

**Dell OpenManage Connection Version 1.0 for IBM
Tivoli Network Manager (ITNM) IP Edition 3.9
Installation 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

Dell OpenManage Connection Version 1.0 for IBM Tivoli Network Manager (ITNM) IP Edition 3.9 facilitates device discovery, device monitoring, topology view, and console launches for Dell PowerEdge Systems (9G-12G), Dell PowerVault Servers (9G-12G), Integrated Dell Remote Access Controller 7 (iDRAC 7), Integrated Dell Remote Access Controller 6 (iDRAC6), Dell Remote Access Controller 5 (DRAC 5), Dell PowerEdge M1000e (Dell Chassis Management Controller), Dell PowerEdge VRTX (VRTX Chassis Management Controller), Dell PowerEdge 1955 (Dell Remote Access Controller/Modular Chassis), Dell EqualLogic Storage Arrays, and Dell PowerVault MD Storage Arrays.

Dell OpenManage Connection Version 1.0 for IBM Tivoli Network Manager (ITNM) IP Edition 3.9 supports ITNM 3.9 Fix Pack 2 and ITNM 3.9 Fix Pack 3. It is highly recommended that customers upgrade to ITNM 3.9 Fix Pack 3.

 **NOTE:** This document contains information on the prerequisites and supported software necessary for installing Dell OpenManage Connection Version 1.0 for IBM Tivoli Network Manager (ITNM) IP Edition 3.9. Before installing this version of Dell OpenManage Connection Version 1.0 for IBM Tivoli Network Manager (ITNM) IP Edition 3.9, download the latest document from dell.com/support/manuals. For more information on accessing documents, see [Accessing Documents From The Dell Support Site - Software](#).

Dell OpenManage Connection version 2.1 for IBM Tivoli Netcool/OMNIBus is a prerequisite for Dell OpenManage Connection Version 1.0 for IBM Tivoli Network Manager (ITNM) IP Edition 3.9.

This document is intended for system administrators who are familiar with IBM Tivoli Network Manager (ITNM) IP Edition 3.9.

Accessing Documents From Dell Support Site

To access the documents from Dell Support site:

1. Go to dell.com/support/manuals.
2. In the **Tell us about your Dell system** section, under **No**, select **Choose from a list of all Dell products** and click **Continue**.
3. In the **Select your product type** section, click **Software and Security**.
4. In the **Choose your Dell Software** section, click the required link from the following:
 - **Client System Management**
 - **Enterprise System Management**
 - **Remote Enterprise System Management**
 - **Serviceability Tools**
5. To view the document, click the required product version.



NOTE: You can also directly access the documents using the following links:

- For Enterprise System Management documents — dell.com/openmanagemanuals
- For Remote Enterprise System Management documents — dell.com/esmmanuals
- For Serviceability Tools documents — dell.com/serviceabilitytools
- For Client System Management documents — dell.com/OMConnectionsClient
- For OpenManage Connections Enterprise systems management documents — dell.com/OMConnectionsEnterpriseSystemsManagement
- For OpenManage Connections Client systems management documents — dell.com/OMConnectionsClient

Supported Operating Systems and Browsers for Managing Systems

The following table lists the operating systems that support ITNM 3.9 Fix Pack 2 and ITNM 3.9 Fix Pack 3 components:

Virtualization Environment	Windows Server	SUSE Linux Enterprise Server	Red Hat Enterprise Linux Server	Windows Client	SUSE Linux for Desktop	Supported Browsers
ESXi 5.0	Windows Server 2008 R2 64-bit (Enterprise, Datacenter, Standard)	SLES 11.0-1 64-bit	Red Hat Enterprise Linux 6.0-4 32-bit (Server)	Windows 7 64-bit (Enterprise)	SUSE Linux Enterprise Desktop 11.0-1 64-bit	Mozilla Firefox 10 (Extended Support Release)
	Windows Server 2008 R2 64-bit SP1 (Enterprise, Datacenter, Standard)	SLES 11.0-1 32-bit	Red Hat Enterprise Linux 5.0-9 64-bit (AP)	Windows Vista SP2 64-bit (Ultimate)		Mozilla Firefox 3.6.x
ESXi 4.1	Windows Server 2008 64-bit SP2 (Enterprise, Standard)	SLES 10.0-4 64-bit	Red Hat Enterprise Linux 5.0-8 32-bit (AP)			Internet Explorer 9.0
ESXi 4.0	Windows Server 2008 32-bit SP2 (Enterprise, Standard)	SLES 10.0-4 32-bit				Internet Explorer 8.0
ESXi 3.5	Windows Server 2008 64-bit (Enterprise, Standard)					Internet Explorer 7.0
ESX 3.5	Windows Server 2008 32-bit (Enterprise, Standard)					



NOTE: Dell OpenManage Connection Version 1.0 for IBM Tivoli Network Manager (ITNM) IP Edition 3.9 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 Operating Systems for Managed Systems

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

Virtualization Environment	Windows Server	SUSE Linux Server	Red Hat Enterprise Linux Server
ESXi 5.1	Windows Essential Business Server 2008 SP1	SUSE Linux Enterprise Server 11 SP2 (64-bit)	Red Hat Enterprise Linux 6.2-4 (64-bit)
ESXi 5.0	Windows Essential Business Server 2008 SP1	SUSE Linux Enterprise Server 10 SP4 (64-bit)	Red Hat Enterprise Linux 6.0 (64-bit)
ESXi 4.1 U1 (HDD and Flash)	Windows Server 2008 SP2 (32-bit and 64-bit)		Red Hat Enterprise Linux 5.9 (64-bit and 32-bit)
ESXi 4.0 U3 (HDD and Flash)	Windows Server 2008 R2 (64-bit)		Red Hat Enterprise Linux 5.8 (64-bit and 32-bit)
ESXi 4.0 U2 (HDD and Flash)	Windows Server 2008 R2 SP1 (64-bit)		Red Hat Enterprise Linux 5.5 (64-bit and 32-bit)
ESXi 4.0 U1 (HDD and Flash)	Windows Server 2008 R1 and R2 (HPC Edition)		Red Hat Enterprise Linux 5.3 (64-bit and 32-bit)
	Windows Storage Server 2008 SP2		Red Hat Enterprise Linux 5.0 (64-bit and 32-bit)
	Windows Small Business Server 2008 SP2		
	Windows Small Business Server 2008 R2		
	Microsoft Windows Small Business Server 2011		
	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 Dell Devices and Firmware

The following table lists the firmware supported by Dell OpenManage Connections.


