



555-230-223  
January 1996

**DEFINITY® Communications System  
Generic 3 Installation, Administration,  
and Maintenance of CallVisor® ASAI  
Over the DEFINITY LAN Gateway**

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## About This Book

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### **Purpose**

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This book covers the CallVisor® ASAI DEFINITY® LAN Gateway system that provides Adjunct Switch Application Interface (ASAI) functionality using an Ethernet transport. Its purpose is to explain the tasks involved in installing, administering, and maintaining a DEFINITY LAN Gateway system.

### **Intended Audience**

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This book is aimed at the following personnel:

- System administrators
- Telecommunications managers
- Management Information System (MIS) managers
- Local Area Network (LAN) managers
- AT&T services personnel

This book is also helpful to any individual who needs to understand how CallVisor ASAI over the DEFINITY LAN Gateway operates.

## **Prerequisite Knowledge**

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Anyone administering ASAI over the DEFINITY LAN Gateway should possess basic knowledge of DEFINITY system administration. (It is assumed the user of this guide can administer ASAI links.) In addition, some knowledge of Transport Connection Protocol/Internet Protocol (TCP/IP) is recommended.

## **How this Book is Organized**

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This book has the following chapters and appendices:

Chapter 1, Introduction	Provides an overview of CallVisor ASAI Over the DEFINITY LAN Gateway as well as helpful information for using the system
Chapter 2, Installation	Details the tasks involved in installing the system
Chapter 3, Administration	Details the screens used to administer and maintain the system
Chapter 4, Maintenance	Details activities for keeping the system operational
Appendix A, PBX Carrier Configuration Worksheets	Contains planning information for installing the system
Appendix B, Supported Terminals and Modems/ Option Settings	Contains helpful information for choosing peripheral equipment and setting terminal options
Appendix C, Ordering Information	Contains information for ordering system components
Appendix D, Troubleshooting Procedures	Contains problem-solving procedures related to Chapter 4, Maintenance
Appendix E, Sample Customer Configurations	Contains three sample configurations and instructions for administering them
Appendix F, Returning the Application to its Original State	Provides instructions for returning the application to its original state
Appendix G, Project Manager Worksheet	Contains a worksheet necessary for system installation

Glossary	Defines terms and acronyms used in the guide
Index	Provides help in locating information in the guide quickly and easily

## **Documentation Conventions**

---

The following conventions are used in this document:

- The full title of the product described in this document is CallVisor ASAI Over the DEFINITY LAN Gateway. It is sometimes shortened to “DEFINITY LAN Gateway” in this guide.
- Terminal keys that you press are shown in curved-edge boxes. For example, an instruction to press the return, carriage return, or equivalent key is shown in this document as:

Press .

Function keys appearing on the bottom of the screens are also shown in curved-edge boxes in the text.

- Information that is displayed on your terminal screen — including screen displays, field names, and prompts — is shown in the following typeface:

The `password:` prompt will appear.

- Information that you enter from your keyboard is shown in the following typeface:

Type `Yes` or `No` at the prompt.

## **Related Documents**

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*AT&T Adjunct/Switch Application Interface Specification (ASAI), 555-025-203*

The ASAI Specification document provides a detailed description of the ASAI Reference Model. The Reference Model contains all the capabilities available with ASAI.

*AT&T DEFINITY Communications System Generic 3 CallVisor ASAI Planning Guide, 555-230-222*

This manual provides planning and implementation information for CallVisor ASAI.

*DEFINITY Communications System Generic 3 CallVisor ASAI Protocol Reference, 555-230-221*

This document provides detailed protocol information regarding the DEFINITY Communications System Generic 3 CallVisor Adjunct/Switch Application Interface (ASAI). Issue 4.0 also contains information about the TCP/IP protocol

used for transporting messages in CallVisor ASAI Over the DEFINITY LAN Gateway. This document is the companion to the following document (555-230-220).

*DEFINITY Communications System Generic 3 CallVisor ASAI Technical Reference, 555-230-220*

This document provides a detailed functional description of CallVisor ASAI for the Generic 3 switch. Issue 4.0 also describes the TCP/IP protocol used for transporting messages in CallVisor ASAI over the DEFINITY LAN Gateway.

*DEFINITY Communications System Generic 3 Feature Description, 555-230-204*

The Feature Description serves as an overall reference for the planning, operation, and administration stages of the Generic 3 switch.

*DEFINITY Communications System Generic 3 V4 Implementation, 555-230-655*

This document describes the implementation of the Generic 3 V4 switch.

---

# Introduction

# 1

---

## **Overview of CallVisor ASAI Over the DEFINITY LAN Gateway**

---

CallVisor ASAI over the DEFINITY LAN Gateway is a communications interface that provides the functionality of the Adjunct/Switch Application Interface (ASAI) using an Ethernet transport instead of a Basic Rate Interface (BRI) transport. It is supported by DEFINITY Communications System Generic 3V4, and by Generic G3V2 and Generic 3V3 (except for Generic 3VS) after a field maintenance release has been loaded.

The DEFINITY LAN Gateway system (ED-1E546-70) is composed of the system assembly and a software application. The system assembly is a Multi-Function Board (TN2208) and an Alarm Board (TN2170) inserted into a DEFINITY carrier. The software application serves as an ISDN brouter of ASAI messages through a TCP "tunnel" via 10BaseT Ethernet.

The ASAI-Ethernet transport option can either replace or supplement BRI. For example, an ASAI-Ethernet link may replace an ASAI-BRI link if more throughput is desired for the same client application. Or, the ASAI-Ethernet transport option may be used in addition to the ASAI-BRI transport option if a client application is being added to the system and the customer does not want to disturb an existing client application.

Because the DEFINITY LAN Gateway requires its own administrative information (not found on DEFINITY), it is necessary to administer the system assembly (TN2170 and TN2208) as well as the DEFINITY switch. For the system assembly to work with the LAN, the proper TCP/IP parameters must be set up, and information about the clients who will use the ASAI-Ethernet service must be administered on the system assembly.

CallVisor ASAI Over the DEFINITY LAN Gateway is provided with a default set of administered parameters, but customers can also administer the LAN parameters and client information to conform to their networks.

**⇒ NOTE 1:**

AT&T support services for the DEFINITY LAN Gateway system will not troubleshoot a customer LAN. If the customer LAN is experiencing difficulties, customers should follow the escalation path supplied by their LAN provider.

**⇒ NOTE 2:**

DEFINITY switch administration of ASAI does not change when using CallVisor ASAI over the DEFINITY LAN Gateway.

Depending on the system setup desired, customers can configure and administer the DEFINITY LAN Gateway system in several ways:

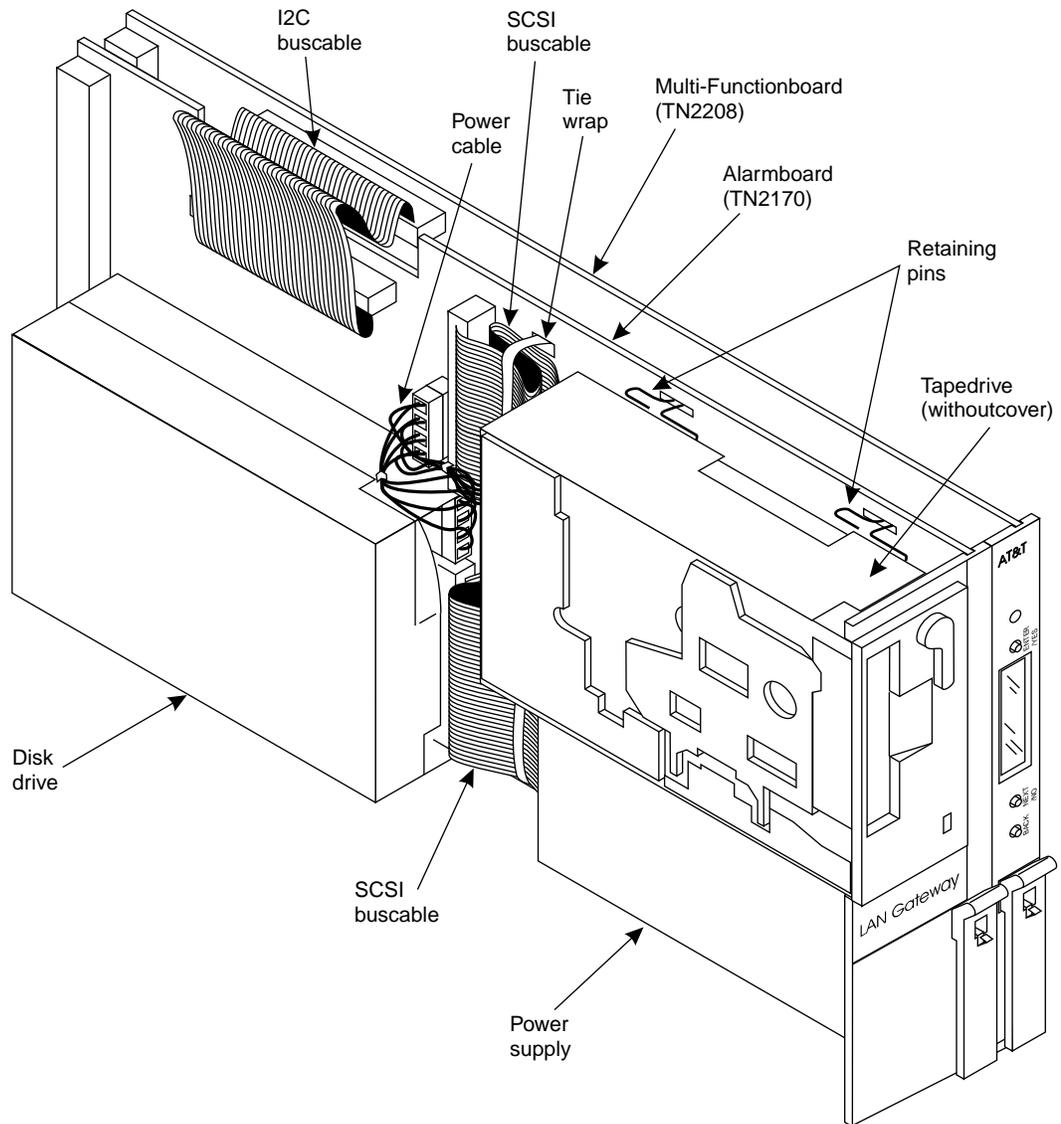
- Using telnet over TCP/IP
- Using a dumb terminal dedicated to the DEFINITY LAN Gateway circuit pack
- Using the RS-232 port of a PC or host attached to the DEFINITY LAN Gateway circuit pack.

A menu-driven interface offers ease of administration, and help screens are available if assistance is needed. In addition, security features explained in this chapter help guard against unauthorized access.

## **System Hardware**

---

The application for the ASAI-Ethernet interface is supported by a system assembly, a “sandwich” of the two boards mentioned previously, the TN2208 (Multi-Function Board) and the TN2170 (Alarm Board). Figure 1-1 shows the DEFINITY LAN Gateway system assembly.



**Figure 1-1. DEFINITY LAN Gateway System Assembly**



**NOTE:**

The system assembly is also used to support DEFINITY AUDIX®. However, the components are populated differently for DEFINITY LAN Gateway and for DEFINITY AUDIX, so the hardware is **not** interchangeable. Be careful not to confuse a DEFINITY LAN Gateway system assembly with a DEFINITY AUDIX system assembly when installing or upgrading system software for either product.

The DEFINITY LAN Gateway system assembly can be distinguished from the DEFINITY AUDIX system assembly by the "TN" codes on the circuit packs and by a DEFINITY LAN Gateway label. The DEFINITY AUDIX system assembly uses TN566 (not shipped on new systems), TN566B, TN567, and TN2169 or TN2170. The DEFINITY LAN Gateway system assembly uses TN2170 and TN2208.

The TN2170 circuit pack supports a hard disk, Ethernet controller, and removable media. It also supports a serial port, an additional analog modem port, and remote maintenance hardware.

The TN2208 circuit pack supports a 32Mhz 486SLC Central Processing Unit (CPU) with 16MB of fixed (non-socketed) memory. It has 2 serial ports and a user interface/Liquid Crystal Display (LCD) panel. Naturally, it also has an interface to DEFINITY call control and switching fabric.

## **System Software**

---

The software that provides the DEFINITY LAN Gateway application on the system assembly comes preloaded on the system when it is shipped from the factory. It is also supplied on removable media that can be reinstalled or used to upgrade an existing system.

The function of the software is to act as a mapper (or router) for ASAI messages. It links an ISDN network (DEFINITY call control) to a TCP/IP network (computer client) by moving ASAI messages back and forth from Q.921 synchronous data frames to TCP/IP Ethernet packets. It also associates computer clients (by their TCP/IP network addresses) to physical ports on DEFINITY that are administered as ASAI extensions.

This mapping provides a virtual point-to-point connection between a particular computer client and an associated port on DEFINITY. This arrangement continues to support the ASAI ability to sense when a particular computer client connection is lost and send an alarm. It also provides a more secure environment by fixing the addresses of the clients that may receive DEFINITY LAN Gateway service.

## Upgrading Your Existing System

If you want to have CallVisor ASAI over the DEFINITY LAN Gateway in a non-supported switch, you must upgrade it with a field maintenance release of G3V4 software. Contact the Technical Service Center at 1 800 248-1234 for more information. (You will be prompted for your Social Security Number and 4-digit PIN.)

If you attempt to upgrade from a pre-G3V4 switch, you must remove the translations (assuming you had the TN2208 circuit pack aliased as a BRI circuit pack in the pre-G3V4 switch).

### **WARNING:**

*If you upgrade your system yourself, follow these precautions:*

*To prevent damage to the DEFINITY LAN Gateway system assembly, make sure that you have connected the system assembly adapter cables to the port connectors on the back of the switch (see Step 2 in Task 5: Install the DEFINITY LAN Gateway System Assembly in Chapter 2) before you insert the system assembly in the switch carrier.*

*You can install the system assembly in the switch when the switch is powered on or off. When the assembly is inserted in the slots of the switch carrier, it will automatically power up, run diagnostics, and boot. To avoid a disk crash, never remove the assembly without first completing the shutdown procedure to shut down the DEFINITY LAN Gateway system (and allowing the disk to completely spin down).*

*For the same reason, do not cycle the power on the switch (for example, during switch acceptance tests) once the system assembly is inserted unless you have first shut down the DEFINITY LAN Gateway system. Refer to the maintenance screens in Chapter 3 for the shutdown procedure.*

## Security Considerations

Toll fraud is the unauthorized use of a company's telecommunications system by an unauthorized third party. DEFINITY LAN Gateway offers the following security features to help prevent toll fraud and protect against unauthorized users gaining access to the system and learning the content of calls:

- Password protection — The system requires administrators to provide a password before access is granted. Also, when the system is installed, default passwords are changed to help guard against unauthorized access.
- Audit trail — DEFINITY LAN Gateway provides selective logging of an audit trail of operations carried across the interface. Users can view a set of Security Logs to learn such information as failed login attempts,

unauthorized client access attempts, time of Multi-Function Board resets, and commands executed from Administration/Maintenance screens.

This system does not support an encrypted/secured protocol; therefore, it is possible for a criminal hacker to “spoof” the system by reverse engineering the protocol and then “impersonating” a valid DEFINITY LAN Gateway client. This is more likely to occur if the hacker has physical access to the Ethernet LAN or to a system attached to the Ethernet LAN that supports the DEFINITY LAN Gateway. Customers are encouraged to help protect the system and reduce the possibility of toll fraud occurring by attaching the system assembly and its clients to an isolated, physically secure Ethernet (not connected to any other Ethernet).

This chapter consists of three sections:

- Prerequisites
- Hardware Installation
- Initial Administration



**NOTE:**

This chapter is for AT&T services personnel. Normally, AT&T installs the DEFINITY LAN Gateway system. However, the customer is responsible for DEFINITY switch administration during installation. Customers may want to read this chapter to understand what AT&T services personnel will be doing during installation to facilitate a productive visit.

If the system is already installed, proceed to Chapter 3, "System Administration."

## Prerequisites

---

This section provides prerequisites for installing a DEFINITY LAN Gateway system. These include:

- Task 1: Verify the selected site
- Task 2: Gather required tools
- Task 3: Review safety considerations
- Task 4: Verify components and connectivity.

Before beginning the installation, make sure you have completed these prerequisites. Each is detailed in the remainder of this section.

## Task 1: Verify the Selected Site

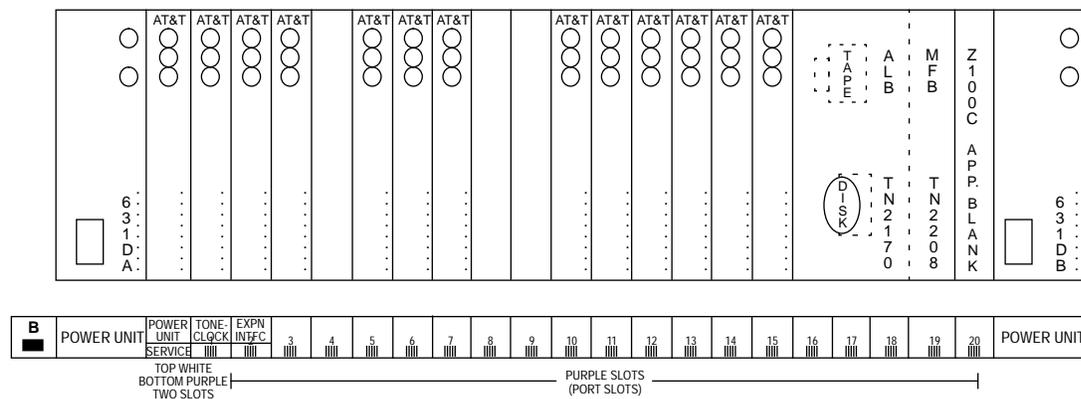


**NOTE:**

Defining the system requirements and ensuring that the site meets these requirements are the responsibility of the Project Manager and the customer and must be completed before you install the DEFINITY LAN Gateway system. However, the guidelines are listed here so that you are aware of these requirements.

Verify that the site selected for the DEFINITY switch and the DEFINITY LAN Gateway system provides the following:

- A DEFINITY Generic 3V4 switch, or DEFINITY Generic 3V4 software that incorporates a field maintenance upgrade for G3V2/V3.
- For a DEFINITY LAN Gateway system being installed in an existing switch, five contiguous slots in a switch carrier to house the DEFINITY LAN Gateway system (slots 16 to 20 in Figure 2-1 that follows). (See Appendix A for carrier worksheets.)



**Figure 2-1. DEFINITY LAN Gateway System in a Switch Carrier**

- A LAN connection available to the system prior to hookup. This connection to the LAN is provided by the customer for AT&T at an agreed-upon demarcation point.
- Easy access for cabling
- Good workspace for the system administrator and/or operators
- Temperature range of 50 to 100 F (10 to 38 C), with the ideal range between 50 and 80 F

- Humidity range of 20% to 80%, noncondensing. In addition, make sure the site is secure and provides protection from excessive sunlight, heat, cold, chemicals, static electricity, magnetic fields, vibration, and grime.



**NOTE:**

ASAI must be enabled on the DEFINITY Customer Options form for the system to be fully operational.

## **Task 2: Gather Required Tools**

---

To install a DEFINITY LAN Gateway system, you need the following tools:

- Narrow width, flat-blade screwdriver
- 1/4-inch nut driver (recommended)
- Antistatic grounded wrist strap
- Punch-down tool

## **Task 3: Review Safety Considerations**

---



**WARNING:**

*Electronic equipment can be damaged by electrostatic discharge. Do not touch any electronic component unless you are properly grounded.*



**DANGER:**

*Do not touch the switch backplane while installing the DEFINITY LAN Gateway system. The backplane contains dangerous voltages and current.*

To prevent damage to the equipment and yourself, adhere to the following:

- Make sure you are familiar with the procedures necessary to prevent electrostatic damage to the equipment.
- Properly ground a wrist strap.
- Place the grounded wrist strap on your bare wrist. (The wrist strap must contact your bare skin directly — do not wear it over your clothes.)
- Do not remove the system assembly from the polyethylene bag until:
  - Your wrist strap is on your wrist and properly grounded.
  - You have made room in the switch carrier and you are ready to insert the system assembly in the carrier.
- If you need to work on the system assembly — that is, disassemble it — place the assembly on a grounded antistatic work mat.

## Task 4: Verify Components and Connectivity

---

Study Figure 2-2 that follows to gain a general understanding of how the system assembly is to be connected. Some customer-furnished LAN equipment is included within the dotted lines in this figure. Helpful definitions for this equipment are as follows.

- **Balun (balanced/unbalanced)** — An impedance matching transformer. Baluns are small, passive devices that convert the impedance of coaxial cable so that its signal can run on twisted-pair wiring. They are used often so that IBM 3270-type terminals, which traditionally require coaxial cable connection to their host computer, can run off twisted-pair. Baluns work for some types of protocols and not for others. There is often some performance degradation with baluns, and the signal cannot run as far on twisted wire as it can on coaxial cable.
- **10BaseT Hub** — An Ethernet LAN that works on twisted pair wiring which looks and feels like telephone cabling. 10BaseT Ethernet LANs work on home runs in which the wire from each workstation snakes directly to the 10BaseT hub (like the wiring of a phone system). The advantages are twofold — first, if one machine crashes, it doesn't bring down the whole network, and second, 10BaseT hubs often come with sophisticated management software.

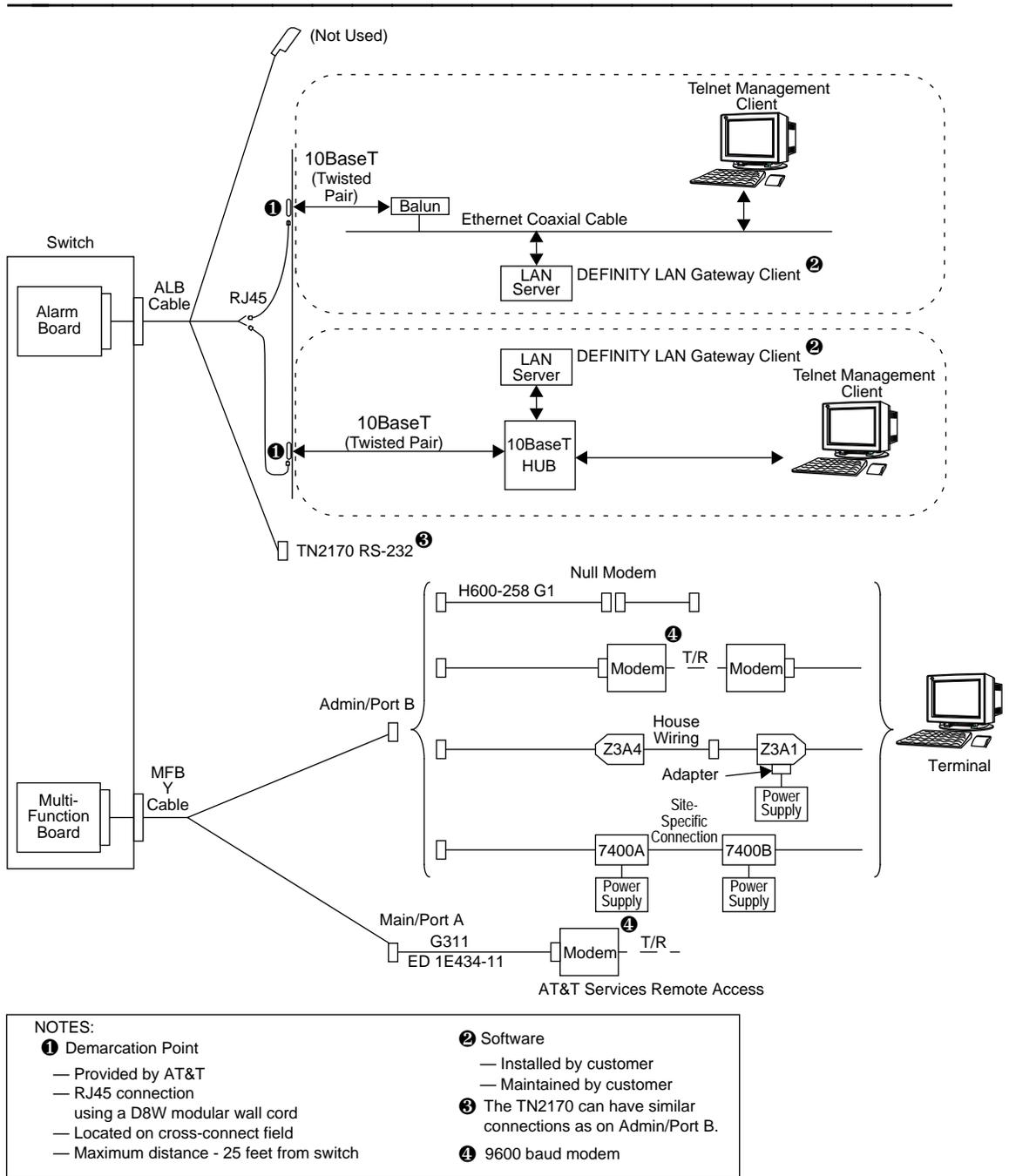


Figure 2-2. DEFINTY LAN Gateway External Connections

Refer to the diagrams in Tasks 6 and 7 in section 2 of this chapter, *Hardware Installation*, for additional connectivity details. Then compare the parts listed in Appendix C, "Ordering Information" with the actual parts you received to make sure that all required parts have been ordered and shipped correctly.

