

## Server to Server migration via TCP/IP

This will give you an outline of how to migrate a NetWare server from a Compaq Deskpro to a Compaq Proliant 1850R. The procedures outlined in this document will work for any server migration.

As this is a migration using TCP/IP, we will have NetWare loaded on the source server and a bare-metal restore on the destination server.

On the source server, you will need to load Portlock Storage Manager™ by typing the following command at the system console prompt:

```
NW51SP5-ENSFF:load sys:stormgr\stormgr_
```



You are then shown the Portlock Storage Manager Start-up screen.

```
Portlock Storage Manager      Copyright 2000-2003 Portlock Software

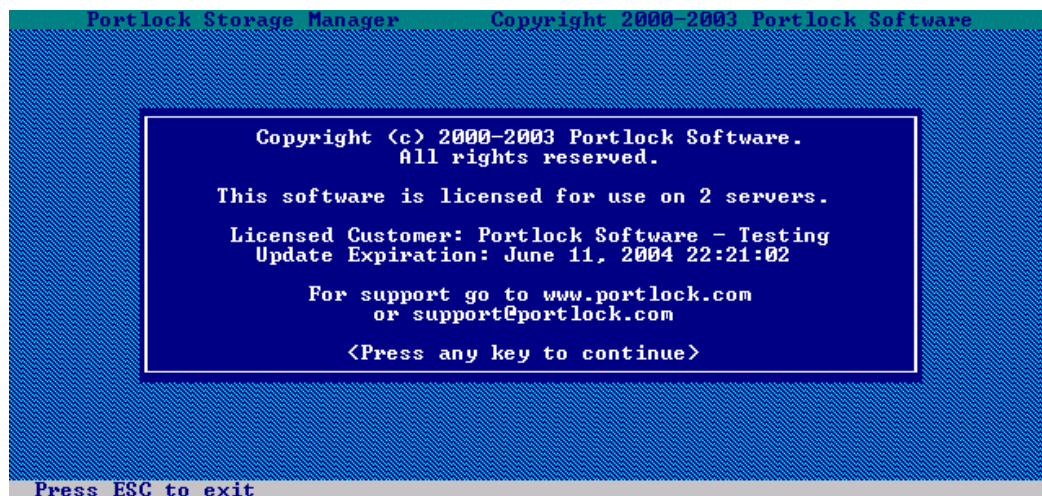
Copyright (c) 2000-2003 Portlock Software.
All rights reserved.

This software is licensed for use on 2 servers.
Licensed Customer: Portlock Software - Testing
Update Expiration: June 11, 2004 22:21:02

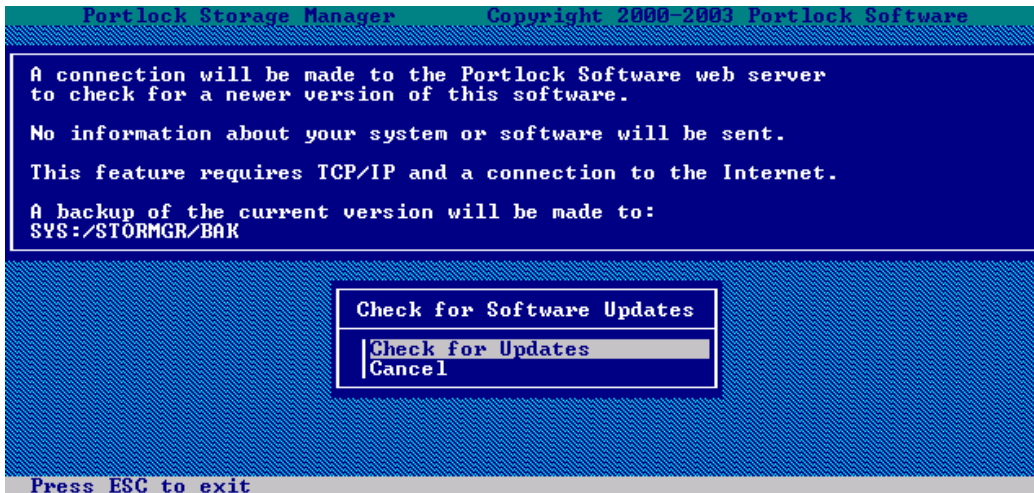
For support go to www.portlock.com
or support@portlock.com

<Press any key to continue>

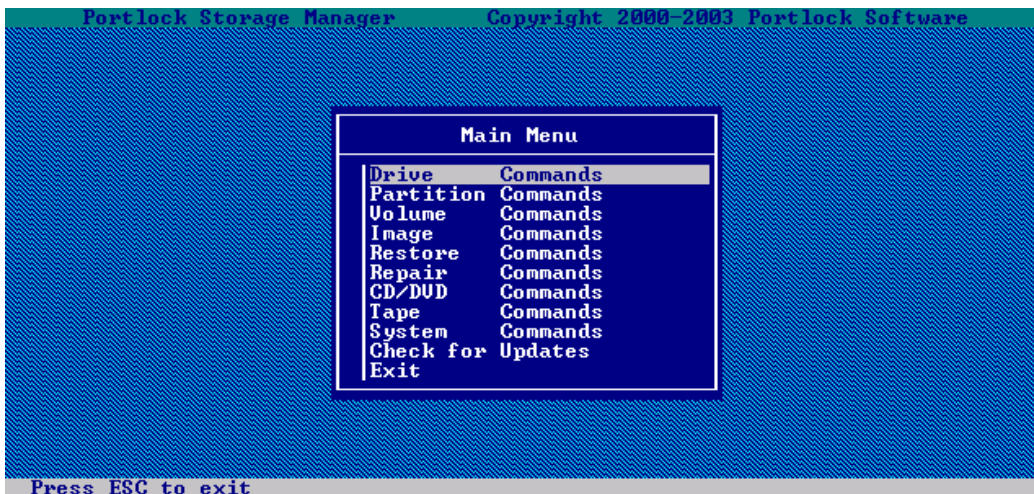
Press ESC to exit
```



Press any key to continue. You may be asked if you would like to check for the latest version of Portlock Storage Manager.



After you have checked for software updates, or cancelled, you will be presented with the Main Menu of Portlock Storage Manager.



Because this is the source server and we want to make sure that the new destination server has all of the latest information from NetWare Directory Services (NDS) in a multi-server environment, you need to dismount all of the NetWare volumes on the server manually. You will need to complete this as part of the imaging process using Portlock Storage Manager. Portlock Storage Manager will automatically remount any volumes that it dismounts.

```
NW51SP5-ENSFF:volumes
Mounted Volumes
  Name Spaces      Flags
  SYS     DOS, LONG        Cp Sa
  NSS_ADMIN DOS, MAC, NFS, LONG NSS P
  NSSVOL  DOS, MAC, NFS, LONG NSS

3 volumes mounted
NW51SP5-ENSFF: _
```

As you can see, we currently have three volumes mounted on our server, which are **SYS**, **NSSVOL** and **NSS\_ADMIN**.

The only relevant volumes that need to be dismounted are **SYS** and **NSSVOL**. The other volume, **NSS\_ADMIN**, is an internal one used by **NSS**.

```
NW51SP5-ENSFF:volumes
Mounted Volumes
  Name Spaces      Flags
  SYS     DOS, LONG        Cp Sa
  NSS_ADMIN DOS, MAC, NFS, LONG NSS P
  NSSVOL  DOS, MAC, NFS, LONG NSS

3 volumes mounted
NW51SP5-ENSFF:dismount nssvol_
```

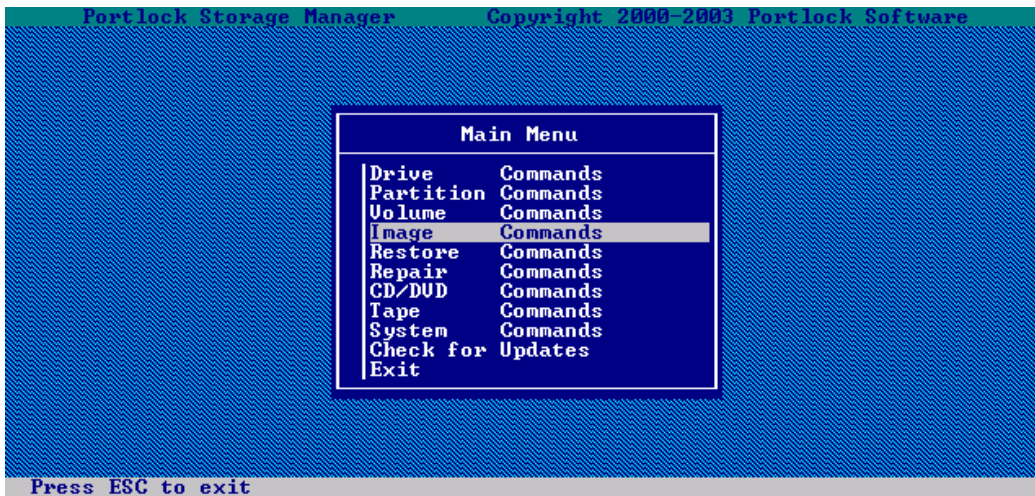
You now need to type the following commands:

1. **dismount nssvol**: to dismount the **NSSVOL** volume.

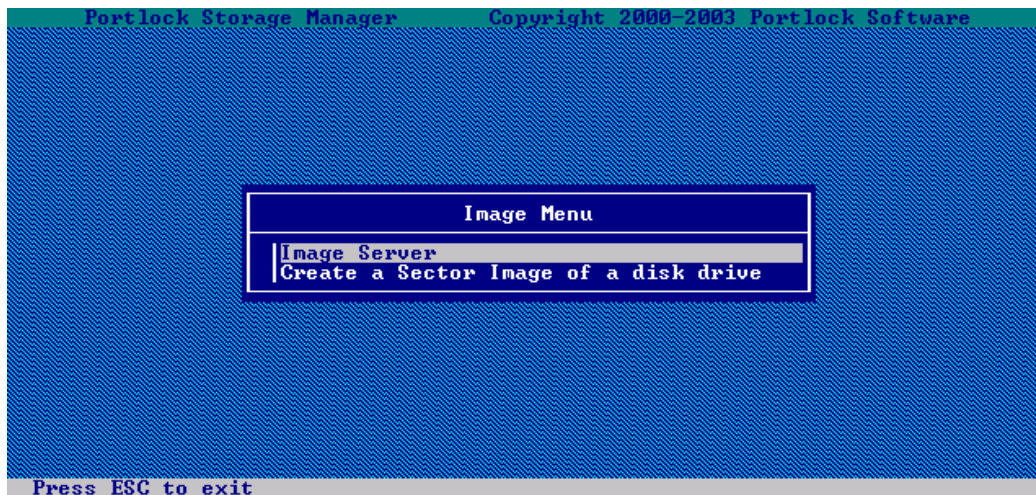
```
NW51SP5-ENSFF:volumes
Mounted Volumes
  Name Spaces          Flags
  SYS    DOS, LONG          Cp Sa
  NSS_ADMIN  DOS, MAC, NFS, LONG  NSS P
  NSSUOL   DOS, MAC, NFS, LONG  NSS

3 volumes mounted
NW51SP5-ENSFF:dismount nssvol
Dismounting Volume NSSUOL
Volume NSSUOL has been dismounted.
NW51SP5-ENSFF:
NW51SP5-ENSFF:dismount sys_
```

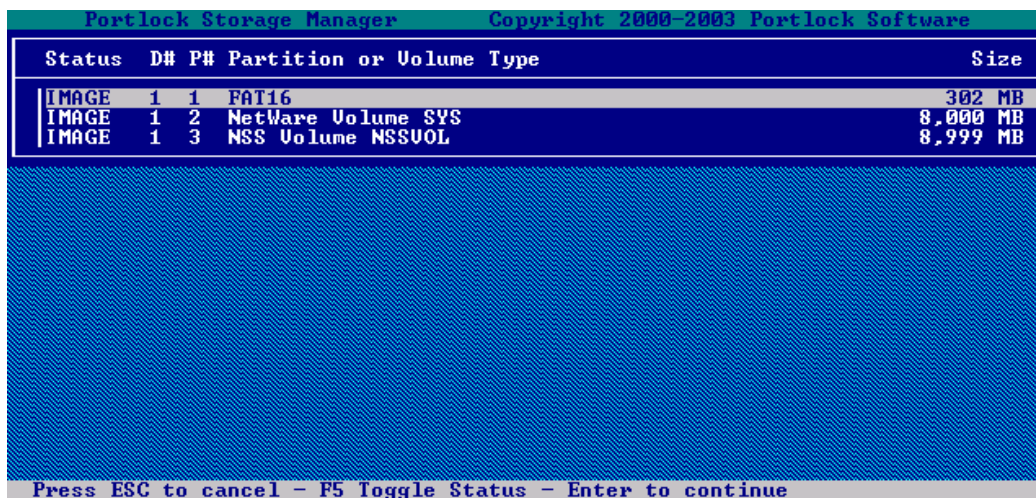
2. **dismount sys:** to dismount the volume SYS.