Dell Devices	Supported OMSA Versions	Supported Firmware Versions
Dell PowerEdge 9th Generation (9G) to 12th Generation (12G) systems	6.5–7.3	NA
Dell PowerVault 9G to 12G systems	6.5–7.3	NA
iDRAC7	NA	1.31.30 1.40.40
iDRAC6 Modular		3.40 3.50
iDRAC6 Monolithic	NA	1.90 1.95
DRAC5	NA	1.5 1.65
DRAC/MC	NA	1.5 1.6
CMC	NA	4.3.1 4.45
VRTX CMC	NA	1.0
Dell EqualLogic Storage Arrays	NA	5.2 6.0
Dell PowerVault MD Storage Arrays	NA	Firmware versions 07.80.62.60, 07.84.44.60 and 07.84.47.60


 **NOTE:** Dell EqualLogic Storage Arrays refers to Dell EqualLogic PS Series.

Installing Dell OpenManage Connection for Network Manager

From dell.com/support, download the **Dell-OpenManage-Connection-for-ITNM-1.0.zip** file and extract the contents to a folder. The following folders and files are extracted:

- **Dell-OMC-ITNM-Core-Integration**
- **Dell-OMC-ITNM-Topology-Database-Integration**
- **Dell-OMC-ITNM-TIP-Server-Integration**
- **Dell-Utilities**
- **Dell-MIBS**
- **Dell_OMC_1_0_for_ITNM_IG.pdf**
- **Dell_OMC_1_0_For_ITNM_Readme.txt**
- **license_en.txt**

 **NOTE:** The file separator for Windows is back slash (\) and for Linux, forward slash (/).

 **NOTE:** When using environment variables follow these formats, %<ENV_VARIABLE>% on systems running Windows and \$<ENV_VARIABLE> on systems running Linux.

For Example:

Windows: %NCHOME%

Linux: \$NCHOME

Installing Dell OpenManage Connection for Network Manager on Database (DB) Components

1. Stop the ITNM core services.


 **NOTE:**

- On systems running Windows: **Stop ncp_ctrl service**
- On systems running Linux: **itnm_stop ncp**

2. Navigate to the **Dell-OMC-ITNM-Topology-Database-Integration** folder and run the following commands:

- For Informix database:

```
dbaccess itnm create_dellDevice_Informix.sql
```

 **NOTE:** Log in as an Informix user before running the command.

- For DB2 database, connect to DB2 and run following command:

```
db2batch -d itnm -f create_dellDevice_DB2.sql
```

- For Mysql database:

```
mysql -u <db user name> -p < create_dellDevice_Mysql.sql
```

- For Oracle database:


```
sqlplus -s <Oracle DB user name>/<Password>
@create_dellDevice_Oracle.sql
```
3. Start the ITNM core services.

 **NOTE:**

- On systems running Windows: Start ncp_ctrl service
 - On systems running Linux: itnm_start ncp
4. Copy the `dellomc_int_itnm_topo_db.ver` file to the `%NCHOME%\precision` folder.

Installing Dell OpenManage Connection for Network Manager on Core Components

The `Dell-OMC-ITNM-Core-Integration` core component folder contains the:

- **agents** folder
- **aoc** folder
- **configuration** folder
- **perlAgents** folder
- **dellomc_int_itnm_core.ver** file

To install Network Manager on core components:




1. Navigate to the `Dell-OMC-ITNM-Core-Integration\agents` folder and copy the following discovery agent files to the `%NCHOME%\precision\disco\agents` folder.
 - **DellServerSNMP.agnt**
 - **DellDRAC.agnt**
 - **DellOOBServer.agnt**
 - **DellEqualLogic.agnt**
 - **DellServerWsman.agnt**
 - **DellMDArray.agnt**
2. Navigate to the `Dell-OpenManage-Connection-for-ITNM-1.0\Dell-OMC-ITNM-Core-Integration\perlAgents` folder and copy the following perl agent files to the `%NCHOME%\precision\disco\agents\perlAgents` folder.
 - **DellServerSNMP.pl**
 - **DellDRAC.pl**
 - **DellOOBServer.pl**
 - **DellEqualLogic.pl**
 - **DellServerWsman.pl**
 - **DellMDArray.pl**
3. To register the agents, run the command:


```
%NCHOME%\precision\bin\ncp_agent_registrar -register <Agent Name1,Agent Name2,..Agent Name'n'>
```

For Example:


```
%NCHOME%\precision\bin\ncp_agent_registrar -register
DellServerSNMP,DellOOBServer,DellServerWsman,DellDRAC,DellEqualLogic,DellMDA
rray
```

4. Navigate to the `Dell-OMC-ITNM-Core-Integration\aac` folder and copy the following files to the `%NCHOME%\precision\aac` folder.

- **DellServerModularWindows.aoc**
 - **DellServerModularLinux.aoc**
 - **DellServerModularESXi.aoc**
 - **DellServerMonolithicWindows.aoc**
 - **DellServerMonolithicLinux.aoc**
 - **DellServerMonolithicESXi.aoc**
 - **DellCMC.aoc**
 - **DellVRTXCMC.aoc**
 - **DellDRAC5.aoc**
 - **DellDRACMC.aoc**
 - **DellDRAC6.aoc**
 - **DellOOBServer.aoc**
 - **DellEqualLogic.aoc**
 - **DellMDArray.aoc**
5. Navigate to **Dell-OMC-ITNM-Core-Integration\aoac** folder and insert the contents of the **EndNode.aoc** file to the **%NCHOME%\precision\aoac\EndNode.aoc** file.
For information on the contents of the **EndNode.aoc** file that you must insert, see the section “Dell Specified Changes for **EndNode.aoc**” in [Appendix](#).
 6. Navigate to **Dell-OMC-ITNM-Core-Integration\configuration** folder and append the contents of the **ClassSchema.cfg** file to the **%NCHOME%\etc\precision\ClassSchema.cfg** file, and change the class ID values if they already exist.
For information on the contents of the **ClassSchema.cfg** file that you must append, see the section “Dell Specified Changes for **ClassSchema.cfg**” in [Appendix](#).
 7. Copy the content of the **DbEntityDetails.domain.cfg** file to the **%NCHOME%\etc\precision\DbEntityDetails.<domain>.cfg** file.
For information on the contents of the **DbEntityDetails.domain.cfg** file that you must copy, see the section “Dell Specified Changes for **DbEntityDetails.domain.cfg**” in [Appendix](#).
 -  **NOTE:** If the **DbEntityDetails.domain.cfg** file does not exist, append the contents to the **%NCHOME%\etc\precision\DbEntityDetails.cfg** file.
 -  **NOTE:** If multiple domains are configured, then append the content of the **DbEntityDetails.domain.cfg** file to individual **DbEntityDetails.domain.cfg** file.
 8. Navigate to **Dell-OpenManage-Connection-for-ITNM-1.0\Dell-Utilities** and copy the **dell** folder to **%NCHOME%\precision** folder.
 9. Navigate to the **Dell-OMC-ITNM-Core-Integration** folder and copy the **dellomc_int_itnm_core.ver** file to the **%NCHOME%\precision** folder.
 10. Ensure that the Java path provided by Network Manager 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**.
 11. Configure the environmental variable **DELL_OMC_ITNM_JAVA_PATH**. This should contain the complete IBM Java path (including the Java binary).

