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INTUITY™ CONVERSANT® System Network Adjunct Platform (NAP) 3.0 with WorldSHARE NAP (WSN) 1.1

Operation, Administration, and Maintenance

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- Routed to a recorded announcement that can be administered by the CPE user

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Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

Contents

About This Book

What's in This Book?

This book provides the following information for the Lucent Technologies INTUITY™ CONVERSANT® Network Adjunct Platform (NAP) 3.0:

- Understanding NAP 3.0 functionality, hardware, network configurations, external interface, and application software
- Understanding WSN Release 1.1 functionality
- Preparing the installation site and installing the hardware
- Operating the platform hardware
- Installing, administering, and testing software
- Command references
- Platform and application alarm messages
- Maintaining, configuring, and repairing NAP hardware
- Upgrading hardware and software
- Maintaining, troubleshooting, and repairing NAP-specific connectivity, including local area network (LAN), the Datakit® wide-area network (DWAN), and fiber links to provisioning and maintenance (PM) hardware
- Using SCANS to install and upgrade software

How to Use This Book

Table 1 summarizes the major tasks explained in this book, and shows you where to go for the information you need.

Table 1. Using This Book

Using this book to find what you need	You're here!
Learning about hardware, software operation, network configurations, external interfaces, and application software features	Chapter 1, "Understanding NAP"
Preparing the NAP site and installing the hardware (voice processor, provisioning and maintenance machine, Communicore)	Chapter 2, "Hardware Installation"
Learning about the hardware switches and indicators	Chapter 3, "Operating Instructions"
Operating the platform hardware	Chapter 3, "Operating Instructions"
Installing and administering software	Chapter 4, "Software Installation and Administration"
Performing software acceptance testing	Chapter 4, "Software Installation and Administration"
Looking up commands for platform and application software	Chapter 5, "Command Reference"
Troubleshooting non-alarm problems	Chapter 6, "Troubleshooting"
Interpreting and troubleshooting system messages and alarms	Chapter 7, "Alarm Resolution"
Configuring circuit cards, modules and peripheral devices	Chapter 8, "Maintenance"
Updating and installing application software	Appendix A, "Installing WSN Release 1.1"
Wiring diagrams for NAP equipment in both 5ESS and 4ESS cabinets	Appendix B, "Wiring Diagrams"
Checking hardware installation, software installation, and administration	Appendix C, "Site Acceptance Procedures for Hardware and Software Installations"

Continued on next page

Table 1. Using This Book — *Continued*

Administering Datakit switch	Appendix D, "Datakit Switch Administration"
Using SCANS to transfer software	Appendix E, "SCANS (Software Change Administration and Notification System)"
Detailed technical information about WSN, including announcements, digit collection, ANI Presentation Indicator, traffic manager configuration, and application processes	Appendix F, "WSN Technical Data"
Brief descriptions of functions in the application programming interface (API) library	Appendix G, "Application Programming Interface"
Sample WorldSHARE call flows	Appendix H, "WorldSHARE Call Scenarios"
Configuring the routers and obtaining IP addresses	Appendix I, "Configuring Routers"

An index, a glossary, and a list of abbreviations are located at the back of this book.

The index is the best and quickest way to locate information. The glossary and list of abbreviations define terms and abbreviations used in NAP support. If you can’t find what you are looking for, go to the index. If you are not familiar with a term or abbreviation, look at the glossary or list of abbreviations.

Intended Audiences

This book is a task-based, procedural book designed and written for the following audiences:

- The Onsite Work Force (OSWF) that operates, administers, maintains, and provisions the NAP platform and applications.
- Technology Control Center (TCC), tier ll support, which is responsible for resolving basic hardware and software alarms, isolating faults, and diagnosing problems.
- Total Network Management (TNM), operational support system, which handles network alarms.
- National Electronic Systems Assistance Center (NESAC), tier lll support, which is responsible for resolving hardware and software alarms and performing diagnostics.
- Production Management Organization (PMO), which supplies administration and maintenance support for NAP.
- CONVERSANT Applications Field Support (CAFS), tier IV support, which is responsible for hardware and software alarm resolution, fault isolation, maintenance, remote diagnostics, and when necessary, for providing procedural assistance to persons installing or operating NAP hardware and software and application software.
- CONVERSANT Support, tier V support, which serves as the escalation point for problems or questions that CAFS cannot resolve.

Getting Technical Help

All alarms and informational messages are sent to the Total Network Management/Technology Control Center (TNM/TCC). The TCC, which can dispatch an onsite work force (OSWF), escalates its alarms to the National Electronic Systems Assistance Center (NESAC).

If necessary, the NESAC and the PMO can escalate troubles to the CONVERSANT Applications Field Support (CAFS), which is the development organization in Denver, Colorado. If necessary, CAFS can escalate troubles to the tier V group in Columbus, Ohio.

Figure 1 shows the alarm escalation path.

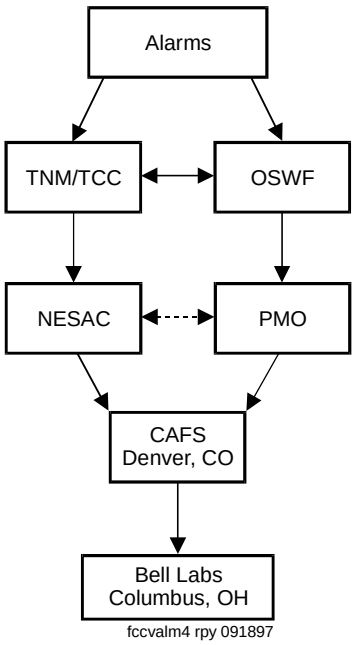

Figure 1. Alarm Escalation Path

Related Resources

The following books make up the CONVERSANT platform documentation. Of these books, a few are directly relevant to NAP.

You *must* have the books listed below to support NAP.

- *CONVERSANT Voice Information System (VIS) Version 4.0 Software Installation*, 585-350-111
- *CONVERSANT Voice Information System (VIS) Version 4.0 Maintenance*, 585-350-112
- *INTUITY CONVERSANT System Version 6.0 MAP/100 Maintenance*, 585-310-179

Additional CONVERSANT books that might be of use and should be part of your CONVERSANT library include:

- *CONVERSANT Voice Information System (VIS) Version 4.0 Application Development,* 585-350-208
- *CONVERSANT Voice Information System (VIS) Version 4.0 Operations,* 585-350-703
- *CONVERSANT Voice Information System (VIS) Description,* 585-350-207
- *CONVERSANT Voice Information System (VIS) Planning,* 585-350-602
- *CONVERSANT Voice Information System (VIS) Version 4.0 Command Reference,* 585-350-209
- *CONVERSANT Voice Information System (VIS) Version 4.0 Installation Checklists,* 585-350-113
- *CONVERSANT Voice Information System (VIS) Version 4.0 Change Description,* 585-350-402
- *CONVERSANT Voice Information System (VIS) External Alarms,* 585-350-801
- *MAP/100C Voice Processing Hardware Installation,* 585-350-108
- *CONVERSANT Voice Information System (VIS) Version 4.0 Operations*, 585-350-703
- *CONVERSANT Voice Information System (VIS) Version 3 CompuLert/SCCS*, 106713274

Books that reference system security issues include:

- *GBCS Products Security Handbook, 555-025-600*
- *Security Watchdog for the AT&T Network (SWAN) User's Guide,* Release 2.0, Issue 1, February 1995

The following books are references for setting up LAN components.

- This book is necessary for installing the NAU:
  - *StarLAN 10 Network PC NAU Installation Guide*, 999-120-720
- You need one of the following books, depending on the LAN hub in your configuration:
  - *StarLAN 10 Network SmartHUB Installation and Operation Guide (for Model B and Model E)*, 999-120-771
  - *LattisHub™ 10BASE-T Workgroup Concentrators*, SynOptics Communications, Inc. December 1992, 893-573-A
- The following books also might be helpful resources:
  - *Datakit® II VCS Host Interface for AT&T 386/486 Computers Installation and Administration Guide, Release 4.0/4.1*
  - *UNIX System V/386 Release 3.2(.3) System Administrator's Guide*
  - *UNIX System V/386 Release 3.2(.3) User's Guide*
  - *Novell UnixWare Documentation Set,* 585-350-908
  - *CommKit® Host Interface for AT&T 386/486 Computers Installation and Administration Guide,* AT&T 255-110-115, Issue 2
- You should also have:
  - *SCANS User's Guide (AT&T)*

Book Conventions

The following conventions are used throughout this book:

- Data that you must type is shown in bold type:

  clliadm

- Variables, or strings for which you should substitute your own information, are shown in italics or bold italics, and are shown in angle brackets:

  clliadm [-d] [-r] [-v <*clli*>]

  Square brackets are used to identify arguments that are optional.

  In text, italics are used to introduce new terms or to emphasize information.

- Information displayed on your computer terminal uses this typeface:

  ```
  Enter a location code:
  ```

- Commands that require you to press ENTER after you type them begin with the word *Enter*. Pressing the keyboard key is implied. For example, you would type the word **machadm** and then press ENTER for the following step:

  Enter the **machadm** command.

- Commands that *do not* require you to press ENTER begin with the word *Type*. For example:

  Type **yes** when you see the system prompt.

When used in this book, the term *network* refers specifically to the AT&T 4ESS network, and only to that network.

The term *provisioning and maintenance (PM) machine* is synonymous with OAM&P machine.

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Understanding NAP

1

What's in This Chapter?

This chapter describes Lucent Technologies INTUITY CONVERSANT System Network Adjunct Platform (NAP) and its application software packages. This chapter contains an overview of the NAP components and configuration and descriptions of:

- NAP platform software
- NAP hardware
- External interfaces to NAP
- Application software

If you cannot find what you need, or for more information, first check the index then the list of related resources in the preface, "About This Book."

Overview of the NAP Platform

The Lucent Technologies INTUITY CONVERSANT System Network Adjunct Platform (NAP) is a hardware/software platform configured in a 4ESS network environment to provide voice-processing capabilities for software applications.

NAP Software Components

The NAP software components are:

Table 1-1. NAP Software Components

Software Component	Function
UNIX System V Release 3.2.3 for voice processing system and UnixWare 1.1.2 for provisioning and maintenance system (see Table 1-2)	Operating system
CONVERSANT 4.0 for voice processing system and 6.0 for provisioning and maintenance system (see Table 1-2)	Generic Voice Information System (VIS) software
Site Management Support (SMS) software package	Platform background and OAM&P[a] commands
MAP[b] 2000 base system package	MAP 2000 platform software
MAP 2000 downloadable firmware package	Firmware for the Communicore in the MAP 2000
Software Change Administration and Notification system (SCANS)	Automatic software upgrades
Core Maintenance Features (CMF)	Platform utilities and OAM&P commands and reports
Practical Extraction and Reporting Language (Perl)	Platform support utilities

a. operations, administration, maintenance, and provisioning

b. Multi-Application Platform

For a detailed description of the NAP software components, refer to ''Descriptions of NAP Software'' on page 1-7.

NAP Hardware Components

The major NAP hardware components are:

Table 1-2. NAP Hardware Components

Hardware Component	Function
Lucent Technologies INTUITY CONVERSANT System MAP 2000 (MAP 2000), consisting of: ■ One MAP/100C ■ One Communicore[a] wideband switch	Voice processing system
MAP/100C with Datakit	Provisioning and maintenance system
LAN hubs	Dual LAN connectivity among all NAP machines

a. The Communicore previously was known as the UNICORN and the MCH-1000 (modular communications hub).

For a detailed description of the NAP hardware components, refer to ''Descriptions of NAP Hardware'' on page 1-13.

NAP Site

A NAP site includes:

- Voice-processing (VP) machines
- Provisioning and maintenance (PM) machines

Because each NAP site consists of multiple VPs, total site failure is unlikely, barring fire or other catastrophe. NAP-site isolation is more likely due to common network interface (CNI) ring and/or D-channel node failure.

Each NAP site is in a 4ESS central office (CO). Each VP connects to a 4ESS through an Integrated Services Digital Network Primary Rate Interface (ISDN-PRI). For applications that require multiple NAP sites, the sites back up each other for overflow and disaster recovery.

NAP System Configuration

The NAP system configuration includes the following site components and administrative network components:

Site components:

- From 1 to 20 VP machines

  VP machines are networked together through dual LANs at a NAP site.

  The number of VPs depends on the type of application software.
- 2 PM machines (MAP/100C machines configured as PMs)
- Dual LANs providing connectivity among all NAP machines
- 2 LAN circuit cards connected to routers
- ISDN-PRI T1 links between the VP and 4ESS

Administrative services network components:

- AT&T Network Services Datakit Wide Area Network (DWAN) for remote access to NAP sites
- Total Network Management (TNM) for remote alarming

The NAP/WSN site configuration is shown in Figure 1-1.

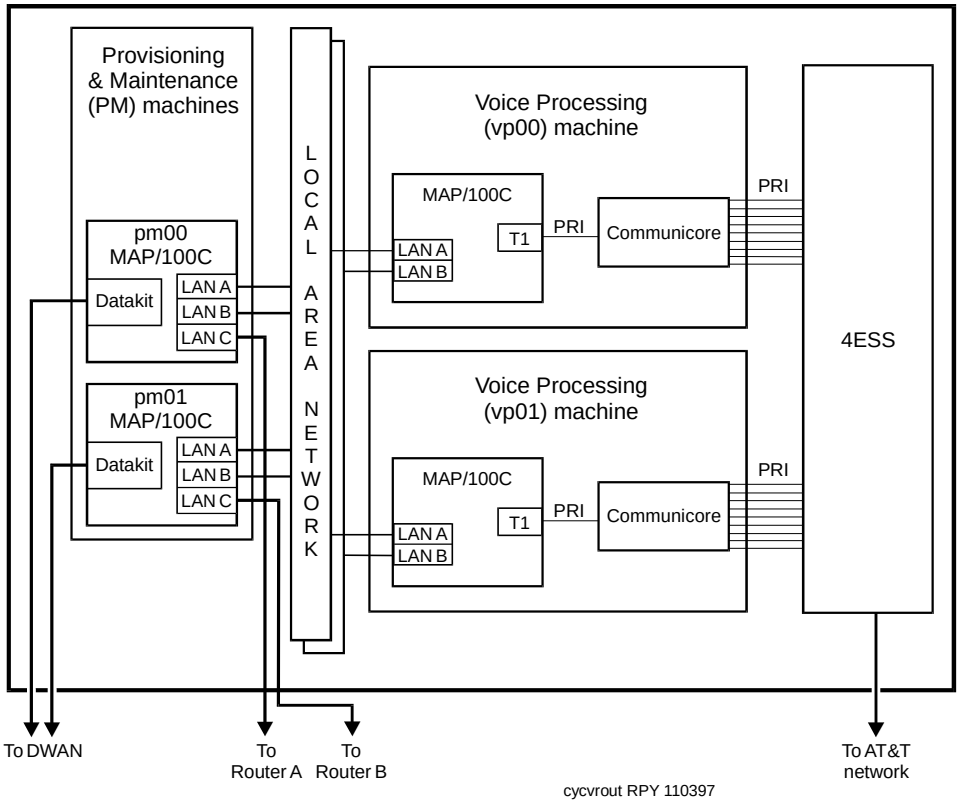


Figure 1-1. NAP Site Configuration for WSN

The relationships of NAP to the AT&T network and to administrative support services through DWAN are shown in Figure 1-2.

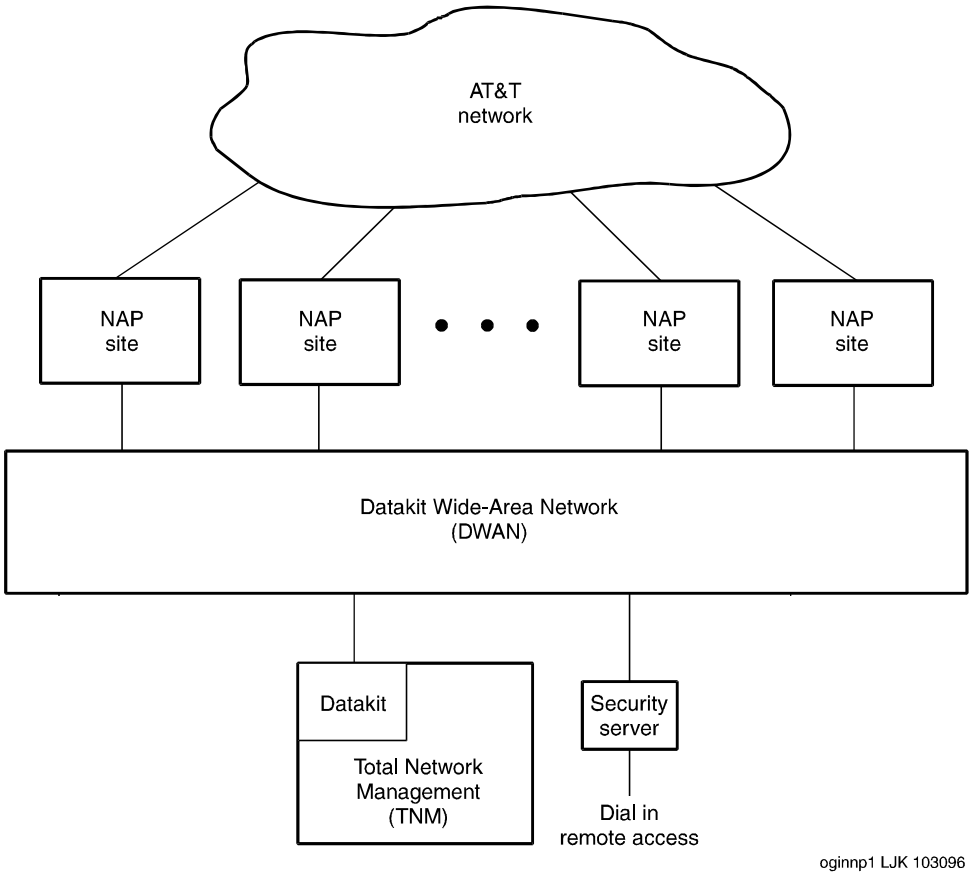


Figure 1-2. NAP Network Architecture

Descriptions of NAP Software

The following pages describe the software components that make up the NAP platform. ‘‘Application Software’’ on page 1-10 contains brief descriptions of the WorldSHARE NAP (WSN) application software package that runs on the NAP platform.

NAP System Software

NAP platform software for the VP machines is based on 2 system packages:

- UNIX System V Release 3.2.3 operating system
- CONVERSANT 4.0 generic system software

NAP platform software for the PM machines is also based on 2 system packages:

- UnixWare operating system release 1.1.2
- CONVERSANT 6.0 generic system software (running on NAP 3.0 hardware rather than NAP 3.1 hardware)

NOTE:
The UnixWare operating system and CONVERSANT 6.0 generic system — which normally run on a NAP 3.1 hardware configuration — run on a NAP 3.0 hardware configuration for the WorldSHARE NAP application. UnixWare and CONVERSANT 6.0 support the use of 3 LAN cards in the PM machines for WSN.

NAP Administration Software

Dual, identical PMs provide centralized administration, as well as alarm and remote troubleshooting access for all the machines at a NAP site. PMs track and distribute alarms.

NOTE:
Both PMs at a NAP site are active at all times. One PM is administered as the primary PM. This PM serves as the collection point for alarm messages from all VP machines at the site. Although both PMs track alarms from the VPs, only the primary PM actually raises and sends these alarms to TNM.

PMs perform the following NAP functions:

- Synchronize clocks with an external time server, using daily timestamps. The PMs change their internal clocks accordingly and send these revised system times to the other machines.
- Provide access to PM maintenance and diagnostic tools

Machine Access for Maintenance and Diagnosis

Direct access to PM maintenance and diagnostic tools is available when you are logged into a PM directly through a remote terminal. If logged in this way, you can change machine states, perform remote maintenance and diagnostics on other machines, and perform communication checks. Chapter 6, ‘‘Troubleshooting’’ explains maintaining and diagnosing NAP sites.

Chapter 5, ‘‘Command Reference’’ explains the commands for administering NAP.

Other NAP Software

Site Management System Software Package

The SMS (Site Management System) software package provides NAP background processing, alarm subsystem, LAN subsystem, and OAM&P support commands.

MAP 2000 Base System Package

The MAP 2000 base system package implements and provides access to MAP 2000 capabilities.

MAP 2000 Downloadable Firmware Package

The MAP 2000 downloadable firmware package is a set of files that are downloaded to upgrade the firmware of the Communicore modules.

Core Maintenance Features Package

The Core Maintenance Features package provides standardized OAM&P support utilities, commands, and reports for the system.

Perl Package

The Practical Extraction and Reporting Language (Perl) provides utilities (a set of run-time libraries and an interpreter) that can be used with the NAP package.

SCANS Automatic Software Upgrade Package

The Software Change Administration and Notification system (SCANS) is an automatic software tracking and distribution system that enables the electronic transfer of software upgrades from Denver CAFS to the SCANS system. The TCC downloads from SCANS and electronically sends the software to each NAP site.

WorldSHARE NAP

The WorldSHARE NAP (WSN) application supports WorldSHARE, an AT&T service that enables customers to administer voice calls through the AT&T switched network (ASN) from appropriately equipped Web pages on the Internet.

The AT&T WorldSHARE and Instant Answers (iA) Web servers interface with end users on the Internet by serving Web pages. They send call requests from end users to the AT&T WorldSHARE core server (WS CS), which looks up call information and communicates the call requests via an application programming interface (API) to WSN.

WSN makes the voice call connections through the AT&T switched network (ASN) by calling both parties and bridging the calls.

WorldSHARE NAP and the WS CS communicate using TCP/IP over 2 56-Kbps lines through routers.

Figure 1-3 shows WorldSHARE's network architecture.

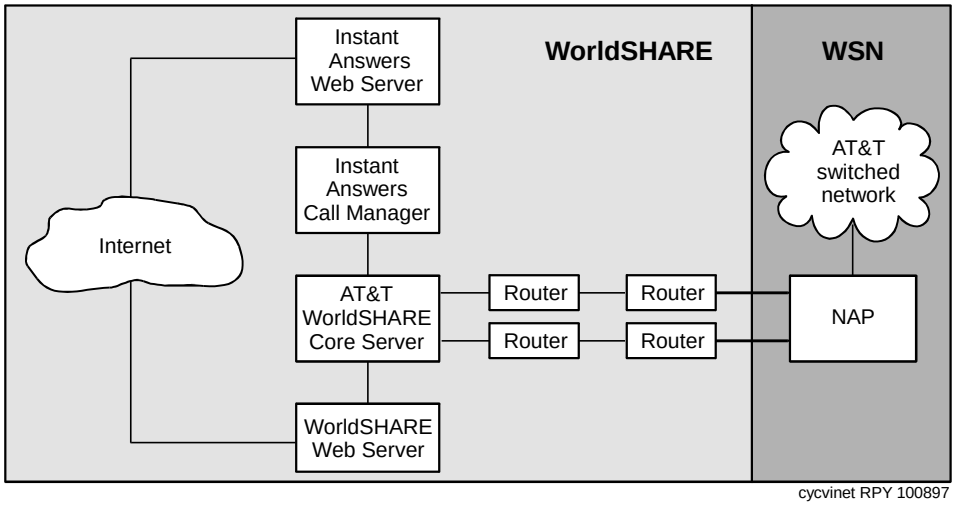


Figure 1-3. WorldSHARE Network Architecture

For WSN 1.1, the PM machines perform gateway server functions, allowing WSN to communicate with the AT&T WorldSHARE core server. As gateway servers, the PM machines are dual active — they each communicate with the AT&T WS CS at a remote site over a 56-Kbps line.

Sample WorldSHARE Call Scenarios

Many applications of WorldSHARE are possible. For sample call scenarios, see Appendix H, ‘‘WorldSHARE Call Scenarios’’.

WorldSHARE NAP Features

WorldSHARE NAP provides the following features:

- Connecting calls — up to 7 simultaneously
- Disconnecting calls
- Playing announcements, both recorded and text-to-speech
- Collecting dual-tone multi-frequency (DTMF) input
- Altering talk-path connectivity with called parties (hold and mute)

Application Software

This section describes the application software on the VP and PM machines.

VP Software Functions

VP machines provide call-processing capabilities for the application software.

VP machines also:

- Monitor system functionality and send generated alarms to the PMs
- Collect call-detail information
- Report on trunk resource allocation

Each of the functions listed is caused by a series of software processes, which are summarized in the following sections.

VP-Related Software Processes

Call Processing

The application data interface process (DIP)**, iets,** handles call-flow logic and is the focal point of call handling. It is a permanent process.

NOTE:
Call processing on the VPs and on the PMs is at a higher priority than all other WorldSHARE NAP functionality.

Other functions of the **iets** DIP:

- Select outgoing trunks and set up calls
- Call control

For more information about WSN software processes and how they communicate with the AT&T WS CS, see ‘‘Application Processes’’ on page F-7.

Call-Detail Information Generation

The **iets** DIP generates call-detail information on a daily basis, places the information in a flat ASCII file, stores each call-detail file for 30 days, and then deletes the file.

The **wscol** command (see page 5-138) retrieves call-detail data for a specified day from all VPs, concatenates the data into a single file, and places it on the PM machine that requested the data.

Trunk Resource Reporting

The VPs send messages in response to the traffic-manager (**gts** process) on the primary PM machine. Whenever a VP sends a message to the PM traffic manager, it appends the available trunk resources. Whenever a VP’s available truck resources change, the VP updates the PM traffic manager on the trunk status. Whenever an out-of-service VP restarts, it informs the PM traffic manager that its trunk resources are available.

PM Software Functions

On WorldSHARE NAP 1.1, each PM is connected to the AT&T WorldSHARE core server (WS CS) over a 56-Kbps line. The PMs are dual active — they both communicate with the AT&T WS CS.

The AT&T WS CS communicates to all PMs at all sites a request to initialize the API library and establish a communication link. The first PM to respond processes all subsequent requests over that communication link. Once a communication link has been established between the AT&T WS CS and a PM, the link can process any number of call sessions. For more information about API calls, see Appendix G, ‘‘Application Programming Interface’’.

NOTE:
For WSN 1.1, the dual PMs at a NAP site do not provide a fault-tolerant system. If a PM that is processing call sessions goes out of service, all calls through that PM are lost. There is no processing redundancy in WSN 1.1.

PMs perform the following functions:

- Communicate messages
- Manage call traffic
- Translate messages

The following sections explain the software processes responsible for these functions.

PM-Related Software Processes

Message Communication

Each PM's **gts** process communicates call-request messages between the AT&T WorldSHARE core server and the **iets** DIP on the VP machines. The **gts** process is a permanent process.

NOTE:
Call processing on the PMs and on the VPs is at a higher priority than all other WorldSHARE NAP functionality.

Traffic Management

Each PM's **gts** process performs traffic management functions. The **gts** process receives **CreateSession** call requests from the AT&T WS CS via the API and distributes the sessions equally across each VP.

During peak load periods, the traffic manager balances the call load across the VPs to within 5%. A peak load period occurs when channel utilization across each MAP 2000 is above 85% during the busy hour. When the load reaches 95% of the VPs' call-processing capacity, the traffic manager throttles (that is, denies) all **CreateSession** call requests from the AT&T WS CS until the load drops below 95%.

When the traffic manager does not receive any trunk-status information from a VP, it queries the VP every 30 seconds. If the traffic manager does not receive a reply from the VP within 70 seconds, it removes all DS0 channels associated with the VP from the available trunk resources.

Message Translation

Each PM's **gtrs** process takes messages from the VP machines and translates them into messages that the traffic-manager (**gts**) process can understand.

Descriptions of NAP Hardware

Voice Processing System (VP)

The NAP platform resides at 4ESS central office (CO) sites. Application software at a NAP site runs on a VP machine.

For WSN, the VP machine is a MAP 2000.

Each MAP 2000 consists of two main components:

- A Multi-Application Platform 100C (MAP/100C)
- A Communicore switch

VP Configuration of the MAP 2000

The MAP/100C is a UNIX operating system machine based on a 50-MHz Intel® 80486 processor. The machine is connected by T1 ISDN-PRI links to the Communicore, an ISDN switch that provides PRI connectivity to the 4ESS network.

Application software runs on the MAP/100C. The Communicore acts as a front-end switch for the VP and provides:

- Dual-tone multifrequency (DTMF) tone detection
- DTMF and call-progress tone generation

NOTE:
WSN 1.1 does not use DTMF and call-progress tone generation.

The MAP/100C controls all the Communicore's functions via control messages exchanged over the D-channel of the T1 link that connects the two machines. When a recorded announcement is played for a call, the call is connected to the MAP/100C via B-channels on the T1 link.

An overview of MAP/100C and Communicore components and functions is provided in the following subsections. For more detailed descriptions, refer to:

- *MAP/100C Voice Processing Hardware Installation*, 585-350-108
- ''Equipment Configurations'' on page 8-13

Figure 1-4 shows MAP 2000 VP machines in the NAP architecture.

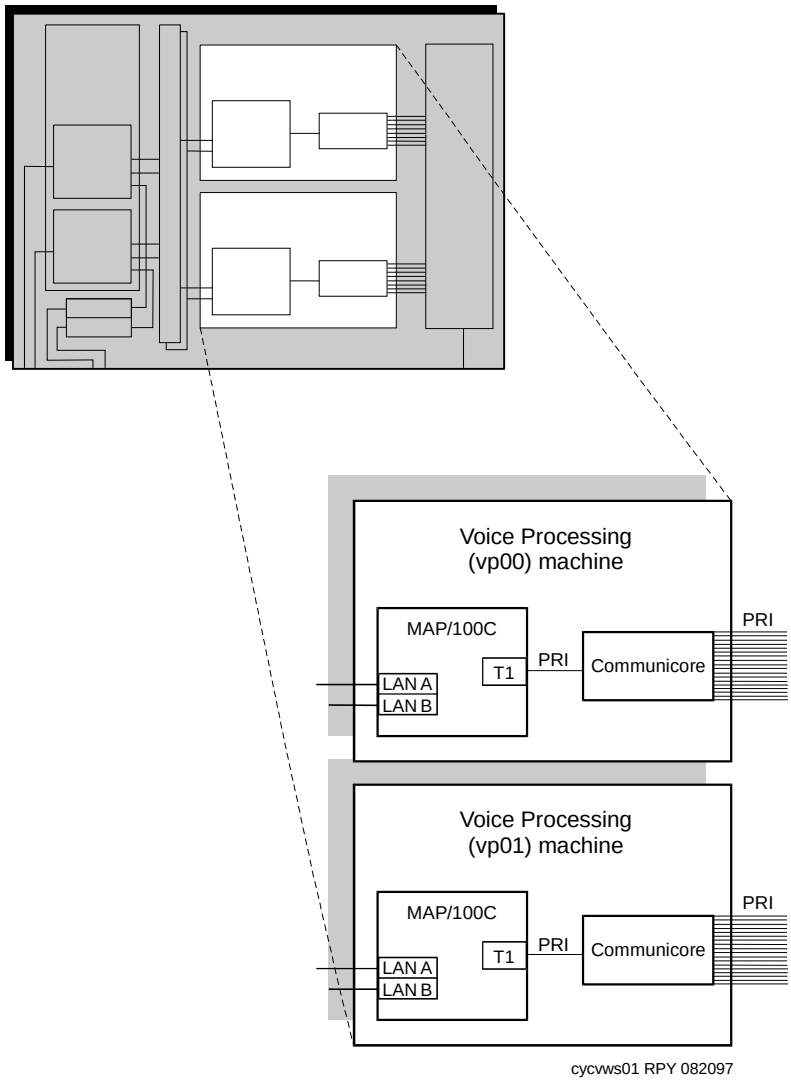


Figure 1-4. MAP 2000 VP Machines in a NAP Site

The Communicore and MAP/100C are mounted together in a 5ESS cabinet located in a central office frame bay as shown in Figure 1-5.

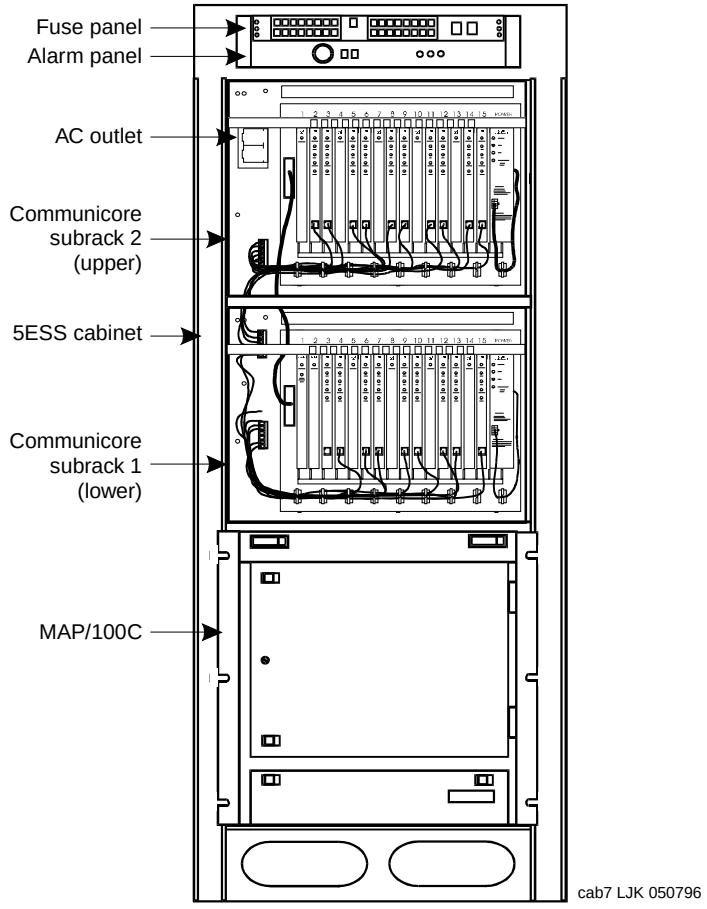


Figure 1-5. MAP 2000 VP in a 5ESS Cabinet

MAP/100C Circuit Cards in a VP

In a VP machine, the MAP/100Cs include circuit cards for control, connectivity, and voice processing:

- MAP/100C circuit cards for system control
  - — 486DXC/50-MHz central processing unit (CPU)

    This card controls VP operation.
  - — Video driver controller

    This is the interface between the CPU and the video monitor.
  - — SCSI (small computer systems interface) host adapter

    This card is the interface between the CPU and SCSI devices.
- MAP/100C circuit cards for connectivity and voice processing
  - — Three signal processor (SP) cards

    One SP card (AYC2C) provides voice announcements (with T1 cards); the second SP card (AYC2C) terminates the PRI for calls; the third SP card (AYC9) provides text-to-speech (TTS) conversion.
  - — Trunk Interface (T1) card

    The T1 card (AYC11) provides one ISDN-PRI interface to the Communicore.

    The D-channel to the MAP/100C on the PRI interface carries D-channel signaling between the MAP/100C and the 4ESS networks as well as control messages between the MAP/100C and the Communicore. B-channels connect calls from the network to the MAP/100C.
  - — Alarm relay card

    This card provides visual and audible alarm indicators to the CO. It can also be connected to an alarm grid if necessary.
  - — Two StarLAN 10 Network PC network access unit (NAU) cards

    These cards enable the machines to communicate and to share data.

For details about the location of circuit cards on the MAP/100C backplane, refer to ‘‘Circuit Cards in a MAP/100C VP Machine’’ on page 8-14.

Other MAP/100C Components in the VP Configuration

Each MAP/100C in the VP configuration has these peripheral devices and accessory components:

- Diskette drive

  A 3.5-inch, 1.44-Mbyte (megabyte) high-density diskette drive is used for boot-software loading and recovery.

- Hard disk drive

  A 2-Gbyte (gigabyte) hard-disk drive stores the operating system, application software, and customer-record information.

- Cartridge tape drive

  A 2.5-Gbyte SCSI cartridge tape drive located below the 3.5-inch diskette drive is used for initial software loading and system-software backups. The 2.5-Gbyte tape drive can read a tape that has been created by a 525-Mbyte tape drive.

- Cooling fans

  Four fans behind the CPU and the two fans in the peripheral drive bay provide forced-air cooling. They can be serviced on site. A seventh fan in the dc power supply *cannot* be serviced on site.

- Power supply

  The MAP/100C is powered by a -48 V dc power supply with external screw terminators.

  Apply power to the unit by pressing the POWER switch on the front of the unit, with the rear circuit breaker ON. External screw terminators for incoming -48 V dc CO power feeders are located on top of the unit in the power supply input module.

Communicore Components

Communicore Modules

The Communicore has two subracks, each holding 16 modules (a module is a circuit pack covered by a plastic shell). The application-specific configurations of these modules are shown in Chapter 8, ‘‘Maintenance’’.[1]

Each module has a processor, a downloadable boot flash-programmable read-only memory (PROM), and a downloadable flash PROM for operational software. Each module performs its own periodic, in-line, and power-up diagnostics, and has light-emitting diodes (LEDs) that indicate its operational state.

When powered up or returned to service, each module configures itself and reports its presence and configuration to the control 360 module, which then passes the information to the MAP/100C. The MAP/100C manages version control for the software running on each of the Communicore modules.

The Communicore modules perform the following functions:

- The **control 360 module** exchanges control messages with the MAP/100C via an ISDN temporary signaling connection (TSC) on the D-channel of the PRI module in slot 3.

  The control 360 module performs the following Communicore functions in response to instructions from the application running on the MAP/100C:

  - Managing circuit-switched and packet-switched connections
  - Testing backplane buses and clocks
  - Coordinating diagnostics between modules
  - Providing Stratum 4 Type 1 enhanced timing and synchronization
  - Managing software downloads to other modules and to itself

- The **switch module** establishes connections between time slots on the system bus and between serial channels on the access bus. This provides connectivity between interfaces on the various modules.
- Each **PRI (T1) module** supports an ISDN-PRI interface at 1.544 Mbps (T1). One of these modules connects to the MAP/100C. The rest provide connectivity to the 4ESS network. 4ESS connectivity uses nonfacility-associated signaling (NFAS). The interface uses a standard RJ-45 8-pin modular jack on the faceplate of the module.
- The **tone-generator module** generates DTMF and call-progress tones on specific call channels according to instructions received from the MAP/100C via the control 360 module.

1. Although the physical slot numbers on the modules are labeled 1 through 15 and POWER on each subrack, the *logical* numbering (the slot numbers you see when troubleshooting using commands like **dispstatus**) are: 1 through 16 for the lower subrack, and 17 through 32 for the upper subrack.

NOTE:
The WSN application does not currently use the functionality provided by the tone-generator module.

- The **tone-detector module** detects DTMF tones on call channels and reports them to the MAP/100C via the control 360 module.
- The **power/maintenance module** receives a -48 V dc input through a cable connected to an 8-pin connector on the module's faceplate.

  The module performs the following functions:

  — Supplying current-limited power to the Communicore backplane and all other modules on the subrack

  — Performing maintenance functions for the backplane buses and other subrack hardware

  — Registering alarms for over-temperature conditions

Keyboards and Video Monitors for the VP

Two keyboards and two video monitors support all NAP site hardware. These are shipped with the dual PMs for each site, but can be connected temporarily to VPs as needed. Regardless of the number of VP machines used at a NAP site, all onsite support is performed with these two keyboards and two monitors.

Provisioning and Maintenance System (PM)

PM Configuration

The PMs used in NAP are CONVERSANT MAP/100C machines configured for provisioning and maintenance as well as gateway server functions.

Figure 1-6 shows the PM machines in the NAP site architecture.

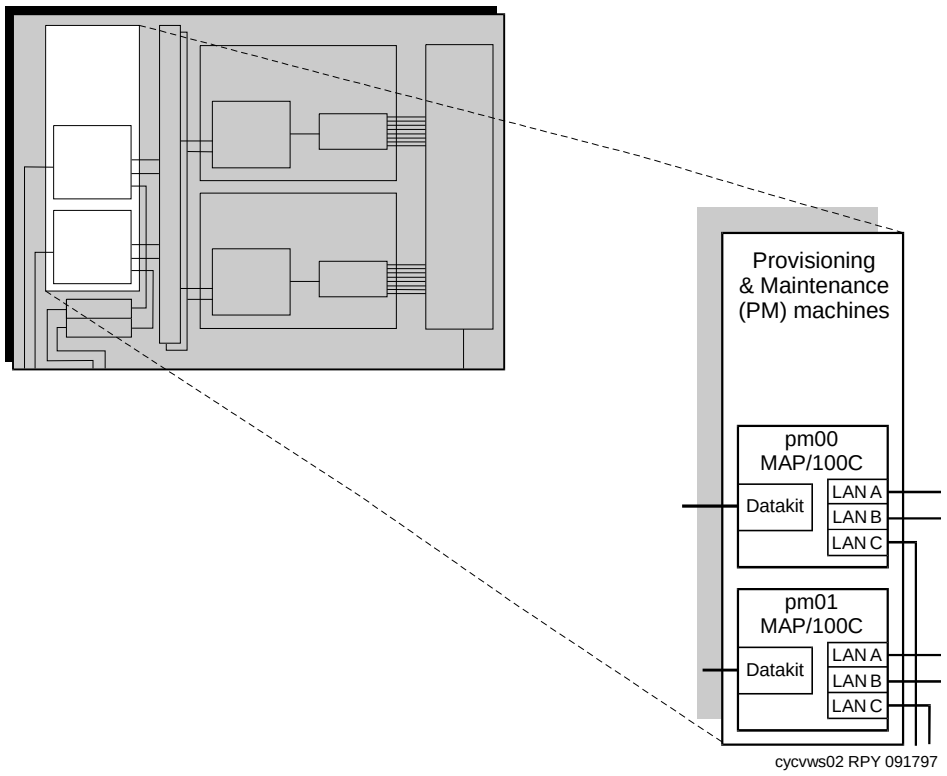


Figure 1-6. NAP PM Machines

Figure 1-7 shows the two NAP PMs in a 5ESS cabinet. Note that the two local area network (LAN) hubs are located above the PMs in the cabinet.

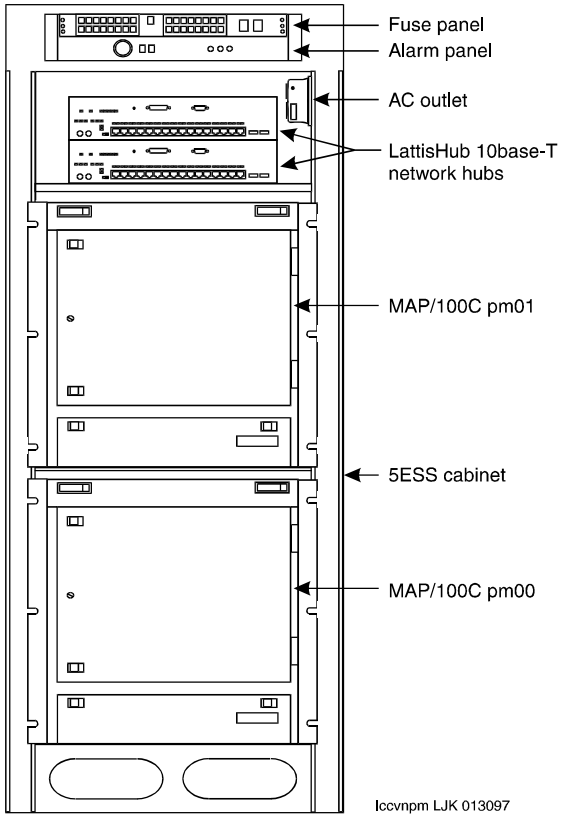


Figure 1-7. NAP PMs in a 5ESS Cabinet

PM Components

Each MAP/100C in the PM configuration has the following peripheral devices and accessory components:

- Diskette drive

  A 3.5-inch (1.44-Mbyte) high-density diskette drive is used for boot-software loading and recovery.

- Hard disk drive

  A 2-Gbyte hard-disk drive stores the operating system, application software, and customer-record information.

- Cartridge tape drive

  A 2.5-Gbyte SCSI cartridge tape drive located below the 3.5-inch diskette drive is used for initial software loading and system-software backups. The 2.5-Gbyte tape drive can read a tape that has been created by a 525-Mbyte tape drive.

- Cooling fans

  Four fans behind the CPU and the two fans in the peripheral drive bay provide forced-air cooling. They can be serviced onsite. A seventh fan in the dc power supply *cannot* be serviced onsite.

- Power supply

  The MAP/100C is powered by a -48 V dc power supply with external screw terminators.

Circuit Cards for PM Machines

The configuration of circuit cards differs slightly from the MAP/100C in the VP configuration:

- There are no SP or T1 cards.
- The PM configuration includes an HS386 Datakit card.

  The HS386 Datakit card enables PMs to retrieve, communicate, and share information with:

  — Remote terminal users through the Network Services Datakit Wide Area Network (DWAN)

  — Total Network Management (TNM)

- The PM configuration has 2 10-Mbyte LAN cards in place of the StarLAN 10 Network PC NAU cards and a third 10-Mbyte LAN card that connects the PMs through routers to the AT&T WorldSHARE core server.

For information about the other circuit cards in the PM, refer to the circuit card descriptions in ‘‘MAP/100C Circuit Cards in a VP’’ on page 1-16. For information about circuit card locations in the PM, refer to ‘‘Circuit Cards in a MAP/100C PM Machine’’ on page 8-16.

Local Area Networks

NAP uses a dual-LAN architecture for redundancy. Each LAN has a hub. Each element connects into both hubs via a LAN card using unshielded twisted-pair wire.

Hubs provide network connectivity between machines. Figure 1-8 shows the interconnection of the PMs through the hubs.

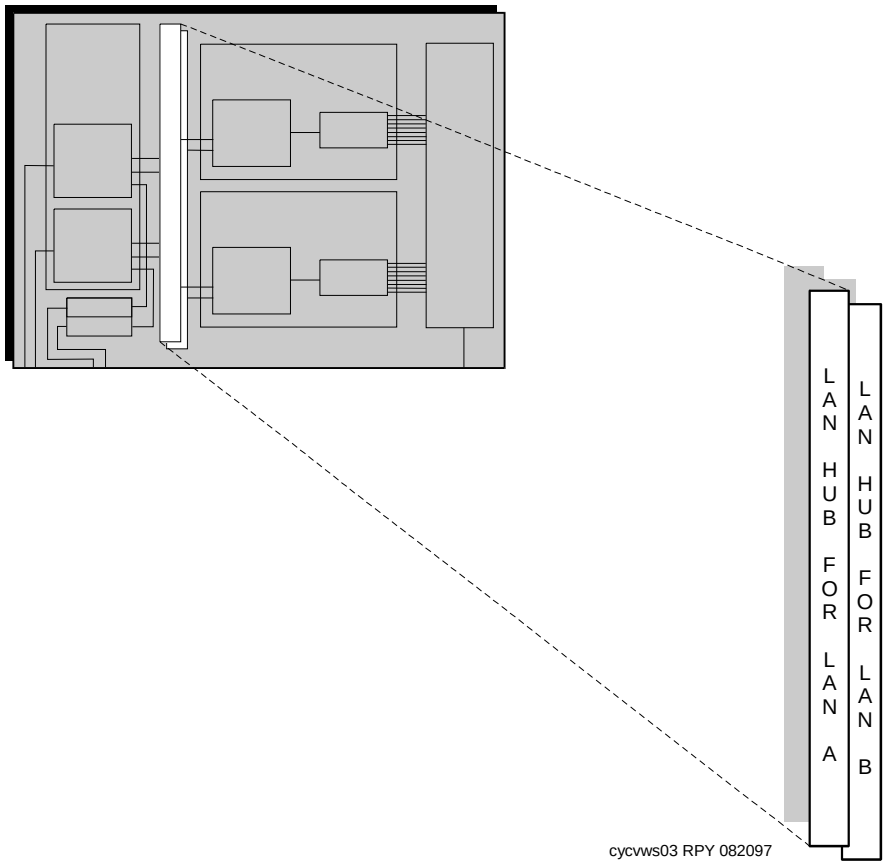


Figure 1-8. Dual LAN Hubs at a NAP Site

Recent MAP 2000 installations use a pair of SynOptics LattisHub 2814 10BASE-T hubs, located in the upper part of the PM cabinet, above the MAP/100Cs (see Figure 1-7 on page 1-21).

Figure 1-9 shows the front view of a LattisHub. Only one hub is required for each LAN.

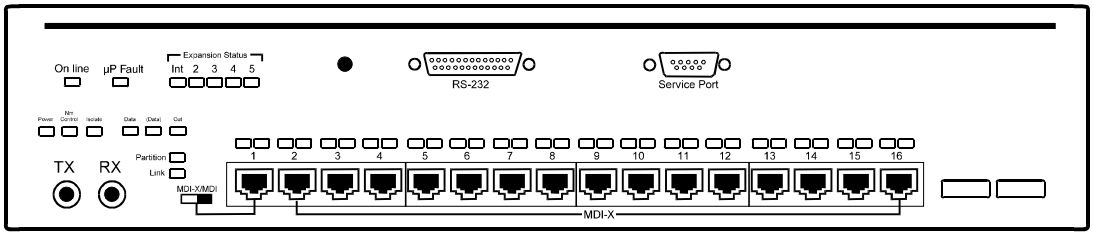


Figure 1-9. Front View of LattisHub 10BASE-T Hub

MAP 2000 installations prior to January 1, 1996, use StarLAN 10 Network SmartHUBs (see Figure 3-12 on page 3-28).

External Interfaces to NAP

Site Connectivity: ISDN-PRI T1 Links

NAP uses ISDN signaling between the VPs and the 4ESS for all call control and feature signaling. Each VP is connected to the 4ESS via an ISDN-PRI configuration referred to as Non-Facility-Associated Signaling (NFAS), in which a single ISDN D-channel handles all signaling for all bearer channels.

Figure 1-10 shows the ISDN-PRI T1 links in a NAP site where the VPs are MAP 2000s.

ISDN signaling between the VP and the 4ESS conforms to standard AT&T ISDN-PRI protocol specifications (TR41459). For example, a facility information element (IE) may be added to a normal setup message for a specific NAP feature. Support of NAP from an ISDN perspective does not require specific knowledge of the contents of these signaling messages.

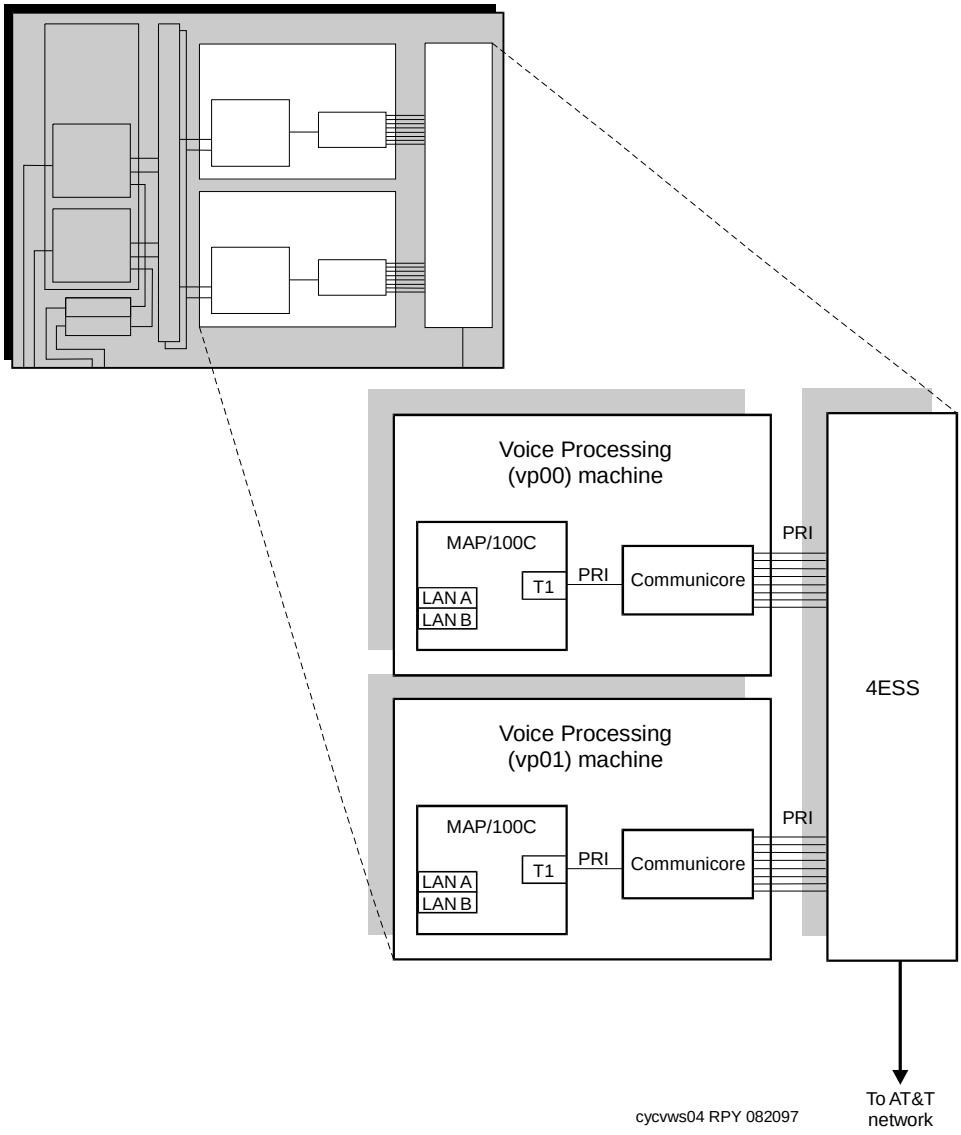


Figure 1-10. NAP Site Connectivity: ISDN-PRI T1 Links

ISDN-PRI Configurations for WSN

The configurations discussed in this section apply only to WSN. The number and slot assignments of various modules may differ for other applications.

Each Communicore ISDN-PRI T1 module supports one 24-channel PRI interface administered for clear 64-Kbps B-channel communications (provided by common D-channel signaling) using:

- A noninverted data stream

  Binary 1s (ones) are represented by alternating positive and negative line signals (AMI-alternate mark inversion); binary 0s (zeros) are represented by no line signal.

- B8ZS (binary 8-zero substitution) line coding

  All-zero octets are replaced by either ‘‘000+-0-+’’ or ‘‘000-+0+-,’’ depending on the polarity of the previous line signal. This ensures basic synchronization in a noninverted data stream.

- Extended superframe (ESF) framing structure

  This multiframe structure, consisting of 24 193-bit frames (each with 24 bytes and a framing bit), improves synchronization by using every fourth framing bit to form the repeating frame-alignment signal “001011.”

One PRI module connects to the MAP/100C and the rest connect to the 4ESS network as shown in Figure 1-11.

The PRI modules connected to the 4ESS network are arranged in an NFAS configuration. The PRI module in slot 4, subrack 1 of the Communicore carries 23 B-channels and the D-channel that carries signaling for all 4ESS interfaces. This D-channel is frame relayed to the MAP/100C over the D-channel on module 3 of the Communicore. The other PRI modules each carry 24 B-channels.

The PRI module in slot 3, subrack 1 of the Communicore connects to a T1 card on the MAP/100C. The D-channel on this interface (VP channel 23) carries control messages between the MAP/100C and the Communicore, as well as frame-relay, D-channel signaling to the 4ESS network. When the MAP/100C must connect directly to a call from the network (to deliver a recorded announcement, for example) it uses B-channels on this interface (VP channels 0 through 22).

The D-channel relayed from the 4ESS to the MAP/100C is routed to a signal-processing (SP) card (also called a speech-processing card) where layers 2 and 3 of the ISDN protocol are terminated. An SP card must be administered to support ISDN-PRI on each MAP/100C in the VP. D-channel backup is not used with NAP.

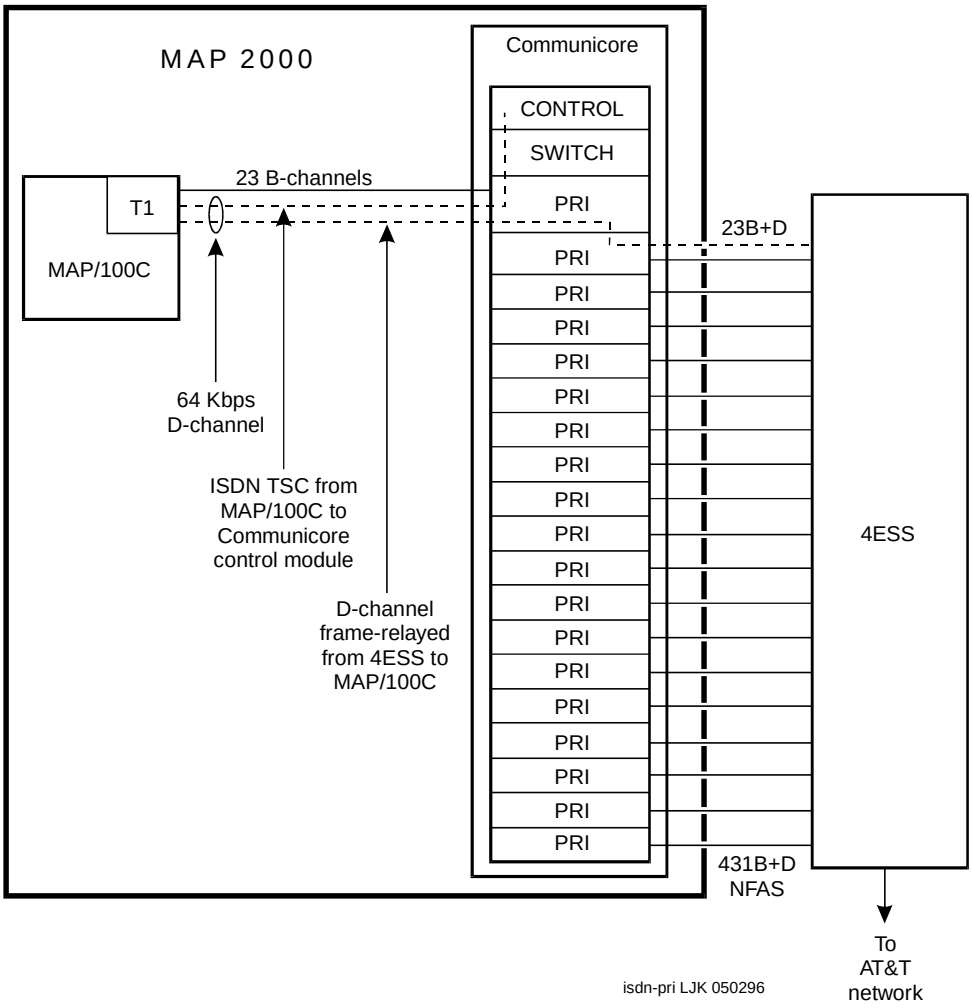


Figure 1-11. ISDN-PRI Connectivity for WSN

ISDN-PRI Functions for WSN

The functions discussed in this section pertain only to WSN. These functions may differ for other applications.

Special 4ESS Administration

The channels of each interface must be uniquely identified when NFAS is used. Each Communicore PRI module supports one 24-channel PRI interface. Communicore PRI modules connected to the network are numbered 1 through 18. The D-channel is carried on channel 23 of the interface to module 1. Module 1 is located in slot 4 of subrack 1.

The 431 B-channels are carried on channels 0 through 22 of the interface to module 1, and on channels 24 through 431 of the interfaces to modules 2 through 18. Module 2, which carries channels 24 to 47, is located in slot 6 of subrack 1. See ‘‘Modules in the Communicore Subrack’’ on page 8-15 for the locations of the 18 PRI modules connected to the 4ESS. The PRI module in slot 3 of subrack 1 is connected to the MAP/100C.

PRI modules are interspersed among other types of modules, such as tone detectors. The facility number (FAC field) of the 4ESS must have this same administration to ensure that each channel is identified correctly.

Special 4ESS trunk subgroup administration is required to identify the trunks for NAP signaling. The PRIT field must be set to SSA (small system adjunct). The TOT field should be set to PBX (private branch exchange). NAP supports call merge, which requires 4ESS 4E17R3 generic release or later software for compatibility.

Supporting ISDN-PRI for NAP

Knowledge of the VP-to-4ESS connectivity and administration for ISDN-PRI signaling is all that is required to support ISDN-PRI for NAP. Significant testing has been performed to ensure that special NAP feature signaling is correct and functional from an ISDN-PRI protocol perspective. ISDN-PRI support consists of maintaining the service state of the D- and B-channels by resolving any D-channel or T1 failures.

It is important to make sure that the 4ESS and VP trunk provisioning are correct at installation time or after any 4ESS upgrade. Check the trunk provisioning first when a signaling problem occurs (other than a D-channel or T1 failure).

Any specific NAP feature problems that are considered or suspected to be signaling problems should be escalated immediately to the VP development organization. It might be necessary to obtain an ISDN-PRI protocol trace when escalating a problem. Protocol traces can be set up and obtained from the AT&T Technology Control Center (TCC).

Site Connectivity: TCP/IP Link

WorldSHARE NAP uses TCP/IP to communicate between the PM machines and the AT&T WorldSHARE core server (WS CS) over 2 56-Kbps lines. A LAN circuit card in each PM is connected through routers to the WS CS.

Figure 1-12 shows the connection of the PM machines through the routers to the WS CS.

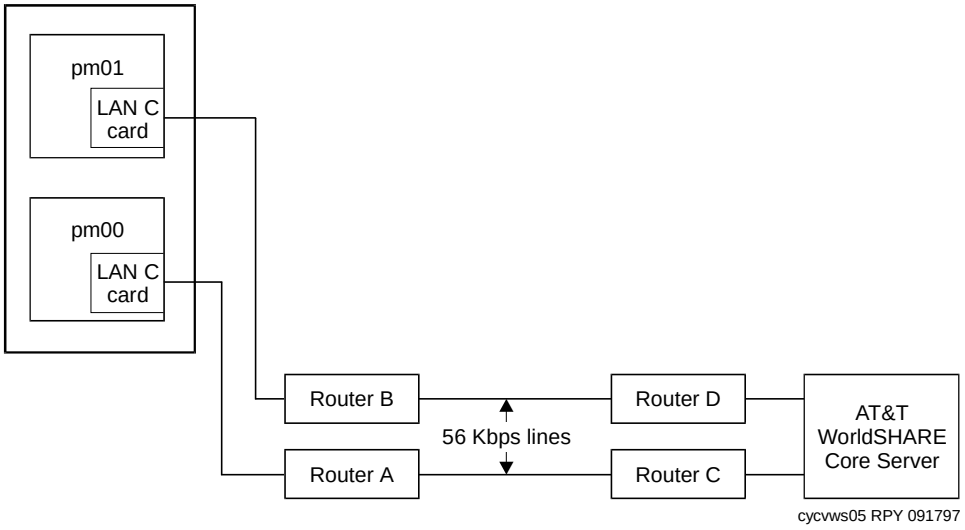


Figure 1-12. WorldSHARE NAP Site Connectivity: TCP/IP Links

The AT&T WS CS communicates to all PMs at all sites a request to initialize the API library and establish a communication link. The first PM to respond processes all subsequent requests over that communication link. Once a communication link has been established between the AT&T WS CS and a PM, the link can process any number of call sessions. For more information about API calls, see Appendix G, ‘‘Application Programming Interface’’.

NOTE:
For WSN 1.1, the dual PMs at a NAP site do not provide a fault-tolerant system. If a PM that is processing call sessions goes out of service, all calls through that PM are lost. There is no processing redundancy in WSN 1.1.

DWAN Connectivity: Datakit

Datakit Network Configuration

Datakit Wide Area Network (DWAN) is an internal AT&T Network Services network that uses Datakit to connect all 4ESS sites in the United States.

Figure 1-13 shows DWAN connectivity for NAP.

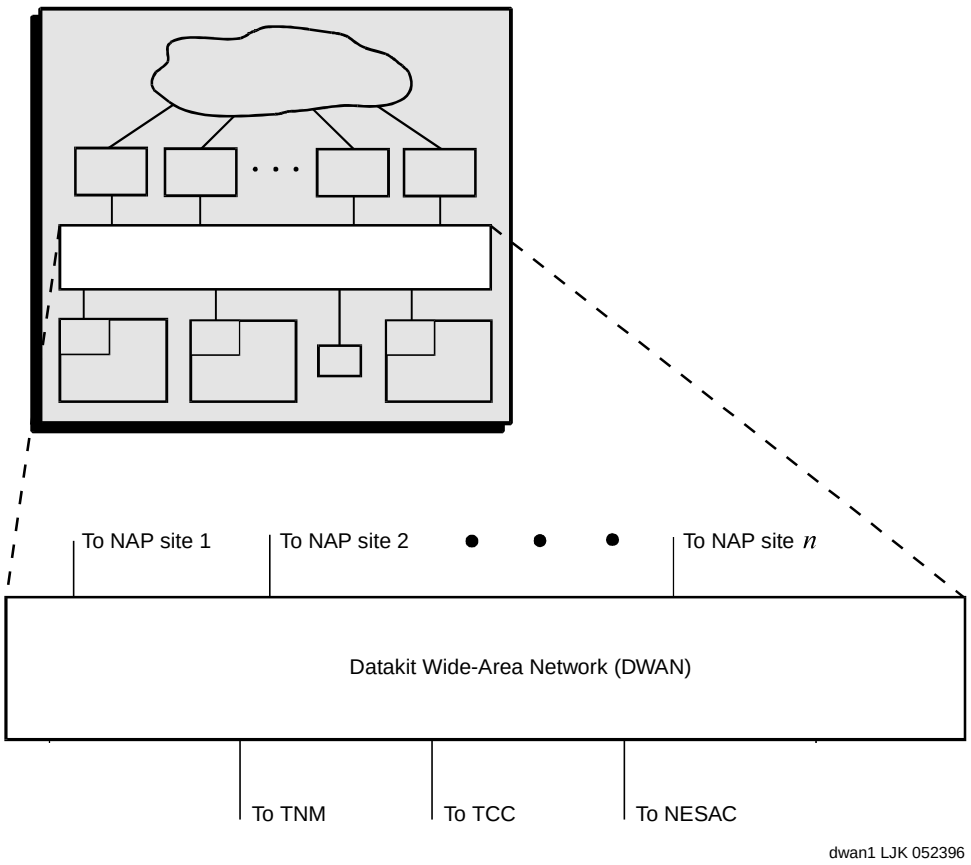


Figure 1-13. NAP Site Connectivity Via DWAN

Datakit Functions

The essential functions of DWAN:

- Connect NAP sites with the TNM through a DWAN data security-server interface.
- Give terminal users access to PM machines through security servers.

DWAN access to a NAP site can be obtained in the following ways:

- TNM connection using the machine-to-human language (MML) interface (MMLI)
- DWAN security server dialup

Datakit Connectivity

This figure shows the relationship of Datakit to the NAP architecture:

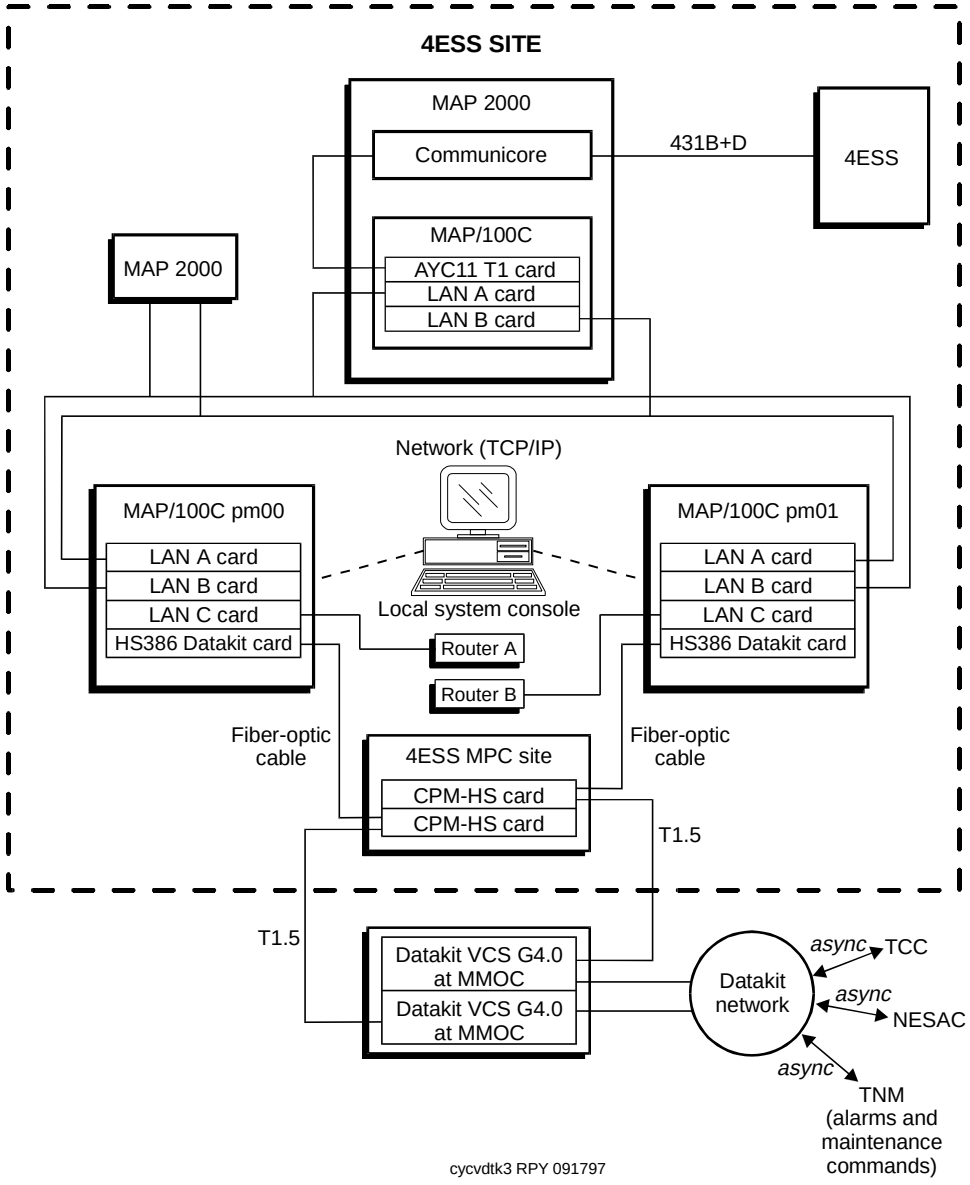


Figure 1-14. Datakit Connectivity

Each of the PMs connects to a CPM-HS card via a fiber optic cable. The CPM-HS card has up to 512 channels and supports transmission rates up to 8 Mbytes per second. The PMs are allocated up to 64 channels on the CPM-HS card.

The CPM-HS card must be installed on site if there is a Multi-Purpose Concentrator (MPC) unit at the 4ESS site.

TNM

TNM (Total Network Management) is an operational support system for the AT&T World Wide Intelligent Network that performs alarm monitoring. TNM enables surveillance, control, and analysis of NAP components. Figure 1-15 shows TNM in the NAP network architecture.

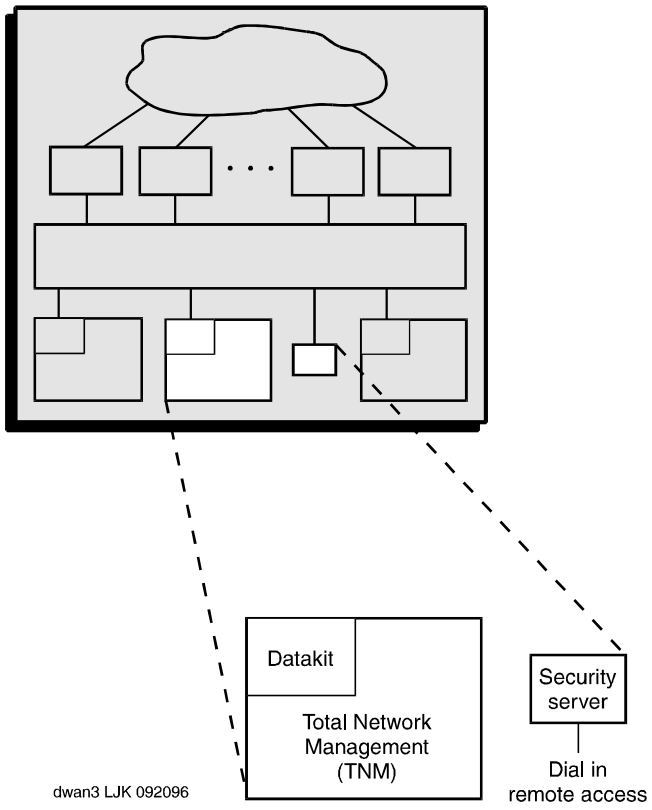


Figure 1-15. TNM

These are the main functions of TNM:

- For NAP, TNM makes a DWAN connection to each PM and monitors alarm status and system status for each NAP site.
- All NAP alarms are sent to TNM over the DWAN connection. Alarms are transmitted to TNM by the primary PM at a NAP site for VP alarms and by each PM for its own alarms.

