Install and Configure Net-SNMP

PREREQUISITES

The latest CS-Script

For AIX and Solaris:

The gz.tar file located here \\ont-sw.quadramed.com\qmd_cpr_sw\SystemsIntegration\SNMP\NetSNMP\FinalInstallationFiles on the server.

For Linux:

A copy of the snmpd.conf file found in \\ont-sw.quadramed.com\qmd_cpr_sw\SystemsIntegration\SNMP\NetSNMP\FinalInstallationFiles

1. IBM AIX

AIX does not come preinstalled with a SNMP agent that supports the “agentx” technology required by Cache to send information from Cache SNMP to a centralized SNMP agent. With this in mind, there are a few changes that need to be understood.

The default installed and running IBM provided SNMP agent currently runs on the ports that we want to use for net-snmp. With this in mind, we can change the existing ports that the AIX SNMP daemon runs on. This will change the default behavior of the AIX daemon, so please confirm with the client whether or not they are using SNMP on this system, as it might impact there connections. We can “proxy” connections through net-snmp.

A) First you need to decompressthe net-snmp file while you are inside the /qmd/ directory.

gzip -cd <path to gz.tar file> | tar xvf -

B) Next you will need to move the AIX SNMP daemon which can be changed in one of the conf files in /etc.

Run the following

ps -ef | grep snmpd

If the AIX SNMP daemon you can stop it with **stopsrc -s snmpd**.

Now you will need to free up the snmp port 161. So change the AIX SNMP daemon to a different port, **chssys -s snmpd -a '-p 1610'.**

C) Now you need to get the net-snmp daemon running.

Now you can run **/qmd/net-snmp/sbin/snmpd**. If you run **ps -ef | grep snmpd** you should see the and the Net-SNMP daemon running. You can also check which ports are being utilized with **netstat -an**. Make sure the SNMP daemon and any other ports you need are listed.

D) Check /var/log/snmpd.log for any errors.

E) Add a line in /etc/inittab so the process can start upon reboot.

ex: **net_snmp:2:once:/qmd/net-snmp/sbin/snmpd**

2. RED HAT ENTERPRISE LINUX (RHEL)

Most distributions of Linux, including RHEL, come prepackaged with net-snmp as its primary SNMP agent.

a) Configuration for Linux is much simpler, as all of the binaries may already be installed, or are easily installed with a package manager.

i) Run the following commands to install net-snmp and other dependencies:

yum install net-snmp net-snmp-utils perl-Time-Piece

Example output:

```
Loaded plugins: langpacks, product-id, subscription-manager
…
…
Resolving Dependencies
--> Running transaction check
---> Package net-snmp.x86_64 1:5.7.2-18.el7 will be updated
---> Package net-snmp.x86_64 1:5.7.2-24.el7_2.1 will be an update
--> Processing Dependency: net-snmp-libs = 1:5.7.2-24.el7_2.1 for package: 1:net-snmp-5.7.2-24.el7_2.1.x86_64
--> Processing Dependency: net-snmp-agent-libs = 1:5.7.2-24.el7_2.1 for package: 1:net-snmp-5.7.2-24.el7_2.1.x86_64
--> Running transaction check
---> Package net-snmp-agent-libs.x86_64 1:5.7.2-18.el7 will be updated
---> Package net-snmp-agent-libs.x86_64 1:5.7.2-24.el7_2.1 will be an update
---> Package net-snmp-libs.x86_64 1:5.7.2-18.el7 will be updated
--> Processing Dependency: net-snmp-libs = 1:5.7.2-18.el7 for package: 1:net-snmp-utils-5.7.2-18.el7.x86_64
---> Package net-snmp-libs.x86_64 1:5.7.2-24.el7_2.1 will be an update
--> Running transaction check
---> Package net-snmp-utils.x86_64 1:5.7.2-18.el7 will be updated
---> Package net-snmp-utils.x86_64 1:5.7.2-24.el7_2.1 will be an update
--> Finished Dependency Resolution
Dependencies Resolved
================================================================================================================================
 Package                  Arch              Version                    Repository                  Size
================================================================================================================================
Updating:
 net-snmp                 x86_64            1:5.7.2-24.el7_2.1         rhel-7-server-eus-rpms      321 k
Updating for dependencies:
 net-snmp-agent-libs      x86_64            1:5.7.2-24.el7_2.1         rhel-7-server-eus-rpms      702 k
 net-snmp-libs            x86_64            1:5.7.2-24.el7_2.1         rhel-7-server-eus-rpms      747 k
 net-snmp-utils           x86_64            1:5.7.2-24.el7_2.1         rhel-7-server-eus-rpms      197 k
Transaction Summary
================================================================================================================================
Upgrade  1 Package (+3 Dependent packages)
Total size: 1.9 M
Is this ok [y/d/N] y
net
```

b) The configuration file is located in /etc/snmp/. Replace it with the one from the internal SystemsIntegration/SNMP folder.

c) Add net-snmp to server auto starting functionality (as root or use sudo)

i) **service snmpd start** or **service snmpd restart**
ii) **chkconfig snmpd on**

d) Check if the firewall is on with **systemctl status firewalld**. If it is on then run the following commands to open the port used by snmp:
firewall-cmd --zone=public --add-port=161/udp --permanent
firewall-cmd --zone=public --add-port=162/udp --permanent
firewall-cmd --reload

e) View /etc/sysconfig/snmpd, uncomment the OPTIONS line, and change the 6d to 4d.

3. Solaris

Net-snmp is included in Solaris for version 11. A configuration file is located in /etc/net-snmp/snmp.

I have had some problems getting the native snmp daemon to use agentx, which is an important aspect.