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:** Copy the environmental variable `DELL_OMC_ITNM_JAVA_PATH` to `/etc/profile` file, to ensure that the environment variable is available in all shells.

12. Perform the following steps to restart the Network Manager core services:

- *On systems running Windows—* Restart the service `ncp_ctrl` service.
- *On systems running Linux—* Run the commands `itnm_stop ncp` and `itnm_start ncp`.

13. Navigate to the **Dell-OpenManage-Connection-for-ITNM-1.0\Dell-MIBS** folder and copy the MIB files to the `%NCHOME%\precision\mibs` folder.

14. To load the new MIBs, run the command:


```
%NCHOME%\precision\platform\<Arch>\bin\ncp_mib
```

 **NOTE:** Copy all the dependent MIB files before running the `ncp_mib`.

15. Navigate to the **Dell-OMC-ITNM-Core-Integration\configuration** folder, import the following poll policies and then run the following command:

```
%NCHOME%\precision\bin\ncp_perl %NCHOME%\precision\scripts\perl\scripts\get_policies.pl -domain <Domain Name> -to domain=<DOMAIN_NAME> -from file=<Dell-OMC-ITNM-Core-Integration\configuration\Poll Policy Filename>
```

- **DellServerPollPolicy.XML** — For polling Dell servers
- **DellCMCPollPolicy.XML** — For polling CMC systems
- **DellVRTXCMCPollPolicy.XML** — For polling VRTX CMC systems
- **DellDRACPollPolicy.XML** — For polling iDRAC6, DRAC5, and DRAC/MC systems
- **DellOOBServerPollPolicy.XML** — For polling OOB servers

 **NOTE:** Make sure the class IDs for Dell devices in the **ClassSchema.cfg** and the corresponding poll policies are the same.

For example: `%NCHOME%\precision\bin\ncp_perl %NCHOME%\precision\scripts\perl\scripts\get_policies.pl -domain NCOMS -to domain=NCOMS -from file=C:\workarea\build\Dell-OpenManage-Connection-for-ITNM-1.0\Dell-OMC-ITNM-Core-Integration\configuration\DellCMCPollPolicy.xml`

16. Navigate to the **Dell-OMC-ITNM-Core-Integration\configuration** folder and insert the contents of the `nco_p_ncpmonitor.rules` file, to `%NCHOME%\probes\<Arch>nco_p_monitor.rules` file. The contents must be copied under the `$EventName` switch statement for **AlertGroup**. Edit the value of `@Identifier` by appending `$tmpVal` with a '+' sign .

For information on the contents of the `nco_p_ncpmonitor.rules` file that you must insert, see the section "Dell Specified Changes for `nco_p_ncpmonitor.rules`" in [Appendix](#).

For example: In the `%NCHOME%\probes\<Arch>nco_p_monitor.rules` file,

```

        if (match(@AlertGroup, "ITNM Status") || match(@AlertGroup, "ITNM
Disco"))
    {
        ...
    }
else
    {
        ...
switch ($EventName)
    {
        ...
case "POLL-DellServerCriticalDef" | "POLL-DellServerWarningDef":

```

```

        @Class = 2080
        @AlertGroup = "DellServer"
    case "POLL-DellCMCCriticalDef" | "POLL-DellCMCWarningDef":
        @Class = 2086
        @AlertGroup = "DellCMC"
    case "POLL-DellDRACCriticalDef" | "POLL-DellDRACWarningDef":
        @Class = 2087
        @AlertGroup = "DellDRAC"
    case "POLL-DellOOBServerCriticalDef" | "POLL-DellOOBServerWarningDef":
        @Class = 2088
        @AlertGroup = "DellOOBServer"
case "POLL-DellVRTXCMCCriticalDef" | "POLL-DellVRTXCMCWarningDef":
    @Class = 2084
    @AlertGroup = "DellVRTXCMC"
case "POLL-DCLMStatus":
    @Class = 2081
    if (match(@Severity, "5"))
    {
        $tmpVal = "5"
    }
    else if (match(@Severity, "2"))
    {
        $tmpVal = "2"
    }
}
case "POLL-DellEqualLogicStatus":
    @Class = 2085
    if (match(@Severity, "5"))
    {
        $tmpVal = "5"
    }
    else if (match(@Severity, "2"))
    {
        $tmpVal = "2"
    }
    else if (match(@Severity, "3"))
    {
        $tmpVal = "3"
    }
}
case "POLL-DellESXiServerStatus":
    @Class = 2080
    if (match(@Severity, "5"))
    {
        $tmpVal = "5"
    }
    else if (match(@Severity, "2"))
    {
        $tmpVal = "2"
    }
}
case "POLL-DellMDStorageArrayStatus":
    @Class = 2809
    if (match(@Severity, "2"))
    {
        $tmpVal = "2"
    }
    else if (match(@Severity, "3"))
    {
        $tmpVal = "3"
    }
}

>
# Append the value of @Identifier, with the new variable $tmpVal, as given
below #
#
@Identifier = $EntityName + @LocalPriObj + "->" + $EventName + @Type +

```

```

@NmosDomainName + $tmpVal

        default:
            # do nothing}
    }
}

```

17. Restart the **ncp_poller** service.

18. Verify if the following poll policies and poll definitions are created properly on the Tivoli Integrated Portal by navigating to **Administration** → **Network** → **Network Polling**.

– Poll Policies:

- * **DellCMCPoll**
- * **DellVRTXCMCPoll**
- * **DellDRACPoll**
- * **DellOOBServerPoll**
- * **DellServerPoll**

– Poll Definitions:

- * **DellServerCriticalDef**
- * **DellServerWarningDef**
- * **DellOOBServerCriticalDef**
- * **DellOOBServerWarningDef**
- * **DellCMCCriticalDef**
- * **DellCMCWarningDef**
- * **DellVRTXCMCCriticalDef**
- * **DellVRTXCMCWarningDef**
- * **DellDRACCriticalDef**
- * **DellDRACWarningDef**

19. Copy the following database-specific jar files from **%NCHOME%\..tipv2\profiles\TIPProfile\installedApps\TIPCell\isc.ear\ncp_topoviz.war\WEB-INF\lib** to the **%NCHOME%\precision\dell** folder. The jar files and their availability are as follows:

- Informix — **ifxjdbc.jar**
- Oracle — **ojdbc14.jar**
- MySQL — **mysql-connector-java-3.1.10-bin.jar**
- DB2 — **db2jcc.jar, db2jcc_license_cu.jar**



NOTE: The database-specific jar files can also be found where the database is deployed (custom path).

