

Network Manager IP Edition  
Version 3 Release 9

## *Administration Guide*





Network Manager IP Edition  
Version 3 Release 9

## *Administration Guide*



**Note**

Before using this information and the product it supports, read the information in “Notices” on page 295.

This edition applies to version 3, modification 9 of IBM Tivoli Network Manager IP Edition (product number 5724-S45) and to all subsequent releases and modifications until otherwise indicated in new editions.

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## About this publication

IBM Tivoli Network Manager IP Edition provides detailed network discovery, device monitoring, topology visualization, and root cause analysis (RCA) capabilities. Network Manager can be extensively customized and configured to manage different networks. Network Manager also provides extensive reporting features, and integration with other IBM products, such as IBM Tivoli Application Dependency Discovery Manager, IBM Tivoli Business Service Manager and IBM Systems Director.

The *IBM Tivoli Network Manager IP Edition Administration Guide* describes administration tasks for IBM Tivoli Network Manager IP Edition such as how to administer processes, query databases and start and stop the product. This publication is for administrators who are responsible for the maintenance and availability of IBM Tivoli Network Manager IP Edition.

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## Intended audience

This publication is intended for system administrators who are responsible for configuring and administering IBM Tivoli Network Manager IP Edition, and for advanced users who need to query the component databases.

IBM Tivoli Network Manager IP Edition works in conjunction with IBM Tivoli Netcool/OMNIbus; this publication assumes that you understand how IBM Tivoli Netcool/OMNIbus works. For more information on IBM Tivoli Netcool/OMNIbus, see the publications described in “Publications” on page viii.

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## What this publication contains

This publication contains the following sections:

- Chapter 1, “Starting and stopping Network Manager,” on page 1  
Describes how to start and stop IBM Tivoli Network Manager IP Edition and its components.
- Chapter 2, “Administering processes,” on page 9  
Describes how to start, stop, check, and troubleshoot processes on UNIX operating systems, and services on Windows operating systems.
- Chapter 3, “Administering logs,” on page 25  
Describes how to set up and configure logging for processes.
- Chapter 4, “Administering ports,” on page 39  
Describes how to check port usage and define ports.
- Chapter 5, “Administering users,” on page 45  
Describes how to set user access to the user interfaces of Network Manager, and to the OQL Service Provider.
- Chapter 6, “Administering system passwords,” on page 71  
Describes how to administer the passwords that Network Manager uses for internal processes, and for communicating with the network.
- Chapter 7, “Administering management databases,” on page 75

Describes how to use the GUI-based OQL (Object Query Language) workbench, or the OQL Service Provider to access the databases of any Network Manager process.

- Chapter 8, “Administering the NCIM topology database,” on page 85  
Describes how to start, stop, and configure the Network and Connectivity Inventory Model (NCIM) database, which holds the topology data, and how to create topology database schemas.
- Chapter 9, “Administering charting,” on page 107  
Describes how to build console pages with charts from Tivoli® applications and how to build customized charts.
- Chapter 10, “Administering reports,” on page 119  
Describes how to prepare to run reports, how to create and edit reports, and how to configure reporting data sources.
- Chapter 11, “Troubleshooting and support,” on page 121  
Describes how to troubleshoot common problems with Network Manager.
- Appendix A, “Command reference,” on page 135  
Describes the commands and command-line options that you can use to start Network Manager processes.
- Appendix B, “Web Applications configuration reference,” on page 175  
Provides supporting information that you can use to configure Network Manager Web applications.
- Appendix C, “Report reference,” on page 189  
Describes the reports available with Network Manager.
- Appendix D, “Entity types,” on page 217  
Describes the NCIM topology database entityType table, which contains all the entity types that are available in the NCIM topology database.
- Appendix E, “Scripts,” on page 221  
Describes the scripts available in Network Manager

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## Publications

This section lists publications in the Network Manager library and related documents. The section also describes how to access Tivoli publications online and how to order Tivoli publications.

### Your Network Manager library

The following documents are available in the Network Manager library:

- *IBM Tivoli Network Manager IP Edition Release Notes*, GI11-9354-00  
Gives important and late-breaking information about IBM Tivoli Network Manager IP Edition. This publication is for deployers and administrators, and should be read first.
- *IBM Tivoli Network Manager Getting Started Guide*, GI11-9353-00  
Describes how to set up IBM Tivoli Network Manager IP Edition after you have installed the product. This guide describes how to start the product, make sure it is running correctly, and discover the network. Getting a good network discovery is central to using Network Manager IP Edition successfully. This guide describes how to configure and monitor a first discovery, verify the results of the discovery, configure a production discovery, and how to keep the network topology up to date. Once you have an up-to-date network topology, this guide

describes how to make the network topology available to Network Operators, and how to monitor the network. The essential tasks are covered in this short guide, with references to the more detailed, optional, or advanced tasks and reference material in the rest of the documentation set.

- *IBM Tivoli Network Manager IP Edition Product Overview*, GC27-2759-00

Gives an overview of IBM Tivoli Network Manager IP Edition. It describes the product architecture, components and functionality. This publication is for anyone interested in IBM Tivoli Network Manager IP Edition.

- *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide*, SC27-2760-00

Describes how to install IBM Tivoli Network Manager IP Edition. It also describes necessary and optional post-installation configuration tasks. This publication is for administrators who need to install and set up IBM Tivoli Network Manager IP Edition.

- *IBM Tivoli Network Manager IP Edition Administration Guide*, SC27-2761-00

Describes administration tasks for IBM Tivoli Network Manager IP Edition, such as how to administer processes, query databases and start and stop the product. This publication is for administrators who are responsible for the maintenance and availability of IBM Tivoli Network Manager IP Edition.

- *IBM Tivoli Network Manager IP Edition Discovery Guide*, SC27-2762-00

Describes how to use IBM Tivoli Network Manager IP Edition to discover your network. This publication is for administrators who are responsible for configuring and running network discovery.

- *IBM Tivoli Network Manager IP Edition Event Management Guide*, SC27-2763-00

Describes how to use IBM Tivoli Network Manager IP Edition to poll network devices, to configure the enrichment of events from network devices, and to manage plug-ins to the Tivoli Netcool/OMNIBus Event Gateway, including configuration of the RCA plug-in for root-cause analysis purposes. This publication is for administrators who are responsible for configuring and running network polling, event enrichment, root-cause analysis, and Event Gateway plug-ins.

- *IBM Tivoli Network Manager IP Edition Network Troubleshooting Guide*, GC27-2765-00

Describes how to use IBM Tivoli Network Manager IP Edition to troubleshoot network problems identified by the product. This publication is for network operators who are responsible for identifying or resolving network problems.

- *IBM Tivoli Network Manager IP Edition Network Visualization Setup Guide*, SC27-2764-00

Describes how to configure the IBM Tivoli Network Manager IP Edition network visualization tools to give your network operators a customized working environment. This publication is for product administrators or team leaders who are responsible for facilitating the work of network operators.

- *IBM Tivoli Network Manager IP Edition Management Database Reference*, SC27-2767-00

Describes the schemas of the component databases in IBM Tivoli Network Manager IP Edition. This publication is for advanced users who need to query the component databases directly.

- *IBM Tivoli Network Manager IP Edition Topology Database Reference*, SC27-2766-00

Describes the schemas of the database used for storing topology data in IBM Tivoli Network Manager IP Edition. This publication is for advanced users who need to query the topology database directly.

- *IBM Tivoli Network Manager IP Edition Language Reference, SC27-2768-00*  
Describes the system languages used by IBM Tivoli Network Manager IP Edition, such as the Stitcher language, and the Object Query Language. This publication is for advanced users who need to customize the operation of IBM Tivoli Network Manager IP Edition.
- *IBM Tivoli Network Manager IP Edition Perl API Guide, SC27-2769-00*  
Describes the Perl modules that allow developers to write custom applications that interact with the IBM Tivoli Network Manager IP Edition. Examples of custom applications that developers can write include Polling and Discovery Agents. This publication is for advanced Perl developers who need to write such custom applications.
- *IBM Tivoli Monitoring for Tivoli Network Manager IP User's Guide, SC27-2770-00*  
Provides information about installing and using IBM Tivoli Monitoring for IBM Tivoli Network Manager IP Edition. This publication is for system administrators who install and use IBM Tivoli Monitoring for IBM Tivoli Network Manager IP Edition to monitor and manage IBM Tivoli Network Manager IP Edition resources.

## Prerequisite publications

To use the information in this publication effectively, you must have some prerequisite knowledge, which you can obtain from the following publications:

- *IBM Tivoli Netcool/OMNIBus Installation and Deployment Guide, SC23-9680*  
Includes installation and upgrade procedures for Tivoli Netcool/OMNIBus, and describes how to configure security and component communications. The publication also includes examples of Tivoli Netcool/OMNIBus architectures and describes how to implement them.
- *IBM Tivoli Netcool/OMNIBus User's Guide, SC23-9683*  
Provides an overview of the desktop tools and describes the operator tasks related to event management using these tools.
- *IBM Tivoli Netcool/OMNIBus Administration Guide, SC23-9681*  
Describes how to perform administrative tasks using the Tivoli Netcool/OMNIBus Administrator GUI, command-line tools, and process control. The publication also contains descriptions and examples of ObjectServer SQL syntax and automations.
- *IBM Tivoli Netcool/OMNIBus Probe and Gateway Guide, SC23-9684*  
Contains introductory and reference information about probes and gateways, including probe rules file syntax and gateway commands.
- *IBM Tivoli Netcool/OMNIBus Web GUI Administration and User's Guide SC23-9682*  
Describes how to perform administrative and event visualization tasks using the Tivoli Netcool/OMNIBus Web GUI.

## Accessing terminology online

The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:

<http://www.ibm.com/software/globalization/terminology>

## Accessing publications online

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the IBM Knowledge Center Web site at:

<http://www-01.ibm.com/support/knowledgecenter/>

Network Manager documentation is located under the **Cloud & Smarter Infrastructure** node on that Web site.

**Note:** If you print PDF documents on other than letter-sized paper, set the option in the **File > Print** window that allows your PDF reading application to print letter-sized pages on your local paper.

## Ordering publications

You can order many Tivoli publications online at the following Web site:

<http://www.elink.ibm.link.ibm.com/publications/servlet/pbi.wss>

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications. To locate the telephone number of your local representative, perform the following steps:

1. Go to the following Web site:  
<http://www.elink.ibm.link.ibm.com/publications/servlet/pbi.wss>
2. Select your country from the list and click **Go**. The Welcome to the IBM Publications Center page is displayed for your country.
3. On the left side of the page, click **About this site** to see an information page that includes the telephone number of your local representative.

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## Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully.

### Accessibility features

The following list includes the major accessibility features in Network Manager:

- The console-based installer supports keyboard-only operation.
- The console-based installer supports screen reader use.
- Network Manager provides the following features suitable for low vision users:
  - All non-text content used in the GUI has associated alternative text.
  - Low-vision users can adjust the system display settings, including high contrast mode, and can control the font sizes using the browser settings.
  - Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.

- Network Manager provides the following features suitable for photosensitive epileptic users:
  - Web pages do not contain anything that flashes more than two times in any one second period.

The accessibility of the Network Manager Knowledge Center is described in the Knowledge Center itself.

### **Extra steps to configure Internet Explorer for accessibility**

If you are using Internet Explorer as your web browser, you might need to perform extra configuration steps to enable accessibility features.

To enable high contrast mode, complete the following steps:

1. Click **Tools > Internet Options > Accessibility**.
2. Select all the check boxes in the Formatting section.

If clicking **View > Text Size > Largest** does not increase the font size, click **Ctrl +** and **Ctrl -**.

### **IBM® and accessibility**

See the IBM Human Ability and Accessibility Center for more information about the commitment that IBM has to accessibility.

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## **Tivoli technical training**

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site:

<http://www.ibm.com/software/tivoli/education>

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## **Support information**

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

### **Online**

Go to the IBM Software Support site at <http://www.ibm.com/software/support/probsub.html> and follow the instructions.

### **IBM Support Assistant**

The IBM Support Assistant (ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. The ISA provides quick access to support-related information and serviceability tools for problem determination. To install the ISA software, go to <http://www.ibm.com/software/support/isa>

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## Conventions used in this publication

This publication uses several conventions for special terms and actions and operating system-dependent commands and paths.

### Typeface conventions

This publication uses the following typeface conventions:

#### **Bold**

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:** and **Operating system considerations:**)
- Keywords and parameters in text

#### *Italic*

- Citations (examples: titles of publications, diskettes, and CDs)
- Words defined in text (example: a nonswitched line is called a *point-to-point* line)
- Emphasis of words and letters (words as words example: "Use the word *that* to introduce a restrictive clause."; letters as letters example: "The LUN address must start with the letter *L*.")
- New terms in text (except in a definition list): a *view* is a frame in a workspace that contains data
- Variables and values you must provide: ... where *myname* represents....

#### **Monospace**

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

### Operating system-dependent variables and paths

This publication uses environment variables without platform-specific prefixes and suffixes, unless the command applies only to specific platforms. For example, the directory where the Network Manager core components are installed is represented as NCHOME.

When using the Windows command line, preface and suffix environment variables with the percentage sign %, and replace each forward slash (/) with a backslash (\) in directory paths. For example, on Windows systems, NCHOME is %NCHOME%.

On UNIX systems, preface environment variables with the dollar sign \$. For example, on UNIX, NCHOME is \$NCHOME.

The names of environment variables are not always the same in the Windows and UNIX environments. For example, %TEMP% in Windows environments is equivalent to \$TMPDIR in UNIX environments. If you are using the bash shell on

a Windows system, you can use the UNIX conventions.



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## Chapter 1. Starting and stopping Network Manager

Your options for starting and stopping Network Manager are different depending on how the product has been installed.

---

### Setting environment variables

Before starting any components or working with any configuration files, set the Network Manager environment variables by sourcing the environment variables script.

The environment script sets the following required environment variables. Other environment variables are set automatically when necessary by Network Manager components.

#### NCHOME

The Netcool® home location that defaults to netcool directory under the installation directory:

- **UNIX** /opt/IBM/tivoli/netcool
- **Windows** C:\IBM\tivoli\netcool

#### ITNMHOME and PRECISION\_HOME

The Network Manager home location that defaults to NCHOME/precision directory under the installation directory:

- **UNIX** /opt/IBM/tivoli/netcool/precision
- **Windows** C:\IBM\tivoli\netcool\precision

**Note:** The script also sets PRECISION\_HOME. By default, PRECISION\_HOME is set to the same location as ITNMHOME, but is used by other parts of the product.

#### TIPHOME

The Tivoli Integrated Portal home location that defaults to the tip directory under the installation directory:

- **UNIX** /opt/IBM/tivoli/tipv2
- **Windows** C:\IBM\tivoli\tipv2

To set the environment variables, source the appropriate script for your operating system.

- **UNIX** Run the *Installation directory/netcool/env.sh* script. On Bash and Korn shells, source the env.sh script using a command similar to the following:  
./opt/IBM/tivoli/netcool/env.sh
- **Windows** Run the *Installation directory\netcool\env.bat* batch file.

After you have set the environment variables, start Network Manager and make sure it is running correctly.

#### Related tasks:

“Starting Network Manager” on page 2

You can start Network Manager, Tivoli Netcool/OMNibus, and the Tivoli Integrated Portal, together or separately, depending how they are installed.

---

## Starting Network Manager

You can start Network Manager, Tivoli Netcool/OMNIBus, and the Tivoli Integrated Portal, together or separately, depending how they are installed.

**Important:** Tivoli Netcool/OMNIBus and the topology database must both be started before Network Manager.

**Related tasks:**

“Setting environment variables” on page 1

Before starting any components or working with any configuration files, set the Network Manager environment variables by sourcing the environment variables script.

### Starting all components on the same server (UNIX only)

If the Tivoli Integrated Portal, Tivoli Netcool/OMNIBus, and Network Manager are installed on the same server, you can start them using the **itnm\_start** command.

In the case of Network Manager, the **itnm\_start** command starts the master process controller, **ncp\_ctrl**, which starts all the Network Manager processes.

**Restriction:** Windows The process control commands are not available on Windows operating systems because the various components are run as services within the Windows environment. On Windows, Network Manager components must be stopped and started from the Windows Services dialog.

To run the **itnm\_start** command:

1. If you have not set up the UNIX environment, change to the \$NCHOME/precision/bin directory.
2. UNIX Type the following command: **itnm\_start -domain NCOMS**. This command starts all of the Network Manager components that are installed on the server, including the Tivoli Integrated Portal and Tivoli Netcool/OMNIBus, in the example domain NCOMS.

**Note:** Informix can only be started by the root user or the informix database administrator user. If you have a non-root Network Manager installation using Informix, and for any reason you need to restart the Informix database, you must log in as the root user and run the following command on Linux and Solaris systems: **/etc/init.d/informix start|stop**; or the following on AIX® systems: **/etc/rc.d/init.d/informix start|stop**. You can also log in as the database administrator and run the **onmode -ky** command to stop the Informix database, and the **oninit** command to start the database.

For more information, go to the IBM Informix 11.70 Information Center at [http://www-01.ibm.com/support/knowledgecenter/SSGU8G\\_11.70.0/com.ibm.welcome.doc/welcome.htm](http://www-01.ibm.com/support/knowledgecenter/SSGU8G_11.70.0/com.ibm.welcome.doc/welcome.htm) and search for *Administrator's Reference*.

**Related reference:**

“itnm\_start command-line options” on page 135

Use the **itnm\_start** command, with optional advanced arguments, to start Network Manager components.

## Starting Network Manager processes using the command console

You can start Network Manager processes by starting the master process controller, **ncp\_ctrl**, using the command console.


Before beginning this task, check the following:

- If you want different process dependencies to the defaults, ensure they are configured first.
- Ensure that the UNIX environment is set up.

If you start Network Manager processes using the master process controller, you must start Tivoli Netcool/OMNIBus and the Tivoli Integrated Portal separately.

On Windows, starting the **ncp\_ctrl** process using the command console starts it as a process rather than a service.

To start Network Manager using the command console

1.  Click **Start > Run**.
2. Type the following command:  
`ncp_ctrl -domain DOMAIN &`  
where *DOMAIN* is the domain in which you want to start the core components.

## Starting Network Manager processes on Windows

You can start all the processes of Network Manager, not including the Web applications, by starting the master process controller, the **ncp\_ctrl** process.

If you start Network Manager processes using the master process controller, you must also start Tivoli Netcool/OMNIBus and the Tivoli Integrated Portal separately.

You can start Network Manager processes in the following ways:

- If you want to start Network Manager processes for the domain that was configured during installation, use the Start menu.
- If you want to start Network Manager processes as Windows services, use the services console.
- If you want to start Network Manager processes as processes, use the command console.

### Starting Network Manager processes on Windows using the Start menu

Additional items installed in the Windows Start menu enable you to start Network Manager processes by starting the master process controller, the **ncp\_ctrl** process.

These menu items apply only to the domain that was configured during installation.

To start the **ncp\_ctrl** process using the Start menu:

1. Click **Start > Programs**.
2. To start Network Manager processes as Windows services, click **Start ncp\_ctrl - initial domain**.
3. To start Network Manager processes as console processes, click **ncp\_ctrl (console) - initial domain**.

## Starting Network Manager processes on Windows using the services console

You can start Network Manager processes as services by starting the master process controller, the **ncp\_ctrl** process, as a service.

To start the **ncp\_ctrl** process as a Windows service:

1. Click **Start > Control Panel > Administrative Tools > Services**.
2. Select **ncp\_ctrl for domain DOMAIN** from the **Services** list.
3. Select **Start** from the **Action** menu.

## Starting and stopping the Tivoli Integrated Portal

The Tivoli Integrated Portal Server starts automatically after it has been installed and whenever the computer is started. You can manually stop the server before beginning certain configuration tasks or as needed.

1. In the *tip\_home\_dir/profiles/TIPProfile/bin* directory, depending on your operating system, enter one of the following commands:

- **Windows** `stopServer.bat server1`
- **UNIX** **Linux** `stopServer.sh server1`

**Note:** On UNIX and Linux systems, you are prompted to provide an administrator username and password.

2. In the *tip\_home\_dir/profiles/TIPProfile/bin* directory, depending on your operating system, enter one of the following commands:

- **Windows** `startServer.bat server1`
- **UNIX** **Linux** `startServer.sh server1`

### Related tasks:

“Setting a trace” on page 124

Enable a trace of the Tivoli Integrated Portal Server when you want to keep a record of activity.

## Port assignments

The application server requires a set of sequentially numbered ports.

The sequence of ports is supplied during installation in the response file. The installer checks that the number of required ports (starting with the initial port value) are available before assigning them. If one of the ports in the sequence is already in use, the installer automatically terminates the installation process and you must specify a different range of ports in the response file.

### Related tasks:

“Viewing the application server profile” on page 123

Open the application server profile to review the port number assignments and other information.

## Starting Tivoli Netcool/OMNIBus

If you have installed Tivoli Netcool/OMNIBus using the Network Manager installation process, you can start the Tivoli Netcool/OMNIBus components by using the **itnm\_start** command.

### Fix Pack 4

If Network Manager and Tivoli Netcool/OMNIBus are installed on the same server, you can set up Network Manager process control commands to silently communicate with the Tivoli Netcool/OMNIBus Process Agent (NCO\_PA). The NCO\_PA controls Tivoli Netcool/OMNIBus processes such as the Object Server (**nco\_objserv**) and probes (for example, **nco\_p\_mttrapd**).

Using this feature resolves some issues with complex deployments and improves security by making use of the IBM Tivoli Netcool/OMNIBus process control system.

You can also start the Tivoli Netcool/OMNIBus components by using the Tivoli Netcool/OMNIBus commands. For more information about setting up the Tivoli Netcool/OMNIBus components, see the *IBM Tivoli Netcool/OMNIBus Administration Guide*.

**Restriction:** Windows The process control commands are not available on Windows operating systems because the various components are run as services within the Windows environment. On Windows, Network Manager components must be stopped and started from the Windows Services dialog.

### Fix Pack 4

To enable silent communication with the NCO\_PA, perform the following steps:

### Fix Pack 4

**Note:** If you do not want to control Tivoli Netcool/OMNIBus processes silently using the **itnm\_start**, **itnm\_stop**, and **itnm\_status** commands, then go to step 3. Network Manager continues to start, stop, and provide status for Tivoli Netcool/OMNIBus processes as before (essentially bypassing NCO\_PA).

If you want to control Tivoli Netcool/OMNIBus processes silently and you do not add the NCO\_PAD\_USER\_PWD keyword to **itnm.cfg**, you will get prompted for the password when you execute the **itnm\_start**, **itnm\_stop**, and **itnm\_status** commands.

1. Fix Pack 4 Optional: Go to `$NCHOME/etc/itnm.cfg`.
2. Fix Pack 4 Optional: Make a back up of **itnm.cfg**, and then edit the original **itnm.cfg** as follows: Fix Pack 4
  - a. Add the NCO\_PAD\_USER keyword to define the username for the user who has access to the NCO\_PA. By default, the NCO\_PA username is root. The following example specifies root:  
`NCO_PAD_USER=root`

**Note:** Typically, the NCO\_PA username and password are set at installation time. However, you can also set the NCO\_PA username and password at other times, for example, if you install Tivoli Netcool/OMNIBus separately or if you change the password.

- b. Add the `NCO_PAD_ENCRYPT_PWD` keyword to specify whether the password for the user who has access to the `NCO_PA` is encrypted. Specify the value `Y` to indicate the password is encrypted. Otherwise, specify the value `N` to indicate the password is not encrypted. The following example shows that the password is encrypted:

```
NCO_PAD_ENCRYPT_PWD=Y
```

- c. Use the **ncp\_crypt** tool to encrypt the `NCO_PA` password. For example, to encrypt the password “netcool”:

```
[root]# ncp_crypt -password netcool
ncp_crypt ( IBM Tivoli Network Manager Password Encryption/Decryption Tool )
Copyright (C) 1997 - 2010 By IBM Corporation. All Rights Reserved.
See product license for details.
```

```
IBM Tivoli Network Manager Version 3.9 (Build 97) created by ncpbuild
at 17:09:54 Fri Feb 8 GMT 2013
```

```
'@44:zfHgzc6m6XdWU2IPjE10n68/z9+gMwSGBGyj/15lwGE=@' netcool
```

- d. Add the `NCO_PAD_USER_PWD` keyword and cut and paste the encrypted string that the **ncp\_crypt** tool creates. For example:

```
NCO _PAD_USER_PWD='@44:zfHgzc6m6XdWU2IPjE10n68/z9+gMwSGBGyj/15lwGE=@'
```

**Note:** Make sure to include the single quotes.

- e. Save the changes to the `itnm.cfg` configuration file and then exit the file.
3. On the server where Tivoli Netcool/OMNIBus is installed, change to the `$NCHOME/precision/bin` directory.
4. Enter the following command:
- ```
UNIX itnm_start nco
```
- This command starts the Tivoli Netcool/OMNIBus components that were configured on this server during installation of Network Manager.

---

## Stopping Network Manager

You can stop Network Manager, Tivoli Netcool/OMNIBus, and the Tivoli Integrated Portal, together or separately, depending how they are installed.

### Stopping all components on the same server (UNIX only)

If they are installed on the same server, you can stop the Tivoli Integrated Portal, Tivoli Netcool/OMNIBus, and all Network Manager processes, using the **itnm\_stop** command.

On all supported operating systems except Windows, you can use the **itnm\_stop** script to stop the following components:

- The Network Manager domain process controller, the **ncp\_ctr1** process (which then stops all required processes)
- The Tivoli Integrated Portal
- Tivoli Netcool/OMNIBus

**Restriction:** The process control commands are not available on Windows operating systems because the various components are run as services within the Windows environment. On Windows, Network Manager components must be stopped from the Windows Services dialog.

To run the **itnm\_stop** command, complete the following steps.

1. If you have not already set up the UNIX environment, change to the `$NCHOME/precision/bin` directory.
2. Type the following command: `itnm_stop -domain NCOMS`  
This command stops all of the Network Manager components that are installed on the server, including the Tivoli Integrated Portal and Tivoli Netcool/OMNIBus, in the example domain NCOMS.

**Related reference:**

“itnm\_stop command-line options” on page 136

Use the **itnm\_stop** command, with optional advanced arguments, to stop Network Manager components.

## Stopping Network Manager processes using the command console

You can stop all the processes of Network Manager, not including the Tivoli Integrated Portal, by stopping the master process controller, the `ncp_ctrl` process.

If you stop Network Manager processes using the master process controller, you must stop Tivoli Netcool/OMNIBus and the Tivoli Integrated Portal separately.

To stop the `ncp_ctrl` process:

1. Select the console window where the `ncp_ctrl` process is running.
2. Press Ctrl+C.

The `ncp_ctrl` process stops, and also stops all its managed processes.

## Stopping Network Manager processes on Windows

You can stop all the processes of Network Manager, not including the Tivoli Integrated Portal, by stopping the master process controller, the `ncp_ctrl` process.

If you stop Network Manager processes using the master process controller, you must stop Tivoli Netcool/OMNIBus and the Tivoli Integrated Portal separately.

You can stop Network Manager processes in the following ways:

- If you want to stop Network Manager processes for the domain that was configured during installation, use the Start menu.
- If you want to stop Network Manager processes running as Windows services, use the services console.
- If you want to start Network Manager processes as processes, use the command console.

### Stopping only Network Manager processes using the Start menu

Additional items installed in the Windows Start Menu enable you to stop Network Manager by using the `ncp_ctrl` process.

These menu items only apply to the domain that was set up during installation. You can only stop the `ncp_ctrl` process using the Start menu if the `ncp_ctrl` process was started as a service.

To stop the `ncp_ctrl` process using the Start menu:

1. Click **Start > Programs**.
2. To stop the `ncp_ctrl` process, click **Stop ncp\_ctrl service - initial domain**.

## Stopping only Network Manager processes from the services console

You can stop Network Manager processes as services by stopping the master process controller, the **nbp\_ctrl** process.

To stop the **nbp\_ctrl** process, if it is running as a Windows service:

1. Click **Start > Control Panel > Administrative Tools > Services**.
2. Select **nbp\_ctrl for domain DOMAIN** from the **Services** list.
3. Select **Stop** from the **Action** menu.



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## Chapter 2. Administering processes

You can start, stop, and investigate individual Network Manager processes.

---

### About process control

You can check the status of Network Manager processes using the master process controller, the **ncp\_ctrl** process.

By default, the **ncp\_ctrl** process launches all the Network Manager processes in the appropriate order, in line with configured process dependencies. You can also use the **ncp\_ctrl** process to start individual Network Manager processes.

The **ncp\_ctrl** process is the only Network Manager component that can start another process. It is also used by other Network Manager processes that need to launch and manage their subprocesses.

The **ncp\_ctrl** process is the master process and must be run before all other processes. The **ncp\_ctrl** process launches and manages the appropriate processes when their dependencies have been satisfied.

### Processes and services on Windows

There are two different ways of running Network Manager processes on Windows: as a process or as a service.

When a process is run as a process from the console, it is run by the current user. If the user has restricted permissions, Network Manager might not function correctly. Use Windows Control Panel to check user permissions.

A service is the Windows equivalent of a background process on UNIX. When Network Manager is installed, the installer creates services for the domain set up as part of the installation process. It is possible to install, or remove, services for additional domains using the **ncp\_install\_services** command. You can also start or stop services manually.

The main benefit of running Network Manager processes as services is that an administrator can create domains and services that a standard user can start even if that user does not have adequate permissions to run the application from the command-line.

The main advantage of running processes from the console is that troubleshooting is easier if any problems occur.

When the **ncp\_ctrl** process starts a service, any parameters in the **%NCHOME%/etc/precision/CtrlServices.cfg** take precedence over default service parameters.

Windows services have no **STDOUT** or **STDERR**. Therefore they must always log to a file, even if a specific file has not been configured for them in the **CtrlServices.cfg** file. By default, Network Manager processes running as services create log files in **%NCHOME%\log\Precision**, so you must not delete this directory. If you specify a different log file in **CtrlServices.cfg** then that specified file is used

instead.

## Network Manager processes

Processes might be referred to in documentation by their executable name (which begins ncp\_) or by a descriptive name.

The following table describes the Network Manager processes.

Table 1. Network Manager processes

| Executable name | Descriptive name                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ncp_brokerd     | Really Small Message Broker daemon                    | Message broker daemon that launches the Really Small Message Broker. Communication between Network Manager core components is managed by Really Small Message Broker. ncp_brokerd starts automatically when any Network Manager process starts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ncp_class       | Active Object Class manager, CLASS                    | <p>Dynamic library management system responsible for managing the Active Object Classes (AOCs). It is the only component that has direct contact with the AOC definitions, and it distributes these definitions to any component that needs them.</p> <p>You can edit AOCs using a text editor. Restart the <b>ncp_class</b> process after changing AOC files. After ncp_class is restarted and running, restart the <b>ncp_model</b> process.</p> <p><b>Note:</b> Ensure that you make a backup of any original AOCs before you edit them. If you overwrite the original copy, the backup copy can be restored.</p>                                                                                                                                                      |
| ncp_config      | Network Manager GUI configuration file server, CONFIG | Configuration file server that provides a means for Network Manager GUIs to read from and write to schema files.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ncp_ctrl        | Master process controller, CTRL                       | Master process controller that launches all the Network Manager processes in the appropriate order, in line with configured process dependencies. You can also use the ncp_ctrl process to start individual Network Manager IP Edition processes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ncp_crypt       | Password encryption utility                           | Utility for manual encryption of passwords.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ncp_disco       | Discovery engine                                      | <p>Manages the process of discovering device existence and interconnectivity.</p> <p>The Helper Server process, ncp_d_helpserv, is a subprocess of the discovery engine, ncp_disco. Other subprocesses include the following finder processes, which are responsible for determining device existence:</p> <ul style="list-style-type: none"><li>• ncp_df_ping (Ping finder): Makes a simple ICMP echo request for broadcast or multicast addresses, individual IP addresses, or all devices on a subnet</li><li>• ncp_df_file (File finder): Parses a file, such as /etc/hosts, in order to find devices on the network</li><li>• ncp_df_collector (Collector finder): Retrieves a list of devices managed by Element Management Systems (EMSs) on the network</li></ul> |

Table 1. Network Manager processes (continued)

| Executable name      | Descriptive name                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ncp_dla              | Discovery Library Adapter                                    | Collects data on network resources and relationships from Network Manager for import into the Tivoli Change and Configuration Management Database (CCMDB).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ncp_d_helpserv       | Helper Server                                                | <p>Helpers retrieve information from the network during a discovery. The Helper Server manages the helpers and stores information retrieved from the network. Discovery agents retrieve their information through the Helper Server to reduce the load on the network. The Helper Server can service the requests directly with cached data or pass on the request to the appropriate helper.</p> <p>The Helper Server manages the following helpers:</p> <ul style="list-style-type: none"> <li>• ncp_dh_arp (ARP helper): Performs IP address to MAC address resolution</li> <li>• ncp_dh_dns (DNS helper): Performs IP address to device name resolution</li> <li>• ncp_dh_ping (Ping helper): Either pings each device in a subnet, an individual IP address or a broadcast or multicast address</li> <li>• ncp_dh_snmp (SNMP helper): Returns results of an SNMP request such as Get, GetNext and GetBulk</li> <li>• ncp_dh_telnet (Telnet helper): Returns results of a Telnet operation into a specified device</li> <li>• ncp_dh_xmlrpc (Collector helper): Provides communications facilities with EMS collectors using the XML-RPC interface</li> </ul> |
| ncp_g_event          | Event Gateway                                                | Provides a bidirectional interface between Network Manager and Tivoli Netcool/OMNIBus. The Event Gateway also forwards events to plug-ins that subscribe to specific types of event and perform further action or further event enrichment based on event data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ncp_install_services | Domain administration utility for Network Manager on Windows | <p>Use the Windows domain administration utility to install, or remove, services for additional domains when Network Manager is installed on a Windows system. You can also use this utility to start or stop services manually.</p> <p>A service is the Windows equivalent of a background process on UNIX. When Network Manager is installed on Windows, the installer creates services for the domain set up as part of the installation process.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ncp_mib              | MIB update administration utility                            | Use the MIB update administration utility to update your MIB data for use within the SNMP MIB Browser.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| ncp_model            | Topology manager                                             | Stores the topology data following a discovery and sends the topology data to the topology database (NCIM), where it can be queried using SQL. The topology visualization GUIs retrieve topology data from NCIM to display to network operators.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Table 1. Network Manager processes (continued)

| Executable name   | Descriptive name                 | Description                                                                                                                                                                                                                                          |
|-------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| nco_p_ncpmonitor  | Probe for Tivoli Netcool/OMNIbus | Enables events generated by the Network Manager polling to be sent to the Tivoli Netcool/OMNIbus ObjectServer. The nco_p_ncpmonitor process converts these events into ObjectServer format.                                                          |
| ncp_poller        | Polling engine                   | Controls network device polling.                                                                                                                                                                                                                     |
| ncp_oql           | OQL Service Provider             | Command-line interface that enables administrators to query and update data in Network Manager databases.                                                                                                                                            |
| ncp_trapmux       | SNMP trap multiplexer            | In most networks, traps arrive on a single default port. The SNMP trap multiplexer resolves this problem by listening to a single port and forwarding all the traps it receives to a set of host/socket pairs.                                       |
| ncp_virtualdomain | Virtual Domain                   | Virtual Domain is used when running Network Manager with failover. Any connection to this virtual domain is routed to the Network Manager server that is running as the primary server in the failover architecture.                                 |
| ncp_webtool       | Webtools                         | Provides for the hosting of WebTools on the backend server so that they can be accessed in distributed environments where Topoviz is running on a different server to the Network Manager backend processes and there is a firewall between the two. |

## Managed and unmanaged processes

The ncp\_ctrl process starts two types of process: managed and unmanaged processes.

- *Managed processes* are processes for which the ncp\_ctrl process is fully responsible. The ncp\_ctrl process not only starts and stops these processes, but also keeps track of their activities and restarts them if they die.
- *Unmanaged processes* are processes that the ncp\_ctrl process is only responsible for starting or stopping. The ncp\_ctrl process is not responsible for tracking unmanaged processes and makes no attempt to restart these processes if they die.

Although it is entirely up to you to determine which processes are managed and which are unmanaged, it is best practice to ensure that the core Network Manager processes (that is, those responsible for discovery, monitoring, root cause analysis, and topology data) are handled as managed processes. Only processes such as scripts should be launched as unmanaged processes.

## About Network Manager domains

A domain is a set of Network Manager processes that work together in a single group. Each domain has a unique name.

Running multiple domains enables you to discover, visualize and monitor multiple network topologies. Multiple Network Manager processes can run independently of each other on the same server if they belong to different domains.

Dividing your network into domains allows you to discover your network in sections. You might want to do this for reasons of scalability: your network might

be too big to be discovered in one piece. Alternatively, you might want to break the network into geographical regions, and make each region correspond to a domain.

By default, Network Manager runs on a single domain.

The domain in which a component runs is determined by the command-line argument `-domain`, which is compulsory for all components, with the exception of the `ncp_mib` process, which manages the importing of MIBs across all domains using the same Netcool Common Inventory Model (NCIM) database.

Configuration files that are specific to a particular domain have the domain name appended to the file name. For example, the configuration file for the `ncp_ctrl` process running in domain `NCOMS` would be `CtrlServices.NCOMS.cfg`

**Restriction:** Use only alphanumeric characters and underscores (`_`) in domain names. All other characters, for example hyphens (`-`), are not permitted.

## Domain-specific configuration files

If you are running processes in more than one domain, configuration changes should be saved in configuration files with your domain name appended to the filename.

For example, the configuration file for the `ncp_ctrl` process in the domain `NCOMS` is called `CtrlServices.NCOMS.cfg`.

Although in practice there are some files that you are unlikely to need to alter, in principle all of the following types of files can be made domain-specific:

- Configuration files, that is, all files ending in `.cfg`
- Discovery agent files, that is, all files ending in `.agnt`
- Active Object Class files, that is, all files ending in `.aoc`
- Text-based stitcher files, that is, all files in a `stitchers` directory ending in `.stch`

In the Network Manager documentation, these files are referred to using their default names unless noted otherwise.

---

## Checking process status

You can check the status of IBM Tivoli Netcool/OMNIBus, the Tivoli Integrated Portal, and individual Network Manager processes.

### Checking process status by running the `itnm_status` command

On UNIX operating systems, you can check the status of IBM Tivoli Netcool/OMNIBus, the Tivoli Integrated Portal, and Network Manager by using the `itnm_status` command." steps.

To check the status of all Network Manager components on the current server:

1. Change to the `$NCHOME/precision/bin` directory.
2. Type the following command: `itnm_status`

This command displays the status of all of the Network Manager components that are installed on the server.

## Monitoring process status messages

You can view status messages from Network Manager to understand the health and status of the product.

The Network Manager processes send messages to IBM Tivoli Netcool/OMNIBus when they start and stop. You can view these messages to see which processes have started and stopped, and to see failover status.

To view process status messages, complete the following tasks.

1. Add an Active Event List (AEL) portlet to a page.
2. Apply a filter to the AEL so that only events with an Alert Group of ITNM Status are displayed.

## Checking process status by querying ncp\_ctrl databases

On all operating systems, you can check the status of individual Network Manager processes by querying the databases of the **ncp\_ctrl** process.

The **ncp\_ctrl** process must also be running for the domain that you want to interrogate.

### Identifying which Network Manager processes are running

To identify the processes that were started by the **ncp\_ctrl** process and that are currently running, issue a query to the services.inTray database table.

To identify which processes are running:

1. Log in to the Ctrl service using either the OQL Service Provider or the Management Database Access page:
  - Start the OQL Service Provider by typing a command similar to the following:  
`ncp_oql -domain NCOMS -service Ctrl`  
where *NCOMS* is the domain name. If authentication has been configured for the OQL Service Provider, enter your username and password.
  - Log in to the Management Database Access page and select the Ctrl service.
2. Issue the following command:  

```
select serviceName, binaryName, domainName, processId
from services.inTray
where serviceState = 4 ;
go
```

The following example output shows that four processes were started by the **ncp\_ctrl** process and are currently running:

```
.....
{
    serviceName='ncp_store';
    binaryName='ncp_store';
    domainName='NCOMS';
    processId=7220;
}
{
    serviceName='ncp_model';
    binaryName='ncp_model';
    domainName='NCOMS';
    processId=7222;
}
{
    serviceName='ncp_disco';
```

```

        binaryName='ncp_disco';
        domainName='NCOMS';
        processId=7223;
    }
    {
        serviceName='ncp_poller(default)';
        binaryName='ncp_poller';
        domainName='NCOMS';
        processId=7223;
    }
( 4 record(s) : Transaction complete )

```

## Identifying which processes are started automatically

To identify which processes are started automatically by the **ncp\_ctrl** process, issue a query to the **services.inTray** database table.

To identify which processes are started automatically:

1. Log in to the Ctrl service using either the OQL Service Provider or the Management Database Access page:
  - Start the OQL Service Provider by typing a command similar to the following:
 

```
ncp_oql -domain NCOMS -service Ctrl -username admin
```

 where *NCOMS* and *admin* are your domain name and username.
  - Log in to the Management Database Access page and select the Ctrl service.
2. Issue the following command:
 

```
select * from services.inTray;
go
```

The following example output shows processes configured to be started by the **ncp\_ctrl** process:

```

{
    serviceName='ncp_disco';
    binaryName='ncp_disco';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin';
    domainName='NCOMS';
    argList=['-domain','$PRECISION_DOMAIN','-discoOnStartup',
            '0','-latency','100000','-debug','0','-messagelevel',
            'warn'];
    dependsOn=['ncp_d_helpserv','ncp_model'];
    retryCount=5;
    serviceId=4;
    traceLevel=0;
    logLevel='warn';
    serviceKey='ncp_disco_NCOMS';
    serviceState=4;
    interval=10;
    processId=2622;
}
.....
.....
{
    serviceName='ncp_model';
    binaryName='ncp_model';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin';
    domainName='NCOMS';
    argList=['-domain','$PRECISION_DOMAIN','-latency','100000',
            '-debug','0','-messagelevel','warn'];
    dependsOn=['ncp_config','ncp_store','ncp_class'];
    retryCount=5;
    serviceId=3;
    traceLevel=0;
}

```

```

        logLevel='warn';
        serviceKey='ncp_model_NCOMS';
        serviceState=4;
        interval=10;
        processId=2542;
    }

```

## Identifying unmanaged processes

To identify which processes are started but not managed by the **ncp\_ctrl** process, issue a query to the **services.unManaged** database.

Insertions into the **services.unManaged** table are made by other Network Manager components in order to start and stop their subprocesses; for example, the **ncp\_disco** process uses the **ncp\_ctrl** process to start the finders.

To identify unmanaged processes:

1. Log in to the Ctrl service using either the OQL Service Provider or the OQL Workbench:
  - Start the OQL Service Provider by typing a command similar to the following:  
`ncp_oql -domain NCOMS -service Ctrl -username admin`  
 where *NCOMS* and *admin* are your domain name and username.
  - Log in to the OQL Workbench and select the Ctrl service.
2. Issue the following command:  

```
select * from services.unManaged;
go
```

The following example output shows that two unmanaged processes have been started by the **ncp\_ctrl** process:

```

{
    serviceName='ncp_df_ping';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
    argList=['-domain','LNX39024','-server','ncp_disco.2622'];
    binaryName='ncp_df_ping';
    serviceId=14;
    logLevel='warn';
    traceLevel=0;
    domainName='NCOMS';
    processId=2695;
}
{
    serviceName='ncp_dh_snmp';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
    argList=['-domain','LNX39024'];
    binaryName='ncp_dh_snmp';
    serviceId=19;
    logLevel='warn';
    traceLevel=0;
    domainName='NCOMS';
    processId=4254;
}
( 2 record(s) : Transaction complete )

```



---

## Managing process dependencies

A process cannot start until the processes on which it depends have started. Incorrectly-configured process dependencies can result in problems starting processes.

### Listing process dependencies

You can issue a query to the services.inTray database to identify which processes have dependencies on other processes.

To identify process dependencies:

1. Log into the process control databases.
2. Issue the following command:

```
select serviceName, dependsOn
from services.inTray;
go
```
3. The following example output shows that **ncp\_class** and **ncp\_store** have no dependencies, and that **ncp\_model** is dependent on **ncp\_class** and **ncp\_store**:

```
.....
{
    serviceName='ncp_class';
    dependsOn=[];
}
{
    serviceName='ncp_store';
    dependsOn=[];
}
.....
.....
{
    serviceName='ncp_model';
    dependsOn=['ncp_class', 'ncp_store'];
}
( 4record(s) : Transaction complete )
```

### Identifying dependencies for a particular process

To identify the dependencies for a particular process, issue a query to the services.inTray database.

To identify process dependencies for a particular process:

1. Log into the process control databases.
2. Issue the following command:

```
select serviceName, dependsOn
from services.inTray
where serviceName='SERVICE';
go
```

Where *PROCESS* is the name of the process for which you want to query the dependencies; for example, **ncp\_disco**.

The following example output shows that **ncp\_model** is dependent on **ncp\_class** and **ncp\_store**:

```
{
    serviceName='ncp_model';
    dependsOn=['ncp_class', 'ncp_store'];
}
( 1record(s) : Transaction complete )
```

## Configuring process dependencies

To configure process dependencies, edit the `$NCHOME/etc/precision/CtrlServices.cfg` configuration file.

The process dependencies defined in the `CtrlServices.cfg` configuration file specify the order in which the **ncp\_ctrl** process starts the processes.

To configure process dependencies:

1. Back up and edit the `CtrlServicesDOMAIN.cfg` configuration file for your domain, where *DOMAIN* is the name of your domain.
2. Locate the entry for the process whose dependencies you want to configure by looking for the following line in the file:  
`serviceName='process_name';`  
where *process\_name* is the name of the process.
3. Change the dependencies of the process by adding or removing process names to the following line, directly underneath the previous line:  
`dependsOn=['process_name', 'process_name2'];`
4. Save the **CtrlServices.cfg** configuration file.
5. Restart the master process controller, the **ncp\_ctrl** process, for your changes to take effect.

## List of process dependencies

The Network Manager processes must be started in the correct order.

The process dependencies are shown in the following table:

*Table 2. Dependencies of the Network Manager processes*

| Process                        | Dependencies                                           |
|--------------------------------|--------------------------------------------------------|
| <code>ncp_class</code>         | No dependency                                          |
| <code>ncp_config</code>        | No dependency                                          |
| <code>ncp_ctrl</code>          | No dependency                                          |
| <code>ncp_disco</code>         | <b>ncp_d_helpserv, ncp_model</b>                       |
| <code>ncp_d_helpserv</code>    | No dependency                                          |
| <code>ncp_g_event</code>       | <b>ncp_model</b> , Tivoli Netcool/OMNIBus ObjectServer |
| <code>ncp_model</code>         | <b>ncp_config, ncp_class, ncp_store</b>                |
| <code>ncp_poller</code>        | <b>ncp_g_event, nco_p_ncpmonitor</b>                   |
| <code>ncp_oql</code>           | The component you want to interrogate                  |
| <code>nco_p_ncpmonitor</code>  | Netcool/OMNIBus ObjectServer                           |
| <code>ncp_trapmux</code>       | No dependency                                          |
| <code>ncp_store</code>         | No dependency                                          |
| <code>ncp_virtualdomain</code> | <b>ncp_g_event, ncp_poller</b>                         |
| <code>ncp_webtool</code>       | No dependency                                          |

## Process control configuration files

Use the following configuration files to configure the `ncp_ctrl` process.

- `$NCHOME/etc/precision/CtrlSchema.cfg` contains the definitions for the databases of the `ncp_ctrl` process. You should not need to edit this file.
- `$NCHOME/etc/precision/CtrlServices.cfg` contains any necessary inserts into the databases of the `ncp_ctrl` process to tell the `ncp_ctrl` process which processes to start and in what order.

In order to configure the `ncp_ctrl` process to launch and manage the appropriate processes, you must append OQL inserts to the configuration file for the `ncp_ctrl` process, `$NCHOME/etc/precision/CtrlServices.cfg`.

---

## Starting and stopping processes

You can start and stop individual processes manually or automatically.

### Configuring which processes are started automatically

You can configure which processes are started automatically by the `ncp_ctrl` process by editing the `$NCHOME/etc/precision/CtrlServices.cfg` file.

Your changes will persist if the `ncp_ctrl` process is stopped and restarted.

You may only want to use a subset of the Network Manager functionality. For example, you might want to use Network Manager to discover your network and visualize the topology only. In this case you can configure the `ncp_ctrl` process so that it does not start the processes that monitor the network and perform root-cause analysis on network events.

To configure which processes are started automatically, perform the following steps:

1. Back up your `$NCHOME/etc/precision/CtrlServices.cfg` file.
2. Save a copy of the `CtrlServices.cfg` file with your domain name appended to the filename, for example, `CtrlServices.MASTER.cfg`.
3. Edit the `CtrlServices.MASTER.cfg` file. For example, if you want to discover your network and visualize the topology only, you must delete or comment out the entries for the Event Gateway, `ncp_poller`, and `nco_p_ncpmonitor` processes from the `CtrlServices.MASTER.cfg` file.
4. Start the `ncp_ctrl` process in the domain MASTER.

The `ncp_ctrl` process now starts the limited set of processes in the domain MASTER in the order you specified.

### Sample: Starting Network Manager with discovery and visualization functionality only

This sample shows you how to configure the master process controller to start only the processes that perform and support network discovery and visualization.

To ensure that monitoring and event management processes are not started on the current server, you must remove insert statements related to the `ncp_g_event`, `ncp_poller` and `ncp_virtualdomain` processes from the `CtrlServices.DOMAIN.cfg` file.

**Note:** The probe for Tivoli Netcool/OMNIBus, `nco_p_ncpmonitor`, should be left in the `CtrlServices.DOMAIN.cfg` file, as it will still be used to pass Network Manager status events to the `ObjectServer`.

For the `ncp_g_event` process, the lines to be removed look similar to the following lines:

```
insert into services.inTray
(
    serviceName,
    binaryName,
    servicePath,
    domainName,
    argList,
    dependsOn,
    retryCount
)
values
(
    "ncp_g_event",
    "ncp_g_event",
    "$NCHOME/precision/platform/$PLATFORM/bin",
    "DOMAIN",
    [ "-domain" , "DOMAIN", "-latency", "60000" , "-debug", "0", "-messagelevel",
    "warn" ],
    [ "ncp_model" ],
    5
);
```

## Starting managed processes

You can start a process as a managed process by making an OQL insert into the `services.inTray` table.

Your changes will be lost if the `ncp_ctrl` process is stopped and restarted.

To start a managed process:

1. Ensure that the `ncp_ctrl` process is running.
2. Log into the process control databases.
3. Issue a command similar to the following:

```
insert into services.inTray
(
    serviceName,
    binaryName,
    servicePath,
    domainName,
    hostName,
    argList,
    dependsOn,
    retryCount,
    logFile
)
values
(
    "ncp_disco",
    "ncp_disco",
    "$NCHOME/precision/platform/$PLATFORM/bin",
    "NCOMS",
    "Felix",
    [ "-domain", "NCOMS", "-debug", "4" ],
    [ "ncp_d_helpserv" ],
    3,
    "$NCHOME/log/precision/disco.log"
);
```

4. The above insert starts **ncp\_disco** as a managed process in the NCOMS domain on the host Felix with the arguments "-domain NCOMS" and "-debug 4", with a dependency on the Helper Server. The **ncp\_disco** process will be restarted three times if it stops.

## Starting unmanaged processes

You can start a process as an unmanaged process by making an OQL insert into the `services.inTray` table.

Your changes will be lost if the **ncp\_ctrl** process is stopped and restarted.

To start an unmanaged process:

1. Ensure that the **ncp\_ctrl** process is running.
2. Log into the process control databases.
3. Issue a command similar to the following:

```
insert into services.unmanaged
(
    serviceName, servicePath, argList
)
values
(
    "user_script",
    "/opt/netcool/precision/solaris2/scripts/",
    [ ]
);
```

The above insert starts a script called `user_script`, located in the `$NCHOME/precision/scripts` directory.

## Stopping processes

You can stop a managed process that is running by deleting the record in the `services.inTray` table.

If you delete the record from the `services.inTray` table, the process is not restarted until the **ncp\_ctrl** process is restarted.

To stop a managed process:

1. Ensure that the **ncp\_ctrl** process is running.
2. Log into the process control databases.
3. Issue a command similar to the following:

```
delete from services.inTray
where serviceName = 'ncp_model' ;
go
```

The previous command stops the **ncp\_model** process.

---

## Managing Network Manager services on Windows

You can manage Network Manager processes in the same way on Windows as you can on UNIX operating systems. Additionally, on Windows you have the option of running processes as services.

### Starting a service

You can start a process as a service on Windows using the Services console.

To start a Network Manager process running as a Windows service:

1. Click **Start > Control Panel > Administrative Tools > Services**.
2. Select the process that you want to start from the **Services** list.
3. Select **Start** from the **Action** menu.

### Stopping a service

You can stop a process as a service on Windows using the Services console.

To stop a Network Manager process running as a Windows service:

1. Click **Start > Control Panel > Administrative Tools > Services**.
2. Select the process that you want to stop from the **Services** list.
3. Select **Stop** from the **Action** menu.

### Configuring Network Manager to start automatically

You can configure Network Manager processes to start automatically each time the server is restarted by configuring the **ncp\_ctrl** process to start automatically.

To configure the **ncp\_ctrl** process to start automatically:

1. Click **Start > Control Panel > Administrative Tools > Services**.
2. Select **ncp\_ctrl for domain DOMAIN** from the Services list.
3. Select **Properties** from the **Action** menu.
4. Select the **General** tab.
5. Change the startup type to **Automatic**.
6. Leave all other Network Manager services as manual startups.

The **ncp\_ctrl** process will start these Network Manager services when they are required.

### Removing services

#### Windows

You can remove all services for a specified network domain.

To remove all services for a domain:

1. Stop the **ncp\_ctrl** process. This prevents services being restarted.
2. Stop all services.
3. Run the following command:

```
ncp_install_services -domain DOMAIN -remove
```

Where *DOMAIN* is the domain for which you want to remove the services.

## Changing the user that runs all Network Manager services

You can install all services for a domain to run as a specific user.

To install all services to run as a specific user:

1. From the command line, type the following command:  
`ncp_install_services -domain MASTER -username "IBM\admin"`
2. Type in the password for the admin user.

Services in the domain *MASTER* now run as user admin as opposed to the default LocalSystem.

## Running services as a specific user

### Windows

You can define the user that a specific service runs as.

When a process is run as a service, it is run by the user configured to run that service, regardless of which user starts it. The default user for services is LocalSystem; in Task Manager, LocalSystem is displayed as SYSTEM.

To define the user that a specific service runs as:

1. Click **Start > Control Panel > Administrative Tools > Services**.
2. Select the service that you want to configure.
3. Click **ActionProperties**.
4. Click **Log On**.
5. Select **This account**.
6. Enter the details of the user account.

## Configuration file differences between Windows and UNIX

You can copy Network Manager configuration files between Windows and UNIX.

The files might lose some formatting when viewed in a text editor due to the different formats for line breaks in text files on Windows and UNIX systems. However, Network Manager is able to read them. When UNIX configuration files are used on Windows, Notepad will not show any line breaks. Wordpad will display UNIX text files correctly, so it is the best application to view configuration files copied from UNIX operating systems. When a Windows configuration file is used on UNIX, vi will show ^M at the end of each line. This is a cosmetic issue and does not affect usability of the file by Network Manager.

---

## Running processes remotely

If you want Network Manager processes on one server to be managed by `ncp_ctrl` on another server, you must configure both instances of `ncp_ctrl`.

1. Install Network Manager on both servers.
2. Configure Really Small Message Broker to allow communication between the master server and slave server.
3. On the master server, configure the `CtrlServices.DOMAIN.cfg` file.
  - a. Back up and edit the `CtrlServices.DOMAIN.cfg` file.

- b. For each process that you want to run on the remote server, set the **hostName** parameter to the host name of the remote server. Make sure the host name is the name as defined on the remote server.

The following example configures the **ncp\_store** process to run on the remote server called example.com in domain TARA.

```
insert into services.inTray
(
    serviceName,
    binaryName,
    servicePath,
    domainName,
    hostName,
    argList,
    retryCount
)
values
(
    "ncp_store",
    "ncp_store",
    "/opt/IBM/Tivoli/netcool/precision/platform/linux2x86/bin",
    "TARA",
    "example.com",
    [ "-domain" , "<DOMAIN>" , "-latency" , "100000" , "-debug" , "0" ],
    5
);
```

4. On the remote server, ensure that the `CtrlServices.DOMAIN.cfg` file is empty of content. Then, start the **ncp\_ctrl** process on the remote server in slave mode. The following example starts the **ncp\_ctrl** process in slave mode in the TARA domain .

```
ncp_ctrl -domain TARA -slave
```

5. Start the **ncp\_ctrl** process on the local server in master mode using the normal command line options. The following example starts the **ncp\_ctrl** process in master mode domain TARA.

```
ncp_ctrl -domain TARA
```

The processes that you configured to be run on the slave server are started, and controlled by the **ncp\_ctrl** process on the master server. The **ncp\_ctrl** process on the master server also starts and controls any processes that it is configured to manage on the master server.



---

## Chapter 3. Administering logs

Network Manager provides logging capabilities for its GUI components and back-end processes. You can set up logging for Network Manager to produce log or trace files that can be used for troubleshooting purposes.

### Related tasks:

“Troubleshooting Network Manager” on page 121

Consult these troubleshooting notes to help determine the cause of the problem and what to do about it.

---

## Setting up logging for GUI

You can set up Network Manager to create log or trace files that can be used for troubleshooting GUI issues. You can also adjust the logging level for each component, and the maximum size and number of the log files the systems saves.

### GUI component log file overview

Log messages produced by Network Manager GUI components are written to log and trace files.

- Log files provide log information in a standard format that is compatible with IBM's Common Base Event (CBE) format. Messages in CBE format can be used in the IBM Support Assistant Log Analyzer for offline analysis.

**Note:** The IBM Support Assistant Log Analyzer is not shipped as part of IBM Tivoli Network Manager IP Edition. You must download and install it separately.

- Trace files capture all messages a log file contains and also additional technical details of operation. Trace files are intended to aid enhanced problem resolution, and are useful to provide to your IBM support contact when requested.

### Log message format

GUI log messages are recorded in text format as follows:

```
[<date>T<time>]:<severity>:<message_code_id>:[<thread_id>]:<message>
```

For example:

```
[2010-09-02T04:50:57]:INFO:HNMOB0001I:[Deferrable Alarm : 0]:Initialising  
Discovery GUI Server
```

### Date and time

The date and time is in ISO 8601 format.

### Severity

The following severity levels are available:

- CONFIG:  
Logs all events up to and including configuration changes.
- INFO:  
Logs only system state changes. This is the default setting.
- WARNING:  
Logs recoverable system errors.

- **SEVERE:**  
Logs unrecoverable system errors.

### Message code ID

The message code provides more information on what component of the system the message originates from.

*Table 3. Message code IDs*

| Message code ID     | GUI component                                                                               |
|---------------------|---------------------------------------------------------------------------------------------|
| HNM T <i>letter</i> | Topology visualization components:                                                          |
| HNM T A             | Topology client                                                                             |
| HNM T B             | Topology server                                                                             |
| HNM T C             | Topology common                                                                             |
| HNM N <i>letter</i> | MIB GUI components:                                                                         |
| HNM N A             | MIB browser                                                                                 |
| HNM N B             | MIB grapher                                                                                 |
| HNM O <i>letter</i> | Discovery GUI components:                                                                   |
| HNM O A             | Discovery configuration GUI                                                                 |
| HNM O B             | Management Database (formerly called OQL Workbench)                                         |
| HNM P <i>letter</i> | Network polling GUI components:                                                             |
| HNM P A             | Network polling configuration (poll policies and definitions)                               |
| HNM S <i>letter</i> | Structure view components:                                                                  |
| HNM S A             | Structure browser                                                                           |
| HNM X <i>letter</i> | Common GUI components:                                                                      |
| HNM X A             | OQL interface                                                                               |
| HNM X B             | Others, including: Tools, Filter Builder, Portlets, Entity Search, Expressions, Tree table. |
| HNM Z <i>letter</i> | External product interfaces:                                                                |
| HNM Z A             | Tivoli Netcool/OMNIbus Web GUI                                                              |

### Thread ID

The thread ID indicates the task associated with the function the message originates from.

### Message

The log message itself that provides a description of the event being logged.

### Trace message format

Trace messages provide more granular details about operation in the following format:

```
<date> <component_id>\n
<severity>: <message>
```

For example:

```
Aug 24, 2010 3:34:30 AM com.micromuse.precision.disco.server.DiscoConfigLogger
FINE: Received unknown request from the network
```

Trace logs do not provide standardized message format as they are for more enhanced troubleshooting purposes. The severity levels available for trace messages are as follows:

- FINE:  
Minimum level of tracing. The majority of stack traces appear at this level already and are written to the trace file. The trace file also includes all log messages.
- FINER:  
Medium level of tracing that provides more detailed debug messages.
- FINEST:  
Maximum level of tracing that produces very detailed technical information.

#### Related tasks:

“Changing the logging level for GUIs” on page 28

You can set the level of detail log files contain for GUI components as whole, or specify logging levels on a more granular basis for specific GUI application segments.

## Locating GUI log files

All log files generated for GUI components are saved to the ITNMHOME/profiles/TIPProfile/logs/tnm directory.

The default name of the log or trace file is `ncp_component_name.number.log` or `ncp_component_name.number.trace`, respectively.

To locate a log file for a component:

1. Go to ITNMHOME/profiles/TIPProfile/logs/tnm.
2. Locate the log and trace files that correspond to the GUI component you want to check the log messages for and open the file.

Table 4. GUI component log file mapping

| GUI component               | Logging properties set in file | .log and .trace file name                            |
|-----------------------------|--------------------------------|------------------------------------------------------|
| Discovery status GUI        | discoconfig.properties         | ncp_disco.0.log<br>ncp_disco.0.trace                 |
| Discovery configuration GUI | discoconfig.properties         | ncp_guiconfig.0.log<br>ncp_guiconfig.0.trace         |
| Structure browser           | structurebrowser.properties    | ncp_structureview.0.log<br>ncp_structureview.0.trace |
| Topology visualization GUI  | topoviz.properties             | ncp_topoviz.0.log<br>ncp_topoviz.0.trace             |
| MIB graphing<br>MIB Browser | itnmgraph.properties           | ncp_mib.0.log<br>ncp_mib.0.trace                     |

Table 4. GUI component log file mapping (continued)

| GUI component                                                     | Logging properties set in file                                                                                                                                                                                                                                                                                           | .log and .trace file name                    |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Network polling configuration (poll policies and definitions)     | monitorconfig.properties                                                                                                                                                                                                                                                                                                 | ncp_monitor.0.log<br>ncp_monitor.0.trace     |
| General settings including database properties for GUI components | tnm.properties<br><br><b>Note:</b> This is not to be confused with the log file of the same name located at ITNMHOME/platform/java/lib/ncp_topoviz/etc/tnm/tnm.properties. The latter file is used by the Polling engine, ncp_poller, to trigger updates to network views, so that poll policy scope is kept up-to-date. | ncp_guiconfig.0.log<br>ncp_guiconfig.0.trace |
| Management database (formerly called OQL Workbench)               | nmdb.properties                                                                                                                                                                                                                                                                                                          | ncp_nmdb.0.log<br>ncp_nmdb.0.trace           |

**Note:** Once the log file reaches the specified maximum size limit, it is renamed and a new file is created. The first log file is named `ncp_component_name.0.log`, and the most recent log messages are always in this file. Previous log files are saved with the number increased (for example `ncp_nmdb.1.log`, `ncp_nmdb.2.log`, and so on).

