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Technical Note NW540

AppleTalk Ethernet Driver Q&As

CONTENTS

["Undefined entry" link errors when opening Ethernet Driver](#)

[IEEE assigns Ethernet card addresses](#)

[Apple Ethernet Cable System power requirements](#)

[EtherTalk DriverClose function](#)

[Ethernet and Quadra systems](#)

[Selecting alternate AppleTalk driver at system startup](#)

[Downloadables](#)

This Technical Note contains a collection of archived Q&As relating to a specific topic - questions sent the Developer Support Center (DSC) along with answers from the DSC engineers. Current Q&A's can be found on the [Macintosh Technical Q&A's web site](#).

[Oct 01 1990]

"Undefined entry" link errors when opening Ethernet Driver

Date Written: 8/8/91

Last reviewed: 6/14/93

When I try to open the EtherNet driver as described in *Inside Macintosh* Volume VI on pages 32-80 and 32-81, I get the following undefined entry error messages:

```
### Link: Error: Undefined entry, name: (Error 28) "DisplaySInfo"
    Referenced from: Init_Enet in file: Mac_Raid.c.o
### Link: Error: Undefined entry, name: (Error 28) "SaveSInfo"
    Referenced from: Init_Enet in file: Mac_Raid.c.o
### Link: Error: Undefined entry, name: (Error 28) "SGetTypeSRsrc"
```

Any clue as to where these are?

The DisplaySInfo and SaveSInfo are bogus procs that the sample writer didn't take out or comment out.

However, SGetTypeSRsrc is a legal Slot Manager trap, IF you are using the new version of the Slot Manager. The definitions from the latest interfaces (slots.p, slots.h) are as follows:

```
FUNCTION SGetTypeSRsrc(spBlkPtr: SpBlockPtr): OSErr;
    INLINE $205F,$700C,$A06E,$3E80;

#pragma parameter __D0 SGetTypeSRsrc(__A0)
pascal OSErr SGetTypeSRsrc(SpBlockPtr spBlkPtr)
```

The Slot Manager is dispatched via D0 selectors; there is no glue.

[Back to top](#)

IEEE assigns Ethernet card addresses

Date Written: 9/16/91

Last reviewed: 6/14/93

We need a range of Ethernet card addresses to uniquely identify each Ethernet card we manufacture. We received board IDs and equates from Apple, but not the range of Ethernet addresses.

You weren't sent a range of Ethernet addresses because Apple does not assign them. IEEE is the governing body that you have to contact to get a range of numbers; Apple had to do the same thing to get the numbers for its boards. IEEE will assign you a block of numbers that includes a unique manufacturer's ID allowing network sniffers to recognize your products.

[Back to top](#)

Apple Ethernet Cable System power requirements

Date Written: 9/17/91

Last reviewed: 6/14/93

Sections 3.1.2 and 3.1.3 of the "Apple Ethernet Cable System Product Family Overview and Interface Descriptions" state that pin 1 provides either 12 V/2.1W or 5 V/1.9 W, and that 5 volts will be made available on pins 7 and 8, if the host can supply greater than or equal to 1.9W @ 5 V. Which models do not have 5 V available on pins 7 and 8, which models have 12 V on pin 1, and which have 5 V on pin 1?

All known hosts will provide 5 V at pins 7 and 8. It is absolutely NOT recommended that a Multiple Access Unit (MAU) designer use Voltage Agile (pins 1 and 14) powering to power a 5 V-only MAU. It is anticipated that all friendlynet-compliant hosts will supply +5 V to pins 7 and 8. Third parties desiring a 5 V-only MAU should use these pins.

MAUs using pins 1 and 14 MUST have a DC-DC converter.

Apple doesn't presently have a product that uses +12 V on pins 1 and 14 but may in the future. As this is an "open standard," at least one clone maker and several third-party Apple printer and card manufacturers use this interface, and others are expected.

