

IBM Network Station Family of Thin Clients
Access for today, flexibility for tomorrow



Network Station Manager V2R1 Setup Wizard for AS/400

October 29, 1999



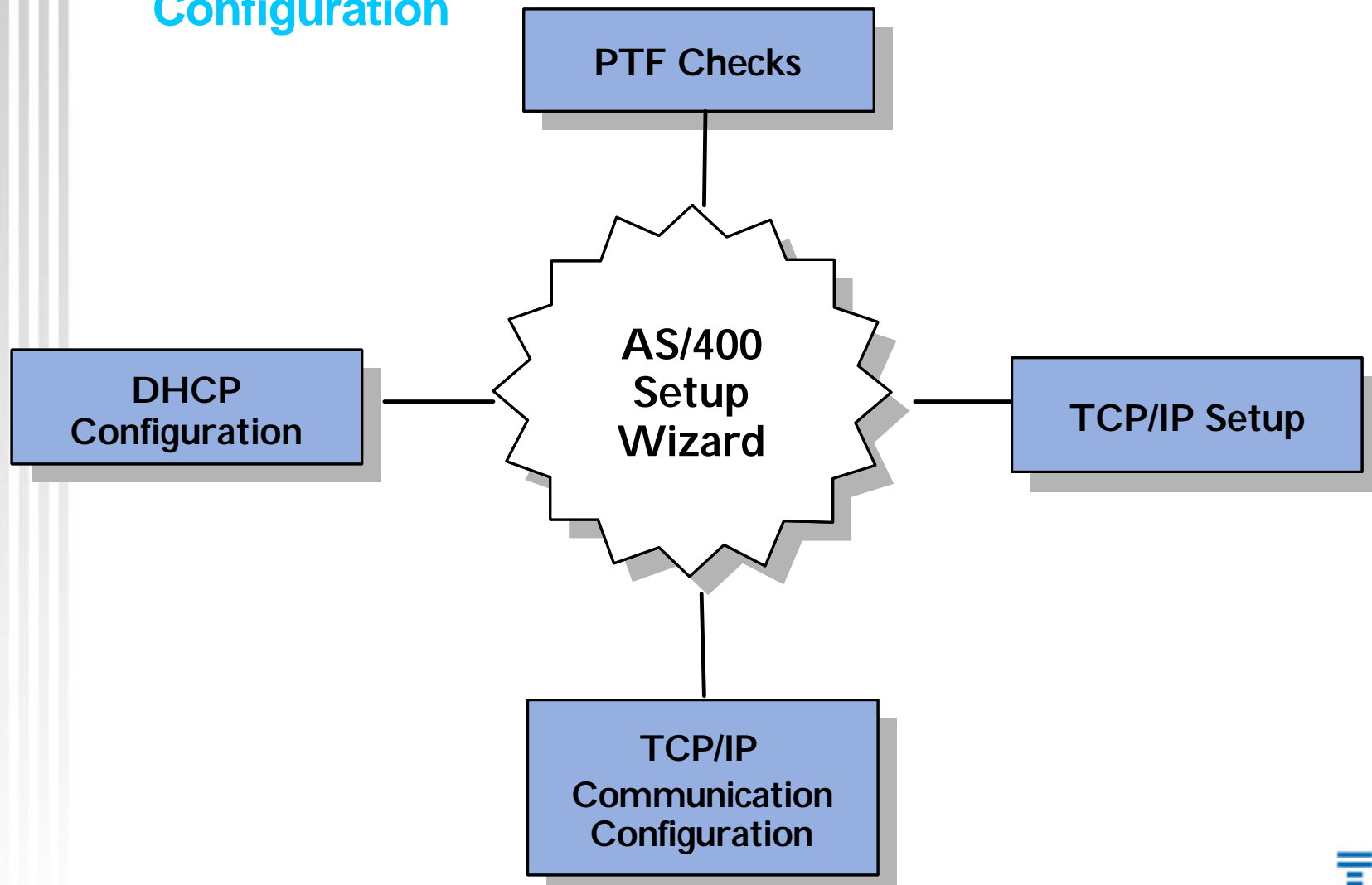


What is the AS/400 Setup Wizard?

- The wizard is a plug-in to AS/400 Operations Navigator
- This wizard replaces the green screen Setup Assistant
- Difference/Benefits of wizard over green screen Setup Assistant
 - ▶ **NSSA**
 - Configured TCP/IP
 - Configured BOOTP
 - Could only go through this tool once
 - Green Screen
 - ▶ **Wizard**
 - Configures TCP/IP
 - Configures DHCP
 - Can go through the wizard multiple times to create additional subnets
 - GUI

What is the AS/400 Setup Wizard?

- The wizard has two primary functions: TCP/IP and DHCP Configuration





What is the AS/400 Setup Wizard?

- **Initial TCP/IP Setup**

- ▶ **Sets TCP/IP host name**
- ▶ **Sets TCP/IP domain name**
- ▶ **Sets TCP/IP domain name servers**



What is the AS/400 Setup Wizard?

- **TCP/IP Communication Configuration**
 - ▶ **Creates new token-ring/ethernet line: CRTLINETH/CRTLINTRN**
 - Varies on new line: QSYS/VRFCFG
 - ▶ **Creates new Network Server Description: CRTNWSD**
 - Varies on new network server description: QSYS/VRFCFG
 - ▶ **Creates a new TCP/IP Interface: ADDTCPIFC**
 - ▶ **Adds Host Table Entry: ADDTCPHTE**
 - ▶ **Adds Gateways: ADDTCP RTE**
 - ▶ **Adds Routes: ADDTCP RTE**



What is the AS/400 Setup Wizard?

■ DHCP Configuration

- ▶ Disables BOOTP from auto starting: **CHGBPA AUTOSTART(*NO)**
- ▶ Stops the BOOTP server **ENDTCPSVR SERVER(*BOOTP)**
- ▶ Creates Required DHCP Option Templates
- ▶ Creates the DHCP subnet
- ▶ Adds bootstrap server option to subnet
- ▶ Adds DHCP required options to subnet
- ▶ Adds required DHCP classes to subnet
- ▶ Adds DHCP excluded address
- ▶ Migrates BOOTP clients to be new DHCP clients if specified
- ▶ Sets DHCP server to autostart: **CHGDHCPA AUTOSTART(*YES)**
- ▶ Starts the DHCP server: **STRTCPSVR SERVER(*DHCP)**

What is the AS/400 Setup Wizard?

■ Other Behind-the-Scenes configuration

- ▶ Sets TFTP server to autostart `CHGTFTP AUTOSTART(*YES)`
- ▶ Sets HTTP server to autostart `CHGHTTPA AUTOSTART(*YES)`
- ▶ Sets Telnet server to autostart `CHGTELNA AUTOSTART(*YES)`
- ▶ Sets system to retain server security data `CHGSYSVAL SYSVAL(QRETSVRSEC) VALUE('1')`
- ▶ Starts TCP/IP `STRTCP STRSVR(*YES) STRIFC(*YES)`
 - Sets HTTP Server directives: `WRKHTTPCFG`
 - Host Name `nsmHostName`
 - Enable POST
 - Enable GET
 - Map `/networkstationv2/admin /QYTCV2/QYTCMAIN.PGM`
 - Pass `/networkstationv2*/QIBM/ProdData/HTTP/Protect/NetworkStationV2/*`
 - Exec `/QYTCV2*/QSYS.LIB/QYTCV2.LIB/*`
 - Stop the HTTP Server `ENDTCPSVR SERVER(*HTTP)`
 - writes new HTTP Directives
 - Start the HTTP server `STRTCPSVR SERVER(*HTTP)`
- ▶ Starts the V2R1 Network Station Login Daemon server
 - If the V1R3 server is installed, you must stop the current server `CALL QYTC/QYTCUSVR ('ENDTCPSVR')`
 - Start the V2R1 NSLD server: `CALL QYTCV2/QYTCUSVR ('STRTCPSVR')`



Installing the AS/400 Setup Wizard

■ PC Requirements

- Processor: Pentium 100 MHz or greater
- Operating System: Microsoft Windows 95, NT 4.0, or 98
- Software: Client Access Express
- Memory: At least 16 MB for Windows 95/98, and 24 MB for NT

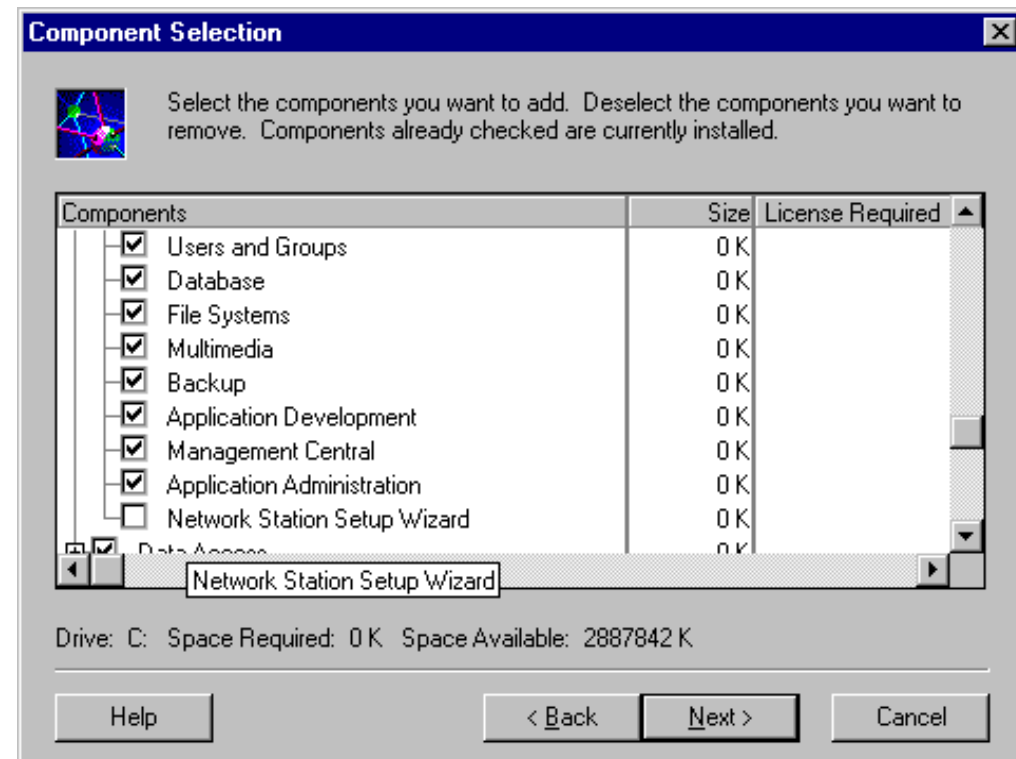
■ Installing Client Access Express and Service Pack 1

- ▶ **Service Pack 1 of Client Access Express (V4R4) MUST be installed!!**
- ▶ **For information on how to order/get Client Access, check this URL:
<http://www.as400.ibm.com/clientaccess/caorder.htm>**
- ▶ **For troubleshooting or known problems on Client Access:
<http://www.as400.ibm.com/clientaccess/caprob.htm>**

Installing the AS/400 Setup Wizard

■ Installing Wizard

- ▶ **Make sure that AS/400 NetServer is "started"**
 - Open Operations Navigator
 - Expand the system
 - Expand **Network**, then **Servers**. Double-click on **TCP/IP**.
 - In the right pane, look for AS/400 NetServer and verify status is **Started**
 - If **Stopped**, right click on **AS/400 NetServer** and choose **Start**



- ▶ **Use Client Access Express Selective Setup to install the Wizard**
 - Click on your **Start** menu --> **Programs** --> **IBM AS/400 Client Access** --> **Selective Setup**
 - On the Selective Setup screen, enter the following as the source directory:
\\servername\QIBM\ProdData\NetworkStationV2\IBM.NSWizard
 - At the Component Selection dialog, expand AS/400 Operations Navigator and check the box for **Network Station Setup Wizard**.

Installing the AS/400 Setup Wizard



■ Scanning for plug-ins

- ▶ **Operations Navigator will automatically detect that a new plug-in has been installed. When you click on the AS/400 in Operations Navigator, this dialog will come up asking to re-scan the AS/400. Rescanning for plug-ins allows Operations Navigator to find out where the code should be plugged-in.**
- ▶ **If you cancel this scan, you can scan later by going to the AS/400 Properties:**
 - Right click on the system and choose **Properties**
 - Click on the Plug-ins tab and click on the **Rescan** button





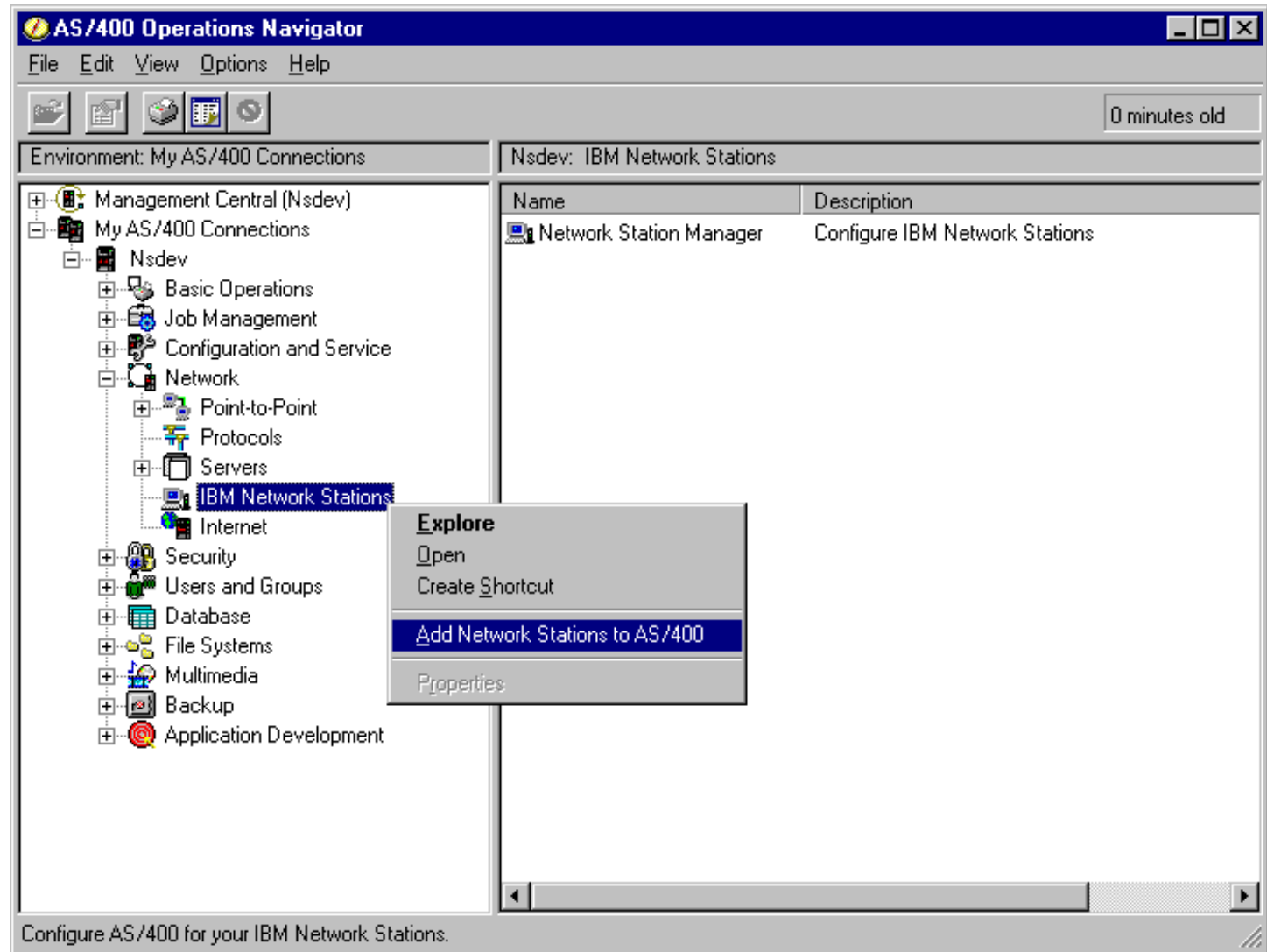
Installing the AS/400 Setup Wizard

■ Uninstalling the Wizard

- ▶ **Use Client Access Express Selective Setup to uninstall the Wizard**
 - Click on your **Start** menu --> **Programs** --> **IBM AS/400 Client Access** --> **Selective Setup**
 - At the Component Selection dialog, expand AS/400 Operations Navigator and uncheck the box for **Network Station Setup Wizard**.