## Changing the logging level for GUIs

You can set the level of detail log files contain for GUI components as whole, or specify logging levels on a more granular basis for specific GUI application segments.

### Setting logging level for GUI components

You can set the amount of information log files capture for each GUI component. The changes can be made before system startup or during operation. The changes are persistent, and are not affected by system restarts.

To set the logging behavior, you need to modify the corresponding configuration file.

1. Go to `ITNMHOME/profiles/TIPProfile/etc/tnm`.
2. Open the `.properties` file of the GUI component you want to set the logging level for:

| Option                             | Description                                                       |
|------------------------------------|-------------------------------------------------------------------|
| <b>discoconfig.properties</b>      | Discovery configuration GUI                                       |
| <b>structurebrowser.properties</b> | Structure browser                                                 |
| <b>topoviz.properties</b>          | Topology visualization GUI                                        |
| <b>itmgraph.properties</b>         | MIB graphing<br>MIB Browser                                       |
| <b>monitorconfig.properties</b>    | Network polling configuration (poll policies and definitions)     |
| <b>tnm.properties</b>              | General settings including database properties for GUI components |

| Option                 | Description                                         |
|------------------------|-----------------------------------------------------|
| <b>nmdb.properties</b> | Management database (formerly called OQL Workbench) |

3. Edit the line `name.log.level` to set the message level:

| Option         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CONFIG</b>  | Logs all events up to and including configuration changes.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>INFO</b>    | Logs only system state changes. This is the default setting.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>WARNING</b> | Logs recoverable system errors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>SEVERE</b>  | Logs unrecoverable system errors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>FINE</b>    | Minimum level of tracing. The majority of stack traces appear at this level already and are written to the trace file. The trace file also includes all log messages.<br><b>Note:</b> When setting the logging level to FINE, FINER, FINEST, or ALL, both log files and trace files will contain information, and the trace files will include all messages from the log files in addition to the more technical details of operation. If any other logging level is set, the trace files remain empty. |
| <b>FINER</b>   | Medium level of tracing that provides more detailed debug messages.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>FINEST</b>  | Maximum level of tracing that produces very detailed technical information.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>ALL</b>     | Enables logging and tracing on all levels for the application.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>OFF</b>     | Disables all logging and tracing for the application.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

4. Save and close the `.properties` file.

**Note:** The changes take effect immediately if they are made before starting Network Manager. If the changes are made when the system is already running, Network Manager reads the configuration files every 60 seconds and applies any changes immediately.

The following example shows the section of the `structurebrowser.properties` file that determines logging level:

```
structurebrowser.log.filename=ncp_structureview.%g.log
structurebrowser.log.level=INFO
structurebrowser.log.maxsize=10
structurebrowser.log.count=1

structurebrowser.trace.filename=ncp_structureview.%g.trace
structurebrowser.trace.maxsize=10
structurebrowser.trace.count=1
```

The settings here show the default **INFO** setting for the log files. This means log files are populated with information about system state changes, and trace files remain empty.

To change the logging level to have all log messages and enable trace messages, change **INFO** to at least **FINE** (or **FINER**, or **FINEST**, depending on the level of detail you require in the trace files). This will mean both log files and trace files will contain information. The following example reflects this change:

```
structurebrowser.log.filename=ncp_structureview.%g.log
structurebrowser.log.level=FINE
structurebrowser.log.maxsize=10
structurebrowser.log.count=1

structurebrowser.trace.filename=ncp_structureview.%g.trace
structurebrowser.trace.maxsize=10
structurebrowser.trace.count=1
```

## Setting logging level for application segments

When a specific area requires enhanced troubleshooting, you can enable logging for GUI application segments.

Contact IBM support to identify which application segments require logging to be set for problem determination.

**Note:** These changes are not persistent. If the system is restarted, all log settings for specific GUI application segments are removed. Logging levels set for the whole GUI component are not affected.

1. In the navigation pane, click **Settings > Websphere Administrative Console**.
2. Click **Launch WebSphere administrative console** to start the WebSphere® Application Server console.
3. In the administrative console, click **Troubleshooting > Logs and Trace**.
4. In the list, click the name of the server Network Manager is running on.
5. Click **Change Log Detail Levels** and then the **Runtime** tab.
6. Locate the specific application segment name by scrolling down the list and expanding any item as necessary.
7. Click the segment name and select the required logging level from the drop-down menu. Logging and trace level options are the same as for the GUI components.

**Note:** By default, whatever is set in the GUI component .properties file is the default log and trace level for all relevant segments of that GUI component.

8. View the corresponding GUI component log file to check the messages logged for the segment. For example view the ncp\_disco.0.log or ncp\_disco.0.trace files for discovery GUI segments.

### Related tasks:

“Locating GUI log files” on page 27

All log files generated for GUI components are saved to the ITNMHOME/profiles/TIPProfile/logs/tnm directory.

## Setting the log file size

You can set how large a log file can grow in MB, and determine the number of log files the systems keeps.

Follow these steps to set the maximum size of your log files in MB. After the file reaches the maximum size, it is renamed and a new file is created. You can also set the number of files to be stored after the size limit is reached.

1. Go to `ITNMHOME/profiles/TIPProfile/etc/tnm` and open the `.properties` file of the GUI component you want to set the log size for.
2. In the properties file, perform the following steps:
  - a. Locate the `component_name.log.maxsize` line and set the maximum size a log file can reach in MB. For example, `nmdb.log.maxsize=20` means the maximum allowed size of the Management Database log file is 20 MB. The default setting is 10 MB.
  - b. Locate the `component_name.log.count` line and set the maximum number of files to be stored. For example, `nmdb.log.count=2` means the 2 latest log files will be kept apart from the one being written to at the moment. The default setting is 1, meaning the current and 1 previous file are saved only.

**Note:** Once the log file reaches the specified maximum size limit, it is renamed and a new file is created. The first log file is named `ncp_component_name.0.log`, and the most recent log messages are always in this file. Previous log files are saved with the number increased (for example `ncp_nmdb.1.log`, `ncp_nmdb.2.log`, and so on).

3. Perform the same steps for the trace files by locating and editing the `component_name.trace.maxsize` and `component_name.trace.count` lines.
4. Save the `.properties` file.

---

## Setting up logging for processes

You can troubleshoot processes by looking in the log files for information. You can set up Network Manager to record log or trace files for processes. You can also set the debug level for processes.

## Process log file overview

Network Manager can create log and trace files for its processes.

Log files provide information about important process events, such as changes in state, warnings, or errors, in a standard format that is compatible with IBM's Common Base Event (CBE) format. Log files help administrators to monitor their systems and are useful to provide to your IBM Support contact when requested.

Trace files capture low-level system output and technical details. They are intended to aid enhanced problem resolution, and are useful to provide to your IBM Support contact when requested.

Log files can be identified by their `.log` suffix, and have the following characteristics:

- Log messages have timestamps.
- Log messages are graded by level, such as error, warn, info, and debug.
- Log messages are formatted to be compatible with IBM's Common Base Event format.

- Log files can be deleted and recreated to enable log file rotation.

Trace files can be identified by their .trace suffix. They can capture different levels of detail, referred to as debug levels. Debug level 4 is the most verbose. Trace files set to the higher debug levels can quickly consume disk space, and therefore should be used only when very detailed information is required to solve a problem.

## Locating log files for a process

Locate log files for a process to obtain information that might be helpful in troubleshooting the process.

The default name of the log file is the process name followed by the domain name and then the .log or .trace file extension.

To locate a log file for a process:

1. Navigate to the default location for process log and trace files, \$NCHOME/log/precision.
2. Locate the log and trace files that correspond to the process name. For example, an instance of the ncp\_disco process running on the NCOMS domain generates the following files:

```
ncp_disco.DOMAIN.log
ncp_disco.DOMAIN.trace
```

## Changing the logging level for processes

Change the logging level of a process before you start the process or while the process is running.

### Changing the logging level before starting a process

Change the value of the relevant command-line argument in the configuration file to change the logging level that a process will use when it is started or restarted.

The -debug and -logdir command-line arguments are used for trace information and the -messagelevel and -messagelog command-line arguments are used for log information.

The default message level is warn, which means by default the log files do not contain info or debug messages.

To change the logging level:

1. Navigate to the CtrlServices.cfg file. The file is located in the following directory:  
\$NCHOME/etc/precision/CtrlServices.*domain\_name*.cfg  
The *domain\_name* is the name of the domain for which the logging level is to be changed.
2. From the CtrlServices.cfg file, change the argument specified in the file to -debug for trace or -messagelevel for logging. The following example shows how the **ncp\_webtool** process might be configured in this file.

```
insert into services.inTray
(
    serviceName,
    binaryName,
    servicePath,
    domainName,
```



```

        argList,
        retryCount
    )
    values
    (
        "ncp_webtool",
        "ncp_webtool",
        "$PRECISION_HOME/platform/$PLATFORM/bin",
        "$PRECISION_DOMAIN",
        [ "-domain" , "$PRECISION_DOMAIN" , "-latency" , "100000" , "-debug" , "0" ,
        "-messagelevel" , "warn" ] ,
        5
    );

```

3. Start, or restart, the **ncp\_ctrl** process. The **ncp\_ctrl** process is used to stop and start all other processes. You can also restart Network Manager using the `itnm_start ncp` command.

### Changing the logging level for a running process

Change the logging level of a running process to provide more detailed log or trace files to aid debugging.

You can change the logging level or trace level (also called the debug level) of a running process by sending a `USR1` or `USR2` signal to the process. Sending a `USR1` signal changes the logging level and sending a `USR2` signal changes the trace level. The extra information provided by increasing the logging or trace levels can help you when debugging a problem with a process.

Trace files have five debug levels (0 to 4) that you can cycle through to provide increasing levels of detail about a process. For example, if a process is already at level 3, a `USR2` signal will increase the level to 4; if the process is at level 4, a `USR2` signal will move it to level 0.

Log files have four message levels that you can cycle through to increase the level of detail that is captured: error, warn, info, and debug.

The following procedure describes how to increase the trace level of a process. To increase the logging level of a process, perform the same procedure using the `USR1` signal instead of `USR2`.

To increase the trace level of a process, perform the following procedure:

1. Find the Process ID (*PID*) of the process you are investigating:
  - a. On Unix and Linux operating systems, enter `ps -ef | grep ncp` at the command line.
  - b. On Windows operating systems, you can find the *PID* in the **Processes** tab of Windows **Task Manager**.
2. To increase the debug level by one level:
  - a. On Unix and Linux operating systems, enter `kill -USR2 PID` at the command line.
  - b. On Windows operating systems, enter `ncp_signal.bat -domain domain PID USR2` at the command prompt.

## First Failure Data Capture (FFDC)

Use the First Failure Data Capture (FFDC) tool to collect pertinent data for problem determination if a system failure occurs. The collected data can be sent to Support using the IBM Support Assistant.

The FFDC is a collection of scripts that can be launched with the master command, **ncp\_ffdc**. This command is located in the NCHOME/PD/precision directory.

The FFDC tool collects the following information; this information includes log files and cache files:

- Common information that is gathered every time the FFDC tool is used
- Process-specific information that is gathered for a specific process or group of processes
- Default information that is gathered if no processes are specified

When the **ncp\_ffdc** command is run, it checks the NCHOME/PD/precision directory for scripts associated with any process or group of processes specified in the command-line options. (These scripts are called *ncp\_ffdc\_process\_name*.) The FFDC then behaves as follows:

- If it finds scripts for the specified process or group of processes, the scripts are executed and the process-specific information is added to the FFDC package, along with the common information and default information.
- If it finds no scripts for the specified process or group of processes, or if no process is specified, default data collection process is performed. Only the default information and common information is added to the FFDC package.

### Usage

**UNIX** The following syntax shows how the **ncp\_ffdc.sh** command works on UNIX operating systems:

```
ncp_ffdc.sh -p process -g group key -N directory -C directory -f filename  
-T directory -v lmktx -d domain
```

**Windows** The following syntax shows how the **ncp\_ffdc.bat** command works on Windows operating systems:

```
ncp_ffdc.bat -p process -N directory -T directory -d domain -v -l -k -x
```

The following table describes the command-line options for the **ncp\_ffdc** command on UNIX and Windows operating systems.

Table 5. *ncp\_ffdc* command-line options

| Command-line options | Description                                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| -d domain            | The domain for which to collect data.                                                                                                  |
| -p process           | The name of the process from which to collect data. If no process name is provided, then information about all processes is collected. |

Table 5. *ncp\_ffdc* command-line options (continued)

| Command-line options | Description                                                                                                                                                                                                                                                                                                                 |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>-g group key</i>  | A key that denotes a group of processes from which to collect information. Use this command-line option to gather information about operations that invoke multiple processes. For possible options, see Table 6 on page 36.<br><b>Restriction:</b> This command-line option is not supported on Windows operating systems. |
| <i>-N directory</i>  | The path to the NCHOME directory.                                                                                                                                                                                                                                                                                           |
| <i>-C directory</i>  | The directory to find core files. The process name given by <i>-p</i> is appended to this path.<br><b>Restriction:</b> This command-line option is not supported on Windows operating systems.                                                                                                                              |
| <i>-f filename</i>   | The name of the properties file.<br><b>Restriction:</b> This command-line option is not supported on Windows operating systems.                                                                                                                                                                                             |
| <i>-T directory</i>  | Specifies the directory to save the collected data.                                                                                                                                                                                                                                                                         |
| <i>-L logfile</i>    | The fully-qualified path name to the log file.                                                                                                                                                                                                                                                                              |
| <i>-l</i>            | List sessions.                                                                                                                                                                                                                                                                                                              |
| <i>-m</i>            | Print configuration.<br><b>Restriction:</b> This command-line option is not supported on Windows operating systems.                                                                                                                                                                                                         |
| <i>-k</i>            | Keep directory; do not remove data collection directory.                                                                                                                                                                                                                                                                    |
| <i>-t</i>            | Do not remove the temporary files.<br><b>Restriction:</b> This command-line option is not supported on Windows operating systems.                                                                                                                                                                                           |
| <i>-c</i>            | Do not remove the core file.<br><b>Restriction:</b> This command-line option is not supported on Windows operating systems.                                                                                                                                                                                                 |
| <i>-x</i>            | Do not create a <i>.tar</i> file. The default is to create a <i>.tar</i> file.                                                                                                                                                                                                                                              |
| <i>-v</i>            | Displays additional information on the screen.                                                                                                                                                                                                                                                                              |

The following table describes the arguments that can be applied to the *-g* command-line option.

Table 6. Arguments for the -g command-line option of the ncp\_ffdc command

| Argument | Description                                                                                                                                                                                                                            |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RCA      | Use this option if you are having problems with event processing or root cause analysis. Collects information about the following processes: <ul style="list-style-type: none"> <li>• ncp_disco</li> <li>• ncp_g_event</li> </ul>      |
| FAIL     | Use this option if you are having problems with failover. Collects information about the following processes: <ul style="list-style-type: none"> <li>• ncp_virtualdomain</li> <li>• nco_p_ncpmonitor</li> <li>• ncp_g_event</li> </ul> |
| MON      | Use this option if you are having problems with monitoring. Collects information about the following processes: <ul style="list-style-type: none"> <li>• ncp_poller</li> <li>• ncp_class</li> </ul>                                    |
| GUI      | Use this option if you are having problems with the GUI. Collects information about the ncp_GUI process                                                                                                                                |
| CONN     | Use this option if you are having problems with discovery. Collects information about the ncp_disco process                                                                                                                            |
| ALL      | Use this option if you are not sure what is causing the problems. Collects information about all core files. This command-line option runs process-specific scripts for the found cores if a script is available.                      |

## Avoiding process errors with large trace or log files by using log file rotation

If a trace or log file reaches the maximum size that is configured on the system, for example 2 GB, processes might quit unexpectedly. Ensure that trace and log files do not grow too large by enabling log file rotation.

If log file rotation environment variables are set, then a new log file is created when the current file reaches a certain size, or at a certain time. The current log file is renamed.

Log file rotation environment variables are used to configure log file rotation for Network Manager. All log files can be rotated, but not all components have log files. Some components have only trace files, which can also be rotated.

**Important:** On UNIX systems, make sure that you set these environment variables in the appropriate shell profile files for the account that Network Manager is running. Do not set them in the NCHOME/env.sh file because this file is not used when Network Manager starts. On Windows systems, set these variables as system environment variables.

## NDE\_LOGFILE\_MAXSIZE

The NDE\_LOGFILE\_MAXSIZE environment variable determines the maximum size a log file can reach for a process.

When the log file reaches the maximum size, the ncp\_ctrl process renames the log file from *logfilename.log* to *logfilename.log\_old* and generates a new log file named *logfilename.log*. When the new *logfilename.log* file reaches the maximum size, the ncp\_ctrl process overwrites *logfilename.log\_old*.

The default setting is 1 GB on UNIX systems. On Windows systems, there is no default limit for the maximum size of a log file: you must set a limit if required because of disk space considerations. As a guidance estimate for log files, assuming that each log file is 1 GB in size and six processes are set to full debug level, you would require 24 GB of disk space. (6 processes x 4 log or trace files each = 24 log or trace files x 1 GB = 24 GB).

The following example shows how to set the maximum log file size to approximately 1 GB (the setting is in bytes).

```
setenv NDE_LOGFILE_MAXSIZE 1000000000
```

|                  |                         |
|------------------|-------------------------|
| <b>Data type</b> | Integer                 |
| <b>Default</b>   | 1073741824 bytes (1 GB) |

**Note:** If the NDE\_LOGFILE\_ROTATION\_FORMAT environment variable is set, the NDE\_LOGFILE\_MAXSIZE environment variable is ignored.

## NDE\_LOGFILE\_ROTATION\_FORMAT

The NDE\_LOGFILE\_ROTATION\_FORMAT environment variable specifies whether a daily log file rotation is enforced. If this environment variable has a value set, then a daily log file rotation is enforced.

The NDE\_LOGFILE\_ROTATION\_FORMAT environment variable is used with the NDE\_LOGFILE\_ROTATION\_TIME environment variable to control the creation of the message log by setting a time of day for log file rotation.

|                  |                                                                                                                                                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data type</b> | Specifies the date format that controls how the log files are named.<br><br>For example, yyyyMMdd-HHmm generates rotate log files with the year, month, day, hour, and minute added. An example file is ncp_disco.NCOMS.log_20100430-0000. |
| <b>Default</b>   | The default is for this value to be undefined.                                                                                                                                                                                             |

**Note:** If the NDE\_LOGFILE\_ROTATION\_FORMAT environment variable is set, the NDE\_LOGFILE\_MAXSIZE environment variable is ignored.

## NDE\_LOGFILE\_ROTATION\_TIME

The NDE\_LOGFILE\_ROTATION\_TIME environment variable specifies the time at which a log file rotation occurs each day. Log files are created at the time that is set by the NDE\_LOGFILE\_ROTATION\_TIME environment variable.

The NDE\_LOGFILE\_ROTATION\_FORMAT environment variable is used with the NDE\_LOGFILE\_ROTATION\_TIME environment variable to control the creation of the message log by setting a time of day for log file rotation.

|                  |         |
|------------------|---------|
| <b>Data type</b> | Integer |
| <b>Default</b>   | 0000    |

The following example specifies log file rotation at midnight each day:

```
setenv NDE_LOGFILE_ROTATION_FORMAT=yyyyMMdd-HHmm  
setenv NDE_LOGFILE_ROTATION_TIME 0000
```

**Note:** If the NDE\_LOGFILE\_MAXSIZE variable and the NDE\_LOGFILE\_ROTATION\_TIME variables are not set when Network Manager starts, then the NDE\_LOGFILE\_MAXSIZE variable is set to the default 1 GB on UNIX systems. On Windows systems, no default is set, and any limit must be set manually.

---

## Chapter 4. Administering ports

If there are conflicts with ports already in use on your system, change some of the default ports.

If you are deploying Network Manager in a secure environment, you might need to know which ports are used by different processes in order to configure a firewall or other security application.

**Note:** When accessing a Tivoli Netcool/OMNIBus ObjectServer that is protected by a firewall, you must specify an IDUC port and provide access to that port using the firewall. For more information on specifying an ObjectServer IDUC port, see the *IBM Tivoli Netcool/OMNIBus Administration Guide*.

---

### About inter-process communication

Network Manager processes communicate using TCP connections, multicast, and Really Small Message Broker.

#### About Really Small Message Broker

Communication between Network Manager core components is managed by Really Small Message Broker. To ensure correct operation of Network Manager, Really Small Message Broker must be running at all times.

Various Network Manager core components pass information to other components on the same server, and to any Network Manager core components on different servers. This communication is managed by Really Small Message Broker.

Really Small Message Broker is installed and started automatically by the Network Manager installation process. If you stop Really Small Message Broker while core Network Manager processes such as the Discovery engine, `ncp_disco`, are running, then the core processes will restart Really Small Message Broker automatically.

**Note:** Running multiple domains in parallel can overload the message broker on some systems. If you want to run multiple domains under load in parallel then it is good practice to run a separate message broker for each domain.

#### Related tasks:

“Running a separate message broker for each domain” on page 41

If you want to run multiple domains under load in parallel then it is good practice to run a separate message broker for each domain.

## About multicast

Processes that use direct TCP communication first use multicast to locate each other, then set up TCP sockets.

---

## Changing host and port settings for Really Small Message Broker

You can change the host and port settings for Really Small Message Broker by modifying the Really Small Message Broker configuration file and then stopping the broker.

## Updating the Really Small Message Broker configuration file

You can configure the host and port for Really Small Message Broker.

Before updating the Really Small Message Broker configuration file (`precision.broker.cfg`), you must stop all ncp processes.

To configure the host and port for Really Small Message Broker, complete the following steps on each server where Network Manager core components are installed.

1. Ensure that all ncp processes have been stopped.
2. Delete the following file:

`$NCHOME/etc/precision/broker_1883.cfg`

**Important:** `Broker_1883.cfg` is automatically generated from `precision.broker.cfg` when the Really Small Message Broker starts. If this file is not deleted before the Really Small Message Broker file is edited, a mismatch can occur between two versions of the file. This can prevent Network Manager from starting.

3. Edit the following file:  
`$NCHOME/etc/precision/Precision.broker.cfg`
4. Locate the following section in the file:

```
broker session =
{
  'service' = '1883',
  'network' = '127.0.0.1'
};
```

**Note:** The broker session settings use the IP address of the loopback interface. This ensures that you can only access the broker from the local server. If you want to allow external connections then you must bind to the IP address of the server. Note that allowing external connections to the broker might constitute a security risk.

5. Change the value of 'service' to the port you want to use. Ensure that it does not conflict with any other ports on your system.
6. Change the value of 'network' to the address of the current server.
7. Save and close the file.



## Stopping Really Small Message Broker

Once you have changed the Really Small Message Broker configuration file, you must stop Really Small Message Broker for your changes to take effect.

To stop Really Small Message Broker, run the following script.

```
$NCHOME/precision/scripts/perl/scripts/stop_broker.pl
```

Any currently running Network Manager core processes such as the Discovery engine, ncp\_disco will restart Really Small Message Broker automatically. The new instance of Really Small Message Broker will pick up the configuration changes.

---

## Running a separate message broker for each domain

If you want to run multiple domains under load in parallel then it is good practice to run a separate message broker for each domain.

To run a separate message broker for each domain, proceed as follows.

1. Ensure that all ncp processes have been stopped.
2. Create a domain specific Precision.broker.cfg configuration file. Do this by copying the following file: \$NCHOME/etc/precision/Precision.broker.cfg to a domain-specific copy: \$NCHOME/etc/precision/Precision.broker.DOMAIN\_NAME.cfg

Where *DOMAIN\_NAME* is the name of one of your domains.

3. Locate the following section in the file:

```
broker session =  
{  
    'service' = '1883',  
    'network' = '127.0.0.1'  
};
```

4. Change the value of 'service' to the port you want to use. Ensure that it does not conflict with any other ports on your system.
5. Save and close the file.
6. Repeat steps 2 to 5 to create a separate message broker for each of your domains.
7. Restart all ncp processes.

---

## Checking port usage

You can check which ports are in use on the current server, to help investigate or prevent port conflicts.

To check which ports are in use on the current server, enter the following command:

```
netstat -a
```

The command returns a list of listening daemons and established connections.

---

## Defining a fixed TCP port

For processes that use TCP socket-based connections, you can define a fixed port instead of using the default randomly assigned port.

To avoid firewall issues or port conflicts, you might have to define a specific TCP port for a process. For example, you might need to do this if the helpers and the Helper Server, `ncp_d_helpserv`, are running on a different host to the Discovery engine, `ncp_disco`, and these hosts are behind a firewall. You might also need to define a fixed TCP port as part of failover configuration. For more information on how to define a fixed TCP port specifically for failover, see the *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide*.

To define a fixed TCP port for a process, complete the following steps:

1. On the first server, start the process.
2. Make a backup copy of the `ServiceData.cfg` file.
3. Edit the `ServiceData.cfg` file and copy the line relevant to the process for which you want to define a port.

```
SERVICE: Helper  
DOMAIN: DEMO ADDRESS: 192.168.31.8 PORT: 51153  
SERVERNAME: britanicus DYNAMIC: YES
```

In this example, `DYNAMIC: YES` shows that the port for the Helper Server has been assigned dynamically.

4. Change the `PORT` setting to the required value.
5. Change the string `DYNAMIC: YES` to `DYNAMIC: NO`. This forces the process to use the same address and port next time it starts.
6. Save the `ServiceData.cfg` file.
7. On the second server, make a backup copy of the `ServiceData.cfg` file.
8. Copy the relevant line from the `ServiceData.cfg` file on the first server to the `ServiceData.cfg` file on the second server.
9. Save the `ServiceData.cfg` file.

---

## Defining a fixed multicast address

You can define which address and port is used by processes for multicast communication by editing the `ServiceData.cfg` configuration file.

If a Network Manager process needs to know what port another process is running on, it looks up the TCP/IP port defined for that process in the `ServiceData.cfg` file. If there is no port defined for a specific service, then the process broadcasts an address request using multicast. You can define the address that is used for this multicast address request.

The multicast address must be the same on all servers that have Network Manager processes that communicate with each other.

To define the address for multicast communication, complete the following steps.

1. Back up and edit the `ServiceData.cfg` file.
2. Edit the line that contains `SERVICE: MulticastService`. Set the `ADDRESS` and `PORT` variables.

3. Set the DOMAIN to ANY\_PRECISION\_DOMAIN. This means that the service uses the same multicast address for all domains in which it is executed. The line should resemble this example:  

```
SERVICE: MulticastService DOMAIN: ANY_PRECISION_DOMAIN
ADDRESS: 224.0.0.108 PORT: 33000
```
4. Save and close the ServiceData.cfg file.

---

## List of ports used by the product

Network Manager uses different ports for communication: some fixed, some defined by configuration files, and some assigned by the operating system.

The following table describes the default ports used by Network Manager.

*Table 7. Default ports used by Network Manager*

| Port  | Protocol                                   | Description                                                                                                                                                                                                                                                                                                                                             |
|-------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22    | SSH over TCP/IP                            | If SSH support is enabled, the Telnet Helper uses this port to communicate with network devices.                                                                                                                                                                                                                                                        |
| 23    | Telnet over TCP/IP                         | If SSH support is not enabled, the Telnet Helper uses this port to communicate with network devices.                                                                                                                                                                                                                                                    |
| 161   | SNMP                                       | Port 161 is the default port on network devices to which SNMP queries are sent during the discovery and monitoring processes.<br><br>Defined in the column m_SnmpPort in the database table snmpStack.verSecurityTable.                                                                                                                                 |
| 162   | UDP                                        | Default trap port. Used by the Trap polling agent. If more than one application/process needs access to this port, ncp_trapmux, the SNMP trap multiplexer, can be used to forward traps. The SNMP trap multiplexer, the Trap discovery agent, and the Trap polling agent can all be configured to use a different port.                                 |
| 1521  | TCP/IP                                     | Default Oracle database port.                                                                                                                                                                                                                                                                                                                           |
| 1883  | Message Queuing Telemetry Transport (MQTT) | Default port used by Really Small Message Broker for inter-process communication.                                                                                                                                                                                                                                                                       |
| 3306  | TCP/IP                                     | Default MySQL database port. This is used by Topoviz to communicate with the MySQL database.                                                                                                                                                                                                                                                            |
| 4100  | TCP/IP                                     | Default ObjectServer port. This must be entered at install time. Defined in interfaces.Arch on the ObjectServer workstation. This port is used by the ncp_g_event process to communicate with the ObjectServer.                                                                                                                                         |
| 7968  | TCP/IP                                     | Default port for access to the Network Manager server from Tivoli Integrated Portal. This is used by the Discovery Configuration GUI and it is defined in the ServiceData.cfg configuration file. If you want to change this port, edit the ServiceData.cfg configuration file and restart the ncp_model process and the ncp_config process using CTRL. |
| 9088  | TCP/IP                                     | Default Informix database port.                                                                                                                                                                                                                                                                                                                         |
| 16310 | HTTP                                       | Default port for the Tivoli Integrated Portal. The Tivoli Integrated Portal allocates the next six ports up from this number for its own use. By default, this port redirects to 16316.                                                                                                                                                                 |
| 16311 | HTTPS                                      | Default secure port for the Tivoli Integrated Portal.                                                                                                                                                                                                                                                                                                   |

Table 7. Default ports used by Network Manager (continued)

| Port        | Protocol | Description                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 33000       | TCP/IP   | By default, the multicast IP address 225.13.13.13 and port 33000 are used to enable the discovery helpers and discovery agents to locate the Helper server.<br><br>This multicast address is specified in the file \$NCHOME/etc/precision/ServiceData.cfg.<br><br>Once a process has located the Helper server, a TCP connection is established on a port assigned by the operating system. |
| 50000       | TCP/IP   | Default DB2® database port.                                                                                                                                                                                                                                                                                                                                                                 |
| OS-assigned | TCP/IP   | TCP ports are assigned by the operating system for TCP communication between processes, for example, the communication between discovery agents and the helper server. If this is an issue, you must ensure that your firewall is external to the Network Manager server, and that all discovery processes are run on the same host.                                                        |

## ServiceData configuration file

The ServiceData configuration file is a dynamic file that lists TCP and multicast connection information for Network Manager processes.

On startup, every Network Manager service (that is, component or process) that uses a TCP socket adds a line to the ServiceData configuration file. This line contains information about the service. The following information is appended to the configuration file:

- The service name
- The service domain
- The service IP address
- The service port number
- The server on which the process is being run

In the following example configuration file, the first service called MulticastService shows the multicast address and port number. The second service shows that the Helper service is running on the DEMO domain, and includes information about the IP address, port number and the name of the server where the Helper service is running. DYNAMIC: YES means that the port is assigned by the operating system each time the process starts. DYNAMIC: NO defines a fixed port.

```
--
-- Server data file - contains info on servers and the general multicast
-- address to use.
--
SERVICE: MulticastService DOMAIN: ANY_PRECISION_DOMAIN ADDRESS: 225.13.13.13
PORT: 33000

SERVICE: Helper DOMAIN: DEMO ADDRESS: 192.168.31.8 PORT: 51153
SERVERNAME: britanicus DYNAMIC: YES
```

---

## Chapter 5. Administering users

Use the functions of the Web console to provide access to the Web-based interfaces for users, based on the default user roles and user groups. Users and profiles for the OQL Service Provider are managed separately.

---

### About administering users

User administration involves setting user access to the Web applications and the OQL Service Provider.

The user interfaces can be categorized as follows:

#### Web applications

Network Manager includes the following Web applications:

- Network Discovery GUI
- Network Polling GUI
- Topoviz Hop View
- Topoviz Network Views
- SNMP MIB Browser
- Structure Browser

#### OQL Service Provider

OQL Service Provider users are managed separately from Web application users.

### Default users

Several users are supplied with Network Manager.

### Users and their groups

The following table describes users that are present after installation, along with their groups.

*Table 8. Users present after installation*

| User name | Group | Password                                                                                                                           | Description                                                                                                                                                                                |
|-----------|-------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tipadmin  | None  | Defined during installation. The default value for a basic installation is netcool. The administrator should change this password. | The administrator for Tivoli Integrated Portal. In a new installation, this user has permissions to administer users, groups, roles, and pages. Defined in the file-based user repository. |

Table 8. Users present after installation (continued)

| User name | Group                    | Password                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------|--------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| itnmadmin | Network_Manager_IP_Admin | Defined during installation. | <p>The administrator for Network Manager. In a new installation, this user has permissions to administer all of the Network Manager Web applications. Defined in the user repository chosen during installation.</p> <p>This user also has the following Tivoli Integrated Portal roles by default:</p> <ul style="list-style-type: none"> <li>• administrator</li> <li>• chartAdministrator</li> <li>• chartCreator</li> </ul> |
| itnmuser  | Network_Manager_User     | Defined during installation. | An example operator user for Network Manager. Defined in the user repository chosen during installation.                                                                                                                                                                                                                                                                                                                        |

**Related tasks:**

“Administering users for Web applications” on page 50  
 You can perform tasks that help you manage users.

## User roles

A role provides users with the ability to perform a predefined set of activities within Web applications.

Access to the Web applications and to functionality within the Web applications depends on the roles assigned to users. Network Manager roles are assigned to users by using groups. Users can also have roles assigned to them from other products.

**Note:** For information about the user roles you need to view and administer reports using Tivoli Common Reporting, see the Tivoli Common Reporting information center at the following Web address: [http://www-01.ibm.com/support/knowledgecenter/SSH2DF\\_1.2.0.1/tcr\\_welcome.html](http://www-01.ibm.com/support/knowledgecenter/SSH2DF_1.2.0.1/tcr_welcome.html).

**Important:** In addition to the roles assigned to the default user groups, the netcool\_rw role is also necessary in order to use the Management Database Access and Network Polling portlets.

**Related tasks:**

“Administering users for Web applications” on page 50  
 You can perform tasks that help you manage users.

## User roles for charting

Users must have the user IDs assigned to a chart role before they can see and work with the charting functions.

The main administrator (tipadmin) of the application server already has the chartAdministrator role, and can assign users to any of the three chart roles that are available. Logged in users will have no access privileges to the charting features if their user ID has not been assigned to a chart role. These are the capabilities of the chart roles:

### **chartAdministrator**

Users with this role can create and delete charting connections to data sources, download the BIRT Designer, upload charts, and can clear the charting cache (useful for troubleshooting).

### **chartCreator**

Users with this role can download the BIRT Designer, upload charts, view, and edit them. They cannot create or delete chart connections nor can they clear the charting cache.

### **chartViewer**

Users assigned to this role can select and view charts, but cannot modify them or their preferences. They cannot download the BIRT Designer, upload charts, create connections, or clear the charting cache.

Roles are assigned through **Users and Groups > Administrative User Roles**.

## User groups

Use groups to organize users into units with common functional goals. Several Network Manager groups are created on installation.

### **Default user groups**

The following groups are supplied with Network Manager. Roles are assigned to these groups during installation.

#### **Network Manager Client**

Assign guest user accounts to this group in order to give the users limited permissions to view the Web applications.

#### **Network Manager IP Admin**

Assign all Network Manager IP Edition administrators to this group in order to give the users administrative permissions for the Network Manager Web applications.

#### **Network Manager User**

Assign all Network Manager IP Edition end users and operators to this group in order to give the users permissions to use the Network Manager Web applications.

#### **Related tasks:**

“Administering user groups for Web applications” on page 60  
You can perform tasks that help you manage groups.

## Roles assigned to the Network\_Manager\_IP\_Admin group

The Network\_Manager\_IP\_Admin group has several user roles assigned to it.

Table 9. Roles for the Network\_Manager\_IP\_Admin\_Group

| Role                                   | Description                                                                                                                                                                                                                                            |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ncp_config                             | User can save any configuration changes that they have made.                                                                                                                                                                                           |
| ncp_disco_config                       | User can view and edit the discovery configuration settings.                                                                                                                                                                                           |
| ncp_disco_config_alter_domain          | User can change the domain for which they are configuring a discovery.                                                                                                                                                                                 |
| ncp_disco_status                       | User can view the status of a discovery as it is running.                                                                                                                                                                                              |
| ncp_disco_status_control               | User can start or stop the discovery, or run a discovery with same configuration settings. This role is ineffective without the role Network Manager IP Discovery Status.                                                                              |
| ncp_disco_status_alter_domain          | User can change the domain from which they are getting discovery status.<br><b>Note:</b> Do not remove this role from discovery administrators.                                                                                                        |
| ncp_mibgraph_default_properties_config | User can change the MIB graph default properties. This role is ineffective without the following Network_Manager_User group roles: ncp_mibgraph_user, ncp_mibgraph_config, ncp_mibbrowser.                                                             |
| ncp_monitor_policy                     | User can configure poll policies.                                                                                                                                                                                                                      |
| ncp_monitor_policy_alter_domain        | User can select a domain other than the default for poll policies.                                                                                                                                                                                     |
| ncp_monitor_template                   | User can configure poll definitions.                                                                                                                                                                                                                   |
| ncp_oql                                | User can perform and display the results of select type operations using the Management Database Access page.                                                                                                                                          |
| ncp_oql_update                         | User can perform and display the results of update type operations using the Management Database Access page.                                                                                                                                          |
| ncp_manage_unmanage                    | User can set devices to managed and unmanaged status.                                                                                                                                                                                                  |
| ncp_networkview_admin_global           | User can create, edit, partition, and delete Global Views. These are views accessible to all users regardless of the group to which they belong.<br><br>User can also perform Move operations on network views within the global views.                |
| ncp_networkview_admin_group            | User can create, edit, partition, and delete Group Views. These are views assigned to the group or groups that this user belongs to.<br><br>This role also allows the user to perform Move operations on network views within a group view collection. |



Table 9. Roles for the Network\_Manager\_IP\_Admin\_Group (continued)

| Role                            | Description                                                                                                                                                                                                                                                                                           |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ncp_networkview_admin_all_users | User can create, edit, partition, and delete Private Views. These are private views created by users who have the Network Manager IP Network View - Administer views for user role.<br><br>This role also allows the user to perform Move operations on network views within a group view collection. |
| ncp_pathview                    | User can create, edit, and delete path views.                                                                                                                                                                                                                                                         |
| ncp_topo_mgmt                   | User can add and remove devices and connections to the topology using the topology management functionality available within the Network Hop View.                                                                                                                                                    |

## Roles assigned to the Network\_Manager\_User group

The Network\_Manager\_User group has several user roles assigned to it.

Table 10. Roles for the Network\_Manager\_User

| Role                                   | Description                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ncp_hopview                            | User can access the Hop View.                                                                                                                                                                                                                                                                                                                                                 |
| ncp_networkview                        | User can access the Network Views and to display any of the following views: <ul style="list-style-type: none"> <li>• User Views: Network views created by the user.</li> <li>• Group Views: Views assigned to the group or groups that this user belongs to.</li> <li>• Global Views: Views accessible to all users regardless of the group to which they belong.</li> </ul> |
| ncp_networkview_admin_user             | User can create, edit, partition, and delete their own set of network views. This role also allows the user to perform Move operations on network views within a user view.                                                                                                                                                                                                   |
| ncp_mibbrowser                         | User can access the MIB Browser.                                                                                                                                                                                                                                                                                                                                              |
| ncp_mibbrowser_config                  | User can access the MIB Browser for configuration purposes.                                                                                                                                                                                                                                                                                                                   |
| ncp_mibgraph_config                    | User can access SNMP MIB Graph for configuration purposes.                                                                                                                                                                                                                                                                                                                    |
| ncp_mibgraph_user                      | User can access SNMP MIB Graph.                                                                                                                                                                                                                                                                                                                                               |
| ncp_pathview                           | User can create, edit, and delete path views.                                                                                                                                                                                                                                                                                                                                 |
| ncp_structurebrowser                   | User can use the Structure Browser.                                                                                                                                                                                                                                                                                                                                           |
| ncp_structureview_entitysearch         | User can search entities in the Structure Browser.                                                                                                                                                                                                                                                                                                                            |
| ncp_structureview_interport_navigation | User can navigate from a port on one device to a port on another device in the Structure Browser.                                                                                                                                                                                                                                                                             |
| ncp_webtools                           | User can use the WebTools.                                                                                                                                                                                                                                                                                                                                                    |

Table 10. Roles for the Network\_Manager\_User (continued)

| Role     | Description                                                |
|----------|------------------------------------------------------------|
| ncw_user | User can view the Tivoli Netcool/OMNIBus Web GUI portlets. |

## Roles assigned to the Network\_Manager\_Client group

The Network\_Manager\_Client group has several user roles assigned to it.

Table 11. Roles for the Network\_Manager\_Client group

| Role                                   | Web Application   | Description                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ncp_networkview                        | Network Views     | Allows the user to access the Network Views and to display any of the following views: <ul style="list-style-type: none"> <li>• User Views: Network views created by the user.</li> <li>• Group Views: Views assigned to the group or groups that this user belongs to.</li> <li>• Global Views: Views accessible to all users regardless of the group to which they belong.</li> </ul> |
| ncp_structurebrowser                   |                   | Allows a user to use the Structure Browser.                                                                                                                                                                                                                                                                                                                                             |
| ncp_structureview_entitysearch         | Structure Browser | User can search entities in the Structure Browser.                                                                                                                                                                                                                                                                                                                                      |
| ncp_structureview_interport_navigation | Structure Browser | User can navigate from a port on one device to a port on another device in the Structure Browser.                                                                                                                                                                                                                                                                                       |

## Administering users for Web applications

Use the functions of the Web console to administer users for the Network Manager Web applications.

From the left navigation pane, click **Manage Users**. Before you can perform some tasks for users, you must first search for existing users that match the search criteria that you specify. After the search completes, a table displays the users that match your search criteria. To manage users, you can perform these tasks:

### Related concepts:

“User roles” on page 46

A role provides users with the ability to perform a predefined set of activities within Web applications.

### Related reference:

“Default users” on page 45

Several users are supplied with Network Manager.

## Searching for users

You can search for existing users that match the search criteria that you specify.

1. From the navigation pane, click **Manage Users**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more users. For example, select **User ID**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table displays the users that match your search criteria.

### Creating users

You can create one or more users. The users are added to the registry and a login account for each new user is automatically created. When creating the new user, you can also add the user as a member of one or more groups.

### Deleting users

You can search for and list the existing users that match your search criteria. After selecting one or more users, you can delete them and remove their user IDs from the user registry.

### Duplicating group assignments for a user

You can search for users that match your search criteria. After selecting one or more users, these users can be added as members of the same groups that another existing user is already a member of. For example, if all the members of a department need to belong to the same groups as the department manager, you can duplicate the groups that the manager belongs to for all the other users that you choose.

### Customizing search filters for users

You can create a filtered list of users by specifying the type of filter and the text to be used as part of the search criteria. The filtered list of users is limited to displaying only the users that meet the filter requirements. You can filter users by the letters that the user ID contains or by the letters that the user ID starts or ends with.

### Changing the display options for the list of users

You can change how the search results are displayed when viewing the list of users. For example, you can change the number of users to be viewed per page or you can display additional details about the users.

## Users

A user is an individual who uses a computer. Users can include any user from expert programmers to computer novices.

For example, users might include:

- Users who use a computer product.
- Users who administer the same product and provide their users with access privileges.
- Users who administer users and groups by using a console menu to complete tasks.
- Users who use the same product for development purposes.

An example of a user task might be resetting your own password. An example of an administrator task might be creating new users and groups.

## Groups

A group is a collection of *members* that can be used to satisfy specific business needs, such as granting access to a resource.

Membership in a group named Company XYZ can be all the users in a department (Dept 047). A group within another group is referred to as a *nested group*. For example, Dept 047 might be a group within a larger group named Company XYZ Austin.


## Members

A member is a *user* or *group* within a group.

For example, membership in a group named Company XYZ can be both an individual user (Harry Jones) as well as all the users in his department (Dept 047).

## Customizing search filters for users

You can create a filtered list of users by specifying the type of filter and the text to be used as part of the search criteria. The filtered list of users is limited to displaying only the users that meet the filter requirements. You can filter users by the letters that the user ID contains or by the letters that the user ID starts or ends with.

1. From the navigation pane, click **Manage Users**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more users. For example, select **User ID**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table displays the users that match your search criteria.
6. Click the  filter icon.
7. Do one of the following:
  - To create a new filter for an attribute if none exists, click the **[No Filter]** link.
  - To select an existing filter, click on the filter name.
8. If you are creating a new filter, select a filter type from the list. The types of filters are Contains, Starts with, or Ends with.
9. Type the letters that you want to search for in the **Text** field. The wildcard character is not permitted in this field.
10. Click **Apply**.

After you click **Apply**, the name of the filter is listed in the column under the attribute. The filter name matches the letters that were typed in the **Text** field. If no filter has been used for an attribute, the text **[No Filter]** displays.

The list of users is refreshed, and a filtered list of user IDs is displayed. The filter name and the total number of filtered user IDs are also shown.

Click the  hide filter icon, or click **Close**, when you have finished working with filters.

#### Searching for users



You can search for existing users that match the search criteria that you specify.

#### Changing the display options for the list of users

You can change how the search results are displayed when viewing the list of users. For example, you can change the number of users to be viewed per page or you can display additional details about the users.

## Changing the display options for the list of users

You can change how the search results are displayed when viewing the list of users. For example, you can change the number of users to be viewed per page or you can display additional details about the users.

1. From the navigation pane, click **Manage Users**.
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3. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table displays the users that match your search criteria.
6. Click the  options icon.
7. If you want to view more or fewer entries on a page, change the number in the **Entries Per Page** field.
8. If you want to show more details about a user, select one or more check boxes next to the attributes that you want to display additional columns for.
9. If you want to see the user IDs on a different page, type the page number in the field at the bottom of the list, and click **Go** to jump to that page.
10. Click **Apply**.
11. Click the  hide options icon, or click **Close**, after changing the display options for the list of users.

#### Searching for users

You can search for existing users that match the search criteria that you specify.

#### Customizing search filters for users

You can create a filtered list of users by specifying the type of filter and the text to be used as part of the search criteria. The filtered list of users is limited to displaying only the users that meet the filter requirements. You can filter users by the letters that the user ID contains or by the letters that the user ID starts or ends with.

## Creating users

You can create one or more users. The users are added to the registry and a login account for each new user is automatically created. When creating the new user, you can also add the user as a member of one or more groups.

1. Complete the steps in “Searching for users” on page 51.
2. Click **Create** to create a new user.
3. In the **User ID** field, type a unique name to identify the user. This user ID will be added to the user registry and also will be used as the login account name. For example, you might type d1lucas
4. Optional: Click **Group Membership** and then follow the steps in “Changing group membership for a user” to add the user as a member of one or more existing groups.
5. In the **First name** field, type the given or first name of the user. For example, you might type Diana
6. In the **Last name** field, type the family or last name of the user. For example, you might type Lucas
7. Optional: In the **E-mail** field, type an e-mail address for the user. For example, you might type d1lucas@tivoli.com
8. In the **Password** field, type a unique password. For example, you might type d4lucas.
9. In the **Confirm password** field, type the same password again.
10. Click **Create**. If successful, a message will display that indicates that the user has been created. Also, the user ID and other user information will be added to the user registry, and a new login account will be created for the user.
11. To create another user, click **Create Another**.
12. Repeat the process until all the new users have been created.

### Deleting users

You can search for and list the existing users that match your search criteria. After selecting one or more users, you can delete them and remove their user IDs from the user registry.

### Duplicating group assignments for a user

You can search for users that match your search criteria. After selecting one or more users, these users can be added as members of the same groups that another existing user is already a member of. For example, if all the members of a department need to belong to the same groups as the department manager, you can duplicate the groups that the manager belongs to for all the other users that you choose.

## Changing group membership for a user

You can search for and list the existing groups that match the search criteria. When creating a new user, you can choose the groups from the search results list in which you want the user to be a member.

1. During the process of “Creating users,” click **Group Membership**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more users. For example, select **Group name**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.

4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, the results are displayed in two lists: one list is for groups that matched the search criteria and one list, named **Current Groups**, is for groups that the user is already a member.
6. To add the user to one or more groups, highlight the groups from the matching groups list to select them. For example, you might highlight `ibmaustin01` and `ibmaustin02` and then click **< Add**.
7. Optional: To undo or remove the user as a member, highlight the groups from the **Current Groups** list and then click **Remove >**.
8. Return to the process of “Creating users” on page 54 to complete the steps.

Adding a user to other groups

You can add a user as a member to selected groups.

Changing information about a user

You can change information about a specific user, such as the e-mail address.

You can update the e-mail address, change the first or last name information, or set a new password.

Removing a user from other groups

After searching for the groups in which the user is currently a member, you can remove the user from membership in groups that you select.

Viewing information about a user

You can view information about a specific user.

Viewing the groups the group is a member of

You can view a list of existing groups that the specified user is currently a member of.

## Viewing information about a user

You can view information about a specific user.

1. From the navigation pane, click **Manage Users**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more users. For example, select **User ID**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, the users that match your search criteria are displayed as hypertext links.
6. Click on one of the user links to view information about the selected user. You can only view the information, you cannot change it.
7. Click **Cancel** after viewing to return to the previous window.

Changing information about a user

You can change information about a specific user, such as the e-mail address.

You can update the e-mail address, change the first or last name information, or set a new password.

Changing group membership for a user

You can search for and list the existing groups that match the search criteria.

When creating a new user, you can choose the groups from the search results list in which you want the user to be a member.

## Changing information about a user

You can change information about a specific user, such as the e-mail address. You can update the e-mail address, change the first or last name information, or set a new password.

1. From the navigation pane, click **Manage Users**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more users. For example, select **User ID** to locate users by searching by their user IDs.
3. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, the users that match your search criteria are displayed in the column as hypertext links.
6. Click on one of the user links to change information about the user, as needed.
7. In the **First name** and **Last name** fields, enter the new information, if needed.
8. Optional: In the **E-mail** field, enter the new information, if needed.
9. Optional: In the **Password** and **Confirm password** fields, enter the new password, if needed, and confirm the new password.
10. To save the changes, either click **OK** to save and return to the previous window, or click **Apply** to save but remain on the same window.

### Changing group membership for a user

You can search for and list the existing groups that match the search criteria. When creating a new user, you can choose the groups from the search results list in which you want the user to be a member.

### Viewing information about a user

You can view information about a specific user.

### Viewing the groups the user is a member of

You can view a list of existing groups that the specified user is currently a member of.

## Viewing the groups the user is a member of

You can view a list of existing groups that the specified user is currently a member of.

1. From the navigation pane, click **Manage Users**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more users. For example, select **User ID**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table displays a list of groups, as hypertext links, that match your search criteria.
6. Click the group name link to see the user properties.



7. Click the **Groups** tab to see the list of groups, in ascending order, that the user is currently a member of.

Adding a user to other groups

You can add a user as a member to selected groups.

Changing group membership for a user

You can search for and list the existing groups that match the search criteria.

When creating a new user, you can choose the groups from the search results list in which you want the user to be a member.

Changing information about a user

You can change information about a specific user, such as the e-mail address.

You can update the e-mail address, change the first or last name information, or set a new password.

Removing a user from other groups

After searching for the groups in which the user is currently a member, you can remove the user from membership in groups that you select.

Viewing information about a user

You can view information about a specific user.

## Adding a user to groups

You can add a user as a member to selected groups.

1. Complete the steps in “Viewing the groups the user is a member of” on page 56
2. Confirm that the user in the **User ID** field is the user that you want to add to more groups.
3. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
4. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
5. In the **Maximum results** field, specify the maximum number of search results that you want to display.
6. Click **Search**. After the search completes, a list is displayed of the groups that match your search criteria.
7. Highlight one or more groups to select them, and click **Add**.

Removing a user from other groups

After searching for the groups in which the user is currently a member, you can remove the user from membership in groups that you select.

Changing group membership for a user

You can search for and list the existing groups that match the search criteria.

When creating a new user, you can choose the groups from the search results list in which you want the user to be a member.

Changing information about a user

You can change information about a specific user, such as the e-mail address.

You can update the e-mail address, change the first or last name information, or set a new password.

Viewing information about a user

You can view information about a specific user.

Viewing the groups the user is a member of

You can view a list of existing groups that the specified user is currently a member of.

## Removing a user from other groups

After searching for the groups in which the user is currently a member, you can remove the user from membership in groups that you select.

1. Complete the steps in “Viewing the groups the user is a member of” on page 56.
2. Confirm that the user in the **User ID** field is the user that you want to remove from other groups.
3. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
4. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
5. In the **Maximum results** field, specify the maximum number of search results that you want to display.
6. Click **Search** to begin the search. After the search completes, a table displays the groups that match your search criteria.
7. Select the check boxes next to one or more groups, and then click **Remove**.

Adding a user to other groups

You can add a user as a member to selected groups.

Changing group membership for a user

You can search for and list the existing groups that match the search criteria.

When creating a new user, you can choose the groups from the search results list in which you want the user to be a member.

Changing information about a user

You can change information about a specific user, such as the e-mail address.

You can update the e-mail address, change the first or last name information, or set a new password.

Viewing information about a user

You can view information about a specific user.

Viewing the groups the group is a member of

You can view a list of existing groups that the specified user is currently a member of.

## Adding more users as members of a group

You can add more users as members of a group.

1. After completing the steps in “Viewing a list of members of a group” on page 66, click **Add Users**.
2. Confirm that the **Group name** field displays the name of the group to which you want to add more users as members.
3. In the **Search by** field, select the attribute from the list that you want to use to search by. For example, select **User ID**.
4. In the **Search for** field, either type the string that you want to search for to limit the set of users or use the wildcard character (\*) to search for all users.
5. In the **Maximum results** field, specify the maximum number of search results that you want to display.
6. Click **Search**. After the search is complete, a list displays of the users that matched your search criteria.
7. Highlight one or more users in the list to select them, and then click **Add**.

The users are immediately added to the list of members.

Adding more groups as members of a group

After viewing the list of members in a group that you specify, you can add more groups.

Removing members from a group

After searching for the list of members in a group that you specify, you can remove users and groups as members from the group.

## Duplicating group assignments for a user

You can search for users that match your search criteria. After selecting one or more users, these users can be added as members of the same groups that another existing user is already a member of. For example, if all the members of a department need to belong to the same groups as the department manager, you can duplicate the groups that the manager belongs to for all the other users that you choose.

1. Complete the steps in “Searching for users” on page 51.
2. Select the check boxes next to one or more users that you want to assign the same membership as another group.
3. Choose the **Duplicate Group Assignments** action.
4. In the **Search by** field, select the attribute from the list that you want to use to search for one or more users. For example, select **User ID**.
5. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
6. In the **Maximum results** field, specify the maximum number of search results that you want to display.
7. Click **Search**. After the search has been completed, a table displays the users that match your search criteria.
8. Highlight the name of the user whose group membership you want to duplicate for the previously selected users, and click **OK**. The group membership of the user is duplicated for the previously selected users.

Creating users

You can create one or more users. The users are added to the registry and a login account for each new user is automatically created. When creating the new user, you can also add the user as a member of one or more groups.

Deleting users

You can search for and list the existing users that match your search criteria. After selecting one or more users, you can delete them and remove their user IDs from the user registry.

## Deleting users

You can search for and list the existing users that match your search criteria. After selecting one or more users, you can delete them and remove their user IDs from the user registry.

1. From the navigation pane, click **Manage Users**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more users. For example, select **User ID**.

3. In the **Search for** field, either type the string that you want to search for to limit the set of users, or use the wildcard character (\*) to search for all users. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table displays the users that match your search criteria.
6. Select the check boxes next to the users that you want to delete.
7. Click **Delete**.
8. Click **Delete** again when asked to confirm the deletion. The users are immediately deleted and removed from the user registry. The table that lists the users is refreshed, and the selected users are no longer displayed in the list.

#### Creating users

You can create one or more users. The users are added to the registry and a login account for each new user is automatically created. When creating the new user, you can also add the user as a member of one or more groups.

#### Duplicating group assignments for a user

You can search for users that match your search criteria. After selecting one or more users, these users can be added as members of the same groups that another existing user is already a member of. For example, if all the members of a department need to belong to the same groups as the department manager, you can duplicate the groups that the manager belongs to for all the other users that you choose.

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## Administering user groups for Web applications

Use the functions of the Web console to administer user groups for the Network Manager Web applications.

From the left navigation pane, click **Manage Groups**. Before you can perform some tasks for groups, you must first search for existing groups that match the search criteria that you specify. After the search completes, a table displays the groups that match your search criteria. To manage groups, you can perform these tasks:

#### Related concepts:

“User groups” on page 47

Use groups to organize users into units with common functional goals. Several Network Manager groups are created on installation.

#### Creating groups

You can create one or more groups. The group names and descriptions are added to the user registry.

#### Deleting groups

You can search for and list the existing group names that match the search criteria that you specify. After selecting one or more groups, you can delete them and remove the group names from the user registry.

#### Duplicating group assignments for a group

You can search for groups that match the search criteria that you specify. After selecting one or more groups, these groups can be members of the same groups as another existing group. For example, if all groups at the Austin site should belong to the same groups as an existing group, you can duplicate the groups that the one group belongs to for all the other groups that you choose.

#### Customized search filters for groups

You can create a filtered list of groups by specifying the type of filter and the

text to be used as part of the search criteria. The list of groups will be limited because only the groups that meet the extended search criteria will be displayed.

Changing the display options for the list of groups

You can change how the search results are displayed when viewing the list of groups. For example, you can change the number of groups to be viewed per page.

## Searching for groups

You can search for existing groups that match the search criteria that you specify.

1. From the navigation pane, click **Manage Groups**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table is displayed that lists the group names that match your search criteria. Descriptions, if any, are also provided.

Creating groups

You can create one or more groups. The group names and descriptions are added to the user registry.

Deleting groups

You can search for and list the existing group names that match the search criteria that you specify. After selecting one or more groups, you can delete them and remove the group names from the user registry.

Duplicating group assignments for a group

You can search for groups that match the search criteria that you specify. After selecting one or more groups, these groups can be members of the same groups as another existing group. For example, if all groups at the Austin site should belong to the same groups as an existing group, you can duplicate the groups that the one group belongs to for all the other groups that you choose.

Customized search filters for groups



You can create a filtered list of groups by specifying the type of filter and the text to be used as part of the search criteria. The list of groups will be limited because only the groups that meet the extended search criteria will be displayed.

Changing the display options for the list of groups

You can change how the search results are displayed when viewing the list of groups. For example, you can change the number of groups to be viewed per page.

## Customizing search filters for groups

You can create a filtered list of groups by specifying the type of filter and the text to be used as part of the search criteria. The list of groups will be limited because only the groups that meet the extended search criteria will be displayed.

1. From the navigation pane, click **Manage Groups**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table displays the groups that match your search criteria.
6. Click the  filter icon.
7. Do one of the following:
  - To create a new filter for an attribute if none exists, click the **[No Filter]** link.
  - To select an existing filter for an attribute, click on the filter name link.
8. If you are creating a new filter, select a filter type from the list. The types of filters are Contains, Starts with, or Ends with.
9. Type the letters that you want to search for in the **Text** field. The wildcard character is not permitted in this field.
10. Click **Apply**. The list of groups is refreshed and a filtered list of group names displays. The filter name and the total number of filtered group names are also shown.
11. Click the  hide filter icon, or click **Close**, when you have finished working with filters.

If no filter has been applied for an attribute, the text **[No Filter]** displays. If you click **Apply**, the name of the filter is listed in the column under the attribute. The filter name matches the letters that were typed in the **Text** field.

### Searching for groups



You can search for existing groups that match the search criteria that you specify.

### Changing the display options for the list of groups

You can change how the search results are displayed when viewing the list of groups. For example, you can change the number of groups to be viewed per page.

## Changing the display options for the list of groups

You can change how the search results are displayed when viewing the list of groups. For example, you can change the number of groups to be viewed per page.

1. From the navigation pane, click **Manage Groups**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes a table displays the groups that match your search criteria.
6. Click the  options icon.
7. If you want to view more or fewer entries on a page, change the number in the **Entries per page** field, and click **Apply**.
8. If you want to see the group names on a different page, type the page number in the field at the bottom of the list, and click **Go** to jump to that page.
9. Click the  hide options icon, or click **Close**, after changing the display options for the list of groups.

### Searching for groups

You can search for existing groups that match the search criteria that you specify.

### Customizing search filters for groups

You can create a filtered list of groups by specifying the type of filter and the text to be used as part of the search criteria. The list of groups will be limited because only the groups that meet the extended search criteria will be displayed.

## Creating groups

You can create one or more groups. The group names and descriptions are added to the user registry.

1. Complete the steps in “Searching for groups” on page 61.
2. Click **Create** to create a new group.
3. In the **Group name** field, type a name to be used to identify the group. This group name will be added to the user registry. For example, you might type  
i bm
4. Optional: In the **Description** field, type a brief description for the group to distinguish this group from other groups. This description will be added to the user registry. The description must be an alphanumeric string with characters that are part of the local code set. For example, Users and groups, CNC Company  
Dept 047
5. Click **Create** to add the group name and the description, if entered, to the user registry. If successful, a message displays indicating that the group has been created.
6. To create another group, click **Create Another**.
7. Repeat the process until all the new groups have been created.

#### Deleting groups

You can search for and list the existing group names that match the search criteria that you specify. After selecting one or more groups, you can delete them and remove the group names from the user registry.

#### Duplicating group assignments for a group

You can search for groups that match the search criteria that you specify. After selecting one or more groups, these groups can be members of the same groups as another existing group. For example, if all groups at the Austin site should belong to the same groups as an existing group, you can duplicate the groups that the one group belongs to for all the other groups that you choose.

## Viewing information about a group

You can view information about a specific group.

1. From the navigation pane, click **Manage Groups**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, the groups that match your search criteria are displayed as hypertext links.
6. Click on one of the group name links to view the information about the selected group. You can only view the information, you cannot change it.
7. Click **Cancel** after viewing to return to the previous window.

#### Adding a group to other groups

Before you can add a group to other groups, you must first search for the groups in which you want the group to be a member.

#### Changing information about a group

You can change the information about a specific group. You can change the name of the group, add a new description for the group if none exists, or change the existing description.

#### Viewing the groups the group is a member of

You can view a list of existing groups that the specified group is currently a member of.

## Changing information about a group

You can change the information about a specific group. You can change the name of the group, add a new description for the group if none exists, or change the existing description.