20. Navigate to **%NCHOME%\precision\dell\scripts** folder and run the following commands to configure the periodic polling.

– DCLM

- * On systems running Windows
scheduleTask.bat add DCLM_POLL
- * On systems running Linux
sh cronJob.sh add DCLM_POLL


– EqualLogic Storage Array


- * On systems running Windows
scheduleTask.bat add EQL_POLL

- * On systems running Linux
sh cronJob.sh add EQL_POLL
- Dell Servers running VMware ESXi
 - * On systems running Windows
scheduleTask.bat add ESXi_POLL
 - * On systems running Linux
sh cronJob.sh add ESXi_POLL
- Dell PowerVault MD Storage Array
 - * On systems running Windows
scheduleTask.bat add MDARRAY_POLL
 - * On systems running Linux
sh cronJob.sh add MDARRAY_POLL

21. Configure the periodic license synchronization by running the following command from the %NCHOME%\precision\del\scripts folder.

- On systems running Windows —
scheduleTask.bat add LICENSE_SYNCH
- On systems running Linux —
cronJob.sh add LICENSE_SYNCH

 **NOTE:** The periodic polling for EqualLogic Storage Arrays, DCLM, Dell PowerVault MD Storage Arrays, and Dell servers running VMware ESXi, and license synchronization for DCLM is added to Scheduler Task on the managing systems running Windows and to Crontab on managing systems running Linux.

 **NOTE:** For all the periodic polling tasks added in Scheduler Task, ensure that the option **Run whether user is logged in or not** is selected in the Security Options.


Installing Dell OpenManage Connection for Network Manager on Tivoli Integrated Portal (TIP) Components

The **Dell-OMC-ITNM-TIP-Server-Integration** folder contains:



- **cgi-bin** folder
- **configuration** folder
- **dynamictemplates** folder
- **menus** folder
- **resource** folder
- **tools** folder
- **dellomc_int_itnm_tip_server.ver** file

1. Navigate to the **Dell-OpenManage-Connection-for-ITNM-1.0\Dell-OMC-ITNM-TIP-Server-Integration\resource** folder and copy the icon files (.svg) from the **resource** folder to the %NCHOME%\precision\profiles\TIPProfile\etc\tnm\resource folder.
2. Navigate to the **configuration** folder and insert the contents of the **topoviz.properties** file to %NCHOME%\precision\profiles\TIPProfile\etc\tnm\topoviz.properties file.
For information on the contents of the **topoviz.properties** file that you must insert, see the section “Dell Specified Changes for **topoviz.properties**” in [Appendix](#).
3. Insert the content of the file **Dell-OMC-ITNM-TIP-Server-Integration\configuration\ncimMetaData.xml** to the %NCHOME%\precision\profiles\TIPProfile\etc\tnm\ncimMetaData.xml file.

For information on the contents of the **ncimMetaData.xml** file that you must insert, see the section “Dell Specified Changes for **ncimMetaData.xml**” in [Appendix](#).

4. Insert the content of the file **Dell-OMC-ITNM-TIP-Server-Integration\dynamictemplates\ip_default.xml** to the **%NCHOME%\precision\profiles\TIPProfile\etc\tnm\dynamictemplates\ip_default.xml** file.
For information on the contents of the **ip_default.xml** file that you must insert, see the section “Dell Specified Changes for **ip_default.xml**” in [Appendix](#).
5. Navigate to **Dell-OpenManage-Connection-for-ITNM-1.0\Dell-OMC-ITNM-TIP-Server-Integration\menus** and insert contents of the **ncp_topoviz_device_menu.xml** file to **%NCHOME%\precision\profiles\TIPProfile\etc\tnm\menus\ncp_topoviz_device_menu.xml** before the end of the definition (**</definition>**) tag.
For information on the contents of the **ncp_topoviz_device_menu.xml** file that you must insert, see the section “Dell Specified Changes for **ncp_topoviz_device_menu.xml**” in [Appendix](#).
6. Copy the **ncp_delltools.xml** file to **%NCHOME%\precision\profiles\TIPProfile\etc\tnm\menus** folder.
7. Navigate to the **tools** folder and copy the following files to the **%NCHOME%\precision\profiles\TIPProfile\etc\tnm\tools** folder.
 - **ncp_dell_omsa_launch.xml**— For launching the OpenManage Server Administrator console
 - **ncp_dell_dws_launch.xml**— For launching the OpenManage Server Administrator Web Server console
 - **ncp_dell_idrac7_launch.xml**— For launching the iDRAC7 console
 - **ncp_dell_drac_launch.xml**— For launching DRAC consoles
 - **ncp_dell_cmc_launch.xml**— For launching CMC console
 - **ncp_dell_vrtx_cmc_launch.xml**— For launching VRTX CMC console
 - **ncp_dell_dclm_launch.xml**— For launching DCLM console
 - **ncp_dell_eql_console_launch**— For launching the EqualLogic console
 - **ncp_dell_mdarray_console_launch**— For launching the Dell PowerVault Modular Disk Storage Manager console
 - **ncp_dell_ome_launch.xml**— For launching the OpenManage Essentials console
 - **ncp_dell_ompc_launch.xml**— For launching the OpenManage Power Center console
 - **ncp_dell_warranty_info.xml**— For launching the Dell Warranty Information page
8. Navigate to the **Dell-Utilities** folder and copy the **dell** folder to **%NCHOME%\precision** folder.
 **NOTE:** This step is not applicable for a standalone setup.
9. Navigate to the **cgi-bin** folder, open the **delltoollauncher.cgi** file and add the perl binary path (absolute) in the first line, based on the operating system installed and the install location of the perl. The default perl path location installed with Network Manager is:
 - *On systems running Windows*— **%NCHOME%\netcool\precision\perl\bin\perl.exe**
 - *On systems running Linux*— **\$NCHOME/precision/perl/bin/perl**
10. Navigate to the **configuration** folder and run the following command:

```
<Web GUI Install Location>\waapi\bin\runwaapi -host <IP address/host name> -user <user name> -password <Web GUI password> -file export.xml.
```


 **NOTE:** To run WAAPI commands, users must be a member of the Webtop Administrator role.
11. For distributed servers, from the core component’s **/opt/IBM/tivoli/netcool/etc/security/keys/** folder, copy the **conf.key** file to the **%NCHOME%\etc\security\keys** folder.
 **NOTE:** Before copying the **conf.key** file from the core component, make a backup of the original **conf.key** in the TIP Server.
12. Navigate to the **Dell-OMC-ITNM-TIP-Server-Integration** folder and copy the **dellomc_int_itnm_tip_server.ver** file to the **“%NCHOME%\precision”** folder.

