::cactiStatsDeviceCurTime.9 = STRING: 13.91 milliseconds
CACTI-SMI::cactiStatsDeviceCurTime.10 = STRING: 22.83 milliseconds
CACTI-SMI::cactiStatsDeviceCurTime.13 = STRING: 0.00000 milliseconds
CACTI-SMI::cactiStatsDeviceAvgTime.1 = STRING: 4.6414624542429 milliseconds
CACTI-SMI::cactiStatsDeviceAvgTime.3 = STRING: 19.76352 milliseconds
CACTI-SMI::cactiStatsDeviceAvgTime.7 = STRING: 13.103881423326 milliseconds
CACTI-SMI::cactiStatsDeviceAvgTime.8 = STRING: 12.688725465991 milliseconds
CACTI-SMI::cactiStatsDeviceAvgTime.9 = STRING: 18.995640591012 milliseconds
CACTI-SMI::cactiStatsDeviceAvgTime.10 = STRING: 17.304720375751 milliseconds
```



```
CACTI-SMI::cactiStatsDeviceAvgTime.13 = STRING: 0.00000 milliseconds
CACTI-SMI::cactiStatsDeviceTotalPolls.1 = Gauge32: 3051
CACTI-SMI::cactiStatsDeviceTotalPolls.3 = Gauge32: 7421
CACTI-SMI::cactiStatsDeviceTotalPolls.7 = Gauge32: 5719
CACTI-SMI::cactiStatsDeviceTotalPolls.8 = Gauge32: 5719
CACTI-SMI::cactiStatsDeviceTotalPolls.9 = Gauge32: 5719
CACTI-SMI::cactiStatsDeviceTotalPolls.10 = Gauge32: 5716
CACTI-SMI::cactiStatsDeviceTotalPolls.13 = Gauge32: 0
CACTI-SMI::cactiStatsDeviceFailedPolls.1 = Gauge32: 647
CACTI-SMI::cactiStatsDeviceFailedPolls.3 = Gauge32: 3886
CACTI-SMI::cactiStatsDeviceFailedPolls.7 = Gauge32: 0
CACTI-SMI::cactiStatsDeviceFailedPolls.8 = Gauge32: 0
CACTI-SMI::cactiStatsDeviceFailedPolls.9 = Gauge32: 0
CACTI-SMI::cactiStatsDeviceFailedPolls.10 = Gauge32: 553
CACTI-SMI::cactiStatsDeviceFailedPolls.13 = Gauge32: 0
CACTI-SMI::cactiStatsDeviceAvailability.1 = STRING: 78.793838085873 percent
CACTI-SMI::cactiStatsDeviceAvailability.3 = STRING: 47.635089610565 percent
CACTI-SMI::cactiStatsDeviceAvailability.7 = STRING: 100 percent
CACTI-SMI::cactiStatsDeviceAvailability.8 = STRING: 100 percent
CACTI-SMI::cactiStatsDeviceAvailability.9 = STRING: 100 percent
CACTI-SMI::cactiStatsDeviceAvailability.10 = STRING: 90.325402379286 percent
CACTI-SMI::cactiStatsDeviceAvailability.13 = STRING: 100.00000 percent
CACTI-SMI::cactiStatsPollerIndex.1 = Gauge32: 1
CACTI-SMI::cactiStatsPollerHostname.1 = STRING: localhost
CACTI-SMI::cactiStatsPollerRunTime.1 = STRING: 3.1879 seconds
CACTI-SMI::cactiStatsPollerMethod.1 = INTEGER: cmd(1)
CACTI-SMI::cactiStatsPollerConcurrentProcesses.1 = Gauge32: 2
CACTI-SMI::cactiStatsPollerThreads.1 = Gauge32: 0
CACTI-SMI::cactiStatsPollerHosts.1 = Gauge32: 8
CACTI-SMI::cactiStatsPollerHostsPerProcess.1 = Gauge32: 4
CACTI-SMI::cactiStatsPollerItems.1 = Gauge32: 49
CACTI-SMI::cactiStatsPollerRrdsProcessed.1 = Gauge32: 27
CACTI-SMI::cactiStatsPollerUtilization.1 = STRING: 1.0626333333 percent
browniebraun@ubuntuudevbox:~$
```

6 Cacti Templates

Well, I'm wound up to a high pitch what will be built by you, the Cacti community, in the near future. To demonstrate how you can use the SNMPagent plugin to monitor Cacti itself I've created one data query that allows monitoring the poller runtime and the poller utilization (poller runtime in relation to the current poller frequency) of your Cacti instance using SNMP. The necessary data query and the snmp query are both located under:

<cacti_path>/plugins/snmpagent/templates/cacti/poller_statistics

Copy the snmp query (snmpagent_cacti_pollerstats.xml) to

<cacti_path>/resource/snmp_queries

and use Cacti's import functionality to add that new template to your system (cacti_data_query_snmpagent_-_cacti_poller_stats.xml).

Associated Data Queries			
Data Query Name	Debugging	Re-Index Method	Status
1) SNMPagent - Cacti Poller Stats	(Verbose Query)	Uptime Goes Backwards	Success [5 Items, 1 Row]
2) Unix - Get Mounted Partitions	(Verbose Query)	None	Success [2 Items, 1 Row]
Add Data Query: [Karlmet - Wireless Bridge Statistics ▼]		Re-Index Method: [Uptime Goes Backwards ▼] [Add]	

After that you can associate this new data query with your Cacti host and create both new graphs.

Data Query [SNMPagent - Cacti Poller Stats]				
Index	Hostname	Method	Processes	Threads
1	localhost	1	2	0
Select a graph type: [SNMPagent - Poller Utilization ▼]				

And here we go:

