Dell OpenManage Connection Version 3.0 for IBM Tivoli Network Manager (ITNM) IP Edition User's Guide

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Introduction

This guide provides the information required to monitor and troubleshoot the Dell OpenManage Connection Version 3.0 for IBM Tivoli Network Manager (ITNM) IP Edition.

The Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition enables monitoring of Dell Original Equipment Manufacturing (OEM) Servers, Dell Datacenter Scalable Solutions (DSS), Dell PowerEdge Servers, Dell Remote Access Controllers (DRACs), Integrated Dell Remote Access Controllers (iDRACs), Dell Workstations, Dell Chassis, Dell Storage, and Dell Network devices in environments managed by the ITNM IP Edition console. It also supports console launch of Dell devices and Dell Tools to perform troubleshooting, configuration, and management activities.

For more information about the supported Dell devices, see Dell OpenManage Connection support matrix.

Dell OpenManage Connection Version 3.0 for ITNM IP Edition supports ITNM IP Edition 3.9. 4.1, and 4.1.1

Dell Precision Rack Workstations used throughout this guide refers to Dell Precision R7910 Rack Workstations.

For more information on accessing documents, see Accessing documents from the Dell support site.

What is new in this release

The Dell OpenManage Connection version 3.0 for IBM Tivoli Network Manager has the following new features and support:

- Support for IBM Tivoli Network Manager (ITNM) IP Edition version 4.1.1
- Support for Dell Original Equipment Manufacturing (OEM) Servers
- Support for Dell Datacenter Scalable Solutions (DSS)
- Support for the latest Dell 13th Generation of PowerEdge servers
- Warranty information support for new Dell devices.

Key features

The following table lists the key features of Dell OpenManage Connection.

Table 1. Features and functionalities

Feature	Functionality
Discovery, classification, and monitoring of the supported Dell devices	Discovers, classifies, and monitors the Dell OEM servers, Dell PowerEdge servers, Dell PowerVault NX storage arrays, and Dell

Feature	Functionality
	workstations using an agent-based, in-band mode via Dell OpenManage Server Administrator (OMSA). The Dell OEM servers, 12th or later generation of Dell PowerEdge servers, Dell PowerVault NX storage arrays, and Dell workstations also support an agent-free, out-of-band mode, using Integrated Dell Remote Access Controller 7 (iDRAC7) or Integrated Dell Remote Access Controller 8 (iDRAC8). You can also discover, classify, and monitor all the other Dell devices such as chassis, storage, and network switches. For more information, see Discovering and classifying Dell devices.
Topology and hierarchical view of Dell devices	In the Topology view, the supported Dell devices are spatially arranged, based on their type and the operating system, and are displayed based on their associations with each other. In the Hierarchical view, the supported Dell devices are arranged, by order of their underlying hardware and Device category. For more information, see Viewing Dell devices.
Dell device association	Associates Dell OEM servers with DRACs, Dell 12th generation of PowerEdge servers or later with DRACs, Dell modular servers and DRACs with FX2 CMC, VRTX CMC, and CMC, Dell PowerEdge FM120x4 Server Modules with FX2 CMC Devices, Dell workstations with DRACs, Dell PowerVault NX storage arrays with DRACs, EqualLogic Blade Array with CMC, modular servers and DRAC with CMC, and Dell IO modules with CMC to identify where the modular systems are residing in a data center. For more information, see Dell device association.
Monitoring licensing availability	Periodic monitoring of the Dell Connections License Manager for license availability. For More information, see Licensing.
Launching Dell consoles	Launches the Dell device specific one-to-one or one-to-many consoles and other Dell tools for the supported Dell devices that you are monitoring to perform troubleshooting, configuration, and management activities. For more information, see Launching Dell device specific consoles.
Launching Dell Connections License Manager Console	Launches the Dell Connections License Manager Console (DCLM) console from DCLM events and iDRAC7 or iDRAC8 devices, applicable only if you want to take advantage of agent-free, out-of-band (OOB) server management via iDRACs.
Launching Warranty report information	Launches the Warranty report information for the supported Dell devices.

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Prerequisites

The prerequisites for Dell OpenManage Connections version 3.0 are:

- General prerequisites
- Feature specific prerequisites

General prerequisites

The general prerequisites are:

- ITNM IP Edition 3.9, 4.1, or 4.1.1 is installed and configured as per the IBM guidelines.
- Discovery of Dell devices is done using an IP address or a range of IP addresses. For more information, see Discovering and classifying Dell devices.
- Event monitoring and alert correlation for Dell devices are supported using Dell OpenManage Connection version 3.0 for IBM Tivoli Netcool/OMNIbus.

Feature-specific prerequisites

The feature-specific prerequisites are:

- For discovering and classifying iDRAC8 or iDRAC7
  - Dell Connections License Manager (DCLM) is installed and configured, and the Out-of-Band (OOB) Monitoring licenses are imported.
  - Network connectivity between ITNM IP Edition and DCLM, and ITNM IP Edition and iDRAC7 or iDRAC8 servers exists.
  - Simple Network Management Protocol (SNMP) is enabled in iDRAC7 or iDRAC8 devices.
- For discovering and classifying Dell devices
  - Simple Network Management Protocol (SNMP) is enabled and configured on the supported Dell devices.
  - WS-MAN is enabled on Dell servers or Dell workstations running ESXi.
  - Dell OpenManage Server Administrator (OMSA) for Windows and Linux operating systems is installed on Dell servers, workstations, and Dell PowerVault NX Storage Arrays.
  - OMSA Virtual Install Bundle (VIB) for Dell servers or Dell workstations running ESXi is installed.
  - Network connectivity between ITNM IP Edition and Dell devices exists.
- For monitoring Dell devices
  - Dell devices are discovered and classified.
  - Polling policies are configured in ITNM or in the scheduler (**Task Scheduler** in case of systems running Windows and **Crontab** in case of systems running Linux).
- For one-to-one console launches

  - The supported Dell devices are discovered.
  - SNMP and WS-MAN is enabled on the supported Dell devices.
  - Remote Management is installed for Server Administrator installed on Dell servers and Dell workstations running Windows, Linux, and ESXi operating systems.
  - MDSM is installed and configured for launching the MDSM console from Dell PowerVault MD Storage Arrays.
  - Compellent Enterprise Manager Client Console is installed and configured for launching the console from Dell Compellent Storage Arrays.
  - Internet proxy server is configured to launch the Dell Warranty Report Information console from the supported Dell devices.
- For launching other Dell consoles
  - Internet is accessible from the system on which ITNM IP Edition web client is accessed.
  - Network connectivity between ITNM IP Edition and Dell devices exists.
  - Dell devices are discovered.
  - The URLs for OMSA web server, OpenManage Essentials (OME), OpenManage Power Center (OMPC), Dell Connection License Manager Console (DCLM), AirWave Management Platform, and OpenManage Network Manager (OMNM) are installed and configured.

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Dell OpenManage Connection support matrix

Dell OpenManage Connection Version 3.0 for ITNM IP Edition supports the Dell devices, firmware versions, OMSA versions, and operating systems as listed in the following sections:

- Supported operating systems for Managed Systems
- Supported operating systems for Managing Systems
- Supported Dell devices and their OMSA and firmware versions
- Supported Dell Platforms

Supported operating systems for managed systems

The following table lists the operating systems supported on the supported Dell devices:

Table 2. Supported operating systems for Dell Workstations

Virtualization Environment	Windows Server	SUSE Linux Server	Red Hat Enterprise Linux Server
ESXi 6.0 U1	Windows Server 2012 R2 (Datacenter, Foundation, Essentials, and Standard editions)	SUSE Linux Enterprise Server 12 (64-bit)	Red Hat Enterprise Linux 7.2 (64-bit)
ESXi 5.5 U3	Windows 8.1 Professional (64 bit)	SUSE Linux Enterprise Server 11 SP4 (64-bit)	Red Hat Enterprise Linux 7.1 (64-bit)
ESXi 5.5 U2	Windows 7 Professional (32-bit and 64-bit)		Red Hat Enterprise Linux 7.0 (64-bit)
	Microsoft Windows Server 2008 SP1		Red Hat Enterprise Linux 6.7 (64-bit)
	Microsoft Windows Server 2008 R2		

Table 3. Supported operating systems for Dell Servers

Virtualization Environment	Windows Server	SUSE Linux Server	Red Hat Enterprise Linux Server
ESXi 6.0 U1	Windows Server 2012 R2 (Datacenter, Foundation, Essentials, and Standard editions)	SLES 12 64-bit	Red Hat Enterprise Linux 7.2 (64-bit)
ESXi 6.0	Microsoft Windows Server 2012 Essentials	SLES 11 SP4 64-bit)	Red Hat Enterprise Linux 7.1 (64-bit)

Virtualization Environment	Windows Server	SUSE Linux Server	Red Hat Enterprise Linux Server
ESXi 5.5 U3	Windows Essential Business Server 2008 SP1		Red Hat Enterprise Linux 7.0 (64-bit)
ESXi 5.5 U2	Windows Essential Business Server 2008 SP1		Red Hat Enterprise Linux 6.7 (64-bit)
ESXi 5.5	Windows Server 2008 SP2 (32-bit and 64-bit)		Red Hat Enterprise Linux 6.5 (64–bit)
ESXi 5.1 U3	Windows Server 2008 R2 (64-bit)		Red Hat Enterprise Linux 6.2 (64-bit)
ESXi 5.1 U2	Windows Server 2008 R2 SP1 (64-bit)		Red Hat Enterprise Linux 6.0 (64-bit)
ESXi 5.1 U1	Windows Server 2008 R1 and R2 (HPC Edition)		Red Hat Enterprise Linux 5.9 (64-bit and 32-bit)
ESXi 5.1	Windows Storage Server 2008 SP2		
ESXi 5.0 U3	Windows Small Business Server 2008 SP2		Red Hat Enterprise Linux 5.5 (64-bit and 32-bit)
ESXi 5.0 U2	Windows Small Business Server 2008 R2		Red Hat Enterprise Linux 5.3 (64-bit and 32-bit)
ESXi 5.0 U1	Microsoft Windows Small Business Server 2011		Red Hat Enterprise Linux 5.0 (64-bit and 32-bit)
	Microsoft Windows Server 2012		
	Windows Small Business Server 2003 R2 SP2		
	Windows Server 2003 R2 (32-bit and 64-bit)		
	Windows Storage Server 2003 R2		
	Windows Server 2003 (Compute Cluster Edition)		
	Windows Unified DataStorage Server (64-bit)		

NOTE: For any communication with servers running VMware ESXi, certificate check is ignored.

Supported operating systems for managing systems

Table 4. Supported operating systems for ITNM IP Edition 4.1.1

Red Hat Enterprise Linux Server (RHEL)	SUSE Linux Enterprise Server (SLES)
RHEL 6.0-7 (64-bit)	SLES 11 SP3 (64-bit)
RHEL 5.0-10 (64-bit)	

Table 5. Supported operating systems for ITNM IP Edition 4.1

Red Hat Enterprise Linux Server (RHEL)
RHEL 7.0-1 (64-bit)
RHEL 6.0-7 (64-bit)
RHEL 5.0 Advanced Platform (64-bit)

Table 6. Supported operating systems for ITNM IP Edition 3.9

Virtualization Environment	Windows Server	SUSE Linux Enterprise Server (SLES)	Red Hat Enterprise Linux Server (RHEL)	Windows Client	SUSE Linux for Desktop
ESXi 5.0	Windows Server 2008 R2 (64-bit) (Enterprise, Datacenter, Standard)	SLES 11.0-4 (64-bit)	RHEL 7.0-1 (64-bit)	Windows Enterprise 7 (64-bit) SP1	SUSE Linux Enterprise Desktop 11.0-4 (64-bit)
ESXi 4.1	Windows Server 2008 R2 (64-bit) SP1 (Enterprise, Datacenter, Standard)	SLES 11.0-4 (32-bit)	RHEL 6.0-7 (64-bit()	Windows Enterprise 7 (64-bit)	
ESXi 4.0	Windows Server 2008 (64-bit) SP2 (Enterprise, Standard)	SLES 10.0-4 (64-bit)	RHEL 6.0-5 (32-bit)	Windows Vista Ultimate SP2 (64-bit)	
ESXi 3.5	Windows Server 2008 (32-bit) SP2 (Enterprise, Standard)	SLES 10.0-4 (32-bit)	RHEL 5.0-10 Advanced Platform (64-bit)		
ESX 3.5	Windows Server 2008 (64-bit) (Enterprise, Standard)		RHEL 5.0-10 Advanced Platform (32-bit)		
	Windows Server 2008 (32-bit) (Enterprise, Standard)				

NOTE: Dell OpenManage Connection Version 3.0 for IBM Tivoli Network Manager (ITNM) IP Edition is supported on Guest operating systems (Microsoft Windows, Red Hat Enterprise Linux, and SUSE Linux Enterprise Server) for VMware ESXi listed in the preceding table.

Supported Dell devices and their OMSA and firmware versions

The following table lists the Dell Devices and their supported firmware versions for Dell OpenManage Connection.

Table 7. Dell devices and firmware

Dell Devices	Supported OMSA Versions	Supported Firmware Versions
Dell OEM Servers	• 8.3 • 8.2 • 8.1	NA
Dell PowerEdge servers	• 8.3 • 8.2 • 8.1	NA
Dell Workstations	• 8.3 • 8.2 • 8.1	NA
Dell Datacenter Scalable Solutions (DSS 1500 and DSS 2500)	NA	• 2.30.30.30 • 2.16.16.12
Dell Datacenter Scalable Solutions (DSS 1510)	NA	• 2.30.30.30 • 2.17.17.13
iDRAC8	NA	• 2.30.30.30 • 2.20.20.20
iDRAC7	NA	• 2.30.30.30 • 2.20.20.20
iDRAC6 Modular	NA	• 3.6 • 3.5
iDRAC6 Monolithic	NA	• 1.97 • 1.96
DRAC5	NA	• 1.6 • 1.5
FX2 CMC	NA	• 1.4 • 1.3

Dell Devices	Supported OMSA Versions	Supported Firmware Versions
VRTX CMC	NA	• 2.2 • 2.1
CMC	NA	• 5.2 • 5.1
Dell PowerVault NX Storage Arrays	• 8.3 • 8.2 • 8.1	NA
Dell Compellent Storage Arrays	NA	6.6.2
Dell EqualLogic PS-Series Storage Arrays	NA	• 8.1 • 8.0
Dell PowerVault MD Storage Arrays	NA	• 08.20.09.60 • 08.10.05.60
Dell Network Switches	NA	S-Series • S55 (8.3.5.5 and 8.3.5.3) • S60 (8.3.3.9 and 8.3.3.8) • S4810 (9.6 and 9.5) • S4820T (9.5 and 9.4) • S5000 (9.1 and 9.0) • S6000 (9.5 and 9.4) M-Series • MXL (9.6 and 9.5) • MIOA (9.5 and 9.4) Z-Series • Z9500 (9.2) • Z9000 (9.5 and 9.4) C-Series • C150 (8.4.6.0) • C300 (8.4.5.0) N-Series • 6.1.2 and 6.1 W-Series • W-Series Mobility Controllers (6.4)

NOTE: Dell Workstations refers to Dell Precision R7910 Rack Workstations.

Supported Dell platforms

Dell Datacenter Scalable Solutions

Table 8. Supported Dell Datacenter Scalable Solutions

Dell Datacenter Scalable Solutions (DSS)
DSS 1500
DSS 1510
DSS 2500

Dell PowerEdge servers

NOTE: In the PowerEdge server name format yxxx; y denotes alphabets, for example M,R, or T and x denotes numbers.

Table 9. Supported Dell PowerEdge servers

yx0x Systems	yx1x Systems	yx2x Systems	yx3x Systems
PowerEdge M605	PowerEdge R210	PowerEdge FM120x4	C4130
PowerEdge M905	PowerEdge R210 II	PowerEdge M420	C6320
PowerEdge R200	PowerEdge R410	PowerEdge M520	FC230
PowerEdge R805	PowerEdge R415	PowerEdge M620	FC430
PowerEdge R905	PowerEdge R510	PowerEdge M820	FC630
PowerEdge T100	PowerEdge R515	PowerEdge R320	FC830
PowerEdge T105	PowerEdge R610	PowerEdge R420	M630
	PowerEdge R710	PowerEdge R520	M830
	PowerEdge R715	PowerEdge R620	R230
	PowerEdge R810	PowerEdge R820	R330
	PowerEdge R815	PowerEdge R920	R430
	PowerEdge R910	PowerEdge S420	R530
	PowerEdge T110	PowerEdge S620	R530xd
	PowerEdge T110 II	PowerEdge T320	R630
	PowerEdge T310	PowerEdge T420	R730
	PowerEdge T410	PowerEdge T620	R730xd
	PowerEdge T610		R930
	PowerEdge T710		T130
	PowerEdge M610		T330

yx0x Systems	yx1x Systems	yx2x Systems	yx3x Systems
	PowerEdge M610x		T430
	PowerEdge M710		T630
	PowerEdge M710HD		
	PowerEdge M910		
	PowerEdge M915		

NOTE: The corresponding Dell Remote Access Controllers (DRAC5, iDRAC6, iDRAC7 and iDRAC8) are included as part of their respective generation of Dell PowerEdge servers in the preceding table.

Dell Workstations

Table 10. Supported Dell Workstations

Dell Precision R7910

Dell Chassis

Table 11. Supported Dell Chassis

Dell PowerEdge FX2
Dell PowerEdge FX2s
Dell PowerEdge VRTX
Dell PowerEdge M1000e

Dell Compellent storage arrays

Table 12. Supported Dell Compellent storage arrays

Compellent Series 40
Compellent SC4020
Compellent SC8000

Dell PowerVault NX storage arrays

Table 13. Supported Dell PowerVault NX storage arrays

PowerVault NX200
PowerVault NX300
PowerVault NX400
PowerVault NX3000
PowerVault NX3100

PowerVault NX3200

PowerVault NX3300

Dell EqualLogic PS-Series storage arrays

Table 14. Supported Dell EqualLogic PS-Series storage arrays

EqualLogic PS4000	EqualLogic PS5000	EqualLogic PS6000
EqualLogic PS4100	EqualLogic PS5500	EqualLogic PS6010
EqualLogic PS4110		EqualLogic PS6100
EqualLogic PSM4110		EqualLogic PS6110
		EqualLogic PS6210
		EqualLogic PS6500
		EqualLogic PS6510

Dell PowerVault MD storage arrays

Table 15. Supported Dell PowerVault MD storage arrays

PowerVault MD3200	PowerVault MD3400
PowerVault MD3220i	PowerVault MD3420
PowerVault MD3220	PowerVault MD3460
PowerVault MD3200i	PowerVault MD3800f
PowerVault MD3260	PowerVault MD3800i
PowerVault MD3260i	PowerVault MD3820f
PowerVault MD3600f	PowerVault MD3820i
PowerVault MD3600i	PowerVault MD3860f
PowerVault MD3620f	PowerVault MD3860i
PowerVault MD3620i	
PowerVault MD3660f	

Dell network switches

Table 16. Supported Dell network switches

S-Series	M-Series	Z-Series	C-Series	N-Series	W-Series (Mobility Controllers)
S55	MXL	Z9500	C150	N2024	W-3200
S60	MIOA	Z9000	C300	N2024P	W-3400
S4810				N2048	W-3600

S-Series	M-Series	Z-Series	C-Series	N-Series	W-Series (Mobility Controllers)
S4820T				N2048P	W-620
S5000				N3024	W-650
S6000				N3024F	W-651
				N3024P	W-7200
				N3048	
				N3048P	
				N4032	
				N4032F	
				N4064	
				N4064F	

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Discovering and classifying Dell devices

Dell OpenManage Connection for ITNM IP Edition facilitates discovery and classification of all the supported Dell devices.

To discover and classify the supported Dell devices configure the following on Tivoli Integrated Portal (TIP):

- **Scope tab** — Using full Subnet with mask or using Subnet with wildcard characters (*)
- **Seed tab** — Using a direct IP or subnet IP
- **SNMP Password** menu — Using SNMP community strings for SNMP version 1, version 2, and User-based Security Model (USM) for SNMP version 3.

After the devices are discovered, they are displayed in the **Network View** and **Network Hop View**, along with their details.

Discovering and classifying Dell OEM servers

To discover Dell OEM servers, ensure that the `DellServerSNMP` discovery agent is enabled for discovering Dell servers running Windows and Linux operating systems and the `DellServerWsman` discovery agent is enabled for servers running VMware ESXi operating systems.

The discovered Dell OEM devices are classified under the following class names:

- `ESXi Servers` — For OEM servers running ESXi operating systems
- `Linux Servers` — For OEM servers running Linux operating systems
- `Modular Servers` — For OEM modular servers running Linux operating systems
- `Monolithic Servers` — For OEM monolithic servers running Linux operating systems
- `Windows Servers` — For OEM servers running Windows operating systems

In the left pane on the Tivoli Integrated Portal (TIP), click **Availability → Network Availability → Network Views → Dell OEM Devices → Servers**. The **Servers** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

NOTE: If you are discovering Dell OEM servers running ESXi version 5.5 or later, configure the environment variable `DELL_OMC_ITNM_JAVA_PATH` using JRE version 1.6.0_18 (6u18) or later.

By default, in-band server discovery is enabled. When you use both in-band and OOB discovery methods for OEM devices, they may create redundant information. You can avoid the redundant information by disabling the in-band discovery. The discovery can be controlled using a configured value. The discovery and classification is based on the values:

- Enable

- Disable

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -<option>=<value>
```

For example:

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -monitorinband=enable
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -monitorinband=disable
```

NOTE: If an ESXi system has IPv4 and IPv6 addresses and both of them are discovered, the addresses appear as different managed nodes under the **Dell OEM Devices → Servers → ESXi Servers**. You can avoid the redundant service tag by excluding these IP addresses in the discovery configuration.

If the IPv6 address of a Dell OEM server running ESXi is configured as a **seed** in ITNM IP Edition, then the trap association will not occur. To view the trap association, discover the Dell OEM servers running ESXi using an IPv4 address.

Discovering and classifying 10th to 13th generation of Dell PowerEdge servers

To discover Dell PwerEdge servers, ensure that the `DellServerSNMP` discovery agent is enabled for discovering Dell servers running Windows and Linux operating systems and the `DellServerWsman` discovery agent is enabled for servers running VMware ESXi operating systems.

The discovered Dell servers are classified under the following class names:

- `DellServerMonolithicLinux` — For monolithic servers running Linux operating systems
- `DellServerModularWindows` — For modular servers running Windows operating systems
- `DellServerModularLinux` — For modular servers running Linux operating systems
- `DellServerMonolithicWindows` — For monolithic servers running Windows operating systems
- `DellServerModularESXi` — For modular servers running ESXi operating systems
- `DellServerMonolithicESXi` — For monolithic servers running ESXi operating systems

In the left pane on the Tivoli Integrated Portal (TIP), click **Availability → Network Availability → Network Views → Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

NOTE: If you are discovering Dell PowerEdge servers or Dell PowerVault NX Storage Arrays running ESXi version 5.5 or later, configure the environment variable `DELL_OMC_ITNM_JAVA_PATH` using JRE version 1.6.0_18 (6u18) or later.

By default, for the 12th or later generation of Dell PowerEdge servers, Dell PowerVault NX Storage Arrays, or Dell workstations in-band server discovery is enabled. When you use both in-band and OOB discovery methods for those devices, they may create redundant information. You can avoid the redundant information by disabling the in-band discovery. The discovery can be controlled using a configured value. The discovery and classification is based on the values:

- Enable
- Disable

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -<option>=<value>
```

For example:

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -monitorinband=enable
```

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -monitorinband=disable
```

NOTE: If an ESXi system has IPv4 and IPv6 addresses and both of them are discovered, the addresses appear as different managed nodes under the **Dell Managed Systems → ESXi Servers.** You can avoid the redundant service tag by excluding these IP addresses in the discovery configuration.

If the IPv6 address of a Dell server running ESXi is configured as a **seed** in ITNM IP Edition, then the trap association will not occur. To view the trap association, discover the Dell servers running ESXi using an IPv4 address.

Discovering and classifying Dell Workstations

To discover Dell Workstations, ensure that the `DellServerSNMP` discovery agent is enabled for discovering Dell workstations running Windows and Linux operating systems and the `DellServerWsman` discovery agent is enabled for Dell workstations running VMware ESXi operating systems.

The discovered Dell workstations are classified under the following class names:

- `DellRackWorkstation` — For Dell Rack workstations
- `DellWorkstationLinux` — For Dell workstations running Linux operating systems
- `DellWorkstationWindows` — For Dell workstations running Windows operating systems
- `DellWorkstationESXi` — For Dell workstations running ESXi operating systems

In the left pane on the Tivoli Integrated Portal (TIP), click **Availability → Network Availability → Network Views → Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

NOTE: If you are discovering Dell workstations running ESXi version 5.5 or later, configure the environment variable `DELL_OMC_ITNM_JAVA_PATH` using JRE version 1.6.0_18 (6u18) or later.

By default, for the Dell workstations the in-band method of discovery is enabled. When you use both in-band and OOB discovery methods for the workstations, they may create redundant information. You can avoid the redundant information by disabling the in-band discovery. The discovery can be controlled using a configured value. The discovery and classification is based on the values:

- Enable
- Disable

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -<option>=<value>
```

For example:

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -monitorinband=enable
```

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar -monitorinband=disable
```

NOTE: If an ESXi system has IPv4 and IPv6 addresses and both of them are discovered, the addresses appear as different managed nodes under the **Dell Managed Systems → ESXi Workstations**. You can avoid the redundant service tag by excluding these IP addresses in the discovery configuration.

If the IPv6 address of a Dell workstations running ESXi is configured as a **seed** in the ITNM IP Edition, then the trap association will not occur. To view the trap association, discover the Dell workstations running ESXi using an IPv4 address.

Discovering and classifying Dell iDRAC7 or iDRAC8 devices

To discover Dell iDRAC7 or iDRAC8 devices, ensure that the `DellOOBServer` discovery agent is enabled for discovering Dell iDRAC7 and iDRAC8 devices. DCLM must be installed and configured, and the DCLM parameters must be configured in the ITNM IP Edition core server using the Config Utility.

For more information on DCLM features, see Licensing

For more information on configuring the DCLM parameters, see the *Dell OpenManage Connection Version 3.0 for IBM Tivoli Network Manager IP Edition Installation Guide.*

The discovered Dell 13th generation OOB servers (iDRAC8) are classified under the `DelliDRAC8` class name.

The discovered Dell 12th generation OOB servers (iDRAC7) are classified under the `DelliDRAC7` class name.

In the left pane on the Tivoli Integrated Portal (TIP), click **Availability → Network Availability → Network Views → Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

Discovering and classifying DRAC5 devices

To discover DRAC5 devices, ensure that the `DellDRAC` discovery agent is enabled for full and partial discovery of Dell DRAC5 devices.

The discovered DRAC5 devices are classified under the `DellDRAC5` class name.

In the left pane on TIP, click **Availability → Network Availability → Network Views → Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

Discovering and classifying iDRAC6 devices

To discover iDRAC6 devices, ensure that the `DellDRAC` discovery agent is enabled for partial and full discovery of Dell iDRAC6 monolithic and modular devices.

The discovered iDRAC6 devices are classified under the `DelliDRAC6` class name.

You can view the discovered iDRAC6 devices in the **Network View**. In the left pane, click **Availability** → **Network Availability** → **Network View** → **Dell Managed Systems.** The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

Discovering and classifying FX2 CMC devices

To discover FX2 CMC, ensure that the `DellDRAC` discovery agent is enabled for full and partial discovery of Dell FX2 CMC devices.

The discovered FX2 CMC devices are classified under the `DellFX2CMC` class name.

In the left pane on TIP, click **Availability** → **Network Availability** → **Network View** → **Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

Discovering and classifying VRTX CMC devices

Make sure the `DellDRAC` discovery agent is enabled for full and partial discovery of Dell VRTX CMC devices.

The discovered VRTX CMC devices are classified under the `DellVRTXCMC` class name.

In the left pane on TIP, click **Availability** → **Network Availability** → **Network Views** → **Dell Managed Systems.** The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

Discovering and classifying CMC devices

To discover CMC devices, ensure that the `DellDRAC` discovery agent is enabled for full and partial discovery of Dell CMC devices.

The discovered CMC devices are classified under the `DellCMC` class name.

In the left pane on TIP, click **Availability** → **Network Availability** → **Network Views** → **Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

Discovering and classifying Dell Compellent Storage Arrays

To discover Dell Compellent Storage Arrays, ensure that the `DellCompellent` discovery agent is enabled for partial and full discovery of Compellent Storage Arrays.

The discovered Dell Compellent Storage Arrays are classified under class name `DellCompellent`.

You can view the discovered Dell Compellent Storage Arrays in the **Network View**. In the left pane, click **Availability** → **Network Availability** → **Network Views** → **Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

NOTE:
It is recommended to use the Compellent Storage Management IP for monitoring Dell Compellent Storage Arrays. Using the Compellent Management IP, only SNMP v1 traps can be received. In case you want to discover the controller IP addresses and monitor the SNMP v2 traps, then perform a full discovery by disabling the attribute **Enable SysName Naming** in the advance tab of the **Discovery Configuration** page.

If the attribute **Enable SysName Naming** is enabled and Compellent controller IP addresses are provided for discovery, then a dummy node will get created in the second and subsequent discovery cycle and the Controller traps and events will get associated to the dummy node randomly.

Discovering and classifying Dell PowerVault NX Storage Arrays

To discover Dell PowerVault NX Storage Arrays, ensure that the `DellServerSNMP` discovery agent is enabled for partial and full discovery of PowerVault NX Storage Arrays.

The discovered Dell PowerVault NX Storage Arrays are classified under class name `DellPowerVaultNX.`

You can view the discovered Dell PowerVault NX Storage Arrays in the **Network View**. In the left pane, click **Availability → Network Availability → Network Views → Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

Discovering and classifying Dell EqualLogic PS-Series Storage Arrays

To discover Dell EqualLogic PS-Series Storage Arrays ,ensure that the `DellEqualLogic` discovery agent is enabled for partial and full discovery of Dell EqualLogic PS-Series Storage Arrays.

The discovered Dell EqualLogic PS-Series Storage Arrays are classified under class name `DellEqualLogic`.

You can view the discovered Dell EqualLogic PS-Series Storage Arrays in the **Network View**. In the left pane, click **Availability → Network Availability → Network Views → Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

NOTE: Administrators must ensure that the EqualLogic group IP is not provided in the seed list of **Discovery Configuration**. If the subnet is provided in the **Seed** list, administrators must exclude the EqualLogic group IP in the **Scope** of **Discovery Configuration**. If the same group IP is used one of the members in the storage pool may be dropped.

Discovering and classifying Dell PowerVault MD Storage Arrays

To discover Dell PowerVault MD Storage Arrays, ensure that the `DellMDArray` discovery agent is enabled for partial and full discovery of Dell PowerVault MD Storage Arrays.

The discovered Dell PowerVault MD Storage Arrays (with SMNP support) are classified under class name `DellMDArraySNMP`.

The discovered Dell PowerVault MD Storage Arrays (with no SMNP support) are classified under class name `DellMDArray`.

You can view the discovered PowerVault MD Storage Arrays in the **Network View**. In the left pane, click **Availability → Network Availability → Network Views → Dell Managed Systems**. The **Dell Managed Systems** pane is displayed on the right-hand side. For more information, see Viewing Dell devices.

NOTE: While discovering a subnet, administrators must ensure that a single IP address of an enclosure is provided in the seed list of **Discovery Configuration**. If the subnet is provided in the **Seed** list, administrators must exclude multiple IP addresses in the **Scope** of **Discovery Configuration**. If multiple IP addresses exist for the same enclosure, all the management IP addresses of the enclosure are discovered and multiple enclosures for the Dell PowerVault MD Storage Arrays are displayed.

If the IPv6 address of a Dell PowerVault MD Storage Array is configured as a **seed** in the ITNM IP Edition, then the trap association will not occur. To view the trap association, discover the Dell PowerVault MD Storage Arrays using an IPv4 address.

Discovering and classifying Dell Network Switches

Make sure that the discovery agents as listed below are enabled for full and partial discovery of Dell network switches:

Table 17. Discovery agents for Dell network switches

Dell Network Switch	Discovery Agent	Class Name
S-Series Switches	DellSSeriesSwitch	DellSSeriesSwitch
M-Series Switches	DellMSeriesSwitch	DellMSeriesSwitch
Z-Series Switches	DellZSeriesSwitch	DellZSeriesSwitch
C-Series Switches	DellCSeriesSwitch	DellCSeriesSwitch
N-Series Switches	DellNSeriesSwitch	DellNSeriesSwitch
W-Series Switches	DellWSeriesSwitch	DellWSeriesMobilityController

The discovered network switches are classified under the class name as listed in the preceding table.

Navigate to **Availability → Network Availability → Network Views** and expand **Dell Managed Systems**. The discovered **Dell Network Switches** group is displayed on the right-hand side. For more information, see Viewing Dell devices.

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Viewing Dell devices

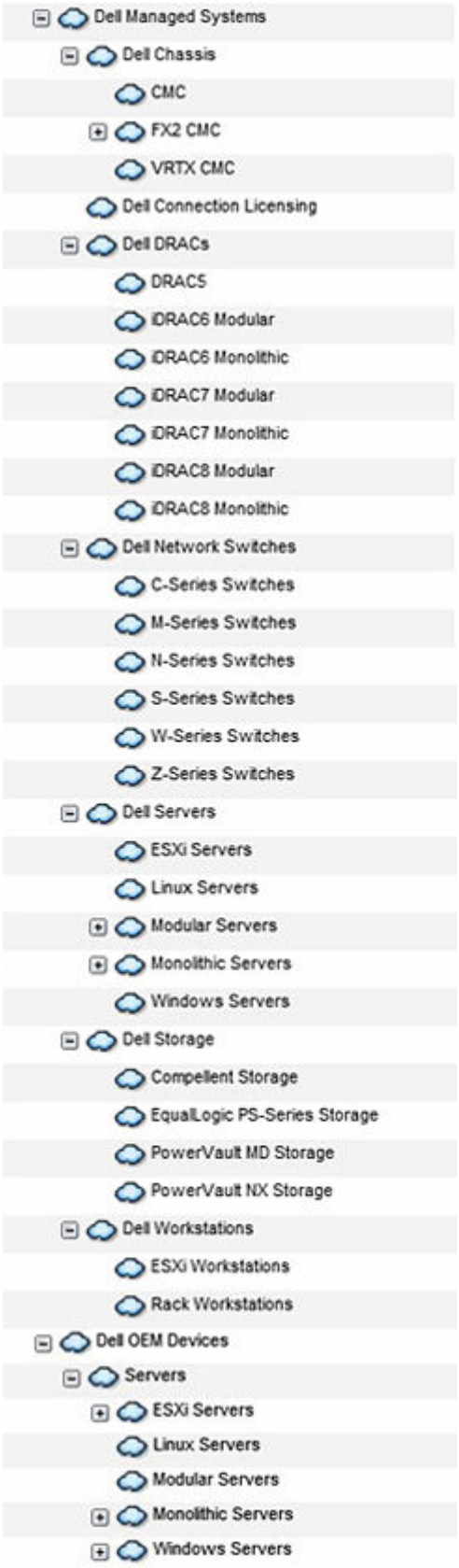
You can view the discovered Dell devices in the **Network Views**.

To view the devices:

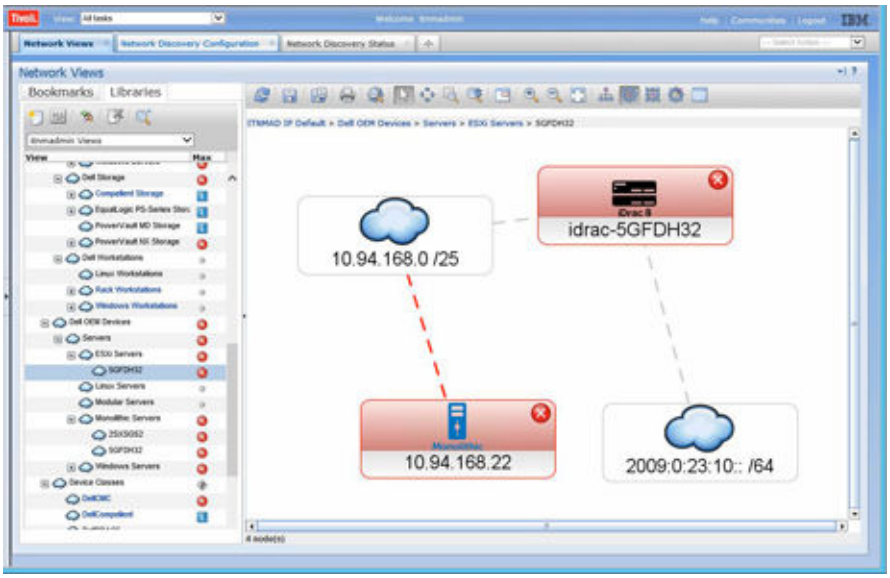
1. In the left pane on the Tivoli Integrated Portal (TIP), click **Availability** → **Network Availability** → **Network Views**.

   The **Network Views** pane is displayed on the right-hand side.
2. Click the required **<View Name>** → **Dell Managed Systems**. To view Dell OEM servers, click on **Dell OEM Devices** → **Servers**.

   The Dell devices are displayed as follows in their hierarchical view:


Dell Managed Systems
Dell Chassis
CMC
FX2 CMC
VRTX CMC
Dell Connection Licensing
Dell DRACs
DRAC5
iDRAC6 Modular
iDRAC6 Monolithic
iDRAC7 Modular
iDRAC7 Monolithic
iDRAC8 Modular
iDRAC8 Monolithic
Dell Network Switches
C-Series Switches
M-Series Switches
N-Series Switches
S-Series Switches
W-Series Switches
Z-Series Switches
Dell Servers
ESXi Servers
Linux Servers
Modular Servers
Monolithic Servers
Windows Servers
Dell Storage
Compellent Storage
EqualLogic PS-Series Storage
PowerVault MD Storage
PowerVault NX Storage
Dell Workstations
ESXi Workstations
Rack Workstations
Dell OEM Devices
Servers
ESXi Servers
Linux Servers
Modular Servers
Monolithic Servers
Windows Servers

The Dell devices are displayed as follows in their topology view:



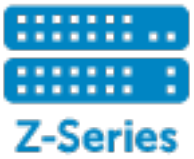
The following table lists the icons and the devices they represent:

Table 18. Dell Device Icons and Descriptions

Icons	Description
	Indicates Dell in-band modular servers.
	Indicates Dell in-band monolithic servers.
	Indicates Dell Workstation.

Icons	Description
	Indicates iDRAC8 (OOB) devices.
	Indicates iDRAC7 (OOB) devices.
	Indicates iDRAC6 devices.
	Indicates DRAC5 devices.
	Indicates Dell FX2 CMC devices.
	Indicates Dell VRTX CMC devices.

Icons	Description
	Indicates Dell CMC devices.
	Indicates Dell EqualLogic Storage Arrays.
	Indicates Dell PowerVault MD Storage Arrays.
	Indicates Dell Compellent Storage Arrays.
	Indicates Dell PowerVault NX Storage Arrays.
	Indicates Dell S-Series Switches.

Icons	Description
	Indicates Dell M-Series Switches.
	Indicates Dell Z-Series Switches.
	Indicates Dell C-Series Switches.
	Indicates Dell N-Series Switches.
	Indicates Dell W-Series Switches.

Viewing Dell devices

The Dell OEM servers can be viewed by expanding **Dell OEM Devices** → **Servers** while all the other Dell devices such as Dell Servers, Dell DRACs, Dell Workstations, Dell Chassis, Dell Storage, Dell Network Switches can be viewed by expanding **Dell Managed Systems**. The following steps show how you can view devices under any of the two Dell device group views:

1. To view Dell OEM servers, under **Dell OEM Devices**, expand any Dell OEM server group.

The discovered Dell OEM servers can be viewed under the **Dell OEM Devices** → **Servers** view in the ITNM console as listed below:

- **Modular Servers**
- **Monolithic Servers**
- **Windows Servers**
- **Linux Servers**
- **ESXi Servers**

Expand any server group to view the service tags of the discovered OEM servers. Click the required service tag to view the managed node in the right pane. The discovered OEM servers are displayed in the right-pane.

2. Under **Dell Managed Systems**, expand any Dell Device group (Dell Servers, Dell DRACs, Dell Workstations, Dell Chassis, Dell Storage, Dell Network Switches).

   The discovered Dell devices can be viewed under the **Dell Managed Systems** view in the ITNM console as listed below:

   - Dell Servers:
     - **Dell Modular Servers**
     - **Dell Monolithic Servers**
     - **Windows Servers**
     - **Linux Servers**
     - **ESXi Servers**

     Expand any server group to view the service tags of the discovered in-band and OOB servers. Click the required service tag to view the managed node in the right pane. The discovered in-band and OOB servers are displayed in the right-pane.
   - Dell Workstations:
     - **Rack Workstations**
     - **Windows Workstations**
     - **Linux Workstations**
     - **ESXi Workstations**

     Expand any workstation group to view the service tags of the discovered in-band and OOB workstations. Click the required service tag to view the managed node in the right pane. The discovered in-band and OOB workstations are displayed in the right-pane.
   - Dell DRACs:
     - **DRAC5**
     - **iDRAC6 Modular**
     - **iDRAC6 Monolithic**
     - **iDRAC7 Modular**
     - **iDRAC7 Monolithic**
     - **iDRAC8 Modular**
     - **iDRAC8 Monolithic**

     Click any DRAC group to view the respective DRACs in the right pane
   - Dell Chassis:

- **FX2 CMC**
- **VRTX CMC**
- **CMC**

Expand any Chassis group to view the service tags of that device. The IP addresses of the CMC or VRTX CMC devices are displayed in the format, **FX2CMC_<IP>**, **VRTXCMC_<IP>**, or **CMC_<IP>** .

Click on a **FX2CMC_<IP>**, **VRTXCMC_<IP>**, or **CMC_<IP>** to see the FX2 CMC, VRTX CMC, or CMC node in the right-pane.

- Dell Storage:
  - **Dell EqualLogic PS Arrays**

    Expand **EqualLogic PS Arrays** to view the group IPs of the discovered EqualLogic member devices. Expand the group IPs to view the storage pools associated with the EqualLogic members devices. Click the storage pool to view all the EqualLogic members that are part of the storage pool, in the right-pane.
  - **Dell PowerVault MD Storage Arrays**.

    Click the device group to view the discovered PowerVault MD Storage Arrays in the right-pane.
  - **Dell Compellent Storage Arrays**

    Expand **Compellent Storage Arrays** to view the management IPs of the discovered Compellent Storage Arrays. Click the management IP to view all the Compellent Storage Arrays in the right-pane.
  - **Dell PowerVault NX Storage Arrays**

    Expand Dell PowerVault NX Storage Arrays to view the service tags of the discovered Dell PowerVault NX Storage Arrays. Click the service tags to see the respective PowerVault NX node and iDRAC7 in the right-pane.
- Dell Network Switches:
  - **C-Series Switches**
  - **S-Series Switches**
  - **Z-Series Switches**
  - **M-Series Switches**
  - **N- Series Switches**
  - **W-Series Switches**

  Click any Dell Network Switches group to view the respective Dell network switches in the right-pane.

Viewing Dell Connections License Manager (DCLM)

The DCLM server must be discovered before you can view DCLM system from the DCLM polled events.

1. Under **Dell Managed Systems**, click **Dell Connection Licensing.**
2. The discovered DCLM node will appear in the right pane only when the alert type is 'critical' or 'warning' for that node.

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Dell device association

The Dell OpenManage Connection classifies all the discovered Dell devices under their respective hierarchies based upon the underlying hardware of each of the Dell device. After a Dell Chassis is classified, its corresponding blade servers and their Remote Access Controllers (RACs), Dell EqualLogic Blade Arrays get associated with their respective slots, the IO modules (Dell M-Series Switches) get associated with their respective Dell chassis. In case of the Dell OEM servers, 12th or later generation of Dell PowerEdge servers, Dell PowerVault NX Storage Arrays, or Dell workstations, the discovered DRACs gets associated with its respective host server.

Dell OpenManage Connections supports the following associations:

- Dell OEM servers with DRACs
- Dell servers with DRACs
- Dell Servers and DRACs with FX2 CMC, VRTX CMC, and CMC Devices
- Dell PowerEdge FM120x4 Server Modules with FX2 CMC Devices
- Dell workstations with DRACs
- Dell PowerVault NX Storage Arrays with DRACs
- Dell EqualLogic Blade Array with CMC Devices
- IO Modules(Dell M-Series Switches) with CMC Devices

Association of Dell OEM servers with Dell Remote Access Controllers (DRACs)

You can view the Dell OEM servers associated with their DRACs in the **Network View** of the TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell OEM Devices → Dell Servers → <Dell OEM Server sub group>**.

