
Meridian Administration Tools

MAT Installation and Upgrades

User Guide

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Introduction

This Installation and Upgrades User Guide contains

- Procedures for installing MAT 6 for the first time and upgrading MAT 6.
- Detailed instructions on how to prepare for MAT 6 installation
- Installation scenarios specific to upgrading from MAT 4 or MAT 5 to MAT 6
- The MAT software CD includes documentation in PDF format.

Conventions used in this guide

This guide uses the following typographical conventions:

- User input—**This font** alerts you to information that you enter on your keyboard; or, using your mouse, this font indicates buttons to click or menu selections to make.
- Multi-lettered keys—Angle brackets denote a single multi-lettered key on your keyboard. For example, **<Esc>** denotes the Escape key, labeled *Esc* on PC keyboards.
- Key sequences—Keys that you press at the same time include at least one multi-lettered key and are not separated by spaces in text. For example, **<Alt>V** instructs you to press the **<Alt>** and **V** keys at the same time.
- Hot keys—You can access menu commands by using the mouse or your keyboard. Menu items show one letter as underlined. To choose a menu item from the keyboard, hold down the **<Alt>** key and press the underlined key. For example, press **<Alt>F** to open the **File** menu.
- *Windows* refers to Microsoft Windows™ 95, Windows™ 98, and Windows™ NT Workstation V4.0.

Setting Up Your MAT Environment

This section provides instructions for setting up your PC, network, and Meridian 1 environment for MAT 6.6 or later installation. Use these instructions for each PC on which you plan to install MAT 6.6 or later, if any of these situations applies:

- You are installing MAT for the first time.
- You are upgrading from MAT 4.
- You are changing the Windows operating system.

Note: If you are upgrading from MAT 5 to MAT 6, or from MAT 6.0 to MAT 6.6 or later, and plan to stay on Windows 95, skip this section.

Note: If you are installing or upgrading to MAT 6.6 or later, MAT user documentation can now be installed to your PC with the MAT software installation. If you do not want to install the documentation, you may view it on this CD. Adobe Acrobat Reader version 3.01 or later is required.

Step 1: Preparing a network plan

If you have an Ethernet network, follow these instructions to prepare a network plan. A network plan helps you to visualize the network layout and to prepare all required hardware for the installation. A well-prepared network plan will save you hours of effort during installation.

- 1 Ask the network administrator for IP addresses for the Meridian 1 and MAT PC.

Important: Nortel Networks recommends that you put the Meridian 1 on its own subnet to shield it from network broadcast messages. The Meridian 1 will initialize if it receives excessive broadcast messages.

Note: Nortel Networks recommends that you use 10BaseT hardware if you use Meridian Mail, or if you plan to upgrade to future Meridian products.

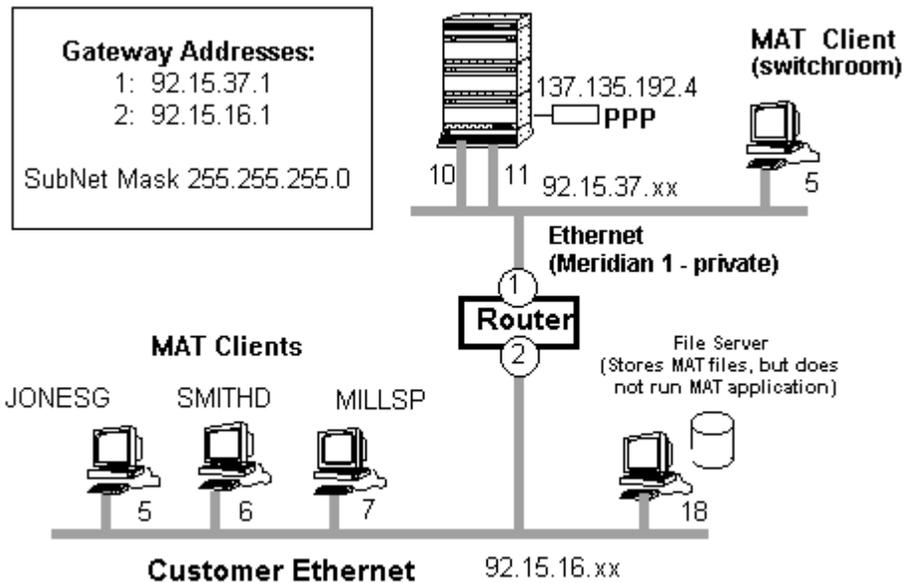
- 2 Assign an IP address to each device on the network (each IOP, MAT PC, gateway, file server, and so on).

You can use the default Meridian 1 IP address values if you do not plan to connect the Meridian 1 network to any other network.

- 3 Draw a network plan like that shown in Figure 1.

Note: Unless otherwise specified, all IP addresses are only examples.

Figure 1
Example Ethernet Network Plan



Step 2: Checking Meridian 1 requirements

- 1 Verify that the Meridian 1 system has the following system configuration:
 - The appropriate X11 release, configured with the appropriate packages as specified in “Meridian 1 Communications Requirements” on page 85
 - 48MB or greater of memory on the Meridian 1
 - For Ethernet communications and Release 22 or Release 23:
 - IOP cards (Part number NT6D63BA or later),
IOP/CMDU cards (Part number NT5D20BA or later)—not applicable to Option 11C systems, Release 22, or IODU/C cards (Part number NT5D61AB or later)
 - One or two Ethernet AUI cables (Part number NT7D90DA or later). You will attach one cable to each IOP, IOP/CMDU, or IODU/C.
 - For Option 11C, an NTDK27AA Ethernet cable

2 For Ethernet networks, you will need the following:

- One or two Ethernet transceivers (different types for 10BaseT and 10Base2 cabling)—attach one transceiver to each AUI cable
 - Ethernet communications cable: 10BaseT cabling requires Category 5 cable with RJ45 connectors

Note: Although normal phone cable and Category 5 cable are similar in appearance, phone cable is not acceptable for network applications.
 - 10Base2 cabling requires RG58 cable with BNC connectors.

Note: Although normal television video coaxial cable and RG58 cable are similar in appearance, video coaxial cable is not acceptable for network applications.
- If you are using the 10BaseT interface, an Ethernet hub is required.

Warning! If you plan to connect the Meridian 1 switch to a corporate network, an Ethernet gateway or router is required to separate the Meridian 1 from the corporate network. Connecting the Meridian 1 without a gateway or router will adversely affect the Meridian 1 system's call handling ability.

3 For PPP networks, you will need the following:

- Hayes command compatible modem
- modem cables
- M1 SDI ports will require user type MTC and SCH be set in LD17

- 4 For **serial communications**, you will need the following:
- Hayes command compatible modem only for remote dial-up
 - Modem cables
 - Direct serial cable connection between the PC and the SDI port on the switch
 - M1 SDI ports will require the appropriate user type be set in LD17 for each MAT application (see Table 1)

Table 1
SDI Port settings for MAT applications

MAT Application	SDI Port Setting
Station Administration	SCH
ESN	SCH
Call Accounting	CTY
Traffic Analysis	TRF if information is output to a buffer box SCH if information is collected hourly from the Meridian 1 switch

- 5 Configure MAT users on the Meridian 1:

User input is shown in bold following the “>” prompt. For example, > **LD 17**.

- Install the appropriate release (minimum is Release 22) of X11 software.
- Perform an INIT.
- Configure LAPW. MAT communicates with the Meridian 1 through LAPW IDs and passwords configured on the Meridian 1.

>logi (ID) (enter the login ID)

Note: When a Limited Access Password (LAPW) is defined to collect traffic data from Overlay 2, configure the password to have access to all customers by setting the CUST prompt to ALL. For more information about Limited Access to Overlays, see the X11 Software Features Guide.

PASS?> (enter the level 1 or level 2 password)

WARNING: THE PROGRAMS AND DATA STORED ON THIS SYSTEM ARE LICENSED TO OR ARE THE PROPERTY OF NT/BNR AND ARE LAWFULLY AVAILABLE ONLY TO AUTHORIZED USERS FOR APPROVED PURPOSES. UNAUTHORIZED ACCESS TO ANY PROGRAM OR DATA ON SYSTEM IS NOT PERMITTED. THIS SYSTEM MAY BE MONITORED AT ANY TIME FOR OPERATIONAL REASONS. THEREFORE, IF YOU ARE NOT AN AUTHORIZED USER, DO NOT ATTEMPT TO LOGIN.

TTY #00 LOGGED IN 15:02 9/7/1996

Note: The following section is only required if login names are not configured.

>ld 17

CFN000

MEM AVAIL: (U/P): 3352174 USED: 203153 TOT:
3555327

DISK RECS AVAIL: 2764

DCH AVAIL: 15 USED: 1 TOT: 16

AML AVAIL: 10 USED: 0 TOT: 10

REQ> **chg**

TYPE> **pwd**

PWD2 (**your level 2 password**)

LNAME_OPTION> **yes**

MEM AVAIL: (U/P): 3352174 USED: 203153 TOT:
3555327

DISK RECS AVAIL: 2764

DCH AVAIL: 15 USED: 1 TOT: 16

AML AVAIL: 10 USED: 0 TOT: 10

DEFAULT LOGIN NAMES SAVED

Note: At this point, your old passwords will work with either the newly assigned user IDs or with the default user ID values associated with your old passwords. See the online help for LD17, LNAME_OPTION for more information. Please alert others of any changes; for example, all technicians with access to the Meridian 1, the Distributor, and so on.

Continue configuring LAPW and MAT:

```
REQ> chg
TYPE> pwd
PWD2 (your level 2 password)
LNAME_OPTION> yes
NPW1
LOGIN_NAME
NPW2
LOGIN_NAME
LAPW> 88 (example)
PWTP
PW88
```

Note: You will be prompted to enter your new password.

```
LOGIN_NAME> johns (example)
OVLA> all
OVLA
CUST> all
CUST
HOST
MAT> yes
MAT_READ_ONLY> no
OPT
LAPW
FLTH

LOCK
AUDT
INIT
```

```
MEM AVAIL: (U/P): 3352149      USED: 203178      TOT:
3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15      USED:       1      TOT:       16
AML  AVAIL:    10      USED:       0      TOT:       10
REQ> end
```

Note: If you are using serial connections, skip this step.

If you are using Ethernet or PPP connections, configure a PTY for each MAT application that will run simultaneously with other applications over Ethernet or PPP.

For example, Maintenance Windows and System Terminal each require a PTY if they run at the same time. If you have enough free ports, Nortel Networks recommends that you configure at least two PTYs. You can allocate a maximum of 8 PTYs (maximum of 4 PTYs on an Option 11C).

Find an empty TTY slot:

```
>ld 22
PT2000

REQ> prt
TYPE> adan tty

ADAN      TTY 0
  CTYP PTY
  DNUM 0
  PORT 0
  DES pty0
  FLOW NO
  USER SCH
  XSM NO
  TTYLOG      0
PORT 7
  DES jonspty
  FLOW NO
  USER MTC SCH BUG
  XSM NO
  TTYLOG      0
  BANR YES
```

ADAN TTY 8
CTYP SDI2
DNUM 8
DES TECHSUN
FLOW NO
USER MTC SCH CTY BUG
XSM NO
TTYLOG 0
BANR YES

...

REQ> ****

OVL000

>ld 17

CFN000

MEM AVAIL: (U/P): 3352149 USED: 203178 TOT:
3555327

DISK RECS AVAIL: 2764

DCH AVAIL: 15 USED: 1 TOT: 16

AML AVAIL: 10 USED: 0 TOT: 10

Choose an empty port number between 0-15. Choose a PTY number 0-7. In this example, we find TTY 13 to be free, and assign PTY 0.

```
REQ> chg
TYPE> adan
ADAN> new tty 13
TTY-TYPE> pty
PORT> 0
DES> 13
DES> new pty
FLOW
USER> mtc bug sch
TTYLOG
BANR
```

```
MEM AVAIL: (U/P): 3345946      USED: 209381      TOT:
3555327
```

```
DISK RECS AVAIL: 2764
```

```
DCH  AVAIL:    15      USED:    1      TOT:    16
```

```
AML  AVAIL:    10      USED:    0      TOT:    10
```

```
ADAN DATA SAVED
```

```
ADAN> end
```

6 Configure ethernet and PPP at the Meridian 1:

The host names and IP addresses used in the following instructions are only examples. *Actual host names and IP addresses should conform to your network plan.*

- In LD 117, configure an IP address at the Meridian 1.

```
>LD 117
>NEW HOST M1ACTIVEIP 47.1.1.10
>CHG ELNK ACTIVE M1ACTIVEIP
```

- If you are using a backup (inactive) IOP, use LD 117 to configure it as well. This step does not apply to Option 11C Compact.
- The backup (inactive) IP is only used when switch is in split mode.

```
>NEW HOST M1INACTIVEIP 47.1.1.11
>CHG ELNK INACTIVE M1INACTIVEIP
```

- Configure the subnet mask.

```
>CHG MASK 255.255.255.0
```

- If you have a default gateway in the network, define the routing table in LD 117.

```
>LD 117
>NEW ROUTE 0.0.0.0 47.1.1.250
>PRT ROUTE (list the configured routing table)
>ENL ROUTE # (where # is the route number)
```

The first four digits define the network address. The remaining digits specify the gateway address.

If desired, you can print all information about route, host, gateway and related settings.

The routing table provides the Meridian 1 with the IP address of the gateway server so the Meridian 1 can send return messages to the gateway for forwarding to the requesting client.

You can use PRT ROUTE for a list of routes with route numbers.

You can use STAT ROUTE to see if route was successfully enabled.

- If you are using PPP, use the default addresses unless there is an address conflict. If a conflict exists, obtain a new IP address from your network administrator and configure this address.

```
>LD 117
>NEW HOST PPPLOCAL 47.0.0.2
>CHG PPP LOCAL PPPLOCAL 1
```

>LD 117

>NEW HOST PPPREMOTE 47.0.0.3

>CHG PPP REMOTE PPPREMOTE 1

- After you do a series of NEW, OUT, CHG commands, type

>UPDATE DBS

to clean up the database before you get out of LD 117.

