3com

Release Note

10/100/1000 PCI-X Server NIC
3C996-T

This release note provides information to help you obtain maximum performance from your 3Com 10/100/1000 PCI-X Server NIC.

This information is updated regularly on the following 3Com Web site: http://support.3com.com.

Configuring VLANs in Novell NetWare

3Com has observed during testing that as many as 64 VLANs per team are configurable and operable in Novell NetWare operating systems.

Installing Advanced Server Features on Novell NetWare Server 4.2 and 5.1

Use the following procedure to install Advanced Server Features on Novell NetWare Server 4.2 and 5.1:

1 **Load BASP.LAN just like a standard LAN driver with the same frame types loaded for the NIC in the team. BASP.LAN requires a special VSLOT parameter to specify the virtual slot. The virtual slot can be viewed as a team number.**

   Example:

   ```
   LOAD BASP.LAN FRAME=ETHERNET_II NAME=BASP_1_EII
   VSLOT=1
   ```

   After BASP.LAN is successfully loaded, a new screen appears. This screen displays all virtual NIC settings and statistics. Press Alt+Esc to switch back to the console and continue with step 2.

2 **Load the network drivers for the NIC that will be part of the team. The frame types loaded should be the same for all NICs in the team. Do not bind protocols directly to these NICs.**

Example:
```
LOAD B57.LAN FRAME=ETHERNET_II NAME=B57_1_EII SLOT=1
LOAD B57.LAN FRAME=ETHERNET_II NAME=B57_2_EII SLOT=3
```

3 Bind BASP.LAN to the NIC in the team by using a custom BASP BIND command at the console.

Example:
```
BASP BIND BASP_1_EII B57_1_EII
BASP BIND BASP_1_EII B57_2_EII
```

Note that if there are multiple frame types loaded on the virtual and the physical NICs, it is necessary to bind only one frame type on the virtual NIC to the same frame type on the physical NIC. The other frame types will be bound automatically.

4 Bind protocols to BASP.LAN.

Example:
```
BIND IP BASP_1_EII ADDR=x.x.x.x MASK=x.x.x.x
```

NOTE: Configuration of BASP.LAN should be performed manually by editing the AUTOEXEC.NCF file. NWCONFIG.NLM (or INSTALL.NLM) cannot completely configure BASP.LAN.

NIC Driver Configuration Parameters for Novell NetWare

Parameter	Options	Description
CheckSum =	Default = ON Selections are: ON, OFF, Tx, Rx	Enables or disables the transmit and receive checksum off-loading feature. Note that checksum is supported under NetWare 5.x only.
Frame = type	Valid types are: Ethernet_802.2 Ethernet_802.3 Ethernet_II Ethernet_SNAP	Defines the frame type being used by this load instance. Ethernet_802.2 and Ethernet_II are the default values.
name = text		Name assigned to this NIC
PDriver =	Default = OFF Selections are: OFF, ON	Allows driver to operate in persistent driver mode. Persistent driver mode is supported under NetWare 5.x only. Use only if NIC is placed in a Hot Plug PCI slot and only if required to swap with an exact NIC.
RxBuffers =	Default = 200 Min = 32 Max = 1000	Pre-allocates ECB resources on the adapter for receiving packets.