   Dell OEM Server sub group refers to either one of the servers listed under the **Dell OEM Devices → Servers** group.

   The Dell OEM server sub group refers to devices such as Dell OEM Modular Servers, Dell Monolithic Servers, Windows Servers, Linux Servers, or ESXi Servers that fall under the **Dell OEM Devices** group.
2. Click on the **<Dell OEM Server sub group>** to view the service tags of the discovered Dell OEM servers associated with the DRACs.
3. The discovered Dell OEM servers associated with the DRACs are displayed in the right pane.

Associating servers with CMC devices

You can view the servers and their RACs that are associated with CMC devices, in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Chassis → CMC**.

   The **< CMC ServiceTag>** is displayed for that CMC device.
2. Expand the **< CMC ServiceTag>** to view the service tags of the associated Dell servers and their DRACs associated with the CMC devices.
3. Click a service tag to view the managed nodes of the associated servers and their DRACs, in the right pane.

   NOTE: If a modular server and its CMC association is changed after the discovery, then the modular server and the associated DRAC has to be rediscovered to show their correct association.

Association of servers with Dell Remote Access Controllers (DRACs)

You can view the 12th or later generation of Dell PowerEdge servers associated with their DRACs in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Servers → <Dell Server sub group>**.

   Dell Server sub group refers to either one of the servers listed under the **Dell Servers** group.

   The Dell Server sub group refers to devices such as Dell Modular Servers, Dell Monolithic Servers, Windows Servers, Linux Servers, or ESXi Servers that fall under the **Dell Servers** group.
2. Click on the **<Dell Server sub group>** to view the service tags of the discovered Dell servers associated with the DRACs.
3. The discovered Dell servers associated with the DRACs are displayed in the right pane.

Associating servers with FX2 CMC devices

You can view and monitor the health of the discovered in-band and out-of-band Dell modular servers that are associated with FX2 CMC systems, in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Chassis → FX2 CMC**.
2. Click **FX2 CMC** to view the service tags of the discovered Dell servers associated with the FX2 CMC systems.
3. Expand the Chassis service tag to view the discovered Dell servers associated with the FX2 CMC devices.
4. Click a service tag to view the managed nodes of the associated servers, in the right pane.

   NOTE: If a modular server and its FX2 CMC association is changed after the discovery, then the modular server and the associated RAC has to be rediscovered to show their correct association.

Associating Dell PowerEdge FM120x4 server modules with FX2 CMC devices

You can view and monitor the health of the discovered Dell PowerEdge FM120x4 Server Modules that are associated with FX2 CMC devices, in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Chassis → FX2 CMC → FX2 CMC_IP Address → FX2 CMC_Service Node ID**.
2. Expand **FX2 CMC** to view the service node IDs of the discovered Dell PowerEdge FM120x4 Server Modules associated with the FX2 CMC systems.
3. Click a service node ID to view the managed nodes of the associated servers, in the right pane.

Associating servers with VRTX CMC devices

You can view the servers and their RACs that are associated with VRTX CMC devices, in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Chassis → VRTX CMC**.

   The **<VRTX CMC ServiceTag>** is displayed for that VRTX CMC device.
2. Expand the **<VRTX CMC ServiceTag>** to view the service tags of the discovered Dell servers and their RACs associated with the VRTX CMC devices.
3. Click a service tag to view the managed nodes of the associated servers and their RACs, in the right pane.

   NOTE: If a modular server and its VRTX CMC association is changed after the discovery, then the modular server and the associated RAC has to be rediscovered to show their correct association.

Associating IO Modules (Dell M-Series Switches) with CMC devices

You can the view the discovered Dell M-Series Switch as an IO Module associated with CMC devices, in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Chassis → CMC**.

   The **<CMC ServiceTag>** is displayed for that CMC device.
2. Click **<CMC ServiceTag> → IO Modules** to view the discovered Dell M-Series network switches associated with that CMC device in the right pane.

   NOTE: If an M-Series switch and its CMC association is changed after the discovery, then the M-Series switch and the associated RAC has to be rediscovered to show their correct association.

Association of Dell Workstations with Dell Remote Access Controllers (DRACs)

You can view the DRACs that are associated with the Dell Workstation, in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Workstations → <Dell Workstations sub group>**.

   Dell Workstations sub group refers to either one of the servers listed under the **Dell Workstations** group.

   The Dell Workstations sub group refers to devices such as Rack Workstations, Windows Workstations, Linux Workstations, or ESXi Workstations that fall under the **Dell Workstations** group.
2. Click on the **<Dell Workstations sub group>** to view the service tags of the discovered Dell workstations.
3. Click on a service tag to view the discovered Dell workstations associated with the DRACs in the right pane.

Association of Dell PowerVault NX Storage Arrays with Dell Remote Access Controllers (DRACs)

You can view the DRACs that are associated with the Dell PowerVault NX Storage Array in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Storage → PowerVault NX Storage**.
2. Click on the **PowerVault NX Storage Arrays** to view the service tags of the discovered PowerVault NX Storage Arrays and their associated DRACs.
3. The discovered Dell PowerVault NX Storage Arrays associated with the DRACs are displayed in the right pane.

Associating Dell EqualLogic Blade Array with CMC

You can view the Dell EqualLogic Blade Arrays that are associated with CMC devices in the **Network View** of TIP.

1. On TIP, click **Availability → Network Availability → Network View → Dell Managed Systems → Dell Chassis → CMC**

   The **< CMC ServiceTag>** is displayed for that CMC device.
2. Click the required **< CMC ServiceTag>** to view the service tags of associated Dell EqualLogic Blade Array members.
3. Click on a service tag to view the EqualLogic Blade Array members in the right pane.

   NOTE: If a Dell EqualLogic Blade Array and its CMC association is changed after the discovery, then the CMC has to be rediscovered to show its correct association.

7

Polling of discovered Dell devices

In the Dell OpenManage Connection for ITNM IP Edition, polling of the discovered Dell devices is a mechanism to monitor their global health status, using specific polling policies and polling definitions.

The health status of the polled device is displayed in the **Network View** and **Hop View** in the following format:

- Critical — Event that indicates loss of data or function such as a hardware failure.
- Normal — Event with successful operation of a component such as a power supply turning on.
- Warning — Event that may indicate a possible future problem such as crossing a warning threshold.

NOTE: The **Store Poll Data** option is not available.

If the health of a device turns from one status to the other, the latest status overwrites the previous status of the device.

For polling DCLM, make sure that the Dell OOB servers are discovered on the systems and the DCLM parameters are configured. Based on the number of available licenses, the possible status of DCLM is:

- DCLM critical — License is not available.
- DCLM warning — License has reached the limit, but system is running with a grace license.
- DCLM normal — License is available.

On Dell OEM servers, polling can be done through both the in-band and out-of-band (OOB) mechanisms. You can enable or disable only the in-band polling on the Dell OEM servers.

On 10th and 11th generation of Dell PowerEdge servers or PowerVault NX Storage Arrays, the polling is done through the in-band process, but on the 12th and 13th generation of Dell PowerEdge servers or PowerVault NX Storage Arrays, or Dell workstations, the polling can be done through the in-band and out-of-band (OOB) mechanisms. You can enable or disable only the in-band polling on the 12th or 13th generation of Dell PowerEdge servers or PowerVault NX Storage Arrays, or workstations.

For polling Dell servers or workstations running ESXi, if the server is not reachable or WS-MAN communication fails, then a minor alert is generated. This alert is cleared by the next polling alert if the device is reachable and the WS-MAN communication is established.

If the EqualLogic device or the S-Series switch is not reachable or SNMP communication fails during the polling, then a minor alert is generated. This alert is cleared by the next polling alert if the device is reachable and SNMP communication is established.

If the Dell PowerVault MD Storage Arrays (with no SNMP support) is not reachable during the polling, a minor alert is generated. This alert is cleared by the next polling alert if the device is reachable.

Configuring polling parameters for Dell devices In The ITNM framework

To begin polling of Dell devices, you can configure the polling policies and definitions for each Dell device. The supported Dell poll policies, Poll policy definitions and their descriptions are listed below:

Table 19. Dell poll policies, Poll policy definitions, and their description

Dell Poll Policy	Poll policy definitions	Description
OEMiDRACPoll	OEMiDRACCriticalDef	This poll policy is used for polling Dell iDRAC8 devices for critical conditions
	OEMiDRACWarningDef	This poll policy is used for polling Dell iDRAC8 devices for warning conditions
OEMServerPoll	OEMServerCriticalDef	This poll policy is used for polling Dell monolithic OEM servers, modular servers and servers running Windows and Linux for critical conditions
	OEMServerWarningDef	This poll policy is used for polling Dell monolithic OEMservers, modular servers and servers running Windows and Linux for warning conditions
DellServerPoll	DellServerCriticalDef	This poll policy is used for polling Dell monolithic servers, modular servers and servers running Windows and Linux for critical conditions
	DellServerWarningDef	This poll policy is used for polling Dell monolithic servers, modular servers and servers running Windows and Linux for warning conditions
DellWorkstationPoll	DellWorkstationWarningDef	Used for polling Dell Rack Workstations for critical conditions
	DellWorkstationCriticalDef	Used for polling Dell Rack Workstations for warning conditions
DelliDRAC8Poll	DelliDRAC8CriticalDef	Used for polling iDRAC8 devices for critical conditions
	DelliDRAC8WarningDef	Used for polling iDRAC8 devices for warning conditions
DelliDRAC7Poll	DelliDRAC7CriticalDef	Used for polling Dell DRAC7 devices for critical conditions
	DelliDRAC7WarningDef	Used for polling Dell DRAC7 devices for warning conditions
DellDRACPoll	DellDRACCriticalDef	Used for polling Dell DRAC devices for critical conditions
	DellDRACWarningDef	Used for polling Dell DRAC devices for warning conditions

Dell Poll Policy	Poll policy definitions	Description
DellFX2CMCPoll	DellFX2CMCCriticalDef	Used for polling Dell FX2 CMC devices for critical conditions
	DellFX2CMCWarningDef	Used for polling Dell FX2 CMC devices for warning conditions.
DellVRTXCMCPoll	DellVRTXCMCCriticalDef	Used for polling Dell VRTX CMC devices for critical conditions
	DellVRTXCMCWarningDef	Used for polling Dell VRTX CMC devices for warning conditions.
DellCMCPoll	DellCMCCriticalDef	Used for polling Dell CMC devices for critical conditions
	DellCMCWarningDef	Used for polling Dell CMC devices for warning conditions
DellCompellentPoll	DellCompellentCriticalDef	Used for polling Dell Compellent Storage Arrays for critical conditions
	DellCompellentWarningDef	Used for polling Dell Compellent Storage Arrays for warning conditions
DellPowerVaultNXPoll	DellPowerVaultNXCriticalDef	Used for polling Dell PowerVault NX Storage Arrays for critical conditions
	DellPowerVaultNXWarningDef	Used for polling Dell PowerVault NX Storage Arrays for warning conditions
DellMDStoragePoll	DellMDStorageArrayWarningDef	Used for polling Dell PowerVault MD Storage Arrays for warning conditions
DellM-SeriesPoll	DellM-SeriesSwitchCriticalDef	Used for polling Dell M-Series Switches for critical conditions
	DellM-SeriesSwitchWarningDef	Used for polling Dell M-Series Switches for warning conditions
DellZ-SeriesPoll	DellZ-SeriesSwitchCriticalDef	Used for polling Dell Z-Series Switches for critical conditions
	DellZ-SeriesSwitchWarningDef	Used for polling Dell Z-Series Switches for warning conditions
DellC-SeriesPoll	DellC-SeriesCriticalDef	Used for polling Dell C-Series Switches for critical conditions
	DellC-SeriesWarninglDef	Used for polling Dell C-Series Switches for warning conditions
DellN-SeriesPoll	DellN-SeriesSwitchCriticalDef	Used for polling Dell N-Series Switches for critical conditions
	DellN-SeriesSwitchWarningDef	Used for polling Dell N-Series Switches for warning conditions
DellW-SeriesPoll	DellW-SeriesSwitchCriticalDef	Used for polling Dell W-Series Switches for critical conditions

By default, the polling interval is four hours. However, you can configure it as per your requirements. To customize the poll interval:

1. In TIP, navigate to **Administration → Network → Network Polling.**
2. In the **Configure Poll Definitions** pane, double-click a poll policy for which you want to change the time interval.

