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Getting Started with Optivity Campus 7.0.2 for HP OpenView Network Node Manager and Tivoli TME 10 NetView

NORTEL NETWORKS™

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Preface

Welcome to Optivity® Campus, a graphical network management application for midsize to large campus network environments. Optivity Campus provides an Autodiscovery feature that automatically discovers and displays all subnetworks, hubs, bridges, probes, switches, routers, and servers to create a blueprint of your network configuration. Optivity also delivers advanced management for multi-LAN, Ethernet, and token ring networks. Optivity Campus runs under both Microsoft® Windows NT®, and Windows 95® and integrates with HP OpenView Workgroup Node Manager (WNM), HP OpenView Network Node Manager (NNM), or Tivoli TME 10 NetView Windows-based network management platforms for Windows.

This preface describes the contents of this guide and provides information about how to use it along with the other publications included with your Optivity Campus software.

Nortel Networks recommends that you read this document before getting started with Optivity Campus network management application.

Before You Begin

This guide describes how to install Optivity Campus to integrate with HP OpenView Network Node Manager and Tivoli TME 10 NetView on your management station. It also describes how to set up Optivity Campus for optimal performance. Additionally, it describes how to get started using Optivity Campus to proactively manage your network.

This guide covers using Optivity Campus only. For information on using your management station, Windows 95, Windows NT, HP OpenView Network Node Manager, and Tivoli TME 10 NetView, refer to the documentation included with those products.

For detailed information about how to use Optivity Campus, refer to *Using Optivity Campus 7.0* (located on the Optivity Campus 7.0.2 Documentation CD).

Audience

This guide is intended for Ethernet and token ring local area network (LAN) administrators with the following background:

- Working knowledge of IBM PC terminology and operation
- Working knowledge of Microsoft Windows NT
- Familiarity with the IP and IPX protocols
- Familiarity with either HP OpenView Network Node Manager or Tivoli TME 10 NetView

Text Conventions

This guide uses the following text conventions:

angle brackets (< >)	Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command. Example: If the command syntax is: **ping** <*ip_address*>, you enter: **ping 192.32.10.12**
bold text	Indicates command names and options and text that you need to enter. Example: Enter **show ip** {**alerts** | **routes**}. Example: Use the **dinfo** command.
brackets ([ ])	Indicate optional elements in syntax descriptions. Do not type the brackets when entering the command. Example: If the command syntax is: **show ip interfaces** [**-alerts**], you can enter either: **show ip interfaces** or **show ip interfaces -alerts**.

italic text	Indicates file and directory names, new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore. Example: If the command syntax is: **show at** <*valid_route*> *valid_route* is one variable and you substitute one value for it.
`screen text`	Indicates system output, for example, prompts and system messages. Example: `Set Trap Monitor Filters`
separator (>)	Shows menu paths. Example: Protocols > IP identifies the IP option on the Protocols menu.

Related Publications

For more information about using Optivity Campus, refer to one or more of the following publications:

- *Getting Started with Optivity Campus 7.0.2 for HP OpenView Workgroup Node Manager*
  *(*Bay Networks® part number 893-660-H)

  Provides instructions essential to software installation and is designed for the experienced user.

- *Using Optivity Campus 7.0*
  (Bay Networks part number 893-786-E)

  Provides complete instructions for using the Optivity Campus integrated applications to manage, monitor, and configure your network. This document is located on the *Optivity Campus 7.0.2 Documentation* CD. To use the CD, see page 4-24.

- *Release Notes for Optivity Campus 7.0.2*
  (Bay Networks part number 896-007-L)

  Provides up-to-date information about this Optivity Campus release.

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Sydney, Australia	61-2-9927-8800
Tokyo, Japan	81-3-5402-7041

Chapter 1
Preparing for Installation

This chapter provides information you need to know before installing Optivity Campus to run with HP OpenView Network Node Manager or Tivoli TME 10 NetView.

Optivity Campus is a graphical network management application that integrates with HP OpenView Network Node Manager and Tivoli TME 10 NetView network management platforms, allowing you to manage and monitor devices on Ethernet and token ring networks. You will need to purchase and install these network management platforms separately.

For more information on Optivity Campus features, see Chapter 1, “Overview,” of *Using Optivity Campus 7.0* (located on the *Optivity Campus 7.0.2 Documentation* CD).

Network Environment

Optivity Campus with HP OpenView Network Node Manager or Tivoli TME 10 NetView installed on your management station allows you to manage multi-LAN, Ethernet and token ring network segments that consist of supported Nortel Networks internetworking devices and agents.

System Requirements

Before you install Optivity Campus 7.0.2 with HP OpenView Network Node Manager or Tivoli TME 10 NetView for Windows, ensure that the network management station(s) upon which you install software meets the requirements defined in Table 1-1.

Table 1-1. Optivity Campus 7.0.2 System Requirements

Description	Requirement
Management Station	Pentium IBM-compatible PC operating at 333 MHz recommended, 166 MHz minimum
RAM	128 MB recommended, 32 MB minimum
Disk Space	125 MB for Optivity Campus 7.0.2 recommended, 111 minimum
Swap Space (Virtual Memory)	70 MB for NNM; 128 MB for NetView
Video Adapter	VGA or Super VGA adapter and display
Operating Environment	• Microsoft Windows 95 • Windows NT 4.0 with Service Pack 4 or 5
Communications Stack	• Winsock implementation on Microsoft TCP/IP stack. • IPX stack is supported only under Windows 95.
Network Management Platform	• HP OpenView Network Node Manager 6.0 for Windows NT 4.0 • Tivoli TME 10 NetView 5.1 for Windows NT 4.0
CD-ROM Drive	8 X recommended, 2 X minimum
Mouse	Microsoft Windows-compatible

In addition to the software requirements already stated, please note the following:

- Optivity Campus 7.0.2 uses the Windows NT built-in TCP/IP stack. When installing, make sure your system is fully configured and all network communications protocols are installed and running prior to installation.
- The Optivity Campus installation program saves backup copies of your *system.ini* files in the *c:\opt\saved* directory.

Supported Agents

Optivity Campus manages devices on Ethernet and token ring networks using the Simple Network Management Protocol (SNMP). The SNMP agent software either resides in the Bay Networks network management module (NMM) firmware, or is downloaded to the NMM from the management station, or is downloaded through the service port on the NMM. The agent software enables SNMP communication between individual internetworking devices and Optivity Campus.

Optivity Campus supports three types of agent software—Standard, Advanced, or Advanced Analyzer:

- Standard agents provide activity and diagnostic information down to a per-port level; they support a subset of the Optivity Campus features including Expanded View™.
- Advanced agents provide a mid-level feature set—these agents make Optivity Campus Autotopology™ possible and provide higher-level information. Advanced agents also provide partial RMON support, the Find Nodes and Show Nodes functions, and threshold creation on core statistics.
- Advanced Analyzer agents provide the richest feature set—by providing full RMON support and Super RMON support for collecting statistics.

For more information about agent software, see the documentation that came with your NMM hardware.

For information about downloading agents, see Chapter 10, “Booting New Devices and Maintaining Agents,” in *Using Optivity Campus 7.0* (located on the *Optivity Campus 7.0.2 Documentation* CD).

Internetworking Module Requirements

You can poll and manage third-party routers or bridges that offer SNMP-compliant software or provide standard Telnet access for status from the Optivity Campus management station using the Telnet application.

Filtering Segment Hellos for Autotopology

Configure all Ethernet bridges with the segment multicast address (the segment hello) in their filtering tables. The segment hello allows the Autotopology feature to operate properly. Token ring bridges need no filters. The segment hello disposition mode must be set to discard, to ensure a correct representation of your network topology. The following is an example:

```
010081000101
```

Hubs exchange segment hellos as well as flat network hellos. For more information about flat network hellos, see "Filtering Flat Network Hellos" on page 1-5. When building network views using the Autotopology feature, Optivity Campus locates bridges and identifies network segments as a result of the bridge's filtering the segment hello address.

If the bridge does not have this address in its filtering table, Optivity Campus cannot accurately depict the segment and bridge bounds.

Figure 1-1 shows an example of the Model 332XS high-speed bridge forwarding table. The segment hello is a static entry; that is, it is made manually and not changed by Optivity Campus during the Autodiscovery process.

