This document describes how to effectively troubleshoot hardware health monitoring.
Troubleshooting Hardware Health

This section describes possible causes and solutions concerning hardware resources either not being reported or being reported incorrectly.

**Hardware Prerequisite Checklist**

If the following conditions cannot be met, the Hardware Health resources will not be displayed. To monitor hardware in SAM, the following must be true:

- The monitored node must be *HP Proliant, Dell PoweEdge, or IBM X-Series*.
- The node must be monitored using one of the following protocols:
  - SNMP
  - WMI
  - ICMP nodes are allowed for VMWare when the **Poll for VMware** option is selected.
- The *Hardware Monitoring Agent* software, (provided by the vendor), is installed on the remote server. This applies for both SNMP and WMI.
- For VMware, the minimum requirements are as follows: ESX server version 3.5, 4.0, 4.1, ESXi version 5.0, vCenter version 4.0, 4.1, 5.0.

The following systems have been verified to work properly with SAM's hardware monitoring features.

**Note:** Other systems may work as well.

- Dell PowerEdge M610, R210, R610, R710, R900, 1950, 2850, 2950, 2970, 6850
- IBM IBM System x3550, System x3550 M2, System x3550 M3, System x3650, System x3650 M2, System x3650 M3, x3850, eServer 306m

**Note:** IBM’s ServeRAID Manager software must be installed on IBM X-Series servers for storage hardware health information to be displayed in SolarWinds SAM. HP’s WBEM providers are required for HP servers polled via WMI.
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Hardware Troubleshooting Flowchart

You are adding a node but the Hardware Health is not listed.

Click on List Resources on the Node Details page.

Is Hardware Health listed?

No

Is this an HP box?

No

Is this a Dell box?

No

Is this an IBM box?

No

Your box is from an unsupported manufacturer.

No

Yes

Is HP System Insight Manager installed?

Yes

No

Install and configure the proper HW Agent software from the manufacturer.

Yes

Is Dell OpenManage installed?

Yes

No

Is IBM Director installed?

Yes

No

Is this an SNMP Node?

No

Proceed to Troubleshooting an SNMP Node section.

No

Is this a WMI Node?

No

Proceed to Troubleshooting a WMI Node section.

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Proceed to Troubleshooting a VMWare Node section.

Hardware Health Monitoring is not supported on this node.
Troubleshooting an SNMP Node

The most common issue customers face is that hardware information is not available via SNMP because the Hardware Monitoring Agent software was installed before SNMP was installed. This means MIBs were never installed and/or configured correctly. The easiest solution is to uninstall and then re-install the Hardware Monitoring Agent software after installing SNMP on the server. If this is not the case, follow the troubleshooting steps as outlined below:

Before troubleshooting can begin, verify the node was successfully added using SNMP.

1. Verify the polling method on the Node Details page as shown below:

   ![Polling Details](image)

2. Verify the Hardware Monitoring Agent software is installed on the remote server and running.

3. Determine if SNMP responds for the proper OID. Below are the correct OIDS for each vendor:
   - For HP: 1.3.6.1.4.1.232.2.2.2.1.0
   - For Dell: 1.3.6.1.4.1.674.10892.1.300.10.1.8.1
   - For IBM: 1.3.6.1.4.1.2.6.159.1.1.60.3.1

   To determine if the remote server responds to the correct OID, you can use the MIB browser from SolarWinds Engineer’s Toolset, which can be downloaded from [http://www.solarwinds.com/downloads/](http://www.solarwinds.com/downloads/). Additionally, you can use other applications capable of making SNMP requests.
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If you do not have a tool for checking OIDs on the remote server, you can create an SNMP walk by using the SNMPWalk.exe installed with SAM, normally located at C:\Program Files (x86)\SolarWinds\Orion\SnmpWalk.exe. SNMPWalk.exe will be used in this demonstration.

Using SNMPWalk.exe

1. Start SNMPWalk.exe and type in the IP address of the remote server and the community string for SNMP.
2. Click Scan.
3. After completing the scan, save the SNMP walk in a text file.
4. Open the text file and manually search for the OIDs.

If the Remote Server does not respond on this OID, the Hardware Monitoring Agent software may not be properly configured. Check to see if the Hardware Monitoring Agent software has imported the correct MIBs as outlined in the following table.

<table>
<thead>
<tr>
<th>HP</th>
<th>Dell</th>
<th>IBM</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPQSTDEQ-MIB</td>
<td>MIB-Dell-10892</td>
<td>IBM-SYSTEM-HEALTH-MIB</td>
</tr>
<tr>
<td>CPQINFO-MIB</td>
<td>StorageManagement-MIB</td>
<td>IBM-SYSTEM-ASSETID-MIB</td>
</tr>
<tr>
<td>CPQIDA-MIB</td>
<td></td>
<td>IBM-SYSTEM-LMSSENSOR-MIB</td>
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<td>CPQHLTH-MIB</td>
<td></td>
<td>IBM-SYSTEM-POWER-MIB</td>
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<tr>
<td>CPQSTSYS-MIB</td>
<td></td>
<td>IBM-SYSTEM-PROCESSOR-MIB</td>
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<tr>
<td>CPQIDE-MIB</td>
<td></td>
<td>IBM-SYSTEM-RAID-MIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ADAPTEC-UNIVERSAL-STORAGE-MIB</td>
</tr>
</tbody>
</table>
Troubleshooting a WMI Node

The following conditions must be met before you can proceed troubleshooting WMI nodes:

- The node has successfully been added via WMI.
- WMI is working properly on the remote server.
- The Hardware Monitoring Agent software is installed on the remote server and running.

Using Wbemtest.exe to troubleshoot WMI:

1. Open `wbemtest.exe`, usually located at `C:\Windows\System32\wbem\wbemtest.exe`.
2. Connect from the problematic node (either the SAM server or the additional poller server) to the remote server using `wbemtest.exe`.
3. Click **Connect**.
4. In the **Namespace** field enter:

   For **IBM** and **HP** enter: `\RemoteServerIpAddress\root`
   For **Dell** enter: `\RemoteServerIpAddress\root\cimv2`
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5. Enter administrator credentials.

6. Click **Connect**.

7. Once connected, click **Query**... from the main screen. The **Query** dialog appears.

8. Enter: `select * from __Namespace`

Replace **Namespace** with the following:

- For **HP** nodes, replace **Namespace** with **HPQ**
- For **Dell** node replace **Namespace** with **Dell**
- For **IBM** node replace **Namespace** with **IBMSD**

9. If the proper **Namespace** is found, connect to this **Namespace**.

- `\RemoteServerIpAddress\root\IBMSD` for **IBM**.
- `\RemoteServerIpAddress\root\HPQ` for **HP**.
- `\RemoteServerIpAddress\root\cimv2\Dell` for **Dell**.
10. Run a **Query** for specific information. 
**Select Manufacturer, Model, SerialNumber from CIM_Chassis**

- If the test was not successful, re-install the platform or *Hardware Monitoring Agent* software on the remote server with the latest release.
Troubleshooting a VMWare Node

VMWare nodes can be polled for Hardware information either through the vCenter or directly by using the CIM protocol. Polling through the vCenter uses VMWare’s native API interface. Polling the ESX server directly uses the CIM protocol to get Hardware information.

To determine if a node is polled through the vCenter or directly:

1. From the web console, navigate to Settings > VMWare Settings

2. Listed will be table of all the currently polled VMWare nodes. This table contains the Polling Through column. Note: This column may be hidden. If the column is hidden, unhide it by clicking the dropdown menu of an adjacent column and check the Polling Through option:

3. Use the illustration below to determine how your VMWare is being polled.