



**Hewlett Packard**  
Enterprise

# **Troubleshooting Guide for Device Discovery**

Network Node Manager i Software

Version 10.20

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## Purpose

Use this whitepaper to troubleshoot problems related to device support and discovery. It will also help you to collect the data required for HPE to better assist you with troubleshoot a device-related problem.

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### Note:

HPE updates the *HPE Network Node Manager i Software (NNMi) Device Support Matrix* document for every major and minor release. This document is available at: [h20230.www2.hp.com/selfsolve/manuals](https://h20230.www2.hp.com/selfsolve/manuals).

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## Sections of the Device Support Matrix that Assist with Troubleshooting

The *HPE Network Node Manager i Software (NNMi) Device Support Matrix* provides an overview of the network devices supported by HPE NNMi for each major release and minor patch release.

The following sections of the HPE Network Node Manager i Software (NNMi) Device Support Matrix help to identify typical discovery and topology connectivity related symptoms that are commonly seen on customer systems:

- Supported Devices
- Supported SNMP MIBs

### Supported Devices

The “Supported Devices” table includes the following information for each supported device:

- Vendor
- Family
- Model
- SNMP sysOID

This table also includes the corresponding support level in NNMi for each device. Possible support levels include basic IP discovery (Ipv4 or Ipv6), L2 connectivity, and VLAN discovery information.

Use the Supported Devices table to help answer the following questions:

- Is this device supported by NNMi?
- Can NNMi do basic discovery?
- Can NNMi retrieve Layer-2 connectivity information?
- Is VLAN discovery supported for this device?

If the answer is “Yes” to these questions, refer to the “Supported SNMP MIBs” section of the NNMi Device Support Matrix.

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### Note

If a device is not listed in the *HPE Network Node Manager i Software (NNMi) Device Support Matrix*, it might still be discovered if it responds to certain standard MIBs that NNMi queries for basic discovery, connectivity and VLANs. See “Supported SNMP MIBs” to help you identify the set of MIBs that NNMi queries on different devices.

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### Supported SNMP MIBs

Use the “Supported SNMP MIBs” table to determine the required MIB or MIBs that must be enabled for the device type to be properly discovered and monitored.

The “Supported SNMP MIBs” section of the *HPE Network Node Manager i Software (NNMi) Device Support Matrix* helps you to answer the following kinds of questions:

- What MIB must be enabled if I do not see Layer-2 connectivity for my devices?

- What MIB must be enabled if I am expecting VLANs, but I don't see any in NNMI for this device?

For each vendor device, the “Supported SNMP MIBs” section provides the MIBs that are used in querying different discovery attributes.

You can usually expect the device to be properly discovered and monitored by NNMI as long as the device supports either the Standard or relevant Vendor-specific MIBs specified for the associated NNMI feature.

See the next section, “Troubleshooting Workflow for Device Support and Discovery” for more information about how to determine the cause of device discovery problems and the steps required to resolve the problem.

## **Troubleshooting Workflow for Device Support and Discovery**

Use the following workflow to troubleshoot device support and discovery problems:

Figure 1: Troubleshooting Workflow for Device Support and Discovery

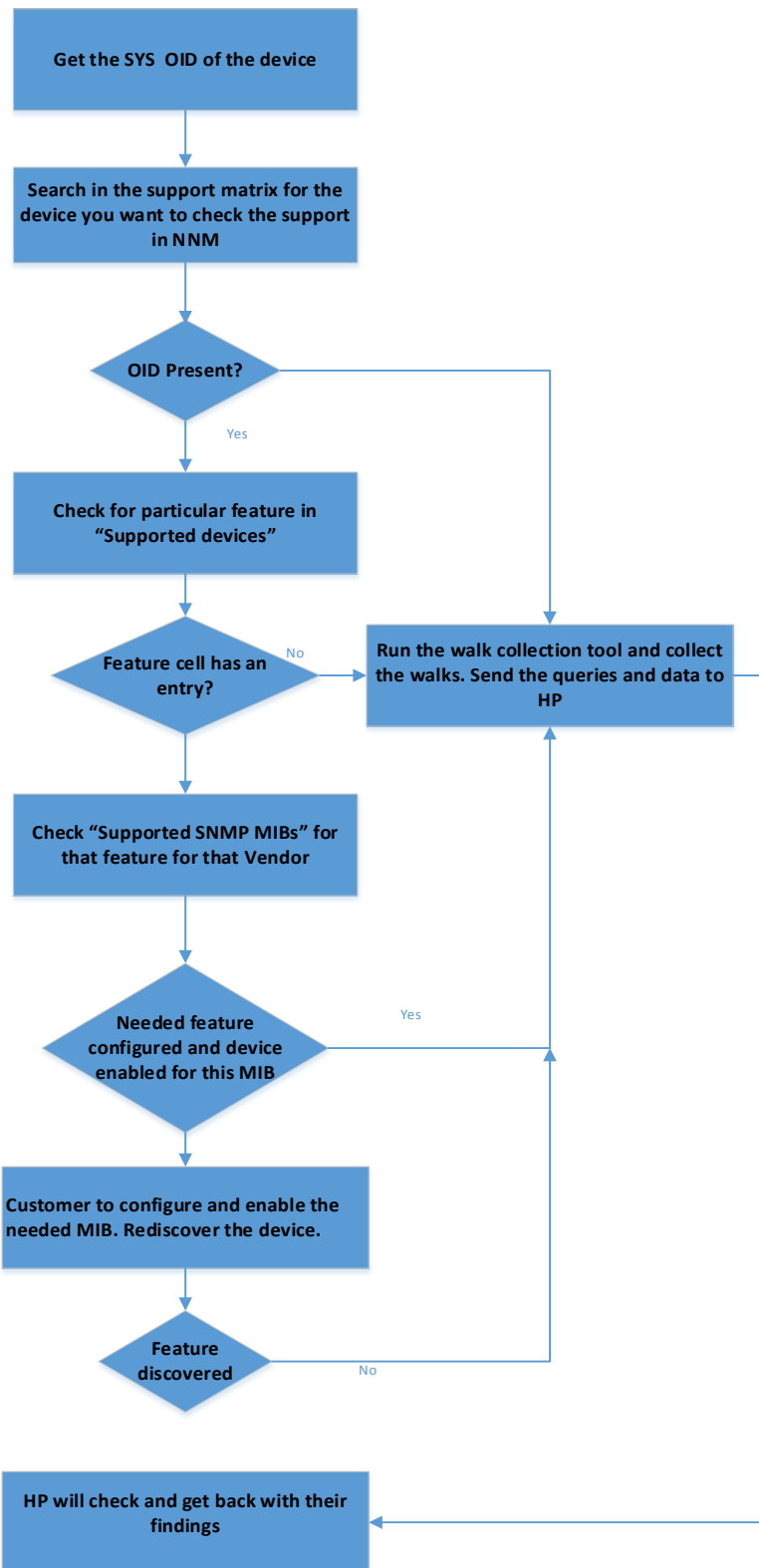


Figure 2: Troubleshooting Workflow for Device Support and Discovery

## Example Troubleshooting Workflow Use Case

This section describes a use case to assist you in understanding how to use the troubleshooting workflow contained in Figure 1: Troubleshooting Workflow for Device Support and Discovery.

**Example Symptom: Some Allied Telesis devices that are physically connected are not shown connected in NNMi. (See Figure 2: Devices are not shown as connected in NNMi.)**