>LD 137 (*Note:* overlay 137 prompt is “.”)

.DIS ELNK (disables network)

.ENL ELNK (enable Ethernet interface)

.STAT ELNK (verify IP address)

If the **STAT ELNK** command displays the correct IP address, your IP address configuration is done. Otherwise, you will need to INIT the Meridian 1.

Step 3: Checking PC hardware and software

Each PC on which you install MAT 6 must have the required hardware and software.

Note: Not all versions of MAT are supported on all versions of Windows. See “MAT / Windows Compatibility Table” on page 83 for compatibility information.

1 Verify the hardware configuration of your PC. Minimum requirements include the following:

- Intel Pentium™ 100 MHz or faster CPU
- 32 MB memory for Windows 95 or Windows 98; 64 MB for Windows NT Workstation 4.0

(Additional memory may be required to run other Nortel Networks management software. Refer to the appropriate software user guides for additional requirements.)

- 3.5 inch, 1.44 MB diskette (floppy) drive
- CD-ROM drive
- 1 GB hard disk with 500 MB of free space
- SVGA graphics monitor with interface card
- Windows-compatible mouse
- Network communications hardware, as follows:
 - For Ethernet communications, an Ethernet Network Interface card (NIC), plus an Ethernet transceiver (if required for the NIC) that matches your cabling and network type
 - For serial or PPP communications, a Hayes-compatible modem and a serial port using 16550 UART technology
- Parallel port that is configured for a printer. This is required, even if you do not have a printer connected.
- Hardware security dongle (provided by Nortel Networks) attached to the parallel port

- 2 Verify Windows software for your PC. The PC must be running Windows 95, Windows 98, or Windows NT Workstation 4.0.

Note: Do not run MAT directly from the Windows NT server.

Note: Use the Windows NT server to store common data.

Note: If you use Windows NT Workstation 4.00.1381 and MAT 6, obtain Microsoft's latest Service Pack (at least Service Pack 3).

You can determine whether you have a Service Pack installed by viewing the operating system version during boot, or by clicking on **Explorer** from the **Programs** menu, then access the **Help** menu and select **About Windows NT**.

Step 4: Setting up Windows networking for MAT

Follow the appropriate instructions for Windows 95/Windows 98 or Windows NT Workstation 4.0. Find the instructions for Windows NT Workstation 4.0 on page 39.

For Windows 95 and Windows 98

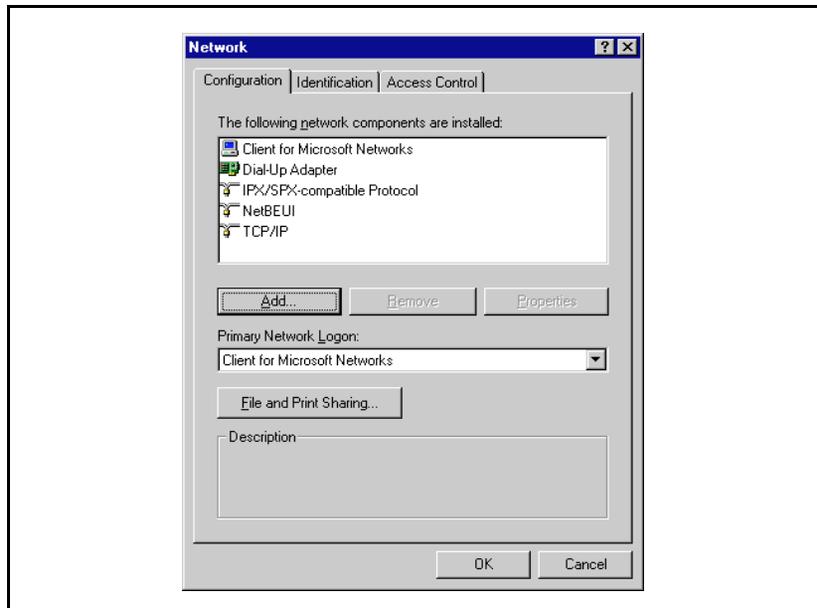
Install and configure the following networking software components which are required for MAT to run successfully.

1 Open the Network icon in the Control Panel window. Check that the following components are installed:

- Client for Microsoft Networks
- Dial-Up Adapter
- TCP/IP

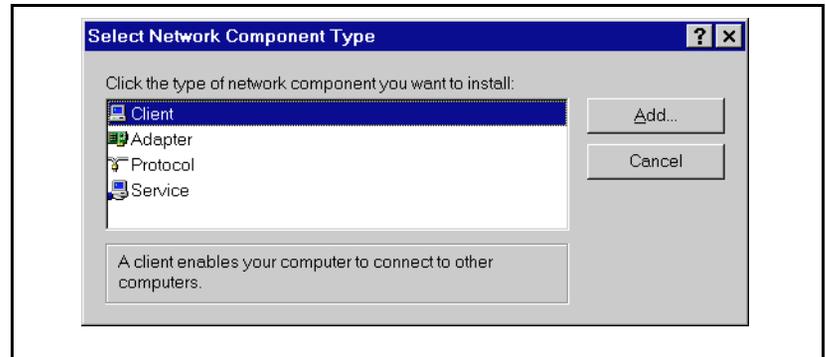
Note: If Dial-Up Adapter or TCP/IP are currently installed, they will be associated with an interface card.

Figure 2
Network property sheet



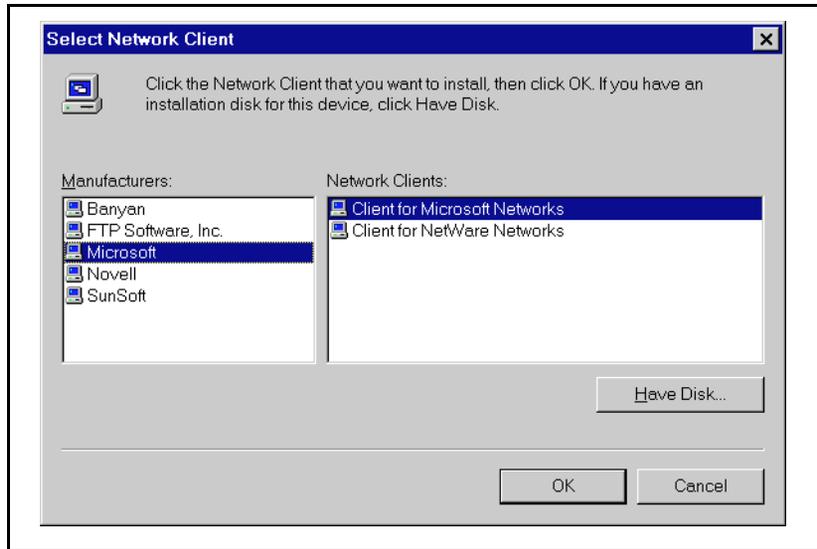
- 2 If you are missing any of these components, use the instructions on the following pages to install and configure them.
- 3 Install and configure “Client for Microsoft Networks” component.
 - In the Networks window, click **Add** to display the Select Network Component Type dialog box.

Figure 3
Select Network Component Type dialog box



- In the Select Network Component Type dialog box, click **Client** and click **Add** to display the Select Network Client dialog box.

Figure 4
Select Network Client dialog box



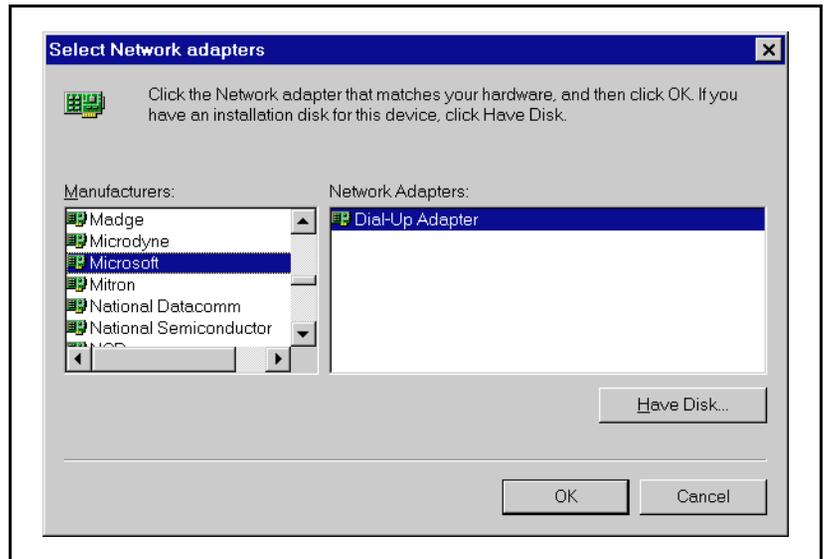
- Click **Microsoft** from the Manufacturers list
- Click **Client for Microsoft Networks** from the Network Clients list
- Click **OK**

4 Install Dial-Up Adapter software.

Note: If you are prompted about a modem, indicate that a modem is present, even if you are using Ethernet, which does not need a modem.

- From the Network window in the Control Panel, click **Add** to display the Select Network Component Type dialog box.
- Click **Adapter** and click **Add** to display the Select Network Adapters dialog box.

Figure 5
Select Network Adapters dialog box

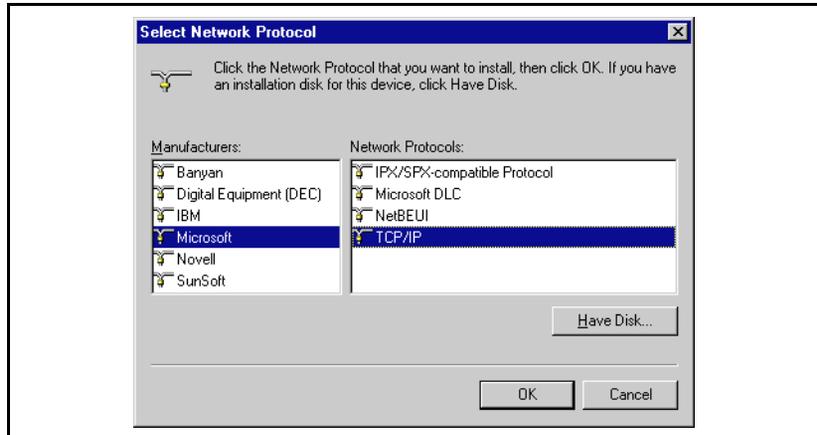


- Click **Microsoft** from the Manufacturers list
- Click **Dial-Up Adapter** from the Network Adapters list
- Click **OK** to return to the Network property sheet

- 5 Install TCP/IP software.
 - From the Network window in the Control Panel, click **Add** to display the Select Network Component Type window.

Note: Select **Protocol** and click **Add** to display the Select Network Protocol window.

Figure 6
Select Network Protocol dialog box



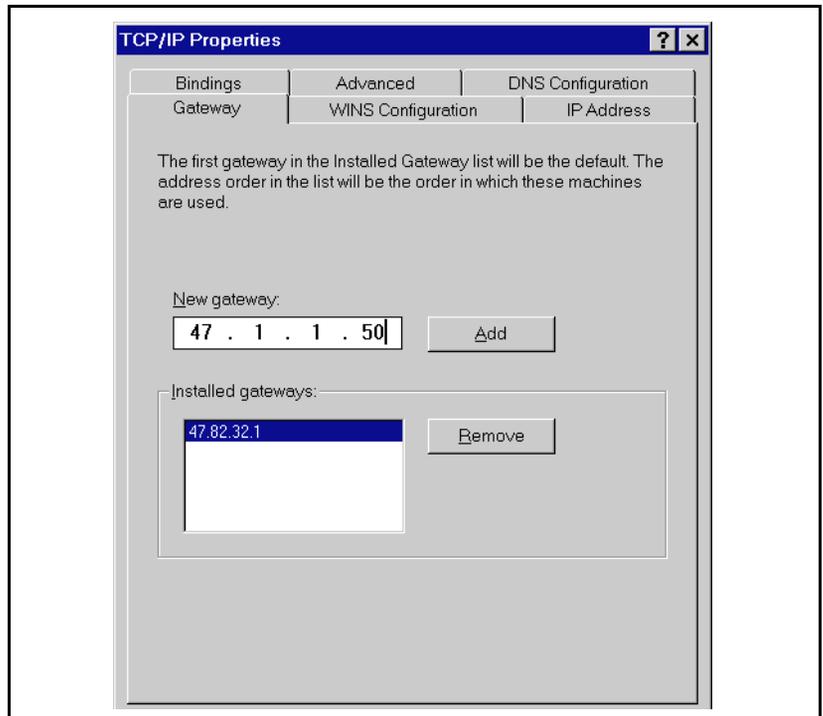
- Click **Microsoft** in the Manufacturers list
- Click **TCP/IP** in the Network Protocols list (see Figure 6).
- Click **OK**.

Note: When you click OK, you may be asked to install Windows 95 or Windows 98 installation diskettes. If the DHCP client dialog box displays, click **No**. Then restart the PC and logon to the server if you require network access. When you have finished installing and/or configuring the missing components, and are in the Network window, click **OK** (if you click Cancel, your changes will be lost).

- 6 Open the Network icon from the Windows Control Panel window.
- 7 Select the TCP/IP configuration used for the Ethernet connection, and click **Properties**.

