EN/SC
Mini EN/SC
SCSI-to-Ethernet Adapter

Installation Guide

ASANTÉ

ASANTÉ

BUSINESS REPLY MAIL
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City   State   Zip

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Date of Purchase: _____

What is your organization:

- ❑ Corporation   ❑ Reseller
- ❑ Government   ❑ Higher Education
- ❑ Developer   ❑ K-12
- ❑ Other _____

Which Asanté product did you purchase?

- ❑ Mac Ethernet Card   ❑ PC Token Ring Card
- ❑ Mac Token Ring Card   ❑ PC Ethernet Card
- ❑ 10THub/12, 10T/Hub8   ❑ AsantéHub 1012
- ❑ FriendlyNet
- ❑ Other _____

Where did you purchase?

- ❑ Reseller   ❑ Mail Order
- ❑ Distributor   ❑ Other _____

Number of nodes on your network:

- ❑ 2-10   ❑ 10-50   ❑ 50-100
- ❑ 100-500   ❑ 500+

Types of computers on your network:

- ❑ Mac   ❑ PC   ❑ Dec VAX
- ❑ Sun   ❑ NeXT   ❑ Mainframe
- ❑ Mini   ❑ Other _____

Which network software are you using?

- ❑ AppleShare   ❑ UNIX
- ❑ Novell NetWare   ❑ Digital Pathworks
- ❑ LAN Manager   ❑ Banyan VINES
- Other _____

What network management software are you using?

- ❑ AsantéView   ❑ SunNet Manager
- ❑ Novell NMS   ❑ HP Open View
- ❑ SPECTRUM   ❑ Remote LAN View
- ❑ IBM NetView   ❑ LattisNet Manager
- ❑ David Systems   ❑ Other _____

Check if you are a previous Asanté customer ❑

Serial/ Hub ID number _____

62-00026-00 Rev. C

For multiple products, simply fill out one card completely and attach additional cards

EN/SC
Mini EN/SC
SCSI-to-Ethernet Adapter

Installation Guide

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Table of Contents

List of Figures

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To contact Asanté Tech Support for help:

Telephone	(800) 622-7464
	(408) 435-0706
Fax	(408) 432-6018

Electronic mail

Applelink mail	ASANTE.TECH
Internet mail	support@asante.com

Technical Support Hours

6:00 AM to 5:00 PM Pacific Standard Time, Monday—Friday

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There's always room for improvement and Asanté Technologies is always interested in your comments and suggestions about our product documentation. If you take the time to make suggestions, we will take the time to read and consider your suggestions for new documentation releases.

Please read through this Installation Guide and think about these questions:

- What do you like best about this Guide?
- What do you think is the least valuable or weakest part of this Guide?
- What is the most needed improvement you would make to this Guide?

You can fax your comments and suggestions to:

Asanté Technologies
Attn: Technical Publications
(408) 432-1117

or E-mail them through Internet to:

techpubs@asante.com

Introduction

Thank you for purchasing an Asanté EN/SC or Mini EN/SC family SCSI-to-Ethernet adapter.

The EN/SC Ethernet adapter provides a convenient way to connect your Macintosh to Ethernet using the Macintosh's SCSI port. The adapter passes Ethernet packets between the Macintosh and the network using the Macintosh standard SCSI interface. With the EN/SC adapter, you can attach additional SCSI devices to your Macintosh such as a hard drive, scanner, or CD-ROM.

The EN/SC Adapter has two SCSI ports while the Mini EN/SC Adapter has a single SCSI port. The Mini EN/SC provides a special cable that allows attachment of other SCSI devices.

Asanté EN/SC adapters are compatible with Apple System Software 6.0.7 and higher. They support Macintosh hardware including, the Macintosh Plus, Classic, Classic II, Color Classic, LC, LCII, LCIII, SE, SE/30, II, IIx, IIcx, IIsi, IIci, IIvx, Duo Docking Stations, Performa 200, 400, 600 and all PowerBooks with SCSI ports. The EN/SC adapter family features are detailed in this chapter.

Summary of EN/SC adapter features

Both the Asanté EN/SC adapter and the Mini EN/SC offer these features:

- Compliance with the IEEE 802.3 standard for 10Base2 (thin BNC), 10Base5 (thick) and 10BaseT (twisted-pair) Ethernet

- Compatibility with Apple® System 7, and EtherTalk Phase 1™ and Phase 2 ™

- Software support for AppleShare™, A/UX™, Novell NetWare™ for Macintosh, 3Com 3+Open™, 3Com 3+Share™, Sitka TOPS™, DEC Pathworks™, and other popular network software

- Support for AFP, TCP/IP, DecNet and LAT protocols

- TroubleShooter diagnostic software for testing and identifying problems

In addition the Mini EN/SC Adapter offers:

- A compact and portable Ethernet adapter

- User selectable link disable switch to operate with noncompliant 10BaseT networks

- Auto-sensing circuitry for 10BaseT and thin ports

- User selectable SCSI termination

- Unique SCSI T-connector cabling

In addition the EN/SC Adapter offers:

- Automatic termination when used with Macintoshes

- Internal termination when used with PowerBooks

- An additional SCSI port

❖ **Note:** In this manual, all references to the EN/SC Adapter will include the EN/SC Adapter and the Mini EN/SC Adapter, except in those cases when the Mini EN/SC differs.

The following table lists each adapter and the Macintosh computers and Ethernet cabling each supports:

Mini EN/SC Adapter Family

Mini EN/SC	Macintosh	Ethernet cabling
Mini EN/SC	PowerBooks and Most Macintoshes	10BaseT and Thin BNC
Mini EN/SC 10T	PowerBooks and Most Macintoshes	10BaseT only

EN/SC Adapter Family

EN/SC	Macintosh	Ethernet cabling
EN/SC	Most Macintoshes	10BaseT, Thin BNC, and Thick DB-15
EN/SC 10T	Most Macintoshes	10BaseT only
EN/SC PB	PowerBooks and Desktop Macintoshes	10BaseT, Thin BNC and Thick DB-15
EN/SC 10T PB	PowerBooks and Desktop Macintoshes	10BaseT only

❖ **Note:** The EN/SC family is compatible with all current Macintoshes except IIfx, Centris 610, 650, Quadra 700, 800 or 950.

Installing the EN/SC Adapters

This chapter provides step-by-step instructions for installing Asanté EN/SC and Mini EN/SC adapters and Asanté EtherTalk Installer.

Please make sure you have prepared for the installation by completing each step described in this chapter.

The EN/SC adapter can be the only SCSI device you connect to the Macintosh or it can be one of several devices in a SCSI daisy-chain. The installation procedure for both configurations is described in this chapter.

To install the EN/SC adapter, you need to perform the following operations:

• Connect the EN/SC adapter to the Macintosh.

• Connect the EN/SC to the network cable.

• Connect power to EN/SC.

• Install the EtherTalk software.

• Restart.

• Verify installation by accessing network services.

Preparing for the Installation

Before installing the Asanté EN/SC adapter, make sure you have the following:

Software:

- An AFP-compliant network operating system and application software to run on the network
- Apple System Software 6.0.7 or higher
- Asanté EtherTalk 5.1 Installer or higher

Hardware:

SCSI Cable

- The appropriate EN/SC Adapter for your computer

  If you have a PowerBook and use the EN/SC PB Adapter or the Mini EN/SC Adapter both have the correct cable and termination option.

- The correct Ethernet cable for your EN/SC Adapter.

- ❖ **Note**: During Installation, all references to the EN/SC Adapter will include the EN/SC Adapter and the Mini EN/SC Adapter, except in those cases when the Mini EN/SC differs.

Below is a list of the Asanté Ethernet adapters and the cable provided by Asanté.

Adapter	SCSI cable provided
EN/SC and EN/SC 10T	DB-25 Male to DB-25 Male
EN/SC PB and EN/SC 10T PB	DB-25 Male to HDI-30 connector
Mini EN/SC and Mini EN/SC 10T	2 cables: DB-25 Male to DB-25 Male/DB-25 Female for Macintosh Desktop computers HDI-30 to DB-25Male/DB-25 Female for PowerBook
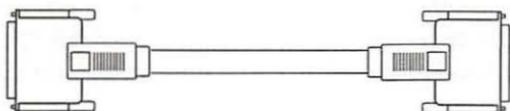
EN/SC DB-25 to DB-25 SCSI cable
for the desktop Macintosh (shipped with EN/SC, EN/SC 10T)
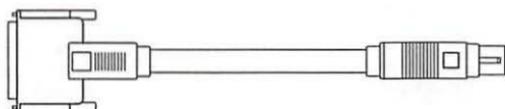
EN/SC PB DB-25 to HDI-30 SCSI cable
for the PowerBooks (shipped with EN/SC PB,EN/SC 10T PB)

Figure 2-1   Cables provided with EN/SC and EN/SC PB
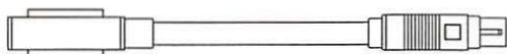
Mini EN/SC DB-25/DB-25 to HDI-30 SCSI cable
for Macintosh PowerBooks
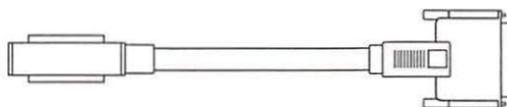
Mini EN/SC DB-25/DB-25 to DB-25 SCSI cable for
desktop Macintosh

Figure 2-2   Cables provided with Mini EN/SC

It is important to identify the Ethernet type being used in your network, the connection and termination requirements. Each type of your Ethernet cable, must meet certain IEEE Ethernet length specifications. Please refer to Appendix B for detailed information on IEEE Ethernet length specifications.

Ethernet Cable	Requires	Comments
10BaseT	Hub and RJ-45 connector	10BaseT cable requires 10BaseT-compliant hub
Thin BNC	Pair of 50-ohm terminators and BNC T-connector	Thin cable requires one terminator for each end
Thick	External transceiver and DB-15 (AUI) connector	Adapter and connector are used to connect Macintosh to transceiver

Observing the safety rules

Observe the following safety precautions during the installation:

- Consult your network administrator about the EN/SC adapter installation and its effect on the network. Do not disrupt the network before informing your network administrator. Other users must be warned of the possible interruption of network operations.

- Prior to connecting and configuring the EN/SC, turn off the Macintosh and all peripherals connected to it.

Link Integrity

On the bottom of the Mini EN/SC there is an ON/OFF switch for Link Integrity.

- If you have a 10BaseT compliant network, set the Link Integrity switch ON.

- If your network is not 10BaseT-compliant, set the link integrity switch OFF.

❖ **Note:** When Link Integrity is OFF, the default 10BaseT port is selected. Auto-sensing for the 10BaseT and Thin ports on the Mini EN/SC Adapter is disabled.

Link Integrity and
Termination switches
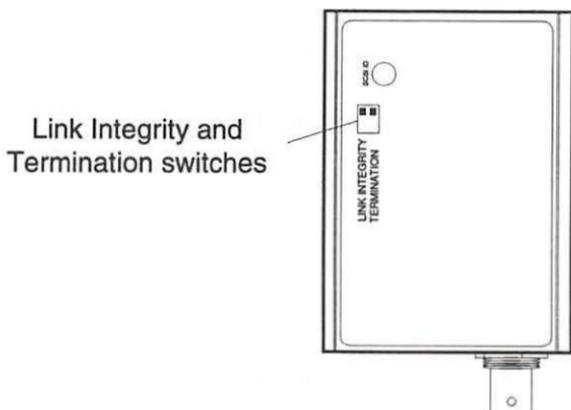
Figure 2-3   Link integrity on Mini EN/SC

Set adapter's SCSI address

When you add a SCSI device to a Macintosh it must have a unique SCSI address between 1 and 6. A "0" address is usually reserved for the Macintosh internal hard drive. Be careful not to duplicate the SCSI address of any other SCSI device in the SCSI daisy-chain.

