



RELEASE NOTE FOR THE 3C975 ATMLINK 155 PCI NETWORK INTERFACE CARD

A member of the 3Com family of ATMLink
network interface cards

<http://www.3com.com/>

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Introduction

This release note documents additions and corrections to the *ATMLink™ 155 PCI Network Interface Cards User Guide*, part number 09-1038-000.

Known problems with server hardware and with the Microsoft Windows NT and Novell NetWare network operating systems are addressed in separate sections.



The term ELAN (emulated LAN) may be used to denote an LEC (LAN Emulation Client) in this release note. This is to maintain consistency with the ATMLink install program and ATMLink utility for Windows NT.

General Considerations

The following considerations apply to all models of the 3C975 ATMLink NICs.

- The 3C975.LAN NetWare driver is now officially Novell-certified.
- The LAN driver for Microsoft NT is not yet Microsoft-certified for any version of Windows NT.

Client Considerations

When an end station communicating with an ATMLink NIC through an ATM switch or edge device physically disconnects from the network and physically reconnects with a changed ATM address, the end station can experience a delay of 5 minutes in reestablishing communication with the ATMLink NIC while the NIC updates its LAN Emulation Address Resolution Protocol (ARP) table.

Server Hardware Considerations

Compaq ProLiant 5000 Computer

To use the ATMLink NIC with the Compaq ProLiant 5000 computer, upgrade the system ROM with ROMPaq SP2400, version 3.07 revision A or later, available from the Compaq Web site (www.compaq.com). Search on the string SP2400 to find it quickly.

Compaq ProLiant 1500 Computer

A Compaq ProLiant 1500 computer running Windows NT 3.51 with one or multiple ATMLink NICs may hang under heavy loading if the system is not updated to the latest HAL, BIOS, and ECU from Compaq. The latest versions are available from the Compaq Web site at <http://www.compaq.com/support/files/server/softpaqs/WINNT/NTSSD.html>.

Tyan Computer Systems

3Com has observed that in some Tyan servers, the first and last PCI slots share the same interrupt. Under Windows NT 3.51 with Service Pack 5 installed, a video card that occupies one of these slots cannot coexist with an ATMLink NIC occupying the other. Move the video card from the first or last PCI slot if you require either slot for an ATMLink NIC.

ATM Switch Considerations

Busy Switch Symptoms

When you start or reboot the system, the ATMLink NIC driver may not join all of its associated ELANs. The ATMLink utility may report that the initialization failed or that the ELAN is down. These conditions can be caused by a busy ATM switch or improperly configured ELANs.

An ATM switch can be busy in two ways:

- When a large number of ELANs are initialized at the same time, the ATMLink driver may time out before the ATM switch can fulfill all the ELAN service requests.
- A switch can run short of resources (such as VPI/VC) needed to fulfill LEC service requests.

If a switch lacks resources, it cannot establish a virtual circuit for the ELAN. This failure can occur when a large number of ELANs are configured for the server.

Use the ATMLink utility to reset an individual ELAN if it is configured correctly but still does not become operational. Resetting an individual ELAN is a new feature in the version 1.5 release of the ATMLink utility.

Bay NetWorks Centillion 100 ATMSpeed Switching Modules

- Do not change the ILMI VPI/VCI parameter in the ATMLink install program, because the Centillion switch accepts only the default value (VPI = 0, VCI = 16).
- The ATMLink 155 PCI NIC's Resilient Server Architecture (RSL) feature will not work properly with the Bay Networks Centillion 100 switch if the switch uses UNI signaling version 3.1.

Madge Collage 740 Backbone ATM Switch

The ATMLink 155 PCI NIC may have problems initializing with a Madge Collage 740 ATM switch running software version 1.1.7 or earlier. The latest version of the Madge Collage 740 switch code can be downloaded from the Madge Web site (www.madge.com).

Cisco LightStream 1010 ATM Switch

The NIC reset option in the ATMLink utility does not work reliably with the Cisco 1010 LightStream switch using UNI 3.1 signaling. The NIC resets, but the ELANs do not become operational.