Installation, connection, and command specifics for TNM are provided in *CONVERSANT VIS Version 3 CompuLert/SCCS*[1], 106713274.

NOTE:
Administration and maintenance commands are listed in Chapter 5, "Command Reference." Most commands can be executed through the TNM interface.

1. switching control center system

Hardware Installation

2

What's in This Chapter?

This chapter provides instructions for installing:

- A 5ESS Multi-Application Platform (MAP) 2000 cabinet
- A 5ESS Provisioning and Maintenance (PM) system cabinet
- A 5ESS system cabinet with 2 MAP/100Cs for future use with dedicated Gateway Server (GS) machines

The information presented in this chapter might not be in the order in which you perform the work at your site. That order is usually determined by local conditions, such as when equipment arrives. The hardware and cabling layouts are discussed first, for planning purposes.

Site Requirements

Listed below are requirements for each Network Adjunct Platform (NAP) site.

Temperature	The temperature range for a NAP is 50–104° F (10–40° C).
Humidity	The relative humidity range for a NAP site is 20–80% noncondensing.
EMI (electromagnetic interference)	The NAP cabinets should be installed away from equipment that can cause EMI, such as high-power machinery or power lines.
MAP/100C CO Power	The MAP/100C operates on -48 V dc. A fully-loaded unit consumes 13 amperes. Feeders are in an OR'ed arrangement. Either A or B feeder and fusing should be designed to carry full load current (that is, distribute for 26 amperes, design load for 13 amperes per MAP/100C).
Communicore CO Power	The Communicore operates on -48 V dc, and requires approximately 2 amps per subrack when fully loaded. Only one input is provided (either A or B) per subrack.
Network Hubs CO Power	Each LattisHub 10BASE-T Workgroup concentrator uses 120 V ac protected power (backed by battery) and consumes 40 watts.
Frame AC Power	The video monitor requires a 120 V ac power outlet in every 5ESS cabinet.
CO Floor Space for NAP cabinets	NAP machines are installed in 5ESS cabinets. The footprint of a 5ESS cabinet is 30" (width) by 23.5” (depth). This equipment requires aisle spacing for 18-inch deep equipment in accordance with Section 23 of NEBS (Network Equipment Building System Requirements).

Safety Summary

Review the following safety warnings before starting work:

WARNING:
The strap on the shipping container is tensioned and sharp. Use care when cutting and removing the strap.

WARNING:
The 5ESS MAP 2000 cabinet configured as a VP weighs 465 pounds. The fully equipped 5ESS PM cabinet weighs 610 pounds. To prevent injury, use a mechanical lifting device to move the cabinet.

*Do **not** use the cable tie-down bars located on the rear of the MAP/100C to lift the cabinet.*

WARNING:
Each MAP/100C weighs 140 pounds. If one is available, use a mechanical lifting device to move the MAP/100C to prevent injury.

*If a mechanical lifting device is not available, and you must lift the MAP/100C manually, use **three** people. Two can grasp the machine using the lip on the top of either side, and one person can help support the machine from the front.*

*Do **not** use the cable tie-down bars located on the rear of the MAP/100C to lift the cabinet.*

WARNING:
Make sure that the cabinet is fastened securely to the floor, in accordance with AT&T central office (CO) common ESS (electronic switching system) switching equipment single-bay cabinet mounting instructions, and as appropriate for earthquake protection.

WARNING:
To prevent electrocution hazard and equipment damage, make sure that the ground connections are clean and the cables are secure.

Each MAP/100C must be grounded to a solid, stable, single-point ground — for personal protection, protection from electromagnetic interference (EMI), and immunity from circuit noise.

Ground the MAP/100C in accordance with Grounding of Processing Equipment, AT&T Practice (824102054), and National Electrical Codes.

WARNING:
To prevent electrical shock when installing or servicing equipment, make sure that source power at the battery distribution fuse board (BDFB) is off and that the circuit breaker is locked out of service.

WARNING:
To prevent electrostatic discharge (ESD) damage, make sure that the 5ESS cabinet is grounded properly. When servicing equipment, wear a grounded wrist strap connected to the MAP/100C.

WARNING:
To prevent eye injury, wear safety glasses during installation and maintenance.

5ESS Cabinet Hardware Installation

Overview

This section describes how to unpack, install, cable, and inspect the MAP 2000 and PM hardware in the 5ESS cabinets.

Figure 2-1 shows the MAP 2000 and PM cabinet layouts. A MAP 2000 cabinet contains one MAP/100C and one Communicore (the Communicore has two subracks). The PM cabinet contains two MAP/100C PM machines and two network hubs.

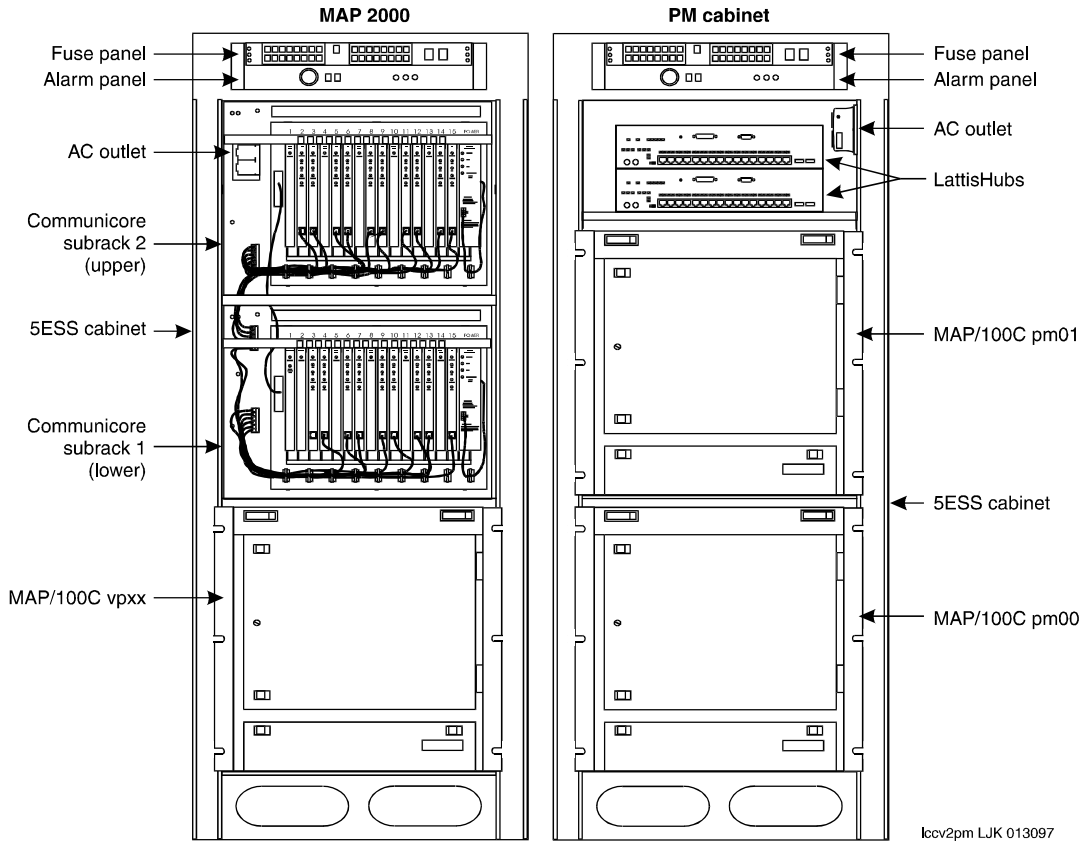


Figure 2-1. 5ESS MAP 2000 and PM Cabinet Configurations

Figure 2-2 shows the GS cabinet layout.

NOTE:
The GS cabinet contains 2 routers and 2 MAP/100C machines for future use as dedicated Gateway Server (GS) machines.

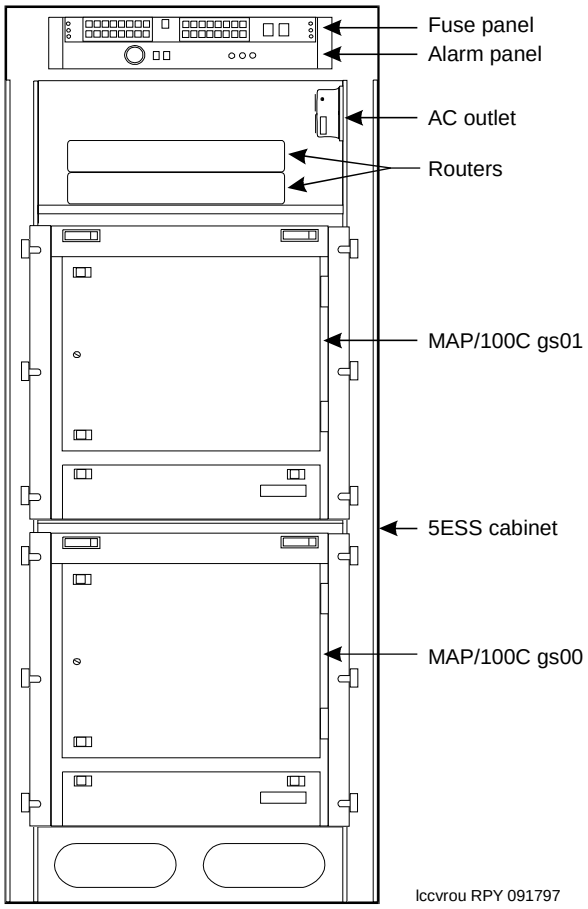


Figure 2-2. GS Cabinet Configuration for Routers and Future Use

5ESS Cabinets at a NAP Site

A WSN NAP site consists of 3 5ESS cabinets. Cabinet 1 is a MAP 2000. Cabinet 2 contains 2 MAP/100C PM units and 2 network hubs. Cabinet 3 contains 2 MAP/100C units for future use as dedicated GS machines and 2 routers.

Unpacking the 5ESS Cabinet

Each 5ESS cabinet is shipped in two containers. One palletized container holds the 5ESS cabinet and the second contains the doors.

This procedure tells you how to inspect and remove the shipping container.

1. Check the status of the SHOCKWATCH® and/or TILTWATCH® indicators on the cardboard container. Normally, these indicators are white. If the container has been jarred or tilted beyond specifications, the indicator turns red, indicating potential damage. Report any indication of damage using local instructions.
2. Move the cabinet near the row where it will be installed.
3. To remove the container and packing, follow the instructions printed on the shipping container.

   ⚠ CAUTION:
   The strap on the shipping container is tensioned and sharp. Use care when cutting and removing the strap.

4. Cut and remove the shipping strap.
5. Remove the cardboard top cap.
6. Remove the top foam insert from the top of the cabinet.
7. Cut the tape on the front right side of the cardboard wrapper.
8. Remove the cardboard wrapper.
9. Remove the plastic bag from the cabinet.
10. Remove all packing materials from inside the cabinet.
11. Inspect the cabinet for damage caused during shipping. Report any indication of damage using local instructions.
12. Remove the carriage bolt located in each bottom corner of the cabinet. These bolts secure the cabinet to the pallet.

    ⚠ WARNING:
    The 5ESS MAP 2000 cabinet with VP hardware installed weighs 465 pounds. The 5ESS PM or GS cabinet weighs 610 pounds. To prevent injury, use a mechanical lifting device to move the cabinet.

13. Remove the cabinet from the pallet.

Installing the 5ESS Cabinet

1. Refer to documents ED5D511-31 and ED5D785-70 and install concrete floor anchors. A minimum of four 5½-inch-deep anchors are required to secure a 5ESS cabinet. Use a minimum 5-inch x 16 type bolt or threaded rod for floor mounting.

   WARNING:
   The 5ESS MAP 2000 cabinet with VP hardware installed weighs 465 pounds. The 5ESS PM or GS cabinet weighs 610 pounds. To prevent injury, use a mechanical lifting device to move the cabinet.

2. Position the cabinet in the row. Refer to NT1P336 *Network Adjunct Platform (NAP) INTUITY CONVERSANT MAP 2000 Central Office Provisioning, Interconnection and Installation* for cabinet positions.
3. Level the cabinet using shims as required.

   WARNING:
   Make sure that the cabinet is fastened securely to the floor, in accordance with AT&T central office (CO) common ESS switching equipment single-bay cabinet mounting instructions.

4. Secure the cabinet to the floor in accordance with local codes and CO specifications.

Cabling the 5ESS Cabinet

You can start cabling before the equipment arrives and finish after the equipment is installed, depending on the conditions at your site. The CO provides site-specific facility wiring diagrams.

Refer to these diagrams for cabling information:

- PWR ARCH-018 *Power System Architecture for the MAP 2000*
- J1P336A-1 *INTUITY CONVERSANT MAP 2000 Voice Processing (VP) Cabinet*
- J1P336B-1 *INTUITY CONVERSANT MAP 2000 Provisioning and Maintenance (PM) Cabinet*
- NJ1P336 *Network Adjunct Platform (NAP) INTUITY CONVERSANT MAP 2000 Central Office Order Guide*
- NT1P336 *Network Adjunct Platform (NAP) INTUITY CONVERSANT MAP 2000 Central Office Provisioning, Interconnection and Installation*
- NE-00356-30 *Alarm Panel*
- NT-00356-32 *Alarm Panel*
- NE-00262-31 *Fuse Panel*
- NT-00262-31 *Fuse Panel*

Refer to the J, NE, or NT wiring diagrams and install the following cables. The facility cabling jobs are:

- Cabling the site power and ground from the battery distribution fuse board (BDFB) to the 5ESS cabinet fuse panels
- Cabling the CO alarm unit to the 5ESS cabinet alarm panels
- Cabling the DSX-1 (digital signal cross-connect) frame cables to the Communicores
- Cabling the HS386 Datakit circuit card on the MAP/100C PMs to the Datakit Multi-Purpose Concentrator (MPC) CPM-HS circuit card
- Cabling the network LAN A and LAN B hubs (located in the PM cabinet) to the StarLAN 10 network PC NAU LAN A and LAN B circuit cards, respectively, on the VP machine's MAP/100Cs
- Cabling the 2 LAN C circuit cards on the PM machines' MAP/100Cs to the 2 routers (located in the GS cabinet)

Cabling Site Power to the 5ESS Fuse Panel

1. Refer to *PWR ARCH-018 for System Power Architecture* and NT1P336 *Network Adjunct Platform (NAP) INTUITY CONVERSANT MAP 2000 Central Office Provisioning, Interconnection and Installation* drawings and connect the power cables to the fuse panel -48 V load A and load B terminal strips.
2. Connect the return cables to the fuse panel -48 V RTN (return) A and B terminal strips.

Cabling the LAN Hubs to the LAN Network

See Figure 2-3 for the StarLAN 10 Network SmartHUB or Figure 2-4 for the LattisHub 2814 10BASE-T Workgroup Concentrator. Connect cables from each network hub to the LAN circuit cards on each MAP/100C. LAN A cables are connected to the LAN cards installed in slot 19 of the VP and slot 20 of the PMs. LAN B cables are connected to the LAN cards installed in slot 21 of the VP and the PMs.

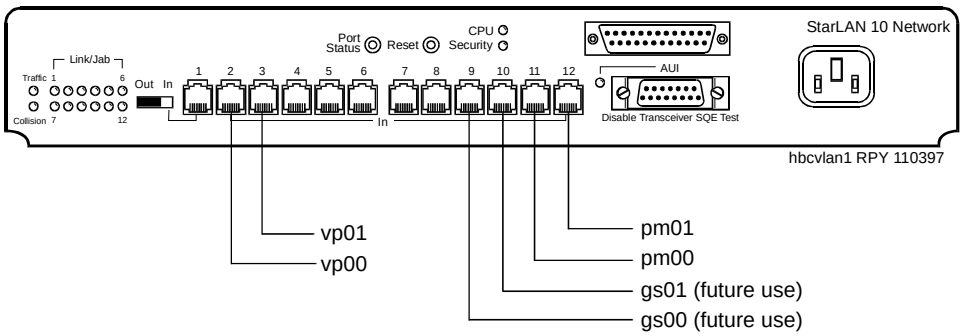


Figure 2-3. Cabling the StarLAN 10 Network SmartHUB to LAN A and B Circuit Cards

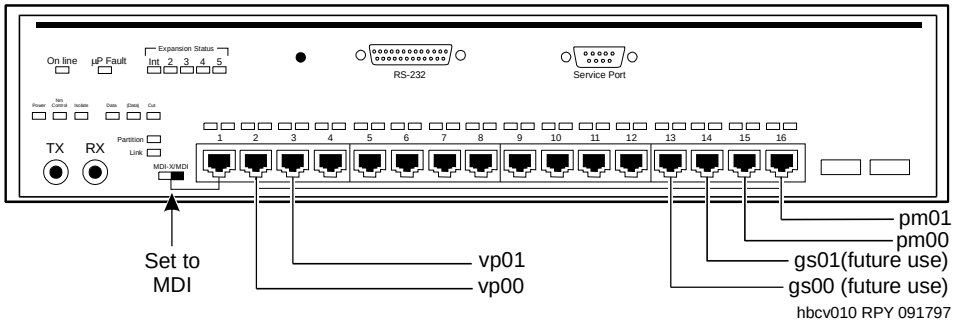


Figure 2-4. Cabling the LattisHub 2814 10BASE-T Workgroup Concentrator to LAN A and B Circuit Cards

NOTE:
Figure 2-3 and Figure 2-4 show recommended cabling for new WSN installations. Existing installations may not match these figures. The ports assigned to the GS machines are for future use.

Verifying the 5ESS Cabinet Hardware Installation

Use this checklist to make sure that the hardware has been inspected and that the hardware installation procedures are complete.

WARNING:
To prevent electrical shock, make sure that source power at the battery distribution fuse board (BDFB) is off and that the circuit breaker is locked out of service.

1. Verify that the 5ESS cabinet is secured to the floor in accordance with AT&T CO common ESS switching-equipment single-bay cabinet-mounting instructions.
2. Verify that all component-mounting screws are installed and secured tightly to the cabinet for these components:
   - Fuse panel
   - Alarm Panel
   - Network hubs bracket and shelf
   - Communicore
   - MAP/100C

   WARNING:
   To prevent electrostatic discharge (ESD) damage, make sure that the 5ESS cabinet is grounded properly. Wear a grounded wrist strap connected to the MAP/100C.

3. Open each MAP/100C front door and perform these steps:
   a. Examine each circuit card for damage, loose components, and loose cables.
   b. Verify that each circuit card is seated properly and secured in the card-cage backplane.
   c. Verify that each connector of the TDM (time-division multiplexing) cable is connected firmly to its circuit card.
   d. Verify that the rubber standoffs on the circuit-card hold-down bracket are positioned in the slots occupied by half-height circuit cards and circuit cards that do not touch the bracket.
   e. Verify that each empty circuit-card slot has a blank I/O faceplate installed.
4. Close the front door.

5. Open the MAP/100C peripheral-bay access door on the rear of each cabinet and verify that:
    a. The SCSI bus cable is connected securely to the SCSI cartridge-tape drive and SCSI hard-disk drive
    b. The power cables are connected securely to the SCSI cartridge tape drive and the SCSI hard-disk drive
    c. The cable and wire connections on the drive-bay power distribution card W/RMB (with remote maintenance board) located on the peripheral-bay access door are connected securely
6. Close the peripheral-bay access door.
7. On each Communicore verify that:
    a. Each module on subrack 1 is seated properly
    b. Each module on subrack 2 is seated properly
    c. The intersubrack cable and T1 interface cable are seated properly
    d. The module support brace is installed (applies to zones 3 and 4)
8. Verify that the following cables are connected on each of the VP cabinets (Refer to the CO site-specific wiring diagram for cable information):
    a. MAP/100C: T1 card (slot 5) T1 cable to the Communicore lower-subrack module 3 PRI
    b. MAP/100C: Alarm card (slot 18) external-alarm cable to the 5ESS cabinet alarm panel
    c. MAP/100C: StarLAN 10 network PC NAU cards (slots 19 and 21) to the LAN hubs (two cables from each MAP/100C)

       Verify that the LAN A cables are connected to the cards in slot 19 and that LAN B cables are connected to the cards in slot 21.
    d. MAP/100C: Alarm-relay wires (2 wires, part of external-alarm cable) to 5ESS-cabinet alarm panel (orange-red connects to NO and red-orange connects to C)
    e. MAP/100C: -48 V dc power, return and ground cables to the 5ESS-cabinet fuse panel
    f. Communicore: Assignment of T1 cables from the Communicore panel to the upper and lower subrack modules.
    g. Communicore: Power/maintenance-module cable to 5ESS-cabinet fuse panel (power-connection diversity is site-selected)
    h. Communicore: T1 to DSX-1 frame cables, three cables for each MAP 2000 cabinet
    i. 5ESS cabinet: Alarm-panel cable to CO alarm unit
    j. 5ESS cabinet: Fuse-panel -48 V dc, return, and ground cables to CO (BDFB)

9. Verify that fuses of the correct amperage for grids A and B are installed in the fuse panel of the MAP 2000 cabinet.
10. Refer to the site-specific wiring diagram and verify that the following cables are connected on the PM cabinet:
    a. MAP/100C PMs: HS386 Datakit-card fiber cable to Datakit MPC (multipurpose concentrator) or VCS (virtual circuit switch)
    b. MAP/100C PMs: Alarm card (slot 18) external-alarm cable to the 5ESS-cabinet alarm panel
    c. MAP/100C PMs: LAN cards (slots 20 and 21) to the LAN hubs

       Verify that the LAN A cables are connected to cards in slot 20 and that the LAN B cables are connected to cards in slot 21.
    d. MAP/100C PMs: LAN cards (slot 22) to the routers

       Verify that the LAN C cables are connected to routers in the GS cabinet (pm00 to router A and pm01 to router B).
    e. MAP/100C PMs: Alarm-relay wires (2 wires, part of external-alarm cable) to the 5ESS-cabinet alarm panel (orange-red connects to NO and red-orange connects to C)
    f. MAP/100C PMs: -48 V dc power, return, and ground cables to the 5ESS-cabinet fuse panel
    g. 5ESS cabinet: Alarm-panel external alarm cable to the CO alarm unit
    h. 5ESS cabinet: Fuse-panel -48 V dc power, return, and ground cables to the CO battery distribution fuse board (BDFB)
11. Verify that fuses of the correct amperage for grids A and B are installed in the fuse panel of the 5ESS PM cabinet.

Installing the Cabinet Doors

1. Remove the front and rear doors from the shipping container and inspect them for damage.
2. Install the front and rear doors using the instructions in the drawing package.
3. Install side panels, if used, at each end of the row.

Labeling Equipment

Label each cabinet and each MAP/100C. Use the Central Office Row/Rack Number System to label the cabinets. The VP-configured MAP/100Cs are labeled vp00 and vp01. The PM-configured MAP/100Cs are labeled pm00 and pm01. LANs are labeled Hub A and Hub B. Routers are labeled Router A and Router B.

Installing the Video Monitor and Keyboard

Two video monitors and two keyboards are provided for each site. Place these components on the two computer tables provided with your installation. After the installation is complete, connect the monitors and keyboards to the two PM machines. From then on, perform all administration from the PMs. During installation, connect the monitor and keyboard to each VP machine as you install the software on it, so that you can administer that machine.

Operating Instructions

3

What's in This Chapter?

This chapter contains information on:

- Description of switches and indicators for the MAP/100C, tape drives, Communicore, alarm panel, fuse panel, and LAN
- Power-up procedures
- Operating procedures
- Normal shutdown procedures
- Emergency operation or degraded operation
- Power cycling
- Run levels on the VP and PM machines

Switches and Indicators

This section describes the switches and indicators used by the onsite work force (OSWF) to operate and maintain the NAP system.

MAP/100C Switches and Indicators

Each MAP/100C has a front panel like the one shown in Figure 3-1. The panel is located below the large front door of the machine and just above the peripheral bay containing the tape drive and hard-disk drive. Some of the front-panel connectors are duplicated on the back panel.

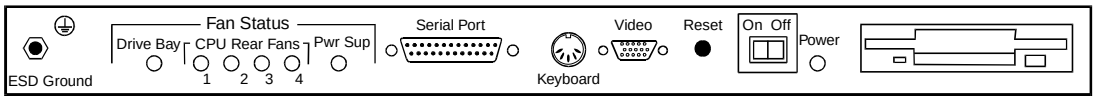


Figure 3-1. MAP/100C Front Panel

WARNING:
Whenever you open a MAP/100C door, use caution to prevent damage from electrostatic discharge (ESD):

- *Wear a ground strap that is connected correctly to a grounding system.*
- *Avoid any unnecessary handling of the cards.*
- *Do not touch the gold contact edge of a card; this could cause contact corrosion.*

Table 3-1. MAP/100C Front Panel

Switch/Indicator	Description
ESD Ground	Female jack for a grounding strap to prevent electrostatic discharge damage
Drive Bay	The green fan-status light for the fan in the peripheral drive bay is on when the cooling fan in the peripheral drive bay is running.
CPU Rear Fans 1 2 3 4	The green fan-status light for each of the four cooling fans in the rear of the MAP/100C is on while that fan is running.
Pwr Sup	The green fan-status light for the cooling fan inside the power supply is on while the fan is running.

Continued on next page

Table 3-1. MAP/100C Front Panel — *Continued*

Switch/Indicator	Description
COM 1 or Serial	DB-25 connector for RS-232C connection to a serial communications I/O port of the MAP/100C
Keyboard	5-pin circular DIN female connector for connecting a keyboard to the MAP/100C
Video	15-pin female D subminiature connector for the signal cable of the video monitor
Reset	Pushbutton switch resets the MAP/100C processor
On/Off switch	Rocker switch turns power to the MAP/100C on or off. The circuit breaker on the rear of the MAP/100C must be on to provide input power to the power supply.
Power light	Green when power is ON to the MAP/100C
Diskette drive access indicator	On whenever the diskette drive is being accessed for a read or write operation

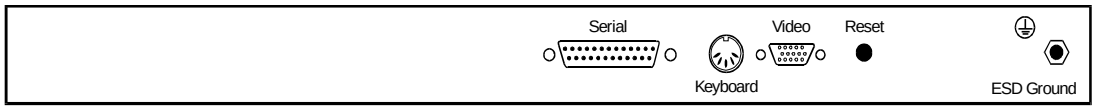


Figure 3-2. MAP/100C Rear Panel

The rear panel duplicates most of the connectors on the front panel, but not the power On/Off switch, power light, fan-status lights or diskette drive.

Table 3-2. MAP/100C Rear Panel

Switch/Indicator	Description
COM 1 or Serial	DB-25 connector for RS-232C connection to a serial I/O port of the MAP/100C
Keyboard	5-pin circular DIN female connector for connecting a keyboard to the MAP/100C
Video	15-pin female D subminiature connector for the signal cable of the video monitor
Reset	Pushbutton switch to reset the MAP/100C processor
ESD Ground	Female jack for a grounding strap to prevent electrostatic discharge damage

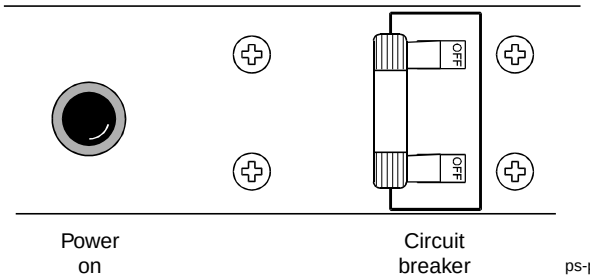


Figure 3-3. MAP/100C Power-Supply Panel

The power supply for the MAP/100C is at the top of the machine and is accessible from the rear. The power supply has a power-on light and a circuit breaker.

Table 3-3. MAP/100C Power-Supply Panel

Switch/Indicator	Description
Power-on light	A green light is on when the power supply is providing power to the MAP/100C. The light is off when the circuit breaker has tripped or when power has been turned off at the circuit breaker or the front-panel power switch.
Circuit breaker	Pushing the circuit-breaker handle to the right turns the power supply on. Pushing the handle to the left turns the power supply OFF. If the circuit breaker trips, the handle will be at the left. To reset the circuit breaker after it trips, make sure that the front-panel power switch is on, then push the circuit-breaker handle fully to the right. The front-panel switch and circuit breaker must both be on for the power supply to be on.

Indicators on SCSI Cartridge Tape Drives

Each MAP/100C in a MAP 2000 VP or in a PM contains a SCSI cartridge tape drive that loads, backs up, and restores software. The tape drive is located at the right-hand side of the peripheral bay at the bottom of the MAP/100C.

2.5-Gbyte Cartridge Tape Drive

The tape drive in Figure 3-4 shows a 2.5-Gbyte SCSI cartridge tape drive. When you insert tapes into this drive, the LED goes on and remains on until you remove the tape. The LED flashes while the drive is reading or writing. When read/write operations finish, the LED stays on steadily again. You may safely remove the tape from the 2.5-Gbyte drive when the light is on steadily.

Figure 3-4. 2.5 Gbyte Tape Drive and LED Indicators

If the LED stays off when the drive should be reading or writing, suspect one of these possibilities:

- There is no cartridge in the drive.
- The drive has failed.
- The connection between the drive and the LED has failed.

Communicore Module Indicators

Communicore LED Strategy

Each module has one STATUS LED that indicates the module's state of health. If a STATUS LED remains off after a module has been inserted, reseat the module and retest. If the module fails again, the module is faulty and should be replaced.

CAUTION:
The status LED might be off because the module has been administratively removed from the system. Determine whether the module has been administratively removed before replacing the module.

Additional information about the operational state of the module is provided by the display patterns of the STATUS LED and additional LEDs on some modules.

Communicore LED States

The following terms describe the LED display patterns. The precise meanings of these vary from module to module, but they follow some general principles.

Table 3-4. Communicore LED States

State	Display Pattern	Meaning
ON	The LED is on steadily.	The module is in use. Removing a module in this state disrupts any services using that module.
OFF	The LED is off steadily.	The module has failed and should be replaced. Refer to: ■ ''Removing Communicore Modules'' on page 8-9 ■ ''Removing Communicore Modules Hot'' on page 8-10 ■ ''Installing Communicore Modules'' on page 8-8 ■ The command description for **download** on page 5-61 **NOTE:** The status LED might be off because the module has been administratively removed from the system. Determine whether the module has been administratively removed before you replace it.
FLASH	The LED flashes once per second.	The module has passed diagnostics and is idle. For an external interface, this indicates that no equipment is connected to it, or that the connection or equipment is faulty.

Continued on next page

Table 3-4. Communicore LED States

State	Display Pattern	Meaning
FAST FLASH	The LED flashes three times per second.	The module is running a demand diagnostic. This state normally lasts for a second or less.
SLOW FLASH	The LED flashes once every two seconds.	Communication with the control 360 module has been lost.
FLUTTER	The LED flashes rapidly in a pattern that might be irregular.	Firmware is being downloaded to the module. Downloading resets the module and restores it to service, causing the LEDs to flash increasingly faster from FLASH to FLUTTER until initialization is complete and the LEDs are on. For a more detailed explanation, refer to ''LED Displays during Download'' on page 3-9.

LED Displays During Initialization

During initialization or when restored to service, all LEDs on a module flash for at least five seconds. This allows you to confirm that the LEDs are functional. During this process, the LEDs flash increasingly faster, from FLASH to FLUTTER. After that, they display their normal operational states as defined in the following sections.

LED Displays during Download

When downloading firmware to any Communicore module, whether during installation or upgrade, the LED flash patterns vary in accordance with the following download phases described in Table 3-5.

WARNING:
After a firmware download sequence, the control 360 module STATUS LED is ON and the NODE PROCR LINK LED is OFF. This sequence can take up to 10 to 15 seconds to complete. This is not a failure indication. Do not remove the control 360 module during this time or firmware erasable/ programmable read-only memory (EPROM) damage will occur.

Table 3-5. LED Displays during Download.

Phase	State	Display Pattern	Meaning
1	FAST FLASH	The LED flashes three times per second.	A copy of the firmware is being loaded into the RAM buffer.
2	ON	The LED is on steadily.	The PROM on the module is being erased.
3	FAST FLASH	The LED flashes three times per second.	Firmware is being downloaded to the module.
4	FLUTTER	The LED flashes rapidly in a pattern that might be irregular.	The module is restored to service, causing the LEDs to flash increasingly faster from FLASH to FLUTTER until initialization is complete and the LEDs are on.
5	ON	The LED is on steadily.	The download operation is complete.

LED Displays during Diagnostics

During diagnostics, all LEDs on a module flash.

When the module is removed from service, all LEDs are off. When diagnostics are initiated, the LEDs flash. When diagnostics are finished, all LEDs are off and the module can be replaced or restored to service.

Control 360 Module LEDs

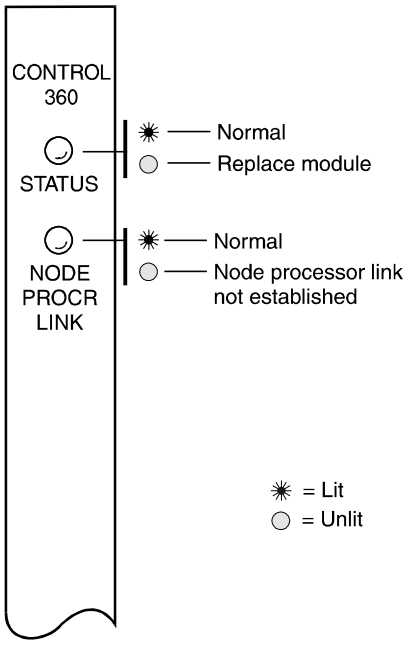


Figure 3-5. Control 360 Module

WARNING:
After a firmware download sequence, the control 360 module's STATUS LED is ON and the NODE PROCR LINK LED is OFF. This sequence can take up to 10 or 15 seconds to complete. This is not a failure indication. Do not remove the control 360 module during this time or firmware EPROM damage will occur.

LED Label	State	Meaning
Status	ON	This is the normal operational state. The module has passed diagnostics and is communicating with at least one other module across the control bus.
	OFF	**NOTE:** The status LED does not go off, even when administratively removed. If the module has been administratively removed, and the status LED is off, most likely a download is being performed. This status can last for 10 to 15 seconds.
	FLASH (one/second)	Not applicable.
Node Procr Link	ON	This is the normal operational state. The control 360 module is communicating with the MAP/100C.
	OFF	The node processor is *not* communicating with the MAP/100C. 1. Reseat the module. Refer to ''Installing Communicore Modules'' on page 8-8. 2. If reseating the control 360 module does not fix the problem, replace the module. Refer to: ■ ''Removing Communicore Modules'' on page 8-9 ■ ''Removing Communicore Modules Hot'' on page 8-10 ■ ''Installing Communicore Modules'' on page 8-8 ■ The description for the **download** command on page 5-61
Both LEDs	FAST FLASH (three/second)	The module is running demand diagnostics.
	FLASH increasing to FLUTTER	During initialization or when restoring to service, all LEDs flash increasingly faster from FLASH to FLUTTER.

Power/Maintenance Module LEDs

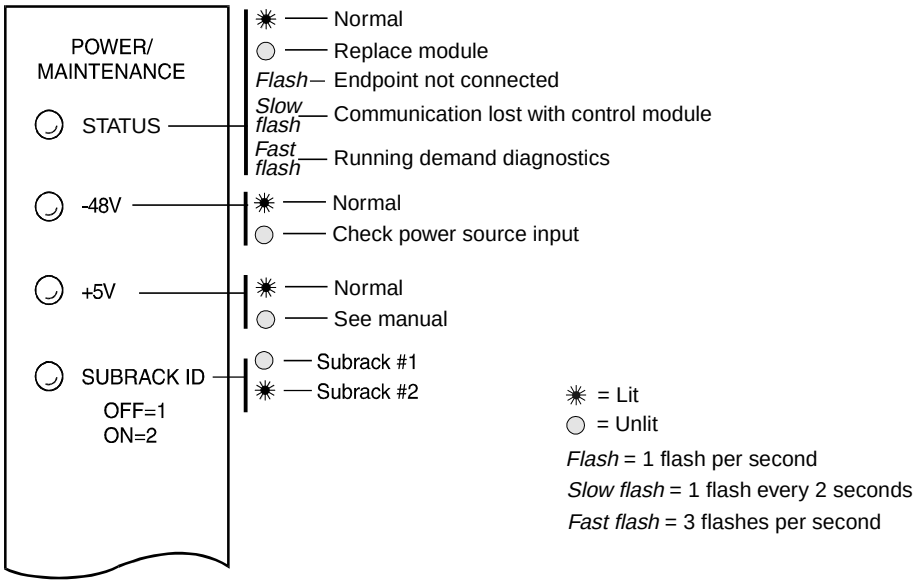


Figure 3-6. Power/Maintenance Module

WARNING:
Removing the power/maintenance module when the system is powered can result in damage to the Communicore.

LED Label	State	Meaning
Status	ON	This is the normal operational state. The module has passed diagnostics.
	OFF	The module has failed diagnostics. Replace the module. Refer to: ■ ''Removing Communicore Modules'' on page 8-9 ■ ''Installing Communicore Modules'' on page 8-8 ■ The description for the **download** command on page 5-61 **WARNING:** *Removing the power/maintenance module when the system is powered can result in damage to the Communicore.*
	FAST FLASH (three/second)	The module is running demand diagnostics.
	SLOW FLASH (one every two seconds)	Communication with the control 360 module has been lost.
	FLASH increasing to FLUTTER	During initialization or when restored to service, all LEDs flash increasingly faster from FLASH to FLUTTER.

Continued on next page

LED Label	State	Meaning
-48 V	ON	-48 V dc is present for conversion to +5 V dc.
	OFF	-48 V dc is not present for conversion to +5 V dc system power and +12 V dc. The +5 V LED also should be off, and the other modules on the subrack should not be operational. Check the power cable. If -48 V dc is present at the cable connector, replace the power/maintenance module. Refer to: ■ ''Removing Communicore Modules'' on page 8-9 ■ ''Installing Communicore Modules'' on page 8-8 ■ The description for the **download** command on page 5-61 This LED state can also indicate that the backplane is shorted, although this is an unlikely possibility.

Continued on next page

LED Label	State	Meaning
+5 V	ON	This is the normal operational state. +5 V dc power to the backplane is present.
	OFF	+5 V dc system power to the backplane is not present. This renders the entire subrack nonoperational. If the -48 V LED is on, the voltage converter is probably faulty. Replace the module. Refer to: ■ ‘‘Removing Communicore Modules’’ on page 8-9 ■ ‘‘Installing Communicore Modules’’ on page 8-8 ■ The description for the **download** command on page 5-61 This condition can also indicate a short caused by a fault in one of the other modules or the backplane. If the -48 V LED is OFF, see the instructions for that LED on page 3-14.
Subrack ID	OFF	This subrack is subrack 1.
	ON	This subrack is subrack 2. The orientation of the intersubrack cable determines the numbering of the subracks. One end of the cable is labeled “Subrack 1.” Plugging this end into a subrack causes it to be subrack number 1.

PRI T1 Module LEDs

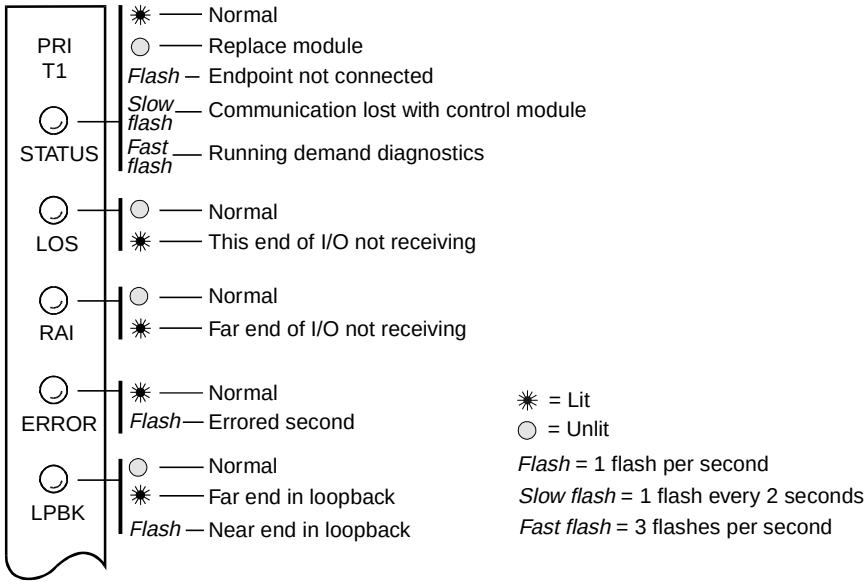


Figure 3-7. PRI T1 Module

LED Label	State	Meaning
Status	ON	This is the normal operational state. The module has passed diagnostics and is framing with the PRI at the 4ESS or the MAP/100C.
	OFF	**NOTE:** The status LED may be off because the module has been administratively removed from the system. Determine whether the module has been administratively removed before replacing the module. The module has failed diagnostics. Replace the module. Refer to: ■ ''Removing Communicore Modules'' on page 8-9 ■ ''Removing Communicore Modules Hot'' on page 8-10 ■ ''Installing Communicore Modules'' on page 8-8 ■ The description for the **download** command on page 5-61
	FLASH (one/second)	The interface is not framing with the 4ESS or the MAP/100C. This is normal when a PRI cable is not connected to the port on this module. If a PRI cable is plugged in, check the 4ESS or the MAP/100C PRI (T1) facility and connecting wiring.
	SLOW FLASH (one every two seconds)	Communication with the control 360 module has been lost.

Continued on next page

LED Label	State	Meaning
LOS (Loss of signal)	OFF	This is the normal state. The interface is receiving a signal from the 4ESS or the MAP/100C PRI.
	ON (red)	The interface is not receiving a signal from the 4ESS or the MAP/100C PRI. Check the connecting wiring, the T1 facility, and the operation of the 4ESS or the MAP/100C PRI. If no external source of trouble is found, replace the module. Refer to: ■ ''Removing Communicore Modules'' on page 8-9 ■ ''Removing Communicore Modules Hot'' on page 8-10 ■ ''Installing Communicore Modules'' on page 8-8 ■ The description for the **download** command on page 5-61
RAI (Remote Alarm Indication)	OFF	This is the normal state. No Yellow Remote Alarms are active.
	ON	The interface has received a Yellow Remote Alarm indication. The 4ESS or the MAP/100C PRI is not receiving good framing information from this interface. Check the connecting wiring and T1 facility.
Error	Flashing, various rates possible	This LED flashes every time an errored second occurs. A rapid flash rate indicates the occurrence of many bit errors, out-of-frame errors, CRC-6 errors (cyclic redundancy check), or bipolar violations.

Continued on next page

LED Label	State	Meaning
LPBK (loopback)	OFF	This is the normal operational state. No loopbacks are in effect.
	FLASH	A near-end loopback is in effect. Far-end loopback capability is not available in this release.
All LEDs on module	FAST FLASH (three/second)	The module is running demand diagnostics.
	FLASH increasing to FLUTTER	During initialization or when restored to service, all LEDs flash increasingly faster from FLASH to FLUTTER.

Switch Module LEDs

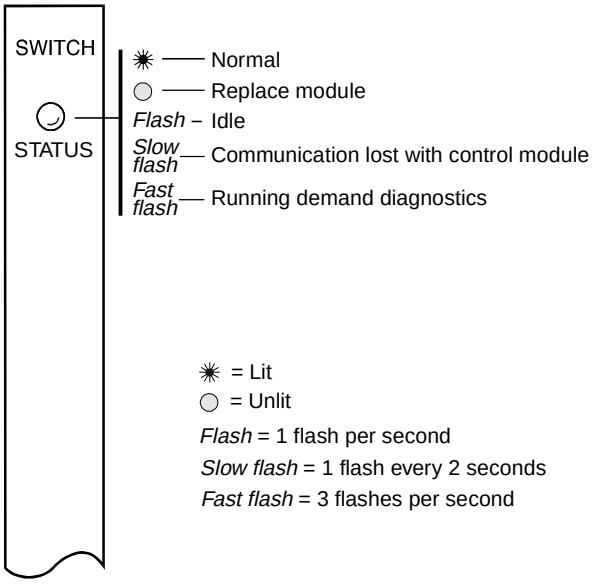


Figure 3-8. Switch Module

LED Label	State	Meaning
Status	ON	This is the normal operational state. The module has passed diagnostics and is being used for at least one circuit or packet connection.
	OFF	The module has failed diagnostics. Replace the module. Refer to: ■ ''Removing Communicore Modules'' on page 8-9 ■ ''Removing Communicore Modules Hot'' on page 8-10 ■ ''Installing Communicore Modules'' on page 8-8 ■ The description for the **download** command on page 5-61
	FLASH (one/second)	The module is not in use. All diagnostics have passed.
	SLOW FLASH (one every two seconds)	Communication with the control 360 module has been lost.
	FAST FLASH (three/second)	The module is running demand diagnostics.
	FLASH increasing to FLUTTER	The module has just been restored to service.

Tone-Detector Module LEDs

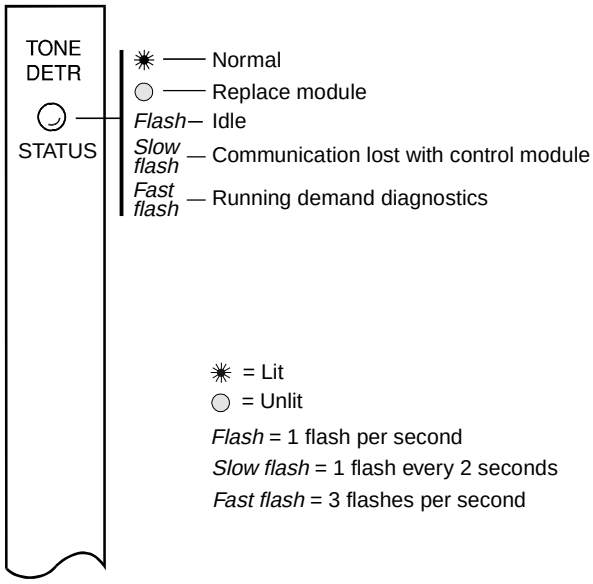


Figure 3-9. Tone-Detector Module

LED Label	State	Meaning
Status	ON	The module has passed diagnostics and is currently active (being used to detect tones).
	OFF	**NOTE:** The status LED may be off because the module has been administratively removed from the system. Determine whether the module has been administratively removed before replacing the module. The module has failed diagnostics. Replace the module. Refer to: ■ ‘‘Removing Communicore Modules’’ on page 8-9 ■ ‘‘Removing Communicore Modules Hot’’ on page 8-10 ■ ‘‘Installing Communicore Modules’’ on page 8-8 ■ The description for the **download** command on page 5-61
	FLASH (one/second)	The module is functional and idle. All diagnostics have passed. This is the normal operational state.
	SLOW FLASH (one every two seconds)	Communication with the control 360 module has been lost.
	FAST FLASH (three/second)	The module is running demand diagnostics.
	FLASH increasing to FLUTTER	The module has just been restored to service.

Tone-Generator Module LEDs

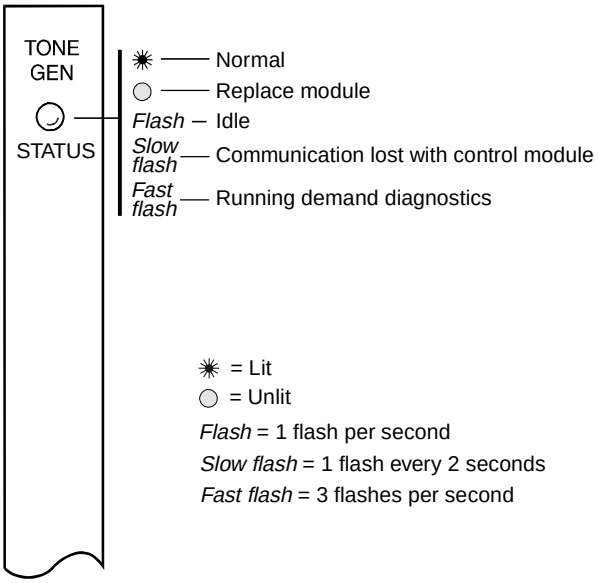


Figure 3-10. Tone-Generator Module

LED Label	State	Meaning
Status	ON	The module has passed diagnostics and is currently being used to generate tones.
	OFF	**NOTE:** The status LED may be off because the module has been administratively removed from the system. Determine whether the module has been administratively removed before replacing the module. The module has failed diagnostics. Replace the module. Refer to: ■ ‘‘Removing Communicore Modules’’ on page 8-9 ■ ‘‘Removing Communicore Modules Hot’’ on page 8-10 ■ ‘‘Installing Communicore Modules’’ on page 8-8 ■ The description for the **download** command on page 5-61
	FLASH (one/second)	The module is functional but is not currently generating tones. All diagnostics have passed. This is the normal operational state.
	SLOW FLASH (one every two seconds)	Communication with the control 360 module has been lost.
	FAST FLASH (three/second)	The module is running demand diagnostics.
	FLASH increasing to FLUTTER	The module has just been restored to service.

Network Hub Switches and Indicators

Your site contains one of these 2 types of network hubs:

- LattisHub 2814 10BASE-T Workgroup Concentrator
- StarLAN 10 Network SmartHUB Model B

The following sections explain the switches and indicators on these network hubs.

LattisHub 2814

LattisHub 2814s are used in all PM machines delivered after January 1, 1996. The two hubs for each PM machine are installed in the upper part of the 5ESS cabinet. Each of the two LANs in a PM machine has only one LattisHub.

The rear of each LattisHub unit is accessible from the rear of the cabinet.

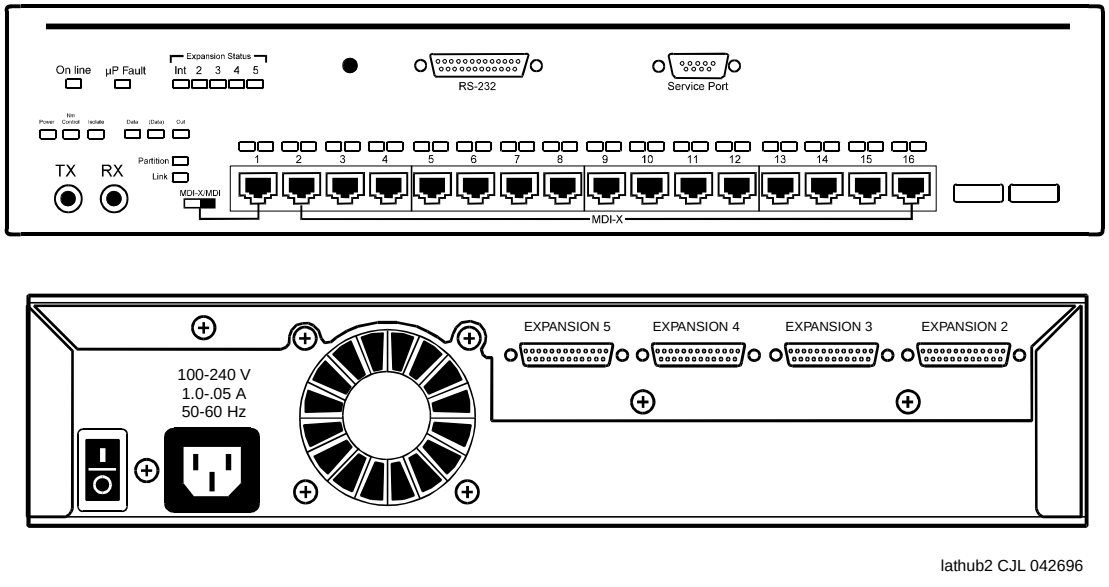


Figure 3-11. LattisHub 2814 10BASE-T Workgroup Concentrator (front and rear views)

Table 3-6. LattisHub 2814 10BASE-T Workgroup Concentrator

Switch/Indicator	Description
On Line LED (green)	On when the hub is operating. On while self-tests are running or if a download failed after eight attempts. FLASHES while the hub is waiting for a download or while a download is in progress.
µP Fault (yellow)	On indicates a fault in the hub's microprocessor. Also on during power-on self-test and reset. OFF while the hub is waiting for a download or while a download is in progress, and OFF when the hub is operating normally.
Expansion Status LEDs (green), INT and 2–5	Not used in this application.
Reset switch	Resets the hub when you press the switch by inserting a small, pointed instrument through the hole in the front panel. The effect is the same as power cycling the hub except that the Reset switch does not affect data integrity.
Power LED (green)	On when dc power is being delivered accurately to the hub.
NM Control LED (yellow)	Network Management Control LED. On indicates that the hub has been isolated (partitioned) from the cluster "backplane" or that one or more ports have been administratively partitioned.
Isolate LED (yellow)	Always OFF. This LED would be on only if the hub were connected to other hubs in a "cluster" but administratively isolated from them.
Data LED (green)	On when the hub is receiving data.
(Data) LED (green)	FLASHES briefly after each data transmission.
Col LED (yellow)	Collision LED. FLASHES each time a collision is detected.
Partition LED (yellow) and Link LED (green)	Not used. These LEDs indicate the status of the TX and RX 10BASE-FL Fiber Ports just to the left of the LEDs.
Link LED (green)	On if a port (MDI-X[a] 1 through 16) is connected to a PC NAU circuit card that is operating within prescribed limits. OFF if the port has been administratively partitioned.
Part LED (yellow)	On if a port (MDI-X 1 through 16) has been autopartitioned (isolated) because of excessively frequent or long-duration collisions or if it has been partitioned administratively.

a. media dependent interface

StarLAN 10 Network SmartHUB Model B

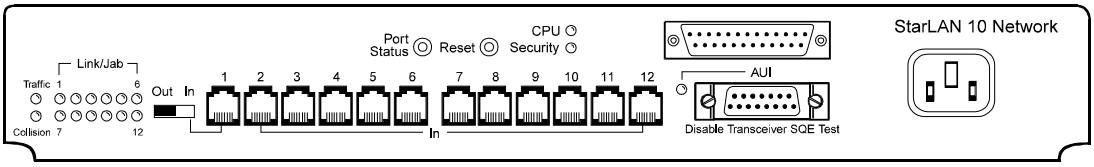


Figure 3-12. StarLAN 10 Network SmartHUB Model B

The StarLAN 10 Network SmartHUB Model B is used in PM machines at some sites. There are no controls, indicators, or connectors on the rear of these hubs.

Table 3-7. StarLAN 10 Network SmartHUB Model B

Switch/Indicator	Description
Port Status button	Press this button momentarily and watch the Link/Jab LEDs. A GREEN indicates that the port is on. When you release the button, the LEDs return to their link/jab indications. The AUI (autonomous unit interface) port and its LED are not used in this system, so you may ignore them.
Reset button	Press this button to reset the hub manually. The effects are the same as disconnecting and reconnecting power to the hub.
CPU LED	This LED can be RED, GREEN, AMBER, or OFF. ■ RED — the hub has failed diagnostics or that its temperature is too high. ■ GREEN — all hub functions are running normally. ■ Flashing AMBER while diagnostics are running, then remains AMBER for five seconds after the hub passes diagnostics. If the LED stays on longer, the hub's configuration memory is corrupted. ■ OFF indicates that power is removed from the hub.
Security LED	This LED can be RED, GREEN, AMBER, or OFF. The hub's security functions are not used by this system.

Continued on next page

Table 3-7. StarLAN 10 Network SmartHUB Model B — *Continued*

Switch/Indicator	Description
Traffic LED	■ Steadily ON — the hub is powered and operating normally but there is no traffic passing through it. ■ FLASHES — normal traffic is being received. ■ OFF — the power is off, or if power is on, that the hub has failed.
Collision LED	■ FLASHES — collisions are occurring in the hub. This is normal unless the LED is on almost continuously, which indicates wiring problems or other LAN faults. ■ OFF— there are no collisions on the hub or power is off or the hub has failed.
Link/Jab LEDs, 1-6 and 7-12	These LEDs correspond to the ports located to their right, labeled 1–12. The LEDs can be RED, GREEN, AMBER, or OFF. ■ OFF — the hub has tested the receive function for a port and found a failure, or power to the hub is turned off, or the connected PC NAU circuit card is off. ■ RED — a jab condition exists (excessively frequent or long-duration collisions) and the hub has turned off the port's receive function. ■ GREEN — the port's receive function is being tested and has been found normal. ■ AMBER — the port's receive function is *not* being tested but is normal.
Traffic LED (green)	■ Steadily on — the hub is powered and operating normally but there is no traffic passing through it. ■ FLASHES — normal traffic is being received. ■ OFF — power is off or the hub has failed.

Continued on next page

Table 3-7. StarLAN 10 Network SmartHUB Model B — *Continued*

Switch/Indicator	Description
Collision LED (amber)	FLASHES — collisions are occurring on the LAN. This is normal unless the LED is on almost continuously, which would indicate wiring problems or other LAN faults.
Out/In switch for port 1	If any device connected to this port is set to OUT, this switch must be set to IN. If any device connected to the port is set to IN, this switch must be set to OUT. SmartHUBs are connected in pairs in this system. Refer to the installation instructions for an explanation of how to set the Out/In switches of each pair of connected units. All the other ports, 2 through 16, are internally set to IN, permanently.
AUI LED	This LED indicates the status of the 15-pin (AUI) connector next to it, but the AUI connector is not used in this system.

Power-Up Procedures

Applying Site Power to the Cabinets and Components

These procedures apply power to the MAP 2000 and the PM cabinets and components.

Cabinet Power

1. Switch ON the source power for the 5ESS cabinets.
2. Measure -48 V dc ± 2.4 V dc at the fuse panel for each of the cabinets.
3. Verify that the L (lower) lamp on the alarm panel is ON for each cabinet.
4. Press the TST (test) button on the alarm panel and verify that the alarm sounds. Press the ACO (alarm cut-off) button to clear the alarm. Perform this test on each cabinet.

MAP/100C Power

1. Switch ON the circuit breaker on the rear of each MAP/100C and verify that the green indicator light goes on.
2. Switch ON the power switch on the front of each MAP/100C and verify that the green indicator light goes on.
3. Verify that the following fan status lamps are illuminated on the front of each MAP/100C:
    a. Drive bay
    b. CPU Rear Fans 1, 2, 3, and 4
    c. Pwr Sup (power supply)
    d. Check all the fan filters for cleanliness. If they need cleaning, refer to ''Cleaning the MAP/100C Fan Filters'' on page 8-2.
4. Open each MAP/100C front door and verify that the backplane voltage LEDs are illuminated. The LEDs listed below are located on the backplane below slots 12 and 13.
    a. CR1 +5 V
    b. CR2 -5 V
    c. CR3 +12 V
    d. CR4 -12 V

Communicore Power

1. Make sure that the power/maintenance module is seated completely in the proper backplane connector.
2. Connect the power cord first to the power/maintenance module in slot 16 of the upper subrack as shown in Figure 3-13.

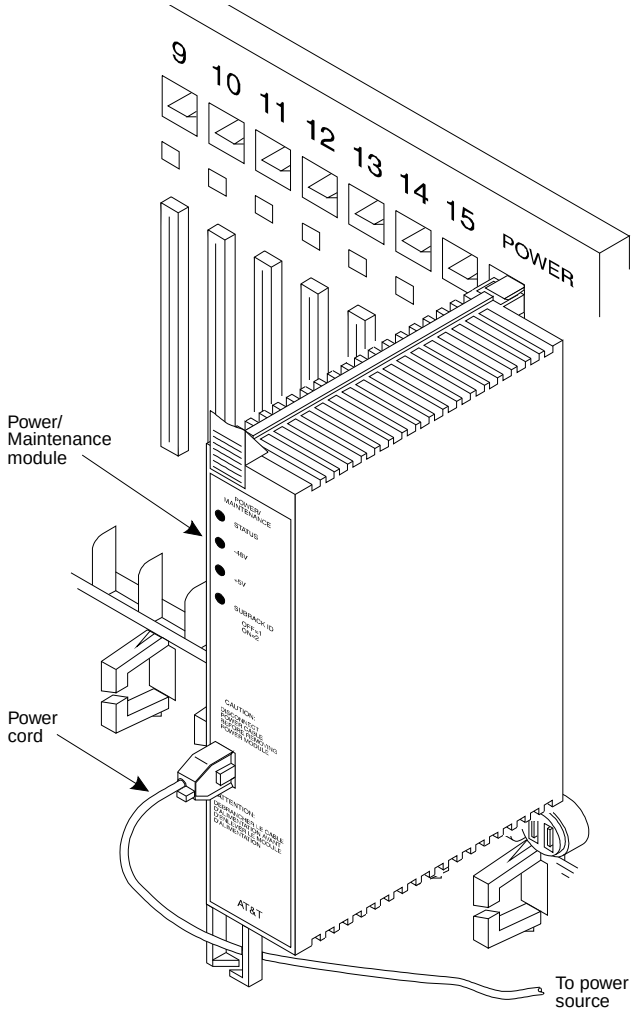


Figure 3-13. Applying Power to the Communicore

3. Connect the power cord to the power/maintenance module in slot 16 of the lower subrack.

After applying power, all LEDs on the inserted modules should light during the first five seconds and should stay on for at least 5 seconds. This allows you to confirm that the LEDs can go on. The LEDs then increase from flash to fast flash during initialization.

If no LEDs go on, the possible reasons are:

- The module is not seated properly.

  If this is the case, reseat the module. Snap the module in quickly to reseat it. You may have to reseat the module several times.

- There is no power to the power/maintenance module.

  Check to make sure that all power equipment is connected and is turned on.

- The power/maintenance module is defective.

  Replace the power/maintenance module.

  Refer to ‘‘Removing Communicore Modules’’ on page 8-9, ‘‘Removing Communicore Modules Hot’’ on page 8-10, ‘‘Installing Communicore Modules’’ on page 8-8, and the description for the **download** command on page 5-61.

- If all the LEDs are off, except for the -48 V LED on the power/maintenance module, suspect a short in the backplane.

  Replace the backplane/chassis assembly.

  CAUTION:
  Never connect power to the power/maintenance module when it is not inserted into the chassis. Always disconnect the power cord from the Power/Maintenance module before removing or inserting it.

4. Replace any module that is not working. See ‘‘Removing Communicore Modules’’ on page 8-9, ‘‘Removing Communicore Modules Hot’’ on page 8-10, ‘‘Installing Communicore Modules’’ on page 8-8, and the description for the **download** command on page 5-61.

LAN Power

Perform the power-up procedure. Refer to the *LattisHub 10BASE-T Workgroup Concentrators User’s Guide*, 893-573-A.

Perform the SmartHUB Power-Up LED Test. Refer to the *StarLAN 10 Network SmartHUB Installation and Operation Guide (for Model B and Model E),* 999120771.

Operating Procedures

Run Levels on the Machines

To view run levels for the machines, enter this UNIX command:

who -r

NOTE:
Run **who** on the machine you are logged into. **who** does not run on a remote machine.

Check the output. You should see the following states:

Machine	Run Level	Machine State
PM	Run level 3	ON state
	Run level 2	OFF state
VP	Run level 4	ON state
	Run level 3	OFF state

Power Cycling the VP

To power cycle the VP:

1. Perform the steps in ‘‘Gracefully Removing a VP from Service’’ on page 4-64.
2. Perform the steps in ‘‘Powering Down the Communicore’’ on page 3-35.
3. Perform the steps in ‘‘Powering Down the MAP/100C’’ on page 3-35.

Power Cycling the PM

To power cycle the PM:

1. Perform the steps in ‘‘Removing a PM from Service’’ on page 4-64.
2. Perform the steps in ‘‘Powering Down the MAP/100C’’ on page 3-35.

Normal Shutdown Procedures

CAUTION:
Before powering down a machine, make sure you have a current image tape, which you may need to bring the machine back up. Refer to ‘‘Making an Application IMAGE Tape’’ on page 4-70.

Powering Down the Communicore

To disconnect the Communicore from power:

1. Remove the VP from service by following the steps in ''Gracefully Removing a VP from Service'' on page 4-64.
2. After all active calls have dropped, disconnect the power cord from the power/maintenance module located in slot 16 of the upper subrack.
3. Disconnect the power cord from the power/maintenance module located in slot 16 of the lower subrack.

Powering Down the MAP/100C

1. Switch OFF the power switch on the front of the MAP/100C and verify that the green indicator light is off.
2. Switch OFF the circuit breaker on the rear of the MAP/100C and verify that the green indicator light is off.

Power Cycling and Downloading VP Firmware

Power cycling clears the system after a fault is cleared. This procedure resembles rebooting the system. These procedures should be performed only under the direction of Tier II or Tier III level support.

1. Perform the steps in ''Gracefully Removing a VP from Service'' on page 4-64.

   Wait for this prompt before continuing:

   ```
   Reboot system now.
   ```

2. Power down the MAP/100C. Refer to ''Powering Down the MAP/100C'' on page 3-35.
3. Power cycle the Communicore:
   a. Remove the power connector from the power module in subrack 2, then from the power module in subrack 1.
   b. Install the power connector in subrack 2 and then subrack 1.
4. Power up the MAP/100C.

   The reboot should take between 5 and 10 minutes.
5. From pm00 make the VP active by using the **machadm** command. When `startup voice system` displays on your screen, press ENTER**.**

   When the startup is completed, the login prompt displays.
6. Enter **chgstate -m <*mach_id*> off** and wait five minutes.
7. Enter **chgstate -m <*mach_id*> on**

8. Verify that the Communicore is active. Enter

   dispstatus -m <*mach_id*>

9. Download the VP firmware.

   CAUTION:
   *See the description of the **download** command on page 5-61 for instructions and warnings about downloading firmware.*

   To download the new firmware to the VP, first take the VP out of service with the **chgstate** command. After the firmware is downloaded, return the VP to service. Enter these commands:

   chgstate -m <*mach_id*> [**-g <*grace_period*>**] **mtce**
   download -m <*mach_id*> card all
   chgstate -m <*mach_id*> on
   chgstate -m <*mach_id*> off
   chgstate -m <*mach_id*> on

   Wait 5 minutes. If the VP is not active, cycle the Communicore by executing these commands:

   chgstate -m <*mach_id*> off
   chgstate -m <*mach_id*> on

   The commands in this step take about an hour to complete.

Emergency Operation or Degraded Operation

If You Lose a PM

A site needs only one functioning PM. TNM will still work with the site. It is *not* recommended, however, that you stay in this state for a long time. Troubleshoot the nonfunctional PM to get it functioning again.

If You Lose Both PMs

A site must have one functioning PM machine. When both PMs are nonfunctional, the site cannot provide service.

If You Lose T1s on the VP

If you lose outbound T1s, the system can still generate phone traffic. If you lose the D-channel, you lose the whole VP.

Software Installation and Administration

4

What's in This Chapter?

When every machine is installed and cabled, you are ready to perform site preparation, software installation, and initial site administration.

This chapter includes three major sections:

- Information to review before you begin
  - — An overview of the software you will be using
  - — Information about using the commands referenced in the checklists and the procedures
- Checklists

  Checklists refer you to the appropriate procedures you must perform for each task. This series of checklists tells you how to install a new site and how to reload and add individual machines at an existing site. Many of these checklists refer you to the procedures later in this chapter.
- Procedures

  The procedures in this chapter fall into 4 categories:
  - — Site preparation
  - — Software installation
  - — Site administration
  - — IP address administration

Before You Begin

This section contains basic information you should review before working through the checklists:

- An overview of the software you will be using
- Information about machine IDs

Software Overview

Platform Software

NAP platform software is preinstalled at the factory, but you may have to reinstall this software (for example, for disaster recovery) from the NAP 3.0 IMAGE tape. This is the software loaded on your machine after a NAP platform software install.

For this release of NAP, you receive the following software media:

- Two NAP 3.0 tapes: one for the VP and one for the PM. These are labeled:
  - — "Network Adjunct Platform (NAP) 3.0 VP IMAGE Tape"
  - — "PM Image Tape for 486 Hardware NAP 3.0/V6 (Custom for IETS)"

    NOTE:
    The CONVERSANT 6.0 system — which normally runs on a NAP 3.1 hardware configuration — runs on a NAP 3.0 PM hardware configuration for the WSN application.

- Four NAP 3.0 recovery-boot diskettes: one for the VP and three for the PM. These are labeled:
  - — "NAP 3.0 - VP Recovery-Boot Floppy"
  - — "Network Adjunct Platform (NAP) 3.1 Boot Floppy" (for PM)

    NOTE:
    The UnixWare operating system — which normally runs on a NAP 3.1 hardware configuration — runs on a NAP 3.0 PM hardware configuration for the WSN application.

Application Software

For this release, the application software is distributed on 1 tape with

- WSN 1.1 VP application image
- WSN 1.1 PM application image

The tape is labeled "WSN 1.1 Application Software."

Miscellaneous Software

Miscellaneous software you might need to install includes:

- Software patches
- Enhancement software for the platform and applications

Machine IDs

Machine IDs are denoted on the command line as ***mach_id***. A machine ID specifies the machine type and machine instance from the machine table (for example, vp01 or pm00).

Software Installation and Administration Checklists

These checklists are comprised of individual steps and references to the procedures at the end of this chapter. Copy these checklists so that you can reference the procedures easily.

The checklists are:

- ''Installing a New Site'' on page 4-5
- ''Installing a New VP at an Existing Site'' on page 4-7
- ''Reloading an Existing VP at an Existing Site'' on page 4-9
- ''Reloading an Existing PM at an Existing Site'' on page 4-11

CAUTION:
The order in which you perform the steps is determined by the task you are performing ***as specified in each checklist****, and not necessarily the order in which the procedures appear in the text.*

Installing a New Site

Use this checklist to prepare the hardware and firmware to receive the platform and application software.

Checklist: Installing a New Site

CAUTION:
Be sure to return to this checklist after completing each procedure until you finish the final installation step.

❒ 1. Install the monitor and keyboard:

To perform any of the procedures described in detail later, you must have a video monitor and keyboard. If the monitor and keyboard are not already installed, perform ‘‘Installing the Monitor and Keyboard’’ on page 4-13.

If you have more than one monitor and keyboard set, you can perform the software installation on multiple machines at the same time.

NOTE:
Make sure the hardware has been installed. See Chapter 2, ‘‘Hardware Installation’’.

❒ 2. Check the setup for the CMOS firmware.

The firmware is administered at the factory, but you should check the settings before loading the software; you may have to readminister the settings. If they are incorrect, perform ‘‘Checking and Administering CMOS and BIOS Firmware’’ on page 4-15.

❒ 3. Verify that you have the proper software. Perform ‘‘Verifying the Software Release’’ on page 4-20.

In this step you use the UNIX **displaypkg** command to confirm that all software is the current version.

❒ 4. Configure the LAN cards’ firmware on the PM machines. See ‘‘10-Mbps LAN Cards’’ on page 8-50.

❒ 5. Install the software, if necessary.

NOTE:
Although each machine comes loaded with software, this process may be needed for software upgrades and software reloads in case of disk failure.

(checklist continued)

(continued)

- If the preloaded software on the VP machines *is not* the NAP 3.0 VP software, perform ''Installing the VP Software'' on page 4-26 for every VP, using the NAP 3.0 VP IMAGE tape.

  This requires one diskette labeled "NAP 3.0 VP Recovery-Boot Floppy" and one tape labeled "Network Adjunct Platform (NAP) 3.0 VP IMAGE Tape."

- If the preloaded software on the PM machines *is not* the NAP 3.0 PM software, perform ''Installing the PM Software'' on page 4-33 (on both PMs), using the NAP 3.0 PM IMAGE tape.

  This requires three diskettes labeled "Network Adjunct Platform (NAP) 3.1 Boot Floppy" and one tape labeled "PM Image Tape for 486 Hardware NAP 3.0/V6 (Custom for IETS)."

  NOTE:
  The UnixWare operating system and CONVERSANT 6.0 system — which normally run on a NAP 3.1 hardware configuration — run on a NAP 3.0 hardware configuration for the WSN application.

❒ 6. Perform ''Administering a New Site'' on page 4-52.

❒ 7. Perform ''Checking Hardware Connectivity'' on page 4-57.

This step verifies LAN and Datakit connectivity using NAP diagnostic tools.