- On the Mini EN/SC adapters set the SCSI address using the rotary switch on the bottom.
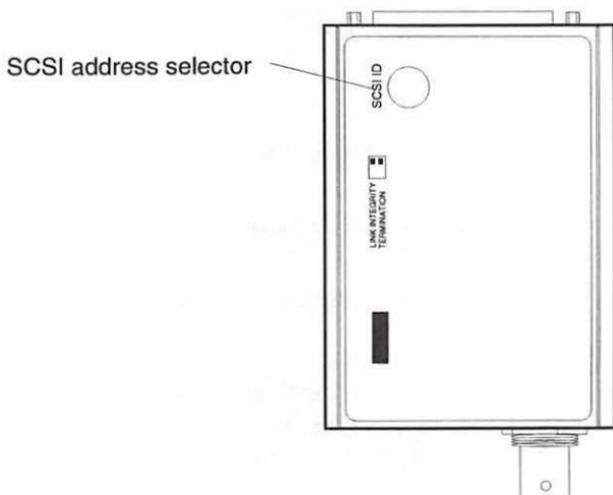
Figure 2-4 SCSI address on Mini EN/SC

- ON the EN/SC adapters set the SCSI address using the rotary switch on the back.
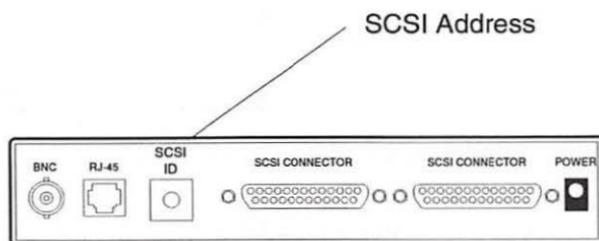
Figure 2-5 SCSI address on EN/SC

Installing the EN/SC Adapters

Determine SCSI termination

Follow these simple rules and use the table to determine where you need to provide SCSI termination.

- In a SCSI chain the first and last device in the chain must be terminated with no termination in between.

- Termination is either internal or external. External termination requires a termination block. The first device is always the Macintosh, which is terminated internally.

- If you are not sure if your other SCSI device is internally terminated, check the documentation for the particular SCSI device.

EN/SC and Mini EN/SC SCSI Termination

Connecting to Powerbook	EN/SC	EN/SC PB	Mini EN/SC
If your adapter is the:			
• Only device	⊖	△	■
• First device in chain	□	□	▲
• Middle device in chain	□	⊖	▲
• Last device in chain	⊖	△	■
Connecting to Desktop Macintosh	**EN/SC**	**EN/SC PB**	**Mini EN/SC**
If your adapter is the:			
• Only device	△	△	■
• First device in chain	□	⊖	▲
• Middle device in chain	□	⊖	▲
• Last device in chain	⊖	△	■

□ Termination required on last SCSI device.

△ Internal termination or no termination required.

■ Set SCSI switch to "ON".

▲ Set SCSI switch to "OFF".

⊖ Do NOT operate in this configuration.
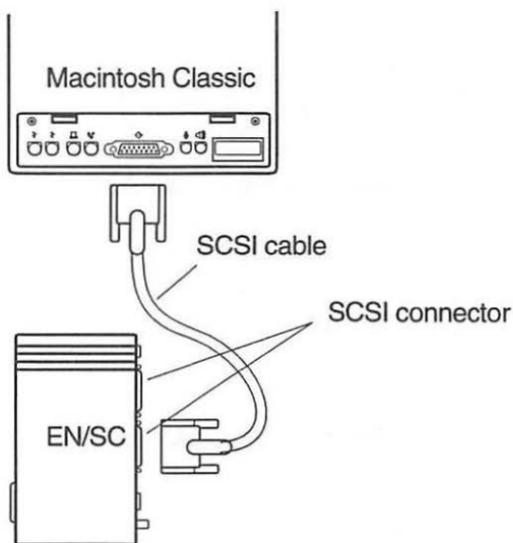
Figure 2-6 Connecting EN/SC as a single SCSI device
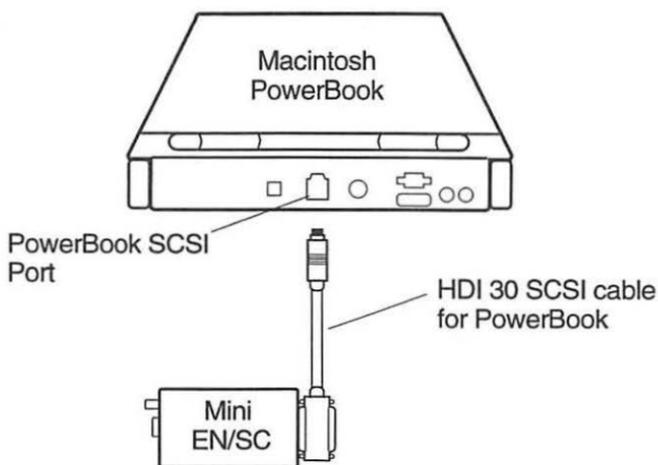
Figure 2-7 Connecting Mini EN/SC as a single SCSI device

Installing the EN/SC Adapters

Installing the EN/SC adapter as the only SCSI device

To install the Asanté EN/SC adapter when it is the only SCSI device attached to the Macintosh, perform the following steps:

1 Make sure all devices are turned off.

2 Using the rotary switch on the rear of the EN/SC Adapter or on the bottom of the Mini EN/SC Adapter, set the adapter's SCSI address. You can use any address between 1 and 6 (0 is reserved for the Macintosh hard drive).

❖ **Note:** Be careful not to duplicate the SCSI address of any other SCSI device in the SCSI daisy-chain. If there is a duplicate SCSI address in the chain the EN/SC will not register at start-up.

3 **Connect the EN/SC Adapter:**

To the Macintosh

Using the cable provided with the adapter, plug one end of the SCSI cable into the EN/SC adapter SCSI port and the other end of the cable into the Macintosh SCSI port.

❖ **Note:** Please refer to the tables on pages 2-2 and 2-3.

4 Follow the termination rules described on page 2-7.

5 **Connect the EN/SC adapter to the Ethernet cable**

Depending on the type of Ethernet cable being used there are certain guidelines that you must follow during installation.

These guidelines are defined below.

With 10BaseT cabling

- Plug the RJ-45 connector on one end of the cable into the RJ-45 jack on the adapter. The RJ-45 connector's plastic tab snaps locked into the jack.
- Plug the other end of the cable into your 10Base T network hub.
- Move switch to **TP/AUI** on the front of the EN/SC adapter.

With Thin coaxial cabling

⚠ **Caution**

Check with your network administrator before connecting the EN/SC adapter to the network.

- Connect the "T" connector to the adapter's BNC port. The connector slips on, twists, and locks in place.
- If you have a bus topology and if the Macintosh is the first node or last node, terminate one end of the "T" connector using a 50-ohm BNC terminator.
- Move switch to **TN** on the front of the EN/SC adapter.

With Thick coaxial cabling (EN/SC and EN/SC PB)

Connect a transceiver to the Thick Ethernet cable:

- Plug one end of the thick Ethernet drop cable into the AUI port on the EN/SC adapter.
- Plug the other end of the thick Ethernet drop cable into the Thick Ethernet backbone tap.
- Move switch to **TP/AUI** on the front of the EN/SC adapter.
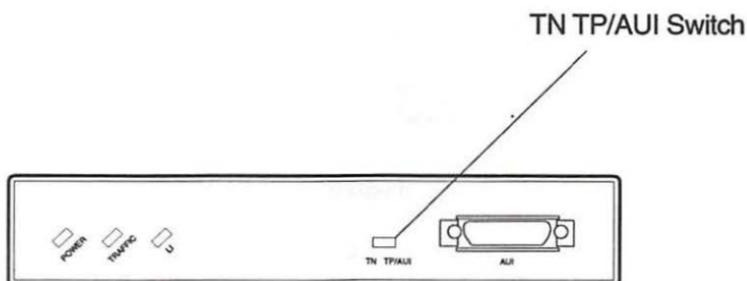
TN TP/AUI Switch

Figure 2-8 TN TP/AUI switch

6 Connect the adapter to the Asanté power adapter provided. **Do not use any other power adapter.**

❖ **Note:** The EN/SC uses a 12 VAC power adapter and the Mini EN/SC uses a 12 VDC adapter. The power adapters are not interchangeable. It is important to use the power adapter that was shipped with the product.
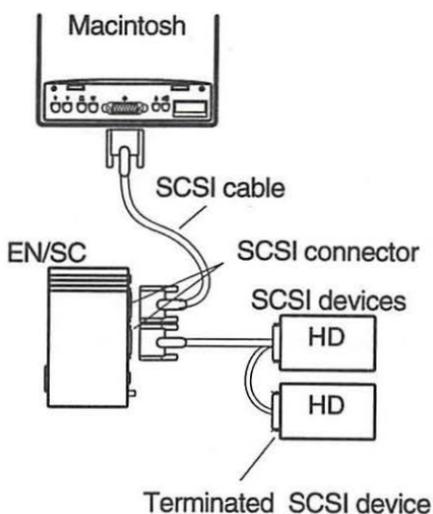
Figure 2-9   Connecting EN/SC to other SCSI devices
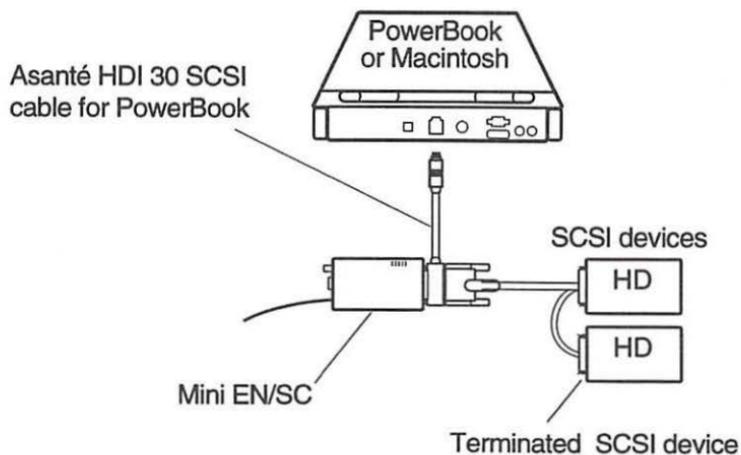
Figure 2-10   Connecting Mini EN/SC to other SCSI devices

Installing the EN/SC adapter in a SCSI daisy-chain

To install the Asanté EN/SC adapter with other SCSI devices, follow the standard requirements for connecting a device to a SCSI chain.

1 Make sure all devices are turned off.

2 Using the rotary switch, on the rear of the EN/SC Adapter or on the bottom of the Mini EN/SC Adapter, set the adapter's SCSI address. You can use any address between 1 and 6 (0 is reserved for the Macintosh hard drive).

❖ Note: Be careful not to duplicate the SCSI address of any other SCSI device in the SCSI daisy-chain.

3 Connect the EN/SC Adapter:

To a Macintosh (EN/SC, EN/SC-10T)

Using the DB-25 to DB-25 SCSI cable supplied by Asanté plug one end of the cable into the Macintosh SCSI port and the other end into the EN/SC adapter SCSI port.

After connecting the adapter to the Macintosh, connect it to the other SCSI device using the appropriate SCSI cable.