Once the SYS volume has been dismounted, you will need to go back to the Portlock Storage Manager Main Menu and select the Image Command.



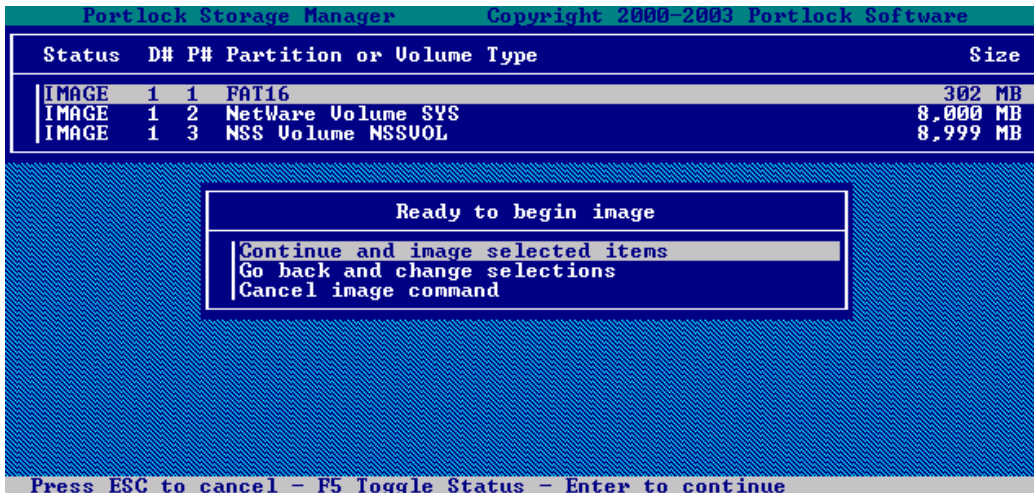
The **Image Menu** will now appear. Choose **Image Server** and press [Enter] to continue.



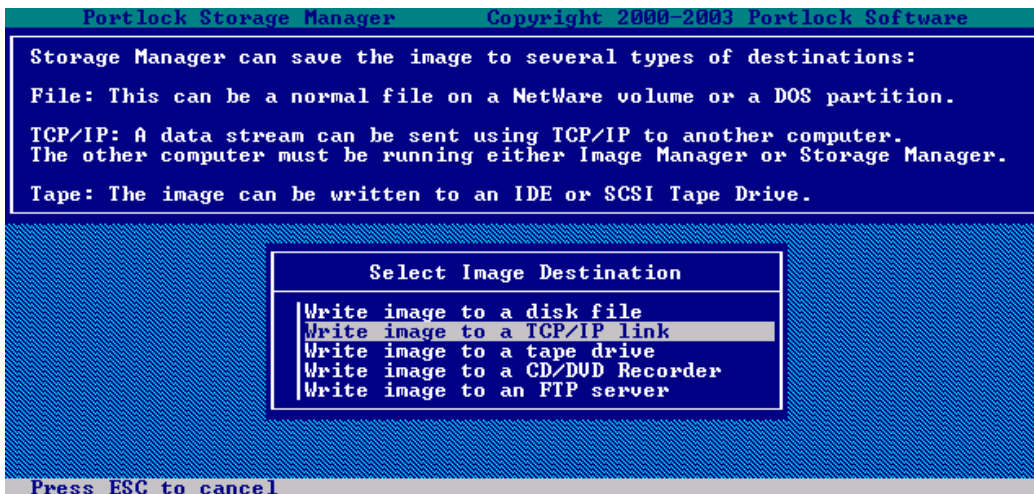
A list of all items that can be imaged will appear. As you can see from our source server, we have two NetWare volumes and a DOS FAT16 to image over to the new server.

As we migrate the server, we will leave the default, which will allow Portlock Storage Manager to image all items over to the new server.

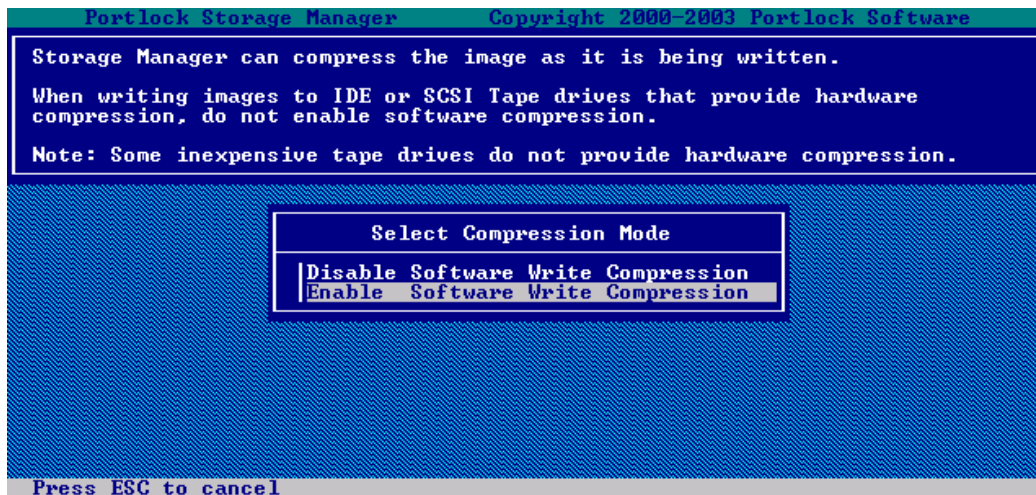
Press [Enter] to continue.



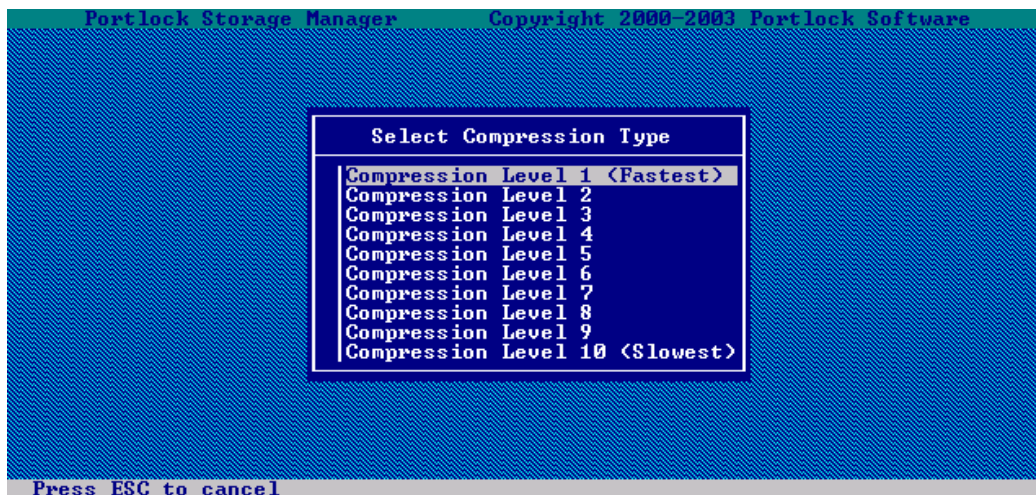
A confirmation screen appears, displaying the imaging actions that you require. Press [Enter] to continue.



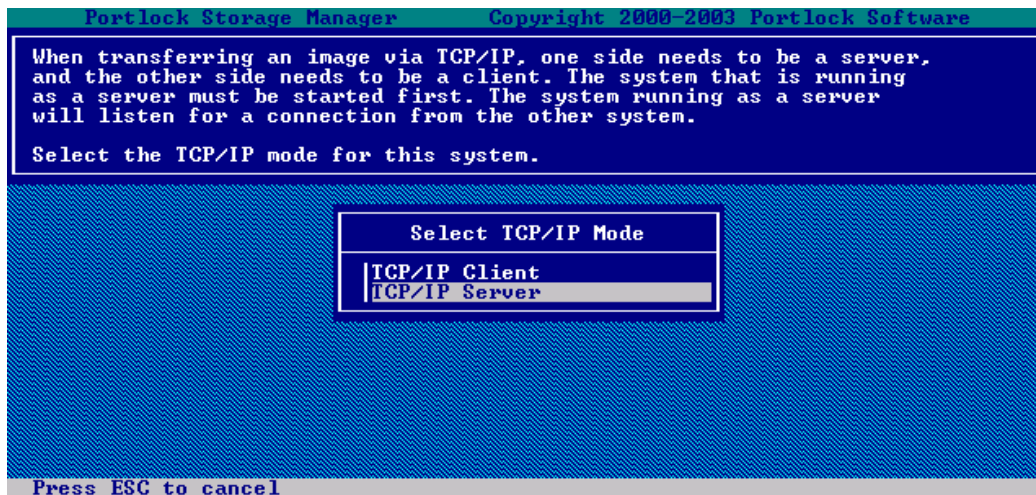
The Select Image Destination menu appears. This displays a list of destinations available to image your server to. For this example, we are imaging server-to-server; thus, we will choose **Write image to a TCP/IP link**. Press [Enter] to continue.



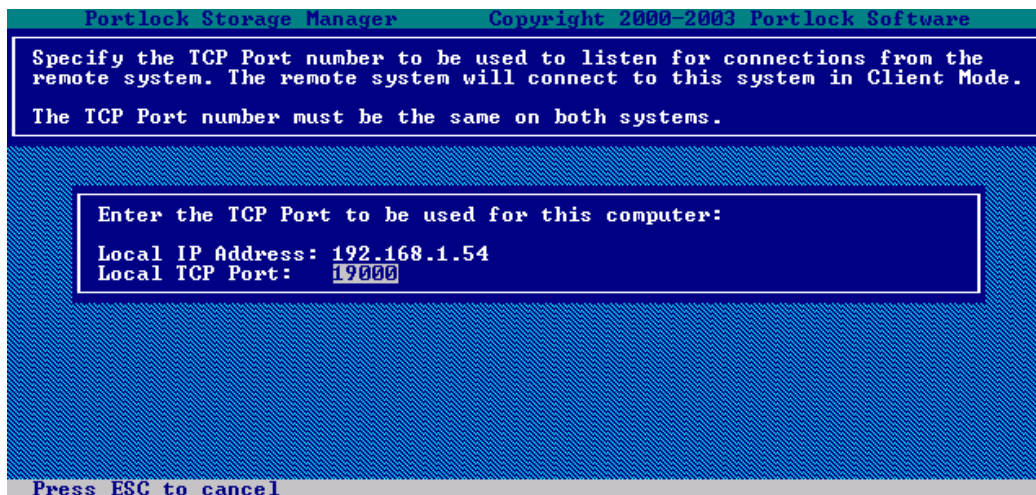
You can choose to **Enable** or **Disable Software Write Compression**. As we have reasonably fast servers, we will choose to **Enable Software Write Compression** and press [Enter] to continue.



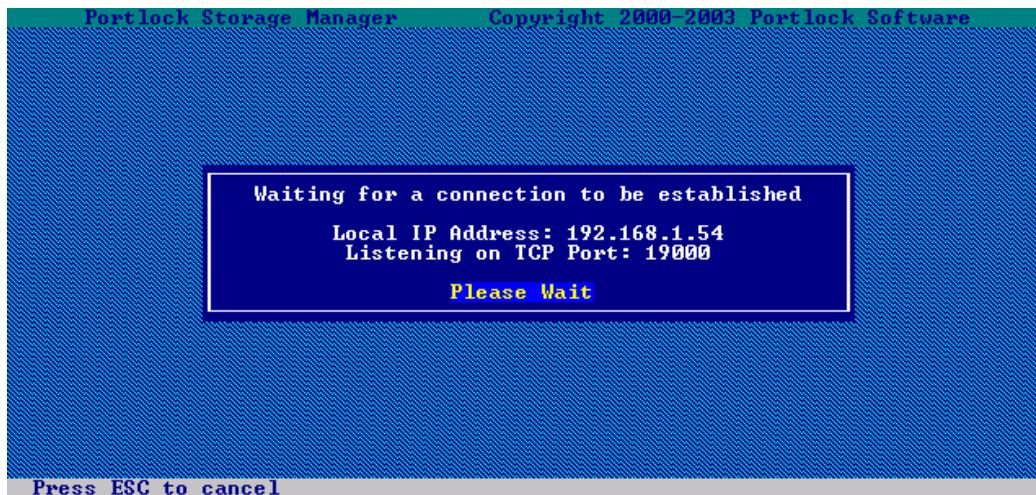
Select **Compression Level 1** and press [Enter] to continue.



The **Select TCP/IP Mode** menu appears. In sending an image via TCP/IP, you need to have a server and a client to enable the transfer. We will select the source to be the **TCP/IP Server**. Press [Enter] to continue.