❒ 8. For pm00 and pm01, perform ''Checking TNM Connectivity'' on page 4-67.

This step checks TNM connectivity then generates test alarms to verify that TNM can receive them.

❒ 9. Perform ''Installing the Application Software'' on page 4-58.

❒ 10. Administer IP addresses for the LAN C cards in the PM machines. Perform ''Adding an IP Address for a PM'' on page 4-73.

❒ 11. Perform ''Core Maintenance Feature Package Administration and Verification'' on page 4-60.

❒ 12. Perform ''Checking 4ESS Connectivity'' on page 4-69.

❒ 13. For backup purposes, perform ''Making an Application IMAGE Tape'' on page 4-70.

❒ 14. If there have been any SU changes since the last image was made, for each machine type, perform ''Making an Application IMAGE Tape'' on page 4-70.

(end of checklist)

Installing a New VP at an Existing Site

Use this checklist when you replace a VP at the site.

Checklist:
Installing a New VP at an Existing Site

CAUTION:
Be sure to return to this checklist after completing each procedure until you finish the final installation step.

❒ 1. Perform ‘‘Installing the VP Software’’ on page 4-26 using the application VP image tape made at the site. See ‘‘Making an Application IMAGE Tape’’ on page 4-70 for more information about the image tape.

Installing VP software requires one diskette labeled “NAP 3.0 VP Recovery-Boot Floppy” and one tape labeled as the application VP IMAGE tape.

NOTE:
Although each machine is delivered loaded with software, this process might be needed for software upgrades and software reloads in case of disk failure.

❒ 2. After all VP software installation steps are complete, go to pm00 and make the machine active. Enter

machadm -a *<mach_id>*

❒ 3. On pm00, perform ‘‘Core Maintenance Feature Package Administration and Verification’’ on page 4-60. Perform only the procedures related to VPs.

In this step you use the Core Maintenance Feature package to make CMF tables match your site-specific card and module configurations and their connections.

(checklist continued)

(continued)

❒ 4. Start the application software on the new VP machine. On pm00, enter

chgstate -m *<mach_id>* on

where ***<mach_id>*** is the machine table ID of the new VP.

❒ 5. If the application is installed on the machine, put the D-channel in service and perform the 105 and 108 tests in TOPAS (Testing Operations Provisioning Administrative System). You must have all pertinent applications loaded to perform this step.

❒ 6. Set the outgoing 4ESS trunks to active on the 4ESS side. Restore the VP to service. Follow the steps in ‘‘Restoring a VP to Service’’ on page 4-65.

(end of checklist)

Reloading an Existing VP at an Existing Site

Use this checklist:

- To reload a VP that has suffered a hard-disk corruption or crash
- When a VP must be replaced because of some other hardware failure

Checklist: Reloading an Existing VP at an Existing Site

CAUTION:
Be sure to return to this checklist after completing each procedure until you finish the final installation step.

❒ 1. Perform the steps in ‘‘Gracefully Removing a VP from Service’’ on page 4-64.

NOTE:
The machine is being powered down. Make sure to perform all steps when you remove the VP from service.

❒ 2. Perform ‘‘Installing the VP Software’’ on page 4-26, using the application VP image tape made at the site. Refer to ‘‘Making an Application IMAGE Tape’’ on page 4-70 for more information about the image tape.

Installing VP software requires one diskette labeled “NAP 3.0 VP Recovery-Boot Floppy” and one tape labeled as the application VP IMAGE tape.

(checklist continued)

(continued)

❒ 3. Restore the administration for the VP that was loaded. On pm00, enter

restadm -r *<mach_id>*

where **-r *<mach_id>*** is the VP to be restored.

❒ 4. After every VP software installation step is completed, from pm00, perform ''Restoring a VP to Service'' on page 4-65.

In this step you use the **machadm** command to make changes in the machine table.

❒ 5. Use this command to start the application software on the reloaded machine:

chgstate -m <*mach_id*> on

chgstate -m <*mach_id*> off

chgstate -m <*mach_id*> on

where **<*mach_id*>** is the reloaded VP.

❒ 6. If the application is installed on the machine, put the D-channel in service and perform the 105 and 108 tests in TOPAS (Testing Operations Provisioning Administrative System). You must have all pertinent applications loaded to perform this step.

❒ 7. Set the outgoing trunks to active on the 4ESS side

(end of checklist)

Reloading an Existing PM at an Existing Site

In this checklist, the PM to be reloaded is referred to as the *problem PM*, and the other PM is referred to as the *working PM*.

If you need to reload both PMs, follow the instructions in ''Installing a New Site'' on page 4-5, but skip the step to install software on the VPs.

Checklist: Reloading an Existing PM at an Existing Site

CAUTION:
Be sure to return to this checklist after completing each procedure until you finish the final installation step.

❒ 1. On the working PM, perform ''Changing the Primary PM'' on page 4-59 and make the working PM the primary PM.

This step is necessary because before taking a PM out of service, you must make the other PM the primary PM.

❒ 2. On the primary PM perform ''Removing a PM from Service'' on page 4-64.

In this step you use the **machadm** command to make changes in the machine table.

❒ 3. If necessary, configure the LAN cards' firmware. See ''10-Mbps LAN Cards'' on page 8-50.

❒ 4. Perform ''Installing the PM Software'' on page 4-33. Use the application PM image tape. Refer to ''Making an Application IMAGE Tape'' on page 4-70 for more information about making an image tape.

Installing PM software requires three diskettes labeled "Network Adjunct Platform (NAP) 3.1 Boot Floppy" and one tape labeled "PM Image Tape for 486 Hardware NAP 3.0/V6 (Custom for IETS)."

NOTE:
The UnixWare operating system and CONVERSANT 6.0 system — which normally run on a NAP 3.1 hardware configuration — run on a NAP 3.0 hardware configuration for the WSN application.

❒ 5. After the software is reloaded and the machine has rebooted, enter

chgstate -m *<mach_id>* off

(checklist continued)

(continued)

❒ 6. Next, enter

chgstate -m *<mach_id>* on

where ***<mach_id>*** is the problem PM.

❒ 7. Make sure that both PMs are ON. Enter:

dispstatus -m pm00
dispstatus -m pm01

After entering each command, wait for the following message to display.

`The application is on.`

❒ 8. On the working PM, perform ''Restoring the Secondary PM's Administration Data'' on page 4-68.

This puts the machine table and previously backed-up administration data into the problem PM.

Perform this step only when one PM's administration data is corrupted or lost and you need to restore it from the other PM. (Be sure the data on the other PM is correct.)

❒ 9. On the working PM, log in as **root** and use the UNIX **rcp** command to preserve Datakit authorization. Enter

rcp *<working_PM_mach_id>*:/etc/opt/dk/dkuidtab *<problem_PM_mach_id>*:/etc

❒ 10. Make pm00 the primary PM using ''Changing the Primary PM'' on page 4-59.

(end of checklist)

Site Preparation Procedures

To install the software on a machine and to perform site-administration tasks, you must attach a keyboard and monitor to the machine.

The CMOS firmware is set at the factory. However, if you discover a problem when testing a system, you may need to check and readminister the CMOS firmware.

The procedures in this section are:

Installing the Monitor and Keyboard

Place one of the video monitors and one of the keyboards on a cart. When you are ready to install the software on a MAP/100C, push the cart to that machine and plug in the monitor and keyboard as described below. If several people are installing, you can set up another cart with a second monitor and keyboard.

The front panel is to the left of the diskette drive on the MAP/100C as shown in Figure 4-1.

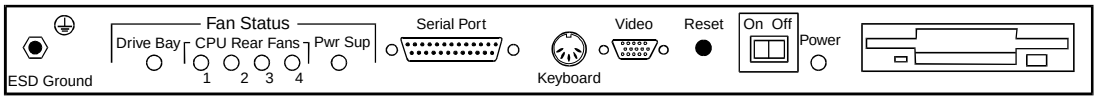


Figure 4-1. Video and Keyboard Connectors on Front User-Interface Panel

The rear user-interface panel is the same as the front panel but without the ON/OFF switch and fan status indicators. The rear panel is directly beneath the power-supply access door.

NOTE:
You can use either of the MAP/100C video connectors and either of the keyboard connectors, but not both video connectors at the same time, nor both keyboard connectors at the same time.

The video monitor and keyboard can be plugged in and unplugged while the system is running, without shutting it down.

Install the Monitor

The video monitor has a signal cable and a power cable, both permanently attached to the monitor.

- The signal cable has a 5-pin male connector that connects to the MAP/100C.
- The power cable has a standard plug that connects to the site power source at a standard 115 V ac outlet.

To install the monitor:

1. Plug the signal cable into the connector labeled Video on the MAP/100C unit's front or rear user-interface panel.
2. Plug the power cable into the 115 V ac 15A site outlet.
3. Turn the monitor power switch to ON.

   The screen lights up.

Install the Keyboard

The keyboard has one cable that is permanently attached to the keyboard. The cable has a 5-pin male connector that connects to the MAP/100C. Insert the keyboard cable 5-pin male connector into the 5-pin female connector labeled Keyboard on the MAP/100C unit's front or rear user-interface panel as shown in Figure 4-1.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Checking and Administering CMOS and BIOS Firmware

CMOS is the program that administers firmware and nonvolatile memory. BIOS is the basic input /output system used by the computing machinery.

NOTE:
Machine firmware is administered at the factory. However, if you find a problem when testing the system or replacing the CPU card, follow the steps outlined below.

To check and administer CMOS and BIOS firmware:

1. Connect the video monitor and keyboard to the machine you are administering.
2. Turn the monitor ON.
3. Power ON in one of the following ways:
   - If the machine is OFF, power ON.
   - If the machine is already ON:
     a. Log in as **root**.
     b. Enter this UNIX command

        shutdown -i0 -g0 -y

        This message displays on your screen:

        ```
        The system is down
        Press CTRL-ALT-DEL to reboot.
        ```

     c. Turn the machine power switch OFF.
     d. Turn the machine power switch ON.

   Copyright notices appear, then the memory test starts immediately. This message displays at the bottom of your screen:

   ```
   Press <ESC> To Enter Setup After Memory Test
   ```

4. Press ESC now (before the message disappears). When the memory testing finishes, the CMOS setup screen displays. The screen shows the BIOS version in the lower left corner:

   BIOS Version.....2.1c (20314)

   BIOS Date.....11/08/94

   If you do not see this version and date, perform the following procedure to upgrade the BIOS:

   a. Make sure that the CMOS setup disk is writable.
   b. Verify that the disk is labeled “486CPU Version 2.1c BIOS” Comcode 107406811.

c. Enter **chgstate down**

d. Insert the diskette into the machine.

e. Reboot the machine (ideally, with the reset button).

The following message (or a similar one) appears:

```
Starting MS-DOS
```

The following screen displays:

```
This is the boot disk containing the utilities to update the
486 CPU board with Version 2.1c BIOS

When the red Programming Status bar reaches 100 percent,
indicating that the operation is COMPLETE, remove the floppy
and press any key to automatically reset the machine.

Press any key to continue . . .



    o=================================================o
    |               Flash Function                    |
    |=================================================|
    |                                                 |
    |   Enter:  Program New BIOS                      |
    |   ESC:    Abort and Reset System                |
    |                                                 |
    o=================================================o
```

f. Press ENTER.

The firmware is upgraded.

g. Remove the diskette.

h. Power cycle the machine.

Copyright notices appear, then the memory test starts immediately. This message displays at the bottom of your screen:

```
Press <ESC> To Enter Setup After Memory Test
```

i. Press ESC now (before the message disappears). When the memory testing finishes, the CMOS setup screen displays.

5. Make sure the values on the screen match those provided in Table 4-1 and Table 4-2.

NOTE:
When working with the CMOS setup screen, use the arrow keys:

- Use the up and down arrow keys (▲, ▼) to select entries.
- Use the left and right arrow keys (◄, ►) to change entries.

Table 4-1. CMOS Settings — Main Setup Screen

Main Setup Screen	Diskette A	3½, 1.44Mbyte
	Diskette B	Not Installed
	Hard Drive 1	SCSI Installed
	Hard Drive 2	Not Installed
	Video Adapter	VGA/EGA
	Keyboard	Installed
	Diskette Verify	Enabled
	Bus Speed	8.33
	DMA Speed	4.16
	Cache	Enabled

6. Press F3 to display the Advanced System Configuration Options menu. From this menu you can get to the Advanced CPU setup screens described in Table 4-2.
7. To display an Advanced CPU Setup screen, press the corresponding function key, F2 through F10.

Table 4-2. CMOS Settings — Advanced Setup Screens

Screen	Option	Should be Set At
Shadow Option ROMS F2 **NOTE:** Enabled is highlighted. Disabled is not highlighted.	All Addresses	Disabled (not highlighted)
Serial/Parallel Port Assignments F3	UART Number 1	03F8 IRQ4
	UART Number 2	02F8 IRQ3
	Parallel Port	Disabled
Wait State Selection F4	82C206 Read/Write Cycle	2 Wait States
	I/O Command Recovery Time	4 Bus Clocks
	16-Bit DMA	2 Wait States
	8-Bit DMA	2 Wait States
	DMA Address Hold	1-2 CPU Clocks
	DMA CAS Timing Delay	1 CPU Clock
	Memory Wait States	2 Wait States
Shadow RAM Cache Definitions F5	All Addresses	Non-Cacheable
Floppy Controller Interface F6	Floppy Controller	External
	IDE Interface	External
Customized Hard Drive Table Entry F7	Type 48	0 0 0 0 0 0
	Type 49	0 0 0 0 0 0
Memory Relocation F8	Memory Remapping	Disabled
Non-Cacheable Address Definitions F9	Address block 1.	Disabled
	Address block 2.	Disabled
Floppy Controller Port Assignments F10	Port Address	3F0H

8. At each Advanced CPU Setup screen, input the values in Table 4-2.
9. Press ENTER to return to the Advanced System Configuration Options menu.
10. Repeat steps 7 through 9 for each Advanced CPU Setup screen.
11. When you are finished inputting values to all of the Advanced CPU Setup screens, press ESC to save your entries and reboot the system.

12. If you upgraded the BIOS, use the UNIX **date** command to replace the local machine's time and date.

    Enter the new date and time at the prompt using this format:

    date <*mmddhhmmyyyy*>

    Where:

mm	Month: 01 to 12
dd	Day: 01 to 31
hh	Hour: 00 to 23
mm	Minute: 00 to 59
yyyy	Year: 1996, 1997, 1998, etc.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Verifying the Software Release

Use the UNIX **displaypkg** command to check the software release numbers on each machine. On each machine, enter

displaypkg

Verify the NAP 3.0 Software on the VP

The NAP 3.0 VP has the software installed as shown in the following screen example. If your software does not match the screen shown below, reload your machine with the NAP 3.0 VP IMAGE tape. Refer to ''Installing the VP Software'' on page 4-26.

```
     The following software packages have been installed:

CONVERSANT VIS V4.0 Configuration Package
CONVERSANT VIS V4.0 Application Software
CONVERSANT VIS V4.0 Application Software Update 1
CONVERSANT VIS V4.0 Feature Test Script Package
CONVERSANT VIS V4.0 T1 Board Driver
CONVERSANT VIS V4.0 SP Board Driver
CONVERSANT VIS V4.0 External Alarm Interface Package (Denver Modified)
CONVERSANT VIS V4.0 Text To Speech Package
Core Maintenance Features (CMF) (VP - CVIS V4.0) V3.0 R1.0 [mm/dd/yy]
C Software Development Set 4.1.5
Editing Package Version 2.1
Enhanced vi Editor - Version 1.0
Extended Terminal Interface Package Version 2.0
FACE HELP Version 1.2
FACE Version 1.2.2
FMLI Version 1.2
MAP2000 Downloadable Firmware [R#.#.#]
MAP2000 V2.1 Base System [mm/dd/yy]
Network Support Utilities Package (1.2) Version 2.1
AT&T 386 Network Interface Release 2.0
Perl version 5.001 unofficial patchlevel 1m 1
SCSI Support Package - Version 2.3
Site Management Support (SMS) (VP - CVIS V4.0) V2.0 R1.0[mm/dd/yy]
Software Update Package - Denver - Version 4.0
Remote Terminal Package Version 2.1
UNIX System V/386 Release 3.2 Upgrade - Version 2.2 to Version 2.3
UNIX System V/386 Release 3.2 Version 2.3 Maintenance Disk #1
AT&T Enhanced TCP/IP WIN/386 Release 3.2
```

NOTE:
The bracketed [mm/dd/yy] and the bracketed [R#.#.#] in the screen shown above indicate that these are packages supplied by Denver CAFS and that the dated versions may change. The dates and version numbers depend on the most current release. If you are unsure whether you have the most current release, call the appropriate support organization for current information.

Verify the NAP 3.0 Software on the PM

The NAP 3.0 PM has the software installed described in the following screens. If your software does not match the screen shown below, reload the machine with the NAP 3.0 PM IMAGE tape. Refer to ‘‘Installing the PM Software’’ on page 4-33.

```
INTUITY Platform CONVERSANT Tuning
INTUITY UnixWare 1.1.2 Enhancement Set
Enhanced Application Compatibility
UnixWare for Intuity
Adobe Type Manager(TM)
ATM Basic Fonts
Base System
Extended Backup and Restore
BSD Compatibility
Optimizing C Compilation System
Command Reference
Advanced Commands
BSD compatibility package
Core Maintenance Features (CMF) (OAM&P - INTUITY) V3.0 R1.0[mm/dd/yy]
Device Driver Programming
Device Driver Reference
Desktop Manager Development
Desktop Manager
Distributed File System Utilities
Applications and Demos
Networked Graphics
Graphics Utilities
XWIN GWS Development
```

```
XWIN GWS Fonts
Editing Package
Enhanced Debugger
SMC LAN Adapter Setup program
Files & Devices Reference
Fingertip Librarian
Form and Menu Language Interpreter
Graphics User Interface Programming
IHV Sample Source
Internet Utilities
Internet Reference
Installit utility for Wichita
INTUITY UnixWare 1.1.2 Platform Enhancements Extension
ISV Sample Source
User Upgrade
Printer Support
Motif Development Package
Memory driver edition C (CMemdrvr) from Microport
Motif API Reference
Mouse Driver Package
Motif Runtime Package
INTUITY Utilities Package
Commands Networking Extension
```

```
Network Programming Interface
NFS/RPC/NIS Administration
INTUITY External Alarms Package (Denver Modified)
Network Support Utilities
Netware C Interface Reference
NetWare C Interface Programming
NetWare Tranports
OA&M
INTUITY Base ORACLE RDBMS 7.0.12
INTUITY Extended ORACLE RDBMS 7.0.12
Operating System API Reference
Portable Device Interface
Perl version 5.001 unofficial patchlevel 1m
INTUITY Logger/Alerter Package
Process driver V1 from Microport
Programming in Standard C
Cartridge Tape Utilities
Remote Procedure Calls Utilities
Software Development Set Update
UNIX Software Development Tools
Sftwr Chg, Admin, & Notify Sys (SCANS) (OAM&P - INTUITY) V1.0 R1.0[mm/dd/yy]
Site Management Support (SMS) (OAM&P - INTUITY/CVIS4.0) V2.0 R1.0[mm/dd/yy]
SMC Ethernet Device Driver ISA
Software Packaging Tools
```

```
Software Update Package - Denver - Version 4.0
STREAMS Modules and Drivers
Introduction to System Administration
Programming with UNIX System Calls
TCP/IP Administration
Termcap Compatibility Package
Terminfo Utilities
UnixWare Update 1.1.1
UnixWare Update 1.1.2
VGA256 Video Driver for UnixWare
VERITAS File System
VERITAS Volume Manager
Windowing System API Reference
Windowing Korn Shell
Motif Programming Guide
Motif Style Guide
XWIN Screen Interface Specification
```

NOTE:
The bracketed `[mm/dd/yy]` in the screens shown above indicates that the packages are supplied by Denver CAFS and that the dated versions may change. The dates and version numbers depend on the most current release. If you are unsure whether you have the most current release, call the appropriate support organization for updated information.

If you are following the ‘‘Installing a New Site’’ checklist, this completes this procedure. Return to the checklist on page 4-5.

Verify the WSN 1.1 Software on the VP

The WSN 1.1 VP has the following software installed. If your software does not match the screen shown below, reload your machine with the WSN 1.1 VP IMAGE tape. Refer to ‘‘Installing the Application Software’’ on page 4-58.

```
CONVERSANT VIS V4.0 Configuration Package
CONVERSANT VIS V4.0 Application Software
CONVERSANT VIS V4.0 Application Software Update 1
CONVERSANT VIS V4.0 Feature Test Script Package
CONVERSANT VIS V4.0 T1 Board Driver
CONVERSANT VIS V4.0 SP Board Driver
CONVERSANT VIS V4.0 External Alarm Interface Package (Denver Modified)
CONVERSANT VIS V4.0 Text To Speech Package
Core Maintenance Features (CMF) (VP - CVIS V4.0) V3.0 R1.0[mm/dd/yy]
C Software Development Set 4.1.5
Editing Package Version 2.1
Enhanced vi Editor - Version 1.0
Extended Terminal Interface Package Version 2.0
FACE HELP Version 1.2
FACE Version 1.2.2
FMLI Version 1.2
Internet Enhanced Telphony Service (IETS) (VP - CVIS V4.0) V1.1 R1.1
[mm/dd/yy]
MAP2000 Downloadable Firmware [R#.#.#]
MAP2000 V2.1 Base System [mm/dd/yy]
Network Support Utilities Package (1.2) Version 2.1
AT&T 386 Network Interface Release 2.0
Perl version 5.001 unofficial patchlevel 1m 1
SCSI Support Package - Version 2.3
Site Management Support (SMS) (VP - CVIS V4.0) V2.0 R1.0[mm/dd/yy]
Software Update Package - Denver - Version 4.0
Remote Terminal Package Version 2.1
UNIX System V/386 Release 3.2 Upgrade - Version 2.2 to Version 2.3
UNIX System V/386 Release 3.2 Version 2.3 Maintenance Disk #1
AT&T Enhanced TCP/IP WIN/386 Release 3.2
```

NOTE:
The bracketed [mm/dd/yy] and the bracketed [R#.#.#] in the screen shown above indicate that the packages are supplied by Denver CAFS and that the dated versions may change. The dates and version numbers depend on the most current release. If you are unsure whether you have the most current release, call the appropriate support organization for updated information.

Verify the WSN 1.1 Software on the PM

The WSN 1.1 PM has the software installed that is shown in the following example screens. If your software does not match the screen shown below, reload your machine with the WSN 1.1 PM IMAGE tape. Refer to ‘‘Installing the PM Software’’ on page 4-33.

```
INTUITY Platform CONVERSANT Tuning
INTUITY UnixWare 1.1.2 Enhancement Set
Enhanced Application Compatibility
UnixWare for Intuity
Adobe Type Manager(TM)
ATM Basic Fonts
Base System
Extended Backup and Restore
BSD Compatibility
Optimizing C Compilation System
Command Reference
Advanced Commands
BSD compatibility package
Core Maintenance Features (CMF) (OAM&P - INTUITY) V3.0 R1.0[mm/dd/yy]
Device Driver Programming
Device Driver Reference
Desktop Manager Development
Desktop Manager
Distributed File System Utilities
Applications and Demos
Networked Graphics
Graphics Utilities
XWIN GWS Development
```

```
XWIN GWS Fonts
Editing Package
Enhanced Debugger
SMC LAN Adapter Setup program
Files & Devices Reference
Fingertip Librarian
Form and Menu Language Interpreter
Graphics User Interface Programming
IHV Sample Source
Internet Utilities
Internet Reference
Installit utility for Wichita
Internet Enhanced Telephony Service (IETS) (OAM&P - INTUITY) V1.1 R1.1
                                                              [mm/dd/yy]
INTUITY UnixWare 1.1.2 Platform Enhancements Extension
ISV Sample Source
User Upgrade
Printer Support
Motif Development Package
Memory driver edition C (CMemdrvr) from Microport
Motif API Reference
Mouse Driver Package
Motif Runtime Package
INTUITY Utilities Package
```

```
Commands Networking Extension
Network Programming Interface
NFS/RPC/NIS Administration
INTUITY External Alarms Package (Denver modified)
Network Support Utilities
Netware C Interface Reference
NetWare C Interface Programming
NetWare Tranports
OA&M
INTUITY Base ORACLE RDBMS 7.0.12
INTUITY Extended ORACLE RDBMS 7.0.12
Operating System API Reference
Portable Device Interface
Perl version 5.001 unofficial patchlevel 1m
INTUITY Logger/Alerter Package
Process driver V1 from Microport
Programming in Standard C
Cartridge Tape Utilities
Remote Procedure Calls Utilities
Software Development Set Update
UNIX Software Development Tools
Sftwr Chg, Admin, & Notify Sys (SCANS) (OAM&P - INTUITY) V1.0 R1.0[mm/dd/yy]
Site Management Support (SMS) (OAM&P - INTUITY/CVIS4.0) V2.0 R1.0[mm/dd/yy]
```

```
SMC Ethernet Device Driver ISA
Software Packaging Tools
Software Update Package - Denver - Version 4.0
STREAMS Modules and Drivers
Introduction to System Administration
Programming with UNIX System Calls
TCP/IP Administration
Termcap Compatibility Package
Terminfo Utilities
UnixWare Update 1.1.1
UnixWare Update 1.1.2
VGA256 Video Driver for UnixWare
VERITAS File System
VERITAS Volume Manager
Windowing System API Reference
Windowing Korn Shell
Motif Programming Guide
Motif Style Guide
XWIN Screen Interface Specification
```

NOTE:
The bracketed `[mm/dd/yy]` in the screens shown above indicates that the packages are supplied by Denver CAFS and that the dated versions may change. The dates and version numbers depend on the most current release. If you are unsure whether you have the most current release, call the appropriate support organization for current information.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Software Installation Procedures

The procedures listed in this section are used in conjunction with the checklists earlier in this chapter. These procedures can also be used independently of those checklists if you need to perform specific installation tasks.

The procedures in this section are:

Installing the VP Software

Perform this procedure if:

- The preloaded software on your VPs is *not* the NAP 3.0 VP software, and that is what you want.
- You are reloading a machine with the application’s VP image tape.

This procedure includes two processes summarized in the items below (detailed steps follow):

- Reading the boot recovery diskette, which reformats the hard disk, sets up the file system, reboots the system, and prompts for the appropriate VP image tape.
- Reading the NAP 3.0 VP image tape or the application VP image tape, which loads the VP software, runs the **smssetup** program, and reboots the machine (returns the machine to the ON state).

For this procedure, you must have:

- One diskette labeled “NAP 3.0 - VP Recovery-Boot Floppy”
- One tape labeled “Network Adjunct Platform (NAP) 3.0 VP IMAGE Tape” or the application VP IMAGE tape
- The root and install passwords for the site
- The uname and matching machine index for this VP as defined in the machine table for your architecture
- The Communicore subrack 1 and subrack 2 powered up, if this is a MAP 2000 machine

Perform these steps to install the VP software:

1. If this VP is in service, enter the following command on the PM.

   chgstate -m *<mach_id>* down

   where ***<mach_id>*** is the VP on which you want to install software. Wait for the machine to display the `reboot` prompt.

2. Turn the power to the machine OFF at the ON/OFF switch on the front user-interface panel.

3. Insert the diskette labeled “NAP 3.0 - VP Recovery-Boot Floppy” in the diskette drive. Make sure that the diskette is write enabled.

4. Turn the power to the machine ON.

   A screen similar to the following displays:

```
Network Adjunct Platform (NAP) VP or Application VP Software Installation

To complete this installation, you will also need the NAP VP Image Tape or
the appropriate Application VP Image Tape that was made at the site.
Follow all on-line instructions carefully! Here are the steps so that you
can plan your installation time.

1) The disk is partitioned, cylinders are checked and file systems created.
This completes in 30 minutes and you are instructed to remove the floppy
and to reboot the system.

2) After the system boots in 40 seconds, you are prompted to insert the
tape.

3) All necessary software and data is copied from tape to hard disk in
about 20 minutes.

4) The last step is to name the VP machine this installation is
for. Follow the on-line instructions. The machine reboots and
the installation is complete.

If a failure occurs, follow instructions given, or start over.

Enter return to begin the VP Software Installation.
```

5. Press ENTER to begin the installation.

   CAUTION:
   To prevent system errors, do not respond to messages displayed during the installation.

   Messages are displayed on your console throughout the installation. Some of these messages appear to be questions for the user, but those questions are answered automatically by the installation software. Do not respond to installation questions until you see this message:

   ```
   Reboot the system now.
   ```

6. When you see the reboot message, ***wait for the disk drive light to remain off for at least 30 seconds***. Then remove the diskette from the drive.

   CAUTION:
   If you do not wait, the diskette will be corrupted and you will not be able to use it again.

7. Reboot the machine by simultaneously pressing CTRL ALT DEL.

   NOTE:
   If the reboot doesn't work, try pressing CTRL ALT DEL using the DEL on your keyboard's number pad. NUM LOCK must be turned off.

   Your screen goes blank, and after a few minutes, this message appears on the screen:

   ```
   Insert the appropriate VP Image Tape in drive
   and press <ENTER>
   ```

8. Insert the NAP 3.0 VP IMAGE tape or application VP image tape into the tape drive and press ENTER.

   There is no immediate response while the tape retensions. Then the tape is read and file names are displayed on the screen. Reading in the tape takes about 40 minutes.

   NOTE:
   If an I/O error occurs at this point, start over at step 2.

   CAUTION:
   Do not enter anything until you are prompted.

9. At the end of the tape installation you are prompted for the passwords for the root and install login IDs. These are provided by the TCC adjunct group.

10. The **smssetup** command is invoked automatically. This screen appears:

```
============================================================
|                        Machine Table                     |
============================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
001      pm00     pm      00        N      S             N
002      pm01     pm      01        N      S             N
003      vp00     vp      00        N      S             N

This machine is a vp machine.
Enter the Machine Index value of the vp that this machine is to be.
--> 3
```

11. Enter the VP machine index value (for example, enter 3 for vp00 as shown in the next screen).

> **NOTE:**
> Machine index 003 represents all VPs. You *must* select 003 regardless of the VP machine's ID on which you are installing software. You will change the machine table in later steps to have entries for all the appropriate machines and you will rerun **smssetup**.

The following machine table record screen displays. Perform the online instructions:

```
You have selected this machine to be the following.
============================================================
|                      Machine Table Record                |
============================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
003      vp00     vp      00        N      S             N
Is this what you want this machine to be?
Confirm (y/n) [y] --> y
This is a vp type machine, and will have the system name of vp00.
This name will be used in all the networking files.
However, there may be a need to give this machine a different system uname
and matching alias in the networking files for Datakit compatibility.
Do you want to use the system uname of vp00? (y/n) [n] --> y
/usr/add-on/sms/bin/smssetup: sysname=vp00 nodename=vp00 setup
/usr/add-on/sms/bin/smssetup: /etc/hosts setup
/usr/add-on/sms/bin/smssetup: /.rhosts setup
/usr/add-on/sms/bin/smssetup: /etc/hosts.equiv setup
/usr/add-on/sms/bin/smssetup: /etc/networks setup
/usr/add-on/sms/bin/smssetup: /etc/services setup
/usr/add-on/sms/bin/smssetup: /usr/etc/inetinit.cf setup
/usr/add-on/sms/bin/smssetup: /usr/etc/inetinit.cf setup
This machine successfully set up as vp00, with system name vp00.
```

12. When you are prompted to reboot your system, make sure the tape drive is empty. Simultaneously press CTRL ALT DEL to reboot your newly configured UNIX system.

    NOTE:
    If the reboot doesn't work, try pressing CTRL ALT DEL using the DEL on your keyboard's number pad. NUM LOCK must be turned off.

13. When the following message displays on your VP screen,

    ```
    startup of the voice system is complete
    ```

    press ENTER**.**

    The login prompt displays.

14. Log in as **root**.

15. Verify that all resource cards (rcards) are in the MANOOS state by using the **dispstatus** command.

16. If all rcards are not MANOOS, remove them from service. Enter

    remove rcard all immed

    NOTE:
    If you are installing VP software for a new machine, skip this note. If you are ***reloading or updating*** VP software and if all rcards are in the MANOOS state, you do not need to perform steps 17 through 25. Instead, enter the following commands:

    chgstate
    chgstate off
    chgstate on

    This completes the VP software installation. Return to the procedure or checklist that sent you to this procedure.

17. Enter the following CONVERSANT commands to readminister the functions of the resource cards:

    spfunc 1 voice
    spfunc 2 pri
    spfunc 3 tts
    t1prot 0 pri

    Several questions and messages display as a result of the **t1prot** command.

18. Respond to the prompts:

    - For `D-Channel on card`, enter **y**.
    - At each of the other prompts, press ENTER to select the default.

```
PROTOCOL CONFIGURATION DATA.  (Valid options
or option ranges are enclosed in the first set of
square brackets and default values are enclosed
in the second set of square brackets)

NOTE:   Hitting the <ENTER> key without entering a
value when prompted, will result in the assignment
of the default value for that protocol parameter.

Framing/Line Coding [d4czs/esfb8zs] [esfb8zs]:
CSU Distance [0 - 4] [0]
D-Channel on card [y/n [n]:  y
User or Network Side [u/n] [u]
Incoming Speech Volume [0 - 32000] [1414]:
Outgoing Speech Volume [0 - 32000] [707]:
Outgoing Text Volume [0 - 32000] [1000]:
DTMF Muting [y/n] [n]:
```

19. Restore the cards to service. Enter

    restore rcard all

    NOTE:
    You may have to press ENTER several times to get through the scrolling list.

20. Reboot the VP. Enter

    chgstate reboot

    Wait for the machine to fully initialize before proceeding.

    The follow message displays:

    ```
    Startup of voice system is complete.
    ```

21. Press ENTER.
22. Log in as **root**.
23. Enter **chgstate off**
24. Enter **chgstate on**

    Wait five minutes.

25. Download the VP firmware. Enter the following commands in this order:

    dispstatus
    chgstate mtce
    download card all
    chgstate on
    chgstate off
    chgstate on

    NOTE:
    The **dispstatus** command verifies that the Communicore is active before performing the **chgstate** command. The **chgstate mtce** command takes the VP out of service before downloading the new firmware. After the firmware is downloaded, the VP is returned to the ON state by using the series of **chgstate** commands.

    NOTE:
    Wait a few minutes before running the **dispstatus** command. Channels don't come into service right away. The application must initialize itself first.

    NOTE:
    See the description of the **download** command on page 5-61 for instructions and warnings about downloading firmware.

    Wait 5 minutes. If the VP is not active at that time, you may have to troubleshoot the download. These commands may take two minutes in the best case or an hour to complete the download portion.

    NOTE:
    If you have problems downloading the VP firmware, refer to ''Troubleshooting the Firmware Downloads'' on page 6-30.

This completes the VP software installation. Return to the procedure or checklist that sent you to this procedure.

Installing the PM Software

Perform this procedure if:

- The preloaded software on your PMs is *not* the NAP 3.0 PM software, and that is what you want.
- You are reloading a machine with the WSN application PM IMAGE tape.

This procedure includes 4 processes:

- Reformatting the hard disk and setting up the file system, which involves
  - — Setting up the UnixWare environment
  - — Initializing the hard-disk drives
  - — Transferring the UnixWare files
- Loading the PM software, which reads the NAP 3.0 application PM image tape
- Running the **volinstall** utility
- Running the **smssetup** program

To install PM software, you must have:

- 3 diskettes labeled “Network Adjunct Platform (NAP) 3.1 Boot Floppy”

  NOTE:
  The UnixWare operating system — which normally runs on a NAP 3.1 hardware configuration — runs on a NAP 3.0 PM hardware configuration for the WSN application.

- 1 tape labeled “PM Image Tape for 486 Hardware NAP 3.0/V6 (Custom for IETS)” or an application PM IMAGE tape

  NOTE:
  The CONVERSANT 6.0 system — which normally runs on a NAP 3.1 hardware configuration — runs on a NAP 3.0 PM hardware configuration for the WSN application.

- The root and install passwords for the site
- The uname and matching machine index for this PM as defined in the machine table for your architecture
- The Datakit system name for this PM

  NOTE:
  The Datakit system name is a 7-character name. Contact the TCC or PMO for the correct Datakit system name.

To install the PM software, perform the following 4 processes.

Reformat Hard Disk and Set Up File System

1. If this PM is in service, remove it from service. See ‘‘Removing a PM from Service’’ on page 4-64.

   After removing the PM from service, wait for the PM to display the reboot prompt:

   ```
   Press CTLR ALT DEL to reboot
   ```

   Do *not* press CONTROL ALT DEL. Instead, go to step 2.

   If this PM is not in service, start with step 2.

2. Turn the power to the machine OFF at the ON/OFF switch on the front user-interface panel.
3. Insert the diskette labeled “Network Adjunct Platform (NAP) 3.1 Boot Floppy Disk 1 of 3” in the diskette drive. Make sure that the disk is write-enabled.
4. Turn the power to the machine ON at the ON/OFF switch and wait about 5 minutes.

   The system displays the UnixWare introduction screen as it begins to load the base system software. When the system has loaded the first diskette, it displays the following screen (Figure 4-2).

```
Remove the diskette labeled “Boot Floppy 1 of 3”.

If you have a diskette labeled “Host Bus Adapter Drivers” insert that
diskette now.

For more information on Host Bus Adapter Drivers, see the UnixWare
Installation Handbook.

Otherwise, if you do not have (or do not need to use) a Host Bus
Adapter Drivers diskette, insert the diskette labeled “Boot Floppy
2 of 3”

Press ENTER to continue.
```

Figure 4-2. Instruction Screen

   You do not need to install host bus adapter drivers.

5. Remove disk 1 and insert disk 2.
6. Press ENTER.

   The system displays the following message:

   ```
   Continuing UnixWare installation...
   ```

   After approximately 2 minutes, the system displays the Introduction screen (Figure 4-3).

```
Welcome to the UnixWare installation process!

If you have never installed UnixWare before, it is
recommended that you press the 'F1' (or '?') key now to
learn more about the installation process and the hardware
requirements of UnixWare.

-Pressing the 'F1' (or '?') key at any time during
 installation will display more information or help.

-Pressing the 'Del' key at any time cancels the
installation.

Press the 'F1' (or '?') key for more information or
'ENTER' to continue.
```

Figure 4-3. Introduction Screen

CAUTION:
If you use the DELETE key to stop the UnixWare installation at any time during this process, you will have to restart the software installation process at Step 1.

NOTE:
If the system displays a message that the system must have at least 60 Mbyte of space in the hard-disk drive to install UnixWare, the hard-disk drive is experiencing problems. The cable may not be connected, or the hard disk drive may be damaged. Power down the system and check the hard-disk drive cables.

7. Press ENTER.

   Continue with the next procedure, "Setting Up the UnixWare Environment for a PM."

Setting Up the UnixWare Environment for a PM

To set up the UnixWare environment, perform the following steps:

1. Starting at the Introduction Screen (Figure 4-3), press ENTER.

   The system displays the Keyboard Setup screen (Figure 4-4).

```
The UnixWare installation procedure supports the following
international keyboards. You may select alternate keyboard types
by using the left and right arrow keys and then press the 'ENTER'
or 'RETURN' key.

Keyboard Nationality:

                    Apply          Reset

When Finished, move the cursor to "Apply and then press 'Enter' to
continue.
```

Figure 4-4. Keyboard Setup Screen

   This screen displays the `Keyboard Nationality` data entry field. The default is `U.S. ASCII`.

   NOTE:
   When working with the UnixWare setup screens, use the arrow keys:

   - Use the left and right arrow keys (◄, ►) to display different selections for the data entry fields.
   - Use the up and down arrow keys (▲, ▼) to move between the data fields and the Accept and Reset boxes.

2. Accept the default keyboard nationality, `U.S. ASCII`, by pressing ▼ to highlight the Apply box and then pressing ENTER.

   The system displays the Configure Date and Time screen (Figure 4-5).

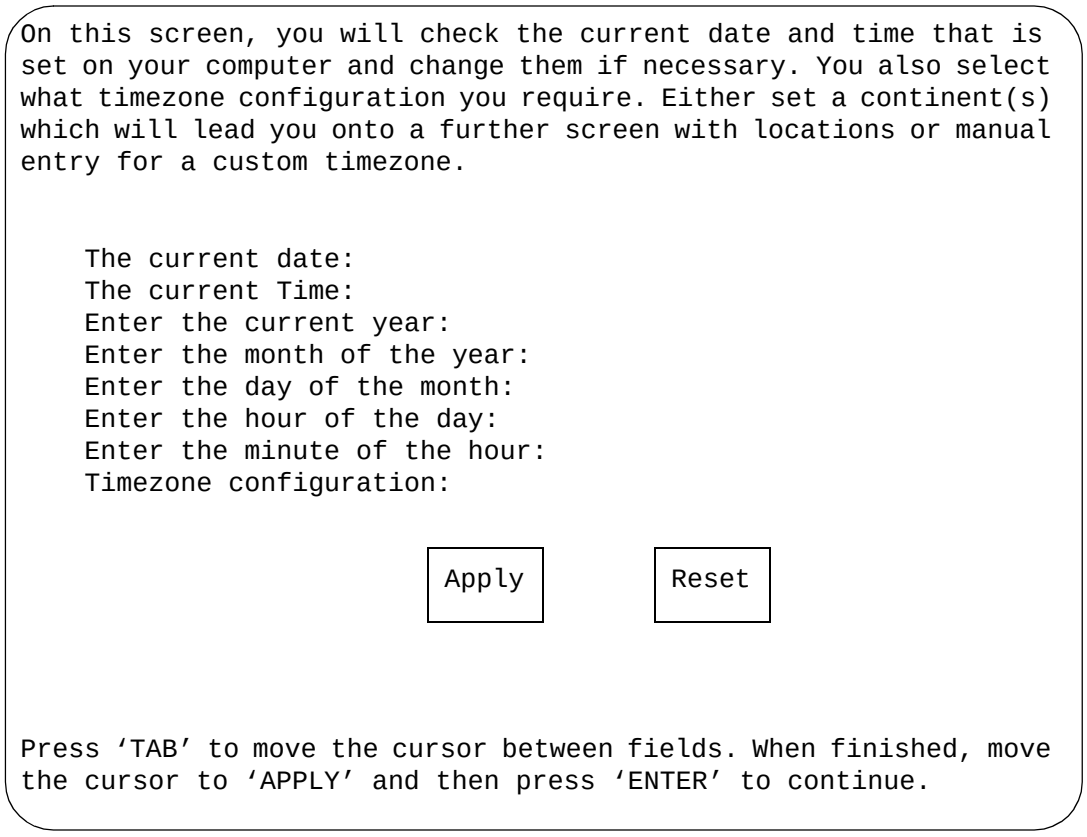


Figure 4-5. Configure Date and Time Screen

This screen contains 2 date and time display fields, 5 date and time data entry fields, and a `Timezone Configuration` data entry field.

3. Make sure the date and time are correct. Then press ▼ to go to the `Timezone Configuration` data entry field.
4. Use ◄ and ► to display your time zone, for example, `North/South America.`
5. Accept your selections by pressing ▼ to highlight the Apply box and then pressing ENTER.

   The system displays the Continent Location Choice screen (Figure 4-6).

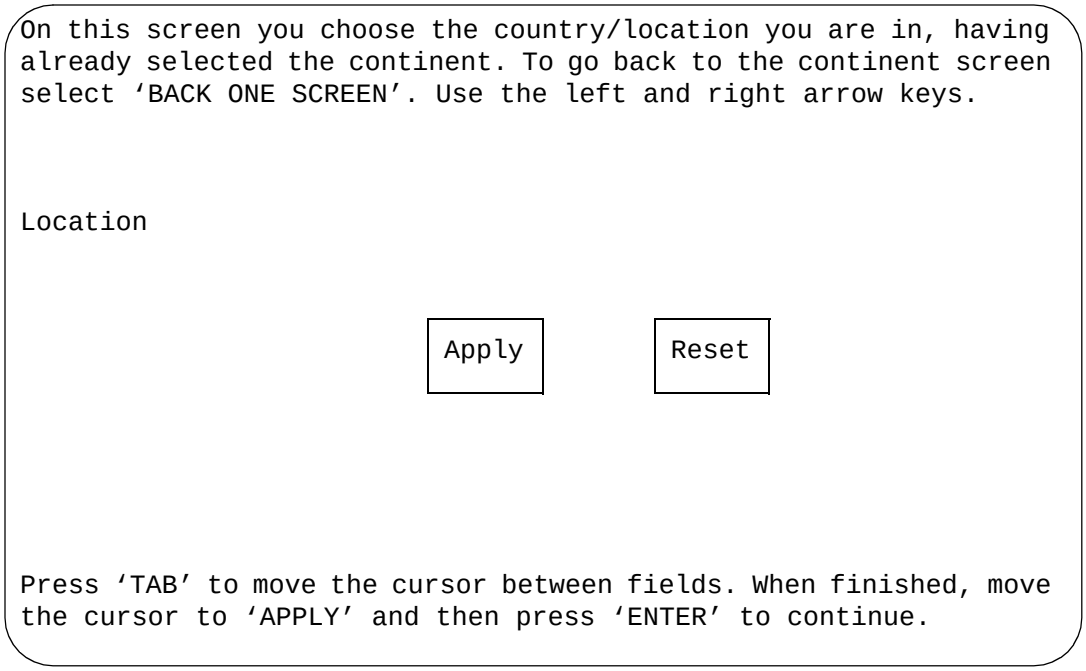


Figure 4-6. Continent Location Choice Screen

6. Use ◄ and ► to display `US/Central`.
7. Accept your selection by pressing ▼ to highlight the Apply box and then pressing ENTER.

   The system displays the Primary Hard Disk Partitioning screen (Figure 4-7).

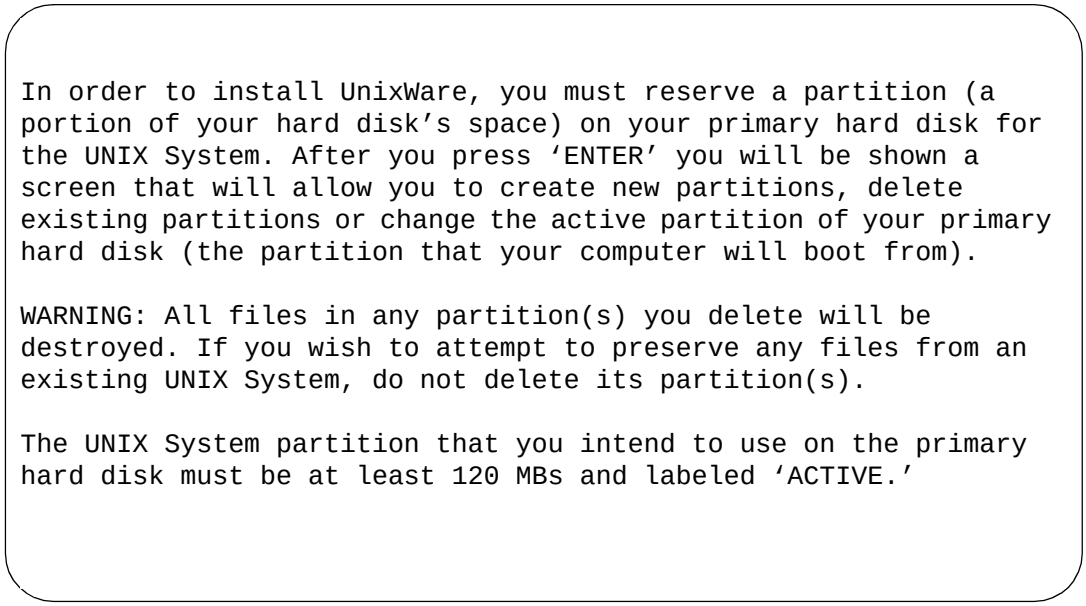


Figure 4-7. Primary Hard Disk Partitioning Screen

Continue with the next procedure, "Initializing the Hard Disk Drives for a PM."

Initializing the Hard Disk Drives for a PM

To partition the hard disk drives, do the following:

1. Starting at the Primary Hard Disk Partitioning screen (Figure 4-7), press ENTER.

   The system displays the Hard Disk Partitioning, Disk 1 screen (Figure 4-8).

```
Total disk size is 2048 cylinders (2048.0MB)


 Partition | Status | Type          | Start | End  | Length | %   | Approx MB
-----------+--------+---------------+-------+------+--------+-----+----------
 1         | Active | UNIX System   | 0     | 2047 | 2048   | 100 | 2048.0


1. Overwrite system master code
2. Delete a partition
3. Exit (Update disk configuration and exit)
4. Cancel (Exit without updating disk configuration)
```

Figure 4-8. Hard Disk Partitioning, Disk 1 Screen

2. Accept selection 3 (the default value) by pressing ENTER.

   The system displays the Installation Type Selection screen (Figure 4-9). It contains 3 data entry fields: `Platform Type`, `CPU Type`, and `Offer`

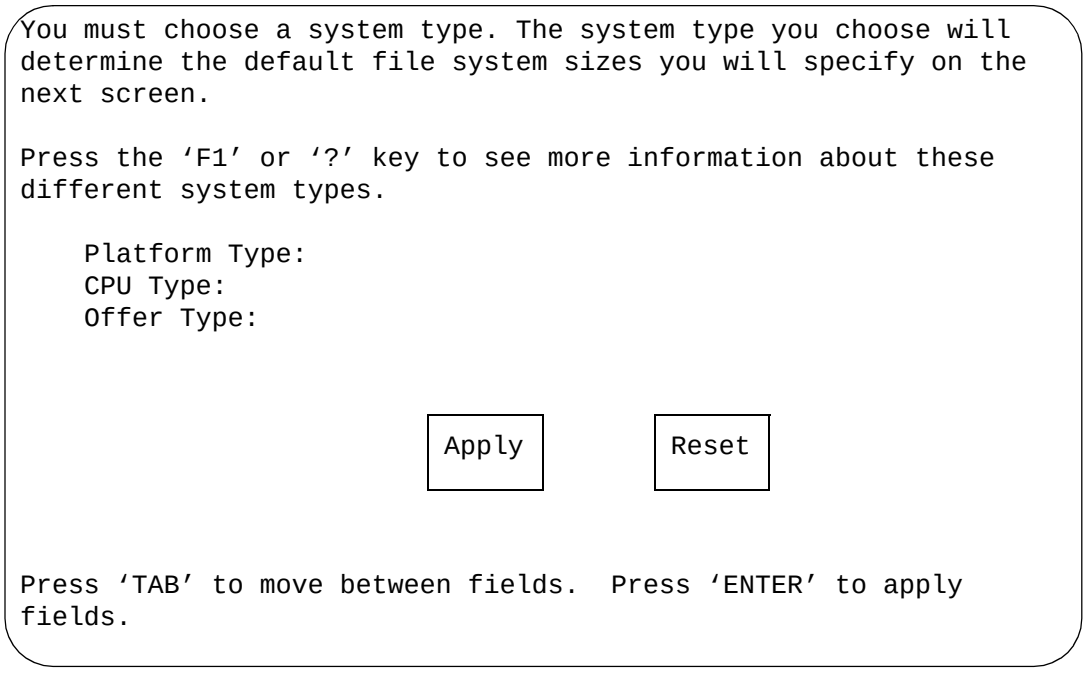


Figure 4-9. Installation Type Selection Screen

3. At the `Platform Type` field, use ◄ and ► to display `MAP/100C`.
4. Press ▼ to go to the `CPU Type` field.
5. Use ◄ and ► to display `80486`.
6. Press ▼ to go to the `Offer Type` field.
7. Use ◄ and ► to display `Intuity Conversant`.
8. Accept your selections by pressing ▼ to highlight the Apply box and then pressing ENTER.

   The system displays the UnixWare Installation Set Slice Sizes screen (Figure 4-10).

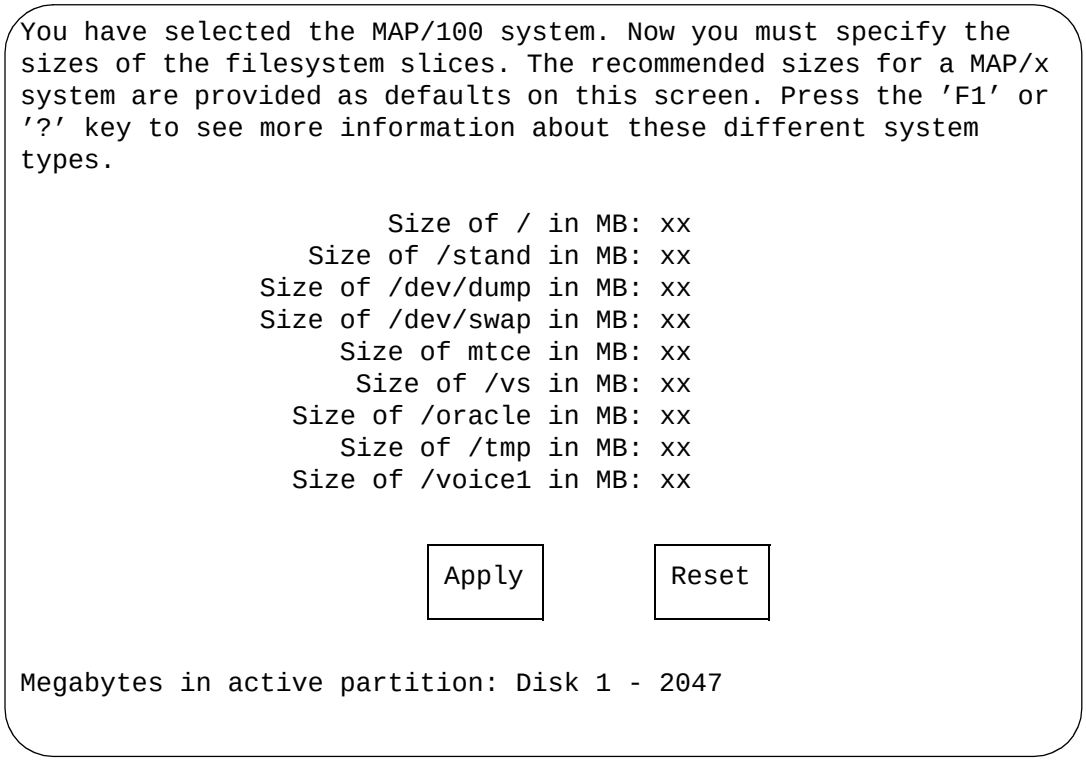


Figure 4-10. UnixWare Installation Set Slice Sizes Screen

9. Use the down ▼ arrow to move to the `Size of /oracle in MB` slice field.
10. Enter **200** for the size in MB. Leave the default values in all other fields.
11. Press the down ▼ arrow to move to the `Apply` field and press ENTER.

    The system displays the Hard Disk Surface Analysis screen (Figure 4-11).

```
Surface analysis is recommended but not required.   Here you must
choose to skip or perform surface analysis.

Press ’F1’ or ’?’ key to see more information about these
different system types.









You choices are:

1. Perform surface analysis
2. Skip surface analysis

Press ’1’ or ’2’ followed by ’ENTER’:1
```

Figure 4-11. Hard Disk Surface Analysis Screen

CAUTION:
Ignore the message at the top of this screen. Surface analysis is required for all systems because it makes a configuration change to the disk. Failure to perform surface analysis may cause the INTUITY CONVERSANT system to fail.

Continue with the next procedure, “Transferring the UnixWare Files for a PM.”

Transferring the UnixWare Files for a PM

To transfer the UnixWare files, do the following:

1. Starting at the Hard Disk Surface Analysis Screen (Figure 4-11), press ENTER.

   This accepts the default of 1 and performs the surface analysis. The system displays the following message:

   ```
   Checking the hard disk for defects and creating file
   systems. This will take a few minutes. Please wait.
   ```

   The system displays the following message:

   ```
   Copying Unix System files from the diskette onto your
   hard drive. This will take a few minutes. Please wait.
   ```

   The system then clears the screen and displays the Exchange Diskette screen (Figure 4-12).

```
Remove the diskette from the drive and insert the diskette
labeled "Boot Floppy 3 of 3" now.

Press 'Enter' to continue.
```

Figure 4-12. Exchange Diskette Screen

2. Remove the diskette labeled "Network Adjunct Platform (NAP) 3.1 Boot Floppy Disk 2 of 3" from the diskette drive.
3. Insert the diskette labeled "Network Adjunct Platform (NAP) 3.1 Boot Floppy 0-MB Memory Gap for Use with Non-AYC2C Systems" floppy disk 3 of 3 into the diskette drive.
4. Press ENTER.

   The system displays the following message:

   ```
   Copying Unix System files from the diskette onto your
   hard drive. This will take a few minutes. Please wait.
   ```

   The system then displays the following message:

   ```
   Making file systems on your hard disk. This will take a
   few minutes. Please wait
   ```

   The system displays the Remove Diskette Screen (Figure 4-13).

```
Remove boot floppy 3 of 3 from the drive now.

Press 'Enter' to continue.
```

Figure 4-13. Remove Diskette Screen

5. Remove the diskette labeled "Network Adjunct Platform (NAP) 3.1 Boot Floppy Disk 3 of 3 0-Mbyte memory gap" from the diskette drive.
6. Continue with the next procedure, "Load PM Software."

Load PM Software

To load the PM software, do the following:

1. Starting at the Remove Diskette screen (Figure 4-13), press ENTER.

   The system displays the Application Server Media Type screen (Figure 4-14).

```
The Application Server software is available on diskette or tape
or network server. You must select the source you will use to
install the software.









Your choices are:

1. Diskette Drive 1
2. Unixware for Intuity CONVERSANT
3. Network Install Server
4. Intuity Image/Snap Tape

Press a number between ‘1’ and ‘4’ followed by 'ENTER':
```

Figure 4-14. Application Server Media Type Screen

2. Insert the tape labeled “PM Image Tape for 486 Hardware NAP 3.0/V6 (Custom for IETS)” into the tape drive.
3. Type **4** to select the storage medium you will use in the next step, and press ENTER.

   The system displays the Insert Tape screen (Figure 4-15).

```
Please insert the Application Server cartridge tape into the tape
drive and press 'ENTER'.









Your choices are:

1. The tape has been inserted in the tape drive.
2. Go back to previous menu.

Press '1' or '2' followed by 'ENTER':
```

Figure 4-15. Insert Lucent INTUITY Tape Screen

4. Press ENTER.

   This accepts the default of 1 to indicate the tape has been inserted and is ready for access.

   The system displays the following message:

   ```
   Installation in progress. This will take several
   minutes. Please do not remove the tape.
   ```

   This step takes over an hour to process.

   After the system reads the tape, it displays an informational message and prompts you to press ENTER to reboot the machine.

5. Remove the tape and press ENTER**.**
6. After the reboot sequence, log in as **root.**
7. Reset the root password to your password. Enter

   passwd

   The `New password` prompt appears.

8. Type your password and press ENTER.
9. When prompted, reenter you password.
10. You can ignore the messages displayed on the screen as the PM checks components. To obtain a prompt at any time, press ENTER.

Run volinstall Utility

1. Enter

   volinstall

2. Follow the instructions on the screen.

   NOTE:
   volinstall is a UnixWare Volume Management Utility. Refer to UnixWare documentation for information about the utility.

   This prompt displays:

   ```
   Do you want to override ? N
   ```

   The default is N (no).

3. Enter **Y** to override.

   After some processing, a prompt appears.

4. Press ENTER to continue.

   The Volume Manager/Install menu appears. It prompts `What kind of install?`

5. Select option 1, `Quick Installation`, and press ENTER.

6. When asked to enter a disk name, enter

   disk00

7. Press ENTER to continue.

   This prompt displays:

   ```
   Shut down and reboot now? Y
   ```

8. Press ENTER to reboot.

9. Press ENTER again to reboot and continue the configuration.

10. Make sure the reboot prompt appears:

    ```
    The system must now be rebooted.
    ```

11. Turn the power to the machine OFF at the ON/OFF switch on the front user-interface panel.

12. Turn the power to the machine ON at the ON/OFF switch.

    The reboot should take 5 minutes. When the reboot is complete, the login prompt appears.

Run smssetup Program

1. Log in as **root**.
2. Run the **smssetup** procedure for the PM by entering

   /usr/add-on/sms/bin/smssetup

3. When prompted to proceed, enter **y**

   This screen displays:

```
============================================================
|                        Machine Table                     |
============================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
001      pm00     pm      00        N      S             N
002      pm01     pm      01        N      S             N
003      vp00     vp      00        N      S             N
004      vp01     vp      01        N      S             N

This machine is a pm machine.
Enter the Machine Index value of the pm that this machine is to be.
--> 1
```

   In the following steps, you will create an alias for pm00 or pm01. This alias will be the TCC-defined, site-specific Datakit name.

   NOTE:
   The first 3 characters of TCC-defined, site-specific Datakit names provide the city designation (for example, **frh** for Freehold). The fourth character identifies the application (**i** for IETS, the name of WSN on R1.0). The last 3 characters are the machine name. In this example, the alias for pm00 would be frhipm0.

4. Enter the appropriate PM machine index value (for example, enter 1 for pm00, as shown in the previous screen).

   The following machine table record screen displays:

```
You have selected this machine to be the following.
============================================================
|                      Machine Table Record                |
============================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
001      pm00     pm      00        N      S             N
Is this what you want this machine to be?
Confirm (y/n) [y] --> y
```

5. Confirm the machine table record by entering **y**

   The following information displays on the screen.

```
This is an pm type machine, and will have the system name of pm00.
This name will be used in all the networking files.
However, there may be a need to give this machine a different system
uname and matching alias in the networking files for DATAKIT
compatibility.
Do you want to use the system uname of pm00? (y/n) [n] --> n
```

6. Give the PM machine an alias for the Datakit-specific system name by entering **n**

   NOTE:
   If the WSN application has already been installed, the aliases for the Datakit-specific names have already been defined (for example, frhipm0 and frhipm1). You do not need to change the aliases. Enter **y** and go to step 8.

   The following prompt displays:

```
Enter the system uname (max 8 chars).
```

7. Enter the uname for the PM:

   - ***<city>*ipm0** for pm00

     or

   - ***<city>*ipm1** for pm01

   where ***<city>*** is the 3-character city designation, for example, frh.

   This information displays on the screen while the system-name alias for the uname is set up.

```
/usr/add-on/sms/bin/smssetup: sysname=frhipm0 nodename=frhipm0
setup
/usr/add-on/sms/bin/smssetup: /etc/inet/hosts setup
/usr/add-on/sms/bin/smssetup: /.rhosts setup
/usr/add-on/sms/bin/smssetup: /etc/hosts.equiv setup
/usr/add-on/sms/bin/smssetup: /etc/inet/networks setup
/usr/add-on/sms/bin/smssetup: /usr/add-on/sms/data/lip_config setup
/usr/add-on/sms/bin/smssetup: /etc/inet/services setup
/usr/add-on/sms/bin/smssetup: /etc/confnet.d/inet/interface setup
/usr/add-on/sms/bin/smssetup: /etc/confnet.d/inet/interface setup
Running /usr/add-on/sms/app/setup/scans
This machine sucessfully set up as pm00, with system name frhipm0
```

   The machine returns to the UnixWare prompt.

8. Enter the command

   chgstate reboot

9. Check TCP/IP connectivity to all machines. Enter

   lancheck

   For an example of the **lancheck** output, refer to the description of the **lancheck** command on page 5-89.

   If you do not get UP status on all machines, find and fix all LAN problems. Refer to the appropriate steps in the "PM-to-VP LAN Connectivity Symptoms and Solutions" on page 6-24.

10. Enter

    comcheck

    to check message-level connectivity between all machines.

11. After you have made sure that the LANs are working, from pm00, enter

    machadm -a *<mach_id>*

    to make the PM active.

12. Enter **/opt/dk/sbin/dkregister** and enter the number that you registered with TCC or PMO for Datakit.

13. Enter **chgstate -m *<mach_id>* off**

    This command takes a few minutes to process.

14. Enter **chgstate -m *<mach_id>* on**

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Administering a New Site

There are two sets of steps involved in administering a new site:

- Basic administration (performed by the onsite workforce)
- Site- and machine-specific administration (performed by the TCC)

Basic Administration

NOTE:
This procedure applies to bringing up a new site on only NAP 3.0 software. There is *no application software* loaded on the machines at this time.

1. Verify that all the machines (PMs, VPs) have the NAP 3.0 software installed (refer to ''Verifying the Software Release'' on page 4-20).
2. On the primary (the lowest numbered) PM machine, enter

   machadm

   The machine table appears.
3. If necessary, administer the table *to match exactly* the one specified by WSN.

   Refer to the following machine table.

```
================================================================
|                          Machine Table                       |
================================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
001      pm00     pm      00        N      S             N
002      pm01     pm      01        N      S             N
003      vp00     vp      00        N      S             N
004      vp01     vp      01        N      S             N
```

   NOTE:
   This machine table administration is defined by WSN and *must match exactly* in order for WSN to be uploaded onto the system via SCANS, then be installed by the TCC.
4. To exit, enter **q**
5. Copy the machine table to a diskette:
   a. Insert a blank diskette in the drive of the primary PM machine, making sure it is not write-protected.
   b. On the primary PM machine, enter the UNIX **find** command:

      find /usr/add-on/maint/admin/mach_tbl -print | cpio -ov >/dev/dsk/f0

      The machine table is copied onto the diskette.

6. Perform the following steps on each machine.

   a. Insert the diskette into the diskette drive and use the UNIX **cpio** command to copy the diskette to the hard drive:

      cpio -idvu </dev/dsk/f0

      CAUTION:
      Remove the diskette before continuing.

   b. Enter the following command on each of the machines:

      /usr/add-on/sms/bin/smssetup

      Enter the machine index that matches the machine on which you are running the command. Answer the prompts appropriately. On machines that have Datakit Interfaces, override the default system name and provide the *Unique* Datakit *System Name* provided by the TCC.

   c. Run the following UNIX commands on each machine:

      cd /; shutdown -i6 -g0 -y

      Each machine reboots and comes back up with the proper system name, which matches the networking files that were set up by the **smssetup** command. At this point all machines can communicate via TCP/IP over the LAN. Machines with a Datakit interface can communicate over the Datakit network.

   d. Log in as **root** on each machine for which you want to administer logins.

   e. To allow the TCC to gain access, administer a restricted root ID on each machine. Enter

      addruser *<login id>* *<login_name>* 2

      where:

login id	is an ID to be shared by all users for restricted root access, 8 characters or fewer.
login_name	is the user's name, in quotation marks (“ ”), 25 characters or fewer.

      Enter the information and password provided by the TCC adjunct group.

f. Administer the number of *restricted shell login IDs*, as necessary, with the **addruser** command on all PM machines:

addruser *<login_id>* *<login_name>* 1

This administration provides everyone (OSWF, TCC, NESAC, PMO) with restricted-user access. Restricted-user access lets the user log in to the system. Then you can use the **su** command to log in as either root or as the restricted root user.

g. As **root**, enter the UNIX **passwd** command on each machine:

passwd -x -1 *<restricted_root_ID>*

This turns off password aging on the restricted root ID just added to the system.

h. As **root**, enter the following commands on each machine:

passwd *password*

where ***password*** is the standard root password provided by the TCC adjunct group, and

passwd -x -1 root

This turns off password aging on the root password just entered.

7. Test the Datakit interface on each PM machine. Use the Datakit interface test procedures in ''Checking Hardware Connectivity'' on page 4-57.

CAUTION:
Be sure to call the TCC after completing the steps in ''Checking Hardware Connectivity'' on page 4-57, because they must complete the rest of this procedure before you can continue with the next procedure.

Site- and Machine-Specific Administration (TCC)

TCC personnel log in as **root** or as a restricted user on the primary PM machine and perform the following site- and machine-specific administration steps:

NOTE:
Before starting this procedure, you need each machine's floor, row, and cabinet values from the floorplan.The **ficadm** command uses this information.

1. On the primary PM machine, enter

   clliadm

   Administer the Site CLLI (common language location identifier) Code.

2. On the primary PM machine, enter

   primadm

   Administer the appropriate machine instance value, which matches the primary PM machine.

3. Activate all machines at the site and bring the channels into service by using the **siteadm** command. Enter:

   siteadm -a <*mach_id*>...<*mach_id*>
   siteadm -a <*mach_id*>...<*mach_id*>

   List all the actual machines at the site.

   NOTE:
   The second invocation of **siteadm** brings the channels into service.

4. After all of the machines have been administered to `Admin=Y` in the machine table, check TCP/IP connectivity between all machines. Enter

   lancheck

   Find and fix all LAN problems at this time. Refer to the appropriate steps in the "PM-to-VP LAN Connectivity Symptoms and Solutions" on page 6-24.

5. Check message-level connectivity. Enter

   comcheck

6. On the primary PM machine, enter

   machadm

   Select the `Synchronize Machine Table` option. This option forces all machine table administration to be regenerated on all machines, fixing any omissions caused by LAN problems.

7. On the primary PM machine, enter

   clliadm -r

The **-r** option forces all site CLLI code administration to be regenerated on all machines, fixing any omissions caused by LAN problems.

8. On the primary PM machine, enter

   primadm -r

   The **-r** option forces all primary PM value administration to be regenerated on all machines, fixing any omissions because of LAN problems.

9. Enter **s24adm**

   Administer its value to be the value specified by the TCC. It is usually left at the default value of 0 for midnight.

10. Perform machine-specific administration for each machine. Enter

    ficadm -m *<mach_id>*

    NOTE:
    Enter this command for each machine.

    Administer the value provided by the TCC.

    CAUTION:
    *Do not run the **cleiadm**, **cardadm**, **rcardadm**, **ds1adm**, or **rds1adm** administration commands at this time. The applications install these translations when they install their software. If you change the administration, the applications WILL NOT install their custom translations. They install only over the default administration provided on the NAP 3.0 IMAGE tape.*

11. On pm00, enter

    clockadm -v co/denvnc3/dtccsun1.clock

    This argument is the Datakit address of the time server. This address is available from the TCC adjunct group.

12. Synchronize all the clocks at the site. On pm00, enter

    csynch -f

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Checking Hardware Connectivity

Perform these steps after the NAP 3.0 or application site setup and administration has been completed.

Test the Datakit and LAN interfaces on each PM:

1. Login to the system console as **root**.
2. From the PM system console, enter the Datakit command:

   dkcu <*dkdial_string*>

   where ***dkdial_string*** is the dial string to the other PM. (This value is always the host name with an **.SCCS** suffix, for example, **frhipm0.sccs**.) If you get a login prompt, the Datakit interface to the PM is working. To terminate the dkcu connection, enter the Datakit notation:

   ~. (tilde dot)

   NOTE:
   If you do not get a connection, refer to ''Troubleshooting PM-to-Datakit Connectivity Problems'' on page 6-23.

3. Check TCP/IP connectivity to all machines. Enter

   lancheck

   For an example of the **lancheck** output, refer to the description of the **lancheck** command on page 5-89.

   If you do not get UP status on all machines, find and fix all LAN problems. Refer to the appropriate steps in the "PM-to-VP LAN Connectivity Symptoms and Solutions" on page 6-24.

4. Enter **comcheck**

   to check message-level connectivity between all machines.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

CAUTION:
Be sure to call the TCC after completing this procedure, because they must complete the site- and machine-specific administration steps *before you can continue with the next procedure.*

Installing the Application Software

Refer to Appendix A, ‘‘Installing WSN Release 1.1’’ for information about how to install WSN release 1.1. Specifically, see ‘‘Installing the WSN 1.1 Software’’ on page A-14. After you have completed the installation procedures, return to the checklist.

Site Administration Procedures

The procedures listed in this section are used with the checklists at the beginning of this chapter. These procedures can also be used independently of those checklists if you need to perform specific administration tasks.

The procedures in this section are:

Changing the Primary PM

Before you take a PM out of service, make the other PM the primary PM.

1. Log into a working PM as restricted user.
2. Enter **primadm**
3. Enter the machine ID instance value of the primary PM.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Core Maintenance Feature
Package Administration and Verification

After the site has the platform and application packages installed, the following steps must be performed to administer and verify site-specific data. This procedure can be performed after the site is in service, or after a new site has had the application installed.

1. From pm00, check each VP's resource card table. Enter

   rcardadm -m <*mach_id*>

   Identify the physical hardware in the machine. If it differs from what the **rcardadm** command displays, change the administration in **rcardadm** to match the actual hardware.

