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Using the Advanced Network Control Utility

The Advanced Network Control Utility allows you to install, uninstall, configure and monitor NetFlex-3 adapters.

Monitoring the State of an Adapter
Viewing Statistics
Hardware Information
Changing the Settings of an Adapter (Duplex, Speed, ...)

Note: You must have Administrator priveledge to use this utility.

Installing a NetFlex-3 Adapter

1. Select the uninstalled adapter you want to install (no other adapters should be selected).
2. Click the **Install** button.

If this is the first adapter to be installed, you will be prompted for the necessary driver files. Once the installation is complete, the adapter will turn yellow. This is to indicate that the adapter is installed in the registry, but the driver for it is not currently loaded in memory (the driver will load the next time the system is restarted). All installed adapters will have a number in brackets next to their name. This is the network card number for that driver instance.

Related Topics:

Uninstalling a NetFlex-3 Adapter
The State of an Adapter

Uninstalling A NetFlex-3 Adapter

1. Select the adapter you want to uninstall (no other adapters should be selected).
2. Click the **Uninstall** button.

This will immediately uninstall the adapter (i.e., remove its entries from the registry). The driver for this adapter will not be removed from memory until the system is restarted.

You should uninstall and reinstall an adapter if you want to make any changes to the hardware configuration. This includes changing the option module on a NetFlex-3 adapter.

> **Note:** Once you uninstall the last controller and exit from this utility, you will not be able to run this utility again until you reboot.

Related Topics:

Installing a NetFlex-3 Adapter
The State of an Adapter
NetFlex-3 Option Modules

Creating A Controller Pair

1. Select two adapters from the list that will make up the Controller Pair.
2. Click the **Merge** button.

The two adapters you selected are now configured as a controller pair. The configuration is immediately written to the registry, but the controller pair will not operate until the system is restarted.

At least one of these adapters must be uninstalled before the controller pair can be created. See Uninstalling a NetFlex-3 Adapter for instructions on how to uninstall an adapter. If one of the adapters that make up the controller pair was already installed, the newly created controller pair will be bound to the same protocol stacks that the single installed adapter was bound to.

Related Topics:

Configuring a Controller Pair
Controller Pairs

Configuring A Controller Pair
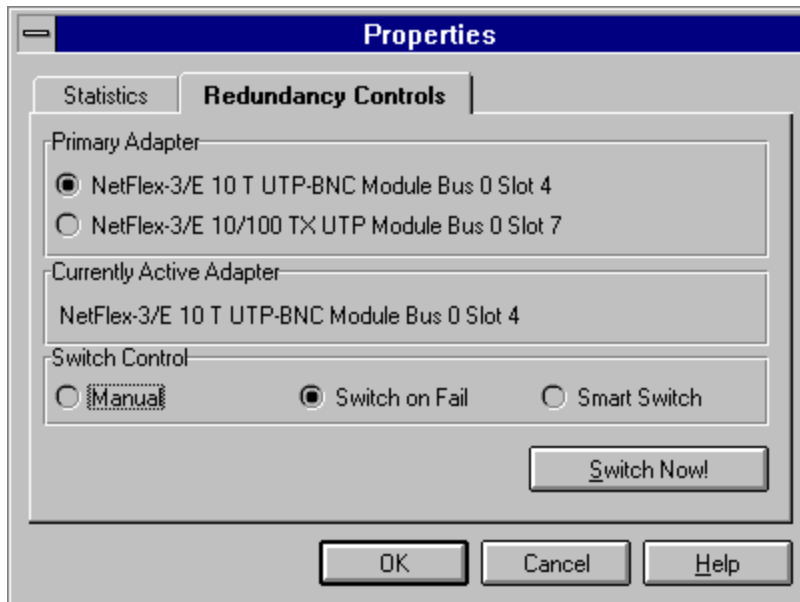
1. Select the Controller Pair.
2. Click on the **Properties** button or double click on the adapter.
3. Switch to the **Redundancy Controls** tab to make the configuration changes.

The *Switch Control* box will show the current Operating Mode of the adapter. The Operating Mode is a property of the controller pair itself, not of the two physical adapters. If you change the Operating Mode, the change will go into effect as soon as you hit the **OK** button (it is not necessary to reboot).

The *Primary Adapter* box will indicate which of the two physical adapters is the primary. The primary adapter will be the first adapter the system tries to use when it starts. Changing the primary adapter will also affect the switching characteristics when the Operating Mode is set to **Smart Switch**. If you change the Primary Adapter, the change will go into effect as soon as you hit the **OK** button (it is not necessary to reboot).

The **Switch Now** button allows you to manually switch adapters. When you press this button, network traffic will switch from the currently active adapter to the standby adapter. This switch over may take a few seconds to occur. The **Switch Now** button will have little effect when the controller pair is in Smart Switch mode because in this mode the driver will always try to switch to the primary adapter is it is working.