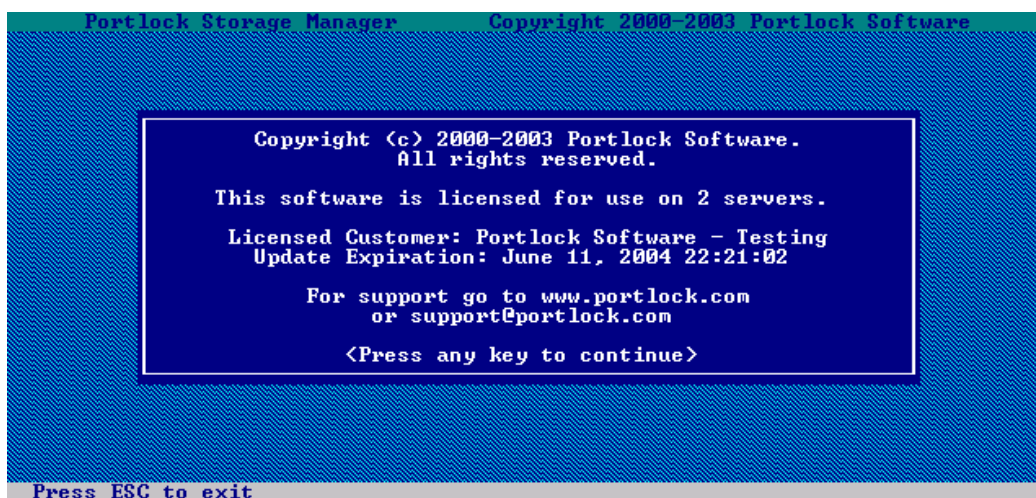
You will be shown the TCP/IP address and you can select a TCP/IP port to use. As we want to use Port **19000**, we will press [Enter] to continue.



The server is now waiting for a connection from the destination TCP/IP device.

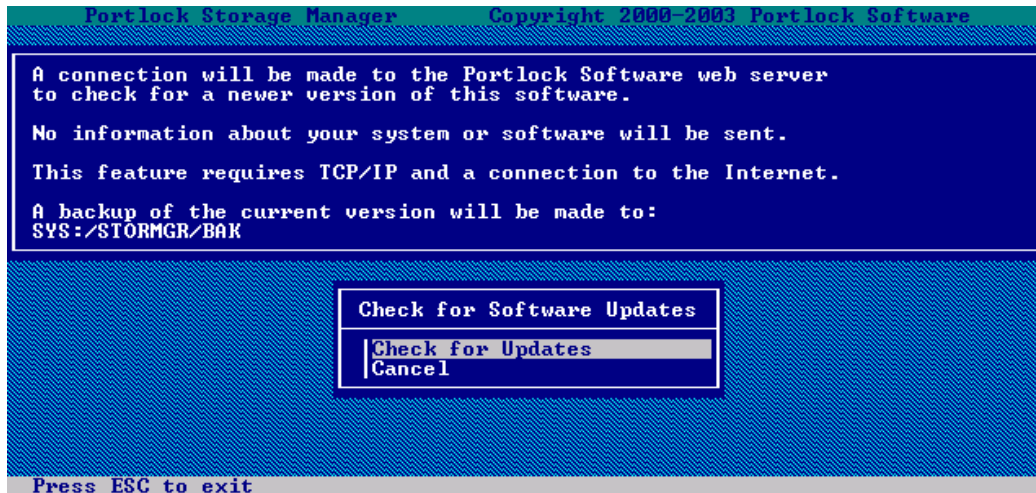
As we are performing a bare-metal restore of this server to a new server, we now have to prepare the new server to receive the image from our source server. You will need the following to complete the process on the destination server:

- A bootable DOS diskette
- Download Portlock Boot Wizard™ (available at [www.portlock.com/download.htm](http://www.portlock.com/download.htm)). Portlock Boot Wizard will create a Novell Client32 for DOS diskette, and will also create another disk that has Portlock Storage Manager on it.
- Load Portlock Storage Manager on the destination server by putting the floppy disk that has Portlock Storage Manager on it into the floppy drive and then typing **STORMGR** to start Portlock Storage Manager.

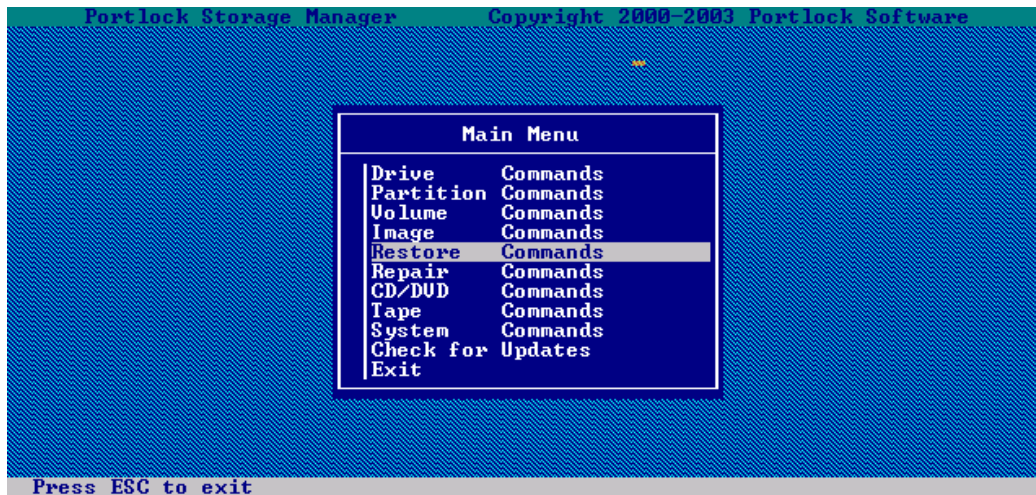


The Portlock Storage Manager Start-up screen, which shows who the software is licensed to and the amount of licenses that you have purchased, will now appear.

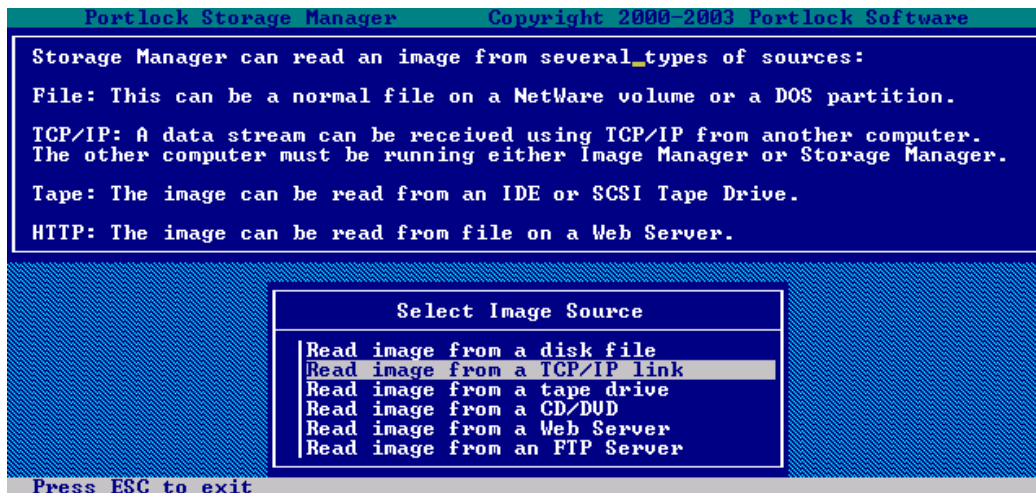
You will then be presented with a screen asking you to select which NetWare operating system you will be working with. As our source server is NetWare v5.1, you would select NetWare 5.x and press [Enter] to continue.



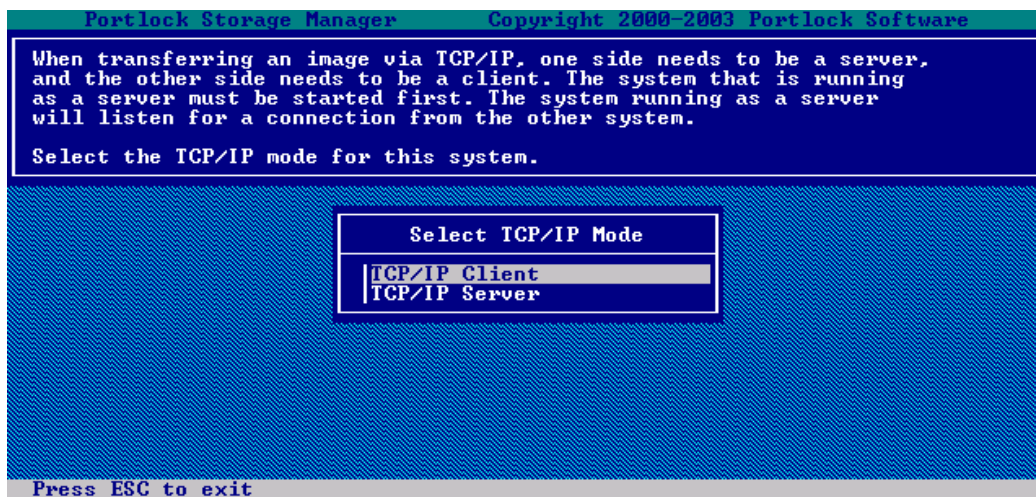
As we have loaded from a floppy disk, we do not wish to update the software, so choose **Cancel** and press [Enter] to continue.



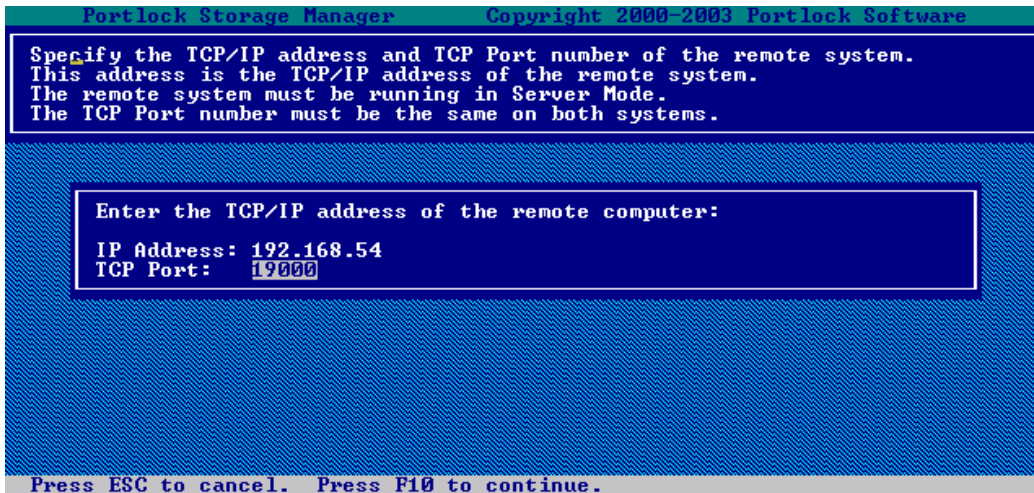
On the destination server, choose **Restore Commands** and press [Enter] to continue.



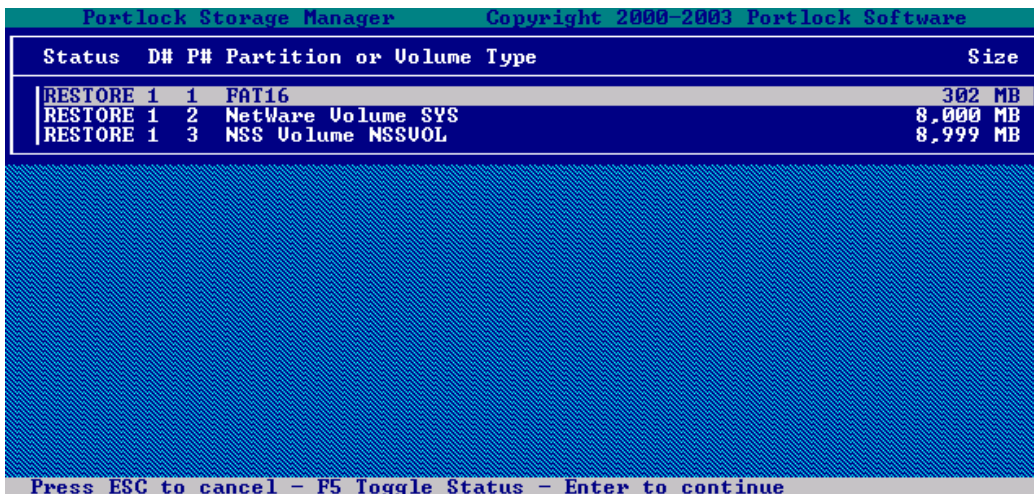
Select **Read image from a TCP/IP link** and press [Enter] to continue.



Select the default of **TCP/IP Client** (as we made the source server the TCP/IP Server) and press [Enter] to continue.



Now, enter the TCP/IP address of the server and the TCP Port number that you setup on the source server and press [F10] to continue.