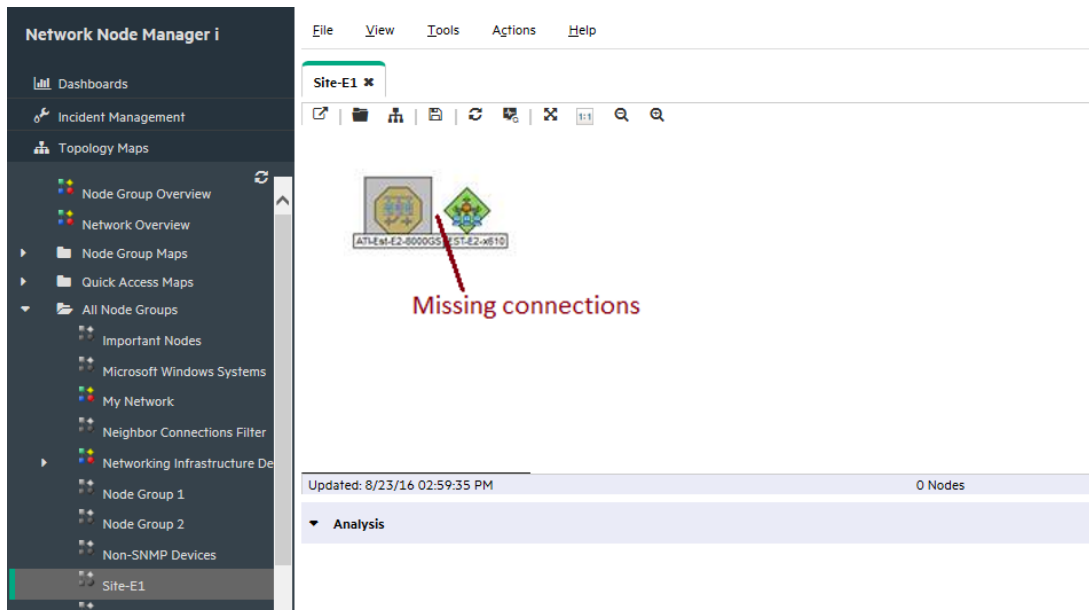


Figure 2: Devices are not shown as connected in NNMi

### Step One: Determine whether NNMi supports Layer 2 connectivity for the device type

First, look in the “Supported Devices” table to determine whether NNMi discovery supports Layer 2 connectivity for the Allied Telesis device type.

**As shown in the example table in Figure 3, NNMi device discovery supports Layer 2 connectivity for Allied Telesis devices.**

Allied Telesis	<a href="#">Top of Table</a>					
Allied Telesis	Allied Telesis	alliedAT-8000S	1.3.6.1.4.1.207.1.4.128	IPv4	L2	
Allied Telesis	Allied Telesis	alliedAT-8350GB	1.3.6.1.4.1.207.1.4.74	IPv4	L2	
Allied Telesis	Allied Telesis	alliedAT-x900-24XS	1.3.6.1.4.1.207.1.14.76	IPv4	L2	VLAN
Allied Telesis	Allied Telesis	alliedAT-x900-12XT/S	1.3.6.1.4.1.207.1.14.70	IPv4	L2	VLAN
Allied Telesis	Allied Telesis	alliedAT-8524POE	1.3.6.1.4.1.207.1.4.113	IPv4	L2	VLAN
Allied Telesis	Allied Telesis	alliedAT-9924Ts	1.3.6.1.4.1.207.1.14.57	IPv4	L2	VLAN
Allied Telesis	Allied Telesis	alliedAT-9924SP	1.3.6.1.4.1.207.1.14.50	IPv4	L2	VLAN

Figure 3: Determine whether L2 connectivity is supported

### Step Two: Determine the MIB required to calculate Layer 2 connectivity

Next, determine the MIB that NNMi requires to calculate Layer 2 connectivity.

**As shown in the example table in Figure 4, NNMi uses the LLDP MIB to calculate Layer 2 connectivity for Allied Telesis devices.**

**As also shown in the example table, if that MIB does not respond, NNMi uses Standard Bridge MIB Forwarding Database (FDB) table.**

**Ensure that LLDP is enabled on the network devices and that the devices respond to the LLDP MIB.**

AlliedTelesis	(Std)	(std)LLDP	(Std)	(Std)						AT-INTERFACE-MIB		AT-INTERFACE-MIB
			AtL2-MIB	AT-SYSINFO-MIB								ATISWITCH-STACK-MIB
			ATISWITCH-STACK-MIB	AT-ENVMON2-MIB								AtI2-MIB
				AT-ENVMON-MIB								IF-MIB

Figure 4: Determine the MIB required to calculate Layer 2 connectivity

**Note**  
 LLDP or CDP (for Cisco devices) is often NOT enabled on the network devices, which affects the NNMi Layer 2 connectivity discovery.