Related Topics:

Operating Mode

More Information

What is a [Controller Pair](#)?
What is a [NetFlex-3 Option Module](#)?
Installing [PCI devices with bridges](#).
Resolving [Unbound services](#).
[Help and Troubleshooting](#)

Controller Pairs

A controller pair is a special type of network adapter. It consists of two NetFlex-3 physical adapters that are configured in such a way that network connectivity can be maintained even if one of the connections is lost or one of the adapters fail. Like all other network adapters, the Controller Pair has only one driver instance. Unlike most other network adapter drivers, the driver of the Controller Pair is aware of two physical adapters. The single driver controls both cards and can automatically switch traffic if one of the physical adapters fail. The operating system sees the Controller Pair as a single adapter, and the switch over from one physical adapter to the other is completely transparent to the operating system and any application programs.

Each Controller Pair consists of a primary and a secondary physical adapter. Only one of these adapters can be active at a time. When the system is started the driver will try to direct network traffic over the primary adapter, so the primary adapter will usually be active when the system starts. Should the primary adapter fail or be unplugged, the secondary adapter may take over depending on the operating mode of the controller pair. A Controller Pair can be in one of three operating modes:

Operating Modes

A Controller Pair can be set for one of three operating modes:

1. **Manual Mode** - In this mode, the driver will not switch adapters if the active adapter fails. The only way to switch active adapters is to manually do so using the Advanced Network Control Utility.

2. **Switch on Fail Mode** - In this mode the driver will switch adapters whenever the active adapter fails or is unplugged.

3. **Smart Switch Mode** - Like Switch on Fail mode, the driver will switch adapters whenever the active adapter fails, however, if the primary adapter fails or is unplugged the driver will periodically check to see if the primary adapter is working and will switch back to it if it is working.

Related Topics:

Creating a Controller Pair
Configuring a Controller Pair

NetFlex-3 Option Modules

On NetFlex-3 adapters, different option modules can be installed depending on what type of network you want to use. The option module plugs into the NetFlex-3 adapter. The following modules are available:

10T	10 Base-T / 10 Base-2 with UTP and BNC connectors
100VG	100 VG Any-LAN with a UTP connector
10/100TX	10 Base-T or 100 Base-TX with a single UTP connector

To upgrade or change modules, make sure you Uninstall and then Reinstall the adapter. To find out what type of module is installed on an adapter, look at the Hardware Information page for that adapter.

> **Note:** The following adapters have a build in module that can not be switched out or upgraded:
> Compaq 10 T PCI UTP
> Compaq 10/100 TX PCI UTP

Related Topics:

Installing a NetFlex-3 Adapter
Uninstalling a NetFlex-3 Adapter

Adapter States

Each adapter can be in one of five states. The state can be determined by the adapters icon. The following states are possible:

OK, The driver is installed in the registry and the driver is loaded. To uninstall the adapter, click on the **Remove** button.

Uninstalled, the adapter is not installed in the registry and it does not have a driver loaded. To install the driver, click on the **Install** button.

Unknown, the adapter is installed in the registry, but the driver is not loaded. If you just installed the adapter it will be in this state until the machine is restarted. If the adapter is in this state after the system is restarted, the driver may have not loaded, or the Advanced Network Control Utility is unable to communicate with the driver.

Wire Fault, the adapter is installed in the registry and the driver is loaded. The broken cable indicator means the cable may be unplugged, loose, broken, or the hub may be defective. If you see the broken cable icon next to the adapter, recheck the network connections and make sure the hub is working properly. Once the connection is restored this icon should disappear in a few seconds (this might take up to one minute in some cases).

Failed, the adapter is installed in the registry and the driver is loaded. The driver is reporting a hardware problem with the adapter. This indicates a serious problem, contact your service provider.

> **Note:** The Advanced Network Control Utility will monitor the state of each adapter and will update the status icons every 3 seconds.

Related Topics:

Installing a NetFlex-3 Adapter
Uninstalling a NetFlex-3 Adapter
Controller Pairs

Adapter Statistics

1. Select an installed adapter (no other adapters should be selected).
2. Click on the **Properties** button or double click on the adapter.
3. Switch to the **Statistics** tab.

The following information will be available:

Statistic	Definition
Adapter Check Interrupts	The number of adapter check errors detected by the driver. Adapter checks occur when an unrecoverable hardware error occurs. The driver will automatically restart the adapter when this type of error occurs. If this error persists contact your service provider.
Heartbeat Error Interrupts	The number of times a collision pulse was not detected during the inter frame gap. A possible causes is not having a cable connected when the connector is explicitly set to UTP.
Link Status Transition Interrupts	The number of times the link status has changed.
Interface Resets	The number of times the adapter has been reset. (Resets do not necessarily indicate a problem)
Interface Transmit Queue Depth	The maximum number of transmits queued to the adapter at any one time.
Transmit Underruns	Frames aborted during transmission due to frame data not being available (due to host bus latencies).
Receive Overruns	Frames that could not be received due to inadequate resources (receive FIFO full), or because their frame size exceeded the maximum allowed frame size.

Note: The Advanced Network Control Utility will update these statistics every 3 seconds. If the adapter was just installed and the system was not restarted, no statistics will be available.