Starting the AS/400 Setup Wizard

- Operations Navigator: Add Network Stations to AS/400



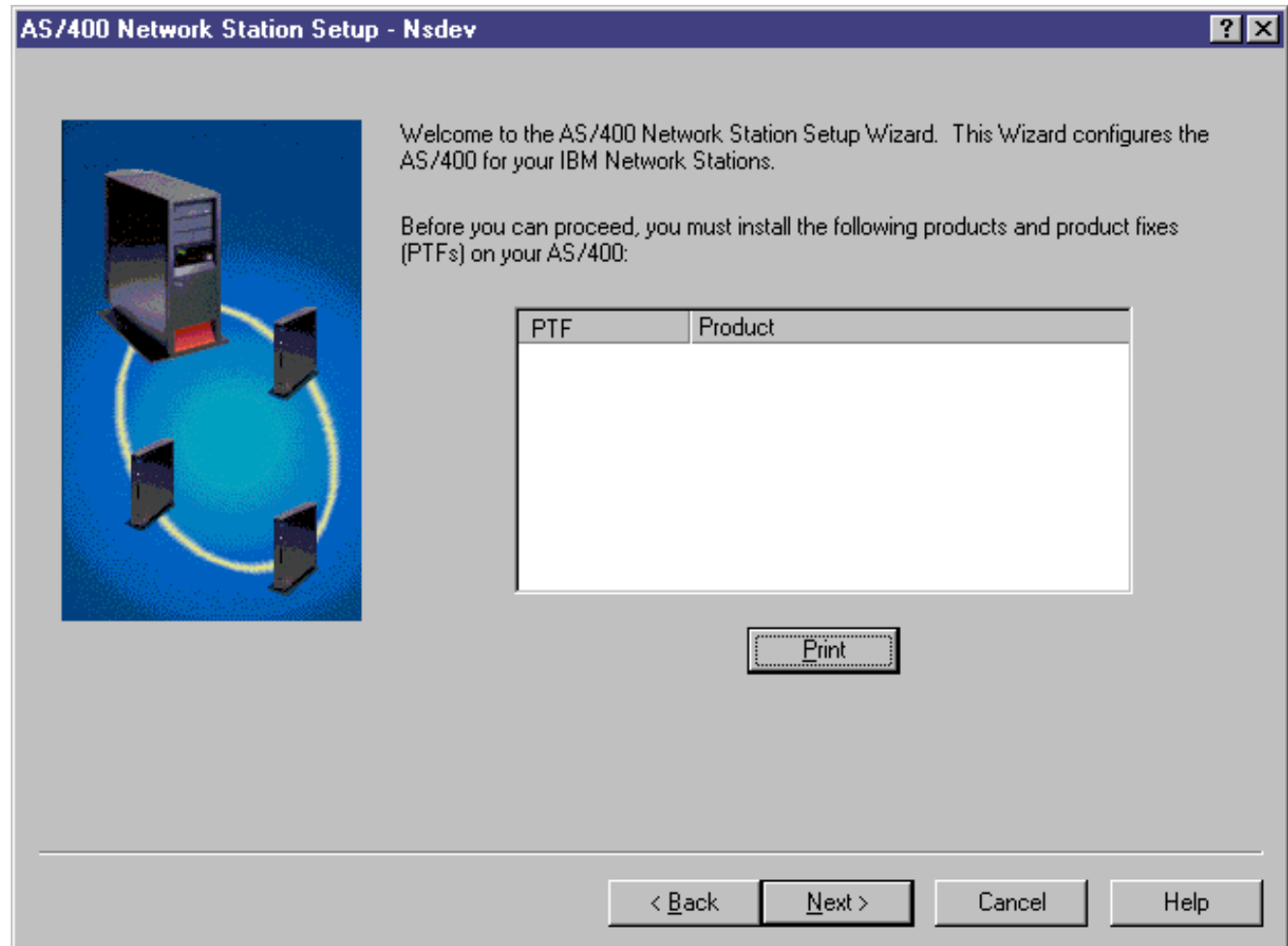
The screenshot displays the AS/400 Operations Navigator window. The left pane shows a tree view of the environment, with 'IBM Network Stations' selected under the 'Network' folder. A context menu is open over this selection, showing options like 'Explore', 'Open', 'Create Shortcut', 'Add Network Stations to AS/400', and 'Properties'. The right pane shows a table with one entry: 'Network Station Manager' with the description 'Configure IBM Network Stations'. The status bar at the bottom reads 'Configure AS/400 for your IBM Network Stations.'

Name	Description
Network Station Manager	Configure IBM Network Stations

Using the AS/400 Setup Wizard

■ PTF check

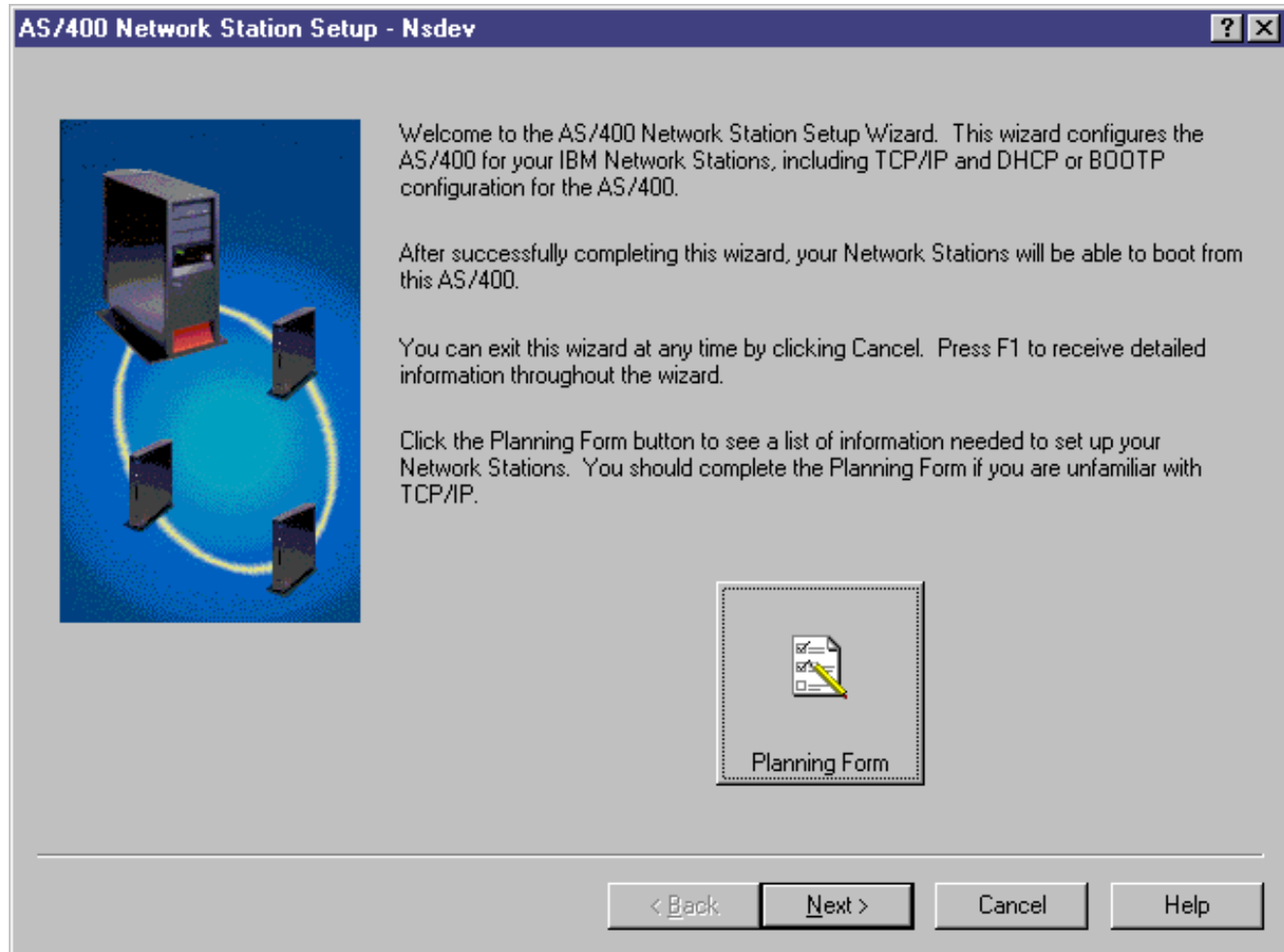
- ▶ Checks to verify that the required PTFs are installed on the AS/400.
- ▶ The screen is not shown if all of the PTFs are on the AS/400
- ▶ The user can print the list of PTFs needed on their PC printer.



Using the AS/400 Setup Wizard

■ Welcome

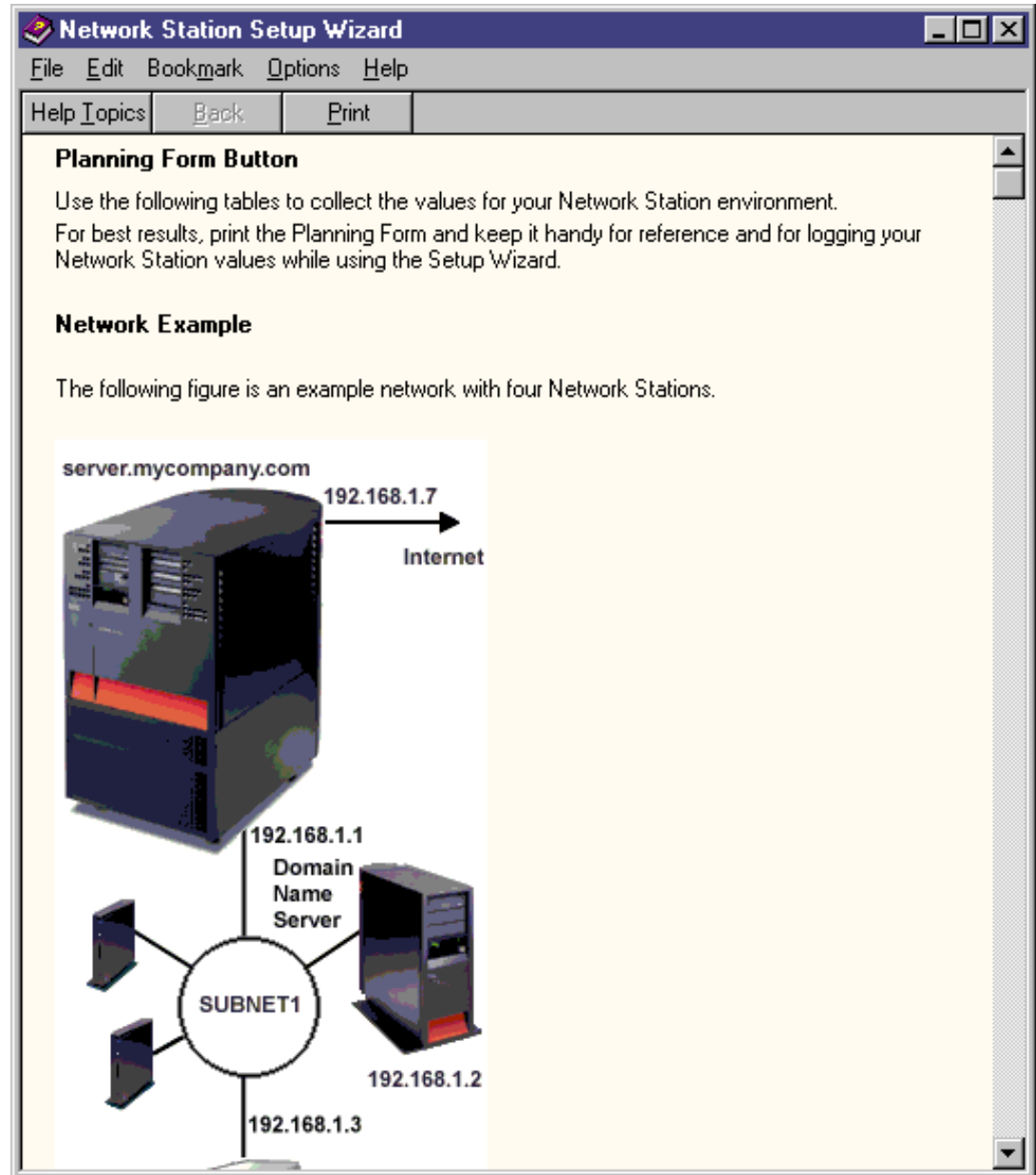
- ▶ Includes a Planning Form button to list all of the information required to complete the wizard.



Using the AS/400 Setup Wizard

■ Planning Form

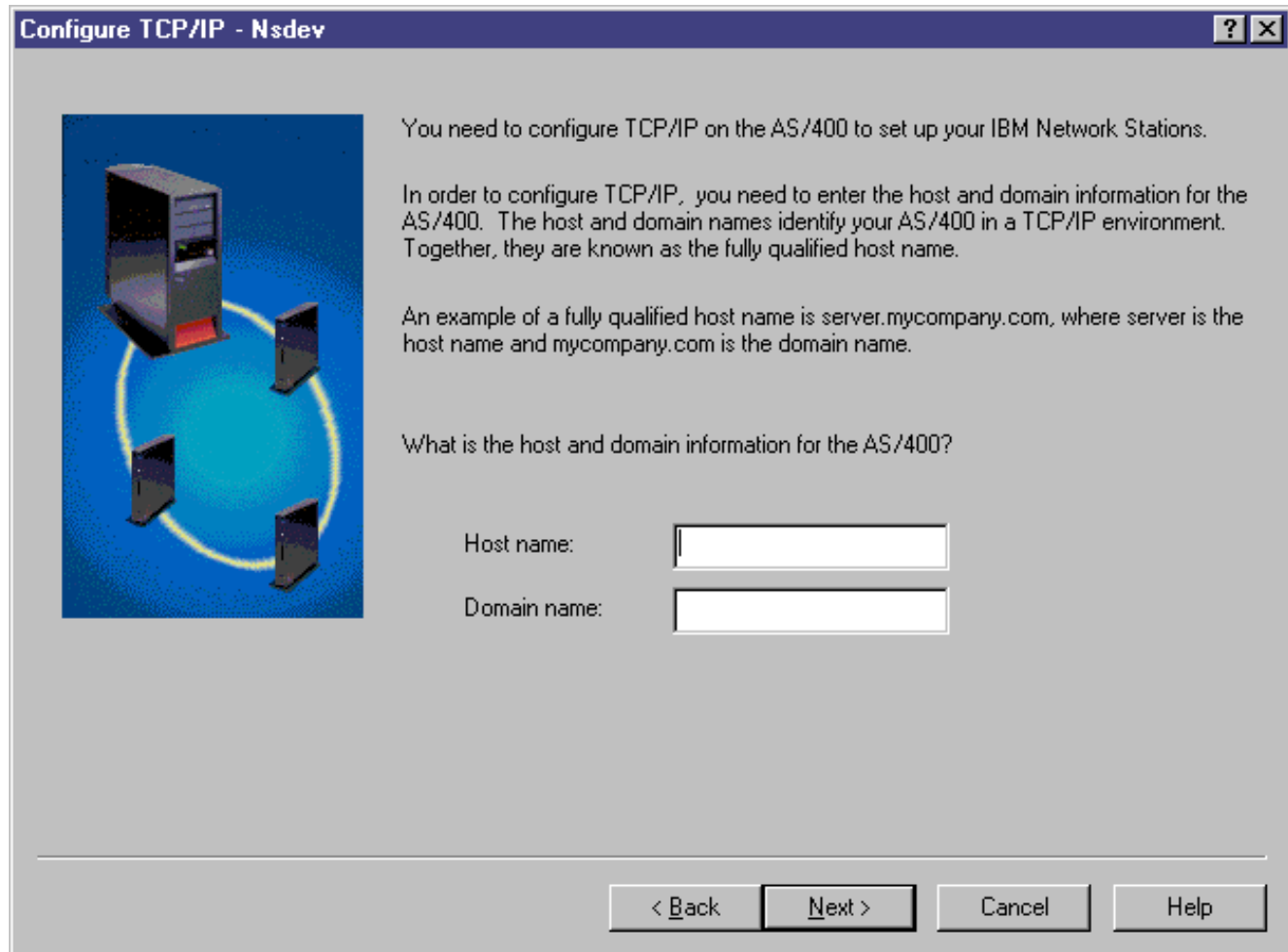
- ▶ Helps the user figure out what the values are for the information required by the wizard.
- ▶ Provides a table for the user to fill out ahead of time.
- ▶ The user can print the planning form on their PC printer.