**Step Three: Run a configuration poll on each device**

After LLDP is enabled on each device and each device responds to SNMP queries, manually run the configuration poll on each of the affected devices as shown in the example in Figure 5.

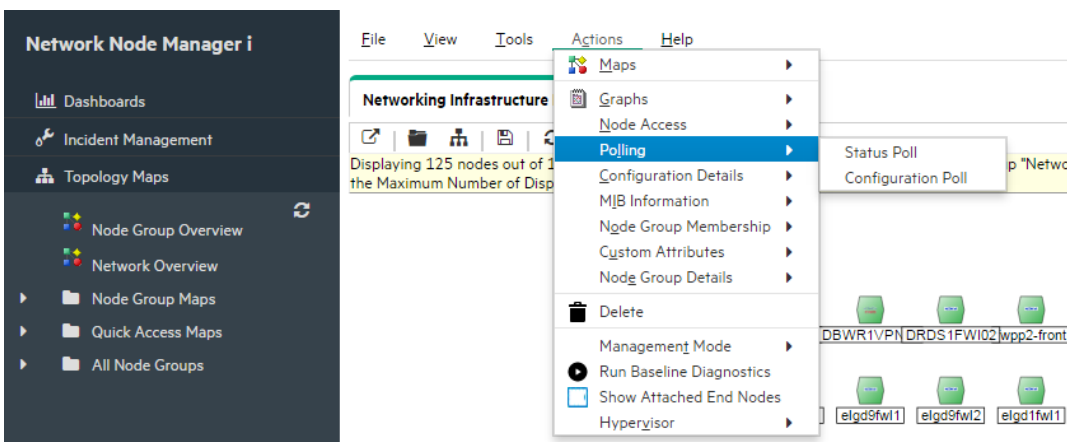


Figure 5: Run configuration poll on each device

**Step Four: Optional. Delete and re-add the device**

If the manual configuration poll does not work, delete and re-add the network device in NNMi.

**Step Five: Verify that connectivity is displayed on the NNMi map**

Finally, verify the connectivity for the devices appears in the NNMi map as shown in the example in Figure 6.