1. From the navigation pane, click **Manage Groups**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.



5. Click **Search**. After the search completes, the groups that match your search criteria are displayed in the column as hypertext links.
6. Click on one of the group links to change information about the group, as needed.
7. Optional: In the **Group name** field, enter a different name for the group, if needed.
8. Optional: In the **Description** field, enter a different description than the existing description, or enter a new description if none currently exists, if needed.
9. To save the changes, either click **OK** to save and return to the previous window, or click **Apply** to save but remain on the same window.

Viewing information about a group

You can view information about a specific group.

Viewing the groups the group is a member of

You can view a list of existing groups that the specified group is currently a member of.

## Viewing the groups the group is a member of

You can view a list of existing groups that the specified group is currently a member of.

1. From the navigation pane, click **Manage Groups**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
3. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table displays a list of groups, as hypertext links, that match your search criteria.
6. Click the group name link to see the group properties.
7. Click the **Groups** tab to see the list of groups, in ascending order, that the group is currently a member of.

Adding a group to other groups

Before you can add a group to other groups, you must first search for the groups in which you want the group to be a member.

Changing information about a group

You can change the information about a specific group. You can change the name of the group, add a new description for the group if none exists, or change the existing description.

Viewing information about a group

You can view information about a specific group.

Viewing the members of a group

You can search for a list of users and groups that are existing members of a specific group.

## Adding a group to other groups

Before you can add a group to other groups, you must first search for the groups in which you want the group to be a member.



1. Complete the steps in “Viewing the groups the group is a member of” on page 65.
2. Confirm that the group in the **Group name** field is the group that you want to add to other groups.
3. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
4. In the **Search for** field, either type the string that you want to search if for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
5. In the **Maximum results** field, specify the maximum number of search results that you want to display.
6. Click **Search** . After the search completes, a list is displayed of the groups that match your search criteria.
7. Highlight one or more groups to select them, and click **Add**.

Viewing the members of a group

You can search for a list of users and groups that are existing members of a specific group.

## Viewing a list of members of a group

You can search for a list of users and groups that are existing members of a specific group.

1. From the navigation pane, click **Manage Groups**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group names** to locate groups by searching by their group names.
3. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search is complete, a table displays a list of the groups that match the search criteria.
6. Select the check box next to one group.
7. Click the **Members** tab to view the users and groups that are existing members of the specified group. Icons are used to help distinguish a user  from a group  member.

Adding more groups as members of a group

After viewing the list of members in a group that you specify, you can add more groups.

Adding more users as members of a group

You can add more users as members of a group.

Removing members from a group

After searching for the list of members in a group that you specify, you can remove users and groups as members from the group.

## Removing a user from other groups

After searching for the groups in which the user is currently a member, you can remove the user from membership in groups that you select.

1. Complete the steps in “Viewing the groups the user is a member of” on page 56.
2. Confirm that the user in the **User ID** field is the user that you want to remove from other groups.
3. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
4. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
5. In the **Maximum results** field, specify the maximum number of search results that you want to display.
6. Click **Search** to begin the search. After the search completes, a table displays the groups that match your search criteria.
7. Select the check boxes next to one or more groups, and then click **Remove**.

Adding a user to other groups

You can add a user as a member to selected groups.

Changing group membership for a user

You can search for and list the existing groups that match the search criteria.

When creating a new user, you can choose the groups from the search results list in which you want the user to be a member.

Changing information about a user

You can change information about a specific user, such as the e-mail address.

You can update the e-mail address, change the first or last name information, or set a new password.

Viewing information about a user

You can view information about a specific user.

Viewing the groups the group is a member of

You can view a list of existing groups that the specified user is currently a member of.

## Adding more groups as members of a group

After viewing the list of members in a group that you specify, you can add more groups.

1. After completing the steps in “Viewing a list of members of a group” on page 66, click **Add Groups**.
2. Confirm that the **Group name** field displays the name of the group to which you want to add more groups as members.
3. In the **Search by** field, select the attribute from the list that you want to use to search by. For example, select **Group name**.
4. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups.
5. In the **Maximum results** field, specify the maximum number of search results that you want to display.
6. Click **Search**. After the search is complete, a list of the groups that matched your search criteria is displayed.

7. Highlight one or more groups in the list to select them, and then click **Add**.

The groups are immediately added to the list of members.

Adding more groups as members of a group

You can add more users as members of a group.

Removing members from a group

After searching for the list of members in a group that you specify, you can remove users and groups as members from the group.

## Removing members from a group

After searching for the list of members in a group that you specify, you can remove users and groups as members from the group.

1. Complete the steps in “Viewing a list of members of a group” on page 66.
2. Confirm that the **Group name** field displays the name of the group from which you want to remove members.
3. Select the check boxes next to one or more group members.
4. Click **Remove**.
5. Click **Remove** again when queried to confirm the removal of the selected members from the group. The members are immediately removed and are no longer displayed in the table.

Adding more users as members of a group

You can add more users as members of a group.

Adding more groups as members of a group

After viewing the list of members in a group that you specify, you can add more groups.

## Duplicating group assignments for a group

You can search for groups that match the search criteria that you specify. After selecting one or more groups, these groups can be members of the same groups as another existing group. For example, if all groups at the Austin site should belong to the same groups as an existing group, you can duplicate the groups that the one group belongs to for all the other groups that you choose.

1. Complete the steps in “Searching for groups” on page 61.
2. Select the check boxes next to one or more groups that you want to assign the same membership as another group.
3. Choose the **Duplicate Group Assignments** action.
4. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
5. In the **Search for** field, either type the string that you want to search for to limit the set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
6. In the **Maximum results** field, specify the maximum number of search results that you want to display.
7. Click **Search**. After the search has been completed, a table displays the groups that match your search criteria.
8. Highlight the name of the group whose group assignment is to be duplicated for the previously selected groups, and click **OK**. The group membership of the group is duplicated for the previously selected groups

#### Creating groups

You can create one or more groups. The group names and descriptions are added to the user registry.

#### Deleting groups

You can search for and list the existing group names that match the search criteria that you specify. After selecting one or more groups, you can delete them and remove the group names from the user registry.

## Deleting groups

You can search for and list the existing group names that match the search criteria that you specify. After selecting one or more groups, you can delete them and remove the group names from the user registry.

1. From the navigation pane, click **Manage Groups**.
2. In the **Search by** field, select the attribute from the list that you want to use to search for one or more groups. For example, select **Group name**.
3. In the **Search for** field, either type the string that you want to search for a limited set of groups, or use the wildcard character (\*) to search for all groups. Whether the search is case sensitive or case insensitive depends on the user registry that you are using.
4. In the **Maximum results** field, specify the maximum number of search results that you want to display.
5. Click **Search**. After the search completes, a table is displayed that lists the group names that match your search criteria. Descriptions, if any, are also provided.
6. Select the check boxes next to the groups that you want to delete.
7. Click **Delete**.
8. Click **Delete** again when asked to confirm the deletion. The groups are immediately deleted and removed from the user registry. The table that lists the groups is refreshed, and the selected groups are no longer displayed in the list.

#### Creating groups

You can create one or more groups. The group names and descriptions are added to the user registry.

#### Duplicating group assignments for a group

You can search for groups that match the search criteria that you specify. After selecting one or more groups, these groups can be members of the same groups as another existing group. For example, if all groups at the Austin site should belong to the same groups as an existing group, you can duplicate the groups that the one group belongs to for all the other groups that you choose.

---

## Considerations when changing a user ID

Changing a user ID in the console is equivalent to creating new user that is assigned only the default role of `iscusers`.

You can change a user ID in the Manage Users panel accessed through **Users and Groups > Manage Users**. If you change a user ID then it is equivalent to creating new user and the updated user ID is only assigned the default `iscusers` role. Additional roles for the updated user ID can be configured through **Users and Groups > User Roles**.

**Important:** If you change a user ID, any roles that were mapped for it, remain associated with the previous user ID. So if you intend to change or delete a user ID, you should first remove any role mappings that are associated with it. Once

you have made you change, you can re-apply the role mapping to the new user ID.

---

## Chapter 6. Administering system passwords

In addition to user passwords, Network Manager uses a number of passwords internally and when interacting with the network.

The following topics describe how to administer system passwords.

**Note:** All password encryption in Network Manager is performed using FIPS 140-2 compliant algorithms.

---

### Encrypting or decrypting a password manually

If you set a password using a configuration file, you must encrypt or decrypt the password manually. By default the **ncp\_crypt** command encrypts the password provided. However, if you specify the decrypt option, then the password is decrypted.

Complete these steps to encrypt or decrypt a password from the configuration file.

**Note:** All password encryption in Network Manager is performed using FIPS 140-2 compliant algorithms.

1. Stop Network Manager.
2. Encrypt or decrypt the required password from the command line using the **ncp\_crypt** ( **UNIX** **ncp\_crypt** ( **Windows** **ncp\_crypt.bat** on Windows systems) utility in the ITNHOME/bin directory.  
`ncp_crypt -password password [ -decrypt ] [ -help ] [ -version ]`
3. Configure an insert in the relevant configuration file.
  - a. Use the output from the **ncp\_crypt** encryption utility.
  - b. Set the value of the `m_EncryptedPwd` field to 1.
4. Restart Network Manager.

To encrypt the password, type the following command.

```
ncp_crypt -password mypassword
```

To decrypt a password you use the same utility that is used to encrypt the password, but with an additional command line argument.

```
ncp_crypt -decrypt -password @44:xXd7WUIC8teZDhLs8RQ1VjArw8HmUtNCwWs/VrVixqI=@
```

#### Related tasks:

Chapter 1, “Starting and stopping Network Manager,” on page 1

Your options for starting and stopping Network Manager are different depending on how the product has been installed.

#### Related reference:

“ncp\_crypt command-line options” on page 141

Use the `ncp_crypt` command, with optional advanced arguments, to start `ncp_crypt`, the password encryption utility.

---

## Changing the encryption key

You can change the encryption key that Network Manager uses when performing password encryption.

Before changing the encryption key, you must first decrypt all the passwords currently used in configuration files using the **UNIX** `ncp_crypt` (

**Windows** `ncp_crypt.bat` on Windows systems) utility in the `ITNMHOME/bin` directory:

```
ncp_crypt -password password -decrypt
```

Where *password* is the password to decrypt.

During installation of Network Manager, a 128-bit encryption key is generated and is stored in the following location: `$NCHOME/etc/security/keys/conf.key`. You can change the encryption key using the Tivoli Netcool/OMNIBus utility `nco_keygen`.

To change the encryption key:

1. Use the `nco_keygen` utility to generate a new encryption key. Ensure that you specify the output file as `$NCHOME/etc/security/keys/conf.key`.
2. Using the new encryption key, reencrypt all the passwords currently used in configuration files using the `ncp_crypt` utility by typing the following command.

```
ncp_crypt -password password
```

Where *password* is the password to encrypt.

### Related reference:

“`ncp_crypt` command-line options” on page 141

Use the `ncp_crypt` command, with optional advanced arguments, to start `ncp_crypt`, the password encryption utility.

---

## Deactivating password encryption

You can configure Network Manager to deactivate password encryption. If you do this then passwords entered using the GUIs are written to disk in plain text.

To deactivate password encryption:

1. Edit the `ncp_config` configuration file, `ConfigSchema.cfg`.
2. Configure the following insert to the `config.settings` table:

```
insert into config.settings
(
    m_EncryptPasswords,
    m_EncryptionKeyFile,
)
values
(
    0,
    ""
);
```

The above insert specifies no encryption (`m_EncryptPasswords = 0`), and to use the default encryption key



---

## List of passwords in Network Manager

Any password changes should be made using the Network Manager GUIs where possible.

By default, Network Manager encrypts all passwords entered using the Network Manager GUIs. Some passwords cannot be changed using a GUI and can only be changed by configuring insert statements in the relevant configuration file. If you set a password using a configuration file, you must encrypt the password manually.

The following table lists all the passwords in Network Manager, and specifies how to change the password.

*Table 12. Network Manager passwords*

| Access required to | Password type                                         | Description                                                                                                                          | Change using                                                                                                                            |
|--------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Telnet             | Privileged mode password                              | Configured as part of discovery configuration. Network Manager needs this password in order to access a network device using Telnet. | Network Discovery GUI                                                                                                                   |
| Telnet             | Password                                              | Configured as part of discovery configuration. Network Manager needs this password in order to access a network device using Telnet. | Network Discovery GUI                                                                                                                   |
| SNMP               | Community string                                      | Configured as part of discovery configuration. Network Manager needs this password in order to access a network device using SNMP.   | Network Discovery GUI                                                                                                                   |
| SNMP               | Version 3 Authentication password                     | Configured as part of discovery configuration. Network Manager needs this password in order to access a network device using SNMP.   | Network Discovery GUI                                                                                                                   |
| SNMP               | Version 3 Private password                            | Configured as part of discovery configuration. Network Manager needs this password in order to access a network device using SNMP.   | Network Discovery GUI                                                                                                                   |
| NCIM Database      | Password for command-line access to topology database | Provides access to the NCIM topology database.                                                                                       | The <code>\$NCHOME/etc/precision/DbLogins.DOMAIN.cfg</code> and <code>\$NCHOME/etc/precision/MibDbLogin.cfg</code> configuration files. |

Table 12. Network Manager passwords (continued)

| Access required to                  | Password type                                            | Description                                                                                                | Change using                      |
|-------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------|
| NCIM Database                       | Access settings used by Network Manager Web applications | You need the NCIM topology database password in order to use GUIs that query the NCIM database.            | Database Access Configuration GUI |
| Tivoli Netcool/OMNIbus ObjectServer | ObjectServer secure password                             | The Event Gateway needs this password in order to access the ObjectServer for event enrichment activities. | Configuration file insert         |
| Web applications                    | tnm.properties password                                  | Allows GUI access to the NCIM database.                                                                    | Web applications                  |

---

## Chapter 7. Administering management databases

Use either the GUI-based Management Database Access page or the OQL Service Provider to access the databases of any process.

---

### Querying management databases using the Management Database Access page

Use the Management Database Access page to perform queries on Network Manager component databases.

#### Logging into the Management Database Access page

To log in to the Management Database Access page:

1. Log in to the Tivoli Integrated Portal.
2. Click **Administration > Network > Management Database Access**.

#### Issuing a query using the Management Database Access page

Use the Management Database Access page to issue simple and complex queries against Network Manager databases.

To issue a database query using the Management Database Access page:

1. Click **Administration > Network > Management Database Access**.
2. Specify a value for the following fields.

##### Domain

Select the domain in which to issue the OQL query.

##### Service

Select the service that you want to query.

3. To issue a single-line query, type the query in the **Query** field and click **Go**



4. To issue a multiple-line query:

- a. Click **Advanced OQL Query**



- b. Type the query in the **OQL Command** field and click **OK**.

- c. Click **Go**



**Tip:** To skip step 4c, append ;go to multiple-line queries.

## Listing the databases and tables of the current service

You can explore the databases of a service, the tables of those databases, and the columns of those tables.

### Listing the databases of a service using the OQL Workbench

To display a list of the databases of the service you are logged into, use the **show databases** command.

To list the databases of a service:


1. Click **Administration > Network > Management Database Access**.
2. Specify a value for the following fields.

#### Domain

Select the domain in which to issue the OQL query.

#### Service

Select the service that you want to query.

3. Click **Advanced OQL Query** . In the **OQL Command** field, type the following query:  

```
show databases;  
go
```

### Sample output

The following example output shows the databases of the ncp\_model service:

```
{  
    databases = [ 'dbModel', 'master', 'model', 'ncimCache' ]  
}
```

### Listing the tables of a database using the Management Database Access page

To display a list of the tables of a database, use the **show tables from** command.

To list the tables of a database:

1. Click **Administration > Network > Management Database Access**.
2. Specify a value for the following fields.

#### Domain

Select the domain in which to issue the OQL query.

#### Service

Select the service that you want to query.

3. Click **Advanced OQL Query** . In the **OQL Command** field, type the following query:  

```
show tables from  
database_name;  
go
```

### Sample output

The following example output shows the tables of the master database:

```
{  
    tables = [ 'entityByName', 'entityByNeighbor', 'containers' ]  
}
```

## Listing the columns of a database table using the Management Database Access page

You can display a list of the columns of a database table using the **show table** command.

To list the columns of a database table:

1. Click **Administration > Network > Management Database Access**.
2. Specify a value for the following fields.

### Domain

Select the domain in which to issue the OQL query.

### Service

Select the service that you want to query.

3. Click **Advanced OQL Query** . In the **OQL Command** field, type the following query:

```
show table
database_name.table_name;
go
```

*database\_name* is the name of the database, and *table\_name* is the name of the required table.

## Sample output

The following example output shows the columns of the master.entityByName database:

```
{
  schema = {
    ObjectID = {
      DataType = 'long';
      NotNull = 'Y';
      PrimaryKey = 'Y';
      Indexed = 'N';
      Unique = 'Y';
    }
    EntityName = {
      Datatype = 'text';
      NotNull = 'Y';
      PrimaryKey = 'Y';
      Indexed = 'N';
      Unique = 'Y';
    };
  };
  .....
  .....
}
```

---

## Querying management databases from the command line

You can use the OQL Service Provider to perform queries on Network Manager component databases.

Once you have logged into the OQL Service Provider, you can issue OQL statements to act on the databases of the service that you are logged into. You must terminate statements with a semi-colon (;) and the **go** keyword. You can also use the **send** keyword instead of **go**.

You can configure the OQL Service Provider to require authentication against NCIM or the ObjectServer. For more information, see the *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide*.

### Starting the OQL Service Provider

Start the OQL Service Provider in order to log into the databases of a given Network Manager process.

Type the following command:

```
ncp_oql -domain DOMAIN_NAME -service SERVICE_NAME [-username USERNAME ] [-password  
PASSWORD ] [ -latency LATENCY ]
```

In this command:

- *DOMAIN\_NAME* is name of the domain to query.
- *SERVICE\_NAME* is the name of the Network Manager process to query.
- *USERNAME* is the username to authenticate with. This argument is only required if the OQL Service Provider has been configured to require authentication.
- *PASSWORD* is the password to authenticate with. This argument is only required if the OQL Service Provider has been configured to require authentication.
- *LATENCY* is the maximum time in milliseconds (ms) that the service provider waits to connect to another Network Manager process using the messaging bus. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic. The default value is 3000 (equivalent to 3 seconds). You might want to increase this value as the default value might not be long enough to get a response from a large or busy OQL database.

### Listing the databases and tables of the current service using the OQL Service Provider

You can explore the databases of a service, the tables of those databases, and the columns of those tables.

## Listing the databases of a service using the OQL Service Provider

To display a list of the databases of the service you are logged into, use the **show databases** command.

To list the databases of a service using the OQL Service Provider

1. Start the OQL Service Provider.
2. Type the following query:

```
show databases;
go
```

### Sample output

The following example output shows the databases of the ncp\_model service:

```
{
    databases = [ 'master', 'translations' ]
}
```

#### Related tasks:

“Starting the OQL Service Provider” on page 78

Start the OQL Service Provider in order to log into the databases of a given Network Manager process.

## Listing the tables of a database using the OQL Service Provider

To display a list of the tables of a database, use the **show tables from** command.

To list the tables of a database using the OQL Service Provider:

1. Start the OQL Service Provider.
2. Type the following query:

```
show tables from
database_name;
go
```

### Sample output

The following example output shows the tables of the master database:

```
{
    tables = [ 'entityByName', 'entityByNeighbor', 'containers' ]
}
```

#### Related tasks:

“Starting the OQL Service Provider” on page 78

Start the OQL Service Provider in order to log into the databases of a given Network Manager process.

## Listing the columns of a database table using the OQL Service Provider

You can list the columns of a database table using the **show table** command.

To issue a database table query using the OQL Service Provider:

1. Start the OQL Service Provider.
2. Type the following query:

```
show table
database_name.table_name;
go
```

*database\_name* is the name of the database, and *table\_name* is the name of the required table.

### Sample output

The following example output shows the columns of the master.entityByName database:

```
{
  schema = {
    ObjectID = {
      DataType = 'long';
      NotNull = 'Y';
      PrimaryKey = 'Y';
      Indexed = 'N';
      Unique = 'Y';
    }
    EntityName = {
      Datatype = 'text';
      NotNull = 'Y';
      PrimaryKey = 'Y';
      Indexed = 'N';
      Unique = 'Y';
    };
  };
  .....
  .....
}
```

#### Related tasks:

“Starting the OQL Service Provider” on page 78

Start the OQL Service Provider in order to log into the databases of a given Network Manager process.

## Using OQL queries in scripts

You can launch the service provider in a special mode that executes a single specified query and disconnects from the service provider.

This allows OQL queries to be used in scripts.

The following example shows the `-query` option in use.

```
ncp_oql -domain NCOMS -service Disco -query "select * from disco.status;"
```

The above example performs a single query on the `disco.status` database table and disconnects from the OQL Service Provider. In order to perform this query, the **ncp\_disco** process would have to be running in the NCOMS domain, and the specified user name and password combination would have to be valid.

Any acceptable OQL query can be specified with the `-query` option. The query must be terminated with a semi-colon but not the **go** keyword.



## Exiting the OQL Service Provider

When you have finished issuing OQL queries, exit the OQL Service Provider.

To exit the service provider, type the following command:

```
quit;
```

---

## OQL Service Provider tips

OQL Service Provider provides a number of commands to facilitate interaction with the command line.

**Restriction:** These commands only work in the OQL Service Provider. They do not work in the Management Database Access page.

### Show history of commands

Use the `hist` command to show the most recent commands.

Using the `hist` command, you can display up to the thousand (1,000) most recent commands.

#### Sample

This sample shows how to use the `hist` command:

```
history
```

```
1:      select * from services.unManaged;
2:      select * from services.unManaged where serviceName like 'dh';
3:      select count(*) from services.unManaged;
```

### Execute a previous command

Use the `!` command together with a number from the command history list to repeat a recent command. Use the `!!` command to repeat the most recent command.

#### Sample

This sample shows how to use the `!` command:

```
history
```

```
1:      select * from services.unManaged;
2:      select * from services.unManaged where serviceName like 'dh';
3:      select count(*) from services.unManaged;
```

```
!2
```

This executes the second command in the history list and produces the following output:

```
{
  serviceName='ncp_dh_dns';
  servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
  argList=['-domain','NCOMS'];
  serviceId=23;
  processId=10734;
}
{
  serviceName='ncp_dh_snmp';
  servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
```

```

        argList=['-domain','NCOMS'];
        serviceId=24;
        processId=10750;
    }
    {
        serviceName='ncp_dh_arp';
        servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
        argList=['-domain','NCOMS'];
        serviceId=25;
        processId=10872;
    }
    {
        serviceName='ncp_dh_telnet';
        servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
        argList=['-domain','NCOMS'];
        serviceId=52;
        processId=11424;
    }
    {
        serviceName='ncp_dh_ping';
        servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
        argList=['-domain','NCOMS'];
        serviceId=67;
        processId=13399;
    }
}
( 5 record(s) : Transaction complete )

```

## Turn on tabular display mode

Use the tabon command to turn on tabular display mode.

### Sample

This sample shows how to use the tabon command:

```

tabon
select * from services.unManaged where serviceName like 'dh';
go

```

This produces the following output:

| serviceName   | servicePath                               | argList             |
|---------------|-------------------------------------------|---------------------|
| ncp_dh_dns    | \$PRECISION_HOME/platform/\$PLATFORM/bin/ | ['-domain','NCOMS'] |
| ncp_dh_snmp   | \$PRECISION_HOME/platform/\$PLATFORM/bin/ | ['-domain','NCOMS'] |
| ncp_dh_arp    | \$PRECISION_HOME/platform/\$PLATFORM/bin/ | ['-domain','NCOMS'] |
| ncp_dh_telnet | \$PRECISION_HOME/platform/\$PLATFORM/bin/ | ['-domain','NCOMS'] |
| ncp_dh_ping   | \$PRECISION_HOME/platform/\$PLATFORM/bin/ | ['-domain','NCOMS'] |

| serviceId | processId |
|-----------|-----------|
| 23        | 10734     |
| 24        | 10750     |
| 25        | 10872     |
| 52        | 11424     |
| 67        | 13399     |

( 5 record(s) : Transaction complete )

## Turn off tabular display mode

Use the `taboff` command to turn off tabular display mode.

### Sample

This sample shows how to use the `tabon` command:

```
taboff
select * from services.unManaged where serviceName like 'dh';
go
```

This produces the following output:

```
{
    serviceName='ncp_dh_dns';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
    argList=['-domain','NCOMS'];
    serviceId=23;
    processId=10734;
}
{
    serviceName='ncp_dh_snmp';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
    argList=['-domain','NCOMS'];
    serviceId=24;
    processId=10750;
}
{
    serviceName='ncp_dh_arp';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
    argList=['-domain','NCOMS'];
    serviceId=25;
    processId=10872;
}
{
    serviceName='ncp_dh_telnet';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
    argList=['-domain','NCOMS'];
    serviceId=52;
    processId=11424;
}
{
    serviceName='ncp_dh_ping';
    servicePath='$PRECISION_HOME/platform/$PLATFORM/bin/';
    argList=['-domain','NCOMS'];
    serviceId=67;
    processId=13399;
}
( 5 record(s) : Transaction complete )
```



---

## Chapter 8. Administering the NCIM topology database

Network topology information is held in the NCIM database.

---

### Changing the NCIM access details

If you change the hostname, port, password, or database name of the NCIM database, you must perform some configuration tasks to enable Network Manager to connect to the database.

### Changing the NCIM password

For security reasons, change the password for command-line access to the topology database regularly. The password must be encrypted.

To change the password for command-line access, complete the following steps:

1. Change the password in the topology database.
  - If you are using the default IBM Informix database, change the password of the operating system user that is used to access the topology database. Use the standard procedure on your operating system.
  - If you are using a different supported topology database, refer to your database documentation for instructions on how to change the database password.
2. Update the NCIM access settings in the GUI in the **Administration > Network > Database Access Configuration** screen and change the password to the new password. If you are unable to use the GUI to make this change, edit the password property in the `NCHOME/precision/profiles/TIPProfile/etc/tnm/tnm.properties` file.
3. Change the password use by the Polling GUI by editing the password property in the `sNCHOME/precision/profiles/TIPProfile/etc/tnm/ncpolldata.properties` file
4. Change the password used by Tivoli Common Reporting by configuring the data source properties for reports. For more information on configuring data source properties for reporting, see the *IBM Tivoli Network Manager IP Edition Administration Guide*.
5. Change the password in the configuration files.
  - a. Determine if you are using encrypted passwords. By default, passwords are encrypted. If `tnm.database.password.encrypted=true` in the `tnm.properties` file, and `ncpolldata.database.password.encrypted=true` in the `ncpolldata.properties` file, then you are using encrypted passwords.
  - b. If necessary, encrypt the password using the following command: `ncp_crypt -password password`
  - c. Paste the password into the `DbLogins.DOMAIN.cfg` file, where `DOMAIN` is the name of your network domain. Repeat this step for each network domain.
  - d. Paste the password into the `MibDbLogin.cfg` file.
6. Optional: If you are not sure whether the password is correct, turn encryption off by setting `tnm.database.password.encrypted=false` in the `tnm.properties` file, and `ncpolldata.database.password.encrypted=false` in the

ncpolldata.properties file, and enter the password in clear text. Do this only for troubleshooting purposes, and remember to turn encryption back on afterwards.

After changing the password, you can use the NCHOME/precision/scripts/perl/scripts/ncp\_db\_access.pl script to verify access. For more information on the ncp\_db\_access.pl script, see the *IBM Tivoli Network Manager IP Edition Administration Guide*.

**Related tasks:**

“Troubleshooting database access” on page 133

In the event of problems with access to the topology database, historical polling database, or polling database, run the ncp\_db\_access.pl script. This script checks database setup and determines whether access to the databases is being prevented by firewalls.

## Updating NCIM access settings in the GUI

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

You only need to configure topology database access settings if the default settings configured by the installation process are not sufficient, for example, if you have changed the topology database.

To configure topology database access settings:

1. Click **Administration > Network > Database Access Configuration**. The Configure NCIM Database Access and the Configure Historical Polling Database Access portlets are displayed.
2. Enter the host that the database is installed on in the **Database Host** field. By default, this is the same host that Network Manager is installed on.
3. Enter the port used by the database in the **Database Port** field.
4. Enter the user name that was entered during installation of the database in the **Username** field.
5. Enter the password that was entered during installation of the database in the **Password** field.
6. Confirm the password.

**Related reference:**

“Topoviz screen is blank” on page 130

If Topoviz fails to start, or starts with a blank screen, refresh the browser window. If the Network Manager splash screen does not appear, check the topology database access settings.

## Re-creating network views

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database and you also need to re-create your network views.

Ensure you have configured GUI access to the new topology database.

Network views are auto-provisioned by the default.xml and itnmuser.xml files when installing Network Manager, and are then created in the database. However, if you do not create the topology database schemas during installation, or subsequently change your database, then you need to re-create your views.

To re-create network views:

1. Go to `NCHOME/precision/profiles/TIPProfile/etc/tnm/autoprovision`.
2. Rename the files called *filename.xml.processed* to *filename.xml*.
3. Save and close the files.

## Recataloging the NCIM database on DB2

If you change the hostname, port, or database name of the NCIM database on DB2, you must uncatalog and recatalog the database. Otherwise you will not be able to access the GUI.

See your DB2 documentation for instructions on configuring DB2.

To uncatalog and recatalog the database:

1. **DB2** Uncatalog the database using the following command: **UNIX**  
`$NCHOME/precision/scripts/sql/db2/uncatalog_db2_database.sh database_name`

**Windows**

`%NCHOME%\precision\scripts\sql\db2\uncatalog_db2_database.bat database_name`  
where *database\_name* is the name of the NCIM database.

2. Catalog the database using the following command: **UNIX**  
`$ITNMHOME/scripts/sql/db2/catalog_db2_database.sh database_name host port`

**Windows**

`%ITNMHOME%\scripts\sql\db2\catalog_db2_database.bat database_name host port`  
where *database\_name* is the name of the NCIM database, *host* is the hostname of the server where NCIM is installed, and *port* is the port on which the NCIM database is running.

---

## Changing DB2 passwords

Passwords for IBM DB2 databases are maintained in the underlying operating system. It is stored in Network Manager to permit connections between the database and the backend and GUI components, and Tivoli Common Reporting. After the password in DB2 is changed, the password needs to be updated in Network Manager and, if applicable, in Tivoli Common Reporting. If the DB2 password is not kept up to date, the connection to the database fails.

DB2 passwords are maintained separately in the product for the backend, GUI and for Tivoli Common Reporting. The procedure for changing the DB2 password in Tivoli Common Reporting differs depending on the deployment.

After the DB2 password is changed, complete the following steps to update the password in Network Manager and Tivoli Common Reporting:

1. Encrypt the DB2 password. Use the **ncp\_crypt** utility. The following example shows how to run the utility to encrypt the string "netcool123" and how the utility outputs the encrypted string:

```
ncp_crypt -password netcool123
 '@44:02aJesKCAX6Af0a0KeTBMRWk2ru8soE0e9PFev6smwc=@' netcool123
```

The encrypted string is enclosed in single quotation marks (' ').

2. To update the password in the Network Manager backend:

- a. Copy the encrypted string. Omit the single quotation marks. Paste the string into the section for the DB2 user in the following files. Enclose the string in double quotation marks (" ").
  - \$NCHOME/etc/precision/DbLogins.domain.cfg
  - \$NCHOME/etc/precision/MibDbLogin.domain.cfg

For example, in the DbLogins file, with the encrypted string from step 1 on page 87:

```
insert into config.dbserver
(
  m_DbId,
  m_Server,
  m_DbName,
  m_Schema,
  m_Hostname,
  m_Username,
  m_Password,
  m_PortNum,
  m_EncryptedPwd
)
values
(
  "NCIM",
  "db2",
  "ITNM.VM123_2014",
  "ncim",
  "cb1v4",
  "ncim",
  "@44:02aJesKCAX6Af0a0KeTBMRWk2ru8soE0e9PFEv6smwc=@",
  9088,
  1
);
```

- b. Restart the **ncp** process. For example:

```
itnm_stop ncp
itnm_start ncp
```

3. To update the password in the Network Manager GUI:
  - a. In Tivoli Integrated Portal, click **Administration > Network > Database Access Configuration**
  - b. On the Configure NCIM Database Access page, set the new password and save. Do not use the encrypted string that you created in step 1 on page 87.
  - c. On the Configure Historical Polling Database Access page, set the password for historical polling. If you use Tivoli Data Warehouse to store historical polling data, only change the password if the database password was changed on the Tivoli Data Warehouse.

The remaining steps describe how to change the DB2 password on a Tivoli Common Reporting deployment. The steps differ depending on the data model (BIRT or Cognos) and the deployment. You need the password for the Tivoli Integrated Portal administrator user (typically the tipadmin user). If you use Tivoli Data Warehouse for historical polling, and the Tivoli Data Warehouse password changed, you must use steps 5 on page 89 and 6 on page 89 to update the data sources for BIRT and Cognos.

4. To change the password for all data sources, run the \$NCHOME/precision/products/tnm/bin/configTCR.sh script. This script works on both the BIRT and Cognos data models. For example:
 

```
./configTCR -p tipadmin_password -d new_db2_password
```



**Note:** This step assumes Tivoli Data Warehouse is not used. If you use Tivoli Data Warehouse for historical polling, and the Tivoli Data Warehouse password changed, you must use steps 5 and 6 to update the data sources for BIRT and Cognos.

5. For the BIRT data model, run the `trcmd.sh` script. Specify the data source in the `-name` option. Run the script for the following data sources, as applicable:
  - **NCIM:** For reports that use NCIM topology data.
  - **PARAMETERS:** For reports that use the NCPOLLDATA database or the NCPOLLDATA schema for report parameters.
  - **NCPOLLDATA:** For reports that use historical polling data that is stored in Tivoli Data Warehouse, and the password was changed for that database.

For example, to change the password on the NCIM data source to “netcool123”:

```
./trcmd.sh -modify -dataSources -reports -user tipadmin  
-password tipadmin_password -dataSource name=NCIM -setDatasource  
odaPassword=netcool123
```

**Note:** You must use steps 5 and 6 when using Tivoli Data Warehouse, or if you need more control over the data sources. Otherwise, the source for historical data is reverted to the local database.

6. For each data source, use the Cognos GUI to change the password in the Cognos data sources.
  - a. In the navigation, click **Reporting > Common Reporting**. Then, on the right side, click **Launch > Administration**.
  - b. Click the **Configuration** tab.
  - c. Click **NCIM** and then click **NCIM** again. The breadcrumb trail at the top of the GUI should read **Directory > Cognos > NCIM > NCIM**.
  - d. Select the check box next to **ncim** and click **More > Set Properties**.
  - e. On the **Signon** tab, type the database user name and the new password.
  - f. Repeat steps 6b to 6e for the **PARAMETERS** and, if applicable **NCPOLLDATA** data sources.

---

## Creating the topology database schemas

You can set up the topology database during installation. If you need to set up a database after installation for an existing Network Manager, then you can do this manually using the scripts provided.

You must create the topology database before you can use Network Manager.

For information about creating the topology databases, see the *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide*.

## Creating Informix topology database schemas on UNIX

### UNIX

You can use scripts provided by Network Manager to create the topology database schemas in an Informix database on UNIX.

To create the topology database:

1. Make sure you have followed the prerequisites for installing Informix, and install and configure the Informix database.

2. Optional: If you installed the Informix database on a different host from Network Manager, copy the `$ITNMHOME/scripts/sql/informix/create_informix_database.sh` script to the remote host where you installed Informix.
3. If you installed the Informix database on the same host as Network Manager, change to the `$ITNMHOME/scripts/sql/informix` directory.
4. Run the following script to create the databases:  
`./create_informix_database.sh database_name user_name`  
 where:

**database\_name**

Specifies the name of the database.

**user\_name**

Specifies the name of the database user that will be used to connect to the database.

**Important:** This user must not be the administrative user. This user must be an existing operating system user.

For example, to create an Informix database called “NCIM” for the Informix user “ncim”, type `./create_informix_database.sh NCIM ncim`.

5. Go to the machine where you have Network Manager installed and change to the `$ITNMHOME/scripts/sql` directory.
6. If your database is on a remote host, run the **create\_all\_schemas.sh** command as the administrative user as follows: `./create_all_schemas.sh database_type database_name host user_name password port`  
 where:

**database\_type**

Identifies the type of database to create. In this case, it is `informix`.

**database\_name**

Specifies the name of the database. For Informix the format must be `server_name.database_name`, where the `server_name` is the name of the Informix server and not the host name.

**host** Specifies the server host name or IP address where the database is installed.

**user\_name**

Identifies the user that will be used to connect to the database.

**password**

Provides the password for the user.

**port** Specifies the port used by the database.

7. If your database is on the same host as Network Manager, go to `$ITNMHOME/scripts/sql/informix` and run the following script to populate the databases:  
`./populate_informix_database.sh database_name > populate.log 2>&1`
8. Examine the `populate.log` file for any errors.
9. Run the `$ITNMHOME/bin/ncp_mib` command to ensure that the `ncmib` database is fully populated with SNMP data from the MIBs before a discovery is run.

10. If you want your Network Manager GUI to use the database schema you created, then you need to configure access to the new topology database schema and re-create your network views (see related tasks later in this section).

**Related tasks:**

“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

“Re-creating network views” on page 86

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database and you also need to re-create your network views.

## Creating Informix topology database schemas on Windows

### Windows

You can use scripts provided by Network Manager to create the topology database schemas in an Informix database on Windows.

To create the topology database:

1. Make sure you have followed the prerequisites for installing Informix, and install and configure the Informix database.
2. Optional: If you installed the Informix database on a different host from Network Manager, copy the %ITNMHOME%\scripts\sql directory and its contents from the Network Manager server to the remote host where you installed Informix.
3. On the host where the database is installed, open a command prompt and change to the %ITNMHOME%\scripts\sql\informix directory.
4. Run the following script to create the databases: `create_informix_database.bat database_name user_name`

where:

**database\_name**

Specifies the name of the database.

**user\_name**

Specifies the name of the database user that will be used to connect to the database.

**Important:** This user must not be the administrative user. This user must be an existing operating system user.

For example, to create a Informix database called “NCIM” for the Informix user “ncim”, type `create_informix_database.bat NCIM ncim`.

5. Run the following script to populate the databases:  
`populate_informix_database.bat database_name > populate.log 2>&1`
6. Examine the `populate.log` file for any errors.
7. Run the %ITNMHOME%\bin\ncp\_mib command to ensure that the ncmib database is fully populated with SNMP data from the MIBs before a discovery is run.
8. If you want your Network Manager GUI to use the database schema you created, then you need to configure access to the new topology database schema and re-create your network views (see related tasks later in this section).

### Related tasks:

“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

“Re-creating network views” on page 86

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database and you also need to re-create your network views.

## Creating DB2 topology database schemas on UNIX

### UNIX

You can use scripts provided by Network Manager to create the topology database schemas in a DB2 database on UNIX.

To create the topology database:

1. Make sure you have followed the prerequisites for installing DB2, and install and configure the DB2 database.
2. Optional: If you installed the DB2 database on a different host from Network Manager, copy the `$ITNMHOME/scripts/sql/db2/create_db2_database.sh` script to the remote host where you installed DB2.
3. If you installed the DB2 database on the same host as Network Manager, change to the `$ITNMHOME/scripts/sql/db2` directory.
4. Run the script as the DB2 administrative user by typing the following command: `./create_db2_database.sh database_name user_name -force` where:

#### **database\_name**

Is the required name of the database

#### **user\_name**

Is the DB2 user that will be used to connect to the database

**Important:** This user must not be the administrative user. This user must be an existing operating system and DB2 user.

**-force** Is an optional argument that forces any DB2 users off the instance before the database is created.

For example, to create a DB2 database called “NCIM” for the DB2 user “ncim”, type:

```
./create_db2_database.sh NCIM ncim
```

5. Go to the machine where you have Network Manager installed and change to the `$ITNMHOME/scripts/sql` directory.
6. If your database is on a remote host, run the **create\_all\_schemas.sh** command as the administrative user as follows: `./create_all_schemas.sh database_type database_name host user_name password port` where:

#### **database\_type**

Identifies the type of database to create. In this case, it is db2.

#### **database\_name**

Specifies the name of the database.

**host** Specifies the server host name or IP address where the database is installed.

**user\_name**  
Identifies the DB2 user that will be used to connect to the database.

**Important:** This user must not be the administrative user. This user must be an existing operating system and DB2 user.

**password**  
Provides the password for the user.

**port** Specifies the port used by the database.

7. If your database is on the same host as Network Manager, go to `$ITNMHOME/scripts/sql/db2` and run the following script to populate the databases:

```
./populate_db2_database.sh database_name user_name password > db2.log 2>&1
```

8. Examine the `db2.log` file for any errors.
9. Login as the DB2 administrator on the DB2 client running on the Tivoli Integrated Portal server.
10. Run the following script to catalog the database: `$ITNMHOME/scripts/sql/db2/catalog_db2_database.sh database_name host port`  
where:

**database\_name**  
Is the name of the NCIM database

**host** Is the host name of the server where NCIM is installed.

**port** Is the port on which the NCIM database is running.  
The following command shows an example usage of the script:  
`./catalog_db2_database.sh ITNM db2server.ibm.com 50000`

11. Run the `$ITNMHOME/bin/ncp_mib` command to ensure that the `ncmib` database is fully populated with SNMP data from the MIBs before a discovery is run.
12. If you want your Network Manager GUI to use the database schema you created, then you need to configure access to the new topology database schema and re-create your network views (see related tasks later in this section).

#### Related tasks:

“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

“Re-creating network views” on page 86

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database and you also need to re-create your network views.

## Creating DB2 topology database schemas on Windows

### Windows

You can use scripts provided by Network Manager to create the topology database schemas in a DB2 database on Windows.

To create the topology database:

1. Make sure you have followed the prerequisites for installing DB2, and install and configure the DB2 database.
2. Optional: If you installed the DB2 database on a different host from Network Manager, copy the %ITNMHOME%\scripts\sql directory and its contents from the Network Manager server to the remote host where you installed DB2.
3. On the host where the database is installed, open a command prompt and change to the %ITNMHOME%\scripts\sql\db2 directory.
4. Run the following script as an administrative user to create the databases:  
`create_db2_database.bat database_name user_name -force`

where:

**database\_name**

Is the required name of the database

**user\_name**

Is the DB2 user that will be used to connect to the database

**Important:** This user must not be the administrative user. This user must be an existing operating system and DB2 user.

**-force** Is an optional argument that forces any DB2 users off the instance before the database is created.

For example, to create a DB2 database called "NCIM" for the DB2 user "ncim", type:

```
create_db2_database.bat NCIM ncim.
```

5. Run the following script to populate the databases:  
`populate_db2_database.bat database_name user_name password > db2.log 2>&1`
6. Examine the db2.log file for any errors.
7. Login as the DB2 administrator on the DB2 client running on the Tivoli Integrated Portal server.
8. Run the following script to catalog the database: `catalog_db2_database.bat database_name host port`

where:

**database\_name**

Is the name of the NCIM database

**host** Is the host name of the server where NCIM is installed.

**port** Is the port on which the NCIM database is running.

The following command shows an example usage of the script:

```
catalog_db2_database.bat ITNM db2server.ibm.com 50000
```

9. Run the %ITNMHOME%\bin\ncp\_mib command to ensure that the ncmib database is fully populated with SNMP data from the MIBs before a discovery is run.

10. If you want your Network Manager GUI to use the database schema you created, then you need to configure access to the new topology database schema and re-create your network views (see related tasks later in this section).

**Related tasks:**

“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

“Re-creating network views” on page 86

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database and you also need to re-create your network views.

## Creating MySQL topology database schemas on UNIX

### UNIX

You can use scripts provided by Network Manager to create the topology database schemas in a MySQL database on UNIX.

To create the topology database:

1. Make sure you have followed the prerequisites for installing MySQL, and install and configure the MySQL database.
2. Optional: If you installed the MySQL database on a different host from Network Manager, copy the `$ITNMHOME/scripts/sql/mysql/create_mysql_database.sh` script to the remote host where you installed MySQL.
3. If you installed the MySQL database on the same host as Network Manager, change to the `$ITNMHOME/scripts/sql/mysql` directory.
4. Run the following script to create the databases and grant permissions to the `ncim` user to access them:

```
./create_mysql_database.sh root password prefix
```

You can also specify an optional *prefix* value here that applies a prefix to schema names. This is useful when creating multiple sets of NCIM schemas in the same database. If you use prefixes, you must also update the following files to include the prefix for each schema name reference; unless otherwise stated, update the following files after base or fix pack installations:

- `tnm.properties`
- `ncpolldata.properties` (no update needed for fix packs)
- `DbLogins.DOMAIN.cfg`
- `MibDbLogin.cfg` (no update needed for fix packs or if only GUI components are installed)

For example, when you have several domains and you use the prefix `abc` to determine the schema for a particular domain, you must then update the schema name references with the `abc` prefix for that domain, as shown for each `*schema*` property in the following sample from the `tnm.properties` file (the `abc` prefix highlighted in bold):

```
tnm.trace.maxsize=10
tnm.database.schema.ncmib=abcncmib
tnm.trace.count=1
tnm.graph.missedViewRefreshIntervals=20
tnm.trace.filename=ncp_guiconfig.%g.trace
tnm.log.count=1
```

```
tnm.database.type=oracle
tnm.oql.response.poll.timeout=120000
tnm.oql.response.poll.delay=100
tnm.database.schema.ncim=abcncim
tnm.graph.maxFailedRequests=15
tnm.fips.key.location=encryption/keys/crypt.key
tnm.graph.poller=DEFAULT_POLLER
tnm.database.schema.ncpgui=abcncpgui
tnm.database.port=1521
tnm.database.schema.ncmonitor=abcncmonitor
tnm.graph.viewRefreshInterval=15000
tnm.fips.mode=false
tnm.database.host=cb1v2
tnm.log.maxsize=10
tnm.log.filename=ncp_guiconfig.%g.log
tnm.database.dbname=ITNMIP39
tnm.graph.historicalViewRefreshInterval=30000
tnm.database.password=abcncim
tnm.log.level=INFO
tnm.database.password.encrypted=false
tnm.oql.timeout=30000
tnm.database.username=abcncim
```

5. Go to the machine where you have Network Manager installed and change to the `$ITNMHOME/scripts/sql` directory.
6. If your database is on a remote host, run the **create\_all\_schemas.sh** command as the administrative user as follows: `./create_all_schemas.sh database_type database_name host user_name password port prefix`

where:

**database\_type**

Identifies the type of database to create. In this case, it is `mysql`.

**database\_name**

Specifies the name of the database.

**host**

Specifies the server host name or IP address where the database is installed.

**user\_name**

Identifies the user that will be used to connect to the database.

**password**

Provides the password for the user.

**port**

Specifies the port used by the database.

**prefix**

Is an optional argument that if specified applies a prefix to schema names. This is useful when creating multiple sets of NCIM schemas in the same database. If used, the value must be the same prefix as the one set when running the **create\_mysql\_database.sh** script.

7. If your database is on the same host as Network Manager, go to `$ITNMHOME/scripts/sql/mysql` and run the following script to create the tables within the databases:  
`./populate_mysql_database.sh root password`
8. Run the `$ITNMHOME/bin/ncp_mib` command to ensure that the `ncmib` database is fully populated with SNMP data from the MIBs before a discovery is run.
9. If you want your Network Manager GUI to use the database schema you created, then you need to configure access to the new topology database schema and re-create your network views (see related tasks later in this section).

**Related tasks:**



“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

“Re-creating network views” on page 86

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database and you also need to re-create your network views.

## Creating MySQL topology database schemas on Windows

### Windows

You can use scripts provided by Network Manager to create the topology database schemas in a MySQL database on Windows.

To create the topology database:

1. Make sure you have followed the prerequisites for installing MySQL, and install and configure the MySQL database.
2. Optional: If you installed the MySQL database on a different host from Network Manager, copy the %ITNMHOME%\scripts\sql directory and its contents from the Network Manager server to the remote host where you installed MySQL.
3. On the host where the database is installed, open a command prompt and change to the %ITNMHOME%\scripts\sql\mysql directory.
4. Run the script to create the databases and grant permissions to the ncim user to access them using the following commands:

```
create_mysql_database.bat root password prefix
```

You can also specify an optional *prefix* value here that applies a prefix to schema names. This is useful when creating multiple sets of NCIM schemas in the same database. If you use prefixes, you must also update the following files to include the prefix for each schema name reference; unless otherwise stated, update the following files after base or fix pack installations:

- tnm.properties
- ncpolldata.properties (no update needed for fix packs)
- DbLogins.DOMAIN.cfg
- MibDbLogin.cfg (no update needed for fix packs or if only GUI components are installed)

For example, when you have several domains and you use the prefix **abc** to determine the schema for a particular domain, you must then update the schema name references with the **abc** prefix for that domain, as shown for each *\*schema\** property in the following sample from the tnm.properties file (the **abc** prefix highlighted in bold):

```
tnm.trace.maxsize=10
tnm.database.schema.ncmib=abcncmib
tnm.trace.count=1
tnm.graph.missedViewRefreshIntervals=20
tnm.trace.filename=ncp_guiconfig.%g.trace
tnm.log.count=1
tnm.database.type=oracle
tnm.oql.response.poll.timeout=120000
tnm.oql.response.poll.delay=100
tnm.database.schema.ncim=abcncim
tnm.graph.maxFailedRequests=15
tnm.fips.key.location=encryption/keys/crypt.key
tnm.graph.poller=DEFAULT_POLLER
```

```
tnm.database.schema.ncpgui=abcncpgui
tnm.database.port=1521
tnm.database.schema.ncmonitor=abcncmonitor
tnm.graph.viewRefreshInterval=15000
tnm.fips.mode=false
tnm.database.host=cb1v2
tnm.log.maxsize=10
tnm.log.filename=ncp_guiconfig.%g.log
tnm.database.dbname=ITNMIP39
tnm.graph.historicalViewRefreshInterval=30000
tnm.database.password=abcncim
tnm.log.level=INFO
tnm.database.password.encrypted=false
tnm.oql.timeout=30000
tnm.database.username=abcncim
```

5. Run the script to create the tables within the databases using the following commands:

```
populate_mysql_database.bat root password
```

6. Run the %ITNMHOME%\bin\ncp\_mib command to ensure that the ncmib database is fully populated with SNMP data from the MIBs before a discovery is run.
7. If you want your Network Manager GUI to use the database schema you created, then you need to configure access to the new topology database schema and re-create your network views (see related tasks later in this section).

#### Related tasks:

“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

“Re-creating network views” on page 86

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database and you also need to re-create your network views.

## Creating Oracle topology database schemas on UNIX

Use scripts to create the topology database schemas in an Oracle database on UNIX.

To create the topology database, complete the following steps on the server where the Oracle database is installed. Different users are required to run the different scripts.

1. Make sure that you followed the prerequisites for installing Oracle, and install and configure the Oracle database.  
For information on installing and configuring Oracle, refer to the Oracle documentation at <http://docs.oracle.com/en/database/>.
2. Ensure the database creation scripts are available on the database server.
  - If the Oracle database is on the same server as Network Manager, and the Network Manager has already been installed, the database creation scripts are available in \$ITNMHOME/scripts/sql.
  - If the Oracle database is on a different server, either copy the contents of \$ITNMHOME/scripts/sql to the Oracle server, or locate the oracle\_creation\_scripts.tar.gz file at the top level which is available from IM as a separate package.
3. To create the database, run the ./create\_oracle\_database.sh script. As the Oracle database administrator, run the ./create\_oracle\_database.sh script by supplying the system user and password. On the Network Manager server, the

script is in the `$ITNMHOME/scripts/sql/oracle` directory. Run the script on the server where the database is installed. Run the script as in the following example.

```
./create_oracle_database.sh system password [-asm]
[-pdb pluggable_database_name]
```

Where the following parameters apply:

**password**

Specifies the password of the system user.

**-asm**

Specify `-asm` if your Oracle DB uses ASM.

**-pdb pluggable\_database\_name**

Optional: if you are running Oracle 12c with RAC, you must use a pluggable database. In this case, use this parameter to specify the Oracle 12c pluggable database name.

4. Create the database schema. To create the database schema, use one of the following approaches, you cannot use both approaches.
  - a. To create the database schema from the Network Manager server, run the `$ITNMHOME/scripts/sql/create_all_schemas.sh` command on the Network Manager server as the administrative user as follows:  
`./create_all_schemas.sh database_type database_name host user_name password port`

Where:

**database\_type**

Identifies the type of database to create. In this case, it is `oracle`.

**database\_name**

Specifies the name of the database. For Oracle, this name must be the pluggable database.

**host**

Specifies the server host name or IP address where the database is installed.

**user\_name**

Identifies the user to use to connect to the database.

**password**

Provides the password for the user.

**port**

Specifies the database port.

- b. To create the database schema on the database server, go to the location on the database server where you uncompressed the `oracle_creation_scripts.tar.gz` file. As the administrative user, run the `populate_oracle_database.sh` script. Run the script as in the following example:

```
./populate_oracle_database.sh database_user_name password
[-pdb pluggable_database_name]
> oracle.log 2>&1
```

Where the following parameters apply:

**database\_user\_name**

The value can be `system` or `ncim`. You created the `ncim` user in an earlier step.

**password**

Provides the password for the user.

**-pdb pluggable\_database\_name**

Optional: if you are running Oracle 12c with RAC, you must use a pluggable database. In this case, use this parameter to specify the Oracle 12c pluggable database name.

5. Examine the `oracle.log` file for any errors.
6. Run the `$ITNMHOME/bin/ncp_mib` command to ensure that the `ncmib` database is fully populated with SNMP data from the MIBs before a discovery is run.
7. If you want your Network Manager GUI to use the database schema you created, then you need to configure access to the new topology database schema and re-create your network views (see related tasks later in this section).

**Related tasks:**

“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

“Re-creating network views” on page 86

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database and you also need to re-create your network views.

## Creating Oracle topology database schemas on Windows

### Windows

You can use scripts provided by Network Manager to create the topology database schemas in an Oracle database on Windows.

To create the topology database:

1. Make sure you have followed the prerequisites for installing Oracle, and install and configure the Oracle database.
2. Optional: If you installed the Oracle database on a different host from Network Manager, copy the `%ITNMHOME%\scripts\sql` directory and its contents from the Network Manager server to the remote host where you installed Oracle.
3. On the host where the database is installed, open a command prompt and change to the `%ITNMHOME%\scripts\sql\oracle` directory.
4. Run the following command to create the databases: `sqlplus database_user_name password < create_oracle_database.sql`  
where:

**database\_user\_name**

Specifies the name of the database user that will be used to connect to the database.

**password**

Specifies the password of the database user.

**prefix**

You can also specify an optional *prefix* value here that applies a prefix to schema names. This is useful when creating multiple sets of NCIM schemas in the same database. If you use prefixes, you must also

update the following files to include the prefix for each schema name reference; unless otherwise stated, update the following files after base or fix pack installations:

- `tnm.properties`
- `ncpolldata.properties` (no update needed for fix packs)
- `DbLogins.DOMAIN.cfg`
- `MibDbLogin.cfg` (no update needed for fix packs or if only GUI components are installed)

For example, when you have several domains and you use the prefix `abc` to determine the schema for a particular domain, you must then update the schema name references with the `abc` prefix for that domain, as shown for each `*schema*` property in the following sample from the `tnm.properties` file (the `abc` prefix highlighted in bold):

```
tnm.trace.maxsize=10
tnm.database.schema.ncmib=abcncmib
tnm.trace.count=1
tnm.graph.missedViewRefreshIntervals=20
tnm.trace.filename=ncp_guiconfig.%g.trace
tnm.log.count=1
tnm.database.type=oracle
tnm.oql.response.poll.timeout=120000
tnm.oql.response.poll.delay=100
tnm.database.schema.ncim=abcncim
tnm.graph.maxFailedRequests=15
tnm.fips.key.location=encryption/keys/crypt.key
tnm.graph.poller=DEFAULT_POLLER
tnm.database.schema.ncpgui=abcncpgui
tnm.database.port=1521
tnm.database.schema.ncmonitor=abcncmonitor
tnm.graph.viewRefreshInterval=15000
tnm.fips.mode=false
tnm.database.host=cb1v2
tnm.log.maxsize=10
tnm.log.filename=ncp_guiconfig.%g.log
tnm.database.dbname=ITNMIP39
tnm.graph.historicalViewRefreshInterval=30000
tnm.database.password=abcncim
tnm.log.level=INFO
tnm.database.password.encrypted=false
tnm.oql.timeout=30000
tnm.database.username=abcncim
```

5. Run the following script to populate the databases:  
`populate_oracle_database.bat database_user_name password > oracle.log 2>&1`
6. Examine the `oracle.log` file for any errors.
7. Run the `%ITNMHOME%\bin\ncp_mib` command to ensure that the `ncmib` database is fully populated with SNMP data from the MIBs before a discovery is run.
8. If you want your Network Manager GUI to use the database schema you created, then you need to configure access to the new topology database schema and re-create your network views (see related tasks later in this section).

#### Related tasks:

“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

“Re-creating network views” on page 86

If you create a new NCIM database schema and want your Network Manager GUI to use the new schema, you must configure the GUI to access the new database

and you also need to re-create your network views.

---

## Removing all entities from domains

As an alternative to dropping domains from the NCIM database, you can use an SQL DELETE statement to remove all entities from domains. Unlike dropping domains, if you remove all the entities, the mapping between the entityName and entityID persists.

To remove all entities from a domain, use a DELETE statement as shown in the following example.

```
delete from ncim.entityData where entityId in (select entityId from ncim.entityData
a inner join ncim.domainMembers b on a.entityid=b.entityid
and b.domainMgrId=domainMgrId;) 
```

Where *domainMgrId* is the domainMgrId value for the domain.

The entities are removed from the domain. Because the mapping between the entityName and entityID persists, if entities that have same name are rediscovered, they are assigned the same entityId as before deletion.

### Related tasks:

“Removing domains from the topology database”

When a domain is no longer required, use the `domain_drop.pl` script to remove it from the NCIM topology database. The entire topology for the domain is removed and any poll policies for that domain. The configuration information for the domain and the topology cache are not affected.

---

## Removing domains from the topology database

When a domain is no longer required, use the `domain_drop.pl` script to remove it from the NCIM topology database. The entire topology for the domain is removed and any poll policies for that domain. The configuration information for the domain and the topology cache are not affected.

1. Stop the domain by running the **itnm\_stop** command. For example, to remove the domain OLDDOMAIN:

```
itnm_stop ncp -domain OLDDOMAIN
```

To verify that the processes for the domain were stopped, run the **itnm\_status** command.

2. In `$NCHOME/precision/scripts/perl/scripts`, run the `domain_drop.pl` script. For example, to remove the domain that was stopped in the previous step:

```
NCHOME/precision/bin/ncp_perl domain_drop.pl -domain OLDDOMAIN
-password password
```

### Related tasks:

“Removing all entities from domains”

As an alternative to dropping domains from the NCIM database, you can use an SQL DELETE statement to remove all entities from domains. Unlike dropping domains, if you remove all the entities, the mapping between the entityName and entityID persists.

### Related reference:

“itnm\_stop command-line options” on page 136

Use the **itnm\_stop** command, with optional advanced arguments, to stop Network Manager components.

“itnm\_status command-line options” on page 135

Use the **itnm\_status** command, with optional advanced arguments, to retrieve information about whether the individual components or all components are running.

“domain\_drop.pl” on page 223

Use the `domain_drop.pl` Perl script to remove network domains from the NCIM topology database. The entire topology for the domain is removed, together with any poll policies and network views for that domain. The configuration information for the domain and the topology cache is not affected.

---

## Removing the topology database

You can remove the topology database if it is no longer required.

Before removing the topology database, you must stop all processes that connect to the database.

### Removing a MySQL topology database on UNIX

UNIX

You can remove the MySQL database on UNIX using a script.

To remove the database:

1. Change to the scripts directory using the following command:  
`cd $NCHOME/precision/scripts/sql/mysql`
2. Execute the script using the following command:  
`drop_mysql_database.sh root password`

### Removing a MySQL topology database on Windows

Windows

You can remove the MySQL database on Windows using a script.

To remove the database:

1. Change to the scripts directory using the following command:  
`cd %NCHOME%\precision\scripts\sql\mysql`
2. Execute the script using the following command:  
`drop_mysql_database.bat root password`

### Removing a DB2 topology database on UNIX

UNIX

You can remove the DB2 database on UNIX using a script.

To remove a DB2 database, complete the following steps:

1. Change to the scripts directory using the following command:  
`cd $NCHOME/precision/scripts/sql/db2`
2. Execute the script using the following command:  
`drop_db2_database.sh NCIM [ force ]`

If you use the optional force option, the script forces any existing DB2 users off the instance before attempting to drop the database.

## Removing a DB2 topology database on Windows

### Windows

You can remove the DB2 database on Windows using a script.

To remove a DB2 database, complete the following steps:

1. Change to the scripts directory using the following command:  
`cd %NCHOME%\precision\scripts\sql\db2`
2. Execute the script using the following command:  
`drop_db2_database.bat NCIM [ force ]`

If you use the optional force option, the script forces any existing DB2 users off the instance before attempting to drop the database.

## Removing an Informix topology database on UNIX

### UNIX

You can remove the Informix database on UNIX using a script.

To remove an Informix database, complete the following steps:

1. Change to the scripts directory using the following command:  
`cd $NCHOME/precision/scripts/sql/informix`
2. Execute the script using the following command:  
`drop_informix_database.sh database`  
where *database* is the required name of the database to drop.

## Removing an Informix topology database on Windows

### Windows

You can remove the Informix database on Windows using a script.

To remove an Informix database, complete the following steps:

1. Change to the scripts directory using the following command:  
`cd %NCHOME%\precision\scripts\sql\informix`
2. Execute the script using the following command:  
`drop_informix_database.bat database`  
where *database* is the required name of the database to drop.



## Removing an Oracle topology database on UNIX

### UNIX

You can remove the Oracle database on UNIX using a script.

To remove an Oracle database, complete the following steps:

1. Ensure that you are logged in as the system user.
2. Change to the scripts directory using the following command:  
`cd $NCHOME/precision/scripts/sql/oracle`
3. Execute the script using the following command:  
`sqlplus system/password < drop_oracle_database.sql`

If you use the optional force option, the script forces any existing Oracle users off the instance before attempting to drop the database.

## Removing an Oracle topology database on Windows

### Windows

You can remove the Oracle database on Windows using a script.

To remove an Oracle database, complete the following steps:

1. Ensure that you are logged in as the system user.
2. Change to the scripts directory using the following command:  
`cd %NCHOME%\precision\scripts\sql\oracle`
3. Execute the script using the following command:  
`sqlplus system/password < drop_oracle_database.sql`

If you use the optional force option, the script forces any existing Oracle users off the instance before attempting to drop the database.