13. Restart the TIP server component.

14. Rediscover the Dell devices.

After the discovery is complete, you can view the Dell Managed systems hierarchy in **Availability** → **Network View**.

Configuring Dell Connections

The Dell Connections for Network Manager should be configured for various components in order to monitor Dell devices. The configuration details are provided in the sections below.

Configuring Dell Connections License Manager (DCLM) Parameters

The DCLM parameters should be configured in the Core Components. To configure the DCLM parameters — DCLM URL, domain, user name, and password, execute the following command:

```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -<option>=<value>
```

You can configure the DCLM-related parameters using one or more of the following command options:

- `dclmusername` — Specifies the DCLM web service username.
- `dclmpassword` — Specifies the DCLM web service password.
- `dclmwebserviceurl` — Specifies the DCLM web service URL.
- `dclmdomain` — Specifies the DCLM Domain name.

For example:

```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -dclmusername=Administrator -
dclmwebserviceurl=http://dclmserver.domain.com:8543/web/LicenseService.asmx -
dclmdomain=itnmdomain -dclmpassword
```



NOTE:

When running the command, type in a password value when prompted for `dclmpassword`.

Relinquishing the Acquired DCLM License

For a server decommissioned from the environment, you must relinquish the DCLM license.

To relinquish a DCLM license, run the following command:

```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -relinquish=<Service Tag>
```

For example:

```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -relinquish=FXQY2CS
```



NOTE: To relinquish licences for decommissioned servers, use the `-relinquish` option.

Configuring Database Parameters

The Database (DB) parameters should be configured in both the Core Components and the Web GUI components. To configure the database (DB) parameters, run the following command:


```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -<option>=<value>
```


The parameters are:

- `dbusername` — Specifies the database username.
- `dbpassword` — Specifies the database password.
- `dbhostname` — Specifies the database host name with port.
- `dbtype` — Specifies the database type. The possible options are:
 - Informix
 - Oracle
 - DB2
 - MySQL

For example:

```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -dbusername=Administrator -
dbhostname=TEST:123 -dbtype=Informix -dbpassword
```

 **NOTE:** These must be configured in the Core and TIP systems.

 **NOTE:** When running the command, type in a password value when prompted for `dbpassword`.

Configuring WS-MAN Parameters

The WS-MAN parameters should be configured in both the Core Components and the Web GUI Components. To configure the WS-MAN parameters, run the following command.


```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -<option>=<value> ..
```

The parameters are:

- `wsmanusername` — Specifies the WS-MAN username.
- `wsmanpassword` — Specifies the WS-MAN password.
- `wsmantimeout` — Specifies the WS-MAN time-out value in milliseconds.

For example:

```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -wsmanusername=root -
wsmanpassword -wsmantimeout=15000
```

 **NOTE:** When running the command, type in a password value when prompted for `wsmanpassword`.

Changing the Warranty URL

The warranty URL should be configured in the Web GUI component. You can change the default Warranty URL using the Dell Config Utility.

Open the command prompt and run the following command from `%NCHOME%\precision\dell` folder:

```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar
```

Specify the **warrantyurl**, used for launching the Warranty Report console, in double quotes.

For example

```
java -jar dell_OMC_ITNM_ConfigUtility_v_1_0.jar -warrantyurl="http://
www.dell.com/support/troubleshooting/us/en/04/Index?c=&|
=&s=bsd&cs=&t=warranty&servicetag="
```

Configuring Dell OpenManage Essentials Launch Tool

The Dell OpenManage Essentials (OME) console should be configured in the Web GUI Component. To configure the OME console launch tool, navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\tools\` and edit the `ncp_dell_ome_launch.xml` file by replacing the placeholders for the OME IP address and port in the following URL:

`https://OME_IP_Address_OR_Host:OME_Port`

For example:

`https://test.domain.com:2607`

Configuring Dell OpenManage Power Center Console Launch Tool

The Dell OpenManage Power Center Console (OMPC) should be configured in the Web GUI Component. To configure the OMPC console launch tool, navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\tools\` and edit the `ncp_dell_ompc_launch.xml` file by replacing the placeholders for the OMPC IP address and port in the following URL:

`https://OMPC_IP_Address_OR_Host:OMPC_Port/powercenter`

For example:

`https://host.domain.com:8643/powercenter`

Configuring Dell OpenManage Web Server Administrator (DWS) Console Launch Tool

The DWS Console should be configured in the Web GUI Component. To configure the DWS console launch tool, navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\tools\` and edit the `ncp_dell_dws_launch.xml` file by replacing the placeholders for the OMSA web server host and port in the following URL:

`https://OMSA_Web_Server_Host:OMSA_Web_Server_Port`

For example:

`https://host.domain.com:1311`

Configuring Dell Connections License Manager (DCLM) Tool

The DCLM console should be configured in the Web GUI Component. To configure the DCLM console launch tool, navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\tools\` and edit the `ncp_dell_dclm_launch.xml` file by replacing the placeholders for DCLM IP address and port in the following URL:

`http://DCLM_IP:DCLM_Port/web/LicenseService.asmx`

For example:

`https://DCLM.domain.com:8544/web/LicenseService.asmx`

Configuring Dell Modular Disk Storage Manager Console Launch Tool

The Dell PowerVault Modular Disk Storage Manager must be configured in the Web GUI component. To configure the Dell PowerVault Modular Disk Storage Manager console launch tool, navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\tools\` folder and edit the `ncp_dell_mdarray_console_launch.xml` file by replacing the value of the `text` tag in the `command` element with the path where the Dell PowerVault Modular Disk Storage Manager client is installed. For example:

- *For systems running Windows:*
"C:\\Program Files (x86)\\Dell\\MD Storage Software\\MD Storage Manager
\\client\\Modular Disk Storage Manager Client.exe"
- *For systems running Linux:*
"/opt/dell/mdstoragesoftware/mdstoragemanager/client/SMclient"

Uninstalling Dell OpenManage Connection for Network Manager

The steps for uninstalling Dell OpenManage Connection for Network Manager are described in the following sections:

- [Uninstalling Dell OpenManage Connection for Network Manager on TIP Components](#)
- [Uninstalling Dell OpenManage Connection for Network Manager on Core Components](#)
- [Uninstalling Dell OpenManage Connection for Network Manager on Database Integration](#)

Uninstalling Dell OpenManage Connection for Network Manager on TIP Components

To uninstall Tivoli Integrated Portal (TIP):