To a Powerbook (EN/SC PB, EN/SC-10T PB)

Using the DB-25/DB-25 to HDI-30 SCSI cable supplied by Asanté plug one end of the cable into the PowerBook SCSI port and the other end into the EN/SC PB or EN/SC-10T PB adapter SCSI port.

The EN/SC PB and EN/SC-10T PB are internally terminated, and must be placed at the end of the SCSI chain.

To connect the Mini EN/SC Adapter to a Macintosh or PowerBook

Follow the previous instructions for installing the EN/SC adapter using the cables listed below.

- DB-25/DB-25-to-HDI-30 SCSI cable for the Macintosh

- DB-25/DB-25-to-HDI-30 cable for the PowerBook
  (with DB-25/DB-25 "T" side connected to Mini)

After connecting the Mini EN/SC to the Macintosh or PowerBook, connect it to the other SCSI device using the appropriate SCSI cable.

If the Mini EN/SC is the last device, connect it to the SCSI device using the appropriate cable.

❖ **Note:** When connecting the Powerbook to the first device in the SCSI chain you can use the (the DB-25-to-HDI-30). To connect the first device to another device with a DB-25 SCSI port use a DB25/DB25 cable. This allows the Mini EN/SC to be attached in the middle of a SCSI chain.

The following steps are the same for the EN/SC and the Mini EN/SC.

4 Terminate the SCSI daisy-chain. Refer to the table on page 2-7.

5 Connect the EN/SC adapter to the Ethernet cable

Follow the appropriate guidelines for the Ethernet cable you are using.

With 10BaseT cabling

- Plug the RJ-45 connector on one end of the cable into the RJ-45 jack on the adapter. The RJ-45 connector's plastic tab snaps locked into the jack.
- Connect the other end of the cable into your 10Base T network Hub or a block wired back to the hub.
- Move switch to **TP/AUI** on the front of the EN/SC adapter.

With Thin coaxial cabling

⚠ **Caution**

Check with your network administrator before connecting the EN/SC adapter to the network.

- Connect the "T" connector to the adapter's BNC port. The connector slips on, twists, and locks in place.

- If you have a bus topology and if the Macintosh is the first node or last node, terminate one end of the "T" connector using a 50-ohm BNC terminator.
- Move the switch on the front of the EN/SC adapter to TN.

With Thick coaxial cabling (EN/SC and EN/SC PB only)

Connect a transceiver to the Thick Ethernet cable:

- Plug one end of the thick Ethernet drop cable into the AUI port on the EN/SC adapter.
- Plug the other end of the thick Ethernet drop cable into the Thick Ethernet backbone tap.
- Move the switch on the front of the EN/SC adapter to **TP/AUI**.

6 Connect the adapter to the Asanté power adapter provided. **Do not use any other power adapter.**

❖ **Note:** The EN/SC uses a 12 VAC power adapter and the Mini EN/SC uses a 12 VDC adapter. The power adapters are not interchangeable. It is important to use the power adapter that was shipped with the product.

Once you have physically connected the EN/SC adapter to the network you are ready to install the EtherTalk software.

Installing the EtherTalk software

An EtherTalk Installer diskette is included with each Asanté EN/SC adapter. This diskette contains Asanté's EtherTalk driver, AppleTalk, and other Apple system extensions. Asanté's EtherTalk device driver allows AppleTalk to communicate with the EN/SC adapter.

Two types of software installations

Asanté provides two types of installations–an **easy install** and a **customize install**. You should be experienced in network administration to perform the customize install.

For detailed information about each installation, click the **Help** button to display a help screen.

The following table explains which installation to choose:

Choose	When
Easy Install	• You want to install the AppleTalk version on the diskette and the Asanté Ethernet driver. • Your network does not present any potential compatibility problems with the AppleTalk version on the diskette. • You want access to EtherTalk Phase 2 network services.
Customize Install	• When your network has software that may conflict with the AppleTalk version on the Asanté diskette. • You want to install only specific parts of Apple network software or just the Asanté driver software. Read the *Read Me First* file for more information about special situations and installation options. • You need to install EtherTalk Phase 1 network services.

About EtherTalk Phase 1 and Phase 2

EtherTalk Phase1 is limited to 254 devices and allows only one zone. EtherTalk Phase 2 has virtually no limit (maximum—over 16 million devices) and allows multiple zones. Phase 2 also offers optimized network performance. The Easy Install provides EtherTalk Phase 2, now used by most networks. If you want to access networks using Phase 1, choose the customized installation.

⚠ **Caution**

> Before you install Asanté's EtherTalk software, disable all extensions and virus detection programs. Then restart your Macintosh.

1 Read the *Read Me First* file before you install the EtherTalk software.

It contains information about your installation and helps you determine if you need to do a customized installation.

The installation instructions assume that you normally boot from your hard disk.

2 Insert the Asanté EtherTalk Installer Disk.

3 Double-click the **Installer** icon and click OK when the Installer banner appears.

The Easy Install dialog box appears.

❖ **Note:** To properly install the EtherTalk Installer program, you must double-click the **Installer** icon. Do not drag the files from the diskette to the System Folder.

```
 ┌─────────────────────────────────────────────────────────────┐
 │  Easy Install                                                │
 │  ┌──────────────────────────────────────────────────────┐   │
 │  │ Click Install to place                               │   │
 │  │   • Asanté EN/SC EtherTalk Software.                 │   │
 │  │   • AppleTalk version 57.0.4              ┌─────────┐ │   │
 │  │                                           │ Install │ │   │
 │  │                                           └─────────┘ │   │
 │  │  on the hard disk named                              │   │
 │  │  ⊂⊃ Glenda's Macintosh                               │   │
 │  └──────────────────────────────────────────────────────┘   │
 │                                           ┌────────────┐     │
 │                                           │ Eject Disk │     │
 │                                           └────────────┘     │
 │                                           ┌────────────┐     │
 │                                           │ Switch Disk│     │
 │                                           └────────────┘     │
 │                                           ┌────────────┐     │
 │                                           │ Customize  │     │
 │                        ┌──────────┐       └────────────┘     │
 │                        │   Help   │       ┌────────────┐     │
 │  3.2                   └──────────┘       │    Quit    │     │
 │                                           └────────────┘     │
 └─────────────────────────────────────────────────────────────┘
```
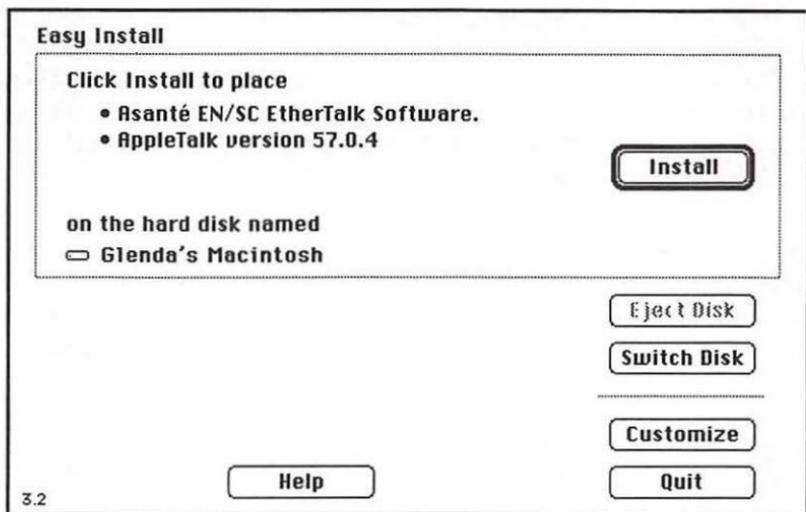
Figure 2-11 The Easy Install dialog box

4 To perform an Easy Install, click **Install.**

The Installer program examines your Macintosh and installs the EN/SC EtherTalk driver and the current AppleTalk.

Click **Restart** when the system informs you that the installation is successful and prompts you to click.

5 To perform a **Customize** install:

Only experienced Macintosh users should perform a customized installation. Open the *Read Me First* file on the diskette for an explanation of each installation option. Consult your network administrator if you do not understand the *Read Me First* file.

Click, **Customize.**

A dialogue box appears with a list of software options.

Select the appropriate software option. Use **Shift-click** to select multiple operations.

The system informs you when the installation is completed and prompts you to click **Restart**.

Click **Restart**.

❖ **Note**: If other Macintoshes on the network have Asanté EtherTalk drivers, we recommend that you upgrade all drivers to the most recent version.

Accessing network services

To connect to the Ethernet network you must meet the following requirements:

- AppleTalk must be active in the Chooser dialog box
- EtherTalk must be active in the Control Panel

Asanté EtherTalk driver software enables AppleTalk to interact with the EN/SC adapter and make a connection.

1 Select Chooser from the Apple menu.

The Chooser dialog box appears displaying all network devices available and the AppleTalk zones.
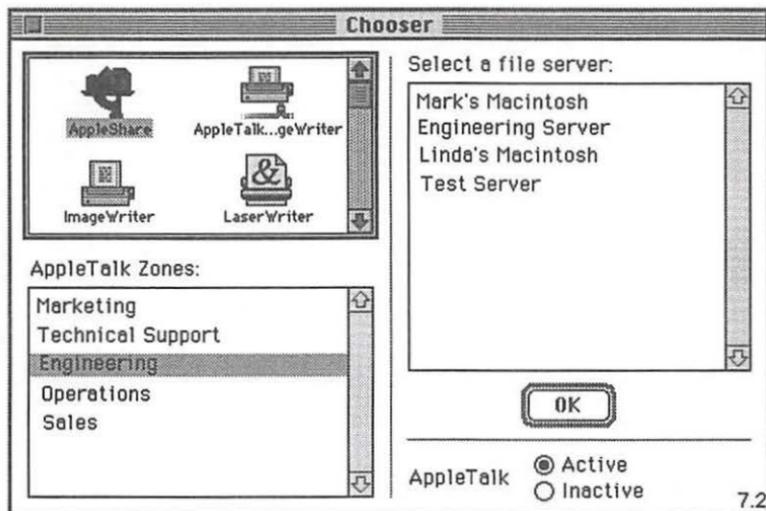
Figure 2-12 Example of Chooser dialog box

2 Click the Active button if AppleTalk is not active.

Close the Chooser dialog box.

3 Select Control Panels from the Apple menu.

4 Open the Network control panel.

The Network window contains three types of network icons, **Built-in LocalTalk, EtherTalk Phase 1** and **Ether-Talk Alternate**.

5 Select **EtherTalk Alternate.**

Click the EtherTalk icon in the network control panel.

❖ **Note:** If you wish to access Phase 1 network services (single arrow), click the Phase 1 icon. If you wish to access Phase 2 network services (double arrow), click the Ether-Talk Alternate icon. Click OK to confirm your selection. When you double-click the EtherTalk Alternate icon, the default zone for the node is displayed.
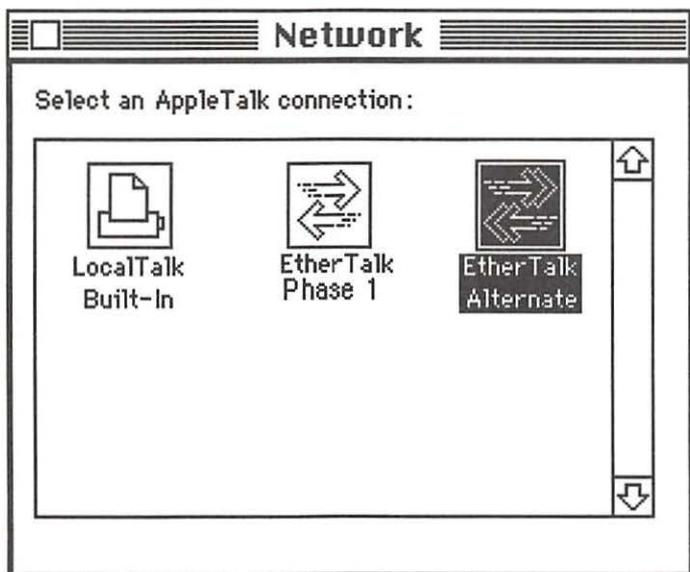
Figure 2-13 Network Control Panel

6 Close the Network Control Panel.

Your connection to Ethernet remains active until you switch to LocalTalk, disconnect the cable, or remove the Asanté EN/SC adapter.