 **NOTE:**

The components listed in Appendix C are not the only equipment that can be used with the DEFINITY LAN Gateway system. Other terminals, PCs, and modems are also supported.

## Hardware Installation

---

This section describes the tasks needed to install the DEFINITY LAN Gateway system hardware and peripheral hardware.

The DEFINITY LAN Gateway system installation tasks are the same for all switch types. These tasks include:

- Task 5: Install the DEFINITY LAN Gateway system assembly
- Task 6: Connect the Alarm Board cables
- Task 7: Install the terminal (optional)
- Task 8: Connect the Maintenance Modem
- Task 9: Finalize and test the hardware

Before beginning these tasks, refer to the following worksheets:

Appendix A, PBX Carrier Configuration Worksheets

- A-1, Port Slot Assignments (Before Carrier Rearrangement)
- A-2, Port Slot Assignments (For Carrier Rearrangement)
- A-3, Port Slot Locations for the DEFINITY LAN Gateway System Assembly

Appendix B, Supported Terminals and Modems/Option Settings

- B-1, Terminals/Modems

### Task 5: Install the DEFINITY LAN Gateway System Assembly

---

This task is required for all installation scenarios.

#### **WARNING:**

*To prevent damage to the DEFINITY LAN Gateway system assembly, make sure that you (or the factory, for new switches) have connected the system assembly adapter cables to the port connectors on the back of the switch (as described in Step 3) before you insert the system assembly in the switch carrier.*

*You can install the system assembly in the switch when the switch is powered on or off. When the assembly is inserted in the slots of the switch carrier, it will automatically power up, run diagnostics, and boot. To avoid a disk crash, never remove the assembly without first completing the shutdown procedure to shut down the DEFINITY LAN Gateway system (and allowing the disk to completely spin down).*

*For the same reason, do not cycle the power on the switch (for example, during switch acceptance tests) once the system assembly is inserted unless you have first shut down the DEFINITY LAN Gateway system. Refer to the maintenance screens in Chapter 3 for the shutdown procedure.*

### **Slot and Carrier Restrictions**

If rearrangement of circuit packs in the PBX is required to accommodate the system assembly, rearrange the packs as indicated on Worksheet A-2, Port Slot Assignments, before proceeding.

There is a maximum of one system assembly per Single Carrier Cabinet (SCC) or MultiCarrier Cabinet (MCC). This assembly occupies five slots and should be placed to the far right in the carrier. For thermal reasons, the system assembly should not be placed in MultiCarrier Cabinet C carrier position (top carrier position).

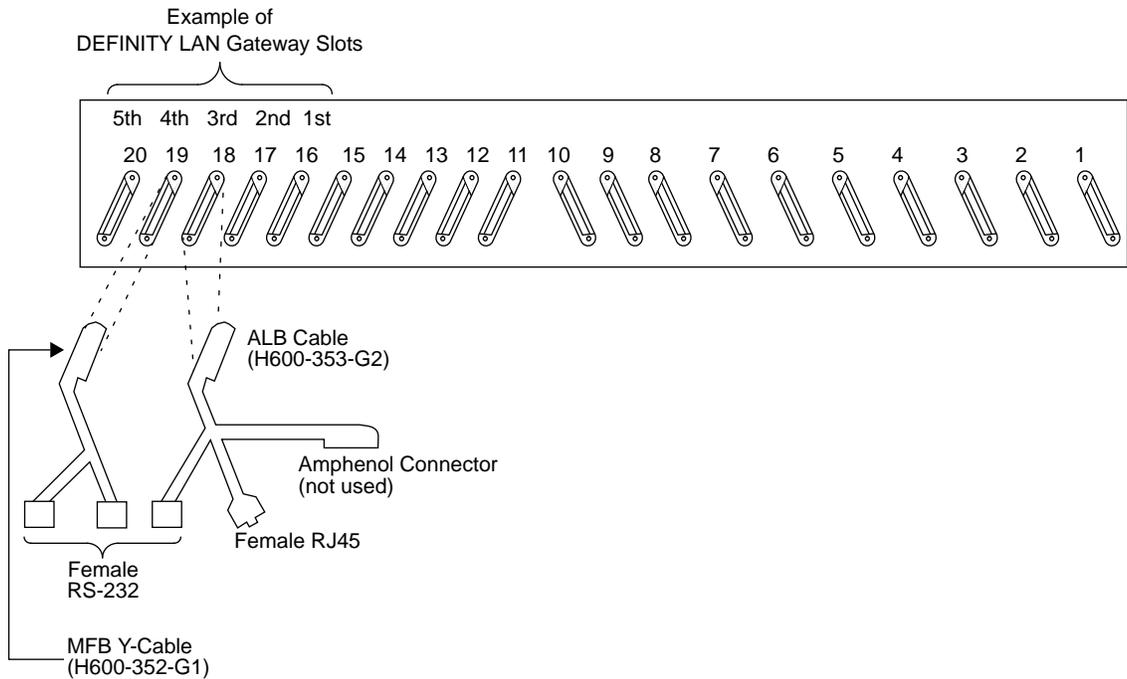
See Appendix A, "PBX Carrier Configuration Worksheets," for detailed information on the rearrangement of circuit packs and slot restrictions.

### **DEFINITY LAN Gateway System Slots**

The system assembly requires five contiguous port slots in the switch carrier. In this description, the five slots are referred to as the first through the fifth slot, with the understanding that they can be any five contiguous port slots. It is recommended that it be installed as far to the right as possible.

The slots are numbered from left to right on the front panel of the switch cabinet, and from right to left on the rear panel as shown in Figure 2-3, Connecting the Adapter Cables, Rear-Panel View. The five port slots are occupied by the DEFINITY LAN Gateway system assembly as follows:

- The first and second slots are covered by the DEFINITY LAN Gateway disk and removable media and are not connected to the switch backplane or amphenol connectors.
- The third slot is connected to the Alarm Board (ALB).
- The fourth slot is connected to the Multi-Function Board.
- The fifth slot remains vacant to provide added clearance and cooling for certain components on the Multi-Function Board.



**Figure 2-3. Connecting the Adapter Cables Rear-Panel View**



**NOTE:**

If the DEFINITY LAN Gateway system was shipped in a new switch, skip to Step 7 of this task.

**Installation Steps**

Using Worksheet A-3, Port Slot Locations for the DEFINITY LAN Gateway System Assembly, follow the steps below to install the system assembly.

1. Remove any existing cables from the third and fourth slots of the five contiguous slots reserved for the DEFINITY LAN Gateway system. For example, if you are to install the DEFINITY LAN Gateway system in slots 7 through 11 of carrier A in the switch, remove the I/O cables from slots 8 and 9. (These are the two slots that provide connectivity to the DEFINITY LAN Gateway system circuit packs.)
2. Referring back to Figure 2-3 and to Steps 2a and 2b that follow, connect the DEFINITY LAN Gateway system assembly adapter cables to the port connectors on the back of the switch.

 **NOTE:**

You must connect these adapter cables directly to the port connectors on the switch. If you install another cable between the switch and the cables, the DEFINITY LAN Gateway system will not operate correctly (either now or in the future).

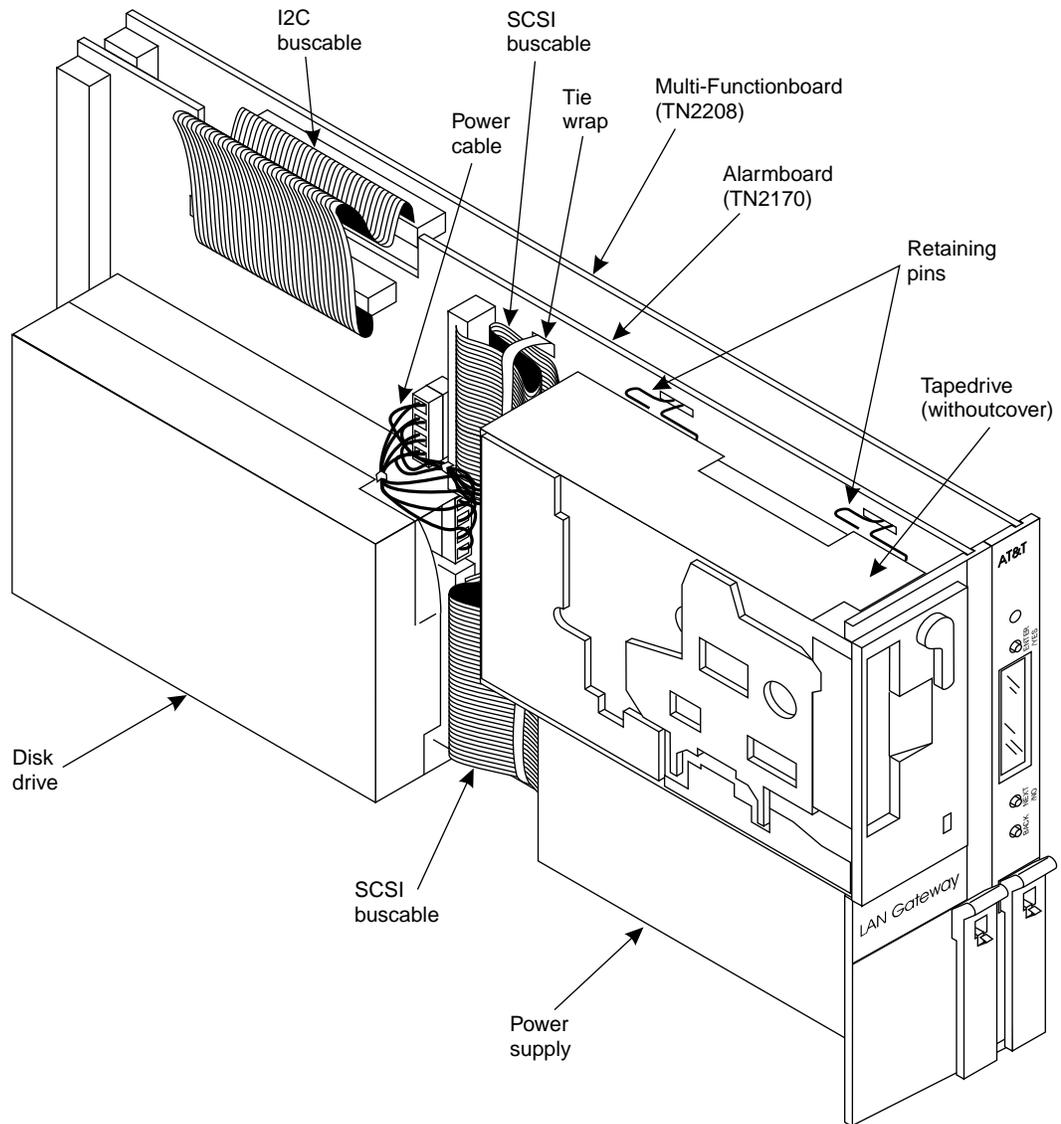
- a. Attach the male D-type amphenol connector on the Alarm Board (ALB) cable (the one with two amphenol connectors, one RJ45 LAN connector, and one 25-pin RS-232 connector) to the ALB (TN2170), the third slot of the five DEFINITY LAN Gateway system slots.
- b. Attach the male D-type amphenol connector on the Multi-Function Board (MFB) Y-cable (the one with one amphenol and two RS-232 connectors) to the MFB (TN2208), the fourth slot of the five DEFINITY LAN Gateway system slots.

 **NOTE:**

If you are installing the DEFINITY LAN Gateway system in a DC-powered switch, perform the following steps to install the 116A isolating data interface. Otherwise, skip to Step 4.

3. Install the 116A isolating data interface.
  - a. Attach the male end of a null modem (supplied with the DEFINITY LAN Gateway system PEC) to the RS-232C connector on both PORT A and PORT B on the MFB Y-cable. Attach the male connector of the 116A to the other end of the null modem.
  - b. Attach the male end of another null modem to the RS-232 connector labeled RESERVED on the ALB Y-cable. Attach the male connector of the second 116A to the other end of the null modem.
4. Insert the system assembly (see Figure 2-4, DEFINITY LAN Gateway System Assembly) into the switch cabinet as follows:

Holding the system assembly by the outside edges of the faceplate, line up the Alarm Board and the Multi-Function Board with the bottom guides of the third and fourth slots, respectively, of the five reserved port slots in the switch carrier.



**Figure 2-4. DEFINITY LAN Gateway System Assembly**



**WARNING:**

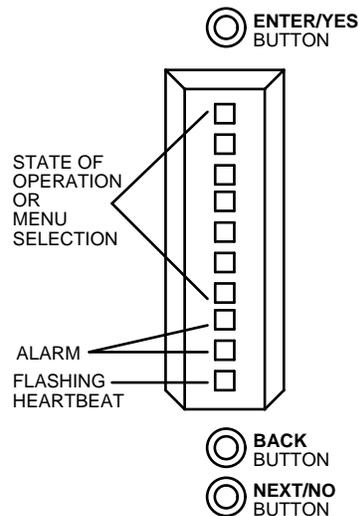
*The DEFINITY LAN Gateway system will automatically boot when seated in the slots. Damage to the disk could occur if the assembly is removed while booting. Therefore, try to avoid the need to adjust or reinsert the assembly after the first attempt to insert it; make sure that the assembly is properly aligned in the slot, and then insert it with a single firm push.*

5. Insert the assembly and lock it in place by pushing up the securing latches on the two circuit packs. (It is normal for the two circuit packs to feel loosely connected to each other. This is to allow some give when you are seating them into the two slots of the backplane.) If the switch is powered on, the DEFINITY LAN Gateway system will boot automatically.

**⇒ NOTE:**

If the switch is not powered on, wait until it is and then proceed to Step 6.

6. As the DEFINITY LAN Gateway system comes up, watch the Liquid Crystal Display (LCD) on the faceplate (see Figure 2-5). The LCD identifies the DEFINITY LAN Gateway states and alarms.



---

**Figure 2-5. DEFINITY LAN Gateway System LCD Display**

The following list details the positions of the LCD:

- Standing to the right of the faceplate and reading from bottom to top, the first position contains the DEFINITY LAN Gateway system heartbeat.
- The second and third positions display two letters indicating the following types of alarms: warnings (WN), minor (MN), and major (MJ). These positions are blank if there are no alarms.
- The remaining positions indicate the DEFINITY LAN Gateway system states or menu selections.

When the DEFINITY LAN Gateway system is coming up, the LCD should display the following states (in order):

BTEST	(Firmware board tests)
BOOT	(Booting the operating system)
OSINIT	(Operating system initialization)
OS	(Operating system)
AINIT	(DEFINITY LAN Gateway system initialization)
ASAI X	(DEFINITY LAN Gateway running with X attached clients)

If the system does not come up to the ASAI X state within 30 minutes (10 to 15 minutes is average), contact the Technical Service Center (TSC) for assistance.

7. If you are installing the DEFINITY LAN Gateway system in an existing switch, insert the 1/2-inch blank faceplate adapter into the fifth DEFINITY LAN Gateway system slot.

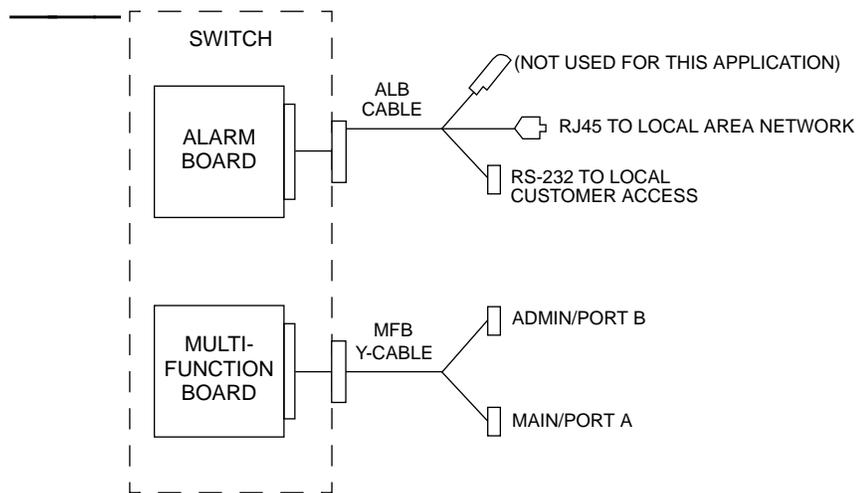
## Task 6: Connect the Alarm Board Cables

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The Alarm Board cable has three connectors available for outside connections:

- Amphenol connector — not used
- Local Area Network (LAN)
- RS-232 Maintenance — used for local customer access to the DEFINITY LAN Gateway application

Figure 2-6, Alarm Board Cable Connections, shows how the cables should be connected.



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**Figure 2-6. Alarm Board Cable Connections**

### **Group 300 Cable Connection**

The DEFINITY LAN Gateway does not use this connection.

### **LAN Connection**

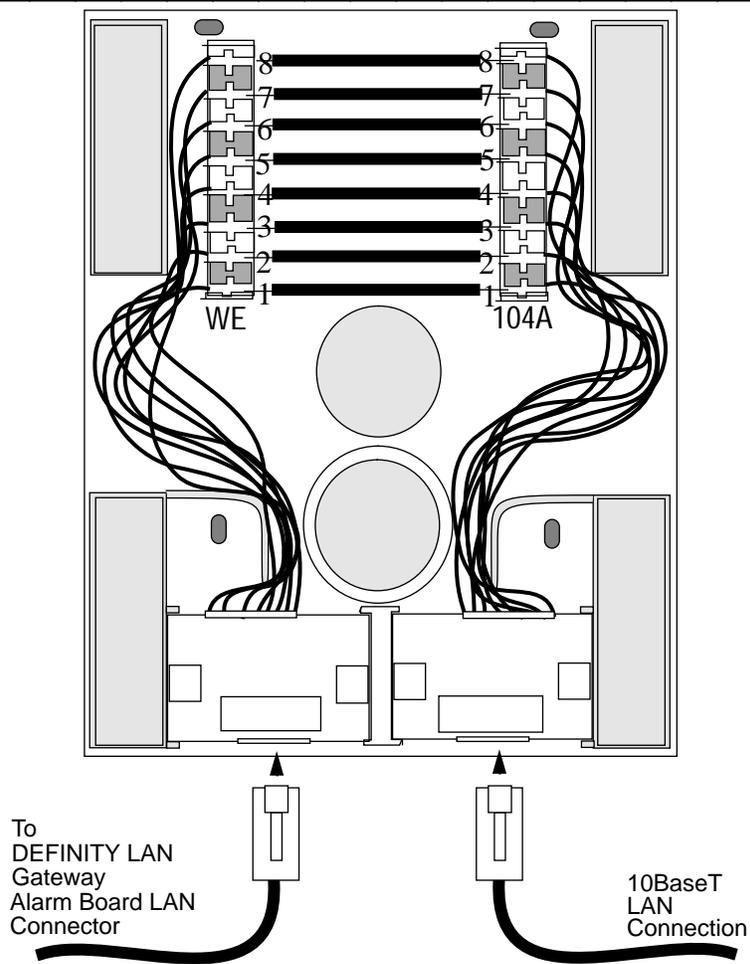
Make the following connections:

- A 10BaseT twisted pair cable with a male RJ-45 connector must be present at the wall field, no further than 25 feet from the back of the switch where DEFINITY LAN Gateway resides. The customer is responsible for this LAN connection.
- A 104A connecting block will be mounted on the wall within reach of this connector. This is supplied by AT&T. Eight wires must be hard-connected across the two mounting blocks inside the 104A prior to mounting it to the wall, as shown in Figure 2-7, 104A Mounting Block. The ends of each wire are stripped of insulation. A punch-down tool is used to press the ends of these eight wires into the mounting blocks. Four protector caps snap over the top of the mounting blocks.



#### **NOTE:**

AT&T service technicians dispatched for DEFINITY LAN Gateway system installation and maintenance may not troubleshoot the customer LAN. The demarcation point for the DEFINITY LAN Gateway LAN is the point of connection into the connecting block where the cord plugs in. The customer is responsible for the following: the LAN cable, the connector at the end of the cable for connection into the DEFINITY LAN Gateway system, and LAN administration not performed by AT&T on the DEFINITY LAN Gateway system. After cutover, the customer is also responsible for maintaining the TCP/IP addresses and administration on the DEFINITY LAN Gateway system unless otherwise specified by contract.



**Figure 2-7. 104A Mounting Block**

- A D8W modular wall cord (up to 25 feet long) is used to connect the Alarm Board RJ45 connector to the 104A connecting block.

## TN2170 RS-232 Connection

This connection is used for customer access to the DEFINITY LAN Gateway application. See Task 7 for wiring information.

### **Task 7: Install the Terminal (Optional)**

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This task is optional, but the temporary installation described below is recommended to facilitate initial administration of the DEFINITY LAN Gateway application.

You can install a terminal or a terminal emulator device, such as a PC or laptop, to perform administration and maintenance operations. The terminal may be permanently installed, or may be temporarily installed when direct administration or maintenance is desired. The connection for a directly attached terminal is always available for AT&T services personnel. This terminal is usually connected via a direct cable to Admin/Port B, but can be connected remotely if desired.

#### **⇒ NOTE:**

Once initial administration is completed, the directly connected terminal may be disconnected and further administration and maintenance may be accomplished over the LAN with a terminal emulator that supports Telnet access.

The terminal can be connected to Admin/Port B in one of four ways:

- Via a direct connection
- Via modems
- Via Asynchronous Data Units (ADUs)
- Via 7400A data sets

The connectivity for all supported terminals is similar. Therefore, the subtasks for this task are the same for all supported terminals. See Appendix B for a list of supported terminals and modems.

If you are connecting a PC using G3-MA software (formerly SAT-PC) as an DEFINITY LAN Gateway administration/maintenance terminal, see *DEFINITY Communications System Generic 3 Management Applications Station Provisioning*, 555-229-202, for installation instructions.

If you are connecting a generic PC with a terminal emulation package, you must ensure that the terminal emulation package is set to support a terminal type listed in Appendix B.

Keep in mind that the DEFINITY LAN Gateway system is data terminal equipment (DTE), and the switch is data communications equipment (DCE). Therefore, you may need to install a null modem to complete the DTE/DCE pair when connecting the PC.

### **MFB Port Usage**

The MFB Y-cable has two RS-232C connectors labeled Main/Port A and Admin/Port B.

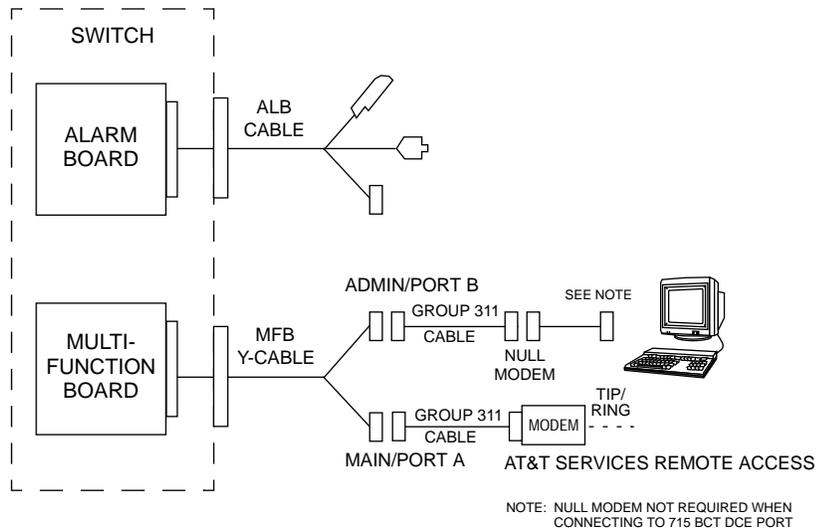
The administration and maintenance terminal should be connected to Admin/Port B. Some system diagnostic messages, created only when the system is initializing, are sent to Main/Port A. These additional messages are not useful during normal operation of the system.

Perform one of the four Subtasks (7A, 7B, 7C, or 7D, depending on the connection type) to connect a system-access terminal to Admin/Port B. Use Worksheet B-1, Terminals/Modems, to determine which tasks to complete.