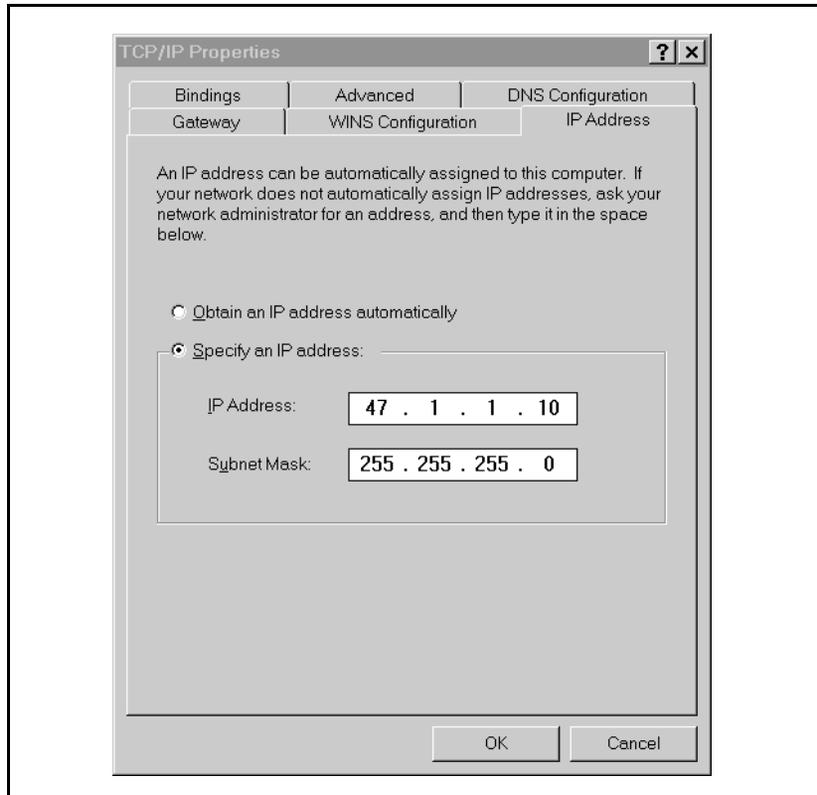
- 8 If you have a router, do the following:
- Click the **Gateway** tab.
 - Enter the gateway IP address obtained from your network administrator, if not already entered (47.1.1.50 in our example).
 - Click **Add**.

Figure 7
TCP/IP property sheet, Gateway tab



- 9 If not using DHCP, click the **IP Address** tab and fill in the following information, if not already entered:
- Check the Specify an IP Address box.
 - Enter the IP address (47.1.1.10 in our example on page 26).
 - Enter the subnet mask (255.255.255.0 in our example page 26).

Figure 8
TCP/IP property sheet, IP Address tab

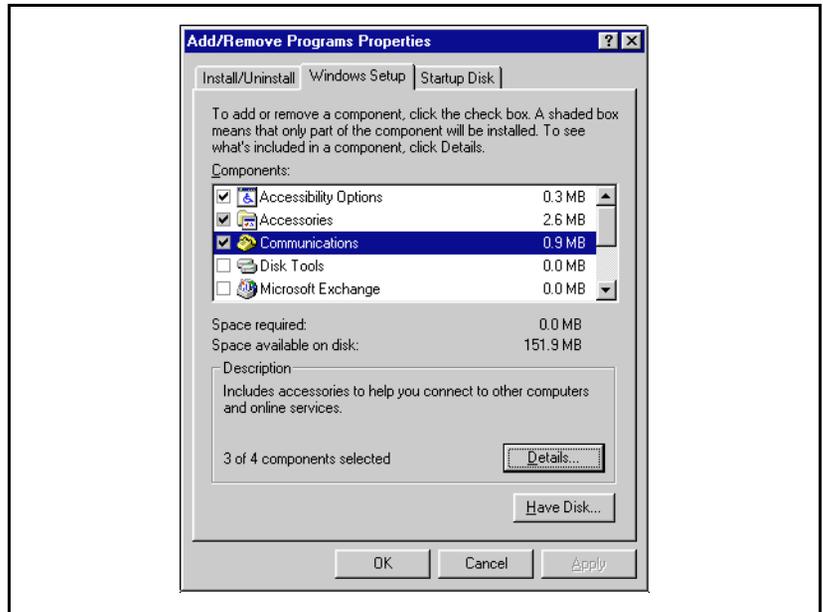


- 10 Click **OK**.
- 11 Click **OK** again.

Note: If you need to install Dial-Up Networking, then do not restart the PC at this time.

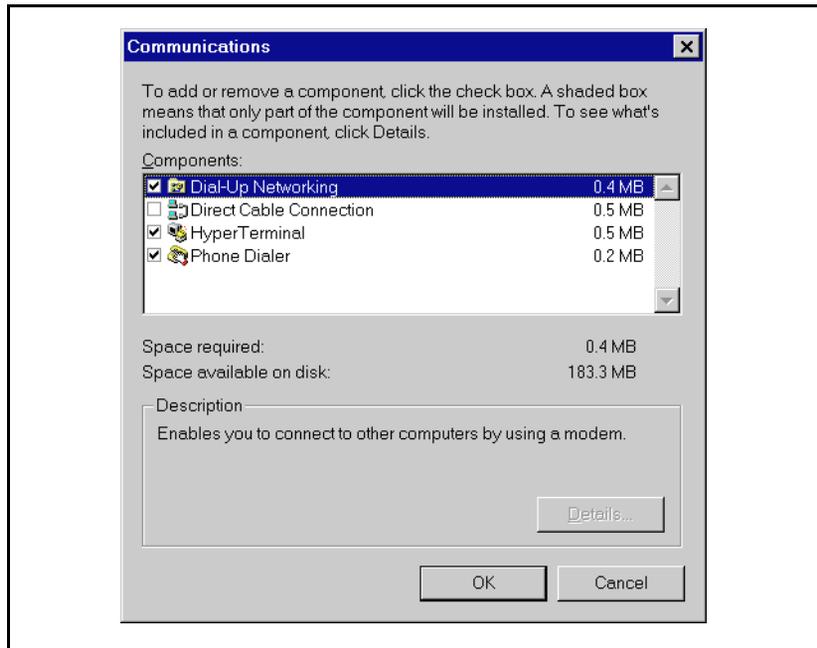
- 12 Activate the network components:
- Open the Add/Remove Programs icon in the Control Panel.
 - Click the **Windows Setup** tab.
 - Check the Communications Checkbox (Figure 9).
 - Double-click on Communications.

Figure 9
Add/Remove Programs property sheet, Windows Setup tab



- In the Communications window, make sure that Dial-Up Networking is checked (enabled), then click **OK**.

Figure 10
Add/Remove Programs property sheet, Windows Setup tab,
Communications components



- In the Add/Remove Programs Properties window, click **OK** to complete the installation
- Restart the PC

For Windows NT Workstation 4.0

Install and configure the following networking software components which are required for MAT to run successfully:

1 Open the Network icon in the Control Panel. Check that the following two components are installed:

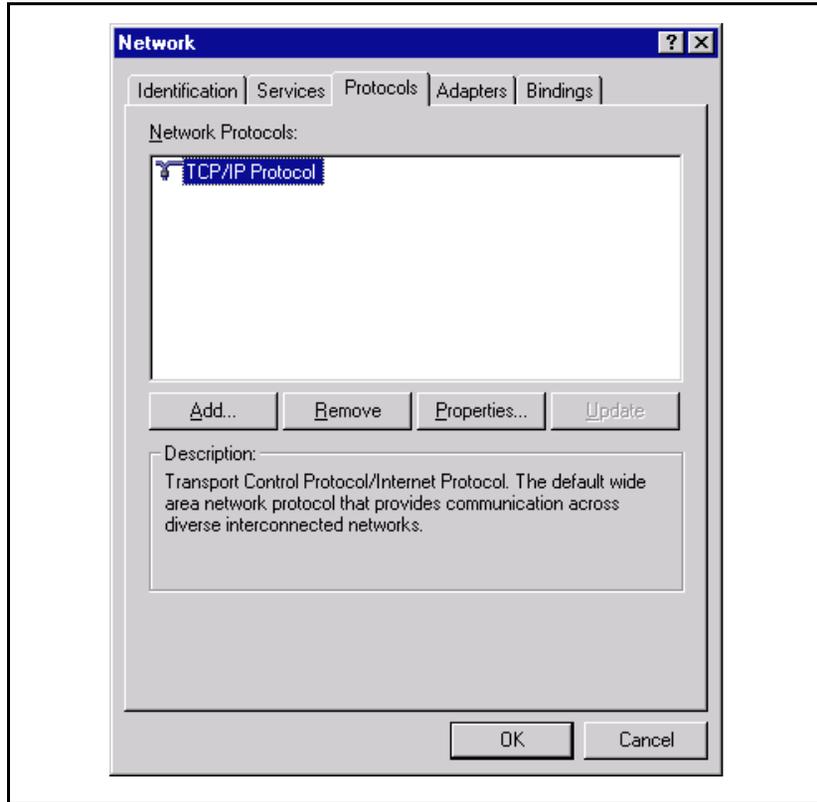
- TCP/IP (See “Network Protocols Tab” on page 40.)
- Remote Access Service (See “Network Services tab” on page 44.)

Note: If TCP/IP is currently installed, it will be associated with an interface card.

2 If you are missing either of these two components, use the instructions that follow to install and configure them:

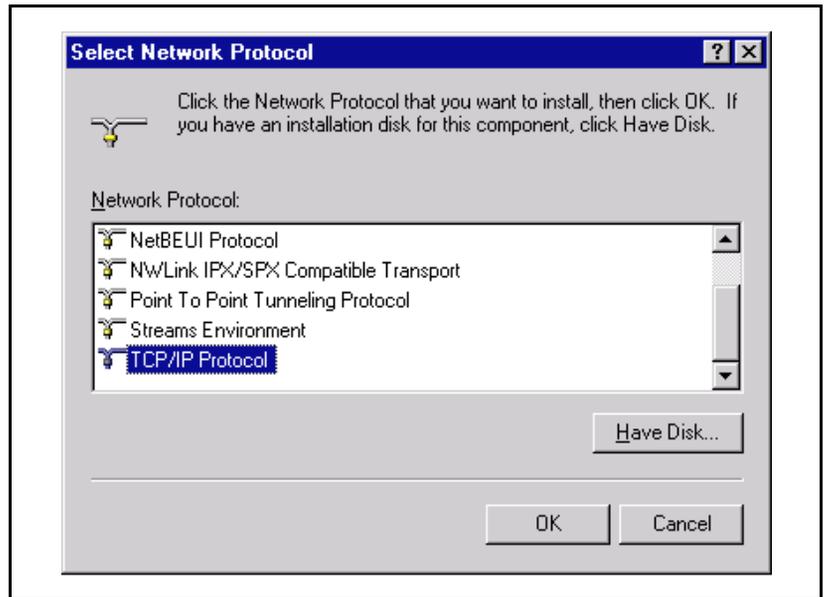
- 3 Install TCP/IP software:
 - From the Network window in the Control Panel, select the **Protocols** tab (see Figure 11) and click **Add**.

Figure 11
Network Protocols Tab



- Select **TCP/IP** from the Network Protocols list in the Select Network Protocol dialog box (see Figure 12) and click **OK**.

Figure 12
Select Network Protocol dialog box



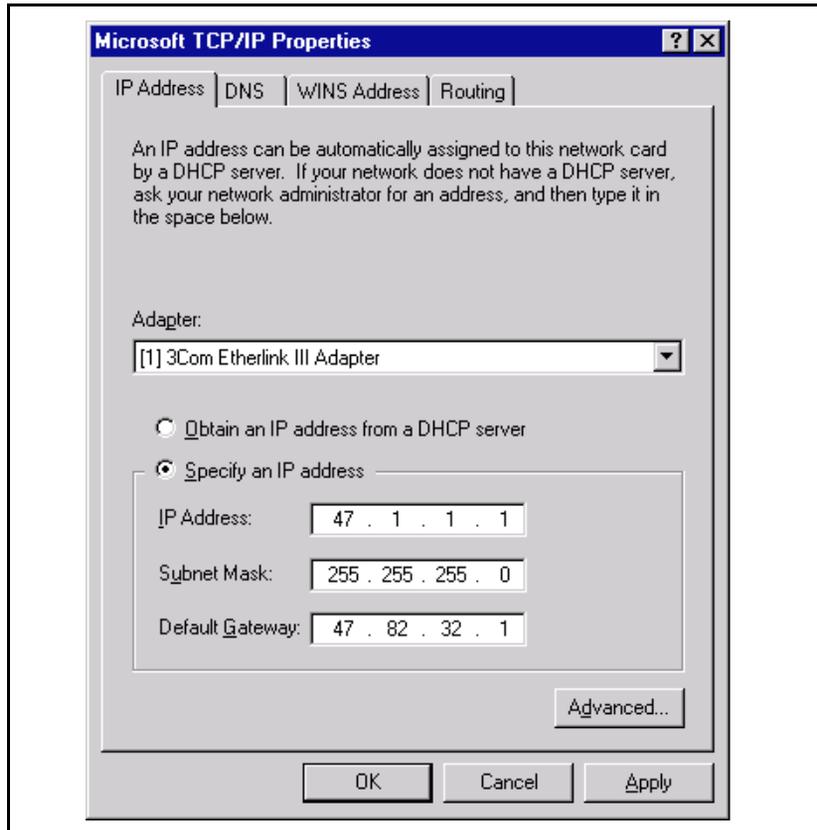
- Click **OK** in the Network window to close it. (If you click **Cancel**, your changes will not be saved).

Note: When you click **OK**, you may be asked to insert Windows installation diskettes. If the DHCP client dialog box is displayed, click **No**. Then restart the PC and log onto the server if you require network access.

- Open the Network icon in the Control Panel.

- Under **Protocol**, select the TCP/IP configuration used for the Ethernet connection, and click **Properties**.

Figure 13
TCP/IP property sheet



- If not using DHCP, click the **IP Address** tab and fill in the following information, if not already entered:
 - Check (enable) the **Specify an IP Address** box.
 - Enter the IP address (47.1.1.1 in our example).
 - Enter the subnet mask (255.255.255.0 in our example).