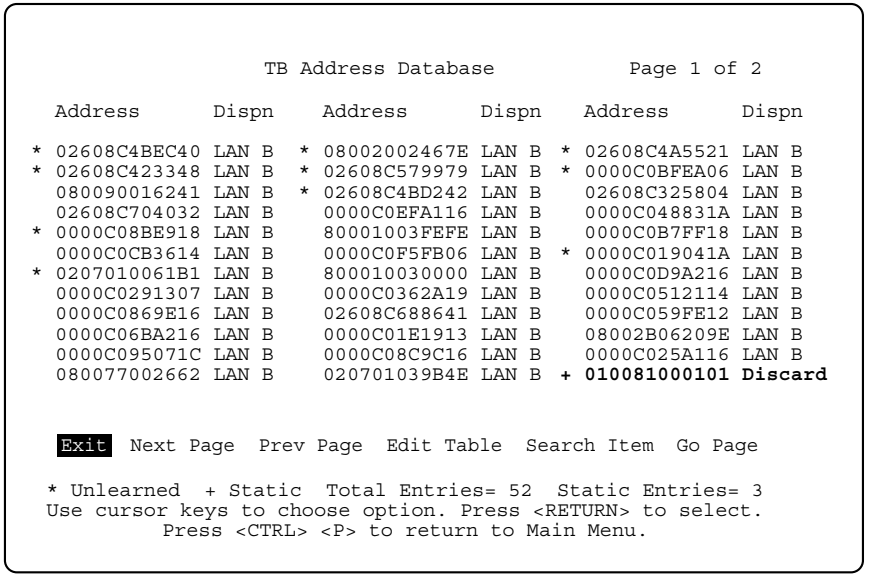


Figure 1-1. Model 332XS Forwarding Table

As with all other network devices, before you can manage the Model 332XS bridge using Optivity Campus, enter its IP address, subnet mask, and SNMP community string. See the documentation included with your bridge for instructions on how to update its configuration and filtering tables.

Filtering Flat Network Hellos

Unless a router is configured for bridging, you do not need to alter router configuration to work with Optivity Campus. The exception is to update its address database for correct Bootstrap Protocol (BootP) server operation. From there, you can manage the bridge using Telnet and Optivity Campus to report status changes via color indicators.

For routers functioning as local bridges and remote bridges, add either or both the segment and flat network multicast address. Your entries depend on how you want the device represented in network topology. If you add only the segment multicast address, Optivity Campus considers the device to be a bridge. The following addresses are examples:

Segment multicast address	010081000101
Flat network multicast address	010081000100

If you have a BootP server on the network and booting requests have to pass through a router (for example, the management station has boot files for modules located on the other side of that router), configure the router address database so that network devices can boot properly. You must update the router database with the IP address of your Optivity Campus management station.

For more information, see the documentation that came with your bridge or router and Chapter 10, "Booting New Devices and Maintaining Agents," in *Using Optivity Campus 7.0* (located on the *Optivity Campus 7.0.2 Documentation* CD).

Network Information Requirements

To set up network communications, you need the following information before beginning the installation procedure:

- IP address of your Optivity Campus management station. The IP address should be in standard dotted-decimal notation (x.x.x.x) and should fit the networking requirements for your network.
- IP addresses for NMMs, managed concentrators, bridges, routers, and any other SNMP/IP-based network device(s) that you want to be able to access from the Optivity Campus management station. If you are not using Optivity Campus to manage a device, you still need IP addresses to use the Ping or Telnet access options.
- Subnet masks being used in your network.

- SNMP community strings (read-only and read/write) for all devices you want to manage. The read-only string must match for all devices or they cannot be recognized during the Autotopology process. You can also use the read community strings to define domains in your network.
- Filtering on appropriate bridges is required for proper dynamic network views. See your bridge or router manuals for more information about filtering.

See the management guides provided with your device modules for instructions on assigning these values.

Network Information Checklist

Before proceeding with the installation, fill in the following information in the space below:

Default Gateway IP address	
Default Gateway subnet mask	
Default Gateway read community string	
IP address for management station	
Local subnet read community string	
Commonly used read community strings	

Chapter 2
Installing Optivity Campus

This chapter describes how to install Optivity Campus 7.0.2 to run from within HP OpenView Network Node Manager (NNM) and Tivoli TME 10 NetView network management platforms. Additionally, this chapter describes how to upgrade Optivity Campus and how to uninstall it if necessary.

Before installing Optivity Campus, ensure that your management station meets the system requirements defined on page 1-2.

It is assumed that you have already installed either HP OpenView Network Node Manager or Tivoli TME 10 NetView network management platform on your management station. If you have not, please do so before proceeding with the Optivity Campus installation. For information about how to install Optivity Campus with HP OpenView Workgroup Node Manager, see *Getting Started with Optivity Campus 7.0.2 for HP OpenView Workgroup Node Manager*.

This chapter includes the following information:

- "Running the Setup Program" on page 2-2
- "Upgrading Optivity Campus" on page 2-8
- "Uninstalling Optivity Campus" on page 2-9
- "Troubleshooting Information" on page 2-10

Running the Setup Program

This section describes how to install Optivity Campus using the Setup program.

The Optivity Campus Setup program does the following:

- Lets you select the network management platform with which you want Optivity Campus to integrate
- Lets you enter your name and company name for device agent software upgrades
- Lets you specify the Optivity Campus components you want the Setup program to install and lets you select the destination directory
- Copies the Optivity files to your network management station and configures them
- Lets you specify the communications settings for your network, including IP address, read community strings, gateway IP address, and subnet mask
- Updates your system files

To install Optivity Campus:

1. **Start Microsoft Windows on your management station.**
2. **On Windows NT, log into the Windows NT workstation as a user with Administrator privileges.**
3. **If the network management platform is running, exit it.**
4. **Start the Optivity Campus Setup program.**
   a. **Insert the *Optivity Campus 7.0.2 Software* CD into the CD-ROM drive.**

      If Autorun is enabled, the Optivity Campus Setup program starts automatically. If Autorun is disabled, manually start the setup program as follows:

   b. **Choose Start > Run.**

      The Run dialog box opens.

   c. **Type the following line in the Command Line field:**

      [*CDROM_drive*]:setup\setup.exe

   d. **Click OK.**

The Network Management Platform Selection dialog box opens. (Figure 2-1).

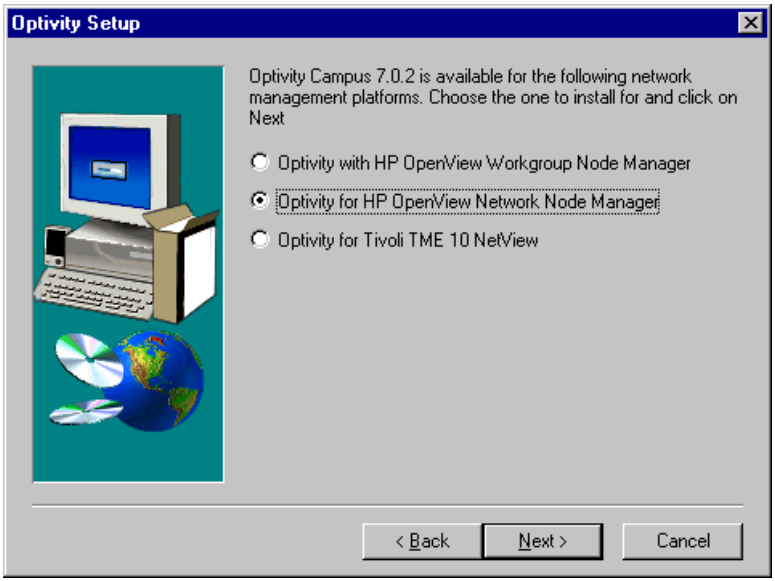


Figure 2-1. Network Management Platform Selection Dialog Box

5. **Select the network management platform that you have installed on your management station.**
6. **Click Next.**

   The Setup program confirms whether or not you are logged in as Administrator (or an equivalent user) on the Windows NT machine, and that you have closed all NetView or Network Node Manager windows.
7. **Click Yes or No.**

   If you click Yes, Optivity Setup prompts you for your name and your company name. If you click No, you must exit the Optivity Campus Setup program, close all windows, and thereafter rerun the Setup program.
8. **Enter your name and your company name.**

   The company name should be the same name you used to register for Nortel Networks Support Services.
9. **Click Next.**

10. **Choose the destination folder into which you want to install Optivity Campus 7.0.2.**

11. **Click Next.**

    The Optivity Campus Setup Components dialog box opens (Figure 2-2).