[Back to top](#)

EtherTalk DriverClose function

Date Written: 11/27/91

Last reviewed: 11/27/91

My EtherTalk DriverClose function is never called by the system, so my VBL and interrupt service routines remain active, even though another network device is active. Any ideas or tips on what might be going on?

Your findings are as per design. Just because the user decides not to use EtherTalk doesn't mean that the user no longer wants Ethernet services. For example, the user might be using MacTCP. MacTCP accesses the .ENET driver directly, bypassing the LAP Manager. Should the NetWork cdev close the .ENET driver when the user switches to LocalTalk or TokenTalk while MacTCP is still using the driver, a system crash would likely result.

[Back to top](#)

Ethernet and Quadra systems

Date Written: 12/6/91

Last reviewed: 6/14/93

The Ethernet connection on our new Quadra system is different from the connection on our Macintosh II Ethernet card. Apparently we need to purchase "Apple Ethernet Media Adapters." We may reconfigure our existing thin-wire Ethernet network. Do you know of any publications describing the latest technology in setting up an Ethernet network? What are the pros and cons of thin coax, thick coax, twisted pair, or other cables? Does Apple manufacture Ethernet Media Adapters? Is there a cable available that plugs directly into the Quadra's Ethernet port? Does System 7 File Sharing software execute over an Ethernet network? Under System 7, is it still necessary to activate AppleTalk in order to run EtherTalk?

Addison-Wesley has just published a book titled, "Planning and Managing AppleTalk Networks" (ISBN #0-201-52345-0). Networking periodicals such as NetWorld are other good resources for learning about current technology and network cabling system vendors. You might also contact N&C vendors directly for specific information.

Twisted pair is cheaper and easier to implement than the other media; however, the supported distance is not nearly as great as for thin and thick-wire media. For backbone connections, Fiberoptic Data Distribution Interface (FDDI), while expensive, handles the highest bandwidth.

Apple manufactures the Apple Ethernet Thin Coax Transceiver (M0329LL/A), as well as a Transceiver for UTP (Unshielded Twisted Pair) and an Adapter for Ethernet AUI (Attachment Unit Interface), for adapting to third-party fiber and thick coax transceivers. Each of these transceiver/adapter units has a cable that plugs into the 14-pin connector on the back of the Quadra, the LC Ethernet card, and the new Ethernet NB card (completely different from the older EtherTalk NB card).

System 7 File Sharing works independently of the hardware connection, so it definitely executes over an Ethernet network. Under System 7 AppleTalk still is required for EtherTalk, although it is possible to bypass AppleTalk. For example, MacTCP, running with the NCSA Telnet Software Package, accesses the Ethernet driver software directly.

[Back to top](#)

Selecting alternate AppleTalk driver at system startup

Date Written: 5/3/89

Last reviewed: 6/14/93

I need to know how to set the Macintosh parameter RAM field that controls which alternate AppleTalk driver is used at system startup (for example, EtherTalk).

We discourage directly setting the parameter RAM. The Network 'cdev' and the 'adev' device work together to handle this. Each type of AppleTalk connection (other than LocalTalk) must have its own 'adev' file. The construction of the 'adev' file is similar to that of a 'cdev' file. For each type of AppleTalk connection, such as EtherTalk, the 'adev' file must contain the following resources:

- 'ICN#'
- 'STR '
- 'BNL'
- 'FREF'
- owner resource
- 'adev' code resource
- 'atlk' code resource

The 'adev' and 'atlk' resources are pieces of stand-alone code that reside in the adev file. The 'adev' resource is responsible for handling all control panel interactions with the Network 'cdev'. The 'atlk' resource contains the actual implementation code for the supported AppleTalk connection. When the user selects an AppleTalk connection from the Network control panel, the Network 'cdev' updates parameter RAM with a value that represents the AppleTalk connection that is currently selected. This value remains in parameter RAM after the user turns off the Macintosh.

More information about this can be obtained from EtherTalk and Alternate AppleTalk Connections Reference, available from APDA.

[Back to top](#)

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[Back to top](#)