Parameter	Options	Description
TxDescriptors =	Default = 120 Min = 100 Max = 400	Pre-allocates ECB resources on the adapter for transmitting packets.
RxFlow =	Default = ON Selections are: ON, OFF	Allows enabling and disabling of RxFlow control.
TxFlow =	Default = ON Selections are: ON, OFF	Allows enabling and disabling of TxFlow control.
Slot = n		Identifies the slot number for the specific BCM5700 NIC currently being configured. This parameter is not necessary if only a single NIC is installed.
Speed = n	Default is Auto. (Note that 1000 FD is only auto-detected at this time. AUTO, 10FD, 10HD, 100FD, 100HD	If link negotiation has been disabled, you can select port speed to be either Auto, 10HD or 10FD, 100HD or 100FD.
Link=	Default is FORCE because the speed keyword is usually used when a switch and the adapter speeds are both forced to a specific value. Selections are: AUTO, FORCE	Used only to allow the NIC to negotiate a specific or forced line speed with a switch that is not forced, but instead setup for auto-negotiation. It is best to allow for auto-negotiation of the NIC and switch by not setting this keyword or the speed keyword. Only use this keyword if the speed keyword is set to something other than AUTO.
RxTicks=	Default is 75 Min=0, disabled Max=5000000, 5 seconds Units in microseconds	Enables the use of batching receives within a specific time period.
TxPacketsPer=	Default is disabled Min=0 Max=100	Enables the use of batching transmits to a specific amount of packets.
Node=		To override the default media access control (MAC) address (also known as the Locally Administered Address), specify a node address in this field. The expected range is 0060CD000000 through 0060CFFFFFFF.

DMI Hot-Plug Service for Windows 2000

3Com has observed during testing that under Windows 2000 you will need a third-party utility to install the DMI PCI Hot-Plug service. Before you begin, install Service Pack 1 for Windows 2000. Then, go to your server manufacturer's Web site to download their utility for DMI PCI Hot-Plug service. Follow the manufacturer's procedure to install and configure the Hot-Plug service.

Installing the MS Loopback Driver in Windows NT 4.0

When you do a fresh installation of Windows NT 4.0, Microsoft recommends that you install the MS Loopback driver, and then verify that networking is operating normally before installing any NICs. The MS Loopback Adapter driver enables the computer to connect to local network resources that then allow alerter and messenger services to start on a stand-alone system.

Failure to install the MS Loopback Adapter driver before installing a service pack can result in a corrupted operating system. 3Com has tested and supports only Service Pack 6a. To install the driver, do the following:

1 **Start the Windows NT 4.0 fresh installation and proceed as usual.**

2 **In the Windows NT 4.0 Server Setup window, click *Select from List*.**

3 **In the list, locate and select MS Loopback Adapter and click *OK*.**

4 **In the Windows NT Server Setup window, click *Next*.**

5 **Bind protocols (TCP/IP, NetBEUI, or IPX/SPX) to the Loopback adapter driver, and then click *Next*.**

6 **Continue the installation as usual.**

7 **When prompted, click *Yes* to restart the computer.**

8 **Install the service pack.**

9 **When prompted, click *Yes* to restart the computer.**

10 **Install the 3Com Gigabit Ethernet NIC, its driver, and Advanced Server Features.**

11 **Bind protocols (TCP/IP, NetBEUI, or IPX/SPX) to the 3Com Gigabit Ethernet NIC driver.**

12 **When prompted, click *Yes* to restart the computer.**

Performing a Fresh Installation of Windows NT on a Backup Domain Controller

⚠ CAUTION: If performed incorrectly, this procedure can destroy the primary domain controller security database. Before you proceed, back up your system.

A fresh installation of Windows NT on a backup domain controller requires the following:

- Installation of the NIC driver
- Network connectivity

Because the NIC driver installation requires that the latest Microsoft service pack first be installed, and because there is no way to install a service pack during a Windows NT fresh installation on a backup domain controller, you must first set up two servers as primary domain controllers, and then demote one of them to a backup domain controller.

⚠ CAUTION: Do not use this procedure if SQL or Microsoft Exchange are on the primary domain controller that you wish to demote to a backup domain controller. If these items are on the primary domain controller, you must reinstall them after you finish this procedure.

⚠ CAUTION: If performed incorrectly, this procedure can destroy the primary domain controller security database. Use the rdisk /s command to make emergency repair diskettes to backup the server security databases on the two servers before attempting this procedure.