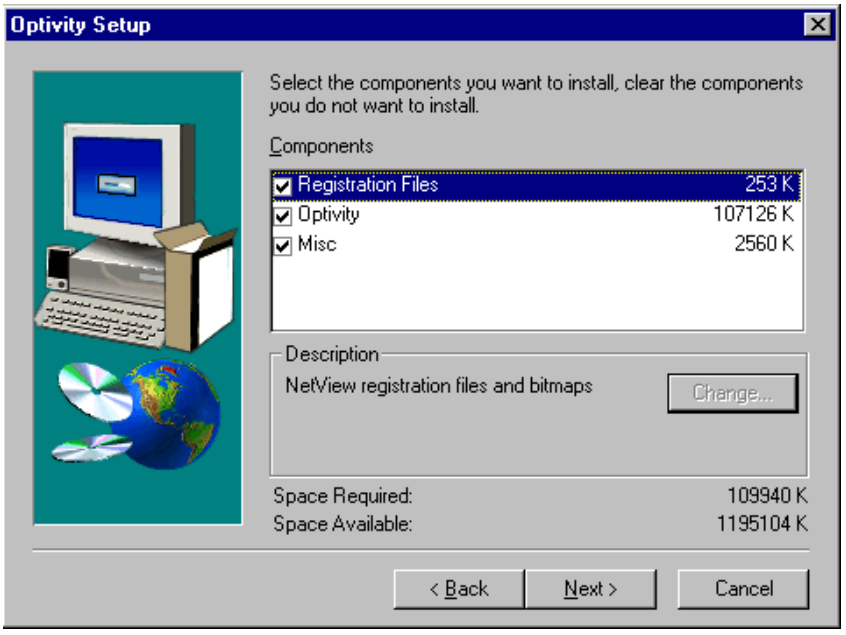


Figure 2-2. Optivity Campus Setup Components Dialog Box (HP OpenView Network Node Manager)

The Optivity Campus Setup Components dialog box for Tivoli TME 10 NetView is similar, and therefore is not shown.

12. **Select the components that you want the Setup program to install.**

    - NNM Registration Files—The HP OpenView registration files.
    - Optivity Campus—The Optivity Campus 7.0.2 application files.
    - Misc—Various unsupported Optivity Campus applications.

    By default all of the components are selected. If you are upgrading Optivity Campus, you may only want to select certain components.

    If you want to change the destination directory for a component, select that component, click Change, and then change it.

    The default destination directory for NNM registration files and bitmaps is *c:\NNM\registration*. The default destination directory for the Optivity Campus application files is *c:\opt*. The default destination directory for miscellaneous files is *c:\opt\unsupported*.

13. **Click Next.**

    The Setup program copies the files to your network management station. Thereafter, the Communications Setup Dialog Box opens (Figure 2-3).

    If the installation did not complete successfully, copy the files in the *c:\opt\saved* and *c:\<platform>\saved* directories to another directory before running the Setup program again.

When you run the Setup program again, database files that were not copied to the *saved* directory are overwritten.

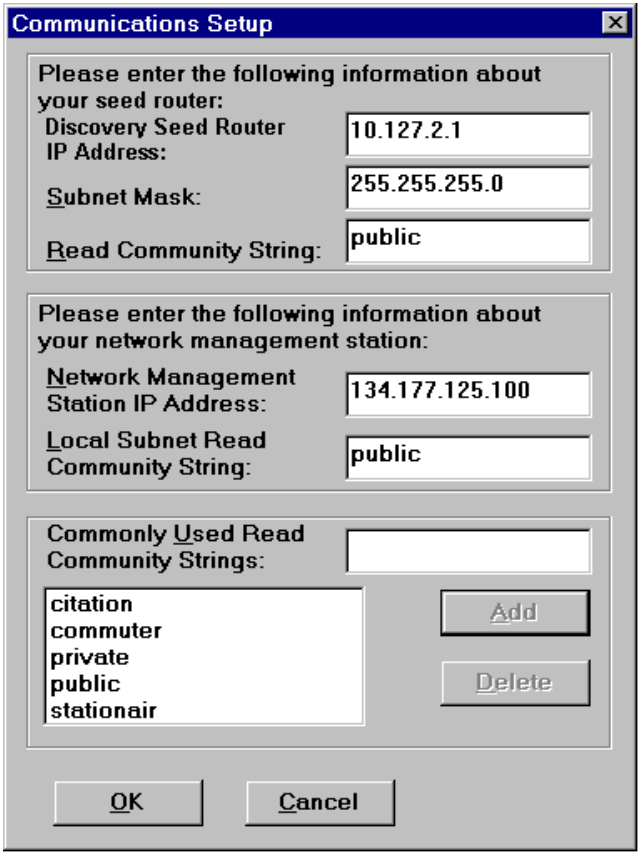


Figure 2-3. Communications Setup Dialog Box

The Discovery Seed Router IP Address, IP Address, and Subnet Mask fields are already filled in with your management station and network settings.

Note: Optivity Campus retrieves information from your IP stack configuration settings. It defaults to using your default gateway router as your discovery seed router. If you wish to specify a different seed router, you can do so now or alternatively, you can specify a different discovery seed router after installation using the Optivity Campus Autodiscovery dialog box (see page 4-8) or the System Preferences dialog box (see page 4-23).

14. **Check that your network information is correct, and enter the read community string for the seed router and your local subnet.**

    In the Commonly Used Read Community Strings text box, enter each string and click Add. Repeat this procedure until you have added all strings in the list box.



Note: You can also enter gateway and community string information after the installation using the Optivity System Properties dialog box. To reach that dialog box, choose Start > Programs > Optivity for HP OpenView > Optivity System Preferences.

15. **Click Next.**

    The Setup program notifies you that it has modified your network management platform files and has placed them and copies of files from previous Optivity Campus installations in *c:\opt\saved*.

16. **Click OK.**

    The Setup Complete dialog box opens and prompts you to restart your computer for system modifications to take effect.

17. **Click Yes to restart your computer immediately, or click No if you want to wait before restarting the computer.**

18. **Click Finish to exit the Setup program.**

19. **Verify that the Start > Programs > Optivity for HP OpenView submenu exists.**

Nortel Networks recommends that you read the next chapter before starting to use Optivity Campus.

Upgrading Optivity Campus

This section describes how to upgrade Optivity Campus to run from within HP OpenView Network Node Manager and Tivoli TME 10 NetView. You can upgrade Optivity Campus from versions 7.0 and 7.0.1.

To upgrade Optivity Campus:

1. **Start Windows and log in as Administrator.**
2. **Close all other programs.**
3. **Install Optivity Campus as described on page 2-2.**

   When you upgrade Optivity Campus from a previous version, the Setup program automatically saves many of the important files used by the previous installation. All files are saved to the *\opt\saved* directory.

   Table 2-1 lists these files.

Table 2-1. Optivity Files Saved During Upgrade

Files	File name Extension	Default Path
Optivity database	*.d*, .k**	*c:\opt\db*
Community string files	comstr.ini, descdb.ini	*c:\opt\bin*
Image files	*.img*	*c:\opt\images*
Configuration files	*.cfg*	*c:\opt\images* or *c:\opt\profile*
Campus Command Center Configuration files	*<viewname>.ccc,*	*c:\opt\bin*
Optivity *.ini* files	*constr.ini, synopt.ini, thlddata.ini, thldplt.ini*	*c:\opt\bin*

4. **After upgrading Optivity Campus, copy the saved files back to their original locations in the *\opt* directory structure.**
5. **Restart your management station.**

Uninstalling Optivity Campus

This section describes how to uninstall Optivity Campus from your management station.

During the Optivity installation, all of the system configuration files modified by the setup program, such as *win.ini*, are saved to the *c:\opt\saved* directory. Also, platform files modified by the setup program are saved to a *\saved* subdirectory of the directory where the platform software is installed. The Setup program then modifies new versions of these files during the installation process.

Note: It is not necessary to modify the *win.ini* file if you will reinstall Optivity Campus at a later date. However, if you want to permanently uninstall Optivity Campus, remove the following sections from the *win.ini* file:

```
[Optivity]
[Optivity for OpenView]
[BPTFTP]
[Synoptics Generic Apps]
[OpenView]
```

To uninstall Optivity Campus:

1. **Restore the files in the *\saved* directories to their original locations.**

Note: The system files in the *c:\opt\saved* directories may not be current if you installed other software packages after the Optivity Campus installation.