   The following is an example of the WSN VP resource card table:

```
============================================================
|        Resource Card Table                               |
============================================================
Slot   Card       CLEI              Hardware
Number Type       Number            Version
--     ---------- --     ---------- ------------------------
01     SP-2       01     ASPQACMAAB AYC2C SP Ser:6
03     SP-2       02     ASPQACMAAB AYC2C SP Ser:6
05     SP-2       03     ASPQACMAAB AYC9  SP Ser:6
07     T1         00     GCUQACJXAB AYC11 T1 Vin:6
16     CPU               GCPI10EGAA D486DXC-50-0ATTR2 Ser:2
17     VIDEO             GCPIJ0GGAA WDXLR833124 Ser:1
18     ALARM             GCUQACLXAA CO Alarm
19     LAN               GCUQACKXAA StarLAN 10 PC-NAU
21     LAN               GCUQACKXAA StarLAN 10 PC-NAU
25     SCSI CNTRL        QCPQAKCJA  BusLogic BT542B Ver:H
```

   The machine may have older or newer versions of some circuit cards.

2. To exit, enter **q**

3. From pm00, check each PM's card table. Enter

   cardadm -m <*mach_id*>

   Identify the physical hardware in each machine. If it differs from what the **cardadm** command displays, change the administration in **cardadm** to match the actual hardware.

The following is an example of the WSN PM card table:

```
============================================================
|            Card Table                                    |
============================================================
Slot   Card       Card   CLEI       Hardware
Number Type       Number            Version
--     ---------- --     ---------- ------------------------
09     DATAKIT           0000000000 HS386 Datakit Interface
16     CPU               GCPI10EGAA D486DXC-50-0ATTR2 Ser:1
17     VIDEO             GCPIJ0GGAA WDXLR833124 Ser:1
18     ALARM             GCUQACLXAA CO Alarm
20     LAN               GCUQADPXAA CP-8216CE067 ETHERNET LA*
21     LAN               GCUQADPXAA CP-8216CE067 ETHERNET LA*
22     LAN               GCUQADPXAA CP-8216CE067 ETHERNET LA*
25     SCSI CNTRL        QCPQAKCJAA BusLogic BT542B Ver:H
```

The machine may have older or newer versions of some circuit cards.

4. To exit, enter **q**
5. Check each VP's card table. From pm00, enter

   cardadm -m <*mach_id*>

   Identify the physical hardware in the Communicore. If it differs from what the **cardadm** command displays, change the administration in **cardadm** to match the actual hardware. The machine may have some older or newer versions of modules and a different number of modules. The table was prepopulated with the maximum number of modules.

The following is an example of the WSN VP card table:

```
============================
|           Card Table     |
============================
Slot   Card       CLEI
Number Type
--     ---------- ----------
01     CONTROL    GCPQARJJAA
02     SWITCH     GCPQARKJAA
03     PRI        GCPQARMJAA
04     PRI        GCPQARMJAA
05     TGEN       GCPQARPJAA
06     PRI        GCPQARMJAA
07     PRI        GCPQARMJAA
08     TDET       GCPQARNJAA
09     PRI        GCPQARMJAA
10     PRI        GCPQARMJAA
11     TDET       GCPQARNJAA
12     PRI        GCPQARMJAA
13     PRI        GCPQARMJAA
14     TDET       GCPQARNJAA
15     PRI        GCPQARMJAA
16     POWER      GCPQARLJAA
17     TGEN       GCPQARPJAA
18     PRI        GCPQARMJAA
19     PRI        GCPQARMJAA
20     TDET       GCPQARNJAA
21     PRI        GCPQARMJAA
22     PRI        GCPQARMJAA
23     TDET       GCPQARNJAA
24     PRI        GCPQARMJAA
25     PRI        GCPQARMJAA
26     TDET       GCPQARNJAA
27     PRI        GCPQARMJAA
28     PRI        GCPQARMJAA
29     TDET       GCPQARNJAA
30     PRI        GCPQARMJAA
31     PRI        GCPQARMJAA
32     POWER      GCPQARLJAA
```

6. To exit, enter **q**

7. Check and administer each VP's DS1 (Digital Service 1) table. From pm00, enter

   ds1adm -m *<mach_id>*

   The following is an example of the WSN VP DS1/E1 card table:

```
================================================
|        DS1/E1 Table                          |
================================================
Slot   DS1/E1      ADJUNCT  ADJUNCT SWITCH   SWITCH
Number Type   BTFN DSX_BAY  DSX_PJ  DSX_BAY  DSX_PJ
--     ----   ---- -------- ----    -------- ----
03     PRID   0000 00000000 0000    00000000 0000
04     PRID   0000 00000000 0000    00000000 0000
06     PRI    0000 00000000 0000    00000000 0000
07     PRI    0000 00000000 0000    00000000 0000
09     PRI    0000 00000000 0000    00000000 0000
10     PRI    0000 00000000 0000    00000000 0000
12     PRI    0000 00000000 0000    00000000 0000
13     PRI    0000 00000000 0000    00000000 0000
15     PRI    0000 00000000 0000    00000000 0000
18     PRI    0000 00000000 0000    00000000 0000
19     PRI    0000 00000000 0000    00000000 0000
21     PRI    0000 00000000 0000    00000000 0000
22     PRI    0000 00000000 0000    00000000 0000
24     PRI    0000 00000000 0000    00000000 0000
25     PRI    0000 00000000 0000    00000000 0000
27     PRI    0000 00000000 0000    00000000 0000
28     PRI    0000 00000000 0000    00000000 0000
30     PRI    0000 00000000 0000    00000000 0000
31     PRI    0000 00000000 0000    00000000 0000
```

   Identify the physical hardware connections from the machine to the adjunct DSX (digital signal cross-connect), switch DSX, and the 4ESS. The administration for the base traffic number (BTFN), adjunct (DSX_BAY and DSX_PJ) and switch (DSX_BAY and DSX_PJ) pairs should display the proper values for each T1/DS1/PRI module.

   If there are fewer modules in the machine than are in the table, change the administration to match the actual hardware. Change the administration for modules in slots 4 through 31. On these modules, input the correct values. The PRI module in slot 3 connects to the MAP/100C and has all zeros for these values.

8. To exit, enter **q**

9. After the CMF administration is completed or is changed, save the CMF administration data to tape. From pm00, enter

   backtape

   This tape recovers the administration data for disaster recovery.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Removing a Machine from Service

Gracefully Removing a VP from Service

1. Remove the VP from service:
   - If diagnostic operations are to be performed, enter

     chgstate -m <*mach_id*> mtce
   - If diagnostic operations are *not* to be performed, enter

     chgstate -m <*mach_id*> off

   NOTE:
   Use the **-m** argument when running the command from a remote machine. It is not required from the local machine.

   Wait for all active calls to drop. If calls are still up after 180 seconds, you are asked whether you want to continue to wait. Wait for all active calls to drop.
2. If the machine will be out of service for an extended period (for example, several weeks) or if you are doing a **snapshot**, make the machine inactive. From a PM, enter

   machadm -u <*mach_id*>
3. If the machine is being powered down, enter

   chgstate -m <*mach_id*> down

Removing a PM from Service

When you remove a PM from service, you lose any calls active through the PM.

WorldSHARE NAP 1.1 does not provide any means of querying a PM to determine if any calls are active.

The AT&T WorldSHARE core server (WS CS) communicates to all PMs at all sites a request to initialize the API library and establish a communication link. The first PM to respond processes all subsequent requests over that communication link If the AT&T WS CS has established communications with a PM, the PM an receive a request from the AT&T WS CS to create a call session at any time.

NOTE:
Both PMs at a NAP site are active at all times. One PM is administered as the primary PM. This PM serves as the collection point for alarm messages from all VP machines at the site. For administrative purposes, pm00 is usually the primary PM.

1. If the PM being removed is the primary PM, change the primary PM to the good PM. Enter

   primadm -v <*PRIMARY*>

   where *PRIMARY* is the machine instance value of the PM machine that serves as the primary PM.

2. Remove the PM from service. Enter

   chgstate -m <*mach_id*> off

3. If the machine will be out of service for an extended period (for example, several weeks), make the machine inactive. From a PM, enter

   machadm -u <*mach_id*>

4. If the machine is being powered down, enter

   chgstate -m <*mach_id*> down

Restoring a Machine to Service

Restoring a VP to Service

You must have at least 1 of the PMs in service before you can restore a VP to service. If none of the PMs is in service, see ''Restoring a PM to Service''.

1. Log in to a PM.
2. Restore the VP to service. Enter

   chgstate -m <*mach_id*> on

3. If the machine was made inactive when it was removed, make the machine active. Enter

   machadm -a <*mach_id*>

   NOTE:
   If the machine has been rebooted, it will come up in an ON state. When you execute **chgstate** you may receive a warning message that says, "Machine is already in the ON state."

   The VP should begin handling traffic at this point.

Restoring a PM to Service

1. Restore the PM to service. Enter

   siteadm -a <*mach_id*>

2. If the PM being restored was the original primary PM, change the primary PM back. From a PM enter

   primadm -v <*PRIMARY*>

   where *PRIMARY* is the machine instance value of the PM machine that serves as the primary PM.

   NOTE:
   Both PMs at a NAP site are active at all times. One PM is administered as the primary PM. This PM serves as the collection point for alarm messages from all VP machines at the site. For administrative purposes, pm00 is usually the primary PM.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Checking TNM Connectivity

1. Have the TCC make sure that the TNM logging channels are up and logging.
2. The **tstalarms** command generates an informational message (CMF_INFORM), which is sent to the TNM. Enter

   tstalarms -s -a CMF_INFORM -w0

Call the TCC to verify on the TNM system that they have received every message sent.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Restoring the Secondary PM's Administration Data

1. Log in as a restricted user on the machine that contains the correct database information.

   CAUTION:
   If you perform this operation from a machine with incorrect information in its database, you will lose all correct information in the other PM's database. If this happens, you must complete ''Restoring a Machine to Service'' on page 4-65 to make all machines active.

2. Make sure both PMs are ON. Enter:

   chgstate -m pm00 on
   chgstate -m pm01 on

3. On the working PM, restore the administration for the PM that was reloaded. Enter

   restadm -r *<mach_id>*

   where ***<mach_id>*** is the PM to be restored.

4. Restore the clock server address. On the working PM, enter

   clockadm -r

5. On the working PM, enter

   machadm

   The machine table and the machine table main menu display.

6. Enter **4** to select `Synchronize Machine Table`

   The current machine table displays.

7. Enter **y** to confirm the operation.

   CAUTION:
   As each machine update is performed, make sure that a confirmation message displays when the update has been completed on both PMs. If these messages are not displayed, run the procedure again when both PMs are communicating properly.

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Checking 4ESS Connectivity

1. Have the OSWF (onsite work force) remove the loopback plugs.
2. Restore the D-channel.
3. Verify that all cards and channels have restored to service.
4. Perform test calls through each VP.
5. Monitor the site traffic flow for one hour.

Table 4-3. Service States

Status	Meaning	Action
foos	The card or module the channel is on is not physically connected to the 4ESS.	Connect it, then run the **chgstate** command again.
manoos	The channel has been manually removed from service.	Restore the channel using the **restore** command on page 5-120.
appoos	The application has removed the channel from service and is waiting.	Investigate and correct the cause of the application failure.
netoos	The channel is busied-out at the 4ESS.	None
inserv	The channel is in service to the 4ESS.	None
hwoos	The channel is waiting for another channel, card, or module to come into service.	None

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Making an Application IMAGE Tape

For a VP

Perform the following steps to create an application VP IMAGE tape for one VP (this example creates an IMAGE tape for vp00):

1. Perform the steps in ''Gracefully Removing a VP from Service'' on page 4-64.
2. Log off the PM.
3. Insert a DT CRTG-MAGNUS 2.0 QIC 2.0-Gbyte capacity cartridge tape into the vp00 tape drive. (The tape capacity and model are stamped on the bottom plate of the tape cartridge.)

   NOTE:
   You *must* use a DT CRTG-MAGNUS 2.0 QIC 2.0-Gbyte cartridge tape to snapshot a machine. This process uses one tape for a VP.

4. At the console of vp00, log in as restricted root user.
5. Enter **snapshot**

   The snapshot process takes approximately 15 to 20 minutes. A message displays when the snapshot is complete. Refer to ''Indicators on SCSI Cartridge Tape Drives'' on page 3-6.
6. Remove the tape from vp00. Set the write-protection indicator to safe.
7. Label the tape with application name, release, date, and machine name, for example, WSNVP IMAGE TAPE, *mm*/*dd*/*yy*, vp00.
8. Log in to a PM machine as a restricted root user.
9. Perform the steps in ''Restoring a VP to Service'' on page 4-65.

For a PM

Create a PM application IMAGE tape for the secondary PM:

NOTE:
In this procedure, pm*xx* is the machine ID of the secondary PM.

1. Log in to the secondary PM machine as a restricted root user.
2. From the secondary PM, enter

   machadm -u pm*xx*

   to make the secondary PM inactive.
3. Enter **chgstate off**
4. Enter **init 1**

NOTE:
This UNIX command takes the machine down to single user mode. No other else can access the machine. You can't **rlogin** from the VP until you reboot the PM.

5. Insert a DT CRTG-MAGNUS 2.0 QIC 2.0-Gbyte capacity cartridge tape into the secondary PM's tape drive.(The tape capacity and model are stamped on the bott1
6. om plate of the tape cartridge.)

NOTE:
You *must* use a DT CRTG-MAGNUS 2.0 QIC 2.0-Gbyte cartridge tape to snapshot a machine. You will need 1 tape.

7. Enter **snapshot**

   The snapshot process takes approximately 25 to 30 minutes. A message displays when the snapshot is complete. Refer to ''Indicators on SCSI Cartridge Tape Drives'' on page 3-6.
8. Remove the tape from the secondary PM's drive. Set the write-protection indicator to safe.
9. Label the tapes with application name, release, date, and machine name, for example, WSN Release 1.1 PM IMAGE TAPE, *mm*/*dd*/*yy*, pm01, tape *x* of *y*.
10. From the secondary PM, enter

    chgstate reboot
11. From the secondary PM, enter

    chgstate on
12. Make the secondary PM active. From the secondary PM, enter

    machadm -a pm*xx*

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Backup and Recovery Procedures

IMAGE tapes and recovery procedures are critical to disaster recovery. You should have IMAGE tapes for each type of machine, VP and PM, at your site.

Backup Procedures

Make full backups (IMAGE tape) of each machine type. Refer to ‘‘Making an Application IMAGE Tape’’ and perform the procedures:

- ‘‘For a VP’’ on page 4-70
- ‘‘For a PM’’ on page 4-70

Recovery Procedures

You can recover each type of machine in either of two ways:

- Reload software
- Replace hardware and load software

If existing hardware must have its software recovered, refer to the recovery procedures for each machine type:

- ‘‘Reloading an Existing VP at an Existing Site’’ on page 4-9
- ‘‘Reloading an Existing PM at an Existing Site’’ on page 4-11

If you need to replace hardware and load software, refer to:

- ‘‘Installing a New VP at an Existing Site’’ on page 4-7
- ‘‘Installing a New Site’’ on page 4-5

IP Address Administration Procedures

This section explains how to administer IP addresses for PM machines, routers, and AT&T WorldSHARE Core Server (WS CS) machines at the WorldSHARE NAP site. AT&T must administer IP addresses for the machines and routers at the AT&T WS CS site(s).

The procedures in this section are:

Use the IP addresses assigned in WSN 1.1 for the local IP addresses in LAN A and LAN B at the NAP site.

Obtaining IP Addresses

To obtain IP addresses for the PM machines' LAN C cards, the AT&T WorldSHARE core server, and the routers, see ''Contact Information'' in Appendix I, ''Configuring Routers''.

Adding an IP Address for a New Machine

When you are adding an IP address for a new machine, the existing machines do not need to be out of service (that is, call processing can be running).

Adding an IP Address for a PM

The **smssetup** command adds the IP address automatically for the PM machines on LAN A and LAN B during the software installation procedures.

NOTE:
The **smssetup** command also adds the IP address automatically for the VP machines.

This procedure explains how to add the IP address for PM machines on LAN C.

1. On the PM machine that you are adding the IP address to, log in as **root**.

2. Use the **vi** command to edit the file **/etc/confnet.d/inet/interface**.

   This file has 1 line for each LAN card in the PM machine. The names of the LAN cards should appear as

   - **pm00** (LAN A)
   - **pm00b** (LAN B)
   - ***<city>*ipm0c** (LAN C)

     where ***<city>*** is the 3-character city designation in the Datakit-specific system name. For example: **frhipm0c**.

3. Change the name of the LAN C card to

   pm00c

4. Save your change and exit **vi**.
5. Reboot the PM by entering:

   chgstate reboot

This completes this procedure. Return to the procedure or checklist that sent you to this procedure.

Adding an IP Address for an AT&T WS CS

Perform these steps:

1. Log in to a PM machine as **root**.
2. To see what routes already exist, enter **netstat -r**

   The routing-table screen displays.

```
Routing tables
Destination      Gateway        Flags   Refs   Use    Interface
localhost        localhost      UH      1      0      lo0
135.173.112.18   135.16.151.26  UGH     0      0      sme2
135.16           pm00c          U       1      4099   sme2
192.20.10        pm00           U       0      38314  sme0
192.20.11        pm00b          U       1      36516  sme0
```

   This screen shows the routing addresses for pm00:

   - 192.20.10 is the routing address for pm00 on LAN A.
   - 192.20.11 is the routing address for pm00 on LAN B.
   - 135.16.151 is the routing address for pm00 on LAN C.
   - 135.173.112 is another destination routing address.

   The node address for pm00 is 26.

3. In the `Destination` column, check whether the first 3 parts of the new IP address are the same as the first 3 parts of any existing destination.

   For example, if the first 3 parts of the new IP address are 135.173.112, they are the same as the first 3 parts of the destination 135.173.112.18 shown for pm00 on the screen display.

   - If the first 3 parts are the same, go to step 7.
   - If the first 3 parts are not the same, go to step 4.

4. Activate the new routing address by entering the following command:

   /usr/sbin/route add *<destination>* *<gateway>* *<metric>*

   where ***<destination>*** is the destination IP address, ***<gateway>*** is the gateway IP address, and ***<metric>*** is the "hop count," that is, the number of interconnections between the machine and the destination. The hop count for a machine on the same LAN is 0.

   For example: **/usr/sbin/route add 135.173.112.18 135.16.151.26 1**

5. Enter **netstat -r** to verify that the new route has been added to the routing table.

6. Use the **vi** command to edit the **/etc/inet/rc.inet** file. Add a line with the **route add** command (shown in step 4) below the line with the **route add** command in the file. This activates the new routing address when the machine is rebooted.

7. Use the **vi** command to edit the **/etc/hosts** file. Add the new IP address and machine name.

   The following example shows a **/etc/hosts** file with 1 entry each for the 2 PMs and the AT&T WS CS (ietscb1):

   ```
   135.16.151.13  pm00c  frhipm0c
   135.16.151.14  pm01c  frhipm1c
   135.16.151.10  ietscb1
   ```

8. Make sure that AT&T adds the new IP address by administering the AT&T WS CS machine(s).

Deleting an IP Address for a Machine

Perform these steps:

1. If you are deleting the IP address of a machine that is currently processing calls, take all the machines at the site — PMs and VPs — out of service. See ''Removing a Machine from Service'' on page 4-64.

2. Log in to a PM machine as **root**.

3. If you are deleting an IP address but *not* its routing address, go to step 7.

   If you are deleting both an IP address *and* its routing address, go to step 4.

   NOTE:
   To see what routes exist, enter **netstat -r**

4. Enter **/usr/sbin/route delete *<destination> <gateway>***

   where ***<destination>*** is the destination IP address and ***<gateway>*** is the gateway IP address.

   For example: **/usr/sbin/route delete 135.173.112.18 135.16.151.26**

5. Enter **netstat -r** to verify that the new route has been removed from the routing table.
6. Use the **vi** command to edit the **/etc/inet/rc.inet** file. Delete the line containing the **route add** command with the destination and gateway IP addresses you are deleting.
7. Use the **vi** command to edit the **/etc/hosts** file. Delete the IP address and machine name.
8. Make sure that AT&T deletes the IP address by administering the AT&T WS CS machine(s).

Replacing an IP Address for the AT&T WS CS

Follow the procedures for

- ''Adding an IP Address for a New Machine'' on page 4-73
- ''Deleting an IP Address for a Machine'' on page 4-75

Changing the IP Routing Address

To change the IP routing addresses for all machines (AT&T WS CS and the 2 PMs) and routers, perform these steps:

1. Take all the machines at the site — PMs and VPs — out of service. See ''Removing a Machine from Service'' on page 4-64.
2. Make sure that AT&T changes the IP routing address and the addresses of the PM machines by administering the AT&T WS CS machine(s).
3. Make sure that the routers have the new IP routing address and the IP addresses of the PM machines.
4. Log in to a PM machine as **root**.

5. Use the **vi** command to edit the **/etc/hosts** file. Change LAN C and the AT&T WS CS's IP address.

   Example of **/etc/hosts** file before changing the IP routing address:

   ```
   135.16.151.13  pm00c  frhipm0c
   135.16.151.14  pm01c  frhipm1c
   135.16.151.10  ietscb1
   ```

   Example of **/etc/hosts** file after changing the IP routing address:

   ```
   135.25.86.13  pm00c  frhipm0c
   135.25.86.14  pm01c  frhipm1c
   135.25.86.10  ietscb1
   ```

6. Use the **vi** command to edit the **/etc/inet/rc.inet** file.

   a. Delete (or comment out) the **route add** line for the old IP routing address.

      NOTE:
      To comment out a line, put a # in front of it.

   b. Add a line containing the **route add** command for the new IP routing address.

   c. If the AT&T WS CS is in a different subnet (that is, has a different IP routing address) than the PMs, then add another line containing the **route add** command for the AT&T WS CS and its subnet.

7. If you need to set the net mask, use the **vi** command to edit the file **/etc/confnet.d/inet/interface**. Find the line:

   sme:2:*<mach_id>*c:/dev/sme_2:-trailers::

   where ***<mach_id>*** is the system name — pm00 or pm01.

   Change it by adding **netmask 0xffffff80** as follows:

   sme:2:*<mach_id>*c:/dev/sme_2:netmask 0xffffff80 -trailers::

8. Reboot both PMs using the **chgstate reboot** command.

9. Change to the **/usr/sbin** directory.

10. Verify that the PMs can talk to the AT&T WS CS by entering the command **ping -s ietscb1**

Command Reference

5

What's in This Chapter?

This chapter includes:

- Information about how to use the command-line interface for administering WSN
- All of the commands you need for this platform and application with explanations of how to use them

Using the Command-Line Interface

To use WSN administration commands:

1. Log in as restricted user with an appropriate password.
2. Enter the command at the system prompt.

The rest of the sections in this chapter explain the administration commands. They are listed alphabetically as command-line options, but if a menu choice calls a command, that menu choice is also listed.

NOTE:
If LAN A is disabled for any reason, you might not be able to run some of these commands. If this happens, try specifying LAN B from the command line. To run commands over LAN B, append a **b** to the end of the machine name. For example, pm00b would specify LAN B on a PM.

NOTE:
Many of the administration commands include the options **card** and **rcard**. In every command that uses these options, they are defined the same way:

- **card** in a command line or screen example refers either to a Communicore module in a VP machine or to a card in a MAP/100C PM machine.
- **rcard** (a *resource* card) in a command line or screen example refers to a card in a MAP/100C VP machine.

NOTE:
Do *not* run any **rbin** command that is not documented.

Restricted Login Levels

For reasons of security, a user can log onto the system as **root** only from the console connected to the machine. Remote access is restricted. Logins and passwords must be unique.

Users responsible for the operation and management of NAP can use commands available only through a restricted environment. Restricted users can be added with the **addruser** command by tier 3 and above as well as by other restricted root users.

There are two levels of restricted users.

- Restricted shell user (level 1) is used to log into machines remotely.

  This login level:

  — Allows the user to **su** to a restricted root user to perform most operations

  — Can run only the **su**, **who**, **ls**, **date**, and **id** UNIX commands

- Restricted root user (level 2) is used to run commands found in the **/usr/add-on/rbin.**

  This login level:

  — Cannot be used to log into machines remotely

  — Cannot be used to access debugging tools, compilers, editors, or mail software

  — Allows access to maintenance commands and tools

CAUTION:
*Do not attempt to run any undocumented **rbin** commands.*

Command Types and Syntax

This section provides:

- Guidelines for using the commands
- A table listing the commands

Before You Use these Commands

The following information helps you correctly use the commands listed in this chapter.

Entering the Commands

Type all commands as shown. Be sure to use the proper upper or lower case level as shown in the command format.

Enter ***command*** **-?** to see a usage statement. For example, to see a usage statement for the **restore** command, enter:

restore -?

Administration Maintenance Commands

To work properly, all administration maintenance commands must be run as either **root** or restricted **root** user (*not* as restricted shell user).

Using -l or -s or -m Options

Normally a command is run without any options and runs on the machine where you enter the command. Some exceptions:

- Some commands are site-based operations and have a **-l** option to run in local mode.
- Some commands are site-based and use the **-s** option to run on all active machines at the site.
- Some commands have a **-m** option to run on the machine you specify. If you do not specify the **-m** option, the command runs only on the machine from which you execute it. Refer also to ‘‘Machine IDs’’ on page 5-5.

Paging Output

Although many commands automatically page output, some commands may scroll off the screen when you enter them, especially if you are requesting data for multiple machines. To prevent this, run the command again, piping it through the UNIX **pg** command to page through screens of data. Using the **pg** command delays output to the screen until a full page of output is generated or the command finishes executing.

For example,

diagnose | **pg**

Printing Output

In some cases, you may want to capture the output of the command on the printer. If you are on site, no printers are available. The TCC staff, however, can place the screen output of a command in a different window and print that window.

Machine IDs

Many commands use the ***mach_id*** argument. ***mach_id*** lets you specify the machine type and machine instance as defined in the machine table.

WSN recognizes these machine IDs:

mach_id pm00, pm01, vp00, vp01

Refer also to ‘‘Using -l or -s or -m Options’’ on page 5-4.

Command Cross-Reference Table

The following table lists commands in alphabetical order. For each command, the platform or application is given.

Unless otherwise noted, run commands as a restricted **root** user. The commands with a ✶ designation *must* be run as **root**.

Commands designated with ◆ accept multiple machine IDs on the command line.

Command	Used By	Page
addlrpa	NAP	5-11
addruser	NAP	5-13
alarmstatus	NAP	5-14
backadm	NAP	5-15
backtape	NAP	5-16
cardadm	NAP	5-17
cardcheck	NAP	5-19
chglrpa	NAP	5-21
chgstate	NAP	5-23
chkconfig	NAP	5-26
cleiadm	NAP	5-28
clliadm	NAP	5-29
clockadm	NAP	5-31
clrlights	NAP	5-32
comcheck	NAP	5-33
csynch	NAP	5-35
delruser	NAP	5-37
diagnose	NAP	5-38
dispalarms	NAP	5-41
dispclk	NAP	5-44
dispconn	NAP	5-45
dispdep	NAP	5-48
dispdigit	NAP	5-50
displed	NAP	5-51
displog	NAP	5-54
displrpa	NAP	5-56
dispstatus	NAP	5-58
dkdiagnose	NAP	5-60
download	NAP	5-61

Command		Used By	Page
ds1adm		NAP	5-64
ds1rep		NAP	5-66
dsrrep		NAP	5-68
eqirep		NAP	5-72
eqisrep		NAP	5-82
ficadm		NAP	5-88
lancheck		NAP	5-89
listlrpa		NAP	5-91
logcapture		WSN	5-93
logcat		NAP	5-95
machadm		NAP	5-97
machidadm		NAP	5-101
megamon		NAP	5-102
megpeg		NAP	5-104
p24_rep		NAP (example only)	5-107
primadm		NAP	5-109
rcardadm		NAP	5-110
rds1adm		NAP	5-113
remlrpa		NAP	5-114
remove		NAP	5-115
resetclk		NAP	5-117
restadm		NAP	5-118
restore		NAP	5-120
resttape		NAP	5-122
s24adm		NAP	5-123
scansdb		NAP	5-124
scansui		NAP	5-126
setclk		NAP	5-127
siteadm	◆	NAP	5-128
siteload	✶ ◆	NAP	5-129
smssetup	✶	NAP	5-131

Command	Used By	Page
snapshot	NAP	5-132
t1lb	NAP	5-133
tracecp	WSN	5-134
tstalarms	NAP	5-136
wscol	WSN	5-138

Commands

This section provides a detailed description of commands. Commands are described and listed in alphabetical order.

addlrpa

Synopsis

Adds a process time limit to the long-running process alarm (LRPA) configuration file. **procchk** examines the LRPA file to identify processes that have run too long and should have stopped or shut down sooner.

NOTE:
Running this command *does not kill* the process.

Command Format

addlrpa [-m *<mach_id>*] -t *<HH:MM>* *<process_name>*

Arguments

-m <*mach_id*>	Machine ID where the command runs
-t <HH:MM>	Time limit in hours (0–23) and minutes (0–59)
<process_name>	Name of process for which you would like to add a time limit in the LRPA system

Description

Adds entries to the long-running process alarm (LRPA) configuration file. This file is used by the **procchk** cron job that checks and raises alarms for entries exceeding their administered time limits. Processes are checked every 15 minutes, beginning on the hour. Processes are alarmed or not, depending on the time limit specified in the **-t** argument.

Because alarm situations are evaluated every 15 minutes, short alarm limits, of less than 15 minutes, present a special case. Short alarm processes are alarmed if they are running when the cron job checks the lrpa.cfg file. If the process is no longer executing at the time of the cron job executes, no alarm displays.

If the process has been alarmed for less than 15 minutes, but is still running when the cron job executes, an alarm is generated to reflect the time the process exceeded the time specified in the **-t** argument.

Example

addlrpa -m pm00 -t 0:15 init

```
running command "/usr/add-on/rbin/addlrpa -t 0:15 init" on pm00
Successfully added (init) with a time limit of (0:15).
```

See Also

displrpa
chglrpa
listlrpa
remlrpa

addruser

Synopsis

Adds a restricted user to a machine.

Command Format

addruser <*login_id*> <*login_name*> <*level*>

Arguments

<*login_id*>	Login ID of the user
<*login_name*>	User's name (enclose in quotation marks if one or more spaces occur within the name)
<*level*>	**1** for restricted shell, **2** for restricted root

Description

Adds a *restricted* user to the machine you are running on. Regular users are added by PMO using the UNIX **adduser** command.

Example

addruser ruser1 "joan smith" 1

```
Enter a password for ruser1:

New password:
Re-enter new password:


ruser1 created
```

See Also

delruser

alarmstatus

Synopsis

Displays the status of the alarm card.

Command Format

alarmstatus [-m <*mach_id*>] [-s]

Arguments

-m *<mach_id>*	The machine ID where the command runs
-s	Specifies site-based operation on all machine types

Description

Displays the current alarm card contact positions (current alarm status) for the specified machines.

Example

alarmstatus -m pm00

```
running command "/usr/add-on/sms/bin/alarmstatus" on pm00
Alarm Status for Machine: pm00
------------------------------
Alarm Contact Set 1 ->Enabled: Yes  Status: off (open)
Alarm Contact Set 2 ->Enabled: Yes  Status: off (open)
Alarm Contact Set 3 ->Enabled: Yes  Status: off (open)
Alarm Contact Set 4 ->Enabled: Yes  Status: off (open)
```

backadm

Synopsis

Backs up the CMF administration data from the production directory to the backup directory on the machine from which **backadm** is run.

Command Format

backadm [-m <*mach_id*>]

Argument

-m <*mach_id*>	Machine ID where the command runs. If you do not enter a machine ID, the command backs up all machines.

Description

Backs up CMF administration data from the production directory (**/usr/add-on/maint/admin**) to the backup directory (**/usr/maint/backup**) on the machine from which **backadm** is run. If the machine is a PM machine, **backadm** backs up the administration data from all local and active machines in the machine table. If you run **backadm** from a VP, it backs up the data for the VP on which **backadm** is run. cron runs **backadm** on the PM machines every day at 1:00 AM.

Example

backadm -m pm00

When the command is finished, the prompt displays.

See Also

restadm
backtape
resttape

backtape

Synopsis

Backs up the CMF administration data to the backup directory on the machine where **backtape** is run, then writes the data out to that machine's tape drive.

Command Format

backtape [-m <*mach_id*>]

Argument

-m <*mach_id*>	Machine ID where CMF administrative data is to be written to the backup directory and to the tape drive

Description

Backs up CMF administration data to the backup directory (**/usr/maint/backup**) on the machine for which **backtape** is run, then writes the data out to streaming tape. If the machine is a PM, **backtape** backs up the administration data from all local and active machines in the machine table. Otherwise, **backtape** backs up the data for the machine for which it is run.

NOTE:
If you receive an error message when using this command, make sure the tape is inserted properly and is not write-protected.

Example

backtape

backs up administration data on all machines at the site to the backup directory and then to streaming tape. You must be on the primary PM.

backtape -m pm01

backs up administration data on all machines at the site to the backup directory on pm01, then to streaming tape.

When command processing is finished, the prompt displays.

See Also

resttape
backadm
restadm

cardadm

Synopsis

Administers the card table on the MAP/100C in a PM and on the Communicore for the specified VP machine.

Command Format

cardadm [-m <*mach_id*>] [-d]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-d	Display only

Description

Administers the card table on the MAP/100C in a PM and on the Communicore for the specified VP machine. **cardadm** displays an interactive menu interface to add, change, or delete information for all the modules in the Communicore or cards in the PM machine. Refer to ‘‘Equipment Configurations’’ on page 8-13 for Communicore module and MAP/100C card configuration information.

Use the following table to fill in values when you run the **cardadm** command. You may or may not have all the module types listed.

Module Type	CLEI
CONTROL	GCPQAVBJAA
SWITCH	GCPQARKJAA
POWER	GCPQARLJAA
PRI	GCPQARMJAA
TDET	GCPQARNJAA
TGEN	GCPQARPJAA
CCA	GCPQAVAJAA

Refer to the **rcardadm** command to see the card table for the cards in the MAP/100C in a VP machine.

Example

cardadm -m vp01 -d

```
 running command "/usr/add-on/maint/bin/cardadm -d" on vp01
============================
|           Card Table       |
============================
Slot   Card       CLEI
Number Type
--     ---------- ----------
01     CONTROL    GCPQAVBJAA
02     SWITCH     GCPQARKJAA
03     PRI        GCPQARMJAA
04     PRI        GCPQARMJAA
05     TGEN       GCPQARPJAA
08     TDET       GCPQARNJAA
16     POWER      GCPQARLJAA
32     POWER      GCPQARLJAA
```

cardadm -m pm00 -d

```
 running command "/usr/add-on/maint/bin/cardadm -d" on pm00
============================================================
|            Card Table                                    |
============================================================
Slot   Card       Card   CLEI       Hardware
Number Type       Number             Version
--     ---------- --     ---------- ------------------------
09     DATAKIT           0000000000 HS386 Datakit Interface
16     CPU               GCPI10EGAA D486DXC-50-0ATTR2 Ser:2
17     VIDEO             GCPIJ0GGAA WDXLR833124 Ser:1
18     ALARM             GCUQACLXAA CO Alarm
20     LAN               GCUQADPXAA CP-8216CE067 ETHERNET LA*
21     LAN               GCUQADPXAA CP-8216CE067 ETHERNET LA*
22     LAN               GCUQADPXAA CP-8216CE067 ETHERNET LA*
25     SCSI CNTRL        QCPQAKCJAA BusLogic BT542B Ver:H
```

See Also

rcardadm

cardcheck

Synopsis

Tests communication between the control 360 module in the MAP 2000 and other Communicore modules.

Command Format

cardcheck [-m *<mach_id>*] | [-s]

Arguments

-m *<mach_id>*	The machine ID where the command runs
-s	Specifies site-based operation. The command runs on all MAP 2000 call processing machines at the site.

Description

Tests communication between the control 360 module in the MAP 2000 and other Communicore modules. Two columns of output indicate the ability of the control module to communicate with all other modules in all slots.

The output includes a slot number to indicate the card queried, a card type to show what type of card is in that slot, and a status field indicating whether or not the card is communicating with the control module.

Communication status can be:

`responded`	Module is in slot and responding to the query from the control module.
`did not respond`	Module is in slot but is not responding to the query.
`card is not present`	Module did not report itself in slot. No query was performed since the card never reported.

Example

cardcheck -m vp01

```
running command "/usr/add-on/sms/bin/cardcheck" on vp01
Card Type  Status                Card Type  Status
---- ----- ----------------      ---- ----- ----------------
  1  CTRL  responded              17  TGEN  responded
  2  SW    responded              18  PRI   responded
  3  PRI   responded              19  PRI   responded
  4  PRI   responded              20  TDET  responded
  5  TGEN  responded              21  PRI   responded
  6  PRI   responded              22  PRI   responded
  7  PRI   responded              23  TDET  responded
  8  TDET  responded              24  PRI   responded
  9  PRI   responded              25  PRI   responded
 10  PRI   responded              26  TDET  responded
 11  TDET  responded              27  PRI   responded
 12  PRI   responded              28  PRI   responded
 13  PRI   responded              29  TDET  responded
 14  TDET  responded              30  PRI   responded
 15  PRI   responded              31  PRI   responded
 16  PWR   responded              32  PWR   responded
```

chglrpa

Synopsis

Changes the time value for a long-running process alarm in the LRPA configuration file.

Command Format

chglrpa [-m <*mach_id*>] -t <*HH:MM*> <*process_name*>

Arguments

-m <*mach_id*>	Machine ID of the machine to which the entry is changed
-t <*HH:MM*>	Time limit in hours (0–23) and minutes (0–59)
<*process_name*>	Name of process for which you would like to change a time limit in the LRPA system

Description

Changes an entry in the long-running process alarm (LRPA) configuration file. This file is used by the **procchk** cron job that checks and raises alarms for entries that have exceeded their administered time limit. Processes are checked every 15 minutes, beginning on the hour. Processes are alarmed or not, depending on the time limit specified in the **-t** argument.

Because alarm situations are evaluated every 15 minutes, short alarm limits of less than 15 minutes present a special case. Short-alarm processes are alarmed if they are running at the time the cron job checks the **lrpa.cfg** file. If the process is no longer executing when the cron job executes, no alarm displays.

If the process has been alarmed for less than 15 minutes, but is still running when the cron job executes, an alarm is generated to report the time the process exceeded the time specified in the **-t** argument.

Example

chglrpa -m pm00 -t 1:15 init

```
running command "/usr/add-on/rbin/chglrpa -t 1:15 init" on pm00
Successfully changed (init) to a time limit of (1:15).
```

See Also

addlrpa
displrpa
listlrpa
remlrpa

chgstate

Synopsis

Changes the state of the specified PM or VP machine.

Command Format

chgstate [-m <*mach_id*>] [-g <*grace_period*>] <*state*>

Arguments

-m <*mach_id*> Machine ID where the command runs

-g <grace_period> Time in seconds (default 180) the command waits for existing calls to finish. ***grace_period*** is accurate to within 30 seconds. The **-g** argument is valid only for call processing machines.

<state> The ***<state>*** argument may take the following options:

- **down**

  Stops *all* software — shuts down software gracefully and leaves it down. Use this option when replacing cards or rcards.

  Run the command *before* you power down the system.

  When you want to bring the machine back up after the **down** option has been used, either push the reset button or power down the machine and bring it back up.

  CAUTION:
  *The machine is in the 4ESS central office location. You must have onsite action to recover after using the **down** option.*

- **mtce**

  On a VP, **mtce** (maintenance) removes all modules, cards and channels from service (they are in service state **manoos**) but leaves VP software running. Use the **remove** command to remove individual modules or cards from service.

  On a PM, **mtce** stops application software.

- **off**

  Stops application software (and VIS software on the VP) but leaves base UNIX system and networking software running.

  Use this option when replacing Communicore hardware components. Run the command *before* you power down the system.

- **on**

  Turns on application software (and VIS software on the VP). If software is already running, **on** restores modules, cards, and channels to service.

- **reboot**

  Stops and restarts all software. The reboot shuts down software gracefully, then brings it back. Rebooting takes five minutes, during which the affected machine cannot communicate.

Description

Restarts, stops, reboots, or takes offline the specified machine.

chgstate does not drop calls until the specified grace period has expired (with the **down**, **mtce**, **off**, or **reboot** option). However, it prevents new calls from entering the affected machine.

CAUTION:
If you perform **chgstate mtce** *on a VP, the Communicore and the MAP/100C will be unable to communicate when the modules and cards are restored to service.*

To re-establish communications after the modules and cards are restored, cycle the VP. Enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

Example

To stop all application software on vp01, enter

chgstate -m vp01 off

This command gracefully shuts down the application software on vp01 and leaves it down. Several screens of messages scroll past.

NOTE:
After entering **chgstate on**, check for the MEGA023 alarm to ensure that the machine is up for call processing.

See Also

diagnose
dispstatus
primadm

NOTE:
Before changing state on the primary PM, make the other PM the primary PM using the **primadm** command. The primary PM identifies the PM that collects alarms and measurements. Once the primary PM is switched, it remains switched until you readminister it.

restore
remove

chkconfig

Synopsis

Compares the Communicore configuration to a predefined configuration file.

Command Format

chkconfig [-m <*mach_id*>] [-*s*] [-*v*]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-s	Specifies site-based operation on all MAP 2000 machines
-v	Verbose output

Description

Compares the Communicore configuration to the user-specified configuration defined in the **/usr/add-on/mega/data/bd_config** file. Then **chkconfig** reports any discrepancies.

The following is an example error message and how to interpret it.

This error message:

```
ERROR: Card 26 is TGEN and should be TDET.
```

should be interpreted as:

Card 26 is a TGEN and **bd_config** says it should be a TDET.

Examples

chkconfig -m vp07 -v

```
running command "/usr/add-on/sms/bin/chkconfig -v" on vp07
CARD   CHAN   STATE      CHTYPE     CDTYPE     CDOPTIONS
1      -      INSERV     -          CONTROL    3/21/96:5520:5512:28f016x2
2      -      INSERV     -          SWITCH     3/12/96:5520:5520:29f040x1
3      -      INSERV     -          PRI        3/12/96:5520:5520:29f040x1
4      -      INSERV     -          PRI        3/12/96:5520:5520:29f040x1
5      -      INSERV     -          TGEN       3/13/96:5520:5520:28f200x1
6      -      INSERV     -          PRI        3/12/96:5520:5520:29f040x1
7      -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
8      -      INSERV     -          TDET       3/13/96:5520:5520:28f200x1
9      -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
10     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
11     -      INSERV     -          TDET       3/13/96:5520:5520:28f200x1
12     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
13     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
14     -      INSERV     -          TDET       3/13/96:5520:5520:28f200x1
15     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
16     -      INSERV     -          POWER      3/12/96:5520:5520:28f001x1
17     -      INSERV     -          TGEN       3/13/96:5520:5520:28f200x1
18     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
19     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
20     -      INSERV     -          TDET       3/13/96:5520:5520:28f200x1
21     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
22     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
23     -      INSERV     -          TDET       3/13/96:5520:5520:28f200x1
24     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
25     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
26     -      INSERV     -          TDET       3/13/96:5520:5520:28f200x1
27     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
28     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
29     -      INSERV     -          TDET       3/13/96:5520:5520:28f200x1
30     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
31     -      FOOS       -          PRI        3/12/96:5520:5520:29f040x1
32     -      INSERV     -          POWER      3/12/96:5520:5520:28f001x1
No configuration errors.
```

In the above example, the `CD options` column displays the date, time, and version number of the firmware.

NOTE:
For WSN 1.1, the machine ID would be vp00 or vp01.

cleiadm

Synopsis

Administers the CMF machine Common-Language Equipment Identifier (CLEI) value on the machine for which **cleiadm** is run.

Command Format

cleiadm [-d] [-m *<mach_id>*] [-v *<clei>*]

Arguments

-d	Displays the current value
-m <*mach_id*>	Machine ID where the command runs
-v <*clei*>	New value for MACH_CLEI (10 characters)

Description

Administers the machine CLEI value on the machine for which **cleiadm** is run. This value must be 10 characters. CLEI is customized for an application and might not display the numbers given in the following example.

Example

cleiadm -d -m pm00

```
running command "/usr/add-on/sms/bin/cleiadm -d -m" on pm00
Current MACH_CLEI value = VSMASC0C0MA
```

clliadm

Synopsis

Administers the site's CMF Common-Language Location Identifier (CLLI) value.

Command Format

clliadm -d | -r | -v <*clli*>

Arguments

-d	Displays current value
-r	Resyncs the current value
-v <*clli*>	New value for SITE_CLLI (***ccccssbbaai***) ***cccc*** — city ***ss*** — state/province/country ***bb*** — building ***aa*** — application (**ie** for IETS, WSN's name on release 1) ***i*** — instance (1 through 9)

Description

Administers the site CLLI value. This value identifies the building and adjunct complex within the country where the machine is located. This value, combined with the machine ID, goes out as the alarm header for all alarms from a machine.

The city, state, and building parts match existing 4ESS administration.

The application (***aa***) and instance (***i***) parts uniquely identify an application adjunct complex within the building. The application (***aa***) value is unique for an application in the 4ESS network.

The instance (***i***) value usually is 1. If the application has more than one complex in the building, the instance field is incremented for each complex.

Example

clliadm -d

```
Current CLLI Value = FRHDNJ02IE1
```

clockadm

Synopsis

Performs clock address administration.

Command Format

clockadm [-d] [-m <mach_id>] [-r] [-v <*dkdial_string*>]

Arguments

-d	Displays the current value
-m *<mach_id>*	The machine ID where the command runs
-r	Resynchs the current value on all machines at this site
-v <*dkdial_string*>	Datakit address and service name for clock server. Its format is ***area/exchange/host.service***.

Description

Administers the Datakit address for the clock server in the DWAN network. The Datakit address is used by the **csynch** command. If the value is administered to a zero length string, **csynch** makes no attempt to dial out to an external source.

Example

clockadm -m pm00 -v co/denvnc3/dtccsun1.clock

sets a dial string that **csynch** uses to connect with the clock server.

See Also

csynch

clrlights

Synopsis

Clears alarm lights and resets the alarms.

Command Format

clrlights [-m <*mach_id*>] [-s]

Arguments

-m *<mach_id>*	Machine ID where the command runs
-s	Specifies site-based operation

Description

Clears alarm lights from the specified machine or site

Example

clrlights -m vp01

```
Alarm contact set 1 already off (open).
Alarm contact set 2 already off (open).
Alarm contact set 3 already off (open).
Alarm contact set 4 already off (open).
```

comcheck

Synopsis

Checks LAN and software connectivity to the PM.

Command Format

comcheck [-m <*mach_id*>] [-w <*wait_time*>]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-w <*wait_time*>	Time in seconds that **comcheck** waits for replies from machines. Default is 15 seconds.

Description

Checks the LAN connectivity and the software connectivity between all machines.

NOTE:
For WSN, **comcheck** checks LAN A and LAN B connectivity between the PMs and the VP. It does not check connectivity between the PMs and the AT&T WorldSHARE core server.

A message reply time on the **comcheck** output screen indicates that the machine is connected to the LAN, administered as Y in the machine table, and is ON.

`no reply` in any of the reply columns indicates a problem or that one of the conditions is not satisfied.

When a machine is out of service, it does not show up in the **comcheck** table.

comcheck differs from **lancheck** in that **comcheck** is an application-level, message-based communications check. **lancheck** is a TCP/IP-based communications/connectivity check.

Example

comcheck

```
================================================
|     Message Level Communications Check       |
================================================
          -------LAN A------    -------LAN B------
          MESSAGE   MESSAGE     MESSAGE   MESSAGE
MACHINE   SENT      REPLY       SENT      REPLY
--------  --------  --------    --------  --------
vp00      10:02:01  10:02:01    10:02:01  10:02:01
vp01      10:02:01  10:02:01    10:02:01  10:02:01
pm00      10:02:01  10:02:01    10:02:01  10:02:01
pm01      10:02:01  10:02:01    10:02:01  10:02:01
```

See Also

lancheck

csynch

Synopsis

Checks the clock synchronization between machines at a site.

Command Format

csynch [-m <mach_id>] [-b] [-f] [-d <*logsetting*>]

Arguments

-m *<mach_id>* Machine ID where the command runs

-b Run in background mode with no output

-f Force clock synchronization if readings are disparate

-d <*logsetting*> Logging level. Logging settings are bit-mapped categories:

- LM_LOG 0000 0000 0100

  This is the default setting. It shows machine-level interactions, tells how much the clock has drifted, and sets the new time.

- LM_TRACE 0000 0000 1000

  This setting shows the LM_LOG information and the individual routines that **csynch** is going through.

- LM_CLOCK 0000 0010 0000

  This setting shows the LM_TRACE information and the address **csynch** is dialing.

NOTE:
Log setting applies only to a single command invocation. Use the logsetting option (**-d**) only when debugging communication problems with the clock server.

Description

csynch is supported only on the PM. If the Datakit clock address is administered (with the **clockadm** command) and has a non-zero length string, **csynch** calls out over the Datakit interface to the clock server machine in the DWAN network and retrieves the current time.

If the time is within time tolerances, the external time is propagated to all the machines. If the time is outside tolerances and the **-f** option is not specified, then *no* times are changed. If the clock address is not administered, the current PM's time is propagated to all the machines.

Example

To synchronize the clocks at your site with the time on the time server, enter

csynch -m pm00 -f

The **-f** option forces synchronization no matter what the clock on pm00 is set to.

See Also

clockadm

delruser

Synopsis

Deletes a restricted user from the current machine.

Command Format

delruser <*login_id*>

Argument

login_id Restricted login ID of the user you want to delete

Example

This example deletes the restricted user ruser1 from the machine you are running on.

delruser ruser1

```
Delete the login for ruser1 (Restricted User1) (y/n)? Y
ruser1 deleted
```

See Also

addruser

diagnose

Synopsis

Diagnoses Communicore modules, the Communicore bus, MAP/100C circuit cards, and the MAP/100C bus.

Command Format

diagnose [-m <mach_id>] [-g <*grace_period*>]<*resource_type*> <*range*>

Arguments

-m *<mach_id>*	Machine ID where the command runs
-g *<grace_period>*	Number of seconds the machine waits before dropping calls. Default is 180 seconds. This option applies to call processing machines only.
<*resource_type*>	**card, rcard, bus, rbus,** or **all** The **card** and **bus** resource types apply to call processing machines only. The **rcard** and **rbus** resource types apply to MAP 2000 call processing machines only.
<*range*>	The ***<range>*** argument is valid only with **card** or **rcard** resource types. ■ A single number (**2**) ■ A comma-separated list (**2,3,4**) ■ A number range (**2-4**) ■ **all** (lower case)

Description

This command diagnoses:

- Modules on the Communicore
- Resource cards on the MAP/100C VP
- Cards in the MAP/100C PM
- The Communicore bus
- MAP/100C resource bus in the VP

and reports diagnostic results on screen.

diagnose removes the affected MAP/100C cards, dependent cards, Communicore modules, and dependent modules from service before diagnostics are performed. With **diagnose bus** on a MAP 2000 VP, there is no removal of resources before diagnostics are performed because it is a nondestructive test.

WARNING:
If **diagnose** *detects a problem, the failing hardware goes to the broken state and is taken out of service. Be aware that calls or services may be blocked immediately.*

NOTE:
When you run the **diagnose bus** command on a VP, **diagnose** may report some tests as aborted. If this happens, it does not mean that any modules have failed these tests. It means that the resources required to perform the tests are not available. For example, some tests always abort when testing modules in the Communicore's upper subrack because no switch module is there.

You can pipe the output of this command through the UNIX **pg** command.

NOTE:
If another **diagnose** command is running, any subsequent **diagnose** command is blocked and a message is printed to the screen. Wait and try again.

CAUTION:
If you diagnose the PRI module that carries a D-channel, all other modules that depend on that D-channel are removed from service. Contact the TCC and have them take the affected D-channel out of service before you use the command.

CAUTION:
If you perform **diagnose** *on a VP for any value or range that includes any of the modules 1 through 3 (including* **all***), or if you perform* ***diagnose*** *for any rcard*, *the Communicore and the MAP/100C will be unable to communicate when the modules and cards are restored to service.*

To re-establish communications after the modules and cards are restored, cycle the VP. Enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

CAUTION:
This command runs only nondestructive tests on Communicore modules 1 through 3, so even if the Communicore passes the tests, problems might remain with Communicore modules 1 through 3.

Examples

To diagnose all of the Communicore modules associated with machine vp01, enter

diagnose -m vp01 card all

```
running command "/usr/add-on/sms/bin/diagnose card all" on vp01
Communicore Board 3: SCOTCH fifo TEST ABORTED (board is in use)
Communicore Board 3: LED TEST PASSED (passed)
Communicore Board 1: LED TEST PASSED (passed)
Communicore Board 3: SCOTCH conc hwy looparound TEST ABORTED (board is in use)
Communicore Board 2: PPE Functional TEST ABORTED (board is in use)
Communicore Board 1: Board Address Parity TEST PASSED (passed)
Communicore Board 2: LED TEST PASSED (passed)
Communicore Board 3: SCOTCH TDM Looparound ABORTED (board is in use)
Communicore Board 2: PPE Memory TEST ABORTED (board is in use)
Communicore Board 2: Board Address Parity TEST PASSED (passed)
Communicore Board 3: SCOTCH Reset and Register TEST ABORTED (board is in use)
Communicore Board 4: LED TEST PASSED (passed)
Communicore Board 5: LED TEST PASSED (passed)
Communicore Board 6: LED TEST PASSED (passed)
Communicore Board 7: LED TEST PASSED (passed)
Communicore Board 8: LED TEST PASSED (passed)
Communicore Board 9: LED TEST PASSED (passed)
Communicore Board 10: LED TEST PASSED (passed)
Communicore Board 3: SCOTCH self-TEST ABORTED (board is in use)
Communicore Board 11: LED TEST PASSED (passed)
Communicore Board 12: LED TEST PASSED (passed)
     .
     .
Communicore Board 25: Done
Communicore Board 27: Done
Communicore Board 28: Done
Communicore Board 30: Done
Communicore Board 31: Done
Communicore Board 1: Static RAM TEST PASSED (passed)
Communicore Board 1: Done
All diagnostics complete
card diagnostics complete.
The cards are ready to be restored to service.
Warning: If you diagnosed cards 1 through 3, the Communicore and
MAP/100C will be unable to communicate when the diagnostics are
complete. To re-establish communications, cycle the MAP2000 using
the following steps:
1) chgstate on
2) chgstate off
3) chgstate on
```

See Also

chgstate
restore

dispalarms

Synopsis

Displays the alarm history.

Command Format

dispalarms [-m <*mach_id*>] [-g] [-n <*# lines*>]

Arguments

-m *<mach_id>*	Machine ID where the command runs
-g	Global site-based alarm history on the PM machine. Without the **-g** option, only the local machine alarm history displays.
-n *<# lines>*	Display the last # lines only. Without the **-n** option, all lines display.

Description

Displays logged alarms for the specified machine name. Displays alarms in chronological order.

Example

dispalarms -m vp07

```
 dnvrcopeca1vp07   96-04-23 13:56:35
  MEGA017  -- -- --- Communicore card 14 (slot=3D14,subrack=3D1) = transitioned to
      MANOOS.

 dnvrcopeca1vp07   96-04-23 13:56:35
  MEGA017  -- -- --- Communicore card 17 (slot=3D 1,subrack=3D2) = transitioned to
      MANOOS.

 dnvrcopeca1vp07   96-04-23 13:56:35
  MEGA017  -- -- --- Communicore card 20 (slot=3D 4,subrack=3D2) = transitioned to
      MANOOS.

 dnvrcopeca1vp07   96-04-23 13:56:35
  MEGA017  -- -- --- Communicore card 23 (slot=3D 7,subrack=3D2) = transitioned to
      MANOOS.

 dnvrcopeca1vp07   96-04-23 13:56:35
  MEGA017  -- -- --- Communicore card 26 (slot=3D10,subrack=3D2) = transitioned to
      MANOOS.

 dnvrcopeca1vp07   96-04-23 13:56:36
  MEGA017  -- -- --- Communicore card 29 (slot=3D13,subrack=3D2) = transitioned to
      MANOOS.

 dnvrcopeca1vp07   96-04-23 13:56:41
** MEGA016  -- -- --- Communicore card  4 is not framing (slot=3D 4, = subrack=3D1)

 dnvrcopeca1vp07   96-04-23 13:56:41
** MEGA016  -- -- --- Communicore card  4 is not framing (slot=3D 4, = subrack=3D1)

 dnvrcopeca1vp07   96-04-23 13:56:49
** MEGA004  -- -- --- TDM primary clock source (card  4) on Communicore was = lost.
      Location of this card is slot  4 in subrack 1.

 dnvrcopeca1vp07   96-04-23 13:57:37
*C MEGA009  -- -- --- PRI D-channel  1 removed from service.
.
.
.
 dnvrcopeca1vp07   96-04-23 13:57:40
** MEGA020  -- -- --- Communicore card  3 (slot=3D 3,subrack=3D1) was = manually
      removed from service.

 dnvrcopeca1vp07   96-04-23 13:57:40
** MEGA020  -- -- --- Communicore card 16 (slot=3D16,subrack=3D1) was = manually
      removed from service.

 dnvrcopeca1vp07   96-04-23 13:57:40
** MEGA020  -- -- --- Communicore card 32 (slot=3D16,subrack=3D2) was = manually
      removed from service.

 dnvrcopeca1vp07   96-04-23 13:57:40
*C MEGA009  -- -- --- PRI D-channel  1 removed from service.
::EOF
```

NOTE:
For WSN 1.1, the machine ID would be vp00 or vp01.

See Also

displog

Used together, **dispalarms** and **displog** provide a more complete look at alarm and message history.

dispclk

Synopsis

Displays the Communicore TDM primary and secondary clock sources.

Command Format

dispclk [-m *<mach_id>*]

Argument

-m <*mach_id*> Machine ID of the MAP 2000 machine where the command runs

Description

Displays the Communicore TDM primary and secondary clock sources and tells whether these clock sources are online or offline. A clock source is said to be *online* if it is able to supply digital synchronization from the far end.

NOTE:
A PRI card can be out of service and still be a valid clock source.

NOTE:
The default settings for the WSN clock sources are 4 (primary) and 6 (backup).

Example

dispclk

```
Getting Communicore TDM clock source information.......
        Primary: card 4 is OFF-LINE.
         Backup: card 6 is OFF-LINE.

        WARNING: The Primary and Backup clock sources are both OFF-LINE.
                 Therefore the internal clock is the current reference.
```

See Also

setclk
resetclk

dispconn

Synopsis

Displays the connection status of the B-channels on a MAP 2000.

Command Format

dispconn [-m <*mach_id*>] [-s]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-s	Specifies site-based operation on all MAP 2000 call processing machines

Description

Displays the connection status of the B-channels on a MAP 2000. For each active connection, the number and type of connecting channel is displayed.

CAUTION:
There can be B-channels on a call with no active connection, for example, a caller on hold. These B-channels will not display with ***dispconn*** *even though the B-channel is in use.*

Example

dispconn -m vp01

```
running command "/usr/add-on/sms/bin/dispconn" on vp01
CARD CHAN STATUS CTYPE  CON1   CON2   CON3   CON4   CON5   CON6        #CALLS
  4     0 IDLE                                                            0
  4     1 ACTIVE CC-Hcp <>45   <>46                                       1
  4     2 ACTIVE CC-Hcp <>47                                              1
  4     3 IDLE                                                            0
  4     4 IDLE                                                            0
          .
          .
          .
  4    21 IDLE                                                            0
  4    22 IDLE                                                            0
  4    23 ACTIVE DCHAN                                                    5
  6    24 IDLE                                                            0
  6    25 IDLE                                                            0
          .
          .
          .
  6    43 IDLE                                                            0
  6    44 IDLE                                                            0
  6    45 ACTIVE CC-Hrp <>1    <>46   T23/0                               1
  6    46 ACTIVE CC-Htp <>1    <>45                                       1
  6    47 ACTIVE CC-Hrp T8/0   <>2                                        1
  7    48 FOOS                                                            0
  7    49 FOOS                                                            0
```

The column definitions are:

CARD	PRI card number and ranges from1 to 32
CHAN	Call channel number and ranges from 0 to 999
STATUS	NETOOS, HWOOS, APPOOS, FOOS, or MANOOS for out of service channels. ACTIVE or IDLE for in service channels unless the application has registered a more descriptive status.
CTYPE	Blank unless the application has registered a call type. The D-channel always indicates DCHAN in the CTYPE field.
CON1 - CON6	Connection information: <> *n* - CHAN is fully bridged to call channel n <> R*n* - CHAN is fully bridged to resource channel n < *n* - CHAN is listening to call channel n <R*n* - CHAN is listening to resource channel n > *n* - CHAN is transmitting to call channel n >R*n* - CHAN is transmitting to resource channel n Tbb/ch - CHAN is connected to tone detector channel ch in slot bb C*bb*/*ch* - CHAN is connected to call classifier channel *ch* in slot *bb*
#CALLS	The number of claim requests for CHAN since midnight. A claim request is the way the application registers that a channel is being used for an incoming or outgoing call. D-channels count the total number of calls on channels it controls.

See Also

megamon
tracecp

dispdep

Synopsis

Displays channel and module dependencies.

Command Format

dispdep [-m <*mach_id*>] [-s]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-s	Specifies site-based operation on all MAP 2000 call processing machines

Description

Displays Communicore module and call-channel dependencies as defined by the application. Be aware that digital-signal processing modules, including tone detector, tone generator, and call classifier do not depend on other modules.

Example

dispdep -m vp07

```
running command "/usr/add-on/sms/bin/dispdep" on vp07
CARD   CHAN   DEP1  TYP1  DEP2  TYP2  DEP3  TYP3  DEP4  TYP4  DEP5  TYP5
1      -
2      -
3      -
4      -      3     PRI   2     SW    1     CTRL
4      0      24    PRIB  23    PRID  8     TDET
4      1      25    PRIB  23    PRID  8     TDET
4      2      26    PRIB  23    PRID  8     TDET
4      3      27    PRIB  23    PRID  8     TDET
4      4      28    PRIB  23    PRID  8     TDET
4      5      29    PRIB  23    PRID  8     TDET
4      6      30    PRIB  23    PRID  8     TDET
4      7      31    PRIB  23    PRID  8     TDET
4      8      32    PRIB  23    PRID  8     TDET
4      9      33    PRIB  23    PRID  8     TDET
4      10     34    PRIB  23    PRID  8     TDET
4      11     35    PRIB  23    PRID  8     TDET
4      12     36    PRIB  23    PRID  8     TDET
4      13     37    PRIB  23    PRID  8     TDET
4      14     38    PRIB  23    PRID  8     TDET
4      15     39    PRIB  23    PRID  8     TDET
4      16     40    PRIB  23    PRID  8     TDET
4      17     41    PRIB  23    PRID  8     TDET
```

NOTE:
For WSN 1.1, the machine ID would be vp00 or vp01.

dispdigit

Synopsis

Displays the digits pressed during a call.

Command Format

dispdigit [-m <*mach_id*>] [-s] <*range*>

Arguments

-m <*mach_id*>	Machine ID where the command runs
-s	Specifies site-based operation on all MAP 2000 call processing machines
range	A single tone detector module number (**8**), a comma-separated list of numbers (**8,11,14**), a range of numbers (**8-14**), or all (**all**)

Description

Displays the digits pressed during a call. Use this information for troubleshooting.

NOTE:
If you see the letters A through D in the DIGITS column in a **dispdigit** screen, you may ignore them.

Example

dispdigit -m vp05 8-14:

```
running command "/usr/add-on/sms/bin/dispdigit 8-14" on vp05
      TDET      TDET      PRI       PRI
      CARD      CHAN      CARD      CHAN      DIGITS
-------------------------------------------------
       8         0         4         12    # 3 5 8 9 0 3 5 1 5  up to 100 digits

       8         1         7         20    # 3 4 5 6 # 3 2 1 0  up to 100 digits
```

NOTE:
For WSN 1.1, the machine ID would be vp00 or vp01.

displed

Synopsis

Displays the Communicore module status LEDs.

Command Format

displed [-m <*mach_id*>] [-s] <*resource_type*> <*range*>

Arguments

-m <*mach_id*>	Machine ID where the command runs
-s	Specifies site-based operation on all MAP 2000 call processing machines
resource_type	Is **card** or **type**
range (for **card**)	One of the following: ■ A single number (**2**) ■ A comma-separated list (**2,3,4**) ■ A number range (**2-4**) ■ **all** (lower case)
range (for **type**)	One of the following: ■ **CONTROL** (upper case) ■ **SWITCH** (upper case) ■ **POWER** (upper case) ■ **TGEN** (upper case) ■ **TDET** (upper case) ■ **CCA** (upper case) ■ **PRI** (upper case) ■ **all** (lower case)

Description

Displays the LED status of the user-specified Communicore modules. The normal states are on, off, flash, MFlash (medium flash), and Fflash (fast flash). AbFlash (abnormal flash or slow flash) indicates an LED status other than one of the normal states.

displed is issued to all Communicore modules, a subset of Communicore modules, or a particular Communicore module type. ‘‘Communicore Module Indicators’’ from page 3-6 through 3-25 contains a full discussion of the LED states.

NOTE:
If another **displed** command is running, any subsequent **displed** command is blocked and a message is printed to the screen. Wait and try again.

Example

This command displays the LEDs of all the cards on vp01 grouped by type.

displed -m vp01 type all

```
running command "/usr/add-on/sms/bin/displed type all" on vp01

Card Type     Slot Status    Node Proc Link
---------     ---- ------    --------------
CONTROL         1  on        on

Card Type     Slot Status
---------     ---- ------
SWITCH          2  on

Card Type     Slot Status    LOS       RAI       ERROR     Loopback
---------     ---- ------    ---       ---       -----     --------
PRI             3  on        off       off       off       off
PRI             4  on        off       off       off       off
PRI             6  on        off       off       off       off
PRI             7  flash     on        off       off       off
PRI             9  flash     on        off       off       off
PRI            10  flash     on        off       off       off
PRI            12  flash     on        off       off       off
PRI            13  flash     on        off       off       off
PRI            15  flash     on        off       off       off
PRI            18  flash     on        off       off       off
PRI            19  flash     on        off       off       off
PRI            21  flash     on        off       off       off
PRI            22  flash     on        off       off       off
PRI            24  flash     on        off       off       off
PRI            25  flash     on        off       off       off
PRI            28  flash     on        off       off       off
PRI            30  flash     on        off       off       off
PRI            31  flash     on        off       off       off

Card Type     Slot Status    -48v      +5v       Subrack ID
---------     ---- ------    ----      ---       ----------
POWER          16  on        on        on        off
POWER          32  on        on        on        on

Card Type     Slot Status
---------     ---- ------
TGEN            5  flash
TGEN           17  flash

Card Type     Slot Status
---------     ---- ------
TDET            8  on
TDET           11  flash
TDET           14  flash
TDET           20  flash
TDET           23  on
TDET           26  flash
TDET           29  flash
```

displog

Synopsis

Displays the event log messages for the specified machine.

Command Format

displog [-m <*mach_id*>] [-n <*# of entries*>]

Arguments

mach_id	Machine ID where the command runs
-n <*# of entries*>	Number of log entries to be listed (if the **-n** option is not used, all entries display). **n** displays the last n messages.

Description

Displays the most recent messages in the event log for the specified machine, for example, **displog** displays the MAP/100C subsystem error files. You can display as many messages as you want. Use this command for troubleshooting only.

Example

This example displays the event log messages on the machine from which it was run. Messages are presented in chronological order.

displog

```
                    MESSAGE LOG REPORT

Pr Time                                  Source
-- ----                                  ------
   Fri Apr 19 10:27:49 1996              LOGDAEMON
   LOG001   -- -- --- ** START OF LOGFILE
         '/usr/spool/log/data/log110.10.27' ** openLog


   Fri Apr 19 10:27:49 1996              LOGDAEMON
   LOG007   -- -- --- logDaemon: PID 167 starting.


   Fri Apr 19 10:27:50 1996              alerter
   ALERT005 -- -- --- 7 thresholds created from the
threshold rules contained in/usr/spool/log/thresh.rules.


   Sat Apr 20 00:15:02 1996              24HMR_REP
   CMF001  -- -- --- CMF: INFO ONLY:
p24_rep: There are no machines administered at this time.


   Sun Apr 21 00:15:02 1996              24HMR_REP
   CMF001  -- -- --- CMF: INFO ONLY:
p24_rep: There are no machines administered at this time.


   Mon Apr 22 00:15:02 1996              24HMR_REP
   CMF001  -- -- --- CMF: INFO ONLY:
p24_rep: There are no machines administered at this time.
```

See Also

dispalarms

displrpa

Synopsis

Displays long-running process alarms from the LRPA log file.

Command Format

displrpa [-m *<mach_id>*] [*<process_name>* ¦ **-t]

Arguments

-m <*mach_id*>	Machine ID to which the entry is displayed
<process name>	Displays all processes of name
-t	Displays the tail end of the alarms

NOTE:
By default, all alarms display.

Description

Displays entries from the long-running process alarm (LRPA) log file. These are the alarms raised by the **procchk** cron job that checks and raises alarms for processes exceeding their administered time limit.

Processes are checked every 15 minutes, beginning on the hour. Processes are alarmed or not, depending on the time limit specified in the **-t** argument specified with **chglrpa** or **addlrpa**.

Because alarm situations are evaluated every 15 minutes, short alarm limits of less than 15 minutes present a special case. Short alarm processes are alarmed if they are running at the time the cron job checks the **lrpa.cfg** file. If the process is no longer running when the cron job executes, no alarm displays.

If the process has been alarmed for less than 15 minutes but is still running when the cron job executes, an alarm is generated to report the time that the process exceeded the time specified in the **-t** argument.

Example

This example displays all alarms in the LRPA log for pm01.

displrpa -m pm01

```
running command “usr/add-on/sms/bin/displrpa” on pm01
(Mon Apr 22 08:15:06.88):Process (init) PID (1) has exceeded its time limit of: (0) hours (15) minutes.
(Mon Apr 22 08:30:02.59):Process (init) PID (1) has exceeded its time limit of: (0) hours (15) minutes.
(Mon Apr 22 08:45:02.18):Process (init) PID (1) has exceeded its time limit of: (0) hours (15) minutes.
```

See Also

addlrpa
chglrpa
listlrpa
remlrpa

dispstatus

Synopsis

On VP machines, this command displays the status of all Communicore modules and MAP/100C cards and channels. On machine types other than call processors, **dispstatus** displays the status of the application.

Command Format

dispstatus [-m *<mach_id>*] [-s] [<resource type> <range>]

Arguments

-m *<mach_id>*	Machine ID where the command runs
-s	Specifies site-based operation on all machine types.
<resource_type>	**card** or **rcard**
<range>	One of the following: ■ A single number (**2**) ■ A comma-separated list (**2,3,4**) ■ A number range (**2-4**) ■ **all** (lower case)

The **card** resource type applies to call processing machines only. The **rcard** resource type applies to MAP 2000 call processing machines only.

Description

Displays the status of all modules, cards, and channels on the specified VP machine. If you specify a machine type other than a VP, **dispstatus** does not display service states; instead, it reports whether the application is ON or OFF.)

NOTE:
When executed on a call processor, **dispstatus** displays the status of all modules and all cards.

An asterisk (*) next to the channel denotes a D-channel to the network.