1 **Install Windows NT 4.0 with service pack 6a on two servers set up as primary domain controllers. (Follow the procedure in "Installing the MS Loopback Driver in Windows 4.0," above.)**

2 **Connect the two servers to the same network.**

3 **Create two domains in the same network. Set up the server and domain names.**

   For example:

Server/Domain	Name
Server one	SERVER-1
Domain one	DOMAIN-1
Server two	SERVER-2
Domain two	DOMAIN-2

4 **Place SERVER-1 in DOMAIN-1.**

    5 Place SERVER-2 in DOMAIN-2.

    6 Set the same administrator password on both SERVER-1 and SERVER-2.

Setting up SERVER 1

    1 Start Server Manager on DOMAIN-1\SERVER-1. From the Start menu, select *Programs/Administrative Tools (Common)/Server Manager*.

    2 From the Computer menu, select *Add to Domain*.

    3 Select *Windows NT Backup Domain Controller* as the computer type.

    4 In the Computer Name field, enter the domain and server name. For example: DOMAIN-2\SERVER-2

    5 Click *Add*.

    6 Click *Close*.

Setting up SERVER 2

    1 Start Server Manager on DOMAIN-2\SERVER-2. From the Start menu, select *Programs/Administrative Tools (Common)/Server Manager*.

    2 From the Computer menu, select *Add to Domain*.

    3 Select *Windows NT Backup Domain Controller* as the computer type.

    4 In the Computer Name field, enter the domain and server name. For example: DOMAIN-1\SERVER-1

    5 Click *Add*.

    6 Click *Close*.

Stopping the Net Logon Service on SERVER 1

    1 Double-click the *Control Panel*.

    2 Double-click *Services*.

    3 In the Services dialog box, select *Net Logon*.

    4 Click *Stop*.

    5 Click *Yes* to stop the net logon service. This unlocks the security database.

    6 Close the Services dialog box.

Stopping the Net Logon Service on SERVER 2

    1 **Double-click the *Control Panel*.**

    2 **Double-click *Services*.**

    3 **In the Services dialog box, select *Net Logon*.**

    4 **Click *Stop*.**

    5 **Click *Yes* to stop the net logon service**
       This unlocks the security database.

    6 **Close the Services dialog box.**

Renaming Domain-2/SERVER-2 to DOMAIN-1/SERVER-2

    1 **On SERVER-2, double-click the *Control Panel*.**

    2 **Double-click *Network*.**

    3 **In the Network dialog box, click the *Identification* tab.**

    4 **Click *Change*.**

    5 **In the Domain Name field, replace the name DOMAIN-2 with the name DOMAIN-1 and click *OK*. This process takes a few moments.**

    6 **Click *Yes* to the Warning prompt.**

    7 **In the Welcome to DOMAIN-1 domain dialog box, click *OK*.**

    8 **Close the Network dialog box.**

    9 **Click *No* at the prompt to restart the computer.**

Establishing the Backup Domain Controller

    1 **Restart SERVER-1 and log in.**

    2 **Restart SERVER-2, log in, and then wait for all services to start. Do not be alarmed if you receive a fail service message.**

    3 **On SERVER-1, start Server Manager.**

    4 **From the View menu, select *Refresh*. The Server Manager dialog box shows both SERVER-1 and SERVER-2 as PRIMARY controllers.**

    5 **On SERVER-2, start Server Manager.**

    6 **In the Server Manager dialog box, select *SERVER-1*.**

    7 **From the Computer menu, select *Demote to Backup Domain Controller*, and then click *Yes*.**

8 **On SERVER-1, refresh the Server Manager dialog box. From the View menu, select *Refresh*. The Server Manager dialog box now shows SERVER-2 as PRIMARY and SERVER-1 as BACKUP.**

9 **Select *SERVER-2*.**

10 **From the Computer menu, select *Synchronize with Primary Domain Controller*.**

11 **Click *Yes* to start synchronization.**

12 **Click *OK*.**

13 **Restart SERVER-1.**

14 **Restart SERVER-2.**

15 **Verify that services are starting correctly. If the backup domain controller begins to receive 7023 or 3210 errors after you synchronize the domains, correct the situation as follows:**

   a On the primary domain controller, start Server Manager and select the backup domain controller.

   b Synchronize that specific backup domain controller with the primary domain controller.

   c After an event indicates that the synchronization is complete, restart the backup domain controller.