---

2. **Delete the Optivity Campus files.**

   The default directory is *c:\opt*. You can right-click the default directory and select Delete from the shortcut menu, or you can do the following:

   a. **Use Windows Explorer or choose Start > Programs > Command Prompt.**

      The Command Prompt window opens.

   b. **At the command prompt, type:**

      rmdir \s \sq c:\opt

3. **Restart your management station.**

Troubleshooting Information

Using Static Versus Dynamic IP Addresses

Optivity Campus does not support Dynamic Host Configuration Protocol (DHCP). The IP address, subnet mask, and default gateway address settings for Optivity Campus are obtained only once during the Setup process and are pulled from the TCP/IP setting of the Microsoft TCP/IP communications stack. The Optivity Campus management station must maintain a static IP address for the purpose of being reachable as an IP Trap receiver and BootP server.

Verifying Connectivity

Use Ping to verify the presence of any local IP address or your default router or gateway.

To run Ping:

- At the command prompt, type:

  ping *<IP_Address_of_device_that_you_want_to_verify_connectivity>*

  If the Ping fails, you may have specified an illegal IP address, default gateway, or subnet mask.



Note: If you ever change the network settings subsequent to installation, change the network settings in Optivity Campus by choosing Start > Optivity > Optivity System Preferences. The Optivity System Preferences dialog box opens. Make the network setting changes on the NMS Configuration tab of the Optivity System Preferences dialog box. You can also perform network setting changes by modifying the `[Optivity]` section in the *c:\opt\bin\synopt.ini* file.

Chapter 3
Postinstallation Tasks

This chapter describes the tasks that you should perform after you have installed the Optivity Campus software and before you use it.

This chapter includes the following information:

- "Understanding Windows Environment Changes," next
- "Backing Up Database Files" on page 3-2

Understanding Windows Environment Changes

This section describes changes made to your Windows environment to optimize performance and ensure system stability.

Table 3-1 describes the changes and additions to the system environment that are made by the Optivity Campus Setup program during installation to your management station environment settings.

Table 3-1. Environment Settings

Added Settings	Description
ARMONHOME =C:\OPT\ARMON PATH=C:\OPT\ARMON\AR_QFC;%PATH% PATH=C:\OPT\BIN;%PATH%	Verify that the paths to the Optivity and platform directories have been added.
PATH=C:\OPENVIEW\BIN	OpenView NNM only
PATH=C:\USR\OV\BIN	NetView only

Backing Up Database Files

This section describes how to back up your database files:

- To save your map and its associated database files, save and restore the following files to the appropriate directory:

  ```
  C:\OPT\DB\TOPODB.* (includes .D1-D6, .K1-K5, .DBD)
  C:\OPT\DB\DCSDB.* (includes .D1-D7, .K1, .DBD)
  ```

- To restore the database, enter the following commands:

  cd c:\opt\db
  erase *.*
  restore <backup directory> c:

- To ensure proper system operation, periodically back up these files:

  c:\opt\images\bptftp.out (Saved BootP/TFTP log)
  c:\opt\bin.fnm* (Saved Flat Network View maps)
  c:\opt\bin.sgv* (Saved Segment View maps)

Chapter 4
Getting Started with Optivity Campus

This chapter describes how to start Optivity Campus from within HP OpenView Network Node Manager or Tivoli TME 10 NetView. It describes how to discover network devices using Autodiscovery. Additionally, it describes how to set Optivity Campus system properties.

It is recommended that you read this chapter before you use the Optivity Campus network management and monitoring features described in *Using Optivity Campus 7.0* (located on the *Optivity Campus 7.0.2 Documentation* CD).

This chapter includes the following information:

- "Starting Optivity Campus," next
- "Discovering Network Devices" on page 4-3
- "Setting Optivity System Preferences" on page 4-21
- "Using Optivity Campus Applications" on page 4-24

Starting Optivity Campus

This section describes how to start Optivity Campus from within HP OpenView Network Node Manager and Tivoli TME 10 NetView.

To start Optivity Campus:

1. **Start Network Node Manager or NetView.**
   - To start Network Node Manager, choose Start > Programs > HP OpenView > Network Node Manager.
   - To start NetView, choose Start > Programs > NetView > NetView Console.

2. In NetView or NNM, choose Applications > Optivity.

The first time you start Optivity Campus, the Campus Command Center™ window opens (Figure 4-1), and it is blank. The Autodiscovery dialog box opens blank on top of the Campus Command Center window. Additionally, several Optivity Campus processes start and display minimized in the Windows taskbar.

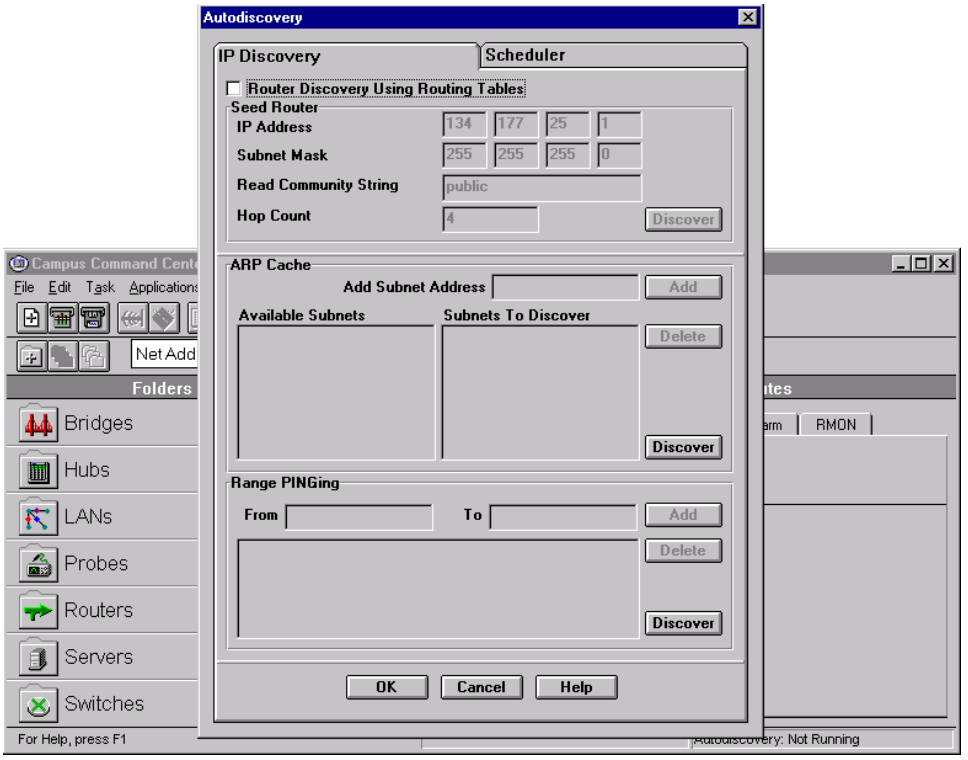


Figure 4-1. Campus Command Center Window with the Autodiscovery Dialog Box

The Campus Command Center provides a graphical representation of your campus network resources. You can use the Optivity Campus Autodiscovery feature to locate devices within your network and thus populate the appropriate Campus Command Center folders.

Discovering Network Devices

Before you can use Optivity Campus to monitor and manage your network, you must run the discovery features to locate and identify the devices connected to your network.

Discovering network devices involves these tasks:

- Running the Campus Command Center Autodiscovery process
- Running the Optivity Node Discovery process

The Campus Command Center Autodiscovery feature is independent from Optivity Node Discovery.

The two discovery types are summarized in Table 4-1.

Table 4-1. Optivity Campus Discovery Types

Discovery Type	Description	When to Run
Campus Command Center Autodiscovery	Discovers Nortel Networks specific devices so that they can appear in Campus Command Center folders and Optivity Campus displays. Device information is stored in the Optivity device database.	After Platform Discovery
Optivity Node Discovery	Discovers network nodes by getting Show Nodes information from Nortel Networks devices that have Advanced agent software. The node information is added to the Optivity device database.	After Campus Command Center Autodiscovery

Choosing a Discovery Seed Router

Before you run the Optivity Campus Autodiscovery, you need to specify a seed router. You should specify a seed router that is on or near the subnet or subnets that you are most interested in discovering as the scope of discovery is limited by the router hop count specified relative to the seed router that you choose.