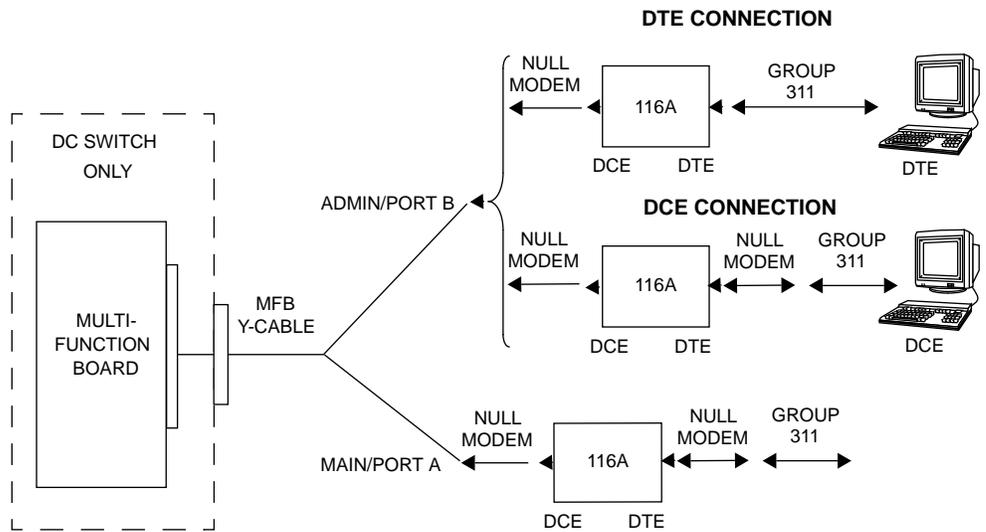
The descriptions of Tasks 7B, 7C, and 7D assume that you are connecting a remote terminal to Admin/Port B. You can also use these tasks for a remote connection to Main/Port A by substituting A for B in the descriptions.

### **Task 7A: Install a Terminal via a Direct Connection**

Refer to Figures 2-8, Installing a Terminal via Direct Connection, and 2-9, Installing a Terminal via Direct Connection (DC Switch Only), while performing this task.



**Figure 2-8. Installing a Terminal via Direct Connection**



**Figure 2-9. Installing a Terminal via Direct Connection (DC Switch Only)**

1. If you are installing a new terminal, unpack it according to the instructions supplied with the terminal.
2. Place the terminal on a suitable table within 15 feet of the switch cabinet if you have a 20-foot ED-1E434 Group 311 cable, or within 45 feet if you have a 50-foot ED-1E434 Group 311 cable, and connect the keyboard.
3. Connect an ED-1E434 Group 311 cable between the DEFINITY LAN Gateway system MFB and the terminal:
  - a. Attach one end of an ED-1E434 Group 311 cable (supplied with the DEFINITY LAN Gateway system PEC) to the RS-232 connector labeled PORT B on the MFB Y-cable.
  - b. If you connected a 116A to the PORT A and PORT B connectors on the Y-cable (in Task 4), attach the ED-1E434 Group 311 cable to the 116A (for a DTE connection). For a DCE connection, attach another null modem to the 116A, and attach the ED-1E434 Group 311 cable to the other end of the null modem.
  - c. For a 715 BCT, attach the other end of the ED-1E434 Group 311 cable to the DCE connector on the back of the terminal. Then skip to Step 4.

For a 513 or equivalent BCT, attach the other end to the female connector on an H600-258 Group 1 null modem.
  - d. Connect the male connector on the null modem to an RS-232 serial port connector on the back of the terminal.
4. Plug the terminal power cord into a wall outlet and power on the terminal.
5. Set the terminal options. See Appendix B, "Supported Terminals and Modems/Option Settings," for a complete list of option settings for supported terminals.

**⇒ NOTE:**

When installing a serial printer on all but a 610 or 615 BCT, set the options on the printer as described in the manual supplied with the printer, then set the corresponding options on the terminal to match. On the 610/615, set the terminal options first, then set the printer options.

If the terminal is installed correctly (and the DEFINITY LAN Gateway system is in either OAM or OS state), the screen displays the login prompt.

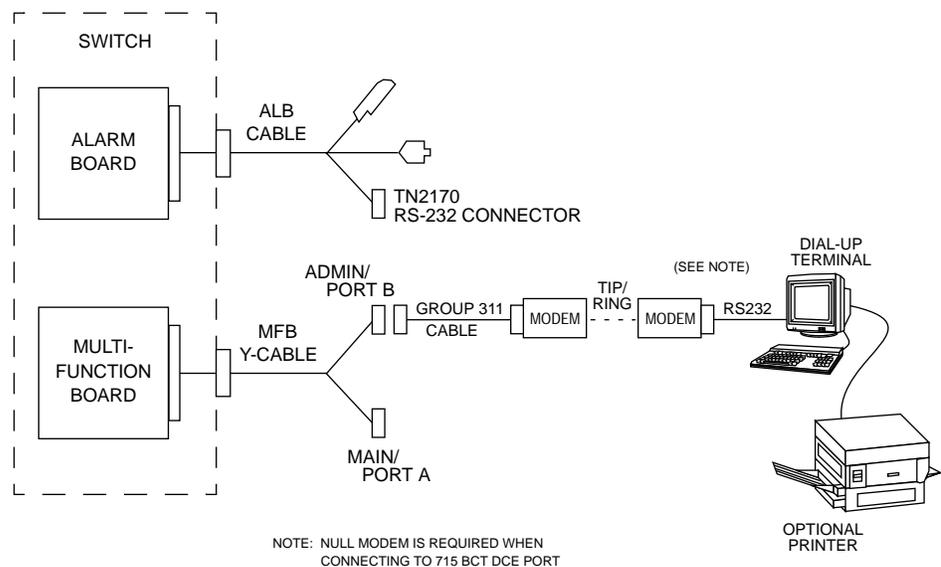
If the terminal does not display the login prompt when the DEFINITY LAN Gateway system is in one of the above states, try pressing the Return key a few times. If the login prompt still does not appear, write down the state displayed on the LCD and then see the troubleshooting procedure for terminal connections in Appendix D.

### Task 7B: Install a Terminal via Modems

This task describes how to connect a terminal via a modem to Admin/Port B of the MFB. (This task can also be used for remote connection to the TN2170 RS-232 connector.)

To make sure the modems that you are installing are on the list of supported peripherals, see Appendix B, "Supported Terminals and Modems/Option Settings."

Refer to Figure 2-10, Connecting a Terminal to the MFB via Modem, when performing this task.



**Figure 2-10. Connecting a Terminal to the MFB via Modem**

1. In the room where the switch and DEFINITY LAN Gateway system are located, place one modem between the DEFINITY LAN Gateway system and a telephone jack, close enough to each that the cables can easily reach. Also make sure the modem is within reach of a power outlet.
2. Connect the modem to Admin/Port B of the DEFINITY LAN Gateway system Multi-Function Board.
  - a. Attach one end of one of the ED-1E434 Group 311 cables to the RS-232 connector labeled Admin/Port B on the MFB Y-cable (the one connected to the fourth slot of the five system slots). Attach the other end to the female 25-pin connector on the modem.
  - b. Attach the connector on one end of a modular cord to the modem, and attach the other connector to a telephone outlet.

- c. Plug the modem power cord into a wall outlet and power on the modem.
  - d. Set the modem options. Refer to Appendix B, "Supported Terminals and Modems/Option Settings," for a list of option settings for supported modems.
3. Connect a modem to the terminal.
- a. If you are installing a new terminal, unpack it according to the instructions supplied with the terminal.
  - b. Place the terminal on a suitable table and connect the keyboard.
  - c. Attach one end of an RS-232 cable to a serial RS-232 port on the terminal (the DTE port on a 715 BCT), and attach the other end to the modem (if it is not already connected).

**⇒ NOTE:**

If you connect the modem to the DCE port on a 715 BCT, you must also connect a null modem cable between the modem and the 715 BCT.

- d. Attach the connector on one end of a modular cord to the modem, and attach the other end to a telephone outlet.
- e. Plug the modem power cord into a wall outlet.
- f. Plug the terminal power cord into a wall outlet.
- g. Power on the terminal and modem.
- h. Set the options on the terminal and modem. Refer to Appendix B, "Supported Terminals and Modems/Option Settings," for a list of option settings for all supported terminals and modems.

**⇒ NOTE:**

When installing a serial printer on all but a 610 or 615 BCT, set the options on the printer as described in the manual supplied with the printer, then set the corresponding options on the terminal to match. On the 610/615, set the terminal options first, and then set the printer options.

- i. At the terminal, enter `AT`. If the modem is installed correctly, it responds with "OK" (written on the terminal screen).
- j. Enter `ATDT` and the telephone number of the modem connected to the DEFINITY LAN Gateway system ADMIN port (listed on worksheet B-1, Terminals).

If the terminal is installed correctly (and the system is in either ASAI or OS state), the screen displays the login prompt.

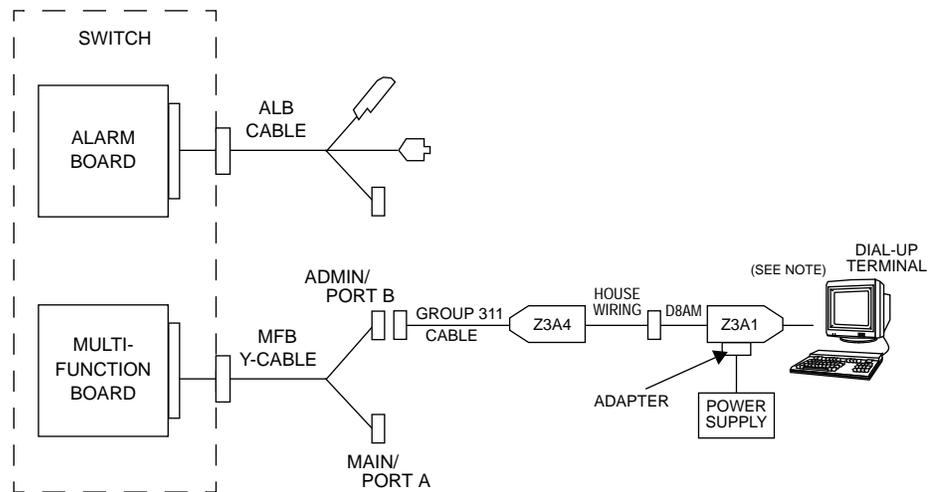
If the terminal does not display the login prompt when the DEFINITY LAN Gateway system is in one of the above states, try pressing the **Return** key a few times. If the login prompt still does not appear, write down the state displayed on the LCD, and then see the troubleshooting procedure for terminal connections in Appendix D (to be supplied).

- k. Log in to the DEFINITY LAN Gateway system (see Chapter 3). If you can log in successfully, the modem and terminal options are set correctly.

**Task 7C: Install a Terminal via ADUs**

This task describes how to connect a terminal via ADUs to Admin/Port B of the MFB. (This task can also be used for remote connection to Main/Port A.)

Refer to Figure 2-11, Connecting a Terminal to the MFB via ADUs, when performing this task.



NOTE: NULL MODEM IS REQUIRED WHEN CONNECTING TO 715 BCT DCE PORT

**Figure 2-11. Connecting a Terminal to the MFB via ADUs**

1. Connect the Z3A-4 ADU to the DEFINITY LAN Gateway system MFB.
  - a. In the room where the switch and DEFINITY LAN Gateway system are located, attach one end of an ED-1E434 Group 311 cable to the RS-232 connector labeled PORT B on the MFB Y-cable (the one connected to the fourth slot of the five DEFINITY LAN Gateway system slots). Attach the other end to the Z3A-4 (female) ADU.

- b. Plug the cable from the ADU into a telephone outlet.
2. In the terminal room, connect the Z3A-1 ADU to the terminal.
    - a. If you are installing a new terminal, unpack it according to the instructions supplied with the terminal.
    - b. Place the terminal on a suitable table and connect the keyboard.
    - c. Attach the Z3A-1 ADU (male) to a serial RS-232 port on the terminal (the DTE port on a 715 BCT).

**⇒ NOTE:**

If you connect the ADU to the DCE port on a 715 BCT, you must also connect a null modem cable between the ADU and the 715 BCT.

- d. Plug one end of the D8AM crossover cord into the connector labeled Wall Jack on the ADU, and plug the other end of the D8AM cord into a telephone outlet.
- e. Connect the 2012D ADU Power Supply to the ADU. (The power supply can be connected to either ADU.)
  - Attach either the 400B2 or 248B adapter to the ADU.
  - Plug the power supply into the adapter.
  - Plug the power cord on the power supply into a wall outlet.
- f. Power on the terminal.
- g. Set the terminal options. Refer to Appendix B, "Supported Terminals and Modems," for a complete list of option settings for all supported terminals.

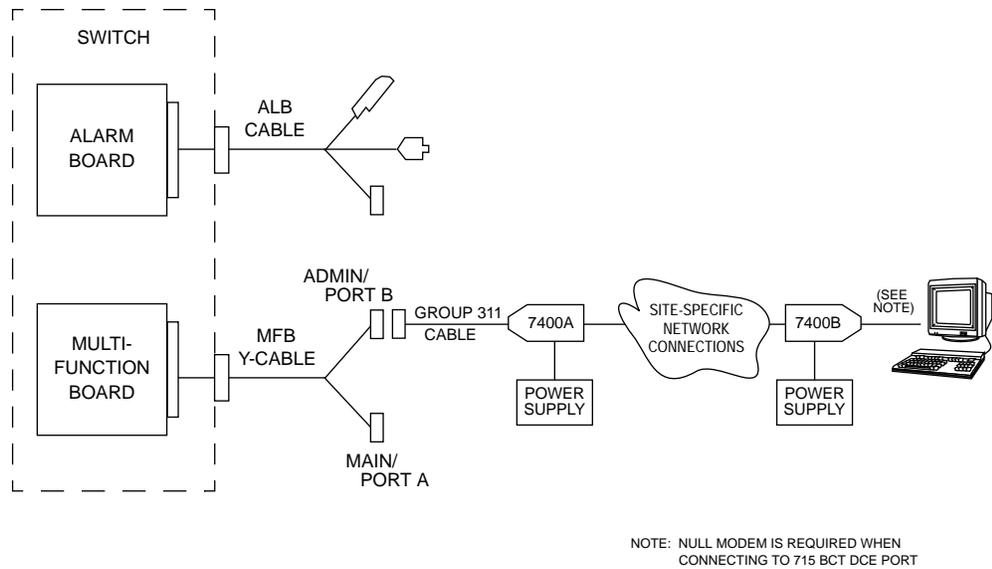
If the terminal is installed correctly (and the DEFINITY LAN Gateway system is in either OS, AINIT, or ASAI state), the screen displays the login prompt.

If the terminal does not display the login prompt when the DEFINITY LAN Gateway system is in one of the above states, try pressing the Return key a few times. If the login prompt still does not appear, write down the state displayed on the LCD then see the troubleshooting procedure for terminal connections in Appendix D.

### **Task 7D: Install a Terminal via 7400A Data Sets**

This task describes how to connect a terminal via 7400A Data Sets to Admin/Port B of the MFB. (This task can also be used for remote connection to Main/Port A.)

Refer to Figure 2-12, Connecting a Terminal to the MFB via 7400 Data Sets, when performing this task.



**Figure 2-12. Connecting a Terminal to the MFB via 7400 Data Sets**

**⇒ NOTE:**

You may use two 7400A data sets in this configuration. However, because the 7400B data set is easier to set up and use, it is the one described in this procedure on the terminal side. (The DEFINITY LAN Gateway system side of the configuration requires the 7400A.) If you are using two 7400A data sets, connect the second 7400A the same as the 7400B, but set the options as described in "Using the Front Panel" in *7400A Data Module User's Manual*, 555-020-706.

1. Make sure the EIA connector board (located under the top panel) is set to DCE (the factory default). If not, unplug the card and turn it around to the DCE setting (see the *7400A Data Module User's Manual*, 555-020-706, for details).
2. Connect the 7400A data set to the DEFINITY LAN Gateway system MFB.
  - a. In the room where the switch and DEFINITY LAN Gateway system are located, attach one end of an ED-1E434 Group 311 cable to the RS-232 connector labeled PORT B on the MFB Y-cable. Attach the other end to a 7400A data set.
  - b. Plug one end of the modular cord (supplied with the data set) into the LINE connector on the 7400A data set and plug the other end into a telephone outlet.

- c. Connect the 4-pin connector on one of the 7400A power supplies to the POWER connector on the data set, and plug the power supply into a wall outlet.
  - d. Set the options and interface baud rate on the 7400A data set. Refer to "Using the Front Panel" in the *7400A Data Module User's Manual*, 555-020-706, for details.
3. In the terminal room, connect the 7400B data set to the terminal.
- a. If you are installing a new terminal, unpack it according to the instructions supplied with the terminal.
  - b. Place the terminal on a suitable table and connect the keyboard.
  - c. Check the dip switches inside the front panel. If you are not connecting a telephone with this data set, set the first dip switch (1) to the ON position (it is shipped in the OFF position, as are all the others). If you are connecting a telephone, leave all dip switches OFF.
  - d. Attach the 7400B data set to an RS-232 port on the terminal (the DTE port on a 715 BCT).

**⇒ NOTE:**

If you connect the data set to the DCE port on a 715 BCT, you must also connect a null modem cable between the data set and the 715 BCT.

- e. Plug one end of a D8W cable into the LINE connector on the 7400B data set and connect the other end into a telephone outlet.
- f. Connect the 7400B power supply to the data set, and plug the power supply into a wall outlet.
- g. Plug the terminal power cord into a wall outlet and power on the terminal.
- h. Set the terminal options. Refer to Appendix B, "Supported Terminals and Modems/Option Settings," for a complete list of option settings for all supported terminals.

**⇒ NOTE:**

When installing a serial printer on all but a 610 or 615 BCT, set the options on the printer as described in the manual supplied with the printer, and then set the corresponding options on the terminal to match. On the 610/615, set the terminal options first, and then set the printer options.

- i. At the terminal, enter `AT`.

If the 7400B data set is connected correctly, it responds with `^OK^` (on the terminal screen).

- j. Enter `ATDT` and the phone number of the 7400A data set connected to the DEFINITY LAN Gateway system (refer to Worksheet B-1, "Terminals/Modems" for this number).

After a connect interval, if the terminal and 7400 data sets are installed correctly (and the system is in either OAM or OS state), the screen displays the login prompt.

If the login prompt is not displayed when the system is in one of the above states, try pressing the `Return` key a few times. If the login prompt still does not appear, write down the state displayed on the LCD and then see the troubleshooting procedure for terminal connections in Appendix D.

### **Task 8: Connect the Maintenance Modem**

For this task, make sure you have the correct ED-1E434 Group 311 cable (in a length between 5 and 50 feet).

1. Physically connect the cable to the modem.
2. Set the modem options.
3. After you have connected the modem and established dial tone, record the telephone number. You will call the TSC and give them the telephone number of the modem in a later procedure.

### **Task 9: Finalize and Test the Hardware**

This task is required for all installation scenarios.

1. Verify that the DEFINITY LAN Gateway system hardware and software components are installed properly. At the DEFINITY G3-MT, enter `list configuration board <loc>`. The screen that appears should display **LGATE Board** in the **Board Type** field. (See Screen 2-2 later in this chapter for an example.)
2. Verify that the system is in the ASAI state.

Stand to the right of the system assembly and read from bottom to top. The LCD should display ASAI X, where X is the number of connections.

3. Log in to the DEFINITY LAN Gateway system at the terminal to verify that the terminal and modems (if applicable) are connected and set up correctly.

- a. At the `login` prompt, type `craft` and press `Return`. (If the login prompt is not displayed, press `Return` once or twice.)



**NOTE:**

To send the information to the DEFINITY LAN Gateway system, the `Return` key (located on the right side of your keyboard) must be pressed after you type a command or a response to a prompt. On some keyboards, this key is labeled `Enter` instead of `Return`. If your keyboard has both a `Return` key and an `Enter` key (as on the 513 and 615 keyboards), use the `Return` key.

The system responds with the `Password` prompt.

- b. Enter the default password for the `craft` login.

The system responds with the prompt: `Enter terminal type`

- c. Enter one of the following:
  - `513` for a 513 BCT or 715 BCT; enter `513` also for a 610/615 BCT or a PC with a 513 emulation package. (Since 513 is the default, just press `Return` to select it.)
  - `4410` for a 4410 or 5410 terminal; enter `4410` also for a 610/615 BCT or a PC with a 4410 emulation package.
  - `4425` for a 4425 or 5425 terminal
  - `5420` for a 5420 or 4415 terminal
  - `g3-ma` for a G3-MA terminal
  - `vt220` (or other terminal listed in Appendix B)

If the terminal and modems (if applicable) are connected properly and the options are set correctly, the system responds with the DEFINITY LAN Gateway main menu.

4. Place the labels supplied with the DEFINITY LAN Gateway system hardware as follows:
  - a. Place the label containing the DEFINITY LAN Gateway system shutdown warning next to the cabinet Power switch.
  - b. Place the tape maintenance log label near the system assembly.
5. Give the program (original) tape to the DEFINITY LAN Gateway system administrator. The blank tape that came with the system will be installed in the drive later in this chapter when the system is backed up.

Proceed to the next section, "Initial Administration."

## **Initial Administration**

---

This section describes the tasks required to initially administer the DEFINITY LAN Gateway system. It is expected that these procedures will be performed by AT&T services personnel upon completion of the hardware installation.

Preliminary to installation, the Project Manager should complete the form located in Appendix G. After the system is installed, the Project Manager calls the TSC to register the system.

The tasks for initializing the system are as follows:

Task 10: Perform initial switch administration

Task 11: Perform initial DEFINITY LAN Gateway administration

Task 12: Reboot the MFB

Task 13: Test LAN/Client connectivity (optional)

Task 14: Register/back up the system

### **Task 10: Perform Initial Switch Administration**

---

Initial system administration involves the customer administering the DEFINITY LAN Gateway circuit pack on the switch with the DEFINITY **change circuit-packs** command. Follow the steps listed below.

#### **⇒ NOTE:**

ASAI must be enabled on the DEFINITY Customer Options form for the system to be fully operational. For more information on switch administration, see *DEFINITY Communications System Generic 3 V4 Implementation*, 555-230-655.

1. Access the change circuit-packs form. A screen similar to the one below appears. This screen shows the Multi-Function board entered in slot 6.

```

change circuit-packs 1                                     Page 1 of 5
-----
                                CARRIER 1A

Slot Code      Name                               Slot Code      Name
01: _____ 11: _____
02: _____ 12: _____
03: LGATE      RESERVED LGATE                    13: _____
04: LGATE      RESERVED LGATE                    14: _____
05: LGATE      RESERVED LGATE
06: TN2208     LAN GATE BOARD                      * Use slots A01-A14 with
07: LGATE      RESERVED LGATE                    * J58890G-1 control carrier.
08: _____ * Use slots A01-A10 with J58890L-1
09: _____ * or J58890M-1 control cabinet.
10: _____ * Use slots A01-A09 with J58890AH
'#' indicates circuit pack conflict * or J58890AJ control carrier.

```

**Screen 2-1. Change Circuit-Packs**

2. Use the **list config** command for a hardware system configuration report such as the one shown below. This report shows the Multi-Function Board (TN2208 circuit pack) when you enter either `list configuration all`, `port-network`, `carrier`, or `board (station)` commands.

```

list configuration all
Page 1
-----
                                SYSTEM CONFIGURATION

Board
Number      Board Type      Code      Vintage      Assigned Ports
1A01      EXPANSION INTF      TN776      000001
1A02      EXPANSION INTF      TN776      000001
1A03      RESERVED LGATE      TN2208      lgate      u u u u u u u
1A04      RESERVED LGATE      TN2208      lgate      u u u u u u u
1A05      RESERVED LGATE      TN2208      lgate      u u u u u u u
1A06      LAN GATE BOARD      TN2208      000001      01 u u u u u u u
                                                u u u u u u u
                                                u u u u u u u
1A07      RESERVED LGATE      TN2208      lgate      u u u u u u u

```

**Screen 2-2. List Configuration**

The DEFINITY LAN Gateway logically occupies five slots on a port carrier. The screen fields for these four or five slots are described as follows.