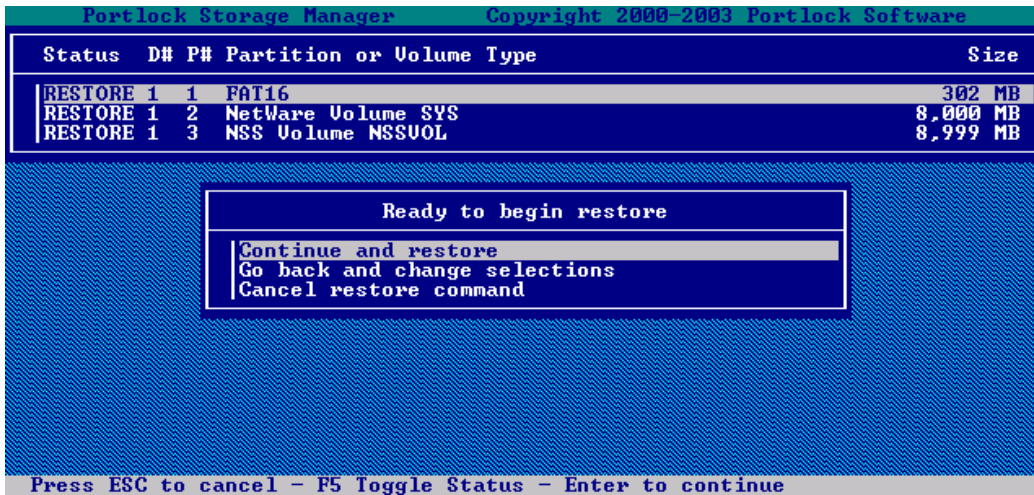


You are now presented with a list of items that may be restored from the source server.

Since this is a server migration, we want all items.

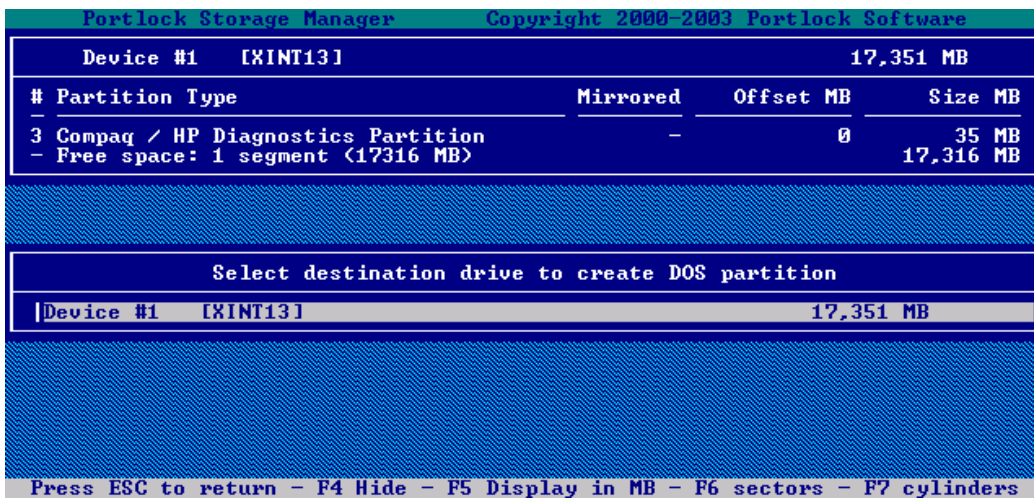
**Note:** You may not want to bring over the server diagnostics partition if the servers are a different brand or model.

Press [Enter] to continue.



You are now presented with a confirmation screen to confirm what you want restored.

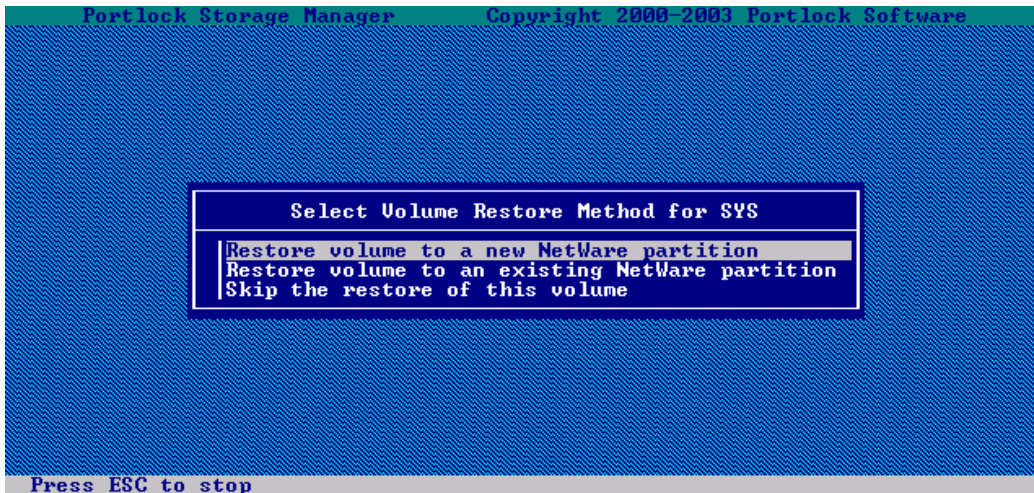
Press [Enter] to continue.



Now, you are shown a list of possible destination devices. As you can see on our destination server, it already has a Compaq/HP Diagnostics Partition.

Select the correct device that you want to restore to and press [Enter] to continue.

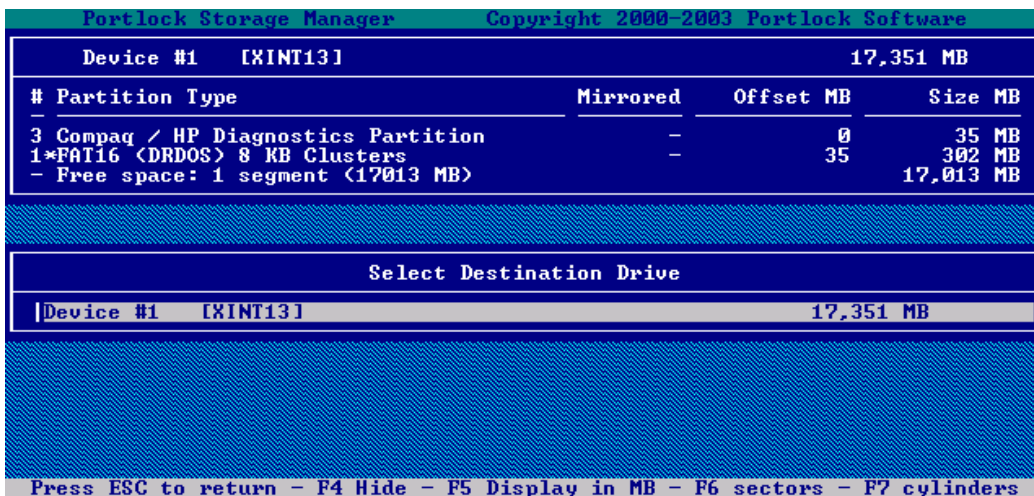




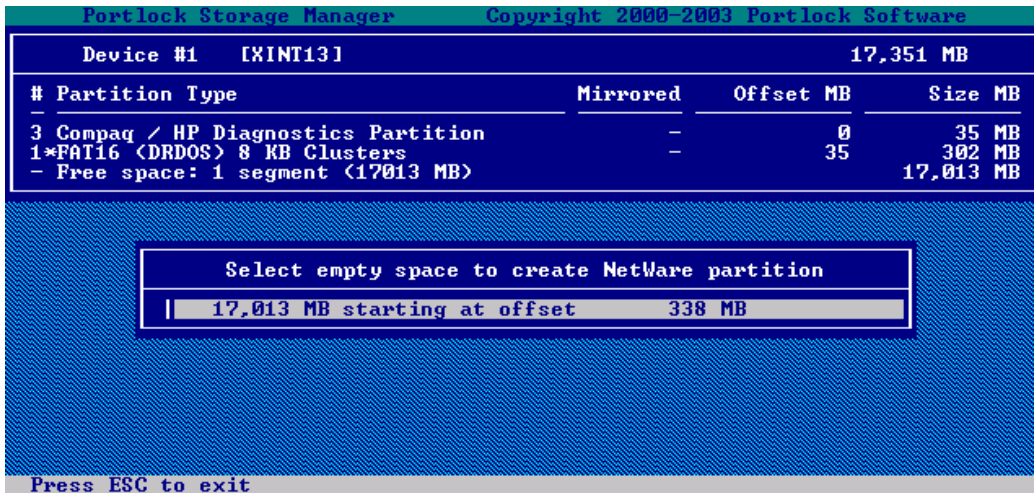
You are now asked to create a NetWare partition to store the NetWare traditional volumes in. For this example, it will be the SYS volume. Also, in this example, the current SYS volume is too large, so we will make it smaller as part of the restore.

The SYS volume was 8 GB in size, but for this example, we want a 4 GB SYS volume.

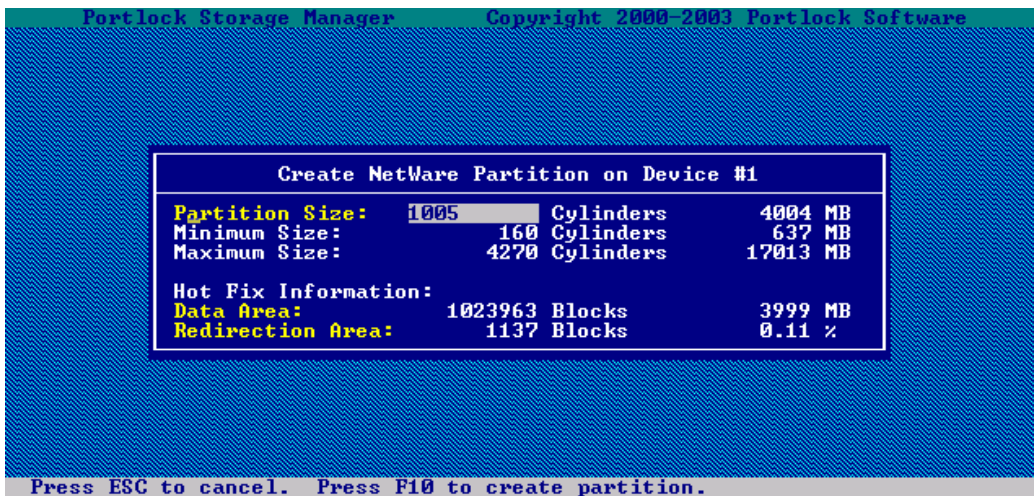
Select **Restore a volume to a new NetWare partition** and press [Enter] to continue.



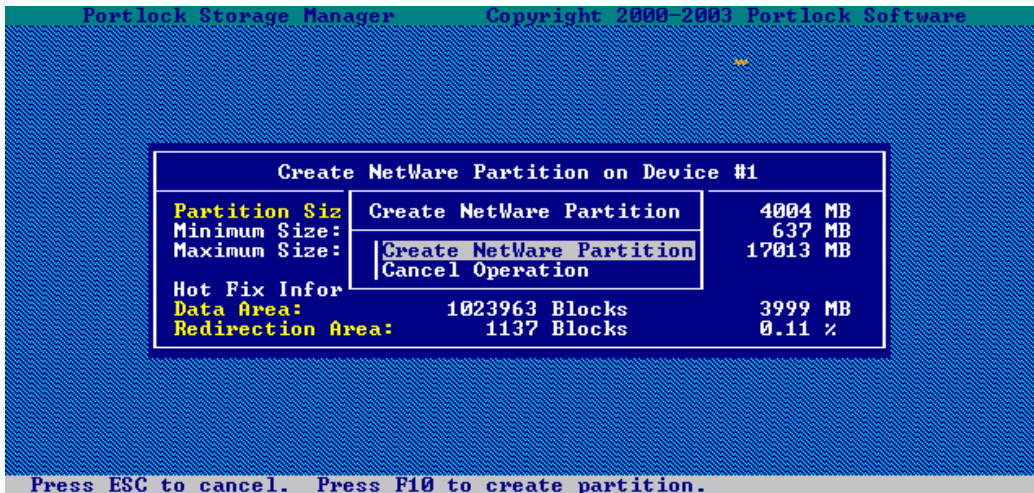
You will be shown a list of devices to create the Traditional Partition on. Select the correct device and press [Enter] to continue.