1. **In the Autodiscovery dialog box, ensure that the Seed Router information is correct (Figure 4-2).**

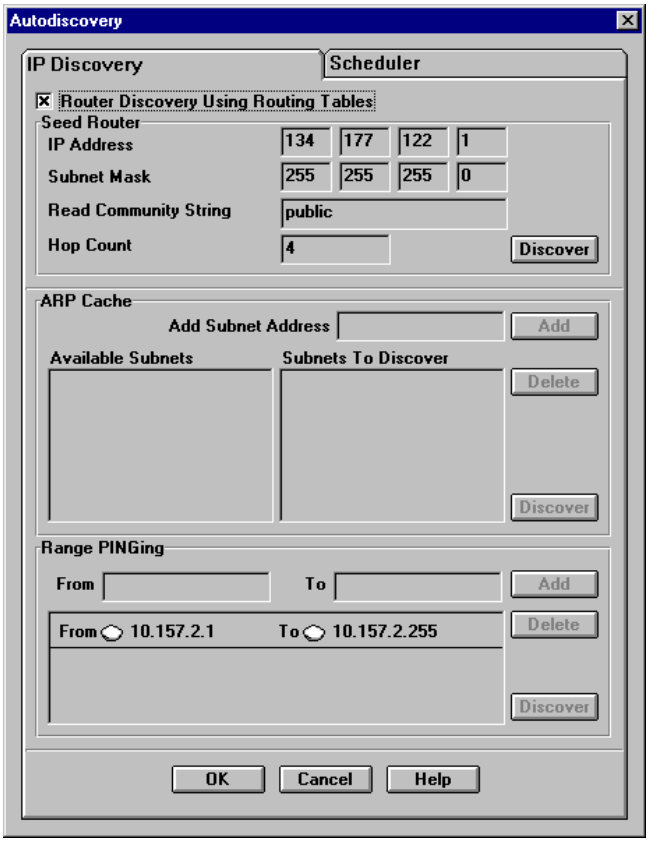


Figure 4-2. Autodiscovery Dialog Box—Seed Router Section

The Seed Router information is read only dynamically when you select the Router Discovery Using Routing Tables option. Therefore if necessary, select the Router Discovery Using Routing Tables option and type any information that you want to change.

The Discovery Seed Router is the IP address of the router that Autodiscovery uses as the seed to initiate the discovery process. This IP address is written to the *synopt.ini* configuration file. If the seed router IP address is wrong, Autodiscovery fails.

The Discovery Seed Router Community String is case sensitive.

The BootP and Trap Registration processes use the Host IP Address text box information to notify agents of the IP address of the Optivity Campus management station. The trap registration process informs agents to send their traps to the Optivity Campus management station and the BootP server process informs agents from what IP address to request TFTP agent configuration file downloads.

2. **If any of the Seed Router information is incorrect, type the correct information.**

   Alternatively, you can use the System Properties dialog box NMS Configuration tab to specify a default router. Choose Start > Programs > Optivity > Optivity System Preferences.

Specifying Community Strings

Community strings control access to your network resources. There are two types of SNMP community strings:

- Read
- Read/write

The read community string controls which management station can read the management information base (MIB) for a particular device. The read/write community string controls which management station can have full access to (read and write) to the MIB of a device.

By default, the read community string of a device is set to “public.” The read/write community string of a device is set to “private.” This means that any management station can access information for that device.

Community strings are case sensitive.

If all of the devices on your network have the default community strings, you do not need to specify the community string names beyond the default.

If you have changed the community strings of your devices from the default settings, then you need to specify those changed community strings to match in Optivity. Otherwise, Autodiscovery will not be able to discover these devices.

In the System Properties dialog box, the Community Strings tab lets you add to or change the non-default read community strings for devices on your network. If you added non-default community strings during the installation process, they appear in the tab.

To add non-default read community strings:

1. **Choose Start > Programs > Optivity > Optivity System Preferences.**

   The System Properties dialog box opens.



Note: Alternatively, you can use the Set Community Strings utility from HP OpenView. Choose Applications > Set Community Strings. See "Specifying Community Strings" on page 4-5.

2. **Click the Community Strings tab (Figure 4-3).**

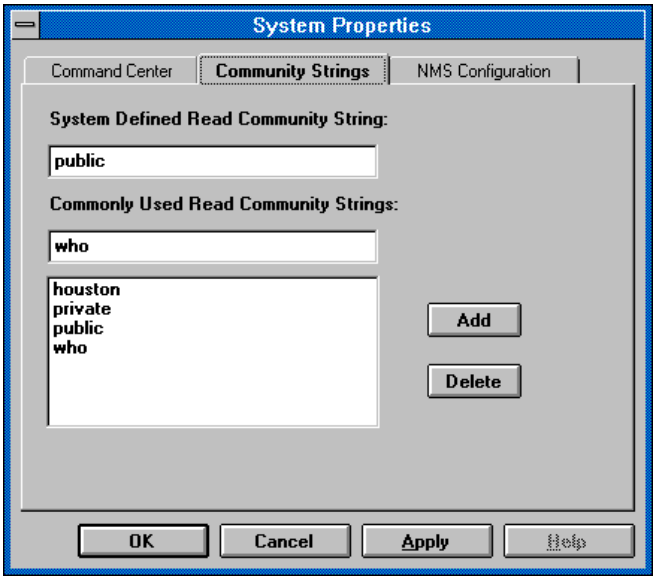


Figure 4-3. System Properties Dialog Box—Community Strings Tab

The System Defined Read Community is already displayed. It is the default read community string your management station uses to communicate with devices.

3. **In the Commonly Used Read Community Strings field, type a non-default read community strings used on your networks and subnetworks.**

   Perform this step only if you use multiple read-only community strings on your Nortel Networks network devices. If the community strings are not added to the list, Nortel Networks devices cannot be discovered or polled for status.

Note: Do not add any read/write community strings. Add only applicable read community strings. Community strings are case sensitive; therefore, ensure that you type the proper case.

4. **Click Add.**

   The community string you just typed is displayed in the list box. To delete community strings, select the community string from the list box and click Delete.

5. **Click OK.**

Running Autodiscovery

The first time you start Optivity Campus, the Autodiscovery dialog box is open. Subsequently use the Autodiscovery toolbar button or the Applications > Autodiscovery command to open the Autodiscovery dialog box. The Autodiscovery dialog box provides three discovery options, each on a separate tab: IP Discovery, IPX Discovery, and Scheduler.



Note: If your management station is configured for IP only, you do not see the IPX Discovery tab. If your management station is configured for IPX only, you do not see the IP Discovery tab. You see both tabs if your management station is configured for both protocols.

Autodiscovery does the following:

- Discovers all of the file and print servers in your network
- Discovers all of the Nortel Networks hubs, routers, bridges, and switches on the specified subnet
- Discovers the various LAN segments and rings in your network
- Displays the discovered devices in the appropriate Campus Command Center folder

Using IP Discovery

The IP Discovery tab in the Autodiscovery dialog box displays the three discovery methods: ARP Cache, Range PINGing, and Router Discovery. You can use one or all discovery methods. Table 4-2 describes each discovery method.

Table 4-2. IP Discovery Methods

IP Discovery Method	Description
Router Discovery	Discovers routers, networks, and subnetworks. Enable the Router Discovery Using Routing Tables check box if you want Autodiscovery to discover available networks and subnetworks in your network and the routers that are connected to those networks.
ARP Cache	Uses Address Resolution Protocol (ARP) information from routers on the network to discover devices that communicated through the router and have had their address logged in the router ARP cache. ARP is a protocol for mapping an IP address to a physical machine address that is recognized in the local network.
Range PINGing	Sends an Internet Control Message Protocol (ICMP) echo request to each address in the specified range, discovering network devices that reply. In a routerless environment, Range PINGing is the only discovery that discovers devices.