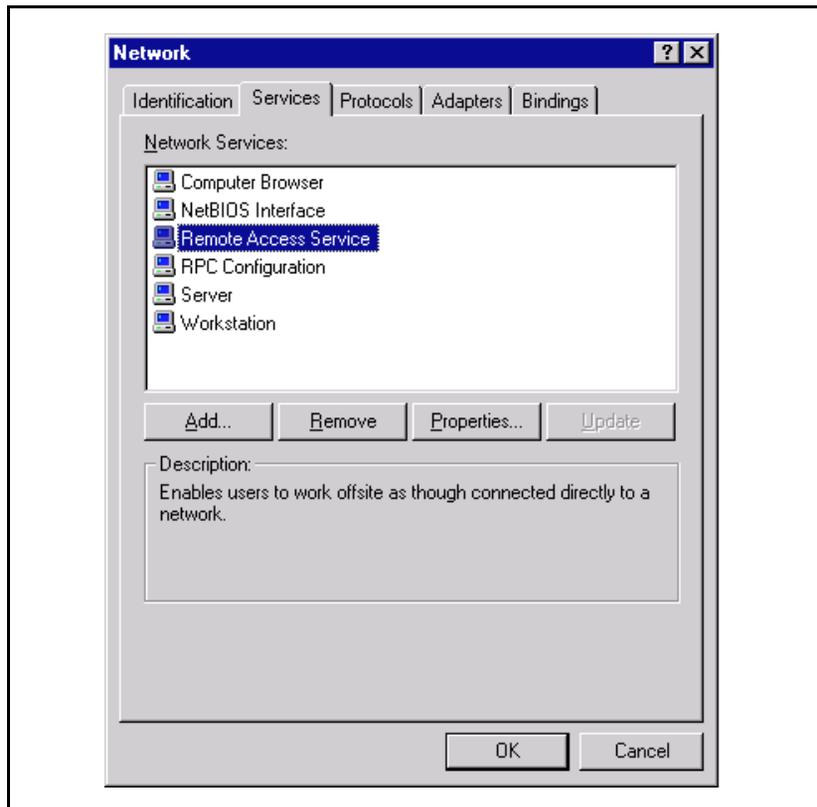
- Enter the default gateway (47.82.32.1 in our example).
- Click **OK**.
- Click **OK** to close the Network property sheet.
- If you plan to use Remote Access Service, go to Install Remote Access on the following page.
- Restart Windows.

4 Install Remote Access Service:

Note: If you are prompted about a modem, indicate that a modem is present. You need to do this even if you are using Ethernet, which does not require a modem.

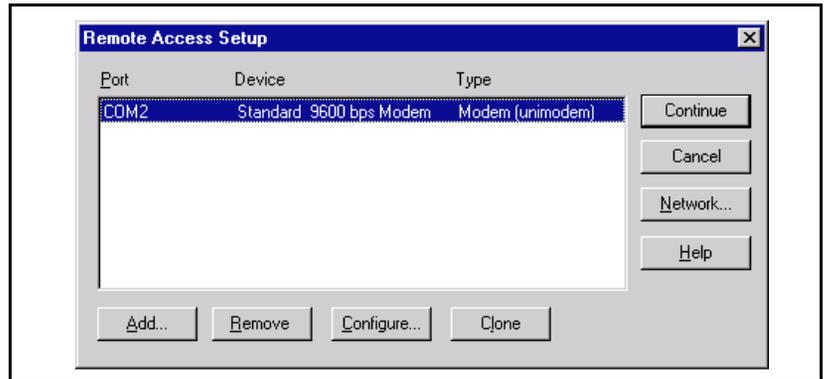
- Open the Control Panel and double-click **Network** to bring up the network properties.
- Select the **Services** tab (Figure 14) and add **Remote Access Service**.

Figure 14
Network Services tab



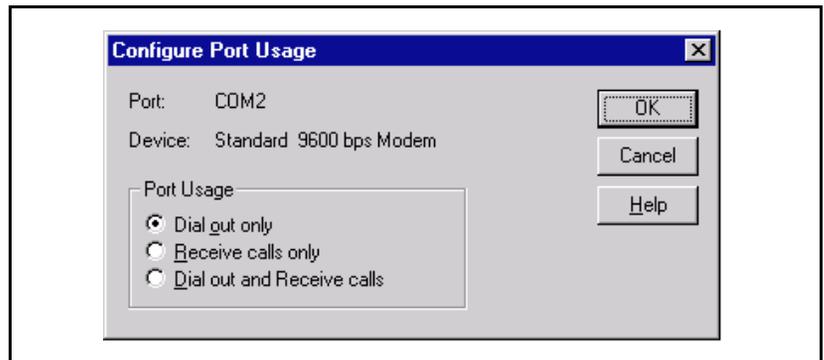
- In the Add RAS Device dialog, select or install the modem for Remote Access Service (RAS) connection.

Figure 15
Remote Access Setup dialog box



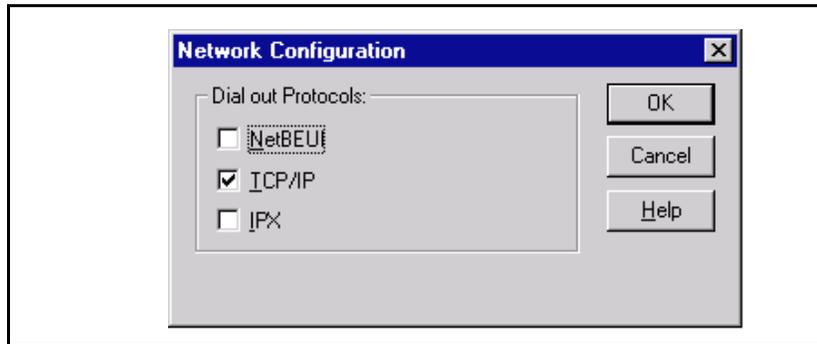
- In the Remote Access Setup dialog (Figure 15)
 - Press the **Configure** button. In the Configure Port Usage dialog (Figure 16), make sure that the Port Usage group has dial-out capability.

Figure 16
Configure Port Usage dialog box



- Press the **Network** button. In the Network Configuration dialog, make sure that TCP/IP is checked for dial-out protocols.

Figure 17
Network Configuration dialog box



- Press **Continue** to restart the PC.

If you remove Remote Access Service from Windows NT and later install it again, you may also need to reinstall the Windows NT Service Pack. MAT 6 requires a minimum of Service Pack 3 if you use Windows NT Workstation Version 4.00.1381. If you use a later version of Windows NT Workstation 4.0, check with Microsoft for associated Service Pack requirements.

You can determine whether you have a Service Pack installed by viewing the operating system version during boot, or by clicking on **Explorer** from the **Programs** menu, then access the **Help** menu and select **About Windows NT**.

Step 5: Setting up the PC communications environment

Now you are ready to configure Ethernet, PPP, or Serial communications between the MAT PC and the Meridian 1. Follow the instructions for the connections you require.

Configuring PC ethernet communications

- 1 Install the Ethernet Network Interface Card (NIC) in the PC, if not already installed.

Refer to the manufacturer's manual for detailed instructions. If your NIC does not automatically detect the physical interface type, you must configure the card to communicate to the correct physical Ethernet port (RJ45 connector for 10BaseT cabling, BNC connector for 10Base2 cabling, or AUI D-connector for use with a transceiver to either 10BaseT or 10Base2 cabling).

If your NIC auto-senses the interface type, you need not configure the interface to the physical connector.

- 2 Install the NIC software drivers as specified in the manufacturer's manual.
- 3 Restart the PC. Make sure you can ping a known machine, preferably one on the same subnet as the Meridian 1.

Configuring PC PPP communications

Note: These steps are required for Windows 95 and Windows 98 users, but not for Windows NT Workstation 4.0 users. The configuration requirement for Windows NT was addressed under "Install Remote Access Service:" on page 44.

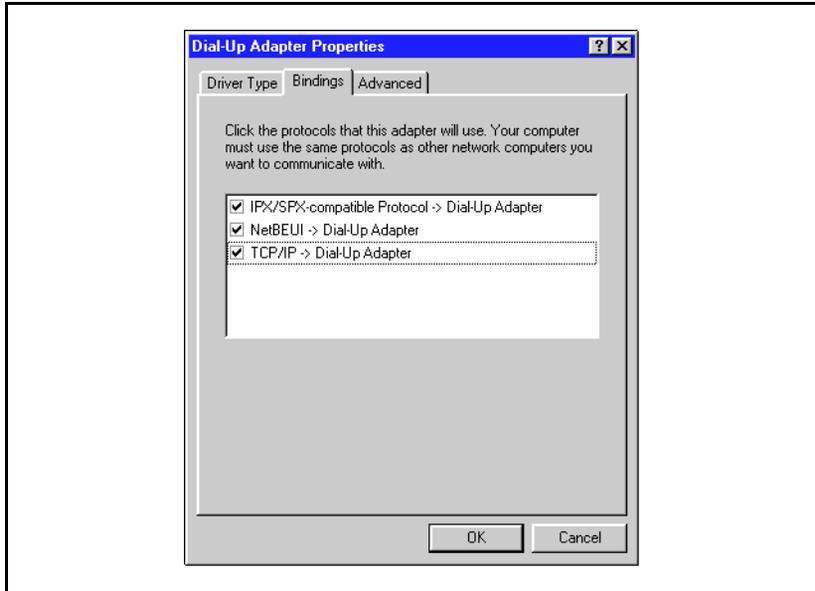
- 1 In the Control Panel window, open the Network icon.
- 2 Select Dial-Up Adapter and click **Properties**.
- 3 Click the **Bindings** tab. Make sure that TCP/IP -> Dial-Up Adapter is checked (see Figure 18) then click **OK**.
- 4 Click **OK** to close the Network window.
- 5 Go on to "Configuring PC serial communications" on page 47 to install and set up a modem, if not already installed.

A modem is required for MAT PPP communications.

Configuring PC serial communications

- 1 Follow the manufacturer's instructions to install, connect, and configure your modem hardware and software.
- 2 **Important!** Make sure that no other communications devices are configured on the same COM port as the modem to be used for MAT.

Figure 18
Dial-Up Adapter property sheet, Bindings tab



Connecting the PC to the Meridian 1

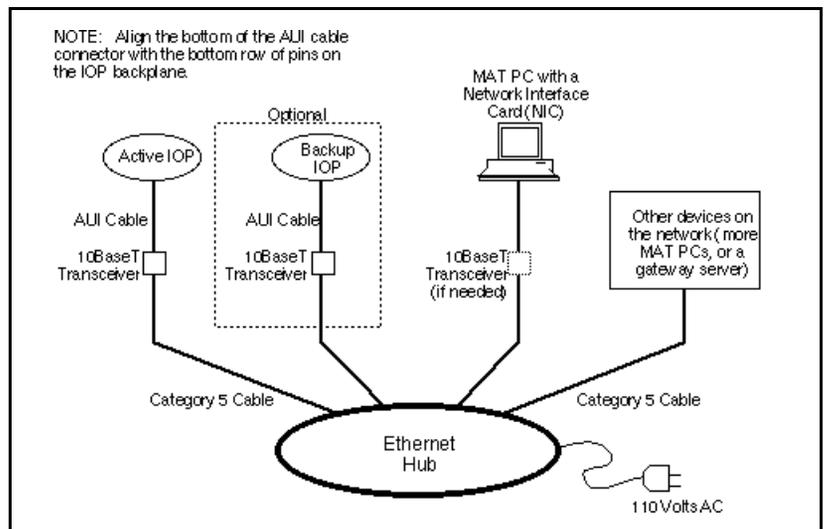
Install the Ethernet or PPP connections between the PC and the Meridian 1. Follow the appropriate instructions for your installation.

For 10BaseT installations

- The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
- Ethernet transceivers are required at each AUI cable. Turn off the SQE Test switch on the transceiver, if equipped.
- An Ethernet hub is required. Hubs require external power (usually a power supply that plugs into a wall outlet).
- 10BaseT cabling requires Category 5 cable with RJ45 connectors.

Note: Although normal phone cable and Category 5 cable are similar in appearance, phone cable is not acceptable for network applications.

Figure 19
Cabling Detail, Example 10BaseT Installation

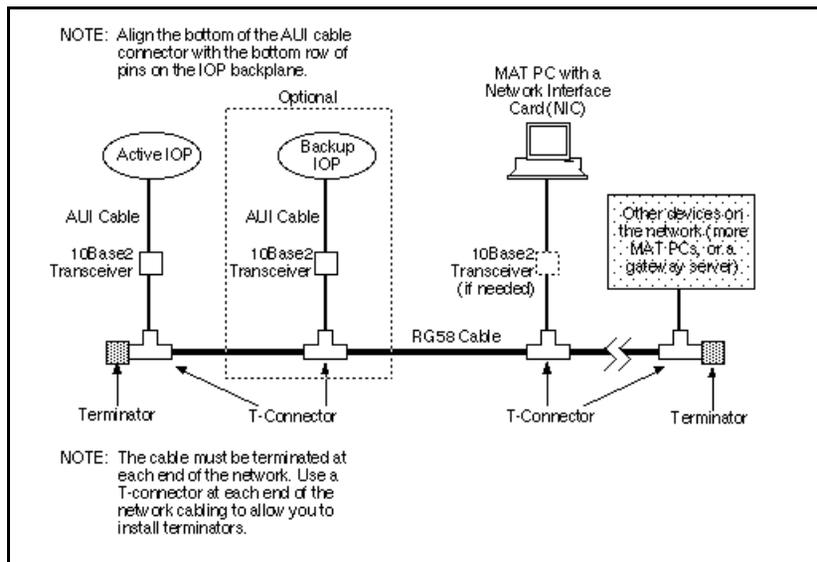


For 10Base2 installations

- The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
- Ethernet transceivers are required at each AUI cable. Turn off the SQE Test switch on the transceiver, if equipped.
- The MAT PC connection requires a transceiver if the NIC port is AUI D-connector type. If the NIC connection is BNC type, connect a T-connector to the NIC and connect the RG58 cable to the connector.
- 10Base2 cabling requires RG58 cable with BNC connectors.