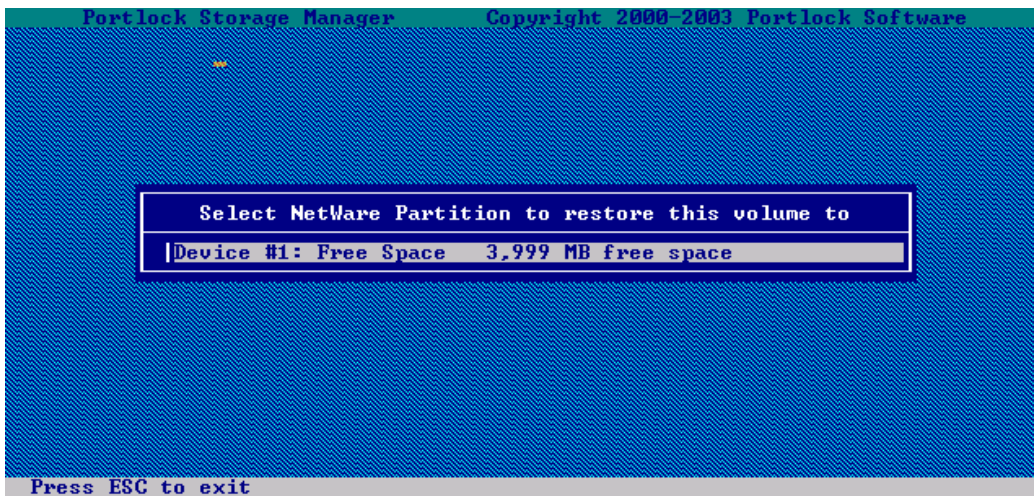
Portlock Storage Manager is showing where it will create the NetWare partition. Select the correct location and press [Enter] to continue.



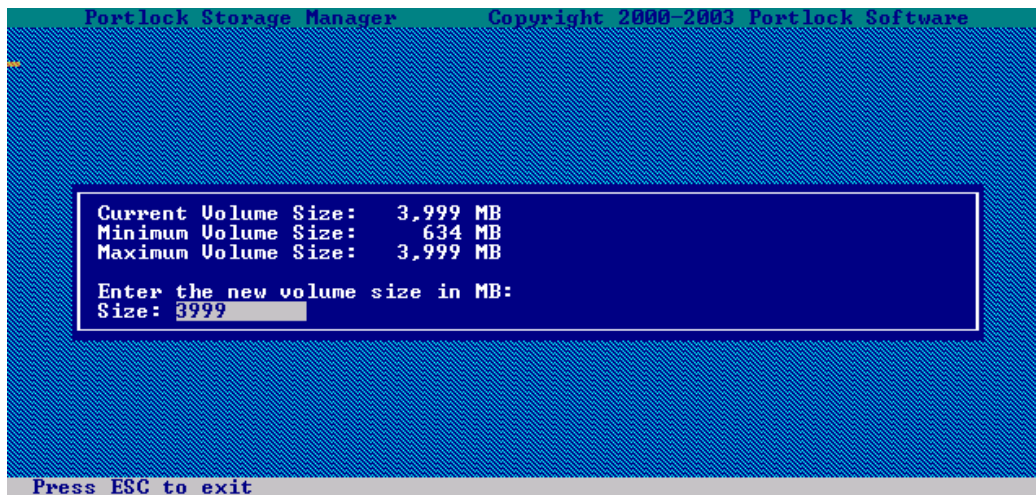
Select the correct size that you require and press [F10] to continue.



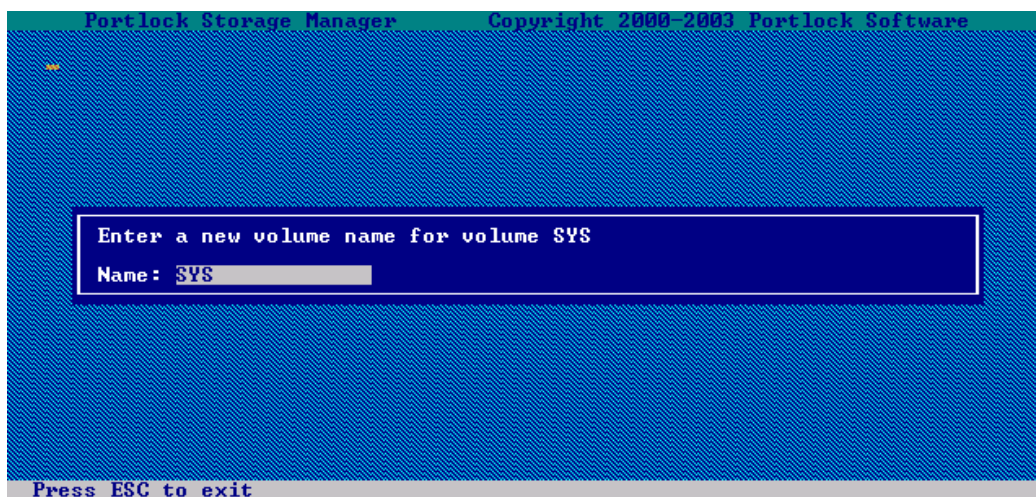
If the size that you selected is correct, press [Enter] on the **Create NetWare Partition** item.



You are now shown the location that the volume can be restored to. Select the correct location and press [Enter] to continue.

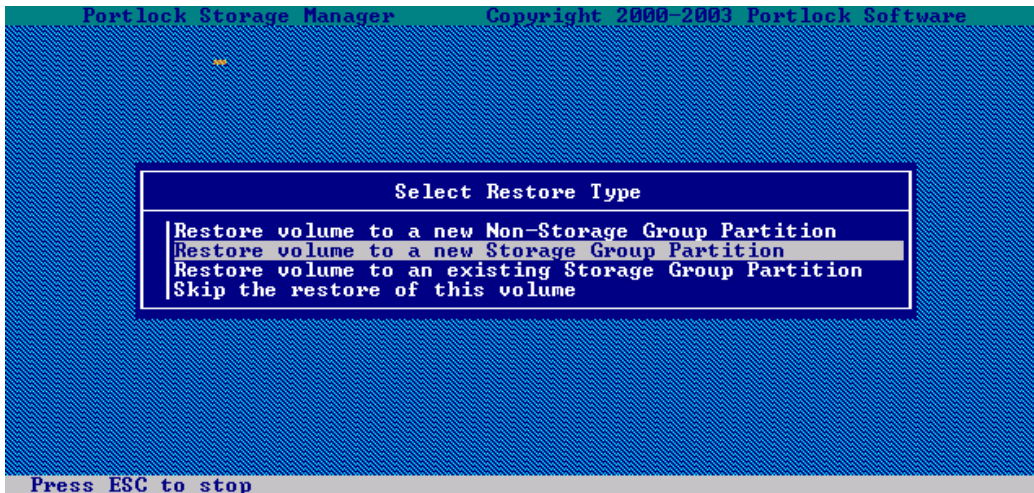


You are now presented with a screen about the restore process for the volume. You are shown the maximum and minimum sizes that the SYS volume can be when it is restored. For this example, we want 4 GB; therefore, we will accept the maximum of 3999.

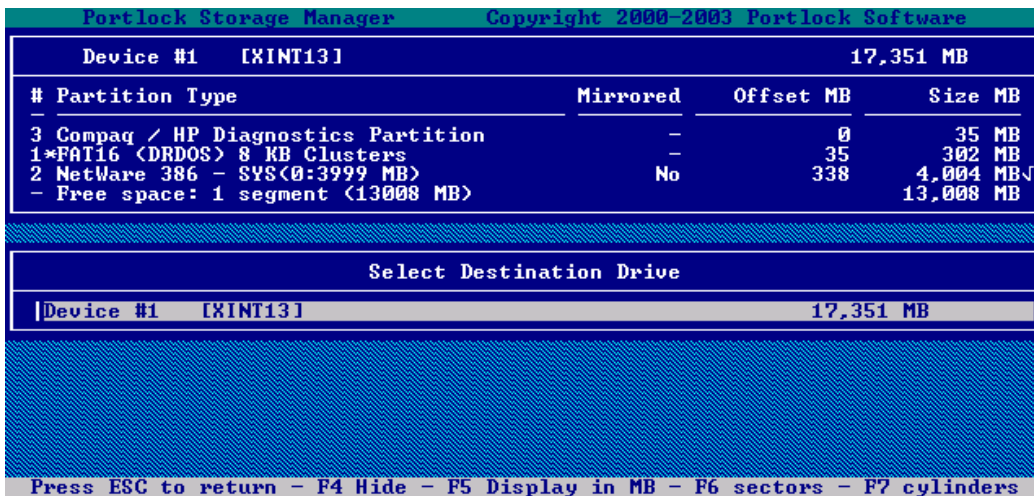


You now have the option of renaming the restored volume or keeping it the same.

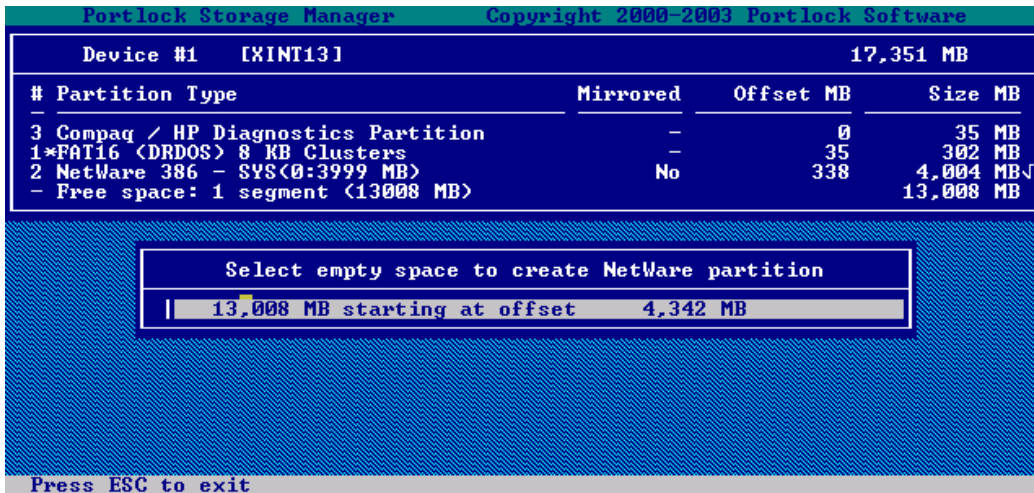




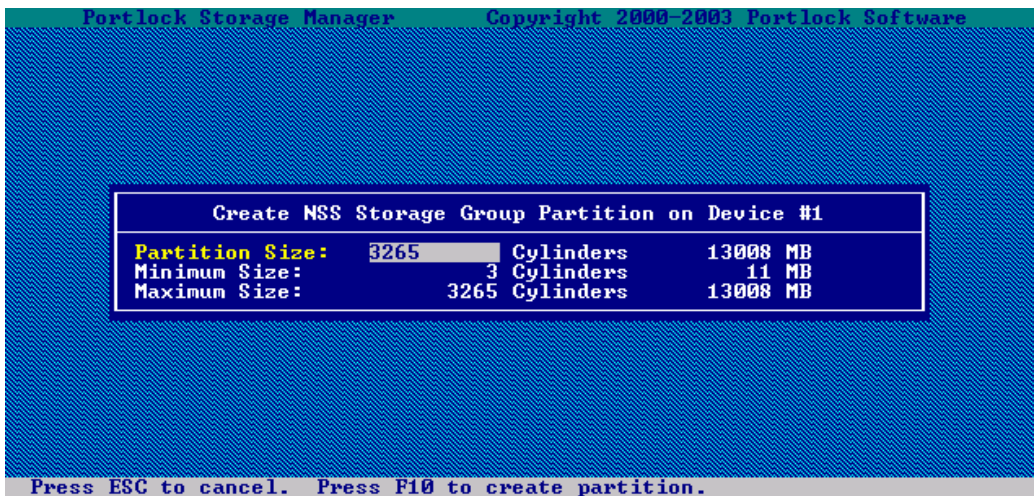
For this example, select **Restore volume to a new Storage Group Partition** and press [Enter] to continue.



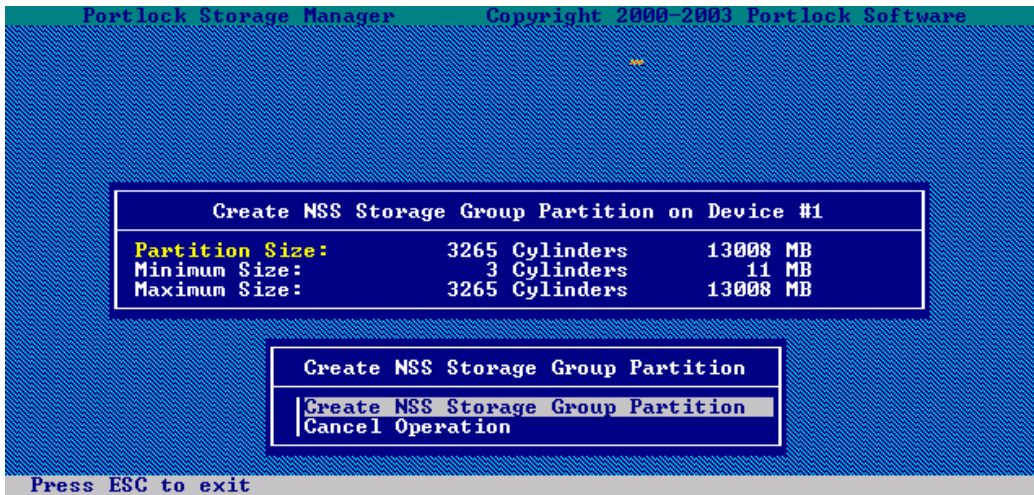
You will be presented with a list of devices to restore to. Select the correct device and press [Enter] to continue.