Using Router Discovery

1. **At the top left on the IP Discovery tab, check the Router Discovery Using Routing Tables check box (Figure 4-4).**

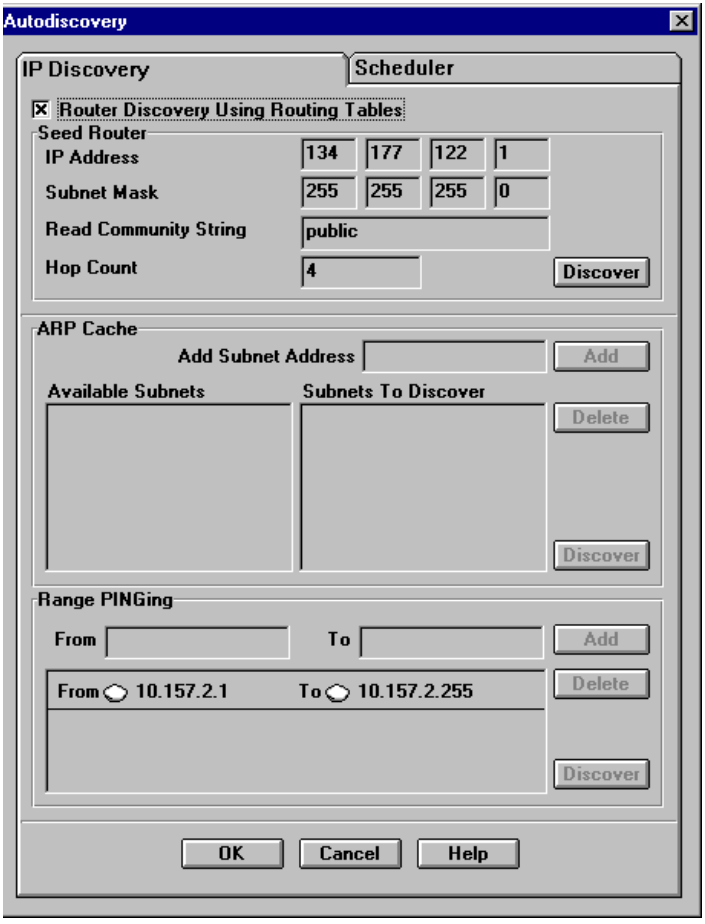


Figure 4-4. Autodiscovery Dialog Box—IP Discovery Tab

When you select the Router Discovery Using Routing Tables option, the Seed Router area of the dialog box is enabled and you can modify the information if necessary. Additionally, the ARP cache and Range PINGing sections of the Autodiscovery dialog box are disabled.

2. **If you have not already done so, ensure that the Seed Router information is correct.**

   The Seed Router section in Router discovery will update the *synopt.ini*, *comstr.ini* and *discover.ini* files accordingly, and therefore update the NMS Configuration tab in the System Preference dialog if you made any changes.

   The Router Discovery Using Routing Tables option uses the seed router to discover all available subnets and routers in your network *only.* Router discovery queries the seed router for its next hop routing table and discovers all available networks and subnets within a specified hop count. The default hop count for IP router discovery is 4 hops. You can also modify the default hop count by changing the `HopCount=` parameter in the `[Xltr Interface]` section of the *discover.ini* file.

   Discovered networks are displayed in the Available Subnets list box. If the Available Subnets list box is not populated, check the read community string of the default router. Open the Routers folder in Optivity Campus Command Center and Ping and SNMP Echo test the router. If the Ping succeeds but the Echo test fails, the most likely cause is an incorrect community string or manager entry associated with the community string if using a Nortel Networks seed router.

   Router discovery discovers routers and automatically populates the Available Subnets list box on the IP Discovery tab with all of the available subnets in your network. It does not populate the Subnets to Discover list box that is necessary to discover the networking devices on your network and to fill the various device folders in Campus Command Center.

   If the Available Subnets list box does not populate, check the read community string and/or Manager entry for the seed router.

   As an alternative or in addition to the procedure described above, you can manually specify the subnets in your network that you want Autodiscovery to discover.

   To manually specify a subnet to discover, type a subnet IP address in the Add Subnet Address Field and click Add. Repeat the process until you have added all of the subnets that you want Autodiscovery to discover.

   Once you have used one of the two discovery methods described above to populate the Autodiscovery dialog box with subnets to discover, clicking Discover starts the ARP discovery process (see page 4-13).

Routers serving the specified networks are queried for the contents of their ARP cache. Those devices whose IP addresses fall within the discovery range are queried via SNMP to determine the device type. Those device that respond and are of a type that Optivity supports.

3. **Click Discover.**

   The Autodiscovery process begins. The Autodiscovery icon turns red in the Campus Command Center toolbar. The icon turns green when the Autodiscovery process is completed. Also the Status Bar displays "Autodiscovery Not Running." You see all of the available subnets on your network (Figure 4-5).

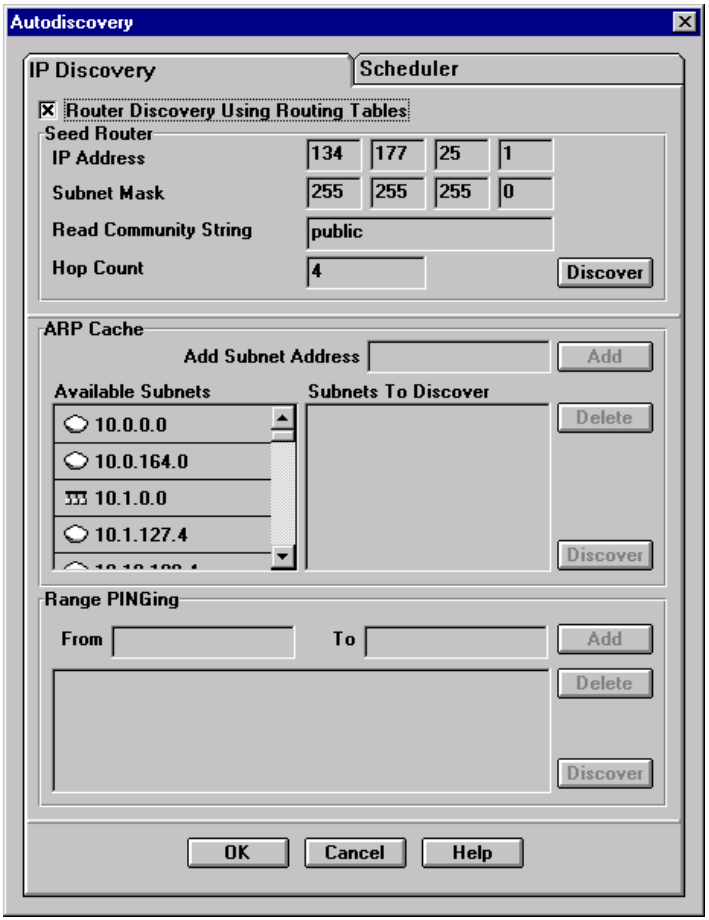


Figure 4-5. Autodiscovery Dialog Box—Router Discovery

Using ARP Cache Discovery

When the Router Discovery Using Routing Tables option is not selected in the Autodiscovery dialog box,

To select subnets for ARP Cache discovery:

1. **On the Autodiscovery IP Discovery tab, deselect the Router Discovery Using Routing Tables option.**

   The ARP Cache Discovery area is disabled if you have selected the Router Discovery Using Routing Tables option.

Note: This step assumes that you have run Router Discovery Using Routing Tables as described on page 4-10, otherwise skip to the next step.

---

2. **In the Available Subnets list box, select the available subnets within which you want Autodiscovery to discover your networking devices.**
3. **Click Add.**

   The selected subnet address is listed in the Discover Subnets list box (Figure 4-6).

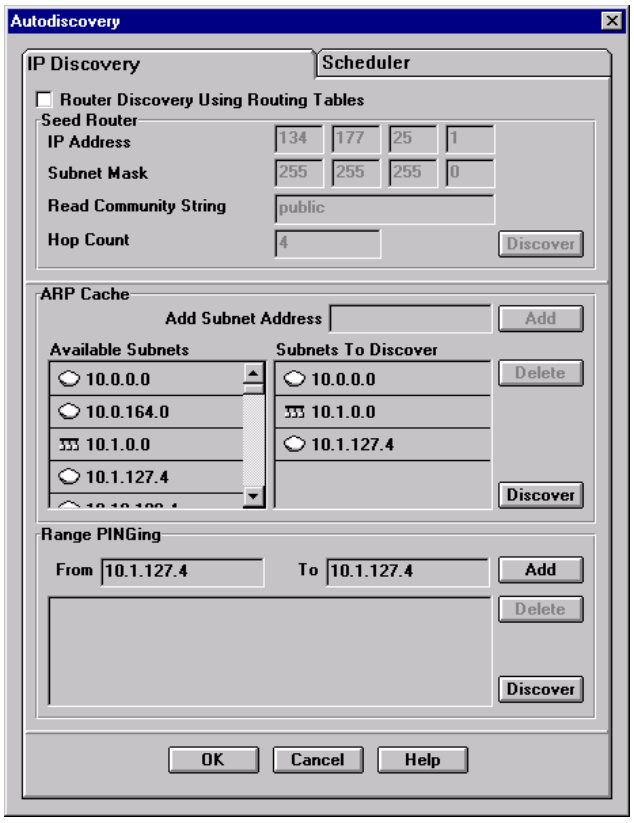


Figure 4-6. Autodiscovery Dialog Box—ARP Cache Discovery

To remove a subnet from the Discover Subnets list box, select the address in the list box and click Delete.