Using the AS/400 Setup Wizard

■ Initial TCP/IP Setup: host and domain name

- ▶ Only presented if TCP/IP has never been set up.
- ▶ Only presented if connected through Operations Console.



Configure TCP/IP - Nsdev

You need to configure TCP/IP on the AS/400 to set up your IBM Network Stations.

In order to configure TCP/IP, you need to enter the host and domain information for the AS/400. The host and domain names identify your AS/400 in a TCP/IP environment. Together, they are known as the fully qualified host name.

An example of a fully qualified host name is server.mycompany.com, where server is the host name and mycompany.com is the domain name.

What is the host and domain information for the AS/400?

Host name:

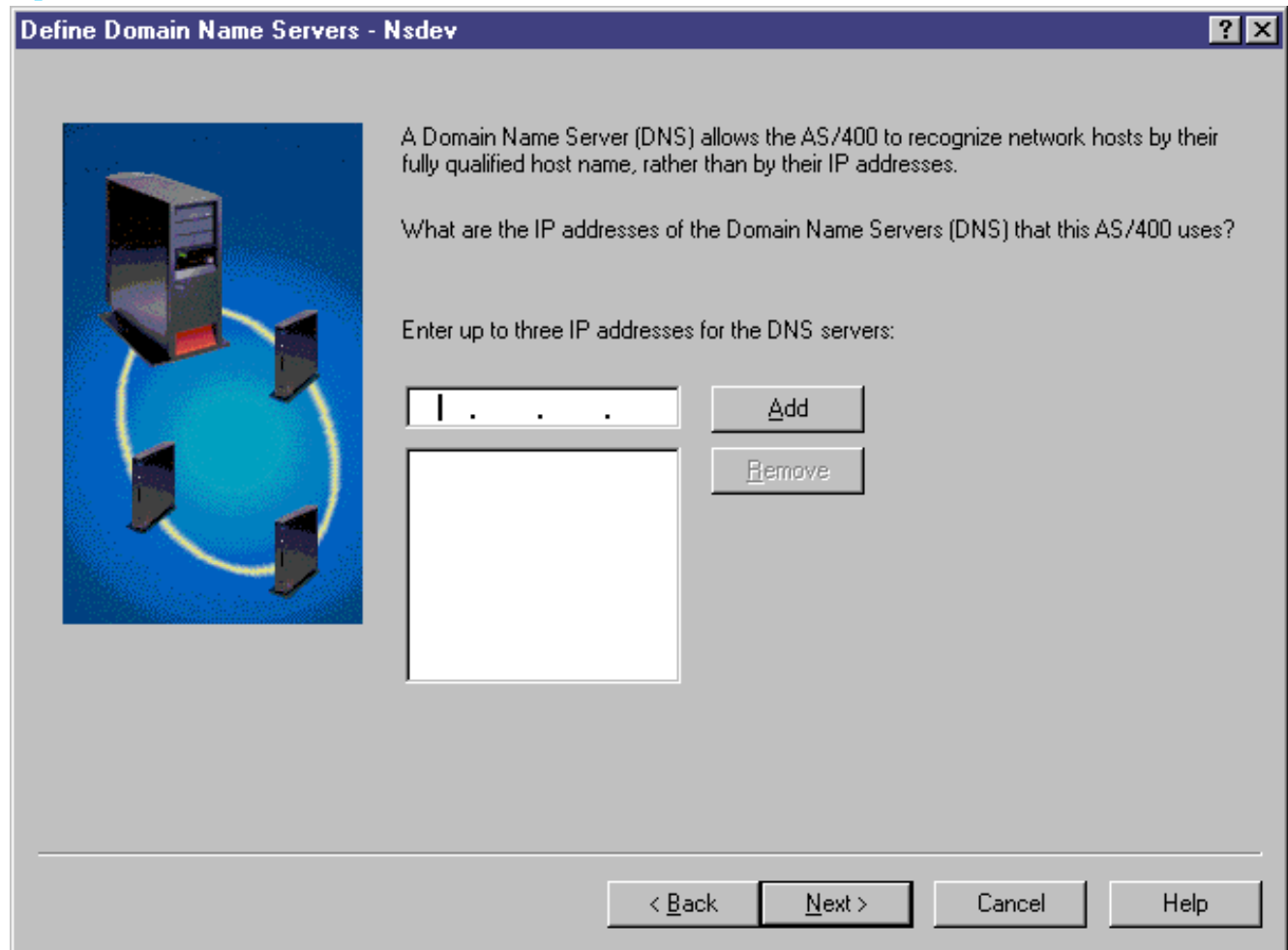
Domain name:

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ Initial TCP/IP Setup: DNS servers

- ▶ Only presented if TCP/IP has never been set up.
- ▶ Only presented if connected through Operations Console.



Define Domain Name Servers - Nsdev

A Domain Name Server (DNS) allows the AS/400 to recognize network hosts by their fully qualified host name, rather than by their IP addresses.

What are the IP addresses of the Domain Name Servers (DNS) that this AS/400 uses?

Enter up to three IP addresses for the DNS servers:

| . . .

Add

Remove

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ Specifying the range of Network Stations

- ▶ **This range is used to determine the TCP/IP interface and to build DHCP subnet.**
- ▶ **It should include an address for the TCP/IP interface if connecting directly to the AS/400.**
- ▶ **The user can Browse to see what the valid ranges are for existing TCP/IP interfaces and DHCP subnets.**

Define Subnet - Nsdev

Network Stations use IP addresses for identification in a TCP/IP network. Subnets are often used to group Network Stations together. A subnet is a range of IP addresses assigned to a group of Network Stations.

What is the IP address range and subnet mask for the subnet of Network Stations you are adding to this AS/400?

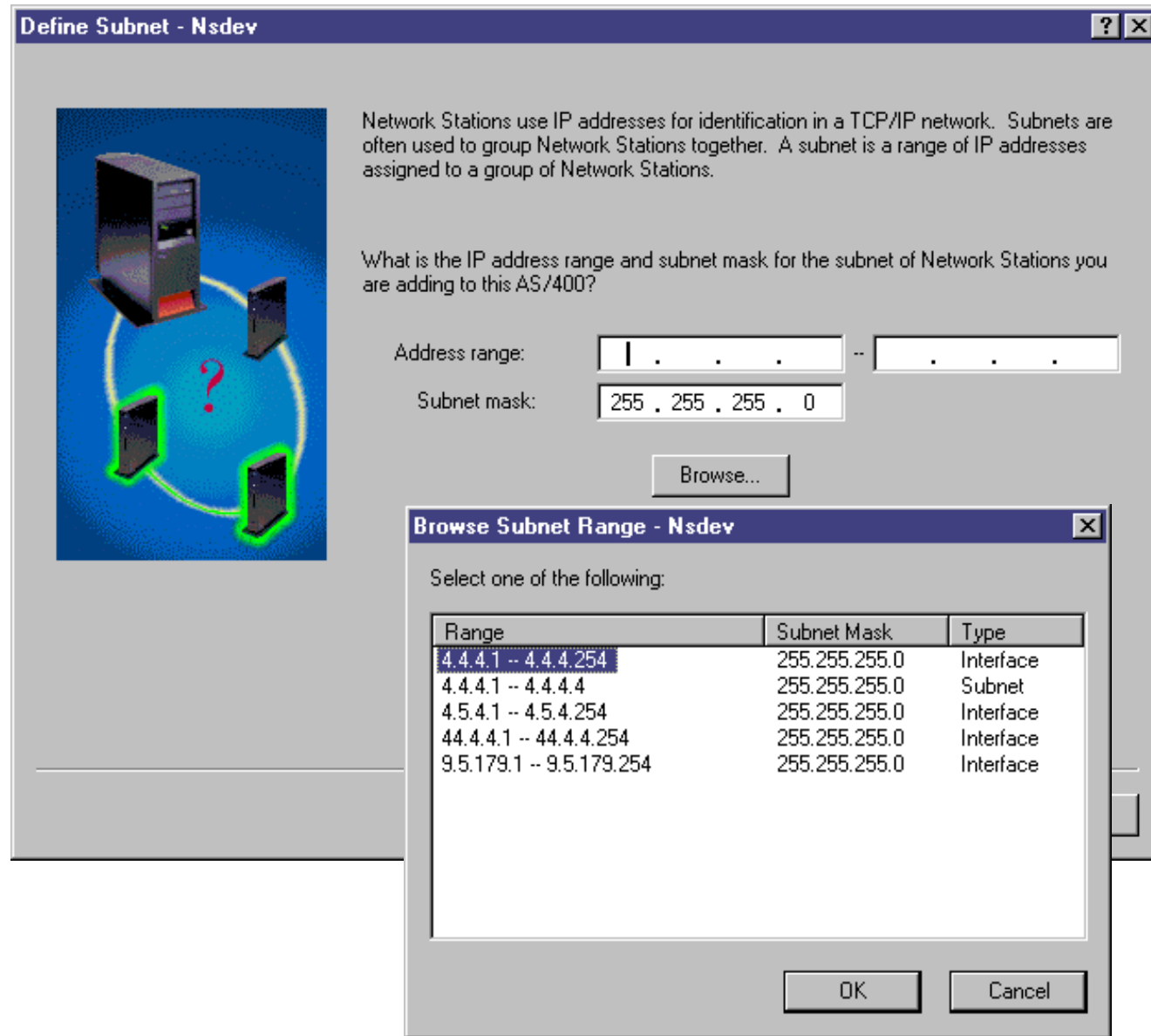
Address range:

Subnet mask: 255 . 255 . 255 . 0

Using the AS/400 Setup Wizard

■ Browsing the range of Network Stations

- ▶ The user can Browse to see what the valid ranges are for existing TCP/IP interfaces and DHCP subnets.
- ▶ The selected range will be copied to the panel that specifies the range of Network Stations.



The image shows a screenshot of the 'Define Subnet - Nsdev' dialog box in the AS/400 Setup Wizard. The dialog box has a title bar with a question mark and a close button. On the left, there is a graphic of a server rack connected to three desktop computers. The main text explains that network stations use IP addresses for identification and that subnets are used to group them. It asks the user for the IP address range and subnet mask for the subnet they are adding. There are input fields for 'Address range' (with a dropdown arrow) and 'Subnet mask' (with a dropdown arrow). A 'Browse...' button is located below the input fields. Below the 'Browse...' button is a smaller dialog box titled 'Browse Subnet Range - Nsdev'. This dialog box contains a table with three columns: 'Range', 'Subnet Mask', and 'Type'. The first row is selected, showing the range '4.4.4.1 -- 4.4.4.254' with a subnet mask of '255.255.255.0' and a type of 'Interface'. Other rows include '4.4.4.1 -- 4.4.4.4' (Subnet), '4.5.4.1 -- 4.5.4.254' (Interface), '44.4.4.1 -- 44.4.4.254' (Interface), and '9.5.179.1 -- 9.5.179.254' (Interface). 'OK' and 'Cancel' buttons are at the bottom of the 'Browse Subnet Range' dialog.

Define Subnet - Nsdev

Network Stations use IP addresses for identification in a TCP/IP network. Subnets are often used to group Network Stations together. A subnet is a range of IP addresses assigned to a group of Network Stations.

What is the IP address range and subnet mask for the subnet of Network Stations you are adding to this AS/400?

Address range: [. . .] -- [. . .]

Subnet mask: [255 . 255 . 255 . 0]

Browse...

Browse Subnet Range - Nsdev

Select one of the following:

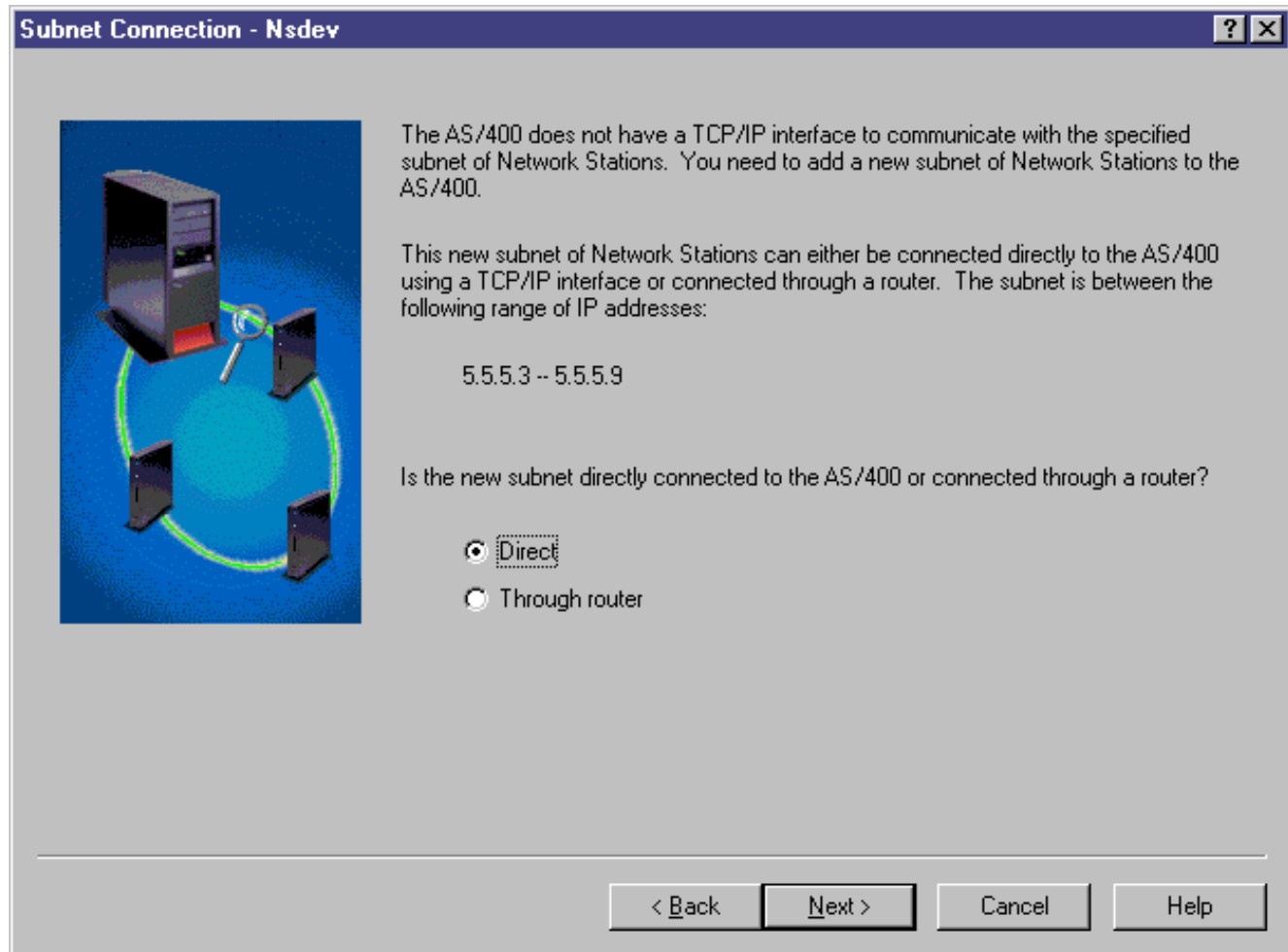
Range	Subnet Mask	Type
4.4.4.1 -- 4.4.4.254	255.255.255.0	Interface
4.4.4.1 -- 4.4.4.4	255.255.255.0	Subnet
4.5.4.1 -- 4.5.4.254	255.255.255.0	Interface
44.4.4.1 -- 44.4.4.254	255.255.255.0	Interface
9.5.179.1 -- 9.5.179.254	255.255.255.0	Interface