- **Board Number:** Slot location in the switch.
  - **Board Type:** For the TN2208 circuit pack, "LGATE BOARD" is displayed for the physical location of the board. "RESERVED LGATE" is displayed for the board's associated reserved (virtual) slots.
  - **code:** "TN2208" is displayed for the slot on which it is administered. For the reserved slots, the string "LGATE" is displayed.
  - **vintage:** If a TN2208 circuit pack is installed, the rows corresponding to the reserved slots contain the words "no board" under Vintage, and for the LAN Gateway slot, the vintage of the TN2208.
  - **Assigned Ports:** The assigned ports are displayed if there are ports administered on the TN2208 circuit pack. There can be eight of these. The reserved slots show a blank field for assigned ports.
3. Use the **add station** command to add a station. The MFB supports a set type of "ASAI" to be administered on the individual BRI ports on the MFB.

```

add station                                     page 1 of 1
-----
                                STATION

      Extension: _____      BCC: 0
      Type: ASAI                 COR: 1
      Port: _____           COS: 1
      Name: _____

EVENT MINIMIZATION? _

      XID? N                      Fixed TEI? Y      TEI: 1
      MIM support? N              CRV Length: 2
  
```

**Screen 2-3. Add Station**

## **Task 11: Perform Initial DEFINITY LAN Gateway Administration**

---

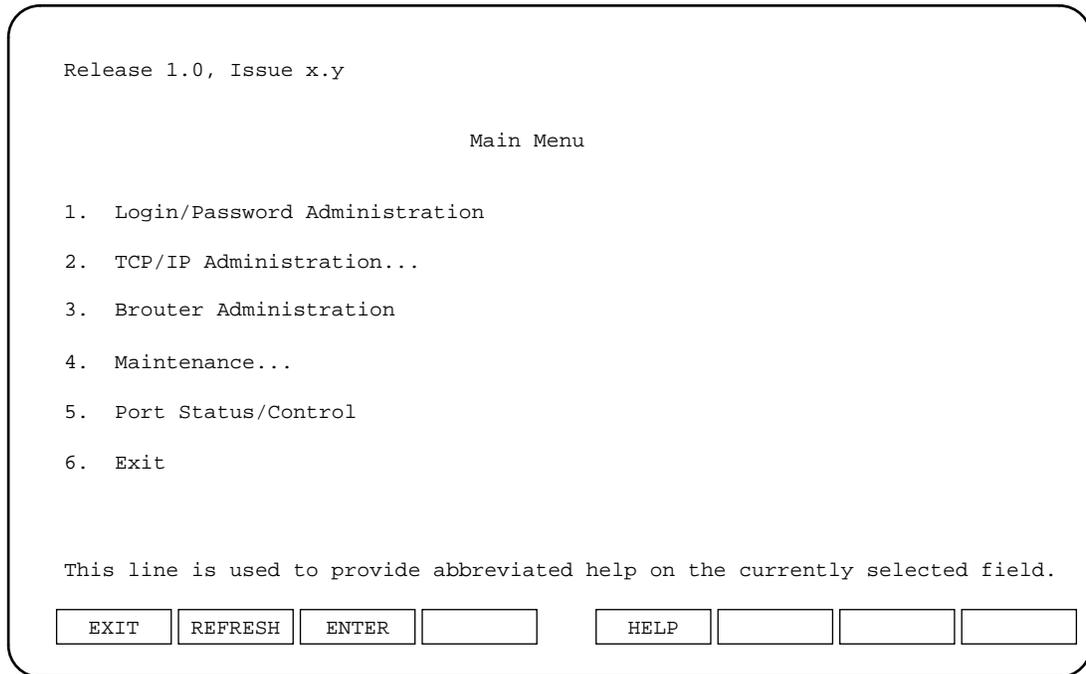
This task is required for all installation scenarios. There are two parts to this task:

Task 11A: Set the DEFINITY LAN Gateway Clock

Task 11B: Assign the DEFINITY LAN Gateway Machine ID (Optional)

### **Task 11A: Set the DEFINITY LAN Gateway Clock**

1. At the login prompt, enter `craft`. The system displays the `Password` prompt.
2. Enter the default password for the `craft` login. The system displays `Enter terminal type`.
3. Enter one of the following:
  - `513` for a 513 BCT or 715 BCT; enter `513` also for a 610/615 BCT or a PC with a 513 emulation package. (Since 513 is the default, you can just press `Return` to select it.)
  - `4410` for a 4410 or 5410 terminal; enter `4410` also for a 610/615 BCT or a PC with a 4410 emulation package.
  - `4425` for a 4425 or 5425 terminal
  - `5420` for a 5420 or 4415 terminal
  - `g3-ma` for a G3-MA
  - `vt220` (or other terminal listed in Appendix B)
4. The system displays the DEFINITY LAN Gateway Main Menu.



**Screen 2-4. Main Menu**

5. Select Maintenance and then Set System Time and Date. Follow the instructions for the Set System Time and Date screen in Chapter 3.

**Task 11B: Assign the DEFINITY LAN Gateway Machine ID (optional)**

This subtask is only necessary if the customer is attaching the DEFINITY LAN Gateway system to an existing TCP/IP LAN.



**NOTE:**

AT&T support services for the DEFINITY LAN Gateway system will not troubleshoot a customer LAN. If the customer LAN is experiencing difficulties, customers should follow the escalation path supplied by their LAN provider.

1. Make sure the DEFINITY LAN Gateway Main Menu is displayed. (See Task 11A.) Select TCP/IP Administration and then This Host. The following screen appears:

TCP/IP Administration  
This Host

Host Name: \_\_\_\_\_

Host IP Address: \_\_\_\_\_

Subnet Mask: \_\_\_\_\_

This line is used to provide abbreviated help on the currently selected field.

CANCEL	REFRESH	ENTER	CLEAR	HELP			
--------	---------	-------	-------	------	--	--	--

**Screen 2-5. This Host**

2. If a host name different from the default (definity) is desired, in the **Host Name** field type the new name to be assigned to this DEFINITY LAN Gateway system. The machine name must be from 1 to 20 characters in length.
3. If an IP address other than the default (192.168.25.10) is desired, type the new IP address in the **Host IP Address** field.
4. If a subnet mask is desired, type the subnet mask name in the **Subnet Mask** field.
5. Press **ENTER** to save the changes.

## **Task 12: Reboot the MFB**

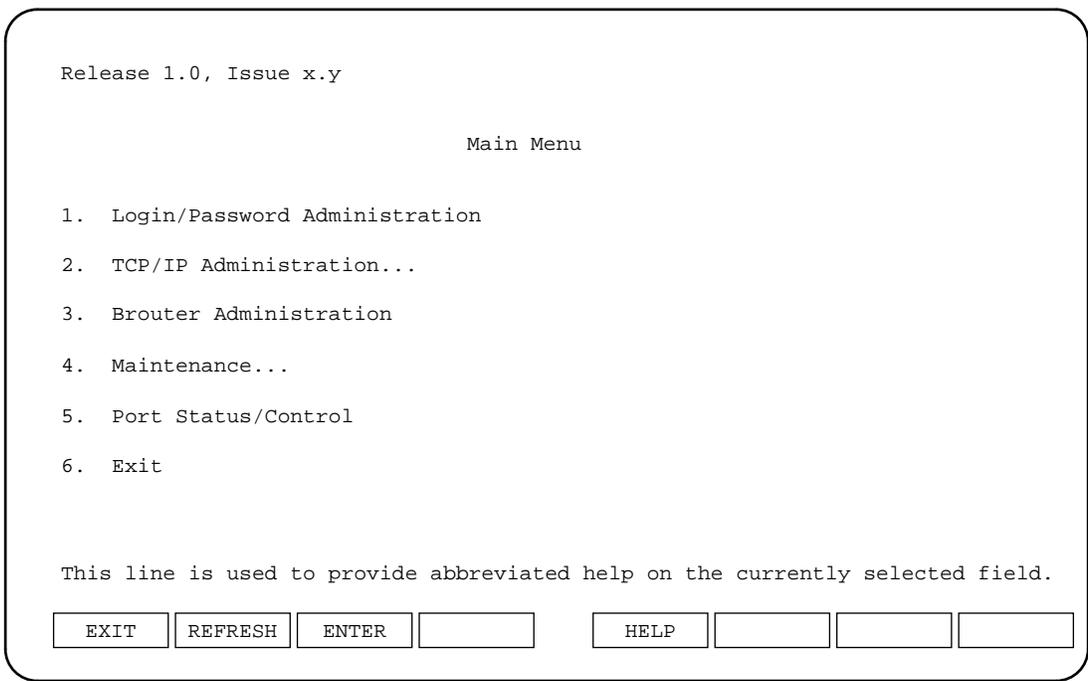
---

This task is performed to verify that the system can be rebooted.

1. At the login prompt, enter `craft`. The system displays the **Password** prompt.
2. Enter the default password for the craft login. The system displays **Enter terminal type**.
3. Enter one of the following:
  - 513 for a 513 BCT or 715 BCT; enter 513 also for a 610/615 BCT or a PC with a 513 emulation package. (Since 513 is the default, you can just press **Return** to select it.)

- 4410 for a 4410 or 5410 terminal; enter 4410 also for a 610/615 BCT or a PC with a 4410 emulation package.
- 4425 for a 4425 or 5425 terminal
- 5420 for a 5420 or 4415 terminal
- g3-ma for a G3-MA
- vt220 (or other terminal listed in Appendix B)

4. The system displays the DEFINITY LAN Gateway Main Menu.



**Screen 2-6. Main Menu**

5. Select Maintenance, Reset System, and then Reboot System. (See the information accompanying these screens in Chapter 3.)

## Task 13: Test LAN/Client Connectivity (Optional)

---

Task 13 is performed to test the TCP/IP connection to ensure that connectivity exists between the DEFINITY LAN Gateway and the customer's LAN, as well as between the DEFINITY LAN Gateway and a client. This testing should be done jointly with the customer's LAN administrator.



### NOTE:

Connectivity to the DEFINITY LAN Gateway system from a subscriber PC is not part of the acceptance testing for this feature. Customers are responsible for verifying that their LAN is communicating with the subscriber PCs.

## Requirements

Login:	craft
Suggested Materials:	Configuration diagram (see Appendix E)
Special Condition:	The ASAI-Ethernet TCP/IP has been administered and the system has been rebooted.

1. The preferred option is to have the customer's LAN administrator perform a standard LAN ping test into the DEFINITY LAN Gateway using the addressing information previously provided in Task 10. If the customer is unavailable to perform this test, go to step 2.
2. Perform the following steps **only** if the customer is unavailable for acceptance testing. (However, step 1 above, Joint Testing, is the preferred testing method.)
  - a. Access the DEFINITY LAN Gateway Main Menu. Select **Maintenance** and then **Ping Host**. The Ping Host screen follows.

Maintenance  
Ping Host

Host Name or IP Address: \_\_\_\_\_

Packet count: \_\_\_\_\_

Packet size: \_\_\_\_\_

This line is used to provide abbreviated help on the currently selected field.

CANCEL	REFRESH	ENTER	CLEAR	HELP			
--------	---------	-------	-------	------	--	--	--

**Screen 2-7. Ping Host Screen**

- b. Fill in the Host Name or IP Address of the DEFINITY LAN Gateway system assembly. This example uses 192.168.25.10 as the IP Address. Also enter a packet count of 20 (recommended), and a packet size of 64 (recommended).

In this step, the DEFINITY LAN Gateway system assembly is sending packet messages (20 in this example) to itself, and listening for responses.

Output similar to the following will appear:

```
The messages which follow are the result of your last request.
At the <EOF> : prompt press return to continue.

72 bytes from 192.168.25.10: icmp_seq*0, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*1, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*2, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*3, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*4, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*5, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*6, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*7, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*8, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*9, time=0. xx

----192.168.25.10 PING statistics----
20 packets submitted, 20 packets received. 0% packet loss
round-trip (ms) min/avg/max =x/x/x
<EOF>:
```

**Screen 2-8. Results of Pinging the DEFINITY LAN Gateway**

- c. Examine the test results that are displayed at the bottom of the screen:

```
----(address) PING statistics----
x packets submitted, y packets received. z%
packet loss
round-trip (ms) min/avg/max =aa/bb/cc
```

The results displayed in the packet loss field (z) will be either 0% or 100%. Since this test is internal to the DEFINITY LAN Gateway system, this test does not access the customer's LAN.

If the test reports 0% packet loss, the test was successful. Continue with the next step in this procedure.

If the test reports 100% packet loss, the test failed. If it failed, verify that you used the correct address for the DEFINITY LAN Gateway system assembly. If you did, then contact your remote maintenance center. After the problem has been resolved, repeat the test and then continue with the following steps.

- d. Now access the `ping Host` screen again, as you did in step 2a, to test connectivity to the client. Use the same data, except in this example, enter `192.168.25.20` as the IP address (if you choose to enter IP Address instead of Name).

In this step, the DEFINITY LAN Gateway system assembly is sending packet messages (20 in this example) to the client, and listening for responses.

Output similar to the following will appear:

```
The messages which follow are the result of your last request.
At the <EOF> : prompt press return to continue.

72 bytes from 192.168.25.20: icmp_seq*0, time=0. xx
72 bytes from 192.168.25.20: icmp_seq*1, time=0. xx
72 bytes from 192.168.25.20: icmp_seq*2, time=0. xx
72 bytes from 192.168.25.20: icmp_seq*3, time=0. xx
72 bytes from 192.168.25.20: icmp_seq*4, time=0. xx
72 bytes from 192.168.25.20: icmp_seq*5, time=0. xx
72 bytes from 192.168.25.20: icmp_seq*6, time=0. xx
72 bytes from 192.168.25.20: icmp_seq*7, time=0. xx
72 bytes from 192.168.25.20: icmp_seq*8, time=0. xx
72 bytes from 192.168.25.10: icmp_seq*9, time=0. xx

----192.168.25.20 PING statistics----
20 packets submitted, 20 packets received. 0% packet loss
round-trip (ms) min/avg/max =0/0/0
<EOF>:
```

### Screen 2-9. Results of Pinging the Client

- e. Examine the test results that are displayed at the bottom of the screen:

```
----(address) PING statistics----
x packets submitted, y packets received. z%
packet loss
round-trip (ms) min/avg/max =aa/bb/cc
```

The results displayed in the packet loss field (z) will range from 0% to 100%. The number of packets that are "lost" (need to be transmitted) will vary from LAN to LAN. For some LANs, 0% packet loss is normal, while for others, 10% or 20% loss is normal. The degree of packet transmission over a LAN depends upon the distance between machines, the number of users on the LAN, and the number of machines on the LAN.

Refer to the sections that follow for information about the various test results.

### **0 to 49% Loss**

Consider this test successful if the DEFINITY LAN Gateway system reports a packet loss percentage in the range from 0 to 49%. Contact the customer LAN or system administrator, however, if the packet loss is from 10 to 49%. The customer administrator should be advised that the send and receive packets test (PING test) showed the loss. A loss in this range may cause the DEFINITY LAN Gateway system to experience slow response time. Possible causes for this type of loss include network congestion or a faulty device on the network.

### **Packets Out-of-Sequence**

For a successful test (0 to 49%), also examine the `icmp_seq=` field. If one or two of the packets appear out of sequence, then the condition is acceptable. If, however, more than two packets are out of sequence (for example, 0, 2, 5, 3, 1...), then inform the customer administrator. Out-of-sequence packets may indicate network congestion or misrouting.

### **50 to 99% Loss**

Consider this test a failure if the packet loss value is in the range of 50 to 99%. In this range, the DEFINITY LAN Gateway will be extremely slow, or will completely fail to communicate even though it has made a connection to the LAN. If you have a system that is reporting a 50% to 99% packet loss, cancel and refer to the troubleshooting procedure for a TCP/IP connection in Appendix D.

If this test has completely failed and the system reports a 100% packet loss, verify that you used the correct address. The test does not report if the test failure is due to sending the packets to an incorrect or nonexistent machine. A 100% packet loss indicates that the DEFINITY LAN Gateway system has not established communication over the LAN to the test machine address.

If you entered the right address, cancel and refer to the troubleshooting procedure for a TCP/IP connection in Appendix D.

## **Task 14: Register/Back Up the System**

---

The final three steps the AT&T service technician performs to install the DEFINITY LAN Gateway system are as follows:

Task 14A: Register the System

Task 14B: Deactivate/Activate Logins

Task 14C: Perform a Backup of the Removable Medium

### **Task 14A: Register the System**

AT&T Services personnel should call the TSC at 1-800-248-1111 to register the system. Expect the TSC to collect information such as the remote access port number, customer name, installation location, order number, and so forth.

### **Task 14B: Deactivate/Activate Logins**

After the system has been registered, the service technician should log out of the system. At this point, the technician gives the telephone to the customer for activation of the customer login. Once the customer login is enabled, the customer is required to enter a password the first time he or she logs in. **AT&T Services will have no knowledge of this password.**

**⇒ NOTE:**

The customer must be present for customer login activation. If the customer cannot be present, the service technician should leave a note for the customer to call 800-248-1111 to reach the TSC.

Customers should see the Change Passwords screen in Chapter 3 to change accessible passwords.

**⇒ NOTE:**

Task 14B renders the services login inactive. Subsequent need for the services login requires coordination with the TSC through the TSC dispatch process.

### **Task 14C: Perform a Backup of the Removable Medium**

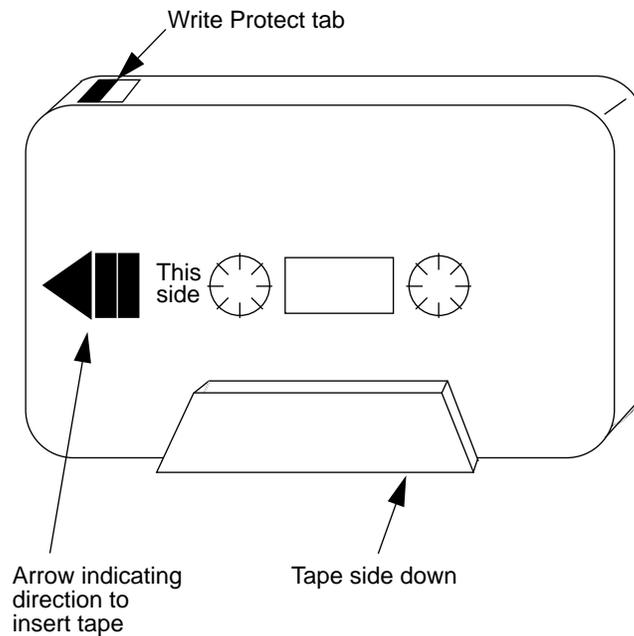
The customer should have received a blank tape as part of the DEFINITY LAN Gateway system order. (See Table C-2 in Appendix C.) Using this tape, the AT&T service technician assists the TSC in performing a backup of the system.

**⇒ NOTE:**

The craft login has been deactivated at this point.

1. Take the blank tape out of the box.
2. The tape must be writeable. To make the tape writeable, move the write protect marker forward (in the direction of the arrow on the tape label).

3. Rotate the lever on the tape drive to the open (facing down) position (if it is not already open).
4. Referring to Figure 2-13, hold the cartridge with the tape side down and the arrow pointing toward the drive (away from you), then insert the cartridge into the drive.



---

**Figure 2-13. Tape Cartridge (Removable Medium)**

5. Rotate the tape lever to the closed (1/4-turn left) position.
6. The TSC accesses the Removable Media Operations Screen in Chapter 3, performs option 1, **Format Removable Media**, and then performs option 2, **Save Configuration Data to Removable Media**.



**NOTE:**

When the back up is done, the field technician should label **this** tape, J58889VA-1 L1, as the backup tape to J58889VA-1 L50, the software program tape.

This chapter presents the screens used for administering and maintaining the system. Sample configurations are located in Appendix E.

## Getting Started

This section details information about the screens, procedures for logging on, and procedures for moving among screens.

## Screen/System Conventions

Screen and system conventions are listed below.

- Not all function keys apply to all screens.
- Information in read-only fields is static. It reflects conditions present at the time the screen is displayed, and is not updated in real-time as conditions change.
- A selected field is the one where the cursor currently resides.
- If you make a mistake while typing data on a line, backspace and overwrite the characters or use the `CLEAR` key to clear the field, If you have already passed the line that has the mistake, use `Tab` or the arrow keys to return to the field, and type over the characters.
- Menu items followed by three dots (...) have submenus.
- When data is added on a screen, after you press the `ENTER` function key, the previous screen reappears with the cursor positioned at the beginning of the new entry. (The new data is in alphabetical or numerical sequence, depending on how the data is organized for that screen).

- When the prompt **Are You sure?** appears, the user must press  after entering **Y** or **N**.

## Logging On

---

1. At the login prompt, enter your login and press .

The password prompt (**PASSWORD:**) appears.

**⇒ NOTE:**

If a login prompt is not displayed, press  a few times. If it still does not appear, see “Bringing Up the System” in Appendix D.

2. Enter your password and press . You are prompted for your terminal type as follows:

```
Terminal type (513, 715, 4410, 4425, vt100, vt200,...):[513]
```

The default is 513.

3. Enter your terminal type and press .

The Main Menu appears. For information about this menu, see “Field Names and Descriptions” that follows in this chapter.

## Moving Around the System

---

The methods for moving around the DEFINITY LAN Gateway screens are as follows:

1. You can use the **function keys** on the bottom of the screen ( `NXTPG` ), `PRVPG` , `NXTDAY` , and `PRVDAY` ) to move around screens, as applicable.

**⇒ NOTE:**

An alternate method of using function keys is to press the `Ctrl` key, and while holding it down, press `F` . Then release both keys and press the number corresponding to the function key. For example, function key 3 is `Exit` . You may press `Ctrl` `F` 3 instead, in the manner just explained.

This method is helpful if the keyboard does not properly send or have function keys and works for any terminal type.

See Table 3-1 for an explanation of the function keys.

2. You can press the `Tab` key to move among fields.
3. You can use the **arrow keys** on your keyboard to move up, down, left, or right on the screen.
4. On **menu screens**, you can place the cursor on the number to the left of a menu item on a menu screen and press the `ENTER` function key. This will display the first screen pertaining to that item.

Alternatively, you can type the number of your selection and this will select the menu item.

## Using the Function Keys

**Table 3-1. Function Keys**

Pressing this Key:	Does this:
<b>ADD</b>	<p>Appears on two TCP/IP Administration screens:</p> <ol style="list-style-type: none"> <li>1. On Local Host Table screen, provides access to Add Hosts screen.</li> <li>2. On Network Routing Table screen, provides access to Add Routes screen.</li> </ol> <p>On Brouter Administration screen, it provides access to Add Client Link screen.</p> <p>On Login/Password Administration screen, provides access to Add Logins screen.</p>
<b>CANCEL</b>	Aborts operation and returns you to previous menu or screen.
<b>CHGPW</b>	Appears on the Login/Password Administration screen. Displays screen for changing passwords.
<b>CLEAR</b>	Clears the field the cursor is located on.
<b>DELETE</b>	Deletes data the cursor is on (either an item or a line depending on screen). Prompts <b>Are You Sure? (Y/N)</b> before deleting data.
<b>DROP</b>	Appears on Port Status/Control screen. Closes a port connection.
<b>ENTER</b>	On menu screens, executes the selected action. On other screens, enters updates or additions typed and returns you to previous screen.
<b>EXIT</b>	On menu screens, redisplay previous screen. Returns you to login prompt from Main Menu.
<b>HELP</b>	Displays help screen for selected field. Then, when <b>Return</b> is pressed, redisplay screen from which help was requested.

Pressing this Key:	Does this:
MSGPER	On Port Status/Control screen, accesses Message Collection Period screen.
NXTDAY	On System Logs, Command Logs, and Client Access Logs, accesses next day's data. On the last day, wraps to first day.
NXTPG	Displays next page of a multi-page screen. On the last page, wraps to first page.
PRVDAY	Displays previous day of a multi-page screen. On the first day, wraps to last day.
PRVPG	Displays previous page of a multi-page screen. On the first page, wraps to last page.
REFRESH	Redraws the screen
STATE	Appears on Port Status/Control and Network Routing Daemon screens. Alternates a port's service state or network routing daemon state between on and off.



**NOTE:**

Any key appearing on this table that is mentioned in the chapter should be considered a function key and not a regular key on the keyboard.

## List of Screens

---

A list of the system screens and the pages on which they are located in this chapter appears below. This list also depicts the screen hierarchy.

Main Menu	ZZZ
Login/Password Administration	ZZZ
Add Logins	ZZZ
Change Passwords	ZZZ
TCP/IP Administration (Main Menu)	ZZZ
This Host	ZZZ
Local Host Table	ZZZ
Add Host	ZZZ
Network Routing Information (Main Menu)	ZZZ
Network Routing Daemon	ZZZ
Default Gateway	ZZZ
Network Routing Table	ZZZ
Add Routes	ZZZ
Brouter Administration	ZZZ
Add Client Link	ZZZ
Maintenance (Main Menu)	ZZZ
Removable Media Operations	ZZZ
Set System Time and Date	ZZZ
Reset System	ZZZ
System Logs	ZZZ
Security Logs	ZZZ
Login Attempt Log	ZZZ
Client Access Logs	ZZZ
DEFINITY LAN Gateway Reset Log	ZZZ
Command Logs	ZZZ
Ping Host	ZZZ
Port Status/Control	ZZZ
Message Collection Period	ZZZ

## Field Names and Descriptions

### Main Menu

Release 1.0, Issue x.y

Main Menu

1. Login/Password Administration
2. TCP/IP Administration...
3. Brouter Administration
4. Maintenance...
5. Port Status/Control
6. Exit

This line is used to provide abbreviated help on the currently selected field.

EXIT

REFRESH

ENTER

HELP

**Screen 3-1. Main Menu**

Menu Item	Description
Login/Password Administration	Allows primary administrators to add and delete user logins. Allows administrators and users to modify passwords.
TCP/IP Administration...	Provides access to all administrable network data: network name and IP address of the DEFINITY LAN Gateway Multi-Function Board the user is accessing, all locally known hosts, and all network routing information.
Brouter Administration	Provides access to a screen for viewing, adding, and deleting brouter clients.