4. **Repeat steps 2 and 3 for all subnets that you want Autodiscovery to discover.**

   After you run discovery once, all the discovered subnets are displayed in the All Subnets list box. If not, the read community string for the default router is probably incorrect. You can verify the default router address and community string using the Optivity System Preferences dialog box. Choose Start > Programs > Optivity > Optivity System Preferences.

If you did not run Router Discovery Using Routing Tables or wish to manually specify the range of discovery, you can manually type the subnets that you want Autodiscovery to discover.

To manually specify a subnet to discover, type a subnet IP address in the Add Subnet Address Field and click Add. Repeat the process until you have added all of the subnets that you want ARP discovery to discover.

Routers serving the specified networks are queried for the contents of their ARP cache. Those devices whose IP addresses fall within the discovery range are queried via SNMP to determine the device type. Those device that respond and are supported by Optivity Campus are added to their respective Campus Command Center folder.

To remove a subnet from the Discover Subnets list box, select a subnet and click Delete.

5. **Click Discover.**

   Devices belonging to networks listed in the Discover Subnets list box are discovered by reading the ARP caches of previously discovered routers. The Autodiscovery process begins. The Autodiscovery icon turns red in the Campus Command Center toolbar. The icon turns green when the Autodiscovery process is completed. Also the Status Bar displays "Autodiscovery Not Running."



Note: The ARP Cache discovery process is aware of routers on the network. Even if you have not run Router Discovery Using Routing Tables and Discovery is running for the first time, the ARP Discovery utility still proceeds to retrieve routing information from the seed router so that appropriate next hop routers to query can be discarded. This process will not, however, populate the Available Subnets list box in the Autodiscovery dialog box.

Using Range PINGing

Range PINGing is commonly used as an alternative discovery method to router discovery and ARP Cache discovery either to limit the scope of discovery to three very specific address ranges or as a discovery method for routerless environments.

Range PINGing involves sending and ICMP Ping to determine what IP devices are alive on the network. It then sends an SNMP request to determine device type. As with ARP Cache discovery, devices responding that are within the range of the device type that Optivity Campus has been designed to identify are discovered.

To select subnets for Range PINGing discovery:

1. **Type the starting and ending host address in the From and To text boxes (Figure 4-7).**

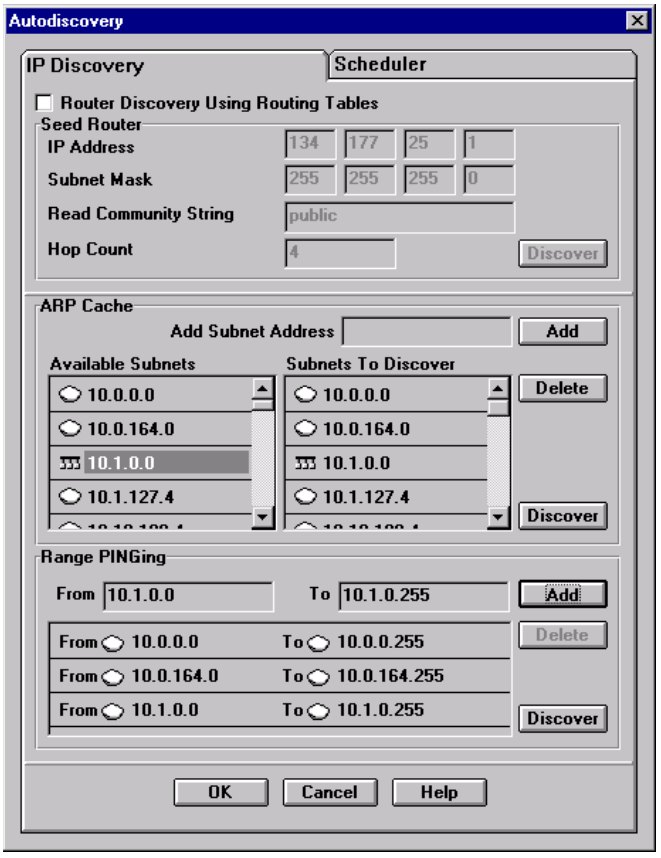


Figure 4-7. Autodiscovery Dialog Box—Range PINGing Discovery

2. **Click Add.**

   The specified range is added to the Range PINGing range list box.To remove a subnet address range from the Range PINGing range list box, select the range you want to remove and click Delete.

3. **Repeat steps 1 and 2 until you have specified all of the addresses.**
4. **Click Discover.**

   The Autodiscovery process begins.

Note: You can use the Scheduler to schedule Autodiscovery to occur later at a specified time or interval (see page 4-18).

Using IPX Discovery

IPX Discovery involves discovering the hubs from the IPX server bindery.

To use the IPX Discovery:

1. **In the Autodiscovery dialog box, click the IPX Discovery tab.**

   The IPX Discovery tab opens (Figure 4-8). If your management station is not running IPX, this tab is not available.

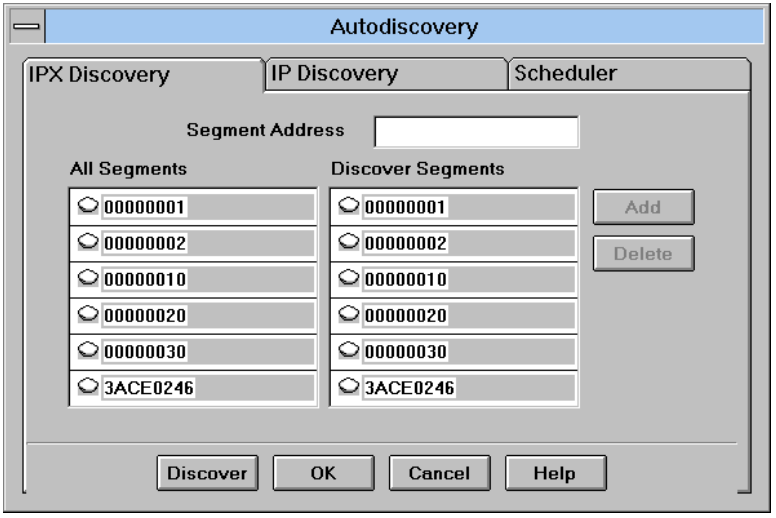


Figure 4-8. Autodiscovery Dialog Box— IPX Discovery Tab

2. **Select a segment from the Available Segments list, or manually type a segment IP address using the Segment Address text box.**
3. **Click Add.**

   The selected segment address is displayed in the Discover Segments list box. To remove a segment address from the Discover Segments list box, select the address you want to remove and click Delete.
4. **Repeat steps 2 and 3 until you have specified all of the address ranges.**
5. **If you want to select IP Discovery options, see "Using IP Discovery" on page 4-9.**
6. **Click Discover.**



Note: You can use the Scheduler to schedule Autodiscovery to occur later at a specified time or interval. See "Scheduling Discovery" next in this chapter.

Scheduling Discovery

The Autodiscovery Scheduler lets you schedule Autodiscovery to automatically occur daily or at a specific interval.

To ensure that the Optivity database is updated with the latest network information, schedule Autodiscovery to occur on a regular basis. You can schedule Autodiscovery to occur daily at a specified time or you can schedule Autodiscovery to occur at specific time intervals. Nortel Networks recommends that you schedule Autodiscovery to occur at a time when network activity is low and when other task are not running on the Optivity Campus management station.

To schedule the Autodiscovery process:

1. **In Optivity Campus Command Center menu bar, choose Applications > Autodiscovery or click the Autodiscovery toolbar button.**

   The Autodiscovery dialog box opens (Figure 4-9).

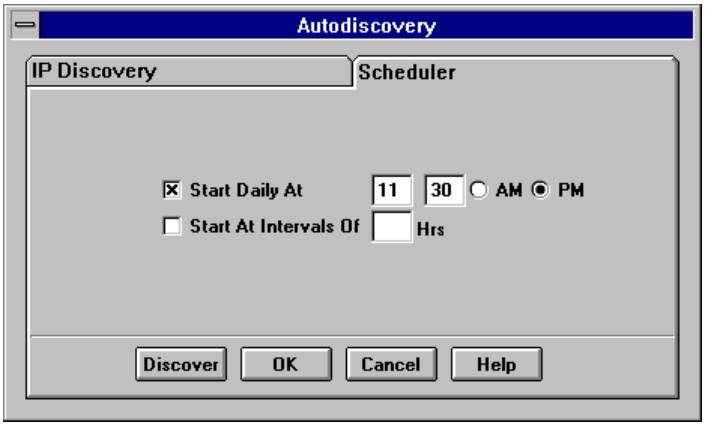


Figure 4-9. Autodiscovery Dialog Box—Scheduler Tab

2. **Click the Scheduler tab.**
3. **To schedule Autodiscovery daily at a specific time, check the Start Daily At check box, type the specified time in the text box, and click the AM or PM option.**

   The Start Daily At Autodiscovery option is automatically checked by default.