1. Navigate to “`%NCHOME%\precision\profiles\TIPProfile\etc\tnm\topoviz.properties`” and delete the Dell image-specific entries.
For information on the contents of the `topoviz.properties` file that you must delete, see the section “Dell Specified Changes for `topoviz.properties`” in [Appendix](#).
2. Navigate to “`%NCHOME%\precision\profiles\TIPProfile\etc\tnm\resource`” Network Manager TIP server folder and delete the `dell_*.svg` Dell icon file.
3. Navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\dynamictemplates\ip_default.xml` and delete the Dell-specific content.
For information on the contents of the `ip_default.xml` file that you must delete, see the section “Dell Specified Changes for `ip_default.xml`” in [Appendix](#).
4. Edit and delete the `ncp_delltools.xml` entry from `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\menus\ncp_topoviz_device_menu.xml`.
For information on the contents of the `ncp_topoviz_device_menu.xml` file that you must delete, see the section “Dell Specified Changes for `ncp_topoviz_device_menu.xml`” in [Appendix](#).
5. Navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\menus` folder and delete `ncp_delltools.xml` file.
6. Navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\tools` folder and delete all Dell-specific tool xml files (`ncp_dell_*.xml`).
7. Navigate to `%NCHOME%\precision\profiles\TIPProfile\etc\tnm\ncimMetaData.xml` and delete the Dell-specific content.
For information on the contents of the `ncimMetaData.xml` file that you must delete, see the section “Dell Specified Changes for `ncimMetaData.xml`” in [Appendix](#).
8. On TIP, navigate to **Administration** → **Event Management Tools** → **CGI Registry** and unregister the `delltoollauncher.cgi` file.
9. Navigate to `%NCHOME%\precision\` and delete the `dell` folder.
10. Navigate to `%NCHOME%\omnibus_webgui\etc\cgi-bin` folder and delete the `delltoollauncher.cgi` file.
11. Navigate to `%NCHOME%\precision` and delete the `dellomc_int_itnm_tip.ver` file.
12. Restart the TIP service.

Uninstalling Dell OpenManage Connection for Network Manager on Core Components

To uninstall the core component:

1. Delete the Dell agents by running the command:

```
%NCHOME%\precision\bin\ncp_agent_registrar -remove <Agent Name1,Agent Name2,..Agent Name'n'>
```

For example:

```
%NCHOME%\precision\bin\ncp_agent_registrar -remove DellServerSNMP,DellOOBServer,DellServerWsman,DellDRAC,DellEqualLogic,DellMDA rray
```

2. Navigate to **%NCHOME%\precision\disco\agents** Network Manager Core server folder and delete the **Dell*.agnt** files.
3. Navigate to **%NCHOME%\precision\disco\agents\perlAgents** folder and delete the **Dell*.pl** file.
4. Navigate to **%NCHOME%\etc\precision\ClassSchema.cfg** file and delete the Dell device-specific class ID from the file.

For information on the contents of the **ClassSchema.cfg** file that you must delete, see the section "Dell Specified Changes for **ClassSchema.cfg**" in [Appendix](#).

5. Navigate to **%NCHOME%\precision\aac** folder and delete the **Dell*.aac** file.
6. Navigate to **%NCHOME%\etc\precision\DbEntityDetails.<domain>.cfg** and delete the Dell-specific contents. For information on the contents of the **DbEntityDetails.<domain>.cfg** file that you must delete, see the section "Dell Specified Changes for **DbEntityDetails.<domain>.cfg**" in [Appendix](#).
7. Navigate to the **%NCHOME%\probes\<ARCH>\nco_p_ncpmonitor.rules** file and delete the Dell-specific content. For information on the contents of the **nco_p_ncpmonitor.rules** file that you must delete, see the section "Dell Specified Changes for **nco_p_ncpmonitor.rules**" in [Appendix](#).

Ensure that you delete the appended `$tmpVal` from the `@Identifier` declaration.

Change the modified `@Identifier` declaration from

```
@Identifier = $EntityName + @LocalPriObj + "->" + $EventName + @Type + @NmosDomainName + $tmpVal
```

to

```
@Identifier = $EntityName + @LocalPriObj + "->" + $EventName + @Type + @NmosDomainName
```


8. Navigate to the **%NCHOME%\precision\mibs** folder and delete the MIB files.
9. Delete the folder **%NCHOME%\precision\dell**.
10. On the Tivoli Integrated Portal, navigate to **Administration** → **Network** → **Network Polling** → **PollPolicies**, disable and delete the following policies:
 - **DellServerPollPolicy**
 - **DellCMCPollPolicy**
 - **DellVRTXCMCPollPolicy**
 - **DellDRACPollPolicy**
 - **DellOOBServerPollPolicy**
11. On the Tivoli Integrated Portal, navigate to **Administration** → **Network** → **Network Polling** → **PollDefinitions** tab and delete the following Poll definitions:

- **DellServerCriticalDef**
 - **DellServerWarningDef**
 - **DellDRACCriticalDef**
 - **DellDRACWarningDef**
 - **DellCMCCriticalDef**
 - **DellCMCWarningDef**
 - **DellVRTXCMCCriticalDef**
 - **DellVRTXCMCWarningDef**
 - **DellOOBServerCriticalDef**
 - **DellOOBServerWarningDef**
12. Navigate to the **%NCHOME%\precision\dell\scripts** folder and delete the configured periodic polling of DCLM by running the following command.
 - *On systems running Windows*— `scheduleTask.bat remove DCLM_POLL`
 - *On systems running Linux*— `cronJob.sh remove DCLM_POLL`
 13. Navigate to the **%NCHOME%\precision\dell\scripts** folder and delete the configured periodic polling of ESXi systems by running the following command.
 - *On systems running Windows*— `scheduleTask.bat remove ESXi_POLL`
 - *On systems running Linux*— `cronJob.sh remove ESXi_POLL`
 14. Navigate to the **%NCHOME%\precision\dell\scripts** folder and delete the configured periodic polling of PowerVault MD Storage Arrays by running the following command.
 - *On systems running Windows*— `scheduleTask.bat remove MDARRAY_POLL`
 - *On systems running Linux*— `cronJob.sh remove MDARRAY_POLL`
 15. Navigate to the **%NCHOME%\precision\dell\scripts** folder and delete the configured periodic polling of EqualLogic Storage Arrays by running the following command.
 - *On systems running Windows*— `scheduleTask.bat remove EQL_POLL`
 - *On systems running Linux*— `cronJob.sh remove EQL_POLL`
 16. Navigate to the **%NCHOME%\precision\dell\scripts** folder and delete the periodic license synchronization with DCLM by running the following command :
 - *On systems running Windows*— `scheduleTask.bat remove LICENSE_SYNCH`
 - *On systems running Linux*— `cronJob.sh remove LICENSE_SYNCH`
 17. Navigate to the **%NCHOME%\precision** folder and delete the **dellomc_int_itnm_core.ver** file.
 18. On systems running Windows, restart the **ncp_ctrl** service to restart the Network Manager core services. On systems running Linux, use the commands **itnm_stop ncp** and **itnm_start ncp** to restart the Network Manager core services.