---

## Chapter 9. Administering charting

The Charting feature enables you to retrieve data from IBM Tivoli applications such as Tivoli Monitoring and Tivoli Business Service Manager and from custom charts that were designed with the Eclipse Business Intelligence and Reporting Tools Designer.

Use the charting features to build console pages with charts from Tivoli applications and customized charts created using the Business Intelligence and Reporting Tools Designer.

**Related reference:**

“Chart errors” on page 126

Consult this list of possible causes of charting errors and suggested solutions.

---

### User roles for charting

Users must have the user IDs assigned to a chart role before they can see and work with the charting functions.

The main administrator (tipadmin) of the application server already has the chartAdministrator role, and can assign users to any of the three chart roles that are available. Logged in users will have no access privileges to the charting features if their user ID has not been assigned to a chart role. These are the capabilities of the chart roles:

**chartAdministrator**

Users with this role can create and delete charting connections to data sources, download the BIRT Designer, upload charts, and can clear the charting cache (useful for troubleshooting).

**chartCreator**

Users with this role can download the BIRT Designer, upload charts, view, and edit them. They cannot create or delete chart connections nor can they clear the charting cache.

**chartViewer**

Users assigned to this role can select and view charts, but cannot modify them or their preferences. They cannot download the BIRT Designer, upload charts, create connections, or clear the charting cache.

Roles are assigned through **Users and Groups > Administrative User Roles**.

---

### Modifying chart properties

You can change the directory where chart files are located or to fine tune the timing of chart refreshes.

After a chart has been added to a console page, it is automatically refreshed with new data at intervals. The refresh rate is adjusted based on the response time of the Tivoli Integrated Portal Server. This ensures that the server is not overloaded with data requests and that it remains responsive. The algorithm for calculating the next refresh interval uses three parameters from the chart properties:

Minimum refresh interval

Maximum refresh interval  
Response time multiplier

You can adjust the balance of chart refresh rate and server performance by using a `tipcli` command:

1. On the command-line interface, change to the `install_dir/profiles/TIPProfile/bin/` directory.
2. Run the following command declaring the chart property that you want to modify and its new value:

```
Windows tipcli.bat ChartProperties --[name parameter_name --value  
--parameter_value] --username user_name --password user_password
```

```
UNIX Linux tipcli.sh ChartProperties --[name parameter_name  
--value --parameter_value] --username user_name --password user_password
```

The following list provides details on the arguments and parameters shown:

*parameter\_name*

The chart property that you want to modify. The following parameters can be modified:

- `UPDATE_MAXIMUM_INTERVAL` (Default value = 60)  
The default maximum interval between data refreshes is 60 seconds unless the server response time multiplied by the `UPDATE_MULTIPLIER` value is longer. Consider raising this number if the calculated interval often exceeds the maximum.
- `REPORT_OUTPUT_DIR` (Default value = `install_dir/temp/report`)
- `AXIS_TIMEOUT` (Default value = 9000)  
If the system times out or an error message is displayed while importing an Tivoli Monitoring chart, it is typically because the Tivoli Enterprise Portal Server is unavailable. You can extend the time period before the time out by increasing this value.
- `REPORT_INPUT_DIR` (Default value = `install_dir/report`)
- `DBTABLE_VERSION` (Default value = 1.1.1)
- `UPDATE_MINIMUM_INTERVAL` (Default value = 30)  
The default shortest interval between data refreshes is 30 seconds unless the server response time multiplied by the `UPDATE_MULTIPLIER` value is lower. Consider raising this number if the calculated interval is often lower than the minimum.
- `UPDATE_MULTIPLIER` (Default value = 10)

*parameter\_value*

The value that you want to set for the declared property.

*user\_name*

The user name of the Tivoli Integrated Portal user.

*user\_password*

The password for the Tivoli Integrated Portal user.

For example:

```
Windows tipcli.bat ChartProperties --[name UPDATE_MAXIMUM_INTERVAL  
--value --120] --username tipuser1 --password tipuserpasswd
```

---

## Configuring multiple ITM Web Services

Use this procedure if you want to display charts from more than one Tivoli Managed Network.

During an advanced installation that includes the charting feature, you can also identify an ITM Web Service for retrieving attribute values into charts. In environments that have multiple managed networks, you can configure an additional ITM Web Service for each Tivoli Enterprise Portal Server. Follow this procedure to manually add another ITM Web Service to the same server instance.

1. Copy the ITMWebServiceEAR.ear directory branch to a temporary location (such as c:\temp): from *tip\_home\_dir*/profiles/TIPProfile/installedApps/TIPCell/.
2. Rename the Web service in application.xml:
  - a. At the command line, change to the temporary directory.
  - b. In the temporary directory, open application.xml from *tip\_home\_dir*/profiles/TIPProfile/installedApps/TIPCell/ITMWebServiceEAR.ear/META-INF/ in a text editor.
  - c. Change the name `<display-name>ITMWebServiceEAR</display-name>` to `<display-name>ITMWebService2EAR</display-name>`.
  - d. Change the name `<context-root>ITMWebService</context-root>` to `<context-root>ITMWebService2</context-root>`.
3. Rename the Web service in webservice.properties.readme:
  - a. At the command line, change to the temporary directory.
  - b. In the temporary directory, open webservice.properties.readme from *tip\_home\_dir*/profiles/TIPProfile/installedApps/TIPCell/ITMWebServiceEAR.ear/resources in a text editor.
  - c. Change `WEBSERVICE.NAME=ITMWebService` to `WEBSERVICE.NAME=ITMWebService2`.
  - d. Save the file as webservice.properties.
4. Rename the ITMWebServiceEAR.ear directory to ITMWebService2EAR.ear in the temporary directory.
5. Use the following example to guide you and create a script called installwebservice.jacl in the temporary directory :

```
installwebservice.jacl:
$AdminApp install c:/temp/ITMWebService2EAR.ear [ list -usedefaultbindings
-defaultbinding.virtual.host default_host -MapRolesToUsers
{"chartViewer" No Yes "" ""}]
```

```
set deployment [$AdminConfig getid /Deployment:ITMWebService2EAR/]
set deployedObject [$AdminConfig showAttribute $deployment deployedObject]
set classloader [$AdminConfig showAttribute $deployedObject classloader]
```

```
$AdminConfig showall $classloader
$AdminConfig modify $classloader {{mode PARENT_FIRST}}
```

```
$AdminConfig showall $classloader
```

```
$AdminConfig save
```

6. Use the following example to guide you and in the temporary directory create a script called installwebservice.cmd that will used to deploy the Web service:

```
installwebservice.cmd:
echo Installing Web Service
```

```

set TIP="c:\ibm\tivoli\tip"
set PROFILE=TIPProfile
set TIPTOOLS=c:\tiptools
set USERNAME=tipadmin
set PASSWORD=tippass

cd %TIP%\profiles\%PROFILE%\bin
call wsadmin -f %TIPTOOLS%\installwebservice.jacl -username %USERNAME%
-password %PASSWORD%

echo All Done!

```

7. Run the `installwebservice.cmd` script to deploy the Web service.
8. Run these **tipcli** commands in `tip_home_dir/bin/` to configure the username and password for the new Web service, adding the Web service name at the end of the command line: `tipcli.bat ITMLogin --hostname localhost --port 1920 --username sysadmin --password sysadmin --servicename ITMWebService2`
9. Stop and then restart the Tivoli Integrated Portal Server.
10. Add to the list of Web services in the Charting portlet, using the exact information as the default Web service, and changing only the Service Name.

---

## Configuring for localized or customized Tivoli Monitoring charts

National Language Version (NLV) text or customer-specific resource bundles from IBM Tivoli Monitoring applications are not displayed correctly in Charting. To include such resource bundles, you need to copy some files to your Tivoli Integrated Portal Server installation.

This procedure involves copying the product resource jar files from the Tivoli Enterprise Portal Server to the application server and referencing them in the class path used by the ITM Web Service.

1. Locate the `*_resources.jar` files on the computer where the Tivoli Enterprise Portal Server is installed:
  - Windows `itm_install_dir\CNB\classes`
  - UNIX Linux `itm_install_dir/arch/cw/classes`
2. On the computer where the Tivoli Integrated Portal Server is installed, copy the `*_resources.jar` files to `BIRTEExtension/lib`.
3. Add the `*_resources.jar` file names to the class path in the `MANIFEST.MF` file of `ITMWebService.jar`:
  - a. Copy `ITMWebService.jar` from `tip_home_dir/profiles/TIPProfile/installedApps/TIPCell/ITMWebServiceEAR.ear` to a temporary directory.
  - b. Decompress the file with this command: `jar xvf ITMWebService.jar`
  - c. In a text editor, open `MANIFEST.MF` from the `META-INF` directory.
  - d. Add the file names of the new jar files to the `Class-Path` entry, while being careful of file formatting:
 

```

META-INF/MANIFEST.MF:
Manifest-Version: 1.0
Created-By: 2.3 (IBM Corporation)
Class-Path: browser.jar cnp.jar cnp_vbjorball.jar ka4_resources.jar
kfw_resources.jar kjrall.jar knt_resources.jar koq_resources.jar
kor_resources.jar koy_resources.jar kp5_resources.jar kph_resources.jar
kpk_resources.jar kpv_resources.jar kpx_resources.jar kqr_resources.jar
          
```

```
kqv_resources.jar kqx_resources.jar kto_resources.jar kud_resources.jar
kul_resources.jar kum_resources.jar kux_resources.jar kva_resources.jar
ksy_resources.jar khd_resources.jar tap_cli.jar util.jar workspace.jar
resources/ my_new_resources.jar
```

- e. Save and close MANIFEST.MF.
  4. From the temporary directory, compress the file with the following command and replace the old ITMWebService.jar with the updated file:
 

```
jar cfm ITMWebService.jar META-INF\MANIFEST.MF com org
```
  5. If you are logged on to the portal, log off, and then complete the next two steps to restart the Tivoli Integrated Portal Server.
  6. In the *tip\_home\_dir*/profiles/TIPProfile/bin directory, depending on your operating system, enter one of the following commands:
    - Windows `stopServer.bat server1`
    - UNIX Linux `stopServer.sh server1`
- Note:** On UNIX and Linux systems, you are prompted to provide an administrator username and password.
7. In the *tip\_home\_dir*/profiles/TIPProfile/bin directory, depending on your operating system, enter one of the following commands:
    - Windows `startServer.bat server1`
    - UNIX Linux `startServer.sh server1`

---

## Importing or exporting charts and chart customizations

You can import or export charts and chart customizations at the command line.

To import or export a chart, or a chart customization:

1. On the command-line interface, change to the *tip\_home\_dir*/profiles/TIPProfile/bin/ directory.
2. Run the following command to export chart data:
 

```
tipcli.bat|.sh ChartExport --dir output_directory --type
all|customcharts|page [--pageID page_ID | --pageName page_name]
--username tip_username --password tip_user_password
```

### Export command options

Use the Export command to create the specified directory (*dir*) and export the chart data to that directory.

Table 13. ChartExport command arguments

| Parameter and arguments                   | Description                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>--dir output_directory</code>       | Mandatory parameter. The directory where the exported data is saved. If the directory does not exist, it is created.                                                                                                                                                                                                                                                                            |
| <code>--type all customcharts page</code> | Mandatory parameter. If you set the <code>--type</code> to <code>all</code> , then all charts are exported. If you set it to <code>customcharts</code> , then only customized charts are exported. If you set it to <code>page</code> , then you can use either the <code>--pageID</code> or the <code>--pageName</code> parameter to specify the page for which you want to export chart data. |

Table 13. *ChartExport* command arguments (continued)

| Parameter and arguments                                              | Description                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>[--pageID <i>page_ID</i>   --pageName <i>page_name</i>]</code> | Optional parameter. If you set the <code>--type</code> parameter to <code>page</code> , then you can use either the <code>--pageID</code> or the <code>--pageName</code> parameter to specify the page for which you want to export chart data. |
| <code>--username <i>tip_username</i></code>                          | Mandatory parameter. The user name for a user with either the <code>chartAdministrator</code> or <code>chartCreator</code> role.                                                                                                                |
| <code>--password <i>tip_user_password</i></code>                     | Mandatory parameter. The password for the specified user name.                                                                                                                                                                                  |

- Run the following command to import chart data:  
`tipcli.bat|.sh ChartImport --dir source_directory --username tip_username --password tip_user_password`

#### Import command options

`ChartImport` is used to import chart data from a specified directory.

Table 14. *ChartImport* command arguments

| Parameter and arguments                          | Description                                                                                                                      |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <code>--dir <i>source_directory</i></code>       | Mandatory parameter. The directory where the data to imported is located. BIRT Designer file format is <code>.rptdesign</code> . |
| <code>--username <i>tip_username</i></code>      | Mandatory parameter. The user name for a user with either the <code>chartAdministrator</code> or <code>chartCreator</code> role. |
| <code>--password <i>tip_user_password</i></code> | Mandatory parameter. The password for the specified user name.                                                                   |

## Tivoli charts

You can display charts with data from IBM Tivoli Monitoring and other Tivoli products.

When you create a page with the Charting portlet, it opens with choices for chart sources and chart customization. Use the Tivoli Charts source to display a chart of data selected from supported Tivoli applications such as Tivoli Monitoring and Tivoli Business Service Manager.

### Opening a chart from a Tivoli application


You can retrieve real-time data from Tivoli applications to render in a chart portlet.

A page created with the Charting portlet gives you a choice of displaying a chart with data retrieved from a Tivoli product or one that was created with the BIRT Designer. These instructions are for data sources accessed through a Tivoli application's Web service (Java EE application for using the chart and table queries from Tivoli monitoring and analytics products).




- Create a new page (**Settings > Page Management > New Page**), provide a page name and click **Save**. Select the **Charting** portlet entity, and click **OK** and select



**Tivoli Charts.** The Charting title bar has several tools for editing the portlet, getting help, personalizing the display, and minimizing or maximizing the display.

2. In the Charting portlet, click **Tivoli Charts** to open a table of defined connections to chart sources. If the chart services for IBM Tivoli Monitoring were enabled during installation, details are displayed with the name ITM.
3. Select a Tivoli application row from the list and click **Next**.
4. Select an information group from the **Groups**  list. The Web service identifies the available chart types for that group and displays them in the list. If the list is empty, ask your administrator for help or review the troubleshooting topic for charts.
5. Select the chart type to open and click **Finish**. The query is passed through the Tivoli servers to the monitoring agent (or agents) and data samplings are returned based on the chart that was requested.
6. If you would like to save the page, click **Save** and complete the fields. Select Client Side page persistence to ensure the best performance and behavior of charting portlets.

The chart is rendered as specified by the view query. To share the chart with others who view the same page, click **Share Preferences**. You must have the chartAdministrator or chartCreator role to be able to share preferences.

Hover the mouse over a chart point to see the value it represents or switch to the table view to see all the values. If the chart toolbar is hidden, click  to open it. You can  **Refresh** the data, manipulate and refine the chart, publish the chart for sharing with other users, or click  **Return to chart selector** and select a different chart.

## Defining a Web service connection



The Charting portlet enables you to retrieve data from Tivoli data sources that have been defined there. The definition includes the application server address and the Web service name.

Before a connection can be established for a Web service, that service and its data sources must be configured. Web service connections are usually created during the product installation, so it is rare that an administrator needs to create a new connection. The chartAdministrator role is required to create or delete connections.

In particular for IBM Tivoli Monitoring Web Service connections, the optional BIRTEExtension component must be installed and single sign-on (SSO) must be configured between the Tivoli Integrated Portal Server and the Tivoli Monitoring instance.

Create a connection definition for the Tivoli applications from which you want to retrieve chart data.

1. Create a new page (**Settings > Page Management > New Page**), provide a page name and click **Save**. Select the **Charting** portlet entity, and click **OK** and select **Tivoli Charts**. The Charting title bar has several tools for editing the portlet, getting help, personalizing the display, and minimizing or maximizing the display.

2. In the Charting portlet, click **Tivoli Charts** to open a table of defined connections to chart sources. If the chart services for IBM Tivoli Monitoring were enabled during installation, details are displayed with the name ITM.
3. Click  **New**. If you do not see this tool, click  to display the chart toolbar.
4. In the window that opens, complete the fields to identify the Charting Web service:
  - a. Enter a **Name** of up to 32 characters for the connection.
  - b. From the **Type** list select a service type, for example, Web Service.
  - c. From the **Protocol** list, select the non-secure HTTP or secure HTTPS. For example, for an Tivoli Monitoring Web Service connection, select HTTP.
  - d. Enter the fully qualified **Hostname** of the application server.
  - e. Enter a **Port** number for the application server. The default port is 16310 for HTTP and 16311 for HTTPS. However, the port number used depends on the product you are connecting to, for example, an Tivoli Monitoring Web Service connection normally uses port 15200. Consult your administrator or the product documentation for the port to use.
  - f. In the **Service Name** field, provide a service name for the connection. The service name depends on the application you are connecting to (such as TIPWebServiceHttpRouter for Tivoli Monitoring). Refer to your product documentation for the correct Web Service Name to use.
  - g. Select a render format for the connection, that is, either BIRT or Dojo. For example, for an Tivoli Monitoring Web Service connection select **BIRT**.
  - h. Select the authentication method to be used and if you do not select the single sign-on (SSO) option, provide log in credentials. For a IBM Tivoli Monitoring Web Service connection, select the SSO option.
5. Click **Create** to add the Web service definition to the list.
6. To configure the connection in relation to the relevantTivoli Enterprise Portal Server, carry out the following steps at the command line:
  - a. Change directory to `install_dir/profiles/TIPProfile/bin`.
  - b. To configure the connection, depending on the platform enter:

```
Windows ./.tipcli.sh ITMLogin --hostname host_name --port port_num
--servicename service_name
```

```
UNIX Linux ./.tipcli.sh ITMLogin --hostname host_name --port
port_num --servicename service_name
```

Where:

*hostname* is the name that you provided in the Connection Properties dialog.

*service\_name* is the exact service name that you provided in the Connection Properties dialog.

*port\_num* is the port number that is to be used for the Tivoli Enterprise Portal Server connection (normally 1920).

If you need to modify a definition, delete it and then create a new connection.

Repeat these steps on any other application servers that you intend to import Tivoli charts from.

---

## Custom charts

The charts portlet enables you to display charts created with the Eclipse Business Intelligence and Reporting Tools Designer.

A page created with the Charting portlet opens with choices for chart source and chart customization. You can open charts that were created with the BIRT Designer. BIRT is an Eclipse-based open source reporting system that is available for downloading and using with your product.

Your product contains a special version of the BIRT Designer with plug-ins to connect to Tivoli applications hosting a custom Web service interface.

### Opening a chart created in the BIRT Designer

You can retrieve charts that were created with the Business Intelligence and Reporting Tools.

A page created with the Charting portlet gives you a choice of displaying a chart with data retrieved from a Tivoli product or one that was created with the BIRT Designer. These steps are for opening a BIRT chart.



1. Create a new page (**Settings > Page Management > New Page**), provide a page name and click **Save**. Select the **Charting** portlet entity, and click **OK** and select **Tivoli Charts**. The Charting title bar has several tools for editing the portlet, getting help, personalizing the display, and minimizing or maximizing the display.
2. In the Charting portlet, click **Custom Charts** to open a list of BIRT charts. If no charts are listed, you need to upload them.
3. Select the chart to display and click **Finish**.

The chart and the data it specifies are displayed.

### Uploading a BIRT chart

You can retrieve charts that were created with the Business Intelligence and Reporting Tools (BIRT) Designer.

You need to identify the BIRT report file to the Charting portlet to make it accessible for display.

1. Create a new page (**Settings > Page Management > New Page**), select **Charting** portlet entity, then click **Add Portlet**.
2. In the Charting portlet, click **Custom Charts** to open a list of BIRT charts.
3. Click  **Upload**.
4. Click **Browse** to locate and open the report design file, then click  **Upload** to add it to the list of BIRT charts. Charts are created in the BIRT Designer workspace directory with a `.rptdesign` extension.


After uploading the report design, you can open the uploaded BIRT chart in a chart portlet.

## Chart or table creation with the BIRT Designer

Use the Business Intelligence and Reporting Tools Designer to create custom charts and tables that can be saved and uploaded to a charting portlet.

Here is a brief overview of the basic steps to create a chart or table.

After downloading the BIRT Designer, you need to download and extract it. The BIRT Designer that comes with Tivoli Integrated Portal runs only on Windows.

1. Select **Custom Charts** from the page that was created with the Charting portlet.
2. Select the  BIRT Designer link.
3. When prompted, save the birt-designer compressed file, then decompress it.
4. In the birt-designer directory, start `birt.exe`.

After installing and starting the BIRT Designer, create your first chart.

1. Create a new report in the BIRT Designer with **File > New > New Report**.
2. Click the **Data Explorer** tab to open the Data Explorer view.
3. Right-click **Data Sources** and click **New Data Source**, with either IBM Tivoli Data Query Web Service or JDBC Data Source as the type, depending on what kind of data sources are available. (Do not select the sample data database because the number of data rows returned might exceed the charting 10,000 row limit.) Follow the screens and enter the information as necessary.
  - When IBM Tivoli Data Query Web Service is the type of Data Source, a connection is made to the Web Service. You can securely connect to a Web service by choosing HTTPS as the protocol. For the port, increment the port number you chose at install time by 1 (such as 16311). You must also enter a username and password for the administrative console. You will receive another prompt to accept the SSL certificate from the server. Accept the certificate to connect.
  - When JDBC Data Source is the data source, you might need to add the driver to the BIRT Designer and the application server. The DB2 JDBC driver is included with both the stand-alone BIRT Designer and the one that is included with your product. Copy the JDBC drivers to the these directories and then restart the BIRT Designer and the application server: `<BIRT Designer>\plugins\org.eclipse.birt.report.data.oda.jdbc_2.2.1.r22x_v20070919\drivers;` `<install_dir>\systemApps\isclite.ear\TIPChartPortlet.war\WEB-INF\platform\plugins\org.eclipse.birt.report.data.oda.jdbc_2.2.1.r22x_v20070919\drivers.`
4. Create a new Data Set and select the data source you just created. A data set provides data to a chart or table. Follow the screens and enter information as necessary.
5. Drop a Chart from the Palette view of BIRT onto your report, then configure the chart with the Chart Wizard using the Data Set created in the previous step. To create a table, drag the Data Set onto the report. A table containing the data set is created for you. The report design you create in the BIRT Designer should contain a single data set and a single chart or table only.
6. After you finish creating the chart, save your changes, and click the **Preview** tab to render the chart. Each report design file can contain one chart or table. Use the **Reporting** module if you want to multiple charts or tables in the same report.


- Return to the administrative console, create a new page with the Charting portlet, save it, click **Custom Charts**, then choose **Upload**, and navigate to the `mychartname.rptdesign` location. The chart was saved in the workspace directory of the BIRT Designer.

**Note:** The sample database charts that are provided with the BIRT Designer can consume a large amount of hard disk space. Use the sample data base only for testing and practice.

---

## Chart tools

After creating or opening a page from one of the chart sources, you can adjust it.


While a chart is displayed, click any of these tools to manipulate it. If the charting toolbar is collapsed, click  to expand. You can also right-click a chart data point to see and select a chart tool from the pop-up menu.


### Tool

 **Refresh**

 **Preferences**

 **Toggle Table**

 **Toggle Chart**

 **Return to chart selector**

 **Print Preview**

 **Save to File**

### Purpose

Refresh the current chart with new data. You can also refresh the design, which reads the chart definition from the source application and is useful if the definition has been edited. However, it slows down the chart rendering, so use it only when you know or think that the chart definition has changed. Change the appearance and behavior of the chart.

Switch the chart to a table format. You can drag the column borders to adjust the widths.

Switch the table to a chart format. If this tool is unavailable, the table cannot be rendered as a chart.

Go back to the previous view and select another chart type or design.

Open a printable view of the chart or table. You can then use the browser's print function to print the page.

Save the chart or table in the PNG (Portable Network Graphics) image format.

## Tool



## Publish

### Purpose

Publish this portlet to make it available to other chart users. Select one of the following:

**Share Preferences** to save the current chart selection and customization for this portlet to share with others.

**Clear Shared Preferences** to reset the preference settings to their defaults for this portlet. Users will see the chart selector instead of a specific chart. Specify will not remove specific user preferences; other users will still see their selections if they have changed them.

**Clear User Preferences** to reset only the preferences that the current user might have set in this portlet. If default preferences exist, the user will see the chart and customization for the defaults. Otherwise, the chart selector is displayed.

---

## Chapter 10. Administering reports

You can create new reports, modify existing reports, and configure user access to reports.

---

### Creating and editing reports

You can edit existing reports and create your own reports using the Tivoli Common Reporting tools.

You can create new reports using the Cognos® Query Studio, which is described in the *Query Studio User Guide*, available from the **Help** menu in the **Reporting > Common Reporting** portlet.

You can edit existing reports using the Cognos Report Studio, which is described in the *Report Studio Professional Authoring User Guide*, available from the **Help** menu in the **Reporting > Common Reporting** portlet.

**Tip:** If your network is large and complex, detailed reports can potentially contain very large amounts of data. Reports that are hundreds of thousands of lines long can be more difficult to use, and can cause the reporting components to run out of memory. Ensure that your reports are optimized to return the data that is useful to you.

**Restriction:** You can edit existing reports using the Cognos Report Studio only if they are based on the Cognos data model. The reference information for each individual report describes which data model the report is based on. If you want to modify a BIRT-based report, you can use the Cognos Query Studio to create a similar report using the old report as a guide, and modify the report if necessary later using the Cognos Report Studio.

If you create or edit custom Cognos-based reports, then the report creation or editing procedure will require selection of IBM Common Data Model (CDM) views and attributes. For more information on the CDM views, see the *IBM Tivoli Network Manager IP Edition Topology Database Reference*.

---

### Creating a URL to run reports

You can construct a URL to open a report directly in a browser window. These URLs can be used by other applications to run reports.

To construct a URL to open a report, complete the following steps.

1. Locate the report that you want to use and note which parameters are required.
2. Construct a URL similar to the following:

```
https://hostname:port/tarf/servlet/component?b_action=cognosViewer&ui.action=run
&ui.object=/content/package[@name='Network Manager']/
folder[@name='report_group_name']/
report[@name='report_name']&ui.name=report_name&run.outputFormat=HTML&
domainName=AUTO&report_parameter="value"
```

Where

- *hostname* is the name of the server where the Tivoli Integrated Portal is installed.

- *port* is the port number for the Tivoli Integrated Portal.
- *report\_group\_name* is the name of the group to which the report belongs.
- *report\_name* is the name of the report that you want to open.
- *report\_parameter* is a parameter to be passed to the report.
- *value* is the value of the parameter.

The following example URL opens the IP Routing Info report, which belongs to the Path Views Reports report group, showing path 3323 and device 13.

```
https://10.10.10.108:16311/tarf/servlet/component?b_action=
cognosViewer&ui.action=run&ui.object=/content/package[@name='Network Manager']
/folder[@name='Path Views Reports']/report[@name='IP Routing Info']&ui.name
=IP Routing Info&run.outputFormat=HTML&domainName
=AUTO&pathEntityId=3323&entityId=13
```



---

## Chapter 11. Troubleshooting and support

Use this information to help you resolve problems with the product.

---

### Troubleshooting Network Manager

Consult these troubleshooting notes to help determine the cause of the problem and what to do about it.

#### **Related tasks:**

Chapter 3, “Administering logs,” on page 25

Network Manager provides logging capabilities for its GUI components and back-end processes. You can set up logging for Network Manager to produce log or trace files that can be used for troubleshooting purposes.

### Troubleshooting Tivoli Integrated Portal

Consult these troubleshooting notes to help determine the cause of the problem and what to do about it.

#### **Login errors**

Anything from an unassigned user role to a loss of connectivity with the user repository can cause a login error. Read the TIPProfile logs for help in diagnosing the cause.

#### **Harmless authentication messages:**

Certain sign-on messages are routine and might not indicate that a problem has occurred.

For installations that have been configured to use the Tivoli Integrated Portal authentication service, it is possible that an authentication client receives CTGES1504E and CTGES1505E messages. These messages are generated when an unused single sign-on LTPA token is discarded, and might be insignificant.

An authentication client attempts to use all single sign-on tokens provided to it when authenticating to an authentication service. Some of these tokens might not apply to the configured authentication service, causing CTGES1504E and CTGES1505E messages to be generated on the client and CTGES1089E on the server. When not accompanied by other CTGES0008E authentication client errors, these messages indicate only that a particular single sign-on token was discarded.

#### **Already logged in:**

Read this topic if you closed your work session and then tried to log in again, but received a message that the user ID was already logged in.

If you are logged in to the portal and close the browser window, you might not be logged out. Because you closed the browser, though, you need to log in again to start another work session. If, while logging in, you get a message that the user ID is already logged in and do you want to log out the other user, accept the request.

**No user role assigned:**

Users cannot log in to the console if they do not have user roles assigned.

If you have a valid user ID and password but get a message that the login failed and to try again (even after successive retries), ask your administrator to review your role assignments.

Every user ID must be assigned the minimum roles necessary to log in to the application server: Monitor, Configurator, Operator, Deployer, or Administrator. Users should also have the minimum required product level roles or they might not see the contents of their default product pages after logging in.

**Slow network response:**

Performance issues can cause an unresponsive script message to display after login.

If, immediately after logging in, you get a message about an unresponsive script and you are asked whether to continue or cancel opening the Web page, click **Continue**. After a short time, the welcome page for the console is displayed.

Such messages can indicate a slow network link between your computer and the application server. Ping the server computer to see the round trip response time. Use response times of 40 ms or better.

Try using a remote desktop connection to a computer that has a better response time with the application server and logging in from there.

Consider using a caching HTTP proxy to improve speed and reduce network traffic.

**Viewing TIPProfile logs for login errors:**

In the event of a login error, review the system outage and system error logs to help determine the cause.

Follow these steps to open the system outage and system error logs:

1. At the command line, change to the *tip\_home\_dir*/profiles/TIPProfile/logs/server1 directory.
2. Open SystemOut.log and SystemErr.log in a text editor. On Windows, for example, the command notepad systemout.log opens the log in Windows Notepad.
3. Review the errors.
4. If the cause and solution to your login error is not apparent, send the SystemOut.log and SystemErr.log from this directory and the server1\_exception.log (and any other files that were modified within a few minutes of this one) from the sibling ffdc directory to your security administrator for further examination.

**Related tasks:**

“Viewing the application server profile” on page 123

Open the application server profile to review the port number assignments and other information.

## Viewing the application server profile

Open the application server profile to review the port number assignments and other information.

The profile of the application server is available as a text file on the computer where it is installed.

1. Locate the *tip\_home\_dir*/profiles/TIPProfile/logs directory.
2. Open AboutThisProfile.txt in a text editor.

This is the profile for an installation on in a Windows environment as it appears in *tip\_home\_dir*\profiles\TIPProfile\logs\AboutThisProfile.txt:

```
Application server environment to create: Application server
Location: C:\IBM\tivoli\tip\profiles\TIPProfile
Disk space required: 200 MB
Profile name: TIPProfile
Make this profile the default: True
Node name: TIPNode Host name: tivoliadmin.usca.ibm.com
Enable administrative security (recommended): True
Administrative consoleport: 16315
Administrative console secure port: 16316
HTTP transport port: 16310
HTTPS transport port: 16311
Bootstrap port: 16312
SOAP connector port: 16313
Run application server as a service: False
Create a Web server definition: False
```

If you want to see the complete list of defined ports on the application server, you can open *tip\_home\_dir*/properties/TIPPortDef.properties in a text editor:

```
#Create the required WAS port properties for TIP
#Mon Oct 06 09:26:30 PDT 2008
CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS=16323
WC_adminhost=16315
DCS_UNICAST_ADDRESS=16318
BOOTSTRAP_ADDRESS=16312
SAS_SSL_SERVERAUTH_LISTENER_ADDRESS=16321
SOAP_CONNECTOR_ADDRESS=16313
ORB_LISTENER_ADDRESS=16320
WC_defaulthost_secure=16311
CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS=16322
WC_defaulthost=16310
WC_adminhost_secure=16316
```

### Related tasks:

“Viewing TIPProfile logs for login errors” on page 122

In the event of a login error, review the system outage and system error logs to help determine the cause.

## Editing a properties file

Properties files describe the environment and their settings are usually predefined or added during installation. You do not need to change these files unless instructed by IBM Software Support.

The properties files are on the computer where the Tivoli Integrated Portal Server is installed.

1. Locate the *tip\_home\_dir*/properties directory. For example, C:\IBM\tivoli\tipv2\properties is the default installation path on Windows; /opt/IBM/tivoli/tipv2/ is the default installation path on Linux or UNIX.
2. Open the desired properties file in a text editor.

3. Edit the file as needed, and then save and close it.
4. Stop the application server, and then restart it.

## Setting a trace

Enable a trace of the Tivoli Integrated Portal Server when you want to keep a record of activity.

The portal has a Troubleshooting Logs and Trace option for enabling a trace.

Follow these steps to set a trace that will record the Tivoli Integrated Portal Server actions in a log file: *tip\_home\_dir/profiles/TIPProfile/logs/server/trace.log*.

1. In the portal, click **Troubleshooting > Logs and Trace**.
2. Select the Tivoli Integrated Portal Server name (such as server1) in the Logging and Tracing portlet.
3. In the **Configuration** tab, click **Change Log Detail Levels**.
4. In the **Groups** list, expand **com.ibm.tivoli.\*** and click **com.ibm.tivoli.tip.\***.
5. Select a log level (such as **All Messages and Traces**) and click **OK** or **Apply**.
6. When prompted to save the configuration, click **Save**.
7. Stop and restart the Tivoli Integrated Portal Server:
  - a. In the *tip\_home\_dir/profiles/TIPProfile/bin* directory, depending on your operating system, enter one of the following commands:
    - **Windows** stopServer.bat server1
    - **UNIX** **Linux** stopServer.sh server1

**Note:** On UNIX and Linux systems, you are prompted to provide an administrator username and password.

- b. In the *tip\_home\_dir/profiles/TIPProfile/bin* directory, depending on your operating system, enter one of the following commands:
  - **Windows** startServer.bat server1
  - **UNIX** **Linux** startServer.sh server1

After the server has been stopped and restarted, trace entries are saved to the *tip\_home\_dir/profiles/TIPProfile/logs/server1/trace.log* file.

### Related tasks:

“Starting and stopping the Tivoli Integrated Portal” on page 4

The Tivoli Integrated Portal Server starts automatically after it has been installed and whenever the computer is started. You can manually stop the server before beginning certain configuration tasks or as needed.

## Checking hostname settings

The value of the Hostname property in the *tip\_home\_dir/properties/tip.properties* file is used by Tivoli Integrated Portal to convert incoming browser requests (for example, `http://<SystemName>:16310`) to the appropriate Tivoli Integrated Portal non-secure access (for example, `http://<HostnameValue>:16315/ibm/console`), which is then converted to the Tivoli Integrated Portal secure access (for example, `https://<HostnameValue>:16316/ibm/console/login.jsp`).

The Hostname property should contain the fully qualified hostname. This is required if the web browser being used to access Tivoli Integrated Portal is running on a machine in a different DNS domain to the Tivoli Integrated Portal Server (application server).

The value of the *tip\_home\_dir/properties/tip.properties* file's Hostname entry is set during installation by a routine built into Java™ that checks the */etc/hosts* (or *%WinDir%\system32\drivers\etc\hosts*) entry for the system; if the fully qualified domain name (FQDN) is not set in */etc/hosts*, the Java routine returns either the short name or the IP address of the machine, depending on the type of operating system (all but AIX).

Therefore, before the Network Manager installer is run, ensure that a line exists in */etc/hosts* of the following form:

***IP address FQDN shortname***

For example: 9.10.11.12 yourserver.domainname.com yourserver

This line ensures that the FQDN is set as the Hostname entry at install time in *tip\_home\_dir/properties/tip.properties*.

If you try to connect to the application server and the URL conversion to the non-secure access appears to be working incorrectly, you should check Hostname property entry in *tip.properties*.

1. Open the *tip\_home\_dir/properties/tip.properties* file in a text editor.
2. Check the Hostname property and make sure the value can be correctly resolved by the web browser being used to access the application server.
3. Edit the Hostname entry to the FQDN of the application server and save the changes.
4. Stop and restart the application server. The changes take effect when the application server is restarted.

## Increasing memory for the Java Virtual Machine

This task describes how to increase the amount of memory available to the Tivoli Integrated Portal.

To increase the amount of memory available to the Java Virtual Machine (JVM), carry out the following steps:

1. Manually stop the application server.
2. Change to the *tip\_home\_dir/profiles/TIPProfile/bin* directory.
3. Use the **wsadmin** command to increase the heap size for the JVM, as follows:  
`wsadmin.sh -lang jython -conntype NONE`
4. At the `wsadmin>` prompt, issue the following commands, where *xxx* is the new heap size value, in megabytes.

```
jvm=AdminConfig.list("JavaVirtualMachine")

AdminConfig.modify(jvm, '[[initialHeapSize xxx]]')
AdminConfig.modify(jvm, '[[maximumHeapSize xxx]]')
AdminConfig.save()

exit
```

5. Clean the *server1* and *tnm* logs and restart the Tivoli Integrated Portal Server. The changes take effect when the Tivoli Integrated Portal Server is restarted.

**Attention:** If you attempt to start the Tivoli Integrated Portal Server with a maximum heap size that is too large, error messages that are similar to the following are generated in the *tip\_home\_dir/profiles/TIPProfile/logs/server1/native\_stderr.log* file:

```
JVMJ9GC019E -Xms too large for -Xmx
JVMJ9VM015W Initialization error for library j9gc23(2): Failed to initialize
Could not create the Java virtual machine.
```

## Chart errors

Consult this list of possible causes of charting errors and suggested solutions.

### BIRT report design format is not valid

The report designs that you create in the BIRT Designer should contain a single data set and a single chart or table and nothing else. Other items in the report might cause the error,

TIPCH0005E The design format for the chart or table is not valid

If you receive this error, modify your chart .rptdesign, upload it again, and open it in a chart portlet.

### Chart does not render or is very slow to render because the amount of data is too large

When you open a BIRT designed chart that has a large amount of data, it is possible to exceed the capacity of the application server. If this happens, you will get an error message. Try pre-filtering the data so that only values of interest get retrieved.

Also, be sure to single-click pages that have chart portlets in them. The page might not display correctly or render the chart when it is double-clicked from the navigation tree.

### Chart portlet might not display in portlet list

While working in with a charting portlet, you can change the type of chart by selecting another one from a list of available charts. Although it is unlikely, it is possible for the list to not populate with the available charts. If this happens, log out of the portal, restart your browser, and log in again.

### Cannot copy and add the charting portlet to a new page

When copying the Charting portlet and adding it to a new page, you might get this message:


CWLAA6003 Could not display the portlet,  
the portlet may not be started. Check the error logs

If this happens, ensure the charting role that your user ID is assigned to has the Editor access level assigned.

### Error messages while using the Charting portlet

While using the charting portlet, you could get this error message:

TIPMSG1003E An error occurred while making the server request.  
Error: 'dojo.byId(...)' is null or not an object

Alternatively, it might be an EOF (End Of File) exception that appears. If either of these errors occurs, close the error message window and proceed. Most of the time the chart will load; if it does not, you can either click  **Refresh** in the portlet or reload the chart from the selection.

### Many users are loading to the same page that has charting portlets

This error can be displayed if too many users attempt to open a chart in the same page at the same time:

```
TIPCH0006E An error occurred while collecting data for the chart,
check the web service data source.
Cannot set the string value () to parameter 1 java.rmi.RemoteException:
KFWITM220E Request failed during execution;
nested exception is: KFWITM220E Request failed during execution.
```

This error can happen when the system is overloaded with requests. Close the error message window, then click  **Refresh** in the chart portlet.

### **Closing many chart portlet pages in quick succession gives an error**

When running the portal in the Firefox browser, you might get this error if you quickly close many pages that have chart portlets:

```
TIPMSG1003E An error occurred while making the server request.
Error: dojo.byId(this.namespace + "chartNameH") has no properties
```


If this happens, close the error message window and proceed. The pages will eventually close without error.

### **Cannot get the result set metadata from the ITM Web Service**

When you connect to the ITM Web Service from the BIRT Designer to create a custom chart, you might receive an error message, Cannot get the result set metadata while creating a chart. Here are some possible causes to review with your Tivoli Monitoring administrator:

- The IBM Tivoli Monitoring agent (or agents) is stopped or has connectivity problems.
- The query is not supported by the Charting portlet or BIRT Designer. The Charting portlet uses the view's definition, including any filters applied. The BIRT Designer enables you to modify the query. You can check the BIRT Designer log file at `<BIRTDesigner>\workspace\metadata\.log` for exception details. If you see this exception, the query might not be supported in this release:

```
Caused by: org.apache.axis2.AxisFault: java.rmi.RemoteException:
KFWITM220E Request failed during execution.
```

In the Tivoli Enterprise Portal, click  **Query editor** and look for the query in the navigation tree. If the query is not listed, it will not be available to the BIRT Designer or Charting portlet. Ask your administrator to check the log files.

- If this is long-term historical data that is being retrieved, the Tivoli Data Warehouse Proxy agent is stopped or has connectivity problems. These are examples of errors that can occur when a view type is chosen that queries historical data, but no data exists to return.

```
TIPCH0006E An error occurred while collecting data for the chart:
Cannot get the result set metadata.java.rmi. RemoteException:
KFWITM220E Request failed during execution; nested exception is:
KFWITM220E Request failed during execution.
```

Historical data queries require that historical data collection be configured and started for the attribute groups and that sufficient data has been gathered to render a historical view. Furthermore, summarized historical data requires that the Summarization and Pruning agent also be configured and the process completed at least once before querying summarized and pruned data.

### **Timeout or message about not connecting to the server**

If the system times out or an error message is displayed while importing an Tivoli Monitoring chart, it is typically because the Tivoli Enterprise

Portal Server is unavailable for some reason. Check that the portal server is online and start it if it is not. Then try importing the chart again. If the error is

TIPMSG1000E Detail: AxisFault

open `<install_dir>/properties/charts.properties` in a text editor and increase the value of this parameter (180000 is 3 minutes):

`AXIS_TIMEOUT=180000`.

#### **Unable to view Tivoli Monitoring charts after installing the Web GUI followed by Tivoli Business Service Manager**

This error can be displayed when you attempt to load a chart from the ITM Web Service:

Axis Fault: Error initializing ITM Import Manager

The ITM Web Service needs to be configured with the login ID for the Tivoli Enterprise Portal Server. Use the ITMLogin command as described in the “Additional commands” on page 171.

#### **Loading a chart from an ITM Web Service continues indefinitely**

This error can happen in a saved chart page when the administrative console is running in the Firefox browser and the **Page persistence** setting in the General properties is set to **None**. You can click **Refresh** in the browser toolbar. You can also change **Page persistence** to **Client**, and then **Save** the page with this setting.

Avoid double-clicking pages in the navigation tree. If you double-click a page that contains a charting portlet, the page might not display correctly or render the chart. A single click is all you need to do.

#### **Problems loading a page after changing to another ITM Web Service**

After adding the ITM Web Service and populating charts with data from Tivoli Enterprise Monitoring Agents and OMEGAMON XE agents, do not switch to a different ITM Web Service because there is no guarantee that the same charts and queries will be available and there might be problems loading the page.

Use the chart selector from the chart toolbar to load a different chart. In addition, the ITM Web Service must be installed in the same instance as the application server.

#### **Cannot connect to an ITM Web Service from a remote Tivoli Integrated Portal Server**

Connection to an ITM Web Service from a remote application server will not be successful and is not supported in this release. The remote server must define its own Web service connection to be able to import charts from that Web service.

#### **Imported charts are inconsistent with their Tivoli Monitoring counterpart**

Many of the Tivoli Enterprise Portal workspaces are designed for showing data from all the managed systems within the enterprise. When these charts are imported into the console, users might notice that some of the charts show data for all managed systems, without grouping data under each managed system name.

To view a subset of the data for the chart, right-click the chart portlet and click **Preferences**. Specify the managed system name in the **Parameters** tab. The result will be a chart showing data for only the managed system name that was specified. Ensure that the text entered matches the managed system name as it appears in the Tivoli Enterprise Portal client, such as `myhostname:NT`.



Tivoli Business Service Manager users can import Tivoli Monitoring resources into the Service Component Registry using the Xmltoolkit. Whenever the service is clicked in the service tree, the charting portlet automatically receives the managed system name as context (no need to specify the name in Preferences > Parameters).

#### Too many active report queries

When importing charts from a Tivoli Enterprise Portal Server that is at Version 6.2 (not Version 6.2 Fix Pack 1 or later), the portal server might get a message about too many active report queries. If this happens, add the following environment variable to the portal server environment file:

```
KFW_REPORT_REQUEST_LIMIT=100
```

where 100 is the maximum number of outstanding requests that the portal server will allow from each agent. The default value for IBM Tivoli Monitoring V.6.2 is 15. The environment file is opened in a text editor through Manage Tivoli Monitoring Services or the command line:

|         |                                 |
|---------|---------------------------------|
| Windows | <itm_install_dir>\cnps\kfwenv   |
| Linux   | <itm_install_dir>/config/cq.ini |
| UNIX    | <itm_install_dir>/config/cq.ini |

After editing the environment file, and recycling the Tivoli Enterprise Portal Server, try importing charts again. Adjust the report request limit if you continue to get the same error.

#### Related concepts:

Chapter 9, “Administering charting,” on page 107

The Charting feature enables you to retrieve data from IBM Tivoli applications such as Tivoli Monitoring and Tivoli Business Service Manager and from custom charts that were designed with the Eclipse Business Intelligence and Reporting Tools Designer.

#### Tivoli Enterprise Portal Server is offline:

You need connectivity with the Tivoli Enterprise Portal Server when installing the ITM chart feature and when importing Tivoli monitoring agent data for rendering charts.

#### Importing a Tivoli Monitoring chart

To retrieve Tivoli Monitoring agent attribute values for rendering in a chart, a query is sent to the Tivoli Enterprise Portal Server. If the portal server is unavailable for some reason, the message number **TIPMSG1000E** is displayed. Check that the server is online and start it if it is not.

#### Disabling Internet Explorer Enhanced Security Configuration

Internet Explorer Enhanced Security Configuration is an option that is provided in Windows Server 2003 operating systems and above. To use Network Manager in Tivoli Integrated Portal, you must disable Internet Explorer Enhanced Security Configuration.

Follow these steps to disable Internet Explorer Enhanced Security Configuration:

1. Close all instances of Internet Explorer.
2. Click **Start**, point to **Administrative Tools**, and then click **Server Manager**.
3. If a User Account Control dialog is displayed, click **Continue**.

4. Under **Security Summary**, click **Configure IE ESC**.
5. Under **Administrators**, click **Off**.
6. Under **Users**, click **Off**.
7. Click **OK**.

Internet Explorer Enhanced Security Configuration is disabled.

## Troubleshooting Web Applications

Use this troubleshooting information to help you resolve common problems that might occur when you administer the Web applications.

### Device not found

A Device Not Found error might occur when you right-click an event in the Tivoli Netcool/OMNIbus Web GUI and click **Find in Hop View**.

This error appears for one of the following reasons:

- There is no corresponding device in the topology. If this is the case, you should check that:
  - You have configured the scope of the discovery so that it includes this device.
  - You have run the appropriate Discovery Agent to discover this device.
  - The device is a supported network device.
  - The device has been discovered, as it may have recently come online and need to be discovered.
- The event came from a probe that has not been configured to include the fields that Network Manager requires to locate the device. This is the most likely cause of the error if the device is in the topology.

### Topoviz screen is blank

If Topoviz fails to start, or starts with a blank screen, refresh the browser window. If the Network Manager splash screen does not appear, check the topology database access settings.

#### Related tasks:

“Updating NCIM access settings in the GUI” on page 86

If you have changed the NCIM settings, you must configure access to NCIM for the Network Manager Web applications.

### Unable to access domain

If the **Domain** drop-down list does not show the expected domain, check your topology database access settings. Also check the \$TIPHOME/profiles/TIPProfile/logs/server1/SystemOut.log and \$TIPHOME/profiles/TIPProfile/logs/server1/SystemErr.log files for relevant information.

## Unable to execute right-click tools in AEL

If the **Show Root Cause** or **Show Suppressed Events** context menu options fail to execute and return an error message, this might be because the CGI scripts, which are run when you select these menu options, are unable to find the path to Perl.

If you have installed Perl in a nonstandard location, ensure that you have specified the correct path to Perl in all CGI scripts.

## Device in Topoviz appears as generic node

If a device is known to be a switch or router but appears in the Network Hop View or in the Network Views as a generic node icon, then the device may not be correctly mapped to an icon in its active object class (AOC) file.

### Cause

Device was discovered correctly and is mapped to an AOC file. One way to check this is to make sure that in the Network Views, the device can be located in one of the Device Class network views.

### Resolving the problem

Certain AOC files do not give a visual icon but rather use the statement `visual_icon = ' '`; In this case the AOC file (and the corresponding device) takes the `visual_icon` from the `super_class` of the AOC.

### Example

An example is the `Extreme.aoc` and `ExtremeSummit.aoc` file. The `super_class` for `Extreme.aoc` is `Device.aoc` file, which uses the 'Device' icon. If you would like any device instantiated as an `Extreme.aoc` to be seen in Network Hop View or in the Network Views as a switch or router, edit the AOC file and use the statement `visual_icon = 'Switch';` or `visual_icon = 'Router';` in place of `visual_icon = ' '`;

## Unable to copy network view

If you get an error message while trying to copy a network view from one user to another or you notice that certain network views are blank, and the NCIM topology database in use is Informix®, then the database might be missing a `dbspace` file.

To check whether the error condition is caused by a missing `dbspace` file in the Informix database, perform the following check:

- Open the `ITNMHOME/profiles/TIPProfile/logs/tnm/ncp_topoviz.0.log` log file.
- Look for the following text: `Caused by: java.sql.SQLException: Smart-large-object error`

If you find this text, it means that the error is caused by the missing Informix `dbspace` file.

To resolve this error, use the Informix `onspace` command-line utility to create an `ncimdbspace dbspace`. For more information on this procedure, see the information on installing and configuring the Informix database in the *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide*.

## Troubleshooting reporting

If you have problems with Tivoli Common Reporting, check the troubleshooting information.

### Polled data reports contain null values

If reports on polled data contain null values, you might need to run the `drop_polldata.pl` script.

Over time, with the addition and removal of entities, the `ncmonitor.monitoredInstance` table can contain instances of `entityIds` that have since been removed from the `ncim.entity` table. This can result in polled data reports containing null information. Complete the following steps to fix this problem:

1. Run the following command to determine whether your database contains null values:

```
select count(*) from ncpolldata.monitoredInstance where
instanceType = 'ifIndex' and entityId is null; select count(*) from
ncpolldata.monitoredInstance where
instanceType = 'ifIndex' and entityId not in (select entityId
from ncim.interface);
```

2. If any values are returned from the above query, run the following script to delete the polled data for a domain:

```
perl drop_polldata.pl -domain domain
```

Where *domain* is the domain for which you want to delete polled data.

### Viewing reporting log files

You can view the log files for Tivoli Common Reporting to check for problems.

The log files for Tivoli Common Reporting are in the following locations

- `TIPHOME/logs`
- `tipv2/profiles/TIPProfile/logs`
- `tipv2Components/TCRCompoenents/cognos/logs/`
- `tipv2Components/TCRCompoenents/cognos/contentstore/`
- `tipv2Components/TCRCompoenents/logs/`
- `tipv2/logs/`

### Changing the logging level for reporting

You can increase the logging level to help debug problems.

To change the logging level for a reporting process, complete the following steps.

1. Log into the Tivoli Integrated Portal.
2. Click **Troubleshooting > Logs and Trace**.
3. Change the logging level for processes beginning `com.ibm.tivoli.reporting`. For information about how to use the Logging and Tracing window, see the online help.

## Troubleshooting database access

In the event of problems with access to the topology database, historical polling database, or polling database, run the `ncp_db_access.pl` script. This script checks database setup and determines whether access to the databases is being prevented by firewalls.

The `ncp_db_access.pl` script checks database setup and firewall issues for the following databases:

- NCIM topology database
  - NCMONITOR polling database
  - MIB historical polling database
1. Before running the script, check that the password of the user that connects to the database has not expired.
  2. Change to the `$NCHOME/precision/scripts/perl/scripts` directory and locate the `ncp_db_access.pl` program.
  3. Issue the following command.  
`perl ncp_db_access.pl -domain domain_name`  
Where:

- *domain\_name* is the name of the required domain.

For each database the script indicates whether connection is in order or if there are access problems.

### Related tasks:

“Changing the NCIM password” on page 85

For security reasons, change the password for command-line access to the topology database regularly. The password must be encrypted.

## Troubleshooting unresponsive portlets

If portlets in the GUI that use Java become unresponsive, try increasing Java memory options.

Sometimes, pages containing Hop view or Network view portlets stop responding. A `java.lang.OutOfMemoryError` error message might be received in the Java console. If this happens, increasing the applet memory might solve the issue. To increase the applet memory, complete the following steps.

1. Open the Java control panel.
  - a. **Windows** Click **Start > Control Panel > Java Control Panel > Java > Java Applet Runtime Settings > View**.
  - b. **UNIX** Open the control panel in `$JAVA_HOME/bin/ControlPanel`.
2. Type the following in the Java Runtime Parameter field: `-Xms256M -Xmx512M`. The `-Xms` option specifies the initial amount of memory, in MB. The `-Xmx` option specifies the maximum amount of memory, in MB, and can be increased up to 1024MB. The values you specify depend on your system and on the number of devices or events you are trying to view.



---

## Appendix A. Command reference

Use this information to understand which commands to use to start Network Manager processes. It is good practice to configure the master process controller, `ncp_ctrl`, to launch and manage Network Manager processes. You can also start processes manually using the command-line options described here.

For further information on databases related to Network Manager processes, see the *IBM Tivoli Network Manager IP Edition Management Database Reference*.

---

### itnm\_status command-line options

Use the **itnm\_status** command, with optional advanced arguments, to retrieve information about whether the individual components or all components are running.

The **itnm\_status** script is started by using the following command line; optional arguments are shown enclosed in square brackets. `itnm_status components -verbose -help`

The following table describes the command-line options for **itnm\_status**.

Table 15. *itnm\_status* command-line options

| Command-line options    | Description                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>components</code> | Optional; one or more component abbreviations. If no component is specified, the status of all components is reported. The following component abbreviations are possible:<br><br><b>IBM Tivoli Netcool/OMNIbus</b><br><code>nco</code><br><br><b>Network Manager</b><br><code>ncp</code><br><br><b>Tivoli Integrated Portal</b><br><code>tip</code> |
| <code>-verbose</code>   | Optional; provides more information on the screen.                                                                                                                                                                                                                                                                                                   |
| <code>-help</code>      | Optional; displays help on screen.                                                                                                                                                                                                                                                                                                                   |

---

### itnm\_start command-line options

Use the **itnm\_start** command, with optional advanced arguments, to start Network Manager components.

The **itnm\_start** script is started by using the following command line; optional arguments are shown enclosed in square brackets.

```
itnm_start [ components ] -domain precision_domain [ -verbose ] [ -help ]
```

The following example starts the core components in domain NCOMS:

```
itnm_start ncp -domain NCOMS
```

The following table describes the command-line options for **itnm\_start**.

Table 16. *itnm\_start* command-line options

| Command-line options             | Description                                                                                                                                                                                                                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>components</i>                | Optional; one or more component abbreviations. If no component is specified, all components are started. The following component abbreviations are possible:<br><br><b>IBM Tivoli Netcool/OMNIBus</b><br>nco<br><br><b>Network Manager</b><br>ncp<br><br><b>Tivoli Integrated Portal</b><br>tip |
| <b>-domain</b> <i>DomainName</i> | Optional; applies to the Network Manager domain. If not used, then the default domain is used (the one specified during install).                                                                                                                                                               |
| <b>-verbose</b>                  | Optional; provides more information on the screen.                                                                                                                                                                                                                                              |
| <b>-help</b>                     | Optional; displays help on screen.                                                                                                                                                                                                                                                              |

**Related tasks:**

“Starting all components on the same server (UNIX only)” on page 2

If the Tivoli Integrated Portal, Tivoli Netcool/OMNIBus, and Network Manager are installed on the same server, you can start them using the **itnm\_start** command.

---

## itnm\_stop command-line options

Use the **itnm\_stop** command, with optional advanced arguments, to stop Network Manager components.

The **itnm\_stop** script is started by using the following command line; optional arguments are shown enclosed in square brackets.

```
itnm_stop [ components ] -domain precision_domain [ -verbose ] [ -help ]
```

The following example stops the core components in domain NCOMS:

```
itnm_stop ncp -domain NCOMS
```

The following table describes the command-line options for **itnm\_stop**.

Table 17. *itnm\_stop* command-line options

| Command-line options | Description                                                                                                                                                                                                                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>components</i>    | Optional; one or more component abbreviations. If no component is specified, all components are stopped. The following component abbreviations are possible:<br><br><b>IBM Tivoli Netcool/OMNIBus</b><br>nco<br><br><b>Network Manager</b><br>ncp<br><br><b>Tivoli Integrated Portal</b><br>tip |



Table 17. *itnm\_stop* command-line options (continued)

| Command-line options      | Description                                                                                                                       |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| -domain <i>DomainName</i> | Optional; applies to the Network Manager domain. If not used, then the default domain is used (the one specified during install). |
| -verbose                  | Optional; provides more information on the screen.                                                                                |
| -help                     | Optional; displays help on screen.                                                                                                |

#### Related tasks:

“Stopping all components on the same server (UNIX only)” on page 6  
If they are installed on the same server, you can stop the Tivoli Integrated Portal, Tivoli Netcool/OMNIBus, and all Network Manager processes, using the **itnm\_stop** command.

## ncp\_class command-line options

Use the **ncp\_class** command, with optional advanced arguments, to start the Active Object Class manager.

It is best practice to configure the **ncp\_ctrl** process, the master process controller, to launch and manage the **ncp\_class** process.

**Attention:** If you are using Network Manager IP Edition with failover, you must start CLASS using the **ncp\_ctrl** process. The **ncp\_ctrl** process checks the status of the **ncp\_class** process and uses this information to generate the Health Check events used by the failover process.

### Prerequisites

For CLASS to run, it requires access to the NCIM database. The connection and access to the database is performed automatically, you do not need to do anything.

The AOC files define the class hierarchy. There is a copy of this hierarchy in the **entityClass** NCIM database table. If changes are made to the AOC files, CLASS updates the **entityClass** database table when it connects to the NCIM database to reflect any changes to the AOC hierarchy.

**Note:** If you create a new AOC file, you should also add a new insert to the **class.classIds** database table in the **ClassSchema.cfg** configuration file.

### Command

To manually start CLASS, run the **ncp\_class** command.

The command line options for **ncp\_class** are:

```
ncp_class -domain DOMAIN_NAME [ -cachepercent
PERCENTAGE_OF_CACHE_IN_MEMORY ]
[ -debug DEBUG ][ -messagelevel MESSAGELEVEL ]
[ -messagelog PATHTOLOGFILE ][ -help ][ -latency LATENCY ]
[ -read_aocs_from DIRECTORY_NAME ][ -version ]
```

The following table describes the command-line options of the **ncp\_class** command.

Table 18. *ncp\_class* command-line options

| Option                                             | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -cachepercent <i>PERCENTAGE_OF_CACHE_IN_MEMORY</i> | <p><b>Fix Pack 5</b> Enables you to specify a ratio of either 0% or 100% of the cache that is resident in memory to the cache that is resident on the hard disk.</p> <p><b>Fix Pack 5</b> The ratio that you specify depends on the amount of memory that exists on the host machine and the number of processes it is running. The default value is 0% cache.</p> <p>The -cachepercent option can be used to reduce the memory required when the process responds to OQL queries that result in large numbers of records being returned. Do not use this command-line option for permanent data storage, because the cache is cleared when the process exits.</p> |
| -domain <i>DOMAIN_NAME</i>                         | The name of the domain under which to run CLASS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| -debug <i>DEBUG</i>                                | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| -messagelevel <i>MESSAGELEVEL</i>                  | <p>The level of messages to be logged (the default is warn):</p> <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| -messagelog <i>PATH_TO_LOGFILE</i>                 | The path to the message log file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| -help                                              | Displays the command line options. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| -latency <i>LATENCY</i>                            | The maximum time in milliseconds (ms) that CLASS waits to connect to another Network Manager IP Edition process by means of the messaging bus. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic.                                                                                                                                                                                                                                                                                                             |
| -read_aocs_from <i>DIRECTORY_NAME</i>              | The full path of the directory from which to read the AOC definitions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| -version                                           | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

When CLASS is launched it obtains the AOC definitions either from a directory of AOC files or from the cache files contained in NCHOME/var/precision.

You can control the location of the source AOC definitions using the command line options. The possible combinations are as follows:

- If you omit the -read\_aocs\_from argument from the command line, CLASS automatically reads the cache files from NCHOME/var/precision if they are present. If there are no valid cache files, CLASS uses the definitions in NCHOME/precision/aoc.
- If you specify a directory using the -read\_aocs\_from option, CLASS initializes itself with the AOCs located in the specified directory. CLASS automatically moves any existing cache files to a backup directory.

Regardless of the options specified, CLASS generates a warning if the files within the NCHOME/precision/aoc directory are more recent than the cache files contained within the NCHOME/var/precision directory.

For more information about failover, see the *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide*.

## ncp\_config command-line options

Use the ncp\_config command, with optional advanced arguments, to start the Network Manager GUI configuration file server.

The ncp\_config process provides a means for the configuration GUIs to read from and write to schema files.

It is started and stopped automatically by the shell scripts that launch the GUIs and so in general need not be manually started.

You can also start the ncp\_config process manually using the following command line—optional arguments are shown enclosed in square brackets.

```
ncp_config -domain DOMAIN_NAME [ -debug DEBUG ] [ -latency LATENCY ]
[ -messagelevel MESSAGELEVEL ] [ -messagelog PATHTOLOGFILE ] [ -query QUERY ]
[ -read_schemas_from DIRECTORY_NAME ] [ -write_schemas_to DIRECTORY_NAME ]
[ -logdir ] [ -nologdir DIRNAME ] [ -help ] [ -version ]
```

Command line options for the ncp\_config process are explained in the following table:

Table 19. Explanation of Command Line Options

| Option                     | Explanation                                                                                                                                                                                                                                                                                                                                            |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -domain DOMAIN_NAME        | The name of the domain under which to run the ncp_config process. Data saved in the GUI is saved to the domain name that you specify here.                                                                                                                                                                                                             |
| -debug DEBUG               | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                      |
| -latency LATENCY           | The maximum time in milliseconds (ms) that the ncp_config process waits to connect to another Network Manager process using the messaging bus. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic. |
| -messagelevel MESSAGELEVEL | The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                  |
| -messagelog PATHTOLOGFILE  | The path to the message log file.                                                                                                                                                                                                                                                                                                                      |

Table 19. Explanation of Command Line Options (continued)

| Option                                   | Explanation                                                                                                                                                                                                                                                                                               |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -query <i>QUERY</i>                      | A query statement to pass to the OQL Service Provider. This option is designed to run the ncp_config process in batch mode. In batch mode, ncp_config processes the OQL query statement against the requested database, writes the schema files, and exits.                                               |
| -read_schemas_from <i>DIRECTORY_NAME</i> | The full path of the directory from which the ncp_config process reads the schema files. This command line option can only be used when starting the ncp_config process manually.<br><br>If this option is not specified, NCHOME/etc/precision is used as a default.                                      |
| -write_schemas_to <i>DIRECTORY_NAME</i>  | The full path to which the ncp_config process writes the schema files. This command line option can only be used when starting the ncp_config process manually.<br><br>If no path is specified, the ncp_config process updates the files in the source directory, saving a backup of the existing schema. |
| -help                                    | Displays the command line options. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                         |
| -version                                 | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                              |

## ncp\_ctrl command-line options

Use the ncp\_ctrl command, with optional advanced arguments, to start the master process controller.