7 Select Chooser and select a network resource such as AppleShare or another network service.

TroubleShooter Diagnostic Software

The TroubleShooter diagnostic program is provided on the Asanté EtherTalk installer diskette together with the EtherTalk drivers. TroubleShooter helps you identify problems on your network by running diagnostic tests on the Asanté EN/SC adapter. It also provides configuration information about the Macintosh and the EN/SC adapter, such as the Ethernet address.

Running Troubleshooter Diagnostics

The TroubleShooter diagnostic program reinitializes and reconfigures your Ethernet connection and sends data out the Ethernet port. Therefore, before you run TroubleShooter, you must:

- Save all open files and close all active applications.
- Log out of any active network services.
- Save all open files and close all active applications.
- Log out of any active network services.
- Change from EtherTalk to LocalTalk.
- If using System 7, turn off virtual memory.
- Restart your Macintosh with virus software, extensions, and inits disabled.

The following sections provide instructions for these operations.

Changing from EtherTalk to LocalTalk

1 Drag any remote volumes into the Trash.

2 Change from EtherTalk to LocalTalk by clicking the LocalTalk icon in the network control panel.

3 Disable virus software, extensions, and inits.

4 Restart.

Starting TroubleShooter Diagnostics

1 Insert the Installer diskette.

2 Open the diskette's directory window and double-click the TroubleShooter icon to start the program.

TroubleShooter warns you to change your AppleTalk connection:

> ⚠ **Running Asanté TroubleShooter will reinitialize your Ethernet adapter. Before continuing please make sure that the LocalTalk Driver is chosen. (Go to the Apple Control Panels, double-click on the Network icon, then choose LocalTalk).**
>
> [Quit] [**OK**]
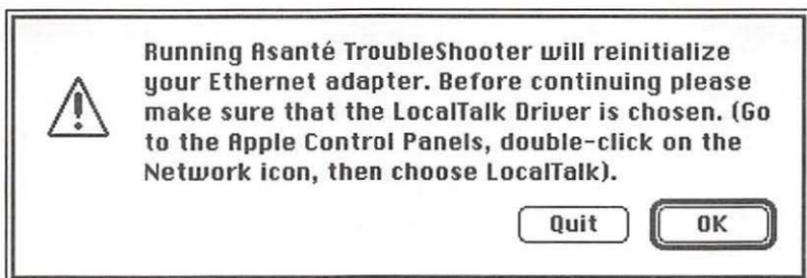
Figure 3-1   TroubleShooter Warning Box

If you need to make this change, click **Quit**, make the change, restart Macintosh and TroubleShooter.

When you click OK, TroubleShooter loads and **automatically** runs the following three default tests:

*   Memory buffer test

    Writes to and reads from the packet buffer RAM to verify its addressability and operation.

*   Network interface controller test

    Writes to and reads from the controller register to verify its operation. Also issues a transmit command to verify the network interface controller's integrity.

*   Ping-Pong test

    Transmits and receives special packets to verify communication with other systems on the network.

    If the Ping-Pong test fails, check your connectors and cables.

TroubleShooter opens the TroubleShooter window and displays
the results of the following tests:

```
╔═══════════════════ Asanté TroubleShooter ═══════════════════╗
║                                                              ║
║  ┌─────────┐   ☒ Memory Buffer Test            ┌────────┐    ║
║  │  TEST   │   ☒ Network Interface Controller Test │ REPEAT │    ║
║  └─────────┘   ☐ Loopback Test                 └────────┘    ║
║  ┌─────────┐                                                 ║
║  │  STOP   │   ───────────────────────────────            ║
║  └─────────┘   ☒ Ping-Pong Test                             ║
║  ┌─────────┐   ☐ Bandwidth Utilization                     ║
║  │  HELP   │                                                 ║
║  └─────────┘   ┌──────────────────────────────────────┐    ║
║  ┌─────────┐   │ Memory Test Passed                    │    ║
║  │  QUIT   │   │ NIC Test Passed                       │    ║
║  └─────────┘   │ Ping-Pong Test Passed                 │    ║
║    SLOT        │                                       │    ║
║                │                                       │    ║
║  ☒ C ☐ D ☐ E   │                                       │    ║
║                │                                       │    ║
║                │                                       │    ║
║    Asanté      │                                       │    ║
║    ▢▢▢▢        │                                       │    ║
║ TroubleShooter │                                       │    ║
║                └──────────────────────────────────────┘    ║
╚══════════════════════════════════════════════════════════════╝
```
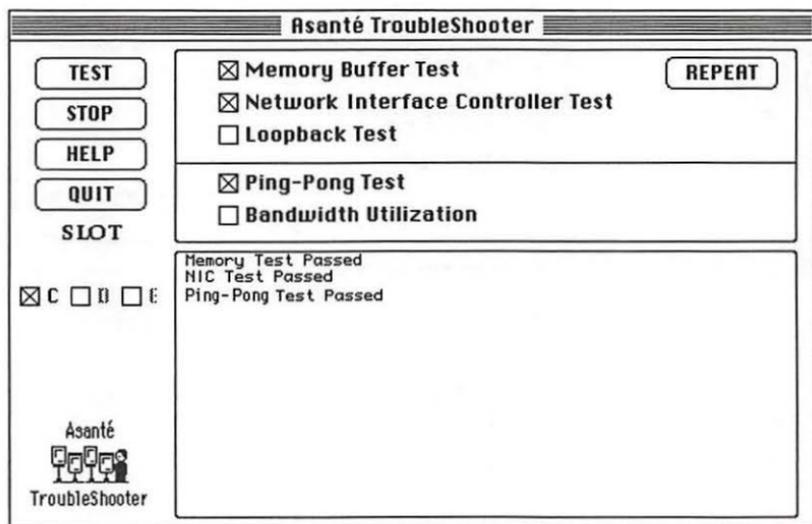
Figure 3-2   TroubleShooter Window

Running other diagnostic tests

In addition to the three default tests, TroubleShooter offers the Loop-back test and the Bandwidth Utilization test to validate operation of the EN/SC adapter.

Running the Loopback test

The Loopback verifies the operation of major components of the interface circuitry, the adapter, the serial network interface, and the thin port transceiver by transmitting and receiving special packets.

If you have an adapter with BNC connectors, disconnect the network cable and attach the T-connector terminating both ends with a 50 ohm terminator.

To run the Loopback test, perform the following steps:

1 Click the Loopback Test checkbox to select the test.

2 Click **TEST** to start the loopback test.

3 If the first test fails, click **REPEAT**. If the tests are "passed" successfully, everything is operating properly.

If you leave your computer connected to the network during the Loopback test, the test may fail due to packet collisions. The test failure does not indicate that the equipment is faulty. Retry the test by clicking **REPEAT**. You need only one successful run to verify proper product operation.

If the Loopback test fails repeatedly, please call Technical Support.

Running the Bandwidth Utilization test

1 Reconnect the Ethernet cable.

2 Click the Bandwidth Utilization checkbox to select the test.

3 Click the **TEST** button to start the test.

4 Data is collected from the network when you click the **TEST** button until you click the **STOP** button. The data represents activity on the network.

5 Click the **STOP** button or press any key on the keyboard to stop the test.

6 The performance statistics are displayed in the Trouble-Shooter dialog box.

If a Test Fails...

If a test fails, TroubleShooter displays an error message in the main dialog box. The error message generally consists of three parts:

• The name of the diagnostic test

• "Failed"

• A possible reason for the failure

Check the connections from your Macintosh to the Ethernet cable, and repeat the tests.

If the test fails repeatedly, make a note of the error message, quit the TroubleShooter diagnostics, and call Technical Support.
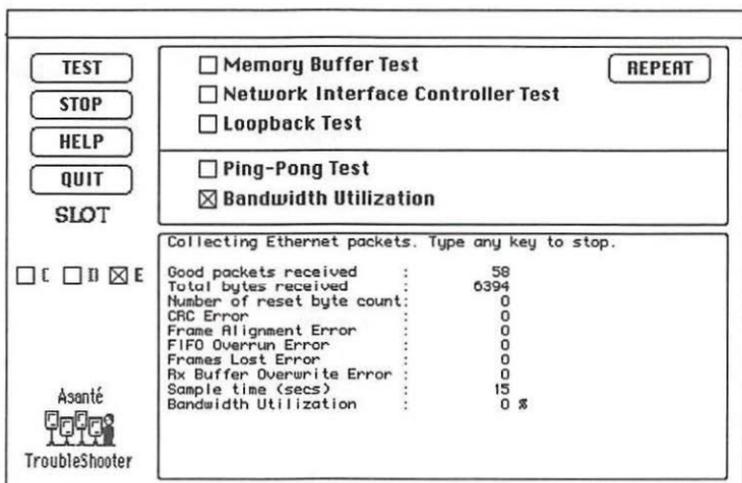
Figure 3-3 Bandwidth Utilization

When you run the Bandwidth Utilization Test it takes a "snap shot" of the network. This test can be used in conjunction with other network analysis tools to identify network problems. Certain network criteria is tested and displayed in the window. A brief description of the criteria is presented in the following list.

- **Good packets received**

  Total good packets (error-free) received by the Asanté EN/SC adapter from the network. This allows you to evaluate the activity on the network. The activity level can be used as a benchmark to determine changes in network performance.

- **Total bytes received**

  Total bytes received by the Asanté EN/SC adapter from the network. Good Packets received display total packets not the size of each packet. Total bytes received is more specific because it gives the actual byte count.

- **Number of reset byte count**

  This number increments by (1) after every 10^9 byte received by Asanté EN/SC adapter from the network.

- **CRC Error**

  Indicates the number of packets with CRC (Cyclic Redundancy Check) errors received by Asanté EN/SC adapter from the network. When a packet is transmitted a mathematical calculation is done on the header and data. This is appended to the back of the frame. The receiver of the packet does the same mathematical computation. If the computations are not equal it is a CRC error and the packet is discarded.

- **Frame Alignment Error**

  Number of misaligned packets received by Asanté EN/SC adapter from the network. If an Ethernet Frame does not end in an 8 bit boundary it is misaligned.

- **FIFO Overrun Error**

  This occurs when FIFO (First In First Out) is disabled causing an overflow during reception. The reception of the packet is aborted.

- **Frame Lost Error**

  This represents the number of lost frames received by the Asanté EN/SC adapter from the network.

- **Receive Buffer Overwrite Error**

  This occurs when the receive buffer is full due to heavy network traffic.

- **Sample Time**

  The time from starting test to completion in seconds.

- **Bandwidth Utilization**

  Total bandwidth utilization of the network. If the bandwidth utilization is over 2 percent it will effect the FIFO Overrun Error and Frame Lost count errors.

Obtaining system configuration information

TroubleShooter provides configuration information about your Macintosh and your EN/SC adapter.