Installing DNS and/or DHCP Server Service in Windows 2000

3Com has observed during testing that a warning message(s) will appear if you install DNS and/or DHCP Server Service on a Windows 2000 server where the Advanced Server Features driver is already installed. The DNS and/or DHCP Server Service installer detects dynamically assigned IP addresses for the Advanced Server Features miniports and warns that you should use static IP addresses. 3Com recommends that you click *OK* to ignore these messages. Do not assign static IP addresses.

Removing the Physical Interface in Generic Trunking Mode in Windows NT 4.0 and Windows 2000

If you plan to remove the primary team member in the GEC/FEC team and you are using 3Com Advanced Server Features, use the following procedure to update the MAC address of the modified GEC team.

Failure to use the following procedure might result in duplicating MAC address in the network.

Windows 2000

1 Right-click *My Network Places* and choose *Properties*.

2 Open the properties for the virtual NIC.

3 Open the Internet Protocol (TCP/IP) properties.

4 Write down the IP address information, and then click *Cancel*.

5 Open the Advanced Server Features driver properties.

6 Remove the NIC(s) from the team by switching it from Team Member to Unassigned Adapter.

7 Click *Save*.

8 Type the filename. Click *OK* to save the team information to be used during a restore.

9 Select the team from which you removed the NIC, and then click *Delete Team*. Click *OK* to remove the team.

10 Click *OK* to make the changes.

11 Open the Advanced Server Features driver properties.

12 Click *Restore*.

13 Type the filename you used during the save, and then click *OK*.

14 Click *OK* twice to make the changes.
The virtual NIC appears in the Network and Dialup Connections window.

15 Open the properties for the virtual NIC, and then reset the IP address for the virtual NIC. Click *OK* twice to bring up the team.

Windows NT

1 Right-click *Network Neighborhood,* and then choose *Properties*.

2 Click the *Protocols* tab.

3 Open the TCP/IP Protocol properties.

4 Write down the IP address information for the virtual NIC, and then click *Cancel*.

5 Open the Advanced Server Features driver properties.

6 Remove the NIC(s) from the team by switching it from Team Member to Unassigned Adapter.

7 Click *Save*.

8 Type a filename. Click *OK* to save the team information to be used during a restore.

9 Select the team from which you removed the NIC, and then click *Delete Team*. Click *OK* to remove the team.

10 Click *Close*.

11 When the system prompts you to restart, click *Yes*.

12 After the machine restarts, right-click *Network Neighborhood* and choose *Properties*.

13 Click the *Protocols* tab.

14 Open the Advanced Server Features driver properties, and then click *Restore*.

15 Type the filename you used during the save, and then click *OK*.

16 Click *OK* to make the changes.

17 Click *Close*, and then reset the IP address on the virtual adapter.

18 When the system prompts you to restart, click *Yes*.

Removing the Physical Interface in Generic Trunking Mode in Red Hat Linux

If you plan to remove the primary team member in the GEC/FEC team and you are using Advanced Server Features, use the following procedure to update the MAC address of the modified GEC team.

Failure to use the following procedure might result in duplicating MAC address in the network

i **NOTE:** If the removed physical interface does not participate in any traffic, no problems will occur.

To properly remove a physical interface in a Generic Trunking team, follow these steps:

1 **To backup the original team configuration script, type:**
   `cp /etc/basp/team-gec /etc/basp/backup-gec`

i **NOTE:** The name of the configuration script is "team-gec."

> **NOTE:** The name of the backup script is "backup-gec." (The name of the backup script must NOT be prefixed with "team-.")