OK Cancel

Using the AS/400 Setup Wizard

■ Specifying how the Network Stations are connected to AS/400

- ▶ **Determines whether a TCP/IP interface is needed or not.**
- ▶ **Through router: the wizard does not ask any questions about creating a TCP/IP interface. The next panel would be to select the Start-up method. If the user selects DHCP, the Router option is required.**

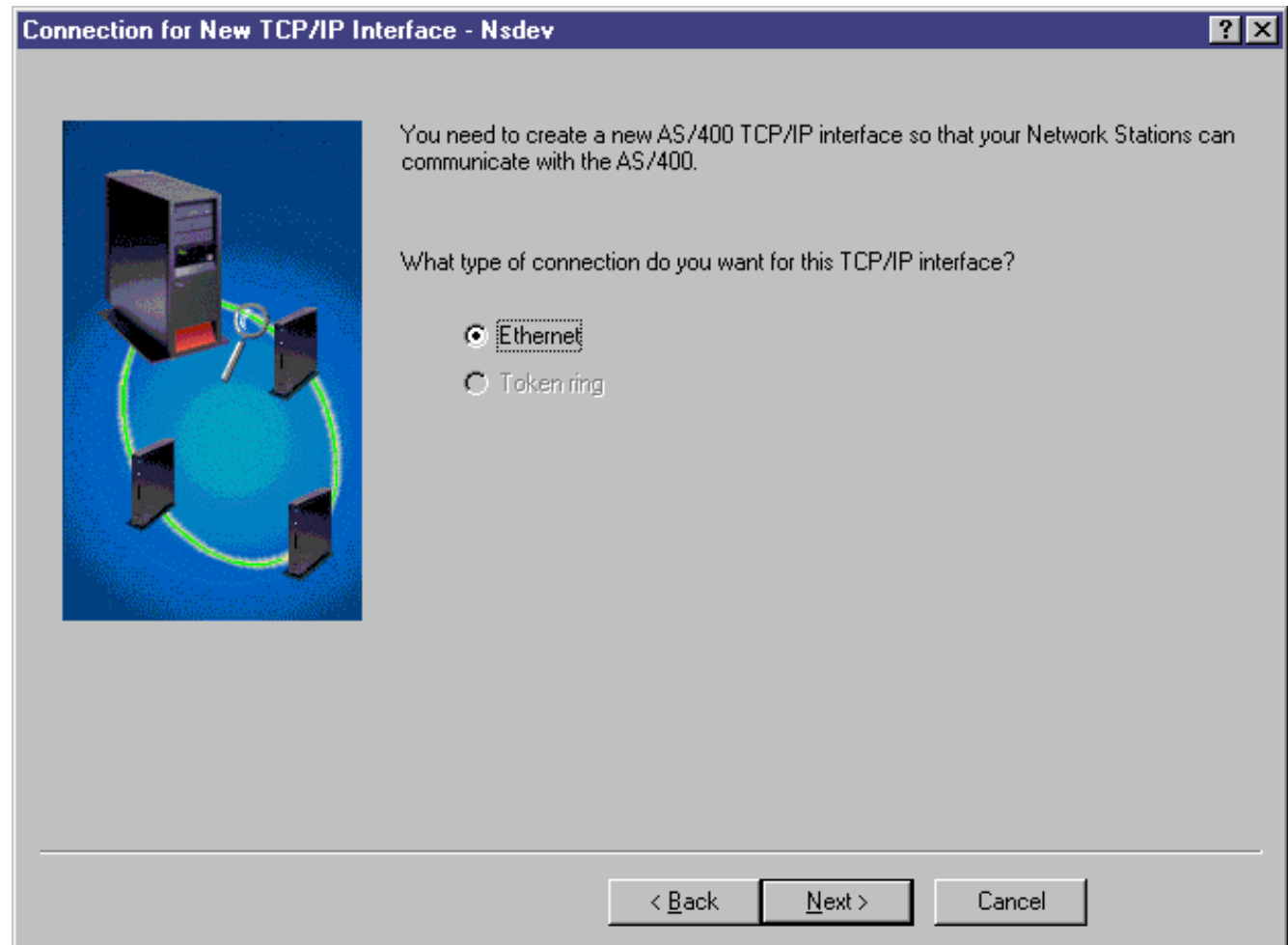




Using the AS/400 Setup Wizard

■ TCP/IP Configuration Type

- ▶ Only configures TCP/IP for Ethernet or Token Ring, not Twinax.
- ▶ If one type is not available on the AS/400, it is grayed out (as Token Ring is in this example).





Using the AS/400 Setup Wizard

■ TCP/IP Configuration: Line

- ▶ Lists all of the lines available for the TCP/IP Configuration Type previously specified.
- ▶ If there aren't any lines already configured, this panel is skipped and the user creates a line.

Line for New TCP/IP Interface - Nsdev

What ethernet line do you want to use for this TCP/IP interface?

Create a new ethernet line

Use an existing ethernet line

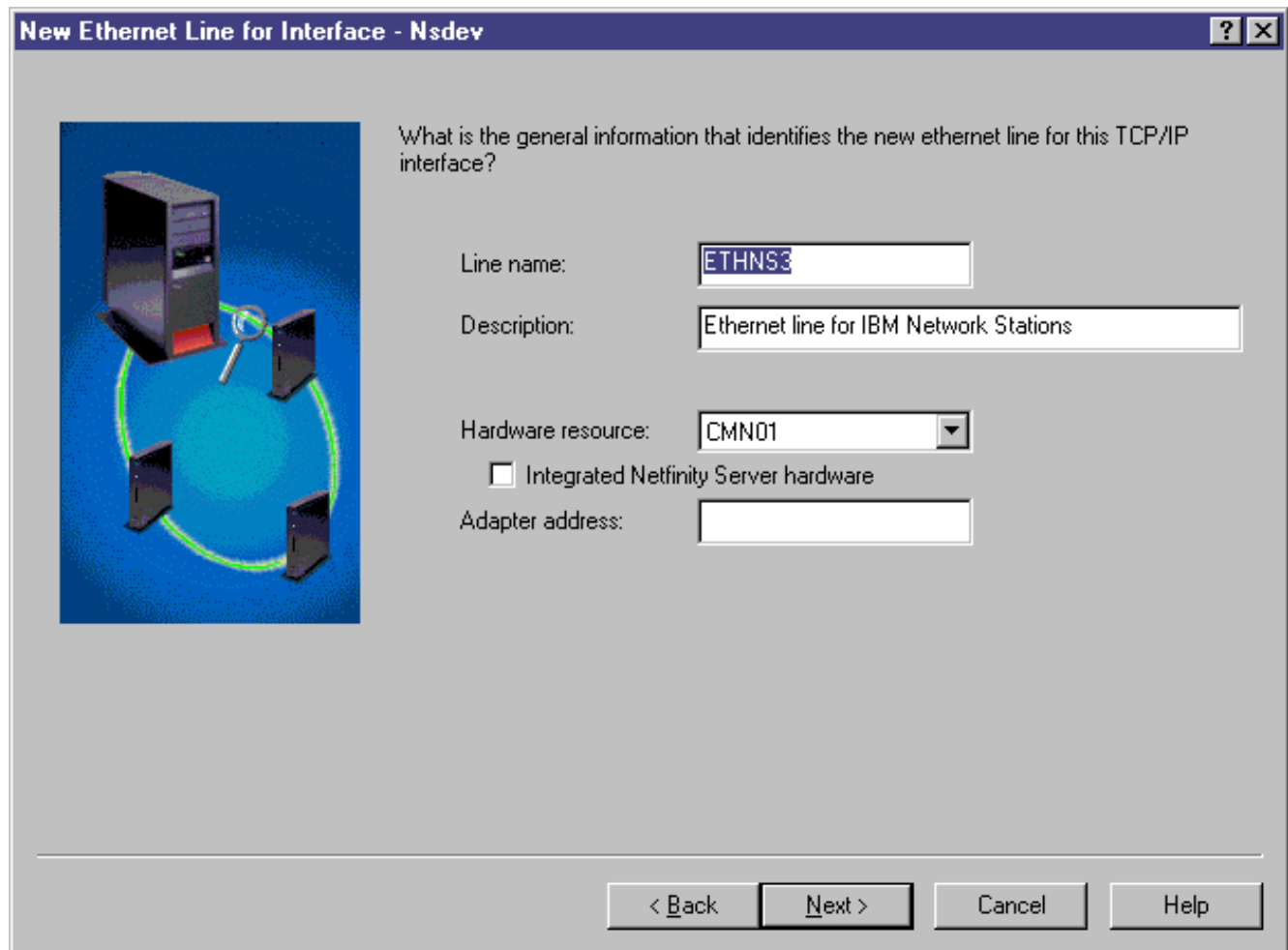
Line Name	Resource	Description
ETHNS1	CMN01	
ETHNS2	CMN01	Ethernet line for IBM Netw...

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ TCP/IP Configuration: New Line

- ▶ The information for creating a line is spread across two panels. The protocol and the speed are on a different panel.
- ▶ The user only specifies some of the basic line configuration parameters.
- ▶ If the wizard detects that the hardware is an Integrated Netfinity Server, the checkbox gets checked. Otherwise, the user must check it.



New Ethernet Line for Interface - Nsdev

What is the general information that identifies the new ethernet line for this TCP/IP interface?

Line name:

Description:

Hardware resource:

Integrated Netfinity Server hardware

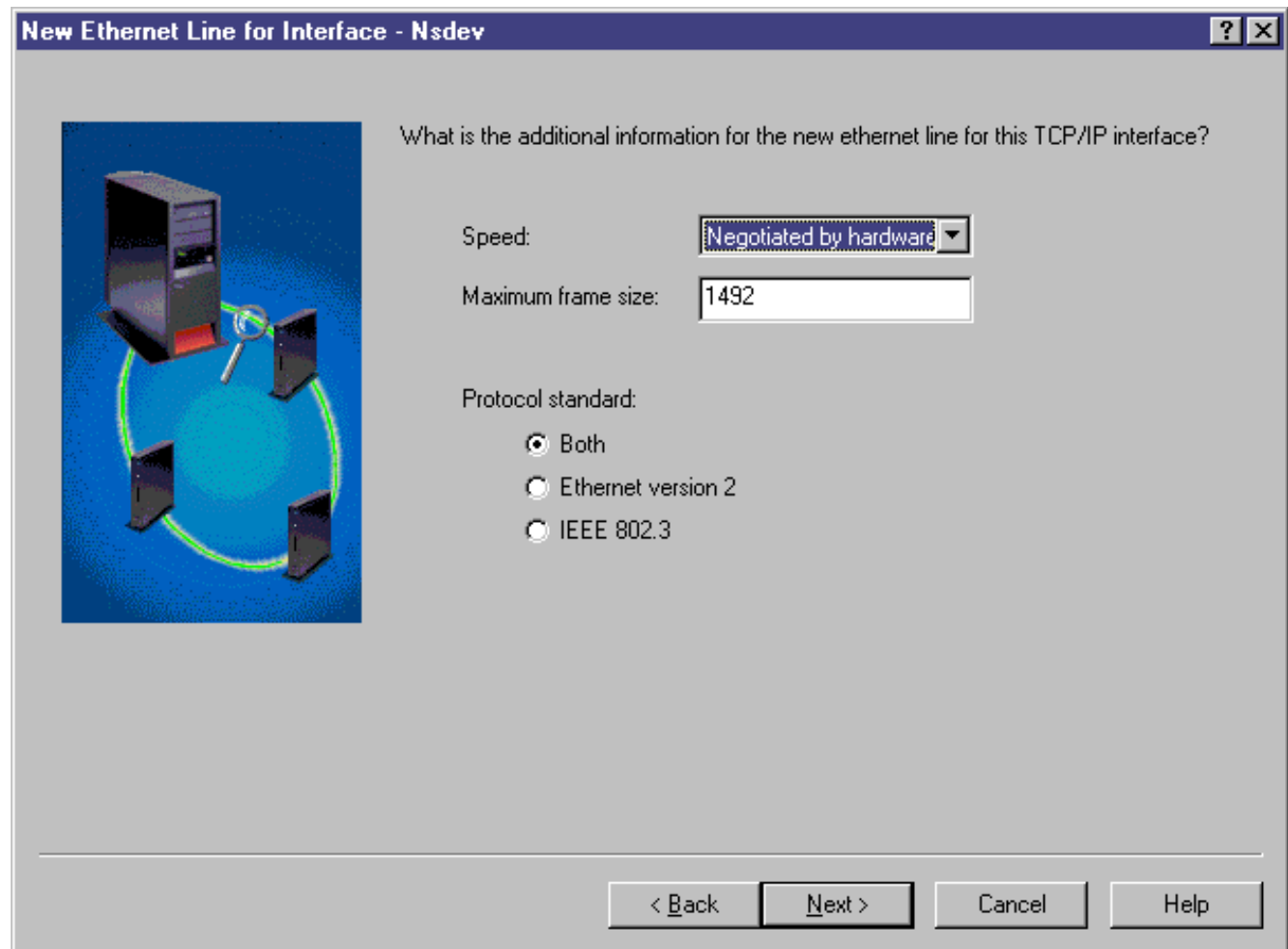
Adapter address:

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ TCP/IP Configuration: New Line

- ▶ The information for creating a line is spread across two panels.
- ▶ The user only specifies some of the basic line configuration parameters.



New Ethernet Line for Interface - Nsdev

What is the additional information for the new ethernet line for this TCP/IP interface?