The File menu provides the configuration information in two menu items—Get System Information and Get Adapter Information. The following information is displayed:

Menu	Displays
Get System Information	• System software version number
	• Machine type
	• Memory size
	• ROM version number
	• Installed AppleTalk version
Get Adapter Information	• Summary of the Ethernet interface hardware specifications:
	• Expansion slot used
	• Card type
	• Card's 6 byte Ethernet address
	• Card's buffer size
	• Asanté driver version: version 5.1 and higher

Quitting TroubleShooter Diagnostics

To quit TroubleShooter, click the QUIT button in the TroubleShooter dialog box or quit from the menu bar.

Restarting network services

To restart network services, perform the following steps:

1 Restart your Macintosh.

2 Activate AppleTalk in the Chooser.

3 Select EtherTalk in the Network control panel.

4 Select Chooser and select a network resource such as AppleShare or another network service.

Asking for Assistance

If you're having trouble or if a test has failed repeatedly, call your network administrator or Asanté Technical Support. Please write down the information in the following table before you call:

Information	To obtain, select
Apple system software and AppleTalk version	**Get System Information** in Troubleshooter File menu
Ethernet interface configuration	**Get Adapter Info** in the Troubleshooter File menu
EtherTalk software version of modules installed from Asanté Installer diskette	**Get Info** in the Troubleshooter File menu
LEDs on adapter	

To contact Asanté Technical Support for help:

Telephone	(800) 622-7464
	(408) 435-0706
Fax	(408) 432-6018
Applelink	ASANTE.TECH
Internet	support@asante.com

Technical Support Hours

6:00 AM to 5:00 PM Pacific Standard Time, Monday - Friday

Troubleshooting

This chapter gives you some basic troubleshooting suggestions if you should encounter any problems installing or using an Asanté EN/SC Adapter or Mini EN/SC Adapter. If you are unable to solve a problem after reading this chapter, please call Asanté Technical Support for assistance at 800-622-7464 or 408-435-0706.

Check the basics

If you have a problem accessing a network node, check the basic requirements shown below:

AppleTalk is active in the Chooser. ✔

EtherTalk is selected in the Network Control Panel. Make ✔
sure the same EtherTalk version (Phase 1 or Phase 2) is on the
Macintosh as is used by the network.

AppleTalk zones are visible, when applicable. ✔

The SCSI chain and adapter is terminated correctly. ✔

Verify that the cabling and connections are secure. ✔

The LEDs on the adapter indicate no problems. ✔
Refer to Appendix A for information about the LEDs.

The Asanté EtherTalk driver is installed on the start-up disk ✔
(the EN/SC EtherTalk icon should appear when you restart
your Macintosh or EtherTalk Alternate is visible in Control
Panel).

Run the Asanté TroubleShooter Diagnostics program

Run the Asanté TroubleShooter Diagnostics program to identify problems in the installation. Refer to Chapter 3 for more information.

Other tips

About EtherTalk Phase 1 and Phase 2

If you have installed both Phase 1 and Phase 2, selecting Phase 1 may make Phase 2 network resources invisible and unavailable. The reverse is true for Phase 2. Switch from one EtherTalk icon to the other to see if this is the case.

Phase 1 networks are limited to 254 nodes and one zone. In a Phase 2 network up to 16 million nodes can be addressed on an Ethernet-network. Phase 2 networks support multiple zones sharing the same physical cable. A great majority of network installations now use Phase 2 only.

Questions and Answers to common problems

Q When I turn on my PowerBook using the EN/SC adapter, an error message appears and the network connection reverts to LocalTalk. What can I do?

A Select Network from the Control Panels and reselect EtherTalk. Network connections are sometimes broken when the PowerBook is in Sleep Mode or turned off.

Remove any old Ethernet drivers by re-running the old driver's Installer and holding down the option key and click on Installer's Customize option.

Reinstall the drivers from Asanté EtherTalk 5.1 or later, using the EN/SC driver Customize option. If the problem persists, call Technical support.

Q I am trying to run the Asanté Troubleshooter with an EN/SC PB adapter attached. Why is my system locking up?

A Make sure the virtual memory is turned off on the Macintosh. Restart without extensions loaded.

Q I connected all the cables and started up my computer but it does not boot. Why?

A There may be a duplicate SCSI address on the network. Make sure that each SCSI device has a unique SCSI address between 0 and 6 and that you have proper SCSI termination.

Q Why can't I see the EtherTalk icon at start-up and connect to another device on the network?

A Did the EN/SC extension load at start-up? Did you hold down the Shift key at start-up? If not, re-install the software using the Asanté EtherTalk installer disk. The EN/SC must be the first extension to load.

Q I have connected the Mini EN/SC adapter to the network but the power light is not on. Why?

A The power light on the Mini EN/SC adapter is lit only if the SCSI cable is properly connected and the power adapter is plugged in. Unplug the power adapter, confirm that the SCSI cable is firmly attached and plug in the power adapter again.

EN/SC Adapter Family Specifications

	EN/SC	Mini EN/SC
Systems supported	Apple System software 6.0.7 and above, all PowerBooks including Duo Docking Stations, and all Macintosh Plus, Classic, Classic II, Color Classic, LC, LCII, LCIII, SE, SE/30, II, IIx, IIcx, IIsi, IIci, IIvx, Performa 200, 400, and 600 computers.	
Standards supported	IEEE 802.3 Ethernet specifications for thick coaxial (10Base5), thin coaxial (10Base2), and Unshielded Twisted-Pair (10BaseT) media. Phase 1 and Phase 2 EtherTalk. Register-level compatible with Apple Computer's Ethernet cards. AppleTalk Filing Protocol and MacTCP.	
Software supported	AppleShare, Novell NetWare for Macintosh, 3Com 3+Open, 3Com 3+Share, Sitka TOPS, DEC Pathworks, A/UX and other popular network software. 100% System 7 compatible.	
Protocols supported	AFP, TCP/IP, DECnet	
SCSI address selection	Rotary switch EN/SC	
Power requirements	EN/SC **12VAC** @ 1.25 Amps	Mini EN/SC **12VDC** @ 800mA
Operating temperature	0° to 50° C Relative humidity: 10% - 90%, non-condensing	0° to 50°
Physical dimensions	EN/SC Length = 8" Width = 4" Height = 1.5"	Mini EN/SC Length = 4.25" Width = 3" Height = 1"
Ethernet address	Asanté Ethernet ID is 000094 xx xx xx EN/SC: located on rear of unit Mini EN/SC: located on bottom of unit	

Ethernet Address

EN/SC

Ethernet Address

EN/SC-10T
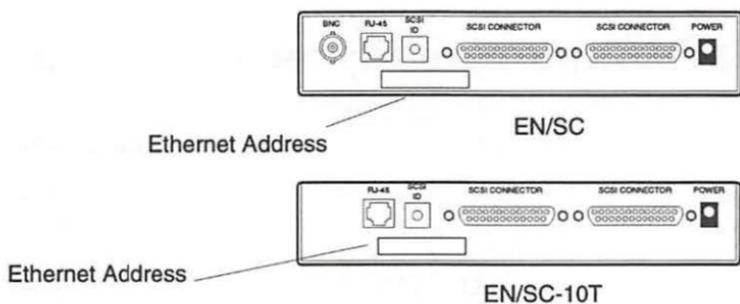
Figure A-1 EN/SC Ethernet Address

Ethernet Address
Serial Number
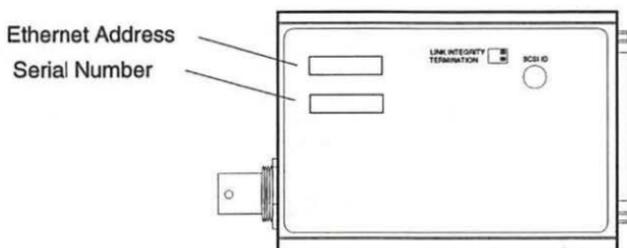
Figure A-2 Mini EN/SC Ethernet Address

EN/SC Adapter Family Specifications

LEDs on EN/SC adapter

EN/SC Adapter

Light	ON	OFF	BLINKING
Power	ON	OFF Inoperable	Not Applicable
Traffic	Network Activity	No Network Activity	Network Activity
LI (Link Integrity)	Link OK	Link Disabled	Link OK

Mini EN/SC Adapter

Light	ON	OFF	BLINKING
Power	ON	OFF Inoperable	Not Applicable
Network Activity	Network Activity	No Network Activity	Network Activity
Link Integrity	10BaseT Link Integrity OK	10BaseT Link Integrity Disabled	Not Applicable
Link Disable	10BaseT Link Integrity Disabled	10BaseT Link Integrity OK	Not Applicable
SCSI Termination	SCSI Termination ON	SCSI Termination OFF	Not Applicable

Ethernet Specifications

Parameter	10Base2	10Base5	10BaseT
Cable	Thin	Thick	UTP
Impedance	50 ohms	50 ohms	100 ohms
Connector on cable	BNC	DB-15	RJ-45
Data transfer rate	10 Mbps	10 Mbps	10 Mbps
Topology	Bus	Bus/Star	Star
Segment length (maximum)	185 meters	500 meters	100 meters
Distance between nodes (minimum)	0.5 meter	1 meter	n/a
Nodes per segment (maximum)	30	500	n/a

A few tips

- 10BaseT Ethernet

The wiring normally called for in 10BaseT is 26 to 22 AWG, which corresponds to the wire gauge of telephone unshielded twisted-pair cables. You need two pairs of wiring for each node.

- When wiring 10BaseT connections, take precautions against splitting pairs. Be sure you maintain the same color mates for each pair used within the cable. If you don't follow a common color pairing, you can mix up the wires preventing the Ethernet signal from being transmitted.

- Be sure to check any cabling you plan to use. Older cabling may not be of adequate quality to support 100 meters between a device and the hub.

- When subdividing cable segments, do not randomly pick any length of cable. The IEEE recommends that Ethernet coaxial cable be subdivided at lengths of 23.4 meters (76.8 feet), or multiples of that length, in order to minimize internal signal reflections. Using less than 10 ft. of cable between devices causes reflections. These reflections reduce the signal strength for large networks. On small networks, such as those covering a single floor of a building, these reflections probably won't cause problems.

- You may want to install a wiring system in your building, or you may already have one, that allows you to run a 10BaseT cable to a wall jack.

RJ-45 Connector

The pin numbers are for an Asanté 10BaseT card or Media Adapter positioned correctly with the notch on the 8 pin modular jack oriented down. Pin 1 is the left-most pin, and Pin 8 is the right-most pin.

Pin	Circuit	Signal Name
1	TD+	Data Transmit +
2	TD-	Data Transmit -
3	RD+	Data Receive +
4		Not used
5		Not used
6	RD-	Data Receive -
7		Not used
8		Not used
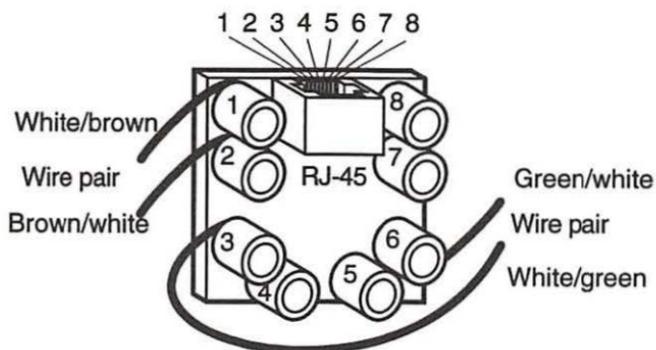
Figure B-1 RJ-45 Connector and biscuit block pin-outs

Glossary

Adapter

A device that allows one system to connect to another system.