The ncp\_ctrl process is started by using the following command line; optional arguments are shown enclosed in square brackets.

```
ncp_ctrl -domain DOMAIN_NAME [ -debug DEBUG ]
[ -messagelevel MESSAGELEVEL ] [ -messagelog PATHTOLOGFILE ]
[ -help ] [ -version ] [ -latency LATENCY ]
[ -logdir DIRNAME ] [ -slave ] [ -nologdir ]
```

Command line options for the ncp\_ctrl process are explained in the following table:

Table 20. Explanation of Command Line Options

| Option                     | Explanation                                                                                                       |
|----------------------------|-------------------------------------------------------------------------------------------------------------------|
| -domain <i>DOMAIN_NAME</i> | The name of the domain under which to run the ncp_ctrl process.                                                   |
| -debug <i>DEBUG</i>        | The level of debugging output (1-4, where 4 represents the most detailed output).                                 |
| -help                      | Displays the command line options. Does not start the component even if used in conjunction with other arguments. |

Table 20. Explanation of Command Line Options (continued)

| Option                            | Explanation                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -latency <i>LATENCY</i>           | The maximum time in milliseconds (ms) that the ncp_ctrl process waits to connect to another Network Manager process using the messaging bus. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic. |
| -logdir <i>DIRNAME</i>            | Specifies the directory where log files are to be added and directs log messages for each process started by the ncp_ctrl process to a separate file in the specified directory.                                                                                                                                                                     |
| -messagelevel <i>MESSAGELEVEL</i> | The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                |
| -messagelog <i>PATHTOLOGFILE</i>  | The path to the message log file.                                                                                                                                                                                                                                                                                                                    |
| -nologdir                         | Turns off log file writing and prints log messages on screen.                                                                                                                                                                                                                                                                                        |
| -slave                            | Indicates that this instance of the ncp_ctrl process is to be run in slave mode. The slave ncp_ctrl process must have the same domain name as the master ncp_ctrl process.<br><br>When running in slave mode, ncp_ctrl accepts requests from the master process to launch services. The slave mode can be used to distribute processes.              |
| -version                          | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                         |

## ncp\_crypt command-line options

Use the ncp\_crypt command, with optional advanced arguments, to start ncp\_crypt, the password encryption utility.

The password encryption utility, the ncp\_crypt process, is started manually using the following command line; optional arguments are shown enclosed in square brackets.

**Note:** All password encryption in Network Manager is performed using FIPS 140-2 compliant algorithms.

```
ncp_crypt -password password [ -decrypt ] [ -help ] [ -version ]
```

By default this command encrypts the password provided. However, if you specify the -decrypt option then the password is decrypted.

Command line options for the ncp\_crypt process are explained in the following table:

Table 21. Explanation of Command Line Options

| Option    | Explanation                                                                                                                  |
|-----------|------------------------------------------------------------------------------------------------------------------------------|
| -password | Specifies the password to encrypt or decrypt. By default the password is encrypted.                                          |
| -decrypt  | Overrides the default and instructs ncp_crypt to decrypt the password.                                                       |
| -help     | Displays the command line options. Does not start the component even if used in conjunction with other arguments.            |
| -version  | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments. |

## ncp\_disco command-line options

Use the ncp\_disco command, with optional advanced arguments, to start the Discovery engine.

It is best practice to configure the ncp\_ctrl process, the master process controller, to launch and manage the ncp\_disco process.

The master process controller, ncp\_ctrl, must be running in order for ncp\_disco to launch and manage its subprocesses.

The ncp\_disco process is started by using the following command line; optional arguments are shown enclosed in square brackets.

```
ncp_disco [ -activeOnBackupDomain ] [ -cachepercent
PERCENTAGE_OF_CACHE_IN_MEMORY ] -domain DOMAIN_NAME [ -discoOnStartup {0 |
1} ] [ -debug DEBUG ] [ -help ] [ -latency LATENCY ] [-messagelevel
MESSAGELEVEL ] [ -messageLog PATHTOLOGFILE ] [ -version ]
```

Command-line options for the ncp\_disco process are explained in the following table:

Table 22. Explanation of command-line options

| Option                | Explanation                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -activeOnBackupDomain | Specifies whether to have a discovery active on the backup domain of a failover pair.<br><b>Attention:</b> This option is provided for non-standard Network Manager configurations only and must not be set if you are running a standard Network Manager failover configurations. Standard failover will not work if this flag is set. Do not set this flag if you are running the ncp_virtualdomain process. |

Table 22. Explanation of command-line options (continued)

| Option                                                | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -cachepercent<br><i>PERCENTAGE_OF_CACHE_IN_MEMORY</i> | <p><b>Fix Pack 5</b> Enables you to specify a ratio of either 0% or 100% of the cache that is resident in memory to the cache that is resident on the hard disk.</p> <p><b>Fix Pack 5</b> The ratio that you specify depends on the amount of memory that exists on the host machine and the number of processes it is running. The default value is 0% cache.</p> <p>The -cachepercent option can be used to reduce the memory required when the process responds to OQL queries that result in large numbers of records being returned. Do not use this command-line option for permanent data storage, because the cache is cleared when the process exits.</p> |
| -domain <i>DOMAIN_NAME</i>                            | The name of the domain under which to run the ncp_disco process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| -discoOnStartup {0   1}                               | <p>Specifies whether to have a new discovery start automatically when ncp_disco starts up. The options are:</p> <ul style="list-style-type: none"> <li>• 0 – discovery does not start automatically when ncp_disco starts up</li> <li>• 1 – discovery starts automatically when ncp_disco starts up</li> </ul> <p>By default, a new discovery does not start automatically.</p>                                                                                                                                                                                                                                                                                    |
| -debug <i>DEBUG</i>                                   | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| -help                                                 | Displays the command-line options. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| -latency <i>LATENCY</i>                               | The maximum time in milliseconds (ms) that the ncp_ctrl process waits to connect to another Network Manager process using the messaging bus. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic.                                                                                                                                                                                                                                                                                                               |
| -messagelevel <i>MESSAGELEVEL</i>                     | <p>The level of messages to be logged (the default is warn):</p> <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Table 22. Explanation of command-line options (continued)

| Option                           | Explanation                                                                                                                  |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| -messagelog <i>PATHTOLOGFILE</i> | The path to the log file.                                                                                                    |
| -version                         | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments. |

## ncp\_d\_helpserv command-line options

Use the ncp\_d\_helpserv command, with optional advanced arguments, to start the Helper Server.

It is good practice to configure the Helper Server to be started automatically by CTRL at the appropriate time, by making the appropriate OQL insertion into the services.inTray table of CTRL. Alternatively, you can start the Helper Server manually using the command line.

Optional arguments are shown enclosed in square brackets.

```
ncp_d_helpserv -domain DOMAIN_NAME [ -debug DEBUG ] [ -help ]
[ -messagelevel MESSAGELEVEL ] [ -messagelog PATHTOLOGFILE ] [ -version ]
```

Table 23. Explanation of command-line options

| Option                            | Explanation                                                                                                                                                                           |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -domain <i>DOMAIN_NAME</i>        | The name of the domain under which to run the Helper Server.                                                                                                                          |
| -debug <i>DEBUG</i>               | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                     |
| -help                             | Displays the command line options. Does not start the component even if used in conjunction with other arguments.                                                                     |
| -messagelevel <i>MESSAGELEVEL</i> | The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul> |
| -messagelog <i>PATHTOLOGFILE</i>  | The path to the message log file.                                                                                                                                                     |
| -version                          | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments.                                                          |



## Starting helpers

Provided that the Helper Server is launched by CTRL, the individual helpers are automatically started as and when they are required.

The only situation in which you might need to configure an insert for an individual helper into the `disco.managedProcesses` table would be if you wanted to start that helper on a remote machine (that is, a machine other than the one that is running the Helper Server). In this situation, you would insert the required helper into the `disco.managedProcesses` table, specifying the appropriate remote host in the `m_Host` field.

---

## ncp\_g\_event command line options

Use the **ncp\_g\_event** command, with optional advanced arguments, to start the Event Gateway.

### Usage considerations

It is best practice to configure the **ncp\_ctrl** process, the master process controller, to launch and manage the **ncp\_g\_event** process.

**Attention:** If you are using Network Manager with failover, you must start the Event Gateway using the **ncp\_ctrl** process. The **ncp\_ctrl** process checks the status of the Event Gateway component and uses this information to generate the health check events used by the failover process.

For more information about failover, see the *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide*.

### Syntax

The following example shows the syntax of the **ncp\_g\_event** command:

```
ncp_g_event -domain DOMAIN_NAME [-debug DEBUG] [-help] [-latency LATENCY]
[ -messagelevel MESSAGELEVEL ] [ -messagelog PATHTOMSGLOGFILE ] [ -logdir
PATHTOLOGFILE] [-version]
```

The following table describes the command-line options of the **ncp\_g\_event** command.

Table 24. *ncp\_g\_event* command-line options

| Option                     | Description                                                                       |
|----------------------------|-----------------------------------------------------------------------------------|
| -domain <i>DOMAIN_NAME</i> | The name of the domain under which to run <b>ncp_g_event</b> .                    |
| -debug <i>DEBUG</i>        | The level of debugging output (1-4), where 4 represents the most detailed output. |
| -help                      | Prints out the command-line options for <b>ncp_g_event</b> then exits.            |

Table 24. *ncp\_g\_event* command-line options (continued)

| Option                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -latency <i>LATENCY</i>                | <p>The maximum time in milliseconds (ms) that <b>ncp_g_event</b> waits for a response to a query of another Network Manager IP Edition process. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic.</p> <p>The default value is 10000. If you specify a lower value on the command line, it is increased to 10000.</p> <p>For large topologies, make sure you set a value of at least a few minutes.</p> |
| -messagelevel <i>MESSAGELEVEL</i>      | <p>The level of messages to be logged (the default is warn):</p> <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                                                                                                                                                                                                                 |
| -messagelog <i>PATHTOMSGLOGFILE</i>    | The path to the message log file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| -server <i>OBJECTSERVER</i>            | <p>The name of the ObjectServer to connect to. This defaults to NCOMS if no server is specified.</p> <p><b>Tip:</b> The \$NCHOME/etc/precision/ConfigItnm.cfg file provides a simpler, efficient alternative for configuring failover. Use this file instead of the -server command-line option, to specify the ObjectServer name.</p>                                                                                                                                                                                                                       |
| -logdir <i>PATHTOLOGFILE</i>           | The directory to write log files to.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -primaryDomain <i>PRIM_DOMAIN_NAME</i> | <p>The name of the primary domain.</p> <p><b>Tip:</b> The \$NCHOME/etc/precision/ConfigItnm.cfg file provides a simpler, efficient alternative for configuring failover. Use this file instead of the -primaryDomain command-line option, to specify the primary domain name.</p>                                                                                                                                                                                                                                                                            |
| -version                               | Prints the version number of <b>ncp_g_event</b> then exits.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## ncp\_install\_services command-line options

Use the `ncp_install_services` command, with optional advanced arguments, to start the `ncp_install_services` process. This process installs or removes services for additional Windows domains.

The `ncp_install_services` process is started by using the following command line; optional arguments are shown enclosed in square brackets.

```
ncp_install_services -domain DOMAIN_NAME [ -debug DEBUG ] [ -help ] [ -install ]
[ -messagelevel MESSAGELEVEL ] [-messagelog PATHTOLOGFILE][ -remove ]
[ -username ] [ -password ] [ -version ]
```

Table 25. Explanation of Command Line Options

| Option                            | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -domain <i>DOMAIN_NAME</i>        | The name of the domain for which services will be set up or removed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| -debug <i>DEBUG</i>               | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -help                             | Displays the command line options. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -install                          | Installs services for the selected domain.<br><b>Note:</b> You must not specify both -install and -remove at the same time. If you do this, ncp_install_services performs no action. If you specify neither -install nor -remove, then the -install option is assumed.                                                                                                                                                                                                                                                                                                                                    |
| -messagelevel <i>MESSAGELEVEL</i> | The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| -messagelog <i>PATHTOLOGFILE</i>  | The path to the message log file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -remove                           | Removes services for the selected domain.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -username                         | Name of the user that the services are set up to run as. If this option is omitted then services are set up to run as the LocalSystem user (which appears as SYSTEM on the task manager).                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -password                         | Password for the user specified using the -username option. If the -username option is not specified, then the -password option should not be specified either, as no password is required to run services as the LocalSystem user. If the -username option is specified but the -password option is not then ncp_install_services prompts for a password.<br><b>Note:</b> This is a more secure approach if you are being overlooked while you are entering the command, because what you type at the prompt will not be echoed to the screen, whereas what you type on the command line will be echoed. |
| -version                          | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

---

## ncp\_mib command-line options

Use the **ncp\_mib** command, with optional advanced arguments, to start the MIB update administration utility. You do not need to configure the ncp\_ctrl process to start **ncp\_mib**. You need to start **ncp\_mib** only after you have added new MIBs.

**Note:** All MIBs must be valid in order to be parsed correctly.

There is only one ncp\_mib process for all domains. So, there is no -domain option for **ncp\_mib**. There are also no process dependencies for this command.

After you run the **ncp\_mib** command, you can verify that a MIB has loaded successfully by querying the NCIM database table ncmib.mib\_modules with a command similar to the following example (the example assumes the NCIM database is running on MySQL):

```
mysql> select * from ncmib.mib_modules where moduleName = 'RFC1213-MIB';
```

If the MIB loaded, a table is displayed containing a moduleName of RFC1213-MIB.

You can also verify that MIBs are loaded by running the **ncp\_mib** command with the -messagelevel info option. A message similar to the following informs you that the MIBs are being processed:

```
09/10/08 12:41:08: Information: I-MIB-001-013: [1096571552t]
Resolving references for module 'RFC1213-MIB'
```

When processing completes, a message states that the MIBs have been committed to the database.

The **ncp\_mib** command takes the following command-line options.

```
ncp_mib [ -db ] [ -debug debug level ] [-diff ] [ -dryrun ] [ -emptydb ]
[ -force ] [ -help ] [ -logdir ] [ -messagelevel message level ]
[-messagelog] [ -override ] [ -showcontents ] [ -version ]
```

Command line options are explained in Table 26.

*Table 26. Explanation of Command Line Options*

| Option                    | Explanation                                                                                                                                                                                                                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -db                       | Specifies the MIB Database ID, as defined in MibDbLogin.cfg. The default value is MIB.                                                                                                                                                                                                            |
| -debug <i>debug level</i> | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                 |
| -diff                     | Compares the list of MIBs in files with those in the SQL DB and show difference.                                                                                                                                                                                                                  |
| -dryrun                   | Shows what would be done by issuing the command but does not alter the SQL database in any way.                                                                                                                                                                                                   |
| -emptydb                  | Removes all the MIB data from the database and exits.                                                                                                                                                                                                                                             |
| -force                    | Attempts to resolve and insert all parsed MIB objects, regardless of whether all dependencies are met. This option allows the insertion of a partially resolved MIB module, inserting those MIB objects which have their dependencies satisfied while leaving out those MIB objects which do not. |

Table 26. Explanation of Command Line Options (continued)

| Option                             | Explanation                                                                                                                                                                                            |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -help                              | Displays the command line options. Does not start the component even if used in conjunction with other arguments.                                                                                      |
| -logdir                            | Specifies the directory into which log files are written.                                                                                                                                              |
| -messagelevel <i>message level</i> | Specifies the message level to use for log files: <ul style="list-style-type: none"> <li>• Debug</li> <li>• Info</li> <li>• Warn</li> <li>• Error</li> <li>• Fatal</li> </ul> The default is Warn.     |
| -messagelog                        | Specifies the path to the message log.                                                                                                                                                                 |
| -override                          | Empties the database and then attempts to import all the MIBs. If there are errors, such as unresolved MIB modules, the transaction is rolled back and the original state of the database is restored. |
| -showcontents                      | Displays a list of the MIB modules that are contained in the MIB files and states which ones are resolved.                                                                                             |
| -version                           | Displays the version number of the component.                                                                                                                                                          |

## ncp\_model command-line options

Use the **ncp\_model** command, with optional advanced arguments, to start the topology manager.

It is best practice to configure the **ncp\_ctrl** process, the master process controller, to launch and manage the **ncp\_model** process. You can also start the **ncp\_model** process by using the following command-line syntax; optional arguments are shown enclosed in square brackets.

```
ncp_model -domain DOMAIN_NAME
[ -backup ] [ -debug DEBUG ] [ -help ]
[ -latency LATENCY ] [ -messagelevel MESSAGELEVEL ]
[ -messagelog PATHTOLOGFILE ] [ -version ]
```

Command-line options for the **ncp\_model** process are explained in the following table.

Table 27. ncp\_model command-line options

| Option                     | Explanation                                                             |
|----------------------------|-------------------------------------------------------------------------|
| -domain <i>DOMAIN_NAME</i> | The name of the domain under which to run the <b>ncp_model</b> process. |

Table 27. *ncp\_model* command-line options (continued)

| Option                            | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -backup                           | Set this option when running in failover mode without NCIM replication. When running with the -backup command-line option, the <b>ncp_model</b> process will not attempt to update the Network Connectivity and Inventory Model (NCIM) database with topology data.<br><b>Tip:</b> The \$NCHOME/etc/precision/ConfigItm.cfg file provides a simpler, efficient alternative for configuring failover. Use this file instead of the -backup command-line option, to indicate that the <b>ncp_model</b> process should not update the NCIM database. |
| -primaryDomain                    | Set this option when running in failover mode with NCIM replication. Specifies the name of the primary domain in the failover pair. This name must match the -domain value on the primary server.<br><b>Tip:</b> The \$NCHOME/etc/precision/ConfigItm.cfg file provides a simpler, efficient alternative for configuring failover. Use this file instead of the -primaryDomain command-line option, to indicate that the <b>ncp_model</b> process should not update the NCIM database.                                                            |
| -debug <i>DEBUG</i>               | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -help                             | Displays the command line options. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -latency <i>LATENCY</i>           | The maximum time in milliseconds (ms) that the <b>ncp_model</b> process waits to connect to another Precision Server process by means of the messaging bus. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic.                                                                                                                                                                               |
| -messagelevel <i>MESSAGELEVEL</i> | The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                                                                                                                                                                                                             |
| -messagelog <i>PATHTOLOGFILE</i>  | The path to the message log file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -version                          | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                                                                                                                                      |

---

## ncp\_oql command-line options

Use the **ncp\_oql** command to start the OQL Service Provider. The OQL Service Provider is a command-line utility that you can use to query and update data in Network Manager management databases.

### Syntax

```
nco_oql -domain DOMAIN -service SERVICE [-username USER]
[-password PASSWORD] [-poller] [-schema PATH] [-debug LEVEL]
[-messagelevel LEVEL] [-help] [-history SIZE] [-latency TIME]
[-oqldump] [-query QUERY] [-updates] [-snoop] [-tabular] [-options]
[-dbId ID] [-version]
```

Table 28. ncp\_oql options

| Option        | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -dbId         | This option is valid only when used with the NCIM service. Choose the database from DbLogins to connect to. The default value is NCIM.                                                                                                                                                                                                                                                                                                                                                                           |
| -debug        | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -domain       | The name of the relevant domain. Ensure that the process whose databases you want to query is running.                                                                                                                                                                                                                                                                                                                                                                                                           |
| -help         | Displays information about the command-line options. The component is not started.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| -history      | The size of the command line history.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| -latency      | <p>The maximum time in milliseconds (ms) that the service provider waits to connect to another Network Manager process by using the messaging bus. The default is 3000 (equivalent to 3 seconds).</p> <p>This option is useful for large and busy networks. The default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic. Check whether the default is long enough to obtain a response and increase the time if required.</p> |
| -messagelevel | <p>The level of messages to be logged. The default is warn:</p> <ul style="list-style-type: none"><li>• debug</li><li>• info</li><li>• warn</li><li>• error</li><li>• fatal</li></ul>                                                                                                                                                                                                                                                                                                                            |
| -oqldump      | Causes the databases from the application to be converted to CREATE and INSERT OQL statements. Use this option to record the internal state of a component for debugging later.                                                                                                                                                                                                                                                                                                                                  |

Table 28. **nco\_oql** options (continued)

| Option    | Explanation                                                                                                                                                                                                                                                                                                                                                |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -password | <p>The password to access the OQL Service Provider. This argument is required only if the OQL Service Provider is in authentication mode.</p> <p>Use this option with the -query option to enable OQL queries to be placed in scripts.</p> <p>Ensure that other users cannot view your password. As an alternative, enter your password at the prompt.</p> |
| -query    | Passes the specified query to the OQL Service Provider. This option permits the use of OQL statements in scripts. Use this option with the -password option.                                                                                                                                                                                               |
| -options  | Displays the list of options that are allowed as query services.                                                                                                                                                                                                                                                                                           |
| -poller   | Specifies a poller instance to connect to.                                                                                                                                                                                                                                                                                                                 |
| -schema   | Specifies a schema file to use. This option is valid only with the ncp_config service.                                                                                                                                                                                                                                                                     |
| -server   | This option is valid only with the ObjectServer service. It defaults to the current ObjectServer that is specified in the ConfigItnm file.                                                                                                                                                                                                                 |
| -service  | <p>The service that you want to interrogate.</p> <p><b>Tip:</b> To list all available services, run the command with the -options option.</p>                                                                                                                                                                                                              |
| -snoop    | Shows queries that are made on the service.                                                                                                                                                                                                                                                                                                                |
| -tabular  | Toggles to the tabular display.                                                                                                                                                                                                                                                                                                                            |
| -updates  | Shows updates that are made on the service.                                                                                                                                                                                                                                                                                                                |
| -username | The user name to use to log in to the service provider. This argument is required only if the OQL Service Provider is in authentication mode.                                                                                                                                                                                                              |
| -version  | Displays the version of the component. The component is not started.                                                                                                                                                                                                                                                                                       |

## nco\_p\_ncpmonitor command-line options

On UNIX operating systems, use the **nco\_p\_ncpmonitor** command, with optional advanced arguments, to start the Probe for Tivoli Netcool/OMNIBus, and to configure how the probe works.

### Usage considerations

Use this command only to troubleshoot IBM Tivoli Network Manager IP Edition.

The **nco\_p\_ncpmonitor** command starts the Probe for Tivoli Netcool/OMNIBus independently of the domain process controller CTRL. If you are using Network Manager IP Edition with failover, you must start the Probe for Tivoli Netcool/OMNIBus using CTRL. The CTRL process checks the status of the Probe for Tivoli Netcool/OMNIBus and uses this information to generate the Health Check events used by the failover process.



There are no dependencies for starting the Probe for Tivoli Netcool/OMNIBus.

## Syntax

The following example shows the syntax of the **nco\_p\_ncpmonitor** command.

```
nco_p_ncpmonitor -domain DOMAIN_NAME [ -buffer ] [ -buffersize ] [ -capturefile ]
[ -debug DEBUG ] [ -help ] [ -latency LATENCY ] [ -manager ]
[ -messagelevel ] [ -messagelevel MESSAGELEVEL ] [ -name ] [ -nobuffer ] [ -noraw ] [ -propsfile ]
[ -raw ] [ -rulesfile ] [ -server ] [ -version ]
```

The following table describes the command-line options of the **nco\_p\_ncpmonitor** command.

Table 29. *nco\_p\_ncpmonitor* command-line options

| Option                                | Explanation                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -autosaf                              | Enable automatic store and forward mode.                                                                                                                                                                                                                                                                                                                 |
| -buffer                               | Allows you to turn on alert buffering.                                                                                                                                                                                                                                                                                                                   |
| -buffersize                           | The size of the alert buffer to use.                                                                                                                                                                                                                                                                                                                     |
| -capturefile                          | Raw capture file to write to.                                                                                                                                                                                                                                                                                                                            |
| -debug <i>DEBUG</i>                   | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                        |
| -domain <i>DOMAIN_NAME</i>            | The name of the domain under which Network Manager IP Edition processes are running.                                                                                                                                                                                                                                                                     |
| -help                                 | Prints out a synopsis of all command line options for the component.<br><br>If specified, the component is <i>not</i> started.                                                                                                                                                                                                                           |
| -latency <i>LATENCY</i>               | The maximum time in milliseconds (ms) that the component waits to connect to another Network Manager IP Edition process via the messaging bus. This option is useful for large and busy networks where the default settings can cause the process to assume that there is a problem when in fact the communication delay is a result of network traffic. |
| -manager                              | Manager name.                                                                                                                                                                                                                                                                                                                                            |
| -messagelevel<br><i>MESSAGELEVEL</i>  | The level of messages to be logged (the default is warn):<br><ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                 |
| -messagelevel<br><i>PATHTOLOGFILE</i> | The path to the message log file.                                                                                                                                                                                                                                                                                                                        |
| -name                                 | Name of probe.                                                                                                                                                                                                                                                                                                                                           |
| -noautosaf                            | Disable automatic store and forward mode.                                                                                                                                                                                                                                                                                                                |
| -nobuffer                             | Allows you to turn off alert buffering.                                                                                                                                                                                                                                                                                                                  |
| -noraw                                | Allows you to turn off raw capture mode.                                                                                                                                                                                                                                                                                                                 |
| -nosaf                                | Disable store and forward mode.                                                                                                                                                                                                                                                                                                                          |
| -propsfile                            | Properties file to use.                                                                                                                                                                                                                                                                                                                                  |
| -raw                                  | Allows you to turn on raw capture mode.                                                                                                                                                                                                                                                                                                                  |
| -rulesfile                            | Rules file to use.                                                                                                                                                                                                                                                                                                                                       |

Table 29. *nco\_p\_ncpmonitor* command-line options (continued)

| Option   | Explanation                                                                                                                                                                                                                                                              |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -saf     | Enable store and forward mode.                                                                                                                                                                                                                                           |
| -server  | The name of the ObjectServer to connect to.<br><b>Tip:</b> The \$NCHOME/etc/precision/ConfigItm.cfg file provides a simpler, efficient alternative for configuring failover. Use this file instead of the -server command-line option, to specify the ObjectServer name. |
| -version | Prints the version number of the component.<br><br>If specified, the component is <i>not</i> started even if -version is used in conjunction with other arguments.                                                                                                       |

## ncp\_poller command-line options

Use the **ncp\_poller** command to manually start and manage the **ncp\_poller** process, which controls pollers.

It is best practice to configure the **ncp\_ctrl** process to start and manage the **ncp\_poller** process. In failover environments, the only way to start and manage **ncp\_poller** is by using **ncp\_ctrl**. The **ncp\_ctrl** process checks the status of the **ncp\_poller** process and uses this information to generate the health check events that are used by the failover process.

You can start the **ncp\_poller** process manually. Beforehand, ensure that the MODEL process is running, so that the network topology can be passed to the polling subsystem. Also ensure that the Probe for Tivoli Netcool/OMNIBus is running, so that events can be transferred to the ObjectServer.

### Syntax

To manually start the **ncp\_poller** process, run the **ncp\_poller** command. The syntax is as follows:

```
ncp_poller [-admin] -domain DOMAIN_NAME [-debug DEBUG] [ -deregister ]
[ -donotprune ] [ -force ] [ -help ] [ -latency
LATENCY] [-logdir] [ -messagelevel MESSAGELEVEL ] [ -messagelog
PATHTOLOGFILE ] [ -name ] [ -noadmin ] [ -primaryDomain
PRIMARY_DOMAIN_NAME ] [ -readsnmpconfig ] [ -register ] [-version]
```

The following table describes the command-line options for **ncp\_poller**.

Table 30. *ncp\_poller* command-line options

| Option                   | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Fix Pack 3</b> -admin | Optional. Configures the named poller to act as an admin poller. An admin poller updates the monitoring view caches and prunes the ncpolldata.polldata table. If the admin poller is running as a backup, it updates the device access credentials in the snmpKeyChain table.If you omit both the -admin and the -noadmin options then the -admin option is set. If you use multiple pollers, start a single poller with -admin and the other pollers with -noadmin. To optimize performance, start the poller that has the smallest polling load with -admin. |
| -debug DEBUG             | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

Table 30. **ncp\_poller** command-line options (continued)

| Option                                    | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -domain <i>DOMAIN_NAME</i>                | The name of the domain under which to run the <b>ncp_poller</b> process.                                                                                                                                                                                                                                                                                                                                                            |
| -donotprune                               | Stops the named poller from pruning polling data. Ensure that only one poller is set to prune polling data.<br><br><b>Fix Pack 3</b> This option is replaced by -noadmin option.                                                                                                                                                                                                                                                    |
| -deregister                               | Unregisters a poller. Any polls that are assigned to an unregistered poller do not run.                                                                                                                                                                                                                                                                                                                                             |
| -force                                    | Forces deregistration of the poller. Deletes all polling policies that are assigned to the named poller.                                                                                                                                                                                                                                                                                                                            |
| -help                                     | Prints a synopsis of all command-line options for <b>ncp_poller</b> then exits.                                                                                                                                                                                                                                                                                                                                                     |
| -latency <i>LATENCY</i>                   | The maximum time, in milliseconds (ms), that the <b>ncp_poller</b> process waits for a response to a query of another Network Manager IP Edition process. If your network experiences large volumes of network traffic, set a value of several minutes or greater. In such networks, delayed responses cause the <b>ncp_poller</b> process to assume that there is a problem when in fact the delay is a result of network traffic. |
| -logdir                                   | The directory to which process log files are written.                                                                                                                                                                                                                                                                                                                                                                               |
| -messagelevel <i>MESSAGELEVEL</i>         | The level of messages to be logged. The default is warn.<br><ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                                                                                             |
| -messagelog <i>PATHTOLOGFILE</i>          | The path to the message log file.                                                                                                                                                                                                                                                                                                                                                                                                   |
| -name                                     | Run as a named poller. Only polls that are assigned to this poller are run.                                                                                                                                                                                                                                                                                                                                                         |
| <b>Fix Pack 3</b> -noadmin                | Optional. Specifies that the named poller is not an admin poller. If you omit both the -admin and the -noadmin options then the -admin option is set. If you use multiple pollers, start a single poller with -admin and the other pollers with -noadmin. To optimize performance, start the poller that has the smallest polling load with -admin.<br><br>The -noadmin option replaces the -donotprune option.                     |
| -primaryDomain <i>PRIMARY_DOMAIN_NAME</i> | Configures the <b>ncp_poller</b> process to operate in backup mode.<br><b>Tip:</b> The \$NCHOME/etc/precision/ConfigItm.cfg file provides a simpler, efficient alternative for configuring failover. Use this file instead of the -primaryDomain command-line option to configure the poller to operate in backup mode.                                                                                                             |
| -readsnmpconfig                           | Instructs the poller to read the configuration from the SnmpStackSecurityInfo.cfg file and write it to the configuration database.                                                                                                                                                                                                                                                                                                  |
| -register                                 | Registers the poller. Pollers must be registered before polls can be assigned to them.                                                                                                                                                                                                                                                                                                                                              |

Table 30. **ncp\_poller** command-line options (continued)

| Option   | Explanation                                                |
|----------|------------------------------------------------------------|
| -version | Prints the version number of <b>ncp_poller</b> then exits. |

For more information on failover, see the *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide*.

## ncp\_store command-line options

Use the **ncp\_store** command, with optional advanced arguments, to start the **ncp\_store** process.

It is best practice to configure the **ncp\_ctrl** process, the master process controller, to launch and manage the **ncp\_store** process. You can also start the **ncp\_store** process using the following command line; optional arguments are shown enclosed in square brackets.

```
ncp_store -domain DOMAIN_NAME [ -cachepercent
PERCENTAGE_OF_CACHE_IN_MEMORY ] [ -debug DEBUG ]
[ -help ] [ -version ] [ -latency LATENCY ] [ -logdir PATHTOLOGFILE ]
[ -messagelevel MESSAGELEVEL ] [ -messagelog PATHTOMSGLOGFILE ]
```

Command line options for the **ncp\_store** process are explained in the following table:

Table 31. *Explanation of Command Line Options*

| Option                                                | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -domain <i>DOMAIN_NAME</i>                            | The name of the domain under which to run the <b>ncp_store</b> process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| -cachepercent<br><i>PERCENTAGE_OF_CACHE_IN_MEMORY</i> | Specifies a ratio of either 0% or 100% of the cache that is resident in memory to the cache that is resident on the hard disk. The ratio that you specify depends on the amount of memory that exists on the host machine and the number of processes it is running.<br><br>The default value is 0% cache. This ensures that <b>ncp_store</b> has a smaller memory footprint, as all its databases are stored on disk and not in memory. For large topologies setting -cachepercent 100 can make <b>ncp_store</b> start up faster. This setting has a larger memory footprint. |
| -debug <i>DEBUG</i>                                   | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| -help                                                 | Displays the command line options. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| -latency <i>LATENCY</i>                               | The maximum time in milliseconds (ms) that the <b>ncp_store</b> process waits to connect to another Network Manager process by means of the messaging bus. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic.                                                                                                                                                                                                             |

Table 31. Explanation of Command Line Options (continued)

| Option                              | Explanation                                                                                                                                                                           |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -logdir <i>PATHTOLOGFILE</i>        | The directory to write log files to.                                                                                                                                                  |
| -messagelevel <i>MESSAGELEVEL</i>   | The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul> |
| -messagelog <i>PATHTOMSGLOGFILE</i> | The path to the message log file.                                                                                                                                                     |
| -version                            | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments.                                                          |

## ncp\_trapmux command-line options

Use the **ncp\_trapmux** utility, with optional advanced arguments, to start the SNMP trap multiplexer. The SNMP trap multiplexer listens to a single port and forwards all the traps it receives to a set of host/socket pairs.

**Restriction:** The SNMP trap multiplexer does not forward SNMPv3 Inform messages.

To start the **ncp\_trapmux** process, use the following command line, where optional arguments are shown enclosed in square brackets.

```
ncp_trapmux -domain DOMAIN_NAME [ -debug DEBUG ] [ -help ] [ -latency LATENCY ] [ -messagelevel MESSAGELEVEL ] [ -messagelog PATHTOLOGFILE ] [ -version ]
```

Command line options for the **ncp\_trapmux** process are explained in the following table:

Table 32. Explanation of Command Line Options

| Option                     | Explanation                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -domain <i>DOMAIN_NAME</i> | The name of the domain under which to run the trap multiplexer.                                                                                                                                                                                                                                                                                                      |
| -debug <i>DEBUG</i>        | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                    |
| -help                      | Displays the command line options. Does not start the component even if used in conjunction with other arguments.                                                                                                                                                                                                                                                    |
| -latency <i>LATENCY</i>    | The maximum time in milliseconds (ms) that the <b>ncp_trapmux</b> process waits to connect to another Network Manager process by means of the messaging bus. This option is useful for large and busy networks where the default settings can cause processes to assume that there is a problem when in fact the communication delay is a result of network traffic. |

Table 32. Explanation of Command Line Options (continued)

| Option                                | Explanation                                                                                                                                                                           |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -messagelevel<br><i>MESSAGELEVEL</i>  | The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul> |
| -messagelog<br><i>PATH_TO_LOGFILE</i> | The path to the message log file.                                                                                                                                                     |
| -version                              | Displays the version number of the component. Does not start the component even if used in conjunction with other arguments.                                                          |

## ncp\_virtualdomain command-line options

Use the **ncp\_virtualdomain** command, with optional advanced arguments, to start the Virtual Domain component.

Virtual Domain is used when running Network Manager with failover.

It is best practice to configure the **ncp\_ctrl** process, the master process controller, to launch and manage Virtual Domain. The command-line syntax for Virtual Domain is:

```
ncp_virtualdomain -domain DOMAIN_NAME -virtualDomain VIRTUAL_DOMAIN_NAME
[-backupDomain BACKUP_DOMAIN_NAME] [-debug DEBUG] [-help] [-latency
LATENCY] [ -messagelevel MESSAGELEVEL ] [ -messagelog PATH_TO_LOGFILE ] [
-primaryDomain PRIMARY_DOMAIN_NAME] [-version]
```

The following table describes the command-line options for **ncp\_virtualdomain**.

Table 33. ncp\_virtualdomain command-line options

| Option                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -backupDomain <i>BACKUP_DOMAIN_NAME</i> | The name of the backup domain. Only add this command-line option on the primary Network Manager server. The name must match the -domain value on the backup Network Manager server.<br><b>Tip:</b> The \$NCHOME/etc/precision/ConfigItm.cfg file provides a simpler, efficient alternative for configuring failover. Use this file instead of the -backupDomain command-line option, to specify the backup domain name. |
| -debug <i>DEBUG</i>                     | The level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                                                                                                                                                                                                                                                       |
| -domain <i>DOMAIN_NAME</i>              | The name of the domain under which the Network Manager component is running. This name must be different for the primary and backup Network Manager servers.                                                                                                                                                                                                                                                            |
| -help                                   | Prints out a synopsis of all command-line options for the component. If specified, the component is not started even if -help is used in conjunction with other arguments.                                                                                                                                                                                                                                              |

Table 33. `ncp_virtualdomain` command-line options (continued)

| Option                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>-latency LATENCY</code>                   | The maximum time in milliseconds (ms) that the Virtual Domain component waits to connect to another Network Manager process using the messaging bus.                                                                                                                                                                                                                                                                                                               |
| <code>-messagelevel MESSAGELEVEL</code>         | The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>                                                                                                                                                                                                                                                                              |
| <code>-messagelog PATH_TO_LOGFILE</code>        | The path to the message log file.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <code>-primaryDomain PRIMARY_DOMAIN_NAME</code> | The name of the primary domain. Only add this command-line option on the backup Network Manager server. The name must match the <code>-domain</code> value on the primary Network Manager server.<br><b>Tip:</b> The <code>\$NCHOME/etc/precision/ConfigItnm.cfg</code> file provides a simpler, efficient alternative for configuring failover. Use this file instead of the <code>-primaryDomain</code> command-line option, to specify the primary domain name. |
| <code>-version</code>                           | Prints the version number of the component. If specified, the component is not started even if <code>-version</code> is used in conjunction with other arguments.                                                                                                                                                                                                                                                                                                  |
| <code>-virtualDomain VIRTUAL_DOMAIN_NAME</code> | The name of the virtual domain that any external application is to connect to. This name must be the same for the primary and backup Network Manager servers.<br><b>Tip:</b> The <code>\$NCHOME/etc/precision/ConfigItnm.cfg</code> file provides a simpler, efficient alternative for configuring failover. Use this file instead of the <code>-virtualDomain</code> command-line option, to specify the virtual domain name.                                     |

## ncp\_webtool command-line options

Use the `ncp_webtool` command to run the Web tools on the backend server.

The `ncp_webtool` process transfers the running of the Web tools to the backend server in environments where Topoviz is running on a different server to the Network Manager backend processes and there is a fire wall between the two. This transfer makes the Web tools available across such distributed environments.

You do not need to interact directly with `ncp_webtool` process, as it is a sever-time application that runs without user input.

It is best practice to configure the `ncp_ctrl` process, the master process controller, to launch and manage the `ncp_webtool` process. However, you can start the `ncp_webtool` process manually by entering the command, `ncp_webtool`, on the command line.

The **ncp\_webtool** command takes these options.

```
ncp_webtool -domain [ -debug debug level ] [ -help ] [ -latency ] [ -messagelevel message level ] [ -messagelog ] [ -version ]
```

Command line options are explained in Table 34.

*Table 34. Explanation of Command Line Options*

| Option                             | Explanation                                                                                                                                                                                        |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -debug <i>debug level</i>          | Specifies the level of debugging output (1-4, where 4 represents the most detailed output).                                                                                                        |
| -domain                            | Specifies the domain.                                                                                                                                                                              |
| -help                              | Displays the command line options.                                                                                                                                                                 |
| -latency                           | Specifies the network timeout value to use (in milliseconds).                                                                                                                                      |
| -messagelevel <i>message level</i> | Specifies the message level to use for log files: <ul style="list-style-type: none"> <li>• Debug</li> <li>• Info</li> <li>• Warn</li> <li>• Error</li> <li>• Fatal</li> </ul> The default is Warn. |
| -messagelog                        | Displays the path to the message log file.                                                                                                                                                         |
| -version                           | Displays the version number of the component.                                                                                                                                                      |

## Command reference for Tivoli Integrated Portal

Use the Tivoli Integrated Portal command line interface *tipcli* commands for writing scripts for passing information between applications.

The *tipcli* commands are entered in the *tip\_home\_dir*/profiles/TIPProfile/bin directory, for example, C:\IBM\tivoli\tip\profiles\TIPProfile\bin\tipcli.bat on Windows or /opt/IBM/tivoli/tip/profiles/TIPProfile/bin/tipcli.sh on Linux or UNIX.

The *tipcli* component provides help for its various commands:

### Help [--command *command\_name*]

Access help for all commands or optionally you can use the *command* argument to return detailed help for a specific command.

The following returns help for the AddUpdatePreferenceProfile command:

```
tipcli.bat Help --command AddUpdatePreferenceProfile
Help
----
AddUpdatePreferenceProfile --username <TIPUsername> --password <passwordForUser>
--profileName <profileName> [--newProfileName <newProfileName>] [--themeDir <themeDir>] [--showNavTree <true|false>] [--componentDir <default|ltr|rtl>] [--textDir <default|contextual|ltr|rtl>] [--views <viewList>] [--roles <roleList>] [--defaultView <defaultView>]
where
<TIPUsername> is the username on TIP that has iscadmins role.
<passwordForUser> is the password for the user.
```



<profileName> is profile name which will be created or updated.  
 <newProfileName> is the new name for the existing preference profile.  
 <themeDir> is the directory name of the installed theme. Example: TIPLight  
 <showNavTree> specify if show navigation tree by default after login the console.  
 <componentDir> specify component direction for the console.  
 <textDir> specify text direction for the console.  
 <viewList> is views assignment for the preference profile.  
 <roleList> is roles assignment for the preference profile.  
 <defaultView> specify which view is displayed by default after login the console.

CTGWA4017I The command completed successfully.

## Working with roles

tipcli commands for working with roles.

### ListRoles

List all roles.

**AddRole** --username *tip\_username* --password *tip\_user\_password* --roleName *role\_name*

Add the specified role. Console users are granted access to resources based on the role to which they have been assigned. All roles that are created have a resource type of Custom.

**Note:** Arguments to the *role\_name* parameter should not include spaces.

**UpdateRole** --username *tip\_username* --password *tip\_user\_password* --roleName *role\_name* --newRoleName *new\_role\_name*

Change the name of a specified role to the supplied new role name.

**Note:** Arguments to the *role\_name* and *newRoleName* parameters should not include spaces.

**DelRole** --username *tip\_username* --password *tip\_user\_password* --roleName *role\_name*

Delete the specified role.

**Note:** Arguments to the *role\_name* parameter should not include spaces.

**ListRolesFromGroup** --username *tip\_username* --password *tip\_user\_password* --groupID *group\_ID*

List all roles associated with a specified user group.

**MapRolesToGroup** --username *tip\_username* --password *tip\_user\_password* --groupID *group\_ID* --roleList *role\_name1, role\_name2*

Associate a comma separated list of roles with a particular user group.

**RemoveRolesFromGroup** --username *tip\_username* --password *tip\_user\_password* --groupID *group\_ID* --roleList *role\_name1, role\_name2*

Disassociate a comma separated list of roles from a particular user group.

**ListRolesForPage** --pageUniqueName *page\_unique\_name*

List all roles associated with a specified page.

**MapRolesToPage** --username *tip\_username* --password *tip\_user\_password* --pageUniqueName *page\_unique\_name* --roleList *role\_name1, role\_name2* --accessLevelList *level1, level2*

Associate a comma separated list of roles with a particular page and set the access level to the page for each role.

**RemoveRolesFromPage** --username *tip\_username* --password *tip\_user\_password*  
--pageUniqueName *page\_unique\_name* --roleList *role\_name1, role\_name2*  
Disassociate a comma separated list of roles from a particular page.

**ListRolesForPortletEntity** --portletEntityUniqueName  
*portlet\_entity\_unique\_name*  
List all roles associated with a specified portlet.

**MapRolesToPortletEntity** --username *tip\_username* --password  
*tip\_user\_password* --portletEntityUniqueName *portlet\_entity\_unique\_name*  
--roleList *role\_name1, role\_name2* --accessLevelList *level1, level2*  
Associate a comma separated list of roles with a particular portlet and set  
the access level to the portlet for each role.

**RemoveRolesFromPortletEntity** --username *tip\_username* --password  
*tip\_user\_password* --portletEntityUniqueName *portlet\_entity\_unique\_name*  
--roleList *role\_name1, role\_name2*  
Disassociate a comma separated list of roles from a particular portlet.

**ListRolesFromUser** --username *tip\_username* --password *tip\_user\_password*  
--userID *user\_ID*  
List all roles associated with a specified user ID.

**MapRolesToUser** --username *tip\_username* --password *tip\_user\_password*  
--userID *user\_ID* --roleList *role\_name1, role\_name2*  
Associate a comma separated list of roles with a particular user ID.

**RemoveRolesFromUser** --username *tip\_username* --password *tip\_user\_password*  
--userID *user\_ID* --roleList *role\_name1, role\_name2*  
Disassociate a comma separated list of roles from a particular user ID.

**ListRolesForView** --viewUniqueName *view\_name*  
List all roles associated with a specified view.

**MapRolesToView** --username *tip\_username* --password *tip\_user\_password*  
--viewUniqueName *view\_name* --roleList *role\_name1, role\_name2*  
--accessLevelList *level1, level2*  
Associate a comma separated list of roles with a particular view and set  
the access level for the view for each role.

**RemoveRolesFromView** --username *tip\_username* --password *tip\_user\_password*  
--viewUniqueName *view\_name* --roleList *role\_name1, role\_name2*  
Disassociate a comma separated list of roles from a particular view.

## Working with views

tipcli commands for working with views.

The tipcli commands are entered in the *tip\_home\_dir*/profiles/TIPProfile/bin directory, for example, C:\IBM\tivoli\tip\profiles\TIPProfile\bin\tipcli.bat on Windows or /opt/IBM/tivoli/tip/profiles/TIPProfile/bin/tipcli.sh on Linux or UNIX.

**ListViews**  
List all views.

**AddViewMembers** --username *tip\_username* --password *tip\_user\_password* --view  
*view\_unique\_name* [--members *members1, member2*] [--launchMembers  
*launch\_member1, launch\_member2*]  
Add members or launch members for a specified view.

**ListViewsForRole** --roleName *role\_name*

List the views associated with a specified role.

**MapViewToRole** --username *tip\_username* --password *tip\_user\_password*  
--roleName *role\_name* --viewList *view\_unique\_name1, view\_unique\_name2*  
--accessLevelList *level1, level2*

Associate a comma separated list of views with a particular role and set the access level for the role for each view.

**RemoveViewsFromRole** --username *tip\_username* --password *tip\_user\_password*  
--roleName *role\_name* --viewList *view\_unique\_name1, view\_unique\_name2*

Disassociate a comma separated list of views from a particular role.

## Working with users

tipcli commands for working with users.

**ListUsersFromRole** --roleName *role\_name*

List the users associated with a specified role.

**MapUsersToRole** --username *tip\_username* --password *tip\_user\_password*  
--roleName *role\_name* --usersList *user\_ID1:user\_ID2*

Associate a colon (:) separated list of user IDs with a particular role.

**Note:** Arguments to the usersList parameter should not include a colon (:).

**RemoveUsersFromRole** --username *tip\_username* --password *tip\_user\_password*  
--roleName *role\_name* --usersList *user\_ID1:user\_ID2*

Disassociate a colon (:) separated list of user IDs from a particular role.

## Working with preference profiles

tipcli commands for working with preference profiles.

**DeletePreferenceProfile** --username *tip\_username* --password  
*tip\_user\_password* --profileName *profile\_name*

Delete the specified preference profile.

**ListPreferenceProfiles** [--name *profile\_name*]

Return a list of console preference profiles. Optionally, you can specify a comma separated lists of preference profiles, to return their unique names.

**ShowPreferenceProfile** --uniqueName *profile\_unique\_name*

List all the attributes for a specified profile preference.

**AddUpdatePreferenceProfile** --username *tip\_username* --password  
*tip\_user\_password* --profileName *profile\_name* [--newProfileName  
*new\_profile\_name*] [--themeDir *theme\_dir*] [--showNavTree *true|false*]  
[--componentDir *default|ltr|rtl*] [--textDir *default|contextual|ltr|rtl*]  
[--views *view\_unique\_name1, view\_unique\_name2*] --roles *role\_name1,*  
*role\_name2*] [--defaultView *view\_unique\_name*]

Use the AddUpdatePreferenceProfile command to create a new profile preference or update an existing profile.

Table 35. AddUpdatePreferenceProfile command arguments

| Parameter and arguments             | Description                                                             |
|-------------------------------------|-------------------------------------------------------------------------|
| --username <i>tip_username</i>      | Mandatory parameter. A user with the iscadmins role.                    |
| --password <i>tip_user_password</i> | Mandatory parameter. The password for the user with the iscadmins role. |

Table 35. AddUpdatePreferenceProfile command arguments (continued)

| Parameter and arguments                                     | Description                                                                                                                                                                       |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>--profileName profile_name</code>                     | Mandatory parameter. The name of the profile that is to be created or modified.                                                                                                   |
| <code>[--newProfileName new_profile_name]</code>            | Optional parameter. The new name for the specified profile.                                                                                                                       |
| <code>[--themeDir theme_dir]</code>                         | Optional parameter. Used to specify the directory for the theme that you want to apply.                                                                                           |
| <code>[--showNavTree true false]</code>                     | Optional parameter. Used to specify whether or not you want the navigation pane to be displayed for preference profile.                                                           |
| <code>[--componentDir default ltr rtl]</code>               | Optional parameter. Used to specify component display direction, that is, whether you want items to display left-to-right, right-to-left, or to use the default browser settings. |
| <code>[--textDir default ltr rtl]</code>                    | Optional parameter. Used to specify text direction, that is, whether you want text to display left-to-right, right-to-left, or to use the default browser settings.               |
| <code>[--views view_unique_name1, view_unique_name2]</code> | Optional parameter. Used to specify the views that you want to assign to the preference profile. Comma separated list.                                                            |
| <code>--roles role_name1, role_name2]</code>                | Optional parameter. Used to specify the roles that you want to assign to the preference profile. Comma separated list.                                                            |
| <code>[--defaultView view_unique_name]</code>               | Optional parameter. Used to specify the view that you want displayed when a user logs into the portal.                                                                            |

## Working with portlets

tipcli commands for working with portlets.

The tipcli commands are entered in the *tip\_home\_dir*/profiles/TIPProfile/bin directory, for example, C:\IBM\tivoli\tip\profiles\TIPProfile\bin\tipcli.bat on Windows or /opt/IBM/tivoli/tip/profiles/TIPProfile/bin/tipcli.sh on Linux or UNIX.

**ListPortletEntitiesForRole** `--roleName role_name]`

List the portlets entities associated with a specified role.

**MapPortletEntitiesToRole** `--username tip_username --password tip_user_password --roleName role_name --portletEntityList portletEntity_unique_name1, portletEntity_unique_name2 --accessLevelList level1, level2`

Associate a comma separated list of portlets with a particular role and set the access level for the role for each portlet.

**RemovePortletEntitiesFromRole** `--username tip_username --password tip_user_password --roleName role_name --portletEntityList portletEntity_unique_name1, portletEntity_unique_name2`

Disassociate a comma separated list of portlets with from particular role.

## Working with pages

tipcli commands for working with pages.

**ListPages** [--viewList *view\_unique\_name1, view\_unique\_name2*]  
[--customizePages *true|false*]

List all pages. You can optionally filter the list by using the viewlist parameter and providing a comma separated list of views. You can also use the customizePages (set to true) to return a list of custom pages only.

**ListPagesForRole** --roleName *role\_name*

List the pages associated with a specified role.

**MapPagesToRole** --username *tip\_username* --password *tip\_user\_password*  
--roleName *role\_name* --pageList *page\_unique\_name1, page\_unique\_name2*  
--accessLevelList *level1, level2*

Associate a comma separated list of pages with a particular role and set the access level for the role for each page.

**RemovePagesFromRole** --username *tip\_username* --password *tip\_user\_password*  
--roleName *role\_name* --pageList *page\_unique\_name1, page\_unique\_name2*

Disassociate a comma separated list of pages from a particular role.

## Working with user groups

tipcli commands for working with user groups.

The tipcli commands are entered in the *tip\_home\_dir*/profiles/TIPProfile/bin directory, for example, C:\IBM\tivoli\tip\profiles\TIPProfile\bin\tipcli.bat on Windows or /opt/IBM/tivoli/tip/profiles/TIPProfile/bin/tipcli.sh on Linux or UNIX.

**ListGroupsFromRole** --roleName *role\_name*

List the user groups associated with a specified role.

**MapGroupsToRole** --username *tip\_username* --password *tip\_user\_password*  
--roleName *role\_name* --groupsList *group\_name1: group\_name2*

Associate a colon (:) separated list of groups with a particular role.

**Note:** Arguments to the groupsList parameter should not include a colon (:).

**RemoveGroupsFromRole** --username *tip\_username* --password *tip\_user\_password*  
--roleName *role\_name* --groupsList *group\_name1: group\_name2*

Disassociate a colon (:) separated list of groups from a particular role.

## Charting tipcli commands

tipcli commands for working with charting.

**ListCharts** --username *tip\_username* --password *tip\_user\_password*

Use ListCharts to review the charts that are configured in the environment.

**ChartConnection** --action *action* [--name *name*] [--protocol *protocol*]  
--hostname *hostname* --port *port* --serviceName *serviceName* --username  
*username* --password *password* --renderFormat *render\_format*  
--DataSource\_Username *datasource\_username* --credentialType *credential\_type*  
--username *tip\_username* --password *tip\_user\_password*

ChartConnection is used to configure a connection to any IBM Tivoli Charting Web Service. The ITM Web Service is just one example.

**ChartExport** *--dir output\_directory --type all|customcharts|page [--pageID page\_ID | --pageName page\_name] --username tip\_username --password tip\_user\_password*

ChartExport is used to export chart data.

Table 36. ChartExport command arguments

| Parameter and arguments                          | Description                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>--dir output_directory</i>                    | Mandatory parameter. The directory where the exported data is saved. If the directory does not exist, it is created.                                                                                                                                                                                                                                        |
| <i>--type all customcharts page</i>              | Mandatory parameter. If you set the <i>--type</i> to <i>all</i> , then all charts are exported. If you set it to <i>customcharts</i> , then only customized charts are exported. If you set it to <i>page</i> , then you can use either the <i>--pageID</i> or the <i>--pageName</i> parameter to specify the page for which you want to export chart data. |
| <i>[--pageID page_ID   --pageName page_name]</i> | Optional parameter. If you set the <i>--type</i> parameter to <i>page</i> , then you can use either the <i>--pageID</i> or the <i>--pageName</i> parameter to specify the page for which you want to export chart data.                                                                                                                                     |
| <i>--username tip_username</i>                   | Mandatory parameter. The user name for a user with either the <i>chartAdministrator</i> or <i>chartCreator</i> role.                                                                                                                                                                                                                                        |
| <i>--password tip_user_password</i>              | Mandatory parameter. The password for the specified user name.                                                                                                                                                                                                                                                                                              |

**ChartImport** *--dir source\_directory --username tip\_username --password tip\_user\_password*

ChartImport is used to import chart data from a specified directory.

Table 37. ChartImport command arguments

| Parameter and arguments             | Description                                                                                                                   |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <i>--dir source_directory</i>       | Mandatory parameter. The directory where the data to be imported is located. BIRT Designer file format is <i>.rptdesign</i> . |
| <i>--username tip_username</i>      | Mandatory parameter. The user name for a user with either the <i>chartAdministrator</i> or <i>chartCreator</i> role.          |
| <i>--password tip_user_password</i> | Mandatory parameter. The password for the specified user name.                                                                |

**ChartProperties** *[--name property\_name --value property\_value] --username tip\_username --password tip\_user\_password*

ChartProperties is used to view or modify properties for charting. If you only provide username and password details and no other arguments, then the current properties are listed. It is useful to run this command first so that you can review the current property names and values before you decide to make updates.

Table 38. *ChartProperties* command arguments

| Parameter and arguments                                                | Description                                                                                                                                                                                                                          |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>--name <i>property_name</i> --value <i>property_value</i></code> | Optional parameter. The name of the property that you want to update and the value that you want to set. For example, to set the timeout value to 10,000,000 milliseconds, enter <code>--name AXIS_TIMEOUT --value 10000000</code> . |
| <code>--username <i>tip_username</i></code>                            | Mandatory parameter. The user name for a user with the chartAdministrator role.                                                                                                                                                      |
| <code>--password <i>tip_user_password</i></code>                       | Mandatory parameter. The password for the specified user name.                                                                                                                                                                       |

#### ListRestoreTimestamp

Use the ListRestoreTimestamp command to return a list of charting store backups by timestamp.

**RestoreChartStore** `--BackupTimestamp backup_timestamp --username tip_username --password tip_user_password`

Use the RestoreChartStore command to restore a chart store by timestamp.

Table 39. *RestoreChartStore* command arguments

| Parameter and arguments                          | Description                                                                     |
|--------------------------------------------------|---------------------------------------------------------------------------------|
| <code>RestoreChartStore --BackupTimestamp</code> | Mandatory parameter. The timestamp of the charting store backup.                |
| <code>--username <i>tip_username</i></code>      | Mandatory parameter. The user name for a user with the chartAdministrator role. |
| <code>--password <i>tip_user_password</i></code> | Mandatory parameter. The password for the specified user name.                  |

## Export tipcli commands

tipcli commands for exporting Tivoli Integrated Portal data.

**Note:** If you specify additional parameters for the `tipcli.bat|.sh` Export and make a typing error, that is, if you type a parameter incorrectly, or use the incorrect case, then the commands runs as if no parameters were specified and no warning message is displayed.

#### ListExportPlugins

Use the ListExportPlugins command to list all plugins that can be exported.

**Export** `[--includePlugins|--excludePlugins plugin1,plugin2] [--settingFile setting_file] --username tip_username --password tip_user_password`

Use the Export command to export customization data for an instance of Tivoli Integrated Portal. If you provide no parameters to the Export command, all custom data is exported by default.

Table 40. *Export* command arguments

| Parameter and arguments                                                 | Description                                                                                                 |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <code>[--includePlugins --excludePlugins <i>plugin1,plugin2</i>]</code> | Optional parameter. You can choose to include or exclude a list of plugins when you run the Export command. |

Table 40. Export command arguments (continued)

| Parameter and arguments                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>--settingFile <i>setting_file</i></code>   | Optional parameter. You can specify your export requirements in properties file instead of specifying your requirements using separate parameters at the command line. Provide a path to the settings file as the argument to the <code>settingFile</code> parameter. On systems running Windows you must use double backslashes characters (\\) when specifying the path to your settings file, for example, <code>C:\\tmp\\export.properties</code> . Command line parameters take precedence over entries in the settings file. |
| <code>--username <i>tip_username</i></code>      | Mandatory parameter. The user name for a user with the <code>iscadmin</code> role.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <code>--password <i>tip_user_password</i></code> | Mandatory parameter. The password for the specified user name.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

```
Export [--exportFile export_file] [--pages ALL|NONE|page1,page2] [--views
ALL|NONE|view1,view2] [--roles ALL|NONE|REQUIRED|role1,role2]
[--exportPagesInViews true|false] [--userPreferences
ALL|NONE|REQUIRED|user_ID1,user_ID2] [--consolePreferenceProfiles
ALL|NONE|pref_ID1,pref_ID2] [--includeEntitiesFromApp war1,war2]
[--includeCustomData true|false] [--includeCredentialData true|false]
[--includeMytasks true|false] [--includeMyStartupPages true|false]
[--includeTransformations true|false] --username tip_username --password
tip_user_password
```

Table 41. ExportPagePlugin command arguments

| Parameter and arguments                                                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>--exportFile <i>export_file</i></code>                                                      | Optional parameter. Specifies the path and file name for the exported data, for example, <code>c:/tmp/extest.zip</code> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <code>--pages ALL NONE <i>page1,page2</i></code>                                                  | Optional parameter. If you do not use the <code>pages</code> parameter, the default setting is <code>ALL</code> unless either <code>exportPagesInViews</code> or <code>includeEntitiesFromApp</code> is defined, then the default setting is <code>NONE</code> . You can also provide a list of pages that you want to export.                                                                                                                                                                                                                                                                                                                                    |
| <code>--views ALL NONE <i>view1,view2</i></code><br><code>--exportpageinviews [true false]</code> | Optional parameter. If you do not use the <code>views</code> parameter, the default setting is <code>ALL</code> . You can also provide a list of views that you want to export and optionally specify that you want to export all pages associated with the specified views.<br><b>Note:</b> Whether the optional parameter <code>exportpageinviews</code> is set to <code>true</code> or <code>false</code> , if a view has a default node in the navigation pane associated with it, then the page associated with the node is always exported. This is also true, even if you specify <code>NONE</code> as the argument to the <code>--pages</code> parameter. |



Table 41. *ExportPagePlugin* command arguments (continued)

| Parameter and arguments                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>[--roles ALL NONE REQUIRED role1,role2]</code>                  | Optional parameter. You can export no roles, all roles, or a specific list of roles. The default setting is ALL unless the pages parameter or the includeEntitiesFromApp parameter is specified. Then, the default setting is set to REQUIRED.                                                                                                                                                                                                 |
| <code>[--exportPagesInViews true false]</code>                        | Optional parameter. Use this parameter, set to true, to export the pages associated with an exported view. The default value is false.                                                                                                                                                                                                                                                                                                         |
| <code>[--userPreferences ALL NONE REQUIRED user_ID1,user_ID2]</code>  | Optional parameter. You can export preferences for all users, no users, or for a specified list of users by user ID. The default setting is ALL. This parameter overrides the includeMytasks and includeMyStartupPages parameters.                                                                                                                                                                                                             |
| <code>[--consolePreferenceProfiles ALL NONE pref_ID1,pref_ID2]</code> | Optional parameter. You can export no preference profile data, all preference profile data, or data for a specific list of preference profiles. The default setting is ALL.<br><b>Note:</b> If a console preference profile has a custom view as its default view, then that view is automatically exported. If the exported view has a default node in the navigation pane, then the associated page is automatically exported with the view. |
| <code>[--includeEntitiesFromApp war1,war2]</code>                     | Optional parameter. You can provide a list of WARs to export pages that contain portlets associated with the listed WARs.                                                                                                                                                                                                                                                                                                                      |
| <code>[--includeCustomData true false]</code>                         | Optional parameter. The default value is true. If is set to false, no customization data is exported.                                                                                                                                                                                                                                                                                                                                          |
| <code>[--includeCredentialData true false]</code>                     | Optional parameter. The default value is true. If is set to false, no credential data is exported.                                                                                                                                                                                                                                                                                                                                             |
| <code>[--includeMytasks true false]</code>                            | Optional parameter. The default setting is true. This parameter only applies when the includeEntitiesFromApp parameter is also specified.                                                                                                                                                                                                                                                                                                      |
| <code>[--includeMyStartupPages true false]</code>                     | Optional parameter. The default setting is true. This parameter only applies when the includeEntitiesFromApp parameter is also specified.                                                                                                                                                                                                                                                                                                      |
| <code>[--includeTransformations true false]</code>                    | Optional parameter. The default setting is true.                                                                                                                                                                                                                                                                                                                                                                                               |
| <code>--username tip_username</code>                                  | Mandatory parameter. The user name for a user with the iscadmins role.                                                                                                                                                                                                                                                                                                                                                                         |
| <code>--password tip_user_password</code>                             | Mandatory parameter. The password for the specified user name.                                                                                                                                                                                                                                                                                                                                                                                 |

**Export** `[--includeCharts ALL|NONE|page_ID1,page_ID2] --username tip_username --password tip_user_password`

Table 42. *ChartExportPlugin* commands

| Parameter and arguments                                   | Description                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>[--includeCharts ALL NONE page_ID1,page_ID2]</code> | Optional parameter. You can export all charts, no charts, or specify a list of charts to be exported. The default setting is ALL.<br><b>Note:</b> If you run the Export command using the <code>--includeCharts</code> parameter, it must be run by the same user that started the Tivoli Integrated Portal Server. |
| <code>--username tip_username</code>                      | Mandatory parameter. The user name for a user with the <code>chartAdministrator</code> role.                                                                                                                                                                                                                        |
| <code>--password tip_user_password</code>                 | Mandatory parameter. The password for the specified user name.                                                                                                                                                                                                                                                      |

## Import `tipcli` commands

`tipcli` commands for importing Tivoli Integrated Portal data.