Speed:

Maximum frame size:

Protocol standard:

Both

Ethernet version 2

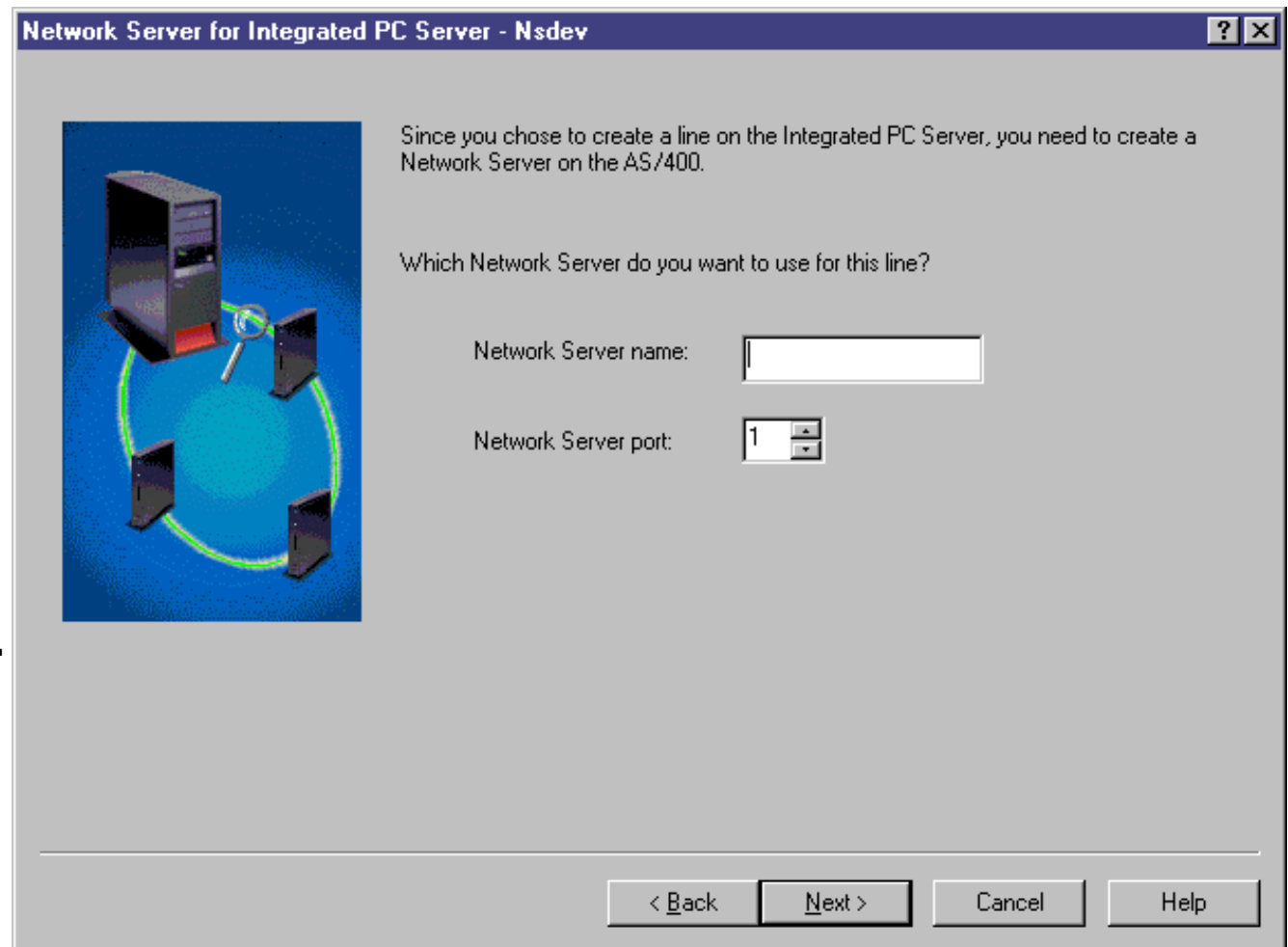
IEEE 802.3

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ TCP/IP Configuration: New Line on Integrated Netfinity Server

- ▶ This panel only appears if the hardware for the line was an Integrated Netfinity Server (the checkbox was checked).
- ▶ This panel will create the associated NWSD for the Integrated Netfinity Server.



Network Server for Integrated PC Server - Nsdev

Since you chose to create a line on the Integrated PC Server, you need to create a Network Server on the AS/400.

Which Network Server do you want to use for this line?

Network Server name:

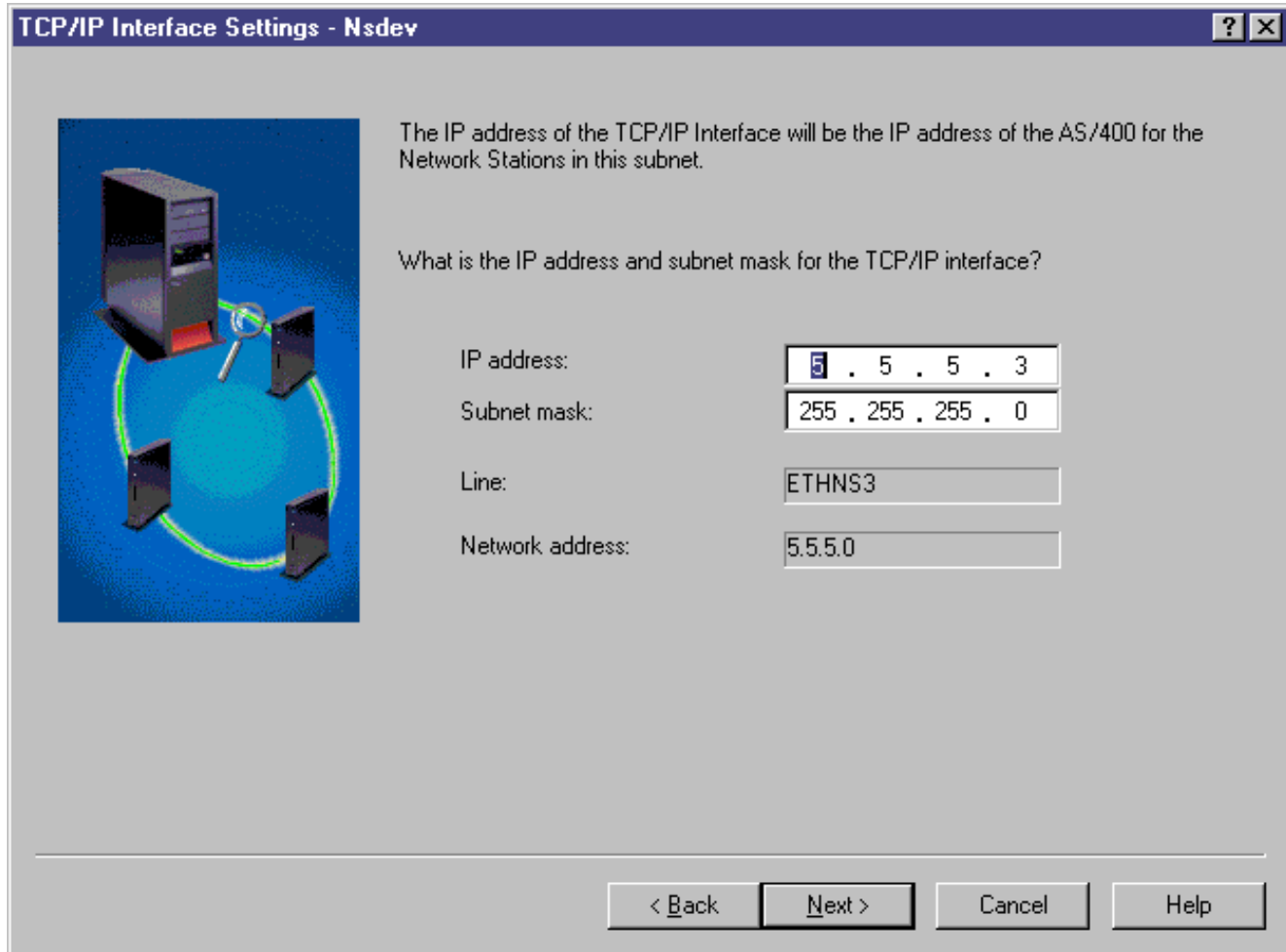
Network Server port:

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ TCP/IP Configuration: Interface

- ▶ The user only specifies some of the basic interface configuration parameters.
- ▶ The wizard fills in the IP address by default using the 1st address in the address range previously specified by the user.



TCP/IP Interface Settings - Nsdev

The IP address of the TCP/IP Interface will be the IP address of the AS/400 for the Network Stations in this subnet.

What is the IP address and subnet mask for the TCP/IP interface?

IP address: 5 . 5 . 5 . 3

Subnet mask: 255 . 255 . 255 . 0

Line: ETHNS3

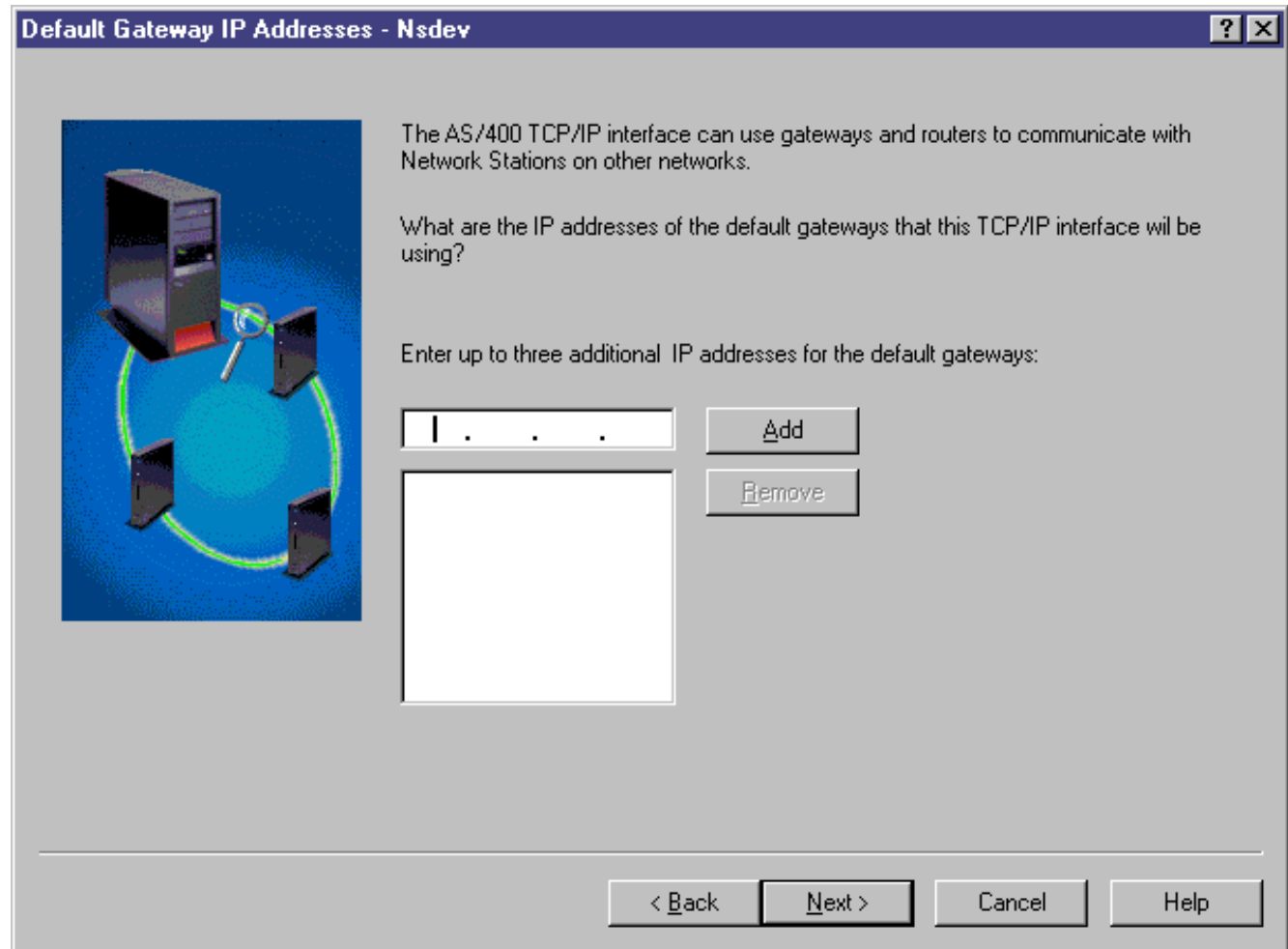
Network address: 5.5.5.0

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ TCP/IP Configuration: Gateways

- ▶ The user can add gateways by typing the IP address of the gateway in the edit field and clicking the Add button.



Default Gateway IP Addresses - Nsdev

The AS/400 TCP/IP interface can use gateways and routers to communicate with Network Stations on other networks.

What are the IP addresses of the default gateways that this TCP/IP interface will be using?

Enter up to three additional IP addresses for the default gateways:

1 . . .

Add

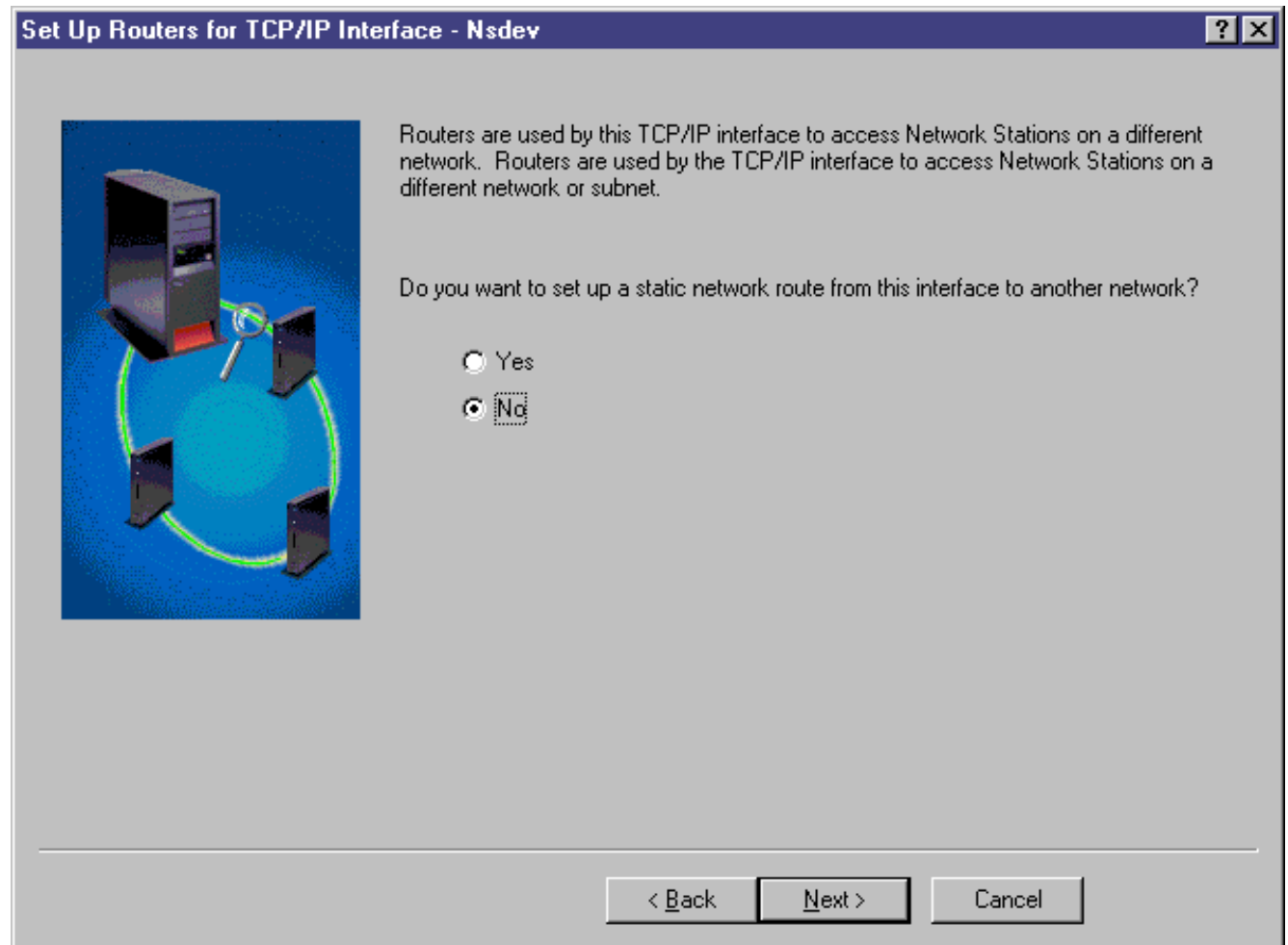
Remove

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ TCP/IP Configuration: Routers

- ▶ The user can specify additional network routers.
- ▶ By default, the selection is No -- do not set up static network routes.