AppleTalk

Apple Computer's networking software and protocols providing capabilities for communications and resource sharing among computers, printers, and other peripherals attached to the network. AppleTalk can be implemented on a variety of cable systems, including LocalTalk and Ethernet.

AppleTalk Phase 1

AppleTalk Phase 1 is the original implementation of Apple's networking software and protocols. It has a restriction of 254 nodes per AppleTalk network and does not permit multiple zones.

AppleTalk Phase 2

Apple released AppleTalk Phase 2 in 1991. AppleTalk Phase 2 does not have the network and zone restrictions of AppleTalk Phase 1. In the AppleTalk Phase 2 environment an AppleTalk network can have over 16 million nodes. Also, one AppleTalk network can be divided into multiple zones.

bandwidth

The capacity of a network to carry information as measured by the maximum number of bits per second (bps) the network can transmit. The higher the bandwidth, the greater the amount of information that can be transmitted from one device to another.

bus topology

In a bus network topology, all computers are connected with a single cable, with a terminator at each end.

EtherTalk

Apple's data-link software that allows the AppleTalk protocol to run on Ethernet media. For information on EtherTalk Phase 1 and EtherTalk Phase 2, see AppleTalk Phase 1 and AppleTalk Phase 2.

Ethernet

A data link protocol jointly developed by Intel, Xerox, and DEC and subsequently adopted by the IEEE as a standard. It uses the CSMA/CD access method and transmits 10 megabits per second.

IEEE (Institute of Electronic and Electrical Engineers)

An organization responsible for setting standards for computers and communication in the United States.

LAN

A LAN (local area network) provides connections between workstations and peripherals such as printers and disk servers in a confined geographical area, usually within a building, or an adjacent building.

LocalTalk

The name for Apple Computer' network connectivity products. LocalTalk was formerly called the AppleTalk Personal Network Cabling System.

node

An addressable device on a network, such as a LaserWriter or a Macintosh.

10Base2

An implementation of the Ethernet IEEE standard on coaxial cable (Thin), a baseband medium, at 10 megabits per second. The maximum segment length is 185 meters.

10Base5

The original Ethernet medium, an implementation of the Ethernet IEEE standard on coaxial cable (Thick), a baseband medium, at 10 megabits per second. The maximum segment length is 500 meters.

10BaseT

An implementation of the Ethernet IEEE standard on 24 gauge unshielded, twisted-pair wiring, a baseband medium, at 10 megabits per second. The unshielded twisted pair (UTP) uses RJ-45 eight conductor plugs at each end.

SCSI

(Small Computer System Interface) An industry standard interface that provides high speed data transfer. SCSI ports have been standard on all Macintoshes since the Plus.

Star Topology

A network where all terminals are connected to a central hub. Starlan by AT&T is an example of a Star Topology.

Terminator

Responsible for keeping signals from echoing back and forth along SCSI cabling.

unshielded twisted pair

A cable made of two insulated wires twisted together to reduce electrical interference without shield under outer insulation.

Index

Asanté Technologies, Inc.
821 Fox Lane
San Jose, CA 95131

April 1993

Part Number 06-00075-00 Rev. A

Asanté TroubleShooter

Diagnostic Software

for Asanté Ethernet Interfaces
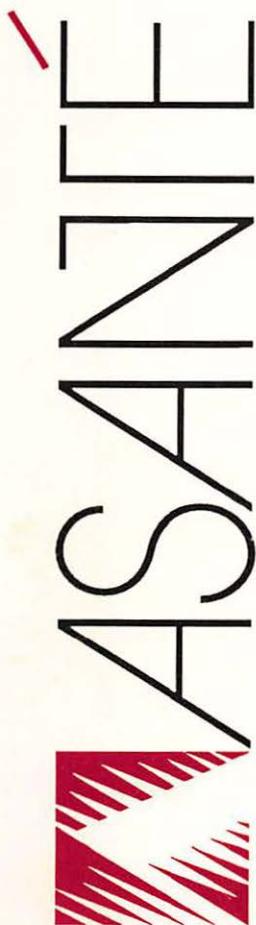
Addendum
to the
Installation Manual

Addendum
to the
Asanté Installation Manual

Running
The Asanté TroubleShooter
Diagnostic Software

Asanté TroubleShooter Diagnostic Software

The Asanté EtherTalk installer diskette contains the TroubleShooter diagnostic program as well as the EtherTalk drivers. TroubleShooter runs a number of tests on your Ethernet interface hardware, and thereby help evaluate problems on your network. TroubleShooter also provides configuration information about your Macintosh and your Ethernet interface, such as your Ethernet node address – you no longer have to open your Macintosh and look on the Ethernet card to read the Ethernet node address.

The TroubleShooter diagnostic program reinitializes and reconfigures your Ethernet interfacer, and sends data out the Ethernet port. Therefore, before you run TroubleShooter, you should:

- Save all files and close all applications that may be open,

- Log out of any network services you may be using, and

- Unlink your Macintosh from Ethernet network resources.

Running the TroubleShooter Diagnostics

Unlink Macintosh from Ethernet

Step 1.   Unpublish (close) your volume.

Proceed as instructed in your network operating system manual.

Step 2.   Unmount the file server.

Proceed as instructed in your network operating system manual.

Step 3.   Change from EtherTalk to LocalTalk.

Pull down the ⌘ menu and select **Control Panel**. In the Control Panel, click on the **Network** icon. (Under System 7, you can also expand the hierarchical listing in the Finder window: click on **System Folder**, click on **Control Panel**. Then double-click on **Network**.) The system displays the Network Control Panel.

In the Network Control Panel, click on the **LocalTalk** icon. Then close the Control Panel.

1

Start TroubleShooter Diagnostics

Step 1.   Re-insert installer diskette.

The Installer does not copy TroubleShooter onto your hard disk. To run the diagnostics, put your copy of the Asanté distribution diskette into the disk drive.

Step 2.   Start TroubleShooter.

Double-click on the diskette's icon to open its directory window. Then double-click on the **TroubleShooter** icon to start the program.

TroubleShooter warns you to change your AppleTalk connection:

> ⚠ **Running Asanté TroubleShooter will reinitialize your Ethernet card. Before continuing please make sure that the LocalTalk Driver is chosen. (Go to the Apple Control Panels, double-click on the Network icon, then choose LocalTalk .**
>
> [Quit]   [OK]
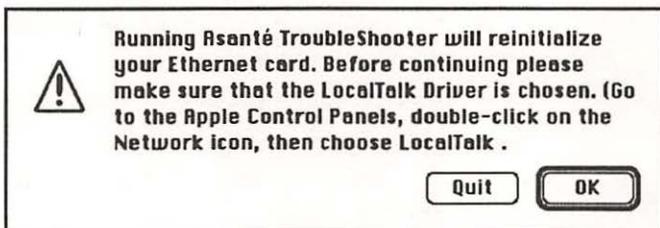
TroubleShooter Warning Box

If you need to make this change, click on the **Quit** button, make the change, and restart TroubleShooter. If you have already made this change, then click on the **OK** button to continue.

TroubleShooter displays its banner:

> **Asanté TroubleShooter 1.00, December 1991**
> **© Copyright 1991 Asanté Technologies, Inc.**
> **All Rights Reserved**
>
> **Asanté Technologies Inc.**
> **404 Tasman Drive**
> **Sunnyvale, CA 94089**
>
> **Phone: 408-752-8388**
> **Fax: 408-734-4864**
> **AppleLink: Asante**
>
> ASANTÉ   [OK]

TroubleShooter Banner

Click on the **OK** button to continue.

Step 3.   Running default tests.

TroubleShooter displays the main dialog box and shows that three tests are selected to be run:

- **Memory buffer test**

  This test writes to and reads from the packet buffer RAM to verify its addressability and operation.

- **Network interface controller test**

  This test writes to and reads from the controller register to verify its operation. It also issues a transmit command to verify the integrity of the network controller.

- **Ping pong test**

  This test transmits and receives special packets to verify communication with other Macintoshes on the network. (You need to have at least one other Macintosh running EtherTalk.)

```
┌─────────────────── Asanté TroubleShooter ───────────────────┐
│  ┌────────┐   ☒ Memory Buffer Test           ┌────────┐     │
│  │  TEST  │   ☒ Network Interface Controller Test │ REPEAT │ │
│  └────────┘   ☐ Loopback Test                └────────┘     │
│  ┌────────┐                                                 │
│  │  STOP  │                                                 │
│  └────────┘                                                 │
│  ┌────────┐   ☒ Ping-Pong Test                              │
│  │  HELP  │   ☐ Bandwidth Utilization                       │
│  └────────┘                                                 │
│  ┌────────┐   ┌─────────────────────────────────────────┐  │
│  │  QUIT  │   │                                         │  │
│  └────────┘   │                                         │  │
│               │                                         │  │
│   Asanté      │                                         │  │
│   ▛▜▛▜        │                                         │  │
│ TroubleShooter└─────────────────────────────────────────┘  │
└─────────────────────────────────────────────────────────────┘
```
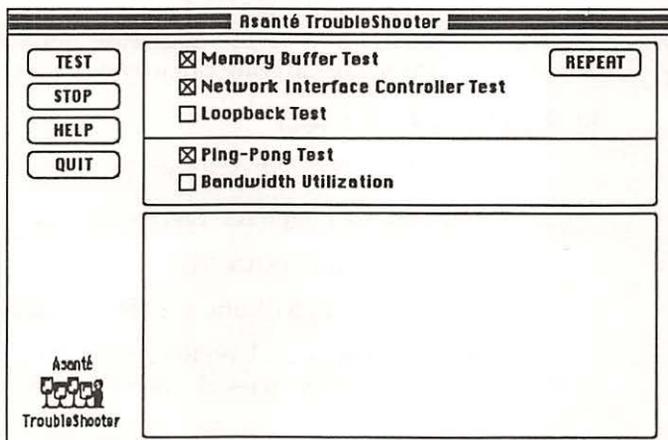
TroubleShooter Dialog Box

TroubleShooter executes these tests and displays the results as a message in the lower right portion of the TroubleShooter dialog box.

NOTE

*By clicking the mouse on the checkboxes of the five tests, you can select or de-select any test; you can select any one test or any combination of tests. Then click on the **TEST** button to start running the test(s) that you selected.*

If you select one of the first three tests (memory, NIC, or loop-back), then you can run the test repeatedly for any number of times by clicking on the REPEAT button. If you specify a large number of repetitions but want to stop the test sooner, click on the STOP button.

Other Tests

In the TroubleShooter dialog box there are other tests that you may select:

- **Loopback test**

  This test transmits and receives special packets to verify the operation of major components of the Ethernet interface circuitry: the network interface controller, the serial port interface and the thin port transceiver.

- **Bandwidth Utilization**

  This test makes your Ethernet interface listen to all traffic on the network, and calculates your system's utilization of the available network bandwidth (message-carrying capacity of the network).

To Run Loopback Test

Step 1.   Select loopback test

Click on the **Loopback Test** checkbox to select the test.

Step 2.   Start loopback test.

Click on the **TEST** button to start executing the test.

If first test fails, click on the REPEAT button. If any tests are successfully "passed" then the everything is operating properly.

IMPORTANT NOTE

We recommend that you do not disconnect physically from the network when you run the Loopback test. However, when you do run this test connected to the network it will probably cause at least some packet collisions that will cause the test to fail. When the test fails and you are connected to the network it does not indicate that the equipment is faulty, Only one successful test is needed to indicate that the product is operating properly .

4

To Run Bandwidth Utilization Test

Step 1.   Reconnect Ethernet cable.

Remove the loopback plug and reconnect the network cable to the Ethernet port on your Ethernet interface.