**Note:** If you specify additional parameters for the `tipcli.bat|.sh` Import and make a typing error, that is, if you type a parameter incorrectly, or use the incorrect case, then the commands runs as if no parameters were specified and no warning message is displayed.

### ListImportPlugins

Use the `ListImportPlugins` command to list all plugins that are available to be imported.

**Import** `[--includePlugins|--excludePlugins plugin1,plugin2] [--settingFile setting_file] [--backupDir backup_dir] --username tip_username --password tip_user_password`

Use the Import command to import customization data into a Tivoli Integrated Portal environment. If you provide no parameters to the Import command, all custom data is imported by default.

Table 43. *Import* command arguments

| Parameter and arguments                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>[--includePlugins --excludePlugins plugin1,plugin2]</code> | Optional parameter. You can choose to include or exclude a list of plugins when you run the Import command.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <code>[--settingFile setting_file]</code>                        | Optional parameter. You can specify your import requirements in properties file instead of specifying your requirements using separate parameters at the command line. Provide a path to the settings file as the argument to the <code>settingFile</code> parameter. On systems running Windows you must use double backslashes characters (\\) when specifying the path to your settings file, for example, <code>C:\\tmp\\import.properties</code> . Command line parameters take precedence over entries in the settings file. |
| <code>[--backupDir backup_dir]</code>                            | You can specify a directory to save the backup data during an import operation so that if it is required you can subsequently restore settings.                                                                                                                                                                                                                                                                                                                                                                                    |

Table 43. Import command arguments (continued)

| Parameter and arguments                   | Description                                                           |
|-------------------------------------------|-----------------------------------------------------------------------|
| <code>--username tip_username</code>      | Mandatory parameter. The user name for a user with the iscadmin role. |
| <code>--password tip_user_password</code> | Mandatory parameter. The password for the specified user name.        |

**Import** [--importFile *import\_file*] [--rollback ALL] [--haSupport both|true|false] --username *tip\_username* --password *tip\_user\_password*

Table 44. ImportPagePlugin command arguments

| Parameter and arguments                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>[--importFile <i>import_file</i>]</code> | Optional parameter. Specifies the path and file name for the data to be imported, for example, <code>c:/tmp/extest.zip</code> .                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <code>[--rollback ALL]</code>                  | Optional parameter. Use the rollback parameter if you want to restore a Tivoli Integrated Portal environment to its pre-import state. You can only roll back an import if you have made no changes to the environment since you performed the import.                                                                                                                                                                                                                                                                                                                                   |
| <code>[--haSupport both true false]</code>     | Optional parameter. You can set this parameter to both, true, or false. The setting indicates whether to include load balancing data, the default value is both. If you set it to false, only non-load balancing data is imported, that is, transformations. If is set to true, only load balancing base data is imported. When it is set to both, both types of data are imported. This parameter can also be used in non-load balanced environments. If is set to true, only base data is imported. If you set it to false, only non-base data is imported, that is, transformations. |

## Additional commands

Additional tipcli commands.

**cmsUpdateRemoteEntries** [--username *username* --password *password*] (-toremove | -fromremote | -deleteremote) [-force]

Save system information in the file specified.

Table 45. cmsUpdateRemoteEntries command arguments

| Parameter and arguments                                              | Description                                                                                                                                                                                                                  |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>[--username <i>username</i> --password <i>password</i>]</code> | Optional parameters. User name and password for a Tivoli Integrated Portal user. If you do not provide user name and password details at the command line, you must enter the user name and password in an interactive mode. |

Table 45. *cmsUpdateRemoteEntries* command arguments (continued)

| Parameter and arguments | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -toremove               | Optional parameter. Indicates that the update is to occur to the remote data store, that is, the local information is to be written to the remote database.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -fromremote             | Optional parameter. Indicates that the update is to occur from the remote data store. Any information saved locally is downloaded and updated from the remote database.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| -deleteremote           | Optional parameter. Indicates that the launch entries provided by this Tivoli Integrated Portal instance to the remote database is to be deleted from the database. Additionally, this command prevents any further updates from being sent to the remote database. On execution, the <i>cmsUpdateRemoteEntries</i> command with the <i>toremove</i> and <i>force</i> options updates the database and re-enables automatic updates to the remote database.<br><b>Note:</b> There is no difference between <i>deleteremote</i> with the <i>force</i> option and <i>deleteremote</i> without the <i>force</i> option. |
| -force                  | Optional parameter. Indicates that any caching or optimization mechanisms for the data should be ignored and that the data should be updated regardless of the state. Any existing cached information is discarded. All data in the database is refreshed for the <i>toremove</i> case, including the resource bundles.                                                                                                                                                                                                                                                                                              |

## Version

List the versions of the products and components installed in the environment.

## SystemInfo [--outputFile *outputFile*]

Save system information in the file specified.

## ITMLogin --hostname *hostname* --port *port* --username *username* --password *password* [--servicename]

ITMLogin is used to configure the ITM Web Service to connect to the Tivoli Enterprise Portal Server. For example, this command in Windows configures the username and password for a new ITM Web Service to be added to the application server instance.

```
C:\IBM\tivoli\tip\bin\tipcli.bat ITMLogin --hostname
localhost --port 1920 --username sysadmin --password
sysadm1n --servicename ITMWebService2
```

You can use the ITMLogin command to change the hostname, port, username, and password of an existing Tivoli Enterprise Portal Server instance. Changing a configured ITM Web Service to a different Tivoli Enterprise Portal Server is not supported, because the two portal servers may have different configurations. If you need to use a different portal

server, you can install another instance of the ITM Web Service and use this command (along with the `-serviceName` option) to configure.

```
TADDMLogin --hostname hostname [--port port] --username username --password  
password
```

Log in to the Tivoli Application Dependency Discovery Manager.



---

## Appendix B. Web Applications configuration reference

Use this information to support configuration of web applications.

---

### Web application configuration files

There are separate configuration files for the Network Manager web applications and for Topoviz. This section explains how to change configuration settings in these files.

There are two configuration files. These files are located at `ITNMHOME/profiles/TIPProfile/etc/tnm/`. These files contain all the settings used by the web applications. The configuration files are the following:

- `topoviz.properties`: Contains settings used by Topoviz.
- `status.properties`: Contains status display settings for Topoviz and the Structure Browser.
- `tnm.properties`: Contains settings used by all the other Network Manager web applications.

To change any of the settings in these files, edit the appropriate file.

**Note:** `ITNMHOME` is the environment variable that contains the path to the Network Manager installation directory.

Backup copies of both of these files, containing default settings, are held at the following location: `ITNMHOME/profiles/TIPProfile/etc/tnm/default`

**Note:** The `tnm.properties`, `status.properties`, and `topoviz.properties` files are monitored every 60 seconds for changes, so these changes are automatically detected by Topoviz.

### Topoviz configuration files

The configuration files for IBM Tivoli Network Manager IP Edition Web applications and Topoviz contain all the settings that are used by each application.

The configuration files are located at `ITNMHOME/profiles/TIPProfile/etc/tnm`. The files are as follows:

- `topoviz.properties`: Contains settings used by Topoviz.
- `status.properties`: Contains status display settings for Topoviz and the Structure Browser.
- `tnm.properties`: Contains settings used by all the other Network Manager IP Edition Web applications.

To change any of the settings in these files, edit the appropriate file.

Backup copies of both of these files, containing default settings, are stored at the following location: `ITNMHOME/profiles/TIPProfile/etc/tnm/default`.

The `tnm.properties`, `status.properties`, and `topoviz.properties` files are monitored every 60 seconds for changes, so that these changes are automatically detected by Topoviz.

## WebTools configuration files

Each web tool has its own XML configuration file.

These configuration files are held at the following locations: ITNMHOME/profiles/TIPProfile/etc/tnm/tools and ITNMHOME/precision/scripts/webtools/etc.

Table 44 lists the configuration files.

*Table 46. WebTool Configuration Files*

| Type of Tool                                       | Name of Tool                 | Name of Associated Configuration File |
|----------------------------------------------------|------------------------------|---------------------------------------|
| General Diagnostic and Information Retrieval Tools | Advanced Ping Tool           | AdvancedPing.xml                      |
|                                                    | Advanced Subnet Ping Tool    | AdvancedSubnetPing.xml                |
|                                                    | Advanced Traceroute Tool     | AdvancedTraceroute.xml                |
|                                                    | Whois Lookup Tool            | WhoisLookup.xml                       |
|                                                    | DNS Lookup Tool              | DNSLookup.xml                         |
| Cisco Information Retrieval Tools                  | Cisco Information Tool       | CiscoBGPInfo.xml                      |
|                                                    |                              | CiscoInterfaceList.xml                |
|                                                    |                              | CiscoISISInfo.xml                     |
|                                                    |                              | CiscoMBGPInfo.xml                     |
|                                                    |                              | CiscoMPLSInfo.xml                     |
|                                                    |                              | CiscoOSPFInfo.xml                     |
|                                                    |                              | CiscoRoutingInfo.xml                  |
| Cisco Diagnostic Tools                             | Cisco Route Information Tool | CiscoVRFList.xml                      |
|                                                    |                              | CiscoShowRoute.xml                    |
|                                                    |                              | CiscoVRFInfo.xml                      |
|                                                    |                              | CiscoVRFInfo.xml                      |
|                                                    |                              | CiscoPing.xml                         |
|                                                    |                              | CiscoLSPPing.xml                      |
|                                                    |                              | CiscoVRFPing.xml                      |
|                                                    |                              | CiscoTraceroute.xml                   |
| Juniper Information Retrieval Tools                | Juniper Information Tool     | CiscoLSPTraceroute.xml                |
|                                                    |                              | CiscoVRFTraceroute.xml                |
|                                                    |                              | JuniperBGPInfo.xml                    |
|                                                    |                              | JuniperInterfaceList.xml              |
|                                                    |                              | JuniperISISInfo.xml                   |
|                                                    |                              | JuniperMPLSInfo.xml                   |
|                                                    |                              | JuniperOSPFInfo.xml                   |
|                                                    |                              | JuniperRoutingInfo.xml                |
|                                                    |                              | JuniperVRFList.xml                    |



Table 46. WebTool Configuration Files (continued)

| Type of Tool             | Name of Tool                   | Name of Associated Configuration File |
|--------------------------|--------------------------------|---------------------------------------|
| Juniper Diagnostic Tools | Juniper Route Information Tool | JuniperShowRoute.xml                  |
|                          | Juniper Ping Tool              | JuniperPing.xml                       |
|                          | Juniper Traceroute Tool        | JuniperTraceroute.xml                 |

WebTools configuration files define all parameters used by WebTools. You should not normally need to change these parameters.

The only parameters that you might be required to configure are the Telnet login details for the Cisco and Juniper tools, as described in "Configuring Telnet Login Details".

**Note:** Passwords specified in the WebTools configuration files are plain-text. If you configure Telnet login details within these files, then it is recommended that you apply appropriate security measures to the WebTools directories, ITNMHOME/profiles/TIPProfile/etc/tnm/tools and ITNMHOME/precision/scripts/webtools/etc.

## Structure Browser configuration files

The appearance and tools of the Structure Browser are controlled through configuration files.

The following configuration files control the appearance of the Structure Browser window. Both files are located in ITNMHOME/profiles/TIPProfile/etc/tnm.

- The structurebrowser.properties file controls settings that are only related to the Structure Browser window.
- The status.properties file controls all status indicator settings for both the Topoviz views and the Structure Browser window.
- The ncp\_structurebrowser\_menu.xml file controls what tools are available in through the Structure Browser.

**Note:** The structurebrowser.properties, status.properties, and ncp\_structurebrowser\_menu.xml files are monitored every 60 seconds for changes, so these changes are automatically detected by the Structure Browser.

The managed status column can be hidden or displayed, and the managed and unmanaged icons are customizable also. You can set whether the column appears in the **Device Structure Tree** and change the icons for the managed and unmanaged states in the structurebrowser.properties file.

---

## URL parameters

Use URL parameters to construct a URL to launch any of the Network Manager Web applications directly from a Web browser. For example, you can construct a URL to launch the Hop View containing a predefined network map.

These parameters can be typed directly into the address bar of your browser. Alternatively, you could write a Tivoli Netcool/OMNIBus Web GUI tool to pass column values for an event to a CGI script. The script could then call the relevant Web application with these parameters.

Default windows composed of multiple Web applications, such as the Network Health View, cannot be opened using a URL. The following table lists the Network Manager Web applications that can be opened using URLs.

*Table 47. GUI windows that can be opened with URLs*

| Window                          | URL                                                                                   | Takes parameters |
|---------------------------------|---------------------------------------------------------------------------------------|------------------|
| Hop View                        | https://host:port/ibm/console/ncp_topoviz/HopView.do                                  | Yes              |
| MIB Browser                     | https://host:port/ibm/console/ncp_mibbrowser/Launch.do                                | Yes              |
| MIB Grapher                     | https://host:port/ibm/console/ncp_mibbrowser/pages/mib_graph/mibgraphview_servlet.jsp | Yes              |
| Network Discovery Configuration | https://host:port/ibm/console/ncp_disco/DiscoConfig.do                                | No               |
| Network Discovery Status        | https://host:port/ibm/console/ncp_disco/DiscoStatus.do                                | No               |
| Network Views                   | https://host:port/ibm/console/ncp_topoviz/NetworkView.do                              | Yes              |
| Path Views                      | https://host:port/ibm/console/ncp_topoviz/PathViewNewPath.do                          | Yes              |
| Web Tools                       | https://host:port/ibm/console/ncp_webtools/pages/ncp_wt_index.jsp?                    | Yes              |

The following topics explain the URL parameters to use for the different Web applications.

## Hop View URL parameters

Use this information to understand how to construct a URL to display layer 2 and layer 3 connectivity maps in the Hop View.

### URL parameters

The following table shows the URL parameters that you can pass to the Hop View to display layer 2 or layer 3 connectivity maps.

Table 48. URL parameters for Hop View maps

| Parameter    | Description                                                                                                                                                                                                                             | Required? |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| seed         | An identifier for the seed device. This may be the EntityName, IPAddress or ObjectId of the required seed device. This corresponds to the <b>Seed</b> field in the Hop View toolbar.                                                    | Yes       |
| domain       | The name of the Network Manager domain. This corresponds to the <b>Domain</b> field in the Hop View toolbar.                                                                                                                            | Yes       |
| hops         | This is the number of hops from the seed device. This corresponds to the <b>Hops</b> field in the Hop View toolbar.                                                                                                                     | No        |
| layout       | This can be any of the following: <ul style="list-style-type: none"><li>• hierarchical</li><li>• symmetrical</li><li>• orthogonal</li><li>• circular</li></ul>                                                                          | No        |
| endNodes     | This can take one of the following values: <ul style="list-style-type: none"><li>• true: Show end nodes in the map.</li><li>• false: Do not show end nodes in the map.</li></ul>                                                        | No        |
| connectivity | This can take one of the following values: <ul style="list-style-type: none"><li>• layer1</li><li>• layer2</li><li>• layer3</li><li>• ipsubnets</li></ul><br>This corresponds to the <b>Connectivity</b> field in the Hop View toolbar. | No        |

### Example 1: URL for layer 2 connectivity map

The following example shows the format of a Topoviz URL for a layer 2 connectivity map. Note that Topoviz URLs are case-sensitive.

```
https://host:port/ibm/console/ncp_topoviz/HopView.do?domain=MPLSTEST&type=layer2  
&layout=hierarchical&seed=lon-core-cis-h.ibm.com&hops=2&endNodes=true
```

### Example 2: URL for layer 3 connectivity map

The following example shows the format of a Topoviz URL for a layer 3 map. Note that Topoviz URLs are case-sensitive.

```
https://host:port/ibm/console/ncp_topoviz/HopView.do?domain=MPLSTEST&type=layer3  
&layout=symmetric&seed=lon-core-cis-h.ibm.com&HOPS=2&endNodes=true
```

## Network Views URL parameters

Use this information to understand how to construct a URL to display specific maps in the network views.

Each saved network view has a unique ID. To find out the ID of a particular view, hover the cursor over the name of the view in the navigation tree. The ID is displayed in the status bar at the bottom of the browser window, and as a tooltip.

Passing a network view ID in the URL to Network Views opens that network view. The view is shown without the navigation tree.

### URL for a saved network view

The following example shows the format of a Network Views URL containing the parameter `id`. Note that Topoviz URLs are case-sensitive.

`https://host:port/ibm/console/ncp_topoviz/NetworkView.do?id=10690`

## MIB Browser URL Reference

You can launch the MIB Browser directly from a web browser. The URL required to launch an empty MIB Browser is as follows:

`https://host:port/ibm/console/ncp_mibbrowser/Launch.do`

In this URL:

- *host* is the IP address of the host on which the Tivoli Integrated Portal server is running.
- *port* is the port to access on the host on which the Tivoli Integrated Portal server is running. By default this is 16316.

This URL opens the MIB Browser with the **Domain** option menu set to the first value in the list, and no **Host** or **OID** values set in the SNMP Query toolbar.

### URL Parameters

You can supply the following optional parameters when you launch the MIB Browser:

- **domain**: name of the Network Manager domain to use to obtain the MIB and SNMP data. The value of this parameter is used to set the **Domain** option menu in the Configuration Toolbar.

If you are writing a tool to launch the MIB Browser from the AEL, then you may wish to specify the name of the ObjectServer rather than the name of the Network Manager domain. Do this by supplying the parameter `$selected_rows.ServerName`, where `ServerName` is the field in the AEL event that specifies the name of the ObjectServer.

- **host**: IP address of the target device to be queried for SNMP data. This value is used to populate the **Host** field in the SNMP Query Toolbar.
- **variable**: the MIB object to query. This value can be the OID of the MIB object, such as 1.3.6.1.2.1.1.3 or it can be the name of the MIB object, such as `sysUpTime`. This value is used to populate the **OID** field in the SNMP Query Toolbar.
- **resultsOnly**: takes one of the values `true` or `false`.
  - If `true`, then the MIB Browser is launched in full mode.
  - If `false`, then the MIB Browser is launched in results-only mode.

If you supply the *domain*, *host*, and *variable* parameters, then the MIB Browser launches, automatically performs the SNMP query specified by these parameters, and then displays the results in the SNMP Query Results Area. The type of SNMP query performed varies depending on the value of the *variable* parameter:

- If the *variable* parameter is a single MIB object in the MIB tree then the MIB Browser performs an SNMP Get query on startup.
- If the *variable* parameter is a table in the MIB tree then the MIB Browser performs an SNMP Get Table query on startup.
- In all other cases, the MIB Browser performs an SNMP Walk query on startup.

## Examples of URLs

Some examples of URLs to launch the MIB Browser are shown below:

- `https://host:port/ibm/console/ncp_mibbrowser/Launch.do`  
The MIB Browser opens up with the **Domain** option menu set to the first value. No host or OID values are set in the SNMP Query Toolbar.
- `https://host:port/ibm/console/ncp_mibbrowser/Launch.do?domain=NCOMS`  
The MIB Browser opens up with the **Domain** option menu set to the specified domain.
- `https://host:port/ibm/console/ncp_mibbrowser/Launch.do?domain=NCOMS&host=198.162.3.4`  
The MIB Browser opens up with the **Domain** option menu set to the specified domain and the Host field set to 198.162.3.4.
- `https://host:port/ibm/console/ncp_mibbrowser/Launch.do?domain=NCOMS&host=198.162.3.4&variable=ifTable`  
The MIB Browser opens up with the **Domain** option menu, the **Host** and **OID** fields set accordingly. In addition, an SNMP Get Table query will automatically be issued for the MIB object ifTable. The results will be displayed in the SNMP Query Results Area.
- `https://host:port/ibm/console/ncp_mibbrowser/Launch.do?domain=NCOMS&host=198.162.3.4&variable=sysUpTime&resultsOnly=true`  
The MIB Browser opens up with the **Domain** option menu, the **Host** and **OID** fields set accordingly. In addition, an SNMP Get query will automatically be issued for the MIB object sysUpTime. The MIB Browser opens in results-only mode and contains only the results showing the value of sysUpTime for the network device with IP address 198.162.3.4.

## MIB Grapher URL Reference

You can graph MIB variables for a node or interface by specifying a URL in your Web browser.

The following table shows the parameters for the MIB Grapher.

Table 49. URL parameters for the MIB Grapher

| Parameter | Description                                                                      | Required? |
|-----------|----------------------------------------------------------------------------------|-----------|
| domain    | The name of the Network Manager domain.                                          | Yes       |
| host      | The hostname of the node or interface for which you want to graph MIB variables. | Yes       |
| init      | Required to be set to true for launching this window.                            | Yes       |

## Example: URL to graph MIB variables for a device

`https://host:port/ibm/console/ncp_mibbrowser/pages/mib_graph/mibgraphview_servlet.jsp?init=true&domain=NCOMS&host=192.168.0.2`

## Web Tools URL reference

You can also launch WebTools by specifying a URL in your web browser to call up a form-based interface. This is useful if you want to gain access to WebTools without logging into Topoviz.

To launch WebTools using a URL:

1. Open a supported web browser and enter the following URL:

`https://host:port/ibm/console/ncp_webtools/pages/ncp_wt_index.jsp?domain=domain name`

In this URL:

- *host* is the IP address of the host on which the Tivoli Integrated Portal server is running.
- *port* is the port to access on the host on which the Tivoli Integrated Portal server is running. By default this takes the value of 16311.
- *domain* is the domain you want to access with the tools.

For example,

`https://test.itnm.com:16311/ibm/console/ncp_webtools/pages/ncp_wt_index.jsp?domain=NCOMS`

The Tivoli Integrated Portal Login page appears in the web browser.

2. Enter your username and password.

**Note:** Usernames and passwords are case-sensitive.

3. Click the **Log In** button.

The main **WebTools** menu appears. This provides access to the following web tools:

- General tools
- Cisco-specific tools
- Juniper-specific tools

**Note:** It is also possible to launch a web tool from a third-party application, such as a web page. To do this, launch the desired web tool in Topoviz, copy the URL that Topoviz generates in the **Address** field of your browser, and paste this URL to the third-party application.

## Path Views URL parameters

You can create a new Path View or find a device in an existing Path View by specifying a URL in your Web browser.

The following table shows the parameters for Path Views.

Table 50. URL parameters for Path Views

| Parameter | Description                             | Required?              |
|-----------|-----------------------------------------|------------------------|
| domain    | The name of the Network Manager domain. | Yes, to create a path. |
| entityID  | The ID of the entity to find in a path. | Yes                    |

### Example: URL to create a new path

[https://host:port/ibm/console/ncp\\_topoviz/PathViewNewPath.do?domain=MPLSTEST&entityId=10690](https://host:port/ibm/console/ncp_topoviz/PathViewNewPath.do?domain=MPLSTEST&entityId=10690)

### Example: URL to find a device in a path

[https://host:port/ibm/console/ncp\\_topoviz/FindPathView.do?entityId=10690](https://host:port/ibm/console/ncp_topoviz/FindPathView.do?entityId=10690)

---

## Cisco and Juniper WebTools commands

Use this information to determine which commands are executed by the Cisco and Juniper WebTools.

The following topics list the relevant commands.

### Cisco information tools

Use this information to determine which commands are executed by the WebTools that retrieve information from Cisco devices.

The following table shows the commands executed by the Cisco information tools, and specifies how to launch each web tool from a network map within the Hop View or Network Views, and from the main WebTools menu.

Table 51. Cisco Information Tools Reference

| Web Tool                           | Commands executed                                                                                                                        | Right-click menu option                                 | Menu option in the main WebTools menu             |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------|
| Cisco Information Tool – BGP       | show ip bgp summary<br>show ip bgp flap-statistics<br>show ip bgp dampened-paths<br>show ip bgp inconsistent-as<br>show ip bgp neighbors | Webtools > Information Tools<br>> View BGP Information  | Cisco Information Tool<br>> BGP information       |
| Cisco Information Tool – Interface | show ip interface brief                                                                                                                  | Webtools > Information Tools<br>> View Interfaces       | Cisco Information Tool<br>> Interface information |
| Cisco Information Tool – ISIS      | show isis neighbors<br>show isis topology                                                                                                | Webtools > Information Tools<br>> View ISIS Information | Cisco Information Tool<br>> ISIS information      |
| Cisco Information Tool – MBGP      | show ip bgp vpn all flap-statistics<br>show ip bgp vpn all dampened-paths<br>show ip bgp vpn all neighbors<br>show ip bgp vpn all paths  | Webtools > Information Tools<br>> View MBGP Information | Cisco Information Tool<br>> MBGP information      |
| Cisco Information Tool – MPLS      | show ip rsvp interface<br>show ip vrf detail<br>show mpls l2transport vc<br>show mpls forwarding-table                                   | Webtools > Information Tools<br>> View MPLS Information | Cisco Information Tool<br>> MPLS information      |

Table 51. Cisco Information Tools Reference (continued)

| Web Tool                                         | Commands executed                                                                                                                                                                                                                              | Right-click menu option                                                 | Menu option in the main WebTools menu                         |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------|
| Cisco Information Tool – MPLS TE                 | show mpls traffic-eng tunnels brief<br>show mpls traffic-eng autoroute                                                                                                                                                                         | Webtools > Information Tools > View MPLS TE Information                 | Cisco Information Tool > MPLS TE Tunnel information (general) |
| Cisco Information Tool – MPLS TE (filtered)      | show mpls traffic-eng tunnels source <i>source</i><br>show mpls traffic-eng tunnels destination <i>destination</i><br>show mpls traffic-eng tunnels <i>tunnelInterface</i><br>show mpls traffic-eng tunnels role [all head middle remote tail] | Webtools > Information Tools > View MPLS TE Information (filtered)      | Not available                                                 |
| Cisco Information Tool – MPLS TE Link Management | show mpls traffic-eng link-management summary<br>show mpls traffic-eng link-management interfaces [ <i>interface</i> ]                                                                                                                         | Webtools > Information Tools > View MPLS TE Link Management Information | Not available                                                 |
| Cisco Information Tool – OSPF                    | show ip ospf<br>show ip ospf interface<br>show ip ospf neighbor<br>show ip ospf border-routers<br>show ip ospf statistics                                                                                                                      | Webtools > Information Tools > View OSPF Information                    | Cisco Information Tool > OSPF Information                     |
| Cisco Information Tool – Routing Summary         | show ip protocols<br>show ip route summary<br>show ip route static<br>show ip route eigrp<br>show ip route ospf<br>show ip route isis                                                                                                          | Webtools > Information Tools > View Routing Summary Information         | Cisco Information Tool > Routing summary                      |
| Cisco Information Tool – VRF List                | show ip vrf list<br>show ip vrf interfaces                                                                                                                                                                                                     | Webtools > Information Tools > View VRF Information                     | Cisco Information Tool > VRF list                             |



## Cisco diagnostic tools

Use this information to determine which commands are executed by the WebTools that perform diagnosis on Cisco devices.

The following table shows the commands executed by the Cisco diagnostic tools, and specifies how to launch each web tool from a network map within the Hop View or Network Views, and from the main WebTools menu.

Table 52. Cisco and Juniper WebTools Reference

| Web Tool                     | Commands Executed                                | Menu Option                                                           | Menu Option in the main WebTools menu |
|------------------------------|--------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------|
| Cisco Route Information Tool | <code>show ip route target</code>                | Cisco Tools... Diagnostic Tools... View a Route...                    | Cisco Routing Information             |
| Cisco VRF Information Tool   | <code>show ip route vrf vrf_name target</code>   | Not available                                                         | Cisco VRF Information                 |
| Cisco Ping Tool              | <code>ping target</code>                         | Cisco Tools... Diagnostic Tools... Ping from this device...           | Cisco Ping                            |
| Cisco LSP Ping Tool          | <code>ping mpls ipv4 target verbose</code>       | Cisco Tools... Diagnostic Tools... LSP Ping from this device...       | Cisco LSP Ping                        |
| Cisco VRF Ping Tool          | <code>ping vrf vrf_name ip target</code>         | Cisco Tools... Diagnostic Tools... VRF Ping from this device...       | Cisco VRF Ping                        |
| Cisco Traceroute Tool        | <code>traceroute target</code>                   | Cisco Tools... Diagnostic Tools... Traceroute from this device...     | Cisco Traceroute                      |
| Cisco LSP Traceroute Tool    | <code>traceroute mpls ipv4 target verbose</code> | Cisco Tools... Diagnostic Tools... LSP Traceroute from this device... | Cisco LSP Traceroute                  |
| Cisco VRF Traceroute Tool    | <code>traceroute vrf vrf_name ip target</code>   | Cisco Tools... Diagnostic Tools... VRF Traceroute from this device... | Cisco VRF Traceroute                  |

## Juniper information tools

Use this information to determine which commands are executed by the WebTools that retrieve information from Juniper devices.

The following table shows the commands executed by the Juniper information tools, and specifies how to launch each web tool from a network map within the Hop View or Network Views, and from the main WebTools menu.

*Table 53. Cisco and Juniper WebTools Reference*

| Web Tool                              | Commands Executed                                                                                                                                        | Menu Option                                                                  | Menu Option in the main WebTools menu |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------|
| Juniper Information Tool – BGP        | show ip bgp summary<br><br>show ip bgp flap-statistics<br><br>show ip bgp dampened-paths<br><br>show ip bgp inconsistent-as<br><br>show ip bgp neighbors | Juniper Tools...<br><br>Information Tools...<br><br>View BGP Information...  | Juniper Information Tool              |
| Juniper Information Tool – Interfaces | show ip interface brief                                                                                                                                  | Juniper Tools...<br><br>Information Tools...<br><br>View Interfaces...       | Juniper Information Tool              |
| Juniper Information Tool – ISIS       | show isis neighbors<br><br>show isis topology                                                                                                            | Juniper Tools...<br><br>Information Tools...<br><br>View ISIS Information... | Juniper Information Tool              |
| Juniper Information Tool – MPLS       | show ip rsvp interface<br><br>show ip vrf detail<br><br>show mpls l2transport vc<br><br>show mpls forwarding-table                                       | Juniper Tools...<br><br>Information Tools...<br><br>View MPLS Information... | Juniper Information Tool              |
| Juniper Information Tool – OSPF       | show ip ospf<br><br>show ip ospf interface<br><br>show ip ospf neighbor<br><br>show ip ospf border-routers<br><br>show ip ospf statistics                | Juniper Tools...<br><br>Information Tools...<br><br>View OSPF Information... | Juniper Information Tool              |

Table 53. Cisco and Juniper WebTools Reference (continued)

| Web Tool                                   | Commands Executed                                                                                                                     | Menu Option                                                                     | Menu Option in the main WebTools menu |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------|
| Juniper Information Tool – Routing Summary | show ip protocols<br>show ip route summary<br>show ip route static<br>show ip route eigrp<br>show ip route ospf<br>show ip route isis | Juniper Tools...<br>Information Tools...<br>View Routing Summary Information... | Juniper Information Tool              |
| Juniper Information Tool – VRF List        | show ip vrf list<br>show ip vrf interfaces                                                                                            | Juniper Tools...<br>Information Tools...<br>View VRF Information...             | Juniper Information Tool              |

## Juniper diagnostic tools

Use this information to determine which commands are executed by the WebTools that perform diagnosis on Cisco devices.

The following table shows the commands executed by the Juniper diagnostic tools, and specifies how to launch each web tool from a network map within the Hop View or Network Views, and from the main WebTools menu.

Table 54. Juniper Diagnostic Tools

| Web Tool                       | Commands Executed        | Menu Option                                                               | Menu Option in the main WebTools menu |
|--------------------------------|--------------------------|---------------------------------------------------------------------------|---------------------------------------|
| Juniper Route Information Tool | show route <i>target</i> | Juniper Tools...<br>Diagnostic Tools...<br>View a Route...                | Juniper Routing Information           |
| Juniper Ping Tool              | ping <i>target</i>       | Juniper Tools...<br>Diagnostic Tools...<br>Ping from this device...       | Juniper Ping                          |
| Juniper Traceroute Tool        | traceroute <i>target</i> | Juniper Tools...<br>Diagnostic Tools...<br>Traceroute from this device... | Juniper Traceroute                    |



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## Appendix C. Report reference

Network Manager reports are grouped by their function. Use this reference to understand the typical uses, prerequisites, and other properties of each report.

---

### Network Manager data model

Each product that uses the Cognos data model provides namespaces, which contain query subjects to use to build up reports.

#### Namespaces

The Network Manager data model provides the following namespaces for designing reports.

**Event** The Event namespace contains query subjects to create Current® Status reports.

#### Monitoring Data

The Monitoring Data namespace contains query subjects to create Performance reports. The polled data timestamp has a time dimension relationship to allow time dimension reports. The data for the Monitoring Data namespace comes from the NCPOLLDATA database.

#### Network

The Network namespace contains query subjects to create Asset and Troubleshooting reports. The data for the Network namespace comes from the NCIM database.

#### Network Views

The Network Views namespace contains query subjects to create reports about network views and policies updating views. The data for the Network Views namespace comes from the NCPGUI and NCMONITOR databases.

#### Path Views

The Path Views namespace contains query subjects to create Path Views reports.

#### Shared

The Shared namespace contains query subjects that can be shared to prevent query subject duplicates.

---

### Asset reports

Asset reports provide views on the discovered attributes of the network devices for inventory information.

To access the Asset reports, click **Reporting > Common Reporting > Network Manager**. Then click **Asset Reports**.

## Card Detail by Card Type report

Displays the results of card discovery operations performed by the Entity MIB and Entity Discovery agents. The report is organized by card type and is based on the data extracted from the entPhysicalVendorType entity MIB table.

### Report properties

The following table describes the Card Detail by Card Type report.

*Table 55. Properties of the Card Detail by Card Type report*

| Property      | Description                                                         |
|---------------|---------------------------------------------------------------------|
| Typical uses  | Use this report to locate the devices housing a specific card type. |
| Prerequisites | None                                                                |
| Data model    | BIRT                                                                |

## Card Detail by Device Type report

Displays the results of device discovery operations performed by the entity MIB agent. The report is organized by device type and is based on the data extracted from the entPhysicalVendorType entity MIB table.

### Report properties

The following table describes the Card Detail by Device Type report.

*Table 56. Properties of the Card Detail by Device Type report*

| Property      | Description                                                                                              |
|---------------|----------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report identify the card details within a device.                                               |
| Prerequisites | This report uses information from the Entity MIB, and requires the Entity discovery agent to be enabled. |
| Data model    | BIRT                                                                                                     |

## Discovery Drilldown report

Displays the results of the network discovery organized by device vendor. The report displays a list of vendor names. It lists device classes for each vendor.

### Report properties

The following table describes the Discovery Drilldown report.

*Table 57. Properties of the Discovery Drilldown report*

| Property      | Description                                                                                             |
|---------------|---------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to look up interface details on a device, such as spare ports, or MAC and IP addresses. |
| Prerequisites | None                                                                                                    |
| Data model    | BIRT                                                                                                    |

## Hardware MAC Vendor report

Displays information on equipment vendors with registered MAC addresses.

### Report properties

The following table describes the Hardware MAC Vendor report.

*Table 58. Properties of the Hardware MAC Vendor report*

| Property      | Description                                                                                  |
|---------------|----------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to lookup interface details, including ifAlias, on devices sorted by vendor. |
| Prerequisites | None                                                                                         |
| Data model    | BIRT                                                                                         |

## Interface Availability report

Displays a table of interface types and statuses broken down by vendor, class name and device. The report also displays the count of each interface type on the network and the status of those interfaces (up or down). One report is displayed for each selected domain.

### Report properties

The following table describes the Interface Availability report.

*Table 59. Properties of the Interface Availability report*

| Property      | Description                                                                                           |
|---------------|-------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to determine the counts of each interface type, both functioning and non-functioning. |
| Prerequisites | None                                                                                                  |
| Data model    | Cognos                                                                                                |

## IP Addressing Summary report

Displays information on the IP addresses used in the network grouped according to CIDR notations.

### Report properties

The following table describes the IP Addressing Summary report.

*Table 60. Properties of the IP Addressing Summary report*

| Property      | Description                                                                                                                                      |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to identify IPv4 subnets with spare IP addressing capacity or those subnets over a specific threshold of allocated IP addresses. |
| Prerequisites | None                                                                                                                                             |
| Data model    | Cognos                                                                                                                                           |

## Operating System by Device report

Displays information on the operating systems running on the various devices in your network. This report only shows information for Cisco and Juniper devices.

### Report properties

The following table describes the Operating System by Device report.

*Table 61. Properties of the Operating System by Device report*

| Property      | Description                                                                                                                                                                           |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to show operating system details by device and vendor. For example, you can locate devices with a certain operating system that has a newly released security update. |
| Prerequisites | The OSInfo agent must be run during discovery in order for the information required for this report to be available.                                                                  |
| Data model    | Cognos                                                                                                                                                                                |

## Summary By Device Class report

Displays a bar graph with the number of devices on your network displayed by class name.

### Report properties

The following table describes the Summary By Device Class report.

*Table 62. Properties of the Summary By Device Class report*

| Property      | Description                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | <p>Use this report to show a quick count of devices by Active Object Class (AOC) groups. For instance, how many Cisco 3750 devices are in use.</p> <p>Stacked switches are counted according to the number of chassis that they represent. For example, a stacked switch that has 3 chassis is displayed as 3 devices. In a topology map, the same stacked switch is displayed as a single device.</p> |
| Prerequisites | None                                                                                                                                                                                                                                                                                                                                                                                                   |
| Data model    | BIRT                                                                                                                                                                                                                                                                                                                                                                                                   |



## Vendor and Device Availability report

Displays class names and device counts grouped by vendor. The report also displays the count and percentage of devices for each vendor broken down by device type.

### Report properties

The following table describes the Vendor and Device Availability report.

*Table 63. Properties of the Vendor and Device Availability report*

| Property      | Description                                                                  |
|---------------|------------------------------------------------------------------------------|
| Typical uses  | Use this report to show a quick count of devices by vendor and device model. |
| Prerequisites | None                                                                         |
| Data model    | BIRT                                                                         |

---

## Current Status reports

Current Status reports provide useful status on any outstanding problems. They list the work queue and the waiting queue in terms of the devices affected, and are sorted by age of the events.

To access the Current Status reports, click **Reporting > Common Reporting > Network Manager**. Then click **Current Status Reports**.

## Acknowledged Events by First Occurrence report

Displays a list of acknowledged events with severity higher than "Warning", sorted by event severity and age of event.

### Report properties

The following table describes the Acknowledged Events by First Occurrence report.

*Table 64. Properties of the Acknowledged Events by First Occurrence report*

| Property      | Description                                                                                                                                                 |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | This report presents shift leaders with a quick status of the incident queue. This report looks at acknowledged events and shows incidents being worked on. |
| Prerequisites | None.                                                                                                                                                       |
| Data model    | Cognos                                                                                                                                                      |

## Unacknowledged Events by First Occurrence report

Displays a list of unacknowledged events with severity higher than "Warning", sorted by event severity and age of event.

### Report properties

The following table describes the Unacknowledged Events by First Occurrence report.

*Table 65. Properties of the Unacknowledged Events by First Occurrence report*

| Property      | Description                                                                                                                                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | This report presents shift leaders with a quick status of the incident queue. This report looks at unacknowledged events and shows incidents that are waiting to be assigned. |
| Prerequisites | None.                                                                                                                                                                         |
| Data model    | Cognos                                                                                                                                                                        |

---

## Monitoring reports

Monitoring reports provide a list of devices being polled under each monitoring policy to help you verify that you are polling the correct devices for the correct information.

To access the Monitoring reports, click **Reporting > Common Reporting > Network Manager**. Then click **Monitoring Reports**.

## Monitoring Device Details report

Displays detailed information about the monitoring policies enabled for a device. To run this report you must have poll policies with the store option enabled.

### Report properties

The following table describes the Monitoring Device Details report.

*Table 66. Properties of the Monitoring Device Details report*

| Property      | Description                                                                                                                                                    |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | You would run this report to verify how a particular device is being monitored by Network Manager by listing all the policies whose scope matches this device. |
| Prerequisites | To run this report you must have poll policies with the store option enabled.                                                                                  |
| Data model    | BIRT                                                                                                                                                           |

## Monitoring Policy Details report

Displays detailed information about a selected monitoring policy. To run this report you must have poll policies with the store option enabled.

### Report properties

The following table describes the Monitoring Policy Details report.

*Table 67. Properties of the Monitoring Policy Details report*

| Property      | Description                                                                   |
|---------------|-------------------------------------------------------------------------------|
| Typical uses  | Run this report to verify the list of devices being monitored by this policy. |
| Prerequisites | To run this report you must have poll policies with the store option enabled. |
| Data model    | BIRT                                                                          |

## Monitoring Policies Report

Also known as the Monitoring Policies report, if it is launched as a right-click report. Displays all the enabled policies and for each policy all the devices and interfaces that match the scope. To run this report you must have poll policies with the store option enabled.

### Report properties

The following table describes the Monitoring Summary report.

*Table 68. Properties of the Monitoring Summary report*

| Property      | Description                                                                                                                 |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | You can run this report to archive the monitoring configuration for your network, or use it for reference purposes offline. |
| Prerequisites | To run this report you must have poll policies with the store option enabled.                                               |
| Data model    | BIRT                                                                                                                        |

---

## Network Technology reports

Network Technology reports provide insight into the states of BGP, OSPF, and VLAN networks based on information gathered during discovery.

To access the Network Technology reports, click **Reporting > Common Reporting > Network Manager**. Then click **Network Technology Reports**.

## BGP Details report

Displays detailed information about BGP Sessions and Autonomous Systems.

### Report properties

The following table describes the BGP Details report.

*Table 69. Properties of the BGP Details report*

| Property      | Description                                                                                                                                                                                                         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see the members of each BGP session and its state for each Autonomous System. View the details of any route reflectors and their clients and the state of each member of the Autonomous Systems. |
| Prerequisites | None                                                                                                                                                                                                                |
| Data model    | BIRT                                                                                                                                                                                                                |

## BGP Summary report

Displays charts and tables with BGP Session and Autonomous System Summary information.

### Report properties

The following table describes the BGP Summary report.

*Table 70. Properties of the BGP Summary report*

| Property      | Description                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see a quick count of the elements in the BGP environment including the Autonomous Systems, inter-AS, and sessions per state. |
| Prerequisites | None                                                                                                                                            |
| Data model    | BIRT                                                                                                                                            |

## Device Connectivity report

The Device Connectivity report lists all interfaces that a device is connected to.

### Report properties

The following table describes the Device Connectivity report.

*Table 71. Properties of the Device Connectivity report*

| Property      | Description                                                                                                                                                             |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to understand the various physical and logical connections from the ports or interfaces on a specific device, including the remote ports or interfaces. |
| Prerequisites | None                                                                                                                                                                    |
| Data model    | BIRT                                                                                                                                                                    |

## MPLS VPN Details report

Displays detailed information about discovered MPLS VPNs including VRFs, Route Distinguishers, Route Targets, and VPWS.

### Report properties

The following table describes the MPLS VPN Details report.

*Table 72. Properties of the MPLS VPN Details report*

| Property      | Description                                                                                                                                                                                                                                |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see details of the MPLS VPNs discovered in this domain. See details of the VRF Route Targets including import/export mismatches, membership details of VPN and VPWS, as well as PE/CE connections and PE/P connections. |
| Prerequisites | None                                                                                                                                                                                                                                       |
| Data model    | BIRT                                                                                                                                                                                                                                       |

## MPLS VPN Summary report

Displays charts and tables with MPLS VPN summary information.

### Report properties

The following table describes the MPLS VPN Summary report.

*Table 73. Properties of the MPLS VPN Summary report*

| Property      | Description                                                                                            |
|---------------|--------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see a quick list and count of the VPNs, VPWS devices, and associated PE/CE devices. |
| Prerequisites | None                                                                                                   |
| Data model    | BIRT                                                                                                   |

## OSPF Details report

Displays charts and tables with detailed OSPF Session and Area information.

### Report properties

The following table describes the OSPF Details report.

*Table 74. Properties of the OSPF Details report*

| Property      | Description                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see the routers and their roles in the OSPF areas, the session states and costs on each interface, the Type 2 LSA origination routers and connections. |
| Prerequisites | None                                                                                                                                                                      |
| Data model    | BIRT                                                                                                                                                                      |

## OSPF Summary report

Displays charts and tables with OSPF Session and Area summary information.

### Report properties

The following table describes the OSPF Summary report.

*Table 75. Properties of the OSPF Summary report*

| Property      | Description                                                                                                   |
|---------------|---------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see a quick list of the OSPF areas and the counts for the various router types and states. |
| Prerequisites | None                                                                                                          |
| Data model    | BIRT                                                                                                          |

## VLAN Details report

Displays detailed information about VLANs and trunk ports.

### Report properties

The following table describes the VLAN Details report.

*Table 76. Properties of the VLAN Details report*

| Property      | Description                                                                                                                      |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see a list of VLAN IDs on each interface of a VLAN supported device, or a list of interfaces in each VLAN ID. |
| Prerequisites | None                                                                                                                             |
| Data model    | BIRT                                                                                                                             |

## VLAN Membership report

Displays information on device and interface VLAN membership.

### Report properties

The following table describes the VLAN Membership report.

*Table 77. Properties of the VLAN Membership report*

| Property      | Description                                                                        |
|---------------|------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see the interface details of the members of a specific VLAN ID. |
| Prerequisites | None                                                                               |
| Data model    | BIRT                                                                               |

## VLAN Summary report

Displays charts and tables with VLAN summary information.

### Report properties

The following table describes the VLAN Summary report.

*Table 78. Properties of the VLAN Summary report*

| Property      | Description                                                                                                                       |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see counts of VLAN operational interfaces per VLAN ID, counts of trunk ports and lists of VLAN IDs per device. |
| Prerequisites | None                                                                                                                              |
| Data model    | BIRT                                                                                                                              |

## VTP Summary report

Displays charts and tables with VTP summary information.

### Report properties

The following table describes the VTP Summary report.

*Table 79. Properties of the VTP Summary report*

| Property      | Description                                                                                                       |
|---------------|-------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see a list of the VTP domains and count of interfaces, including a breakdown of the VTP modes. |
| Prerequisites | Requires the CiscoVTP discovery agent.                                                                            |
| Data model    | BIRT                                                                                                              |

---

## Network Views reports

These reports show details about network views.

To access the Network Views reports, click **Reporting > Common Reporting > Network Manager**. Then click **Network Views Reports**.

## Monitored Network Views report

Displays the poll definitions, policies, and entities that are being monitored for each network view.

### Report properties

The following table describes the Monitored Network Views report.

You can drill down from this report to see the devices and interfaces monitored by an individual poll definition in the Monitored Network Views Drilldown report.

Table 80. Properties of the Monitored Network Views report

| Property      | Description                                                                                   |
|---------------|-----------------------------------------------------------------------------------------------|
| Typical uses  | Run this report to see the poll definitions, policies, and entities that are being monitored. |
| Prerequisites | None                                                                                          |
| Data model    | Cognos                                                                                        |

---

## Path Views reports

Path Views reports allow you to view device and routing information for IP and MPLS TE paths.

To access the Path Views reports, in the Tivoli Common Reporting portlet, click **Reporting > Common Reporting > Network Manager**. Then click **Path Views Reports**.

### IP Path Detail report

Displays the devices and interfaces for the IP path.

#### Report properties

The following table describes the IP Path Detail report.

Table 81. Properties of the IP Path Detail report

| Property      | Description                                                                                                                                                                             |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to view and check ingress and egress interface details of each hop for a selected user created path. This report can also be generated from the IP Path Summary report. |
| Prerequisites | None                                                                                                                                                                                    |
| Data model    | Cognos                                                                                                                                                                                  |

### IP Path Summary report

Displays all the IP Paths configured.

#### Report properties

The following table describes the IP Path Summary report.

Table 82. Properties of the IP Path Summary report

| Property      | Description                                                                                                                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to view a list of all user created paths showing ingress and egress information of the path, status, and path changes. From this report drill down into any of the paths to check ingress and egress interface details of each hop. |
| Prerequisites | None                                                                                                                                                                                                                                                |



Table 82. Properties of the IP Path Summary report (continued)

| Property   | Description |
|------------|-------------|
| Data model | Cognos      |

## IP Routing Info report

Displays the device and routing information for a specific device or multiple devices on the path.

### Report properties

The following table describes the IP Routing Info report.

Table 83. Properties of the IP Routing Info report

| Property      | Description                                                                                                                                                         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Generate this report from a member device of a user-created path on a topology map to see details of the ingress and egress interfaces of the device for this path. |
| Prerequisites | None                                                                                                                                                                |
| Data model    | Cognos                                                                                                                                                              |

## MPLS TE Path Detail report

Displays the devices and interfaces for the MPLS TE path.

### Report properties

The following table describes the MPLS TE Path Detail report.

Table 84. Properties of the MPLS TE Path Detail report

| Property      | Description                                                                                                                                                                               |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to view and check ingress and egress interface details of each hop for a selected MPLS-TE tunnel. This report can also be generated from the MPLS-TE Path Summary report. |
| Prerequisites | None                                                                                                                                                                                      |
| Data model    | Cognos                                                                                                                                                                                    |

## MPLS TE Path Summary report

Displays all the MPLS TE Tunnels that were discovered in the network.

## Report properties

The following table describes the MPLS TE Path Summary report.

*Table 85. Properties of the MPLS TE Path Summary report*

| Property      | Description                                                                                                                                                                                                                                          |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to view a list of all MPLS-TE tunnels showing ingress and egress information of the tunnel, status, and path changes. From this report drill down into any of the tunnels to check ingress and egress interface details of each hop. |
| Prerequisites | None                                                                                                                                                                                                                                                 |
| Data model    | Cognos                                                                                                                                                                                                                                               |

## MPLS TE Routing Info report

Displays the device and routing information for a specific device or multiple devices on the tunnel.

### Report properties

The following table describes the MPLS TE Routing Info report.

*Table 86. Properties of the MPLS TE Routing Info report*

| Property      | Description                                                                                                                                                          |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Generate this report from a member device of a MPLS-TE tunnel on any topology map to see details of the ingress and egress interfaces of the device for this tunnel. |
| Prerequisites | None                                                                                                                                                                 |
| Data model    | Cognos                                                                                                                                                               |

---

## Performance reports

Performance reports allow you to view any historical performance data that has been collected by the monitoring system for diagnostic purposes. View trend and topN charts for data to gain insight on short term behaviors.

To access the Performance reports, click **Reporting > Common Reporting > Network Manager**. Then click **Performance Reports**.

**Note:** The amount of historical data that the system can store and, consequently, the amount of historical data that the Performance reports can display, is restricted by default to preserve report performance. You can increase the storage limit for historical performance data; however, this can lead to a degradation in the performance of the Performance reports.

## Bandwidth Top N report

Displays the bandwidth of the top N devices.

### Report properties

The following table describes the Bandwidth Top N report.

*Table 87. Properties of the Bandwidth Top N report*

| Property      | Description                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to identify interfaces with the heaviest bandwidth use, and drill down to see the usage over time. |
| Prerequisites | None                                                                                                               |
| Data model    | BIRT                                                                                                               |

## Bandwidth Utilization report

Displays the bandwidth utilization of a device.

### Report properties

The following table describes the Bandwidth Utilization report.

*Table 88. Properties of the Bandwidth Utilization report*

| Property      | Description                                                                                                            |
|---------------|------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see the bandwidth use of selected devices, and drill down to see the usage over time per interface. |
| Prerequisites | None                                                                                                                   |
| Data model    | Cognos                                                                                                                 |

## Composite Trending report

Displays a composite chart that contains data for two poll definitions.

### Report properties

The following table describes the Composite Trending report.

*Table 89. Properties of the Composite Trending report*

| Property      | Description                                                                                                 |
|---------------|-------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to show a list of selected devices and drill down to see the trend of up to six data items. |
| Prerequisites | None                                                                                                        |
| Data model    | BIRT                                                                                                        |

## Device Availability Summarization report

Displays a summary of device availability for the last seven days.

### Report properties

The following table describes the Device Availability Summarization report.

*Table 90. Properties of the Device Availability Summarization report*

| Property      | Description                                                                                                                                                                                                                                                                                        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see device availability data collected and summarized over the last seven days.                                                                                                                                                                                                 |
| Prerequisites | <p>You must have Tivoli Data Warehouse installed and configured for Network Manager to use this report.</p> <p>This report requires Tivoli Data Warehouse summarization tables. An appropriate policy with the store option enabled must be set in order for report parameters to be selected.</p> |
| Data model    | BIRT                                                                                                                                                                                                                                                                                               |

## Device Summarization report

Displays summarization data for devices. This report uses the Tivoli Data Warehouse KNP\_POLL\_DATA\_COLLECTION hourly and daily summarization tables.

### Report properties

The following table describes the Device Summarization report.

*Table 91. Properties of the Device Summarization report*

| Property      | Description                                                                                          |
|---------------|------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see device level data collected and summarized over a longer period of time.      |
| Prerequisites | You must have Tivoli Data Warehouse installed and configured for Network Manager to use this report. |
| Data model    | BIRT                                                                                                 |

## Generic Trend Analysis report

Displays the device summary with drilldown to a chart according to device or interface.

## Report properties

The following table describes the Generic Trend Analysis report.

*Table 92. Properties of the Generic Trend Analysis report*

| Property      | Description                                                                                                                                        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see the average values collected for of a list of selected devices and drilldown to see the trend over time for that data item. |
| Prerequisites | None                                                                                                                                               |
| Data model    | Cognos                                                                                                                                             |

## Historical SNMP Top or Bottom N report

Displays the top or bottom N devices with drilldown to a chart according to device or interface.

### Report properties

The following table describes the Historical SNMP Top or Bottom N report.

*Table 93. Properties of the Historical SNMP Top or Bottom N report*

| Property      | Description                                                                                                                                           |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to identify the best or worst performers, by average value, for any collected SNMP metric, and drill down to see the trend over time. |
| Prerequisites | None                                                                                                                                                  |
| Data model    | BIRT                                                                                                                                                  |

## Historical SNMP Trend Quick View report

Displays the device list with drilldown to a chart according to device or interface.

### Report properties

The following table describes the Historical SNMP Trend Quick View report.

*Table 94. Properties of the Historical SNMP Trend Quick View report*

| Property      | Description                                                                                                                    |
|---------------|--------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to quickly list a set of selected devices to be used as an index to drill down to see a trend graph over time. |
| Prerequisites | None                                                                                                                           |
| Data model    | BIRT                                                                                                                           |

## Interface Availability Summarization report

Displays a summary of interface availability for the last seven days.

### Report properties

The following table describes the Interface Availability Summarization report.

*Table 95. Properties of the Interface Availability Summarization report*

| Property      | Description                                                                                                                                                                                                                                                                                        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see interface availability data collected and summarized over the last seven days.                                                                                                                                                                                              |
| Prerequisites | <p>You must have Tivoli Data Warehouse installed and configured for Network Manager to use this report.</p> <p>This report requires Tivoli Data Warehouse summarization tables. An appropriate policy with the store option enabled must be set in order for report parameters to be selected.</p> |
| Data model    | BIRT                                                                                                                                                                                                                                                                                               |

## Interfaces Summarization report

Displays summarization data for interfaces. This report uses the Tivoli Data Warehouse KNP\_POLL\_DATA\_COLLECTION hourly and daily summarization tables.

### Report properties

The following table describes the Interfaces Summarization report.

*Table 96. Properties of the Interfaces Summarization report*

| Property      | Description                                                                                          |
|---------------|------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see interface level data collected and summarized over a longer period of time.   |
| Prerequisites | You must have Tivoli Data Warehouse installed and configured for Network Manager to use this report. |
| Data model    | BIRT                                                                                                 |

## System Availability Summary report

Displays availability summary for devices with drilldown to a chart according to device. This report is based on the sysUptime data.

## Report properties

The following table describes the System Availability Summary report.

*Table 97. Properties of the System Availability Summary report*

| Property      | Description                                                                            |
|---------------|----------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see availability statistics as defined by collected sysUptime data. |
| Prerequisites | None                                                                                   |
| Data model    | BIRT                                                                                   |

---

## Summary reports

Summary reports allow you to view historical performance data that has been collected by the monitoring system in a dashboard style presentation.

The Summary reports have automatic refresh, which makes these reports ideal as a dashboard.

To access the Summary reports, click **Reporting > Common Reporting > Network Manager**. Then click **Summary Reports**.

**Note:** The amount of historical data available for the Summary reports to display is set low by default to preserve report performance. You can increase the storage limit for historical performance data; however, this can lead to degradation in the performance of the Summary reports.

## Device Availability Summary report

Displays information on the availability history of the selected devices.

### Report properties

The following table describes the Device Availability Summary report.

*Table 98. Properties of the Device Availability Summary report*

| Property      | Description                                                                                                                                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to verify device availability using their SysUpTime and response time. Drill down to identify patterns of behavior for packet response times and packet loss. |
| Prerequisites | The chassis ping and sysUpTime poll policies must be enabled, with the Store Poll Data option enabled.                                                                        |
| Data model    | BIRT                                                                                                                                                                          |

## Device Egress Traffic Health Summary report

Displays indicators for network output from a device such as snmpOutBandwidth, ifOutDiscards, ifOutErrors.

### Report properties

The following table describes the Device Egress Traffic Health Summary report.

*Table 99. Properties of the Device Egress Traffic Health Summary report*

| Property      | Description                                                                                                                                |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see general health trends for outgoing traffic on interfaces using data from ifoutErrors, ifOutDiscards, and bandwidth. |
| Prerequisites | None                                                                                                                                       |
| Data model    | BIRT                                                                                                                                       |

## Device Ingress Traffic Health Summary report

Displays indicators for network input to a device such as snmpInBandwidth, ifInDiscards, and ifInErrors.

### Report properties

The following table describes the Device Ingress Traffic Health Summary report.

*Table 100. Properties of the Device Ingress Traffic Health Summary report*

| Property      | Description                                                                                                                              |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see general health trends for incoming traffic on interfaces using data from ifInErrors, ifInDiscards, and bandwidth. |
| Prerequisites | None                                                                                                                                     |
| Data model    | BIRT                                                                                                                                     |

## Router Health Summary report

Shows summary and performance information for a specified router.

### Report properties

This report does not handle multiple memory pools or multiple processors. The following table describes the Router Health Summary report.

*Table 101. Properties of the Router Health Summary report*

| Property     | Description                                                                                                                                         |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses | The Router Health Summary report can be used to monitor recent changes in a key router. It can also be used to monitor a bottleneck in the network. |



Table 101. Properties of the Router Health Summary report (continued)

| Property      | Description                                                                                                                                  |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Prerequisites | To use this report, you must enable the ciscoMemoryPctUsage, cpuBusyPoll, and Default Chassis polls with the Store Poll Data option enabled. |
| Data model    | BIRT                                                                                                                                         |

## Troubleshooting reports

Troubleshooting reports help you identify problems while optimizing the discovery of the network as well as help identify possible problems discovered in the network such as duplex mismatches.

To access the Troubleshooting reports, click **Reporting > Common Reporting > Network Manager**. Then click **Troubleshooting Reports**.

### Connected Interface Duplex Mismatch report

Displays a list of connections where one end of the connection is half-duplex and the other end is full-duplex.

#### Report properties

The following table describes the Connected Interface Duplex Mismatch report.

Table 102. Properties of the Connected Interface Duplex Mismatch report

| Property      | Description                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Diagnosing performance or availability issues.<br><b>Tip:</b> The duplex value for the interfaces are learned at discovery time from the dot3StatsDuplexStatus value in the EtherLike-MIB.mib. This MIB defines the values for dot3StatsDuplexStatus as: unknown(1); halfDuplex(2); and fullDuplex(3). A value of unknown means that Network Manager cannot determine the duplex status based on the available MIB information. |
| Prerequisites | A completed and successful discovery with the Interface Agent enabled.                                                                                                                                                                                                                                                                                                                                                          |
| Data model    | BIRT                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Devices Pending Delete on Next Discovery report

Displays information on devices to be deleted from the topology if they are not found during the next discovery cycle.

### Report properties

The following table describes the Devices Pending Delete on Next Discovery report.

*Table 103. Properties of the Devices Pending Delete on Next Discovery report*

| Property      | Description                                                                                                                                                                                                                                                                                                                             |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | If device has been removed from the network, it will remain in the topology for x more discoveries, where x is the value of the LingerTime variable for the device in the topology database. This report can show devices that you do not expect to be deleted from the topology, and you can investigate why they were not discovered. |
| Prerequisites | None                                                                                                                                                                                                                                                                                                                                    |
| Data model    | BIRT                                                                                                                                                                                                                                                                                                                                    |

## Devices With No Connections report

Displays information on devices on which no connections terminate or originate.