Corrections and Additions to the User Guide

System Memory Requirement

The memory requirement formulas on page 3-2 for Windows NT and on page 4-3 for Novell NetWare have been replaced by a single formula, as follows:

The system memory requirement in megabytes of RAM is equal to:

$$16 \times (\text{Frame Type}) + [(\text{No. of NICs Installed}) \times (\text{Max. No. of ELANs Among the NICs})]$$

The Frame Type value is:

2 when the maximum frame size = 1514

3 when the maximum frame size = 4542

4 when the maximum frame size = 9232

The No. of NICs Installed is the total number of ATMLink NICs installed in the system.

The Max. No. of ELANs Among the NICs is the number of ELANs on the ATMLink NIC that has the most ELANs.

Round up the result to the first integral multiple of 16.

When NICs with different maximum frame size values are installed, use the larger value.

Novell NetWare Considerations

ELAN Routing

Routing among ELANs is supported in configurations where only one ELAN is configured per installed NIC.

SMP Servers

NetWare SMP servers support the Resilient Server Link (RSL) feature only if the active and the standby NICs in an RSL relationship share the same interrupt. NIC interrupts on servers can usually be assigned by using the EISA Configuration Utility (ECU) or the System Configuration Utility (SCU) shipped with the system.

The NetWare operating system configures each ELAN and standby NIC on a NetWare SMP server as a separate device. NetWare allows 16 devices to share the same interrupt.

Example 1:

In an RSL configuration on an SMP server with one active NIC with one standby NIC, the active NIC can have a maximum of 15 ELANs.

Example 2:

In an RSL configuration on an SMP server with one standby NIC assigned to two active NICs, 15 ELANs can be divided between the active NICs.

Example 3:

In an RSL configuration on an SMP server with two standby NICs assigned to one active NIC, the active NIC can have only 14 ELANs.

Novell INETCFG Utility

The Novell INETCFG utility views each ELAN as Ethernet even if the *linktype* parameter has been set to token ring. An LDI file (3975.LDI) that allows token ring ELANs to be configured correctly with the INETCFG utility is available on the 3Com Bulletin Board Service (3Com BBS), FTP server, and the 3Com World Wide Web site support index for the latest adapter files (www.3com.com).

Client 32

Novell IntranetWare Client 32 is not supported by the ATMLink 155 PCI NIC at this time.

Minimum Packet Receive Buffers

If the following error message appears when the drivers are loading:

```
Layer manager failed init sequence
```

increase the minimum number of receive buffers or the system memory.

The optimum number of minimum packet receive buffers is:

75 × Number of ATMLink NICs in the system

See the README.TXT files located on *ATMDisk* diskette #2 for more details on setting the NetWare Minimum Packet Receive Buffers parameter in the NetWare STARTUP.NCF file.

Sample AUTOEXEC.NCF files are available on *ATMDisk* diskette #2 as well as on the 3Com Bulletin Board Service (3Com BBS), FTP server, and the 3Com World Wide Web site (www.3com.com).

Configuring TCP/IP with the NetWare Install Utility

When using the ATMLink install utility for NetWare to configure TCP/IP on an LEC, perform the following steps in the specified order:

- 1 Set the link type (user guide step 7, page 4-15).**
- 2 Set the TCP/IP parameters (user guide steps 2 and 3, page 4-13).**

3 Set the frame type (user guide step 4, page 4-14).

4 Set the remaining LEC configuration parameters.

Whenever the link type is changed, the IP information and the frame type information must be reentered.

Token Ring Keywords for NetWare

In Table 4-2 on page 4-24 of the user guide, the token ring parameters for the keyword Frame should be spelled as *token-ring_SNAP* and *token-ring*.

NetWare ATMLink Utility

Version 1.5 of the ATMLink Utility can reset individual ELANs as well as the entire ATMLink 155 PCI NIC.