Step 2.   Select Bandwidth Utilization test.

Click on the **Bandwidth Utilization** checkbox to select the test.

Step 3.   Start Bandwidth Utilization test.

Click on the **TEST** button to start executing the test.

Step 4.   Stop Bandwidth Utilization test.

To stop executing this test, click on the **STOP** button or press any key on the keyboard.

Data is collected from the moment you click on the **TEST** button until the moment you click on the **STOP** button.

The result of the performance statistics is displayed in the TroubleShooter dialog box.

If a Test Fails...

If a test fails, TroubleShooter displays an error message in the main dialog box. The error message generally consists of three parts:

- The name of the diagnostic test
- "Failed"
- A possible reason why the test failed.

Check the connections from your Macintosh and the Ethernet cable, and repeat the tests.

If the test fails repeatedly, make a note of the error message, and quit the TroubleShooter diagnostics.

System Configuration Information

TroubleShooter provides configuration information about your Macintosh and your Ethernet interface. The most important of such information is your Ethernet node address – you no longer have to open your Macintosh in order to read the node address written on the Ethernet card.

5

The configuration information is available via two menu items in the TroubleShooter's File menu.

Get System Information

When you select this item in the File menu, TroubleShooter displays a summary of your Macintosh's hardware and software specifications:

- System software version number
- Machine type
- Memory size
- ROM version number

Get Adapter Information

When you select this item in the File menu, TroubleShooter displays a summary of your Ethernet interface hardware specifications:

- **Slot number** where the Ethernet interface card is installed in your Maciontosh (or **SCSI address** of the external EN/SC adapter if that is what you are using).

- **Ethernet node address** of your Ethernet interface.

- Packet buffer **RAM size** of your Ethernet interface.

- **Card type** of your Ethernet interface.

Quitting the TroubleShooter Diagnostics

Quit TroubleShooter

Click the mouse on the QUIT button in the TroubleShooter dialog box.

You can also pull down the Files menu and release the mouse on the **Quit** item.

Restart Network Services

Assuming that your system passed the diagnostics (of course!), you can resume using your Macintosh and reestablish network services as follows:

- Restart your Macintosh.

- Activate AppleTalk, EtherTalk and the network. Proceed as described under "Activating Network" in Section 4 of your Asanté installer manual.

6

- Mount the file server, which you unmounted in preparation for running TroubleShooter. Proceed as instructed in your network operating system manual.

- Publish (open) your volume, which you unpublished in preparation for running TroubleShooter. Proceed as instructed in your network operating system manual.

Asking for Assistance

If you are having trouble or if a test fails repeatedly, call your network administrator or Asanté Tech Support. Please have the following information ready before you call:

- Macintosh system configuration. This you get by selecting **Get System Information** in the TroubleShooter's File menu.

- Ethernet interface configuration. This you get by selecting **Get Adapter Information** in the TroubleShooter's File menu.

- The version numbers of the various EtherTalk software modules that you installed from your Asanté EtherTalk installer diskette. This you get by using **Get Info** in the Finder's File menu.

- The version numbers of the network system software modules that you have installed on your Macintosh. This you get by using **Get Info** in the Finder's File menu.

- Finally, look at what the status indicator LEDs on your Ethernet interface are doing.

The following are ways to contact Asanté to get help:

Telephone   (408) 752-8388

Fax   (408) 734-4864

AppleLink   Asante

and direct your inquiry to Tech Support.

Asanté Technologies, Inc.

404 Tasman Drive

Sunnyvale, CA 94089

(408) 752-8388

ADDENDUM
SNMP MacAgent

User's Guide

ADDENDUM
SNMP MacAgent

User's Guide

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This equipment is classified as a Class A computing device. Class A devices may be used only in commercial, business, or industrial environments.

This equipment generates, uses and can radiate radio frequency energy. If this equipment is not insulated properly in strict accordance with the instructions in this manual, then it may cause interference in this electronic environment. This equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against radio frequency interference when operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case, the user at his own risk and expense will be required to correct the interference in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case, the user at his own risk and expense will be required to correct the interference.

Asanté Warranty

Asanté Technologies, Inc. warrants that its Ethernet interface products will be free from defects in title, materials and manufacturing workmanship for a period of five (5) years from the date of purchase. If the Ethernet interface product is found to be defective, then, as your sole remedy and as the manufacturer's only obligation, Asanté Technologies, Inc. will repair or replace the product provided that (1) you call Asanté Technologies, Inc. for a Returned Merchandise Authorization (RMA) number, that (2) you clearly write this RMA number on the outside of the package, and that (3) you return it, postage prepaid, during the warranty period. This warranty is exclusive and is limited to Asanté Ethernet network interface products.

This warranty shall not apply to Asanté Ethernet interface products that have been subjected to abuse, misuse, abnormal electrical or environmental conditions, or any condition other than what can be considered normal use.

❖ **Note:** The warranty card must be filed with Asanté Technologies, Inc. within 30 days after date of purchase. ❖

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Table of Contents

Asking for assistance

Ways to contact Asanté Technical Support for help:

Telephone   (800) 622-7464

Fax   (408) 432-6018

Electronic mail

   Applelink mail   ASANTE.TECH

   Internet mail   support@asante.com

Technical Support Hours

6:00 AM to 5:00 PM Pacific Standard Time, Monday—Friday

Tell us what you think

There's always room for improvement and Asanté Technologies is always interested in your comments and suggestions about our product documentation. If you take the time to make suggestions, we will take the time to read and consider your suggestions for new documentation releases.

Please read through this User's Guide and think about these questions:

* What do you like best about this Guide?

* What do you think is the least valuable or weakest part of this Guide?

* What is the most needed improvement you would make to this Guide?

You can fax your comments and suggestions to:

Asanté Technologies
Attn: Technical Publications
(408) 432-1117
or E-mail them via the Internet to:

techpubs@asante.com

Asanté SNMP MacAgent

Introduction

The Asanté SNMP MacAgent is now included with your MacCon Installation diskette.

Asanté SNMP MacAgent System Support

The Asanté SNMP MacAgent is a system extension under System 7 and an init under System 6. It can be installed on any Macintosh on the network. Asanté's SNMP MacAgent works in conjunction with Apple's MacTCP software. Together they provide hardware and software information on the Macintosh to an Asanté network management station running AsantéView or a Generic network management console.

The MacCon Installation diskette has the following items.

❏ MacCon EtherTalk software
❏ Asanté SNMP MacAgent
❏ MacTCP

❖ **Note:** MacTCP is Apple Computer's TCP/IP software. It provides the transport mechanism for accessing the information provided by the Asanté SNMP MacAgent.❖

TCP/IP Protocol Stack

TCP/IP refers to a collection of network protocols that support host to host communication. The TCP/IP protocol family was developed by the Department of Defense and is an industry standard.

IP Addressing

If you are connected to or plan to connect to an IP network you must obtain an IP address. IP addresses identify individual nodes in an TCP/IP network. IP addresses can be officially assigned by the Internet committee for world-wide access over the Internet. Or, assigned by your network administrator for communication over a local TCP/IP network. It is the responsibility of the network administrator to assign IP addresses. Prior to installing SNMP MacAgent and MacTCP you must have an IP address.

Requirements for Workstation

❑ SNMP MacAgent
❑ MacTCP

Requirements for Network Management station

❑ AsantéView In-Band or
❑ Generic SNMP Management Console using Asanté SNMP MacAgent MIB

AsantéView Inband Network Management software

AsantéView is a powerful network management software package from Asanté that is used to manage Asanté intelligent Ethernet hubs and bridges. It allows network managers to monitor their Ethernet network through the use of the SNMP protocol.

It provides detailed information on Macintoshes which have Asanté's SNMP MacAgent installed as well as information about other SNMP devices on your network. The SNMP MacAgent can be accessed by AsantéView Inband network management software. The term Inband means that the network management packets travel over the same wire as all other network traffic.

Accessing Asanté MacAgent MIB

If you don't have AsantéView it is still possible to manage the SNMP MacAgent. You must obtain Asanté's SNMP MacAgent MIB. The Asanté SNMP MacAgent MIB is a text file available on Asanté's FTP server via the Internet.

The file can be obtained using "anonymous" FTP to:

ftp.asante.com the file is located in the **/pub** directory

Asanté SNMP MacAgent and the TCP/IP Protocol

The Asanté SNMP MacAgent resides on the Macintosh and is loaded into RAM at the time the Macintosh is turned on. The Asanté SNMP Agent uses the TCP/IP protocol, made available through use of Mac TCP, as a transport mechanism for the SNMP information.

When the Macintosh is polled by an AsantéView or Generic SNMP management console, the Asanté SNMP MacAgent forwards information about the Macintosh's network connection and other vital statistics.

SNMP MacAgent forwards four types of information about the station:

- Station Profile, including station hardware components, system and memory.

- Station Slot Table, identifying the network interface cards installed.

- Station Activity, transmission statistics for the network interface card.

- Station Applications, a listing of resident applications for software resource management.

- In addition, Asanté SNMP MacAgent alerts the network management system when the station restarts.

❖ Note: You can't receive Station Activity information if the station is not equipped with the Asanté EtherTalk driver. ❖

Asanté SNMP MacAgent as a network diagnostic tool

Asanté SNMP MacAgent allows the network manager to quickly and easily resolve problems on the network. It gives the network manager access to more and better information about the Macintosh configuration, operational statistics, and the applications residing on the Macintosh.

Workstation Installation and Configuration

SNMP MacAgent and MacTCP

1 Quit any applications running on your Macintosh.

2 Insert the installation diskette into your Macintosh. Double-click Installation disk and Asanté EtherTalk Installer window is displayed.

3 Double-click Installer icon.

4 An "About" screen is displayed. Click OK.

5 The Easy Install dialog box appears.

6 To install both SNMP MacAgent and MacTCP version 1.1.1, click **Customize**.

7 Select the SNMP MacAgent for the appropriate operating system.

❖ **Note:** MacTCP is bundled with SNMP MacAgent and is automatically installed when the SNMP MacAgent is installed.❖

8 Click Install.

9 Restart.

Click the items you want to select;
Shift-click to select multiple items.

SNMP MacAgent for system 6	
SNMP MacAgent for system 7	
EtherTalk + NuBus/PDS software	
EtherTalk + MacCon LCII software	
EtherTalk + EN/SC Software	
EtherTalk + Mac SE PDS software	

SNMP MacAgent for system 7
Size: 222K
Date: Thu, Jun 10, 1993
Version: 2.1
This installs MacTCP version 1.1.1 and Asanté SNMP
MacAgent for system 7.

Install

⊂ Tara

Eject Disk

Switch Disk

Easy Install

Quit

Figure 1 Customize Install Dialog Box

MacTCP Configuration

1 Select Control Panels from the Apple menu.

2 Double-click the MacTCP icon to open MacTCP control panel.

❖ **Note:** To configure MacTCP, see the MacTCP Administrator's Guide, version 1.1.1, Chapter 6, "Configuration". This guide is included with AsantéView documentation or is available through your Macintosh dealer.❖

3 Double-click on More... and select Manually. This allows you to manually type in your assigned IP address.
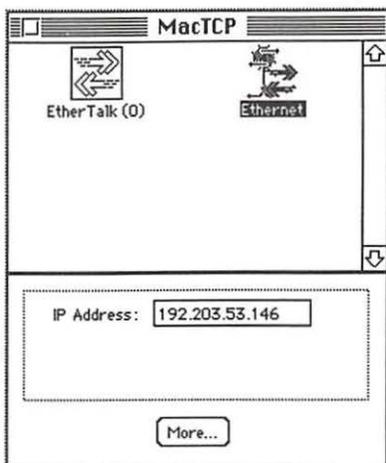
Figure 2 MacTCP Configuration Screen

❖ **Note**: If you have any questions about your MacTCP or SNMP configuration contact your network administrator. It is important that the network administrator be aware of any changes to the IP network.❖

SNMP MacAgent Configuration

1 Select Control Panels from the Apple menu.

2 Double-click the SNMP MacAgent control panel.

3 Enter the configuration parameters to allow the worksta-tion to be accessed by the Asanté network management sta-tion.

4 Restart.

Figure 3 Asanté SNMP MacAgent Configuration Screen

Asanté SNMP Configuration Parameters

System Contact

The person who should be contacted regarding this work-station.