2 Modify the team configuration script to remove the physical interface.

3 To stop the running team, type:

```
/etc/basp/baspif /etc/basp/backup-gec stop
/etc/basp/baspteam /etc/basp/backup-gec del
```

4 To restart the team again, type:

```
/etc/basp/baspteam /etc/basp/team-gec add
/etc/basp/baspif /etc/basp/team-gec start
```

Updating the Windows NT/2000 Mini-port (Core) Drivers

If you plan to update your network drivers and you are using an Advanced Server Feature team, use the following procedures.

> **CAUTION:** Failure to use the following procedure might result in loss of network connectivity before and after a system reboot.

Windows 2000

1 Right-click *My Network Places* and choose *Properties*.

2 Open the properties for the virtual NIC.

3 Open the Internet Protocol (TCP/IP) properties.

4 Write down the IP address information, and then click *Cancel*.

5 Right-click the local area connection you wish to update, and then select *Properties*.

6 Click *Configure*.

7 Click the *Driver* tab, and then click *Update Driver*. Click *Next*.

8 Click *Display a list of the known drivers for the device so that I can choose a specific driver.* Click *Next*.

9 Click *Have Disk*.

10 Type the path to the updated driver, and then click *OK*. Example: `E:\`

11 Select the gigabit ethernet NIC, and then click *Next*.

12 Click *Next*, and then click *OK*.

13   Repeat steps 5 through 12 for each NIC you want to update.

14   In the last local area connection, open the Advanced Server Features driver properties.

15   Click *Save*.

16   Type the filename, and then click *OK* to save the team information to be used during a restore.

17   Select the team, and then click *Delete Team*. Click *OK*.

18   Click *OK* to make the changes.

19   Open the properties on a local area connection.

20   Open the Advanced Server Features driver properties.

21   Click *Restore.*

22   Type the filename you used during the save. Click *OK*.

23   Click *OK* twice to make the changes.

24   The virtual NIC appears in the Network and Dialup Connections window. Open the properties for the virtual NIC.

25   Reset the IP address for the virtual NIC, and then click *OK* twice to bring up the team.

Windows NT

1   Right-click *Network Neighborhood* and choose *Properties*.

2   Select the *Protocols* tab.

3   Open the TCP/IP Protocol properties.

4   Write down the IP address information for the virtual NIC, and then click *Cancel*.

5   Click the *Adapters* tab.

6   Highlight the network adapter, and then click *Update*.

7   Type the path to the updated driver, and then click *Continue*. Example: `E:\`

8   Open the Advanced Server Features driver properties.

9   Click *Save*.

10   Type a filename to save the team information to be used during a restore, and then click *OK*.

11 **Select a team, and then click *Delete Team*. Click *OK* to remove the team.**

12 **Click *Close*, and then click *Yes* to restart the computer.**

13 **After the machine restarts, right-click *Network Neighborhood* and choose *Properties.***

14 **Select the *Protocols* tab.**

15 **Open the Advanced Server Features driver properties.**

16 **Click *Restore*.**

17 **Type the filename you used during the save, and then click *OK*.**

18 **Click *OK* again to make the changes.**

19 **Click *Close* to reset the IP address on the virtual NIC.**

20 **When the machine prompts you to restart, click *Yes*.**

Compaq ProLiant 7000 Server

3Com has observed during testing that the 10/100/1000 PCI-X Server NIC may not work reliably if installed in bus 2 or bus 3 (slot 5, slot 6, slot 7, slot 8, or slot 9) on the Compaq ProLiant 7000 server. 3Com recommends that you install the NIC only in bus 1, slot 3 or slot 4.

Remote Wake Up Support

3Com has observed during testing that Remote Wake Up for Windows 2000 works only at 10 Mb and not at 100 Mb or at 1000 Mb.

Installation Diskettes for 3Com's Management Programs

3Com has observed during testing that because of the size of 3Com's Management Programs, installation diskettes can not be created for the programs.