Example

dispstatus -m vp07 card all

```
running command "/usr/add-on/sms/bin/dispstatus card all" on vp07
----  Card 1: Function: CONTROL State: MANOOS   Options:
3/21/96:5520:5512:28f016x2 ----
----  Card 2: Function: SWITCH  State: MANOOS   Options: 3/12/96:5520:5520:29f040x1 ----
----  Card 3: Function: PRI     State: MANOOS   Options: 3/12/96:5520:5520:29f040x1 ----
----  Card 4: Function: PRI     State: MANOOS   Options: 3/12/96:5520:5520:29f040x1 ----
|  0 MANOOS |  1 MANOOS |  2 MANOOS |  3 MANOOS |  4 MANOOS |  5 MANOOS |
|  6 MANOOS |  7 MANOOS |  8 MANOOS |  9 MANOOS | 10 MANOOS | 11 MANOOS |
| 12 MANOOS | 13 MANOOS | 14 MANOOS | 15 MANOOS | 16 MANOOS | 17 MANOOS |
| 18 MANOOS | 19 MANOOS | 20 MANOOS | 21 MANOOS | 22 MANOOS | 23*MANOOS |
----  Card 5: Function: TGEN    State: MANOOS   Options: 3/13/96:5520:5520:28f200x1 ----
----  Card 6: Function: PRI     State: MANOOS   Options: 3/12/96:5520:5520:29f040x1 ----
| 24 MANOOS | 25 MANOOS | 26 MANOOS | 27 MANOOS | 28 MANOOS | 29 MANOOS |
| 30 MANOOS | 31 MANOOS | 32 MANOOS | 33 MANOOS | 34 MANOOS | 35 MANOOS |
| 36 MANOOS | 37 MANOOS | 38 MANOOS | 39 MANOOS | 40 MANOOS | 41 MANOOS |
| 42 MANOOS | 43 MANOOS | 44 MANOOS | 45 MANOOS | 46 MANOOS | 47 MANOOS |
----  Card 7: Function: PRI     State: MANOOS   Options: .
.
.
3/13/96:5520:5520:28f200x1 ----
----  Card 30: Function: PRI    State: MANOOS   Options: 3/12/96:5520:5520:29f040x1 ----
|384 MANOOS |385 MANOOS |386 MANOOS |387 MANOOS |388 MANOOS |389 MANOOS |
|390 MANOOS |391 MANOOS |392 MANOOS |393 MANOOS |394 MANOOS |395 MANOOS |
|396 MANOOS |397 MANOOS |398 MANOOS |399 MANOOS |400 MANOOS |401 MANOOS |
|402 MANOOS |403 MANOOS |404 MANOOS |405 MANOOS |406 MANOOS |407 MANOOS |
----  Card 31: Function: PRI    State: MANOOS   Options: 3/12/96:5520:5520:29f040x1 ----
|408 MANOOS |409 MANOOS |410 MANOOS |411 MANOOS |412 MANOOS |413 MANOOS |
|414 MANOOS |415 MANOOS |416 MANOOS |417 MANOOS |418 MANOOS |419 MANOOS |
|420 MANOOS |421 MANOOS |422 MANOOS |423 MANOOS |424 MANOOS |425 MANOOS |
|426 MANOOS |427 MANOOS |428 MANOOS |429 MANOOS |430 MANOOS |431 MANOOS |
----  Card 32: Function: POWER  State: MANOOS   Options: 3/12/96:5520:5520:28f001x1
```

NOTE:
For WSN 1.1, the machine ID would be vp00 or vp01.

See Also

chgstate

See ‘‘Service States for Modules, Cards, and Channels’’ on page 6-2 for module, card and channel-state descriptions.

dkdiagnose

Synopsis

Troubleshoots Datakit problems on PM machines.

Command Format

dkdiagnose [-m <*mach_id*>]

Argument

-m <*mach_id*> Machine ID for the PM where the command runs

Description

Diagnoses the Datakit interface on the specified PM. The **dkdiagnose** command takes the Datakit interface out of service, diagnoses it, then places it back in service. Because VPs do not contain a Datakit card, this command is not valid on those machines.

CAUTION:

*Use this command only as a last resort. If you are logged in over the Datakit interface, log in on another machine that has Datakit and run the command (using the **-m** option) back to the disabled machine.*

download

Synopsis

Downloads firmware to Communicore modules.

Command Format

download [-m <*mach_id*>] -l

download [-m <*mach_id*>] [-l] [-r <# *tries*>] <*resource_type*> <*range*>

Arguments

-m <*mach_id*>	Machine ID where the command runs
-l	Lists the firmware version number and indicates if that version is out of date. This command does not require that the module be taken out of service.
-r <# tries>	Number of times to attempt to download to a module if it should fail to download correctly. The default is 3 times.
resource_type	Is **card** or **type**
range	■ For **card** — a single number or all ■ For **type** — one of the following: **CONTROL** (upper case) **SWITCH** (upper case) **POWER** (upper case) **TGEN** (upper case) **TDET** (upper case) **CCA** (upper case) **PRI** (uppercase) **all** (lowercase)

Description

Downloads firmware through the MAP/100C in a MAP 2000 machine to Communicore modules. **download** is a service-affecting command, and should be used only when:

- A new MAP 2000 VP is installed
- A specific Communicore module is replaced
- New firmware is to be installed (new release or a patch only)

CAUTION:
Before using this command, you must turn down customer traffic and take the specified machine out of service. Refer to ''Removing a Machine from Service'' on page 4-64.

NOTE:
If another **download** command is running, any subsequent **download** command is blocked and a message displays on the screen. Wait and try again.

Examples

To download firmware, always follow these steps:

1. Turn down customer traffic and wait for traffic to fall off.
2. Take the specified machine out of service. Enter:

   chgstate -m <*mach_id*> [-*g* <*grace_ period*>] mtce

3. Enter the following commands:

   download -m <*mach_id*> <*resource_type*> <*range*>
   chgstate -m <*mach_id*> on
   chgstate -m <*mach_id*> off
   chgstate -m <*mach_id*> on

To download firmware to all of the modules in vp01, enter:

download -m vp01 card all

To download firmware to all of the tone detector modules in vp01, enter:

download -m vp01 type tdet

To download firmware to card 1 in vp01, enter:

download -m vp01 card 1

See Also

chgstate
remove
restore
siteload

ds1adm

Synopsis

Administers the DS1/E1 table on the specified call-processing machine with DS1 or E1 modules for which **ds1adm** is run.

Command Format

ds1adm [-m <*mach_id*>] [-d]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-d	Display current values

Description

Administers the DS1/E1 table on the specified call processing machine. It displays an interactive menu to administer information for all the DS1/T1/E1 modules in the machine.

NOTE:
For WSN the DS1 table is not administered. The default table is used.

Example

The following example displays the current DS1/E1 table for vp01.

ds1adm -m vp01 -d

```
running command "/usr/add-on/maint/bin/ds1adm -d" on vp01
================================================
|        DS1/E1 Table                          |
================================================
Slot   DS1/E1      ADJUNCT  ADJUNCT SWITCH   SWITCH
Number Type   BTFN DSX_BAY  DSX_PJ  DSX_BAY  DSX_PJ
--     ----   ---- -------- ----    -------- ----
03     PRID   0000 00000000 0000    00000000 0000
04     PRID   0000 00000000 0000    00000000 0000
06     PRI    0000 00000000 0000    00000000 0000
07     PRI    0000 00000000 0000    00000000 0000
09     PRI    0000 00000000 0000    00000000 0000
10     PRI    0000 00000000 0000    00000000 0000
12     PRI    0000 00000000 0000    00000000 0000
13     PRI    0000 00000000 0000    00000000 0000
15     PRI    0000 00000000 0000    00000000 0000
18     PRI    0000 00000000 0000    00000000 0000
19     PRI    0000 00000000 0000    00000000 0000
21     PRI    0000 00000000 0000    00000000 0000
22     PRI    0000 00000000 0000    00000000 0000
24     PRI    0000 00000000 0000    00000000 0000
25     PRI    0000 00000000 0000    00000000 0000
27     PRI    0000 00000000 0000    00000000 0000
28     PRI    0000 00000000 0000    00000000 0000
30     PRI    0000 00000000 0000    00000000 0000
31     PRI    0000 00000000 0000    00000000 0000
```

ds1rep

Synopsis

Generates the DS1/E1 report for the site or a single machine.

Command Format

ds1rep

Description

ds1rep generates the DS1/E1 report. When you enter **ds1rep**, interactive choices display that allow you these options.You can:

- Generate the report for the site or for a single machine.
- Display the report on your screen

  or

  transfer the file over the Datakit network to a remote host.

  To use this option:

  — The host machine must be predefined and preauthorized.

  — The user must be preauthorized to perform file transfers between the PM machine and the destination host machine

You must run **ds1rep** from a PM.

Example

ds1rep

Interactive choices display on screen. This screen displays the choices that result in the following example DS1/E1 report.

```
Do you wish to transfer the report to a remote host? (y/n) [n] --> n
You may choose ALL machines in the Site or ONE machine.
Enter ALL (a) or ONE (o).  [o] -->  o
Choose a machine from the following list:

                        INDEX UNAME    MACH-ID
                        ---   -------- ----
                        1     vp00     vp00

Enter INDEX value (1,2,3,..) --> 1
Please wait while report data is collected.
```

The following example screen was produced from machines with no application loaded and with no administration performed. You will not see application information nor correct clli or clei codes.

```
================================================================================
|                      DS1/E1 - INTERCONNECTION REPORT                         |
================================================================================

Current Date/Time:  Tue Sep 17 11:21:56 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:20:04 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                     ccccssbbaai   0000000000       vp00         000000.00.00

                     ================================================
                     |                    DS1/E1 Table                |
                     ================================================
                     Slot   DS1/E1      ADJUNCT  ADJUNCT SWITCH   SWITCH
                     Number Type   BTFN DSX_BAY  DSX_PJ  DSX_BAY  DSX_PJ
                     --     ----   ---- -------- ----    -------- ----
                     03     PRID   0000 00000000 0000    00000000 0000
                     04     PRID   0000 00000000 0000    00000000 0000
                     06     PRI    0000 00000000 0000    00000000 0000
                     07     PRI    0000 00000000 0000    00000000 0000
                     09     PRI    0000 00000000 0000    00000000 0000
                     10     PRI    0000 00000000 0000    00000000 0000
                     12     PRI    0000 00000000 0000    00000000 0000
                     13     PRI    0000 00000000 0000    00000000 0000
                     15     PRI    0000 00000000 0000    00000000 0000
                     18     PRI    0000 00000000 0000    00000000 0000
                     19     PRI    0000 00000000 0000    00000000 0000
                     21     PRI    0000 00000000 0000    00000000 0000
                     22     PRI    0000 00000000 0000    00000000 0000
                     24     PRI    0000 00000000 0000    00000000 0000
                     25     PRI    0000 00000000 0000    00000000 0000
                     27     PRI    0000 00000000 0000    00000000 0000
                     28     PRI    0000 00000000 0000    00000000 0000
                     30     PRI    0000 00000000 0000    00000000 0000
                     31     PRI    0000 00000000 0000    00000000 0000

                     ============================================================
                     |              Resource DS1/E1 Table                       |
                     ============================================================
                     Slot   DS1/E1 Card        ADJUNCT  ADJUNCT SWITCH   SWITCH
                     Number Type   Number BTFN DSX_BAY  DSX_PJ  DSX_BAY  DSX_PJ
                     --     ----   --     ---- -------- ----    -------- ----
                     04     PRID   00     0000 00000000 0000    00000000 0000

                     Please wait while temporary files are removed.
```

dsrrep

Synopsis

Generates the demand status report for the site or for a single machine.

Command Format

dsrrep

Description

Generates the demand status report for the site or a single machine. When you enter **dsrrep**, interactive choices display that allow you these options.You can:

- Generate the report for the site or for a single machine.
- Display the report on your screen

  or

  transfer the file over the Datakit network to a remote host.

  To use this option:

  — The host machine must be predefined and preauthorized.

  — The user must be preauthorized to perform file transfers between the PM machine and the destination host machine

You must run **dsrrep** from a PM.

A line at the end of a data section stating that "`<<< FILES ARE MISSING`" indicates that some of the data files for the requested interval are missing for some reason.

Example

dsrrep

Interactive choices display on screen. This screen shows the choices that result in the following example demand status report.

```
================================================================
|         Demand Status Report Start and End Times             |
================================================================
The default start time for the DSR is:  Thu Oct  3 10:00:00 1996
The default end   time for the DSR is:  Thu Oct  3 11:00:00 1996
Use default time? (y/n) [y] -->  y
Do you wish to transfer the report to a remote host? (y/n) [n] --> n
You may choose ALL machines in the Site or ONE machine.
Enter ALL (a) or ONE (o).  [o] --> a

Please wait while report data is collected.
```

The following example screens were produced from machines with no application loaded and with no administration performed. You will not see application information nor correct clli or clei codes.

```
================================================================================
|                       ON DEMAND STATUS REPORT - pm00                         |
================================================================================


MACHINE ID:   pm00
CLLI CODE:    ccccssbbaai
REPORT DATE:  Thu Oct  3 11:21:37 1996


REPORT START TIME:  10:03:96:10:00:00
STOP TIME:          10:03:96:11:00:00

FIELD UPDATES:     NO FIELD UPDATES INSTALLED

LOGINS:
 ** NO LOGINS REPORTED DURING THE REQUESTED INTERVAL **


CALL PEG COUNTS:
               ** NOT APPLICABLE **

ERROR MESSAGES:
LEV MESSAGE  COUNT LEV MESSAGE  COUNT LEV MESSAGE  COUNT LEV MESSAGE  COUNT
 -- -------- -----  -- -------- -----  -- -------- -----  -- -------- -----
 ** APPL114      4

LAN COMMUNICATIONS: (Down times are in minutes)


LAN A:  pm00 FOR 10/03/96
Interval Down Interval Down Interval Down Interval Down
-----    --   -----    --   -----    --   -----    --
10:00     0   10:15     0   10:30     0   10:45     0


LAN B:  pm00b FOR 10/03/96
Interval Down Interval Down Interval Down Interval Down
-----    --   -----    --   -----    --   -----    --
10:00     0   10:15     0   10:30     0   10:45     0
```

Example (cont.)

```
================================================================================
|                       ON DEMAND STATUS REPORT - pm01                          |
================================================================================


MACHINE ID:   pm01
CLLI CODE:    ccccssbbaai
REPORT DATE:  Thu Oct  3 11:21:40 1996


REPORT START TIME:  10:03:96:10:00:00
STOP TIME:          10:03:96:11:00:00

FIELD UPDATES:     NO FIELD UPDATES INSTALLED

LOGINS:
 ** NO LOGINS REPORTED DURING THE REQUESTED INTERVAL **


CALL PEG COUNTS:
              ** NOT APPLICABLE **

ERROR MESSAGES:
LEV MESSAGE  COUNT LEV MESSAGE  COUNT LEV MESSAGE  COUNT LEV MESSAGE  COUNT
 -- -------- -----  -- -------- -----  -- -------- -----  -- -------- -----
 ** NO ERRORS REPORTED FOR THE INTERVAL REQUESTED **

LAN COMMUNICATIONS: (Down times are in minutes)


LAN A:  pm01 FOR 10/03/96
Interval Down Interval Down Interval Down Interval Down
-----    --   -----    --   -----    --   -----    --
10:00     0   10:15     0   10:30     0   10:45     0


LAN B:  pm01b FOR 10/03/96
Interval Down Interval Down Interval Down Interval Down
-----    --   -----    --   -----    --   -----    --
10:00     0   10:15     0   10:30     0   10:45     0
```

```
================================================================================
|                        ON DEMAND STATUS REPORT - vp00                        |
================================================================================



MACHINE ID:   vp00
CLLI CODE:    ccccssbbaai
REPORT DATE:  Thu Oct  3 11:21:45 1996


REPORT START TIME:  10:03:96:10:00:00
STOP TIME:          10:03:96:11:00:00

FIELD UPDATES:     NO FIELD UPDATES INSTALLED

LOGINS:
 ** NO LOGINS REPORTED DURING THE REQUESTED INTERVAL **

CALL PEG COUNTS:
               ** NOT APPLICABLE **

ERROR MESSAGES:
LEV MESSAGE  COUNT LEV MESSAGE  COUNT LEV MESSAGE  COUNT LEV MESSAGE  COUNT
 -- -------- -----  -- -------- -----  -- -------- -----  -- -------- -----
 ** NO ERRORS REPORTED FOR THE INTERVAL REQUESTED **

LAN COMMUNICATIONS: (Down times are in minutes)

LAN A:  vp00 FOR 10/03/96
Interval Down Interval Down Interval Down Interval Down
-----    --   -----    --   -----    --   -----    --
10:00     0   10:15     0   10:30     0   10:45     0

LAN B:  vp00b FOR 10/03/96
Interval Down Interval Down Interval Down Interval Down
-----    --   -----    --   -----    --   -----    --
10:00     0   10:15     0   10:30     0   10:45     0


Please wait while temporary files are removed.
```

eqirep

Synopsis

Generates the equipment inventory report for the site or for a single machine.

Command Format

eqirep

Description

Generates the equipment inventory report for the site or for a single machine. When you enter **eqirep**, interactive choices display that allow you these options. You can:

- Generate the report for the site or for a single machine.
- Display the report on your screen

  or

  transfer the file over the Datakit network to a remote host.

  To use this option:

  — The host machine must be predefined and preauthorized.

  — The user must be preauthorized to perform file transfers between the PM machine and the destination host machine

You must run **eqirep** from a PM.

A "*" at the end of a line of data in the report indicates an administration error where the live configuration does not match the administered configuration.

Example

eqirep

Interactive choices display on screen. This screen shows the choices that result in the following example equipment inventory report.

```
Do you wish to transfer the report to a remote host? (y/n) [n] --> n
You may choose ALL machines in the Site or ONE machine.
Enter ALL (a) or ONE (o).  [o] --> a

Please wait while report data is collected.
```

The following example screens were produced from machines with no application loaded and with no administration performed. You will not see application information nor correct clli or clei codes. For some vintages of Communicore modules, the serial number is “unavailable.”

```
================================================================================
|                     EQUIPMENT INVENTORY DATA REPORT                          |
================================================================================

Current Date/Time:  Tue Sep 17 12:05:51 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:19:58 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                     ccccssbbaai   0000000000        pm00         000000.00.00

SOFTWARE INFORMATION:

     The following software packages have been installed:

INTUITY Platform CONVERSANT Tuning
```

NOTE:
For the complete listing of software packages, see the screens for ‘‘Verify the NAP 3.0 Software on the PM’’ on page 4-21.

```
XWIN Screen Interface Specification

MAIN PLUG-IN INFORMATION

Slot  Card Type   Card No.   CLEI        Hardware Version            Status

 9    DATAKIT             0000000000   HS386 Datakit Interface       ADMIN
16    CPU                 GCPI10EGAA   D486DXC-50-0ATTR2 Ser:2       ADMIN
17    VIDEO               GCPIJ0GGAA   WDXLR833124 Ser:1             ADMIN
18    ALARM               GCUQACLXAA   CO Alarm                      ADMIN
20    LAN                 GCUQADPXAA   CP-8216CE067 ETHERNET LA*     ADMIN
21    LAN                 GCUQADPXAA   CP-8216CE067 ETHERNET LA*     ADMIN
22    LAN                 GCUQADPXAA   CP-8216CE067 ETHERNET LA*     ADMIN
25    SCSI CNTRL          QCPQAKCJAA   BusLogic BT542B Ver:H         ADMIN
```

Example (cont.)

```
                              SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           1              1          0
        CPU           GCPI10EGAA           1              1          0
        DATAKIT       0000000000           1              1          0
        LAN           GCUQADPXAA           3              3          0
        SCSI CNTRL    QCPQAKCJAA           1              1          0
        VIDEO         GCPIJ0GGAA           1              1          0

================================================================================
|                      EQUIPMENT INVENTORY DATA REPORT                         |
================================================================================

Current Date/Time:  Tue Sep 17 12:05:57 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:20:00 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                    ccccssbbaai   0000000000        pm01         000000.00.00

SOFTWARE INFORMATION:

     The following software packages have been installed:

INTUITY Platform CONVERSANT Tuning
.
.
.
XWIN Screen Interface Specification
```

NOTE:
For the complete listing of software packages, see the screens for ‘‘Verify the NAP 3.0 Software on the PM’’ on page 4-21.

Example (cont.)

```
MAIN PLUG-IN INFORMATION

Slot  Card Type   Card No.   CLEI        Hardware Version            Status

 9    DATAKIT             0000000000   HS386 Datakit Interface       ADMIN
 16   CPU                 GCPI10EGAA   D486DXC-50-0ATTR2 Ser:2       ADMIN
 17   VIDEO               GCPIJ0GGAA   WDXLR833124 Ser:1             ADMIN
 18   ALARM               GCUQACLXAA   CO Alarm                      ADMIN
 20   LAN                 GCUQADPXAA   CP-8216CE067 ETHERNET LA*     ADMIN
 21   LAN                 GCUQADPXAA   CP-8216CE067 ETHERNET LA*     ADMIN
 22   LAN                 GCUQADPXAA   CP-8216CE067 ETHERNET LA*     ADMIN
 25   SCSI CNTRL          QCPQAKCJAA   BusLogic BT542B Ver:H         ADMIN


                              SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           1              1          0
        CPU           GCPI10EGAA           1              1          0
        DATAKIT       0000000000           1              1          0
        LAN           GCUQADPXAA           3              3          0
        SCSI CNTRL    QCPQAKCJAA           1              1          0
        VIDEO         GCPIJ0GGAA           1              1          0

================================================================================
|                      EQUIPMENT INVENTORY DATA REPORT                         |
================================================================================

Current Date/Time:  Tue Sep 17 12:06:01 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:20:04 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                    ccccssbbaai   0000000000        vp00         000000.00.00

SOFTWARE INFORMATION:

     The following software packages have been installed:

CONVERSANT VIS V4.0 Configuration Package
CONVERSANT VIS V4.0 Application Software
CONVERSANT VIS V4.0 Application Software Update 1
CONVERSANT VIS V4.0 Feature Test Script Package
CONVERSANT VIS V4.0 T1 Board Driver
CONVERSANT VIS V4.0 SP Board Driver
CONVERSANT VIS V4.0 External Alarm Interface Package (Denver Modified)
CONVERSANT VIS V4.0 Text To Speech Package
Core Maintenance Features (CMF) (vp - CVIS V4.0) V3.0 R1.0[09/11/96]
```

Example (cont.)

```
C Software Development Set4.1.5
Editing Package Version 2.1
Extended Terminal Interface Package Version 2.0
FACE HELP Version 1.2
FACE Version 1.2.2
FMLI Version 1.2
MAP2000 Downloadable Firmware [R2.0.3]
MAP2000 V2.1 Base System [08/27/96]
Network Support Utilities Package (1.2) Version 2.1
AT&T 386 Network Interface Release 2.0
Perl version 5.001 unofficial patchlevel 1m 1
SCSI Support Package - Version 2.3
Site Management Support (SMS) (vp - CVIS V4.0) V2.0 R1.0[09/11/96]
Software Update Package - Denver - Version 4.0
Remote Terminal Package Version 2.1
UNIX System V/386 Release 3.2 Upgrade - Version 2.2 to Version 2.3
UNIX System V/386 Release 3.2 Version 2.3 Maintenance Disk #1
AT&T Enhanced TCP/IP WIN/386 Release 3.2

MAIN PLUG-IN INFORMATION

Slot Sbrk Card Type  CLEI       Serial No.   Software Version            Status
     Slot

  1  1/1  CONTROL    GCPQARJJAA 96DR03104846 8/12/96:5870:5870:28f016x2  INSERV
  2  1/2  SWITCH     GCPQARKJAA 95DR08115782 8/12/96:5870:5870:29f040x1  INSERV
  3  1/3  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
  4  1/4  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
  5  1/5  TGEN       GCPQARPJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
  6  1/6  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
  7  1/7  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
  8  1/8  TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
  9  1/9  PRI        GCPQARMJAA 95DR10115801 8/12/96:5870:5870:29f040x1  INSERV
 10  1/10 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 11  1/11 TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
 12  1/12 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 13  1/13 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 14  1/14 TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
 15  1/15 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
```

Example (cont.)

```
 16  1/16 POWER      GCPQARLJAA unavailable  8/12/96:5870:5870:28f001x1  INSERV
 17  2/1  TGEN       GCPQARPJAA 95DR09105755 8/12/96:5870:5870:28f200x1  INSERV
 18  2/2  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 19  2/3  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 20  2/4  TDET       GCPQARNJAA 95DR10115506 8/12/96:5870:5870:28f200x1  INSERV
 21  2/5  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 22  2/6  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 23  2/7  TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
 24  2/8  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 25  2/9  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 26  2/10 TDET       GCPQARNJAA 95DR10115533 8/12/96:5870:5870:28f200x1  INSERV
 27  2/11 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 28  2/12 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 29  2/13 TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
 30  2/14 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 31  2/15 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 32  2/16 POWER      GCPQARLJAA unavailable  8/12/96:5870:5870:28f001x1  INSERV


RESOURCE PLUG-IN INFORMATION

Slot  Card Type   Card No.   CLEI        Hardware Version            Status

 1    SP-2          1      ASPQACMAAB   AYC2C SP Ser:6              INSERV
 3    SP-2          2      ASPQACMAAB   AYC2C SP Ser:6              INSERV
 5    SP-8          3      GCUQACEXAB   AYC9 TTS Ser:6              INSERV
 7    T1            0      GCUQACJXAB   AYC11 T1 Vin:6              INSERV
 16   CPU                  GCPI10EGAA   D486DXC-50-0ATTR2 Ser:2     ADMIN
 17   VIDEO                GCPIJ0GGAA   WDXLR833124 Ser:1           ADMIN
 18   ALARM                GCUQACLXAA   CO Alarm                    ADMIN
 19   LAN                  GCUQACKXAA   StarLAN 10 PC-NAU           ADMIN
 21   LAN                  GCUQACKXAA   StarLAN 10 PC-NAU           ADMIN
 25   SCSI CNTRL           QCPQAKCJAA   BusLogic BT542B Ver:H       ADMIN
```

Example (cont.)

```
                          SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM        GCUQACLXAA          1             1            0
        CONTROL      GCPQARJJAA          1             1            0
        CPU          GCPI10EGAA          1             1            0
        LAN          GCUQACKXAA          2             2            0
        POWER        GCPQARLJAA          2             2            0
        PRI          GCPQARMJAA         19            19            0
        SCSI CNTRL   QCPQAKCJAA          1             1            0
        SP-2         ASPQACMAAB          2             2            0
        SP-8         GCUQACEXAB          1             1            0
        SWITCH       GCPQARKJAA          1             1            0
        T1           GCUQACJXAB          1             1            0
        TDET         GCPQARNJAA          7             7            0
        TGEN         GCPQARPJAA          2             2            0
        VIDEO        GCPIJ0GGAA          1             1            0

WARNING
A "*" indicates a board may not be properly administered.


================================================================================
|                       EQUIPMENT INVENTORY DATA REPORT                        |
================================================================================

Current Date/Time:  Tue Sep 17 12:06:12 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:20:03 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                    ccccssbbaai   0000000000       vp01         000000.00.00

SOFTWARE INFORMATION:

     The following software packages have been installed:

CONVERSANT VIS V4.0 Configuration Package
CONVERSANT VIS V4.0 Application Software
CONVERSANT VIS V4.0 Application Software Update 1
CONVERSANT VIS V4.0 Feature Test Script Package
CONVERSANT VIS V4.0 T1 Board Driver
CONVERSANT VIS V4.0 SP Board Driver
CONVERSANT VIS V4.0 External Alarm Interface Package (Denver Modified)
CONVERSANT VIS V4.0 Text To Speech Package
Core Maintenance Features (CMF) (vp - CVIS V4.0) V3.0 R1.0[09/11/96]
C Software Development Set4.1.5
Editing Package Version 2.1
Extended Terminal Interface Package Version 2.0
```

Example (cont.)

```
FACE HELP Version 1.2
FACE Version 1.2.2
FMLI Version 1.2
Network Support Utilities Package (1.2) Version 2.1
AT&T 386 Network Interface Release 2.0
Perl version 5.001 unofficial patchlevel 1m 1
SCSI Support Package - Version 2.3
Site Management Support (SMS) (vp - CVIS V4.0) V2.0 R1.0[09/11/96]
Software Update Package - Denver - Version 4.0
Remote Terminal Package Version 2.1
UNIX System V/386 Release 3.2 Upgrade - Version 2.2 to Version 2.3
UNIX System V/386 Release 3.2 Version 2.3 Maintenance Disk #1
AT&T Enhanced TCP/IP WIN/386 Release 3.2

MAIN PLUG-IN INFORMATION

Slot Sbrk Card Type  CLEI       Serial No.   Software Version            Status
     Slot

  1  1/1  CONTROL    GCPQARJJAA 96DR03104846 8/12/96:5870:5870:28f016x2  INSERV
  2  1/2  SWITCH     GCPQARKJAA 95DR08115782 8/12/96:5870:5870:29f040x1  INSERV
  3  1/3  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
  4  1/4  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
  5  1/5  TGEN       GCPQARPJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
  6  1/6  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
  7  1/7  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
  8  1/8  TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
  9  1/9  PRI        GCPQARMJAA 95DR10115801 8/12/96:5870:5870:29f040x1  INSERV
 10  1/10 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 11  1/11 TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
 12  1/12 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 13  1/13 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 14  1/14 TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
 15  1/15 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 16  1/16 POWER      GCPQARLJAA unavailable  8/12/96:5870:5870:28f001x1  INSERV
 17  2/1  TGEN       GCPQARPJAA 95DR09105755 8/12/96:5870:5870:28f200x1  INSERV
 18  2/2  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 19  2/3  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 20  2/4  TDET       GCPQARNJAA 95DR10115506 8/12/96:5870:5870:28f200x1  INSERV
 21  2/5  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 22  2/6  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 23  2/7  TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
 24  2/8  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 25  2/9  PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 26  2/10 TDET       GCPQARNJAA 95DR10115533 8/12/96:5870:5870:28f200x1  INSERV
 27  2/11 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 28  2/12 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 29  2/13 TDET       GCPQARNJAA unavailable  8/12/96:5870:5870:28f200x1  INSERV
 30  2/14 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 31  2/15 PRI        GCPQARMJAA unavailable  8/12/96:5870:5870:29f040x1  INSERV
 32  2/16 POWER      GCPQARLJAA unavailable  8/12/96:5870:5870:28f001x1  INSERV
```

Example (cont.)

```
RESOURCE PLUG-IN INFORMATION

Slot  Card Type   Card No.   CLEI        Hardware Version            Status

 1    SP-2          1     ASPQACMAAB   AYC2C SP Ser:6               INSERV
 3    SP-2          2     ASPQACMAAB   AYC2C SP Ser:6               INSERV
 5    SP-8          3     GCUQACEXAB   AYC9 TTS Ser:6               INSERV
 7    T1            0     GCUQACJXAB   AYC11 T1 Vin:6               INSERV
 16   CPU                 GCPI10EGAA   D486DXC-50-0ATTR2 Ser:2      ADMIN
 17   VIDEO               GCPIJ0GGAA   WDXLR833124 Ser:1            ADMIN
 18   ALARM               GCUQACLXAA   CO Alarm                     ADMIN
 19   LAN                 GCUQACKXAA   StarLAN 10 PC-NAU            ADMIN
 21   LAN                 GCUQACKXAA   StarLAN 10 PC-NAU            ADMIN
 25   SCSI CNTRL          QCPQAKCJAA   BusLogic BT542B Ver:H        ADMIN


                              SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA          1             1           0
        CONTROL       GCPQARJJAA          1             1           0
        CPU           GCPI10EGAA          1             1           0
        LAN           GCUQACKXAA          2             2           0
        POWER         GCPQARLJAA          2             2           0
        PRI           GCPQARMJAA         19            19           0
        SCSI CNTRL    QCPQAKCJAA          1             1           0
        SP-2          ASPQACMAAB          2             2           0
        SP-8          GCUQACEXAB          1             1           0
        SWITCH        GCPQARKJAA          1             1           0
        T1            GCUQACJXAB          1             1           0
        TDET          GCPQARNJAA          7             7           0
        TGEN          GCPQARPJAA          2             2           0
        VIDEO         GCPIJ0GGAA          1             1           0
```

Example (cont.)

```
                          SITE SUMMARY INFORMATION


        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           4              4          0
        CONTROL       GCPQARJJAA           2              2          0
        CPU           GCPI10EGAA           4              4          0
        DATAKIT       0000000000           2              2          0
        LAN           GCUQACKXAA           4              4          0
        LAN           GCUQADPXAA           6              6          0
        POWER         GCPQARLJAA           4              4          0
        PRI           GCPQARMJAA          38             38          0
        SCSI CNTRL    QCPQAKCJAA           4              4          0
        SP-2          ASPQACMAAB           4              4          0
        SP-8          GCUQACEXAB           2              2          0
        SWITCH        GCPQARKJAA           2              2          0
        T1            GCUQACJXAB           2              2          0
        TDET          GCPQARNJAA          14             14          0
        TGEN          GCPQARPJAA           4              4          0
        VIDEO         GCPIJ0GGAA           4              4          0

WARNING
A "*" indicates a board may not be properly administered.


Please wait while temporary files are removed.
```

eqisrep

Synopsis

Generates the equipment inventory summary report for the site or for a single machine.

Command Format

eqisrep

Description

Generates the equipment inventory summary report for the site or a single machine. When you enter **eqisrep**, interactive choices display that allow you these options.You can:

- Generate the report for the site or for a single machine.
- Display the report on your screen

  or

  transfer the file over the Datakit network to a remote host.

  To use this option:

  — The host machine must be predefined and preauthorized.

  — The user must be preauthorized to perform file transfers between the PM machine and the destination host machine

You must run **eqisrep** from a PM.

Example

eqisrep

```
Do you wish to transfer the report to a remote host? (y/n) [n] --> n
You may choose ALL machines in the Site or ONE machine.
Enter ALL (a) or ONE (o).  [o] --> a

Please wait while report data is collected.
```

The following example screens were produced from machines with no application loaded and with no administration performed. You will not see application information nor correct clli or clei codes.

```
================================================================================
|                      EQUIPMENT INVENTORY DATA SUMMARY REPORT                  |
================================================================================

Current Date/Time:  Tue Sep 17 12:36:19 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:19:58 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                    ccccssbbaai   0000000000        pm00         000000.00.00

SOFTWARE INFORMATION:
NO APPLICATION INSTALLED.


                              SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           1              1          0
        CPU           GCPI10EGAA           1              1          0
        DATAKIT       0000000000           1              1          0
        LAN           GCUQADPXAA           3              3          0
        SCSI CNTRL    QCPQAKCJAA           1              1          0
        VIDEO         GCPIJ0GGAA           1              1          0

================================================================================
|                      EQUIPMENT INVENTORY DATA SUMMARY REPORT                  |
================================================================================

Current Date/Time:  Tue Sep 17 12:36:24 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:20:00 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                    ccccssbbaai   0000000000        pm01         000000.00.00

SOFTWARE INFORMATION:
NO APPLICATION INSTALLED.
```

Example (cont.)

```
                              SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           1              1          0
        CPU           GCPI10EGAA           1              1          0
        DATAKIT       0000000000           1              1          0
        LAN           GCUQADPXAA           3              3          0
        SCSI CNTRL    QCPQAKCJAA           1              1          0
        VIDEO         GCPIJ0GGAA           1              1          0

================================================================================
|                       EQUIPMENT INVENTORY DATA SUMMARY REPORT                 |
================================================================================

Current Date/Time:  Tue Sep 17 12:36:28 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:20:04 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                    ccccssbbaai   0000000000       vp00         000000.00.00

SOFTWARE INFORMATION:
NO APPLICATION INSTALLED.


                              SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           1              1          0
        CONTROL       GCPQARJJAA           1              1          0
        CPU           GCPI10EGAA           1              1          0
        LAN           GCUQACKXAA           2              2          0
        POWER         GCPQARLJAA           2              2          0
        PRI           GCPQARMJAA          19             19          0
        SCSI CNTRL    QCPQAKCJAA           1              1          0
        SP-2          ASPQACMAAB           2              2          0
        SP-8          GCUQACEXAB           1              1          0
        SWITCH        GCPQARKJAA           1              1          0
        T1            GCUQACJXAB           1              1          0
        TDET          GCPQARNJAA           7              7          0
        TGEN          GCPQARPJAA           2              2          0
        VIDEO         GCPIJ0GGAA           1              1          0

WARNING
A "*" indicates a board may not be properly administered.
```

Example (cont.)

```
================================================================================
|                      EQUIPMENT INVENTORY DATA SUMMARY REPORT                  |
================================================================================

Current Date/Time:  Tue Sep 17 12:36:36 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:20:03 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                     ccccssbbaai   0000000000        vp01         000000.00.00

SOFTWARE INFORMATION:
NO APPLICATION INSTALLED.


                              SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           1              1          0
        CONTROL       GCPQARJJAA           1              1          0
        CPU           GCPI10EGAA           1              1          0
        LAN           GCUQACKXAA           2              2          0
        POWER         GCPQARLJAA           2              2          0
        PRI           GCPQARMJAA          19             19          0
        SCSI CNTRL    QCPQAKCJAA           1              1          0
        SP-2          ASPQACMAAB           2              2          0
        SP-8          GCUQACEXAB           1              1          0
        SWITCH        GCPQARKJAA           1              1          0
        T1            GCUQACJXAB           1              1          0
        TDET          GCPQARNJAA           7              7          0
        TGEN          GCPQARPJAA           2              2          0
        VIDEO         GCPIJ0GGAA           1              1          0

WARNING
A "*" indicates a board may not be properly administered.


                           SITE SUMMARY INFORMATION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           5              5          0
        CONTROL       GCPQARJJAA           1              1          0
        CPU           GCPI10EGAA           5              5          0
        DATAKIT       0000000000           3              3          0
        LAN           GCUQACKXAA          10             10          0
        POWER         GCPQARLJAA           2              2          0
        PRI           GCPQARMJAA          19             19          0
        SCSI CNTRL    QCPQAKCJAA           5              5          0
        SP-2          ASPQACMAAB           4              4          0
        SWITCH        GCPQARKJAA           1              1          0
```

Example (cont.)

```
================================================================================
|                      EQUIPMENT INVENTORY DATA SUMMARY REPORT                  |
================================================================================

Current Date/Time:  Tue Sep 17 12:36:36 1996

Most Recent Change in Administerable Data Was - 07/03/96 16:20:03 CST


MACHINE INFORMATION:   CLLI          CLEI          MACHINE ID          FIC

                    ccccssbbaai   0000000000        vp01         000000.00.00

SOFTWARE INFORMATION:
NO APPLICATION INSTALLED.


                              SUMMARY SECTION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           1              1          0
        CONTROL       GCPQARJJAA           1              1          0
        CPU           GCPI10EGAA           1              1          0
        LAN           GCUQACKXAA           2              2          0
        POWER         GCPQARLJAA           2              2          0
        PRI           GCPQARMJAA          19             19          0
        SCSI CNTRL    QCPQAKCJAA           1              1          0
        SP-2          ASPQACMAAB           2              2          0
        SP-8          GCUQACEXAB           1              1          0
        SWITCH        GCPQARKJAA           1              1          0
        T1            GCUQACJXAB           1              1          0
        TDET          GCPQARNJAA           7              7          0
        TGEN          GCPQARPJAA           2              2          0
        VIDEO         GCPIJ0GGAA           1              1          0

WARNING
A "*" indicates a board may not be properly administered.
```

Example (cont.)

```
                          SITE SUMMARY INFORMATION

        Card Type        CLEI         Total Count      INSERV #     OOS #

        ALARM         GCUQACLXAA           4              4          0
        CONTROL       GCPQARJJAA           2              2          0
        CPU           GCPI10EGAA           4              4          0
        DATAKIT       0000000000           2              2          0
        LAN           GCUQACKXAA           4              4          0
        LAN           GCUQADPXAA           6              6          0
        POWER         GCPQARLJAA           4              4          0
        PRI           GCPQARMJAA          38             38          0
        SCSI CNTRL    QCPQAKCJAA           4              4          0
        SP-2          ASPQACMAAB           4              4          0
        SP-8          GCUQACEXAB           2              2          0
        SWITCH        GCPQARKJAA           2              2          0
        T1            GCUQACJXAB           2              2          0
        TDET          GCPQARNJAA          14             14          0
        TGEN          GCPQARPJAA           4              4          0
        VIDEO         GCPIJ0GGAA           4              4          0

WARNING
A "*" indicates a board may not be properly administered.


Please wait while temporary files are removed.
```

ficadm

Synopsis

Administers the frame identification code value (FIC) on the specified machine.

Command Format

ficadm [-d] [-m <*mach_id*>] [-v <*fic*>]

Arguments

-d Display the current value

-m <*mach_id*> Machine ID where the command runs

-v <*fic*> The new machine FIC value (***FFRRRR.CC.SS***)

- ***FF*** — Floor

  The floor where the machine is located

- ***RRRR*** — Row

  The lineup (row) on the floor

- ***CC*** — Cabinet

The cabinet the machine is in

- ***SS*** — Slot

  The slot in the cabinet the machine is in.

  The slot should be 1s-based (**01, 02, 03**), numbered from bottom to top in the cabinet.

Description

Administers the machine FIC value on the specified machine. This value specifies where in the building the machine is located.

Example

ficadm -d

```
Current MACH_FIC value = 000142.05.01
```

lancheck

Synopsis

Checks TCP/IP connectivity.

Command Format

lancheck [-m <*mach_id*>]

Argument

-m <*mach_id*> Machine ID where the command runs

Description

Checks TCP/IP connectivity between machines in the LAN environment, performing a TCP/IP ping operation on each machine and each LAN and displaying the results. **lancheck** does not examine the administration of the machine table or the administration of machines in that table.

NOTE:
For WSN, **lancheck** checks TCP/IP connectivity between machines on LAN A and LAN B. It does not check TCP/IP connectivity on between the PMs and the AT&T WorldSHARE core server.

lancheck differs from **comcheck**. **comcheck** is an application-level, message-based communications check. **lancheck** is a TCP/IP-based communications/connectivity check.

Example

lancheck -m pm00

```
running command "/usr/add-on/sms/bin/lancheck" on pm00
Please wait while TCP/IP PING operations are done to all machines.
================================
| TCP/IP LAN Connectivity Check |
================================
Machine  LAN-A LAN-B
-------- ----  ----
pm00     UP    UP
pm01     UP    UP
vp00     UP    UP
vp01     UP    UP
```

See Also

comcheck

listlrpa

Synopsis

Lists (or repairs if needed) the processes in the LRPA configuration file.

Command Format

listlrpa [-m *<mach_id>*] [*<process_name>*]

Arguments

-m <*mach_id*>	Machine ID where the command runs
<*process_name*>	Name of the process in the LRPA configuration file that you would like to list

NOTE:
By default, all alarms display.

Description

Lists (or repairs if needed) entries to the long-running process alarm (LRPA) configuration file. This file is used by the **procchk** cron job that checks and raises alarms for entries exceeding their administered time limit.

Processes are checked every 15 minutes, beginning on the hour. Processes are alarmed or not, depending on the time limit specified in the **-t** argument used with **chglrpa** or **addlrpa**.

Because alarm situations are evaluated every 15 minutes, short alarm limits of less than 15 minutes present a special case. Short alarm processes are alarmed if they are running at the time the cron job checks the **lrpa.cfg** file. If the process is no longer running when the cron job executes, no alarm displays.

If the process has been alarmed for less than 15 minutes but is still running when the cron job executes, an alarm is generated to report the time that the process exceeded the time specified in the **-t** argument.

Example

listlrpa -m pm00

```
running command “usr/add-on/sms/bin/listlrpa” on pm00

init    0:15
proc1   0:15
proc2   0:45
proc3   1:22
```

See Also

addlrpa
chglrpa
displrpa
remlrpa

logcapture

Synopsis

Captures log files from machines at a NAP site. These log files are used for troubleshooting.

Command Format

logcapture <*mach_id*> [<*mach_id*> . . . <mach_id>]

Arguments

<mach_id> . . . <mach_id>	IDs of machines from which logs are copied At least one ***mach_id*** is required

Description

Captures log files for troubleshooting.

logcapture executes only on the machines specified by the machine ID. You must provide at least one machine ID as an argument.

When **logcapture** is executed for a VP machine, the following files are captured:

/usr/add-on/iets/log/iets.log
/usr/add-on/sms/log/ALARM.LOG
/usr/add-on/mega/log/wip.log
Output of the **dispconn** command from the specified VP machine
Output of a **megpeg all** from the specified VP machine

These files are placed in **/usr/nesac/logs/VP*nnMMDDYYHHMM***[1].

When logcapture is executed for a PM, the PM's log files are placed in **/usr/nesac/logs/*PMnnMMDDYYHHMM***.

The PM log files that are captured include:

/usr/add-on/iets/log/gtrs
/usr/add-on/iets/log/gts
/usr/add-on/sms/log/ALARM.LOG
/usr/add-on/sms/log/SITE_ALARM.LOG

1. File names like this use the following syntax: *nn* is the machine instance, *MM* is month, *DD* is Day, *YY* is year, *HH* is hour, and *MM* is the minute the file was taken.

Examples

This example shows the results of a **logcapture** command on a PM machine.

logcapture pm00

```
Get the PM log files
User is logged in as root.
Copying log files from:  pm00
    Copying /usr/add-on/iets/log/gtrs
    pm00 /usr/add-on/iets/log/gtrs copied...
    Copying /usr/add-on/iets/log/gts
    pm00 /usr/add-on/iets/log/gts copied...
    Copying /usr/add-on/sms/log/ALARM.LOG
    pm00 /usr/add-on/sms/log/ALARM.LOG copied...
    Copying /usr/add-on/sms/log/SITE_ALARM.LOG
    pm00 /usr/add-on/sms/log/SITE_ALARM.LOG...
All Done...
```

This example shows the results of a **logcapture** command on a VP machine.

logcapture vp00

```
Get the VP log files
User is logged in as root.
Copying log files from:  vp00
    Copying /usr/add-on/iets/log/iets.log
    vp00  /usr/add-on/iets/log/iets.log copied...
    Copying /usr/add-on/sms/log/ALARM.LOG
    vp00  /usr/add-on/sms/log/ALARM.LOG copied...
    Copying /usr/add-on/mega/log/wip.log
    vp00  /usr/add-on/mega/log/wip.log copied...
    Capturing 'megpeg all' output from vp00 in mpeg.out
    Capturing 'dispconn' output from vp00 in dispconn.out
All Done...
```

logcat

Synopsis

Unwraps a circular log file and displays it in proper order.

Command Format

logcat [-m <*mach_id*>] [-f <*file_name*>]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-f <*file_name*>	Full path name of circular log file

NOTE:
Do *not* use the **-f** option If you invoke **logcat** over the TNM link. Instead, **logcat** prompts you for the filename. You must enter the complete path and filename.

Description

Unwraps a circular file and displays it in proper order. If you use the **-f** option, you can pipe the output of this command using the UNIX **pg** command.

CAUTION:
Large files take time to finish displaying. You must read the entire file and cannot delete out of the file.

Example

logcat -m pm01 -f /usr/add-on/sms/log/lancheck.log | pg

```
running command "/usr/add-on/maint/bin/logcat -f /usr/add-on/sms/log/lancheck.log" on pm01
(Mon Apr 22 08:23:08.46):lancheck started.
(Mon Apr 22 08:23:18.01):ping_mach: pm01 FAILED:had greater than 0% packet loss.
(Mon Apr 22 08:23:18.01):pingem: ping failed to pm01.
(Mon Apr 22 08:23:28.01):ping_mach: pm01b FAILED:had greater than 0% packet loss.
(Mon Apr 22 08:23:28.01):pingem: ping failed to pm01b.
(Mon Apr 22 08:23:44.95):lancheck started.
(Mon Apr 22 08:23:55.01):ping_mach: pm01 FAILED:had greater than 0% packet loss.
(Mon Apr 22 08:23:55.12):pingem: ping failed to pm01.
(Mon Apr 22 08:24:05.01):ping_mach: pm01b FAILED:had greater than 0% packet loss.
(Mon Apr 22 08:24:05.01):pingem: ping failed to pm01b.
```

logcat -m pm01 -f /usr/add-on/sms/log/lancheck.log | grep “Apr 22 08:23:55”

```
running command "/usr/add-on/maint/bin/logcat -f /usr/add-on/sms/log/lancheck.log" on pm01
(Mon Apr 22 08:23:55.01):ping_mach: pm01 FAILED:had greater than 0% packet loss.
(Mon Apr 22 08:23:55.12):pingem: ping failed to pm01.
```

machadm

Synopsis

Administers the machine table.

CAUTION:
To prevent corruption of the machine's administration, you must use the **-a** *or the* **-u** *argument to activate or deactivate a machine. If you use the interactive menu to add, change, or delete, you must rerun* ***smssetup*** *on all machines and reboot all machines at the site after you make the changes. The application still may not work properly if the table does not exactly match what the application expects.*

Use the interactive menu only when performing initial site installation or setup. You may safely use the interactive menu at this time for adding, changing, or deleting rows in the table. Once the table is populated and matches the application, use the **-a** *or* **-u** *option to change the* `Admin` *field in the table from* `Y` *to* `N` *without endangering the contents of the table.*

Command Format

machadm [-m <*mach_id*>] [-d] [-a <*mach_id*> | -u <*mach_id*>]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-d	Display only
-a <*mach_id*>	Machine ID to make active
-u <*mach_id*>	Machine ID to make inactive

Description

Administers the machine table in the PM environment. The machine table defines the network of machines, the LAN configurations, and the administration state of machines. This table is used by all the administration commands to determine where to run commands when you specify **-m** (for a specific machine) or **-s** (for a site-based operation to all local/active machines).

You must run this command from a PM machine.

Examples

Command Line Example

machadm -m pm00

machadm -a vp01

machadm -u vp01

The following command (when only NAP is loaded) produces the output shown in the following screen.

machadm -d

```
============================================================
|                        Machine Table                     |
============================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
001      pm00     pm      00        Y      S             N
002      pm01     pm      01        Y      S             N
003      vp01     vp      00        Y      S             N
004      gs00     gs      00        Y      S             N
005      ot00     bs      00        Y      S             N
```

Interactive Menu Example

The following is an example of using the **machadm** interactive menus to change a record in the machine table.

machadm

```
================================================================
|                        Machine Table                         |
================================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
001      frhipm0  pm      00        N      S             N
002      frhipm1  pm      01        N      S             N
003      vp00     vp      00        N      S             N
004      vp01     vp      01        N      S             N
---- Machine Table: Main Menu ----
Option   1:  Add    Record
Option   2:  Change Record
Option   3:  Delete Record
Option   4:  Synchronize Machine Table
Option   q:  Quit Program
Enter Menu Option: 2
     .
     .
     .
Enter Machine Index value (must be between 1 and 254).
--> 02
```

This screen shows the process of changing values in the Machine Table Record. In this case, the values selected are the default values.

```
================================================================
|                      Machine Table Record                    |
================================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
004      vp01     vp      01        N      S             N

Enter Machine Index value (must be between 1 and 254).
[02] --> 04
Enter Uname value (must be between 1 and 8 characters long).
[vp01] --> vp01
Enter Machine Type value (must be 2 letters).
[vp] --> vp
Enter Machine Instance value (must be between 0 and 99).
[01] --> 01
Enter Admin value (must be Y/N).
[N] --> N
Enter Blan value (must be P/S/N (Prefix,Suffix,None)).
[S] --> S
Enter Remote value (must be Y/N).
[N] --> N
```

This screen shows the results of changing the record.

```
================================================================
|                        Machine Table Record                  |
================================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance         Suffix/None
---      -------- --      --        -      -             -
004      vp01     vp      01        N      S             N

Change the Record?
Confirm (y/n) [y] --> y
copying file /usr/add-on/maint/admin/mach_tbl to vp01
copying file /usr/add-on/maint/admin/timestamp to vp01
copying file /usr/add-on/maint/admin/mach_tbl to pm01
copying file /usr/add-on/maint/admin/timestamp to pm01
The application updates for vp01 have been completed on both PMs.

Return to Main Menu?
Confirm (y/n) [y] --> y
```

See Also

machidadm
primadm
siteadm

machidadm

Synopsis

Administers the machine ID file in the stand-alone environment.

Command Format

machidadm [-d] [-v *MMII*]

Arguments

-d	Displays the current value
-v *MMII*	***MM*** — machine type (**pm** or **vp**)
	II — machine instance (0 through 99,depending on type of machine)

Description

Administers the machine ID file in the stand-alone environment. In the PM environment, the **machadm** command performs this operation automatically.

Example

machidadm -d

```
Current MACH_ID Value = pm01
```

See Also

machadm

megamon

Synopsis

Presents near real-time status of call channel activity on a MAP 2000 machine.

Command Format

megamon [-m <*mach_id*>] [-r <*rate*>] [-t <*time*>]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-r <*rate*>	Rate in seconds to refresh screen. Default is 15 seconds. Range is 5 through 60 seconds.
-t <*time*>	How long, in minutes, to retrieve samples. Default is 5 minutes. Range is 2 through 10 minutes.

Description

When invoked with no arguments, or with only the **-m mach_id** argument, **megamon**'s output starts with Communicore channel 0 and refreshes data every 15 seconds and runs for 5 minutes. To invoke an automatic refresh rate, use the **-r** and **-t** argument to specify refresh rate and retrieval time.

The output from this command is page-oriented, based on the number of lines specified by the terminal type. Each page has a time stamp at the top and a navigation menu at the bottom.

The up and down page options in the navigation menu are relative to the current page being displayed. For this reason, the command does not accept a range or comma-separated list of channels to display. The page up and page down navigation commands enable you to go anywhere from the starting point.

The channel/card number option in the navigation menu causes the display to go to that channel/card, either forward or backward from the current page.

The redraw page option in the navigation menu does not actually request new data with a different time stamp. Instead, it simply redisplays the current page of data in case the screen gets garbled somehow.

When invoked with the **-r** and **-t** automatic refresh options, **megamon** automatically fetches data for all PRI channels in the system according to the refresh rate parameter. The page currently displayed automatically redisplays the new data and time stamp. Before the next refresh occurs, you can page through the latest sample using the navigation menu option.

Example

megamon -m vp01

NOTE:
In this example, most of the IDLE channels were deleted.

```
running command "TERM=vt100;export TERM;LINES=24;export LINES;/usr/add-
on/sms/bin/megamon" on vp01
Channels 0 through 18 - Last Channel # 431 - Wed Nov 20 16:00:47 - CURRENT
CARD CHAN STATUS CTYPE  CON1   CON2   CON3   CON4   CON5   CON6        #CALLS
  4     0 IDLE                                                           0
  4     1 ACTIVE CC-Hcp <>45   <>46                                      1
  4     2 ACTIVE CC-Hcp <>47                                             1
  4     3 IDLE                                                           0
        .
        .
        .
  4    18 IDLE                                                           0
Menu: U/D - up/down page, card/chan <num> - goto, R - redraw, Q - quit

Enter command [d] --> d
Channels 19 through 37 - Last Channel # 431 - Wed Nov 20 16:00:47 - CURRENT
CARD CHAN STATUS CTYPE  CON1   CON2   CON3   CON4   CON5   CON6        #CALLS
  4    19 IDLE                                                           0
  4    20 IDLE                                                           0
  4    21 IDLE                                                           0
  4    22 IDLE                                                           0
  4    23 ACTIVE DCHAN                                                   5
  6    24 IDLE                                                           0
        .
        .
        .
  6    37 IDLE                                                           0
Menu: U/D - up/down page, card/chan <num> - goto, R - redraw, Q - quit
Enter command [d] --> d
Channels 38 through 56 - Last Channel # 431 - Wed Nov 20 16:00:47 - CURRENT
CARD CHAN STATUS CTYPE  CON1   CON2   CON3   CON4   CON5   CON6        #CALLS
  6    38 IDLE                                                           0
        .
        .
        .
  6    44 IDLE                                                           0
  6    45 ACTIVE CC-Hrp <>1    <>46   T23/0                              1
  6    46 ACTIVE CC-Htp <>1    <>45                                      1
  6    47 ACTIVE CC-Hrp T8/0   <>2                                       1
        .
        .
        .
Menu: U/D - up/down page, card/chan <num> - goto, R - redraw, Q - quit
Enter command [d] --> q
```

See Also

dispconn
tracecp

megpeg

Synopsis

Displays call-processing measurements for the MAP 2000.

Command Format

megpeg [-m <*mach_id*>] [-s] [-r] <*section*>

Arguments

-m <*mach_id*>	Machine ID where the command runs
-s	Specifies site-based operation on all MAP 2000 call processing machines
-r	Reset measurements to zero after they are displayed
<*section*>	The type of call-processing measurement to display: **rchan** — resource channel measurements **conn** — bridging measurements **dsp** — tone generation, tone detection, call progress tone generation, and call-classification measurements **msg** — messaging measurements **all** — all of the above measurements

Description

Displays counts and time statistics for various application-requested resources and the messaging traffic required to provide the resources.

Example

megpeg -m vp07 all

```
running command "/usr/add-on/sms/bin/megpeg all" on vp07

Timestamp = 830361827

Wed Apr 24 10:03:47 1996

RESOURCE CHANNEL MEASUREMENTS since Tue Apr 16 12:05:00 1996

            0 rchans in use at Tue Apr 16 12:05:00 1996

            0 times when no rchan immediately available

            0 resource channel requests
         0.00 seconds of resource channel usage

BRIDGING MEASUREMENTS since Tue Apr 16 12:05:00 1996

            0 full bridge requests not to be confirmed
            0 full bridge requests needing confirmation
            0 full bridge confirmations received

            0 half bridge requests not to be confirmed
            0 half bridge requests needing confirmation
            0 half bridge confirmations received

            0 full bridge disconnect requests
            0 half bridge disconnect requests

            0 circuit connect failures

TONE GENERATION MEASUREMENTS since Tue Apr 16 12:05:00 1996

            0 tone generation requests
            0 tone generation failures

TONE DETECTION MEASUREMENTS since Tue Apr 16 12:05:00 1996

            0 tone detection connection requests
            0 tone detection confirmations received
            0 tone detection connection failures

         0.00 seconds waiting for confirmations
         0.00 seconds maximum wait at Tue Apr 16 12:05:00 1996

            0 tone detection configuration requests
            0 tone detection disconnect requests
            0 tone detection cancel requests
            0 tone detection failures
         0.00 seconds of tone detection usage
```

Example (cont.)

```
0 tone detection data messages received
            0 first-digit time-out messages received
            0 inter-digit time-out messages received
            0 sequence time-out messages received
            0 tone detection data failures received

CALL PROGRESS TONE GENERATION MEASUREMENTS since Tue Apr 16 12:05:00 1996

            0 call progress tone generation requests
            0 call progress tone generation automatic disconnects
            0 call progress tone generation disconnect requests
            0 call progress tone generation failures

         0.00 seconds of call progress tone generation usage

MESSAGING MEASUREMENTS since Tue Apr 16 12:05:00 1996

          163 UUI messages sent to Communicore
         3181 UUI messages received from Communicore

           10 connection management messages received
            0 service circuit messages received
```

NOTE:
For WSN 1.1, the machine ID would be vp00 or vp01.

p24_rep

Synopsis

Generates the 24-hour maintenance report.

NOTE:
This command is run by cron and *CANNOT BE RUN BY THE USER*.

Command Format

Not a user command; generated by cron.

Description

Generates the 24-hour maintenance report. This command is run by cron and *CANNOT BE RUN BY THE USER*. It is listed here to describe the incomplete and complete data fields.

- An "I" after the MACHID field in the report indicates an incomplete data condition where part or all of the information for that interval is missing.

  A **dsrrep** command should be run to determine what is missing.

- A "C" after the MACHID field in the report indicates a complete data condition for the report.

- A "**>**" after the end of the errors line indicates that the error data was truncated. For complete information run the **dsrrep** command.

Example

```
SEG p24_rep
07:13:95:14:54:51 dnvrcopeca1 MachID=vp18 C Logins=0   PegI=21322 PegO=22321
No LANA=00:15 No LANB=00:00 FU= NO FIELD UPDATES INSTALLED
ERRORS: *C:APPL110=1 APPL111=1 APPL203=1 MEGA005=1 MEGA009=1 MEGA010=5 MEGA012=>

07:13:95:14:55:12 dnvrcopeca1 MachID=pm00 C Logins=4   PegI=n/a    PegO=n/a
No LANA=00:15 No LANB=00:00 FU= NO FIELD UPDATES INSTALLED
ERRORS: *C:APPL002=2 APPL106=6 APPL108=288 APPL115=16 APPL201=14 **:APPL101=1 *>

07:13:95:14:55:26 dnvrcopeca1 MachID=pm01 C Logins=1   PegI=n/a    PegO=n/a
No LANA=00:15 No LANB=00:00 FU= NO FIELD UPDATES INSTALLED
ERRORS: *C:APPL002=2 APPL108=288 APPL115=14 APPL201=9 **:NONE *:NONE
EOM
```

In the previous example, each machine's data takes 3 lines. The data collected reports on the previous 24 hour period.

Using the first three lines as an example, the fields have the following meanings:

Example Data	Explanation
`07:13:95:14:54:51`	Date and time data was generated
`dnvrcopeca1`	Site clli
`MachID=vp18`	Machine ID
`C`	Complete flag. Denotes whether the report's data is complete or incomplete
`Logins=0`	Number of logins for the 24 hour period
`PegI=21322`	Number of inbound PRI setup messages
`PegO=22321`	Number of outbound PRI setup messages
`No LANA=00:15`	Hours and minutes LAN A was down
`No LANB=00:00`	Hours and minutes LAN B was down
`FU= NO FIELD UPDATES INSTALLED`	Field updates per software package. Each package is allowed 8 characters for data. Data is truncated after the 80th column.
`ERRORS:`	Number of errors generated, in order of severity: critical errors (*C), major errors (**), then minor errors (*). If no errors for a level of severity occurred, you see the word NONE.
`*C:APPL110=1 APPL111=1 APPL203=1 MEGA005=1 MEGA009=1 MEGA010=5 MEGA012=>`	Number of each error class that occurred. The error report line is truncated, as shown by the >.

See Also

dsrrep

primadm

Synopsis

Administers the machine instance of the primary PM machine.

Command Format

primadm -d | -r | -v <*PRIMARY*>

Arguments

-d	Display the current value
-r	Resynchronizes the current value
-v <*PRIMARY*>	The machine instance value of the PM machine to serve as the primary PM

Description

Administers the machine instance of the primary PM machine. This value is used by this package to resolve which PM machine generates the 24-Hour Maintenance Report to the external monitoring system (TNM). This value is not used in the stand-alone environment.

Example

primadm -d

```
Current PRIMARY Value = 0
```

See Also

machadm

rcardadm

Synopsis

Administers the resource card table on the MAP/100C for the specified VP. Use **cardadm** to administer Communicore modules on VPs and circuit cards on PMs.

Command Format

rcardadm [-m <*mach_id*>] [-d]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-d	To display only

Description

Administers the resource card table for the specified machine. **rcardadm** displays an interactive menu interface to add, change, or delete information for all the resource cards in the machine. To exit the menu press **q**.

Refer to ''Equipment Configurations'' starting on page 8-13 for Communicore module and MAP/100C card administration information.

Table 5-1. MAP/100C Nondisplayable Cards CLEI Codes

Card Type	CLEI	Hardware Version
CPU	GCPI10EGAA	D486DXC-50-0ATTR2 Ser:2
CPU	GCPQAKKJAA	D486DXC-50-0ATT-REV-ASer1
CPU	GCPQAKHJAA	386/25 (0MB) Ser:1
CPU	GCPQAKYJAA	386/25 (8MB) Ser:1
CPU	GCPQAKJJAA	386/25 (12MB) Ser:1
ESDI CNTRL	0000000000	ESDI Disk Controller
TAPE CNTRL	0000000000	ESDI Tape Controller
SCSI CNTRL	QCPQAKCJAA	BusLogic BT542B Ver:H
SCSI CNTRL	0000000000	Adaptec AHA1542B
VIDEO	0000000000	WDXLR83160
VIDEO	QCPQAKCJAA	WDXLR831124-Rev.X2 Ser:1

Continued on next page

Table 5-1. MAP/100C Nondisplayable Cards CLEI Codes — *Continued*

Card Type	CLEI	Hardware Version
VIDEO	GCPIJ0GGAA	WDXLR833124 Ser:1
VIDEO	GCPQAWFJAA	CP-110-0318-627 S1:1 VID
ALARM	GCUQACLXAA	CO Alarm
LAN	GCUQACKXAA	StarLAN 10 PC-NAU
DATAKIT	0000000000	HS386 Datakit Interface

Table 5-2. MAP/100C Displayable Cards CLEI Codes

Card Type	CLEI	Hardware Version
COSBIB	GCPQAKMJAA	AYC15 COSIB Vin:1
COSBIB	ASPQACNAAB	AYC15 COSIB Vin:2
T1	GCPQAK8AAB	AYC3B T1 Ser:1-3
T1	GCPQAK8AAC	AYC3B T1 Ser:4
T1	GCUQACJXAA	AYC11 T1 Vin:4-5
T1	GCUQACJXAB	AYC11 T1 Vin:6
TR	GCUQACHXAA	AYC5B Analog T/R Ser:2-4
IVP4	GCPQAL1JAA	AYC6B IVP4 Ser:1-4
IVP6	GCPQAL2JAA	AYC10 IVP6 T/R Vin:1
IVP6	GCPQAL2JAB	AYC10 IVP6 T/R Vin:2
IVP6	GCPQAMBJAA	AYC16 IVP6-IU T/R Vin:1
IVP6	GCPQAMBJAB	AYC16 IVP6-IU T/R Vin:2
IVP6	GCPQAL8JAA	AYC26 IVP6-IA T/R Vin:1
IVP6	GCPQAL8JAB	AYC26 IVP6-IA T/R Vin:2
IVP6	GCPQAMAJAA	AYC27 IVP6-IG T/R Vin:1
IVP6	GCPQAMAJAB	AYC27 IVP6-IG T/R Vin:2
IVP6	GCPQAL6JAA	AYC28 IVP6 T/R Vin:1
IVP6	GCPQAL6JAB	AYC28 IVP6 T/R Vin:2

Continued on next page

Table 5-2. MAP/100C Displayable Cards CLEI Codes — *Continued*

Card Type	CLEI	Hardware Version
E1/T1	GCPQATDJAA	CP-AYC21 S1:1 E1 Interface
ACCK	GCPQAMCJAA	AYC22 ACCK Intf. Vin:1
CMP	ASPQMFTAAA	AYC7 Companion Ser:1
CMP	ASPQMFTAAB	AYC7 Companion Ser:2
CMP	GCPQATEJAA	AYC23 CMP(4MB)Vin:1
CMP	GCPQATFJAA	AYC24 CMP(16)Vin:1
SP-2	ASPQACMAAA	AYC2C SP Ser:1-5
SP-2	ASPQACMAAB	AYC2C SP Ser:6
SP-2	0000000000	AYC2B SP
SP-8	GCUQACEXAA	AYC9 TTS Ser:1-5
SP-8	GCUQACEXAB	AYC9 TTS Ser:6

Example

rcardadm -m vp01 -d

```
running command "/usr/add-on/maint/bin/rcardadm -d" on vp01
============================================================
|        Resource Card Table                               |
============================================================
Slot   Card       Card   CLEI       Hardware
Number Type       Number             Version
--     ---------- --     ---------- -------------------------
01     SP-2       01     ASPQACMAAB AYC2C SP Ser:6
03     SP-2       02     ASPQACMAAB AYC2C SP Ser:6
05     SP-8       03     GCUQACEXAB AYC9 TTS Ser:6
07     T1         00     GCUQACJXAB AYC11 T1 Vin:6
16     CPU               GCPI10EGAA D486DXC-50-0ATTR2 Ser:2
17     VIDEO             GCPIJ0GGAA WDXLR833124 Ser:1
18     ALARM             GCUQACLXAA CO Alarm
19     LAN               GCUQACKXAA StarLAN 10 PC-NAU
21     LAN               GCUQACKXAA StarLAN 10 PC-NAU
25     SCSI CNTRL        QCPQAKCJAA BusLogic BT542B Ver:H
```

See Also

cleiadm
cardadm

rds1adm

Synopsis

Administers the resource DS1 table on the MAP 2000 machine for which **rds1adm** is run.

Command Format

rds1adm -m <*mach_id*> | -d

Arguments

-m *mach_id*	Machine ID where the command runs
-d	Display only

Description

For WSN, the DS1 table is not used, therefore, does not need to be administered.

Example

rds1adm -m vp01 -d

```
running command "/usr/add-on/maint/bin/rds1adm -d" on vp01
============================================================
|             Resource DS1/E1 Table                        |
============================================================
Slot   DS1/E1 Card        ADJUNCT  ADJUNCT SWITCH   SWITCH
Number Type   Number BTFN DSX_BAY  DSX_PJ  DSX_BAY  DSX_PJ
--     ----   --     ---- -------- ----    -------- ----
04     PRID   00     0000 00000000 0000    00000000 0000
```

remlrpa

Synopsis

Removes a process entry from the LRPA configuration file.

Command Format

remlrpa [-m *<mach_id>*] *<process_name>* | -a

Arguments

-m <*mach_id*>	Machine ID from which to remove the entry
<*process_name*>	Name of the process to remove from the LRPA configuration file
-a	Removes all processes from the LRPA configuration file

Description

Removes entries from the long-running process alarm (LRPA) configuration file. This file is used by the **procchk** cron job that checks and raises alarms for entries that have exceeded their administered time limit.

Example

remlrpa init

```
Successfully removed (init).
```

See Also

addlrpa
displrpa
chglrpa
listlrpa

remove

Synopsis

Removes specified resources from service.

Command Format

remove [-m <*mach_id*>] <*resource_type*> <*range*> [immed]

Arguments

-m <*mach_id*>	Machine ID where the command runs
<*resource_type*>	**card, rcard, chan, rchan, channel,** or **rchannel**
<*range*>	A single number (**2**), comma-separated list (**2,3,4**), number range (**2-4**), or **all** resources to remove
immed	Remove the resources immediately, dropping any phone calls that are using the resources

Description

Removes specified resources from service.

NOTE:
If another **remove** command is running, any subsequent **remove** command is blocked and a message is printed to the screen. Wait and try again.

If you use the **immed** argument with the command, the resource is removed abruptly and does not permit calls to drop gracefully. The customer is cut off abruptly.

CAUTION:
If you perform **remove** *on a MAP 2000 for any value or range that includes any of modules 1 through 3 (including* **all***), or if you perform* ***remove*** *for any rcard, the Communicore and the MAP/100C will be unable to communicate when the modules and cards are restored to service.*

To re-establish communications after the modules and cards are restored, cycle the MAP 2000. Enter:

chgstate -m <mach_id> on
chgstate -m <mach_id> off
chgstate -m <mach_id> on

NOTE:
After removing any of the modules 4 through 32 from the MAP 2000, wait until the LEDs go dark before executing subsequent commands.

Examples

remove -m vp01 rcard all immed

```
running command "/usr/add-on/sms/bin/remove rcard all immed" on vp01
Channel 0 changed to state MANOOS.
Channel 1 changed to state MANOOS.
Channel 2 changed to state MANOOS.
Channel 3 changed to state MANOOS.
Channel 4 changed to state MANOOS.
Channel 5 changed to state MANOOS.
Channel 6 changed to state MANOOS.
Channel 7 changed to state MANOOS.
Channel 8 changed to state MANOOS.
Channel 9 changed to state MANOOS.
Channel 10 changed to state MANOOS.
Channel 11 changed to state MANOOS.
Channel 12 changed to state MANOOS.
Channel 13 changed to state MANOOS.
Channel 14 changed to state MANOOS.
Channel 15 changed to state MANOOS.
Channel 16 changed to state MANOOS.
Channel 17 changed to state MANOOS.
Channel 18 changed to state MANOOS.
Channel 19 changed to state MANOOS.
Channel 20 changed to state MANOOS.
Channel 21 changed to state MANOOS.
Channel 22 changed to state MANOOS.
Channel 23 changed to state MANOOS.
Card 0 changed to state MANOOS.

Remove card 1.  Asking for equipment...
Card 1 changed to state MANOOS.

Remove card 2.  Asking for equipment...
Card 2 changed to state MANOOS.
```

See Also

chgstate
restore

resetclk

Synopsis

Resets the T1 clock source on a MAP 2000 machine.

Command Format

resetclk [-m <*mach_id*>]

Argument

-m <*mach_id*> Machine ID where the command runs

Description

Resets the T1 clock source on a MAP 2000 machine. **resetclk** is used when a connection to a T1 clock sync source has been lost on a MAP 2000 machine.

Example

resetclk -m vp07

```
running command "/usr/add-on/sms/bin/resetclk" on vp07
Communicore TDM clock source reset
```

NOTE:
For WSN 1.1, the machine ID would be vp00 or vp01.

See Also

dispclk
setclk

restadm

Synopsis

Restores CMF administration data for a single machine from the backup directory.

Command Format

restadm [-m <*mach_id*>] [-r <*mach_id*>]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-r <*mach_id*>	Machine ID from which data is to be restored

Description

Restores CMF administration data for a single machine from the backup directory (**/usr/maint/backup**) on the machine from which **restadm** is run to the production directory (**/usr/add-on/maint/admin**) on the machine that is specified (**-r** option on a PM machine) or implied (non-PM machine). For non-PM machines, the **-r** option is not supported because only one machine is involved. Current production administration data is removed and replaced with the backup data.