System Location

The physical location of the workstation.

System Name

A local alias describing this station.

Read-community

Enter **public (default).** This allows the Asanté network management station to query SNMP MacAgent and get information about the station.

Write-community.

Enter **private** (default). This allows the Asanté network management station to query SNMP MacAgent remotely.

❖ **Note:** The defaults for Read-community and Write-community should be used unless you are notified by your network administrator. ❖

Trap-community (Trap the SNMP term for alarm or alert)

Enter **public.** Public is usually the default for the SNMP configuration. However, if there is any question, please contact your network administrator. SNMP MacAgent sends traps to the Asanté network management station for two events: cold start (station restart) and authentication violation.

Trap IP Address

The IP address to which the workstation sends traps. This is usually the IP address of the Asanté management station.

Authentication Trap (On/Off)

This is ON by default. This station sends a trap to the Asanté management station if accessed by a Asanté management station with the wrong read or write community string.

SNMP Agent (On/Off)

This is also ON by default. If SNMP Agent is OFF, the agent does not send information to the Asanté management station.

AsantéView Network Management Station

The Asanté network management station should be running Asanté-View or a Generic SNMP Management Console. Figure 1-4 shows a network map that was generated by AsantéView network management software.
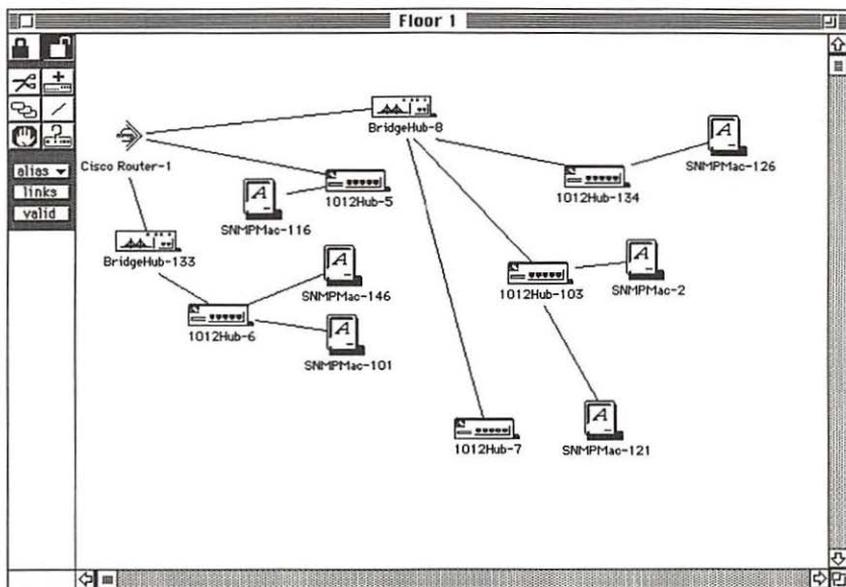
Figure 4 AsantéView Sample Network Map

A Macintosh displayed with an "A" on the map indicates that the Asanté SNMP MacAgent is installed.

If a Macintosh has Asanté's SNMP MacAgent installed, the Asanté network management station running AsantéView displays the following information.

❑ General Information about the Macintosh with Asanté SNMP MacAgent installed

❑ Slot Configuration of Macintosh

❑ Statistics

❑ Applications installed on Macintosh

```
≡□≣════════════ Information ═════════════回≣
   Name: SNMPMac-146
 IP address: 145.24.12.3
   Opened: 6/10/93 10:07:44 AM
              Description                         ⇧
 Machine type     Unknown machine type
 CPU type         MC 68040
 FPU type         UnKnown FPU type
 MMU type         MC 68040 MMU
 Keyboard type    Extended ADB Keyboard
 Address mode
 ROM size         1048576
 RAM size         25165824
 Virtual memory size  0
 System revision  7.1.0
 ROM revision     6.7.C
 QDraw revision   2.3.0                           ⇩

 System Messages...                  refresh
                              ⇧
                              ≡      logdata
                              ⇩
```

Figure 5 Station Information on SNMP MacAgent Macintosh

```
╔══════════════════ Applications ══════════════════╗
        Name:  SNMPMac-146              Samples: 31
   IP address: 145.24.12.3
      Opened:  6/10/93 10:12:36 AM
╠═══════════════════════════════════════════════════╣
 Application                    Revision
 AppleTalk                       58                    ⬆
 AppleShare                      7.1.0                 ▤
 MacTcp                          1.1.1
 Macintosh Basics                3.1.0
 FrameMaker                      3.0.0
 MarkUp 2.0.1                    2.0.1
 Microsoft Word                  5.0.0
 Adobe Separator 3.0.5           3.0.5
 DrawOver™ 3.0                   3.0.0
 Equation Editor                 1.0.0
 DateBook™ Tools                 1.0.1
 After Dark Updater              1.0.0
 QM Forms™                       2.0.0                 ⬇
╠═══════════════════════════════════════════════════╣
   System Messages...
                                  ⬆        refresh
                                  ▤        logdata
                                  ▓
                                  ⬇
╚═══════════════════════════════════════════════════╝
```
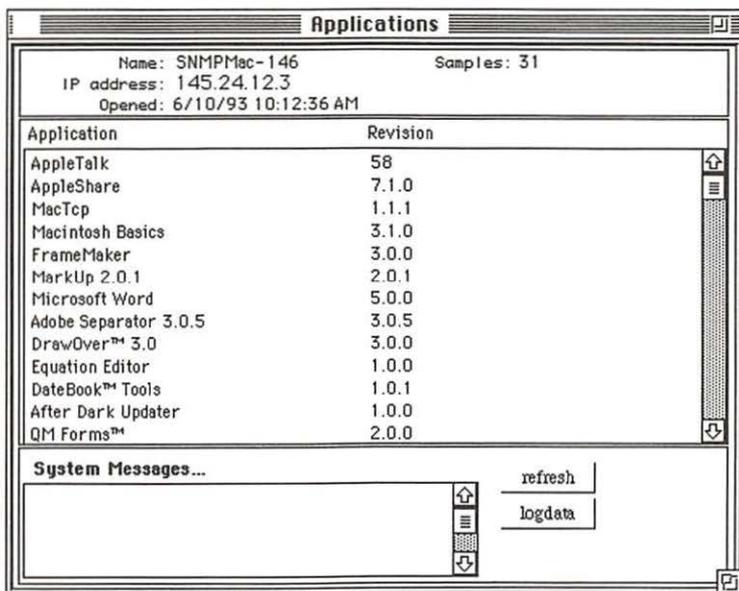
Figure 6 Applications resident on SNMP MacAgent Macintosh

Other Network Management Software

If you are using network management software other than Asanté-View for example, HP OpenView or SunNet Manager use the Asanté MacAgent MIB and follow directions for loading and browsing a MIB file in your network management software documentation.

❖ **Note:** The SNMP MacAgent MIB is available by accessing Asanté's FTP server over the Internet (see page 3).❖

◢◣ASANTÉ
EN/SC and Mini EN/SC Family
RELEASE NOTES

Thank you for purchasing an Asanté Ethernet product!

This document includes important updated information not yet described in our manual. Please read the READ ME FIRST file on the EtherTalk Installer diskette. It contains information on the latest version of the Asanté EtherTalk Installer software, software release notes and how to contact Asanté should you experience any problems.

About Asanté EN/SC Family Ethernet Adapters

	Thick	Thin	10BaseT	SCSI Termination
Mini EN/SC		•	•	User selectable
Mini EN/SC-10T			•	User selectable
EN/SC	•	•	•	Automatic
EN/SC PB	•	•	•	Internal
EN/SC-10T			•	Automatic
EN/SC-10T PB			•	Internal

Asanté's EN/SC family of Ethernet adapters are compatible with:
- Apple Macintosh System Software 6.0.7 and above
- All Macintosh PowerBooks, including the Duo Docking Station and Duo MiniDock
- Macintosh Plus, Classic, Classic II Color Classic, LC, LCII, LCIII, SE, SE/30, II, IIx, IIcx, IIsi, IIci, IIvx, IIvi, Centris 610, Centris 650, Performa 200, 400 Series, 600 computers

Release Notes

1. When connecting EN/SC and Mini EN/SC adapters with other SCSI devices, remember to pay attention to the rules for SCSI termination as outlined in Asanté's or Apple's installation manual. Some SCSI devices may have different SCSI configuration requirements for termination. For example, some devices are internally terminated while others require an external termination block.

2. Updated Mini EN/SC can use power adapters rated at **12VAC** or **12VDC** output. Updated Mini EN/SCs bottom label will have the power requirements outlined in a box which reads, "Power Input: 12VAC/DC @800mA." Only use the adapter that ships with the unit.

   EN/SC and Mini EN/SC manuals corrections on page A-1 should read, "12VAC/DC@ 800mA" for the Mini EN/SC. Page 2-15 in the manual should read, "Note: Please use the power adapter that is shipped with the product."

3. Asanté EN/SC and Mini EN/SC adapters are **not compatible** with Apple's Quadra Series and Macintosh IIfx.

4. EN/SCs are shipped with the correct SCSI termination and cables for specific models of Macintosh. The EN/SC and EN/SC-10T are solutions for desktop Macintoshes and the EN/SC PB, EN/SC-10T PB are solutions for Powerbooks. The Mini EN/SC can be used with either desktop Macintoshes or PowerBooks.

(more)

Release Notes (continued)

5. You must install Asanté's EN/SC driver software from the Asanté EtherTalk Installer disk. Apple's EtherTalk card driver software (Apple Network Installer 1.3 and Apple System Software disks) is not compatible with the EN/SC.

Asanté EtherTalk Installer Diskette

The Asanté EN/SC Family contains new Asanté network software. If your network contains more than one Asanté Macintosh Ethernet adapter, we recommend that you install the updated software on all appropriate computers with Asanté network adapters. Detailed instructions are on the READ ME FIRST file on the diskette for software installation.

Mail Us Your Registration for 5-year Warranty

Please mail in your product registration card to receive free technical support. All Asanté network adapters are backed by a 5-year warranty. By returning your registration card you will also receive new information on updates and new products.

Package Contents of EN/SC Family Products

- Asanté EN/SC Family Ethernet adapter
- BNC T-connector (EN/SC, EN/SC PB, Mini EN/SC only)
- DB-25 to DB-25 desktop SCSI cable (EN/SC, EN/SC-10T only)
- DB-25 to HDI-30 PowerBook SCSI cable (EN/SC PB versions only)
- DB-25/DB-25-to-DB-25 desktop SCSI cable (Mini EN/SC only)
- DB-25/DB-25-to-HDI-30 PowerBook SCSI cable (Mini EN/SC only)

- Asanté EtherTalk Installer diskette
- Power adapter
- Unshielded twisted-pair cable
- Asanté EN/SC manual
- Registration card

If any of the above items are missing, please call Asanté RMA Department at 800-622-7464.