<b>Menu Item</b>	<b>Description</b>
Maintenance...	Provides access to maintenance functions: formatting media, saving and restoring configuration data, setting time and date, resetting the system, viewing system/security logs, and pinging other hosts.
Port Status/Control	Provides access to port status and control data. Allows administrators to view status information and terminate client connections.
Exit	Logs you out of the system

To use this menu, select the number of the task you wish to perform. (Press the number, or press **Tab** or use the arrow keys to move the cursor to the desired number, and press the **ENTER** function key .)



Use this screen as follows:

- To delete a login:
  1. Press **Tab** or use the arrow keys to move to the login you want to delete, and then press **DELETE**.
  2. The following prompt appears: **Are You Sure? (Y/N?)** . Type **Y** and press **Return**. The screen will reappear, minus the deleted login.

If you type **N** and press **Return**, the cursor reappears at the beginning of the line, and the login is not deleted.
  3. Repeat steps 1 and 2 until you have deleted all desired logins. Then press **EXIT** and the Main Menu will reappear.
- To change a login's password, press **CHGPW** to access the screen for changing passwords.
- To add a login, press **ADD** to access the Add Logins screen.

### Add Logins

⇒ **Note 1:**  
Only the primary administrator login is allowed to add logins and passwords.

⇒ **Note 2:**  
If the primary administrator attempts to add a login that already exists, an error message is displayed.

Login/Password Administration  
Add Logins

Login: \_\_\_\_\_

This line is used to provide abbreviated help on the currently selected field.

CANCEL REFRESH ENTER CLEAR HELP [ ] [ ] [ ]

**Screen 3-3. Add Logins**

When you add a login using this screen, after you press the **ENTER** function key the previous screen will reappear with the cursor positioned at the beginning of the new entry.

<b>Field Name</b>	<b>Description</b>
Login	The login to be added. Maximum length is 15 characters.

Use this screen as follows:

1. Type the login you want to add to the system.
2. Press **ENTER** to submit the login.
3. The following prompt appears: **New password:**

Type the password to be associated with the login and press **Return**.

Passwords follow normal UNIX® naming conventions. These are:

- Each password must have at least 6 characters.
- Each password must contain at least two alphabetic characters and at least 1 numeric or special character. “Alphabetic” includes all uppercase and lowercase letters.
- Each password must differ from the user’s login name and any reverse or circular shift of that login name. (Corresponding uppercase and lowercase letters are considered equivalent.)
- A new password must differ from the old one by at least three characters.

 **NOTE:**

The login for the primary administrator is not required to follow these conventions when making up passwords.

4. The following prompt appears: **Re-enter password:**

Re-enter the password at the prompt and press **Return** again. If you entered the password the same way both times, the password will be added and the Login/Password Administration screen will reappear. Repeat this procedure for each login and password you want to add.

## Change Passwords



**NOTE:**

Any user may change his or her password. The primary administrator login can change any user's password.

Old Password  
New Password  
Re-Type New Password

**Screen 3-4. Change Passwords**

This screen is used to change user passwords. Passwords should be hard to guess and should not contain the following:

- all the same characters (for example, 1111, xxxx)
- sequential characters (for example, 1234, abcd)
- character strings that can be associated with you or your business, such as your name, birthday, business name, phone number, or social security number
- actual words and commonly-used names.

Passwords should use as great a variety of characters as possible. For example, if both numbers and letters are permitted, the password should contain both. Passwords should be changed regularly, at least on a quarterly basis. Recycling old passwords is not recommended.

<b>Field Name</b>	<b>Description</b>
Old Password	The existing password. Appears on screen only for logins other than the primary administrator.
New Password	The password you want to change the existing password to

Use this screen as follows:

1. Logins other than the primary administrator:

Type the old password and press . If you entered it correctly, the following prompt appears: **New Password**

2. All logins:

Type the new password and press .

The following prompt appears: **Re-Type New Password**

3. Re-type the new password and press .

If you entered the new password the same way both times, the password will be changed. The screen you were on previously (Login/Password Administration) reappears.

## TCP/IP Administration (Main Menu)

TCP/IP Administration

1. This Host
2. Local Host Table
3. Network Routing Information...
4. Exit

This line is used to provide abbreviated help on the currently selected field.

EXIT REFRESH ENTER 
HELP

**Screen 3-5. TCP/IP Administration**

Menu Item	Description
This Host	Provides access to data identifying this circuit pack on the network, including machine's host name, IP address, and subnet mask.
Local Host Table	Provides access to screens for viewing, adding, or deleting IP addresses of all <b>locally</b> known client hosts.
Network Routing Information...	Provides access to Network Routing Information, including state of the network routing daemon, default gateway data, and other network routes. Accesses screens for viewing, deleting, or adding information.
Exit	Returns you to previous menu

To use this menu, select the number of the task you wish to perform. (Press the number, or press Tab or use the arrow keys to move the cursor to the desired number, and press the ENTER function key .)

## This Host

TCP/IP Administration  
This Host

Host Name: \_\_\_\_\_

Host IP Address: \_\_\_\_\_

Subnet Mask: \_\_\_\_\_

This line is used to provide abbreviated help on the currently selected field.

CANCEL
REFRESH
ENTER
CLEAR
HELP

**Screen 3-6. This Host**

This screen is used to assign a host name to the Multi-Function Board.

**⇒ NOTE:**  
**For changes to be implemented, you must reboot the system. See the Reset System screen.**

Field Name	Field Description	O/R*
Host Name	Host name of this circuit pack. <b>Default = definity.</b> Maximum field size = 20 characters.	R
Host IP Address	IP address of this circuit pack. <b>Default = 192.168.25.10</b> Maximum field size = 15 characters.	R

\* O/R = Optional/Required. Required=Value must be entered.

Field Name	Field Description	O/R*
Subnet Mask	Subnet Mask used by this circuit pack. <b>Change only if alternate network subnetting is desired.</b> Value = x.x.x.x, where x is a number between 0 and 255. <b>Default = blank.</b> Maximum field size = 15 characters.	O

Use this screen as follows:

1. Type the host name, IP address, and, optionally, the subnet mask. Press  or use the arrow keys to move from field to field.

(If you want to clear the Subnet Mask, move to the field, press  and then press .)

2. Press  if you decide not to enter the data, or, when you have finished typing data, press  to submit the host data. The TCP/IP Administration menu will reappear.

---

\* O/R = Optional/Required. Required=Value must be entered.



Use this screen as follows:

- Press  or  to access other hosts.
- To delete a host entry:
  1. Press  or use the arrow keys to move the cursor to the line you want to delete, and then press .
  2. The following prompt appears: **Are You Sure? (Y/N)** . Type **Y** and press . When the screen reappears, the host will not appear.  
  
If you type **N** and press , the cursor reappears at the beginning of the line and the host is not deleted.
  3. Repeat steps 1 through 3 until you have deleted all desired hosts. Then press  and the TCP/IP Administration menu will reappear.
- To add a host, press  to access the Add Host screen.

### Local Host Table — Add Host

TCP/IP Administration  
Local Host Table  
Add Host

IP Address	Host Name	Aliases

This line is used to provide abbreviated help on the currently selected field.

CANCEL
REFRESH
ENTER
CLEAR
HELP

**Screen 3-8. Add Host**

This screen is used to add hosts. When you add a host using this screen, after you press the **ENTER** function key, the previous screen will reappear with the cursor positioned at the beginning of the new entry.

Field Name	Description
IP Address	IP address of locally known host. Maximum field size = 15 characters.
Host Name	Name of locally known host. Maximum field size = 20 characters.
Aliases	Additional names associated with this host. Maximum field size=35 characters. Multiple aliases are separated by spaces. Entries starting with a “#” sign are comments. A “#” may be placed anywhere in the field, but anything following the “#” is considered a comment and ignored.

Use this screen as follows:

1. Type the IP address, host name, and any aliases. Type all aliases on one line, but leave a space between each alias.
2. Press the **ENTER** function key to submit the data.

- 
- 
3. Access the Add Hosts screen again and repeat steps 1 and 2 for each new host to be added.

## Network Routing Information (Main Menu)

```
TCP/IP Administration
Network Routing Information

1. Network Routing Daemon
2. Default Gateway
3. Network Routing Table
4. Exit

This line is used to provide abbreviated help on the currently selected field.

EXIT REFRESH ENTER [ ] HELP [ ] [ ] [ ]
```

**Screen 3-9. Network Routing Information**

Menu Item	Description
Network Routing Daemon	Allows the user to enable or disable the automatic network routing daemon
Default Gateway	Allows the user to administer a default gateway
Network Routing Table	Provides access to all information about other network routes
Exit	Redisplays the TCP/IP Administration menu

To use this menu, select the number of the task you wish to perform. (Press the number, or press `[Tab]` or use the arrow keys to move the cursor to the desired number, and press the `[ENTER]` function key .)

## Network Routing Information — Network Routing Daemon

```

TCP/IP Administration
Network Routing Information
Network Routing Daemon

Network routing daemon state: ___

This line is used to provide abbreviated help on the currently selected field.

CANCEL REFRESH [ ] [ ] HELP STATE [ ] [ ]
    
```

**Screen 3-10. Network Routing Daemon**

This screen is used to view and change the state of the network routing daemon. The `Network routing daemon state` field is filled in when the screen first appears.

Field Name	Description
Network routing daemon state	Either <code>on</code> or <code>off</code> . When <code>on</code> , the network routing daemon can automatically find routes to other networks. <b>Default=on.</b>

Use this screen as follows:

- If you don't want to change the network routing daemon state, press `CANCEL` to exit the screen.
- If you want to change the network routing daemon state, press `STATE` to change the state.

The following prompt appears: `Are You Sure? (Y/N)` . Type `y` and press `Return`. The screen reappears with the new state displayed.

If you type `N` and press `Return`, the state is not changed.

- When the desired state is displayed, press `CANCEL`. The Network Routing Information menu reappears.

## Network Routing Information — Default Gateway

TCP/IP Administration  
Network Routing Information  
Default Gateway

Name or IP Address: \_\_\_\_\_ Status: \_\_\_\_\_

This line is used to provide abbreviated help on the currently selected field.

CANCEL	REFRESH	ENTER	CLEAR	HELP			
--------	---------	-------	-------	------	--	--	--

**Screen 3-11. Default Gateway**

A default gateway allows the Multi-Function Board to communicate with other hosts in other LANs. The Default Gateway screen is used to 1) initially identify the default gateway to the Multi-Function Board; 2) change the Name or IP Address and check the Status; or 3) verify that the Multi-Function board is not communicating with another host because the Status of the Default Gateway is "down."

This screen is protected against multiple users making simultaneous changes as follows: If a user presses the **ENTER** function key, the system checks to see if the information that was displayed upon entry to this screen has changed. If it has, the data is not entered and the user is apprised of the problem and exited from the screen. The previous screen (TCP/IP Administration) reappears.

Field Name	Description
Name or IP Address	Name or IP Address of the default gateway, the machine used to route all traffic destined for other networks, for which a specific route is not known. Maximum field size = 20 characters.
Status	Either <code>up</code> or <code>down</code> . If <code>down</code> , the gateway is not willing to route traffic for the router.

Use this screen as follows:

- To enter data the first time, or to change data:
  1. Type the name or IP Address of the gateway to be added.
  2. Press `CANCEL` if you don't want to add the Name or IP Address you typed, or press `ENTER` to submit the name or IP address.

The TCP/IP Administration — Network Routing Information menu will reappear. The next time the Default Gateway screen is displayed, the data that was entered or changed will be filled in.
- To remove the default gateway that appears in the field, press `CLEAR` and then `ENTER`.
- If you are only viewing the screen, press `CANCEL` to return to the TCP/IP Administration — Network Routing Information menu.



Field Name	Description
Type	The type of destination, either <code>host</code> or <code>network</code> . (Most routes are to network destinations.)
Gateway	Name or IP address of the gateway, the machine used to route all traffic to the given destination. Maximum field size = 20 characters.
Status	Either <code>up</code> or <code>down</code> . If <code>down</code> , the gateway is not willing to route any traffic.

Use this screen as follows:

- Use `NXTPG` and `PRVPG` to step through the pages.
- To delete route entries:
  1. Press `Tab` or use the arrow keys to move the cursor to the line you want to delete, and then press `DELETE` . (This deletes the entire line.)
  2. The following prompt appears: `Are You Sure? (Y/N)` . Type `Y` and press `Return` .  
If you type `N` and press `Return` , the cursor reappears at the beginning of the line and the line is not deleted.
  3. Repeat steps 1 and 2 until you have deleted all desired routes. Then press `CANCEL` and the Network Routing Information menu will reappear.
- To add routes, press `ADD` to access the Add Routes screen.

### Network Routing Table — Add Routes

TCP/IP Administration  
 Network Routing Information  
 Network Routing Table  
 Add Routes

Destination	Type	Gateway

This line is used to provide abbreviated help on the currently selected field.

CANCEL
REFRESH
ENTER
CLEAR
HELP

**Screen 3-13. Network Routing Table — Add Routes**

This screen is used to add network routes. A maximum of 65 routes may be added.

When you add a route, after you press the **ENTER** function key, the previous screen reappears with the cursor positioned at the beginning of the new entry.

Field Name	Description
Destination	Name or IP address of a host, or a partial IP address of a network. Maximum field size=20 characters.
Type	The type of destination, either <code>host</code> or <code>network</code> . (Most routes are to network destinations.)
Gateway	Name or IP address of the gateway, the machine used to route all traffic to the given destination. Maximum field size=20 characters.

Use this screen as follows:

1. Type the destination, type, and gateway of the route to be added. Press **Tab** or use the arrow keys to move from field to field.
2. Press **CANCEL** if you don't want to add what you just typed, or press **ENTER** to enter the data. The Network Routing Information — Network Routing Table screen will reappear.
3. Access this screen again and repeat steps 1 and 2 for each new route to be added.

## Brouter Administration

Brouter Administration

Port	Client Name or IP Address	Client Link	Client Status
—	_____	—	_____
—	_____	—	_____
—	_____	—	_____
—	_____	—	_____
—	_____	—	_____
—	_____	—	_____
—	_____	—	_____
—	_____	—	_____

This line is used to provide abbreviated help on the currently selected field.

CANCEL
REFRESH
ADD
DELETE
HELP

**Screen 3-14. Brouter Administration**

This screen is used to associate clients with ASAI ports on DEFINITY. Links appear in numerical sequence by port number. A maximum of eight links may be administered, but depending on your system and the number of ASAI links you have purchased, you may not be able to make use of all eight entries. One default entry will appear on the screen until it is changed: `Port=1, Client Name=client, Client Link=1`. The IP address of `client` is 192.168.25.20.

This screen is protected against multiple users making simultaneous changes as follows: If a user presses `ADD` or `DELETE`, the system checks whether the information that was displayed upon entry to this screen has changed. If it has, the `ADD` or `DELETE` is not performed and the user is apprised of the problem and exited from the screen.

Field Name	Description
Port	Port number used on the DEFINITY switch. Valid range is 1 to 12. Each port can only be assigned once.
Client Name or IP Address	Host name or IP address of the client machine authorized to connect to this port. (Network name of the adjunct.) Must be resolvable by the local host table, or be an IP address. Maximum field size=20 characters.
Client Link	Link number from 1 to 8, used by client when connecting to this port if client has more than 1 logical link into the MFB. Default = 1.
Client Status	<b>Read-only.</b> Either <i>in-use</i> or <i>idle</i> . <i>Idle</i> client states may be modified or deleted. If you attempt to delete a port with a <i>busy</i> status, the ASAI link associated with that port is disconnected.

Use this screen as follows:

- To delete a port:
  1. Press  or use the arrow keys to move the cursor to the line you want to delete, and then press . (This deletes the entire line.)
  2. The following prompt appears: *Are You Sure? (Y/N)* . Type *Y* and press .
 

If you type *N* and press , the cursor reappears at the beginning of the line and the line is not deleted.
  3. Repeat steps 1 and 2 until you have deleted all desired ports. Then press  and the Main Menu will reappear.
- To add a port, press  to access the Add Client Link screen.

### Add Client Link

Brouter Administration  
Add Client

Port	Client Name or IP Address	Client Link
—	—	—

This screen is used to add client links. When you add a client link, after you press the  function key, the previous screen (Brouter Administration) will appear with the cursor at the beginning of the new entry.

This screen is protected against multiple users making simultaneous changes as follows: If a user presses , the system checks whether the information that was displayed upon entry to this screen has changed. If it has, the data is not entered and the user is apprised of the problem and exited from the screen.

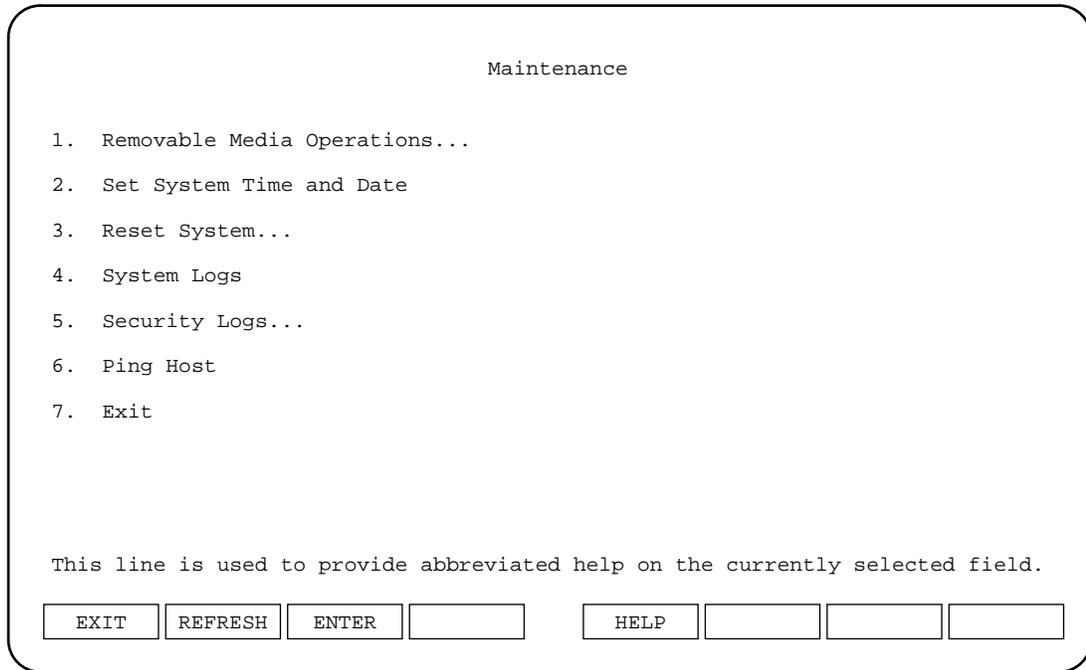
Field Name	Description
Port	Port number used on the DEFINITY switch. Valid range is 1 to 12. Each port can only be assigned once.
Client Name or IP Address	Host name or IP address of the client machine authorized to connect to this port. (Network name of the adjunct.) Must be resolvable by the domain name server or the local host table, or be an IP address. Maximum field size = 20 characters.

<b>Field Name</b>	<b>Description</b>
Client Link	Link number from 1 to 8, used by client when connecting to this port if client has more than 1 logical link into the MFB. Default = 1.

Use this screen as follows:

1. Type the port, client name, and number of the first client link you want to add. Press **Tab** or use the arrow keys to move from field to field.
2. Press **CANCEL** if you don't want to add what you just typed, or press **ENTER** to enter the data. The Brouter Administration screen will reappear.
3. Access the Add Client Link screen again and repeat steps 1 and 2 for each client link to be added.

## Maintenance



**Screen 3-15. Maintenance (Main Menu)**

Menu Item	Description
Removable Media Operations...	Provides access to the Removable Media Operations menu
Set System Time and Date	Allows the user to set system time and date, including time zone.
Reset System...	Provides access to the Reset System menu
System Logs	Provides access to System Logs
Security Logs...	Provides access to Security Logs menu
Ping Host	Provides access to Ping Host screen
Exit	Returns the user to previous screen

To use this menu, press the number of the screen you wish to access, or press  or use the arrow keys to move the cursor to the desired number, and press .

## Removable Media Operations

Maintenance  
Removable Media Operations

1. Format Removable Media
2. Save Configuration Data To Removable Media
3. Restore Configuration Data From Removable Media
4. Exit

This line is used to provide abbreviated help on the currently selected field.

EXIT

REFRESH

ENTER

HELP

**Screen 3-16. Removable Media Operations**

Menu Item	Description
Format Removable Media	Instructs the system to format the removable media
Save Configuration Data to Removable Media	Instructs the system to start a backup of all its configuration data
Restore Configuration Data From Removable Media	Begins restoring configuration data from removable media <b>The system must be rebooted after performing a restore.</b>
Exit	Returns you to previous screen

Use this screen as follows:

1. Select the activity you want to perform. Press the corresponding number, or press `(Tab)` or use the arrow keys and press `(Enter)`.
2. For each activity, the following prompt appears: **Are You sure? (Y/N?)** . Type `Y` and press `(Return)`. The activity is shown on the screen in real time.  
  
If you type `N` and press `(Return)`, this screen reappears.
3. After the activity you select is completed, the Maintenance menu reappears.

## Set System Time and Date

Maintenance  
Set System Time and Date

Time: \_\_:\_\_                      Month: \_\_    Day: \_\_    Year: \_\_\_\_

Standard Timezone Information  
ST Name: \_\_\_\_\_  
Offset Time: \_\_:\_\_\_\_  
Direction (E/W): \_

Daylight Savings Timezone Information  
DST Name: \_\_\_\_\_

This line is used to provide abbreviated help on the currently selected field.

**Screen 3-17. Set System Time and Date**

This screen is used to set the system time, date, and time zone. Setting a second time zone is optional.

Field Name	Description
Time	Hours and minutes (xx:xx), plus a time zone name up to 10 characters (for example, EDT). The time zone to the right of the time field is the time zone currently in use and is display-only.
Month	Two digits (01-12)
Day	Two digits (01-31)
Year	Four digits (xxxx).
Standard Timezone Information Name:	The name or abbreviation of the standard time zone for your location. A list of standard abbreviations follows this table.

Field Name	Description
Offset Time:	The number of hours that vary from Universal Time (also known as Greenwich Mean Time). See the table that follows.
Direction (E/W)	The direction your location is from the Universal Time zone, east (E) or west (W).
Daylight Savings Timezone Information Name	<p>The name or abbreviation of a second, optional time zone. A list of standard abbreviations follows this table.</p> <p>If you enter any value, this time zone will follow U. S. Daylight Savings rules. In the U.S., Daylight Savings begins the first Sunday of April at 2 a.m.. Standard Time begins on the last Sunday of October at 2 a.m. If this field is blank, then Daylight Savings does not apply.</p>

Standard Time Zone Name	Standard Time Zone Abbreviation	Daylight Savings Abbreviation	Offset Time	(Offset) Direction
Greenwich	GMT	GDT	00:00	W
Atlantic	AST	ADT	04:00	W
Eastern	EST	EDT	05:00	W
Central	CST	CDT	06:00	W
Mountain	MST	MDT	07:00	W
Pacific	PST	PDT	08:00	W
Yukon	YST	YDT	08:00	W
Alaska	none (Use full name)	none (Use full name)	10:00	W
Hawaii	HST	HDT	10:00	W
Bering	BST	BDT	11:00	W

To use this screen:

1. On the top line, type the time, month, day, and year. Press  or use the arrow keys to move from field to field.
2. Under **standard Timezone Information**, type the name or abbreviation in the **Name** field, the offset time, and the direction, as follows:
  - If you enter a name or abbreviation from the list in this section, then you don't have to enter offset time or direction.

- If you leave this field blank, or if you clear the offset time or direction, they will be supplied automatically from the preceding table.
- If you enter a name or abbreviation that is **not** in the table, then you must also enter offset time and direction.

 **NOTE:**

The system determines the time zone that appears to the right of the **Time** field in the top line of the screen according to what is entered in these fields and the current date and time.

3. If you do not want to enter a second time zone, be sure **DST Name** is clear and then skip to step 4.

If you do want to enter a second time zone that follows U.S. Daylight Savings rules, under **Daylight Savings Timezone Information**, type the name or abbreviation in the **Name** field as you did in step 2. However, note the following conventions for this field:

- If you type **any** value in this field, then you are setting an alternate timezone that follows U.S. Daylight Savings rules.
  - If you want a second time zone but don't want U.S. Daylight Savings rules to apply, then make sure the field is blank and manually change the system clock on the appropriate date.
4. Press the **(ENTER)** function key when you are done typing data. The Maintenance menu will reappear.

## Reset System

Maintenance  
Reset System

1. Shutdown
2. Restart System
3. Reboot System
4. Exit

This line is used to provide abbreviated help on the currently selected field.

**Screen 3-18. Reset System**

Field Name	Description
Shutdown	Shuts down the entire system. <b>Required before powering down the switch or removing system assembly.</b>
Restart System	Reinitializes the DEFINITY LAN Gateway application (the router)
Reboot System	Reinitializes all hardware and software on the system assembly
Exit	Returns you to the previous screen

Use this screen as follows:

1. Select the activity you want to perform. Press the number, or press  or use the arrow keys and press the  function key .
2. The following prompt appears: **Are You sure? (Y/N?)** . Type **Y** and press  .  
If you type **N** and press , this screen will reappear.