   The **Poll Policy Editor** window is displayed.
3. In the **Poll Policy Properties** tab, click the **Poll Interval** drop-down list corresponding to the required poll definition.

   You must change the poll interval for all poll definitions of a particular poll policy. For example, if you want to change the poll interval for DellServerCriticalDef under the DellServerPoll poll policy, you must also change the poll interval for the DellServerWarningDef poll definition.

Enabling and disabling polling

You can enable or disable polling for a particular poll definition.

1. In TIP, click **Administration → Network → Network Polling.**

   The **Network Polling** pane is displayed with a list of poll policies and poll definitions, on the right-hand side.
2. Double-click the poll definition for which you want to enable or disable the polling.

   The **Poll Policy Editor** window is displayed
3. In the **Poll Policy Properties** tab, select the **Poll Enabled** check box to enable polling for the poll definition. To disable the polling, clear the check box.

Configuring polling parameters on systems running Linux

To configure the polling parameters for Dell servers running ESXi, Dell Connections License Manager (DCLM), License Synch, Dell PowerVault NX Storage Arrays, Dell EqualLogic Storage Arrays, Dell PowerVault MD Storage Arrays, and S-Series switches, customize the duration of tasks in **Crontab**.

1. Edit the cron jobs in an editor by running the command: `crontab -e`.
2. Select a task and modify the following parameters as required.

   For example:

   - `0 */4 * * * . $NCHOME/env.sh;$NCHOME/precision/perl/bin/perl $NCHOME/precision/dell/scripts/executeTask.pl  ESXi_OEM_POLL $NCHOME`
   - `0 */4 * * * . $NCHOME/env.sh;$NCHOME/precision/perl/bin/perl $NCHOME/precision/dell/scripts/executeTask.pl  ESXi_POLL $NCHOME`
   - `0 */4 * * * . $NCHOME/env.sh;$NCHOME/precision/perl/bin/perl $NCHOME/precision/dell/scripts/executeTask.pl  ESXi_WORKSTATION_POLL $NCHOME`
   - `0 */4 * * * . $NCHOME/env.sh;$NCHOME/precision/perl/bin/perl $NCHOME/precision/dell/scripts/executeTask.pl  DCLM_POLL $NCHOME`
   - `0 0 */5 * * . $NCHOME/env.sh;$NCHOME/precision/perl/bin/perl $NCHOME/precision/dell/scripts/executeTask.pl  LICENSE_SYNCH $NCHOME`
   - `0 */4 * * * . $NCHOME/env.sh;$NCHOME/precision/perl/bin/perl $NCHOME/precision/dell/scripts/executeTask.pl  DELL_S_SERIES_POLL $NCHOME`
   - `0 */4 * * * . $NCHOME/env.sh;$NCHOME/precision/perl/bin/perl $NCHOME/precision/dell/scripts/executeTask.pl  EQL_POLL $NCHOME`

- `0 */4 * * * . $NCHOME/env.sh;$NCHOME/precision/perl/bin/perl $NCHOME/precision/dell/scripts/executeTask.pl  MDARRAY_POLL $NCHOME`

Table 20. Polling parameter formats and descriptions

0	*/4	*	*	*
Minute (0–59)	Hour (0–23)	Day of Month (1–31)	Month (1–12)	Day of Week (0–6), 0=Sunday
To repeat every 10 minutes, you can change it to */10	/4 — Implies a repeat pattern of every four hours.	For License Synch, /5 implies that the repeat pattern is every five days at midnight.		

3. For servers running Red Hat Enterprise Linux Server (RHEL), restart the cron service by running the command: `service crond restart`.
4. For servers running SUSE Linux Enterprise Server (SLES), restart the cron service by running the command: `service cron restart`.

Configuring polling parameters on systems running Windows

To configure the polling parameters for Dell OEM devices, Dell servers, or workstations running ESXi, Dell Connections License Manager (DCLM), OOB License Synch, Dell EqualLogic PS-Series Storage Arrays, Dell PowerVault MD Storage Arrays, and S-Series switches, customize the duration of tasks in **Task Scheduler**.

1. Navigate to **Start** → **Run** and execute the command: `taskschd.msc`.
2. In the left pane, select **Task Scheduler Library**.
3. In the right pane, select the following options:
   - **Dell ESXi OEM Polling**— For polling OEM servers running ESXi
   - **Dell DCLM Polling** — For polling DCLM
   - **Dell OOB License synch** — For license synchronization
   - **Dell ESXi Polling** — For polling Dell devices running ESXi
   - **Dell EqualLogic Polling** — For polling EqualLogic PS-Series Storage Arrays
   - **Dell MD Storage Array Polling** — For polling Dell PowerVault MD Storage Arrays
   - **Dell S-Series Switch Polling** — For polling Dell S-Series switches
4. Double-click the task, click the **Triggers** tab, and click **Edit.**
5. Make the appropriate changes for the required interval in the **Settings** and **Advanced Settings** frames.

   NOTE: A command window appears for each polling policy, when triggered, and will close automatically once completed.

8

Launching consoles from the discovered Dell devices

In the Tivoli Integrated Portal (TIP), you can launch the consoles from the **Network View**.

On TIP, navigate to **Availability → Network Availability → Network Views → Dell Managed Systems → <Managed System Groups>**.

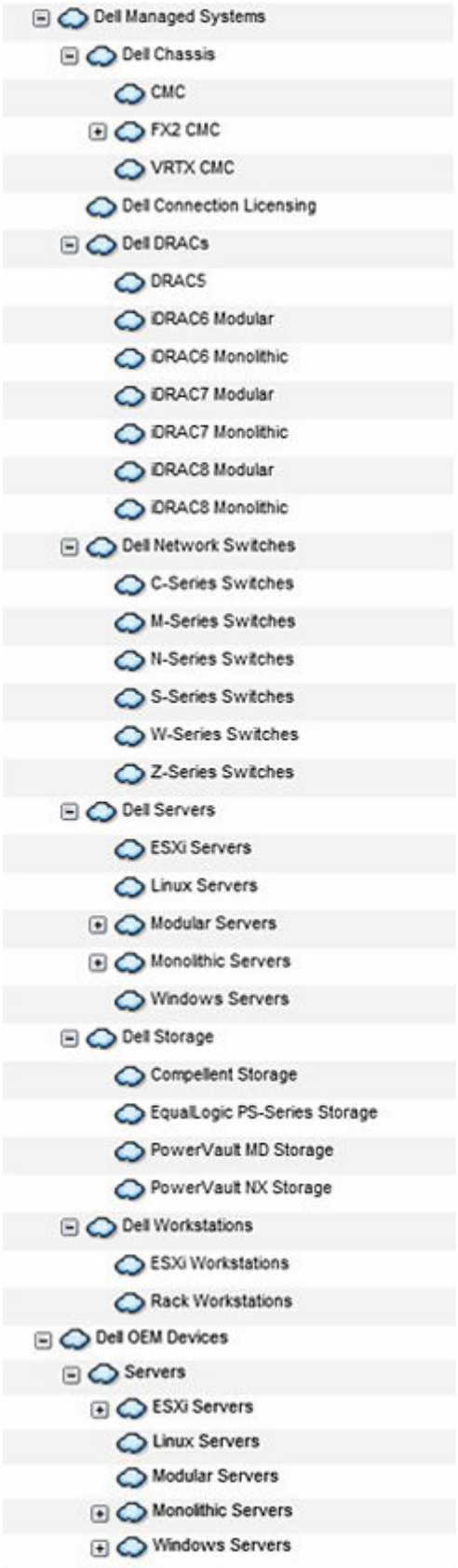
Following are the managed system groups available:

- **Dell Chassis**
- **Dell Connection Licensing**
- **Dell DRACs**
- **Dell Network Switches**
- **Dell Servers**
- **Dell Storage**

To launch Dell OEM servers, navigate to **Availability → Network Availability → Network Views → Dell OEM Devices → Servers → <Dell OEM servers>**.

The following Dell OEM device groups are available:

- **Modular Servers**
- **Monolithic Servers**
- **Windows Servers**
- **Linux Servers**
- **ESXi Servers**


Dell Managed Systems
Dell Chassis
CMC
FX2 CMC
VRTX CMC
Dell Connection Licensing
Dell DRACs
DRAC5
iDRAC6 Modular
iDRAC6 Monolithic
iDRAC7 Modular
iDRAC7 Monolithic
iDRAC8 Modular
iDRAC8 Monolithic
Dell Network Switches
C-Series Switches
M-Series Switches
N-Series Switches
S-Series Switches
W-Series Switches
Z-Series Switches
Dell Servers
ESXi Servers
Linux Servers
Modular Servers
Monolithic Servers
Windows Servers
Dell Storage
Compellent Storage
EqualLogic PS-Series Storage
PowerVault MD Storage
PowerVault NX Storage
Dell Workstations
ESXi Workstations
Rack Workstations
Dell OEM Devices
Servers
ESXi Servers
Linux Servers
Modular Servers
Monolithic Servers
Windows Servers

You can also launch the console from **Availability → Network Availability → Network Views → Device Classes**.

Launching consoles from Dell polled events in the Active Event List

To launch consoles from polled events, make sure that the Dell OpenManage Connection Version 3.0 for Netcool/OMNIbus is installed on the system where IBM Tivoli Netcool/OMNIbus exists.

The Dell OpenManage Connection enables you to launch various Dell consoles from the respective polled events displayed in the **Availability → Events → Active Event List (AEL)**.

For more information about the Dell devices and the Dell console launch tools that are supported by it, see Dell devices and their console launch tools.

Launching Dell console launch tools from polled events

You can launch a Dell console launch tool from the polled events that have been generated by a monitored Dell device to troubleshoot the event further.

To launch a Dell console launch tool:

1. On TIP, navigate to the **Active Event List (AEL)**.
   The list of active events are displayed in the right pane.
2. Right-click a Dell polled event and then click **Dell Tools → <Dell Console Launch Tool>**.
   The selected Dell console launch tool is launched in a separate browser window.

For more information about the various Dell console launch tools that are associated with the supported Dell devices, see Dell devices and their console launch tools.

Dell devices and their console launch tools

The Dell OpenManage Connection enables you to launch various Dell one-to-one or one-to-many consoles and other Dell tools to get more information about the Dell devices you want to monitor, configure, or manage.

You can launch the consoles from the respective polled events or from the discovered device itself, as displayed in the **Availability → Events → Active Event List (AEL)** menu.

The following table lists the Dell devices and the console launch tools that can be launched from them.