4. **To schedule Autodiscovery to occur periodically at a specified interval, check the Start At Intervals Of check box and type the hours in the text box.**
5. **Click Discover to automatically start Autodiscovery at the specified time or interval.**

   Click OK to save the information and close the Autodiscovery window. To disable Autodiscovery at a specified time or interval, deselect everything on the Scheduler tab and click OK.

Saving a Campus Command Center View

After discovered devices are displayed in the Optivity Campus Command Center, you can save the view, which results in creating a configuration file (*.ccc*).

A configuration file includes the following information:

- Device information for each folder, such as network address, host name, or MAC address
- Current selections in the Contents folder
- Thresholds

To save a Campus Command Center view and create a configuration file:

1. **From the Optivity Campus Command Center menu bar, choose File > Save or click the Save toolbar button.**

   The Save File dialog box opens.

2. **Type a file name and click Save.**

   The next time you open Campus Command Center, the last saved view is automatically loaded. The saved configuration file is displayed at the bottom of the File menu. If you try to exit the Campus Command Center without saving changes to your current configuration file, you are prompted to confirm whether or not to save your changes before you exit.



Note: To view a list of previously saved views, edit the[RecentFileList] section in the *ccc.ini* file. The file referenced by the “File1=” parameter is automatically opened the next time you start Optivity Campus Command Center.

Running Optivity Node Discovery

Node Discovery is an Optivity utility that supplements the other Optivity Discovery processes and adds additional information to the Optivity database using the Show Nodes information obtained from Nortel Networks devices. Node Discovery discovers nodes in your segment and link label information (the slots and ports through which devices are connected to other devices). Link label information is viewable in the Optivity segment view map. Node information is used for the Find Node application and other applications such as Nodal View. Run Node Discovery prior to using Optivity for the first time. Additionally, run Node Discovery periodically thereafter.



Note: For some applications, such as Nodal View, information can be discovered dynamically and added to the database on an as-needed basis. For other applications, such as Find Node, Node discovery must be run first before launching the application.

To run Node Discovery:

- **From the Campus Command Center menu bar, choose Applications > Node Discovery.**

  Node Discovery starts immediately discovering nodes learned by querying devices for their Show Nodes tables. Show Nodes information is stored in the Optivity database for future use.

  The Node Discovery process begins. Node Discovery may take several minutes. Node Discovery is complete when the Node Discovery window closes.

Setting Optivity System Preferences

The Optivity System Preferences let you change preferences for the Optivity Campus Command Center, Community Strings, and NMS Configuration. You can change Optivity system preferences at any time so that you do not have to reinstall the software to update the information.

Changing Campus Command Center Preferences

The Command Center tab allows you to change default information and MAC address format.

To change Command Center preferences:

1. **Choose Start > Programs > Optivity > Optivity System Preferences.**

   The System Properties dialog box opens (Figure 4-10). The Command Center tab is displayed by default.

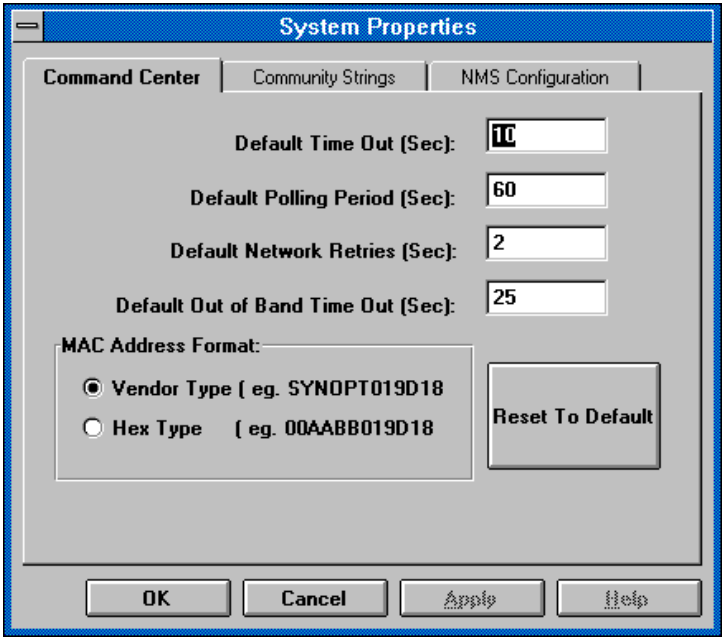


Figure 4-10. System Properties Dialog Box—Command Center Tab

2. **Type the time in seconds to wait for a response from a device.**
3. **Type the time in seconds for Optivity Campus to poll a device.**
4. **Type the number of retries for getting information from a device.**
5. **Type the time out in seconds for out-of-band operations.**

6. **Select the MAC Address format type that you want.**

   If you select the vendor type, the MAC address is displayed in Optivity applications by vendor name followed by six hexadecimal numbers. If you select the hex type, the MAC address is displayed in Optivity applications in hexadecimal format.

7. **Click Reset To Default if you want to go back to the default values.**

Changing NMS Configuration

The network management station (NMS) Configuration tab allows you to change the IP address of the Optivity Campus host management station, the discovery seed router, subnet mask, and the discovery seed router community string you entered during the installation process.

To change NMS configuration:

1. **Choose Start > Programs > Optivity > Optivity System Preferences.**

   The System Properties dialog box opens. The Command Center tab is displayed by default.

2. **Click the NMS Configuration tab (Figure 4-11).**

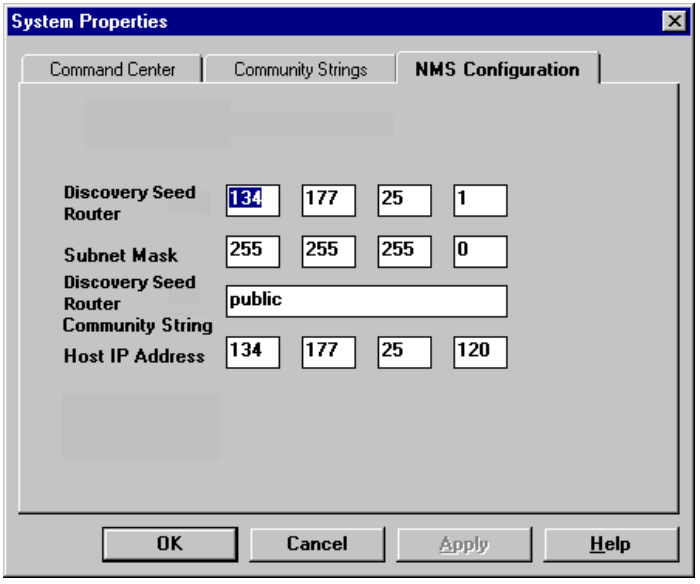


Figure 4-11. System Properties Dialog Box—NMS Configuration Tab

3. **Type the IP address of the discovery seed router in the Discovery Seed Router field. Type 1.1.1.1 for a routerless network.**
4. **Type the subnet mask of the network in the Subnet Mask field.**
5. **Type the read community string of your seed router in the Default Gateway Community String field. In a routerless environment, accept the default (public).**
6. **Type the IP address of the Optivity Campus management station.**
7. **Click OK to save the new information.**

   All the information is saved in the Optivity database.

   If you click Cancel, the System Properties information is not changed in the database.

Using Optivity Campus Applications

After you have a NetView or NNM map, you can use Campus Command Center and the Optivity Campus integrated applications to manage, monitor, and configure your network.

For information about using the Optivity Campus applications, see *Using Optivity Campus 7.0* (located on the Optivity Campus 7.0.2 Documentation CD), or use the Optivity Campus Online Help System.

To view the Optivity Campus Online Help System, choose Help > Optivity Index from the Campus Command Center menu bar.

To use the *Optivity Campus 7.0.2 Documentation CD*:

1. **Insert the *Optivity Campus 7.0.2 Documentation CD* in your management station CD-ROM drive.**
2. **Choose Start > Run.**

   The Run dialog box opens.
3. **Type the following:**

   <*CDROMdrive*>:\Welcome.pdf
4. **Click OK.**

   The *Optivity Campus 7.0.2 Documentation CD* interface opens in Adobe Acrobat.
5. **Click Main Menu.**

   The list of documentation opens.
6. **Click the document that you want.**

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