### Report properties

The following table describes the Devices With No Connections report.

*Table 104. Properties of the Devices With No Connections report*

| Property      | Description                                                                                                                                                                                                                     |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | This report shows devices for which connectivity was not discovered properly. You can then investigate why connectivity was not discovered properly for these devices. For example, the correct agents might not have been run. |
| Prerequisites | None                                                                                                                                                                                                                            |
| Data model    | BIRT                                                                                                                                                                                                                            |

## Devices with no SNMP Access report

Displays those devices to which the discovery could not get SNMP access.

## Report properties

The following table describes the Devices with no SNMP Access report.

*Table 105. Properties of the Devices with no SNMP Access report*

| Property      | Description                                                                                                                                                                                                                          |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Troubleshooting devices for which no connectivity information was discovered. There might be a number of reasons why the discovery agents could not get SNMP access to these devices, for example, incorrect SNMP community strings. |
| Prerequisites | None                                                                                                                                                                                                                                 |
| Data model    | Cognos                                                                                                                                                                                                                               |

## Devices with Unclassified SNMP Object IDs report

Displays those devices with SNMP Object IDs (OIDs) that have not been assigned to specific classes.

### Report properties

The following table describes the Devices with Unclassified SNMP Object IDs report.

*Table 106. Properties of the Devices with Unclassified SNMP Object IDs report*

| Property      | Description                                                                                                                                                                                                                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | This report shows devices that could not be classified properly by analyzing the ncim.mappings table to check whether the sysObjectId is recognized. You can then investigate whether the Active Object Classes (AOCs) need to be modified to be able to classify devices with these OIDs. For example, the correct agents might not have been run. |
| Prerequisites | None                                                                                                                                                                                                                                                                                                                                                |
| Data model    | BIRT                                                                                                                                                                                                                                                                                                                                                |

## Devices with Unknown SNMP Object IDs report

Displays those devices with unknown SNMP Object IDs (OIDs).

## Report properties

The following table describes the Devices with Unknown SNMP Object IDs report.

*Table 107. Properties of the Devices with Unknown SNMP Object IDs report*

| Property      | Description                                                                                                                                                                                                                                                                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to identify devices with sysObjectId that were not recognized. For example, Network Manager might recognize the sysObjectId as belonging to a specific vendor, but not the specific model. Such devices are collected in the class NetworkDevice. Update both the AOC files and the ncim.mappings table in order to correctly classify the device. |
| Prerequisites | None                                                                                                                                                                                                                                                                                                                                                               |
| Data model    | BIRT                                                                                                                                                                                                                                                                                                                                                               |

## Incompletely Configured Devices report

Displays all devices with no system contact or location, and all interfaces with no ifAlias, grouped by Vendor and main node.

### Report properties

The following table describes the Incompletely Configured Devices report.

*Table 108. Properties of the Incompletely Configured Devices report*

| Property      | Description                                                                                                                                                                                                    |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to identify custom context information, such as Contact, Location, and ifAlias learned from the device. This information can be archived, or used to check compliance for management purposes. |
| Prerequisites | None                                                                                                                                                                                                           |
| Data model    | BIRT                                                                                                                                                                                                           |

## Interface Status Distribution report

Displays a scatter chart that indicates the distribution of operational and non-operational interfaces and the number of devices with each type of interface.

### Report properties

The following table describes the Interface Status Distribution report.

*Table 109. Properties of the Interface Status Distribution report*

| Property      | Description                                                                                                                                       |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to understand how many devices have broken or spare interfaces, or how many devices have large numbers of operational interfaces. |
| Prerequisites | None                                                                                                                                              |

Table 109. Properties of the Interface Status Distribution report (continued)

| Property   | Description |
|------------|-------------|
| Data model | BIRT        |

## Network Device Configuration Errors report

Displays devices with duplex mismatches, BGP sessions down, route target import/export mismatches.

### Report properties

The following table describes the Network Device Configuration Errors report.

Table 110. Properties of the Network Device Configuration Errors report

| Property      | Description                                                            |
|---------------|------------------------------------------------------------------------|
| Typical uses  | Use this report to find devices that need to be reconfigured.          |
| Prerequisites | A completed and successful discovery with the Interface Agent enabled. |
| Data model    | BIRT                                                                   |

---

## Utility reports

Utility reports display all discovered devices and their interfaces in different views.

To access the Utility reports, click **Reporting > Common Reporting > Network Manager**. Then click **Utility Reports**.

## Discovered Nodes and Interfaces Flat File List report

Displays all discovered devices and interfaces.

### Report properties

The following table describes the Discovered Nodes and Interfaces Flat File List report.

Table 111. Properties of the Discovered Nodes and Interfaces Flat File List report

| Property      | Description                                                                                                                         |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to archive discovered devices and interfaces, or to export to a third party tool such as a spreadsheet or database. |
| Prerequisites | None                                                                                                                                |
| Data model    | BIRT                                                                                                                                |

## Tier Summary by Device Type report

Displays all devices according to what license tier they belong to.

### Report properties

The following table describes the Tier Summary by Device Type report.

*Table 112. Properties of the Tier Summary by Device Type report*

| Property      | Description                                                                                                                                      |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to identify devices in terms of the type of ports. This report should not be used to verify IBM license compliance requirements. |
| Prerequisites | None                                                                                                                                             |
| Data model    | BIRT                                                                                                                                             |

---

## Context reports

Context reports show information related to the selected device.

To access context reports, right-click a device in the topology view and select **Reports > Report name**.

## Bandwidth In Utilization report

Displays the SNMP in bandwidth utilization of a device.

### Report properties

This is the Bandwidth Utilization report using snmpInBandwidth poll policy. The following table describes the Bandwidth In Utilization report.

*Table 113. Properties of the Bandwidth In Utilization report*

| Property      | Description                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see the bandwidth in use of selected.                                                     |
| Prerequisites | To use this report, you must enable the snmpInBandwidth poll policy with the Store Poll Data option enabled. |
| Data model    | Cognos                                                                                                       |

## IfInDiscards report

Displays the ifInDiscards of the device.

### Report properties

This is the Cognos Generic Trend Analysis report using ifInDiscards poll policy. The following table describes the IfInDiscards report.

Table 114. Properties of the IfInDiscards report

| Property      | Description                                                                                               |
|---------------|-----------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see the trend of the discarded packets of an interface on a device.                    |
| Prerequisites | To use this report, you must enable the ifInDiscards poll policy with the Store Poll Data option enabled. |
| Data model    | Cognos                                                                                                    |

## Memory usage report

Displays the memory usage of a device.

### Report properties

This is the Cognos Generic Trend Analysis report using memoryPoll poll policy. The following table describes the Memory usage report.

Table 115. Properties of the Memory usage report

| Property      | Description                                                                                             |
|---------------|---------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see the trend of the memory usage of a device.                                       |
| Prerequisites | To use this report, you must enable the memoryPoll poll policy with the Store Poll Data option enabled. |
| Data model    | Cognos                                                                                                  |

## CPU Usage report

Displays the CPU usage of the device.

### Report properties

This is the Cognos Generic Trend Analysis report using cpuBusyPoll poll policy. The following table describes the CPU Usage report.

Table 116. Properties of the CPU Usage report

| Property      | Description                                                                                              |
|---------------|----------------------------------------------------------------------------------------------------------|
| Typical uses  | Use this report to see a history of the CPU usage of a device.                                           |
| Prerequisites | To use this report, you must enable the cpuBusyPoll poll policy with the Store Poll Data option enabled. |
| Data model    | Cognos                                                                                                   |

## Router Health Summary report

Shows summary and performance information for a specified router.

### Report properties

This report does not handle multiple memory pools or multiple processors. The following table describes the Router Health Summary report.

*Table 117. Properties of the Router Health Summary report*

| Property      | Description                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | The Router Health Summary report can be used to monitor recent changes in a key router. It can also be used to monitor a bottleneck in the network. |
| Prerequisites | To use this report, you must enable the ciscoMemoryPctUsage, cpuBusyPoll, and Default Chassis polls with the Store Poll Data option enabled.        |
| Data model    | BIRT                                                                                                                                                |

## Monitoring Policies Report

Also known as the Monitoring Policies report, if it is launched as a right-click report. Displays all the enabled policies and for each policy all the devices and interfaces that match the scope. To run this report you must have poll policies with the store option enabled.

### Report properties

The following table describes the Monitoring Summary report.

*Table 118. Properties of the Monitoring Summary report*

| Property      | Description                                                                                                                 |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| Typical uses  | You can run this report to archive the monitoring configuration for your network, or use it for reference purposes offline. |
| Prerequisites | To run this report you must have poll policies with the store option enabled.                                               |
| Data model    | BIRT                                                                                                                        |



---

## Appendix D. Entity types

The entityType table contains all the entity types that are available in the NCIM topology database.

The following table lists the entity types available in the topology database.

*Table 119. Summary of the information in the entityType table*

| Value (entityType) | Entity type name (typeName) | Category (metaClass) |
|--------------------|-----------------------------|----------------------|
| 0                  | Unknown                     | Element              |
| 1                  | Chassis                     | Element              |
| 2                  | Interface                   | Element              |
| 3                  | Logical Interface           | Element              |
| 4                  | Local VLAN                  | Element              |
| 5                  | Module                      | Element              |
| 6                  | PSU                         | Element              |
| 7                  | Logical Collection          | Collection           |
| 8                  | Daughter Card               | Element              |
| 9                  | Fan                         | Element              |
| 10                 | Backplane                   | Element              |
| 11                 | Slot                        | Element              |
| 12                 | Sensor                      | Element              |
| 13                 | Virtual Router              | Element              |
| 15                 | Subnet                      | Collection           |
| 16                 | Global VLAN                 | Collection           |
| 17                 | VPN                         | Collection           |
| 18                 | HSRP Group                  | Collection           |
| 19                 | Stack                       | Element              |
| 20                 | VRF                         | Element              |
| 21                 | OSPF Routing Domain         | Collection           |
| 22                 | OSPF Service                | Service              |
| 23                 | OSPF Area                   | Collection           |
| 24                 | VTP Domain                  | Collection           |
| 25                 | Other                       | Element              |
| 26                 | BGP Service                 | Service              |
| 27                 | BGP AS (Autonomous System)  | Collection           |
| 28                 | BGP Route                   | Attribute            |
| 29                 | BGP Cluster                 | Collection           |
| 30                 | BGP Network                 | Collection           |
| 31                 | ISIS Service                | Service              |

Table 119. Summary of the information in the entityType table (continued)

| Value (entityType) | Entity type name (typeName) | Category (metaClass) |
|--------------------|-----------------------------|----------------------|
| 32                 | ISIS Level                  | Collection           |
| 33                 | OSPF Pseudo-Node            | Element              |
| 34                 | ITNM Service                | Collection           |
| 35                 | MPLS TE Service             | Service              |
| 36                 | MPLS TE Tunnel              | Element              |
| 37                 | MPLS TE Resource            | Element              |
| 38                 | MPLS LSP                    | Element              |
| 40                 | IP Connection               | Element              |
| 41                 | PIM Service                 | Service              |
| 42                 | PIM Network                 | Collection           |
| 43                 | IPMRoute Service            | Service              |
| 44                 | IPMRoute Upstream           | Element              |
| 45                 | IPMRoute Downstream         | Element              |
| 46                 | IPMRoute MDT                | Collection           |
| 47                 | IPMRoute Source             | Element              |
| 48                 | IPMRoute Group              | Element              |
| 49                 | IP Path                     | Collection           |
| 50                 | IP Endpoint                 | Protocol Endpoint    |
| 51                 | VLAN Trunk Endpoint         | Protocol Endpoint    |
| 52                 | Frame Relay Endpoint        | Protocol Endpoint    |
| 53                 | OSPF Endpoint               | Protocol Endpoint    |
| 54                 | ATM Endpoint                | Protocol Endpoint    |
| 55                 | VPWS Endpoint               | Protocol Endpoint    |
| 56                 | BGP End Point               | Protocol Endpoint    |
| 57                 | ISIS End Point              | Protocol Endpoint    |
| 58                 | MPLS Tunnel End Point       | Protocol Endpoint    |
| 59                 | TCP/UDP End Point           | Protocol Endpoint    |
| 60                 | PIM End Point               | Protocol Endpoint    |
| 61                 | IPMRoute End Point          | ProtocolEndPoint     |
| 62                 | IGMP End Point              | ProtocolEndPoint     |
| 70                 | Topology                    | Topology             |
| 72                 | Layer 2 Topology            | Topology             |
| 73                 | Layer 3 Meshed Topology     | Topology             |
| 75                 | MPLS TE Topology            | Topology             |
| 77                 | Pseudo Wire Topology        | Topology             |
| 78                 | OSPF Topology               | Topology             |
| 79                 | BGP Topology                | Topology             |
| 80                 | IP Path Topology            | Topology             |
| 81                 | PIM Topology                | Topology             |

Table 119. Summary of the information in the entityType table (continued)

| Value (entityType) | Entity type name (typeName)   | Category (metaClass) |
|--------------------|-------------------------------|----------------------|
| 82                 | Local VLAN Topology           | Topology             |
| 83                 | IPMRoute Topology             | Topology             |
| 84                 | VPLS Pseudo Wire Topology     | Topology             |
| 110                | Generic Collection            | Collection           |
| 120                | IGMP Service                  | Service              |
| 121                | IGMP Groups                   | Collection           |
| 122                | VSI (Virtual Switch Instance) | Element              |



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## Appendix E. Scripts

Use the supplied Perl, shell, or SQL scripts to perform administration, discovery configuration, product upgrade, or troubleshooting tasks.

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### Perl scripts

Use the supplied Perl scripts to perform administration, discovery configuration, product upgrade, or troubleshooting tasks.

#### Running Perl scripts

To run Perl scripts on Windows, use %NCHOME%\precision\bin\ncp\_perl.bat. To run Perl scripts on UNIX, use \$NCHOME/precision/bin/ncp\_perl.

**Note:** Some discovery agents are implemented using Perl scripts, and include the following discovery agents. All of these agents are located in \$NCHOME/precision/disco/agents/perlAgents. For more information on Perl discovery agents, see the *IBM Tivoli Network Manager IP Edition Discovery Guide*.

- AlcatelVRRP.pl
- Entity.pl
- NATTextFileAgent.pl
- ASAgent.pl
- iprouting\_inperl.pl
- NortelPassport.pl
- CiscoSwitchInPerl.pl
- IPv6Interface.pl
- OSInfo.pl
- NATGatewayAgent.pl

### Administration scripts

Use these scripts to administer domains, manage nodes, query processes, and perform actions on the topology.

#### AddNode.pl

Use the **AddNode.pl** Perl script to add devices to your network topology.

#### Description

You might want to add a device to your network topology if you know it has been added since the last discovery.

When you add a device, a partial discovery is triggered to add the device to the network topology. Full topology connectivity is not displayed for the device until after the next full discovery is completed.

#### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/AddNode.pl -domain
NCOMS -latency 10000 -debug 4 -verbose 192.168.10.8
```

#### UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/AddNode.pl -domain
NCOMS -file mynodes.txt
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\AddNode.pl -domain
NCOMS -file mynodes.txt
```

## Command-line options

The following table describes the command-line options for the **AddNode.pl** script.

Table 120. AddNode.pl command-line options

| Command-line option            | Description                                                                                                                                                                                                                                                                                 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -domain <i>DomainName</i>      | Mandatory; the name of the domain you want to add the node to.                                                                                                                                                                                                                              |
| -latency <i>MessageLatency</i> | Optional; the maximum time in milliseconds to wait between attempts to send a message. This is needed for busy networks.                                                                                                                                                                    |
| -debug <i>DebugLevel</i>       | Optional; the level of detail the debugging output provides. Values are 1 to 4, where 4 represents the most detailed output.                                                                                                                                                                |
| -file <i>FileName</i>          | Optional; file containing the list of nodes to be added to the network topology. Add one IP address or host name per line in the file.<br><b>Note:</b> You must provide the names of the nodes either in a file or by entering them in the command line, as described in <i>host</i> below. |
| -verbose                       | Optional; provides more information on the screen.                                                                                                                                                                                                                                          |
| <i>host</i>                    | Optional; the name of the node to be added. You can add any number of nodes this way, separated by spaces. The information entered for a node can be either the IP address or the host name. If you do not provide a host name, then the -file option must be used.                         |

## domain\_create.pl

Use the **domain\_create.pl** Perl script to migrate discovery configuration and existing poll policies from an existing domain to a newly created domain.

## Description

If your deployment requires additional network domains, you must configure process control for the domains and register the domains with the NCIM topology database. Once you have done this, you can then use the **domain\_create.pl** Perl script to migrate the configuration and network polls from an existing domain to the new domain. You must use one instance of **ncp\_ctrl** to run and manage each domain. The script does not migrate the topology from the original domain.

## Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts  
/perl/scripts/domain_create.pl -domain NCOMS2 -password password
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts  
\perl\scripts\domain_create.pl -domain NCOMS2 -password password
```

## Command-line options

The following table describes the command-line options for the script.

Table 121. *domain\_create.pl* command-line options

| Command-line option       | Description                                                                                                                                                                                                                            |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -newdomain <i>Domain</i>  | Mandatory; the name of the domain you have created, for example NCOMS2.<br><b>Restriction:</b> Use only alphanumeric characters and underscores (_) in domain names. All other characters, for example hyphens (-), are not permitted. |
| -password <i>Password</i> | Mandatory; the password for the domain.                                                                                                                                                                                                |
| -verbose                  | Optional; provides more information on the screen.                                                                                                                                                                                     |
| -help                     | Optional; provides help on this command                                                                                                                                                                                                |

## domain\_drop.pl

Use the *domain\_drop.pl* Perl script to remove network domains from the NCIM topology database. The entire topology for the domain is removed, together with any poll policies and network views for that domain. The configuration information for the domain and the topology cache is not affected.

**Important:** Before you run this script, stop the domain that you want to remove. Use the **itnm\_stop** command to stop the domain.

## Running the script

The following example shows how to run the script:

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts  
/perl/scripts/domain_drop.pl -domain obsoletedomain -password  
password
```

## Command-line options

The following table describes the command-line options for the script.

Table 122. *domain\_drop.pl* command-line options

| Command-line option           | Description                                          |
|-------------------------------|------------------------------------------------------|
| -domain <i>obsoletedomain</i> | Required: The name of the obsolete domain to remove. |

Table 122. *domain\_drop.pl* command-line options (continued)

| Command-line option                      | Description                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -pollsOnly                               | Optional: Removes all polling policies and associated information for the domain, but does not remove the domain.                                                                                                                                                                                                                                |
| -force                                   | Optional: As a safety precaution, you are prompted to confirm that you want to delete the domain. Use the -force option to execute this script without receiving the confirmation.                                                                                                                                                               |
| -transactionSize <i>transaction_size</i> | Optional: To allow cascaded removal of entities from the NCIM database, the entities are removed in a series of transactions, rather than as a single operation. By default, the maximum number of entities to be removed in a single transaction is 1000. This option should be supplied only if you encounter problems with the default value. |
| -help                                    | Provides help on this command                                                                                                                                                                                                                                                                                                                    |

The following table describes the NCIM topology database command-line options for the script. You can specify these options to override the values in the DbLogins.cfg configuration file.

**Note:** The options described in the table can be optionally supplied with the following qualifiers:

- ncim\_: Use this value for accessing NCIM only.
- ncmonitor\_: Use this value for accessing NCMONITOR only.

For example:

```
-ncim_password ncim -ncmonitor_password ncmonitor
```

Table 123. NCIM topology database command-line options for the *domain\_drop.pl* script

| Command-line option         | Description                                                                                                                                                                          |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -password <i>password</i>   | Optional: The password associated with the domain to remove.                                                                                                                         |
| -server <i>db2   oracle</i> | Optional: Type of database server.                                                                                                                                                   |
| -host                       | Optional: Host name or IP address of the device running the DB server                                                                                                                |
| -port                       | Optional: Port number on the host. If this value is not supplied and is not read from the DbLogins.cfg configuration file, then the default port number for the server type is used. |
| -username                   | Optional: Username used for accessing the database.                                                                                                                                  |
| -schema                     | Deprecated: Name of the schema. Do not use this option.                                                                                                                              |
| -dbname                     | Optional: Database name or Oracle SID.                                                                                                                                               |

**Related tasks:**



“Removing domains from the topology database” on page 102

When a domain is no longer required, use the `domain_drop.pl` script to remove it from the NCIM topology database. The entire topology for the domain is removed and any poll policies for that domain. The configuration information for the domain and the topology cache are not affected.

## Importing and exporting network views using the `get_network_views.pl` script

Use the `get_network_views.pl` Perl script to back up your network views. Export the views to an XML file and import the views if they become corrupted.

### Description

This script backs up all Network Views in a particular domain to an XML file. If your Network Views are deleted, you can use the script to restore the Network Views. Do not use the script to import Network Views if you have existing views: you might get unpredictable results such as duplicate views. To import views, first delete existing views.

You can use the script to copy across Network Views from one server to another, if both instances of Network Manager are the same version. If the two instances of Network Manager are different versions, the import might not work successfully.

### Running the script

The following example shows how to run the script:

```
$NCHOME/precision/bin/ncp_perl /opt/IBM/tivoli/netcool/precision/scripts  
/perl/scripts/get_network_views.pl -export -domain DOMAIN1  
-file /opt/IBM/tivoli/netcool/var/precision/NetworkViews.DOMAIN1.xml
```

### Command-line options

The following table describes the command-line options for the script.

Table 124. `get_network_views.pl` command-line options

| Command-line option              | Description                                                         |
|----------------------------------|---------------------------------------------------------------------|
| <code>-domain domain name</code> | Required: The name of the domain to which the Network Views belong. |
| <code>-file file name</code>     | Required; The full path and file name of the backup file.           |
| <code>-export</code>             | Exports the Network Views to a file.                                |
| <code>-import</code>             | Imports the Network Views from a file.                              |
| <code>-help</code>               | Displays the command-line options.                                  |

## inject\_fake\_events.pl

Fix Pack 5

Use the `inject_fake_events.pl` Perl script to inject fake events onto specified entities and interfaces in the NCIM topology database.

You can use this script to inject fake events onto entities that match a specified string, together with all the interfaces on those entities. Unless specified otherwise, the script will inject events onto entities of the following types:

- 1: Chassis devices
- 2: Interfaces
- 8: Daughter cards

Alternatively you can specify one of the three entity types listed above onto which to inject the fake events.

The script injects two types of events:

- PingFail events
  - Events injected onto chassis entities are always PingFail events. These events have `NmosEventManager` set to `'PrecisionMonitorEvent.300'`, where 300 is the precedence value.
  - Events on interfaces are PingFail events if the interface has an IP address. In this case these events have `NmosEventManager` set to `PrecisionMonitorEvent.300`, where 300 is the precedence value.
- LinkState events: events on interfaces are LinkState events if the interface does not have an IP address. In this case these events have `NmosEventManager` set to `PrecisionMonitorEvent.910`, where 910 is the precedence value.

This result of setting the `NmosEventManager` value is that the Event Gateway uses only the `NmosEntityId` to locate the exact entity to which the event pertains.

If you want to inject events onto many entities with very different names, then run the `inject_fake_events.pl` Perl script multiple times using different values for `-entityNameString` parameter in each case. To make this process easier, run this script multiple times with different arguments using a bash shell script.

### Running the script

The following examples show how to run the script:

1. Inject an event onto a single chassis entity named "BakerStreetWAN4".  

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts  
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString  
"BakerStreetWAN4" -entityType 1
```
2. Inject an event onto a single interface named "BakerStreetWAN4[ 0 [ 747 ] ]"  

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts  
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString  
"BakerStreetWAN4[ 0 [ 747 ] ]" -entityType 1
```
3. Inject events onto all matching chassis entities and their interfaces for devices with a name like "BakerStreetWAN4"  

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts  
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString  
"BakerStreetWAN4"
```
4. This example is similar to example 3 but with a `-interfaceDescriptionString` parameter to restrict the search to FastEthernet interfaces only.

- ```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString
"BakerStreetWAN4" -interfaceDescriptionString "FastEthernet" -entityType 2
```
5. This example is similar to example 4, but using an interface description of "Fa2"

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString
"BakerStreetWAN4" -interfaceDescriptionString "Fa2" -entityType 2
```
  6. This example is similar to example 5, but inject events onto the chassis entities too

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString
"BakerStreetWAN4" -interfaceDescriptionString "Fa2"
```
  7. Create resolution events for those events raised by example 6 by simply adding the -resolution command-line option. Tivoli Netcool/OMNIBus will eventually delete the problem events and their matching resolution events.

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString
"BakerStreetWAN4" -interfaceDescriptionString "Fa2" -entityType 2 -resolution
```
  8. To see the SQL queries that are executed, use the -debug 1 command-line option.

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString
"BakerStreetWAN4" -debug 1
```
  9. To see the SQL queries and the entities found, use the -debug 2 command-line option.

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts
/perl/scripts/inject_fake_events.pl -domain NCOMS -entityNameString
"BakerStreetWAN4" -debug 2
```

## Command-line options

The following table describes the command-line options for the script.

Table 125. *inject\_fake\_events.pl* command-line options

Command-line option	Description
-domain <i>domainName</i>	Required: The name of the domain that contains the entities onto which to inject the events.
-entityNameString <i>string</i>	Required: String used to match names of entities onto which events are to be injected. The script uses this argument to produce an SQL WHERE clause to search for an entityName LIKE "%string%" in the field entityName in the NCIM topology database entity view.
-entityType <i>entityType</i>	Optional: Type of entity onto which events are to be injected. Must be 1, 2, or 8. If this parameter is not specified then events are injected onto entities of all three entity types.

Table 125. *inject\_fake\_events.pl* command-line options (continued)

Command-line option	Description
<code>-interfaceDescriptionString <i>string</i></code>	Optional: String used to match the <code>ifName</code> and <code>ifDescr</code> fields in the NCIM topology database interface view as a means of further filtering the entities onto which events are to be injected. The script uses this argument to produce an SQL WHERE clause to search for a name LIKE "%string%" in the fields <code>ifName</code> and <code>ifDescr</code> in the NCIM topology database interface view.
<code>-resolution</code>	Optional: By default, only problem events are injected. The argument <code>-resolution</code> injects resolution events instead of problem events.
<code>-severity <i>severity</i></code>	Optional: the severity of the events to inject, expressed as a number. You can specify any of the standard Tivoli Netcool/OMNIBus ObjectServer severity values. The default is 3: Minor. <ul style="list-style-type: none"> <li>• 1: Indeterminate</li> <li>• 2: Warning</li> <li>• 3: Minor</li> <li>• 4: Major</li> <li>• 5: Critical</li> </ul>
<code>-latency <i>latency</i></code>	Optional: the maximum time in milliseconds to wait between attempts to send a message. This is needed for busy networks.
<code>-debug <i>number</i></code>	Optional: Specify one of the following depending on the debugging detail that you require: <ul style="list-style-type: none"> <li>• Specify <code>-debug 1</code> to see the SQL queries that are executed.</li> <li>• Specify <code>-debug 2</code> to see the SQL queries that are executed <i>and</i> the devices that are found by the queries.</li> </ul>
<code>-messageLevel <i>messageLevel</i></code>	Optional: The level of messages to be logged. The default is warn: <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>
<code>-help</code>	Provides help on this command.


## itnm\_pathTool.pl

Use the itnm\_pathTool.pl script to trace a path between a source and destination device. The script determines the interfaces and physical ports used along the path.

### Usage

The script displays the path in ASCII format providing the path is not asymmetric or load-balanced. If the path is asymmetric or load-balanced, the path data is displayed in raw format.

### Tracing a path

The following example command line traces a path from IPv4 address 172.16.254.1 to IPv4 address 172.16.2.3. 

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/webtools/bin/  
itnm_pathTool.pl -domain NCOMS -from 172.16.254.1 -to 172.16.2.3
```

### Command-line options

The following table describes the command-line options for the script.

Table 126. itnm\_pathTool.pl command-line options

Command-line option	Description
-domain <i>DomainName</i>	Mandatory. The network domain in which to perform the path trace.
-from	Specifies the source IPv4 address, from which to perform the trace.
-to	Specifies the target IPv4 address, to which to perform the trace.
-delete	Deletes the specified path from the NCIM topology database.
-outofband	You can trace a path between an interface inside your domain and one outside, and this option is referred to as an out-of-band trace. This command-line option forces the use of discovered access IP addresses, if available. <b>Note:</b> This reduces ingress accuracy.
-ping	Pings each next-hop address to verify it is reachable from the management platform.
-store	Stores or updates the retrieved path information in the NCIM topology database.
-return	Instructs the path trace to additionally retrieve the return path, from the target device back to the source device. Specifying -from A -to B -return is the same as specifying -from A -to A -via B. Therefore the command-line options -return and -via cannot be specified together.
-timeout	Override the default 30 second timeout per prerequisite check.
-via	Optional IPv4 address to perform the path trace through. This command-line option cannot be used with the option -return.

Table 126. *itnm\_pathTool.pl* command-line options (continued)

Command-line option	Description
-debug <i>debug</i>	The level of debugging output (0-4, where 4 represents the most detailed output).
-help	Displays the command line options. Does not start the component even if used in conjunction with other arguments.

## ITNMIP\_Listener.pl

Use the **ITNMIP\_Listener.pl** script to listen to messages being passed between processes on the message bus.

### Usage

Many Network Manager processes communicate through a message bus. For example, **ncp\_model** broadcasts topology updates on the message bus. Each process broadcasts on a different subject. For example, **ncp\_model** broadcasts on the subject MODEL. The **ITNMIP\_Listener.pl** script listens to messages on the message bus and prints them to screen.

### Listening for topology change notifications

The following example command line listens for topology change notifications on the NCOMS domain. UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/ITNMIP_Listener.pl -domain NCOMS -process Model -messageClass NOTIFY
```

### Listening for discovery status updates

The following example listens for updates on discovery status updates on the NCOMS domain on Windows. Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\ITNMIP_Listener.pl -domain NCOMS -subject /ITNM/DISCO/UPDATE
```

### Listening for Network Manager status events

The following example listens for events regarding the status of the Network Manager product. UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/ITNMIP_Listener.pl -domain NCOMS -process ITNMSTATUS -messageClass NOTIFY
```

### Command-line options

The following table describes the command-line options for the script.

Table 127. *ITNMIP\_Listener.pl* command-line options

Command-line option	Description
-debug <i>debug</i>	The level of debugging output (0-4, where 4 represents the most detailed output).
-domain <i>DomainName</i>	Mandatory. The discovery domain on which to listen.

Table 127. *ITNMIP\_Listener.pl* command-line options (continued)

Command-line option	Description
-help	Displays the command line options. Does not start the component even if used in conjunction with other arguments.
-subject	The specific subject to listen to. If you specify a subject, the -domain argument is ignored, and the script listens on all domains. If you specify a subject you do not need to specify a messageClass and process. All subjects begin \'ITNM/\ ' and have the domain appended. For example, the <b>ncp_model</b> notify subject for domain <b>TESTDOMAIN</b> is /ITNM/MODEL/NOTIFY/TESTDOMAIN.
-process	The process to listen to. Valid options are: <ul style="list-style-type: none"> <li>• Model - ncp_model</li> <li>• Class - ncp_class</li> <li>• Config - ncp_config</li> <li>• Ctrl - ncp_ctrl</li> <li>• Disco - ncp_disco</li> <li>• PingFinder - ncp_f_ping</li> <li>• ITNMSTATUS - status events</li> </ul> If you specify a messageClass and process you do not need to specify a subject.
-messageClass	The class of messages to listen for. Not all processes support all classes. Classes are: <ul style="list-style-type: none"> <li>• NOTIFY</li> <li>• QUERY</li> <li>• STATUS</li> </ul> If you specify a messageClass and process you do not need to specify a subject.

## ManageNode.pl

Use the **ManageNode.pl** perl script to set the status of one or more unmanaged devices back to managed state following a period of maintenance.

### Description

You can set the status of one or more unmanaged devices back to managed state following a period of maintenance.

This is useful when a device is in unmanaged state and you want to set it to managed state again to receive alerts that are not tagged unmanaged and are used for root cause analysis.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/ManageNode.pl
-domain NCOMS -user root -pwd fruit -verbose -file mynodes.txt
```

**UNIX**

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/ManageNode.pl
-domain NCOMS -user root -pwd fruit -verbose neptune.ibm.com 192.168.0.6
```

**Windows**

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\ManageNode.pl
-domain NCOMS -user root -pwd fruit -verbose -file mynodes.txt
```

**Windows**

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\ManageNode.pl
-domain NCOMS -user root -pwd fruit -verbose neptune.ibm.com 192.168.0.6
```

## Command-line options

The following table describes the command-line options for the script.

*Table 128. ManageNode.pl command-line options*

Command-line option	Description
-domain <i>DomainName</i>	Mandatory; the name of the domain where the unmanaged node resides.
-user <i>username</i>	Mandatory; the name of the database user.
-pwd <i>password</i>	Mandatory; the password for the database user.
-file <i>FileName</i>	Optional; file containing the list of nodes to be set to managed state. Add one IP address or host name per line in the file. <b>Note:</b> You must provide the names of the nodes either in a file or by entering them in the command line, as described in <i>host</i> below.
-verbose	Optional; provides more information on the screen.
<i>host</i>	Optional; the name of the node to be set to managed state. You can specify any number of nodes this way, separated by spaces. The information entered for a node can be either the IP address or the host name. If you do not provide a host name, then the -file option must be used.

## read\_ncp\_cfg.pl

Use the **read\_ncp\_cfg.pl** Perl script to query the Master Domain Controller process, ncp\_ctrl, and extract the current service state of the processes that ncp\_ctrl has been configured to run.

## Description

## Running the script

To run the script, use a command line similar to the following:

**UNIX**

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/read_ncp_cfg.pl
```

**Windows**



```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\read_ncp_cfg.pl
```

## Command-line options

The following table describes the command-line options for the script.

Table 129. *read\_ncp\_cfg.pl* command-line options

Command-line option	Description
-domain <i>DomainName</i>	Mandatory; the name of the domain where the Master Domain Controller process resides.

## RemoveNode.pl

Use the **RemoveNode.pl** perl script to remove specified devices from the network topology. It does this by setting the device to unmanaged state and marking the device to be removed during the next full discovery.

## Description

This script sets the specified device to unmanaged state and marks the device to be removed during the next full discovery. This is useful when you have removed a device from the network, and you want to remove it from your network topology as soon as possible, instead of waiting for three full discovery cycles. The script marks the nodes and all associated objects for deletion. The next full discovery removes the nodes and all objects from the databases.

## Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/RemoveNode.pl  
-domain NCOMS -user root -pwd fruit -verbose -file mynodes.txt
```

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/RemoveNode.pl  
-domain NCOMS -user root -pwd fruit -verbose neptune.ibm.com 192.168.0.6
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\RemoveNode.pl  
-domain NCOMS -user root -pwd fruit -verbose -file mynodes.txt
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\RemoveNode.pl  
-domain NCOMS -user root -pwd fruit -verbose neptune.ibm.com 192.168.0.6
```

## Command-line options

The following table describes the command-line options for the script.

Table 130. *ManageNode.pl* command-line options

Command-line option	Description
-domain <i>DomainName</i>	Mandatory; the name of the domain where the unmanaged node resides.

Table 130. *ManageNode.pl* command-line options (continued)

Command-line option	Description
<code>-latency MessageLatency</code>	Optional; the maximum time in milliseconds to wait between attempts to send a message. This is needed for busy networks.
<code>-debug DebugLevel</code>	Optional; the level of detail the debugging output provides. Values are 1 to 4, where 4 represents the most detailed output.
<code>-user username</code>	Mandatory; the name of the database user.
<code>-pwd password</code>	Mandatory; the password for the database user.
<code>-file FileName</code>	Optional; file containing the list of nodes to be removed from the network topology. Add one IP address or host name per line in the file. <b>Note:</b> You must provide the names of the nodes either in a file or by entering them in the command line, as described in <i>host</i> below.
<code>-verbose</code>	Optional; provides more information on the screen.
<code>-force</code>	Optional; when used, you are not prompted to confirm the removing of a node.
<i>host</i>	Optional; the name of the node to be removed. You can specify any number of nodes in this way, separated by spaces. The information entered for a node can be either the IP address or the host name. If you do not provide a host name, then the <code>-file</code> option must be used.

## set\_db\_details.pl

Use the **set\_db\_details.pl** script to modify parameters for a database. The script modifies the DbLogins.*DOMAIN*.cfg file.

## Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
set_db_details.pl -domain NCOMS -dbId DNCIM -portNum 2316
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
set_db_details.pl -domain NCOMS -dbId DNCIM -portNum 2316
```

This example updates the domain-specific DbLogins.NCOMS.cfg file and sets the port number for the DNCIM database to 2316. All other settings for the DNCIM database remains unchanged.

## Command-line options

The following table describes the command-line options for the script.

Table 131. *set\_db\_details.pl* command-line options

Command-line option	Description
-domain <i>DomainName</i>	Mandatory; the domain for which database details you want to change.
-dbId <i>Database identifier</i>	Mandatory; the identifier of the database for which you want to modify parameters.
-server <i>ServerName</i>	Optional; use this option to change the name of the server the database is on.
-dbName <i>dbName</i>	Optional; use this option to change the name of the database.
-schema <i>schema</i>	Optional; use this option to specify the schema to be changed.
-hostname <i>hostname</i>	Optional; use this option to change the host of the database.
-username <i>user name</i>	Optional; use this option to change the user name used to log into the database.
-password <i>password</i>	Optional; use this option to change the password used to log into the database.
-portNum <i>portNum</i>	Optional; use this option to change the port number used to access the database.
-help	Optional; displays the command line options.

## UnmanageNode.pl

Use the **UnmanageNode.pl** Perl script to set one or more devices to unmanaged state so that engineers can work on these devices without generating network events. Unmanaged devices are not polled by Network Manager. Events for these devices from other sources are tagged in the **Active Event List (AEL)** to indicate they are from an unmanaged device.

### Description

If you set a device to unmanaged, polling is suspended for the unmanaged node. In the **Active Event List (AEL)**, all alerts are tagged to indicate they are from an unmanaged device, and are not used for root cause analysis. You can also unmanage individual devices or groups of devices from the topology map views. There is also an option to set individual components of a device to unmanaged state using the Structure Browser.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/UnmanageNode.pl  
-domain NCOMS -user root -pwd fruit -verbose -file mynodes.txt
```

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/UnmanageNode.pl  
-domain NCOMS -user root -pwd fruit -verbose neptune.ibm.com 192.168.0.6
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\UnmanageNode.pl  
-domain NCOMS -user root -pwd fruit -verbose -file mynodes.txt
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\UnmanageNode.pl  
-domain NCOMS -user root -pwd fruit -verbose neptune.ibm.com 192.168.0.6
```

## Command-line options

The following table describes the command-line options for the script.

Table 132. *UnmanageNode.pl* command-line options

Command-line option	Description
-domain <i>DomainName</i>	Mandatory; the name of the domain where the node to be unmanaged resides.
-user <i>username</i>	Mandatory; the name of the database user.
-pwd <i>password</i>	Mandatory; the password for the database user.
-file <i>FileName</i>	Optional; file containing the list of nodes to be unmanaged. Add one IP address or host name per line in the file. <b>Note:</b> You must provide the names of the nodes either in a file or by entering them in the command line, as described in <i>host</i> below.
-verbose	Optional; provides more information on the screen.
<i>host</i>	Optional; the name of the node to be unmanaged. You can specify any number of nodes this way, separated by spaces. The information entered for a node can be either the IP address or the host name. If you do not provide a host name, then the -file option must be used.

## Discovery scripts

Use these scripts to query and control the discovery.

### audit.pl script

Run this script to generate a status report for the Discovery engine, **ncp\_disco**. The script outputs the `/opt/IBM/tivoli/netcool/precision/bin/audit.html` file, which contains information about discovery, agents, and stitchers. You can change the frequency at which the report is generated.

### Description

This script produces a status report for the Discovery engine, `ncp_disco`. The file containing this report is output to the following location:

`current_directory/audit.html`

The status report includes information on the current state of each of the following:

- Discovery mode

- Discovery phase
- Blackout state
- Cycle count

To run the script on UNIX operating systems:

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/audit.pl
-domain NCOMS [ frequency ]
```

To run the script on Windows operating systems:

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
audit.pl -domain NCOMS [ frequency ]
```

## Command-line options

The following table describes the options for the script.

*Table 133. audit.pl options*

Command-line option	Description
-domain <i>DomainName</i>	Required: The name of the domain on which the discovery was run.
<i>frequency</i>	Optional: The frequency, in seconds, at which the script is run. The default is 500 seconds.
-debug <i>debug_level</i>	Optional; specifies required debug level.
-latency <i>latency</i>	Optional; the maximum time in milliseconds to wait between attempts to send a message. This is needed for busy networks.
-messageLevel <i>messageLevel</i>	Optional: The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>

## BuildSeedList.pl script

Run this script to output a list of the host names and IP addresses that were discovered during a discovery to a .txt file. You can use this output to seed a file finder discovery. The use of a fully populated seed list for discovery speeds up discovery time.

### Description

The **BuildSeedList.pl** Perl script retrieves the list of hostnames and IP addresses discovered during the discovery and writes this list to a file. The script also provides the insert that can be used in the file finder to use this list to seed the discovery. The use of a fully populated seed list for discovery speeds up discovery time.

The file containing the list of hostnames and IP addresses discovered during the discovery is output to the following location:

```
$NCHOME/etc/precision/seedfile.txt
```

## Running the script

To run the script on UNIX operating systems:

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
BuildSeedList.pl -domain DOMAIN [-debug LEVEL] [-latency 30000]  
[-messageLevel LEVEL] [-outFile FILEPATH/FILENAME]
```

To run the script on Windows operating systems:

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
BuildSeedList.pl -domain DOMAIN [-debug LEVEL] [-latency 30000]  
[-messageLevel LEVEL] [-outFile FILEPATH/FILENAME]
```

## Command-line options

The following table describes the options for the BuildSeedList.pl script.

Table 134. BuildSeedList.pl options

Option	Description
-domain <i>DomainName</i>	Required: The name of the domain for which the discovery is running.
-debug <i>debug_level</i>	Optional: The debug level.
-latency <i>latency</i>	Optional: The maximum time, in milliseconds, to wait between attempts to send a message. Specify this option on busy networks.
-messageLevel <i>messageLevel</i>	Optional: The level of messages to be logged: <ul style="list-style-type: none"><li>• debug</li><li>• info</li><li>• warn (default)</li><li>• error</li><li>• fatal</li></ul>
-outFile	Optional: Name and location of the output file. The default is /opt/IBM/tivoli/netcool/etc/precision/seedfile.txt.

## discoAgentsUsed.pl script

Run this script to obtain an HTML list of the discovery agents that were used to discover the most recently discovered devices in the current domain. Ensure that the Discovery engine, **ncp\_disco**, is running when you run this script.

### Description

This script produces a list of agents. The file containing this list is output to the following location:

```
current_directory/agentList.html
```

**Note:** The Discovery engine, **ncp\_disco**, must be running when you run this script.

## Running the script

To run the script, use a command line similar to the following:

On UNIX operating systems:

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
discoAgentsUsed.pl -domain NCOMS [reportFileName] [-verbose]
```

On Windows operating systems:

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
discoAgentsUsed.pl -domain NCOMS [reportFileName] [-verbose]
```

## Command-line options

The following table describes the command-line options for the script.

Table 135. *discoAgentsUsed.pl* command-line options

Command-line option	Description
-domain <i>DomainName</i>	Mandatory; the name of the domain where the discovery is running.
-debug <i>debug_level</i>	Optional; specifies required debug level.
-latency <i>latency</i>	Optional; the maximum time in milliseconds to wait between attempts to send a message. This is needed for busy networks.
-messageLevel <i>messageLevel</i>	Optional: The level of messages to be logged (the default is warn): <ul style="list-style-type: none"><li>• debug</li><li>• info</li><li>• warn</li><li>• error</li><li>• fatal</li></ul>
-verbose	Optional; provides more information on the screen.

## disco\_profiling\_data.pl

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Use the **disco\_profiling\_data.pl** script to output summary data of all the discoveries run on a domain or extracted from a given profiling cache. This script includes data on how long it took to transfer discovery profiling data to the NCIM topology database.

## Description

The script is run using the following command line. Optional arguments are shown enclosed in square brackets.

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
disco_profiling_data.pl -domain domain_name [ -fromcache ]  
[ -discocachefile discovery_cache_filename ] [ -  
modelcachefile model_cache_filename ]  
[ -debug debug_level ] [ -help ]
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
disco_profiling_data.pl -domain domain_name [ -fromcache ]
[ -discocachefile discovery_cache_filename ] [ -
modelcachefile model_cache_filename ]
[ -debug debug_level ] [ -help ]
```

The script reads data from the Topology manager database table, model.profilingData. For more information on this table see the *IBM Tivoli Network Manager IP Edition Discovery Guide*.

## Running the script

To retrieve data from a specified domain, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
disco_profiling_data.pl -domain NCOMS
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
disco_profiling_data.pl -domain NCOMS
```

To retrieve data from cache files, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
disco_profiling_data.pl -domain NCOMS -fromcache
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
disco_profiling_data.pl -domain NCOMS -fromcache
```

To retrieve data from discovery and model caches, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
disco_profiling_data.pl -domain NCOMS
discocachefile Disco.Cache.disco.profilingData.NCOMS
-modelcachefile Model.Cache.model.profilingData.NCOMS
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
disco_profiling_data.pl -domain NCOMS
discocachefile Disco.Cache.disco.profilingData.NCOMS
-modelcachefile Model.Cache.model.profilingData.NCOMS
```

## Command-line options

The following table describes the command-line options for the script.

Table 136. disco\_profiling\_data.pl command-line options

Command-line option	Description
-domain <i>DomainName</i>	Mandatory; the name of the domain to retrieve data from.



Table 136. *disco\_profiling\_data.pl* command-line options (continued)

Command-line option	Description
-fromcache	Optional; instructs the script to retrieve data from the cache files. IN this case the Discovery engine, ncp_disco, and the Topology manager, ncp_model, do not need to be running.
-discocachefile <i>discovery_cache_filename</i>	Optional; name of a discovery cache file to extract disco profiling data from. This setting overrides the -fromcache setting.
-modelcachefile <i>model_cache_filename</i>	Optional; name of a model cache file to extract model profiling data from. This setting overrides -fromcache setting.
-debug <i>debug_level</i>	Optional; specifies required debug level.
-help	Optional; provides help on this command

## Output

Running the script retrieves output similar to the following:

Domain	Date_of_discovery	collection	processing	transfer	total
NCOMS	2012-08-24T23:00:00	00:33:26	00:18:02	00:00:00	00:00:00
NCOMS	2012-09-30T23:00:04	00:30:36	00:16:04	00:11:04	00:57:44
NCOMS	2012-09-31T23:00:07	00:28:53	00:16:36	00:10:59	00:56:28
entities	devices	access	interfaces	discoMem	modelMem
194328	352	347	93620	729.58	0.00
194925	352	348	93948	729.01	726.38
194997	352	348	93996	725.57	728.89

Table 137. *Output columns*

Column	Description
Domain	Domain name.
Date_of_discovery	Start date and time of the discovery.
collection	Length of time spent collecting data. This is the sum of time spend in discovery phases 1-3.
processing	Length of time spent in the final processing phase of discovery.
transfer	Length of time taken for the Topology manager, ncp_model, to update NCIM following the discovery.
total	Total time taken for the discovery. This is the sum of collection, processing and transfer.
entities	Total number of entities discovered as reported by the Discovery engine, ncp_disco.
devices	Number of devices discovered as reported by the Discovery engine, ncp_disco.
access	Number of entities to which ncp_disco reported SNMP access interfaces.

Table 137. Output columns (continued)

Column	Description
interfaces	Number of interfaces discovered as reported by the Discovery engine, ncp_disco.
discoMem	Memory usage of the the ncp_disco process in MB.
modelMem	Memory usage of the ncp_model process in MB.

## itnm\_disco.pl script

Run this script to start and stop network discoveries, and display the status of a running discovery.

- “Command-line options”
- “Examples”

## Command-line options

The following table describes the options for the script.

Table 138. itnm\_disco.pl options

Option	Description
-domain <i>DomainName</i>	Mandatory; the name of the domain where you want to start, stop, or display status of a discovery.
-status	Optional; instructs the scripts to display status of a discovery.
-start	Optional; instructs the scripts to start a discovery.
-stop	Optional; instructs the scripts to stop a discovery.
-delay	Optional; count in seconds to delay
-v	Optional; provides more information on the screen.

## Examples

- “Display the current status of a discovery”
- “Start a discovery”
- “Stop a discovery” on page 243

## Display the current status of a discovery

The following example shows how to display the current status of a discovery.

- On UNIX operating systems:  

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/itnm_disco.pl
-domain NCOMS -status -delay 5
```
- On Windows operating systems:  

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\itnm_disco.pl
-domain NCOMS -status -delay 5
```

## Start a discovery

The following example shows how to start a discovery.

**Important:** The effect of running the `itnm_disco.pl` script to start discoveries depends on whether the **nep\_disco** process is running. If the process is running, the `itnm_disco.pl` script starts a discovery. If the process is not running, the `itnm_disco.pl` script starts only the **nep\_disco** process. A discovery is not started. Rerun the script to start a discovery.

- On UNIX operating systems:

```
$NCHOME/precision/bin/nep_perl $NCHOME/precision/bin/itnm_disco.pl  
-domain NCOMS -start
```

- On Windows operating systems:

```
%NCHOME%\precision\bin\nep_perl.bat %NCHOME%\precision\bin\itnm_disco.pl  
-domain NCOMS -start
```

## Stop a discovery

The following example shows how to stop a discovery. After a discovery is stopped on a domain, the **nep\_disco** process is not output by the `itnm_status` command for that domain.

- On UNIX operating systems:

```
$NCHOME/precision/bin/nep_perl $NCHOME/precision/bin/itnm_disco.pl  
-domain NCOMS -stop
```

- On Windows operating systems:

```
%NCHOME%\precision\bin\nep_perl.bat %NCHOME%\precision\bin\itnm_disco.pl  
-domain NCOMS -stop
```

## itnmMetaDiscoAudit.pl:

Use the `itnmMetaDiscoAudit.pl` script to generate a report that contains audit information on device classification, and missing device metadata. The output also includes templates of SQL inserts that you can use to rectify missing metadata issues.

## Generate a report

To run the script to generate a report, use a command similar to the following example:

UNIX

```
$NCHOME/precision/bin/nep_perl $NCHOME/precision/scripts/perl/scripts/  
itnmMetaDiscoAudit.pl -domain NCOMS -report > my_report.txt
```

Windows

```
%NCHOME%\precision\bin\nep_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
itnmMetaDiscoAudit.pl -domain NCOMS -report > my_report.txt
```

## Generate a report for specific devices

To run the script to generate a report for specific devices use a command similar to the following example

**Note:** The `-entity` command-line option can be used multiple times, In this example it is used twice, once with an entity identifier, and the second time with an IP address.

: UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
itnmMetaDiscoAudit.pl -domain NCOMS -report -entity 500 -entity 10.10.10.1
> my_report.txt
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
itnmMetaDiscoAudit.pl -domain NCOMS -report -entity 500 -entity 10.10.10.1
> my_report.txt
```

### Generate a report to exclude specific device classes (AOCs)

To run the script to generate a report that excludes specific device classes, use a command similar to the following example: **UNIX**

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
itnmMetaDiscoAudit.pl -domain NCOMS -report -exclude AIX -exclude Sun
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
itnmMetaDiscoAudit.pl -domain NCOMS -report -exclude AIX -exclude Sun
```

### View device membership for specified device classes (AOCs)

To run the script to view device membership for specified device classes, use a command similar to the following example: **UNIX**

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
itnmMetaDiscoAudit.pl -domain NCOMS -showClassCisco -showClassIBM
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
itnmMetaDiscoAudit.pl -domain NCOMS -showClassCisco -showClassIBM
```

### Command line options

The following table describes the command line options for the script.

Table 139. *itnmMetaDiscoAudit.pl* command line options

Command line option	Description
-domain <i>DomainName</i>	Mandatory; the name of the domain where you want to start, stop, or display status of a discovery.
-report	Optional; instructs the script to generate the output in a report.
-showclass	Optional; instructs the script to produce output that shows device membership for specified device classes. <b>Note:</b> The -showclass option cannot be used with the -report option.
-version	Prints the version and exits.

Table 139. *itnmMetaDiscoAudit.pl* command line options (continued)

Command line option	Description
<code>-entity entity ID   entity name   IP address</code>	Optional; instructs the script to produce output for specific entities only. Entities can be specified by NCIM topology database entity identifier, by IP address, or by entity name. <b>Note:</b> This option can be used multiple times.
<code>-exclude parameter</code>	Optional; instructs the script to produce output that excludes specified parameters from the output tables; for example, <code>entityId</code> , <code>className</code> , or <code>sysObjectId</code> . <b>Note:</b> This option can be used multiple times.
<code>-maxTableRows number</code>	Limits the output table sizes to the specified number of rows. The default is 250 rows.
<code>-timeLimit seconds</code>	Limits the tool runtime to the specified number of seconds. The default is 300 seconds (5 minutes).
<code>-help</code>	Displays help.
<code>-debug</code>	Runs the script in debug mode.
<code>-v</code>	Optional; provides more information on the screen.

## Script output

The script generates output in the following distinct sections:

### AOC Class Hierarchy and Device Membership

Visualizes the AOC device class tree and indicates how many devices are in each class. The marker `###` is used to bring specific AOC classes to your attention. For example, consider the following output snippet:

```

1 Core
5 |--- NetworkDevice 3 device(s) ###
127 |--- Redback (Router)
71 |--- Dasan (Switch)
118 |--- Nortel (NetworkDevice)
119 |   |--- BayWellfleet (Router)
120 |   |--- Centillion (Switch)
121 |   |--- NortelEthernetRoutingSwitch (Router)
123 |   |-- NortelPassport (Switch)
124 |       |--- NortelPassport15000 (Switch)
171 |       |--- NortelPassport8xxx (Switch)
125 |       |-- NortelPassport7000 (Switch)
358 |--- Moxa (NetworkDevice)
359 |   |-- MoxaNPportExpress (NetworkDevice)
220 |--- RANBaseStation (Transmitter)
11 |--- Adtran (Router)
12 |   |--- AdtranMX2800 (Router)
13 |   |-- AdtranNetVanta (Router)

```

The second line reads as follows:

```
5 |--- NetworkDevice 3 device(s) ###
```

This line contains the following elements:

**Device class identifier**

In this line of output, the device class identifier is 5, corresponding to the NetworkDevice class.

**Device class name**

In this line of output, the device class name is NetworkDevice.

**Number of devices in this class**

This line of output reads 3 device(s). This statement means that the NetworkDevice class contains 3 devices.

**Note:** If there is no text after the class name, then there are no devices in the class. For example, in the preceding output snippet the only class that contains devices is the NetworkDevice class.

**Suggestion to reclassify (###)**

The presence of the ### marker means that you should consider reclassifying the devices in the current device class into a more specific class. For example, in this line of output there are 3 devices in the NetworkDevice class. The NetworkDevice class is a container class and ideally would not directly contain devices: Container classes should contain other device classes rather than devices. If, for example, the three devices under NetworkDevice were a new type of Cisco device then these devices should be reclassified into a more specific class, such as Cisco, or, even better, into a subclass of Cisco.

For information on how to reclassify network devices, see the *IBM Tivoli Network Manager IP Edition Discovery Guide*.

**Device Discovery Audit**

Lists the devices with missing MIB data, and highlights the MIB data fields that are missing for each device listed. For each device, the following identifying information is provided:

- Entity identifier (entityId)
- Entity name
- IP address
- Device class
- MIB system object ID

For each device, the output lists MIB data fields and highlights missing fields with the marker ###.

**Metadata Audit**

Lists the devices with missing metadata, and highlights the metadata fields that are missing for each device listed. For each device, the following identifying information is provided:

- Entity identifier (entityId)
- Entity name
- IP address
- Device class
- MIB system object ID

For each device, the output lists metadata fields and highlights missing fields with the marker ###.

## Recommended SQL Inserts

Lists recommended SQL insert templates. Use these templates to add the missing metadata to the database. The templates highlight the information that you need to add to get a working insert. For example, in the output that follows, you must provide values to replace the following dummy entries:

- `__deviceModel__`
- `__deviceFunction__`

```
INSERT INTO deviceFunction VALUES ('Avocent', '1.3.6.1.4.1.10418',  
'1.3.6.1.4.1.10418.7.1.3', '__deviceModel__', '__deviceFunction__');  
INSERT INTO deviceFunction VALUES ('Cisco', '1.3.6.1.4.1.9',  
'1.3.6.1.4.1.9.1.1642', '__deviceModel__', '__deviceFunction__');  
INSERT INTO deviceFunction VALUES ('Extreme Networks', '1.3.6.1.4.1.1916',  
'1.3.6.1.4.1.1916.2.93', '__deviceModel__', '__deviceFunction__');
```

## listEntities.pl script

Run this script to retrieve device information from the master.EntityByName OQL database table and output the information in HTML format.

## Description

This script produces output to the following location:

`current_directory/entityListing.html`

## Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
listEntities.pl -domain NCOMS [ displayMode ] [ reportFileName ]
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
listEntities.pl -domain NCOMS [ displayMode ] [ reportFileName ]
```

## Command-line options

The following table describes the command-line options for the script.

Table 140. *listEntities.pl* command-line options

Command-line option	Description
<code>-domain DomainName</code>	Mandatory; the name of the domain where the discovery was run.
<code>displayMode</code>	Optional; a numerical value that indicates the level of detail to capture in the HTML file: <ul style="list-style-type: none"><li>• 0: Show just the types of device on the network</li><li>• 1: Show each main node (each individual device)</li><li>• 2: Show every entity from the <code>ncimCache.entityData</code> table including interfaces</li></ul>

Table 140. *listEntities.pl* command-line options (continued)

Command-line option	Description
<i>reportFileName</i>	Optional; name of the html file to generate. If not specified, defaults to <code>entityListing.html</code> .
<code>-debug <i>debug_level</i></code>	Optional; specifies required debug level.
<code>-latency <i>latency</i></code>	Optional; the maximum time in milliseconds to wait between attempts to send a message. This is needed for busy networks.
<code>-messageLevel <i>messageLevel</i></code>	Optional: The level of messages to be logged (the default is warn): <ul style="list-style-type: none"> <li>• debug</li> <li>• info</li> <li>• warn</li> <li>• error</li> <li>• fatal</li> </ul>

## restart\_disco\_process.pl script

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Run this script to stop the discovery process that is running and start a new instance. This script works only if the **ncp\_ctrl** process was used to start the discovery process that is running. The script is called from the RestartDiscoProcess discovery stitcher. However, you can run the script directly on the command-line interface.

### Description

The script stops the current discovery process by removing the entry for the discovery process from the `services.inTray` table of the **ncp\_ctrl** process. The script then inserts the entry into `services.inTray` again by using the original argument list, which causes the discovery process to restart. The optional `-startDiscovery` argument controls whether the script waits for the discovery process to start and then initiates a new full discovery.

The following examples show how to run the script.

- On UNIX operating systems:  

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
restart_disco_process.pl -domain NCOMS [-debug level] [-help] [-latency l0]
[-startDiscovery 0|1]
```
- On Windows operating systems:  

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
restart_disco_process.pl -domain NCOMS [-debug level] [-help] [-latency l0]
[-startDiscovery 0|1]
```



## Command-line options

The following table describes the options for the script.

Table 141. *restart\_disco\_process.pl* options

Option	Description
-domain <i>DomainName</i>	Required: The name of the domain on which to restart the discovery process.
-debug <i>level</i>	Sets the debug level, where 0 is no logging and 4 is trace level logging.
-help	Displays help information about the options.
-latency <i>time</i>	Time to wait for processing data in seconds.
-startDiscovery 1 0	Optional: If set to 1, the script triggers a new full discovery after the new discovery process starts.

## scheduleDiscovery.pl script

Run this script to display when the next full discovery is scheduled and to schedule full discoveries.

- “Command-line options”
- “Examples”

## Command-line options

The following table describes the options for the script.

Table 142. *scheduleDiscovery.pl* options

Option	Description
-domain <i>DomainName</i>	Required: The domain on which to schedule the discovery or query the discovery schedule.
-time <i>hh:mm</i>	Optional: The time, in 24-hour clock format, at which to run to run discovery.
-day <i>day</i>	Optional: One or more days in a week to run discovery, where 0 is Sunday and 6 is Saturday.
-date <i>dates</i>	Optional: One or more dates in the month when discovery must be run. If the date value is greater than 28, discovery might not run in certain months.
-interval <i>hours</i>	Optional: The number of hours between discovery.
-v	Turn on verbose mode.

## Examples

- “Display the current discovery schedule” on page 250
- “Set a daily time for discovery” on page 250
- “Set a weekly schedule for discovery” on page 250
- “Set a monthly schedule for discovery” on page 250
- “Set the discovery schedule to occur at a specified interval” on page 250

## Display the current discovery schedule

The following example shows how to display the current discovery schedule.

- On UNIX operating systems:  
`$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/  
scheduledDiscovery.pl -domain NCOMS -display -v`
- On Windows operating systems:  
`%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\  
scheduledDiscovery.pl -domain NCOMS -display -v`

## Set a daily time for discovery

The following example shows how to set a daily time for a discovery time to start at 2 am.

- On UNIX operating systems:  
`$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/  
scheduledDiscovery.pl -domain NCOMS -time 02:00 -v`
- On Windows operating systems:  
`%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\  
scheduledDiscovery.pl -domain NCOMS -time 02:00 -v`

## Set a weekly schedule for discovery

The following example shows how to set a weekly schedule for discovery. The discovery start time is set at 17:00.

- On UNIX operating systems:  
`$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/  
scheduledDiscovery.pl -domain NCOMS -day 0..6 -time 17:00 -v`
- On Windows operating systems:  
`%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\  
scheduledDiscovery.pl -domain NCOMS -day 0..6 -time 17:00 -v`

## Set a monthly schedule for discovery

The following example shows how to set a monthly schedule for discovery. The discovery start time is set at 17:00.

- On UNIX operating systems:  
`$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/  
scheduledDiscovery.pl -domain NCOMS -date 0..28 -time 17:00 -v`
- On Windows operating systems:  
`%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\  
scheduledDiscovery.pl -domain NCOMS -date 0..28 -time 17:00 -v`

## Set the discovery schedule to occur at a specified interval

The following example shows how to set the discovery schedule to occur at an interval of 36 hours.

- On UNIX operating systems:  
`$NCHOME/precision/bin/ncp_perl $NCHOME/precision/bin/  
scheduledDiscovery.pl -domain NCOMS -interval 36 -v`
- On Windows operating systems:  
`%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\bin\  
scheduledDiscovery.pl -domain NCOMS -interval 36 -v`

## Polling scripts

Use these scripts to control and diagnose network polling,

### get\_policies.pl

Use the **get\_policies.pl** Perl script to move poll policies and associated data between domains. This script can also be used to back up all poll policies to file or to load poll policies from a file into a specified domain. You can also move a subset of poll policies.