Related Topics:

The State of an Adapter
Configuring a NetFlex-3 Adapter

Hardware Information

[Properties dialog box with Information tab]

Physical Layer — 100 VG-AnyLAN
Modular Phy — Yes
Bus Number — 0
Bus Type — EISA
Slot Number — 1
State — Ok
TLAN Version — 1.0

1. Select a physical adapter from the list.
2. Click on the **Properties** button or double click on the adapter.
3. Switch to the **Information** tab.

The following information will be available:

Physical Layer - This describes the Option Module that is installed on the NetFlex-3 adapter.

Modular Phy - If the card uses an Option Module (i.e., it can be upgraded or replaced with a different module) then this field will say "Yes". Non modular adapters will display a "No" in this field.

Bus Number - This is the internal bus number on which the adapter is installed.

Bus Type - This describes the type of bus that the adapter is installed on (EISA or PCI).

Slot Number - This is the physical slot number in which the adapter is installed. For PCI NetFlex-3 adapters the slot number will be set to *Unknown* if the Compaq Systems Management driver is not loaded. The slot number will always be available for EISA adapters. The Compaq Systems Management driver can be installed from the Compaq Supplemental Software Diskette.

State - This describes the current State of an Adapter.

TLAN Version - The version of the TLAN chip on the adapter.

> **Note:** The Advanced Network Control Utility will update the State every 3 seconds. The hardware configuration information will be available for all adapters, even if they

are uninstalled.

Related Topics:

[The State of an Adapter](#)

Adapter Settings

1. Select an installed adapter (no other adapters should be selected).
2. Click on the **Properties** button or double click on the adapter.
3. Switch to the **Information** tab to change the settings for this adapter.

To change the settings for a controller pair, select one of the physical adapters that make up the controller pair. The two adapters that make up the controller pair can each have their own different settings.

The following settings can be changed:

Media Speed - This setting will allow you to choose a connection speed. The speed options that are available depend on the Option Module that is installed.

Duplex - Set either FULL of HALF duplex. A full duplex setting requires a full duplex capable hub.

Media Connector - If the Option Module has more that one connector, you may choose which one to use.

Network Address - (Optional) You may enter a specific network address here. For controller pairs, changing the Network address of one of the physical adapters will affect the other physical adapter as well. This is because both physical adapters in a controller pair must have the same network address.

> **Note:** Certain combinations of duplex, media speed, and connector are not allowed. If you select a configuration that is not valid, the Advanced Network Control Utility will inform you of this and will set a valid configuration.

Related Topics:

Option Module

Installing Bridged PCI Devices

Some PCI cards contain bridge chips which can cause bus numbers of other PCI slots to shift. If you add a PCI card that changes bus numbers, your PCI NetFlex-3 drivers might not load (because the PCI NetFlex-3 card may now be on a different bus number and the driver will not find it).

Use the following procedure to install any bridged PCI devices:

1. Uninstall all PCI NetFlex-3 adapters.
2. Add the bridged PCI device
3. Reinstall your PCI NetFlex-3 adapters.

Related Topics:

Installing a NetFlex-3 Adapter
Uninstalling a NetFlex-3 Adapter

Unbound Services

An unbound service is a set of registry entries for a network adapter that do not bind to a physical piece of hardware. An unbound service can be the result of the following:

1. You physically removed an installed card without Uninstalling it first.
2. You physically moved an installed card from one slot to another slot without Uninstalling it first.
3. You installed a bridged PCI card without uninstalling your PCI network adapters first.

An unbound service must either be removed from the registry, or it should be bound to an available (i.e. Uninstalled) network adapter. If you bind the service to an uninstalled network adapter, that adapter will now be Installed and the driver for it will load on the next boot. If the service is removed from the registry then the system will not try to load the driver for that adapter on the next boot. The Advanced Network Control Utility will detect any unbound NetFlex-3 services upon startup.

Related Topics:

Installing a NetFlex-3 Adapter
Uninstalling a NetFlex-3 Adapter

Help and Troubleshooting

Controller pairs can only be created on Compaq systems running the Compaq systems management driver. If this utility is used on a non Compaq system or on Compaq system without the Compaq systems management driver, the **Merge** and **Dissolve** buttons will not be visible and you will not be able to create controller pairs. The Compaq systems management driver can be installed from the Compaq SSD.

When using a NetFlex-3 adapter with a 10 BASE-T option module operating in full duplex mode, wire fault conditions can not be detected. This will not affect hardware failure detection and this condition does not exist when operating in half duplex mode.

If you experience network connectivity problems when a switch over occurs on a controller pair, make sure that both physical adapters are connected to the same physical network segment.

Under certain very specific conditions a broken cable can not be detected. This can happen when using an adapter with a version 1.0 TLAN chip and receiving data from a file copy operation. To see what version of the TLAN chip an adapter has, look at the Hardware Information for that adapter. The solution is to add the following value to the registry:

Value Name	Value Type	Value	Location
MinFrameSize	REG_DWORD	64	HKEY_LOCAL_MACHINE\ System\ CurrentControlSet\ Services\ CpqNf3**X**\ Parameters

(where **X** is the instance #)

Related Topics:

Option Module
Controller Pairs
Hardware Information