Using the AS/400 Setup Wizard

■ TCP/IP Configuration: Routers

- ▶ This panel is displayed only if the user selects to configure static network routes.
- ▶ The user adds routes by specifying the information in the edit fields and clicking the Add button. This will add the route to the table below.
- ▶ The gateways will be listed in the table.

Set Up Routers for TCP/IP Interface - Nsdev

What is the information for the routers that this TCP/IP interface will use?

Router IP address:
Destination network:
IP address:
Subnet mask:

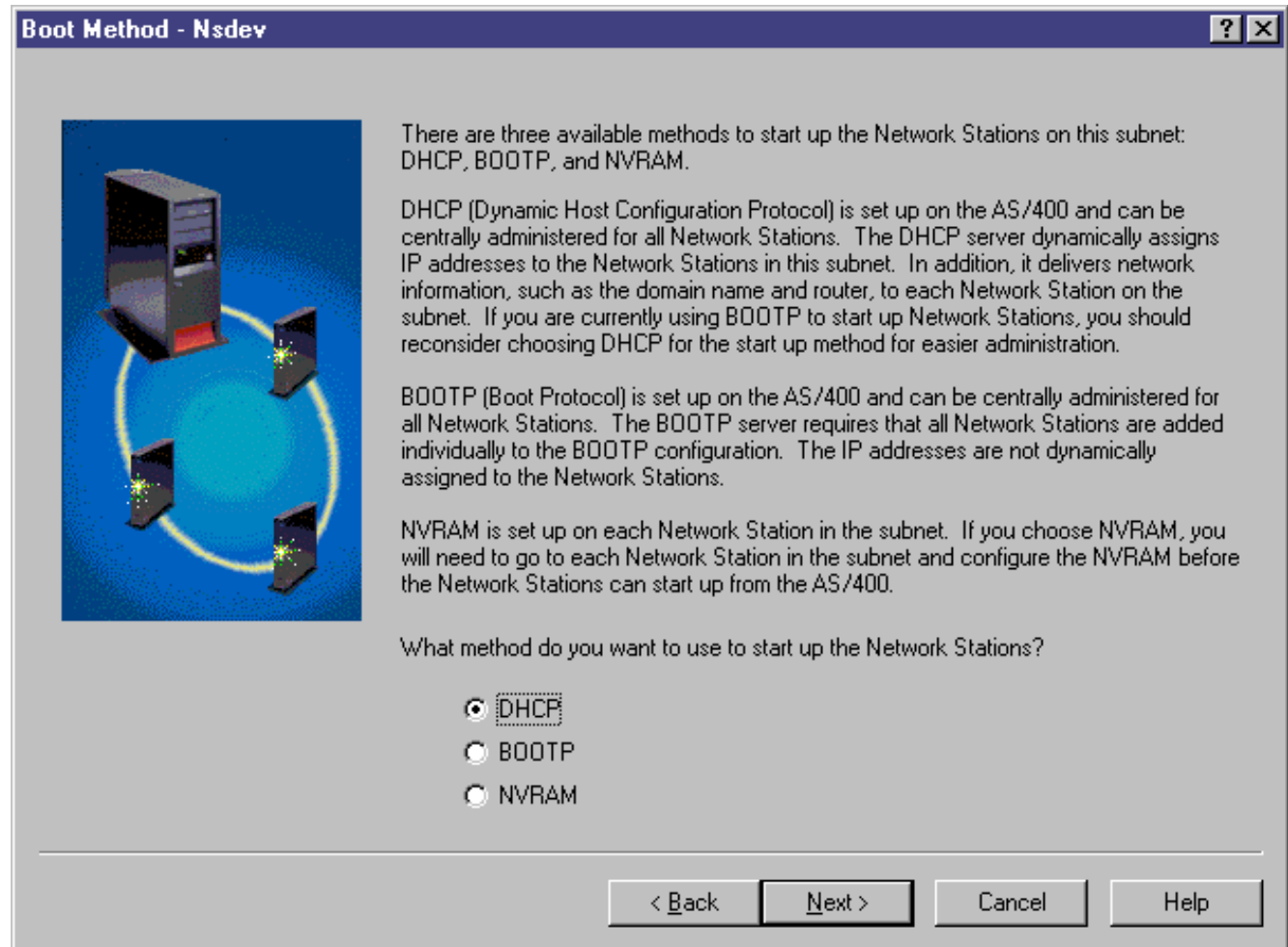
Router	Destination	Subnet Mask
--------	-------------	-------------

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ Select Start-up Method

- ▶ **The wizard gives the user the choice of the three start-up (boot) methods, but will only configure DHCP for the user.**

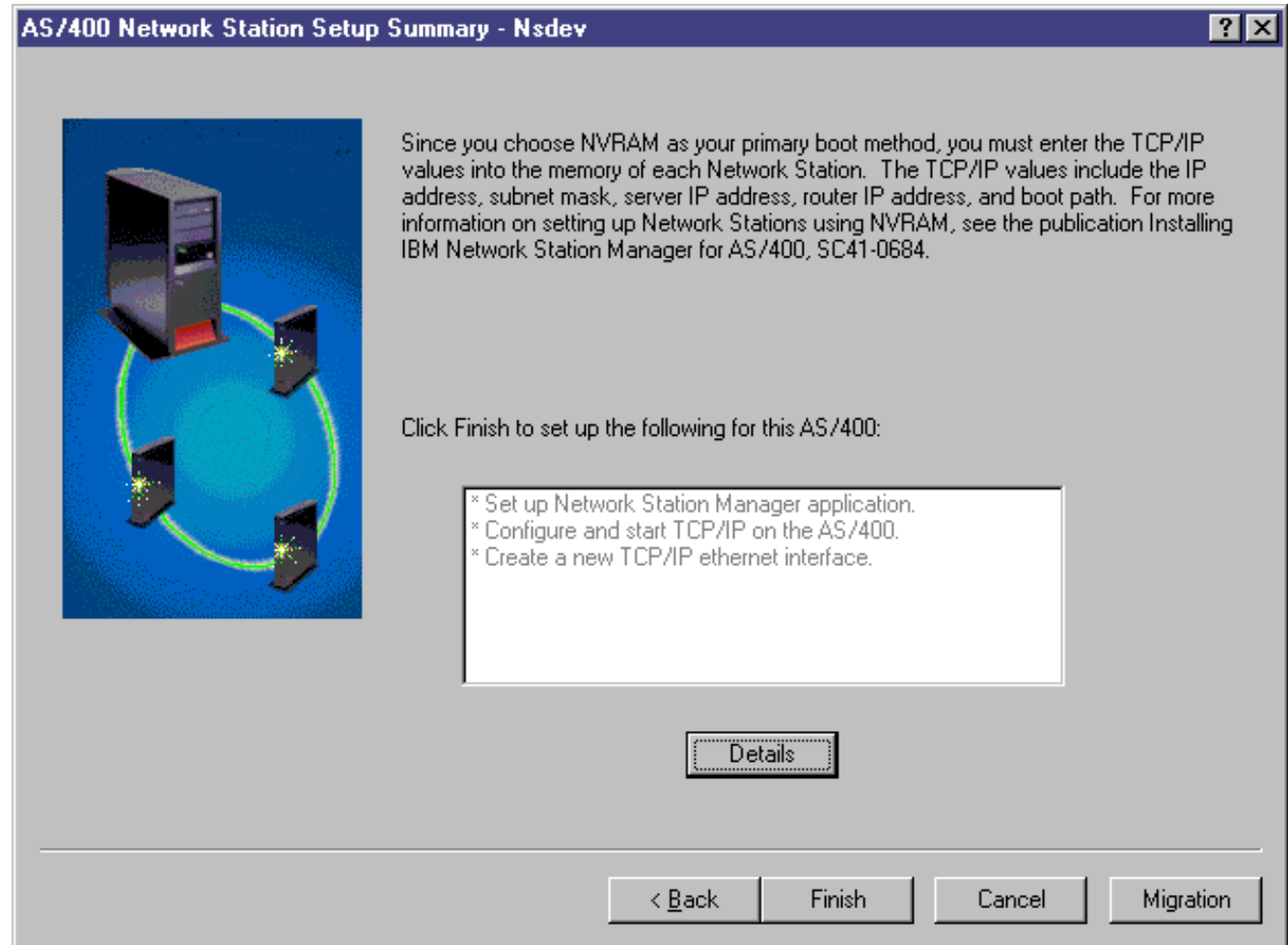




Using the AS/400 Setup Wizard

■ Start-up Method: NVRAM

- ▶ This panel is only displayed if the user selects NVRAM as their start-up method.
- ▶ The user must consult the manual to configure NVRAM. The wizard does not guide them through this option.
- ▶ When the user clicks Finish, it will perform what is displayed in the list. The user can click Details to see more details about what will happen.

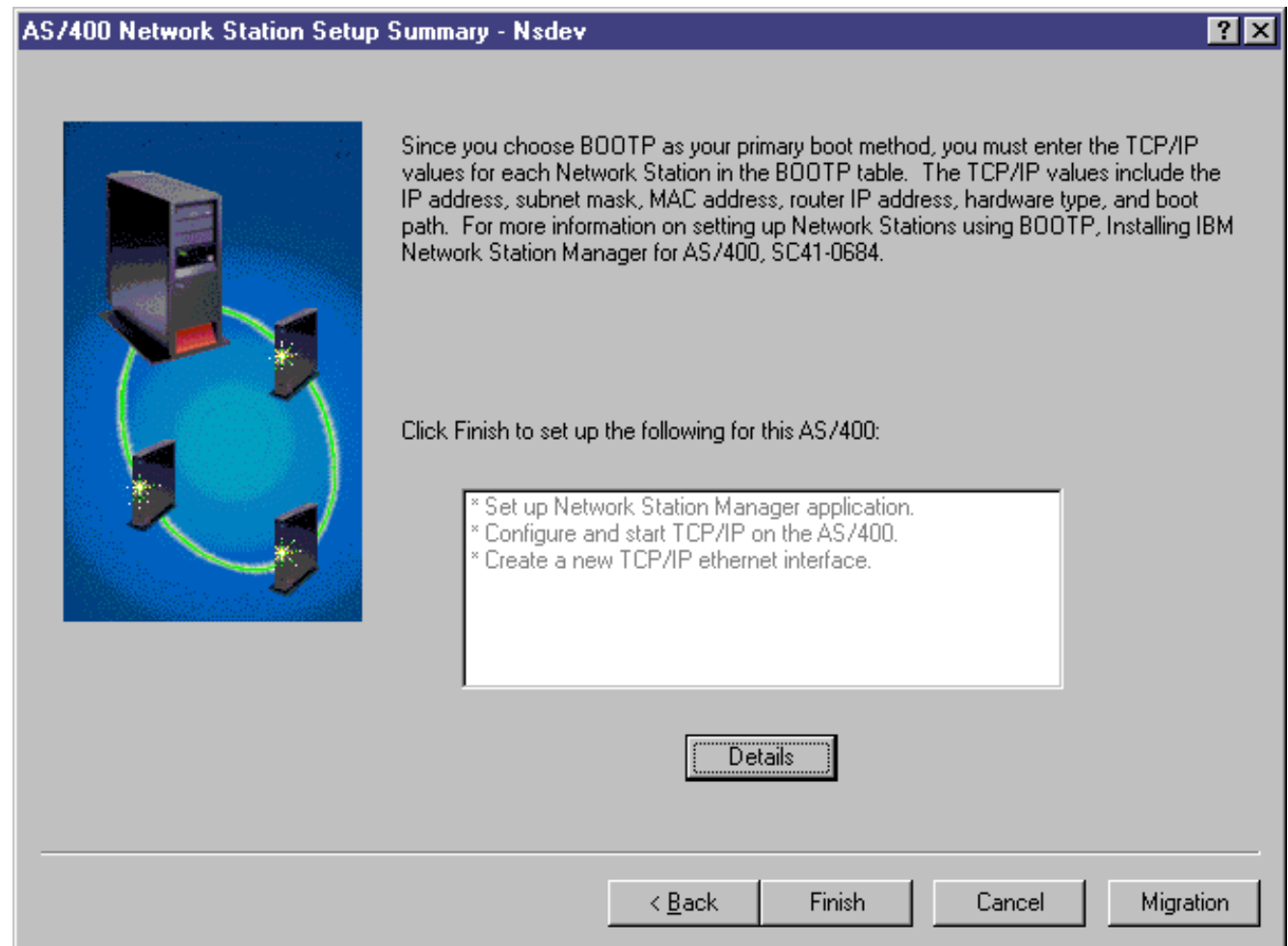




Using the AS/400 Setup Wizard

■ Start-up Method: BOOTP

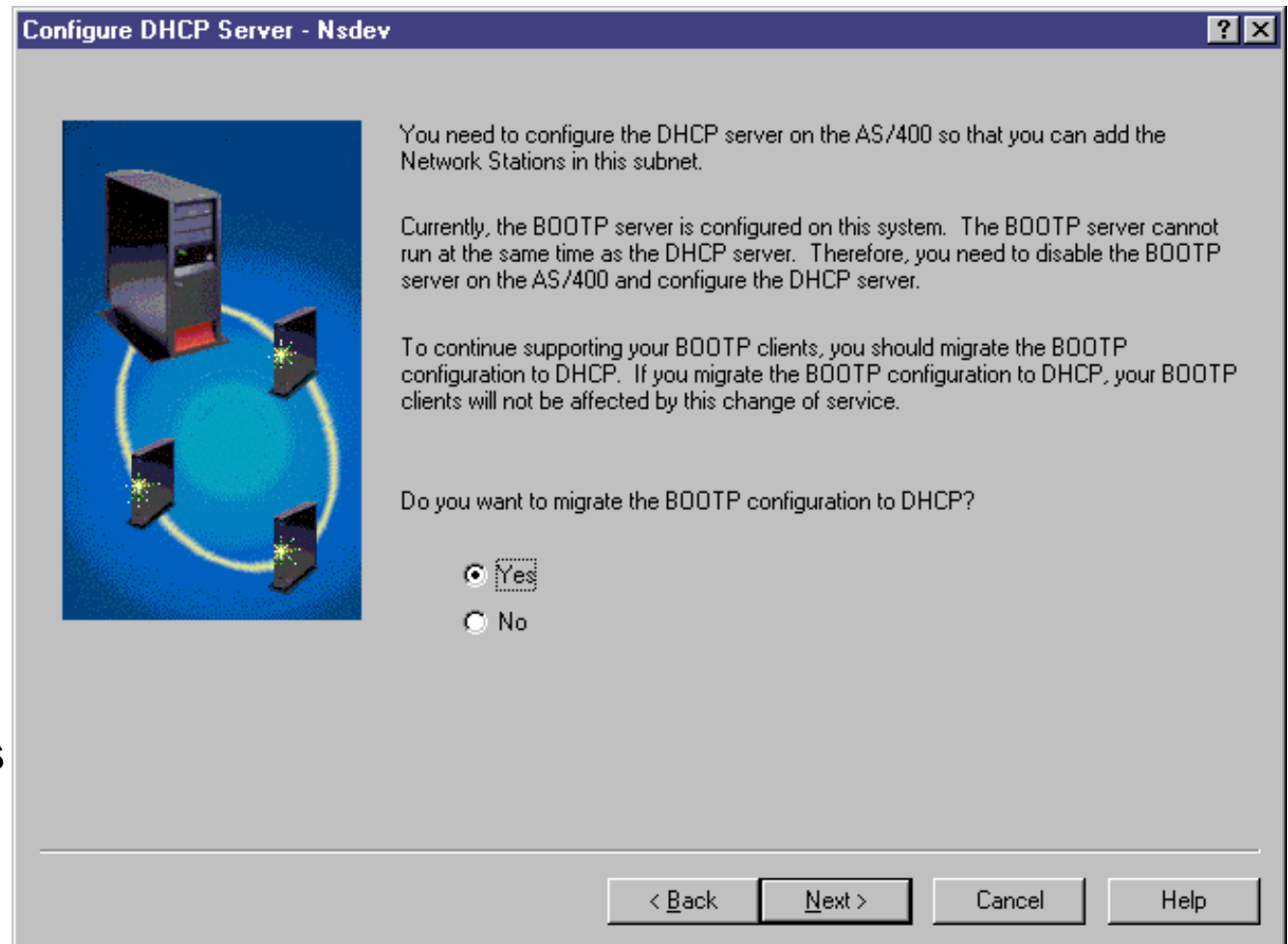
- ▶ This panel is only displayed if the user selects BOOTP as their start-up method.
- ▶ The user must consult the manual to configure BOOTP. The wizard does not guide them through this option.
- ▶ When the user clicks Finish, it will perform what is displayed in the list. The user can click Details to see more details about what will happen.