### Description

### Running the script

To run the script to copy policies from one domain to another, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
get_policies.pl -from domain=SOURCE -to domain=DESTINATION -  
ncim_password NCIM_password  
-ncmonitor_password NCMONITOR_password
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
get_policies.pl -from domain=SOURCE -to domain=DESTINATION -  
ncim_password NCIM_password  
-ncmonitor_password NCMONITOR_password
```

To run the script to copy policies from one domain to a file, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
get_policies.pl -from domain=SOURCE -to file=exportedData.xml
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
get_policies.pl -from domain=SOURCE -to file=exportedData.xml
```

### Command-line options

To view all the available command line options, use the command line help to display a list. Type **get\_policies.pl -help**.

### itnm\_poller.pl

Use this script to enable and disable poll policies, check the status of poll policies and check the polling status of IP addresses.

Fix Pack 4

You can use the script to monitor the health of **ncp\_poller** processes.

- “Syntax”
- “Examples” on page 254

### Syntax

Run the script with the following syntax:

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
itnm_poller.pl -domain domain [-poller pollername|Default]
[-enable policyid|disable policyid] [-status all|static|realtime]
[-refresh policyid|all] [-chassis ipaddress][-interface ipaddress]
[-metrics] [-window] [-timestamp timestamp] [-help]
```

The following table describes the options for the script. To obtain poll policy IDs for use with these options, run the script with the `-status` option first.

Table 143. *itnm\_poller.pl* options

Command-line option	Description
<code>-domain</code>	Required: The domain that contains the poll policies of interest.
<code>-chassis</code>	Optional: Displays the polling status of the chassis ping poller that has the specified IP address.
<code>-disable</code>	Optional: Disables the poll policy that has the specified poll policy ID
<code>-enable</code>	Optional: Enables the poll policy that has the specified poll policy ID.
<code>-help</code>	Optional: Displays help text.
<code>-interface</code>	Optional: Displays the polling status of the interface ping poller that has the specified IP address.
<b>Fix Pack 4</b> <code>-metrics</code>	<p>Reads the metrics trace and displays the information on the command-line interface. The script first looks for the metrics trace file in the current working directory. If the file is not found, it looks in <code>\$NCHOME/precision/logs</code>. The information is displayed as a bar chart for each metric. The chart plots the most recent data in the trace file. By default, the past 4 hours of data are shown. For each metric, the end time is determined by the time stamp of the latest entry in the trace for that metric. Alternatively, you can use the <code>-timestamp</code> option to set the end time.</p> <p>There are 5 metrics. For the first metric, which is called Health, a separate bar chart is displayed for each combination of poll policy and poll definition that is associated with the poller.</p> <p>To ensure that the bar charts display correctly, run the script with this option on a terminal that is no narrower than 140 characters.</p> <p><b>Important:</b> Do not use this option with the <code>-status</code> option. If you do, the script displays a message and terminates.</p>

Table 143. *itnm\_poller.pl* options (continued)

Command-line option	Description
<div>Fix Pack 4</div> -poller	<p>Optional: For use with the -metrics option in environments that use multiple pollers.</p> <p>Specify the ID of the poller for which you want to output metrics. 5 metrics are displayed for each poll policy and definition that is associated with the poller. If you use the -metrics option without the -poller option, the metrics of the default poller are displayed.</p> <p>To explicitly specify the default poller, you can also use the value Default. For example:</p> <pre>\$NCHOME/precision/bin/ncp_perl itnm_poller.pl -domain NCOMS -metrics -poller Default</pre>
-refresh	<p>Refreshes the policy configuration and its entity list. To refresh a single policy, specify the policy ID. To refresh all policies, use the -refresh all option.</p>
-status	<p>Optional: Displays the status of the specified policies, and also the ID of each poll policy. Possible options are as follows:</p> <ul style="list-style-type: none"> <li>• all</li> <li>• static (default)</li> <li>• realtime</li> </ul> <p><b>Important:</b> Do not use this option with the -metrics option. If you do, the script displays a message and terminates.</p>
<div>Fix Pack 4</div> -timestamp	<p>Optional: For use with the -metrics option.</p> <p>Specify the time stamp for the end time, from which to read the metrics data. This option overrides the default end time of the last time stamp in the trace for each metric.</p> <p>Use this option together with the -window option to obtain metrics for specific periods of time. The -timestamp option can also be used without the -window option to obtain the default time period of the last 4 hours.</p>

Table 143. *itnm\_poller.pl* options (continued)

Command-line option	Description
<b>Fix Pack 4</b> <code>-window</code>	<p>Optional: For use with the <code>-metrics</code> option.</p> <p>Specify the time period, in multiples of 4 hours, for which you want to display metrics data for the poller. The value of this option affects the x-axis of the bar charts. The default is 4. The time period is calculated from a specified time stamp or from the most recent time stamp in the trace file. If you do not specify a multiple of 4, the time period is rounded up to the nearest 4 hours. The most useful time period is 4-24 hours.</p> <p>Optionally use this option together with the <code>-timestamp</code> option to obtain metrics for specific periods of time.</p>

## Examples

- “Display poll policy status and ID”
- “Enable poll policies”
- “Disable poll policies”
- “Trigger the refresh of a policy configuration and its entity list”
- “Display polling status of a chassis ping poller” on page 255
- “Display poller health charts” on page 255

## Display poll policy status and ID

The following example displays the status of all poll policies on the NCOMS domain. It also displays the policy IDs of all poll policies, so it is useful to identify poll policies for subsequent actions, for example, enabling or refreshing a policy.

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
itnm_poller.pl -domain NCOMS -status all
```

## Enable poll policies

The following example enables a poll policy that has the ID 10 on the NCOMS domain.

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
itnm_poller.pl -domain NCOMS -enable 10
```

## Disable poll policies

The following example disables a poll policy that has the ID 10 on the NCOMS domain.

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
itnm_poller.pl -domain NCOMS -disable 10
```

## Trigger the refresh of a policy configuration and its entity list

The following example triggers a refresh of the policy configuration for a poll policy that has the ID 10 on the NCOMS domain.

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
itnm_poller.pl -domain NCOMS -refresh 10
```

## Display polling status of a chassis ping poller

The following example displays the polling status of the chassis ping poller that has the IP address 10.101.10.10 on the NCOMS domain.

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
itnm_poller.pl -domain NCOMS -chassis 10.101.10.10
```

### Fix Pack 4

## Display poller health charts

The following example outputs the bar charts with the default settings. The metrics are output for the poll policies and poll definitions that are associated with the default poller. The time period for the metrics is 4 hours before the most recent set of metrics that were written to the trace, so 4 hours of data are recorded on the x-axis.

```
$NCHOME/precision/bin/ncp_perl itnm_poller.pl -domain NCOMS -metrics
```

The following example outputs the bar charts for a poller that is called 2345\_POLL. The time period for the metrics starts 24 hours before the most recent time stamp.

```
$NCHOME/precision/bin/ncp_perl itnm_poller.pl -domain NCOMS -metrics  
-poller 2345_POLL -window 24
```

The following example outputs the bar charts for the default poller. The time period for the metrics starts from the time stamp that was 4 hours before 09:14 and 59 seconds on December 10, 2013

```
$NCHOME/precision/bin/ncp_perl itnm_poller.pl -domain NCOMS -metrics  
-timestamp 2013-12-10T09:14:59
```

The following example outputs the bar charts for the poll policies and poll definitions for a poller that is called 2345\_POLL. The time period for the metrics starts from the time stamp that was 8 hours before 09:14 and 59 seconds on December 10, 2013.

```
$NCHOME/precision/bin/ncp_perl itnm_poller.pl -domain NCOMS  
-poller 2345_POLL -metrics -window 8  
-timestamp 2013-12-10T09:14:59
```

For more information about the NCMONITOR polling status tables, including the `ncmonitor.expectedIps` table, see the *IBM Tivoli Network Manager IP Edition Management Database Reference*. For more information about how to ensure that the important IP addresses in your network are polled as expected, see the *IBM Tivoli Network Manager IP Edition Event Management Guide*.

## ncp\_ping\_poller\_snapshot.pl

This script is used for troubleshooting ping polling of network devices. After the `ncp_upload_expected_ips.pl` script has uploaded a plain text file of IP addresses, the `ncp_ping_poller_snapshot.pl` script creates and stores a snapshot of the current ping polling status of these addresses. You can then run a report on these devices using the `ncp_polling_exceptions.pl` script.

## Description

The `ncp_ping_poller_snapshot.pl` script retrieves the polling status of the uploaded IP addresses; that is, whether they will be polled by the `ncp_poller` process. The polling status of devices can change after a network discovery or a change in polling configuration.

The data retrieved by this script is stored in the `pollLog` database table in the `NCMONITOR` schema, and can be used to generate reports on the polling status using the `ncp_polling_exceptions.pl` script.

For more information on ensuring that the important IP addresses in your network are being polled as expected by Network Manager, see the *IBM Tivoli Network Manager IP Edition Event Management Guide*.

Prerequisites for this script are as follows:

- You must have run the `ncp_upload_expected_ips.pl` script on a valid file of IP addresses.
- The `pollLog` and `pollLogSummary` tables must have been created in the `NCMONITOR` schema.
- The `DbLogins` file must be usable for the given domain.
- The domain must exist in the NCIM topology database.
- The Polling engine, **ncp\_poller**, must be running in the given domain.
- There must be at least one active ping poll in the current domain.

## Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
ncp_ping_poller_snapshot.pl -domain DOMAIN_NAME -password PASSWORD
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
ncp_ping_poller_snapshot.pl -domain DOMAIN_NAME -password PASSWORD
```

## Command-line options

The following table describes the command-line options for the script.

Table 144. `ncp_ping_poller_snapshot.pl` command-line options

Command-line option	Description
<code>-domain DOMAIN_NAME</code>	Mandatory; the name of the relevant domain.
<code>-password PASSWORD</code>	Optional; the database password used to access the NCIM and NCMONITOR schemas. This is required only if the password is encrypted in the <code>DbLogins</code> configuration file.
<code>-logdir LOGFILENAME</code>	Optional; a log file called <code>ncp_ping_poller_snapshot.pl.DOMAIN_NAME.log</code> is generated that can be checked if there are any problems accessing the database. It is generated in the current directory by default if this option is not given.
<code>-help</code>	Optional; provides help on this command



## ncp\_polling\_exceptions.pl

This script is used for troubleshooting ping polling of network devices. After having run the `ncp_upload_expected_ips.pl` and `ncp_pingpoller_snapshot.pl` scripts, use this script to print a report of polling status of network devices.

### Description

After uploading a list of IP addresses that you want to monitor using the `ncp_upload_expected_ips.pl` script, and creating a snapshot of the polling status of those devices using the `ncp_pingpoller_snapshot.pl` script, use this script to print a report of the snapshot data. The script lists those addresses that are not being polled using ICMP, and indications why they are not being polled.

For more information on the procedure to ensure that the important IP addresses in your network are being polled as expected by Network Manager, see the *IBM Tivoli Network Manager IP Edition Event Management Guide*.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
ncp_polling_exceptions.pl -domain DOMAIN_NAME -format LIST | REPORT
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
ncp_polling_exceptions.pl -domain DOMAIN_NAME -format LIST | REPORT
```

### Command-line options

The following table describes the command-line options for the script.

Table 145. `ncp_polling_exceptions.pl` command-line options

Command-line option	Description
<code>-domain DOMAIN_NAME</code>	Mandatory; the name of the relevant domain.
<code>-notpolled</code>	Optional; outputs a list of IP addresses that are not polled as compared with the list of expected IP addresses. This output is in LIST format only.
<code>-format LIST   REPORT</code>	Optional; determines the output format. This can be report format or a list of IP addresses.
<code>-help</code>	Optional; provides help on this command

## ncp\_upload\_expected\_ips.pl

This script is used for troubleshooting ping polling of network devices. Use the ncp\_upload\_expected\_ips.pl script to upload a plain text file of IP addresses. Use the ncp\_pingpoller\_snapshot.pl and ncp\_pollingexceptions.pl scripts to check the uploaded addresses.

### Description

Use the ncp\_upload\_expected\_ips.pl script as part of the procedure to ensure that the important IP addresses in your network are being ping polled as expected by Network Manager and, if not, to provide information to resolve the problem.

The script loads a list of IP addresses to the ncmonitor.expectedIps table. Any data already in the table is removed.

Run the ncp\_upload\_expected\_ips.pl script before running the ncp\_pingpoller\_snapshot.pl and ncp\_pollingexceptions.pl scripts. You can run the ncp\_pingpoller\_snapshot.pl and ncp\_pollingexceptions.pl scripts many times after running the ncp\_upload\_expected\_ips.pl script once. Run the ncp\_upload\_expected\_ips.pl again when the IP addresses that you want to check have changed.

For more information on the NCMONITOR polling status tables, including the ncmonitor.expectedIps table, see the *IBM Tivoli Network Manager IP Edition Management Database Reference*.

For more information on the procedure to ensure that the important IP addresses in your network are being polled as expected by Network Manager, see the *IBM Tivoli Network Manager IP Edition Event Management Guide*.

Prerequisites for this script are as follows:

- A plain text file containing IP addresses you want to monitor is available on the local file system.
- The expectedIps table must have been created in the NCMONITOR schema.
- The DbLogins file must be usable for the given domain.
- The domain must exist in the NCIM topology database.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
ncp_upload_expected_ips.pl -domain DOMAIN_NAME -file FILENAME -password PASSWORD
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
ncp_upload_expected_ips.pl -domain DOMAIN_NAME -file FILENAME -password PASSWORD  
-logdir LOGFILENAME
```

## Command-line options

The following table describes the command-line options for the script.

Table 146. *ncp\_upload\_expected\_ips.pl* command-line options

Command-line option	Description
-domain <i>DOMAIN_NAME</i>	Mandatory; the domain that contains the IP addresses for which you want to check polling status.
-file <i>FILENAME</i>	Mandatory; a plain text file of IP addresses, separated by whitespace (for example, one IP address per line). The script accepts IPv4 addresses only. The file is expected to contain just IP addresses in standard dot notation.
-password <i>PASSWORD</i>	Optional; the database password used to access the NCIM and NCMONITOR schemas. This is required only if the password is encrypted in the DbLogins configuration file.
-logdir <i>LOGFILENAME</i>	Optional; a log file called <code>ncp_upload_expected_ips.DOMAIN_NAME.log</code> is generated that can be checked if there are any problems accessing the database. It is generated in the current directory by default if this option is not given.
-help	Optional; provides help on this command

## Example scripts

Use the example OQL and SNMP scripts as a starting point for creating your own scripts.

### oql\_example.pl

This script provides examples of Perl-scripted queries into the OQL databases. Use these examples as a starting point when writing your own script that uses the OQL extensions provided by `ncp_perl`.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/oql_example.pl
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\oql_example.pl
```

### Command-line options

There are no command-line options for this script.

## snmp\_example.pl

This script provides examples of Perl-scripted SNMP queries into a specified device. Use this example script as a starting point when writing your own script that uses the SNMP extensions provided by ncp\_perl.

### Running the script

To run the script, use a command line similar to the following: UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
snmp_example.pl -node <Device>
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
snmp_example.pl -node <Device>
```

### Command-line options

The following table describes the command-line options for the script.

Table 147. snmp\_example.pl command-line options

Command-line option	Description
-node <i>Device</i>	Mandatory; IP address or hostname for which the SNMP query.

## Troubleshooting scripts

Use these scripts to perform troubleshooting tasks.

### GetDiscoCache.pl

To generate discovery cache files for a recent discovery as if it had been run in failover mode, use the GetDiscoCache.pl Perl script. Failover cache files help IBM Support and Development teams to troubleshoot discovery.

### Running the script

After a discovery has finished, you can run the GetDiscoCache.pl script to generate cache files for that discovery. The ncp\_disco process must still be running. If the ncp\_disco process has been stopped or restarted since the discovery finished, you cannot use the GetDiscoCache.pl script to generate cache files for that discovery. You must either run another discovery in failover mode or run another discovery normally and then run the GetDiscoCache.pl script.

The script stores the cache files in ITNMHOME/var/precision as PerlStore.*timestamp.Cache.DatabaseName.TableName.DomainName*, so that they are ready to send to IBM Support for troubleshooting purposes. To run the script, use a command line similar to the following: UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
GetDiscoCache.pl -domain DomainName
```

**Note:** On UNIX systems only, the script also compresses the cache files into a .tar file by default. For more information, see option -buildtar in the following table.

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
GetDiscoCache.pl -domain DomainName
```

## Command-line options

The following table describes the command-line options for the **GetDiscoCache.pl** script.

Table 148. *GetDiscoCache.pl* command-line options

Command-line option	Description
<code>-domain <i>DomainName</i></code>	Mandatory; the name of the domain you want to retrieve discovery tables for and build a copy of the cache files.
<code>-debug <i>DebugLevel</i></code>	Optional; the level of detail the debugging output provides. Values are 1 to 4, where 4 represents the most detailed output.
<code>-latency <i>MessageLatency</i></code>	Optional; the maximum time in milliseconds to wait between attempts to send a message. This is needed for busy networks.
<b>Fix Pack 3</b> <code>-help</code>	Optional; displays help for command line options on screen.
<b>Fix Pack 3</b> <code>-buildtar 0   1</code>	<p>On UNIX systems only; sets whether the copy of the cache files is compressed into a .tar file in the current directory. The file is called <i>service.timestamp.DomainName.tar</i>, where <i>service</i> is the name of the process from which to retrieve the data.</p> <p>The default setting is 1, meaning the files are compressed. Set it to 0 to turn off the creation of compressed .tar files.</p>
<b>Fix Pack 3</b> <code>-service</code>	Optional. You can specify the name of the service to retrieve the cache data from. The default is Disco for the discovery process. You cannot use the Objectserver or Ncim services.
<b>Fix Pack 3</b> <code>-dbName</code>	Optional; specifies the discovery database to cache (for example, Details).
<b>Fix Pack 3</b> <code>-tblName</code>	Optional; specifies the discovery table to cache. Only used if -dbName is set (for example, -dbName IpRoutingTable -tblName returns).

The following is an example of using the command-line options for

**GetDiscoCache.pl** on a UNIX system: **UNIX**

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
GetDiscoCache.pl -domain NCOMS -service Disco -buildtar 1
```

## ncp\_db\_access.pl

Checks database setup and determines whether access to the databases is being prevented by firewalls. This script accesses the topology database, historical polling database, and the distributed polling database.

### Running the script

The script uses the domain-specific DbLogins.*DOMAIN*.cfg and MibDbLogin.*DOMAIN*.cfg files for access credentials. If there are no domain-specific versions of these files, then the script uses the standard DbLogins.cfg and MibDbLogin.cfg files.

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
ncp_db_access.pl -domain NCOMS
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
ncp_db_access.pl -domain NCOMS
```

### Command-line options

The following table describes the command-line options for the script.

Table 149. ncp\_db\_access.pl command-line options

Command-line option	Description
-domain <i>Domain</i>	Mandatory; the domain in which to check database access.

## ncp\_validate\_ncim\_tables.pl

Fix Pack 5

This script compares the created NCIM tables and views with the tables and views that are defined in the schema files. The script verifies that all defined tables and views were created. Run this script if you suspect that the NCIM database has issues, for example after migration.

### Description

Before you run this script, you must ensure that NCIM database credentials are available in a \$NCHOME/etc/precision/DbLogins.cfg file for the domain that you want to check.

### Running the script

To run the script, use a command line similar to one of the following commands:

#### Running the script silently and printing failures

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
ncp_validate_ncim_tables.pl -domain TEST
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\
perl\scripts\ncp_validate_ncim_tables.pl -domain TEST
```

## Printing all created tables and failures

### UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
ncp_validate_ncim_tables.pl -domain TEST -verbose
```

### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
ncp_validate_ncim_tables.pl -domain TEST -verbose
```

## Command line options

The following table describes the command line options for the script.

Table 150. *ncp\_validate\_ncim\_tables.pl* command line options

Command line option	Description
-domain <i>Domain</i>	Mandatory; the domain that you want to check.
-help	Optional; provides help on this command
-verbose	Optional; displays progress to stdout. Prints a list of all successfully created database tables and tables that could not be created. If this option is not specified, only failures are logged.

## PrintCacheFile.pl

Takes a specified cache file and prints out the ROMP contents of the file in a human-readable format. This is mostly useful for scripting and debugging purposes.

## Running the script

To run the script, use a command line similar to the following:

### UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/
PrintCacheFile.pl -domain domain cache_file
```

### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\
PrintCacheFile.pl -domain domain cache_file
```

## Command-line options

The following table describes the command-line options for the script.

Table 151. *PrintCacheFile.pl* command-line options

Command-line option	Description
-domain <i>domain</i>	The domain in which you want the script to run. This option is mandatory.
<i>cache_file</i>	The name of the cache file. This option is mandatory.

## snmp\_walk.pl

Troubleshoots discovery connection and topology issues and produces .mimic and .snmpwalk output files for further investigation.

### Description

By default the script performs an SNMP or mimic walk of the entire device, starting at the 'internet' MIB node.

This script accesses devices through the Helper System. Community strings for the devices are defined in \$NCHOME/etc/precision/SnmpStackSecurityInfo.DOMAIN.cfg.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
snmp_walk.pl -domain NCOMS2 1.2.3.4 ifIndex @vlan2
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
snmp_walk.pl -domain NCOMS2 1.2.3.4 ifIndex @vlan2
```

### Command-line options

The following table describes the command-line options for the script.

Table 152. snmp\_walk.pl command-line options

Command-line option	Description
-domain <i>Domain</i>	Mandatory; the domain containing the device on which to perform the SNMP walk.
<i>Node</i>	IP address or hostname of the device on which to perform the SNMP walk
<i>OID_or_MIB_variable</i>	Optional; the MIB node from which to begin the SNMP walk. The node can be expressed as an OID (for example, 1.3.6.1.2.1.2.2.1.1), or as a MIB variable (for example, ifIndex). By default the script performs an SNMP or mimic walk of the entire device, starting at the 'internet' MIB node.
<i>SNMP_community_string</i>	Optional; community string to enable access to the device.
-verbose	Optional; provides more information on the screen.
-help	Optional; provides help on this command



## Upgrade scripts

The upgrade Perl scripts are used as part of the process of upgrading and migrating from previous Network Manager versions.

### ITNMDataExport.pl

This script exports Network Manager configuration files.

#### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/  
upgrade/ITNMDataExport.pl
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\  
upgrade\ITNMDataExport.pl
```

#### Command-line options

The following table describes the command-line options for the script.

Table 153. ITNMDataExport.pl command-line options

Command-line option	Description
-export	Exports configuration data.
-help	Displays usage information.

### ITNMDataImport.pl

This script imports Network Manager configuration files.

#### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/  
upgrade/ITNMDataImport.pl
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\  
upgrade\ITNMDataImport.pl
```

#### Command-line options

The following table describes the command-line options for the script.

Table 154. ITNMDataImport.pl command-line options

Command-line option	Description
-import	Imports configuration data.
-help	Displays usage information.
-simulate	Simulates a data import. Shows what would be done, without importing data.

## ITNMExportNetworkViews.pl

This script exports and imports user created network views and filter data.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/  
upgrade/ITNMExportNetworkViews.pl
```

Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\  
upgrade\ITNMExportNetworkViews.pl
```

### Command-line options

The following table describes the command-line options for the script.

Table 155. ITNMExportNetworkViews.pl command-line options

Command-line option	Description
-export	Required. Exports network views.
-import	Required. Imports network views.
-server	Required. The type of database. Allowed values are: mysql, oracle, db2, informix.
-dbname	Required. The name of the database, Oracle SID, or Informix servername.dbname.
-host	Required. The host name of the database server.
-username	Required. Username for accessing the database.
-password	Required. Password for accessing the database.
-port	Optional. Database port (if not using the default).
-ncimSchema	Optional. The name of the NCIM database schema (if not using the default).
-ncpguiSchema	Optional. The name of the ncpgui database schema (if not using the default).
-mysql_socket	Optional. The location of the MySQL socket, if using a MySQL database.
-help	Optional. Displays help information for the script.
-domain	Optional. The domain to import the views into. The default is NCOMS.
-fromDomain	Optional. When exporting views, the domain to export from.
-toDomain	Optional. When exporting views, the domain to import to.
-allocateNewEntityIds	Optional. Allocate new entity IDs for devices. If not specified, entity IDs are preserved.

## ncp\_ncim\_diff.pl

This script identifies the differences between your previous installation's NCIM database schema and the new installation's NCIM schema. This is useful if you are upgrading to a later version of Network Manager and you have made custom changes to the previous NCIM database schema. Once the script has identified these differences, you can manually update the NCIM schema.

### Description

If your deployment requires additional network domains, you must configure process control for the domains and register the domains with the NCIM topology database. Once you have done this, you can then use the **domain\_create.pl** Perl script to migrate the configuration and network polls from an existing domain to the new domain. You must use one instance of **ncp\_ctrl** to run and manage each domain. The script does not migrate the topology from the original domain.

### Running the script

To run the script, use a command line similar to one of the following commands:

**Compare the structure of the NCIM database on the specified domain to the default NCIM structure on the current system.**

#### UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
ncp_ncim_diff.pl -domain NCOMS1
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
ncp_ncim_diff.pl -domain NCOMS1
```

**Dump the structure of the NCIM database in the specified domain to a file in XML format**

#### UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
ncp_ncim_diff.pl -domain NCOMS1 -dumpToFile NCIM_NCOMS1.xml
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
ncp_ncim_diff.pl -domain NCOMS1 -dumpToFile NCIM_NCOMS1.xml
```

**Compare the contents of a file dump generated by this script to the structure of an NCIM database in a different domain**

#### UNIX

```
$NCHOME/precision/bin/ncp_perl $NCHOME/precision/scripts/perl/scripts/  
ncp_ncim_diff.pl -domain NCOMS2 -file NCIM_NCOMS1.xml
```

#### Windows

```
%NCHOME%\precision\bin\ncp_perl.bat %NCHOME%\precision\scripts\perl\scripts\  
ncp_ncim_diff.pl -domain NCOMS2 -file NCIM_NCOMS1.xml
```

## Command-line options

The following table describes the command-line options for the script.

Table 156. *ncp\_ncim\_diff.pl* command-line options

Command-line option	Description
-domain <i>Domain</i>	Mandatory; a domain with whose NCIM structure you want to perform one of the following actions: <ul style="list-style-type: none"> <li>Compare with the default NCIM structure on the current system. The script performs this action if neither the -file nor the -dumpToFile options are specified.</li> <li>Compare with another NCIM structure codified in a specified XML file. The script performs this action if the -file option is specified.</li> <li>Dump to XML file. The script performs this action if the -dumpToFile option is specified.</li> </ul>
-file <i>Filename</i>	Optional; file in XML format describing the structure of an NCIM database on a particular domain. The script compares the NCIM structure in the domain specified with the NCIM structure described in this file. The file specified here must have been created previously using this script. <b>Note:</b> If you use this option, then you cannot use the -dumpToFile option.
-dumpToFile <i>Filename</i>	Optional; dump the structure of the NCIM database in the specified domain to the named file. <b>Note:</b> If you use this option, then you cannot use the -file option.
-verbose	Optional; provides more information on the screen.
-help	Optional; provides help on this command
The following rows list optional arguments for connecting to the NCIM database on the specified domain. By default, the script uses the values in the DbLogins.DOMAIN.cfg configuration file for the domain to connect to the database. Any or all of the arguments below can be used to override the values in the DbLogins.DOMAIN.cfg configuration file.	
-password <i>password_for_DB_access</i>	Optional; almost always required, as it is usually encrypted in the DbLogins file.
-server db2 informix mysql oracle	Optional; type of database server. This must be one of the four values shown.
-host <i>DB_server</i>	Optional; host name or IP address of the device running the database server.
-port <i>DB_server_port_number</i>	Optional; if not supplied and not read from the DbLogins.DOMAIN.cfg configuration file, then the default port number for the server type is used.
-username <i>username_for_DB_access</i>	Optional; username for database access.
-schema <i>schema_name</i>	Optional; schema name. This is usually NCIM.

Table 156. *ncp\_ncim\_diff.pl* command-line options (continued)

Command-line option	Description
-dbname <i>DB_name</i>	Optional; database name. This arguments is only really meaningful for DB2, Informix or Oracle servers. If using MySQL, this argument can simply be set to the same value as the -schema option. For Informix, set the value of this parameter to INFORMIXSERVER.DBNAME.

## Shell and batch scripts

Use the supplied shell and batch scripts to perform administration tasks.

The following scripts must not be modified. These scripts are used by the `itnm_start`, `itnm_stop`, and `itnm_status` commands to start, stop, and check the status of Network Manager processes:

- `itnm_control.sh`
- `itnm_control_functions.sh`
- `nco_control.sh`
- `ncp_control.sh`
- `tip_control.sh`
- `tip_server.sh`

## catalog\_db2\_database

When you configure an existing DB2 database for use with Network Manager, run this script to catalog the database. Specify as parameters the name of the database to catalog, and the host name and port number. These parameters are required.

### Example: Running the script

The following example shows how to run the script to catalog a database that is called `REPORTS_DB2` on the host `samplehost`, on port `9999`.

```
$NCHOME/precision/scripts/sql/db2/catalog_db2_database.sh
REPORTS_DB2 samplehost 9999
```

## configRemoteTCR

Fix Pack 5

Use this script to configure network management reports to work with an existing installation of Tivoli Common Reporting, when Tivoli Common Reporting is installed on a different server to the Network Manager core components. If the products are installed on the same server, use the `configTCR` script instead.

### Running the script

Run this script as the user that installed Network Manager. Run the script on the server where Tivoli Common Reporting is installed.


The following example configures network management reports: UNIX

```
$NCHOME/precision/products/tnm/bin/configRemoteTCR.sh -d database_name -e
NCIM_username -h database_hostname [-i install] -j
Jazz_SM_admin_username -n database_port -p
Jazz_SM_admin_password [-r PackagesDirectory]
[-s Oracle_service_name] -t $JazzSM_HOME -z
database_type
```

## Command-line options

The following table describes the command-line options for the **configRemoteTCR** script.

Table 157. configRemoteTCR command-line options

Command-line option	Description
-d database_name or service_name	The NCIM DB2 database name or NCIM Oracle service name.
-e NCIM_user_name	On some databases, such as Oracle, you might have different user names for the NCIM and the NCPOLLDATA database. You must specify both user names if you have separate ones. Use this option to provide the NCIM user name.  The -d defines the password for this user.
-h database_hostname	The host name of the NCIM database.
-i install	Specifies that the network management reports are installed. You must use the <b>install</b> parameter in all cases after option -i.
-j Jazz_SM_admin_username	The user name of the Jazz for Service Management administrative user.
-n database_port	The port of the NCIM database.
-p Jazz_SM_admin_password	The password for the Tivoli Integrated Portal administrator.
-r path_to_reports_package	If your Network Manager installation has the reports package in a non-default location, you can define where the package is using this option.
 -s <Oracle_SID>	Defines the NCIM Oracle System ID (SID).
-t JazzSM_HOME	The location where Jazz for Service Management is installed.
-u	Optional. If a particular user requires access to the NCPOLLDATA schema, specify the username by using this option. The default username is ncpolldata.
-z database_type	The database server type. Can be db2, informix, or oracle.

# configTCR

Fix Pack 5

Use this script to configure network management reports to work with an existing installation of Tivoli Common Reporting, when Tivoli Common Reporting is installed on the same server as the Network Manager core components. If the products are installed on different servers, use the configRemoteTCR script instead..

## Running the script

Run this script as the user that installed Network Manager.

The following shows an example of using the script to configure your network management reports. UNIX

```
$NCHOME/precision/products/tnm/bin/configTCR.sh -d NCIM_database_password  
-p TIP_administrator_password
```

## Command-line options

The following table describes the command-line options for the **configTCR** script.

Table 158. configTCR command-line options

Command-line option	Description
-d	The password for the NCIM database user name. This could be on the local machine or on a remote host.
-p	The password for the Tivoli Integrated Portal administrator.
-i <i>install</i>	Specifies that the network management reports are installed. You must use the <b>install</b> parameter in all cases after option -i.
<span>Oracle</span> -s <i>Oracle_service_name</i>	When using an Oracle RAC setup, or when using a service name to connect to the database, use this option followed by the <i>Oracle_service_name</i> to define the JDBC URL for accessing the database. The -s option is required to configure the BIRT data source to be able to access the database using the service name.
-t <i>path_to_TIPHOME</i>	If you do not have TIPHOME set or you have not run the env.sh script, then you can define where your Tivoli Integrated Portal instance is installed.
-r <i>path_to_reports_package</i>	If your Network Manager installation has the reports package in a non-default location, you can define where the package is using this option.
-u <i>NCPOLLDATA_user_name</i>	On some databases, such as Oracle, you might have different user names for the NCIM and the NCPOLLDATA database. You must specify both user names if you have separate ones. Use this option to provide the NCPOLLDATA user name.

Table 158. *configTCR* command-line options (continued)

Command-line option	Description
<code>-v NCPOLLDATA_password</code>	If you set the NCPOLLDATA user name, you must set its password using this option.
<code>-e NCIM_user_name</code>	On some databases, such as Oracle, you might have different user names for the NCIM and the NCPOLLDATA database. You must specify both user names if you have separate ones. Use this option to provide the NCIM user name.  The <code>-d</code> defines the password for this user.

## create\_all\_schemas.sh

Use the `create_all_schemas.sh` script to apply the NCIM schemas to an existing topology database. This script is useful, for example, if an NCIM database was not created during the installation of the product, during an upgrade, or to change from one database type to another. Run the script only after you created the topology database. Otherwise the script fails.

The `create_all_schemas.sh` script requires the following information. Specify the information in the order that is given in the table.

Table 159. Information required by the *create\_all\_schemas.sh* script

Information	Required or optional	More information
Database type	Required	Specify one of the following values, depending on the database type: <ul style="list-style-type: none"> <li><code>DB2</code> db2</li> <li><code>Informix</code> informix</li> <li><code>MySQL</code> mysql</li> <li><code>Oracle</code> oracle</li> </ul>
Database name	Required	<ul style="list-style-type: none"> <li><code>Informix</code> Specify the database name in the format <i>server.database</i> where <i>server</i> is the name of the Informix server, not the host name.</li> <li><code>Oracle</code> Specify the SID.</li> </ul>
Host name	Required	The host name can be the name or the IP address.
User name and password	Required	<code>DB2</code> Use an existing DB2 user. Ensure that the user is not the root user of the host.
Port number	Required	N/A



Table 159. Information required by the `create_all_schemas.sh` script (continued)

Information	Required or optional	More information
Prefix	Optional	Use a prefix if you want to create multiple sets of NCIM schemas on the same database. The prefix distinguishes each set of schemas.

## Examples

The following example creates the NCIM schemas on an Informix database that is called ITNM.itnm on a remote host that is called samplehost, on port 9088. The user/password combination for connecting to the database is ncim/password.

```
$NCHOME/precision/scripts/sql/create_all_schemas.sh informix ITNM.itnm samplehost
ncim password 9088
```

The following example creates the schemas on an Oracle database that has the SID DB\_SID on the same remote host, on the same port, with the same user/password combination.

```
$NCHOME/precision/scripts/sql/create_all_schemas.sh oracle DB_SID samplehost
ncim password 9088
```

## create\_db2\_database

Use this script to create the back end NCIM relational database schemas in a DB2 database.

### Running the script

Run this script as the DB2 administrative user.

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/db2/create_db2_database.sh database_name user_name
[ -force ]
```

Windows

```
%NCHOME%\precision\scripts\sql\db2\create_db2_database.bat database_name user_name
[ -force ]
```

### Command-line options

The following table describes the command-line options for the `create_db2_database` script.

Table 160. `create_db2_database.sh` and `create_db2_database.bat` command-line options

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user that will be used to connect to the database. <b>Important:</b> This user must not be the administrative user. This user must be an existing operating system and DB2 user.

Table 160. *create\_db2\_database.sh* and *create\_db2\_database.bat* command-line options (continued)

Command-line option	Description
-force	Optional; instructs the script to force any existing DB2 users off the instance before attempting to drop the database

## create\_db2\_cognos\_database

If you use Network Manager reports, this script creates the Cognos database and configures the Cognos content store for the DB2 database when you want to migrate from the default Derby database to a DB2 database to use as the content store for Tivoli Common Reporting.

### Running the script

Run this script as the DB2 administrative user.

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/db2/create_db2_cognos_database.sh database_name user_name
```

Windows

```
%NCHOME%\precision\scripts\sql\db2\create_db2_cognos_database.sh database_name user_name
```

For example, to create a database called ITNMCM for the DB2 user ncim, type `./create_db2_cognos_database.sh ITNMCM ncim`.

### Command-line options

The following table describes the command-line options for the **create\_db2\_cognos\_database** script.

Table 161. *create\_db2\_cognos\_database* command-line options

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the Cognos content store database.
<i>user_name</i>	Mandatory; the name of the DB2 user that is used to connect to the database. <b>Important:</b> This user must not be the administrative user. This user must be an existing operating system and DB2 user.
-force	Optional; instructs the script to force any existing DB2 users off the instance before attempting to drop the database

## create\_informix\_database

Use this script to create the back end NCIM relational database schemas in an Informix database.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/informix/create_informix_database.sh database_name  
user_name
```

Windows

```
%NCHOME%\precision\scripts\sql\informix\create_informix_database.bat database_name  
user_name
```

### Command-line options

The following table describes the command-line options for the **create\_informix\_database** script.

Table 162. *create\_informix\_database.sh* and *create\_informix\_database.bat* command-line options

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user.

## create\_mysql\_database

Use this script to create the back end NCIM relational database schemas in a MySQL database.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/mysql/create_mysql_database.sh admin_username  
admin_password [ prefix ]
```

Windows

```
%NCHOME%\precision\scripts\sql\mysql\create_mysql_database.bat admin_username  
admin_password [ prefix ] [ -help ]
```

### Command-line options

The following table describes the command-line options for the **create\_mysql\_database** script.

Table 163. *create\_mysql\_database.sh* and *create\_mysql\_database.bat* command-line options

Command-line option	Description
<i>admin_username</i>	Mandatory; the user name of the database administrator.
<i>admin_password</i>	Mandatory; the password for the database administrator.

Table 163. *create\_mysql\_database.sh* and *create\_mysql\_database.bat* command-line options (continued)

Command-line option	Description
prefix	Optional; applies a prefix to the database schema names.
help	Optional. On Windows, displays help for this script.

## create\_oracle\_database

Use this script to create the back end NCIM relational database schemas in an Oracle database. This script must be run as the Oracle system user.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/oracle/create_oracle_database.sh user_name
password [-asm] [-pdb pluggable_database_name]
```

### Command line options

The following table describes the command line options for the **create\_oracle\_database.sh** script.

**Note:** There is no *create\_oracle\_database* script on Windows. Refer to the task for *Installing and configuring Oracle databases on Windows* in the *IBM Tivoli Network Manager IP Edition Installation and Configuration Guide* for more information.

Table 164. *create\_oracle\_database* command line options

Command-line option	Description
<i>user_name</i>	Mandatory; the Oracle user used to create the ncadmin user. This is usually the system user.
<i>password</i>	Mandatory; the password of the system user.
-asm	Optional; include this flag if the Oracle database is using Oracle Automatic Storage Manager (ASM).
-pdb <i>pluggable_database_name</i>	Required only when running the script with Oracle 12c with RAC. Specifies the Oracle 12c pluggable database name.

## drop\_db2\_database

Use this script to remove the back end NCIM relational database implemented using DB2.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/db2/drop_db2_database.sh database_name [ -force ]
```

Windows

```
%NCHOME%\precision\scripts\sql\db2\drop_db2_database.bat database_name [ -force ]
```

## Command-line options

The following table describes the command-line options for the **drop\_db2\_database** script.

Table 165. *drop\_db2\_database.sh* and *drop\_db2\_database.bat* command-line options

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the database.
-force	Optional; instructs the script to force any existing DB2 users off the instance before attempting to drop the database

## drop\_informix\_database

Use this script to remove the back end NCIM relational database implemented using Informix.

### Running the script

To run the script, use a command line similar to the following: UNIX  
`$NCHOME/precision/scripts/sql/informix/drop_informix_database.sh database_name`

#### Windows

`%NCHOME%\precision\scripts\sql\informix\drop_informix_database.bat database_name`

## Command-line options

The following table describes the command-line options for the **drop\_informix\_database** script.

Table 166. *drop\_informix\_database.sh* and *drop\_informix\_database.bat* command-line options

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the database.

## drop\_mysql\_database

Use this script to remove the back end NCIM relational database implemented using MySQL.

### Running the script

To run the script, use a command line similar to the following: UNIX  
`$NCHOME/precision/scripts/sql/mysql/drop_mysql_database.sh admin_username  
admin_password [ -prefix ]`

#### Windows

`%NCHOME%\precision\scripts\sql\mysql\drop_mysql_database.bat admin_username  
admin_password [ -prefix ]`

## Command-line options

The following table describes the command-line options for the **drop\_mysql\_database** script.

Table 167. *drop\_mysql\_database.sh* and *drop\_mysql\_database.bat* command-line options

Command-line option	Description
<i>admin_username</i>	Mandatory; the user name of the database administrator.
<i>admin_password</i>	Mandatory; the password for the database administrator.
<i>prefix</i>	Optional; applies a prefix to the database schema names.

## drop\_oracle\_database

Use this script to remove the back end NCIM relational database implemented using Oracle. This script must be run as the Oracle system user.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/oracle/drop_oracle_database.sh user_name  
password [-pdb pluggable_database_name]
```

## Command-line options

The following table describes the command-line options for the **drop\_oracle\_database** script.

**Note:** There is no **drop\_oracle\_database** script on Windows. Refer to the task for *Removing an Oracle topology database on Windows* in the *IBM Tivoli Network Manager IP Edition Administration Guide* for more information.

Table 168. *drop\_oracle\_database.sh* and *drop\_oracle\_database.bat* command-line options

Command-line option	Description
<i>user_name</i>	Mandatory; the name of the Oracle database user. This is usually the system user.
<i>password</i>	Mandatory; the password of the database user.
<i>-pdb pluggable_database_name</i>	<b>Fix Pack 5</b> Required only when running the script with Oracle 12c with RAC only. Specifies the Oracle 12c pluggable database name.

## modify\_cognos\_cm

Use this script to change the Cognos content store configuration. Use this script to configure the Cognos content store data source access for the DB2 database when you want to migrate from the default Derby database to a DB2 database to use as the content store for Tivoli Common Reporting. You can also use this script to update the Cognos content store configuration if, for example, you change the database for an existing Network Manager installation. You can also use this script to change the content store settings due to policy requirements, for example, password updates done on a regular basis.

### Running the script

Run this script as the user that installed Network Manager.

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/products/tnm/bin/modify_cognos_cm -filename
TCR_installation_directory/cognos/configuration/cogstartup.xml
-dbname ITNMCM -dbport 50000 -dbhost abc
-dbtype db2 -username db2inst1 -password password
```

Windows

```
%NCHOME%\precision\products\tnm\bin\modify_cognos_cm
-filename TCR_installation_directory\cognos\configuration\cogstartup.xml
-dbname ITNMCM -dbport 50000 -dbhost abc
-dbtype db2 -username db2inst1 -password password
```

### Command-line options

The following table describes the command-line options for the **modify\_cognos\_cm** script.

Table 169. *modify\_cognos\_cm* command-line options

Command-line option	Description
-filename <i>full path to file</i>	The content store configuration file name.
-username <i>user_name</i>	The user name that has access to the content manager.
-password <i>password</i>	The password for the content store user.
-dbhost <i>host_name</i>	The content store database host name.
-dbport <i>port_number</i>	The content store database port number.
-dbname <i>database_name</i>	The content store database name.
-dbtype db2   oracle	The content store database type.
-help	The usage help for the script.

## populate\_db2\_database

Use this script to populate the back end NCIM relational database schemas in a DB2 database. You usually run this script after having created the NCIM relational database using the shell or batch script `create_db2_database`.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/db2/populate_db2_database.sh database_name user_name  
password [ -force ]
```

Windows

```
%NCHOME%\precision\scripts\sql\db2\populate_db2_database.bat database_name user_name  
password [ -force ]
```

### Command-line options

The following table describes the command-line options for the **populate\_db2\_database** script.

Table 170. *populate\_db2\_database.sh* and *populate\_db2\_database.bat* command-line options

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user.
<i>password</i>	Mandatory; the password of the database user.
-force	Optional; instructs the script to force any existing DB2 users off the instance before attempting to drop the database

## populate\_informix\_database

Use this script to populate the back end NCIM relational database schemas in an Informix database. You usually run this script after having created the NCIM relational database using the shell or batch script `create_informix_database`.

### Running the script

Run the script as the `ncim` user, the same user that ran the scripts to create the database. To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/informix/populate_informix_database.sh database_name
```

Windows

```
%NCHOME%\precision\scripts\sql\informix\populate_informix_database.bat database_name
```

### Command-line options

The following table describes the command-line options for the **populate\_informix\_database** script.



Table 171. *populate\_informix\_database.sh* and *populate\_informix\_database.bat* command-line options

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the database.

## populate\_mysql\_database

Use this script to populate the back end NCIM relational database schemas in a MySQL database. You usually run this script after having created the NCIM relational database using the shell or batch script *create\_mysql\_database*.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/mysql/populate_mysql_database.sh user_name
password [ -prefix ]
```

Windows

```
%NCHOME%\precision\scripts\sql\mysql\populate_mysql_database.bat user_name
password
```

### Command-line options

The following table describes the command-line options for the **populate\_mysql\_database** script.

Table 172. *populate\_mysql\_database.sh* and *populate\_mysql\_database.bat* command-line options

Command-line option	Description
<i>user_name</i>	Mandatory; the name of the database.
<i>password</i>	Mandatory; the password of the database user.
-prefix	Optional. On Unix platforms, the prefix to be added to the database schema names.

## populate\_oracle\_database

Use this script to populate the back end NCIM relational database schemas in an Oracle database. You usually run this script after having created the NCIM relational database using the shell or batch script *create\_oracle\_database*.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/oracle/populate_oracle_database.sh
user_name password [-pdb pluggable_database_name]
```

Windows

```
%NCHOME%\precision\scripts\sql\oracle\populate_oracle_database.bat
user_name password [-pdb pluggable_database_name]
```

## Command-line options

The following table describes the command-line options for the **populate\_oracle\_database** script.

*Table 173. populate\_oracle\_database.sh and populate\_oracle\_database.bat command-line options*

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user.
-pdb <i>pluggable_database_name</i>	Required only when running the script with Oracle 12c with RAC only. Specifies the Oracle 12c pluggable database name.
-prefix	Optional. On Unix platforms, the prefix to be added to the database schema names.

## register\_all\_agents

During normal installation, the installation process should register all agents with the ncp\_disco process. If for any reason this fails to happen, the script **register\_all\_agents** is provided so that the user can reregister the installed agent set. It should only be necessary to use this script on rare occasions.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/register_all_agents.sh
```

Windows

```
%NCHOME%\precision\scripts\register_all_agents.bat
```

### Command-line options

This script has no command-line options.

## restrict\_db2\_privileges.sh

This script runs against an NCIM database on DB2. It revokes the broad set of privileges that the NCIM database user was given when the NCIM database schema was created.

### About the script

The script puts restrictions on the NCIM database user, through the **genericRestrictions.sql** and **genericNcimRestrictions.sql** and then dynamically for all the defined indices.

This script is not available on Windows platforms.

The changes can be reversed if necessary by running the script again with the option **-r false**.

The script must be run as a user with system privileges.

## Running the script

To run the script, use a command line similar to the following example:

```
$NCHOME/precision/scripts/sql/db2/restrict_db2_privileges.sh -d database_name  
-u user_name -p password -r restrict  
[ -t target_user ] [ -s ]
```

## Command-line options

The following table describes the command-line options for the **restrict\_db2\_privileges.sh** script.

Table 174. Command-line options

Command-line option	Description
-d <i>database_name</i>	Mandatory. The name of the database.
-p <i>password</i>	Mandatory. The password of the database user.
-r <i>restrict</i>	Mandatory. Takes a value of either true or false. If true, the script restricts the database. If false, the script removes previous restrictions on the database.
-s	Optional. If this option is used, the generic restrictions defined in the <code>genericRestrictions.sql</code> file are applied in addition to the Network Manager restrictions.
-t <i>target_user</i>	Optional. The ncim user, as specified in the <code>DbLogins</code> file.
-u <i>user_name</i>	Mandatory. The name of the database user. This user must have system privileges.

## restrict\_mysql\_privileges.sh

This script applies to NCIM databases created using MySQL as RDBMS. This script revokes the broad set of privileges the NCIM database user was initially given when the NCIM database schema was created. Following this, the script grants finer-grained privileges on the objects which were created in the other schemas. The script must be run as a user with system privileges.

## Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/mysql/restrict_mysql_privileges.sh admin_username  
admin_password [ prefix ]
```

Windows

```
%NCHOME%\precision\sctripts\sql\mysql\restrict_mysql_privileges.bat admin_username  
admin_password [ prefix ]
```

## Command-line options

The following table describes the command-line options for the **restrict\_mysql\_privileges.sh** script.

Table 175. *restrict\_mysql\_privileges.sh* command-line options

Command-line option	Description
<i>admin_username</i>	Mandatory; the name of the database user. This must be a user with system privileges.
<i>admin_password</i>	Mandatory; password of the database user.
<i>prefix</i>	Optional; adds a prefix to the database name.

## restrict\_oracle\_privileges.sh

This script applies to NCIM databases created using Oracle as RDBMS. This script revokes the broad set of privileges the NCIM database user was initially given when the NCIM database schema was created. Following this, the script grants finer-grained privileges on the objects which were created in the other schemas. The script must be run as a user with system privileges.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/oracle/restrict_oracle_privileges.sh user_name
password [ prefix ]
```

Windows

```
%NCHOME%\precision\scripts\sql\oracle\restrict_oracle_privileges.bat user_name
password [ prefix ]
```

### Command-line options

The following table describes the command-line options for the **restrict\_oracle\_privileges.sh** script.

Table 176. *restrict\_oracle\_privileges.sh* command-line options

Command-line option	Description
<i>user_name</i>	Mandatory; the name of the database user. This must be a user with system privileges.
<i>password</i>	Mandatory; password of the database user.
<i>-pdb pluggable_database_name</i>	Required only when running the script with Oracle 12c with RAC only. Specifies the Oracle 12c pluggable database name.
<i>prefix</i>	Optional; adds a prefix to the database name.

## setup\_run\_as\_root.sh

Certain processes in Network Manager must be run as root. If you installed Network Manager as a non-root user, you can use the `setup_run_as_root.sh` script to alter permissions so that you can run the back end processes while logged on as the root user.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/setup_run_as_root.sh
```

### Command-line options

This script has no command-line options.

## setup\_run\_as\_setuid\_root.sh

Certain processes in Network Manager must be run as root. If you installed Network Manager as a non-root user, you can use this script to alter permissions so that you can run Network Manager while logged on as the non-root user who installed the product, or another user in the same group. The processes that must be run as root will have their `setuid` permission changed so that they execute as root even when invoked by a non-root user.

In order for this script to work correctly, you must be logged on as root when you run it.

**Note:** Due to the way this script has to make certain shared libraries trusted, only *one installation per machine* can be set up to be run by a non-root user. If you have multiple installations of Network Manager on the same server, you will have to run all but one of them as root.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/setup_run_as_setuid_root.sh
```

### Command-line options

This script has no command-line options.

## uncatalog\_db2\_database

Use this script to uncatalog a DB2 database if you have changed the hostname, port, or database name.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/sql/db2/uncatalog_db2_database.sh database_name
```

Windows

```
%NCHOME%\precision\scripts\sql\db2\uncatalog_db2_database.bat database_name
```

## Command-line options

The following table describes the command-line options for the **uncatalog\_db2\_database** script.

Table 177. *uncatalog\_db2\_database* command-line options

Command-line option	Description
<i>database_name</i>	Mandatory; the name of the database to uncatalog.

## unsetup\_run\_as\_setuid\_root.sh

You can use this script to reverse the effects of the **setup\_run\_as\_setuid\_root.sh** script.

In order for this script to work correctly, you must be logged on as root when you run it.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/precision/scripts/unsetup_run_as_setuid_root.sh
```

### Command-line options

This script has no command-line options.

---

## SQL scripts

Use the supplied SQL scripts to perform setup tasks on the Tivoli Netcool/OMNIBus ObjectServer.

## create\_itnm\_triggers.sql

Use this script to set up a Tivoli Netcool/OMNIBus ObjectServer to support the setting of event severity based on the value of the NmosCauseType field. For example, if NmosCauseType has the value 1 (root cause), then running this script will cause the event severity to be set to Critical.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/omnibus/bin/nco_sql -server objectserver_name -user user_name -password password < $NCHOME/precision/scripts/create_itnm_triggers.sql
```

Windows

```
%NCHOME%\omnibus\bin\nco_sql -server objectserver_name -user user_name -password password < %NCHOME%\precision\scripts\create_itnm_triggers.sql
```

### Command-line options

The following table describes the command-line options for the **create\_itnm\_triggers.sql** script.

Table 178. *create\_itnm\_triggers.sql* command-line options

Command-line option	Description
<i>objectserver_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user.
<i>password</i>	Mandatory; the password of the database user.

## create\_sae\_automation.sql

Use this script to set up the Tivoli Netcool/OMNIBus ObjectServer with automations and right-click tools to support the generation of service-affected events.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/omnibus/bin/nco_sql -server objectserver_name -user user_name -password password < $NCHOME/precision/scripts/create_sae_automation.sql
```

Windows

```
%NCHOME%\omnibus\bin\isql.bat -S objectserver_name -U user_name -P password -I %NCHOME%\precision\scripts\create_sae_automation.sql
```

### Command-line options

The following table describes the command-line options for the **create\_sae\_automation.sql** script.

Table 179. *create\_sae\_automation.sql* command-line options

Command-line option	Description
<i>objectserver_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user.
<i>password</i>	Mandatory; the password of the database user.

## drop\_itnm\_triggers.sql

Use this script to set up a Tivoli Netcool/OMNIBus ObjectServer to remove support for setting of event severity based on the value of the NmosCauseType field. After running this script, the value of NmosCauseType (for example 1,root cause) has no effect on event severity.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/omnibus/bin/nco_sql -server objectserver_name -user user_name -password password < $NCHOME/precision/scripts/drop_itnm_triggers.sql
```

Windows

```
%NCHOME%\omnibus\bin\nco_sql -server objectserver_name -user user_name -password password < %NCHOME%\precision\scripts\drop_itnm_triggers.sql
```

## Command-line options

The following table describes the command-line options for the **drop\_itnm\_triggers.sql** script.

Table 180. *drop\_itnm\_triggers.sql* command-line options

Command-line option	Description
<i>objectserver_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user.
<i>password</i>	Mandatory; the password of the database user.

## drop\_sae\_automation.sql

Use this script to remove from the Tivoli Netcool/OMNIBus ObjectServer the automations and right-click tools to support the generation of service-affected events.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/omnibus/bin/nco_sql -server objectserver_name -user user_name -password password < $NCHOME/precison/scripts/drop_sae_automation.sql
```

Windows

```
%NCHOME%\omnibus\bin\isql.bat -S objectserver_name -U user_name -P password -I %NCHOME%\precison\scripts\drop_sae_automation.sql
```

## Command-line options

The following table describes the command-line options for the **drop\_sae\_automation.sql** script.

Table 181. *drop\_sae\_automation.sql* command-line options

Command-line option	Description
<i>objectserver_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user.
<i>password</i>	Mandatory; the password of the database user.

## ncp\_configure\_omnibus.sql

This script is used to set up versions of Tivoli Netcool/OMNIBus prior to Version 7.3.1 by adding additional fields required by Network Manager.

This script is automatically run by the Network Manager installer.

### Running the script

To run the script, use a command line similar to the following:

UNIX

```
$NCHOME/omnibus/bin/nco_sql -server objectserver_name -user user_name -password password < $NCHOME/precison/scripts/ncp_configure_omnibus.sql
```



#### Windows

```
"%NCHOME%\omnibus\bin\isql.bat" -S objectserver_name -U user_name -P password  
-i < %NCHOME%\precision\scripts\ncp_configure_omnibus.sql
```

## Command-line options

The following table describes the command-line options for the **ncp\_configure\_omnibus.sql** script.

*Table 182. ncp\_configure\_omnibus.sql command-line options*

Command-line option	Description
<i>objectserver_name</i>	Mandatory; the name of the database.
<i>user_name</i>	Mandatory; the name of the database user.
<i>password</i>	Mandatory; the password of the database user.



---

## Appendix F. Network Manager glossary

Use this information to understand terminology relevant to the Network Manager product.

The following list provides explanations for Network Manager terminology.

### **AOC files**

Files used by the Active Object Class manager, `ncp_class` to classify network devices following a discovery. Device classification is defined in AOC files by using a set of filters on the object ID and other device MIB parameters.

### **active object class (AOC)**

An element in the predefined hierarchical topology of network devices used by the Active Object Class manager, `ncp_class`, to classify discovered devices following a discovery.

**agent** See, discovery agent.

### **class hierarchy**

Predefined hierarchical topology of network devices used by the Active Object Class manager, `ncp_class`, to classify discovered devices following a discovery.

### **configuration files**

Each Network Manager process has one or more configuration files used to control process behaviour by setting values in the process databases. Configuration files can also be made domain-specific.

### **discovery agent**

Piece of code that runs during a discovery and retrieves detailed information from discovered devices.

### **Discovery Configuration GUI**

GUI used to configure discovery parameters.

### **Discovery engine (`ncp_disco`)**

Network Manager process that performs network discovery.

### **discovery phase**

A network discovery is divided into four phases: Interrogating devices, Resolving addresses, Downloading connections, and Correlating connectivity.

### **discovery seed**

One or more devices from which the discovery starts.

### **discovery scope**

The boundaries of a discovery, expressed as one or more subnets and netmasks.

### **Discovery Status GUI**

GUI used to launch and monitor a running discovery.

### **discovery stitcher**

Piece of code used during the discovery process. There are various discovery stitchers, and they can be grouped into two types: data collection stitchers, which transfer data between databases during the data collection

phases of a discovery, and data processing stitchers, which build the network topology during the data processing phase.

**domain**

See, network domain.

**entity**

A topology database concept. All devices and device components discovered by Network Manager are entities. Also device collections such as VPNs and VLANs, as well as pieces of topology that form a complex connection, are entities.

**event enrichment**

The process of adding topology information to the event.

**Event Gateway (ncp\_g\_event)**

Network Manager process that performs event enrichment.

**Event Gateway stitcher**

Stitchers that perform topology lookup as part of the event enrichment process.

**failover**

In your Network Manager environment, a failover architecture can be used to configure your system for high availability, minimizing the impact of computer or network failure.

**Failover plug-in**

Receives Network Manager health check events from the Event Gateway and passes these events to the Virtual Domain process, which decides whether or not to initiate failover based on the event.

**Fault Finding View**

Composite GUI view consisting of an **Active Event List (AEL)** portlet above and a Network Hop View portlet below. Use the Fault Finding View to monitor network events.

**full discovery**

A discovery run with a large scope, intended to discover all of the network devices that you want to manage. Full discoveries are usually just called discoveries, unless they are being contrasted with partial discoveries. See also, partial discovery.

**message broker**

Component that manages communication between Network Manager processes. The message broker used by Network Manager is called Really Small Message Broker. To ensure correct operation of Network Manager, Really Small Message Broker must be running at all times.

**NCIM database**

Relational database that stores topology data, as well as administrative data such as data associated with poll policies and definitions, and performance data from devices.

**ncp\_disco**

See, Discovery engine.

**ncp\_g\_event**

See, Event Gateway.

**ncp\_model**

See, Topology manager.

**nep\_poller**

See, Polling engine.

**network domain**

A collection of network entities to be discovered and managed. A single Network Manager installation can manage multiple network domains.

**Network Health View**

Composite GUI view consisting of a Network Views portlet above and an **Active Event List (AEL)** portlet below. Use the Network Health View to display events on network devices.

**Network Hop View**

Network visualization GUI. Use the Network Hop View to search the network for a specific device and display a specified network device. You can also use the Network Hop View as a starting point for network troubleshooting. Formerly known as the Hop View.

**Network Polling GUI**

Administrator GUI. Enables definition of poll policies and poll definitions.

**Network Views**

Network visualization GUI that shows hierarchically organized views of a discovered network. Use the Network Views to view the results of a discovery and to troubleshoot network problems.

**OQL databases**

Network Manager processes store configuration, management and operational information in OQL databases.

**OQL language**

Version of the Structured Query Language (SQL) that has been designed for use in Network Manager. Network Manager processes create and interact with their databases using OQL.

**partial discovery**

A subsequent rediscovery of a section of the previously discovered network. The section of the network is usually defined using a discovery scope consisting of either an address range, a single device, or a group of devices. A partial discovery relies on the results of the last full discovery, and can only be run if the Discovery engine, `nep_disco`, has not been stopped since the last full discovery. See also, full discovery.

**Path Views**

Network visualization GUI that displays devices and links that make up a network path between two selected devices. Create new path views or change existing path views to help network operators visualize network paths.

**performance data**

Performance data can be gathered using performance reports. These reports allow you to view any historical performance data that has been collected by the monitoring system for diagnostic purposes.

**Polling engine (nep\_poller)**

Network Manager process that polls target devices and interfaces. The Polling engine also collects performance data from polled devices.

**poll definition**

Defines how to poll a network device or interface and further filter the target devices or interfaces.

**poll policy**

Defines which devices to poll. Also defines other attributes of a poll such as poll frequency.

**Probe for Tivoli Netcool/OMNIBus (nco\_p\_ncpmonitor)**

Acquires and processes the events that are generated by Network Manager polls and processes, and forwards these events to the ObjectServer.

**RCA plug-in**

Based on data in the event and based on the discovered topology, attempts to identify events that are caused by or cause other events using rules coded in RCA stitchers.

**RCA stitcher**

Stitchers that process a trigger event as it passes through the RCA plug-in.

**root-cause analysis (RCA)**

The process of determining the root cause of one or more device alerts.

**SNMP MIB Browser**

GUI that retrieves MIB variable information from network devices to support diagnosis of network problems.

**SNMP MIB Grapher**

GUI that displays a real-time graph of MIB variables for a device and uses the graph for fault analysis and resolution of network problems.

**stitcher**

Code used in the following processes: discovery, event enrichment, and root-cause analysis. See also, discovery stitcher, Event Gateway stitcher, and RCA stitcher.

**Structure Browser**

GUI that enables you to investigate the health of device components in order to isolate faults within a network device.

**Topology Manager (ncp\_model)**

Stores the topology data following a discovery and sends the topology data to the NCIM topology database where it can be queried using SQL.

**WebTools**

Specialized data retrieval tools that retrieve data from network devices and can be launched from the network visualization GUIs, Network Views and Network Hop View, or by specifying a URL in a web browser.

---

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