



## Token Ring Products

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## Specifications

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Token Ring Products





## Token Ring 4/16 NB Card

<b>Interface</b>	NuBus (bus master)
<b>Processor</b>	Motorola 68000 microprocessor operating at 10 MHz
<b>Memory</b>	512K of RAM, expandable to 2.5 MB
<b>Data Transfer Speed</b>	4 or 16 Mbps
<b>Power Requirements</b>	1.5 A at 5 V
<b>External Connector</b>	DE-9 (IBM Type 1 cable) External adapters for Type 3 cable from third party





<b>Chip Set</b>	IBM Token Ring
<b>Application Programming Interface</b>	AppleTalk, Apple 3270 API, APPC verb interface
<b>LLC</b>	Type 1 and Type 2
<b>Routing</b>	Supports IBM source routing
<b>Token Ring Address</b>	Burned-in or locally administered
<b>Timers</b>	Response (T1), Acknowledge (T2), and Inactivity (Ti)





**Other** Card settings can be password-protected

## Cable

**Shielded twisted-pair:**

- Maximum distance from MAU to device (lobe length) = 300 meters
- Maximum distance between two MAUs (trunk length) = 200 meters
- Maximum devices per ring = 260

**Unshielded twisted-pair:**

- Maximum distance from MAU to device (lobe length) = 100 meters
- Maximum distance between two MAUs (trunk length) = 120 meters
- Maximum devices per ring = 72

**Approvals** FCC class A; VDE





## TokenTalk NB Card

<b>Interface</b>	NuBus (bus master)
<b>Processor</b>	Motorola 68000 microprocessor operating at 10 MHz
<b>Memory</b>	512K of RAM
<b>Data Transfer Speed</b>	4 Mbps
<b>Application Programming Interface</b>	AppleTalk, Apple 3270 API, APPC verb interface





**Power Dissipation**            15 W

**External Connector**            DE-9 (IBM Type 1 cable)  
External adapters for Type 3 cable from third party





## Token Ring NB/c Card

<b>Interface</b>	NuBus
<b>Memory</b>	64K SRAM, nonexpandable
<b>ROM</b>	32K ROM
<b>Data Transfer Speed</b>	4 or 16 Mbps, jumper selectable
<b>Power Requirements</b>	1.5 A at 5 V







<b>External Connector</b>	DE-9 (IBM Type 1 cable); 4 or 16 MB External adapters for Type 3 cable from third party (4 MB operation only)
<b>Chip Set</b>	IBM Token Ring
<b>LLC</b>	Type 1 and Type 2
<b>Routing</b>	Supports IBM source routing
<b>Token Ring Address</b>	Burned-in





## Type 1 Cable

**Shielded twisted-pair:**

Maximum distance from MAU to device (lobe length) = 300 meters

Maximum distance between two MAUs (trunk length) = 200 meters

Maximum devices per ring = 260

## Type 3 Cable (4 MB only)

**Unshielded twisted-pair:**

Maximum distance from MAU to device (lobe length) = 100 meters

Maximum distance between two MAUs (trunk length) = 120 meters

Maximum devices per ring = 72





**Approvals**

FCC class A  
VDE





## Apple Token Ring PCI Card

### **Networking Protocols**

Supports a variety of popular networking protocols, including AppleTalk, TCP/IP, IPX, SNA, and OSI

### **System Requirements**

One available PCI slot  
IBM Type 3 cabling (unshielded twisted pair) or IBM Type 1 cabling (shielded twisted pair) with use of an external adapter  
Industry-standard Token Ring Multistation Access Unit (MAU)

### **Connector Type**

RJ-45 connector for attaching to Type 3 cabling

### **Data Transfer Speed**

4 or 16 Mbps



**Compatibility**

PCI 2.1 compatible, IEEE 802.5 and 802.2

Compatible with most systems that feature a PCI expansion slot, including Power Macintosh 8500 and 9500 Series computers, and Intel and DEC Alpha systems. Note: Currently, this card is not compatible with the Power Macintosh 7200 model.

**Token Ring  
Controller**

IBM Token Ring chip set

**Operating  
Temperature**

50—104° F (10—40° C)

**Humidity**

20—95% noncondensing

**Power Dissipation**

Maximum 5 W; Average 3.5 W





# Troubleshooting

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## Token Ring Products





## General

The Symptom Charts included in this chapter will help you diagnose specific symptoms related to your product. Because cures are listed on the charts in the order of most likely solution, try the first cure first. Verify whether or not the product continues to exhibit the symptom. If the symptom persists, try the next cure. (Note: If you have replaced a module, reinstall the original module before you proceed to the next cure.)

For additional assistance, contact Apple Technical Support.





## Symptom Charts

### Token Ring 4/16 NB Card

Token Ring 4/16 icon missing from Network extension in Control Panel

- 1 Switch off computer and reseal card.
- 2 If Token Ring 4/16 icon not in System folder, drag icon into System folder and restart computer.
- 3 Reinstall TokenTalk software using TokenTalk Installer disk.
- 4 Reinstall system software.
- 5 Verify that only green diagnostic LED is on. If other condition exists, replace card.

Can't select TokenTalk icon

- 1 Reinstall TokenTalk software using TokenTalk Installer disk.
- 2 Restart with another startup disk that contains TokenTalk software.







## Token Ring 4/16 NB Card (Continued)

Computer hangs when you select TokenTalk in Chooser

- 1 Wait 30–40 seconds. A delay may be normal; it can take up to 30 seconds for network to respond.
- 2 Switch off computer and reseal card.
- 3 Verify that only green diagnostic LED is on. If other condition exists, replace card.