Note: Although normal television video coaxial cable and RG58 cable are similar in appearance, video coaxial cable is not acceptable for network applications.

Figure 20
Cabling Detail, Example 10Base2 Installation



Step 6: Testing ethernet and PPP Connections

This step consists of two tasks:

- Testing Ethernet connections
- Testing PPP connections

Testing ethernet connections

When you have completed Ethernet configuration and cabling, test Ethernet communications by “pinging” the various network devices to verify that you can communicate between them.

- 1 At the MAT PC, start a DOS window.
- 2 Ping a known device on the network to verify the PC’s TCP/IP settings. Enter: **ping 47.1.1.10** (ping the core IP address 47.1.1.10 in our example)
- 3 If you receive a response, ping the core IP address.
- 4 If you cannot ping successfully, do the following:
 - Verify that the IOP part number is NT6D63BA. If you are using Option 11C, check the Ethernet connection.
 - Check that the AUI cable is installed correctly, as follows:
 - Verify that the connector is in the same slot as the IOP.
 - The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
 - Check that Ethernet transceivers are installed at each AUI cable. Turn off the **SQE Test** switch on the transceiver, if equipped.
 - Make sure that you are using an Ethernet hub. Swapping the transmit and receive pins in the category 5 cable is not a workable substitution for an Ethernet hub.
- 5 If you still cannot ping successfully, review all previous installation steps in this installation chapter to verify proper connections and configuration.

Testing PPP connections

When you have completed PPP configuration and cabling, test PPP communications by making sure that the modem dials and connects successfully without error messages. Turn the modem volume up so that you can hear what is happening as the modem dials. If the test fails, see “Troubleshooting modem connections” on page 95.

Step 7: Setting up the server environment

In this step you will prepare your current server environment to enable it to support MAT. If you will not be running MAT in a server environment, skip to “Installing and upgrading MAT on a stand-alone PC” on page 61.

Setting up a Windows NT server

- Make sure MAT client PCs have read/write privileges to the directory/drive on the network server where MAT will be installed.

Setting up a Netware server

- Make sure MAT client PCs have full read/write privileges to the directory/drive on the network server where MAT will be installed.
- Set up the network operating system to support long file names.

Installation Scenarios

This section provides guidelines to help you install MAT 6.6 or later. Three scenarios are presented to cover the MAT installation and upgrade requirements for most sites. Each scenario includes guidelines that refer to procedures in this part of the guide.

- Installing or upgrading of MAT 6 (New and MAT 6 upgrades)
- Upgrading from MAT 5 to MAT 6
- Upgrading from MAT 4 to MAT 6

Identify the scenario that fits your installation requirements and follow the guidelines provided. Perform referenced procedures only in the order given.

Note: If you are upgrading to MAT 6, make a backup of MAT common data before you begin to install MAT 6.

Scenario 1: Installing or upgrading MAT 6.6 or later

Use the appropriate installation procedure:

- To install or upgrade MAT 6.6 or later on a stand-alone PC, use “Installing and upgrading MAT on a stand-alone PC” on page 61.
- To install or upgrade MAT 6.6 or later in a network environment, use and “Installing and/or upgrading MAT in a client-server environment” on page 64.

Note: These guidelines are the same for Windows 95, Windows 98, and Windows NT Workstation 4.0 users.

Scenario 2: Upgrading from MAT 5 to MAT 6.6 or later

- 1 Install MAT 6.6 or later on Windows 95. Use the appropriate installation procedure:

To install MAT 6.6 or later on a stand-alone PC that will *not* be accessing MAT or MAT data over a network, use “Installing and upgrading MAT on a stand-alone PC” on page 61.

To install MAT 6 in a network environment, use “Installing and/or upgrading MAT in a client-server environment” on page 64 and “Installing MAT on additional client PCs” on page 68.
- 2 Run MAT 6.6 or later to verify that the data from MAT 5 is still intact after the upgrade.

Note: If you are changing operating systems, continue to the next step. Otherwise. Stop here.
- 3 Create a backup file of MAT 6.6 or later data.
 - To create a backup file, select **Backup** from the **Utilities** menu of the Navigator window. This invokes a wizard.
 - Use the wizard to specify the following:
 - **Disaster Recovery** as the type of backup operation
 - a *destination directory* for backup files on your choice of media
 - a *temporary directory* for working files created during backup
 - A dialog box appears summarizing your choices.
- 4 Click **OK** to perform the backup operation.
- 5 If you are moving MAT data to another PC, make the backup media accessible to the other PC.
- 6 Open the backup directory to make sure the backup file (*.ZIP) is there. Also read the contents of the backup log file (*.LOG) to verify the presence of site, system, and application data, as well as user-created files such as scripts and customized reports.
- 7 Copy backup directories to diskettes or to a server.
- 8 Install the new operating system (Windows 98 or Windows NT Workstation 4.0), or go to a PC with the new operating system already installed.
- 9 Set up your MAT environment.

- 10** Install MAT 6 on the new operating system. Use the appropriate installation procedure:
- To install MAT 6 on a stand-alone PC that will *not* be accessing MAT or MAT data over a network, use “Installing and upgrading MAT on a stand-alone PC” on page 61.
 - To install MAT 6 in a network environment, use “Installing and/or upgrading MAT in a client-server environment” on page 64 and “Installing MAT on additional client PCs” on page 68.
- 11** Run MAT 6 and restore your backup file (*.ZIP) of MAT 6 data from Windows 95.
- To restore a backup file, select **Restore** from the **Utilities** menu of the Navigator window. This invokes a wizard.
 - Use the wizard to specify the following:
 - **Disaster Recovery** as the type of restore operation
 - the *backup file location*
 - a *temporary directory* for working files created during the restore operation
 - Click **OK** to perform the restore operation.
- 12** Verify that all system property and application data and user-created files have been properly restored (copied).
- Note:** If data for any site or system has been damaged, you can selectively restore undamaged data from the backup file.

Scenario 3: Upgrading from MAT 4 to MAT 6.6 or later

Note: If you are moving to another PC, go to step 2.

- 1 Restore any archived MAT data to your MAT 4 installation that you will later want to migrate to MAT 6.6 or later.

Note: Do not restore and consolidate traffic data from the Traffic Analysis application. You will not be able to convert this data from MAT 4 to MAT 6.6 or later in step 8.

- 2 To create a backup file, select **Backup Site** from the **File** menu of the MAT Site Configuration window.

For the most comprehensive backup, use **Site Directory**. This backs up all Station data, CPND data, Call Accounting data, and Traffic Analysis data (though MAT 4 traffic data cannot be converted to MAT 6.6 or later).

Note: The Backup utility does not compress data, so the backup file can become quite large.

- 3 If you are moving MAT data to another PC, make the backup media accessible to the other PC (e.g., place backup files on diskette or tape which can be read by the new PC).
- 4 If MAT 4 is not currently installed on the new PC, then install it. Refer to your MAT 4 documentation for the appropriate procedures. This intermediary step is necessary if you want to use your current MAT 4 data in MAT 6.6 or later.
- 5 Run MAT 4 and restore the backup file of MAT 4 data. To restore your backup file, select **Restore Site** from the **File** menu of the MAT Site Configuration window.
- 6 Verify that all system property and application data and user-created files have been properly restored (copied).

Note: If data for any site or system has been damaged, you can selectively restore undamaged data from the backup file. Do *not* run MAT 4 on the PC.

- 7 Install MAT 6.6 or later on the new PC. Use the appropriate installation procedure:
- To install MAT 6.6 or later on a stand-alone PC that will *not* be accessing MAT or MAT data over a network, use “Installing and upgrading MAT on a stand-alone PC” on page 61.
 - To install MAT 6.6 or later in a network environment, use “Installing and/or upgrading MAT in a client-server environment” on page 64 and “Installing MAT on additional client PCs” on page 68.
- 8 Convert MAT data on the stand-alone or *first* client PC, as the case may be. Use this migration procedure on a single PC, not between two PCs. Migrate data on the same Windows operating system, unless you install a new Windows operating system into the same PC directory. The original data remains in the MATWORK directory so that you can archive it.
- Insert the MAT 6.6 or later CD into the CD-ROM drive.
 - Choose **Run** from the Windows **Start** menu.
 - In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
 - In the Software Selection screen, choose **MAT** and confirm your selection.
 - After reading the Licensing Agreement, click **Yes**.
 - Click **Next** until the Setup Choices window is displayed, then click **Utilities**.
 - Click **Migrate** and confirm your selection.
 - Click **OK** when prompted. This converts the data of located sites.
- Note:** Converted data cannot be changed back to an earlier format.
- Note:** After migration, there will be as many communication profiles as there are SDI ports configured for each system. None of the applications will have communications profiles associated with them. At this point, manually link the communication profiles with the applications.
- 9 Follow the steps under “Validating the MAT Installation” on page 71.
- 10 After MAT 6.6 or later has been working successfully for some time, delete the files in the MATWORK and MAT directories.
- WARNING!** Do not run the uninstall program to remove MAT 4, since this will remove files that MAT 6.6 or later needs.

Installing MAT 6 Software

Use this section to install MAT 6.6 or later software. Follow the appropriate instructions for your type of MAT installation.

- To install MAT 6.6 or later on a **stand alone PC**, use “Installing and upgrading MAT on a stand-alone PC” on page 61.
- To install MAT 6.6 or later in a **network environment**, use “Installing and/or upgrading MAT in a client-server environment” on page 64 and “Installing MAT on additional client PCs” on page 68.

Note: Nortel Networks does not support upgrades from MAT 3 to MAT 6.

An installation wizard will guide you through the installation process. The Wizard presents your options and allows you to enter any custom information about your installation. During the installation process, you may move back to a previous screen to make changes if you need to.

Important Note: In the following installation and upgrade procedures, you may get a window displayed on your monitor prompting you to accept or reject the applications that are listed. To continue the installation just press the **Next** button. If you decide not to install these applications at this time, remove the check marks from the check boxes in the list and press the **Next** button to continue the installation.

Before you begin, make sure that you have the following:

- **Hardware Security Dongle**
The dongle is a security device provided by Nortel Networks. It contains a serial number that the MAT Installation Wizard compares with the MAT software serial number and key code to verify that you are authorized to install the MAT 6 software.
- **Serial Number**
The serial number is a unique number associated with your MAT software. This number must be the same as the serial number of the security dongle attached to the PC.
- **Keycode**
The keycode identifies the MAT 6 applications and licensing options (for example, number of Meridian 1 systems) you have purchased. You may install all applications permitted by the keycode. The keycode and serial number must match or the installation will not be completed.

Note: When installing MAT for the first time, the Root directory names must be 8 characters or less and cannot contain a period. For example, **C:\NORTEL** (default value) or **C:\PROGRAM\NORTEL** and not **C:\PROGRAMFILES\NORTEL** or **C:\PROGRAMFILES\NORTEL.MAT**.

Installing and upgrading MAT on a stand-alone PC

Follow these instructions to install or upgrade MAT 6.6 or later on a PC that will *not* access MAT or MAT data from a server.

Note: When installing MAT 6.6 or later for the first time, the Root directory names must be eight characters or less and cannot contain a period. For example, **C:\NORTEL** (default value) or **C:\PROGRAM\NORTEL** and not **C:\PROGRAMFILES\NORTEL** or **C:\PROGRAMFILES\NORTEL.MAT**.

- 1 Shut down Windows and turn off PC.
- 2 Plug security dongle into the parallel port on the PC.
- 3 Reboot the PC.
Important: Close all applications and exit any background tasks.
- 4 Insert the MAT CD into CD-ROM drive.
- 5 Choose **Run** from Windows **Start** menu.
- 6 In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
- 7 In the installation wizard Welcome window, click **Next**.
- 8 On the Software Selection window, select one software program you want to install (MAT 6.XX or Rate_Table 6.XX) and click **Next**.
- 9 Confirm your selection by clicking **Yes** or click No to return to the previous step.
- 10 A welcome screen appears, then some setup information, and then the Software Licensing Agreement. After reading the Licensing Agreement, click **Yes**.
- 11 A window appears strongly recommending that all Windows programs be closed prior to proceeding with installation, after reviewing the information and closing programs as necessary, click **Next** to continue.
- 12 On the Identification window verify the name in the Installed by field, and click **Next**.
- 13 Click **Install/Upgrade**.

Note: At this point, MAT installation checks for an existing ODBC version on the user's PC. If needed, setup will install Microsoft's MDAC 2.1. The installer will need to reboot when directed to complete the installation of MDAC 2.1 and again at the completion of the MAT installation process. If installation discovers an existing current ODBC version, the installer will not see the dialog box in step 14. Skip that step and proceed to the next one.

14 A "Setup is installing MDAC" dialog box appears while setup installs MDAC 2.1 on the PC. When the program asks you to reboot, click **Yes**. Your system will reboot and return to this point in the installation process.

15 Enter the new MAT 6.6 or later keycode and serial number, then click **Next**. Keycodes contain 16 characters separated by spaces into groups of four. Four boxes are provided to type in keycode information. Enter the first four characters in first box, the second four characters in the second box, etc.

The next three screens display the default destination drive and directory path for the following:

- MAT Executables (MAT 6 executable files)
- Common Data (for example, Site and System data)
- Local Data (for example, PC Event Log)

16 Specify destination drive and paths for each directory.

- **New Installations:** Type in the destination drive and path for each directory (which must be local). The default is c:\Nortel. Note that once configured, these paths cannot be changed without uninstalling MAT.
- **Upgrades:** The directories presented were selected during the initial installation. These paths cannot be changed without uninstalling MAT.

17 Select the new MAT applications that you want to install, then click **Next**. Installation will begin automatically. Always include **Common Services** when selecting applications.