NetWare 3.12

When more than one ATMLink NIC is installed, or when more than one frame type is used with a single ATMLink NIC, the following prompt appears when the drivers are loading:

```
Do you want to add another frame type for a
previously loaded board?
```

Perform one of the following steps:

- Type **n** if:
 - The frame type is specified on the indicated load line with the Frame keyword.
 - The frame type is not specified on the indicated load line and you are using the default Ethernet_802.2 frame type.
- Type **y** and add the appropriate frame type.
3Com recommends that you include the Frame keyword on every load line, and always answer **n** to the prompt. See Table 4-2 on page 4-24 of the user guide for further information on NetWare keywords.

Microsoft Windows NT 3.51 and 4.0 Considerations

Microsoft Windows NT WINS and Domain Controller Services

The WINS and Domain Controller services do not work in an environment with more than one ELAN. Contact Microsoft for current status on multiple ELAN support for these Windows NT services.

DHCP Service

The Windows NT 3.51 DHCP service can assign up to 14 client IP addresses. If the total number of configured ELANs and other DHCP clients on the network exceeds 14, 3Com suggests that you manually assign TCP/IP addresses to ELANs using IP services.

Services Fail to Start

Some services may fail to start in a server configured with a large number of ELANs. The services that fail to start can be started manually from the Control Panel/Services application.

Same ELAN on Different NICs

Configuring the same ELAN on two different NICs in the system is not supported. The Windows NT Workstation Service may not start if the same ELAN is configured on two different ATMLink NICs in a Windows NT system.

Windows NT Diagnostics

A Windows NT 3.51 server with three or more installed ATMLink 155 PCI NICs may hang when you use the native Windows NT Diagnostics application to view the ATMLink NIC resources.

Install Program Displays Disabled ELANs as Enabled

ELANs can be disabled using the ATMLink install program or the Control Panel/Network/Bindings. ELANs disabled through Network/Bindings appear to be enabled in the ATMLink install program, and ELANs disabled using the ATMLink install program appear to be enabled in the Network/Bindings display.

Slow Responses with a Large Number of ELANs

System reboot may take more than 5 minutes if 64 ELANs are configured.

SNMP Trap

Version 1.5 of the ATMLink 155 PCI NIC Windows NT driver provides SNMP traps for three critical events:

- ELAN Up
- ELAN Down
- Resilient Server Link (RSL) failover

Additional information on these SNMP traps can be found in the ATMLink MIB file on *ATMDisk* diskette #1.

Windows NT ATMLink Utility

Version 1.5 of the ATMLink utility can reset individual ELANs as well as the entire ATMLink 155 PCI NIC.

The ATMLink 1.5 version of the Windows NT ATMLink utility includes a Trace Buffer function. This function helps 3Com Technical Support and engineering troubleshoot problems.

Total Number of ELANs Supported for the AppleTalk Protocol

At this time, a total of eight ELANs is supported for the AppleTalk protocol.

Regulatory Statements

The 3C975-F and 3C975-UTP ATMLink 155 PCI NICs are both FCC Class B-certified. FCC compliance statements for the 3C975-F NIC are in the *ATMLink 155 PCI Network Interface Cards User Guide*.

FCC Class B Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1 This device may not cause harmful interference, and
- 2 This device must accept any interference received, including interference that may cause undesired operation.

WARNING: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules, and the Canadian Department of Communications Equipment Standards entitled, "Digital Apparatus," ICES-003. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.

NOTE: In order to maintain compliance with the limits of a Class B digital device, 3Com requires that you use quality interface cables when connecting to this device. Changes or modifications not expressly approved by 3Com could void the user's authority to operate this equipment. Refer to the manual for specifications on cabling types.

FCC Declaration of Conformity

We declare under our sole responsibility that the

Model:	Description:
3C975-UTP	ATMLink 155 PCI NIC

to which this declaration relates, is in conformity with the following standards or other normative documents:

- ANSI C63.4-1992 Methods of Measurement
- Federal Communications Commission 47 CFR Part 15, subpart B
15.107 (e) Class B Conducted Limits
15.109 (g) Class B Radiated Emissions Limits

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