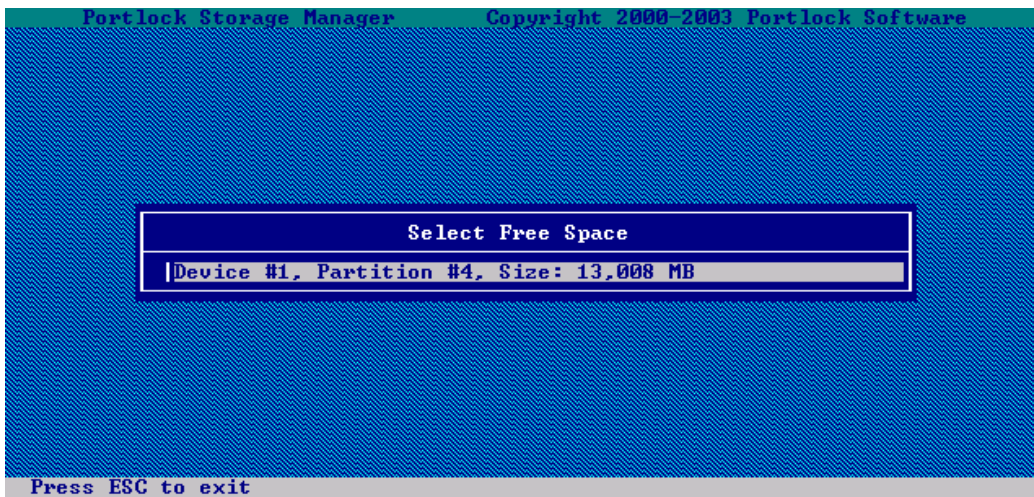
You are now asked to confirm the location for creating the new Storage Group Partition. Select the correct location and press [Enter] to continue.



Select the correct size for the Storage Group Partition and press [F10] to continue.



You are now shown a confirmation screen. Press [Enter] to continue.



You are now shown a destination that can take the volume that we are about to restore. Select the destination and press [Enter] to continue.



```

Portlock Storage Manager      Copyright 2000-2003 Portlock Software
+-----+-----+-----+-----+-----+-----+
| Status | D# | P# | Partition or Volume Type | Size |
+-----+-----+-----+-----+-----+
| SUCCESS| 1  | 1  | FAT16                    | 302 MB |
| SUCCESS| 1  | 2  | NetWare Volume SYS -> SYS | 3,999 MB |
| SUCCESS| 1  | 3  | NetWare Volume NSSUOL -> NSSUOL | 8,999 MB |
+-----+-----+-----+-----+-----+
Restore Complete - Press Escape or Enter to close screen.

```

Once the migration of the volumes has completed, the screen above will appear.

You should now bring down the old source server, and either edit AUTOEXEC.BAT, or rename SERVER.EXE to make sure that the old server does not come back up accidentally.

Now, we will have to configure the drivers to work on the new destination server. Because we have changed partitions on the destination server, you will have to reboot it.

On any new server for NetWare, there are generally only two things that need to be modified:

1. The driver(s) for the disk controller.
2. The driver for the Network Interface Card (NIC or LAN card).

The configuration file for the disk controller is located in the C:\NWSERVER\STARTUP.NCF file. You will need to edit the file to modify the disk drivers for the new server.

```

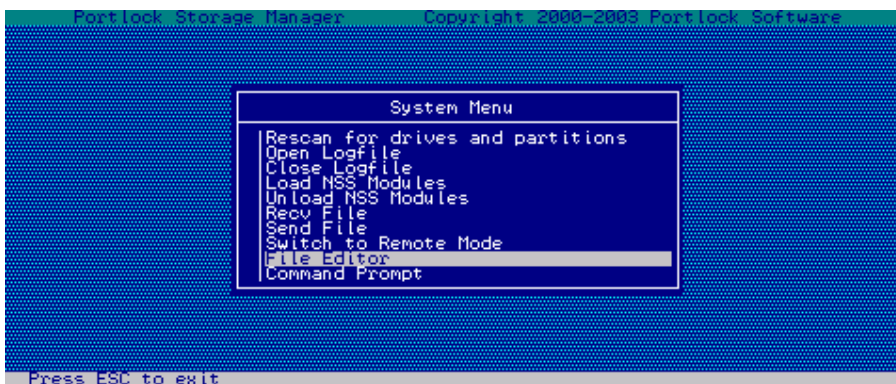
Portlock Storage Manager      Copyright 2000-2003 Portlock Software
c:\nwserver\startup.ncf
LOAD IDEHD.COM
LOAD IDECD.COM
LOAD IDEATA.HAM PORT=1F0 INT=E
LOAD IDEATA.HAM PORT=170 INT=F
Press ESC to exit (mode: INSERT, lines: 4, row: 1, col: 1)

```

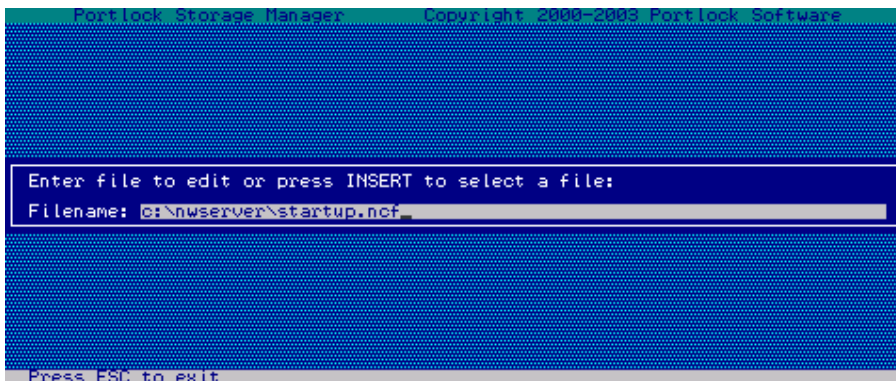
Using an editor, we will need to modify the disk drivers. Portlock Storage Manager comes with a text file editor. To load the editor, you must do the following:



Select the **System Commands** from the Main Menu and press [Enter] to continue.



Select **File Editor** and press [Enter] to continue.



Enter the location of the file to edit. For this example, it is **C:\NWSERVER\STARTUP.NCF**. Press [Enter] to continue.

For the Compaq Proliant 1850R, we have a Compaq Smart Array controller on which the drives are attached to. The driver for this is CPQARRAY.HAM. As it is also a SCSI device, we need to load the SCSIHD.CDM driver instead of IDEHD.CDM driver.

```
PortLock Storage Manager Copyright 2000-2005 PortLock Software
c:\nwserver\startup.ncf
; LOAD IDEHD.COM
LOAD SCSIHD.COM
LOAD IDECD.COM
LOAD IDEATA.HAM PORT=1F0 INT=E
LOAD IDEATA.HAM PORT=170 INT=F
LOAD CPQARRAY_

Press ESC to exit (mode: INSERT, lines: 6, row: 6, col: 14)
```

You will now need to copy the appropriate drivers into the C:\NWSERVER directory. Some of the drivers that you may require can be copied from the C:\NWSERVER\DRIVERS directory to C:\NWSERVER.

The final task that may need to be completed is to reconfigure the LAN card. Different servers have different LAN cards. In our case, both the Deskpro and the Proliant server have the Compaq N100 card. On the Deskpro, we used the CE100B card driver, and we are going to reconfigure the server to use the Compaq N100 card driver.

The two places are the SYS:SYSTEM\AUTOEXEC.NCF, or by loading the Novell utility called INETCFG.

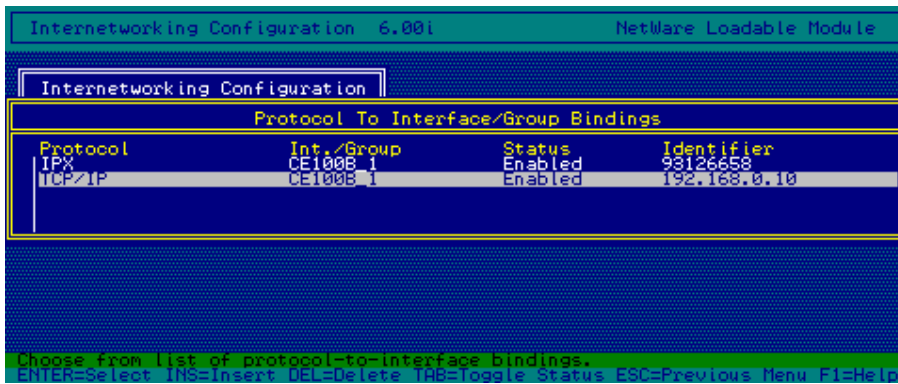
For the purposes of this guide, we will assume that the drivers are configured using INETCFG. At the server console prompt, type **LOAD INETCFG** and the following program will appear:

```
Internetworking Configuration 6.00i NetWare Loadable Module

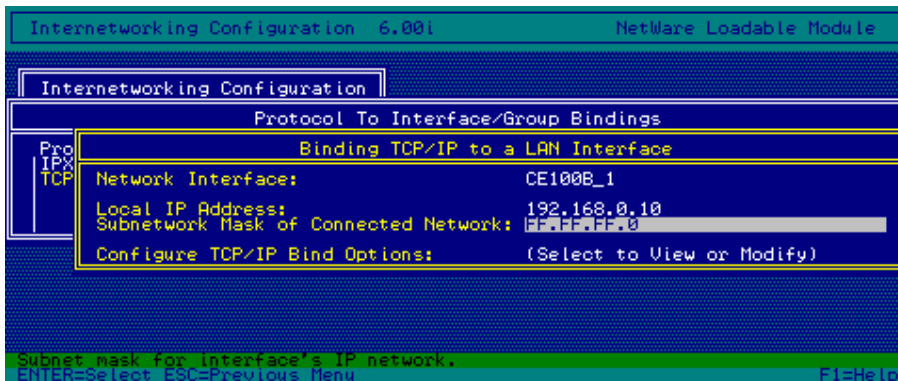
Internetworking Configuration
| Boards
| Network Interfaces
| WAN Call Directory
| Protocols
| Bindings
| Manage Configuration
| View Configuration
| Reinitialize System

Connect a particular protocol to a particular network interface.
ENTER>Select ESC=Exit Menu F1=Help
```

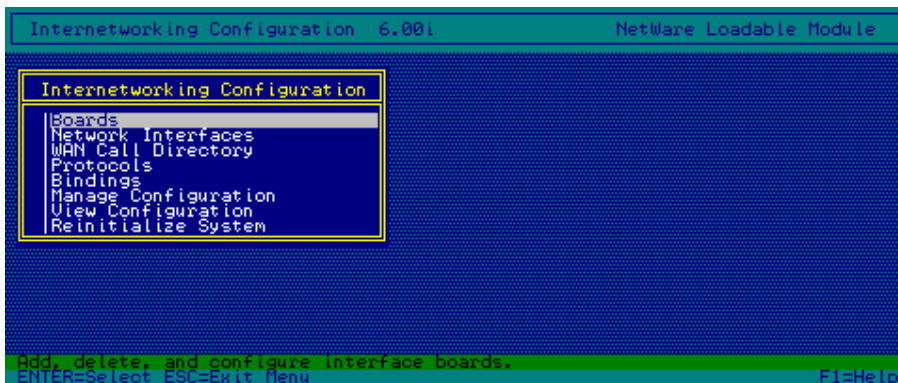
Because we have decided to change the NIC from the CE100B driver to the Compaq N100 driver, we first need to verify the current settings of the NIC. To do this, select **Bindings** and press [Enter] to continue.



Take note of the Identifier for IPX and/or TCP/IP. In the case of TCP/IP, you will also need to know the subnet mask. Select TCP/IP (assuming that TCP/IP is bound on your NetWare server, if not then please ignore this step).



Take a note of the information in the **Subnetwork Mask of Connected Network** box. Now, press the [ESC] key to return to the main menu of INTETCFG.