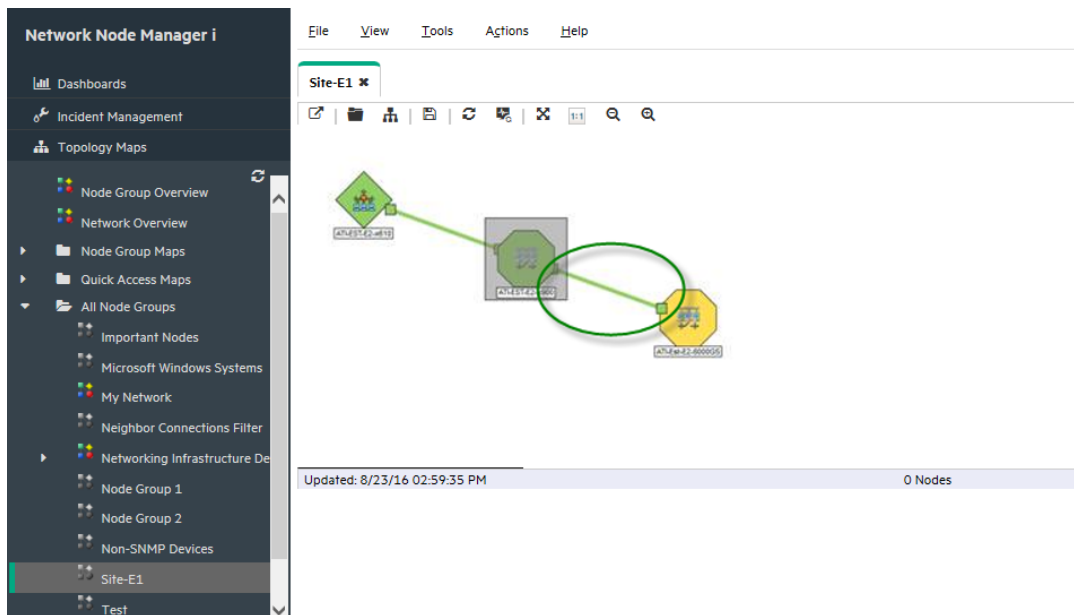


Figure 6: Verify the connectivity for the devices appears in the NNMi map

## Device Data Collection Tools for Additional Troubleshooting

If NNMi still does not discover the Layer 2 connectivity between network devices, use the following tools to collect the required data and submit the information returned to HPE.

### SNMP Data Collection Tool

The SNMP Data Collection Tool is a java-based tool that captures the SNMP walk command output from a device. It does not query the device for a full SNMP walk, but only queries certain specific OIDs that are needed and builds a file which can then be used by HPE to simulate the devices. It can easily be configured to collect single or multiple device SNMP walk outputs without user interference or inputs.

Note the following:

- This tool is available on request through HPE Support
- This tool can be run without installing NNMi

### Juniper devices only. Netconf collection tool

Use the Netconf collection tool to get more device specific information when SNMP does not provide the needed information.

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#### Note:

NNMi uses Netconf only to discover Juniper QFabric devices.

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Note the following:

- This tool is available on request through HPE Support
- For instructions on how to use this tool refer to the Readme file provided with the tool
- This tool can be run without installing NNMi



## DSM Tool

### Note

The DSM Tool is available with NNMi 9.20 Patch 4 and later releases.

The DSM tool provides details about the different features and functionalities that NNMi supports for a particular device's discovery. This information is similar to what is provided in the *HPE Network Node Manager i Software (NNMi) Device Support Matrix*. However, this tool can be used offline so that the user does not need open the device details form in NNMi.

To launch the tool from the NNMi user interface use the URL: <NNM system>/nnm-dsm/nnm-dsm.jsp

**NNMi Device Support Assessment**

This tool performs a high level assessment of NNMi device support based on the nodes discovered by this installation of NNMi.

**Generate Device Assessment Report**  
 [Display Report] [Display Detailed Report] [Download Report]

**Import Device Assessment XML Data**  
 [Browse...] No file selected. [Import XML]

**Clear Imported Assessment Data**  
 Note: this is only needed if imports were done. Otherwise, memory is automatically cleared after report is generated.  
 [Clear Imported Data]

**Export Device Assessment XML Data**  
 [Export XML]

**Generate HTML Report for Device Assessment XML Data**  
 [Browse...] No file selected. [Generate HTML]

**CAVEATS:**

This is NOT a comprehensive nor authoritative device certification:

- Support may vary by device SW/OS version
- False positives may result because

*Annotations:*

- Red box around "Generate Device Assessment Report" buttons: Lists the features supported by NNM for each set of device models. Same models are grouped.
- Red box around "Import XML" button: Same as the "Display Report" but models are not grouped instead shown seperately.
- Red box around "Download Report" button: Downloads the report in html format

Figure 7: DSM device support output

## New Device Support Request

You can submit a request that a device be supported by NNMi in the following cases:

- The device is not listed as supported in the HPE Network Node Manager i Software (NNMi) Device Support Matrix
- The device does not get discovered as expected by standard SNMP MIB queries

To raise a device support enhancement request, follow the process described in KM1348253, available at: <https://softwaresupport.hpe.com/group/softwaresupport/search-result/-/facetsearch/document/KM1348253>

## Conclusion

In summary, use this whitepaper to assist you in troubleshooting NNMi device support and discovery. It contains several best practices for identifying the cause of device support and discovery problems, as well as the solution for each.

## **We appreciate your feedback!**

If an email client is configured on this system, by default an email window opens when you click [here](#).

If no email client is available, copy the information below to a new message in a web mail client, and then send this message to **network-management-doc-feedback@hpe.com**.

**Product name and version:** NNMi 10.20

**Document title:** Troubleshooting Guide for Device Discovery

**Feedback:**

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