When using this command, remember these two points:

- If you are on a PM, you *must* use the **-r** option.
- If the **-m** option names a VP, the **-r** option is invalid.

Example

On pm01, enter

restadm -m pm00 -r pm01

```
running command "/usr/add-on/maint/bin/restadm -r pm01" on pm00
running command "/usr/add-on/maint/bin/deladm" on pm01
copying admin files from /usr/maint/backup/pm01 to pm01
```

On pm00, enter

restadm -r pm01

```
running command "/usr/add-on/maint/bin/deladm" on pm01
copying admin files from /usr/maint/backup/pm01 to pm01
```

On pm00, enter

restadm -m pm01 -r vp07

```
running command "/usr/add-on/maint/bin/restadm -r vp07" on pm01
running command "/usr/add-on/maint/bin/deladm" on vp07
copying admin files from /usr/maint/backup/vp07 to vp07
```

NOTE:
For WSN 1.1, the machine ID would be vp00 or vp01.

See Also

backadm
backtape
resttape

restore

Synopsis

Restores to service specified resources and any dependent resources for call processing machines.

Command Format

restore [-m <*mach_id*>] <*resource_type*> <*range*>

Arguments

-m <*mach_id*>	Machine ID where the command runs
<*resource_type*>	**card, rcard, chan, rchan, channel,** or **rchannel**. These arguments apply to call processing machines only.
<*range*>	A single number (**2**), comma-separated list (**2,3,4**), number range (**2-4**), or **all** resources to restore

card, **chan**, and **channel** arguments apply only to call processing machines. **rcard**, **rchan**, and **rchannel** arguments apply only to MAP 2000 machines.

Description

Restores specified resources and any dependent resources to service.

NOTE:
If another **restore** command is running, any subsequent **restore** command is blocked and a message is printed to the screen. Wait and try again.

CAUTION:
If you perform **restore** *on a MAP 2000 for any value or range that includes any of modules 1 through 3 (including* **all***), or if you perform* ***restore*** *for any rcard, the Communicore and the MAP/100C will be unable to communicate when the modules and cards are restored to service.*

To re-establish communications after the modules and cards are restored, cycle the MAP 2000. Enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

NOTE:
Inconsistent results might be observed when executing a command right after restoring a card on the MAP 2000. **restore** resets as part of a restore. Wait a few seconds before executing the command or try again.

Example

restore -m vp01 rcard all

```
running command "/usr/add-on/sms/bin/restore rcard all" on vp01
Channel 0 changed to state FOOS.
Card 0 changed to state FOOS.
Channel 1 changed to state FOOS.
Channel 2 changed to state FOOS.
Channel 3 changed to state FOOS.
Channel 4 changed to state FOOS.
Channel 5 changed to state FOOS.
Channel 6 changed to state FOOS.
Channel 7 changed to state FOOS.
Channel 8 changed to state FOOS.
Channel 9 changed to state FOOS.
Channel 10 changed to state FOOS.
Channel 11 changed to state FOOS.
Channel 12 changed to state FOOS.
Channel 13 changed to state FOOS.
Channel 14 changed to state FOOS.
Channel 15 changed to state FOOS.
Channel 16 changed to state FOOS.
Channel 17 changed to state FOOS.
Channel 18 changed to state FOOS.
Channel 19 changed to state FOOS.
Channel 20 changed to state FOOS.
Channel 21 changed to state FOOS.
Channel 22 changed to state FOOS.
Channel 23 changed to state FOOS.

Card 1 changed to state INSERV.

Card 2 changed to state INSERV.
```

See Also

chgstate
diagnose
remove

resttape

Synopsis

Restores the CMF administration backup directory containing CMF data from a previous **backtape** operation.

Command Format

resttape [-m <*mach_id*>]

Argument

-m <*mach_id*> Machine ID where the command runs

Description

Restores the backup directory of CMF data (**/usr/maint/backup**) from a previous **backtape** operation. The backup directory (**/usr/maint/backup**) on the machine from which **restadm** is run is removed and the backed-up version is read in from streaming tape. **resttape** does not copy any administration data to the production directory (**/usr/add-on/maint/admin**). Run this command on the PM where the **backtape** command was run and the tape was written.

Example

resttape

When command processing finishes, the prompt displays.

See Also

backtape
restadm

s24adm

Synopsis

Administers the hour when the 24-hour maintenance report is generated to the external monitoring system.

Command Format

s24adm -d | -r | -v <*hour*>

Arguments

-d	Displays the current value
-r	Resynch current value
-v <*hour*>	New hour value (0-23)

Description

Administers the hour when the 24-hour maintenance report is generated to the external monitoring system (TNM). The default is 0:15 AM when the package is installed. As stated previously, the **primadm** command administers the PM machine that sends out the report in the PM environment.

Example

s24adm -d

```
Current STRT_24 Value = 0
```

See Also

primadm

scansdb

Synopsis

The **scansdb** process is the database interface to the SCANS system on the PMs.

CAUTION:
scansdb *is to be used only by technical support personnel.*

Command Format

scansdb -a <*action*> -n <*su_name*> [-p <*package_name*> -m <*profile_match*>]

Arguments

-a <*action*> — ***action*** is one of the following:

- **ARCHIVE**
  Adds SU to system and sets it to archived
- **DELETE**
  Removes archived SU from the system
- **DIST**
  Moves archived SU to distributed
- **PURGE**
  Moves distributed SU back to archived
- **APPLY**
  Moves distributed SU to soak
- **BACKOUT**
  Moves soaked SU back to distributed
- **MAKE_OFF**
  Moves soaked SU to official
- **LIST_ARC**
  Lists archived SUs
- **MONITOR**
  Lists the state of an SU

-n <*su_name*> — The software update name

-p <*package_name*> — The software update package name. This option is required only when the **ARCHIVE** action is requested.

-m <*profile_match*> — The software update profile match. This option is required only when the **ARCHIVE** action is requested.

Description

Manages the database based on the action requested for the ***su_name***. Software updates can be set to the following states:

- archived
- distributed
- soak
- official

Each action moves a software update between these states.

The **scansdb** command does not affect the SU software. **scansdb** changes only the SU state within the **scans_sudb** database.

Example

To set the SU BWM-962000 to the distributed state, enter

scansdb -a DIST -n BWM-962000

To remove SU BWM-962000 from the **scans_sudb**, enter

scansdb -a PURGE -n BWM-962000

Files

scans_sudb (the SCANS SU database)

See Also

scansui

scansui

Synopsis

Utility used in downloading software updates.

Command Format

scansui

Description

scansui is the user interface to the SCANS system on the PMs. **scansui** presents users with a menu allowing them to perform the following actions:

- Start a software update
- Stop a software update
- Verify a software update
- Archive a software update
- Delete a software update
- Distribute a software update
- Apply a software update
- Back out a software update
- Cancel a software update
- Make a software update official
- Check the state of a software update
- Display all information about a software update
- List all archived software updates

NOTE:
Some commands must be executed from **root**.

scansui interacts with the **scanstr** process to start or stop a software update. It interacts with the **scansdb** process to perform all database lookups and updates.

Appendix E, ''SCANS (Software Change Administration and Notification System)'' contains a full description of this command.

See Also

scansdb

setclk

Synopsis

Sets the Communicore TDM primary and secondary clock sources.

Command Format

setclk [-m *mach_id*] <primary> <backup>

Arguments

-m <*mach_id*>	Machine ID of the MAP 2000 machine where the command runs
primary	The primary clock source PRI card number
backup	The secondary clock source PRI card number

NOTE:
Valid clock source cards are any PRI card except card #3 in the MAP 2000.

Description

Sets the Communicore TDM primary and secondary clock sources.

NOTE:
The default settings for the WSN clock sources are 4 (primary) and 6 (backup).

CAUTION:
*A **chgstate off**, **down**, or **reboot** forces clock sources to return to the default settings.*

Example

setclk -m vp01 4 6

```
Setting Communicore TDM clock sources: Primary 4 and Backup 6
      synchronization change completed.
```

See Also

dispclk
resetclk

siteadm

Synopsis

Activates or deactivates a specified list of machines for a site.

Command Format

siteadm [-m <*mach_id*>] -a | -u <*mach_id*> . . . <*mach_id*>

Arguments

-m <*mach_id*>	Machine ID where the command runs
-a	Make specified machine(s) active
-u	Make specified machine(s) inactive
mach_id* . . . *mach_id	The machines that are to be activated or deactivated

Description

Activates or deactivates the list of machines specified on the command line.

WARNING:
*This command performs an ungraceful shutdown of the application when invoked with the **-u** option. All active calls are dropped. Make sure that all call traffic to the site has been diverted and that no machine has an active call before running this command with the **-u** option.*

Example

siteadm -a pm00 pm01 vp00 vp01

siteload

Synopsis

Loads Communicore firmware to the specified MAP 2000 machines at the site.

Command Format

/usr/add-on/sms/bin/siteload <*mach_id*> . . . <*mach_id*>

Argument

mach_id . . . mach_id	Machines to download firmware to This command executes only on the machines specified. You **must** specify at least one machine ID.

Description

Loads the current Communicore firmware on the specified MAP 2000 machines at the site.

Run the command from the primary PM.

NOTE:
You must be **root** to run this command.

Example

To download firmware on vp00 and vp01, enter

/usr/add-on/sms/bin/siteload vp00 vp01

Command Status Display States

Four states may be displayed during the **siteload** process:

- Submitted: A batch job was submitted by the master PM to download the firmware.
- Running: A batch job was submitted to a machine and is executing.
- Finished: The firmware download process is complete on the machine. When all machines are finished or aborted, the status display terminates and the UNIX prompt returns.
- Aborted: An error occurred during the siteload process. Escalate the problem to the appropriate support organization. Do not attempt to reload.

NOTE:
If a machine takes an inordinate amount of time to download, use the **logcat** command to look at the **/tmp/siteload.log** file on the problem machine. To determine the progress in real time, use another login connection while **siteload** is running.

smssetup

Synopsis

Sets the machine name and sets up networking files, including IP addresses. On machines with Datakit installed, it also sets the Datakit system name.

Command Format

/usr/add-on/sms/bin/smssetup

Description

Executes automatically at the end of the VP software install process. You must run the **smssetup** command manually at the end of the PM software install process. If the machines come preloaded with the correct software (you are not doing an upgrade), you must run the **smssetup** command manually on both the VP and PM.

You must run **smssetup** on the machine you are administering.

NOTE:
You must be **root** to run this command.

snapshot

Synopsis

Creates a full backup image tape for a machine. Use this image tape to reload software on machines of the same type in case of disaster recovery.

Command Format

snapshot

WARNING:
You must run **snapshot** *while logged into the machine of which you are creating an image. The machine must be removed from service or traffic will be blocked. To prevent blocked calls, follow the imaging procedures found in ''Making an Application IMAGE Tape'' on page 4-70.*

Description

A VP or PM machine requires only one DT CRTG-MAGNUS 2.0 QIC 2.0-Gbyte cartridge tape.

NOTE:
You must use a DT CRTG-MAGNUS 2.0 QIC 2.0-Gbyte cartridge tape to snapshot a machine.

This command takes approximately 25-30 minutes to run on PM machines and 15-20 minutes to run on a VP.

Refer to ''Making an Application IMAGE Tape'' on page 4-70 for complete instructions on how to use the **snapshot** command to take a snapshot of a machine.

t1lb

Synopsis

Turns on and off the line loopback for PRI modules on a call-processing machine.

Command Format

t1lb [-m <*mach_id*>] <*resource_type*> <*range*> [<*mode*>]

Arguments

-m <*mach_id*>	Machine ID where the command runs
<*resource_type*>	**card** is currently the only valid choice
<*range*>	A single card number (**4**), a comma-separated list (**6,7**), a range of numbers (**6-7**), or **all** resources to turn on or off
<*mode*>	Either **on** or **off** This argument is required for Communicore modules, but is invalid for MAP/100C cards.

Description

Before running **t1lb**, remove PRI modules from service and verify that the LEDS are off. Enter

displed -m <*mach_id*> card <*range*>

While in loopback mode, the STATUS LED remains on and the LPBK (loopback) LED flashes while framing. A near-end loopback is in effect.

NOTE:
If another **t1lb** command is running, any subsequent **t1lb** command is blocked and a message is printed to the screen. Wait and try again.

Example

t1lb -m vp01 card 4 off

```
running command "TERM=at386;exportTERM;/usr/add-on/sms/bin/t1lb card 4 off" on vp01
Board 4 loopback OFF
```

tracecp

Synopsis

Observes call processing.

Command Format

tracecp [-m <*mach_id*>] [-t <*timeout*>]

Arguments

-m <*mach_id*>	Machine ID where the command runs
-t <*timeout*>	Number of seconds to perform the trace. (If you do not specify a time, a default of 180 seconds is used.)

Description

Displays calls as they happen.

On the WSN 1.1 release, **tracecp** displays debugging information.

Example

tracecp

```
Call completed for session 0:
call 21 chan 21 cled 15104
call 22 chan 22 cled
call 0 chan 0 cled
Total number of calls connected 1
Outgoing free chans 428
Call completed for session 0:
call 21 chan 21 cled 15104
call 22 chan 22 cled 15105
call 0 chan 0 cled
Total number of calls connected 2
Outgoing free chans 428
Call completed for session 0:
call 21 chan 21 cled 15104
call 22 chan 22 cled 15105
call 0 chan 0 cled 15112
Total number of calls connected 3
Outgoing free chans 428
E_SESSION_BRIDGE for session 0:
Bridge call 21 cled 15104 cling 15104
Bridge call 22 cled 15105 cling 15104
Bridge call 0 cled 15112 cling 15104
For total of 3 calls bridged
b_clear BAD id=00, ch=-001.
b_clear BAD id=00, ch=-001.
b_clear BAD id=00, ch=-001.
b_clear BAD id=00, ch=-001.
out of trace
```

See Also

dispconn
megamon

tstalarms

Synopsis

Tests the alarm subsystem.

Command Format

tstalarms [-m <*mach_id*>] [-s] [-a <*alarm_id*>] [-w <*wait*>]

Arguments

-m ***<mach_id>***	The machine ID where the command runs
-s	Specifies site-based operation
-a ***<alarm_id>***	The alarm ID to be generated, for example, AE_TSTCRT, AE_TSTMAJ, AE_TSTMIN, and AE_INFORM. If the **-a** option is not included, the SMS test set of alarms are generated. A **clrlights** operation is automatically performed after generating each alarm/event.
-w ***<wait>***	The number of seconds to wait before **clrlights** is invoked. Default wait is 60 seconds.

Description

Generates either the SMS test set of alarms (APPL297 through APPL300) or the specified alarms on the specified machines to test the alarm subsystem. **tstalarms** runs the **clrlights** command 60 seconds after generating each alarm/event to make sure the alarm card is working properly. The reason for the delay is that the alarm card has a latency period of 60 seconds after an alarm is raised before the CONVERSANT alerter process sees the alarm. Use the **-w** argument to lower the delay from 60 seconds before invoking **clrlights**.

Example

To generate the standard set of alarms with a 2-second delay on all machines, enter

tstalarms -s -w 2

```
Generating Alarm Id AE_TSTCRT on pm00.
Waiting 2 seconds for Alarm Card to trigger on pm00.
Clearing Alarm on pm00.

        Alarm contact set 1 now off (open).
        Alarm contact set 2 already off (open).
        Alarm contact set 3 now off (open).
        Alarm contact set 4 now off (open).

Generating Alarm Id AE_TSTMAJ on pm00.
Waiting 60 seconds for Alarm Card to trigger on pm00.
Clearing Alarm on pm00.

        Alarm contact set 1 already off (open).
        Alarm contact set 2 now off (open).
        Alarm contact set 3 already off (open).
        Alarm contact set 4 now off (open).

Generating Alarm Id AE_TSTMIN on pm00.
Waiting 60 seconds for Alarm Card to trigger on pm00.
Clearing Alarm on pm00.

        Alarm contact set 1 already off (open).
        Alarm contact set 2 already off (open).
        Alarm contact set 3 now off (open).
        Alarm contact set 4 now off (open).

Generating Alarm Id AE_INFORM on pm00.
Waiting 60 seconds for Alarm Card to trigger on pm00.
Clearing Alarm on pm00.

        Alarm contact set 1 already off (open).
        Alarm contact set 2 already off (open).
        Alarm contact set 3 already off (open).
        Alarm contact set 4 already off (open).
```

wscol

Synopsis

Retrieves call-detail data for a specified date from each VP.

Command Format

wscol <*mm/dd/yy*>

Argument

<*mm/dd/yy*> Date in month/day/year format

Description

Retrieves call-detail files for a specified date from each VP, concatenates the data into 1 file named **WSCD.*mmdd*.Z** (where ***mmdd*** is the date in month/day format), and compresses the file to save space. AT&T NESAC retrieves the file from the PM using FTP.

You must run **wscol** on a PM.

NOTE:
This command is restricted via login ID and password to WSN maintenance support.

Each VP's call-detail data is recorded on the VP in a flat ASCII file named **WSCD.*mmdd*** (where ***mmdd*** is the date in month/day format). The VP creates 1 call-detail file for each day, stores the file for 30 days, and then deletes it.

The VP assigns the call-detail data to a file based on the date when the call originated. For example, if a call originated at 11:58 PM CST on 11/4/97 and ended at 12:33 AM on 11/5/97, the call-detail data would be recorded in the **WSCD.1104** file.

Each file starts with its VP file name: **WSCD.*mmdd*** (where ***mmdd*** is the date in month/day format).

The file contains the following call-detail data for each leg of each call:

- Call start time (Central Standard Time) in the format HH:MM:SS
- Session handle
- Dialed number — 1 to 18 digits — in the format (xxx) xxx-xxxx
- Billing number (BN) — 1 to 18 digits — in the format (xxx) xxx-xxxx
- Call handle

- Call holding time in seconds. (This is the time between when WSN receives an ISDN Connect message and when WSN receives an ISDN Disconnect message, a **DisconnectCall** request, or a **DestroyCall** request.)
- Call termination event:
  - 1, TE_SWERROR, software error occurred
  - 2, TE_LINEBUSY, line was busy
  - 3, TE_NETERR, network error occurred
  - 4, TE_HANGUP, called party hung up
  - 5, TE_NORESOURCES, no trunk resources were available
  - 6, TE_API, API requested disconnect
- VP ID — the machine number of each MAP2000
- Initial call flag, either 0 or 1. When set to 1, this flag indicates the first call associated with a session. The flag is set when WSN receives a Q.931 Connect message for the call.

Each data item is delimited by a comma.

To create a single file containing all VPs' call-detail data, **wscol** concatenates the VPs' files in the order in which the VPs appear in the machine table.

Example

wscol 8/13/97

```
WSCD.0813

05:56:16,196608,15104,15104,196608,279,4,vp0,1
06:44:48,196608,15104,15104,196608,0,3,vp0,0
06:45:12,196608,15104,15104,196609,37,4,vp0,1
08:19:53,196608,15104,15104,196608,232,6,vp0,1
08:19:53,196608,15104,15104,196608,301,6,vp0,0
08:19:53,196608,15104,15104,196608,317,6,vp0,0
08:27:28,196608,15104,15104,196610,4686,6,vp0,1
09:47:28,196608,15104,15104,196611,206,6,vp0,1
09:52:09,196608,15104,15104,196612,1155,4,vp0,1
10:23:31,196608,15104,15104,196608,554,4,vp0,1
10:47:21,196608,15104,15104,196610,5,6,vp0,1
10:52:28,196608,15104,15104,196608,144,6,vp0,1
11:26:42,196608,15104,15104,196608,1113,6,vp0,1
```

The first call-detail line contains the following information:

- Call start time: 05:56:16
- Session handle: 196608
- Dialed number: 15104
- Billing number: 15104
- Call handle: 196608
- Call holding time in seconds: 279
- Call termination event: 4
- Machine number of MAP2000: vp0
- Initial call flag: 1

Troubleshooting

6

What's in This Chapter?

This chapter includes information on:

- Service states for modules, cards and channels
- D-channel connectivity
- Monitoring NAP
- Troubleshooting connectivity problems
- Rebooting machines
- Troubleshooting the power supply fan status
- Troubleshooting the firmware downloads
- Troubleshooting Communicore problems

Service States for Modules, Cards, and Channels

Individual Communicore and MAP/100C cards and channels for both can be in various states. For example, a T1 card state attempts to match the status of its channels, and individual channels are in different states. In this case, the card state reflects the highest service-channel state. Table 6-1 shows each possible state with the highest service state, inserv, given first, along with a description of what the state means and what action changes the state of a module, card, or channel.

Table 6-1. Service States

State	Description/Action
`inserv` (in service)	The card or channel is in service and functioning correctly.
`netoos` (network out of service)	Non-T1 cards are never in this state. The card is working correctly (receiving T1 framing), but is waiting for the correct response from the 4ESS/Communicore before it can bring the 4ESS channel/Communicore rchannel into service. For example, if the D- or B-channels have been taken out of service by the 4ESS, or if the VP shows these channels as netoos until they are put back in service on the 4ESS and receive proper signaling.
`hwoos` (hardware out of service)	The card or channel depends on another card or channel not in service as defined by the application.
`appoos` (application out of service)	The DIP software process has not made connections with the primary rate interface (PRI) and the application is waiting to make the PRI connection. This could happen if the VP is administered as *inactive* or PM communications are lost. To clear this, perform the following steps: 1. Check to see if the VP is administered as inactive (use the **machadm** command). 2. Run the **comcheck** command to determine whether the problem is PM communication.

Continued on next page

Table 6-1. Service States — *Continued*

State	Description/Action
	3. Verify that the D-channels are up, because call channels could remain in the appoos state if the D-channel was not up long enough for the application to register. Use the **dispstatus -m <*mach_id*>** command from the PM. Perform a **chgstate -m <*mach_id*> off.** Restart the application software using **chgstate -m <*mach_id*> on.**
`foos` (facility out of service)	The module or card the channel is on is not receiving T1 framing from the far-end (4ESS/Communicore). This implies a failed connection or far-end trouble. Once the connection is restored, the module or card transitions out of this state. Communicore modules are set to the foos state on initialization, but they should transition out of this state.
`broken`	For MAP/100C cards, software on the VP cannot communicate with the module and has removed the module from service, marking it broken. Run diagnostics on this card before attempting to put it back in service. For Communicore modules, broken means diagnostics (probably periodic maintenance) have failed. Run the **diagnose** command (which leaves the module in manoos if it passes the test). If the diagnostics pass, run the **restore** command to bring one module back in service, or the **chgstate -m <*mach_id*> on** command to bring all modules back in service. If the diagnostics fail, replace the module and download to it. Modules in the broken state probably will fail diagnostics and require replacement. See the warning after manoos.

Continued on next page

Table 6-1. Service States — *Continued*

State	Description/Action
manoos (manually out of service)	The module, card, or channel has been taken out of service manually. This is the default state when a system has not been administered. However, all the cards on the VP machines should be administered inserv. First, determine who took the card or channel out of service, and why. The card, along with all other cards in the VP, can be put back in service by using the **chgstate -m <*mach_id*> on** command. If you want, you can put individual cards back in service using the **restore** command. See the next warning. **NOTE:** When a T1 card is restored from the manoos state, it first transitions through the foos state.

WARNING:
If you perform **restore** *on a VP for any value or range that includes any of modules 1 through 3 (including* **all***), the Communicore and the MAP/100C will be unable to communicate when the modules and cards are restored to service.*

To re-establish communications after the modules and cards are restored, cycle the VP. Enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

State transitions are logged as events or informational messages in the system log.

Table 6-3 on page 6-5 provides the channel layouts and channel dependencies for WSN.

Table 6-3. WSN Channel Dependencies

This Resource:			Has This Dependency:		
T1 Logical Slot	**Channel**	**I/O**	**T1 Logical Slot**	**Channel**	**I/O**
4	0-22	Outgoing	4	23	D-chan
4	23	D-chan		No dependency	
6	24-47	Outgoing	4	23	D-chan
7	48-71	Outgoing	4	23	D-chan
9	72-95	Outgoing	4	23	D-chan
10	96-119	Outgoing	4	23	D-chan
12	120-143	Outgoing	4	23	D-chan
13	144-167	Outgoing	4	23	D-chan
15	168-191	Outgoing	4	23	D-chan
18	192-215	Outgoing	4	23	D-chan
19	216-239	Outgoing	4	23	D-chan
21	240-263	Outgoing	4	23	D-chan
22	264-287	Outgoing	4	23	D-chan
24	288-311	Outgoing	4	23	D-chan
25	312-335	Outgoing	4	23	D-chan
27	336-359	Outgoing	4	23	D-chan
28	360-383	Outgoing	4	23	D-chan
30	384-403	Outgoing	4	23	D-chan
31	404-431	Outgoing	4	23	D-chan

The following dependencies also apply:

- All call channels (0 through 22, and 24 through 431) are dependent on D-channel 23 (the 4ESS).
- D-channel 23 is dependent on modules 1 through 3.
- rchannel 23 is dependent on the PRI SP card.
- The PRI SP card is dependent on the voice SP card.
- rchannels 0 through 22 are dependent on rchannel 23.

NOTE:
In WSN 1.1, no channel depends on an associated tone detector.

Understanding D-Channel Connectivity

Because all communication takes place over D-channels (the MAP100/C with the Communicore, and the VP with the 4ESS), you *must* understand D-channel connectivity to perform troubleshooting successfully.[1]

D-channels support two basic levels of functionality and communication:

1. MAP/100c to the Communicore (that is, Communicore slot 3, chan23 control messages)
    - Receiving status
    - Initiating Communicore diagnostics
    - Communicore call control
2. VP to 4ESS D-channel messaging for 4ESS call handling

NOTE:
When referring to modules, cards, and channels during troubleshooting, the following terminology applies:

- Resource cards (rcard) and resource channels (rchannel or rchan) are circuit cards in the MAP/100C VP.
- Cards (card) and channels (channel or chan) are modules on the Communicore and circuit cards in the MAP/100C PM.

Resource channel 23 (rchan 23, which is the D-channel between the MAP/100C and the Communicore) must be in service before the MAP/100C and the Communicore can communicate with each other. This means that the following modules must be in service:

- Modules 1 through 3 on the Communicore (control, switch, PRI T1 to MAP/100C)
- rcards 0 through 3 on the MAP/100C (AYC11 T1 to Communicore, AYC2C SP voice, AYC2C SP PRI, and AYC9 SP TTS)
- Power/maintenance module in the first subrack of the Communicore

NOTE:
Although module 3 on the Communicore terminates the D-channel from the MAP/100C, only the module status is shown for this module. This is because the channel status on module 3 is identical to the resource channel status on resource card 0.

1. Remember that a VP is comprised of a MAP/100C and a Communicore.

For the VP to provide minimal call-processing capability, both rchannel 23 (on the MAP/100C) and channel 23 (D-channel to the 4ESS on module 4 of the Communicore) must be in service. This means the following additional Communicore modules must be in service:

- Module 4 (PRI T1 to 4ESS on the Communicore), as well as its associated outgoing T1
- At least one tone-detector module
- At least one tone-generator module

> **NOTE:**
> The second subrack is not essential for minimal call-processing capability, but its absence severely reduces capacity.

Module 4 of subrack 1 contains the D-channel to the 4ESS, which is frame-relayed by the Communicore to the MAP/100C via the D-channel on module 3 to resource card 0 on the MAP/100C. This means that rchannel 23 carries control messages both to and from the Communicore as well as D-channel signaling to and from the network.

If you suspect D-channel problems, or want to determine general VP sanity (besides checking for alarms), display the status of both rchannel 23 and channel 23. Run these commands from the PM:

dispstatus -m *<mach_id>* rcard 0
dispstatus -m *<mach_id>* card 4

1. Verify that rchannel 23 is in service.
2. Verify that channel 23 is in service.
3. Verify that neither of these alarms were raised (use the **dispalarms** command):
   - MEGA001 (packet-connection failure)
   - MEGA019 (management call between the MAP/100C and the Communicore failed)

When the modules, cards, or channels on the VP are transitioning between states, these changed states display on the screen when you run the **dispstatus** command. Keep running **dispstatus** until modules, cards, and channels stabilize (until status is the same at least twice in a row).

After resolving all alarms, run the **clrlights** command to turn off alarm lights and reset alarm relays. Bring the modules and cards into service, and turn up calls to the machine.

All four cards on the MAP/100C, the T1 and the SPs, are connected over the TDM bus, and all must work properly for the VP to function. If cards or channels are in a foos state, make sure that the machine is connected properly to the Communicore.

Resource Channel 23 (MAP/100C)

The **dispstatus** command, specifically **dispstatus -m <*mach_id*> rcard 0,** may reveal that channel 23 on the MAP/100C is not in service. If channel 23 is not listed as inserv, it may be manoos, netoos, hwoos, foos, or broken.

If resource channel 23 is not in service, take the following actions:

- If the channel is manoos, enter

  restore -m *<mach_id>* rcard 0

  Wait a few minutes for the channels to change to inserv.

- If the channel is netoos (not receiving) proper signaling from the Communicore):

  1. Have the TCC busyout all trunks to the VP at the 4ESS (except the D-channel) by putting them in a **mtc.lko** state.
  2. Enter

     chgstate -m *<mach_id>* mtce
     chgstate -m *<mach_id>* on
     chgstate -m *<mach_id>* off
     chgstate -m *<mach_id>* on

     Wait to see if the channel state changes to inserv.
  3. Diagnose the T1 card. Enter

     diagnose -m *<mach_id>* rcard 0
  4. If the diagnostics fail, replace the T1.
  5. Because the current Communicore module status is unavailable without the D-channel, visually inspect the Communicore, including the module LEDs.
  6. Power-cycle the Communicore on site. Wait to see if the state for rchannel 23 changes to inserv.
  7. Visually inspect the Communicore, including the module LEDs, and, if necessary, replace and download modules as described below.

     For help in using the **download** command, refer to the command description on page 5-61. Refer to ‘‘Removing Communicore Modules Hot’’ on page 8-10 for help in replacing modules.

     If you need to replace modules, replace them in a sequential manner. Using the steps below, replace module 3, then module 2 if necessary, then module 1 if necessary.

     a. Remove the present module and install a new one.

b. Enter

chgstate -m *<mach_id>* on
chgstate -m *<mach_id>* off
chgstate -m *<mach_id>* on

c. Check the status of rchannel 23. Enter

dispstatus -m*<mach_id> rcard 0*

d. If rchannel 23 is in service, download firmware to the module.

e. If rchannel 23 displays as not in service, begin again at step a, replacing the next module.

8. If this does not clear the problem, escalate it.

- If the channel is hwoos (the card on which the D-channel is dependent is not in service):
  1. Check the status of resource cards 1 and 2.
  2. Diagnose, replace, or restore these cards as needed.
- If the channel is foos (not receiving T1 framing):
  1. Check cabling between the Communicore and the MAP/100C.
  2. Enter **diagnose -m *<mach_id>* rcard 0**
  3. If the rcard fails diagnostics, replace the card.
  4. Power-cycle the Communicore by removing the power connector from the power module in subrack 2, then subrack 1. Install the power connector in subrack 2, then subrack 1.
  5. When the power-cycle is complete, enter

     chgstate -m *<mach_id>* on
     chgstate -m *<mach_id>* off
     chgstate -m *<mach_id>* on

  6. Visually inspect the Communicore, including the module's LEDs, and, if necessary, replace and download modules as described in the following steps.

     For help in using the **download** command, refer to the command description on page 5-61. See ''Removing Communicore Modules Hot'' on page 8-10 for help in replacing modules.

     If you need to replace modules, replace them in a sequential manner. Using the following steps, replace module 3, then module 2 if necessary, then module 1 if necessary.

     a. Remove the present module and install a new one.

b. Enter

chgstate -m *<mach_id>* on
chgstate -m *<mach_id>* off
chgstate -m *<mach_id>* on

c. Check the status of rchannel 23. Enter

dispstatus -m*<mach_id> rcard 0*

d. If rchannel 23 is in service, download firmware to the module.

e. If rchannel 23 displays as `not in service`, begin again at Step a., replacing the next module.

7. If this does not clear the problem, escalate it.

- If the channel is broken:

1. Enter **diagnose rcard 0**
2. If the rcard fails diagnostics or remains broken:

a. Enter **chgstate -m *<mach_id>* down**

b. Replace the MAP/100C T1 circuit card.

c. To bring the machine back up, either press the reset button or power-cycle the machine.

d. After the reboot procedure is complete, enter:

chgstate -m *<mach_id>* on
chgstate -m *<mach_id>* off
chgstate -m *<mach_id>* on

After the D-channel or channels are restored, verify the VP's status. Enter

dispstatus -m *<mach_id>*

NOTE:
If the channels were busied out, have the TCC put the channels back into service.

Channel 23 (Communicore)

The **dispstatus** command, specifically **dispstatus -m <*mach_id*> card 4,** may reveal that channel 23 on the Communicore is not in service. If the channel is not listed as inserv, it may be manoos, netoos, hwoos, foos, or broken.

If resource channel (rchannel) 23 is in service, but channel 23 is *not* in service, take the following actions:

- If the channel is manoos, enter this command:

  restore -m *<mach_id>* card 4

- If the Communicore channel is netoos (not receiving proper signaling from the 4ESS):

  1. Have the TCC busyout all trunks to the VP at the 4ESS (except the D-channel) by putting them in a **mtc.lko** state.
  2. Enter **diagnose -m *<mach_id>* card 4**
  3. If the module fails the diagnostics, replace it and download firmware. See **download** on page 5-61 for complete instructions and warnings for a download.
  4. Enter

     diagnose -m *<mach_id>* card 1
     diagnose -m *<mach_id>* card 2

  5. Visually inspect the Communicore, including the module's LEDs, and, if necessary, replace and download modules as described below.

     See ''download'' on page 5-61 for help in using the **download** command. Refer to ''Removing Communicore Modules Hot'' on page 8-10 for help in replacing modules.

     a. Remove the present module and install a new one.

     b. Enter

        chgstate -m *<mach_id>* on
        chgstate -m *<mach_id>* off
        chgstate -m *<mach_id>* on

     c. Enter **dispstatus -m *<mach_id> rcard 0*** to check the status of rchannel 23.

     d. If rchannel 23 is in service, download firmware to the module.

     e. If rchannel 23 displays as not in service, begin again at Step a., replacing the other module.

  6. Visually inspect the Communicore, including the module's LEDs, and reseat modules as needed.

7. Power-cycle the Communicore by removing the power connector from the power module in subrack 2, then subrack 1. Install the power connector in subrack 2, then subrack 1.
8. When the power-cycle is complete, enter
   chgstate -m *<mach_id>* on
   chgstate -m *<mach_id>* off
   chgstate -m *<mach_id>* on
9. Wait to see if the state for channel 23 changes to inserv.
10. Visually inspect the Communicore, including the module's LEDs, and, if necessary, replace and download these modules.

    See **download** on page 5-61 for help in using the **download** command. See ''Removing Communicore Modules Hot'' on page 8-10 for help in replacing modules.

    If you need to replace modules, replace them in a sequential manner. Following the steps below, replace module 4, then module 2 if necessary, then module 1.

    a. Remove the present module and install a new one.
    b. Enter
       chgstate -m *<mach_id>* on
       chgstate -m *<mach_id>* off
       chgstate -m *<mach_id>* on
    c. Enter **dispstatus -m *<mach_id>*** to check the status of channel 23.
    d. If channel 23 is in service, download firmware to the module.
    e. If channel 23 displays as not in service, begin again at Step a., replacing the next module.
11. If the problem is not cleared, it may be a 4ESS problem, so escalate it.

- If the channel is hwoos (the module on which the D-channel is dependent is not in service), enter

  dispstatus -m *<mach_id>*

  Take steps to get the dependent modules in service.

- If the channel is foos (not receiving T1 framing):

  1. Have the TCC busyout all trunks to the VP at the 4ESS (except the D-channel) by putting them in a **mtc.lko** state.
  2. Enter **diagnose -m *<mach_id>* card 4**
  3. If the module fails the diagnostics, replace it. See **download** on page 5-61 for instructions and warnings on how to download firmware.
  4. Check the cabling to the 4ESS.

5. Visually inspect the Communicore, including the module's LEDs, and, if necessary, replace and download these modules.

   See ''download'' on page 5-61 for help in using the **download** command. See ''Removing Communicore Modules Hot'' on page 8-10 for help in replacing modules.

   If you need to replace modules, replace them in a sequential manner. Following the steps below, replace module 4, then module 2 if necessary, then module 1 if necessary.

   a. Remove the present module and install a new one.

   b. Enter

      chgstate -m *<mach_id>* on
      chgstate -m *<mach_id>* off
      chgstate -m *<mach_id>* on

   c. Enter **dispstatus -m *<mach_id>*** to check the status of channel 23.

   d. If channel 23 is in service, download firmware to the module.

   e. If channel 23 displays as not in service, begin again at Step a., replacing the next module.

6. If the problem is not cleared, it is probably a 4ESS problem, so escalate it.

- If the channel is broken:

  1. Diagnose module 4.
  2. If module 4 fails diagnostics or remains broken, replace it.

     a. Remove the present module and install a new one.

     b. Enter

        chgstate -m *<mach_id>* on
        chgstate -m *<mach_id>* off
        chgstate -m *<mach_id>* on

     c. Enter **dispstatus -m *<mach_id>*** to check the status of channel 23.

     d. If channel 23 is in service, download firmware to the module.

  3. If the problem is not cleared, it is probably a 4ESS problem, so escalate it.

NOTE:
When replacing modules you must download firmware. See **download** on page 5-61 for complete instructions on doing a download.

After restoring the D-channel or channels, verify the VP's status. Enter:

chgstate -m *<mach_id>* on
chgstate -m *<mach_id>* off
chgstate -m *<mach_id>* on
dispstatus -m *<mach_id>*

NOTE:
If they were busied-out, have the TCC put the channels back into service.

Monitoring NAP

NAP alarms are sent to the Total Network Management (TNM) system for remote monitoring by the TCC. Some of the VP information may be filtered out on TNM, but most alarms are displayed on the alarm monitor.

NAP application alarms have a number and alarm level associated with them. Alarm levels consist of critical, major, minor, and informational. Refer to ''Alarm Numbering'' on page 7-5 to see the alarm numbering system.

Descriptions of CONVERSANT generic alarms are in CONVERSANT VIS Version 4.0 Maintenance (referenced in the preface, About This Book).

Logging Into a Machine

To run most troubleshooting and maintenance commands as a *remote* user, log in directly to the PM. If, however, you are on site, you can either log in directly to the PM, or you can log in to the problem machine and troubleshoot from there.

NOTE:
If you have two or more monitors and keyboards, you can keep one connected to the PM and use the other one to troubleshoot directly on the machine.

NOTE:
Not all commands run on any machine. If a command does not work, run it from the PM.

Isolating a Problem to a Specific Machine

Machine problems may or may not cause an alarm. For NAP, the TCC monitors all machines at a particular site. Proactive monitoring techniques can be used in each of these procedures to help isolate the problem. Once you isolate the problem to a particular machine, follow the procedures specific to the problem or alarm encountered.

1. Check any machine with active alarms.

   The current active alarm might not be recognized as causing the reported problem, but the fact that the alarm has occurred makes this machine the best choice to check first.

2. Check the machines that last reported an alarm.

   A previous alarm might appear unrelated to the reported problem. However, a side effect of the previous alarm may be causing the problem.

3. Check the machine that last had a similar problem.

   If a problem occurs once on a machine but is not completely or correctly resolved, it is likely to occur again. It would be worthwhile to check that machine to determine whether the problem has reappeared.

4. Check the machines sequentially.

   This is the least preferred method of isolating the problem but quite often the only method available. This method involves checking each individual machine until you isolate the problem.

Reboot Procedures

Many problems can be remedied by rebooting the affected machine. Use the following guidelines when you need to reboot.

Rebooting a VP

The reboot process first gracefully idles all channels: it takes idle incoming channels out of service, allows existing calls to finish and, as the channels carrying the calls become idle, it takes them out of service. When all incoming channels are out of service, all outgoing channels are taken out. The reboot then stops and starts VP software (including NAP and UNIX). The reboot also resets all hardware drivers. For information on the **chgstate** reboot command, refer to Chapter 5, ''Command Reference''.

The reboot procedures listed check the integrity of the entire system.

From the site:

1. Enter **chgstate -m *<mach_id>* [-g <grace_period>] reboot**

   The machine waits for active calls to finish and then reboots. Just before the VP goes out of service, the following message displays:

   ```
   Graceful idle of channel successful.
   ```

   Wait at least five minutes after this message for the VP to reboot.

2. Display the machine status. Enter

   dispstatus -m *<mach_id>*

   If you have waited 30 seconds after entering the command and no status displays, the machine is still initializing. Rerun the **dispstatus** command until you get a status display.

   The **dispstatus** command displays the states of each module, card, and rcard, as well as the channels on the T1 cards and PRI modules. The states change rapidly during initialization. Rerun the command until all states stabilize, that is, until the same status displays with two successive **dispstatus** commands.

3. Perform one of the following steps:

   a. If the status display shows:

      All modules/cards = inserv

      and

      All channels = inserv

      the VP is up and communicating. Go to Step 5.

   b. The MAP/100C is waiting for the Communicore if the status display shows:

      rchan 23 (the D-channel = netoos

      all other rchannels = hwoos

      rcards 1 & 2 (the SP cards) = inserv

      The Communicore is waiting for the 4ESS if the status display shows:

      chan 23 (the D-channel) =netoos

      1. Turn up service from the 4ESS (D-channel only).
      2. Go back to step 2.

   c. If you have already turned voice processing off and on and the **dispstatus** command still does not show the inserv results, the problem or alarm is not yet resolved. In this case:

      1. Reboot the VP a second time.
      2. If you have rebooted the machine twice and the **dispstatus** command does not show all modules, cards and channels are inserv. Go to step 7.

   d. If, ten minutes after rebooting, the status display *does not show* all modules, cards and channels are inserv and service from the 4ESS to the VP is turned up. Continue.

4. Enter:

   chgstate -m *<mach_id>* off
   chgstate -m *<mach_id>* on

   This turns voice processing off and on, which resets certain functions. Display the status again to determine whether this resolved the problem, using the command in step 2.

5. Enter the following command, which clears any alarms caused by rebooting (usually generic CONVERSANT alarms TWIP013 through TWIP018).

   clrlights -m *<mach_id>*

6. Perform one of the following steps:
   a. If all alarms are cleared, the reboot is finished, STOP here.
   b. Repeat this reboot procedure (in other words, go to step 1) if the alarm that caused you to reboot is still present.

      If you have rebooted twice and the alarm is still present, continue.
7. To get the alarm history for this VP, enter

   dispalarms -m *<mach_id>* all
8. Escalate the problem and report the alarm history.

Onsite work force:

9. If the Communicore needs to be rebooted, power-cycle the Communicore by removing the power connector from the power module in subrack 2, then subrack 1. Install the power connector in subrack 2, then subrack 1.

From the TCC:

10. When the power-cycle is complete, enter:

    chgstate -m *<mach_id>* on
    chgstate -m *<mach_id>* off
    chgstate -m*<mach_id>* on
11. Perform the steps in ‘‘Restoring a VP to Service’’ on page 4-65.
12. If you cannot restore the VP, escalate the problem.

Rebooting a PM

When you reboot a PM, you lose any calls active through the PM.

WorldSHARE NAP 1.1 does not provide any means of querying a PM to determine if any calls are active.

The AT&T WorldSHARE core server (WS CS) communicates to all PMs at all sites a request to initialize the API library and establish a communication link. The first PM to respond processes all subsequent requests over that communication link If the AT&T WS CS has established communications with a PM, the PM an receive a request from the AT&T WS CS to create a call session at any time.

NOTE:
Both PMs at a NAP site are active at all times. One PM is administered as the primary PM. This PM serves as the collection point for alarm messages from all VP machines at the site. For administrative purposes, pm00 is usually the primary PM.

Reboot a PM:

- When it is part of an alarm troubleshooting procedure
- When you replace a card or other hardware component

NOTE:
You never want both PMs out of service at the same time. So be sure to use the right machine ID (*pm00* or *pm01*) in the reboot command. This way you won't inadvertently take the PM that is working correctly out of service. Don't reboot one PM unless the other is operating correctly. If both PMs are failing or operating irregularly, or if one PM has a major failure, see the next section, "If the PM Reboot Fails."

From the good PM:

NOTE:
Throughout this procedure, ***mach_id*** refers to the problem PM.

1. If the PM being rebooted is the primary PM, change the primary PM to good PM. Enter

   primadm -v <*PRIMARY*>

   where *PRIMARY* is the machine instance value of the PM machine that serves as the primary PM.

2. Enter **chgstate -m <*mach_id*> reboot**

   The following message displays:

   ```
   Wait 60 seconds for the state change to complete
   ```

   Then a message displays saying that the system is going out of service.

3. Enter **dispstatus -m <*mach_id*>**

4. Perform one of the following steps:

   a. If the status shows the application is on, go to Step 5.

   b. If the status shows the application is off on this machine, wait a few minutes and rerun the **dispstatus** command.

   c. If you fail to get the `Application on` message after running the **dispstatus** command several times:

      1. Enter **chgstate -m <*mach_id*> off**
      2. Enter **chgstate -m <*mach_id*> on**
      3. Rerun the **dispstatus** command. If you still can't get the `Application on` message after several tries, go to Step 6.

5. Enter **clrlights -m <*mach_id*>**

   This clears any alarms caused by the reboot.

6. To determine whether there are any alarms to be resolved, enter

   dispalarms -m <*mach_id*> all

   If there are alarms, go to Step 8. Otherwise, continue with Step 7.

7. If the PM just rebooted was the original primary PM, change the primary PM back. Enter

   primadm -v <*PRIMARY*>

   where *PRIMARY* is the machine instance value of the PM machine that serves as the primary PM.

   STOP. This ends the reboot.

8. If the same alarm or new alarms are occurring, or if you can't get the `machine on` message:

   a. If you have rebooted the PM just once, repeat the reboot procedure.

   b. If you have rebooted the PM twice:

      1. Enter **dispalarms -m *<mach_id>* all** to get the alarm history for this PM.

      2. Escalate the problem immediately.

9. If the problem is resolved, perform ''Restoring a PM to Service'' on page 4-65.

If the PM Reboot Fails

If the PM reboot does not clear the problem, or it has a major problem (for example, losing the hard disk), it may need to be replaced, or the software may need to be reloaded.

If one PM has failed but the other PM is still functioning properly, go to page 4-11 and follow the steps for the following checklist:

Checklist: Reloading an Existing PM at an Existing Site

If both PMs fail and need to be replaced or reloaded, go to page 4-5, and follow the steps for the following checklist (skip the step that has you reload the software onto the VP):

Checklist: Installing a New Site

Connectivity Problems

PM-to-Datakit Connectivity

Symptoms

The following symptoms can indicate signal problems with NAP operation or connectivity. Refer to ‘‘Troubleshooting PM-to-Datakit Connectivity Problems’’ on page 6-23, to clear the problems.

- TNM cannot talk to a PM machine

  Possible causes:

  — Datakit path from TNM to NAP site is administered incorrectly

  — PM machine is down

  — Datakit connectivity between machines is lost

Troubleshooting guidelines for many of the conditions in this section are listed on the following pages.

Troubleshooting PM-to-Datakit Connectivity Problems

There are no procedures for troubleshooting PM-to-Datakit connectivity problems in WSN release 1.1.

PM-to-Machine LAN Connectivity Symptoms and Solutions

Alarm APPL115 indicates one of the following conditions:

- LAN A, LAN B, or both are down
- One or both PM machines are down
- One or multiple machines are down
- LAN A, LAN B, or both are down
- Connectivity problems exist between:

  PM and LAN A or B hub

  LAN A hub and LAN B hub

  LAN A or B hub and any machine (if a machine cannot communicate over either LAN A or LAN B, the machine is probably down)

1. Enter **comcheck** on both PMs. This command traces LAN A and B connectivity to isolate which of the above conditions is causing the problem.

   If the PM cannot communicate with other machines, that PM or a LAN component (LAN cable, hub, or physical connection to the PM) is not working. If **comcheck** shows a specific machine is down, the problem is probably confined to that machine. To confirm this:

   a. Make sure the machine is administered as *active.* Enter

      machadm -d

      NOTE:
      Chapter 5, ‘‘Command Reference’’ provides complete procedures for accessing and using the NAP administration interface and all NAP-specific commands. In addition, see ‘‘Troubleshooting PM-to-Datakit Connectivity Problems’’ on page 6-23.

b. Make sure that the LAN cards in the machine are working. For all administered machines, enter

lancheck

Check the TCP/IP report to determine whether the LAN interfaces are working.

c. Enter **dispstatus -m <*mach_id*>**

where ***mach_id*** is the machine ID of the problem machine. You will see whether the problem machine is in the ON state. If not, investigate why the machine is not in the ON state.

d. Inspect physical wiring to make sure that the machine is properly connected to the LAN hub.

e. If a LAN interface is not working and all other hardware checks proved all right, replace the appropriate LAN card.

2. If the alarms are not cleared, escalate the problem to the next level of support.

PM-to-WorldSHARE Core Server Connectivity

Alarm APPL002 indicates one of the following conditions:

- A router is down
- The AT&T WorldSHARE core server (WS CS) is down or has been rebooted
- The AT&T WS CS process has stopped
- Connectivity problems exist between:
  - PM to router
  - Router to router
  - Router to AT&T WS CS

  If a machine cannot communicate over 1 of the 56-Kbps lines, the machine is probably down.

This alarm allows NAP administrators to track how often the connection to the AT&T WS CS goes down.

1. To check the connection, contact AT&T WorldSHARE core server support. See ‘‘Contact Information’’ on page I-2.
2. Ask the support personnel to send a **BridgeInit** request from the AT&T WS CS to the NAP PM.

   If connectivity is lost, determine where the loss has occurred by sending ping commands in the following order.

3. Check the connection to router A in the GS cabinet at the NAP site by entering

   ping *<IP_address>*

   where ***<IP_address>*** is the IP address of router A.

   To obtain IP addresses or the AT&T WorldSHARE core server, and the routers, see ‘‘Contact Information’’ in Appendix I, ‘‘Configuring Routers’’.

4. Check the connection to router C at the AT&T WS CS site (the router connected to router A at the NAP site) by entering

   ping *<IP_address>*

   where ***<IP_address>*** is the IP address of router C.

5. Check the connection to router B in the GS cabinet at the NAP site by entering

   ping *<IP_address>*

   where ***<IP_address>*** is the IP address of router B.

6. Check the connection to router D at the AT&T WS CS site (the router connected to router B at the NAP site) by entering

   ping *<IP_address>*

   where ***<IP_address>*** is the IP address of router D.

7. Check the connection to the AT&T WS CS by entering

   ping *<IP_address>*

   where ***<IP_address>*** is the IP address of the AT&T WS CS.

Troubleshooting the Power Supply Fan Status

If the power supply fan's LED on the front of the MAP/100C is OFF, check the fan/power supply unit. See ''MAP/100C Switches and Indicators'' on page 3-2 for the location of this LED. If the LED is indeed off, replace the fan/power supply unit, regardless of whether the fan is functioning.

WARNING:
If the fan's LED is OFF even though the fan is functioning, it may not be circulating enough air to cool the power supply. Replace the fan to avoid equipment damage.

Remove the fan/power supply unit as outlined in ''Remove the Power Supply''. Replace the fan/power supply unit as detailed in ''Install the Power Supply''.

If you are replacing the power supply because the LED on the front panel indicates that the power supply fan is failing, yet the fan appears to be operating properly, go to ''Install the Power Supply'' on page 6-28 and perform step 1. Otherwise go on to step 2.

Remove the Power Supply

1. Perform a logical shutdown of the MAP/100C software.
2. Switch off the MAP/100C power supply switch located on the front panel.
3. Switch off the MAP/100C circuit breaker located on the rear panel.
4. Extend the frame slide rails.
5. At the rear of the chassis, remove the slide-rail/frame-cable tie-down bar.
6. Open the power supply access door (the topmost door).
7. Remove the power supply:
    a. Remove the two screws on the bottom of the power supply that secure it to the chassis.
    b. Pull the power supply forward and lift the tabs out of the slots to remove the power supply from the chassis.
    c. Disconnect the input power connector from the circuit card on the right side of the chassis.
    d. Disconnect the three orange connectors and one white connector on the left side of the power supply unit.

Install the Power Supply

1. With the power supply out of the unit, check the power supply backplane for JP1. This is located in the lower right quadrant of the backplane. If JP1 is in position 1-2, move the jumper to position 3-4 before installing the replacement power supply.

NOTE:
If jumper JP1 is in position 1-2, the power supply fan LED may inaccurately indicate a fault. The fan is operating correctly, but you must set the jumper to 3-4 for the LED to function properly.

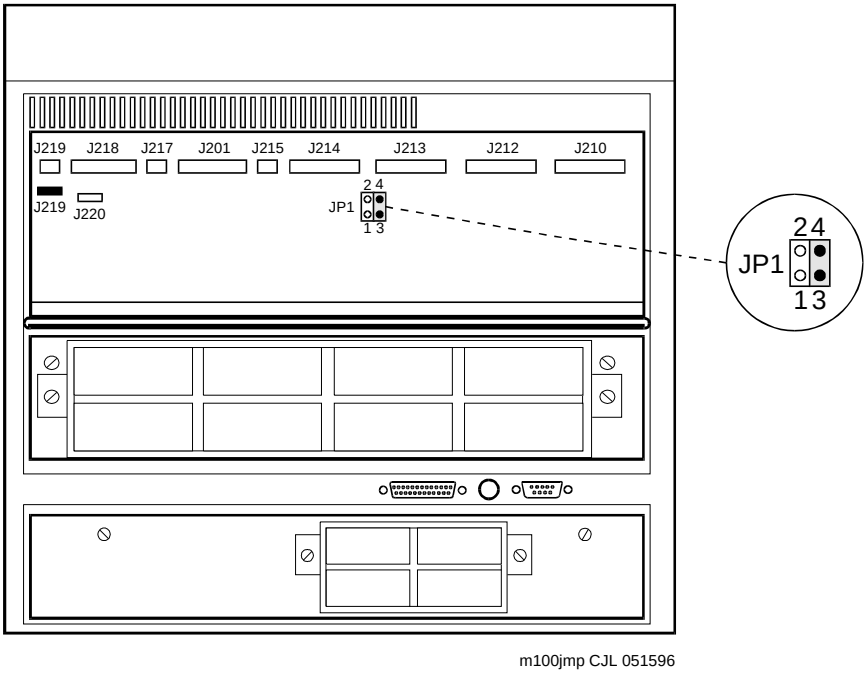


Figure 6-1. Power Distribution Board: JP1 Settings

2. Install the power supply:
    a. Connect the input-power connector to the circuit card on the right side of the chassis. The cable connector is keyed.
    b. Connect the three orange connectors and one white connector on the left side of the power-supply unit. The cable connectors are keyed.
    c. Place the power-supply tabs in the slots on the bottom of the power-supply bay.
    d. Push the power supply into the chassis and secure it with two screws.
    e. Switch on the MAP/100C circuit breaker.
    f. Switch on the MAP/100C power-supply switch located on the front panel.
    g. Check the fan status LED on the front panel. If JP1 has been switched and the fan is operating, a front interface-panel LED problem may exist.
    h. Clean the power-supply fan filter. Refer to ‘‘Cleaning the MAP/100C Fan Filters’’ on page 8-2.
    i. Close the power-supply access panel door and tighten the captive screws.
    j. Extend the frame slide rails.
    k. At the rear of the chassis, install the slide-rail/frame-cable tie-down bar.

Troubleshooting the Firmware Downloads

The **download** command downloads Communicore firmware. The firmware download fails when the **download** command exits for any of these reasons:

- A module or a module type not found
- The firmware file not found
- Reattempts of downloads fail

The following sections explain how to determine the cause and suggest ways to solve the problem.

Can't Find a Module or a Module Type

If **download** can't find a module of the type specified, an onscreen message tells which type of module cannot be found. Perform the following procedures to determine the problem:

Run chkconfig to Check for the Module

1. Enter **chkconfig -m <*mach_id*> -v**
2. Check the screen to determine whether the module is listed.
   - If it *is not* listed, look in the VP.
     - — If the module is *absent*, install it and rerun **chkconfig** as shown previously.
     - — If the correct module is present but not listed, reseat the module and rerun **chkconfig** as shown previously.
     - — If an incorrect module is present, install the correct module and rerun **chkconfig** as shown previously.
   - If it *is* listed, examine the line item on the screen for valid information. *No* fields should contain all zeros. If you see invalid information, reseat the module and rerun **chkconfig**.

   NOTE:
   Rerun **download** if any modules are replaced or reseated.

3. If the problem cannot be resolved, escalate to the next level of support.

Can't Find Firmware File

An onscreen message appears during the download if **download** cannot find the firmware. Copy the missing firmware file from another machine or reload the machine from a snapshot tape. If necessary, replace with an appropriate file (**boot**, **param**, **dsp**, **main**).

Download Fails Reattempts

An onscreen message appears during the download if the download fails. If the download fails, follow these steps.

1. Determine whether the module can be reseated hot and whether you must turn the power to the Communicore off. See ''Removing Communicore Modules'' on page 8-9 and ''Removing Communicore Modules Hot'' on page 8-10.
2. Reseat the module.
3. To test the module, enter

   diagnose -m <*mach_id*> card <*card_no*>

4. If **diagnose** is successful, try to download one more time.
5. If the module is listed as `broken`:
   a. Reseat the module.
   b. Run **diagnose -m <*mach_id*> card <card_no>** again.
   c. If the module passes, make a note on the output explaining what failed when you ran the first **diagnose**.
   d. If the module fails again, replace the module and download firmware to it. See ''download'' on page 5-61 for cautions and command usage.
   e. Include a copy of the output with the WMS trouble ticket and with the module you are returning. Specify the serial number of the module.
   f. Rerun **diagnose** to check the new module. Enter

      diagnose -m <*mach_id*> card <*card_no*>

Troubleshooting Communicore Problems

Noise Complaints

If a customer complains of noise or static on a call, suspect a noisy Communicore module or backplane.

Enter **diagnose -m <*mach_id*> bus** | **pg**

and take appropriate action based on the results of the output. Refer to ‘‘Installing Communicore Modules’’ on page 8-8 to determine whether you can replace the noisy module hot or cold. If you need to replace the module, download firmware to the module afterward. See‘‘download’’ on page 5-61 for cautions and command usage.

Tone Detector Status Lights Have Gone Off

If the tone-detector modules have been removed administratively or have failed, the status light on the module will not be lit. See ‘‘Communicore Module Indicators’’ on page 3-6 for details about module status lights.

1. Check to determine whether the module has been removed administratively. Enter

   dispstatus -m <*mach_id*> card <*card_no*>

   If the module has been removed administratively, determine why. If it has not, go on.

2. Depending on the status of the module, as reported by **dispstatus**:

   - If the module is `broken`, reseat the module (and tag it as a reseat) and run the **diagnose** command on it. Enter

     diagnose -m <*mach_id*> card <*card_no*>

     — If it passes, use **restore** to restore it to service. Enter

     restore -m <*mach_id*> card <*card_no*>

     — If it fails, replace the module and download the firmware. See‘‘download’’ on page 5-61 for cautions and command usage. Include a copy of the output with the module when returning it.

   - If the module is `inserv` but dark:

     a. Run the **remove** command. Enter

     remove -m <*mach_id*> card <*card_no*> immed

     b. Then run the **diagnose** command:

     diagnose -m <*mach_id*> card <*card_no*>

— If it passes, use **restore** to restore it to service.

— If it fails, replace the module and download the firmware. Include a a copy of the output with the module when returning it.

Subrack Failure

If all Communicore modules fail a **diagnose bus** command, suspect a total subrack failure. An entire subrack may fail for any of several reasons:

- The cable between the two subracks is faulty, causing all upper subrack modules to fail diagnose
- The backplane is faulty, either of the subracks fails diagnosis
- All cards in a subrack really are bad. See ''Modules in the Communicore Subrack'' on page 8-15 for instruction on how to replace modules.

If you suspect a faulty cable or a faulty backplane, perform one of the following sets of steps.

CAUTION:
Before using the following steps, TCC must turn down all customer traffic for the machine you are working with.

- If you suspect the intersubrack cable, replace the cable:
  1. Enter **remove -m <*mach_id*> card all immed**

     to remove Communicore modules from service.
  2. Remove power from the Communicore. Refer to ''Normal Shutdown Procedures'' on page 3-34.
  3. Remove the intersubrack cable.
  4. Check the cable for bent pins.
  5. Straighten any bent pins. Replace the cable with a new one if needed. Refer to ''Connecting the Intersubrack Cable'' on page 6-40.
  6. Restore the power to the Communicore as described in ''Communicore Power'' on page 3-32.
  7. Enter **restore -m <*mach_id*> card all**

     to restore all modules to service.
  8. Enter **diagnose -m <*mach_id*> bus** | **pg**

     Verify that all modules pass diagnosis.

- If you have eliminated a faulty cable, replace the backplane:
  1. Enter **remove -m <*mach_id*> card all immed**

     to remove Communicore modules from service.
  2. Remove power from the Communicore. Refer to ‘‘Normal Shutdown Procedures’’ on page 3-34.
  3. Remove the PRI cables from the front of the Communicore.
  4. Disconnect the intersubrack cable from the subrack you intend to replace.
  5. Physically remove all modules. See ‘‘Removing Communicore Modules’’ on page 8-9.

For steps 6, 7, and 8 refer to ‘‘Installing MAP/100C Circuit Cards’’ on page 8-5.

  6. Standing at the back of the frame, release the retaining clips that hold the backplane in place.
  7. Remove the backplane assembly.
  8. Install the new backplane to the frame,
  9. Reinsert all modules. Refer to ‘‘Installing Communicore Modules’’ on page 8-8.
  10. Reattach all PRI cables and the intersubrack cable.
  11. Restore the power to the Communicore as described in ‘‘Communicore Power’’ on page 3-32.
  12. Enter **restore card all**

      to restore all modules to service.
  13. Enter **diagnose bus** | **pg**

      Verify that all modules pass diagnosis.

No Communication Between MAP/100C and Communicore

Failure of the MAP/100C to communicate with the Communicore modules presents particularly difficult diagnostic and corrective measures. If communication between the MAP/100C and Communicore is down, you may encounter problems such as these:

- Initialization takes an excessively long time and the Communicore appears not to come up
- MEGA019 alarm displays
- You receive no response to Communicore-specific commands such as **diagnose**, **dispstatus**, or **displed**

Such a communication failure may occur for several reasons:

- T1 card in the MAP/100C has failed
- Control 360 module in the Communicore has failed
- Switch module in the Communicore has failed
- The PRI module in slot 3 of the Communicore has failed
- The intersubrack cable is faulty
- You have executed **diagnose, remove, restore,** or **download** on Communicore modules 1, 2, or 3, on any rcard in the VP.

If you suspect a failure of a T1 card in the MAP/100C:

1. Diagnose the resource cards. Enter

   diagnose -m <*mach_id*> rcard all

   Make sure all cards are in service.

2. If **diagnose** fails, replace the failed card. Refer to ''Installing MAP/100C Circuit Cards'' on page 8-5.

If you suspect that a failure of a Communicore module is the problem:

1. Power-cycle the Communicore:

   a. Remove the power connector from the power module in subrack 2, then subrack 1.

   b. Install the power connector in subrack 2, then subrack 1. Wait 10 minutes for communication to be established.

   If this solves the problem, the Communicore should initialize correctly. If timely initialization does not occur, go on. You also can run the **displed** command to see if it executes.

2. Have the onsite work force check the LEDs on the control, switch, and PRI modules.

   If the LEDs are off when they should be on, you must replace these modules. See ''Communicore Module Indicators'' on page 3-6 to recognize correct LEDs.

   If the LEDs on these modules light correctly, examine the other modules' LEDs. Replace any of those modules if needed.

3. Replace Communicore modules. Refer to ''Replacing Communicore Modules'' on page 6-37.

If you suspect that the intersubrack cable is faulty, replace the cable. Refer to ''Subrack Failure'' on page 6-33.

The **diagnose, remove, restore,** or **download** commands remove the specified hardware from service while executing. If you have executed **diagnose, remove, restore, or download** for Communicore module 1,2,or 3 or for any rcard, the Communicore and the MAP/100C will be unable to communicate when the modules or cards are restored to service.

Cycle the non-communicating machine. Enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

Replacing Communicore Modules

Many diagnostic situations result in replacing Communicore modules. Use the steps below when you must remove a bad module and replace it with a new one.

CAUTION:
Before replacing Communicore modules, turn down traffic to the machine.

1. Determine whether you can replace the module without powering down the Communicore. Refer to page ‘‘Installing Communicore Modules’’ on page 8-8 to determine whether you can replace the module hot or cold.
2. If required, remove power from the Communicore as described on ‘‘Normal Shutdown Procedures’’ on page 3-34.
3. Remove and replace the module as discussed in ‘‘Removing Communicore Modules’’ on page 8-9.
4. If necessary, restore power to the Communicore as described in the section, ‘‘Communicore Power’’ on page 3-32.

   Initialization should proceed in a timely manner, and Communicore-specific commands should respond appropriately.
5. If these steps do not establish communication between the MAP/100C and the Communicore, refer to the troubleshooting steps for ‘‘No Communication Between MAP/100C and Communicore’’ on page 6-34.
6. If you still cannot establish communications, escalate the problem to the next tier of support.
7. If these measures do restore communication between the MAP/100C and the Communicore, download firmware to the new module. See **download** on page 5-61 for cautions and command usage.

Replacing or Installing the Communicore Chassis/Backplane

To remove a Communicore chassis, use a screwdriver to release each tab on the bottom of the chassis.

To install a Communicore chassis/backplane, first unpack a chassis/backplane assembly from each box and snap each into a mounting frame:

1. Insert the three tabs on the top of a chassis into the slots on the top of the mounting frame as shown in Figure 6-2 on page 6-39.
2. Rotate the chassis downward and snap the bottom three tabs into their slots as shown in Figure 6-3 on page 6-40.

On a 4ESS frame there are two subrack chassis panels. These panels are steel with mounting notches as shown in Figure 6-2.

On a 5ESS cabinet these is one steel chassis panel with mounting notches.

NOTE:
Replace *only* the chassis backplane.

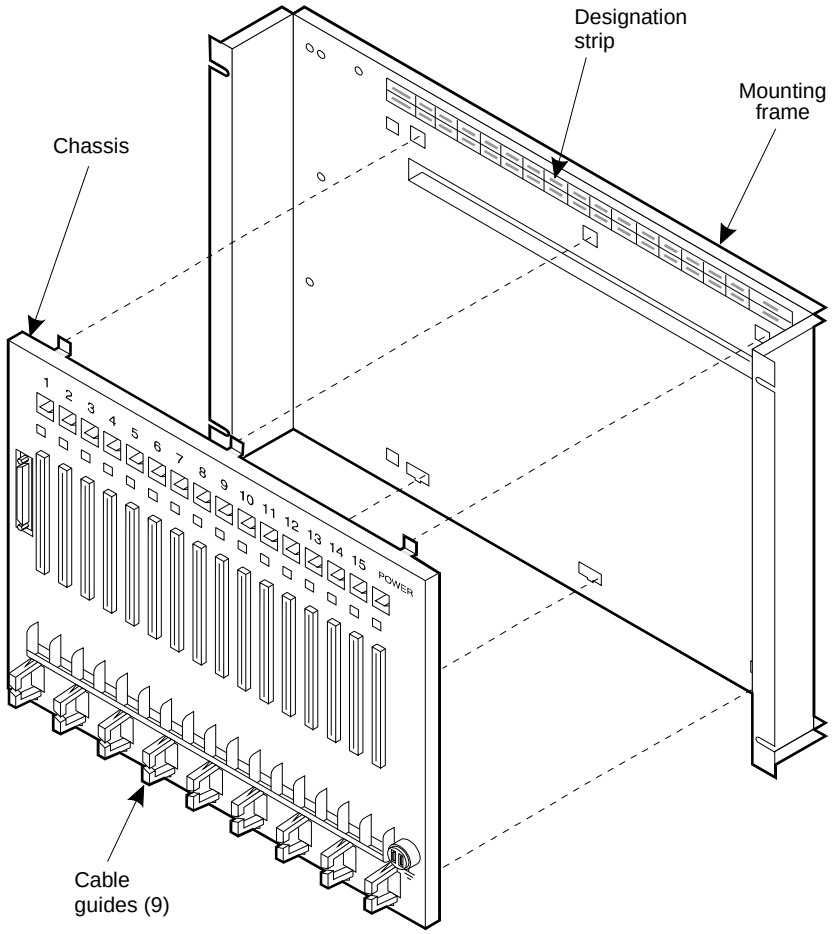


Figure 6-2. Inserting the Chassis/Backplane Assembly into a 4ESS Mounting Frame

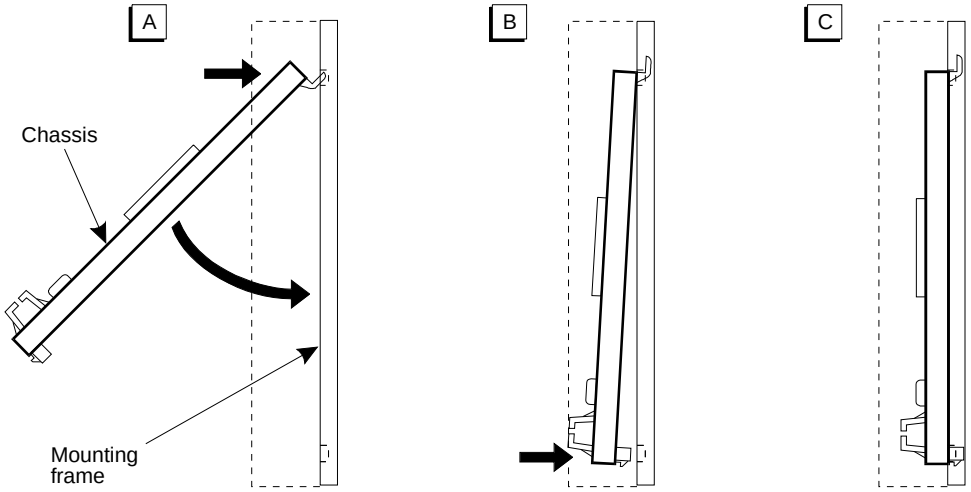


Figure 6-3. Inserting the Chassis/Backplane Assembly into the Mounting Frame

Connecting the Intersubrack Cable

To connect the intersubrack cable, unpack the intersubrack cable and connect the two subracks.

CAUTION:
Turn off power to both subracks before connecting or disconnecting the intersubrack cable (ISC). Incorrect cable orientation will cause a D-channel failure.

CAUTION:
Connect the two subracks with the ISC (intersubrack cable, Comcode 407066554) as shown in Figure 6-4. Make sure to orient the cable so that the end labeled subrack 1 is attached to subrack 1 (lower).