3. For `shutdown`:

The following message appears: `THE SYSTEM IS BEING SHUT DOWN NOW!!`

When the procedure is complete, "Shut" is displayed on the LCD panel of the Multi-Function board.

4. For `Restart System`:

When the procedure is complete, you will return to the Reset System menu.

5. For `Reboot System`:

If you run this from the system console (ADMIN/PORT B), the login prompt will appear when the procedure is complete. From a remote connection, you have to reconnect later (approximately 5-10 minutes).

The same messages will appear as for `shutdown`. When the procedure is complete, either ASAI-X, where x is the number of client connections, or OS will appear on the LCD display on the Multi-Function board, and you will be able to log back on.

## System Logs

<Date>
Maintenance  
System Logs
Page XXXX of XXXX

Time	Type	Process	Description
This line is used to provide abbreviated help on the currently selected field.			

CANCEL
REFRESH
NXTDAY
PRVDAY

HELP

NXTPG
PRVPG

**Screen 3-19. System Logs**

This screen displays up-to-the-minute information on system activity, including errors.

Field Name	Description
Date	Month and day (MM/DD). Changes as you move among dates. If an asterisk (*) follows the day, this indicates an overflow log for this date. This second log should be considered a separate day when moving through days.
Time	Time of the log entry (Hour:Minutes:Seconds)
Type	Severity of the log entry (FYI, WARNING, or CRITICAL)
Process	The process that created the log entry. Examples are <code>brouter</code> and <code>oam_ui</code> .
Description	Description of the log entry

To use this screen, press `NXTDAY` and `PRVDAY` to move among days. Press `NXTPG` and `PRVPG` to step through multiple pages.

## Security Logs

Maintenance  
Security Logs

1. Login Attempt Log
2. Client Access Logs
3. DEFINITY LAN Gateway Reset Log
4. Command Logs
5. Exit

This line is used to provide abbreviated help on the currently selected field.

EXIT REFRESH ENTER  HELP

**Screen 3-20. Security Logs**

Menu Item	Description
Login Attempt Log	Only those login attempts that failed
Client Access Logs	List of clients that attempted to connect and then disconnected
DEFINITY LAN Gateway Reset Log	All DEFINITY LAN Gateway Board resets
Command Logs	All commands executed from administration/maintenance screens, such as adding a new login. Lists all changes to parameters.

Use this screen as follows:

1. Select the item for which you would like to see information. Press the number, or press Tab or use the arrow keys and press the ENTER function key. The applicable screen will appear.
2. When you are done viewing data, press EXIT to return to the Maintenance menu.

## Login Attempt Log

Maintenance  
System Logs  
Login Attempt Log

Page X of X

Date and Time	User	Terminal Port

**Screen 3-21. Login Attempt Log**

Field Name	Description
Date and Time	Day, Date, Time, and Year of the login attempt (Day [nnn] Month Day[xx] Hour:Minutes:Seconds)
User	Login of the user who attempted to log in. After three failed login attempts occur, all are logged. If fewer than three are attempted, then none is logged.
Terminal Port	Multi-Function Board port through which the login attempt was made

To view information on this screen, press  and  to step through multiple pages.

### Client Access Logs

<Date>

Maintenance  
 Security Logs  
 Client Access Logs

Page XXXX of XXXX

Time	Type	Process	Description

CANCEL
REFRESH
NXTDAY
PRVDAY

HELP
 
NXTPG
PRVPG

Screen 3-22. Client Access Logs

Field Name	Description
Date	Month and day (MM/DD). Changes as you move among dates. If an asterisk (*) follows the day, this indicates an overflow log for this date. This second log should be considered a separate day when moving through days.
Time	Time of the client access (Hour:Minutes:Seconds)
Type	Severity Indicator ( <b>FYI</b> , <b>WARNING</b> , or <b>CRITICAL</b> ).
Process	Process that created the log entry. Examples are <b>brouter</b> and <b>oam_ui</b> .
Description	Description of the client access activity. Example: <b>israel/3528 TCP_Connect</b> .

To use this screen, press **NXTDAY** and **PRVDAY** to move among days. Press **NXTPG** and **PRVPG** to step through multiple pages.



## Command Logs

<Date>

Maintenance  
 Security Logs  
 Command Logs

Page XXXX of XXXX

Time	User	Description

CANCEL REFRESH NXTDAY PRVDAY

HELP   NXTPG PRVPG

**Screen 3-24. Command Logs**

Field Name	Description
Time	Time of the client access (Hour:Minutes:Seconds)
User	Login_id that executed the command
Description	Command that was executed (Example: <code>delete: network route: 135.20.87 network asaimfb3</code> )

To use this screen, press NXTDAY and PRVDAY to move among days. Press NXTPG and PRVPG to step through multiple pages.

## Ping Host

Maintenance  
Ping Host

Host Name or IP Address: \_\_\_\_\_

Packet count: \_\_\_\_\_

Packet size: \_\_\_\_\_

This line is used to provide abbreviated help on the currently selected field.

CANCEL
REFRESH
ENTER
CLEAR
HELP

**Screen 3-25. Ping Host**

This screen allows the user to test the connection between the DEFINITY LAN Gateway and any host.

Field Name	Description
Host Name or IP Address	Name or IP address of locally known host. Maximum field size = 20 characters.
Packet count	The number of packets sent between the DEFINITY LAN Gateway and the host. Valid range is 1-999. <b>Default=1.</b>
Packet size	The size of the packets sent between the DEFINITY LAN Gateway and the host. Valid range is 64-999. <b>Default=64.</b>

Use this screen as follows:

- Type the host name, IP Address, packet count, and packet size. Use Tab or the arrow keys to move from field to field.
- When you are done entering data, press the ENTER function key to enter the data, or CANCEL to return to the Maintenance menu. If you press the ENTER function key, this will display the results and redisplay this screen. (You can do multiple pings.)

## Port Status/Control

Port Status/Control

Port	DEFINITY Port State	TCP/IP Connection State	Brouter Service State	Messages to DEFINITY	Messages from DEFINITY	Message Period (minutes)
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—

This line is used to provide abbreviated help on the currently selected field.

CANCEL
REFRESH


HELP
STATE
DROP
MSGPER

**Screen 3-26. Port Status/Control**

This screen can be used to change a port's service state or close a port's TCP connection. Changing the port's service state will affect the port's other states as well.

Field Name	Description
Port	Port number (1-12) used by the DEFINITY switch. To determine which client is associated with a particular port, see the Brouter Administration screen.
DEFINITY Port State	<p><b>Read-only.</b> Possible port states are as follows:</p> <ul style="list-style-type: none"> <li>■ <b>NOT CONNECTED</b> The BRI port is not administered (or is busied out) on the DEFINITY switch.</li> </ul>

Field Name	Description
	<ul style="list-style-type: none"> <li>■ <b>CONNECTED DOWN</b> The BRI port is administered on the DEFINITY switch but Layer 2 is not established.</li> <li>■ <b>CONNECTED</b> The BRI port is administered on the DEFINITY switch and Layer 2 is established.</li> <li>■ <b>BUSIEDOUT</b> The BRI port is administered on the DEFINITY switch but has been busied out in the MLAPD driver on the MFB.</li> <li>■ <b>BUSIEDOUT UADM</b> The BRI port is not administered (or is busied out) on the DEFINITY switch and has been busied out in the MLAPD driver on the MFB.</li> <li>■ <b>SW INTF DN</b> The DEFINITY switch interface (angel) is down.</li> <li>■ <b>SW INTF DN BSY</b> The DEFINITY switch interface (angel) is down and the BRI port has been busied out in the MLAPD driver on the MFB.</li> </ul>
TCP/IP Connection State	<p><b>Read-only.</b></p> <ul style="list-style-type: none"> <li>■ <b>REACHABLE</b> The client is responding to ICMP echo requests (host recognizes client but can't communicate),</li> <li>■ <b>UNREACHABLE</b> The client is not responding to ICMP echo requests (host does not recognize client).</li> <li>■ <b>CLOSED</b> The TCP connection has been closed.</li> <li>■ <b>LISTEN</b> TCP is listening for incoming connections.</li> <li>■ <b>SYN SENT</b> TCP is actively trying to establish a connection.</li> <li>■ <b>SYN RECEIVED</b> Initial synchronization of the TCP connection is under way.</li> <li>■ <b>ESTABLISHED</b> The TCP connection has been established. This is the steady state when the client is connected.</li> </ul>

	<ul style="list-style-type: none"> <li>■ <b>CLOSE WAIT</b> The client has closed its TCP connection. The MFB's TCP is waiting for a close.</li> <li>■ <b>FIN WAIT 1</b> The MFB's TCP connection is initiating a close.</li> <li>■ <b>CLOSING</b> The MFB's TCP has notified the client's TCP of its intent to close. It is now awaiting acknowledgment.</li> <li>■ <b>LAST ACK</b> The client has closed its TCP connection. The MFB has closed its TCP connection and is now awaiting acknowledgement.</li> <li>■ <b>FIN WAIT 2</b> The MFB's TCP connection has initiated a close and is now awaiting shutdown from the client's TCP.</li> <li>■ <b>TIME WAIT</b> The MFB has closed its TCP connection and is waiting for retransmission of the shutdown from the client's TCP.</li> <li>■ <b>UNKNOWN</b> Self-explanatory. Contact the TSC.</li> </ul>
Brouter Service State	Either <b>in service</b> or <b>busied out</b>
Messages to DEFINITY	<b>Read-only.</b> The number of messages sent to the client in the last message collection period.
Messages from DEFINITY	<b>Read-only.</b> The number of messages received from the client in the last message collection period.
Message Period (minutes)	The time period (in seconds) during which messages are sent and received. This is a per-port number entered on the Message Collection Period screen.

Use this screen as follows:

- To change the port's service state:
  1. Press  or use the arrow keys to move to the desired port.
  2. Press  to toggle the Service State.



**NOTE:**

Busying a port out causes that port's TCP connection (if one exists) to be closed. No new connections will be permitted on that port until the port is placed back in service.

3. The following prompt appears: **Are You Sure? (Y/N?)** . Type **Y** and press **Return** . The Port Status/Control screen will reappear, showing the changed state.

If you type **N** and press **Return** , the Port Status/Control screen will immediately reappear.

- To close a port's TCP connection:

1. Press **Tab** or use the arrow keys to move to the desired port.
2. Press **DROP** to close the port's TCP connection.

 **NOTE:**

New connections are permitted on this port.

3. The following prompt appears: **Are You Sure? (Y/N?)** . Type **Y** and press **Return** . The Port Status/Control screen will reappear, showing the change.

If you type **N** and press **Return** , the Port Status/Control screen will immediately reappear.

- To set the Message Collection Period for a port, select the port and press **MSGPER** . The Message Collection Period screen will appear. If no ports are administered, pressing **MSGPER** does nothing.

## Message Collection Period

---

Port Status/Control  
Message Collection Period

Port: xx      Client: yy      Link: zz

Period: \_\_\_\_

This line is used to provide abbreviated help on the currently selected field.

CANCEL	REFRESH	ENTER	CLEAR	HELP			
--------	---------	-------	-------	------	--	--	--

**Screen 3-27. Message Collection Period**

This screen enables you to set the message collection period for a port. When the screen is first displayed, a port number (1 to 12) replaces **xx** in the **Port** field, the client's name or IP address replaces **yy** in the **Client** field, and the client's link replaces **zz** in the **Link** field. The port number comes from the previous screen (whatever port the cursor was on).

After you enter a value for **Period** on this screen and press the **ENTER** function key, the previous screen reappears with the cursor positioned at the beginning of the new entry. Remember that changing the collection period clears the traffic counts (Messages to DEFINITY and Messages from DEFINITY) on the Port Status/Control screen.

<b>Field Name</b>	<b>Description</b>
Port	The port for which messages are to be collected. Display-only.
Client	The client name or IP address for which messages are to be collected. Display-only.
Link	The client link for which messages are to be collected.
Period	The time period (in minutes) during which messages are to be sent and received. Range = 1-720.

Use this screen as follows:

1. Type the desired port, client, and link. Type the desired time period, in minutes, up to 12 hours. Press **Tab** or use the arrow keys to move from field to field.
2. When you are done entering data, press the **ENTER** function key. The screen you were on previously (Port Status/Control) will reappear.

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# Maintenance

# 4

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This chapter provides information for diagnosing, repairing, and maintaining the DEFINITY LAN Gateway system. The maintenance screens used in these tasks are located in Chapter 3.

## **Repair Orientation**

This section gives basic information about the DEFINITY LAN Gateway system. This includes system capacities, a description of system components, system states, and maintenance connections, and finally, common maintenance procedures.

## System Specifications

Table 4-1 defines the basic specifications of the DEFINITY LAN Gateway system.

**Table 4-1. System Capacities, Requirements, and Limitations**

Physical Dimensions	<ul style="list-style-type: none"> <li>■ Weight: 6.2 pounds</li> <li>■ Length: 14.75 inches</li> <li>■ Height: 7.6 inches</li> <li>■ Width: 2.9 inches</li> </ul>
Power Requirements	<p>-48 VDC from the switch (Acceptable range: -54.0 VDC to -44.0 VDC)</p> <p>Converted to:</p> <ul style="list-style-type: none"> <li>■ +12 VDC for disk/tape drives (Acceptable range: +11 VDC to +13 VDC)</li> <li>■ +5 VDC for TN2208 and TN2170 (Acceptable range: +4.85 VDC to +5.15 VDC)</li> <li>■ -5 VDC for TN2170 (Acceptable range: -5.2 VDC to -4.8 VDC)</li> </ul>
Ethernet Capacity	<ul style="list-style-type: none"> <li>■ 8 Transmission Control Protocol/Internet Protocol (TCP/IP) ASAI-Ethernet sessions</li> <li>■ 8 login sessions</li> </ul>
Switch Hardware Supported	<ul style="list-style-type: none"> <li>■ DEFINITY G3r, G3i, G3s (not G3vs)</li> </ul>
Switch Software Supported	<ul style="list-style-type: none"> <li>■ DEFINITY G3V2 or G3V3 with a field maintenance upgrade, or G3V4</li> </ul>
Temperature Requirements	<ul style="list-style-type: none"> <li>■ -40 to 150F (-19 to 71C) storage temperature</li> <li>■ 60 to 85F (18 to 29C) operating temperature</li> </ul>
Humidity Requirements	<ul style="list-style-type: none"> <li>■ 10 to 80 percent (noncondensing)</li> <li>■ 79F (26C) maximum wet-bulb temperature</li> </ul>
Altitude Limitations	<ul style="list-style-type: none"> <li>■ 200 feet (60m) below sea level</li> <li>■ 10,000 feet (3050m) above sea level</li> </ul>

## Physical Description

Refer to Figure 4-1, DEFINITY LAN Gateway System Assembly, when reading this section.

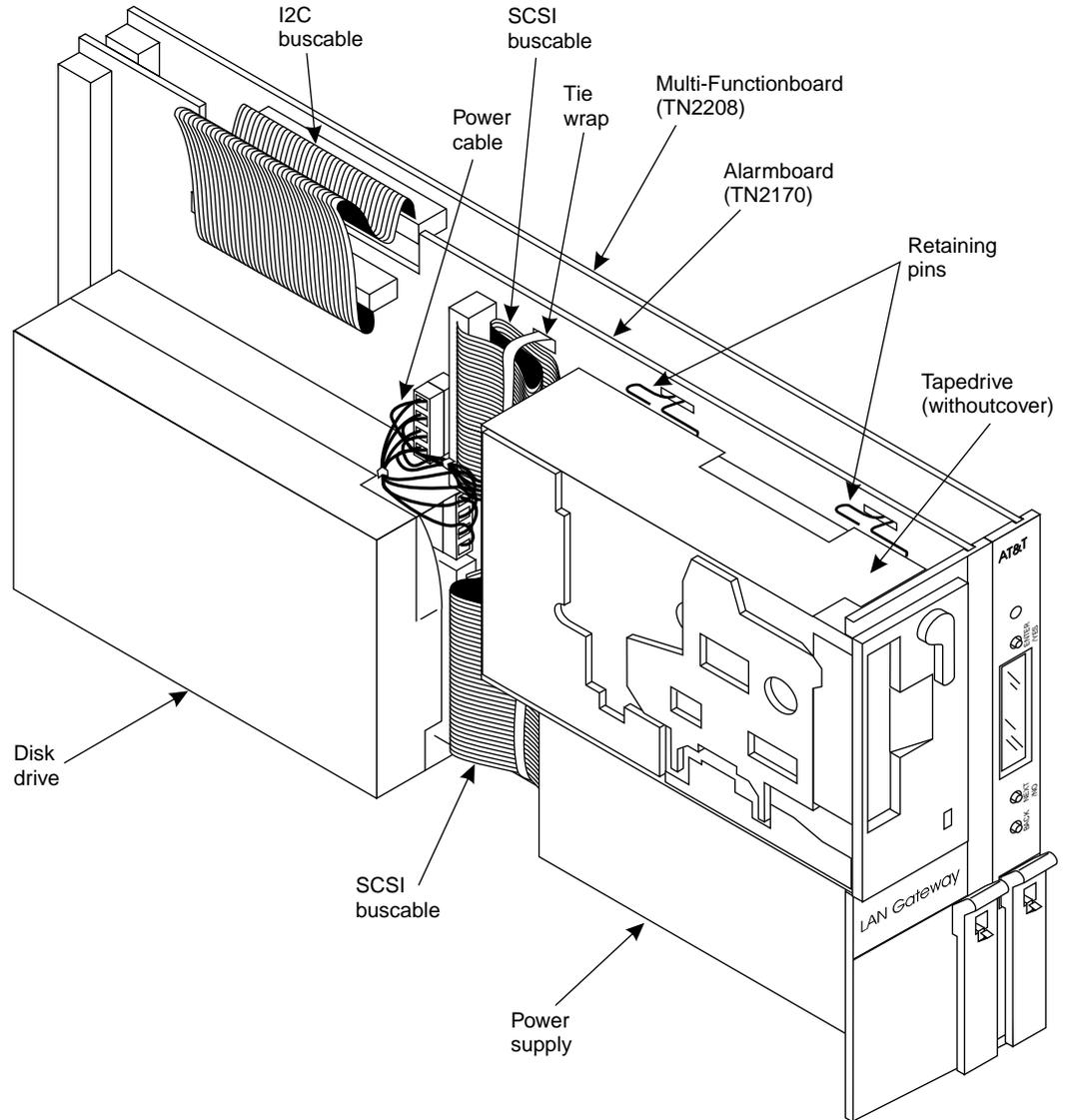


Figure 4-1. DEFINITY LAN Gateway System Assembly

Four main items make up the DEFINITY LAN Gateway system hardware assembly shown in Figure 4-1. They are:

- TN2208 Multi-Function Board (MFB) — The main circuit board that holds the central processing unit, controllers, and memory devices that make the system operational.



**NOTE:**

The DEFINITY LAN Gateway batteries are not field-replaceable. If the batteries on the TN2208 are low, replace the the board.

- TN2170 Alarm Board (ALB) — Works with the TN2208 to provide monitoring for system power and environmental status, -48 VDC to +12 VDC power conversion for the mass-storage devices, and remote terminal access. It also has the Ethernet interface.
- 3 1/2" Disk drive (ED-1E546-70 G8) — A hard disk used to store customer data, boot the system, and log system error information.
- 3 1/2" Tape unit (part of ED-1E546-70 G1) — A 160-Mbyte data cassette drive used to distribute software, store periodic backups of customer data, install new software releases, and remove core dumps and other maintenance information.

The system faceplate is made up of the following items:

- Red Light-Emitting Diode (LED) — Indicates the health of the MFB and Alarm Board. When flashing, it indicates a software problem. When it is steadily lit, a hardware problem exists.
- Liquid Crystal Display (LCD) — A 10-character alphanumeric display that automatically shows the status of the MFB including alarms, and information and procedures from a menu when any of the three buttons in the following bullet item are pressed.
- ENTER/YES, BACK, NEXT/NO buttons — Allow service personnel to move through a structured menu system one item at a time as indicated on the LCD.
- BOOT/SHUTDOWN button — A recessed button used to take the entire system off-line to a Maintenance Shutdown state. Closes all files, stops file operations, and executes a spin-down of the disk drive. Pressing it again when the system is shut down causes the system to reboot.

Cables include:

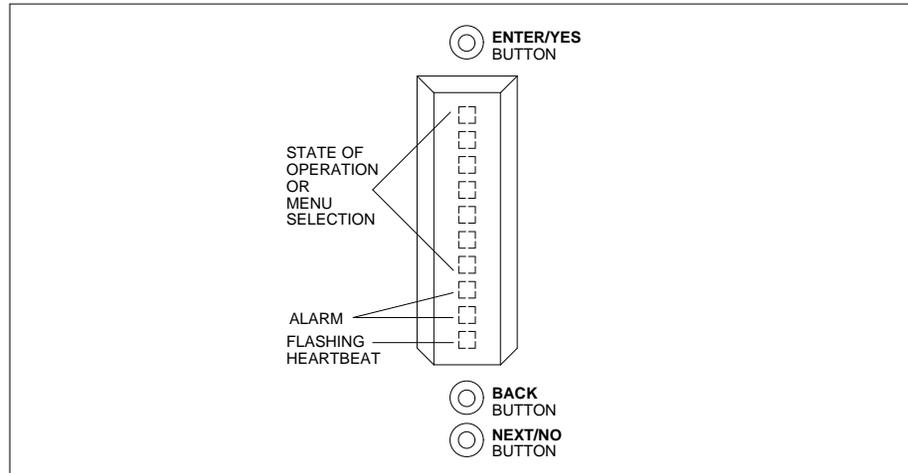
- Interboard bus cable — A flat ribbon cable that provides the communications link between the MFB and ALB. It transmits power, environmental status, and control information.
- Small Computer Systems Interface (SCSI) bus cables — Two 50-conductor ribbon cables that connect the disk and tape drives to the ALB. They provide pass-through data transfer to the MFB.
- Power cable — Provides 12 VDC power to the disk and tape drives from the power module on the ALB.
- Adapter cables — Two cables connected to the ALB and MFB through the back of the switch. The MFB Y-cable provides administration/maintenance terminal connections. The ALB cable provides an Ethernet connection to a LAN, a reserved Amphenol connection, and an RS-232 connector to a remote maintenance center via an external modem.

## System States

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The DEFINITY LAN Gateway system initializes, operates, shuts down, and is diagnosed and maintained in different states. These states are displayed on the faceplate panel LCD shown in Figure 4-2.

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**Figure 4-2. LCD Status Mode Display**

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Table 4-2 gives a description of the alarms, indications, and states of the DEFINITY LAN Gateway system.