Table 21. Dell One-to-One console launches

Dell Device	Console launch tools
Dell Servers/OEM Servers	• **OpenManage Server Administrator Console** • **OpenManage Server Administrator Web Server Console** • **Dell Remote Access Controller Console**
Dell Workstations	• **OpenManage Server Administrator Console**

Dell Device	Console launch tools
	• **OpenManage Server Administrator Web Server Console** • **Dell Remote Access Controller Console**
Dell DRACs	• **Dell Remote Access Controller Console** • **OpenManage Server Administrator Console** NOTE: The **OpenManage Server Administrator Console** can be launched only from iDRAC7 or iDRAC8 devices.
Dell Chassis	• **CMC Console** • **VTRX CMC Console**
Dell Storage	• Dell Compellent Storage Arrays: – **Dell Compellent Storage Manager Console** • Dell EqualLogic PS-Series Storage Arrays: – **EqualLogic Group Manager Console** • Dell PowerVault NX Storage Arrays: – **OpenManage Server Administrator Console** – **OpenManage Server Administrator Web Server Console** – **Dell Remote Access Controller Console**
Dell Switches	• Dell N-Series switches: – **Dell OpenManage Switch Administrator Console**
Any Dell device	• Any Dell device – **Warranty Report Information** NOTE: An active Internet connection is required to retrieve the warranty report information for a Dell device.

Table 22. Dell One-to-Many console launches

Dell Device	Console launch tools
Any Dell device	• **OpenManage Essentials (OME) Console**
Dell Servers, OEM Servers, Dell iDRAC7, Dell iDRAC8, Dell Workstations, and Dell Chassis	• **OpenManage Power Center (OMPC) Console**
Dell Storage	• Dell Compellent Storage Arrays: – **Dell Compellent Enterprise Manager Client Console** • Dell PowerVault MD Storage Arrays – **MD Storage Manager Console**
Dell Switches	• Dell switches (M-Series, S-Series, Z-Series, C-Series):

Dell Device	Console launch tools
	– **Dell OpenManage Network Manager Console** • Dell W-Series Switches: – **Dell AirWave Management Platform Console**
iDRAC 7 and iDRAC 8	• Dell Connections License Manager – **Dell Connections License Manager Console Launch Tool**

Launching Dell device specific consoles

1. On TIP, navigate to **Availability** → **Network Availability** → **Network Views**.
2. Expand **Dell Managed Systems** in the **Network Views** window.
   The discovered Dell device groups are displayed.
3. Expand the required option to view the discovered nodes in the right pane.

   NOTE: For more information about traversing to a device specific node, refer Viewing Dell devices.
4. Right-click the managed node and select **Dell Tools** → **<Dell Console Launch Tool>** to launch the device specific console launch tool.
   The desired **Dell Console Launch Tool** is launched in a separate window.

For Example:

To launch the iDRAC Console from a Dell PowerVault NX Storage array, navigate to **Network Views** window, expand **Dell Managed Systems** → **Dell Storage** → **PowerVault NX Storage**. Click on the service tag displayed, right click on the managed node in the right pane and then select **Dell Tools** → **Launch iDRAC Console**.

The iDRAC console is launched for that PowerVault NX Storage array.

For more information about the Dell devices and the Dell console launch tools that are supported by it, see Dell devices and their console launch tools.

9

Licensing

The Dell OpenManage Connection provides an agent-free out of band (OOB) monitoring support for Dell OEM servers, 12th or 13th generation of Dell PowerEdge servers, Dell PowerVault NX storage arrays or Dell workstations using Dell Connections License Manager (DCLM). Monitoring Dell servers, Dell PowerVault NX storage arrays, or Dell workstations through OOB is a licensed feature. The administrator needs to procure connection licenses for monitoring these Dell devices. The licensing feature facilitates monitoring of iDRAC7 or iDRAC8 systems in ITNM IP Edition. The licensing feature is used with 1, 100, 250, or unlimited nodes. Only the licensed nodes are classified.

Also see *http://en.community.dell.com/techcenter/systems-management/w/wiki/4921.dell-connections-license-manager.aspx* for DCLM related Wiki articles.

Relinquishing the acquired DCLM licenses

You can relinquish the licenses you have acquired if a licensed Dell server or workstation, iDRAC7 or iDRAC8 device has been decommissioned from the ITNM environment. The licenses can be relinquished by providing a service tag for which the DCLM license is acquired. Relinquish the license using the following command:

```
java –jar dell_OMC_ITNM_ConfigUtility.jar –relinquish=<service tag/Server Node ID>
```

For example:

```
java –jar dell_OMC_ITNM_ConfigUtility_v_3_0.jar –relinquish=FXQY2CS
```

NOTE:
You cannot use `–relinquish` with other options.

10

Troubleshooting

This section lists the problems that you may encounter while using the Dell OpenManage Connection Version 3.0 for IBM Tivoli Network Manager (ITNM) IP Edition and their workarounds.

Discovered IPv6 Compellent Storage Array Management IP is not appearing under the Dell Managed Systems view

You will not be able to see the nodes under the **Dell Managed Systems**, if you are discovering Compellent Storage Array using IPv6 address. You can view the discovered Compellent Storage Array nodes under **Network View → Device Classes → DellCompellent** class. To view the Compellent Management Storage Array under the **Dell Managed System**, discover the Compellent Storage Arrays using its IPv4 address only.

Warranty console launch from Dell PowerVault MD 34/38 Series Storage Arrays may fail if the SNMP communication is disabled

If you are monitoring a Dell PowerVault MD 34/38 series storage array, and the Warranty Console launch fails, then you can view the warranty information on **dell.com/support** using the device's ServiceTag.

During discovery of Compellent Storage Arrays, a dummy node gets created when both the Compellent Controller IP Addresses are provided

If you have provided both the controller IPs of the Compellent Storage Arrays as a seed in the **Discovery Configuration** page, and the **Enable SysName Naming** attribute in the advance tab of the **Discovery Configuration** page is enabled, then a dummy node will get created in the second and subsequent discovery cycle. This is because both the Compellent controller IP addresses share the same **SysName** attribute.

To remove the dummy node:

1. Disable the **Enable SysName Naming** attribute in the advance tab of the **Discovery Configuration** page.
2. Run a full discovery cycle.

   It is recommended that you discover the Compellent storage arrays using the Compellent management IP addresses.

The dummy node is removed. All the discovered Dell Compellent storage arrays are displayed along with their IP addresses.

Stale nodes are created for Dell Servers or Workstations if they are discovered on a system running ESXi

If Dell PowerEdge Servers or Workstations running ESXi operating system are discovered with the configuration **monitorinband** set as **Disabled**, then stale nodes are created for those ESXi Servers or Workstations that are discovered through in-band monitoring. These stale nodes are seen under **Dell Managed Systems → Dell Servers** and **Dell Managed Systems → ESXi Servers** groups respectively.

Ensure that you have performed the following step:

Rediscover the Dell servers or Workstations.

In the subsequent discovery cycle, when the linger time is zero, these stale nodes will be removed automatically.

I cannot see Dell device discovery agents in "Full Discovery Agent" and "Partial Discovery Agents" of discovery configuration page

Ensure that you have performed following steps:

1. Navigate to the **$NCHOME/precision/disco/agents/** folder and ensure that the respective Dell devices **.agnt** files are available.
2. Navigate to the **$NCHOME/precision/disco/agents/perlAgents/** folder and ensure that the respective Dell devices **.pl** files are available.
3. Register the Dell device agents by running the following command:

   ```
   ncp_agent_register -register AgentName1[,AgentName2, …]
   ```

   NOTE: Replace **AgentName1** with appropriate dell device discovery agent.
4. Restart the **ncp_disco** process.
5. Log out and login to the Tivoli Integrated Portal.

The discovered Dell devices are not classified

Ensure that you have performed the following steps:

1. Navigate to the **$NCHOME/precision/disco/aoc/** folder and ensure that the respective Dell devices **.aoc** files are available.
2. Navigate to the **$NCHOME/etc/precision/classschema.cfg** file and ensure that the respective Dell device **. aoc** files are available and the class IDs are unique.
3. Navigate to the **$NCHOME/var/precision/active** file and ensure that the **aoc** names are found.

   Check that the **aoc** names are present, if not, restart the **ncp_class** service.

The Dell iDRAC7 or iDRAC8 devices are not classified as “DelliDRAC7” or “DelliDRAC8” although the discovery agents and the respective AOCs are correct

Ensure that you have performed the following steps:

1. Configure the DCLM related parameters (DCLM URL, DCLM User Name, DCLM Password, and DCLM Domain) using **dell_OMC_ITNM_ConfigUtility_v_3_0**.
2. Navigate to the **$NCHOME/precision/dell/** folder and ensure that the following files are available:
   - **apache_cxf_lib_v_2_7_3.jar**
   - **Dell.Connections.LicensingClient.dll**
   - **dell_config.properties**
   - **dell_OMC_ITNM_Client_v_3_0**
   - **dell_OMC_ITNM_Helper_v_3_0**
   - **LicenseClient.exe**
   - **DellDCLMUtility.exe**
   - **snmp4j-2.3.0**
3. Check that the DCLM server is reachable and accessible using the configured values.
4. Check that the license file is imported in the DCLM server and has enough licenses.

The Dell servers running ESXi are not classified as “DellServerModularESXi” or “DellServerMonolithicESXi” although the discovery agents and the AOCs are correct

Ensure that you have performed the following steps:

1. Configure the ESXi parameters (ESXi User Name, ESXi Password, and ESXi Timeout) using **dell_OMC_ITNM_ConfigUtility_v_3_0.jar**.
2. Navigate to the **$NCHOME/precision/dell/** folder and ensure that the following files are available:
   - **dell_config.properties**
   - **dell_OMC_ITNM_Client_v_3_0**
   - **dell_OMC_ITNM_Helper_v_3_0**
   - **snmp4j-2.3.0**
   - **intel_wsman_v_1_0_1**
3. Check that the ESXi Server is reachable and accessible using the configured values.

The Dell servers running ESXi are classified irrespective of an invalid certificate

The certificate check is ignored during communication with the Dell servers running ESXi.

The Dell PowerVault MD Storage Arrays are not classified as "DELLMDARRAY" although the discovery agents and the AOCs are correct

Ensure that you have performed the following steps:

1. Provide the PowerVault MD Storage Array controller IP.
2. Navigate to the **$NCHOME/precision/dell/** folder and ensure that the following files and libraries are available:
   - **dell_MD_Array_Common**
   - **dell_OMC_ITNM_Client_v_3_0**
   - **dell_OMC_ITNM_Helper_v_3_0**
   - **SYMsdk**
3. Check that the PowerVault MD Storage Array is reachable.

Polling for Dell Servers (Windows, Linux), Dell FX2 CMC, VRTX CMC, CMC, and Dell DRACs does not occur

Ensure that you have performed the following steps:

1. Check that the devices are not in the un-managed state
2. Check that the required poll policies XML file has been imported using **get_policies.pl**.
3. Check that the required poll policies are enabled.
4. Check that the appropriate devices are discovered and classified for polling.

Polling for Dell servers running ESXi does not occur

Ensure that you have the performed the following steps:

1. Ensure that the Java path provided by ITNM IP Edition exists before the custom Java path in the environmental variable **PATH**. If the path does not exist, configure the path as follows: **%NCHOME% \platform\<Arch>\jre_1.6.7\jre\bin**

   NOTE:
   - *On Systems running Windows:* The **<Arch>** is **win32**.
   - *On systems running Linux:* The **<Arch>** is **linux2x86**.