Network icon missing from Chooser

- 1 Switch off computer and reseal card.
- 2 Reinstall TokenTalk software using TokenTalk Installer disk.
- 3 Startup disk has wrong version of Control Panel. Use Control Panel version 3.1 or later.

Network service (file servers, print servers, printers, etc.) missing

- 1 Verify correct TokenTalk zone is selected.
- 2 Check cables and connections.





## Token Ring 4/16 NB Card (Continued)

Can't change network connection

- 1 Currently selected network is providing a service that computer is using.
- 2 Computer is providing a service that the network is using.





## TokenTalk NB Card

- |                                                                       |   |                                                     |
|-----------------------------------------------------------------------|---|-----------------------------------------------------|
| TokenTalk icon missing from Chooser                                   | 1 | Switch off computer and reseal card.                |
|                                                                       | 2 | Run ConnectTest to verify proper operation of card. |
| TokenTalk icon missing on startup                                     | 1 | Switch off computer and reseal card.                |
|                                                                       | 2 | Run ConnectTest to verify proper operation of card. |
| Network service (file servers, print servers, printers, etc.) missing | 1 | Verify correct TokenTalk zone is selected.          |
|                                                                       | 2 | Check cables and connections.                       |





## TokenTalk NB Card (Continued)

Computer hangs when you select TokenTalk in chooser

- 1 Wait 30–40 seconds. A delay may be normal; it can take up to 30 seconds for network to respond.
- 2 Switch off computer and reseal card.
- 3 Verify that only green diagnostic LED is on. If other condition exists, replace card.
- 4 Run ConnectTest to verify proper operation of card.





## Token Ring NB/c Card

Token Ring NB/c icon missing from Network Control Panel

- 1 Switch off computer and reseal card.
- 2 If Token Ring NB/c icon is not in System folder, reinstall Token Ring NB/c software from Network Software Installer disk and restart computer.
- 3 Verify that diagnostic LED on card is on. If not, replace card.
- 4 Verify that speed selected on card matches speed of ring to which computer is attached. If computer is attached to 4 MB ring, LED should be yellow. If computer is attached to 16 MB ring, LED should be green.

Can't select TokenTalk icon in Network Control Panel

- 1 Reinstall Token Ring NB/c software from Network Software Installer disk and restart computer.
- 2 Restart computer with another startup disk that contains Token Ring NB/c software.





## Token Ring NB/c Card (Continued)

Computer hangs when you select TokenTalk in Network Control Panel

- 1 Wait 30–40 seconds. Delay may be normal; it can take up to 30 seconds for network to respond.
- 2 Switch off computer and reseal card.
- 3 Verify that diagnostic LED on card is on. If not, replace card.
- 4 Verify that speed selected on card matches speed of ring to which computer is attached. If computer is attached to 4 MB ring, LED should be yellow. If computer is attached to 16 MB ring, LED should be green.

Network icon missing from Network Control Panel

- 1 Switch off computer and reseal card.
- 2 Startup disk has wrong version of software. Install Token Ring NB/c software from Network Software Installer disk that shipped with card (or later version) and restart computer.





## Token Ring NB/c Card (Continued)

Network service  
(file servers, print  
servers, printers,  
etc.) missing

- 1 Verify correct AppleTalk zone is selected.
- 2 Check cables and connections.
- 3 Verify that speed selected on card matches speed of ring to which computer is attached. If computer is attached to 4 MB ring, LED should be yellow. If computer is attached to 16 MB ring, LED should be green.

Can't change network  
connection

- 1 Currently selected network is providing service that computer is using. Quit any network applications or extensions that are providing network services.
- 2 Computer is providing service that network is using. Quit any network applications or extensions that are providing network services.





## Apple PCI Token Ring Card

AppleTalk or TCP/IP control panel icon missing

- 1 Verify that the AppleTalk or TCP/IP control panel is in the Control Panels folder. If it is not there:
  - Locate the control panel, drag it into the Control Panels folder and restart the computer.
  - If you can't locate the control panel, reinstall the network software.

Can't select TokenRing in AppleTalk or TCP/IP Control Panel

- 1 Verify network cable is properly attached.
- 2 Reinstall driver software.

System can't load the Token Ring driver at startup and reverts to LocalTalk

The system file may be damaged or the Token Ring driver installation was unsuccessful. Reinstall the driver software.







## Apple PCI Token Ring Card (Continued)

Network services don't appear in the Chooser

- 1 Check the network connection.
- 2 Open the AppleTalk control panel and choose Token Ring from the popup menu. Restart the computer and then open the Chooser to check the available services.
- 3 If you can access some services but can't access a particular service, the device providing that service might be located in a different AppleTalk zone, or it might be malfunctioning, switched off, or disconnected from the network. There may also be a break somewhere in the network cables between your Macintosh and the missing service.

Two or more Token Ring items appear in the AppleTalk control panel's popup menu

- 1 There may be more than one Token Ring card installed. Select the slot number of the card you want to use.
- 2 There may be earlier versions of the TokenTalk software on the system. Open the Extensions folder and drag older versions of the TokenTalk file to the Trash.





## Apple PCI Token Ring Card (Continued)

System won't let you change the network connection

- 1 Essential services (such as file sharing) or programs may be in use that prohibit the change. Quit the service named in the system's alert message and try switching the network connection again.
- 2 Try quitting all application programs.
- 3 If it's OK to disrupt current services, shut down the Macintosh, using the Shut Down command. Restart the computer, change the network connection, and start the service or program again.

Token Ring item doesn't appear in the AppleTalk or TCP/IP control panel popup menu

Reinstall the driver software.