Uninstalling Dell OpenManage Connection for Network Manager on Database Integration

To uninstall DB:

1. Drop all Dell-specific tables and views by running the corresponding database-specific script file **drop_dellDevice_<Database>.sql**.
 - For Informix database:
`dbaccess itnm drop_dellDevice_Informix.sql`

 **NOTE:** Log in as an Informix user before running the command.

- For DB2 database, connect to DB2 and run following command:
`db2batch -d itnm -f drop_dellDevice_DB2.sql`

 - For Mysql database:
`mysql -u <db user name> -p < drop_dellDevice_Mysql.sql`

 - For Oracle database:
`sqlplus -s <Oracle DB user name>/<Password> @drop_dellDevice_Oracle.sql`
2. Delete the %NCHOME%\precision\dellomc_int_itnm_topo_db.ver file.

Appendix

This section contain information present in the files that are used to install Dell OpenManage Connection Version 1.0 for IBM Tivoli Network Manager (ITNM) IP Edition 3.9.

How to Insert or Append Information Format

The information in the files are presented in the following format

- // Dell specified changes – START — This commented text is provided to mark the start of the file information.
- The information that you must include in the ITNM component files.
- // Dell specified changes - END — This commented text is provided to mark the end of the file information.

When inserting or appending information to ITNM Component files, include the commented text so that you can distinguish the file information.

Dell Specified Changes for ClassSchema.cfg

```
// Dell specified changes - START

insert into class.classIds values (17950, 'DellServerMonolithicWindows');
insert into class.classIds values (17951, 'DellServerMonolithicLinux');
insert into class.classIds values (17952, 'DellServerModularWindows');
insert into class.classIds values (17953, 'DellServerModularLinux');
insert into class.classIds values (17954, 'DellCMC');
insert into class.classIds values (17955, 'DellDRACMC');
insert into class.classIds values (17956, 'DellDRAC5');
insert into class.classIds values (17957, 'DelliDRAC6');
insert into class.classIds values (17958, 'DellOOBServer');
insert into class.classIds values (17959, 'DellEqualLogic');
insert into class.classIds values (17960, 'DellServerMonolithicESXi');
insert into class.classIds values (17961, 'DellServerModularESXi');
insert into class.classIds values (17962, 'DellMDArray');
insert into class.classIds values (17963, 'DellVRTXCMC');

// Dell specified - END
```

Dell Specified Changes for DbEntityDetails.domain.cfg

```
// Dell specified changes - START

insert into dbModel.entityMap
(
    EntityFilter,
    TableName,
    FieldMap
)
values
(
    "(EntityType = 1 or EntityType = 8) and (ClassName =
'DellServerModularLinux' or ClassName ='DellServerModularWindows' or ClassName
```

```

='DellServerMonolithicLinux' or ClassName ='DellServerMonolithicWindows' or
ClassName ='DellServerModularESXi' or ClassName ='DellServerMonolithicESXi' or
ClassName ='DelloOBServer' or ClassName ='DellCMC' or ClassName ='DellDRACMC'
or ClassName ='DellDRAC5' or ClassName ='DellDRAC6' or ClassName
='DellEqualLogic' or ClassName = 'DellMDArray' or ClassName = 'DellVRTXCMC')",
    "delldevicemaster",
    {
        entityid = "eval(int, '&ObjectId')",
        classname = "eval(text, '&ClassName')",
        servicetag = "eval(text, '&ExtraInfo->m_Dell->m_ServiceTag')",
        chassistag = "eval(text, '&ExtraInfo->m_Dell->m_ChassisServiceTag')",
        producttype = "eval(text, '&ExtraInfo->m_Dell->m_ProductType')",
        osname = "eval(text, '&ExtraInfo->m_Dell->m_OSName')",
        eqlMemberIndex = "eval(text, '&ExtraInfo->m_Dell->m_EqlMemberIndex')",
        eqlGroupIP = "eval(text, '&ExtraInfo->m_Dell->m_EqlGroupIP')",
        eqlStoragePool = "eval(text, '&ExtraInfo->m_Dell->m_EqlStoragePool')",
        cmcservicetags = "eval(text, '&ExtraInfo->m_Dell-
>m_CMCServersServiceTag')"
    }
);

// Dell specified - END

```

Dell Specified Changes for nco_p_ncpmonitor.rules

```

# Dell specified changes - START

case "POLL-DellServerCriticalDef" | "POLL-DellServerWarningDef":
    @Class = 2080
    @AlertGroup = "DellServer"
case "POLL-DellCMCCriticalDef" | "POLL-DellCMCWarningDef":
    @Class = 2086
    @AlertGroup = "DellCMC"
case "POLL-DellDRACCriticalDef" | "POLL-DellDRACWarningDef":
    @Class = 2087
    @AlertGroup = "DellDRAC"
case "POLL-DelloOBServerCriticalDef" | "POLL-DelloOBServerWarningDef":
    @Class = 2088
    @AlertGroup = "DelloOBServer"
case "POLL-DellVRTXCMCCriticalDef" | "POLL-DellVRTXCMCWarningDef":
    @Class = 2084
    @AlertGroup = "DellVRTXCMC"
case "POLL-DCLMStatus":
    @Class = 2081
    if (match(@Severity, "5"))
    {
        $tmpVal = "5"
    }
    else if (match(@Severity, "2"))
    {
        $tmpVal = "2"
    }
case "POLL-DellEqualLogicStatus":
    @Class = 2085
    if (match(@Severity, "5"))
    {
        $tmpVal = "5"
    }
    else if (match(@Severity, "2"))
    {
        $tmpVal = "2"
    }

```

```

        else if (match(@Severity, "3"))
        {
            $tmpVal = "3"
        }
    case "POLL-DellESXiServerStatus":
        @Class = 2080
        if (match(@Severity, "5"))
        {
            $tmpVal = "5"
        }
        else if (match(@Severity, "2"))
        {
            $tmpVal = "2"
        }
    case "POLL-DellMDStorageArrayStatus":
        @Class = 2809
        if (match(@Severity, "2"))
        {
            $tmpVal = "2"
        }
        else if (match(@Severity, "3"))
        {
            $tmpVal = "3"
        }
}

# Dell specified changes - END

```

Dell Specified Changes for EndNode.aoc

```

OR
(
    EntityOID like '1\.3\.6\.1\.4\.1\.6876\.4\.1'
)