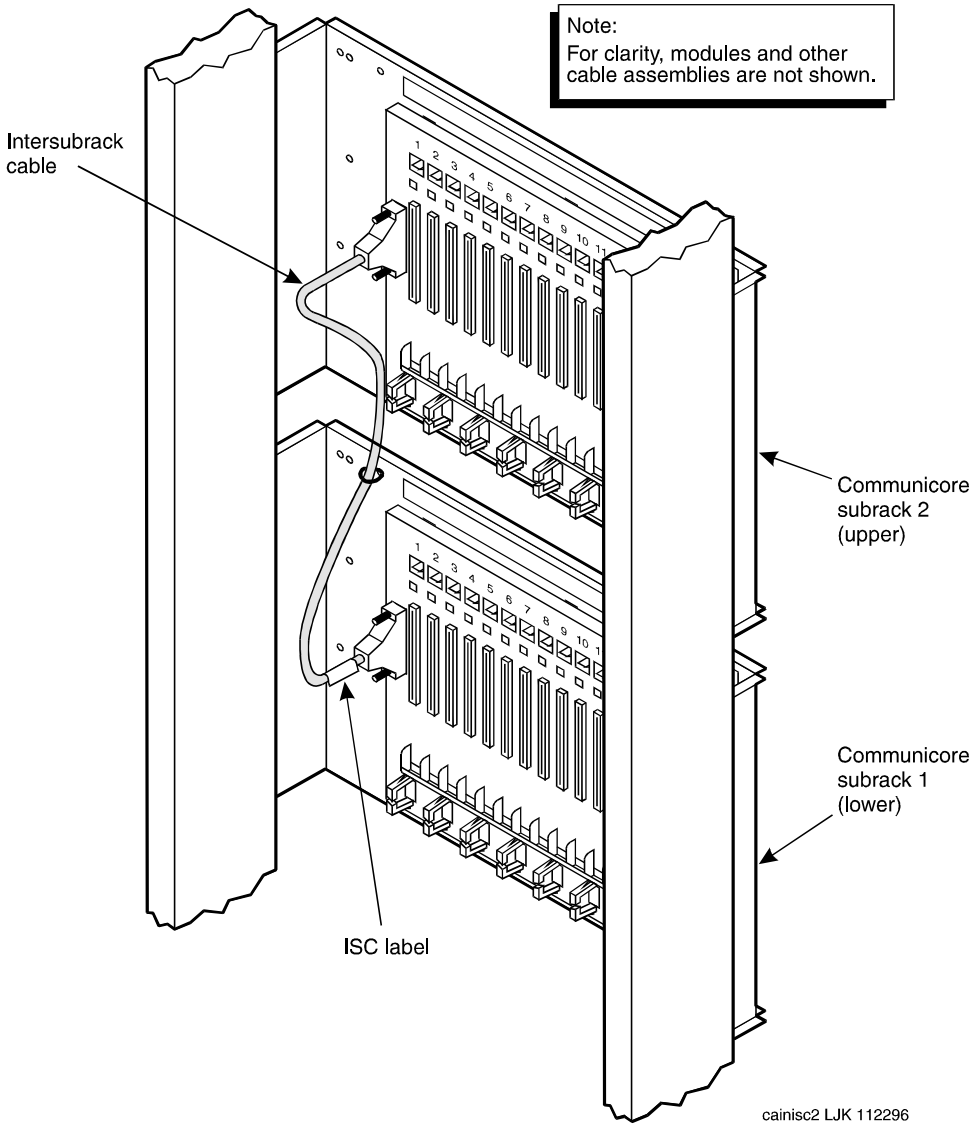


Figure 6-4. Connecting the Intersubrack Cable

Alarm Resolution

7

What's in This Chapter?

This chapter contains information about:

- NAP symptoms, alarms, and informational messages
- Alarm descriptions and troubleshooting procedures

What Makes Up a NAP Alarm?

NAP indicates system problems in three ways: system symptoms, informational messages, and alarms. *Error messages, errors, faults*, or similar terms may also be used by the system software.

Informational messages and alarms are sent to Total Network Management (TNM) and the Technology Control Center (TCC). TCC personnel have their own filters for alarms they see on a regular basis.

Symptoms, informational messages, and alarms are defined in this way:

- *Symptoms* signal problems that may need troubleshooting.
- *Informational messages* report on system operation and potential problems.
- *Alarms* signal problems that need attention at one of the following levels:
  - *Critical alarms* are generated when a problem seriously degrades system operation, when a NAP feature is not working, when voice or information processing is jeopardized, and when immediate attention is needed.
  - *Major alarms* are generated when a problem degrades system operation or call processing but does not destroy all service. As with critical alarms, major alarms need prompt attention.
  - *Minor alarms* are generated from non-serious but service-affecting troubles, or from troubles in the application process that are not essential to call-processing operation. Action is needed, but it does not have to be immediate action.

Several groups of alarms are discussed in this section. The following sections explain the message format for each group of alarms, how the alarms are numbered, and the alarm categories common to both groups of alarms.

Message Syntax for Alarms

The following example shows alarm fields as they appear on the TNM screen at the TCC.

NOTE:
The **bold** characters in the following example appear in all application and platform alarm messages. All other characters are shown here as examples (like the date and time); these vary depending on the source and type of alarm.

```
cccssbbcaxpmxx 96-06-15 11:03:05
*C APPL115 -- -- --- TIMEOUT error: REMTRANS: hndl_
   timer: LAN B comm check timed out to vp01
```

NOTE:
At some locations you may not see all lines of text in exactly this format. However, each alarm message should contain the information described here.

The alarm message fields are:

- Site CLLI Code

cccc	City abbreviation
ss	State (in the continental U.S.) with the affected NAP site (standard state abbreviations are used for this field)
bb	4ESS building with the affected NAP site
ca*x*	Application ID Values for this field: ca = CONVERSANT Adjunct *x* = Instance at this location
mmxx	Machine ID affected — *mm* is the machine type; *xx* is the machine instance from the specific application's machine table.

  NOTE:
  This field identifies the specific machine, if it is not a PM, on which you should perform diagnostic and maintenance commands. For PM alarms, the message text field identifies the machine causing the problem.

- `96-06-15`: Current date (year/month/day)
- ***11:03:05***: Current 4ESS network time (central standard time)
- `*C`: Alarm levels — *C (critical), ** (major), or *(minor) — Informational messages are prefaced with the word INFO.
- `APPL115`: Alarm ID — The numbering system for the NAP platform or adjunct software alarms is explained in ''Alarm Numbering'' on page 7-5. All other alarms are CONVERSANT general alarms. Descriptions of these generic alarms are in CONVERSANT VIS Version 4.0 Maintenance (referenced in the preface, About This Book).
- `APPL:TIMEOUT error: REMTRANS: hndl_timer: LAN B`

  Specifies the basic problem with hardware, software, or communication links. This message is unique for each alarm.

  NOTE:
  This field identifies the specific machine having a problem. Perform your diagnostic and maintenance commands to that machine.

The message text (in the previous example, `comm check timed out to vp01`) identifies the machine with the problem.

Alarm Numbering

Application alarms for INTUITY CONVERSANT System Version 4.0 are numbered APPL*xxx* (including informational messages). The following table explains the numbering system for these alarms and the other alarms raised by the NAP platform and adjunct software. Any other alarm is a CONVERSANT generic alarm. Descriptions of these generic alarms are in CONVERSANT VIS Version 4.0 Maintenance (referenced in the preface, About This Book).

NOTE:
The text-to-speech alarms, TTS001 through TTS006, and the voice-response-output-process alarm, VROP009, are CONVERSANT generic alarms.

Alarm numbers, shown in Table 7-1, have the following ranges:

Table 7-1. Alarm Numbering Ranges

Alarm/Message Type	Alarm Number Range
Hardware	APPL001 through APPL099
Call-processing and other software	APPL100 through APPL199
Customer-database software	APPL200 through APPL299
Informational messages	APPL300 through APPL399
CMF	CMF001
MAP 2000 platform alarms	MEGA001 through MEGA025
SCANS	SCNS001 through SCNS003

The application alarm numbers are listed in Table 7-2 along with descriptions for each alarm.

Table 7-2. Application Alarms

Alarm Number	Alarm Description
APPL001	Datakit error
APPL002	Connectivity error
APPL101	Audit error
APPL102	Call clearing error
APPL104	Child processes error
APPL105	Configuration error
APPL106	Database error

Table 7-2. Application Alarms

Alarm Number	Alarm Description
APPL107	Datakit protocol error
APPL108	Disk-I/O error
APPL109	Memory error
APPL110	No outgoing channels
APPL111	PRI-to-application error
APPL112	Message-queue error
APPL113	Software error
APPL114	Long-running process error
APPL115	Timeout error
APPL116	No tone detectors error
APPL117	Unbridge from channel error
APPL121	Software error
APPL297	Critical test
APPL298	Major test
APPL299	Minor test
APPL300	Informational message

The CMF alarm number is shown in Table 7-3 along with a description of the alarm.

Table 7-3. CMF Alarm

CMF Alarm Number	Alarm Description
CMF001	Informational messages for the core maintenance features

The MAP 2000 platform alarms are listed in Table 7-4 along with their descriptions:

Table 7-4. MAP 2000 Platform Alarms

Alarm Number	Alarm Description
MEGA001	Packet-connection failure
MEGA002	Communicore restarted
MEGA003	Communicore module *<x>* failed
MEGA004	TDM primary clock source on Communicore was lost
MEGA005	Communicore subrack *<x>* was removed or failed
MEGA006	T1 error on Communicore module
MEGA007	TDM primary clock source recovered
MEGA008	Communicore module failed a background diagnostic
MEGA009	PRI D-channel removed from service
MEGA010	PRI D-channel *<x>* down
MEGA011	PRI D-channel *<x>* up
MEGA012	WIP terminated with return-code *<x>*
MEGA013	Communicore module *<x>* was added
MEGA014	Communicore subrack *<x>* was added or reset
MEGA015	Communicore module *<x>* is framing
MEGA016	Communicore module *<x>* is not framing
MEGA017	Communicore module *<x>* transitioned to service-state <x>
MEGA018	TDM backup clock source on Communicore was lost
MEGA019	Management call between MAP/100C and Communicore failed
MEGA020	Communicore module manually removed from service
MEGA021	All resource channels are temporarily busy
MEGA022	Communicore denied a control request
MEGA023	Informational message when MAP 2000 is ready to accept user commands
MEGA024	Communicore module has out-of-date firmware
MEGA025	Communicore not responding

The MAP 2000 platform alarms are listed in Table 7-5 along with their descriptions:

Table 7-5. SCANS Alarms

Alarm Number	Alarm Description
SCNS001	Information about SU problems
SCNS002	Software update timeout
SCNS003	Software update transfer complete

The remainder of this chapter provides an example of each application alarm and platform alarm, along with descriptions, the effect the problem has on system service, information to help you interpret the application text, and troubleshooting procedures.

Alarms

This section describes alarms, their consequences, and their solutions. We include both NAP and application alarms in this section.

As much as possible, we refer you to procedures available in other parts of this book rather than repeat the procedures in the text. If you are directed to a procedure elsewhere, turn to that page to read any notes and warnings related to the procedure.

APPL001

```
 dnvrcopcca1pm01 96-01-11  09:53:39
*C APPL001 -- -- --- DK error: <application text>
```

Description

The PM cannot communicate over Datakit with SMW or DCROS.

Effect

Although the PM cannot communicate with SMW or DCROS, call processing is not affected, but the PM is unable to take customer-record updates. Also, DCROS is unable to collect measurements from the PM.

NOTE:
This release of WSN does not support SMW or DCROS, and it does not maintain customer records.

Application Text

Identifies the PM affected.

Troubleshooting

None.

APPL002

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL002 -- -- --- LAN error: <application text>
```

Description

This alarm signals a problem with connectivity between WorldSHARE NAP and the AT&T WorldSHARE core server (WS CS).

Effect

A problem exists when a router is down, when one or both PM machines are down, or when the AT&T WS CS is down. WSN service can continue while one PM machine is down. In all other situations, WSN service cannot operate.

Application Text

Specifies that WorldSHARE NAP cannot communicate with the AT&T WS CS.

Troubleshooting

This alarm signals one of the following conditions:

- A router is down
- The AT&T WS CS is down or has been rebooted
- The AT&T WS CS process has stopped
- Connectivity problems exist between:
  - — PM to router
  - — Router to router
  - — Router to AT&T WS CS

  If a machine cannot communicate over 1 of the 56-Kbps lines, the machine is probably down.

For troubleshooting procedures, see ‘‘PM-to-WorldSHARE Core Server Connectivity’’ on page 6-25.

APPL101

```
 dnvrcopcca1pm01 96-01-11  09:53:39
** APPL101 -- -- --- AUDIT error: <application text>
```

Description

A customer record or one of the provisioned data files on a machine is out of sync with the master database. This alarm is triggered by a level-1, on-demand database audit.

Effect

The customer record or the provisioned data file is missing or mismatched on the specified machine. At a minimum, some calls may be handled incorrectly. It may happen, however, that *all* calls are handled incorrectly.

NOTE:
This release of WSN does not maintain customer records.

Application Text

Specifies the customer record or data file that is out of sync.

Troubleshooting

None.

APPL102

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** APPL102 -- -- --- BILLING ERROR: <application text>
```

Description

A call has been active for more than 30 days.

Effect

The call may not have been cleared correctly.

Application Text

The application text identifies the failure.

Troubleshooting

None.

APPL104

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL104 -- -- --- CHILD PROCESS error: <application text>
```

Description

A software process does not have the system resources necessary to support a subordinate process.

Effect

System performance may be degraded or stopped.

Application Text

Specifies the process affected.

Troubleshooting

1. Reboot the affected machine.

   NOTE:
   Use the complete **reboot** command sequence described in ‘‘Reboot Procedures’’ on page 6-17.

2. If alarms continue after the reboot, escalate to the next level of support.

APPL105

```
 dnvrcopcca1vp01 01 96-01-11  09:53:39
*C APPL105 -- -- --- CONFIG error: <application text>
```

Description

A configuration problem has been detected.

Effect

Calls may not be processed, the machine may not come into service, or certain features may not work.

Application Text

Identifies the affected machine.

Troubleshooting

1. Reboot the affected machine.

   NOTE:
   Use the complete reboot command sequence described in ‘‘Reboot Procedures’’ on page 6-17.

2. If alarms continue after the reboot, escalate to the next level of support.

APPL106

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*C APPL106 -- -- --- DATABASE error: <application text>
```

Description

A PM database problem exists.

Effect

The PM cannot access or update the specified database. If the trouble is with the customer records (this would be defined in the application text), call processing can be affected.

NOTE:
This release of WSN does not maintain customer records.

Application Text

Specifies the PM database affected.

Troubleshooting

1. Reboot the affected machine.

   CAUTION:
   Before you reboot a PM, use ***primadm*** **-d** *to determine whether it is the primary PM. If it is, change its status to secondary, and make the secondary PM (the one that is operating properly) the primary PM. Use the* **primadm** *command, described in Chapter 5. Perform the reboot on the machine now statused as secondary. When the problem is cleared, change the primary PM back to its original value.*

   NOTE:
   Use the complete reboot command sequence described in ‘‘Reboot Procedures’’ on page 6-17.

2. If this does not resolve the alarm, the PM database is probably corrupted. Escalate the problem to the next level of support.

APPL107

```
 dnvrcopcca1pm01  96-01-11  09:53:39
*C APPL107 -- -- --- Datakit PROTOCOL error: <application text>
```

Description

SMW or DCROS cannot communicate with the specified PM machine through Datakit.

NOTE:
See the software process descriptions in Chapter 1, ‘‘Understanding NAP’’ for more information about these processes and how they interact.

Effect

Communication between affected machines stops. Call processing is not affected, but the PM is unable to take customer-record or speed-dialing updates. Also, DCROS is unable to collect measurements from the PM.

NOTE:
This release of WSN does not support SMW or DCROS, and it does not maintain customer records.

Application Text

Specifies the interface process affected. *DCRIP* refers to an interface for the DCROS; *SMWI* refers to an interface process for the SMW.

Troubleshooting

None.

APPL108

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*C APPL108 -- -- --- DISK I/O error: <application text>
```

Description

The system has an I/O problem reading and writing files.

Effect

A machine is probably out of disk space and the system cannot write to a file. Whether call processing is affected depends on the file to which data is being written.

Application Text

The application cannot read or write to a specified file.

Troubleshooting

1. Reboot the affected machine.

   NOTE:
   Use the complete reboot command sequence described in ‘‘Reboot Procedures’’ on page 6-17.

2. If alarms continue after the reboot, escalate to the next level of support.

APPL109

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL109 -- -- --- MEM error: <application text>
```

Description

A software process cannot allocate the memory needed, indicating that something is wrong between two processes that should be able to talk to each other.

Effect

Call processing is most likely affected.

Application Text

Specifies the software process affected.

Troubleshooting

1. Reboot the affected machine.

   NOTE:
   Use the complete reboot command sequence described in ‘‘Reboot Procedures’’ on page 6-17.

2. If alarms continue after the reboot, escalate to the next level of support.

APPL110

```
 dnvrcopcca1vp01 96-01-11  09:53:39
** APPL110 -- -- --- NO OUTGOING CHANNELS: <application text>
```

Description

All outgoing channels are unavailable.

Effect

No outgoing channels are available, so that a call to an end user or agent will not be completed.

Application Text

The application text will say, “No outgoing channels were available.”

Troubleshooting

1. Enter **dispstatus -m *<mach_id>***

   Make sure that all channels are in service.

2. Take appropriate action to get channels in service. If all channels are in service, the machine is full (has reached its capacity).

3. If you cannot get the channels in service, escalate the problem to the next level of support.

APPL111

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL111 -- -- --- PRI TO APPL error: <application text>
```

Description

The VP is receiving invalid or unexpected information across the D-channel.

This alarm indicates 1 of the following:

- WSN has received an unexpected PRI message
- WSN can't create a PRI Information Element (IE)
- A PRI send failed
- The 4ESS has disabled a B-channel

Effect

Calls are not being handled properly.

Application Text

- Identifies the PRI message that has a problem,

  or

- Indicates that the 4ESS has disabled a channel.

Troubleshooting

1. This alarm suggests that 4ESS trunks to the VP machines are configured or administered incorrectly *at the 4ESS*. Make sure that all trunks from the 4ESS are properly configured and administered, and are set for the application.

   NOTE:
   For WSN 1.1, this alarm indicates that the VP is trying to use a B-channel that AT&T TCC has locked out at the 4ESS.

2. Partner with the trunk maintenance organization to fix this problem.

NOTE:
Refer to ‘‘Site Connectivity: ISDN-PRI T1 Links’’ on page 1-25 for more information.

3. If the problem is not cleared, escalate to the next level of support.

APPL112

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL112 -- -- --- MSG QUEUE error: <application text>
```

Description

The application cannot send or receive IPC messages or cannot create a message queue.

Effect

Call processing is most likely affected.

Application Text

Specifies the software process affected. Use this information to help isolate and troubleshoot the problem.

Troubleshooting

1. Reboot the affected machine.

   NOTE:
   Use the complete reboot command sequence described in ‘‘Reboot Procedures’’ on page 6-17.

2. If the reboot does not clear it, escalate the problem to the next level of support.

APPL113

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL113 -- -- --- SOFTWARE error: <application text>
```

Description

Application-specific software anomalies trigger this alarm.

Effect

Although this alarm covers a variety of problems, you can learn what caused the alarm by checking the application text. This alarm reports problems that impair application operation. Resolve this alarm quickly.

Application Text

Describes the problem that the application software is experiencing.

Troubleshooting

1. Reboot the affected machine.

   NOTE:
   Use the complete reboot command sequence described in ''Reboot Procedures'' on page 6-17.

2. If the reboot does not clear it, escalate the problem to the next level of support.

APPL114

```
dnvrcopcca1vp01 96-01-11  09:53:39
**    APPL114 -- -- --- Long running process error: <process>.
```

Description

This major alarm informs you that a particular process has exceeded its administered time allotment.

Effect

The specified process has exceeded its administered time allotment.

Application Text

Specifies the process that has exceeded its administered time allotment.

Troubleshooting

Investigate why the process is still running.

APPL115

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL115 -- -- --- TIMEOUT error: <application text>
```

Description

An application timed out while talking to a software process either on its own machine or on another one. This alarm usually is caused by connectivity problems between machines or by attempts to communicate with machines that are down.

Software process descriptions are provided in Chapter 1, ‘‘Understanding NAP’’.

NOTE:
When a machine is disconnected from LAN A or LAN B, the alarm is not raised until the next system heartbeat. The alarm is raised by the PM, and not by the disconnected machine.

Effect

If this alarm condition occurs, system operations can be affected.

Application Text

Specifies the operation that timed out and the machine or process on which it failed.

Troubleshooting

Check the CLLI code message (that is, the machine ID reported in the alarm) to see where the problem occurred. Then perform one of the two following procedures:

- If the problem occurs on a local software process:
  1. Reboot the affected machine.

     NOTE:
     Use the complete reboot command sequence described in ‘‘Reboot Procedures’’ on page 6-17.

  2. If the reboot does not clear it, escalate the problem to the next level of support.

- If the application timed out to a process on a remote machine:

  1. Run **comcheck** to isolate the problem to a local machine, a remote machine, or to LAN A or LAN B.

     NOTE:
     The **comcheck** command tells you which machines are up and which of the two LANS (A or B) is up or down. For more information about the **comcheck** command, refer to Chapter 5, ''Command Reference''.

  2. If **comcheck** uncovers no problem and alarms continue, reboot the machine. The problem may be transitory.

     NOTE:
     Use the complete reboot command sequence described in ''Reboot Procedures'' on page 6-17.

  3. If **comcheck** cannot talk to the remote machine, perform the connectivity troubleshooting procedures in ''PM-to-Machine LAN Connectivity Symptoms and Solutions'' on page 6-24.

APPL116

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL116 -- -- --- DTMF RESOURCE error: <application text>
```

Description

No DTMF resources are available at this time.

Effect

Calls currently being processed receive an announcement.

New outgoing calls are not placed by the affected machine.

Application Text

The application text will say, “No DTMF tone detectors were available.”

Troubleshooting

1. Determine whether all of the tone detector resources are in service.
2. Remove the machine from service.
3. Diagnose the TDET cards (VP).
4. Diagnose the entire VP. Replace hardware as required.

APPL117

```
 dnvrcopcca1vp01 96-01-11  09:53:39
*C APPL117 -- -- --- ANNOUNCEMENT error: <application text>
```

Description

A call cannot be unbridged from the dedicated announcement (music) channel because of system failure.

Effect

A call cannot be unbridged from the dedicated announcement (music) channel.

Application Text

The application text will say, “UnbridgeAnnc failed.”

Troubleshooting

Reboot the machine. If the reboot does not clear it, escalate the problem to the next level of support.

APPL121

```
 dnvrcopcca1pm00 97-01-11  09:53:39
** APPL121 -- -- --- SOFTWARE error: <application text>
```

Description

The PM machines cannot manage call traffic across the VP machines.

Effect

The PM machines cannot balance the call load or throttle call requests when the load reaches 95% of call-processing capacity.

NOTE:
If the traffic manager on the primary PM machine fails, the primary PM passes all PM responsibilities to the secondary PM machine (which becomes the primary PM) and raises the APPL121 alarm.

Application Text

The application text will say, “Traffic Manager for IETS has died.”

Troubleshooting

1. Look at the **gts** process log to determine why the process died.
2. If necessary, turn on debugging for the **gts** process. To do this, add the **-d** argument to **gts** in the startup script:

   gts -d

APPL201

```
 dnvrcopcca1pm01  96-01-11  09:53:39
*C APPL201 -- -- --- REC TRANSACTION error: <application text>
```

Description

A customer-record (update) transaction has not been applied to the specified machine.

NOTE:
When a VP is disconnected from the LAN, the alarm is not raised until the next system heartbeat. The alarm is raised by the PM, not by the disconnected VP.

Effect

The VP or PM does not have the latest update for the customer record (for example, a new customer record was added, but the update failed and no calls can be processed for that customer). On the VP, call processing may be affected for this customer.

NOTE:
This release of WSN does not maintain customer records.

Application Text

Specifies the machine and range of transaction sequence numbers. This information may be helpful to AFSC personnel.

Troubleshooting

None.

APPL202

```
 dnvrcopcca1pm01  96-01-11  09:53:39
*C APPL202 -- -- --- DB FULL: <application text>
```

Description

The PM database record limit has been reached.

Effect

The SMW cannot add any more records (including the one just attempted) on either of the two PMs at the NAP site.

NOTE:
This release of WSN does not support SMW.

Application Text

Specifies that the record limit is reached and that the latest record was not applied to the database.

Troubleshooting

None.

APPL203

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*C APPL203 -- -- --- MISSING REC: <application text>
```

Description

A VP machine has received a call for which no matching customer call record exists. The record may be provisioned incorrectly or there may be a problem distributing the record.

Effect

The mismatched call cannot be completed and the call is rejected by the VP.

NOTE:
This release of WSN does not maintain customer records.

Application Text

Specifies either the machine to which the call comes or the missing call record.

Troubleshooting

None.

APPL204

```
 dnvrcopcca1pm00 96-01-11  09:53:39
* APPL204 -- -- --- DB REC NOT FOUND: <application text>
```

Description

A VP machine has received a call for which no matching customer call record exists. The record may be provisioned incorrectly, or there may be a problem distributing the record.

Effect

This incoming callback request is not processed because the user does not have a customer record or a user record provisioned in the database.

NOTE:
This release of WSN does not maintain customer records.

Application Text

The DID number and the channel number that failed to find a database record are reported.

Troubleshooting

None.

APPL297

```
dnvrcopcca1pm01  96-01-11  09:53:39
*C APPL297 -- -- --- TEST CRITICAL: <application text>
```

Description

A test alarm for testing the alarm subsystem.

Priority

Critical.

Effect

None.

Application Text

The application text will say, “Test Message.”

APPL298

```
dnvrcopcca1pm01  96-01-11  09:53:39
** APPL298 -- -- --- TEST MAJOR: <application text>
```

Description

A test alarm for testing the alarm subsystem.

Priority

Major.

Effect

None.

Application Text

The application text will say, “Test Message.”

APPL299

```
dnvrcopcca1pm01  96-01-11  09:53:39
* APPL 299 -- -- --- TEST MINOR: <application text>
```

Description

A test alarm for testing the alarm subsystem.

Priority

Minor.

Effect

None.

Application Text

The application text will say, “Test Message.”

APPL300

```
 dnvrcopcca1vp01  96-01-11  09:53:39
INFO  APPL300 -- -- --- <application text>
```

Description

Informational messages report on failure conditions that have cleared, as well as other system conditions.

Effect

None.

Application Text

The informational message can be, for example:

- `Alarms cleared, Lights turned off`

  or

- `Reboot Machine. Over 6 months since last reboot`

Troubleshooting

If you see the text in the first example above, no troubleshooting is necessary. If you receive the message in the second example, arrange for a convenient time to reboot the machine in question.

CMF001

```
dnvrcopcca1vp01  96-01-11  09:53:39
INFO   CMF001 -- -- --- INFO only:  <application text>
```

Description

This is an informational message for the core maintenance features.

Effect

This is an informational message.

Application Text

Specifies whatever information was provided.

Troubleshooting

Not Applicable

MEGA001

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*C MEGA001 -- -- --- Packet connection failure for D channel <X>
  Cause Code: <Y>
```

Description

The Communicore was unable to make a packet connection, which is necessary to establish (frame relay) the D-channel between the 4ESS and MAP/100C. This always refers to the D-channel from the VP to the 4ESS.

Effect

Without the D-channel, calls cannot be processed, although active calls and connections are unaffected (talk paths are retained). Active calls are affected if further steps are taken to determine the problem (that is, **chgstate**, **diagnose cards**, etc).

Application Text

Specifies which D-channel was unable to make a packet connection and the cause of the failure.

Troubleshooting

1. Make sure that all external D-channels are out of service.
2. Display the status of the D-channels on the VP (MAP/100C and Communicore). Enter:

   dispstatus -m *<mach_id>* rcard 0
   dispstatus -m *<mach_id>* card 4

   If either D-channel is not in service, perform generic DCHAN down troubleshooting provided in ‘‘Understanding D-Channel Connectivity’’ on page 6-7.
3. If D-channels are in service, call the TCC and have them take the channels out of service. Stop and start the voice system. Enter:

   chgstate -m *<mach_id>* off
   chgstate -m *<mach_id>* on

4. If the problem continues, run diagnostics on the Communicore switch, control, and the first two PRI modules (modules 1 through 4). This alarm most likely implicates these modules. Enter

   diagnose -m *<mach_id>* cards 1-4

5. Reseat any modules that fail diagnostics.
6. Replace any modules that fail diagnostics after reseating.
7. If the problem continues, replace the switch module.
8. If replacing the failed modules or the switch modules does not clear the problem, escalate it to the next level of support.

NOTE:
When replacing modules you must download firmware. See the description of the **download** command on page 5-61 for download instructions and warnings.

MEGA002

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** MEGA002 -- -- --- Communicore restarted.
```

Description

The Communicore has restarted because of an error condition.

Effect

Calls are lost, but the system should come back up once the Communicore is sane again. Repeated or frequent occurrences of this alarm indicate faulty equipment on the Communicore.

Troubleshooting

1. Busyout all channels at the 4ESS.
2. Run diagnostics on the Communicore hardware, because RE_START notification implies that the VP has recovered. Enter

   diagnose -m *<mach_id>* card all

3. Reseat any modules that fail diagnosis.
4. Replace any modules that fail diagnostics after reseating.
5. Turn down traffic at the 4ESS. If modules pass diagnostics and the problem continues, escalate it to the next level of support.

NOTE:
When replacing modules you must download firmware. See the description of the **download** command on page 5-61 for download instructions and warnings.

MEGA003

```
 dnvrcopcca1vp01  96-01-11  09:53:39
**  MEGA003 -- -- --- Communicore card <card_no> failed
      (slot=<SS>,subrack=<sr>)
```

Description

A module has been physically removed from the Communicore or it has failed and has been reset.

Effect

The function of the failed module is lost. For example, calls that are module active on the module at the time of failure are dropped and dependent incoming channels are unavailable to handle calls.

Application Text

Identifies the Communicore module and the location of the module that has been physically removed or has failed and been reset.

Troubleshooting

1. If the reset is unexpected, busyout affected channels at the 4ESS.
2. Run diagnostics on the module to diagnose the problem. Enter

   diagnose -m *<mach_id>* card *<card_no>*

3. If diagnostics fail or if resets continue, replace the module.

NOTE:
When replacing modules you must download firmware. See the description of the **download** command on page 5-61 for download instructions and warnings.

MEGA004

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** MEGA004 -- -- --- TDM primary clock source (card 4) on
Communicore was lost. Location of this card is slot 4 in subrack
1.
```

Description

The Communicore has lost its primary TDM clock source (usually the PRI module in slot 4, the first PRI module connected to the network). This error indicates that a failure has occurred on the PRI module or on the terminating network equipment.

Effect

There may be no effect at all. However, this alarm can indicate hardware problems that can cause the D-channel to go out of service, in which case alarm MEGA009 is raised.

Troubleshooting

NOTE:
Maintenance operations on the 4ESS typically cause clock problems from which recovery is automatic. Verify that maintenance was performed recently on the 4ESS before proceeding with the following troubleshooting steps.

1. Display the status of the primary clock source module on the Communicore (it should not be in service). Enter

   dispstatus -m *<mach_id>* card <x>

   where **x** is the module number.

   NOTE:
   If you suspect that the system is not synchronized, refer to the troubleshooting procedures for MEGA006.

2. Call the TCC and have them to take the channels on the affected card out of service.
3. Diagnose the primary clock source module. Enter

   diagnose -m *<mach_id>* card <x>

4. Perform the appropriate step:

   — If the module fails diagnostics, replace it.

   NOTE:
   When replacing modules you must download firmware. See **download** on page 5-61 for download instructions and warnings.

   — If the module passes diagnostics, then the problem is probably with the cabling or the 4ESS. If necessary, escalate the problem to the next level of support.

MEGA005

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*C MEGA005 -- -- --- Communicore subrack 2 was removed or failed.
```

Description

The intersubrack cable is bad or has been physically removed, or a power/ maintenance module failure may have occurred. This alarm is seen only for the second (upper) subrack because failure of the first (lower) subrack results in loss of Communicore-to-MAP/100C communication, preventing notification.

Effect

Access to the modules in the subrack is lost. The VP can still handle calls (with reduced capacity) if the (upper) subrack 2 failed or has been disconnected, because the control and switch modules reside in the (lower) subrack 1 and D-channel termination/frame relaying is performed on the lower subrack.

Troubleshooting

1. Display the status of rchan 23 (D-channel). Enter

   dispstatus -m *<mach_id>* rcard 0

2. If the resource channel is in service, display the status of Communicore modules. Enter

   dispstatus -m *<mach_id>* card all

   a. If all the modules on the second subrack are in the foos state, it implies that there is either an intersubrack cabling problem or a bad power module in the second subrack.

   b. If rchan 23 (D-channel) is not in service, communication with the Communicore is down, and current status cannot be retrieved. Investigation and troubleshooting must be performed on site to determine the source of the problem.

   As mentioned in the description, the problem is probably a bad or disconnected cable, a bad power module in the subrack, or a bad control module, switch module, or PRI module in slot 3. Refer to ‘‘Understanding D-Channel Connectivity’’ on page 6-7. If the problem is not cleared, escalate it to the next level of support.

MEGA006

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** MEGA006 -- -- --- T1 error on Communicore card <B>
      (slot=<SS>,subrack=<sr>). Statistics:
      bpv=<b>,crc=<c>,framerr=<fe>,framslip=<fs>.
```

Description

There are errors on the physical T1 link between the Communicore PRI module and the 4ESS. The cause of these errors could be:

- A hardware problem on the Communicore PRI module
- A problem on the physical line
- A problem at the 4ESS

Effect

The effect on calls on the PRI module reporting trouble depends on the severity of the problem (the effects can range from none to dropped calls).

Application Text

Identifies the Communicore module and the location of the module having problems, and the problem that caused the alarm, such as:

- `bpv` = bipolar violations,
- `crc` = cyclic redundancy checks
- `framerr` = framing bit errors
- `framslip` = framing slip errors.

A nonzero value in one or more of these fields indicates the problem that caused the alarm. The values of the fields indicate the number of errors that have occurred on the module in the last 15 minutes.

Troubleshooting

You can expect this alarm if any maintenance activity took place on the module in the last fifteen minutes (for example, the module was replaced). In this case, wait for another occurrence of the alarm.

NOTE:
Also expect this alarm if maintenance activity took place on the 4ESS side of the T1. In this case, wait for another occurrence of the alarm.

NOTE:
For T1 frameslip errors and T1 framerr errors, the clock synchronization sources will be automatically switched when the number of errors in either category exceeds the threshold administered in the setclkadm command in the administered duration. No additional troubleshooting is necessary unless these alarms continue even after the clocks are automatically switched.

- If the problem is with the PRI module in slot 3:
  1. Remove all trunks from service
  2. Wait to idle
  3. Reboot
- If the problem is with any other PRI module:
  1. Have the TCC take the channels on the PRI module out of service (first wait for any calls to clear).
  2. Diagnose the PRI module. Enter

     diagnose -m *<mach_id>* card *<x>*
  3. Perform the appropriate step:
     - — If the PRI module fails diagnostics, replace it.

       NOTE:
       When replacing modules you must download firmware. See **download** on page 5-61 for download instructions and warnings.
     - — If the module passes diagnostics, the problem is probably with the cabling or the 4ESS. If necessary, escalate the problem to the next level of support.

- If the problem is that a Communicore is not synched to an external clock:

  Suspect this problem if multiple MEGA006 alarms indicating T1 frameslip errors occur for more than 30 minutes on the same machine. The statistics line shows zeros for all error types but `framslip`. For example:

  ```
  bpv=0,crc=0,framerr=0,framslip=255.
  ```

  1. Enter **dispstatus -m <*mach_id*> card all**

     to determine which PRI modules are in service. Use this information to choose new primary and backup clock sources.

  2. To set new clock sources, enter

     setclk [-m <*mach_id*>] <*primary*> <*backup*>

     where **<*primary*>** and **<*backup*>** are the PRI card numbers you want to designate as clock sources.

  3. Wait 40 minutes.

  4. Verify that you did not receive any MEGA006 alarms during the last 15 minutes.

  5. If you receive additional alarms, use the **setclk** command to set the clock to a different source.

MEGA007

```
 dnvrcopcca1vp01  96-01-11  09:53:39
INFO MEGA007 -- -- --- TDM primary clock source on Communicore
    is from card <x>. Location of this card is slot <SS> in
    subrack <sr>.
```

Description

This informational message identifies the new primary clock source. The internal clock is indicated by an invalid module number (card 33)

Effect

The MEGA004 problem is resolved if the source is the primary clock source. If this is not the case, the D-channel is most likely down, preventing calls from being processed (although active calls may not be affected). If TDM timing is taken from an internal source, active calls may be affected, because clock drift can occur.

Troubleshooting

If the primary clock source resumes, no troubleshooting is necessary because the problem is resolved. Refer to the MEGA004 alarm in the troubleshooting section for more information.

MEGA008

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** MEGA008 -- -- --- Communicore card <B> failed a background
      diagnostic. Location is slot <SS> in subrack <sr>.
      Diagnostic that failed was <D>.
```

Description

An unsolicited diagnostic report was received from the Communicore. This usually indicates a hardware problem on the identified hardware component.

Effect

The effect depends on the module failing diagnostics and the test that failed.

Application Text

Identifies the Communicore module and the location of the module that produced an unsolicited diagnostic report. Also specifies the background diagnostic that failed.

Troubleshooting

1. Display the status of the implicated module. Enter

   dispstatus -m *<mach_id>* card *<x>*

2. If the problem is with a PRI module, have the TCC take the channels on the PRI module out of service. Wait for active calls to drop.

3. Diagnose the module. Enter

   diagnose -m *<mach_id>* card *<x>*

4. If it fails diagnostics, replace the module.

NOTE:
When replacing modules you must download firmware. See the description of the **download** command on page 5-61 for download instructions and warnings.

5. If the problem continues, escalate it to the next level of support.

MEGA009

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*C MEGA009 -- -- --- PRI D-channel 1 removed from service.
```

Description

The D-channel identified has been administratively removed from service.

Effect

No calls can be placed and received by the associated PRI B-channels, but calls active at the time the D-channel was removed are unaffected.

Application Text

Identifies the D-channel that has been removed from service, which is always the D-channel from the MAP/100C to the 4ESS.

Troubleshooting

1. Enter **dispstatus -m *<mach_id>***
2. Attempt to determine why the D-channel was removed and correct the problem as soon as possible.

MEGA010

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** MEGA010 -- -- --- PRI D-channel <ch> down.
```

Description

The D-channel identified has gone out of service. This alarm typically does not indicate a problem with the MAP/100C PRI software. Instead, it implicates either a PRI module, cabling, or the external equipment that terminates the D-channel.

Effect

No calls can be processed by the associated call channels. Active calls are unaffected, but customers are not able to place additional calls to and from the system.

Application Text

Identifies the D-channel that has been removed from service, which is always the D-channel from the MAP/100C to the 4ESS.

Troubleshooting

1. Attempt to determine the source of the D-channel problem by displaying the status of the identified D-channel. Enter

   dispstatus -m *<mach_id>* rcard 0

   NOTE:
   You should verify that rchan 23 is in service for up-to-date status on Communicore modules to be displayed.

2. If the problem is not cleared, have the TCC take the channels associated with that D-channel out of service.
3. Diagnose the T1 card containing the D-channel. Enter

   diagnose -m *<mach_id>* rcard 0

4. If it fails diagnostics, replace the T1 card in the MAP/100C.

5. If the T1 card containing a failed D-channel passes diagnostics (these cards play a part in PRI termination), diagnose the SP card on the MAP/100C and the switch/control module on the Communicore. Enter:

   diagnose -m *<mach_id>* rcard 2
   diagnose -m *<mach_id>* card 1
   diagnose -m *<mach_id>* card 2

6. If rchan 23 is not in service it may be necessary to perform a visual inspection and possibly replace the first three Communicore modules (control/switch/PRI) in the lower subrack:

   Control module if either of the two LEDs is dark

   Or

   Switch module if a single LED is dark

   Or

   PRI module in slot 3 if the STATUS LED is dark

   NOTE:
   The STATUS LED on a tone-generator, tone-detector, or PRI module is dark if the module has been administratively removed.

   To recover from the alarm, start and stop the voice system. Enter:

   chgstate -m *<mach_id>* **off**

   chgstate -m *<mach_id>* **on**

7. Repeated or frequent failures followed by subsequent recoveries of a specific MAP/100C D-channel indicate faulty equipment along the D-channel connection. This equipment should be replaced.

CAUTION:
If you perform any commands on any of the first three modules of the Communicore, cycle the VP.

To cycle the VP, enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

MEGA011

```
 dnvrcopcca1vp01  96-01-11  09:53:39
INFO  MEGA011 -- -- --- PRI D-channel 1 up.
```

Description

This informational message tells you that the identified D-channel has come back in service.

Effect

Call processing can resume.

Application Text

Identifies the D-channel that has been removed from service, which is always the D-channel from the MAP/100C to the 4ESS.

Troubleshooting

Not Applicable.

MEGA012

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*C MEGA012 -- -- --- WIP terminated with return code <ret_code>.
```

Description

The Communicore WSFE interface process (WIP) running on the MAP/100C has terminated with the accompanying return code.

Effect

All VP functionality is lost.

Application Text

Specifies which return code caused the Communicore WIP to terminate.

NOTE:
Executing the **chgstate -m *<mach_id>* off** command generates a MEGA012 alarm with return code <15>. This is normal and no troubleshooting needs to be performed. For all other return codes, perform the troubleshooting procedures that follow.

Troubleshooting

1. Have the TCC turn down the trunks in the network.
2. Take the VP down. From the PM, enter:

   chgstate -m *<mach_id>* off
   chgstate -m *<mach_id>* on

3. Monitor the system to see if it recovers on its own.

   Wait for 5 minutes.

4. If the system doesn't recover on its own, reboot the VP.

   NOTE:
   Use the complete reboot command sequence described in ''Reboot Procedures'' on page 6-17.

5. If the problem continues, escalate it to the next level of support.

MEGA013

```
 dnvrcopcca1vp01  96-01-11  09:53:39
INFO MEGA013 -- -- --- Communicore card <x> was added (slot=<SS>,
     subrack=<sr>)
```

Description

This informational message tells you that a Communicore module has either been physically added or successfully reset.

Effect

Service can resume.

Application Text

Identifies the Communicore module and the location of the module that was added or reset.

Troubleshooting

1. If the message is unexpected, diagnose the module. Enter

   diagnose -m *<mach_id>* card *<card_no>*

2. Replace the card if needed.

NOTE:
When replacing modules you must download firmware. See the description of the **download** command on page 5-61 for download instructions and warnings.

MEGA014

```
 dnvrcopcca1vp01  96-01-11  09:53:39
INFO MEGA014 -- -- --- Communicore subrack 2 was added or reset.
```

Description

This informational message informs you that the Communicore subrack has been added or reset after the WSFE interface process (WIP) has been initialized (normal startup). This always applies to the second (upper) subrack.

Effect

Service can resume.

Application Text

Identifies the subrack that was added or reset.

Troubleshooting

If the message is unexpected and you continue losing the subrack, escalate to the next level of support. It is most likely a problem with the intersubrack cable or the power module in the second subrack.

MEGA015

```
 dnvrcopcca1vp01  96-01-11  09:53:39
INFO MEGA015 -- -- --- Communicore card <x> is framing
(slot=<SS>, subrack=<sr>)
```

Description

The Communicore PRI module has regained framing. This typically is displayed after a module problem or when a cabling problem has been corrected.

Effect

The PRI module is ready for service.

Application Text

Identifies the Communicore module and the location of the module that has regained framing.

Troubleshooting

- If this is a known cabling or hardware problem, the problem is fixed.
- If the module continually loses/regains framing:
  1. Call the TCC and have them to take the channels out of service.
  2. Diagnose the module. Enter

     diagnose -m *<mach_id>* card *<x>*

     You should replace the module, however, even if diagnostics pass.

NOTE:
When replacing modules you must download firmware. See the description of the **download** command on page 5-61 for download instructions and warnings.

If the problem continues after you replace the card, cabling and the 4ESS are implicated.

If you **diagnose** any of the first three modules of the Communicore, cycle the VP. Enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

MEGA016

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** MEGA016 -- -- --- Communicore card <x> is not framing
      (slot=<SS>,subrack=<sr>)
```

Description

The identified Communicore module is no longer receiving framing.

Effect

Call capacity is affected because the channels on the module cannot handle calls. Any active calls on those channels are dropped.

Application Text

Identifies the Communicore module and the location of the module that is no longer receiving framing.

Troubleshooting

1. Have the TCC to take the channels on the affected card out of service.
2. Diagnose the module. Enter

   diagnose -m *<mach_id>* card *<x>*

3. If diagnostics pass and the problem continues, check the cabling.
4. Replace the module, replace the cable, then implicate the 4ESS.

   NOTE:
   When replacing modules you must download firmware. See **download** on page 5-61 for download instructions and warnings.

If you ***diagnose*** any of the first three modules of the Communicore, cycle the VP. Enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

MEGA017

```
 dnvrcopcca1vp01  96-01-11  09:53:39
INFO MEGA017 -- -- --- Communicore card 1 (slot=1,subrack=1)
     transitioned to <service_state>.
```

Description

The identified Communicore module has transitioned to a new service state. This is an informational message only, so a problem may not exist. The event that caused the module to change state raises an alarm if warranted.

Effect

The effect is dependent on the new service state.

Application Text

Identifies the Communicore PRI module and the location of the module that has changed to a new service state.

Troubleshooting

Not Applicable

MEGA018

```
 dnvrcopcca1vp01  96-01-11  09:53:39
* MEGA018 -- -- --- TDM backup clock source (card 6) on
Communicore was lost. Location of this card is slot 6 in subrack
1.
```

Description

The Communicore has lost its backup TDM clock source. This error indicates that a failure has occurred on the PRI module or on the terminating network equipment.

Effect

There is no effect unless the primary clock is lost (see MEGA004).

Troubleshooting

1. Call the TCC and have them to take the channels on the affected card out of service.
2. Diagnose the module. Enter

   diagnose -m *<mach_id>* card *<x>*

3. Perform the appropriate step:

   — If the module fails diagnostics, replace the module.

   NOTE:
   When replacing modules you must download firmware. See the description of the **download** command on page 5-61 for download instructions and warnings.

   — If the module passes diagnostics, then the problem is probably with the cabling or the 4ESS. If necessary, escalate the problem to the next level of support.

MEGA019

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** MEGA019 -- -- --- Management call between CONVERSANT and
      Communicore failed with a cause value of <x>.
```

Description

MAP/100C / Communicore communication is lost.

Effect

Although no further call processing (including DTMF) can be done, active calls are unaffected unless further action is taken (that is, stop versus diagnose).

Application Text

The application text indicates the cause value (<*x*>) of the failed call.

Troubleshooting

NOTE:
If you observe a MEGA014 (MEGA_RK_ADD) during troubleshooting, Communicore–MAP/100C communication has resumed.

1. Display the status of resource card 0. Enter

   dispstatus -m *<mach_id>* rcard 0

2. If rchan 23 is not in service, call the TCC and have them to turn down the trunks at the 4ESS.
3. Change the state of the VP. Enter:

   chgstate -m *<mach_id>* mtce

4. Diagnose all of the resource cards. Enter

   diagnose -m *<mach_id>* rcard all

5. If all rcards pass diagnostics, enter

   chgstate -m *<mach_id>* on

   Then enter

   chgstate -m *<mach_id>* on

   chgstate -m *<mach_id>* off

   chgstate -m *<mach_id>* on

6. If the rcards do not pass diagnostics, replace faulty hardware and rerun diagnostics.
7. A visual inspection of Communicore modules may be required if rchan 23 (D-channel) is not in service. Refer to the troubleshooting section of MEGA010 for instructions regarding module replacement based on LED status. Also, if rchan 23 is in service and the MEGA014 alarm does not appear within a few minutes, visually inspect the modules.
8. If nothing is discovered, the Communicore is still implicated, so manually power-cycle the lower subrack.
9. If the problem continues, escalate it to the next level of support.

If you **diagnose** any of the first three modules of the Communicore, cycle the VP. Enter:

chgstate -m <*mach_id*> on
chgstate -m <*mach_id*> off
chgstate -m <*mach_id*> on

MEGA020

```
 dnvrcopcca1vp01  96-01-11  09:53:39
** MEGA020 -- -- --- Communicore card <x> (slot=<SS>,
subrack=<sr>) was manually removed from service.
```

Description

The Communicore module indicated by *<x>* in the alarm text has been manually removed from service.

Effect

The effect of this is application-dependent on the module removed from service.

Application Text

The application text indicates the removed module, as well as its slot and subrack.

Troubleshooting

Since the module was taken out of service manually, you must first determine why. Once you know why the module was taken out of service, you'll know what steps to take to get it back in service; for example, whether to diagnose the module, replace it, or restore it.

NOTE:
When replacing modules you must download firmware. See the description of the **download** command on page 5-61 for download instructions and warnings.

MEGA021

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*  MEGA021 -- -- --- All resource channels are temporarily busy.
```

Description

A call was denied access to a resource channel.

NOTE:
For WSN 1.1, this alarm can indicate that insufficient resources were available to play an announcement.

Effect

The only impact is that the call is denied access to a resource channel and cannot go through. If the problem persists and exceeds a major alarm threshold, perform the troubleshooting procedures outlined below, because the alarm is service-affecting (calls are being denied NAP functionality).

Application Text

There is no application text for this alarm.

Troubleshooting

1. You should not see this alarm in the field, since the NAP service is engineered to prevent this from happening. However, if you do see this problem and it persists; that is, it exceeds the threshold for major alarms, have the TCC remove the VP from service by using the procedure, ‘‘Gracefully Removing a VP from Service’’ on page 4-64.
2. Escalate the problem immediately to the next level of support.

MEGA022

```
 dnvrcopcca1vp01  96-01-11  09:53:39
*C MEGA022 -- -- --- Communicore denied a call control request.
The Communicore is in a potentially unstable state.
```

Description

The Communicore control 360 module denied one of the following call-control operations:

- Making a voice path
- Sending DTMF signals
- Connecting a tone detector

This alarm results from excessive demands on the Communicore.

Effect

A caller did not receive the service that was expected. One or more calls:

- May not have received DTMF tones
- May not have DTMF detectors connected
- May have a corrupted or incomplete voice path

The system continues to process calls, but they may not be handled properly.

Application Text

The application text reports the denied request.

Troubleshooting

1. Have the TCC turn down the trunks in the network.
2. Take the VP down. From the PM, enter:

   chgstate -m *<mach_id>* off
   chgstate -m *<mach_id>* on

3. Monitor the system to see if it recovers on its own.
4. Reboot the VP.

   NOTE:
   Use the complete reboot command sequence described in ‘‘Reboot Procedures’’ on page 6-17.

5. If the problem continues, escalate it to the next level of support.

MEGA023

```
  dnvrcopcca1vp01  96-01-11  09:53:39
 INFO  MEGA023 -- -- --- The MAP2000 system is ready to accept
maintenance commands.
```

Description

This informational message tells you when maintenance operations involving the Communicore or the Communicore WSFE interface process (WIP) may begin.

Effect

Maintenance operations may proceed.

Application Text

None

Troubleshooting

Not Applicable

MEGA024

```
  dnvrcopcca1vp01  96-01-11  09:53:39
 *C  MEGA024 -- -- --- Communicore card x (slot = y; subrack = z)
firmware verification failed:  reason.
```

Description

The indicated Communicore module has failed firmware verification. The cause of the failure is also given in the alarm text.

Effect

Either the indicated module has not had the most recent firmware downloaded to it or the installation of the firmware package was not completely successful and it should be reinstalled. Either of these conditions can affect service.

Application Text

The application text indicates the module in question, giving its slot and subrack numbers and telling why the firmware verification test failed.

Troubleshooting

If the reason given is, "`can't open release file <`*`file`*`>`" or "`can't read firmware directory <`*`dir`*`>`," there are problems with the installation of the firmware package. Reinstall the firmware package.

If the reason given is "`firmware does not match firmware files in <`*`dir`*`>`," the newest firmware has not been downloaded successfully to the indicated module.

MEGA025

```
 dnvrcopcca1vp01  97-02-28 09:53:39
*C  MEGA025 -- -- --- Communicore not responding!
```

Description

A communication problem has been detected between the Communicore and the CONVERSANT.

Effect

All new calls are affected. Existing calls have lost DSP service. The system needs to be reset as described below.

Application Text

None

Troubleshooting

1. Remove the VP from service.

   Refer to ‘‘Gracefully Removing a VP from Service’’ on page 4-64.

2. Restore the VP to service.

   Refer to ‘‘Restoring a VP to Service’’ on page 4-65.

3. Capture the log information. Enter

   logcapture <*mach_id*>

4. Escalate to the next level of support.

SCNS001

```
dnvrcopcca1pm00 96-01-11  09:53:39
INFO SCNS001 -- -- --- SCNS: INFO ONLY: <text>
```

Description

A problem with a SCANS process or a missing file caused the software update to fail.

The following are the different text messages that this alarm displays and explanations for these messages.

SCANS001 Messages

The following 6 screens show the different SCNS001 messages. After each screen is an explanation of that message.

```
INFO SCNS001 -- -- --- SCNS: INFO ONLY: The HDR file for the SU
is not present, exiting.
```

Description

The HDR file in the SU was missing, so it cannot be verified.

Effect

The file was not transferred properly.

Troubleshooting

Run the transfer again by entering **scansui** and selecting

1) Start Software Update.

```
INFO SCNS001 -- -- --- SCNS: INFO ONLY: The scans login has failed
on this machine, check the Transaction ID
```

Description

The Transaction ID did not match between SCANS and the PM.

Troubleshooting

Stop the current transfer by entering **scansui** and selecting

`2) Stop Software Update`.

Start a new transfer on the PM by entering **scansui** and selecting

`1) Start Software Update`.

Have the TCC log into the SCANS server and start another download with the new transaction ID

```
INFO SCNS001 -- -- --- SCNS: INFO ONLY: Fork error.
```

Description

scansui was unable to start the **scanstr** process.

Troubleshooting

Escalate the problem to have the system resources checked. There is an overall system problem.

```
INFO SCNS001 -- -- --- SCNS: INFO ONLY: Software Update check
failed.
```

Description

One or more of the files did not transfer properly.

Effect

The software update did not verify properly.

Troubleshooting

Run the transfer again by entering **scansui** and selecting:

1) Start Software Update.

.

```
INFO SCNS001 -- -- --- SCNS: INFO ONLY: Failed to find Software
Update.
```

Description

The software update is not present in the download area(**/etc/bwm**).

Troubleshooting

Check the download area (**/etc/bwm**) for a directory named the same as the SU number. If it exists, look for the HDR file. Take similar action in the archive area (**/usr/install**). If the HDR file is not in either area, transfer the SU again by entering **scansui** and selecting

1) Start Software Update.

.

```
INFO SCNS001 -- -- --- SCNS: INFO ONLY: The scanstr process has
been killed by an external action (caught SIGTERM).
```

Description

The **scanstr** process was killed.

Troubleshooting

Run the transfer process again by entering **scansui** and selecting

1) Start Software Update.

SCNS002

```
    dnvrcopcca1pm00 96-01-11  09:53:39
    *C SCNS002 -- -- --- SCNS: SCNS_TMOUT: Software Update
timeout.
```

Description

The software update was not transferred in the 48 hour period.

Effect

There may be Datakit problems between the site and SCANS.

Troubleshooting

Run the transfer again by entering **scansui** and selecting

1) Start Software Update.

SCNS003

```
    dnvrcopcca1pm00 96-01-11  09:53:39
    INFO SCNS003 -- -- --- SCNS: SU Transfer SUCCEEDED: Software
Update transfer complete.
```

Description

The software update was successfully transferred to the PM.

Troubleshooting

None.

Maintenance

8

What's in This Chapter?

This chapter includes information on:

- Preventive maintenance
- Servicing equipment
- Equipment configurations
- Configuring and/or installing circuit cards and peripherals
- Parts list

Preventive Maintenance and Planned Inspections

This section contains the following preventive maintenance and planned inspection procedures for the NAP equipment:

- Cleaning the diskette drive
- Cleaning the cartridge tape drive
- Cleaning the fan filters
- Rebooting Machines
- Visually inspecting the equipment as required to prevent premature equipment failures

Cleaning the Diskette Drive

Because the drive heads are easily scratched, do not clean diskette drives. If you find that you can no longer read or write when your diskette drive is in use, replace the drive.

Refer to *CONVERSANT® Voice Information System Version 4.0 Maintenance,* AT&T 585-350-112, Issue 2 for instructions on how to remove and install the diskette drive.

Cleaning the Cartridge Tape Drive

The read/write head on the tape drive should be cleaned after eight hours of operation or every two hours when using new tapes.

Use a 3M® DC 6000-series data-cartridge tape drive cleaning kit (or equivalent). Instructions, for up to 21 cleanings, are provided with each cleaning kit.

Clean the capstan with a cotton swab and water. Use only water to prevent damage to the capstan material.

Cleaning the MAP/100C Fan Filters

Clean the fan filters on the MAP/100C once a month or more depending on the environment, even if the filter doesn't appear dirty.

The MAP/100C is equipped with three cooling fan filters; one is located behind the power supply filter access door, a second is on the fan access panel, and a third is on the drive bay door. To clean the filters, release the two captive screws that fasten the door to the unit and remove the filter. Rinse in warm water and blow dry.

To reinstall the filter, position it behind the door, close the door, and tighten the captive screws.

Rebooting VP Machines

Each VP machine requires rebooting as a maintenance procedure at least once every 6 months. If a VP machine has not been rebooted for any other reason during a 6 month period, error APPL300 displays, instructing you to reboot. Rebooting clears memory and resets drivers, ensuring smooth operations and often preventing situations that require an unplanned reboot of the machine.

Visual Inspection

The visual inspection helps you to identify any obvious equipment problems before you perform more exhaustive tests. Perform a visual inspection of system equipment at least once a month unless local guidelines, such as central office guidelines, warrant a different schedule.

WARNING:
This is only a visual inspection. Do not physically touch anything in the unit unless you observe proper ESD precautions and the unit is powered down gracefully. Failure to power down before handling equipment can cause irreparable equipment damage.

1. Check the status of the visual indicators listed in the tables in ''MAP/100C Switches and Indicators'' on page 3-2. Notice that the second column of the tables lists the color of the indicator and the number of indicator lights on the unit.
2. If any of the indicators are not in the proper state, refer to *CONVERSANT® Voice Information System Version 4.0 Maintenance,* AT&T 585-350-112.

   WARNING:
   Make sure that the unit has been powered down gracefully before you perform any replacement procedures such as reseating cables. Failure to power down before handling equipment can cause irreparable equipment damage.

3. Check the following cables to make sure that the connectors are not damaged or loose. Replace any damaged cables. Reinsert loose connectors:
   - All external cables
   - TDM cable spanning slots inside the card cage (MAP/100C VP configurations only)
   - All connectors on the CPU card
   - All connectors on the SCSI card
   - All connections (power, control, and data) to all peripheral bay devices

4. Verify that the cooling fans are operating. Place your hand behind the cooling fans to feel the air circulating.
5. Make sure that each card is seated properly in the backplane and held in place with a screw.

NOTE:
The disk activity, diskette drive, and hard-disk drive lights remain on or continue flashing while the disks are being accessed. This is normal. When there is no disk activity, the lights are off.

Table 8-1. Normal State of the MAP/100C Visual Indicators

Indicator Description	Color (number of indicators)	Indicator Location	Normal State
Fan status	Green (6)	Front of unit	ON
Diskette drive	Red or Amber (1)	On the diskette drive	ON, OFF
Hard drive	Amber (1)	On the hard disk drive	ON, OFF, or FLASH
Power	Green (1)	Front of the unit (on the user interface panel)	ON
Tape drives	For an explanation, refer to ‘‘Indicators on SCSI Cartridge Tape Drives’’ on page 3-6.		

Servicing Equipment

For information on basic repair and maintenance tasks refer to: *CONVERSANT Voice Information System (VIS) Version 4.0 Maintenance*, 585-350-112.

Installing MAP/100C Circuit Cards

Use this procedure to install or remove a circuit card in a MAP/100C machine.

WARNING:
When handling circuit cards:

- *Use caution to prevent damage from electrostatic discharge (ESD).*
- *Wear a ground strap that is connected correctly to a grounding system.*
- *Avoid any unnecessary handling of the cards.*
- *Do not touch the gold contact edge of the circuit card; this could cause contact corrosion.*

1. Do one of the following:
   - If this machine is not in service, go to step 2.
   - If the machine is in service, follow the instructions in ‘‘Removing a Machine from Service’’ on page 4-64 and then go to step 3.
2. Do one of the following:
   - If this machine has not been powered up or the power is OFF, go to step 3.
   - If the power is ON, but you have not yet installed the NAP software, turn OFF both the power switch on the front user-interface panel and the circuit breaker on the back of the MAP/100C. Go to step 3.
   - If the power is ON and you have installed the NAP software, shut down the system. From pm00, enter

     chgstate -m *<mach_id>* down

     NOTE:
     Refer to **chgstate** in Chapter 5.

     Wait until the screen indicates that the command has finished, and turn OFF both the power switch on the front user-interface panel and the circuit breaker on the back of the MAP/100C.
3. Establish an ESD ground. Use either the connector labeled ESD ground on the front of the user-interface panel or the ground lug located on the lower right side of the MAP/100C, as shown in Figure 8-1.
4. Inspect the new circuit card for damage.

5. Verify the switch and jumper settings for the circuit card using the instructions presented in this chapter.
6. Standing in front of the MAP/100C, unlatch and open the front door. Use the two slide latches on the upper and lower left corners of the front door.

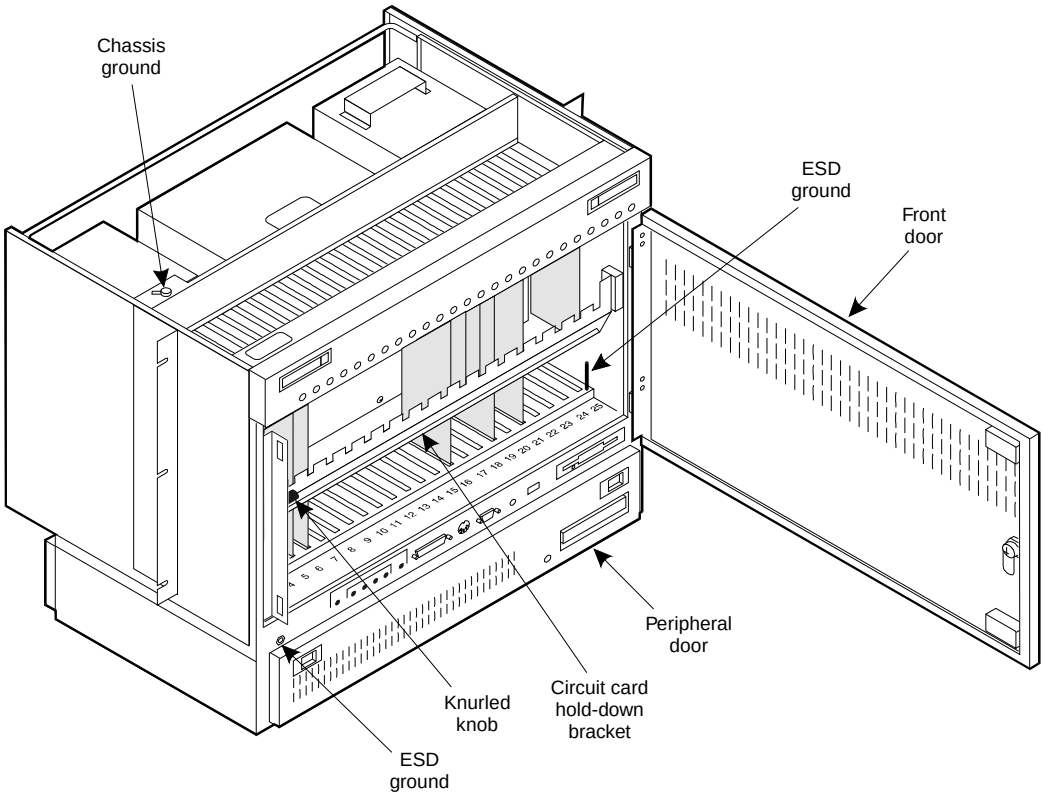


Figure 8-1. Front Door of the MAP/100C

7. Remove the circuit card hold-down bracket:
   a. Pull the knurled knob at the left side of the bracket.
   b. Pull the bracket while rotating it from the left until the end of the bracket clears the side of the cabinet.
   c. Pull the bracket out and to the left.

8. Do one of the following:
    - If this is a blank slot, remove the blank I/O faceplate for the correct slot. Save the screw. Save the blank I/O faceplate for future use.
    - If you are removing an existing circuit card from a slot, disconnect the cables, unscrew the card faceplate, and remove the card. Save the screw.
9. Place the circuit card in the slot. Align the circuit card with the guide and push in the circuit card until it touches the slot.
10. Grasp the circuit card with both hands and push it into the backplane slot. Seat the circuit card by pushing on it firmly.
11. Install the circuit-card retaining screw.
12. If the cables were removed, reconnect the circuit-card cables.
13. Install the circuit card hold-down bracket.
14. Close and latch the front door, using the upper and lower-left door latches.

Setting Circuit-Card Switches and Jumpers

The remainder of this chapter provides the following information for the circuit cards that require switch settings and jumper configurations:

- The location of the DIP switches and jumper blocks on the circuit card
- An illustration of the NAP-specific switch settings and jumper configurations for the circuit card
- A list of the switch settings and jumper settings for the circuit card

Switch Labeling

The DIP switches on the circuit cards are labeled on one side with either OPEN or ON, which are equivalent. The switch is OPEN or ON when the switch is moved to the labeled side.

Jumper Block Labeling

Jumper blocks usually have a label. One block consists of several numbered sets of jumper pins, with two or more pins per set. If a set of jumper pins has only two pins, install a jumper on that numbered set. If a numbered set of jumpers has more than two pins, the pins are usually labeled alphanumerically.

Installing Communicore Modules

Installing Communicore modules includes positioning the module in the slot properly. After physically installing a module, be sure to download the firmware for the module.

WARNING:
When handling Communicore modules:

- *Use caution to prevent damage from electrostatic discharge (ESD).*
- *Wear a ground strap that is connected correctly to a grounding system.*
- *Avoid any unnecessary handling of the modules.*
- *Do not touch the gold contact edge of the module; this could contaminate the module.*

Insert each module into its corresponding slot on the chassis/assembly backplane. Refer to the designation strip along the top of the chassis/backplane assembly. Be sure to insert each Communicore module only into its designated backplane slot.

NOTE:
The module numbers that appear along the top of each chassis/backplane assembly, illustrated in Figure 8-5 on page 8-15 (Lower Subrack: 1 through 15, Upper Subrack:1 through 15), are unrelated to the logical numbers assigned to these same modules (Lower Subrack: 1 through 15, Upper Subrack: 16 through 32).

After installing a Communicore module, you must download firmware for the module. Refer to the description of the **download** command on page 5-61. The instructions for downloading firmware are given on page 4-32.

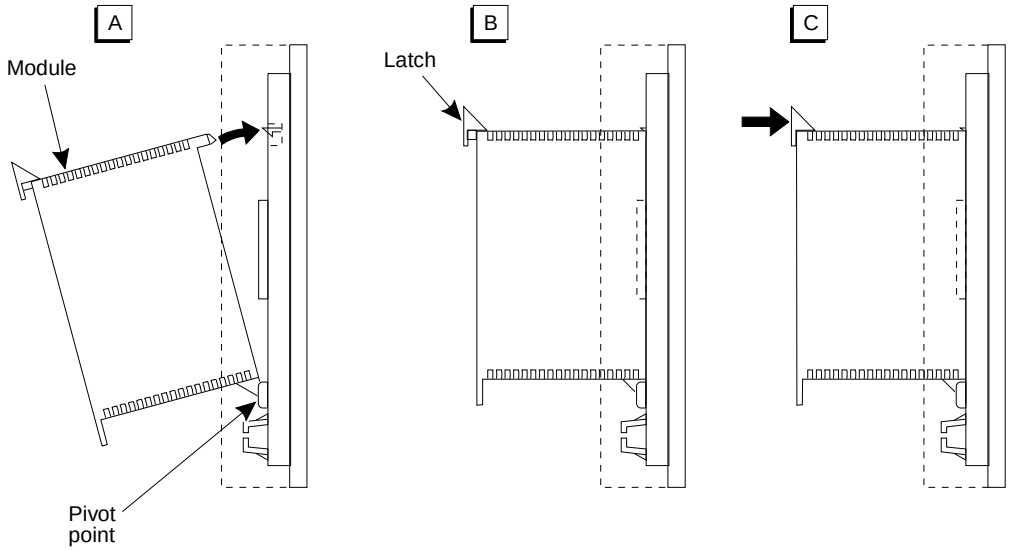


Figure 8-2. Inserting Communicore Module (Side View)

1. Place the pivot point of the module on the hook on the chassis as shown in Figure 8-2A.
2. Hold the module just below the latch and rotate it forward, snapping into the connectors as shown in Figure 8-2B. *Do this forcefully and swiftly, making sure the module is inserted completely.* The back of the module must be flush with the chassis.
3. Press the latch inward to lock the module in place as shown in Figure 8-2C.

Removing Communicore Modules

To remove a module, reverse the installation process. This is shown in Figure 8-3. Pull the latch out, then remove the module by pulling from the top.

NOTE:
Special consideration must be given when removing a module *hot*, that is, while the Communicore is powered. See ''Removing Communicore Modules Hot'' on page 8-10 for details.

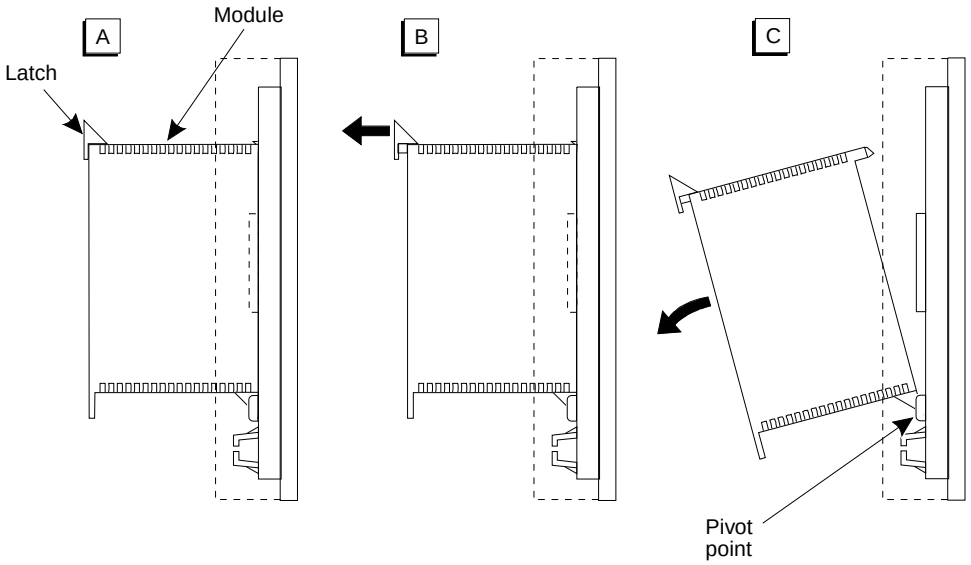


Figure 8-3. Removing a Communicore Module

Removing Communicore Modules Hot

Special consideration must be given when removing Communicore modules hot, that is, while power is being supplied to the Communicore.

NOTE:
When any Communicore module is removed hot, an alarm sounds.

Any module, *except for the power/maintenance module*, can be removed hot. Removing the power/maintenance module when the system is powered can result in damage to the Communicore.

WARNING:
Always disconnect the power cord from the power/maintenance module before removing or inserting it.

Removing the first four modules will affect new calls and tone detection. For this reason, modules should first be administratively removed from the system before being physically removed. Refer to the description of the **remove** command on page 5-115 for procedures on how to administratively remove modules.

Removing a module administratively:

- Prevents future calls from being assigned to that module
- Allows calls currently assigned to that module to finish

After all active calls have finished, the module returns to an idle state. This causes the STATUS LED to go dark for the following modules:

- Tone generator
- Tone detector
- PRI

For all other modules (switch, control, and power/maintenance) the STATUS LED will remain on steadily, indicating an active state.

CAUTION:
To prevent active calls from being dropped, Communicore modules must first be administratively removed from the system before being physically removed. Wait for calls to drop before removing modules.