Using the AS/400 Setup Wizard

■ DHCP: Migrate BOOTP clients

- ▶ **This panel is only displayed if the user selects DHCP as their start-up method.**
- ▶ **This panel allows user to migrate their BOOTP entries into DHCP. These BOOTP entries will become DHCP clients. The wizard does NOT change anything about the BOOTP information when migrating.**






Using the AS/400 Setup Wizard

■ DHCP: Options

- ▶ This panel is only displayed if the user selects DHCP as their start-up method.
- ▶ This information is saved as Options for the subnet that the wizard is creating.
- ▶ The Router is required only if the user selects that the range is connecting to the AS/400 through a router.

Configure DHCP Server - Nsdev [?] [X]



The AS/400 DHCP server dynamically assigns IP addresses to the Network Stations on this subnet. In addition, it delivers network information, such as the domain name and router, to each Network Station in this subnet.

What is the information you want to deliver to the Network Stations in this subnet? This information will be used by the Network Stations to communicate with the AS/400 and other Network Stations.

Domain name:

Router:

DNS Server:

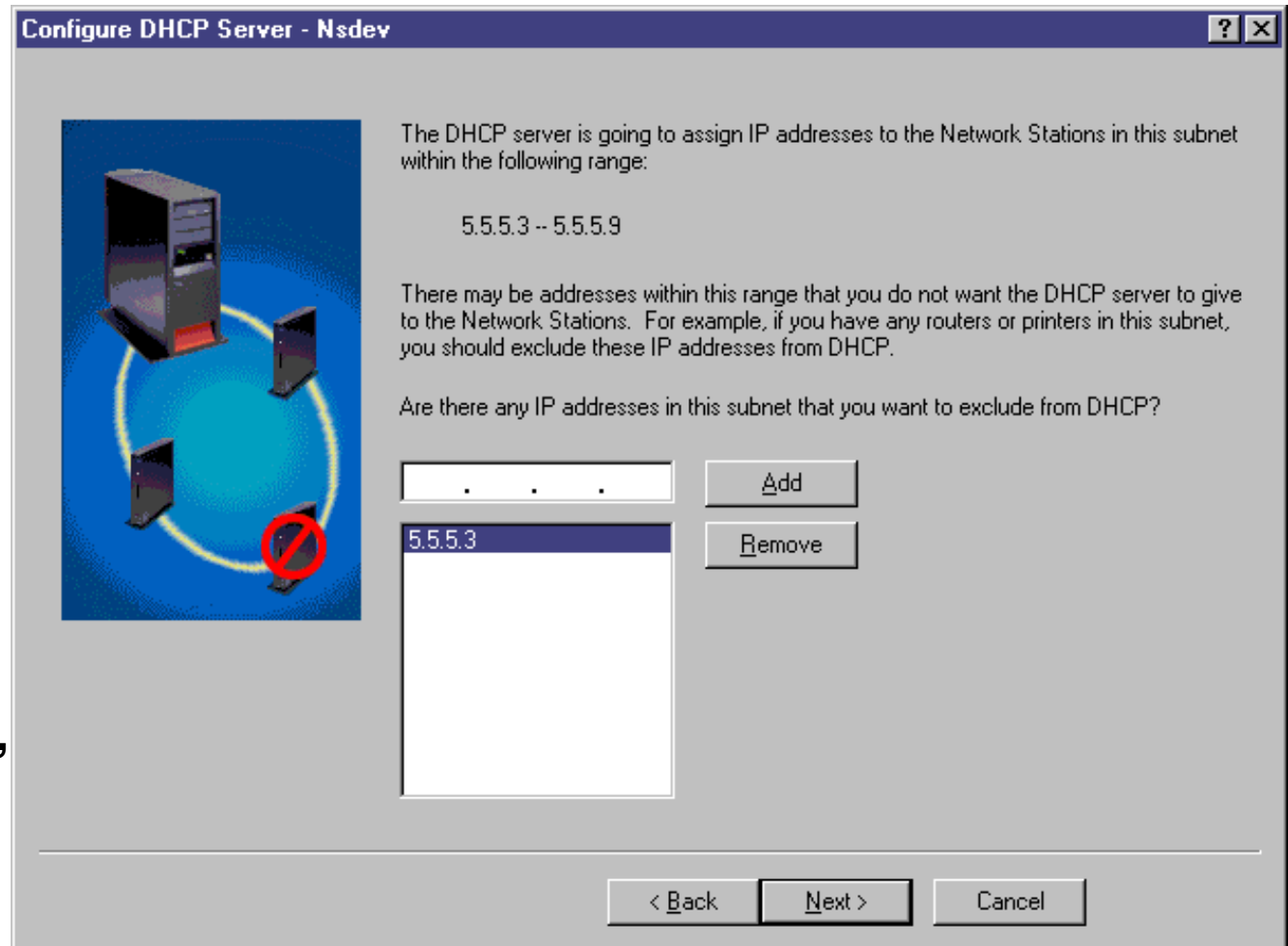
Start-up server:

< Back Next > Cancel Help

Using the AS/400 Setup Wizard

■ DHCP: Excluded clients

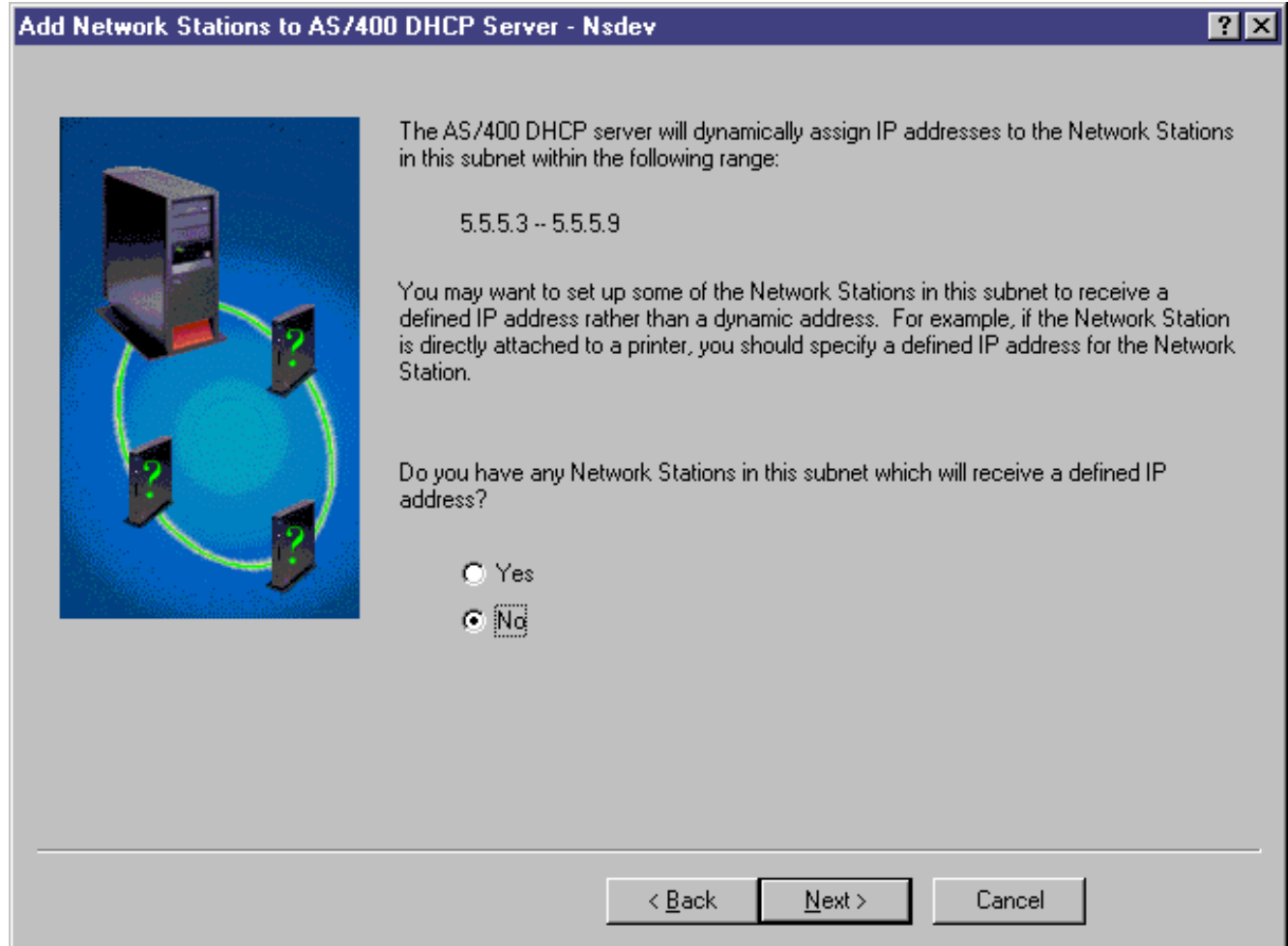
- ▶ This panel is only displayed if the user selects DHCP as their start-up method.
- ▶ The user can specify IP addresses that will be excluded in the DHCP subnet.
- ▶ By default, the Interface, gateways, and routers are displayed in the list.



Using the AS/400 Setup Wizard

■ DHCP: Static Clients

- ▶ This panel is only displayed if the user selects DHCP as their start-up method.
- ▶ The user can optionally add static clients to the DHCP subnet (to work similar to a BOOTP configuration)
- ▶ By default, the selection is No -- do not add static clients.



Add Network Stations to AS/400 DHCP Server - Nsdev

The AS/400 DHCP server will dynamically assign IP addresses to the Network Stations in this subnet within the following range:

5.5.5.3 -- 5.5.5.9

You may want to set up some of the Network Stations in this subnet to receive a defined IP address rather than a dynamic address. For example, if the Network Station is directly attached to a printer, you should specify a defined IP address for the Network Station.

Do you have any Network Stations in this subnet which will receive a defined IP address?

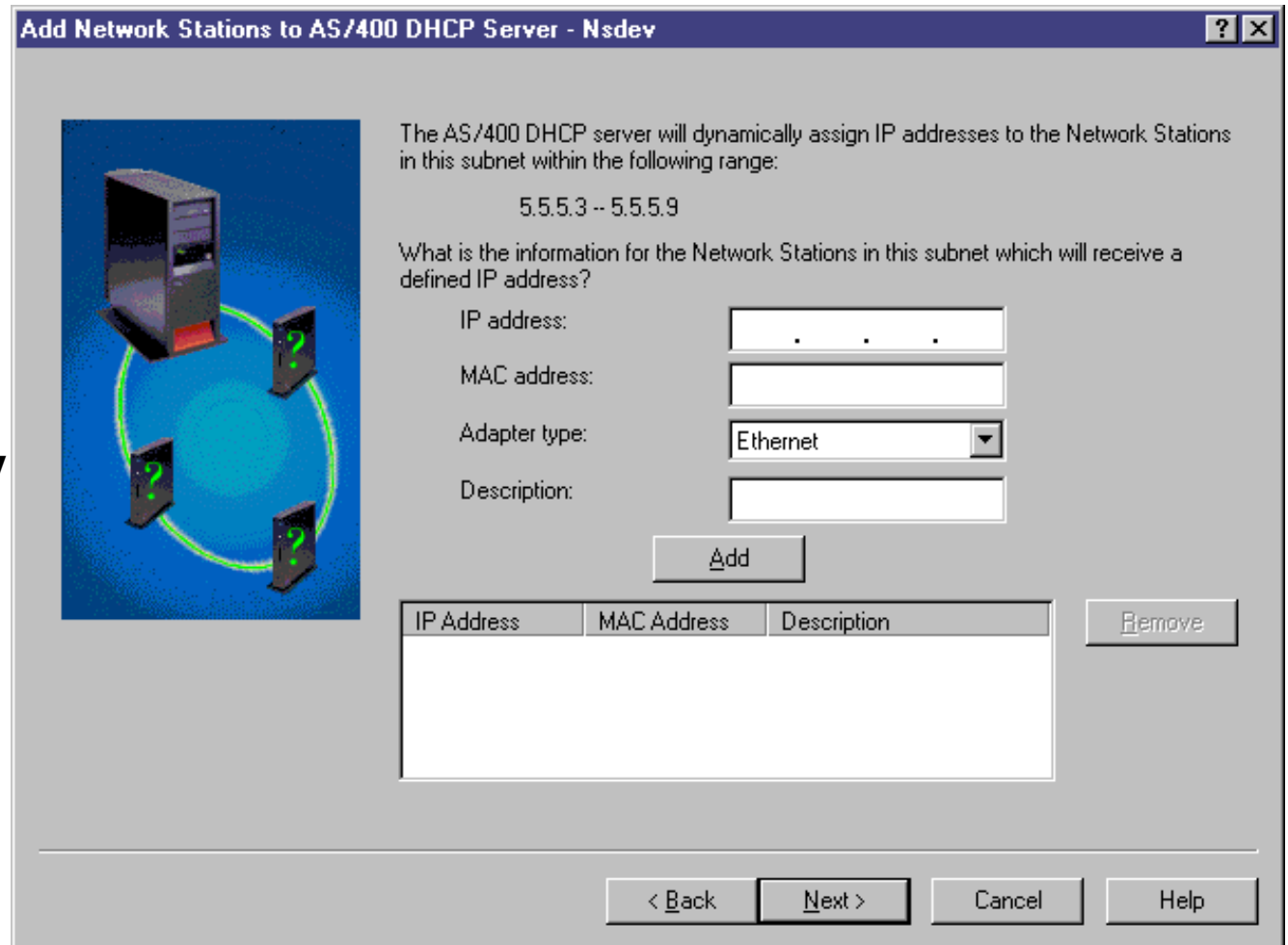
Yes
 No

< Back Next > Cancel

Using the AS/400 Setup Wizard

■ DHCP: Static Clients

- ▶ This panel is only displayed if the user selects DHCP as their start-up method and they selected to create static clients.
- ▶ The user adds clients by specifying the information in the edit fields and clicking the Add button. This will add the client to the table below.
- ▶ **Known Problem:** incorrect MAC address checking



Add Network Stations to AS/400 DHCP Server - Nsdev

The AS/400 DHCP server will dynamically assign IP addresses to the Network Stations in this subnet within the following range:

5.5.5.3 -- 5.5.5.9

What is the information for the Network Stations in this subnet which will receive a defined IP address?