18 Select the MAT applications that you want to upgrade, then click **Next**. Upgrading will begin automatically.

Note: A dialog box appears informing the installer that the program is configuring ODBC. This configuration will take place whether or not the program installed MDAC 2.1 in step 14 above.

19 For Call Accounting you are reminded to install the rate tables. Click **OK** to continue.

- 20 If “Confirm System Rebuild” message appears, click **Rebuild All** to continue.
- 21 If you installed Call Accounting, *do not restart the PC* when prompted. Install the rate tables as follows:
- Note:* If you plan to install rate tables not provided by Nortel, ignore this step. Follow the installation instructions provided with your rate tables.
- Choose **Run** from the Windows **Start** menu.
 - In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
 - Click **Next** to start the software installation wizard.
 - In the Software Selection screen, choose **Rate_Table** and confirm your selection.
 - Select the carriers whose rates are to be installed by clicking in the space to the left of the carrier name (a checkmark appears). Click **Next**.
 - At this point, you may view the release notes.
- 22 If you have update diskettes, do the following (*do not restart the PC*):
- Choose **Run** from the Windows **Start** menu.
 - Insert the first update disk into the diskette drive.
 - In the listbox, enter **a:\setup** (where **a:** is the diskette drive) and click **OK**.
 - Follow the on-screen instructions for additional diskettes.
- 23 When the “Question” dialog is displayed, you have the option of viewing a README file. To view the README file now, click **Yes**. Otherwise, click **No**.
- 24 In the Restarting Windows dialog, click **OK** to restart your computer, before using MAT. Otherwise, click “No, exit Setup” and **OK** to exit to the desktop, then restart your computer at another time to make installation changes take place before running MAT.
- 25 When installation is complete, go to “Validating the MAT Installation” on page 71.

Installing and/or upgrading MAT in a client-server environment

Follow these instructions to install MAT 6.6 or later in a client-server environment. In this two-procedure process, you begin by installing MAT 6.6 or later on the server and first client PC.

The first client PC functions as the MAT controller. All subsequent MAT upgrades will be performed on the first client PC.

Note: The following procedures accomplish both tasks—installing MAT 6.6 or later data on the network server and applications on first client PC.

- 1 Shut down Windows and turn off first-client PC.
- 2 Plug security dongle into the parallel port on the first client PC
- 3 Reboot the PC.

Important: Close all applications, close the Control Panel, and exit any background tasks.

Note: Insure that MAT is not running on any Client PC before upgrading the first MAT client. **All MAT client sessions must be closed before proceeding with the update installation.**

- 4 To ensure that all clients are “logged off”, delete all *.lck and *.ldb files that may be present in the Common Data folder on the server.
- 5 If these files cannot be deleted, it indicates that some clients have not properly logged off the system or some file sharing error exists. If you are sure all clients are logged off, reboot the server then delete the .lck/.ldb files. The reboot will remove the file sharing handles preventing their deletion.
- 6 Map a network drive to the directory on the network server where you will install MAT 6.6 or later. Ensure this drive automatically reconnects at logon.
- 7 Insert the MAT 6.6 or later CD into CD-ROM drive.
- 8 Choose **Run** from the Windows **Start** menu.
- 9 In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
- 10 In the installation wizard Welcome window, click **Next**.
- 11 On the Software Selection window, select one software program you want to install (MAT 6.XX or Rate_Table 6.XX) and click **Next**.

- 12 Confirm your selection by clicking **Yes** or click No to return to the previous step.
- 13 A welcome screen appears, then some setup information, and then the Software Licensing Agreement. After reading the Licensing Agreement, click **Yes**.
- 14 On the Identification window verify the name in the Installed by field, and click **Next**.
- 15 Click **Install/Upgrade**.

Note: At this point, the MAT installation application checks for an existing OBDC version on the user's PC. If needed, the setup application will install Microsoft's MDAC 2.1. The installer will need to reboot when directed to complete the installation of MDAC 2.1 and again at the completion of the MAT 6 installation process. If installation discovers an existing current OBDC version, the installer will not see the the screen in step 16, skip that step.

- 16 A "Setup is installing MDAC" box appears while setup installs MDAC 2.1 on the PC. When the program asks you to reboot, click **Yes**. Your system will reboot and return to this point in the installation process.
- 17 Enter the new MAT 6 keycode and serial number, then click **Next**. Keycodes contain 16 characters separated by spaces into groups of four. Four boxes are provided to type in keycode information. Enter the first four characters in first box, the second four characters in the second box, etc.

The next three screens display the default destination drive and directory path for the following:

- Application Executables (MAT executable files)
 - Common Data (for example, Site and System data)
 - Local Data (for example, PC Event Log)
- 18 Specify destination drive and paths for each directory:
 - New installations
 - Click **Browse** and choose the network drive and directory where you want to install MAT **Application Executables**, for example, c:\Nortel. You may install application executables on the shared (network) drive, but MAT performance will be slower than if you install these files on the local (PC) drive.

- Click **Browse** and choose the network drive and directory where you want to install MAT **Common Data**, for example, m:\Nortel. You *must* install common data files on the server.
- Click **Browse** and choose the local drive and directory where you want to install **Local Data**. The default is c:\Nortel. You *must* install local data files on the local drive.
- Upgrades
 - The directories which were selected during the initial installation are presented. The paths cannot be changed without uninstalling MAT.
- 19 Select the MAT applications that you want to install, then click **Next**. Installation will begin automatically. Always include **Common Services** when selecting applications.
- 20 Select the MAT applications that you want to upgrade, then click **Next**. Upgrading will begin automatically.
- 21 For Call Accounting, you are reminded to install the rate tables. Click **OK** to continue.
- 22 If “Confirm System Rebuild” message appears, click **Rebuild All** to continue.
- 23 If you installed Call Accounting, *do not restart the PC* when prompted. Install the rate tables as follows:

Note: If you plan to install rate tables not provided by Nortel, ignore this step. Follow the installation instructions provided with your rate tables.

- Choose **Run** from the Windows **Start** menu.
- In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
- Click **Next** to start the software installation wizard.
- In the Software Selection screen, choose **Rate_Table** and confirm your selection.
- A welcome screen will appear. Click **Next**.
- Select the carriers whose rates are to be installed by clicking in the space to the left of the carrier name (a checkmark appears). Designate a directory for storing the rate table files. Click **Next**.

- 24** If you have update diskettes *do not restart the PC*. If application files are installed on network drive, you only need to run update diskettes once from the first client PC.
- Choose **Run** from the Windows **Start** menu.
 - Insert the first update disk into the diskette drive.
 - In the listbox, enter **a:\setup** (where **a:** is the diskette drive) and click **OK**.
 - Follow the on-screen instructions for additional diskettes.
- 25** When the “Question” dialog is displayed, you have the option of viewing a README file. To view the README file now, click **Yes**. Otherwise, click **No**.
- 26** In the Restarting Windows dialog, click **OK** to restart your computer, before using MAT. Otherwise, click “No, exit Setup” and **OK** to exit to the desktop, then restart your computer at another time to make installation changes take place before running MAT.
- 27** To install MAT on additional clients, proceed to “Installing MAT on additional client PCs” on page 68.

Installing MAT on additional client PCs

Follow these steps to install MAT 6.6 or later on additional client PCs. Many steps in this procedure are the same as the ones used to install MAT 6.6 or later on the first client PC.

- 1 Plug security dongle into the parallel port on the first client PC
- 2 Reboot the PC.
Important: Close all applications, close the Control Panel, and exit any background tasks.
- 3 Map a network drive to the directory on the network server where you will install MAT 6.6 or later. Ensure this drive automatically reconnects at logon.
- 4 Insert the MAT 6.6 or later CD into CD-ROM drive.
- 5 Choose **Run** from the Windows **Start** menu.
- 6 In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
- 7 In the installation wizard Welcome window, click **Next**.
- 8 On the Software Selection window, select one software program you want to install (MAT 6.XX or Rate_Table 6.XX) and click **Next**.
- 9 Confirm your selection by clicking **Yes** or click No to return to the previous step.
- 10 A welcome screen appears, then some setup information, and then the Software Licensing Agreement. After reading the Licensing Agreement, click **Yes**.
- 11 On the Identification window verify the name in the Installed by field, and click **Next**.
- 12 Click **Run from Network**.
- 13 Click **Browse** and choose the local drive and directory where you want to install the **Application Executables**, for example, c:\Nortel. type in the path if it doesn't exist.

Note: You may choose to use the applications files already installed on the shared (network) drive by the first client PC. You may install application executables on the shared (network) drive, but MAT performance will be slower than if you install these files on the local (PC) drive, and settings are shared by all clients.

- 14 Click **Browse** and choose the network drive and directory where MAT **Common Data** was installed by the first-client PC.
- 15 Click **Browse** and choose the local drive and directory where you want to install **Local Data**. The default is c:\Nortel. You *must* install local data files on the local drive. Type in path if it doesn't exist.
- 16 Click **Next** to continue.
- 17 Verify that the MAT serial number and keycode are correct, then click **Next**. Keycodes contain 16 characters separated by spaces into groups of four.
- 18 Select the MAT applications that you want to install, then click **Next**. Installation will begin automatically. Always include **Common Services** when selecting applications.
- 19 Select the MAT applications that you want to upgrade, then click **Next**. Upgrading will begin automatically.
- Note:* If “Confirm System Rebuild” message appears, click **Rebuild All** to continue.
- For Call Accounting, you are reminded to install the rate tables. Click **OK** to continue.
- 20 If you installed Call Accounting, *do not restart the PC* when prompted. Install the rate tables as follows:
- Note:* If you plan to install rate tables not provided by Nortel, ignore this step. Follow the installation instructions provided with your rate tables.
- Choose **Run** from the Windows **Start** menu.
 - In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
 - Click **Next** to start the software installation wizard.
 - In the Software Selection screen, choose **Rate_Table** and confirm your selection.
 - Select the carriers whose rates are to be installed by clicking in the space to the left of the carrier name (a checkmark appears). Click **Next**.

- 21 If you have update diskettes and the MAT applications are installed on the *client PC* (not the network drive), do the following (*do not restart the PC*):
- Choose **Run** from the Windows **Start** menu.
 - Insert the first update disk into the diskette drive.
 - In the listbox, enter **a:\setup** (where **a:** is the diskette drive) and click **OK**.
 - Follow the on-screen instructions for additional diskettes.
- 22 When the “Question” dialog is displayed, you have the option of viewing a README file. To view the README file now, click **Yes**. Otherwise, click **No**.
- 23 When installation is complete, reboot the PC.
- 24 Repeat procedures 1-11 for remaining client PCs.
- 25 When client PC installation is complete, go to “Validating the MAT Installation” on page 71.

Validating the MAT Installation

After installing MAT 6.6 or later, follow these steps to connect to the Meridian 1 switch using the sample site and system configuration. After connecting successfully, refer to the MAT Common Services User Guide to configure your own sites and systems.

Step 1: Logging in and changing the default password

- 1 Select **MAT** in the Windows Programs list in the **Start** menu.

In later sessions, MAT will automatically begin as part of the Windows start-up routine.
- 2 Enter the default user ID and password shown below, then click **OK**.

User ID: **Admin**
Password: **Admin**

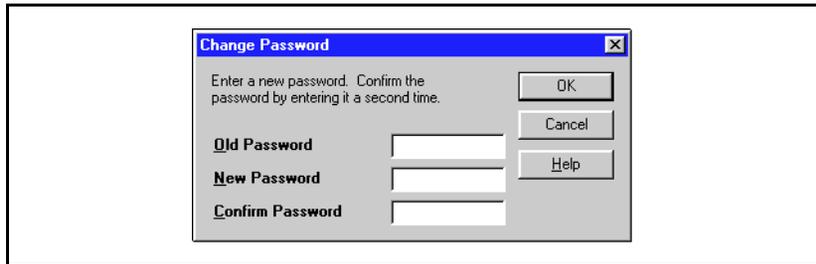
Note: For security purposes, the password does not appear as you type in the Password field.
- 3 Click **OK**.

After MAT accepts your ID and password, the MAT Navigator window opens.

- 4 If you want to change the default password to ensure security, do the following:
 - In the Navigator window, choose **Change Password** from the **Security** menu to open the **Change Password** dialog box (see Figure 21).
 - Enter the old password in the Old Password field.
 - Type a new password in the New Password field.
 - Retype the new password in the Confirm Password field.
 - Click **OK**.
 - A message box informs you that the password was successfully changed. Click **OK**.

Note: You need to use this password next time you start MAT.

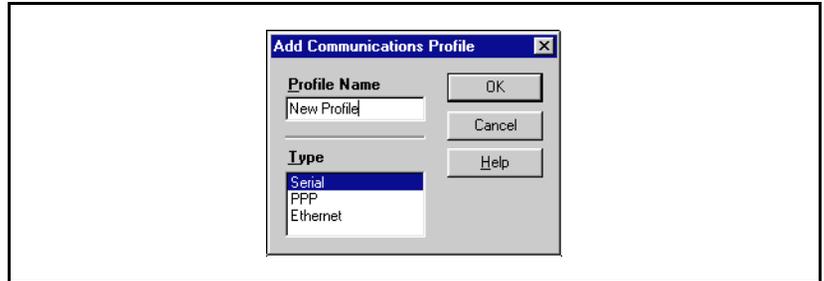
Figure 21
Change Password dialog box



Step 2: Setting up communications information

- 1 In the Navigator window, double-click **Sample Site**.
- 2 Select Sample System and choose **Properties** from the **File** menu.
- 3 Click the **Communications** tab and click **Add**.