   Configure the environmental variable `DELL_OMC_ITNM_JAVA_PATH`. This should contain the complete IBM Java path (including the Java binary). Copy the environmental variable `DELL_OMC_ITNM_JAVA_PATH` to `/etc/profile` file, to ensure that the environment variable is available in all shells

   For Example:
   - *On Systems running Windows:*
     `%NCHOME%\platform\win32\jre_1.6.7\jre\bin\java.exe`
   - *On systems running Linux:*
     `$NCHHOME/platform/linux2x86/jre_1.6.7/jre/bin/java`

NOTE: If you are monitoring Dell servers or Workstations running VMware ESXi version 5.5 or later, then configure the environment variable `DELL_OMC_ITNM_JAVA_PATH` using Oracle JRE version 1.6.0_18 (6u18) or later. For more information, see the ITNM version 3.0 User's Guide.

2. Check that the ESXi Server is not in the un-managed state.
3. Check that the Dell Connection specific tables and views are created as mentioned in the Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition Installation Guide.
4. Navigate to the **$NCHOME/etc/precision/DBEntityDetails.<Domain>.cfg** or **$NCHOME/etc/precision/ModelNcimDb.domain.cfg** file and ensure that is it updated as mentioned in the ITNM Installation Guide.
5. Check that the ESXi related parameters (ESXi User Name, ESXi Password, ESXi Timeout), Data Base (DB) related parameters (DB Type, DB Name, DB User, DB Password) are configured using the **dell_OMC_ITNM_ConfigUtility_v_3_0.jar** file.
6. Navigate to the **$NCHOME/precision/dell/** folder and ensure that the following files and libraries are available:
   - **intel_wsman_v_1_0_1.jar**
   - **dell_OMC_ITNM_Client_v_3_0.jar**
   - **dell_OMC_ITNM_Helper_v_3_0.jar**
   - **DB specific jar files** For more information, refer to the ITNM Installation Guide.
   - **dell_config.properties**
7. Check that the ESXi Server is reachable and accessible using the configured values.
8. Check that the periodic polling for ESXi is configured in the **Scheduler Task / Crontab** and is in the enabled state.

Polling for Dell EqualLogic Storage Arrays does not occur

Ensure that you have performed the following steps:

1. Check that the Dell EqualLogic Storage Arrays are not in the un-managed state.
2. Check that the Dell Connection specific tables and views are created as mentioned in the ITNM Installation Guide.
3. Check that the **$NCHOME/etc/precision/DBEntityDetails.<Domain>.cfg** or **$NCHOME/etc/precision/ModelNcimDb.domain.cfg** file is updated according to the information provided in the ITNM Installation Guide.
4. Check that the DataBase (DB) related parameters (DB Type, DB Name, DB User, DB Password) are configured using the **dell_OMC_ITNM_ConfigUtility_v_3_0.jar** file.
5. Navigate to the **$NCHOME/precision/dell/** folder and ensure that the following files and libraries are available:
   - **snmp4j-2.3.0.jar**
   - **dell_OMC_ITNM_Client_v_3_0.jar**
   - **dell_OMC_ITNM_Helper_v_3_0.jar**
   - **Database specific jar files**. Please refer to the ITNM Installation Guide.
   - **dell_config.properties**
6. Check that the Dell EqualLogic Storage Array is reachable and SNMP is enabled.
7. Check that the Periodic polling for Dell EqualLogic Storage Array is configured in the **Scheduler Task / Crontab** and is in the enabled state.

Polling for Dell PowerVault MD Storage Arrays (with no SNMP support) does not occur

Ensure that you have performed the following steps:

1. Check that the Dell PowerVault MD Storage Arrays are not in the un-managed state.
2. Check that the Dell Connection specific tables and views are created as mentioned in the the Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition Installation Guide.
3. Check that the **$NCHOME/etc/precision/DBEntityDetails.<Domain>.cfg** or **$NCHOME/etc/precision/ModelNcimDb.domain.cfg** file is updated according to the information provided in the ITNM Installation Guide.
4. Check that the DataBase (DB) related parameters (DB Type, DB Name, DB User, DB Password) are configured using the **dell_OMC_ITNM_ConfigUtility_v_3_0.jar** file.
5. Navigate to the **$NCHOME/precision/dell/** folder and ensure that the following files and libraries are available:
   - **SYMsdk.jar**
   - **dell_MD_Array_Common.jar**
   - **dell_OMC_ITNM_Client_v_3_0.jar**
   - **dell_OMC_ITNM_Helper_v_3_0.jar**
   - **Database specific jar files.** For more iniformation refer to the ITNM Installation Guide.
   - **dell_config.properties**
6. Check that the Dell PowerVault MD Storage Array is reachable.
7. Check that the Periodic polling for Dell PowerVault MD Storage Array is configured in the **Scheduler Task / Crontab** and is in the enabled state.

The task scheduler in Windows fails to launch the periodic polling for Dell EqualLogic Storage Arrays, Dell PowerVault MD Storage Arrays, Dell Servers running ESXi, Dell Connection License Manager, and License Synchronization

Ensure that you have performed the following steps:

1. Check that the option **Run whether user is logged on or not** is selected in the Security Options.
2. Check that the correct user name and password have been provided.

I cannot see the Dell device specific view although they are discovered and classified

Ensure that you have performed the following steps:

1. Check that the **$NCHOME/precision/profiles/TIPprofile/etc/tnm/dynamictemplate/ip_default.xml** file is updated as mentioned in the Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition Installation Guide.
2. Check that the Dell Connection specific tables and views are created as mentioned in the ITNM Installation Guide.

3. Check that the **$NCHOME/etc/precision/DBEntityDetails.<Domain>.cfg** or **$NCHOME/etc/precision/ModelNcimDb.domain.cfg** file is updated as mentioned in the Dell OpenManage Connection for ITNM Installation Guide.
4. Check that the **$NCHOME/precision/profiles/TIPprofile/etc/tnm/ncimmetadata.xml** file is updated as mentioned in the Dell OpenManage Connection for ITNM Installation Guide.
5. Log out and login to the Tivoli Integrated Portal .

The Dell device specific One to One console launch is not visible

Ensure that you have performed the following steps:

1. Check that the **$NCHOME/precision/profiles/TIPprofile/etc/tnm/menus/ncp_topoviz_device_menu.xml** file is updated as mentioned in the Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition Installation Guide.
2. Logout and login to the Tivoli Integrated Portal.

Console launch failed from polled events in the AEL

Ensure that you have performed following steps:

1. Check that Perl is properly installed on the Web GUI server.
2. Navigate to the **cgi-bin** folder and ensure that the Perl path is properly configured in the **delltoollauncher.cgi** file as mentioned in the Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition Installation Guide.
3. Check that the **CGI** script is registered in the WEB GUI.
4. Verify that the **$NCHOME** environment variable is available.
5. Navigate to the **$NCHOME/precision/dell/** folder and ensure that the following files and libraries are available:
   - snmp4j-2.3.0.jar
   - dell_OMC_ITNM_Client_v_3_0.jar
   - dell_OMC_ITNM_Helper_v_3_0.jar
   - dell_config.properties
   - Database specific jar files as mentioned in the ITNM Installation Guide.
6. Check that the **conf.key** file is copied from the core component to the **$NCHOME/etc/security/keys/conf.key** file for a distributed server.

I cannot launch the device specific One to One console for Dell devices supporting SNMP

Ensure that you have performed the following steps:

1. Check that the console launch tool is configured as mentioned in the Dell OpenManage Connection for IBM Tivoli Network Manager (ITNM) IP Edition Installation Guide.
2. Navigate to the **$NCHOME/precision/dell/** folder and ensure that the following files and libraries are available:
   - **snmp4j-2.3.0.jar**
   - **dell_OMC_ITNM_Client_v_3_0.jar**

- **dell_OMC_ITNM_Helper_v_3_0.jar**
- **Database specific jar files**. For more informations, refer to the Installation Guide.
- **dell_config.properties**

3. Check that the **conf.key** file is copied from the core component to **$NCHOME/etc/security/keys/conf.key** for a distributed server.
4. Check that the Perl binary path is provided in the **$NCHOME/omnibus_webgui/etc/cgi-bin/delltoollauncher.cgi** file.

Relinquishing licenses for Dell iDRAC7 and iDRAC8 failed

Make sure that you have performed the following:

1. Configure the DCLM parameters; DCLM URL, DCLM User Name, DCLM Password, and DCLM Domain using **dell_OMC_ITNM_ConfigUtility_v_3_0**
2. Navigate to the **$NCHOME/precision/dell/** folder and make sure that the following files are available:
   - **apache_cxf_lib_v_2_7_3.jar**
   - **Dell.Connections.LicensingClient.dll**
   - **dell_config.properties**
   - **dell_OMC_ITNM_Client_v_3_0**
   - **dell_OMC_ITNM_Helper_v_3_0**
   - **LicenseClient.exe**
   - **DellDCLMUtility.exe**
3. Configure the DCLM parameters; DCLM URL, DCLM User Name, DCLM Password, and DCLM Domain using **dell_OMC_ITNM_ConfigUtility_v_3_0**
4. Check that the DCLM server is reachable, and accessible using the configured values
5. Verify that you have installed the following 32 bit version of X11 runtime libraries:

Table 23. X11 runtime libraries

libdmx	libXaw	libXft	libXpm	libXv
libfontenc	libXcursor	libXi	libXrandr	libXxf86dga
libFS	libXdmcp	libXinerama	libXrender	libXxf86misc
libICE	libXext	libxkbfile	libXres	libXxf86vm
libSM	libXfixes	libXmu	libXt	libXcomposite
libX11	libXfontt	libXmuu	libXTrap	libXdamage
libXau	libXfontcache	libXp	libXtst	libXevie
libXss	libXvMC			

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Other documents you may need

In addition to this guide, you can access the following guides available at **dell.com/support/manuals**. Under **Do you have your Service Tag or Express Service Code?** click **Choose from a list of all Dell products → Continue → Software, Monitors, Electronics & Peripherals → Software**. Under **Choose your Dell Software**, click the appropriate product category to access the documents.

Also, see **publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp** for:

- *IBM Tivoli Network Manager Installation Guide*
- *IBM Tivoli Network Manager User's Guide*

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Getting help

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to **Dell.com/support.**
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.

Accessing documents from Dell support site

You can access the required documents in one of the following ways:

- Using the following links:
  - For all Enterprise Systems Management documents — **Dell.com/SoftwareSecurityManuals**
  - For OpenManage documents — **Dell.com/OpenManageManuals**
  - For Remote Enterprise Systems Management documents — **Dell.com/esmmanuals**
  - For OpenManage Connections Enterprise Systems Management documents — **Dell.com/OMConnectionsEnterpriseSystemsManagement**
  - For Serviceability Tools documents — **Dell.com/ServiceabilityTools**
  - For OpenManage Connections Client Systems Management documents — **Dell.com/DellClientCommandSuiteManuals**
- From the Dell Support site:
  a. Go to **Dell.com/Support/Home**.
  b. Under **Select a product** section, click **Software & Security**.
  c. In the **Software & Security** group box, click the required link from the following:
     - **Enterprise Systems Management**
     - **Remote Enterprise Systems Management**
     - **Serviceability Tools**

- **Dell Client Command Suite**
- **Connections Client Systems Management**

d. To view a document, click the required product version.

- Using search engines:
  - Type the name and version of the document in the search box.