Select **Boards** and press [Enter].

```
Internetworking Configuration 6.00i NetWare Loadable Module

Internetworking Configuration
  Configured Boards
  Board Name Driver Int IOAddr MemAddr Slot Status Comment
  CE100B_1 CE100B - - - 10009 Enabled -

Choose from the list of configured network interface boards.
ENTER=Select INS=Insert DEL=Delete TAB=Toggle Status ESC=Previous Menu F1=Help
```

We are now presented with the NIC. We will delete the existing CE100B driver to replace it with the Compaq N100 driver. Press the [Delete] key.

```
Internetworking Configuration 6.00i NetWare Loadable Module

Internetworking Configuration
  Configured Boards
  Board Name Driver Int IOAddr MemAddr Slot Status Comment
  CE100B_1 CE100B - - - 10009 Enabled -
  BINDs to interfaces on this board will also be deleted. Proceed?
  |No
  |Yes

Choose from the list of configured network interface boards.
ENTER=Select INS=Insert DEL=Delete TAB=Toggle Status ESC=Previous Menu F1=Help
```

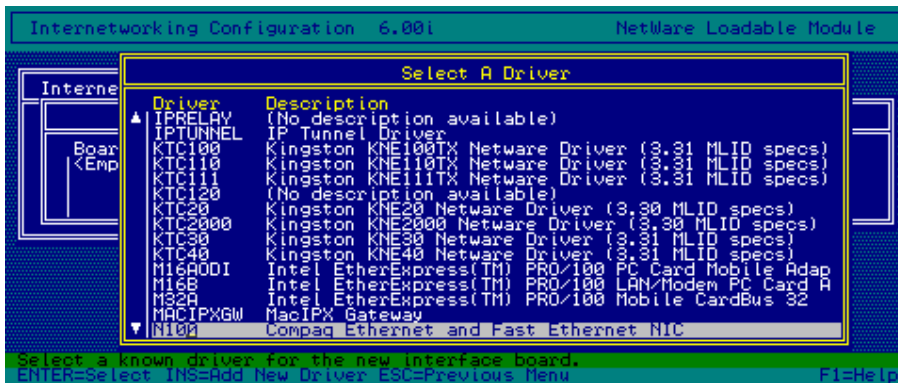
You are now asked to confirm that this is what you want to do. If you have already wrote down the IPX and TCP/IP networking information, select **Yes** and press [Enter] to continue.

```
Internetworking Configuration 6.00i NetWare Loadable Module

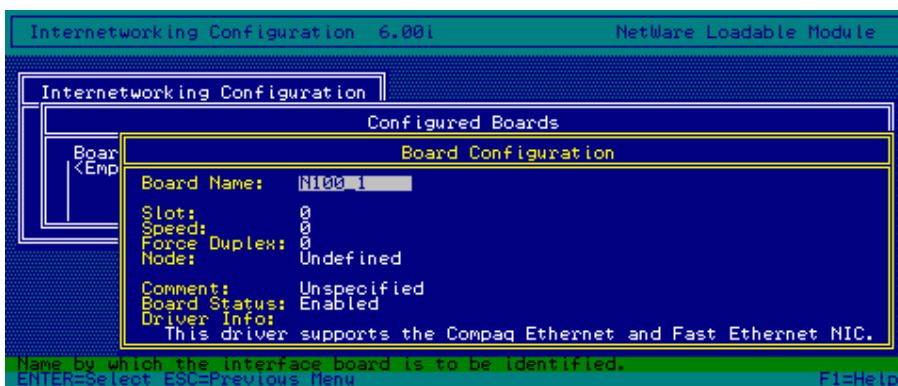
Internetworking Configuration
  Configured Boards
  Board Name Driver Int IOAddr MemAddr Slot Status Comment
  <Empty List>

Choose from the list of configured network interface boards.
ENTER=Select INS=Insert DEL=Delete TAB=Toggle Status ESC=Previous Menu F1=Help
```

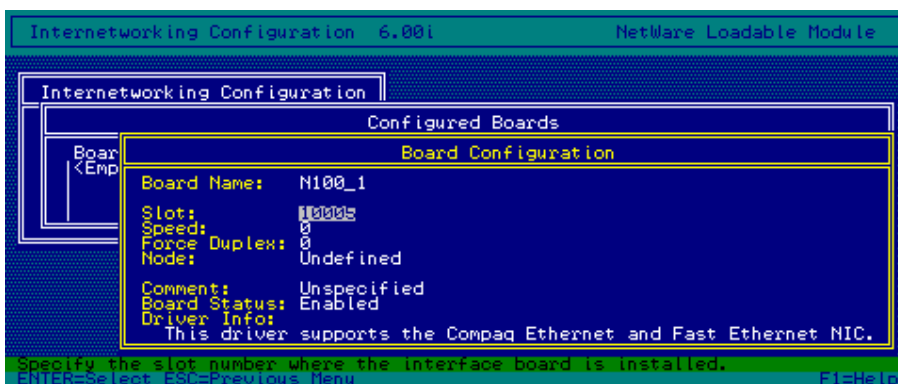
Now, there are no NICs configured. Press the [Insert] key to get a list of available cards.



Scroll down the list until you come to the Compaq N100 driver and then press [Enter] to continue.

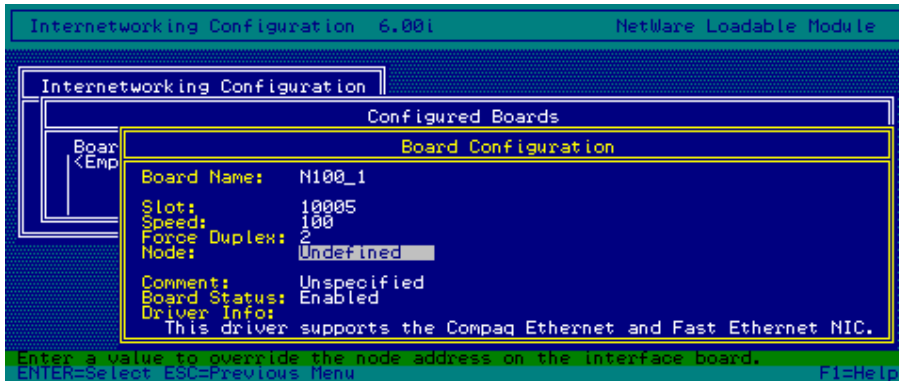


You are now asked to provide a unique name for the board. For this example, we will use **N100\_1**.



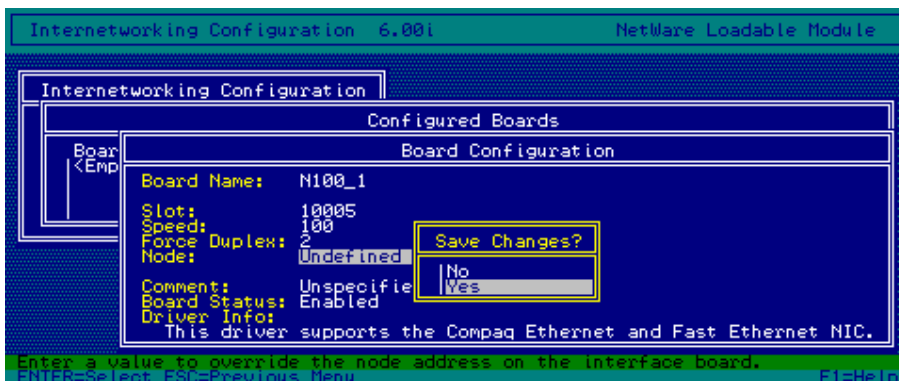
We now have to provide the slot number of the NIC, which we know to be **10005**.

**TIP:** If you are not sure of the NIC slot number, go to the main system prompt and type in the driver name. Most drivers will either prompt you for a slot number (providing what it has found on your server), or will automatically load and provide the slot number. If it loads and you cannot see a slot number, type **config** and press [Enter] to view the configuration of the card driver. This will tell you the slot number of the NIC.

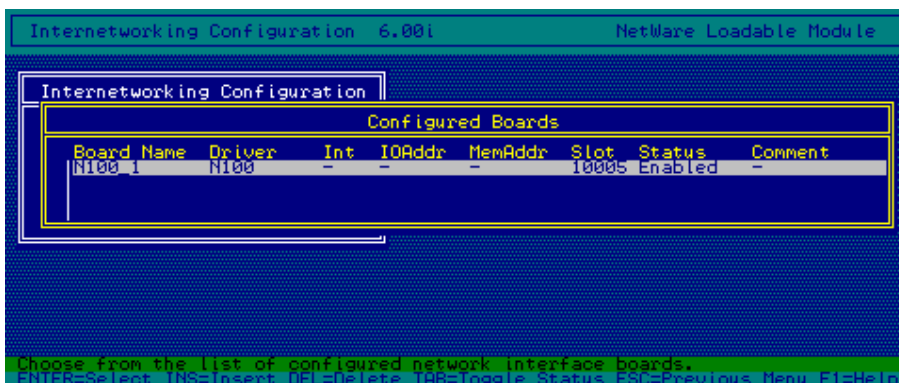


We are also setting the speed and duplex of this NIC to **100** full duplex. Now, when everything is complete, press [ESC] to continue.

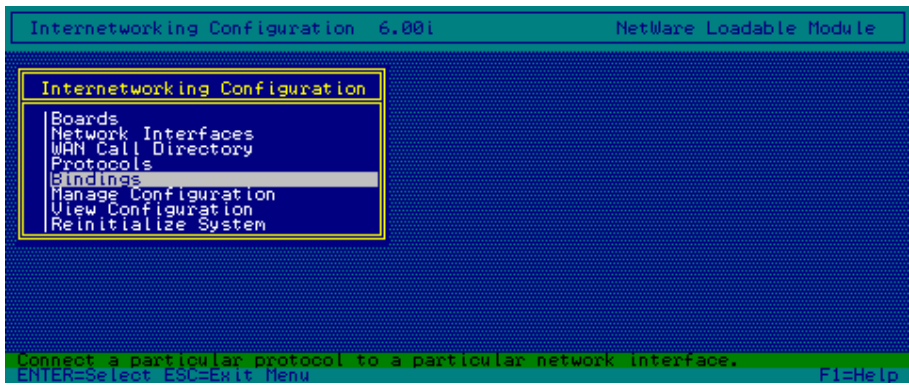
**TIP:** You should always hard code the speed and duplex of your NetWare server on both the server end and the switch end. Leaving both ends, or even one end, to auto speed and duplex may lead to network performance problems for your server and users.



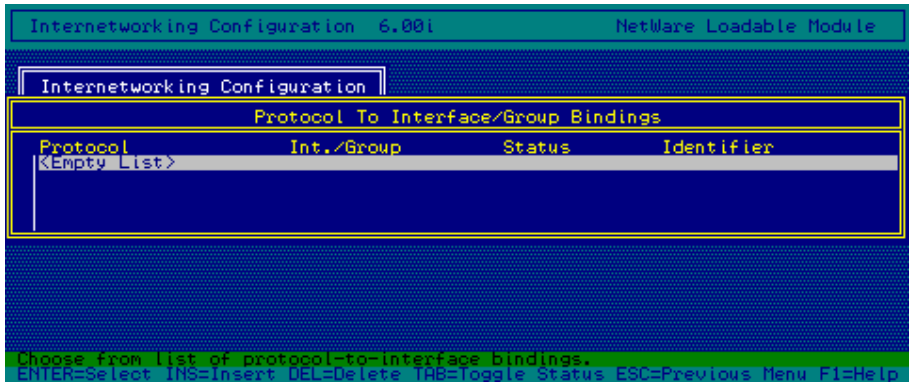
We are now asked to confirm our changes, press [Enter] to continue.



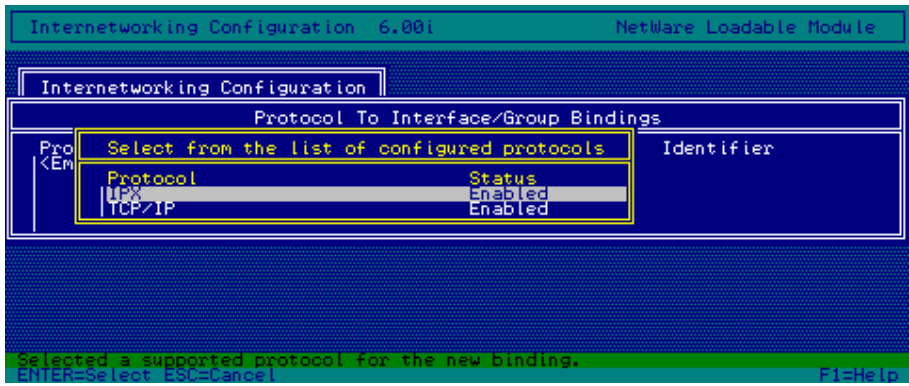
We can now see that the N100\_1 board has been configured. We now need to bind the network protocols. Press [ESC] to return to the main menu.



Select **Bindings** and press [Enter].

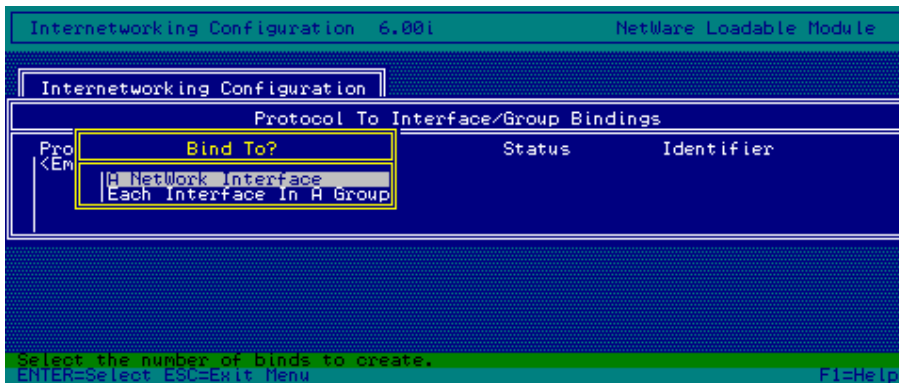


To add bindings to the NIC press [Insert].