To test this make sure the snmpd.conf file has the lines **master agentx** and **agentxsocket tcp:localhost:705** and run **snmpd** or **svcadm enable svc:/application/management/net-snmp:default** to start the process.

If you tail /var/log/snmpd.log and see an agentx error or if **netstat -an | grep 705** comes up empty, then a separate net-snmp daemon will need to be installed the same way it was in AIX.

While in the root directory run **gunzip -cd <path to gz.tar file> | tar xvf -**, then you can start snmpd with **/qmd/net-snmp/sbin/snmpd** . You should be able to use previous methods to check if agentx connected properly.

4. All OS'

Configure Snmpd.conf

The internal snmpd.conf file is already configured, so for a basic install most of this is not needed.

Note: SNMP needs to be restarted every time you modify config files in order for the changes to go through.

You need to create at leaste one user in snmpd.conf. A simple V2 user can be created by adding the line **rocommunity <community name> <hostname> <oid>**. Only the community name is required. By default hostname is localhost and not including an oid gives full access. A V3 user is a bit more complex, but much more secure. You can create one by adding the following lines in snmpd.conf:

createUser <username> <authenticationType> <authentication password> <privacyType> <privacy password>

rouser <username>

You can also run the command **./bin/net-snmp-create-v3-user** for Linux or **./bin/net-snmp-config --create-snmpv3-user** for AIX and Solaris. This will ask you

Privacy type and privacy password are optional and are only necessary if you want authentication and privacy to apply to your user. Authentication type can be either MD5 or SHA and privacy type can be either AES or DES. For Solaris and AIX only a privacy type of DES is supported. You can check to see if your V3 user works by running an snmpwalk: **snmpwalk -v3 -u <username> -l <authPriv|authNoPriv> -a <authType> -A <authPass> -x <privType> -X <privPass> <hostname> <oid>**

ex: snmpwalk -v3 -u Webb -l authPriv -a SHA -A 12345678 -x AES -X 87654321 localhost hrSWRunName

If extensive testing is being done on this server, avoid writing out the credentials by creating a **/.snmp** directory and in it a file called **snmp.conf** (not a mistake) that contains the following:

mibs +ALL
defVersion 3
defSecurityName **<username>**
defSecurityLevel **<authPriv|authNoPriv>**
defAuthType **<authType>**
defPrivType **<privType>**
defAuthPassphrase **<authPass>**
defPrivPassphrase **<privPass>**

The first line allows for new mibs to be recognized by nam
This turns the previous example into **snmpwalk -v3 localhost hrSWRunName**.

To see the other configuration directives allowed run snmpd -H or ./snmpd -H (depending on the OS)You can also run the command **snmpconfig -g basic_config** and it will walk you through the steps. You can see what other config files net-snmp looks at by running the command **net-snmp-config --snmpconfpath**. If you are interested in other net-snmp commands you can access the manual with **man -M /qmd/net-snmp/share/snmp/man [command]**.

To monitor Cache you need a "**master agentx**" line in the config file. The port can be specified with "**agentxsocket tcp:localhost:705**". Port 705 is usually the default for agentx, but include it just in case.

Cache SNMP

To monitor Cache using Intersystems' MIBs you need to start Cache's own SNMP process. You can do throught the CS script. **The following steps should be performed on active database groups first.**

First go into the /qmd/sysconfig folder and mv or cp QmdLib.SNMP.xml to QMDLib.SNMP.xml. Ex: **mv QmdLib.SNMP.xml QMDLib.SNMP.xml**

Next acess the SNMP Configuration from the Root Management menu.

```
ROOT MANAGEMENT MENU
====================
(1)  Install New Cache Instance
(2)  Uninstall Cache Instance
(3)  Install/Upgrade Cache Key for Instance
(4)  Activate Current Cache Key for Instance
(5)  Create Users/Groups for Cache Management
(6)  System Logging Services
(7)  Set ISC Read Permissions for Instance
(8)  Convert CPRSYS to 5.4 Configuration
(9)  SNMP Configuration
(10) Install Rsync Scripts
(11) Install Failover Mount Utility For Platform
(12) Adjust CSP Gateway Settings
(13) Harris User Management
(14) Return to Main Menu
(15) Exit from CS
```

First choose Import SNMP Classes and then Install/Configure SNMP.

```
CONFIGURATIONS MENU
====================
(1) Install/Configure SNMP
(2) Import SNMP Classes
(3) Activate/Reactivate QmdLib Monitor Classes
(4) Restart SNMP Agent & System Monitor
(5) Return to Main Menu
(6) Exit from CS
```

If you started the SNMP correctly you should see a job running through **ps -ef | grep SNMP** and SNMP.log file in the mgr directory. You can also run an snmpwalk on 1.3.6.1.4.1.16563 (or "intersystems" if you made /.snmp/snmp.conf), which is the OID for all Intersystems MIBs.

For the active database groups only (PRDDB, DEV) there are internal qmdmibs for additional information. If running **ps -ef | grep Monitor** yields two %SYS.Monitor.Control process for a mgr directory, then that instance is able to access our internal mibs through an snmpwalk on enterprises.99999 or qmdmibs.

In order to get the second %SYS.Monitor.Control to start automatically open a csession in the %SYS namespace and execute **do ^%SYSMONMGR**.

```
%SYS>Do ^%SYSMONMGR


1) Start/Stop System Monitor
2) Set System Monitor Options
3) Configure System Monitor Classes
4) View System Monitor State
5) Manage Application Monitor
6) Manage Health Monitor
7) View System Data
8) Exit
```

Go to **Configure System Monitor Classes>Configure Startup Namespaces>Add Namespace** and enter CPR.