**Table 4-2. System States**

Display	Definition
<i>Heartbeat Indication</i>	
* (flashing)	Flashing at a one-second on, half-second off rate, indicates an active MFB.
0 (flashing)	Flashing at a one-second on, half-second off rate, indicates that the MFB is in an off-line, standby state.
<i>Alarms</i>	
MN	Minor alarm — Displays a problem that could disable part of a system function and noticeably degrade operation. Requires intervention from the TSC.
MJ	Major alarm — Displays a problem that could widely degrade system operation and seriously impact service. Requires intervention from the TSC.
WN	Warning — Displays a problem not severe enough to noticeably degrade operation. Requires on-site intervention.
<i>Initialization Status Messages</i>	
386_DEAD	Displayed when the MFB's main processor fails or is not able to communicate with the Faceplate and Alarm Controller (FAC). The FAC and alarm board processor can still be functioning. In this state, it is safe to remove the DEFINITY LAN Gateway system for repair.
BTEST	Board Test — Whenever the system is reset, this is displayed when flashware is performing a hardware initialization and test on the MFB.
BOOT	Displayed when the board test is complete and flashware turns control over to the boot loader.
OSINIT	Operating System Initialization — Displayed just before the boot loader turns control over to the operating system or the booted utility.
PGM386 PGMFAC PGMALB	Brought up during OS initialization only if the system determines that one or more of the 80386SX, faceplate and alarm controller, or alarm board FEPROMs must be reprogrammed. Reprogramming is done automatically.
	<p> <b>WARNING:</b>  <i>The system should never be shut down during the reprogramming sequence. The MFB will have to be sent back to the factory if programming is not allowed to complete.</i></p>

**Table 4-2. System States (continued)**

AINIT	ASAI Initialization — Displayed when the DEFINITY LAN Gateway software is initializing from boot.
ASAI-X	ASAI-Ethernet State — Displayed when the DEFINITY LAN Gateway software is fully initialized and providing service, or ready to provide service. X indicates the number of DEFINITY LAN Gateway client connections.
<i>Shutdown States</i>	
E_SHUT	<p>Error Shutdown — Flashes whenever a critical error condition is encountered and the system is shutting down. Once the disk is spun down, the display becomes steadily lit. Flashware continues to execute. Can also be entered when:</p> <ul style="list-style-type: none"> <li>■ Board tests have failed and the red LED is lit.</li> <li>■ Flashware or software has failed to initialize and has shut down.</li> <li>■ A maintenance shutdown was directed and an operational error occurs. For instance, the Faceplate and Alarm Panel (FAC) timed out on the transition of the MFB to the M_SHUT state.</li> <li>■ On a running system, maintenance software detects a condition requiring an error shutdown.</li> </ul> <p>When in this state, the system can be powered down and removed from the switch carrier for repair.</p>
M_SHUT	<p>Maintenance Shutdown — Flashes when a technician has directed Maintenance shutdown either by pressing the BOOT/SHUTDOWN button, or through the SYSTEM SHUTDOWN command on a maintenance terminal. Flashware executes and the disk is spun down. Once the system is completely shut down, the display becomes steadily lit.</p> <p>When in this state, the system can be powered down and removed from the switch carrier for repair.</p>
S_SHUT	Shows only if the interboard bus cable is disconnected. Reconnecting the cable will bring the system back to the OA&M or ASAI-E state.
<i>Maintenance, Utility Status Messages</i>	
CMD	<p>Displayed when the flashware is running and a technician on a remote or local maintenance terminal enters the Command Mode menu. Can be entered in the BTEST, M_SHUT, or E_SHUT state by pressing <b>Ctrl</b> <b>C</b> twice. Menu options include:</p> <ol style="list-style-type: none"> <li>1. Display initialization history — Lists flashware tests that have passed during system initialization, and other information.</li> <li>2. Display status — Lists current alarms, hardware status diagnostics, sensor and voltage readings, and other information. These displays are also shown on the</li> </ol>

**Table 4-2. System States (continued)**

	<p>faceplate panel LCD</p> <ol style="list-style-type: none"> <li>3. Read/Write functions — Lists byte-, word-, and long-address values.</li> <li>4. Additional tests — Lists diagnostic tests. These are also shown on the faceplate panel LCD</li> <li>5. Automatic boot — Brings up the system from a shutdown mode, showing initialization operations and tests.</li> <li>6. Preempt automatic boot — Ensures that all initialization operations and tests will pass.</li> <li>7. Manual boot — Allows a boot to be done manually from the faceplate panel. Shows initialization operations and tests.</li> <li>8. Board commands — Provides board reset or shut down options.</li> <li>9. Quit and automatically boot — Allows the technician to leave the command menu. Automatically boots the system.</li> </ol>
OS	<p>Displayed only when a TSC engineer interrupts the normal initialization sequence. The operating system remains on-line, but the DEFINITY LAN Gateway software is off-line. Used to perform system diagnostics and repair using the factory or supplied system operation tools. The customer does not have access to this state.</p>
INST	<p>Displayed during an upgrade or installation. Goes into this state when the technician gets into the command mode by pressing <b>CTRL C</b> twice and then preempting an automatic boot from the command menu.</p>

Figure 4-3, System Initialization and Shutdown Flow, shows the steps the DEFINITY LAN Gateway system automatically takes from a dead state to full operation. It also shows the states that can be entered whenever errors occur, or when the technician manually changes states using the faceplate panel or with the maintenance screens located in Chapter 3. Note that the states are shown as they appear on the faceplate panel LCD.



## **Maintenance Connections**

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Common types of console terminals are used for both switch and local DEFINITY LAN Gateway maintenance, allowing the same baud rates and parity to be used. Although a local maintenance terminal is optional, it does need to be available for installation and troubleshooting. A remote maintenance terminal may also be used.

Figure 4-4, Available Terminal Connections to a DEFINITY LAN Gateway System, summarizes the terminal configurations available with the system.

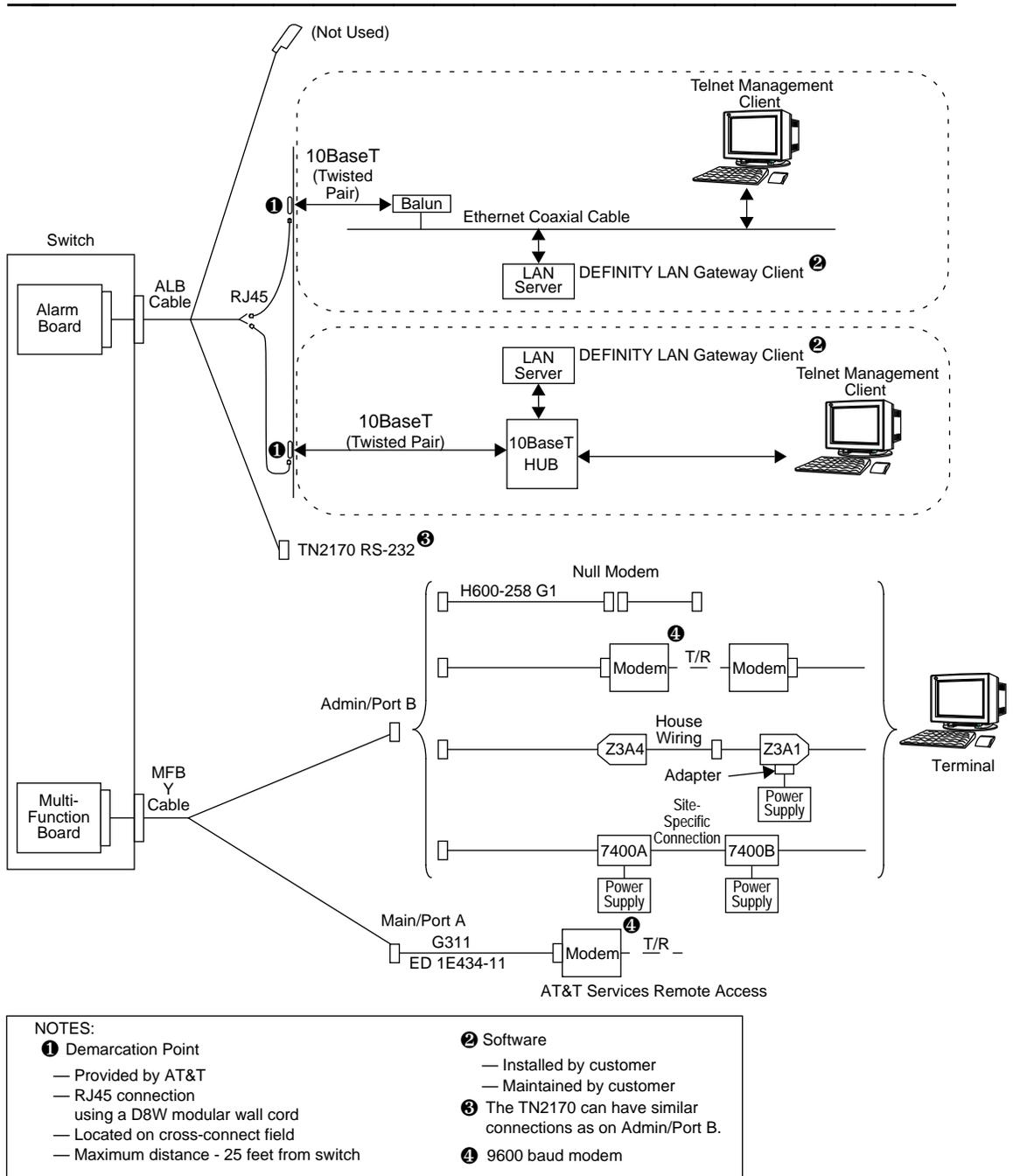


Figure 4-4. Available Terminal Connections to a DEFINITY LAN Gateway System

Table 4-3, Maintenance Terminal Hookups, lists the general requirements of terminals hooked up locally or remotely. Always refer to the terminal and printer manuals that accompany each machine to make cable connections, set up option settings, and program function keys.

**Table 4-3. Maintenance Terminal Hookups**

<b>Local RS-232C Hookup (Direct Connection)</b>	<b>Remote RS-232C Hookup (Through External Modem)</b>
<p>Baud Rate: (Press BREAK key to change)</p> <ul style="list-style-type: none"> <li>■ 9600</li> </ul> <p>Option settings: (On all terminals)</p> <ul style="list-style-type: none"> <li>■ Send Parity = space</li> <li>■ Check Parity = no</li> <li>■ RETURN key = CR</li> <li>■ Newline on LF = no</li> <li>■ ENTER key = ec [2a] (ec is ESCAPE key)</li> </ul> <p>Accesses:</p> <ul style="list-style-type: none"> <li>■ DEFINITY LAN Gateway screens</li> <li>■ MFB Flashware</li> <li>■ Operating System Shell</li> <li>■ Stand-alone Tape Utilities</li> </ul>	<p>Baud Rates: (Press BREAK key to change)</p> <ul style="list-style-type: none"> <li>■ 1200</li> <li>■ 2400</li> <li>■ 4800</li> <li>■ 9600 (default)</li> </ul> <p>Option settings: (On all terminals)</p> <ul style="list-style-type: none"> <li>■ Send Parity = space</li> <li>■ Check Parity = no</li> <li>■ RETURN key = CR</li> <li>■ Newline on LF = no</li> <li>■ ENTER key = ec [2a] (ec is ESCAPE key)</li> </ul> <p>Accesses:</p> <ul style="list-style-type: none"> <li>■ DEFINITY LAN Gateway screens</li> <li>■ MFB Flashware</li> <li>■ Operating System Shell</li> <li>■ Stand-alone Tape Utilities</li> </ul>

## Maintenance Login Procedure

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**This is not a procedure. Please supply.** If you cannot log in, first check terminal power, connections, settings, and modem speed if you are connected via a modem. If the modem appears to be locked up, type \* @ ; this may fix the remote access problem. If you still cannot reach the DEFINITY LAN Gateway system, call the switch administrator. Is the switch working? Can the administrator call into the system? A technician may have to be dispatched to the site.

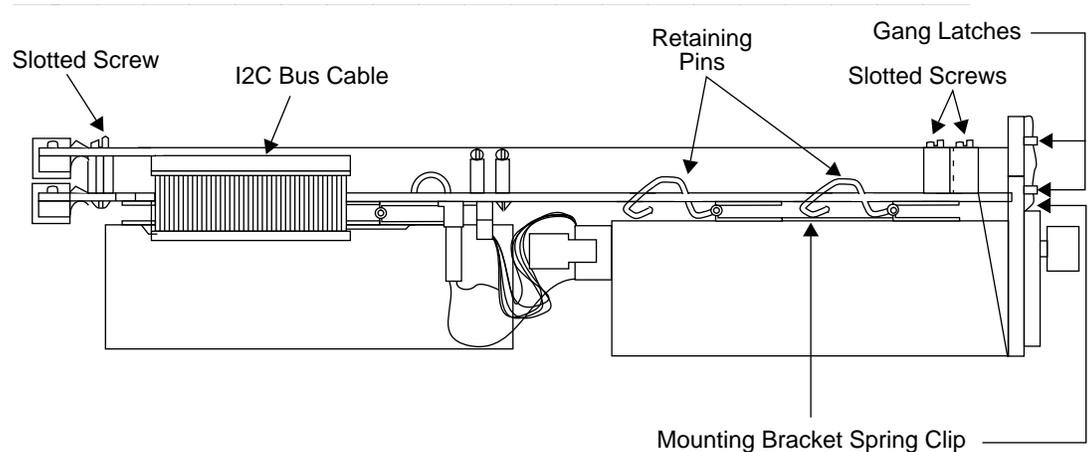
## Maintenance Procedures

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### Replacing the Circuit Packs

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Refer to Figure 4-5 and follow the steps listed below to replace the MFB or Alarm Board.



**Figure 4-5. Top View of DEFINITY LAN Gateway System**

**⚠ WARNING:**  
*Static electricity can be destructive to system parts. Use an anti-static wrist strap whenever removing or installing a DEFINITY AUDIX system. Also use an anti-static mat when taking the system apart to replace circuit packs or storage devices.*

1. Ensure that the customer knows you will be powering down the system and disrupting service.
2. If it is not already shut down, bring the system to the MSHUT state. (From the Main Menu, select Maintenance, Reset System, and then Shutdown.)

3. Unsnap the two gang latches at the bottom front of the MFB and Alarm Board, and swing downward. Squeeze the boards together and slip off the spring clip.
4. Carefully slide the DEFINITY LAN Gateway system from the switch carrier. Handle with care; the system weighs 6.2 pounds.
5. Disconnect the Interboard bus cable from the top edge of both boards using the pull tab.
6. Remove the three socket-headed slotted screws that hold the MFB to the alarm board.
7. Separate the two boards. If the alarm Board is to be replaced, remove the disk and tape drives from it as described in "Replacing the Disk/Tape Drive" in this chapter.

Replace the MFB or Alarm Board using the above steps in reverse order. Note the play between the boards when they are together. This allows the system to be easily seated into the switch carrier.

## **Cleaning the Tape Head**

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The tape drive requires manual cleaning of its tape heads every three months or after every 100 passes. Use the provided kit that includes a cleaning tape cartridge, cleaning sticks, and cleaning solution, and follow these steps.

1. NEED PROCEDURE
- 2.

### **CAUTION:**

- *The cleaning solution is highly volatile. Keep it away from high temperatures and direct sunlight.*
- *Use the specified cleaning solution only. The head may be damaged if other types of solutions are used.*
- *People with sensitive skin should use rubber gloves for protection.*
- *Do not use broken cleaning sticks with partially detached pads.*
- *Discard cleaning sticks after four to six uses. If the device becomes extremely dirty, replace the cleaning stick after one use.*

## **Replacing the Tape Cartridge**

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The DEFINITY LAN Gateway system maintains a count of write passes on a working tape cartridge. When this count reaches 150, a warning alarm is raised **(FROM DEF AUDIX - WHAT TO SUBSTITUTE?)** At this point, the cartridge should be replaced. The system administrator must do this job.

1. NEED PROCEDURE

**⚠ CAUTION:**  
*Check that backup tapes are not write-protected; the tab is positioned closest to the end of the cartridge (it will cover the deeper inset). On the generic tape, ensure that the tab remains in the write-protected position.*

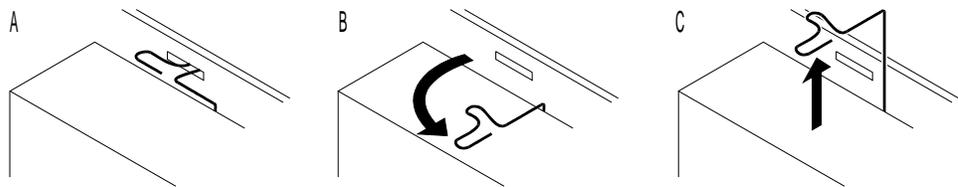
## Replacing the Disk/Tape Drive

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To remove either the disk drive or the tape drive from the Alarm Board, refer back to Figure 4-1 and follow the steps below.

**⚠ WARNING:**  
*Static electricity can be destructive to system parts. Use an anti-static wrist strap whenever removing or installing a DEFINITY AUDIX system. Also use an anti-static mat when taking the system apart to replace circuit packs or storage devices.*

1. Ensure that the users know you will be powering down the system and disrupting service.
2. If it is not already shut down, bring the system to the MSHUT state. (From the Main Menu, select Maintenance, Reset System, and then Shutdown.)
3. Carefully slide the system from the switch carrier. Handle with care; the system weighs 6.2 pounds.
4. Cut loose and remove the tie wrap that holds the power cable and the tape drive SCSI bus cable against the Alarm Board.
5. Disconnect the SCSI bus cable from the Alarm Board that is connected to the drive being replaced, using the pull tabs. **(This sentence is unclear; please clarify.)**
6. As shown in Figure 4-6, unlock each of two retaining pins (B) from the slots along the edge of the Alarm Board that hold the drive in place. Slide out both pins (C); this releases the drive from the board.



**Figure 4-6. Unlock Retaining Pin**

7. Disconnect the power and SCI bus cables from the drive.
8. On the tape drive, pry off the stainless steel EMI shield. Note that the narrow end of the cover fits over the ridge above the option jumpers; the wide end locks over the mounting bracket.

9. If either drive is to be replaced, the mounting bracket from the bottom of each will have to be removed and reattached to the drive. (Note the four screws which attach the bracket to the drive.)

To mount either drive:

1. Ensure that the EMI shield is snapped into place across the tape drive.
2. First plug the power and SCSI bus cables into the drive.
3. Position the drive on the Alarm Board, and slide the two retaining pins into the drive mounting bracket. Lock the pins into the slots along the edge of the Alarm Board.
4. Attach the SCSI bus (and power) cables to the Alarm Board.
5. Insert a new tie wrap through the middle hole in the Alarm Board. Slide between the boards, pull through the hole at the edge of the board, and wrap both ends over the cables. Snap firmly together to hold the cables snugly against the board.

### **ST566ON Disk Drive**

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The ST566ON disk drive is a 3.5-inch SCSI hard disk drive that provides 450 megabytes of storage when used on the DEFINITY LAN Gateway system. Figure 4-7 shows the location of the jumpers and terminating resistors. **(Need new picture.)**

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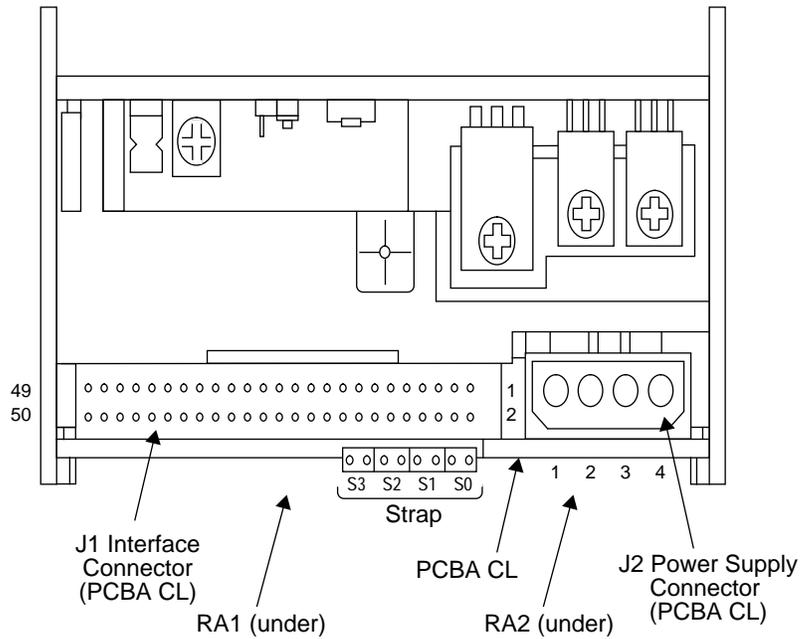
**Figure 4-7. ST566ON Drive Jumper Settings**

Jumper settings should be:

**(Need these)**

## MT2ST/N50 Tape Drive

The MT2ST/N50 3.5-inch SCSI tape drive is used on the DEFINITY LAN Gateway system. Figure 4-8 shows the jumper connections that select options to allow the drive to be accessed.



**Figure 4-8. M2ST/N50 Tape Drive Jumpers**

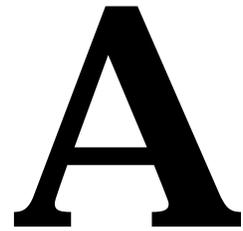
The tape drive connections are set to the following specifications for the DEFINITY LAN Gateway system.

- Interface terminators *RA1* and *RA2* are not installed. Verify that they are not present when a tape drive is shipped.
- When jumper *S3* is installed, it checks the SCSI bus parity. The drive will operate with or without the jumper, but it is recommended the jumper be installed.
- The system identifies the tape drive as SCSI tape drive 1. For this configuration, *S0* must be removed, and *S1* and *S2* must be installed.
- *Other jumpers*: Any other jumpers on this disk drive should be left alone. Do not remove or change any jumpers not previously specified.



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## Appendix A: PBX Carrier Configuration Worksheets



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This appendix contains worksheets helpful in installing the DEFINITY LAN Gateway system. Worksheet A-1 is used to obtain an inventory of your present circuit pack arrangement in the PBX. Worksheet A-2 is for help in determining how to rearrange these circuit packs to “free up” five slots for the DEFINITY LAN Gateway system assembly. Worksheet A-3 is for listing the slots the system assembly will occupy.

Guidelines for using these worksheets are as follows:

1. Move as few circuit packs as possible.
2. Locate five contiguous slots to the far right (the high port slot numbers), if possible. Make sure there are at least six slots (control, port, or service) to the left of the assembly.
3. Don't use carrier C.
4. There can be only 1 ED-1E546-70 assembly per carrier. If you have the DEFINITY AUDIX assembly in one carrier, put the DEFINITY LAN Gateway assembly in another carrier.

## **Worksheet A-1: Port Slot Assignments (Before Carrier Arrangement)**

Date \_\_\_\_\_  
 Prepared By \_\_\_\_\_  
 Contact Telephone Number \_\_\_\_\_

Complete the following worksheet to indicate how circuit packs are currently arranged in the PBX carrier.

On this worksheet, the slots are numbered as seen from the *front* of the carrier, with slot 1 on the far left and slot 20 on the far right. It is not necessary to fill in the worksheet for all existing circuit packs; simply specify the circuit packs that must be moved (if any) in the carrier reconfiguration process.

	CARRIER A*	CARRIER B*	CARRIER C	CARRIER D	CARRIER E
<b>Carrier Function</b>					
port slot 1					
port slot 2					
port slot 3					
port slot 4					
port slot 5					
port slot 6					
port slot 7					
port slot 8					
port slot 9					
port slot 10					
port slot 11					
port slot 12					
port slot 13					
port slot 14					
port slot 15					
port slot 16					
port slot 17					
port slot 18					
port slot 19					
port slot 20					

---

\* Occasionally there are control slots to the left of the port slots in these carriers.

---

## **Appendix B: Supported Terminals and Modems/Option Settings**

# **B**

---

This appendix contains:

- a worksheet for use in determining what terminals and modems you will use with the DEFINITY LAN Gateway system and
- information on option settings.

## **Worksheet B-1: Terminals/Modems**

Date \_\_\_\_\_

Prepared By \_\_\_\_\_

Contact Telephone Number \_\_\_\_\_

To the AE:

Complete this worksheet with the customer before configuring and ordering the DEFINITY LAN Gateway system.

Options	Terminal 1	Terminal 2
<p>What type of terminal would you like to use? Options are: 715 BCT, 513 BCT, 4410, 4415, 4425, 5410, 5420, 5425, and 610 and 615 (using 513, 4410, or 4425 emulation cartridge), or a PC with a 513 or 4410 emulation package or G3-MA. Also, the Cross-Talk software tool (via 513 emulation), or Telnet with an emulated terminal type of vt100, vt220, vt320, vt950, ibm3101, ibm5051, hp2621, hp2624, ansi, wyse50, wyse60, or PC. (The 715 BCT terminal allows an administrator to toggle between DEFINITY G3 administration screens and DEFINITY LAN Gateway screens.)</p>		
<p>How would you like the terminal connected to the DEFINITY LAN Gateway system? You can implement any of the following:</p> <ul style="list-style-type: none"> <li>■ Directly via cables</li> <li>■ Via modem Options include but are not limited to: AT&amp;T 2400 (2400 baud modem), DM224 (2400 baud modem), DM424 (2400 baud modem), Comsphere 3820 (9600 baud modem), 2212C (1200 baud modem), and 212AB (1200 baud modem). The DM224 and Comsphere 3820 are orderable at this time.</li> <li>■ Via data modules Options are: one 7400A and one 7400B (recommended), or two 7400As.</li> <li>■ Via asynchronous data unit (ADU)</li> </ul>		
<p>What length cables would you like for the terminals? Default is 70 feet; other options are 5, 10, 30, 40, or 50.</p>		

## Option Settings

---

Set the options listed below to the corresponding setting for your terminal. Refer to the manual for your terminal for available options and the procedure to set them.

**Table B-1. Terminal Option Settings**

Option	Setting
Speed	9600
Duplex	full
Send parity	space
Check parity	no
Memory access	scroll
Clock	async
Return key	CR
Newline on LF	no
Autowrap	on
Cursor	steady
Key click	off
Margin bell	off
Transmission	char
Columns	80
Send from	cursor
Send edit seq	yes
Send graphics	no
Enter key	Esc-S-B
Block terminator	
Answerback	



---

## Appendix C: Ordering Information

# C

---

This appendix contains a list of Price Element Codes (PECs) and comcodes for primary and optional components comprising the DEFINITY LAN Gateway system.

### Complete System

**Table C-1. Identifiers for Complete System**

<u>Description</u>	<u>PEC</u>
DEFINITY LAN Gateway system	63863 (Includes ED-1E54670 for groups 1, 8, 13, 16, 20, 30, and A, ED-1E434 G311, J58889VA-1 L50, H600-258 G1, 116A Isolator, and 555-230-223)
14.4 Data/Fax Modem Data Port Express	2271-GEI
Blank Backup Tape	70422

The DEFINITY LAN Gateway hardware included in this Price Element Code is listed in Table C-2.