```

Dell Specified Changes for ncimMetaData.xml

```

<!-- Dell specified changes - START -->

<entityMetaData table="delldevicemaster" manager="AllManagers"
entitySearch="true">
    <dataField tableAlias="d" dataType="int" column="entityid"/>
    <dataField tableAlias="d" dataType="str" column="classname"/>
    <dataField tableAlias="d" dataType="str" column="servicetag"/>
    <dataField tableAlias="d" dataType="str" column="chassistag"/>
    <dataField tableAlias="d" dataType="str" column="producttype"/>
    <dataField tableAlias="d" dataType="str" column="osname"/>
    <dataField tableAlias="d" dataType="str" column="eqlMemberIndex"/>
    <dataField tableAlias="d" dataType="str" column="eqlGroupIP"/>
    <dataField tableAlias="d" dataType="str" column="eqlStoragePool"/>
    <fromTables>
        FROM _ncim_.delldevicemaster d
        INNER JOIN _ncim_.entityDetails ed ON ed.entityId=d.entityId
        WHERE d.entityId = ?
        WHERE d.entityId = ?
    </fromTables>
</entityMetaData>

<!-- Dell specified changes - END -->

```

Dell Specified Changes for topoviz.properties

```
# Dell specific changes - START

topoviz.image.DellServerMonolithic=dell_monolithic.svg
topoviz.image.DellServerModular=dell_modular.svg
topoviz.image.DellCMC=dell_cmc.svg
topoviz.image.DellDRACMC=dell_dracmc.svg
topoviz.image.DellDRAC5=dell_drac5.svg
topoviz.image.DellIDRAC6=dell_idrac6.svg
topoviz.image.DellIDRAC7=dell_idrac7.svg
topoviz.image.DellEqualLogic=dell_equallogic.svg
topoviz.image.DellMDArray=dell_mdarray.svg
topoviz.image.DellVRTXCMC=dell_vrtxcmc.svg

# Dell specific changes - END
```

Dell Specified Changes for ip_default.xml

```
<!-- Dell specific changes - START -->

<container id="DellManagedSystems" label="Dell Managed Systems">
  <container id="DellServers" label="Dell Servers">
    <dynamicDistinct id="MonolithicServers" label="Monolithic Servers"
connectivity="ipsubnets" endNodes="true">
      <tableField table="dellmonolithicservers" field="servicetag"/>
    </dynamicDistinct>
    <dynamicDistinct id="ModularServers" label="Modular Servers"
connectivity="ipsubnets" endNodes="true">
      <tableField table="dellmodularservers" field="servicetag"/>
    </dynamicDistinct>
    <dynamicDistinct id="WindowsServers" label="Windows Servers"
connectivity="ipsubnets" endNodes="true">
      <tableField table="dellwindowsservers" field="servicetag"/>
    </dynamicDistinct>
    <dynamicDistinct id="LinuxServers" label="Linux Servers"
connectivity="ipsubnets" endNodes="true">
      <tableField table="delllinuxservers" field="servicetag"/>
    </dynamicDistinct>
    <dynamicDistinct id="ESXiServers" label="ESXi Servers"
connectivity="ipsubnets" endNodes="true">
      <tableField table="dellesxiservers" field="servicetag"/>
    </dynamicDistinct>
  </container>

  <container id="DellStorage" label="Dell Storage">
    <filtered id="MDArrays" label="MD Arrays" connectivity="ipsubnets"
endNodes="true">
      <filter schema="ncim" table="chassis" filter="className='DellMDArray'"/>
    </filtered>
    <dynamicDistinct id="EqualLogic" label="EqualLogic PS Arrays"
connectivity="ipsubnets" endNodes="true">
      <tableField table="dellequallogic" field="eqlGroupIp"/>
      <tableField table="dellequallogic" field="eqlStoragePool"/>
    </dynamicDistinct>
  </container>

  <container id="DellChassis" label="Dell Chassis">
    <dynamicDistinct id="DRACMC" label="DRAC/MC" connectivity="ipsubnets"
endNodes="true">

```

```

        <tableField table="delldracmc" field="chassistag"/>
        <tableField table="delldracmc" field="servicetag"/>
    </dynamicDistinct>
    <dynamicDistinct id="CMC" label="CMC" connectivity="ipsubnets"
endNodes="true">
        <tableField table="dellcmc" field="chassistag"/>
        <tableField table="dellcmc" field="servicetag"/>
    </dynamicDistinct>
    <dynamicDistinct id="VRTXCMC" label="VRTX CMC" connectivity="ipsubnets"
endNodes="true">
        <tableField table="dellvrtxcmc" field="chassistag"/>
        <tableField table="dellvrtxcmc" field="servicetag"/>
    </dynamicDistinct>
</container>

<container id="DellDRACs" label="Dell DRACs">
    <filtered id="DRAC5" label="DRAC5" connectivity="ipsubnets"
endNodes="true">
        <filter schema="ncim" table="delldracs" filter="classname='DellDRAC5'"/>
    </filtered>
    <filtered id="iDRAC7Monolithic" label="iDRAC7 Monolithic"
connectivity="ipsubnets" endNodes="true">
        <filter schema="ncim" table="delldracs"
filter="classname='DellOOBServer' and producttype='Monolithic'"/>
    </filtered>

    <filtered id="iDRAC7Modular" label="iDRAC7 Modular"
connectivity="ipsubnets" endNodes="true">
        <filter schema="ncim" table="delldracs"
filter="classname='DellOOBServer' and producttype='Modular'"/>
    </filtered>

    <filtered id="iDRAC6Monolithic" label="iDRAC6 Monolithic"
connectivity="ipsubnets" endNodes="true">
        <filter schema="ncim" table="delldracs" filter="classname='DelliDRAC6'
and producttype='idrac6mono'"/>
    </filtered>

    <filtered id="iDRAC6Modular" label="iDRAC6 Modular"
connectivity="ipsubnets" endNodes="true">
        <filter schema="ncim" table="delldracs" filter="classname='DelliDRAC6'
and producttype='idrac6mod'"/>
    </filtered>
</container>

    <filtered id="DCLM" label="Dell Connection Licensing"
connectivity="ipsubnets" endNodes="true">
        <filter schema="ncmonitor" table="activeEvent"
filter="alertgroup='DellAgentFreeServerLicense'"/>
    </filtered>
</container>

```

```
<!-- Dell specific changes - END -->
```

Dell Specified Changes for ncp_topoviz_device_menu.xml

```
<!-- Dell specific changes - START -->
```

```


<separator/>
<menu id="ncp_delltools"/>
<separator/>

```

<!-- Dell specific changes - END -->

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. Visit dell.com/support
2. Select your support category.
3. Verify your country or region in the Choose a Country/Region drop-down menu at the top of page.
4. Select the appropriate service or support link based on your need.