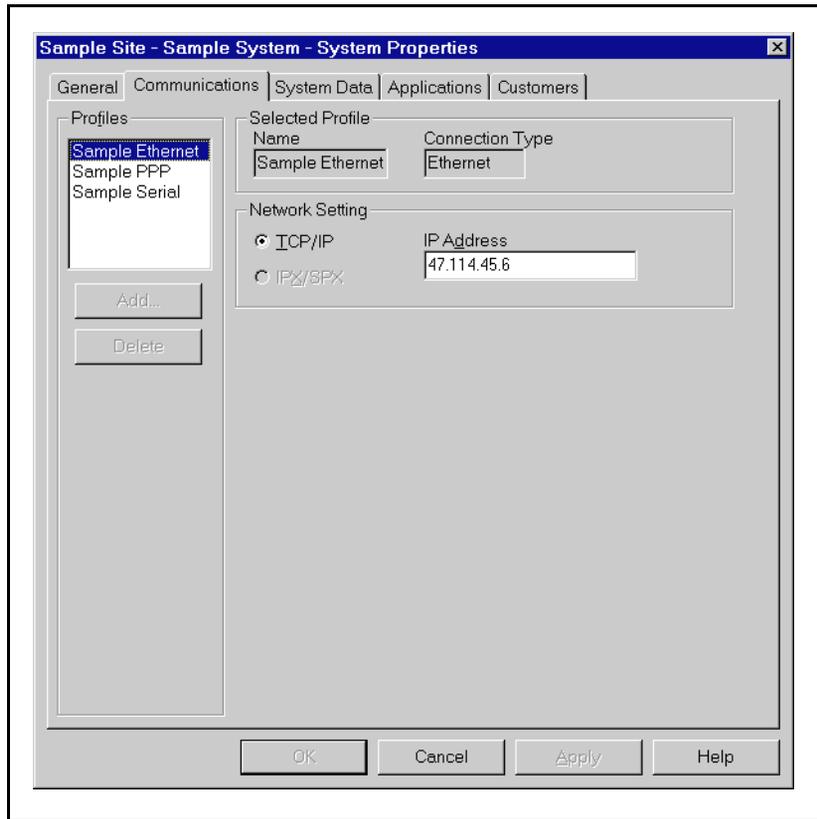
Figure 22
Add Communications Profile dialog box



- 4 From the Type box, select a communications type that will be used by MAT, then enter a Profile Name and click **OK**.

- 5 Fill in the communications information:
 - For Ethernet: Select the appropriate network protocol. Enter the IP address that you configured on the Meridian 1. Click **Apply**.

Figure 23
System property sheet, Communications tab, Ethernet profile



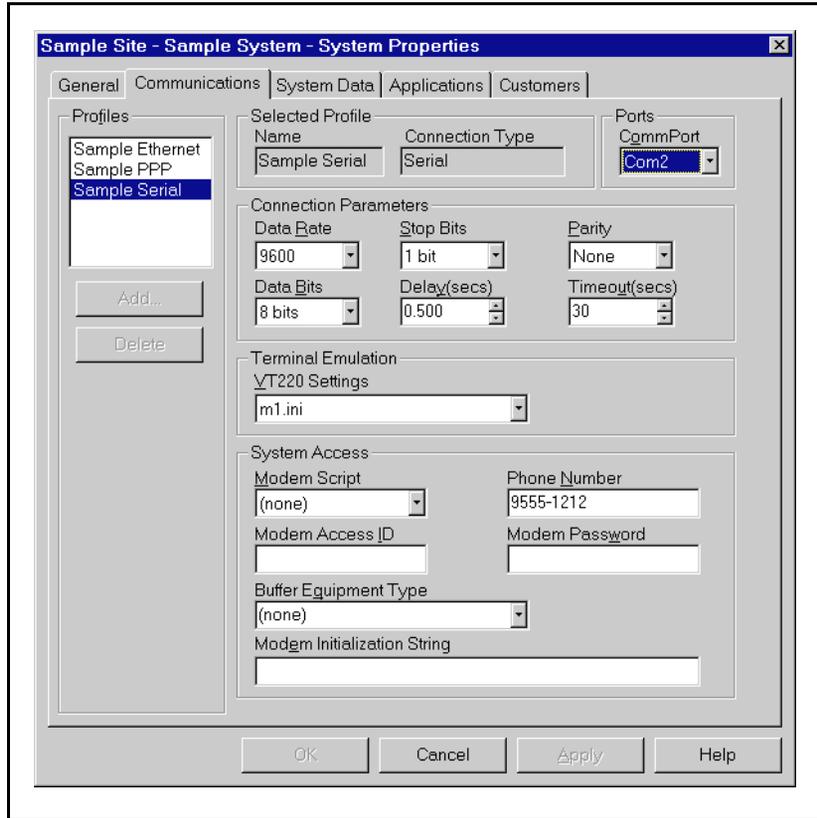
- For PPP: Enter all modem parameters and dialup information. Select PPP in the Modem Script text box. Set the IP address to the local IP address, as configured on the Meridian 1. Click **Apply**.

Figure 24
System property sheet, Communications tab, PPP Profile

The screenshot shows the 'Sample Site - Sample System - System Properties' dialog box with the 'Communications' tab selected. The 'Profiles' list on the left includes 'Sample Ethernet', 'Sample PPP' (highlighted), and 'Sample Serial'. The 'Selected Profile' section shows 'Name: Sample PPP' and 'Connection Type: PPP'. The 'Port' dropdown is set to 'Com2'. The 'Connection Parameters' section includes: 'Data Rate: 9600', 'Stop Bits: 1 bit', 'Parity: None', 'Data Bits: 8 bits', 'Deley(secs): 0.500', and 'Timeout(secs): 30'. The 'System Access' section shows 'Modem Script: PPP', 'Phone Number: 9555-1111', 'Modem Access ID' (empty), 'Modem Password' (empty), and 'Modem Initialization String' (empty). The 'Network Setting' section has 'TCP/IP' selected and 'IP Address: 137.135.192.4'. The 'IPX/SPX' option is unselected. At the bottom are 'OK', 'Cancel', 'Apply', and 'Help' buttons.

- For Serial: Enter all modem parameters and dialup information. Select the appropriate value in the Modem Script text box. This will commonly be "None" unless a specific value is defined for your system. Click **Apply**.

Figure 25
System property sheet, Communications tab, Serial Profile



Step 3: Setting up customer information

- 1 Click the **Customers** tab and click **Properties**.
- 2 Click the **General** tab. In the Scheduler System ID box, change the User ID and Password to one that is valid for logging onto the Meridian 1, then click **OK**.

Figure 26
Customer property sheet, General tab

The screenshot shows a dialog box titled "customer0 - [Customer 0] Properties" with a close button (X) in the top right corner. The dialog has three tabs: "General", "Features", and "Numbering Plans". The "General" tab is selected. Inside the dialog, there are several sections:

- Customer Name**: A text box containing "customer0".
- Number**: A text box containing "0".
- Directory Numbers**: A list box containing "408-555-1212" and two empty slots.
- Scheduler System ID**: A section containing two text boxes: "User ID" with "Maria" and "Password" with "****".

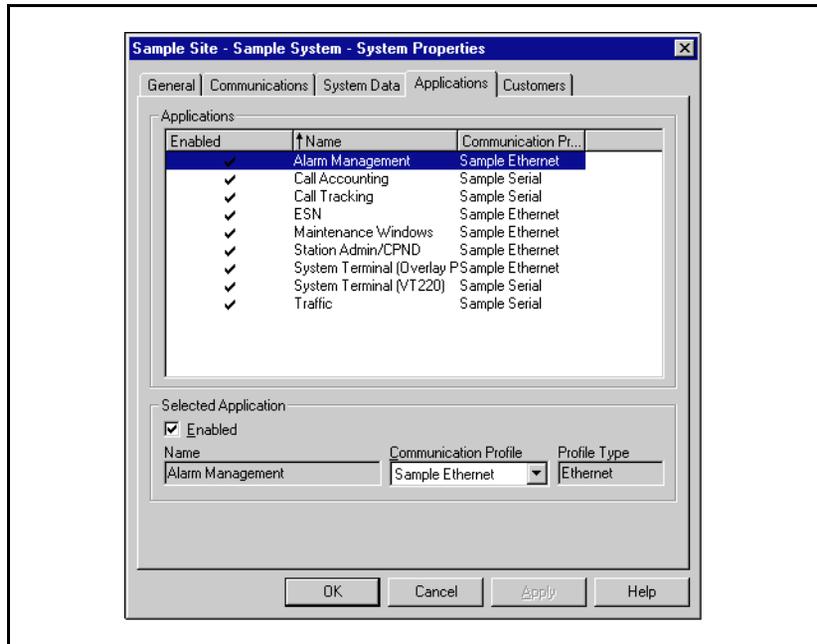
At the bottom of the dialog, there are four buttons: "OK", "Cancel", "Apply", and "Help".

Step 4: Setting up MAT applications

Applications must be enabled to make them available in the System window.

- 1 Click the **Applications** tab.

Figure 27
System property sheet, Applications tab



- 2 Enable each MAT application:
 - Select the application.
 - Select a Communications Profile from the drop-down list box.

A checkmark appears in the Enabled checkbox and next to the application name.

- 3 Click **OK** to close System Properties.

Step 5: Setting up system data

- 1 Double-click the **Sample System** icon to open the System window.
- 2 Choose **Update System Data** from the **File** menu.
- 3 Select the options “Update Data Stored in the PC” and “Do it Now,” then click **OK**.

The system data (such as the machine type and M1 packages) is copied into MAT directly from the Meridian 1.

Step 6: Connecting to the system

- 1 Choose **Session Connect** from the **File** menu.
The connection status appears in lower right corner of the window.
- 2 After connecting to the Meridian 1, open a MAT application such as Station Administration or Traffic Analysis by double-clicking the application icon.
To close an application, click the close box in the upper-right corner of the application window.
Note: If you are not able to open an application, review “Step 4: Setting up MAT applications” on page 78, and then try again.
- 3 Congratulations! MAT has been successfully installed. Go to the Common Services User Guide to configure your own sites and systems.

Adding Applications and Licenses

When you purchase additional MAT applications and licenses, you receive a new *keycode*. To add your new applications or licenses, you must enter this keycode on each PC that runs MAT.

Add your new applications and licenses as follows:

- 1 Close all MAT applications and terminate MAT and any MAT background tasks.
- 2 Restart the PC.
- 3 Click **Cancel** at the MAT login prompt.
- 4 **Important:** Close all applications, close the Control Panel, and exit any background tasks.
- 5 Insert the MAT 6 CD into the CD-ROM drive.
- 6 Choose **Run** from the Windows **Start** menu.
- 7 In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
- 8 In the Software Selection screen, choose **MAT** and confirm your selection.
- 9 After reading the Licensing Agreement, click **Yes**.
- 10 Click **Next** until the Setup Choices Window is displayed.
- 11 Choose the appropriate setup for your PC:
 - On a stand-alone PC with MAT, or on the first client PC (the MAT controller) that accesses MAT over a network, click **Install/Upgrade**.
 - On an additional client PC that accesses MAT over a network, click **Run from Network**.

- 12 Enter your new keycode and click **Next**.

The screen displays the destination drive and path for the MAT directories. Click **Next** to continue.

- 13 Confirm the packages you purchased and the application licenses you are adding, then click **Next**.

- 14 A message dialog box will be displayed stating "Limits Updated - License Limits have been updated". Press the **OK** button to continue.

Note: At this point, determine your next step. If you are upgrading licenses only, go to step 15 on page 82. If you are adding the Call Accounting application, go to step 16 on page 82 to complete your installation.

- 15 If you are upgrading licenses only, click **Cancel** in the Setup Choices Window, then click **Exit Setup**. This completes your upgrade. Skip the remaining steps. You do *not* need to restart the PC before running MAT.

- 16 If you are adding the Call Accounting application, *do not restart the PC* when prompted. Install the rate tables as follows:

Note: If you plan to install rate tables not provided by Nortel, ignore this step. Follow the installation instructions provided with your rate tables.

- Choose **Run** from the Windows **Start** menu.
- In the listbox, enter **d:\setup** (where **d:** is the CD drive) and click **OK**.
- Click **Next** to start the software installation wizard.
- In the Software Selection screen, choose **Rate_Table** and confirm your selection.
- Select the carriers whose rates are to be installed by clicking next to the carrier name (a checkmark appears). Click **Next**.
- You must restart the PC before running your new MAT applications. This completes your upgrade.

Appendix A: MAT / Windows Compatibility Table

The following chart displays the compatibility of different versions of MAT and Windows.

Table 2
MAT/Windows Compatibility Chart

MAT Version	Windows 3.1	Windows 95	Windows 98	Windows NT Workstation 4.0
4.7X	Compatible	Compatible	Not Compatible	Not Compatible
5.7X	Not Compatible	Compatible	Not Compatible	Not Compatible
6.0	Not Compatible	Compatible	Not Compatible	Compatible
6.1	Not Compatible	Compatible	Compatible	Compatible
6.4	Not Compatible	Compatible	Compatible	Compatible
6.5	Not Compatible	Compatible	Compatible	Compatible
6.6	Not Compatible	Compatible	Compatible	Compatible

Appendix B: Meridian 1 Communications Requirements

X11 Releases required for MAT applications

The following chart outlines the available MAT applications and the X11 software and connection types supported.

Table 3
X11 releases required for various MAT applications

MAT Application	X11 Release Supported ^a											Connection-Type ^b
	14	16 ^c	17	18 ^d	19	20	21	22	23	24	25	
Maintenance Windows								X	X	X	X	Ethernet/PPP
Alarm Management								X	X	X	X	Ethernet/PPP
System Terminal												
— Overlay Passthru								X	X	X	X	Ethernet/PPP
— VT220	X	X	X	X	X	X	X	X	X	X	X	Serial
ESN ART	X	X	X	X	X	X	X	X	X	X	X	Ethernet/PPP/Serial
Station Admin	X	X	X	X	X	X	X	X	X	X	X	Ethernet/Serial
Traffic Analysis	X	X	X	X	X	X	X	X	X	X	X	Ethernet/Serial ^e
Call Accounting	X	X	X	X	X	X	X	X	X	X	X	Serial
Call Tracking	X	X	X	X	X	X	X	X	X	X	X	Serial

- a. MAT Tools Release 6.6 supports X11 Releases 19 through 25 and Option 11C Compact systems running X11 Releases 1 and 2.
- b. Ethernet/PPP connections are only supported on Releases 22 through 25 and requires the MAT Management Interface software package 296.
- c. Only X11 International Releases 16.9xG are supported.
- d. X11 Release 18.3xH is supported on Option 11 systems only. X11 International Releases 18.2xH are not supported.
- e. Only serial connection is supported if traffic is being collected from a buffer box.