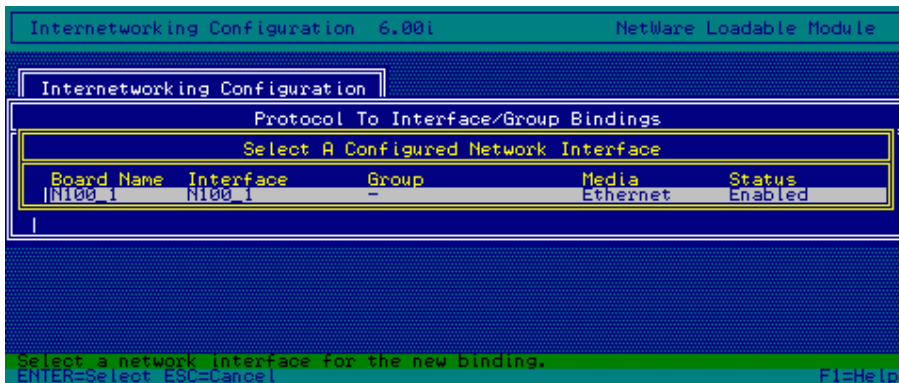


As our server had both IPX and TCP/IP, we will configure each one.

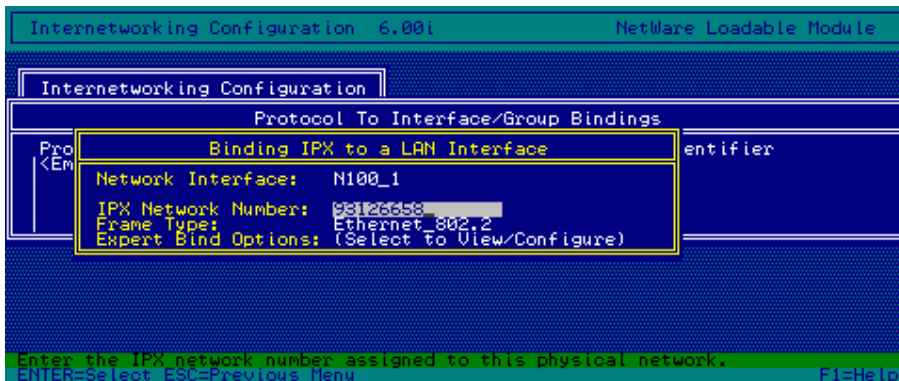
Select **IPX** and press [Enter] to continue.



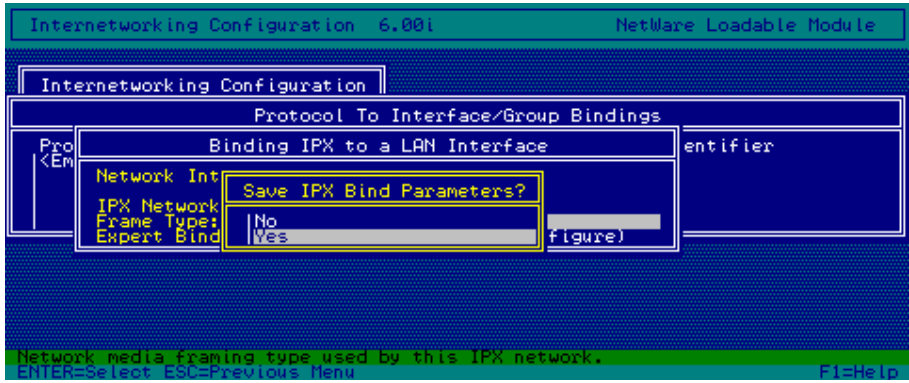
Choose **A Network Interface** and press [Enter].



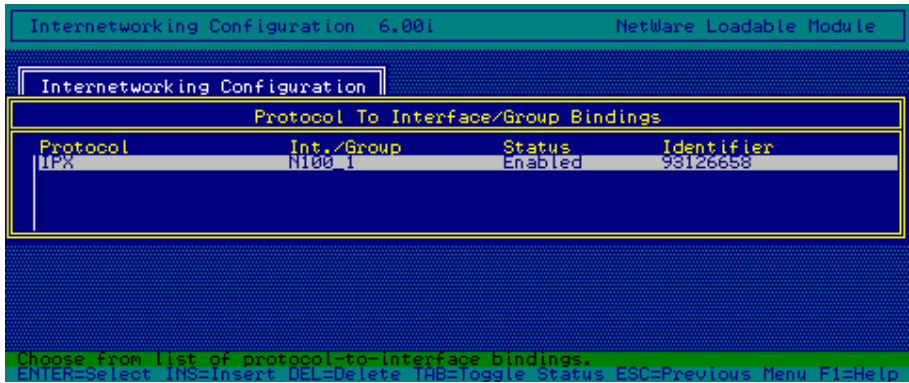
We are now shown a list of configured NICs. Choose the correct one, and press [Enter] to continue.



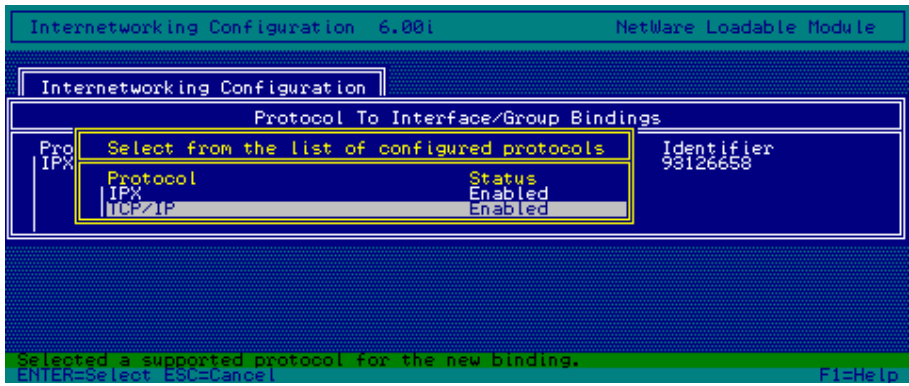
We now put our IPX network number of **93126658** into the field (your IPX network number will be unique to you, so please enter that number instead), and press [Enter]. Then press [ESC] to continue.



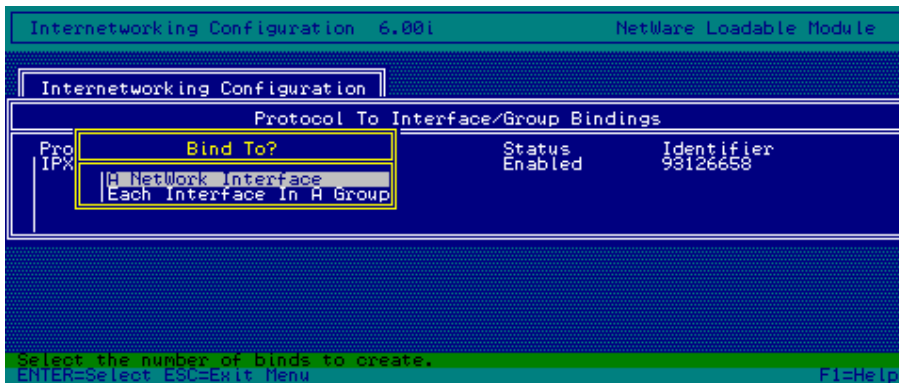
You are now asked to save the IPX Bind Parameters. Select **Yes** and press [Enter].



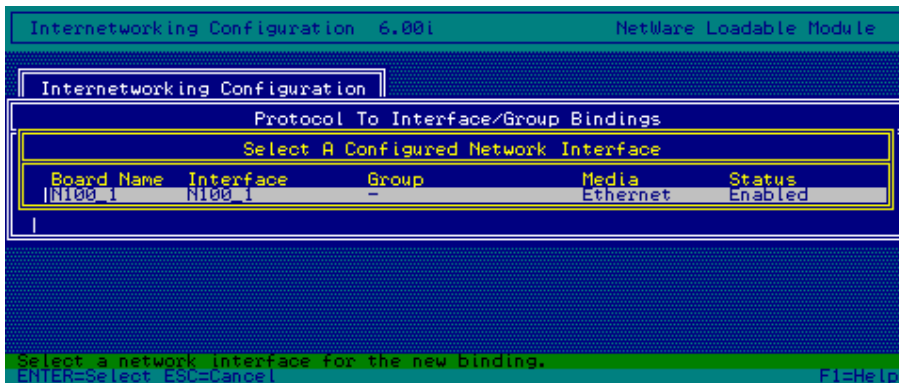
Now, we have to add the TCP/IP information. Once again, press [Insert] to continue.



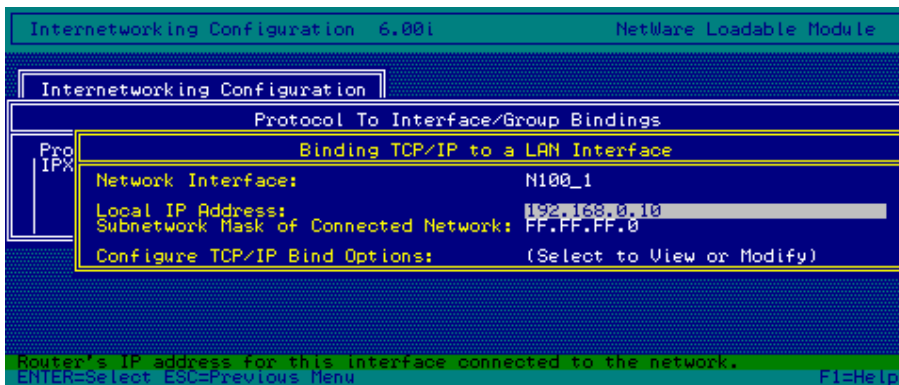
Select **TCP/IP** and press [Enter].



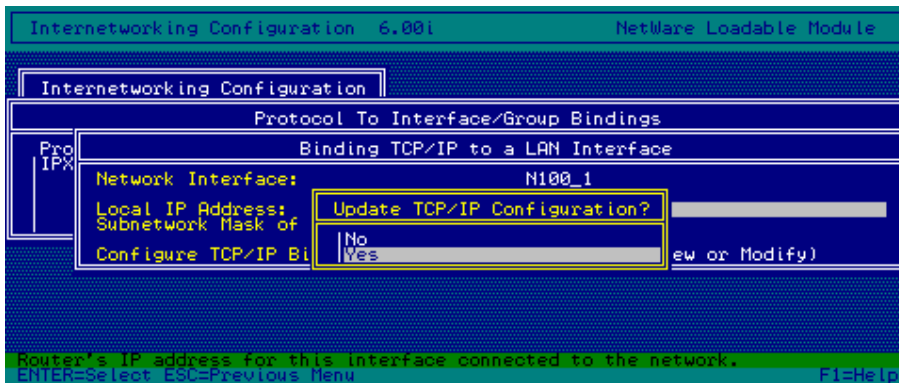
Select **A NetWork Interface** and press [Enter].



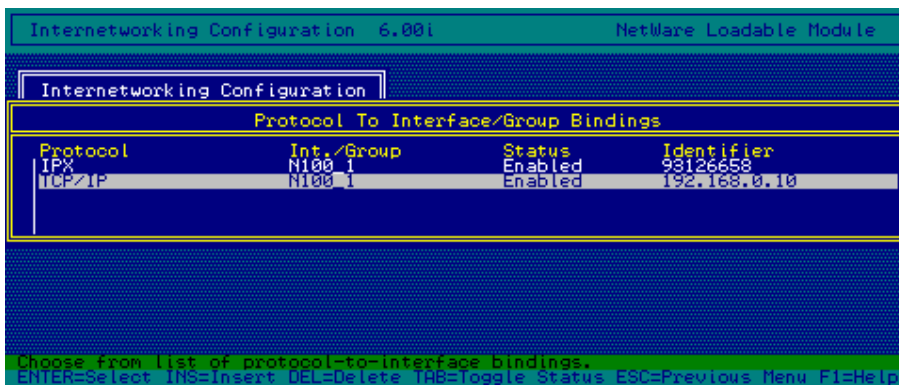
Once again, select the correct board and press [Enter].



Enter the **TCP/IP address** and the **Subnetwork Mask of Connected Network**, which you took a note of earlier. Press [ESC] to continue.



We are now asked to confirm that the information was correct. Select **Yes**, and press [Enter] to continue.



Our NIC has now been configured.

You should now **DOWN** the server and reboot to make sure that everything is working correctly.