IP address:

MAC address:

Adapter type:

Description:

IP Address	MAC Address	Description

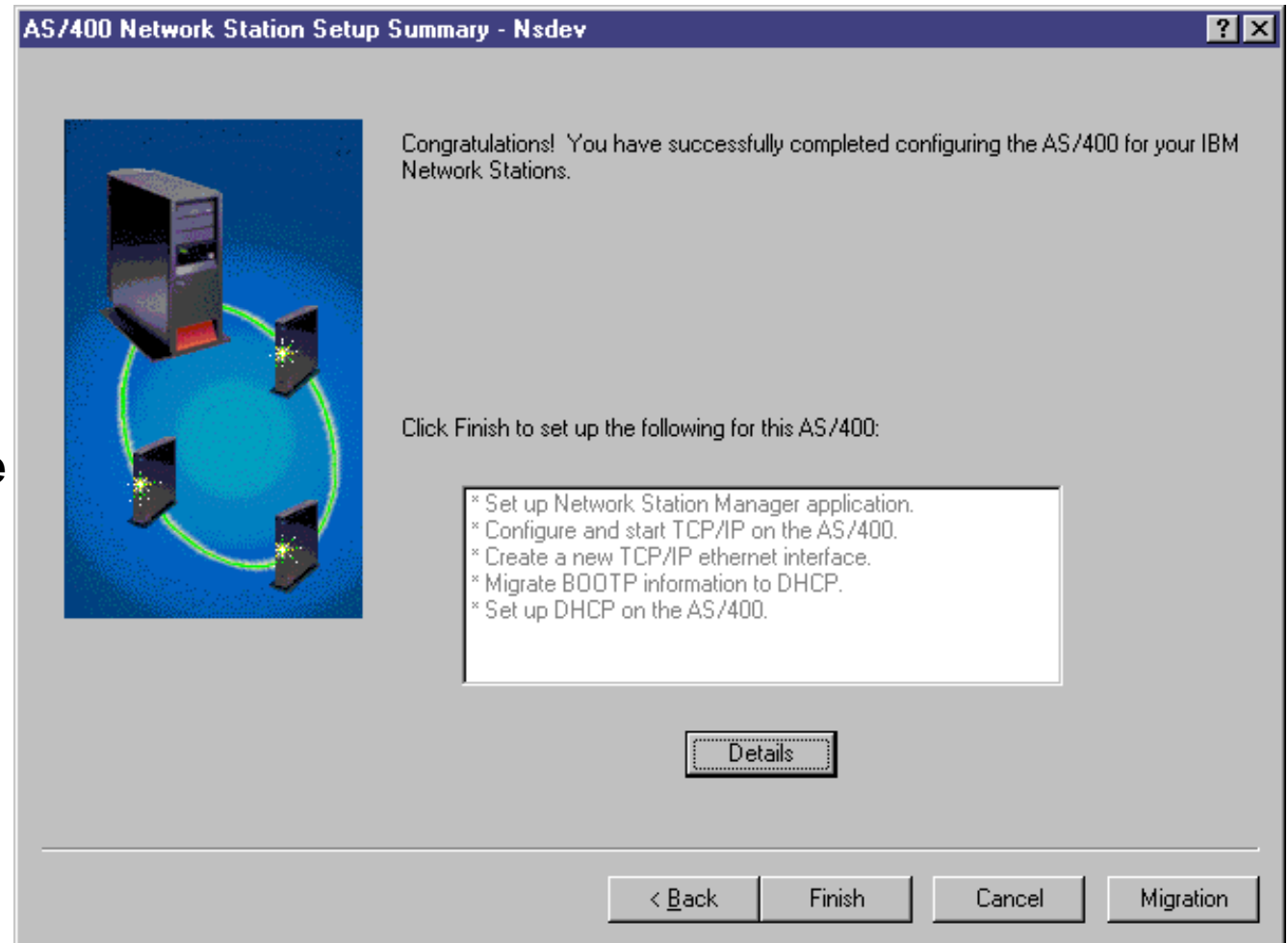
< Back Next > Cancel Help



Using the AS/400 Setup Wizard

■ Summary Panel

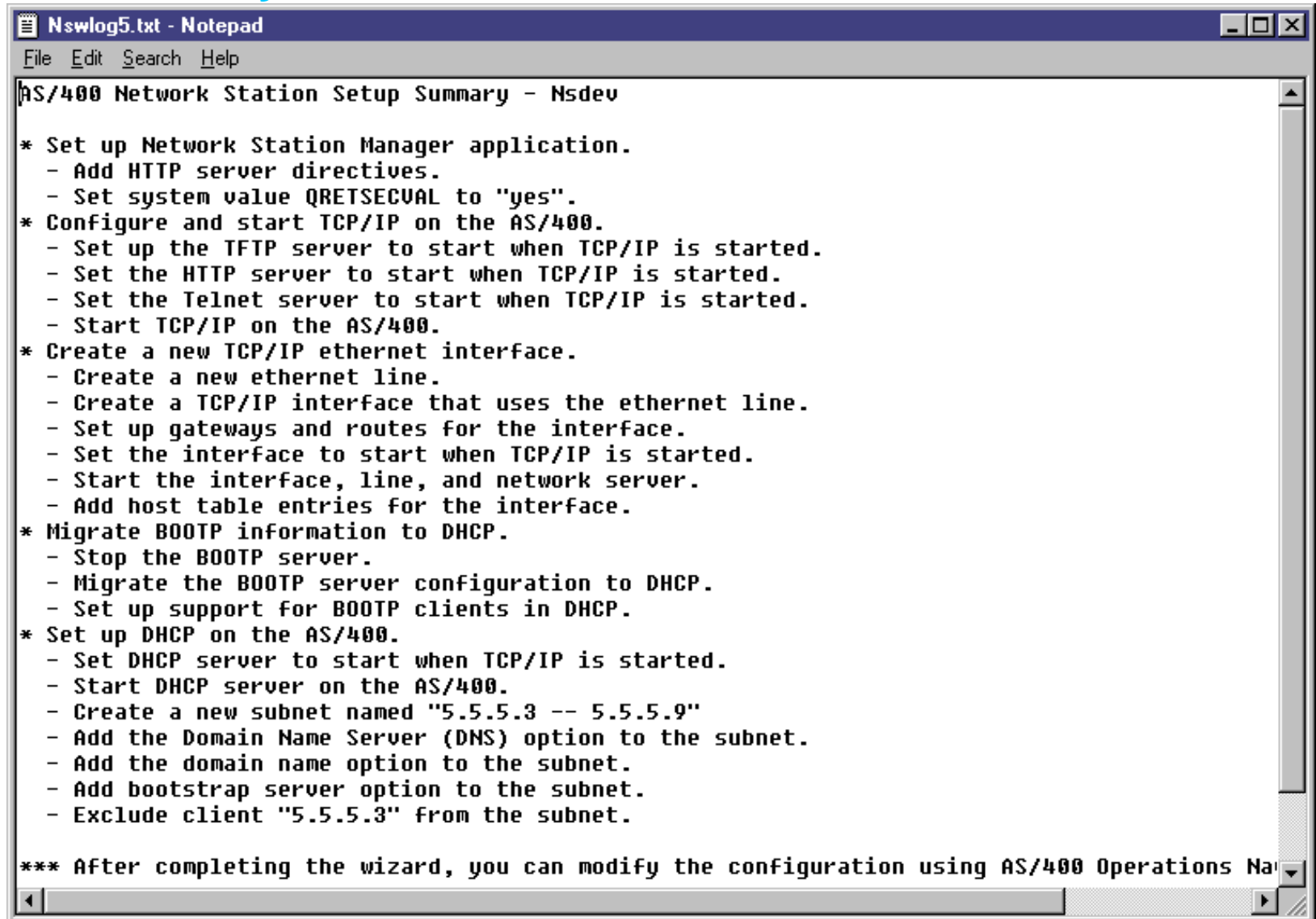
- ▶ This panel is only displayed if the user selects DHCP as their start-up method.
- ▶ When the user clicks Finish, it will perform what is displayed in the list. The user can click Details to see more details about what will happen.



Using the AS/400 Setup Wizard

■ Summary Panel -- Details

- ▶ Displays more details about what will happen when the user clicks Finish.



```
Nswlog5.txt - Notepad
File Edit Search Help
AS/400 Network Station Setup Summary - Nsdev

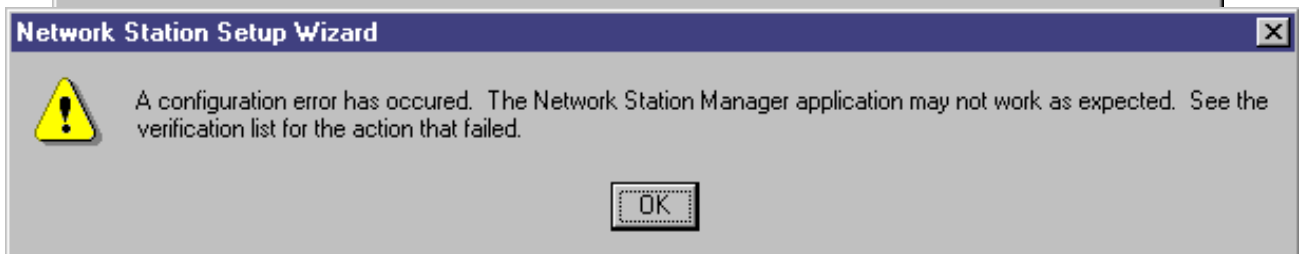
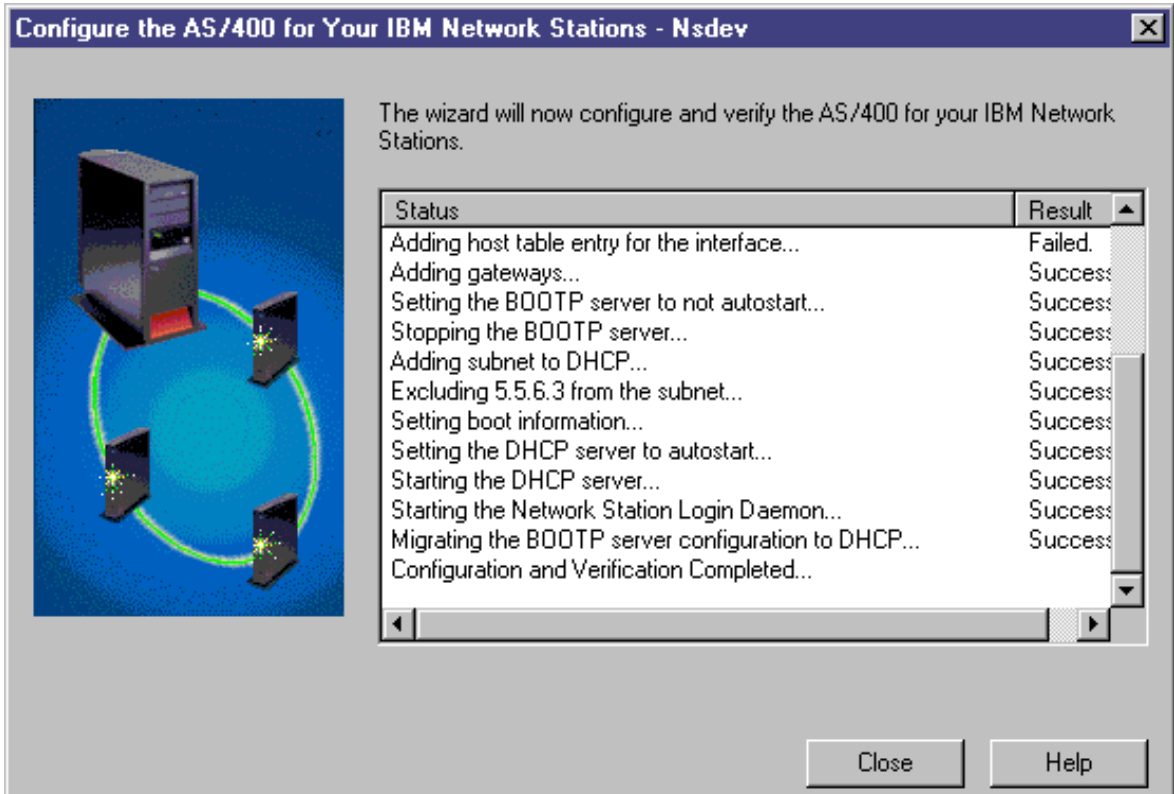
* Set up Network Station Manager application.
  - Add HTTP server directives.
  - Set system value QRETSECVAL to "yes".
* Configure and start TCP/IP on the AS/400.
  - Set up the TFTP server to start when TCP/IP is started.
  - Set the HTTP server to start when TCP/IP is started.
  - Set the Telnet server to start when TCP/IP is started.
  - Start TCP/IP on the AS/400.
* Create a new TCP/IP ethernet interface.
  - Create a new ethernet line.
  - Create a TCP/IP interface that uses the ethernet line.
  - Set up gateways and routes for the interface.
  - Set the interface to start when TCP/IP is started.
  - Start the interface, line, and network server.
  - Add host table entries for the interface.
* Migrate BOOTP information to DHCP.
  - Stop the BOOTP server.
  - Migrate the BOOTP server configuration to DHCP.
  - Set up support for BOOTP clients in DHCP.
* Set up DHCP on the AS/400.
  - Set DHCP server to start when TCP/IP is started.
  - Start DHCP server on the AS/400.
  - Create a new subnet named "5.5.5.3 -- 5.5.5.9"
  - Add the Domain Name Server (DNS) option to the subnet.
  - Add the domain name option to the subnet.
  - Add bootstrap server option to the subnet.
  - Exclude client "5.5.5.3" from the subnet.

*** After completing the wizard, you can modify the configuration using AS/400 Operations Na
```

Using the AS/400 Setup Wizard

■ Verification

- ▶ This panel lists all of the configuration steps that the wizard is performing.
- ▶ If the step fails, the result is shown as **Failed**.
- ▶ Click on the **Help** button for recovery information if something fails.





AS/400 Setup Wizard Limitations

■ Some limitations in the wizard:

▶ AS/400 Specific

- only configures the AS/400

▶ Boot method: BOOTP and NVRAM

- Only configures DHCP

- However, can be used by BOOTP and NVRAM customers to configure TCP/IP, set HTTP server directives, start servers, etc.

▶ Updating a Subnet

- Cannot be used to update a DHCP subnet once the wizard has created it

- Must use the DHCP configuration GUI in Operations Navigator to update the DHCP configuration.

- To open the DHCP Configuration window:

- Expand the system

- Expand **Network**, then **Servers**. Double-click on **TCP/IP**.

- In the right pane, right click on **DHCP** and choose **Configuration**.



AS/400 Setup Wizard -- More Info

- **For more information about the wizard:**
 - ▶ **On-line help**
 - ▶ **Manual: Installing IBM Network Station Manager for AS/400 V2R1**
 - SC41-0684-00