Systems equipped with IOP cards

For Meridian 1 systems equipped with IOP cards the minimum supported vintage is NT6D63BA.

X11 software packages required

The following packages are required for each of the applications listed:

Table 4
X11 software packages required

Application	X11 Software Packages Required
Alarm Management	164, 242, 243 and 296
Alarm Notification	315 (for each monitored Meridian 1)
Maintenance Windows	164, 242, 243 and 296
System Terminal - Overlay Passthru	164, 242 and 296
Ethernet Connection for Station Administration, Traffic Analysis and ESN ART	164, 242 and 296
Data Buffering and Access (DBA)	296 and 351

Appendix C: Uninstalling MAT Software

The following procedures describe how to remove MAT software:

Uninstalling MAT applications

To remove an installed MAT application, you must use the same installation wizard that installed the application originally.

Note: When removing several applications, remove them in the reverse order in which they were installed. The Common Services application can only be removed after all other applications have been removed.

- 1 Locate the CD containing the setup.exe for the application you wish to remove. Open the **setup.exe** application.
- 2 Follow the prompts presented by the Wizard to the Setup Choices window. Select **Uninstall**. The Uninstall Application window appears.
- 3 Select the application you wish to remove, or click **Select All** to select all applications. Click on **Uninstall**. The Confirm File Deletion window appears. Click on **Yes** to confirm your action.
- 4 An uninstall status window appears. Click **OK** when completed.

Uninstalling MAT data

The Uninstall application does not remove MAT data. The data must be removed manually. To completely remove MAT data in preparation for a totally new MAT installation, follow these procedures:

WARNING! Make sure that you no longer need the MAT data before performing this procedure.

- 1 From the **Start** menu, select **Programs** then **Windows Explorer**.
- 2 Locate and select the directory containing MAT data. The default directory name is c:\Nortel. This directory may have been renamed; check your network plan.
- 3 From the **File** command on the menu bar, select **Delete**.
- 4 Click **Yes** in the Confirm Folder Delete dialog box.
- 5 Empty the Recycle bin.

Appendix D: Modem Configuration in Windows for MAT Applications

To ensure that a modem is configured correctly under Windows 95, Windows 98, or Windows NT Workstation 4.0, configure it through the modem control panel. The modem control panel will search for and detect a connected modem automatically, and then store the configuration information in the registry for other Windows applications to access.

The same is also true for MAT 6 applications, where the modem configuration information is obtained by searching the Windows registry with the COM port specified in the communication profile. MAT communications software will then set up the Run-Time-Container (RTC) with the modem initialization string and communication profile settings for the application to make its connection to the Meridian 1.

However, there are a number of limitations with this process that the user must take into account when configuring the modems:

- The Windows Modem control panel allows multiple modems to be configured on the same COM port.

MAT 6 software will always use the first modem found in the registry configured for the specified COM port in the communications profile. To ensure proper modem operation, only one modem/communication device should be configured on a given COM port.

- A factory modem initialization (INIT) string is stored in the Windows registry. This INIT string will be used by MAT applications to set up the modem connection.

The MAT 6 communications software is written to use verbal (V1) result code. If the factory INIT string is set to use numeric (V0) result code, the “Can’t set modem parameters” error code will occur and the dial up attempt will be aborted. To modify the factory INIT string, the user must use the registry editor (regedit) to change the factory INIT string to use verbal (V1) result code. Please see the Windows documentation for detailed instructions on how to use the Registry Editor or use the instructions below.

- When searching the modem configuration information in the Windows registry, the “AttachedTo” string value is used to identify which COM port is attached to the modem.

For a PCMCIA modem, this “AttachedTo” string value may not be available in the registry. As a result, no modem will be found during the search and the RTC will only contain the communication profile settings. To correct this problem, the user must use the registry editor (regedit) to add this “AttachedTo” string value of the COM port configured for the PCMCIA modem. Please see the Windows documentation for detailed instructions on how to use the Registry Editor or use the instructions below.

High-speed smart modem configuration consideration

As modem technology progresses, the new generation of high speed modems provide additional functionality to achieve the highest possible connection rate. These high speed smart modems use various tones during the handshaking period to negotiate the speed and protocol.

An area needing extra attention is the modem configured on the Meridian 1 SDI port. In most cases, the modem attached to the M1 SDI port is configured to run in dumb mode at the same speed the M1 SDI port is configured for (at 9600bps or less). This locks the modem into a specific mode of operation to prevent the modem being run in command mode (echo input) or connecting at a different baud rate than the M1 SDI port is configured for.

When a high speed smart modem is used on the MAT 6 PC to dial up the M1 modem, the PC modem will always attempt to connect at its highest possible speed. The switch modem, however, can only connect at the configured speed. So, during the modem online handshaking period, the PC modem will send out different tones to negotiate the speed and protocol, and the switch modem will connect at its configured speed and ignore additional attempts. Once the switch modem is connected, any additional handshaking tones sent by PC modem get translated into data (garbage under this condition) and forwarded to M1 SDI port. These garbage characters may eventually lock up the M1 SDI port. The two modems may still connected, but access to the M1 overlay input is no longer possible.

To avoid this type of problem, the key is to maintain modem compatibility. Here are some recommended steps to avoid potential problems and increase the connection success rate.

- The PC modem should be configured to match the switch modem's settings.
- The speed between the M1 SDI port and switch modem is locked to the M1 SDI port's baud rate if a high speed modem is installed on M1 SDI port.
- To minimize the garbage characters after carrier detect or carrier lost situations, set your modem S9 register to a higher value (for example, 30 = 3 seconds) and S10 register to a lower value (for example, 7 = 7/10 of a second). Note: when increasing the value of S9 register, you may need to do some timing adjustments on some of the modem/buffer equipment scripts.

Troubleshooting modem connections

Modem does not dial

- Verify that your modem is configured to be on the correct COM port on the Control Panel, Modems, Properties, Communications property sheet.

Test the COM port to which your modem is connected by launching Hyperterminal (under **Start/Programs/Accessories/Hyperterminal**). Hyperterminal prompts you for a connection name and presents you with the phone number property sheet. In the Connect Using drop down list box, select **Direct to COM X**, where X is the COM port to which your modem is connected. Once you are in the terminal, you should be able to type the command **AT** and see the “OK” response back from the modem.

- If your modem does not respond, you may be using the wrong COM port. Go to the File/Properties menu and select **Direct to COM Y**, where Y is a different COM port. Once you have located the correct COM port, go back to MAT Navigator and bring up the properties for the system to which you are trying to connect. Click on the communication tab and select PPP or Serial from the communication profile list. Verify that the COM port you selected for this profile is the COM port that you located your modem on using Hyperterminal. Verify that the baud rate matches the settings for the M1 port into which you will dial.
- If the modem still does not dial, follow the steps above to establish a Hyperterminal connection. After issuing the **AT** command and receiving the “OK” prompt, issue the command **ATDT1234567**, where 1234567 is the phone number for the modem connected to the M1. If you do not hear the modem dialing and connecting at this point, verify that your phone line and modem cables are correctly connected. If the modem dials and connects, verify that you have dial-up-networking installed along with a dial-up-adaptor. See “Configuring PC PPP communications” on page 47”.

Modem dials and connects but the connection details button reveals that scripting failed while waiting for a prompt

- Verify that the baud rate configured for the TTY on the switch matches the baud rate configured for the modem in the Navigator/System Properties/Communication property sheet/PPP or Serial profile for the system to which you wish to connect. Make sure that the data bits, stop bits, and parity match as well.

Modem dials but does not connect

- Verify that the phone number you are dialing is not busy.
- Verify that you have included all necessary digits in the phone number. Check in Navigator/System Properties/Communication property sheet/PPP or Serial profile for the system to which you wish to connect.

Modem dials and connects and the scripting is completed successfully, but the Connection Details button reveals that the session failed

- Verify that the IP address that you assigned to the local PPP interface on the M1 is the same as the IP address you entered in the address field on the Navigator/System Properties/Communication property sheet/PPP profile for the system to which you wish to connect.
- If possible, verify that you can make an Ethernet connection to the same switch.

After establishing a PPP connection, but before canceling the connection dialog: Open a DOS command prompt (**Start/Programs/MS-DOS Prompt**) and run the ping command by typing **ping 47.1.1.10** where 47.1.1.10 is the M1's local IP address in this examples (see "Configuring Ethernet and PPP at the Meridian 1"). Verify that the data lights on your modem flash as the ping data is sent to the Meridian 1. If you do not receive a response from the M1, verify that the IP address that you assigned to the local PPP interface on the M1 is the same as the IP address you entered in the address field on the Navigator/System Properties/Communication property sheet/PPP profile for the system to which you wish to connect.

Modem dials and connects but you receive the error message “Error writing to COM port” or “Error reading from COM port”.

- Verify that the modem you installed in the Control Panel matches your modem type. Remove your installed modem driver and install a generic modem driver in its place.

From the Control Panel/Modems, click the **Remove** button to remove your modem from the installed list. Click **Add** (to add a new modem driver). Click the check box that says “Don’t detect my modem; I will select it from a list” and then click **Next** to move to the next step. Select the standard modem driver matching your modem’s baud rate (for example, Standard 14400 bps Modem) and click **Next** to move to the next step. Select the COM port to which your modem is connected, and click Next. Click **Finish** to complete the modem installation. Restart the system, and try to establish a PPP or Serial connection.

Appendix E: Installing MAT 5 or 6 on a new first-client PC

If the PC that acted as the “first client” in a MAT 5 or 6 client-server installation is no longer available, follow these instructions.

The first-client PC acts as the controller. All MAT upgrades must be performed on the first-client PC.

Note: MAT 5 does not support Windows 98. If your PC has Windows 98 installed on it, you must install MAT 6.1 or later instead.

Step 1: Select and prepare new first-client PC

- 1 Select a PC to act as new first-client PC. Make sure it meets specifications outlined in “MAT / Windows Compatibility Table” on page 83.
- 2 Assemble MAT CD-ROM software and associated diskettes (if applicable), documentation and security dongle.
- 3 Set up new first-client PC according to the procedures in “Setting Up Your MAT Environment” on page 15.

Step 2: Backup MAT 5 or 6 common data from server

- 1 Locate MAT common data on network server.
- 2 Backup MAT common data from network server. If space is available, backup common data to a directory on new first-client PC. Note location of MAT common data backup file (you will restore it after reinstalling MAT).

Step 3: Install MAT 5 or 6 on new first-client PC

- 1 Plug security dongle into a parallel port on PC
- 2 Restart PC

Important: Hold down the Shift key after you log in to prevent any background task from running.
- 3 Map a network drive to directory on network server where MAT will be installed. Ensure that this drive is automatically reconnected at logon.
- 4 Insert MAT CD into CD drive.
- 5 Choose **Run** from Windows 95 **Start** menu.
- 6 In the listbox, enter **d:\disk1\setup** (where d: is the CD drive), and click **OK**
- 7 After reading Licensing Agreement, click **Yes**.
- 8 Click **Next** until the Setup Choices window displays.
- 9 Click **Install/Upgrade**.
- 10 Enter the serial number and keycode and click **Next**. Setup will ask for the destination drive and path for the following directories:
 - Application Executables (MAT5 executable files)
 - Common Data (for example, Site and System Data)
 - Local Data (for example, PC Event Log)
- 11 Type in the directory or click **Browse** and choose the local drive and directory where the **Application Executables** are to be installed (C:\Nortel, for example).

Note: Application executables may be installed on the shared drive, however MAT performance will be slower than if these files are installed on the local drive. “Local drive” refers to a drive on your local PC.
- 12 Type in the directory or click **Browse** and choose the shared drive and directory where **MAT Common Data** is to be installed (M:\Nortel, for example).

Note: Common Data files *must* be installed on the server.

- 13** Type in the directory or click **Browse** and choose the local drive and directory where **Local Data** is to be installed (default is C:\Nortel).
- Note:* Local Data files *must* be installed on PC hard disk.
- 14** Select the applications that you wish to install and click **Next**.
If you have installed Call Accounting, you are reminded to install the rate tables. Click **OK** to continue.
- 15** If you have installed Call Accounting, *do not restart the PC* when prompted. Do the following to install the rate tables:
- Note:* If you plan to install rate tables not provided by Nortel, ignore this step. Follow the installation instructions provided with your rate tables.
- Choose **Run** from the Windows 95 **Start** menu.
 - In the listbox, enter **d:\setup** (where a: is the diskette drive) and click **OK**.
 - At the Welcome screen, click **Next**.
 - Select the carriers whose rates are to be installed by clicking next to the carrier name (a checkmark appears). then click **Next**.
- 16** If you have update disks, do the following:
- Choose **Run** from the Windows 95 **Start** menu.
 - Insert first update disk in the diskette drive.
 - In the listbox, enter **a:\setup** (where a: is the diskette drive) and click **OK**.
- 17** When the “Question” dialog is displayed, you have the option of viewing a README file. To view the README file now, click **Yes**. Otherwise, click **No**.
- 18** After installation is complete, restart PC.

Step 4: Restore MAT common data to server

- 1 Locate MAT common data backup file
- 2 Overwrite new MAT common data file installed in Step 15 above with MAT common data backup file.

Turn to “Installing and/or upgrading MAT in a client-server environment” on page 64 to continue with the upgrade.

Meridian Administration Tools
Installation and Upgrades
User Guide

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