## Primary Equipment

**Table C-2. Identifiers for Primary Hardware and Software**

Description	PEC	Comcode, ED/H/J Drawing	Qty	Notes
TN2208 (Multi-Function Board)		107 083 651 ED 1E546-70 G16	1	Included in basic package (Table C-1), or can be ordered separately.
TN2170 Alarm Board with Ethernet		106 433 071 ED 1E546-70 G13	1	
Disk Drive (456 MB)		407 260 256 ED 1E546-70 G8	1	One disk drive included in basic package (Table C-1), or can be ordered separately.
Tape Drive (160 MB)		406 680 884 ED 1E546-70 part of G1	1	Included in basic package (Table C-1), or can be ordered separately.
DEFINITY LAN Gateway Label		847 526 696 ED 1E546-70 Group 30	1	
Tape Drive Shield		846 906 089	1	Included in ED-1E546-70 G1
SCSI Bus Cable		601 463 318 H 600-344, G1	2	
Interboard Bus Cable		601 463 326 H 600-345, G1	1	
Power Cable		601 463 300 H 600-343, G1	1	
Drive Mounting		846 777 407	2	
Retaining Pins (2 per drive)		846 777 324	4	
MFB Two-Way Splitter Cable		601 458 110 H 600-352, G1	1	
ALB (TN2170) Three-Way Splitter Cable	2720-06X	601 463 334 H600 353, G2 ED 1E546-70 GA	1	
104A Connecting Block		103 116 943	1	Must be ordered separately

**Table C-2. Identifiers for Primary Hardware and Software (continued)**

Description	PEC	Comcode, ED/H/J Drawing	Qty	Notes
D8W Modular Wall Cord	2725-07S	103 786 828	1	Must be ordered separately
T2-380 Tape Cleaning Kit		406 680 868		Must be ordered separately
M-F Null Modem Cables		H600-258 G-1	2	Items included in basic package (Table C-1), or can be ordered separately.
Assembly Kit, includes:		846 873 693	1	Items included in basic package (Table C-1), or can be ordered separately.
Plastic standoffs		901 005 058	3	
Screws, machine slotted hex — SEMS 138-32x5/16		406 580 176	3	
Screws, machine slotted hex — SEMS 138-32x3/16		406 580 837	4	
Screws, pan head slotted — 3C6 MSPZ (metric)		406 602 045	4	
Cable ties		401 077 862	2	
Retainer, spring tandem		846 751 766	1	
Blank Backup Tape	70422 (New) 70422A (Existing)	406 680 843 J58889VA-1 L-1	1	Included in basic package (Table C-1), or can be ordered separately.
R1.0 Generic Software		J58889VA-1 L50	1	Included in basic package (Table C-1)
R1 Customer Documentation		107575219 555-230-223	1	Included in basic package (Table C-1), or can be ordered separately.

**Table C-2. Identifiers for Primary Hardware and Software (continued)**

Description	PEC	Comcode, ED/H/J Drawing	Qty	Notes
158N Apparatus Blank (SCC)		106278054 ED-18546 G20	1	Included in basic package (Table C-1), or can be ordered separately.
2100C Apparatus Blank (MCC)		105679542 ED-18546 G20	1	Included in basic package (Table C-1), or can be ordered separately.
M-M RS-232 ED-1E434 Group 311 cables		601 087 075	2	5 ft. (Attribute: LNG05)
		601 087 083	2	10 ft. (Attribute: LNG50)
		601 087 091	2	20 ft. (Attribute: LNG25D)
		601 087 109	2	30 ft. (Attribute: LNG27)
		601 087 117	2	40 ft. (Attribute: LNG28)
		601 001 365	2	50 ft. (Attribute: LNG11)
116A Isolating Data Interface		106005242	2	Required for DC systems. Included in basic package (Table C-1), or can be ordered separately.

## Peripheral Equipment

---

All peripherals are optional to the order. However, the customer must provide at least one terminal for system administration/maintenance.

**Table C-3. Identifiers for Peripheral Equipment**

Description	PEC	Comcode, ED/H/J Drawing	Qty	Notes
715 BCT	6950-ET6	ED3P00170	opt	Amber
	6950-ET7		opt	White
G3-MA	1268-200		opt	New switch
	1268-1AX		opt	Existing switch



---

## **Appendix D: Troubleshooting Procedures**

# **D**

---

This appendix contains the following procedures:

- Bringing up the DEFINITY LAN Gateway System
- Solving Terminal Connection Problems
- Solving TCP/IP Connection Problems

If these procedures do not solve the problem, contact the TSC.

## **Bringing up the DEFINITY LAN Gateway System**

---

Use the procedure below if you can't get a login prompt.

**⇒ NOTE:**

ASAI must be enabled on the DEFINITY Customer Options form for the system to be fully operational.

1. First check terminal power, connections, settings, and modem speed if you are connected via a modem. If the modem appears to be locked up, type \* @ ; this may fix the remote access problem.
2. If you still cannot reach the DEFINITY LAN Gateway system, call the switch administrator. Is the switch working? Can the administrator call into the system? A technician may have to be dispatched to the site.

## **Solving Terminal Connection Problems**

---

To Be Supplied

## Solving TCP/IP Connection Problems

1. If a client cannot connect to the DEFINITY LAN Gateway, check the Client Access Logs screen to see if any error messages appear related to that client. (Access the Main Menu screen and select Maintenance, then Security Logs, and then Client Access Logs.)
  - If a `TCP_Connect` message appears in the log from the Name or IP address of that client, then the DEFINITY LAN Gateway and the client are able to communicate. Check the messages that follow the `TCP_Connect` message for that client.
    1. If either `InvalidClient` or `InvalidLink` appears, then check the Brouter Administration.
    2. If either `ClientTooSlow`, `InvalidDataSize`, or `UnsupportedVersion` appears, then the client is violating the connection protocol.
  - If a `TCP_Connect` message does **not** appear in the log, then the DEFINITY LAN Gateway and the client cannot communicate. Check the following:
    1. Is the DEFINITY LAN Gateway administered with the correct name, IP address, and subnet mask? (Access the Main Menu, select TCP/IP Administration, and then select This Host.) The DEFINITY LAN Gateway must be rebooted after any changes are made to this information.
    2. If the client is on a different network (or subnet if a subnet mask is in use), does the DEFINITY LAN Gateway have a correct, working route to the network (or subnet) where the client resides? This route could be either via the Default Gateway or a route in the Network Routing Table. (Access the Main Menu, select TCP/IP Administration, and then Network Routing Information, and finally, select either Default Gateway or Network Routing Table.)
2. If everything in the second bullet item above is properly administered and the client still cannot communicate with the DEFINITY LAN Gateway, try the following:
  - A. Ping a machine on the same network (or subnet) where the DEFINITY LAN Gateway resides. Be sure that this machine is up and running and is responding to ping from other machines. If the DEFINITY LAN Gateway cannot successfully ping this machine (no answer from `machine_name`), contact the TSC. (Access the Main Menu, select Maintenance, and then select Ping Host.)
  - B. If the DEFINITY LAN Gateway is on a different network (or subnet) from the client, try the following:
    1. Ping the gateway, which routes packets to the client. This could be either the Default Gateway or a route found in the Network Routing Table. If the DEFINITY LAN Gateway

cannot successfully ping the gateway, contact your network administrator.

2. Ping another machine on the same network (or subnet) where the client resides. Be sure that this machine is up and running and is responding to pings from other machines on the same network (or subnet) as the DEFINITY LAN Gateway. If the DEFINITY LAN Gateway cannot successfully ping this machine, contact your network administrator.
3. Ping the client. If the DEFINITY LAN Gateway cannot successfully ping the client, then the problem is within the client machine. Check its TCP/IP administration. If it is administered correctly, contact your network administrator.



---

## Appendix E: Sample Customer Configurations

# E

---

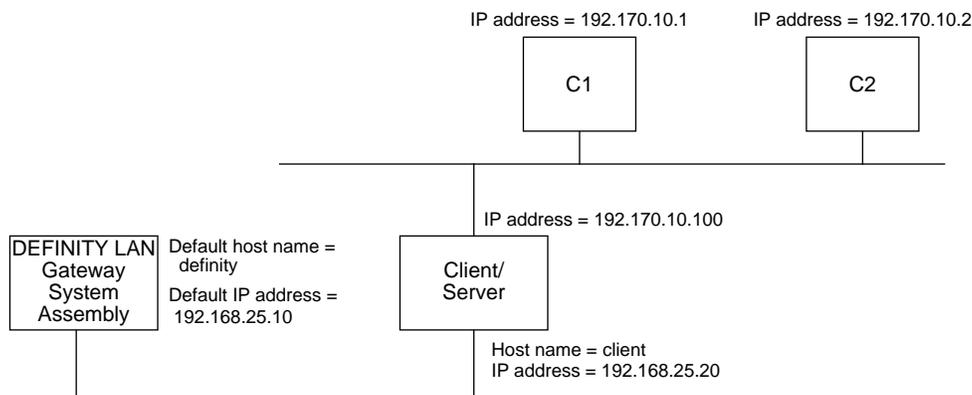
This appendix contains three examples of how a customer might configure a system using CallVisor ASAI over the DEFINITY LAN Gateway. It requires knowledge of TCP/IP networking. Example 1, Secure LAN with Defaults, shows a DEFINITY LAN Gateway system assembly already administered with default values and a client/server requiring administration. In example 2, Secure LAN with No Defaults, subnetting may be used. Both the DEFINITY LAN Gateway system assembly and the client/server require administration in this example. Example 3, Multiple Secure LANs, shows three different clients of the DEFINITY LAN Gateway system assembly, each on a physically different network from the system assembly. Subnetting may also be used in this example.



**NOTE:**

A secure LAN is one in which only machines that are known to the network can connect to the network.

## Example 1. Secure LAN with Defaults

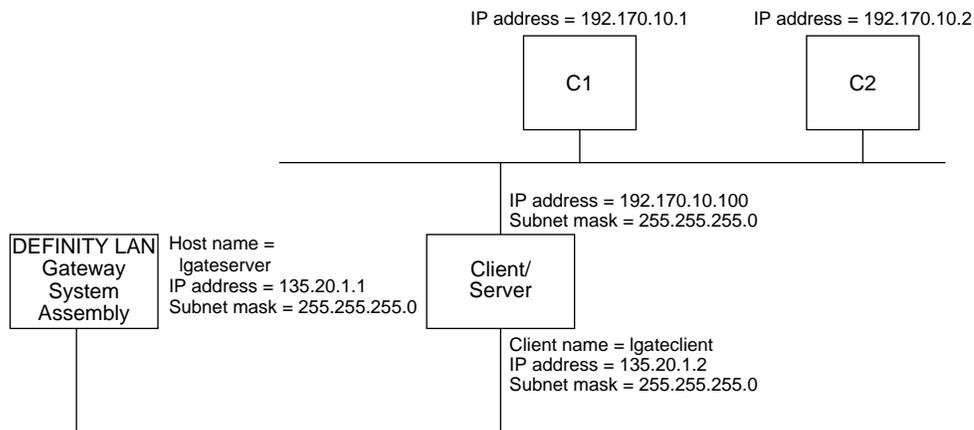


This sample configuration shows the DEFINITY LAN Gateway system assembly shipped from the factory with defaults already administered (default hostname = *definity* and default IP address = 192.168.25.10.) The client/server shown in the figure is both a client of ASAI over the DEFINITY LAN Gateway and a server to two other clients, C1 and C2.

The DEFINITY LAN Gateway system assembly requires no additional administration. The client/server requires the following administration:

1. Administer the **client** host name (*client*) and IP address (192.168.25.20).
2. Add the DEFINITY LAN Gateway system assembly host name (*definity*) and IP address (192.168.25.10) to the address resolution mechanism.
3. Administer the client/server as a router on both networks (192.168.25 and 192.70.10).

## Example 2. Secure LAN, No Defaults

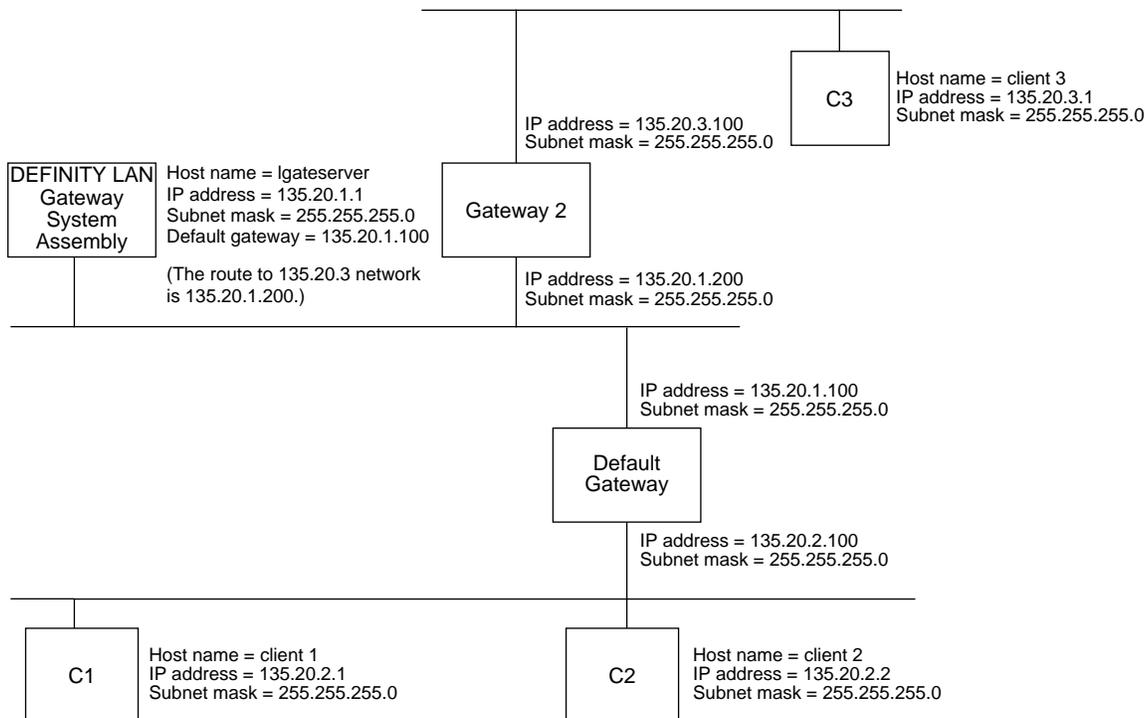


This sample configuration requires that both the DEFINITY LAN Gateway system assembly and the client/server be administered, as follows:

- Administer the DEFINITY LAN Gateway system assembly:
  1. From the Main Menu, choose TCP/IP Administration. Then choose This Host.
    - A. Change the host name to a name you have made up (*lgateserver* in this example).
    - B. Do the same for the host IP address ( *135.20.1.1* in this example), and if subnetting is used, the subnet mask (*255.255.255.0* in this example).
  2. From the TCP/IP Administration Main Menu, choose Local Host Table.
    - A. Delete the default client entry.
    - B. Press **ADD** to access the Add Hosts screen. Add the entry for the client (*lgateclient* in this example) on the same network (the same subnet if subnetting is used).
    - C. You will be on the Local Host Table screen when done. Press **CANCEL** to return to the TCP/IP Administration screen and then select **EXIT** on this menu to return to the Main Menu.
  3. Administer the brouter. From the Main Menu, access the Brouter Administration screen.
    - A. Delete the default entry.
    - B. Press **ADD** to access the Add Client Link screen. Add the entry for the client (*lgateclient* in this example) on the appropriate port and client link.

- C. You will be on the Brouter Administration screen when done.  
Press  to return to the Main Menu.
4. Reboot the system as follows. On the Main Menu, select Maintenance and then Reset System. When the Reset System screen appears, select Reboot System.
  - Administer the Client/Server:
    1. Administer the client host name (*lgateclient* in this example), IP address (*135.20.1.2*) in this example, and subnet mask (*255.255.255.0* in this example) (if not already done).
    2. Add the DEFINITY LAN Gateway system assembly host name (*lgateserver*) and IP address (*135.20.1.1*) to the address resolution mechanism.
    3. Administer the client/server as a router on both networks (*135.20.1* and *192.170.10*).

### Example 3. Multiple Secure LANs



This sample configuration shows the DEFINITY LAN Gateway system assembly with three different clients on networks physically different from that of the DEFINITY LAN Gateway system assembly. The default gateway leads to clients C1 and C2, and gateway 2 leads to client C3. This sample configuration requires that the DEFINITY LAN Gateway system assembly and the clients be administered, as follows:

- DEFINITY LAN Gateway system assembly:
  1. From the Main Menu, choose TCP/IP Administration. Then choose This Host.
    - A. Change the host name to a name you have made up (*lgateserver* in this example).
    - B. Do the same for the host IP address ( *135.20.1.1* in this example) and, if subnetting is used, the subnet mask (*255.255.255.0* in this example).
  2. From the TCP/IP Administration Main Menu, choose Local Host Table.
    - A. Delete the default client.
    - B. Press **ADD** to access the Add Host screen. Add the host name and IP address for client 1 (C1).

- C. Access the Add Host screen again and do the same for clients 2 and 3 (C2 and C3).
  - D. You will be on the Local Host Table screen when done. Exit the screen to return to the TCP/IP Administration Main Menu.
3. Administer the router as follows. On the Main Menu, select Brouter Administration.
  - A. Delete the default entry.
  - B. Press **ADD** to access the Add Client Link screen. Add an entry for client 1 on the appropriate port and client link.
  - C. Access the Add Client Link screen again and do the same for clients 2 and 3 (C2 and C3).
  - D. You will be on the Brouter Administration screen when done. Exit the screen to return to the Main Menu.
4. Reboot the system as follows. On the Main Menu, select Maintenance. Then select Reset System. When the Reset System screen appears, select Reboot System.
5. After the reboot, from the Main Menu, choose TCP/IP Administration. Next choose Network Routing Information, and then choose Network Routing Daemon.
  - Turn the routing daemon on if there is a router on the same network as *lgateserver*, which is broadcasting routes to all networks where clients reside.
  - Turn the routing daemon off if there is no router or if manual routes are preferred.
6. If the Network Routing Daemon is on, press **CANCEL** to exit from the screen. Exit twice more to return to the Main Menu.

If the Network Routing Daemon is off, do the following:

- A. Administer the default gateway. Press **CANCEL** on the Network Routing Daemon screen to access the Network Routing Information Main Menu. Select Default Gateway. On this screen, enter the IP address of the default gateway (for this example, enter `135.20.1.100` ) and press **ENTER**. The Network Routing Information Main Menu reappears.
- B. Select Network Routing Table and then press **ADD** to access the Add Routes screen. Administer gateway 2 on this screen.

For this example, you would enter:

DESTINATION	TYPE	GATEWAY
135.20.3	NETWORK	135.20.1.200

When you press , the Network Routing Table screen reappears. Exit until you reach the Main Menu.

- Administration of Each Client (C1, C2, and C3):
  1. Administer the client name, IP address, and subnet mask (if not already done).
  2. Add the DEFINITY LAN Gateway system assembly (*lgateserver* in this example) to the address resolution mechanism.
  3. Administer the routes for the clients to reach the DEFINITY LAN Gateway system assembly.



---

## Appendix F: Returning the Application to its Original State

# F

---

This appendix details how to return the system to its original state if it should crash.

1. Make sure the administrative/maintenance terminal is physically connected to Main/Port A on the TN2208.
2. Insert the original DEFINITY LAN Gateway tape that came with the system into the system assembly and close the lever.
3. Press the BACK, NEXT/NO, and ENTER/YES buttons on the faceplate of the TN2208 simultaneously. Hold them down until the LCD displays a line of stars.
4. When the stars disappear, the terminal screen displays a message such as the following:

```
MFB 386FW Version: AU00S07F0
Local Console: Output ON, Input OFF
Remote Maintenance Console: INACTIVE
-> FAC Reset - FAC 3 Button
```

5. Press **CTRL** **C** twice in quick succession.

The following prompt appears: `command menu:`

6. Type `7` and press **Return**. The following prompt appears:

`Auto Boot Preempted`

`Enter 1 for Disk, 2 for Tape (Default=Disk):`

7. Type `2` and press `Return`. The following prompt appears:

```
Enter Tape Device (0-6)(Default = 1)
```

8. Press `Return`. The following messages and menu appear:

```
MFB Board Diagnostics PASSED
Transferring To Software
```

```
Copyright (c) 1992 AT&T
All Rights Reserved
```

```
0: Exit
1: Initialize Disk
2: Modify Partition Map
3: Copy Generic Partitions
4: Additional Commands
Enter option:
```

9. Type `1` to initialize the disk.

The following screen appears:

```
Enter SCSI ID of Disk (default 0):
THIS WILL OVERWRITE THE DISK BOOT BLOCK,
AND CREATE A DEFAULT PARTITION MAP ON THE DISK.
ALL DATA ON THE DISK WILL BE LOST.
DO YOU WISH TO CONTINUE? [no]:
```

10. Type `y` and press `Return`. The previous menu reappears:

```
0: Exit
1: Initialize Disk
2: Modify Partition Map
3: Copy Generic Partitions
4: Additional Commands
Enter option: 3
```

11. Type 3 to copy file partitions. The following prompt appears:

**Enter SCSI ID of Disk (default 0):**

12. Press  to accept SCSI ID 0. A screen similar to the following appears:

```
Copy generic data from tape to disk
Changing <root.s5> partition size from 15624 to 40000.
```

The login prompt appears when the restore procedure is complete.



---

## **Appendix G: Project Manager Worksheet**

# **G**

---

This appendix contains a worksheet for the AT&T Project Manager to use to assist in the customer installation. The on-site system technician uses the networking information on this worksheet during installation.

## **Worksheet G-1: Gather Networking Information**

---

Date \_\_\_\_\_  
Prepared By \_\_\_\_\_  
Contact Telephone Number \_\_\_\_\_

The basic LAN addressing information you supply here will be used by the on-site systems technician during installation.

<b>Field</b>	<b>Default</b>	<b>Desired</b>
TCP/IP Address		
Subnet Mask		
Default Gateway IP Address		



**NOTE:**

All three addresses appear in the form *nnn.nnn.nnn.nnn*, where each *nnn* can be a number between 0 and 255.

<b>Adjunct</b>	<i>See Application.</i>
<b>Application</b>	A process on a client computer that requests and receives ASAI services and capabilities through a program library or network service. The terms “application” and “adjunct” are sometimes used interchangeably. <i>See also ASAI Application.</i>
<b>ASAI</b>	Adjunct Switch Application Interface (ASAI). <ol style="list-style-type: none"><li>1. The AT&amp;T recommendation for Computer Telephony Integration (CTI) based on the CCITT Q.932 protocol.</li><li>2. An option on the DEFINITY switch that enables the ASAI messaging interface. Also called CallVisor ASAI.</li></ol> Adjunct Services Application Interface (ASAI). <ol style="list-style-type: none"><li>1. A messaging interface between the switch and an Adjunct Processor that allows the AP to perform call monitoring and control functions.</li></ol>
<b>ASAI application</b>	An application running on an ASAI client computer written to request service of a library that provides direct access to ASAI messages. <i>See also Application.</i>
<b>ASAI link</b>	An ISDN BRI or Ethernet interface configured to support ASAI.

<b>BRI</b>	Basic Rate Interface
<b>Bridge</b>	A router that connects two or more networks and forwards packets among them. Usually, bridges operate at the physical network level. For example, an Ethernet bridge connects two physical Ethernet cables and forwards from one cable to the other exactly those packets that are not local. Bridges differ from repeaters because bridges store and forward complete packets while repeaters forward electrical signals. See <b>router</b> .
<b>Router</b>	Bridge/Router. In local area networking, a device that combines the dynamic routing capability of an internetwork <b>router</b> with the ability of a <b>bridge</b> to interconnect dissimilar LANs. It has the ability to route one or more protocols and bridge all other traffic. The DEFINITY LAN Gateway application links ISDN and TCP/IP at both a physical and addressing level. See <b>bridge</b> and <b>router</b> .
<b>Client</b>	For the DEFINITY LAN Gateway, a computer that is a consumer of ASAI service.
<b>IP</b>	Internet Protocol
<b>LCD</b>	Liquid Crystal Display
<b>Link</b>	See <b>ASAI link</b> .
<b>MCC</b>	Multi-Cabinet Carrier
<b>Router</b>	Any machine responsible for making decisions about which of several paths network (or Internet) traffic will follow. At the lowest level, a physical network bridge is a router because it chooses whether to pass packets from one physical wire to another. Within a long haul network, each individual packet switch is a router because it chooses routes for individual packets. In the Internet, each IP gateway is a router because it uses IP destination addresses to choose routes. See <b>router</b> .
<b>SCC</b>	Single Cabinet Carrier
<b>Telnet</b>	The TCP/IP protocol governing the exchange of character-oriented terminal data. Also, the process by which a person using one computer can sign on to a computer in another city, state, or country. With Telnet, a user can work from a PC as if it were a terminal attached to another machine by a hard-wired line.

<b>TCP</b>	Transport Connection Protocol
<b>TCP/IP Port</b>	A numbered access “subaddress” for an IP address that usually indicates the service or application that is desired to engage in a communications session.



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