Table 8-2 lists other effects, besides the loss of active calls, that can occur when a module is removed hot:

Table 8-2. Consequences of Removing Communicore Modules Hot

Communicore Module	Consequences of Removing Hot	Maintenance Recommendation
Power/Maint.	All power to the system is lost	***NEVER REMOVE HOT!***
	All active calls across the system are dropped	
	All new calls across the system are prevented	Remove all modules administratively and allow all active calls to finish.
	Possible damage to the system	
Control	Service to all modules is interrupted	Remove all modules administratively and allow all active calls to finish before removing hot.
	All active calls across the system are dropped	
	All new calls across the system are prevented	
	D-channel link to MAP/100C is lost	
	D-channel link to the network is lost	

Continued on next page

Table 8-2. Consequences of Removing Communicore Modules Hot — *Continued*

Communicore Module	Consequences of Removing Hot	Maintenance Recommendation
Switch	All new calls across the system are prevented D-channel link to MAP/100C is lost D-channel link to the network is lost	Remove administratively and allow all active calls to finish before removing hot.
Tone Detector	Touch-tone detection for any active call on the module is lost All new calls on the module are prevented	Remove administratively and allow all active calls to finish before removing hot.
Tone Generator	Touch-tone generation for any active call on the module is lost All new calls on the module are prevented	Remove administratively and allow all active calls to finish before removing hot.
Subrack 1 - Slot 4 PRI (D-channel)	D-channel link to 4ESS is lost All new calls across the system are prevented Active calls on the module are dropped Active calls across system remain up	Remove administratively and allow all active calls to finish before removing hot.
Subrack 1 - Slot 3 PRI (D-channel)	D-channel link to MAP/100C is lost All new calls across the system are prevented Active calls on the module are dropped Active calls across the system remain up Touch-tone detection for all active calls across the system is lost	Remove administratively and allow all active calls to finish before removing hot.
Any other PRI	Active calls on the module are dropped All new calls on the module are prevented	Remove administratively and allow all active calls to finish before removing hot.

Equipment Configurations

This section describes:

- VP and PM MAP/100C card-cage configurations
- Configuration for Communicore lower and upper subracks

Circuit Cards in a MAP/100C VP Machine

Each VP machine must have all the circuit cards installed as shown in Figure 8-4.

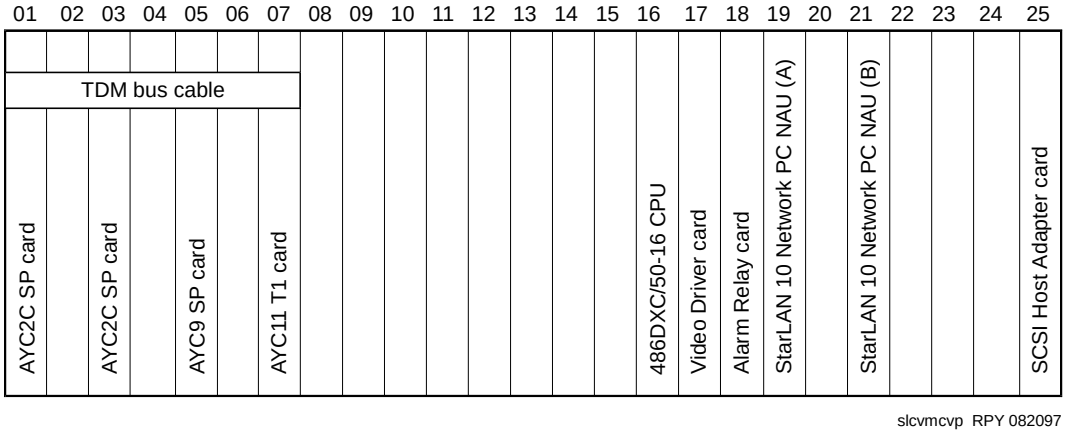


Figure 8-4. Circuit Cards and Slots for the MAP/100C VP

Physical Slot No.	Circuit Card Name	Host Interrupt	Host I/O Port Address	Ram Address	Switch 1 (From DIP 1)	Switch 2 (From DIP 1)
1	AYC2C SP (V)	11	120-123		010 111	
3	AYC2C SP (PRI)	11	124-127		010 110	
5	AYC9 SP (TTS)	11	128-12B		010 101	
7	AYC11 T1	12	220-221		111 100	
16	486DXC/50-16 CPU		370H		1001	
17	Video Driver			A0000		
18	Alarm Relay		240-240		111 011	111 000
19	StarLAN 10 Network PC NAU (A)	5	360-367	D0000 D3FFF		
21	StarLAN 10 Network PC NAU (B)	7	368-36F	D8000 DBFFF		
25	SCSI Host Adapter	14	330-333	C8000	1111 1101	1110 0110
			For switch settings:		0 = OFF (Open) 1 = ON (Closed)	

Modules in the Communicore Subrack

Communicore subracks must have all the modules installed as shown in Figure 8-5.

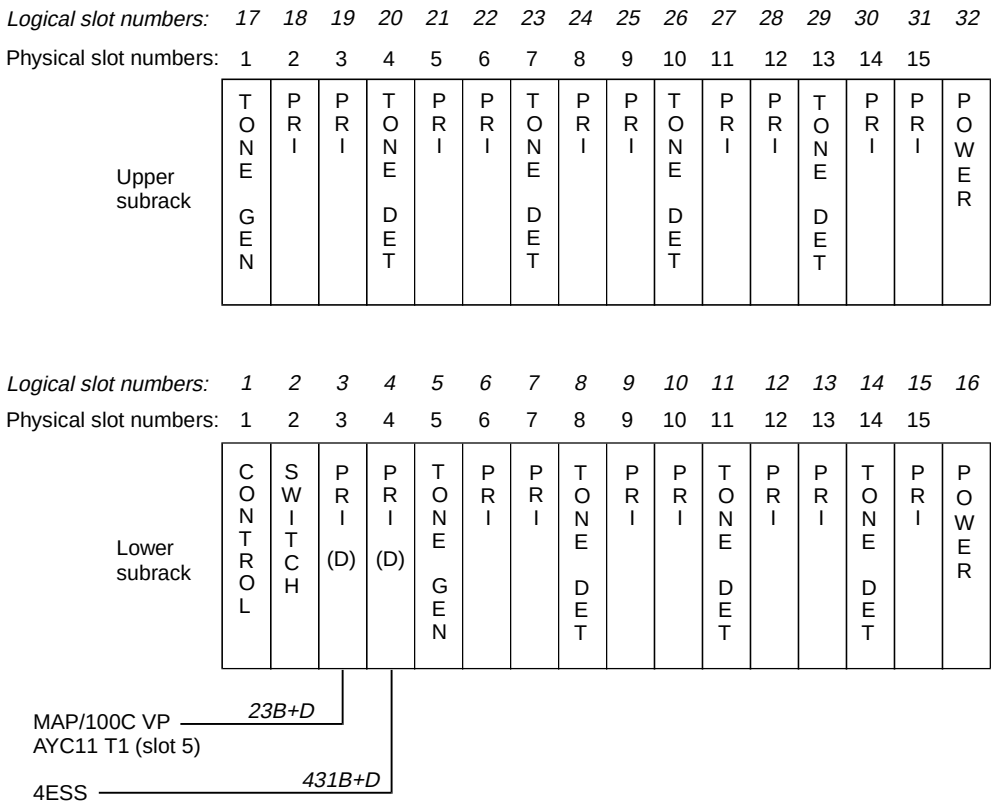


Figure 8-5. Modules and Slots for Communicore Subracks

Circuit Cards in a MAP/100C PM Machine

A PM machine must have all the circuit cards installed as shown in Figure 8-6.

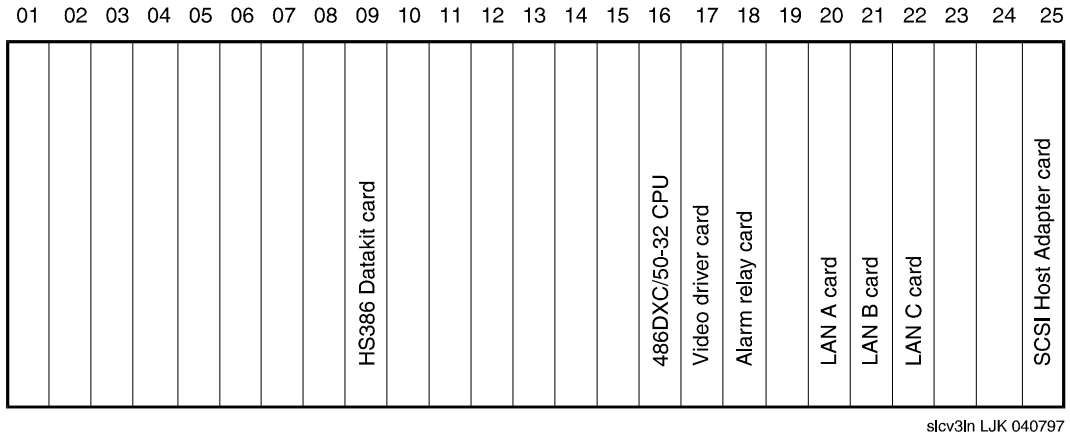


Figure 8-6. Circuit Cards and Slots for the MAP/100C PM

Physical Slot No.	Circuit Card Name	Host Interrupt	Host I/O Port Address	Ram Address	Switch 1 (From DIP 1)	Switch 2 (From DIP 1)
9	HS386 Datakit	15	200			
16	486DXC/50-32 CPU		370H		1001	
17	Video Driver			A0000		
18	Alarm-Relay		240-240		111 011	111 000
20	LAN (A)	5	360-367	D0000 D3FFF		
21	LAN (B)	7	368-36F	D4000		
22	LAN (C)	7	2A0	D8000		
25	SCSI Host Adapter	14	330-333	C8000	1111 1101	1110 0110
			For switch settings:		0 = OFF (Open) 1 = ON (Closed)	

Configuring/Installing Circuit Cards and Modules

This section describes:

- VP and PM MAP/100C circuit-card switch and jumper settings and
  - — the procedure for installing the SP text-to-speech driver
  - — the procedure for configuring the 10-Mbps LAN cards' firmware
- Connecting the time-division multiplexing (TDM) bus cable
- MAP/100C peripheral-device circuit-card switch and jumper settings

AYC2C SP Cards

This section describes how to configure and install AYC2C signal processing (SP) cards.

The AYC2C SP card is used only in MAP/100C call processing machines.

See Figure 8-7 and configure the first AYC2C SP (voice) card:

1. Check the AYC2C SP (voice) card in slot 1 to make sure that it has a set of TDM bus terminators installed next to the TDM bus connector. The printing on the bus terminators should face down, toward the bottom of the card.

   NOTE:
   The first and last cards on the TDM bus — the AYC2C SP card in slot 1 and the AYC11 T1 card in slot 7 — must have terminators. The other cards on the TDM bus must not have terminators.

2. Set the 6-position DIP switch to: 010 111 (the switch is numbered 1 to 6, left to right).
3. Install the AYC2C SP (voice) card in slot 1.

See Figure 8-7 and configure the second AYC2C SP (PRI) card:

1. Check the AYC2C SP (PRI) card in slot 3 to make sure that it does *not* have a set of TDM bus terminators installed next to the TDM bus connector.
2. Set the 6-position DIP switch to: 010 110 (the switch is numbered 1 to 6, left to right).
3. Install the AYC2C SP (PRI) card in slot 3.

NOTE:
There are no jumpers on this card.

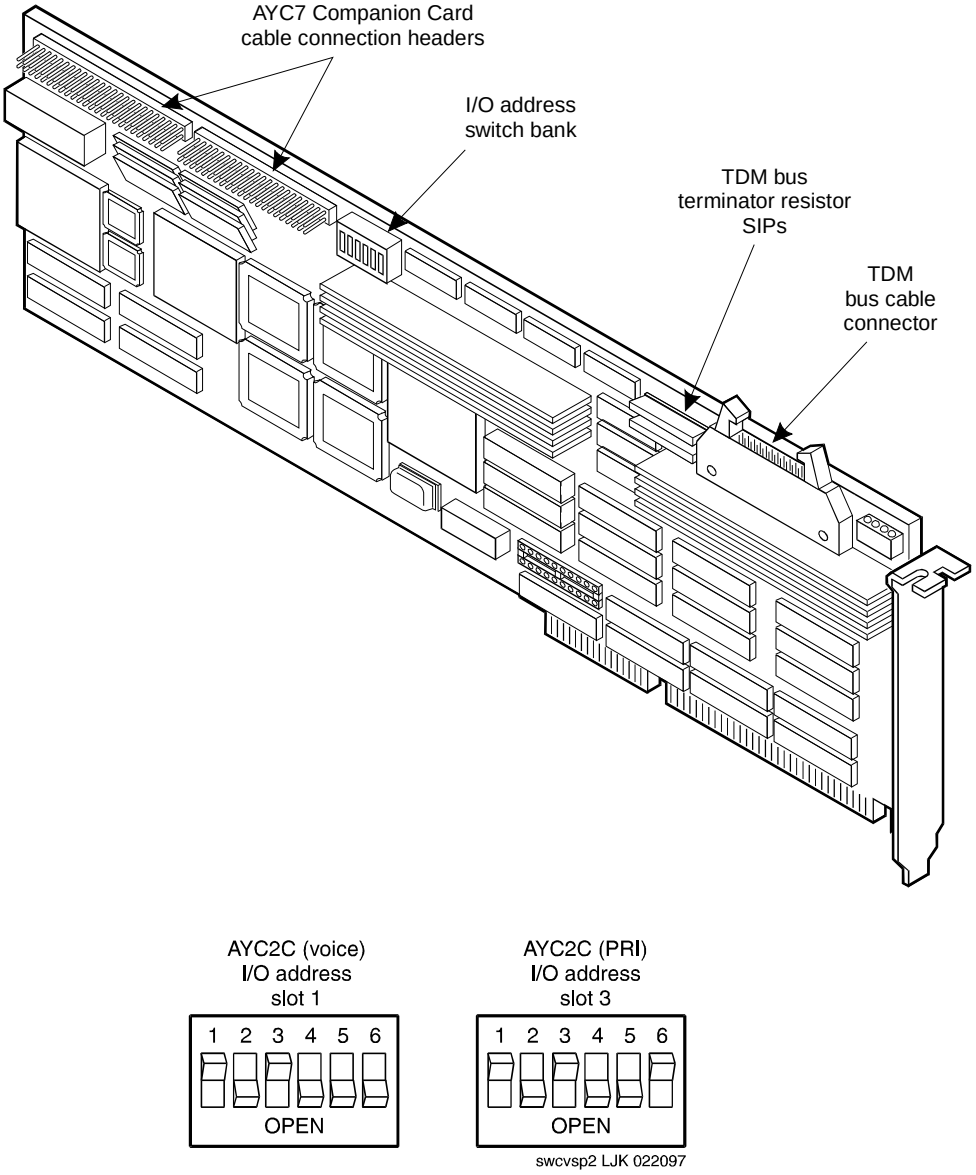


Figure 8-7. AYC2C SP Card Switch Settings

AYC9 SP Card

This section describes how to configure and install AYC9 signal processing (SP) card.

The AYC9 SP card is used only in MAP/100C call processing machines.

See Figure 8-8 and configure the AYC9 SP (text-to-speech) card:

1. Check the AYC9 SP card to make sure that it does *not* have a set of TDM bus terminators installed next to the TDM bus connector.
2. Set the 6-position DIP switch to: 010 101 (the switch is numbered 1 to 6, left to right).
3. Install the AYC9 SP (text-to-speech) card in slot 5.

NOTE:
There are no jumpers on this card.

Installing the SP Text-to-Speech Driver

To install the SP text-to-speech circuit card driver, do the following:

1. Remove the VP from service. See ''Gracefully Removing a VP from Service'' on page 4-64.
2. At the Unix prompt, enter **installpkg**

   The system prompts you to specify whether you are installing from a cartridge tape or a floppy disk.
3. Answer the prompt and follow the on-screen instructions.
4. After you have installed the package, enter **remove rcard 3**

   (3 is the card number.)
5. Enter **spfunc 3 tts**
6. Enter **restore rcard 3**
7. Enter **dispstatus**

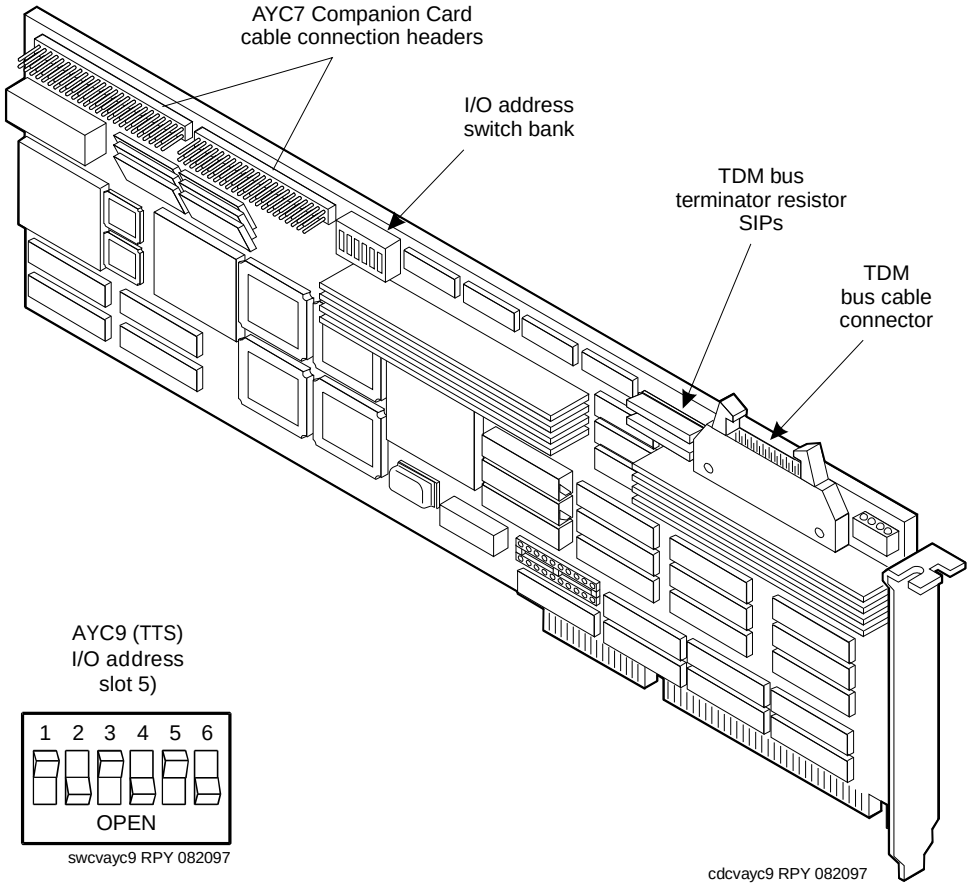


Figure 8-8. AYC9 SP Card Switch Settings

AYC11 T1 Card

This section describes how to configure and install AYC11 T1 cards. The AYC11 T1 Rev S4, 5 R9 or newer card is used only in MAP/100C VP machines.

When removing AYC11 T1 circuit cards from the MAP/100C, replace the circuit card with revision label AYC11 S4,5 R9 or newer, if possible. These circuit cards have been modified to reduce line noise. The revision label is located at the end of the card, opposite the I/O faceplate and next to the yellow serial number label.

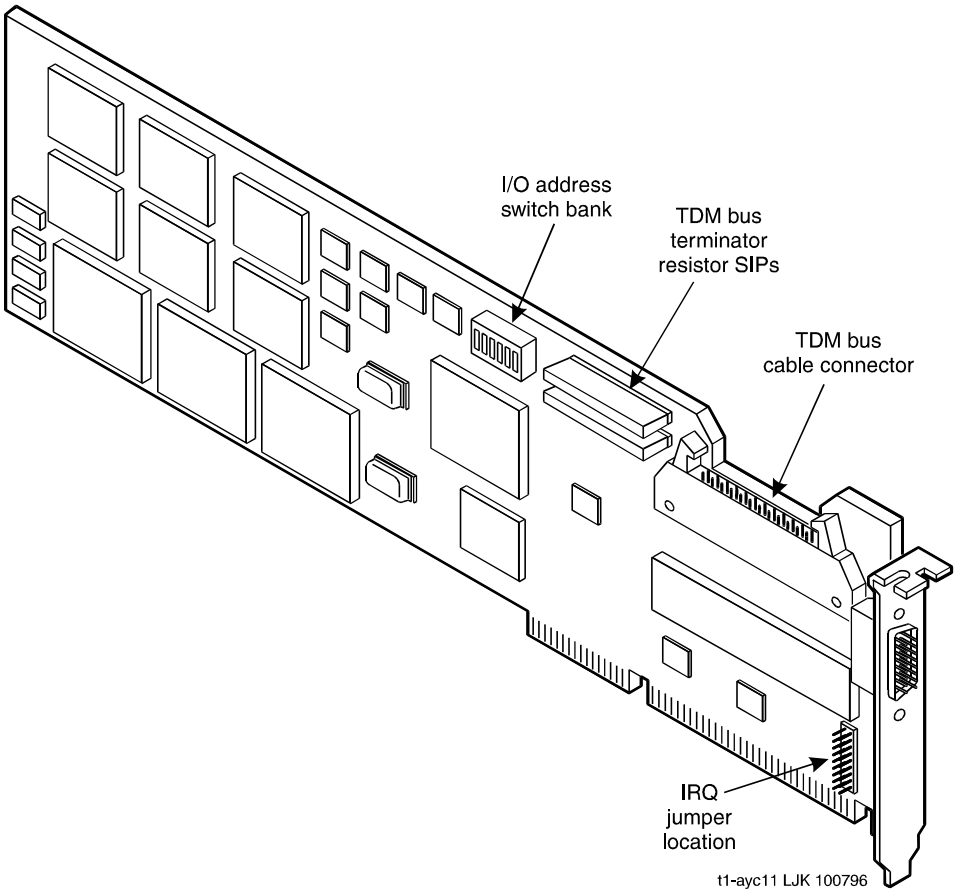
Jumpers on the AYC11 T1 card are factory preset and should not be changed, with the exception of the IRQ jumper.

Installing an AYC11T1 Card in a VP

See Figure 8-9 and configure the AYC11 T1 card:

1. Set the six-position DIP switch to: 111 100 (the switch is numbered 1 to 6, left to right).
2. Install a jumper on IRQ 12.
3. Install TDM terminating resistors next to the TDM bus connector. The printing on the bus terminators should face down toward the bottom of the card.
4. Install the AYC11 card in slot 7.

NOTE:
The first and last cards on the TDM bus — the AYC2C SP card in slot 1 and the AYC11 T1 card in slot 7 — must have terminators. The other cards on the TDM bus must not have terminators.



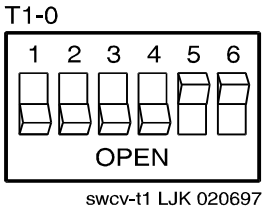


Figure 8-9. AYC11 T1 Card Switch and Jumper Settings (VP)

HS386 Datakit Card on the PM (Slot 9)

This section describes how to configure and install the HS386 Datakit card in slot 9 of the PM.

The HS386 Datakit card is used only in MAP/100C PM machines.

See Figure 8-10 and configure the HS386 Datakit card in slot 9:

1. On the jumper block labeled J1, install jumpers on all three sets of pins. This jumper block is not installed on newer HS386 circuit cards.
2. On the jumper block labeled J2, install one jumper on the right-most (10th) sets of vertical pair of pins, as shown. Make sure that there are no other jumpers installed on this block. This sets IRQ to 15.
3. On the jumper block labeled J3, starting from the left, install jumpers on the 2nd, 3rd, 4th, 5th, 6th, 7th, 9th, and 10th vertical pairs of pins, as shown. This sets start of input/output address (SIOA) to I/O address 200.
4. Install the HS386 Datakit card in slot 9.

NOTE:
The HS386 Datakit card is usually configured at the site and is always installed in slot 9.

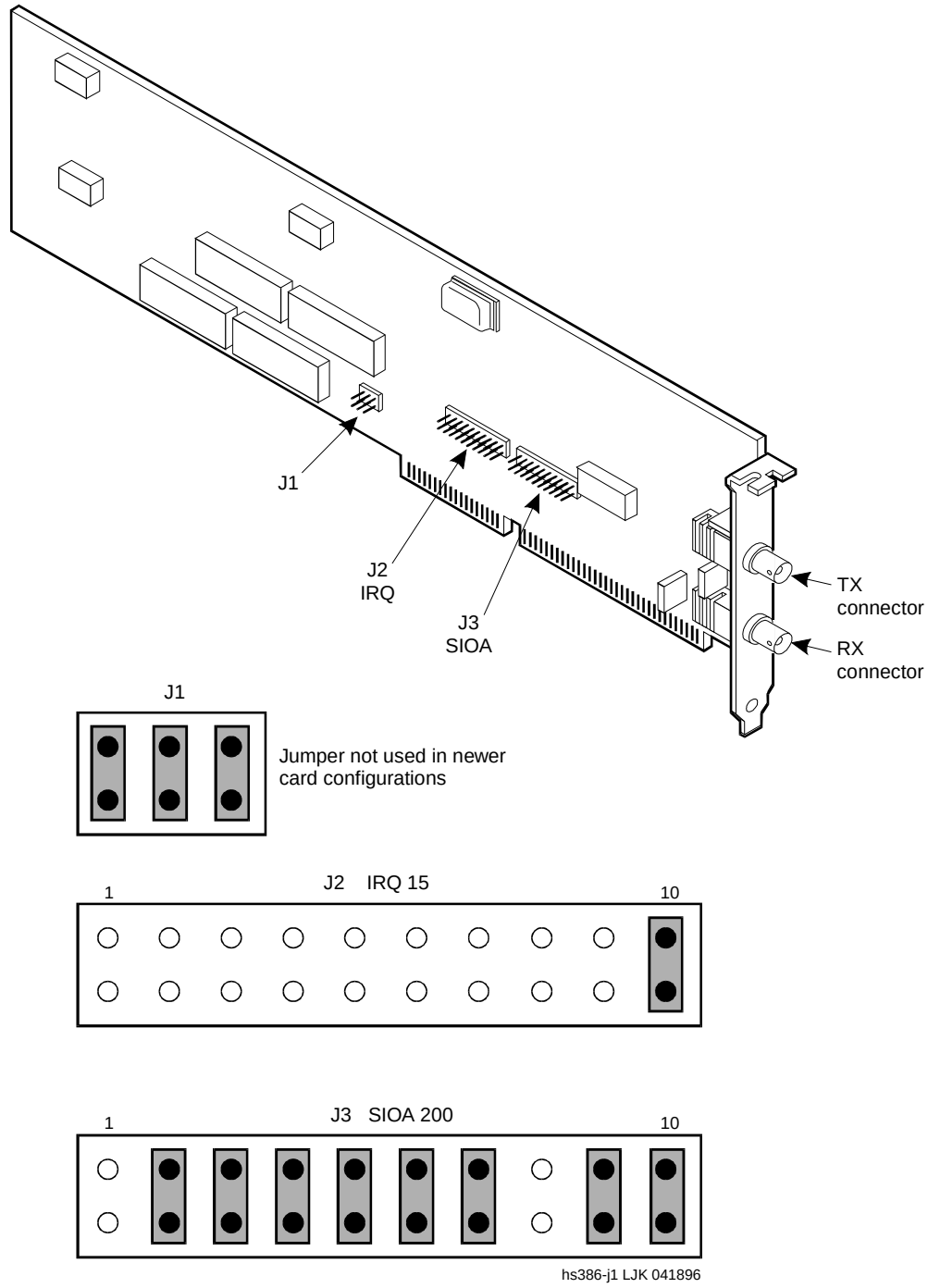


Figure 8-10. HS386 Datakit Card Jumper Settings

486DXC/50-16 or -32 CPU Card (Slot 16)

The next two sections describe how to configure and install 486DXC/50-16 or 486DXC/50-32 CPU card in slot 16.

NOTE:
There are two ways to configure the 486DXC/50 CPU. For information about your specific card, see Figure 8-11 for the release 1 card, or Figure 8-12 for the release 2 card.

Release 1

This section describes how to configure and install the 486DXC/50-16 or 486DXC/50-32 CPU Release 1 card in slot 16.

The 486DXC/50 CPU release 1 card[1] is configured the same for the VP and PM machines with the following exceptions:

- The VP 486DXC/50 CPU release 1 card uses 16 Mbytes of RAM (refer to Figure 8-11 on page 8-27).
- The PM 486DXC/50 CPU release 1 card uses 32 Mbytes of RAM (refer to Figure 8-11 on page 8-27).

CAUTION:
If you replace the CPU card or change its settings, readminister the firmware to prevent boot errors. Also verify that the BIOS is the correct version. Refer to ‘‘Checking and Administering CMOS and BIOS Firmware’’ on page 4-15.

See Figure 8-11 and configure the 486DXC/50 CPU release 1 card in slot 16:

1. Set the four-position DIP switch 1 (SW1) to: 1 0 0 1 (the switch is numbered 1 to 4, left to right).
2. Install the following jumpers:
   a. JP1 pins 1 and 2 (determines processor type/speed 486DX)
   b. JP2 pins 2 and 3 (determines processor type/speed 486DX)
   c. JP3 pins 1 and 2 (determines processor type/speed 486DX)
   d. JP4 pins 1 and 2 (determines DX configuration, default setting)
   e. JP5 pins 2 and 3 (determines 128-Kbyte cache, default setting)

   (steps continued after figure)

1. The 486DXC/50 CPU card is manufactured by Texas Microsystems®
(AT&T Comcode 406970731 with 16-Mbyte SIMM or 407019306 without 16-Mbyte SIMM. Replacement cards are only available without 16-Mbyte SIMM.)

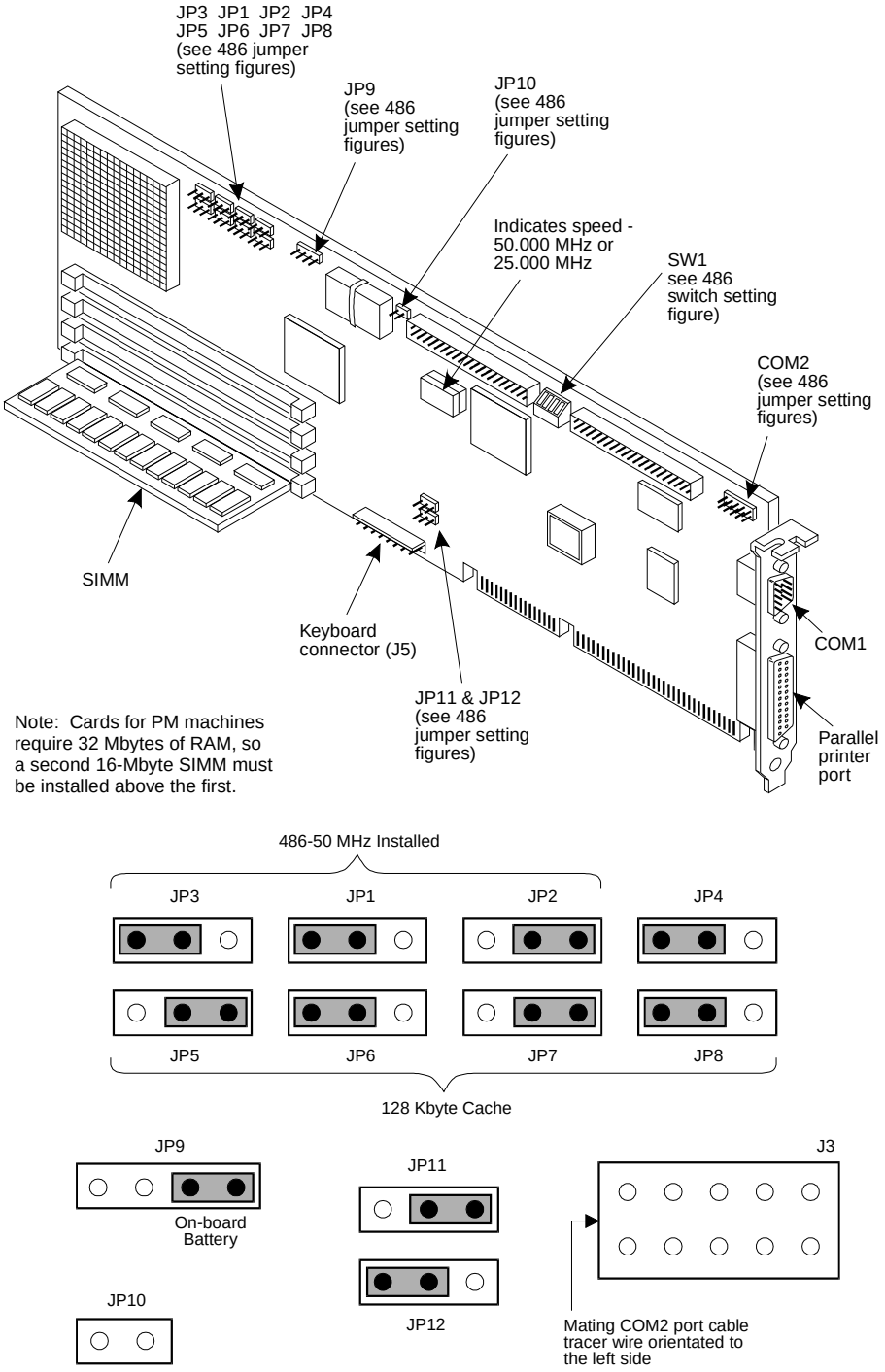


Figure 8-11. 486DXC/50 CPU Release 1 Card Switch and Jumper Settings

f. JP6 pins 1 and 2 (determines 128-Kbyte cache, default setting)
g. JP7 pins 2 and 3 (determines 128-Kbyte cache, default setting)
h. JP8 pins 1 and 2 (determines 128-Kbyte cache, default setting)
i. JP9 pins 1 and 2 (on-board battery enabled, default setting)
j. JP11 pins 2 and 3 (watchdog timer disabled, default setting)
k. JP12 pins 1 and 2 (watchdog timer reset delay, default setting

3. If a jumper is installed on JP10 (hard-drive activity LED), remove it.
4. If the CPU card is a replacement card, see Figure 8-13 to remove the 16-Mbyte SIMM (32-Mbyte in a PM) from the old card and install it on the replacement card.

Release 2

This section describes how to configure and install the 486DXC/50-16 or 486DXC/50-32 CPU Release 2 card in slot 16.

NOTE:
There are two ways to configure the 486DXC/50 CPU card. For information about your specific card, see Figure 8-11 for the release 1 card, or Figure 8-12 for the release 2 card.

The 486DXC/50 CPU release 2 card[1] is configured the same for the VP and PM machines with the following exceptions.

- The VP 486DXC/50 CPU release 2 card uses 16 Mbyte of RAM (refer to Figure 8-12 on page 8-31).
- The PM 486DXC/50 CPU release 2 card uses 32 Mbyte of RAM (refer to Figure 8-12 on page 8-31).

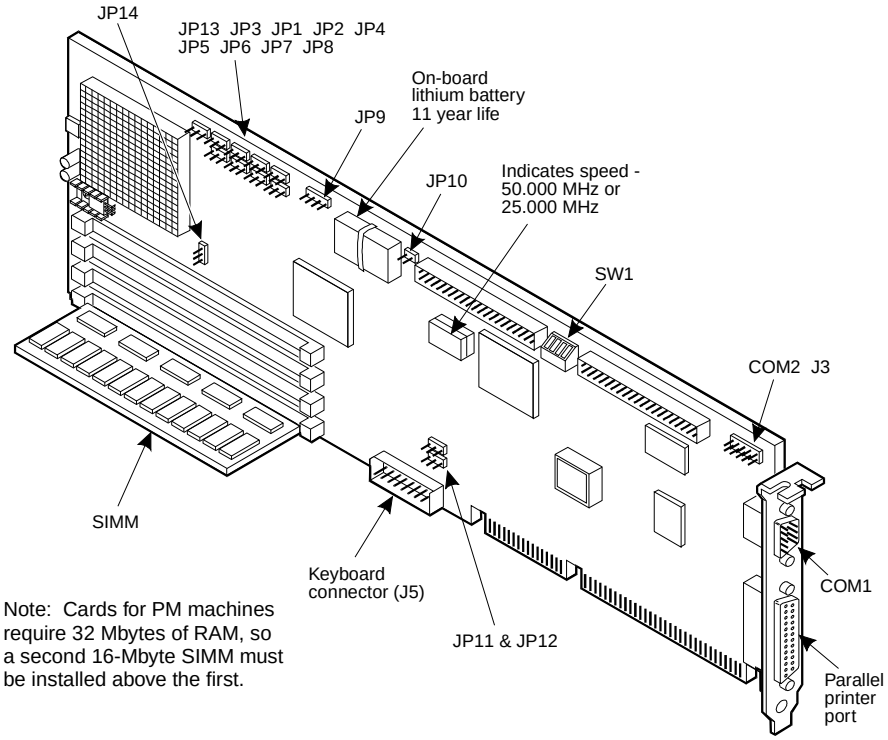
CAUTION:
If you replace the CPU card or change its settings, readminister the firmware to prevent boot errors. Also verify that the BIOS is the correct version. Refer to ‘‘Checking and Administering CMOS and BIOS Firmware’’ on page 4-15.

See Figure 8-12 and configure the 486DXC/50 CPU release 2 card in slot 16:

1. Set the 4-position DIP switch 1 (SW1) to: 1 0 0 1 (the switch is numbered 1 to 4, left to right).
2. Install the following jumpers:
   a. JP1 pins 1 and 2 (determines processor type/speed 486DX)
   b. JP2 pins 2 and 3 (determines processor type/speed 486DX)
   c. JP3 pins 1 and 2 (determines processor type/speed 486DX)
   d. JP4 pins 1 and 2 (determines DX configuration, default setting)
   e. JP5 pins 2 and 3 (determines 128-Kbyte cache, default setting)
   f. JP6 pins 1 and 2 (determines 128-Kbyte cache, default setting)
   g. JP7 pins 2 and 3 (determines 128-Kbyte cache, default setting)
   h. JP8 pins 1 and 2 (determines 128-Kbyte cache, default setting)
   i. JP9 pins 1 and 2 (on-board battery enabled, default setting)

(steps continued after figure)

1. The 486DXC/50 CPU card is manufactured by Texas Microsystems®
(AT&T Comcode 407308816 with 16-Mbyte SIMM or 407300342 without 16-Mbyte SIMM. Replacement cards are only available without 16-Mbyte SIMM.)



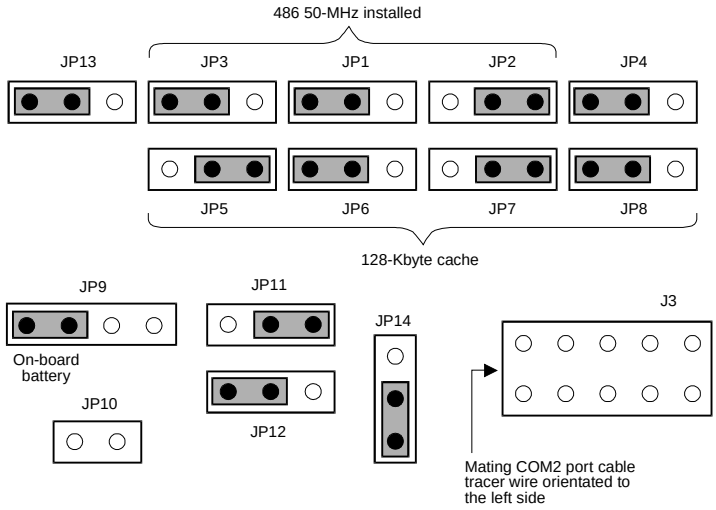


Figure 8-12. 486DXC/50 CPU Release 2 Card Switch and Jumper Settings

j. JP11 pins 2 and 3 (watchdog timer disabled, default setting)

k. JP12 pins 1 and 2 (watchdog timer reset delay, default setting

l. JP13 pins 1 and 2 (clock multiplier, default setting pins 1 and 2)

m. JP14 pins 2 and 3 (determines processor type 486DX, jumper lower two pins)

3. If a jumper is installed on JP10 (hard drive activity LED), remove it.
4. If the CPU card is a replacement card, see Figure 8-13 to remove the 16-Mbyte SIMMs (32-Mbyte in a PM) from the old card and install it on the replacement card.

Removing the SIMM from the CPU Card

1. Place the CPU card on an ESD-approved work station.
2. See Figure 8-13. Move the spring-loaded clips, located at each end of the memory SIMM, away from the SIMM. The SIMM will reposition at an angle when both clips are released.
3. Remove the SIMM and place it in an ESD bag.

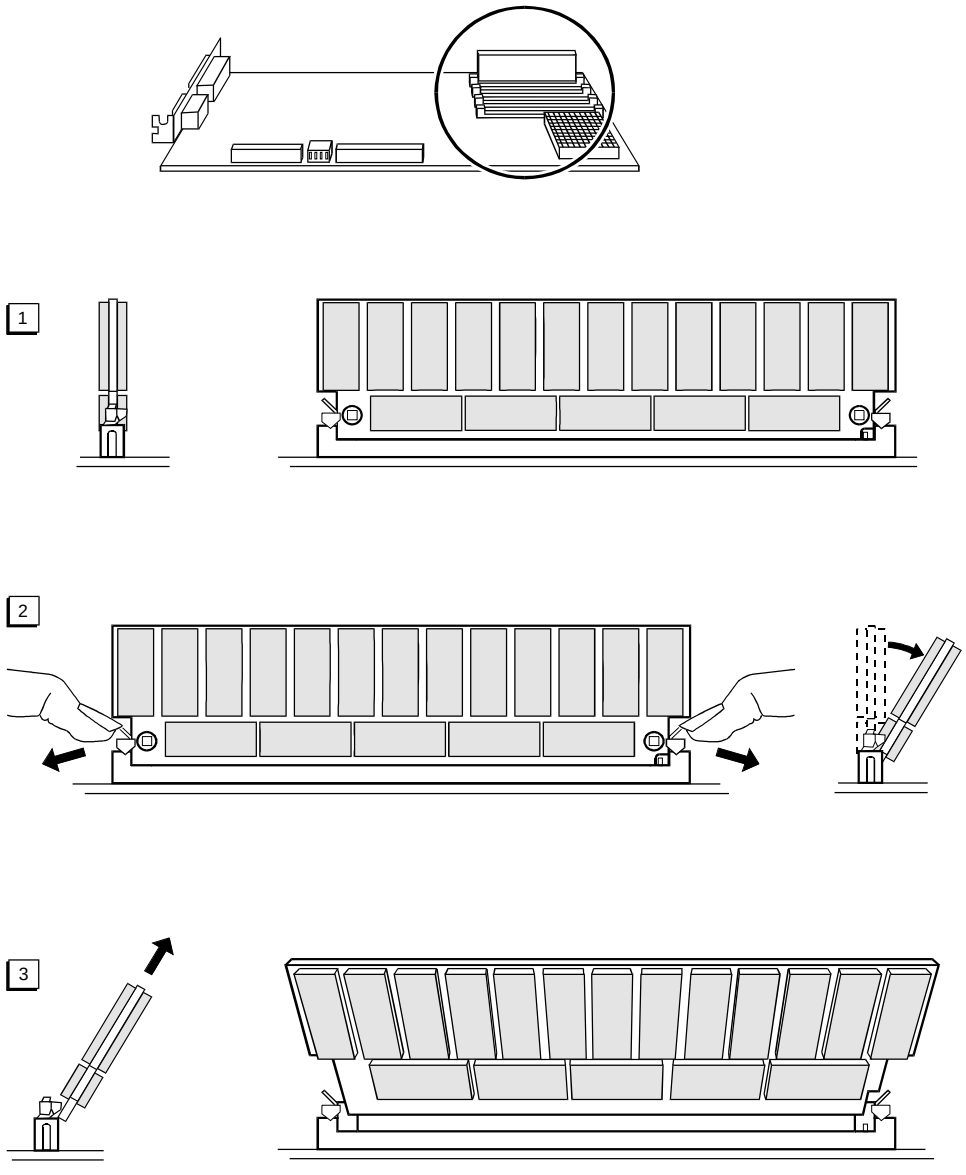


Figure 8-13. Removing the 16-Mbyte 72-Pin SIMM from the 486DXC/50 CPU Card

Installing the SIMM on the CPU Card

1. Place the replacement CPU card on an ESD-approved work surface.
2. Insert the first 16-Mbyte SIMM at an angle in slot 1 of the CPU card. The SIMM is keyed with a notch cut on one end of it. See Figure 8-14.
3. Move the SIMM to the upright position. When the SIMM is properly installed, the retaining pins engage it and the spring-loaded clips snap into place.

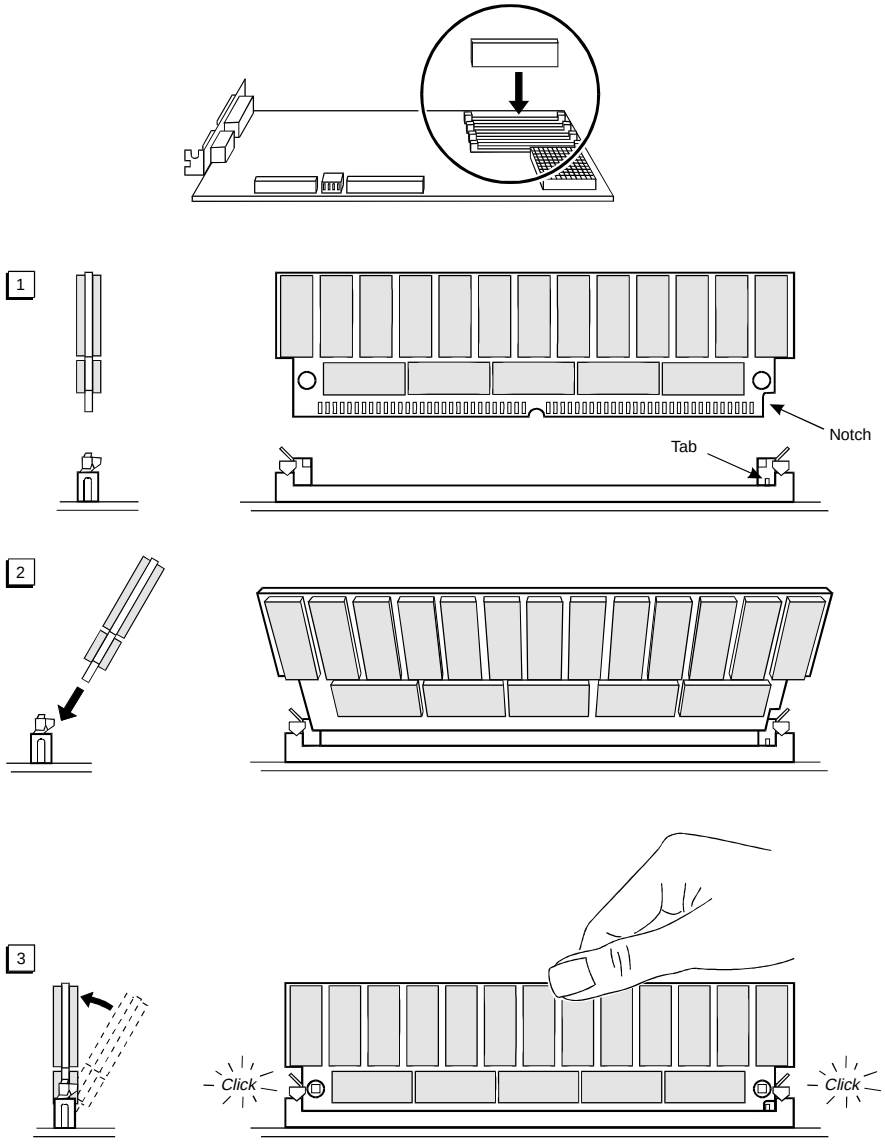


Figure 8-14. Installing the 16-Mbyte 72-Pin SIMM on the 486DXC/50 CPU Card

Video-Driver Card (Slot 17)

The next four sections describe how to configure and install the video-driver card in slot 17.

NOTE:
There are four ways to configure the video-driver card. See Figure 8-15 for type 1, Figure 8-16 for type 2, Figure 8-17 for type 3, and Figure 8-18 for type 4.

Type 1

This section describes how to configure and install the type 1 video-driver card in slot 17.

The video-driver card jumper settings are factory preconfigured. See Figure 8-15 and check the card configuration before installing it.

The video-driver card[1] (type 1) is configured the same for the VP and PM machines.

Configure the video-driver card (type 1) in slot 17:

1. Install a jumper on J1 pins 2 and 3 (zero wait-state OFF).
2. Install a jumper on J2 pins 2 and 3 (IRQ OFF).
3. If installed, remove jumpers on P2.
4. Install the video-driver card in slot 17.

1. The video-driver card 110-0318-627 is manufactured by STB Systems, Inc.® (AT&T Comcode 407530013).

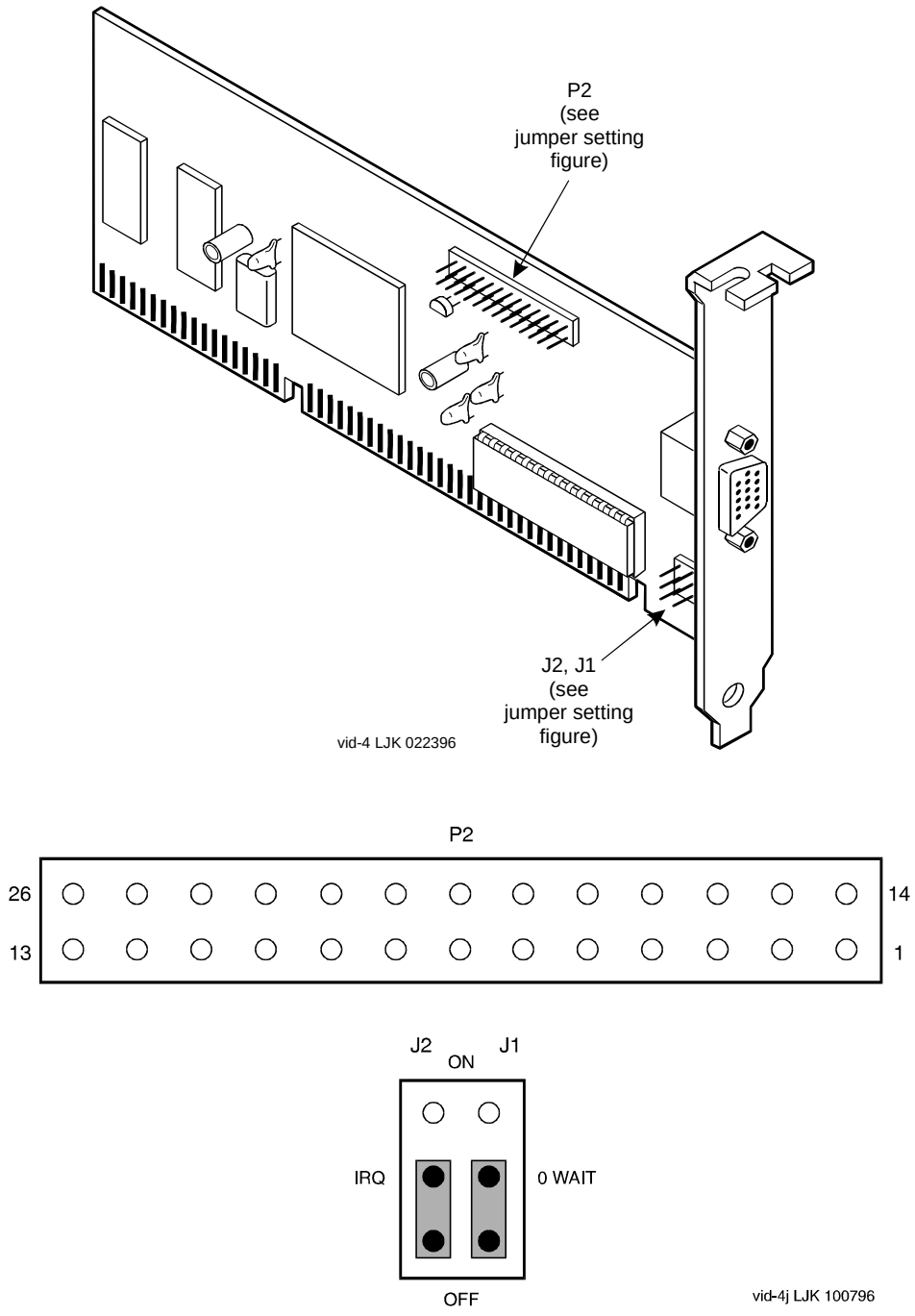


Figure 8-15. Video-Driver Card Switch Settings (Type 1)

Type 2

This section describes how to configure and install the type 2 video-driver card in slot 17.

NOTE:
There are four video-driver card configurations. See Figure 8-15 for type 1, Figure 8-16 for type 2, Figure 8-17 for type 3, and Figure 8-18 for type 4.

The video-driver card switch and jumper settings are factory preconfigured. See Figure 8-16 and check the card configuration before installing it.

The video-driver card[1] (type 2) is configured the same for the VP and PM machines.

Configure the video-driver card (type 2) in slot 17:

1. Set the five-position DIP switch 1 (SW1) to: 0 1 0 0 0
   (the switch is numbered 1 to 5, left to right).
2. Install a jumper on JP3 pins 1 and 2 (address latch enable)
3. Install a jumper on JP5 (zero wait-state).

   NOTE:
   If a graphical speech editor is used, this jumper must be removed).

4. If jumpers are installed on JP4, pins 1 to 25, remove them.
5. Install the video-driver card in slot 17.

1. The video-driver card WDXLR831124 is manufactured by Western Digital Corporation® (AT&T Comcode 407095835).

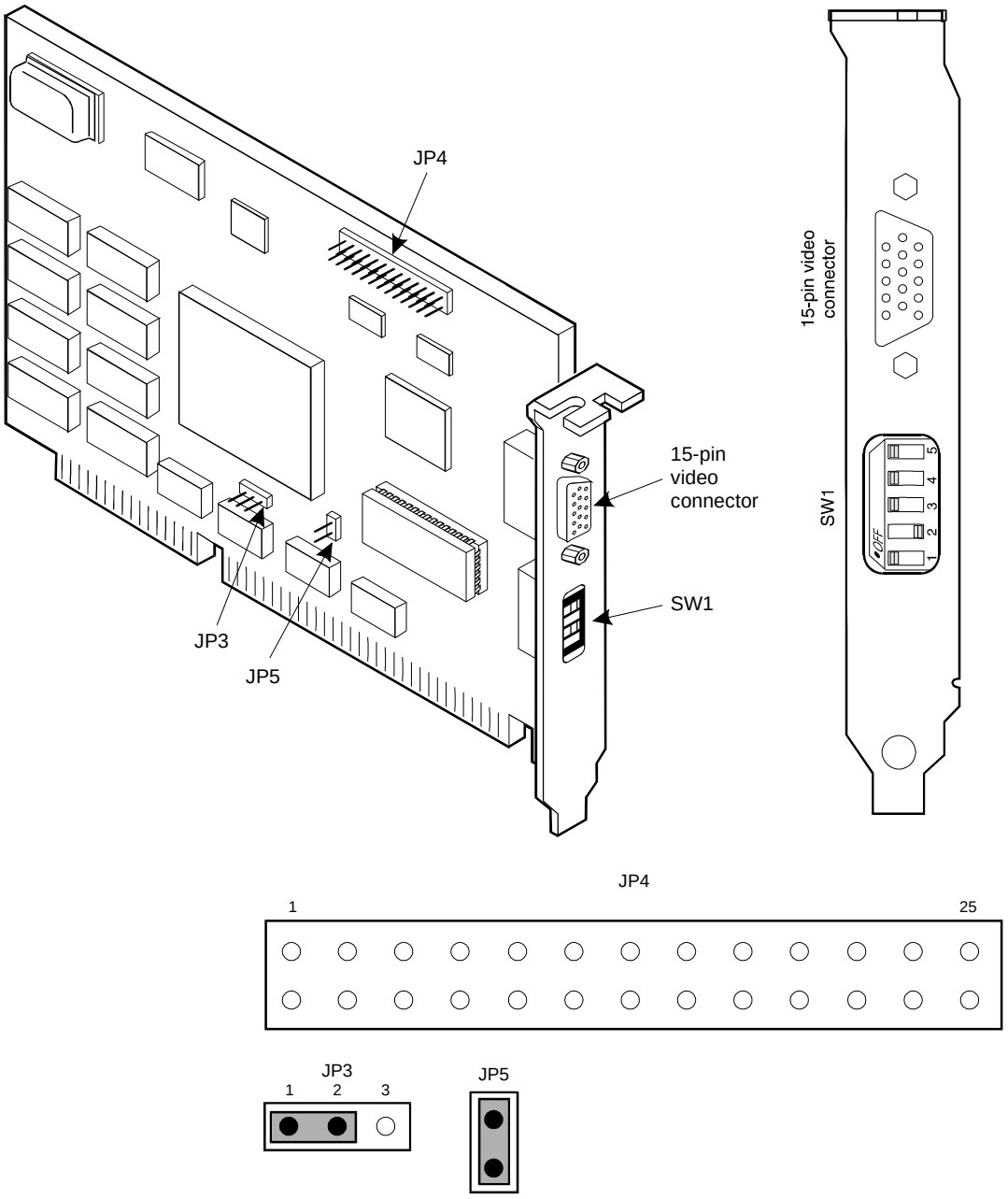


Figure 8-16. Video-Driver Card Switch Settings (Type 2)

Type 3

This section describes how to configure and install the type 3 video-driver card in slot 17.

NOTE:
There are four video-driver card configurations. See Figure 8-15 for type 1, Figure 8-16 for type 2, Figure 8-17 for type 3, and Figure 8-18 for type 4.

The video-driver card switch and jumper settings are factory preconfigured. See Figure 8-17 and check the card configuration before installing it.

The video-driver card [1](type 3) is configured the same for the VP and PM machines.

Configure the video-driver card (type 3) in slot 17:

1. Set the 5-position DIP switch 1 (SW1) to: 0 1 0 0 0
   (the switch is numbered 1 to 5, left to right).
2. Install a jumper on JP3 (zero wait-state).
3. Install a jumper on JP4 pins 1 and 2 (address latch enable).
4. Install the video-driver card in slot 17.

1. The video-driver card WDXLR83160 is manufactured by Western Digital Corporation® (AT&T Comcode 406901884).

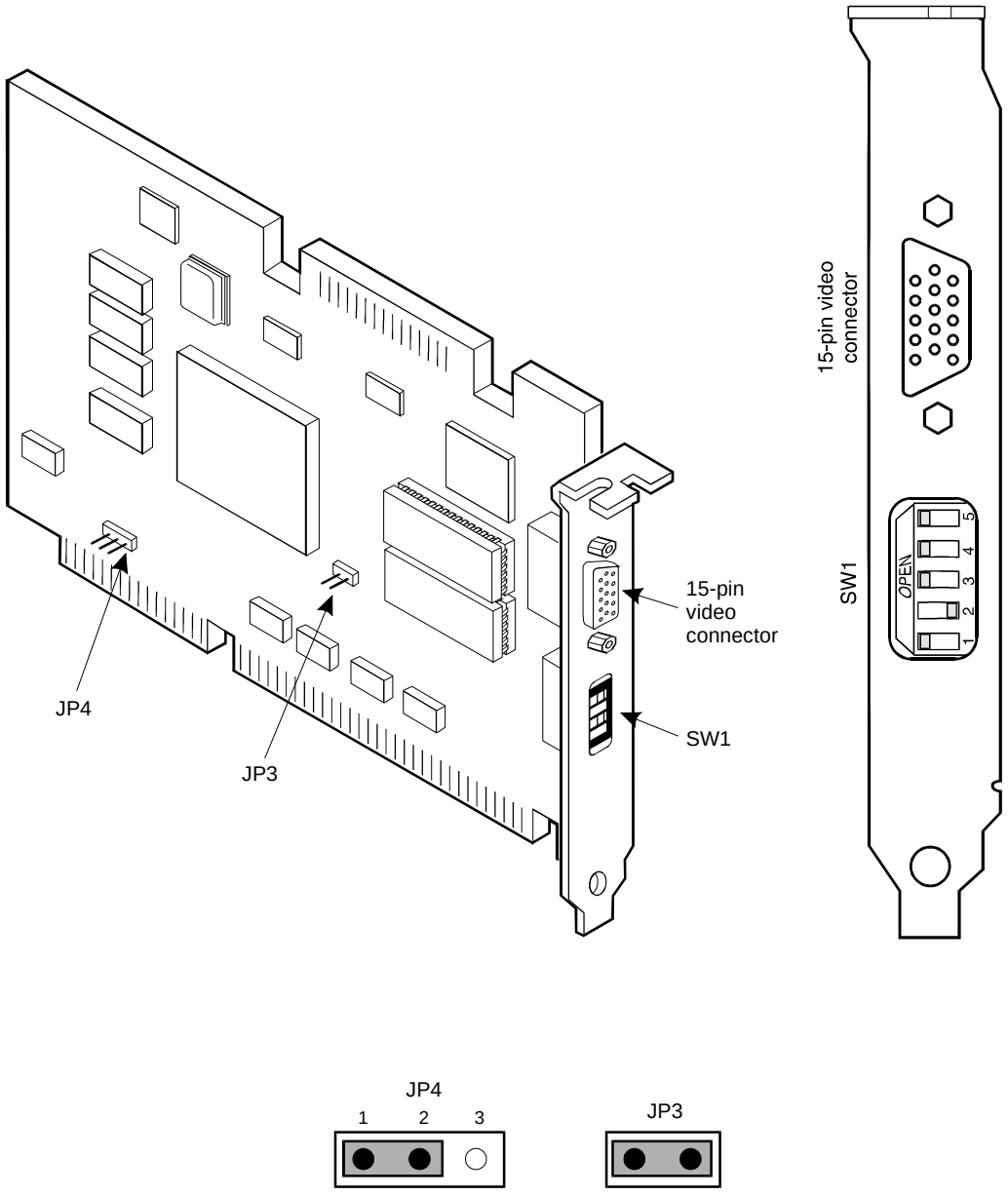


Figure 8-17. Video-Driver Card Switch Settings (Type 3)

Type 4

This section describes how to configure and install the type 4 video-driver card in slot 17.

NOTE:
There are four video-driver card configurations. See Figure 8-15 for type 1, Figure 8-16 for type 2, Figure 8-17 for type 3, and Figure 8-18 for type 4.

The video-driver card switch and jumper settings are factory preconfigured. See Figure 8-18 and check the card configuration before installing it.

The video-driver card[1] (type 4) is configured the same for the VP and PM machines.

Configure the video-driver card (type 4) in slot 17:

1. Set the five-position DIP switch 1 (SW1) to: 0 0 0 0 0
   (the switch is numbered 1 to 5, left to right).
2. Verify that a jumper is installed on JP1 pins 1 and 2.
3. If installed, remove the jumper on JP2.

   NOTE:
   If a graphical speech editor is used, remove this jumper.

4. Install a jumper on JP4 pins 1.
5. Verify that a jumper is installed on JP4 pins 2.
6. If a jumper is installed on JP4 pins 3, remove it.
7. If jumpers are installed on J2, pins 1 to 25, remove them.
8. Install the video-driver card in slot 17.

1. The video-driver card XLR833124 is manufactured by Western Digital Corporation® (AT&T Comcode 407334507).

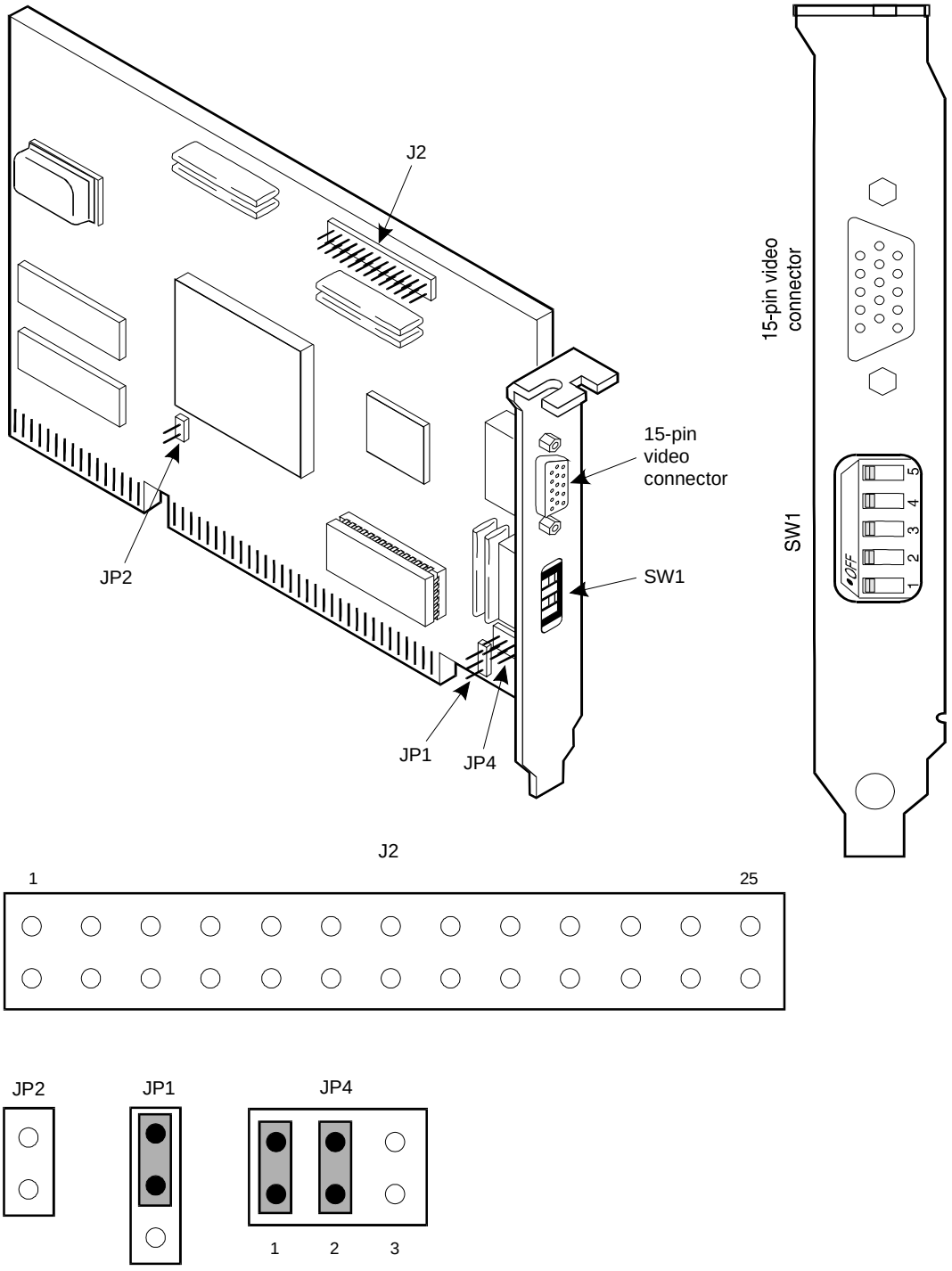


Figure 8-18. Video-Driver Card Switch Settings (Type 4)

Alarm-Relay Card (Slot 18)

This section describes how to configure and install the alarm-relay card in slot 18 of both the VPs and the PMs.

The alarm-relay card[1] switch and jumper settings are factory preconfigured. See Figure 8-19 and verify the card configuration before installing it.

The alarm-relay card is configured the same for all machines.

Configure the alarm-relay card in slot 18:

1. Set the 6-position dip switch 1 (SW1) I/O address to: 111 011 (the switch is numbered 1 to 6).
2. Set the 6-position dip switch 2 (SW2) sanity time-out interval (33 seconds) to: 111 000 (the switch is numbered 1 to 6).
3. Install the following jumpers:
    a. J3 B (sanity timer control latched time-out signal, default setting)
    b. J9 (when jumpered, J9 enables relay 7 to be controlled by the sanity timer, default)
4. If these jumpers are installed, remove them:
    a. J7 (watchdog timer)
    b. J8 (when jumpered and jumper J9 is removed, J8 enables relay 7 to be controlled by bit 7)
5. Install the alarm-relay card in slot 18.

1. The alarm-relay card is manufactured by DDI, Inc. (AT&T Comcode 406901900).

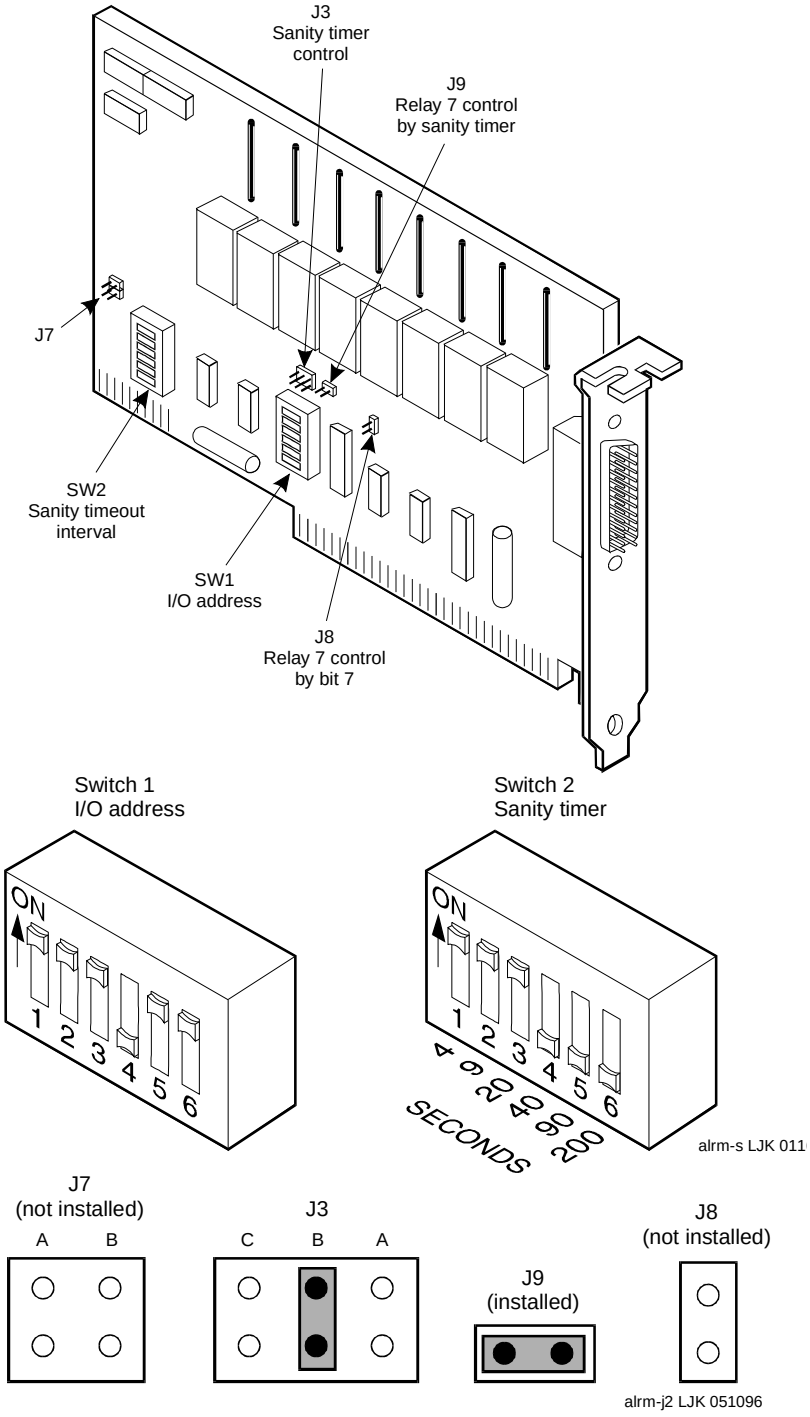


Figure 8-19. Alarm-Relay Card Switch and Jumper Settings

StarLAN 10 Network PC NAU Cards

The next two sections describe how to configure and install the StarLAN 10 Network PC NAU (A and B) cards in slots 19 and 21. The StarLAN 10 network PC NAU cards are used only in the MAP/100C VP machine.

NOTE:
The StarLAN 10 network PC NAU cards in slots 19 and 21 are alike, but are configured differently. The StarLAN 10 network PC NAU card in slot 19 is referred to as the StarLAN A card because it is connected to a LAN A hub in the PM cabinet.

NAU (A) Card (Slot 19)

This section describes how to configure and install the StarLAN 10 Network PC NAU (A) card in slot 19 of the VPs.

When the link-integrity switch is enabled, the physical connection between the StarLAN 10 network PC NAU card and the LAN hub is monitored by the link-status LED on the front of the card.

All VP machines must have a card configured for StarLAN A in slot 19.

See Figure 8-20 and configure the StarLAN A card in slot 19:

1. Configure the I/O address jumper J3 to the default 360-367 address, as shown.
2. Configure the RAM size jumper J5 to the default 16-Kbyte setting, as shown.
3. Configure the RAM address jumper J6 to the default D0000 address, as shown.
4. Configure the IRQ line jumpers J11, J12, and J15 to IRQ 5, as shown.
5. On the card faceplate, set the link-integrity switch to the left to enable it.
6. Install the StarLAN A card in slot 19.

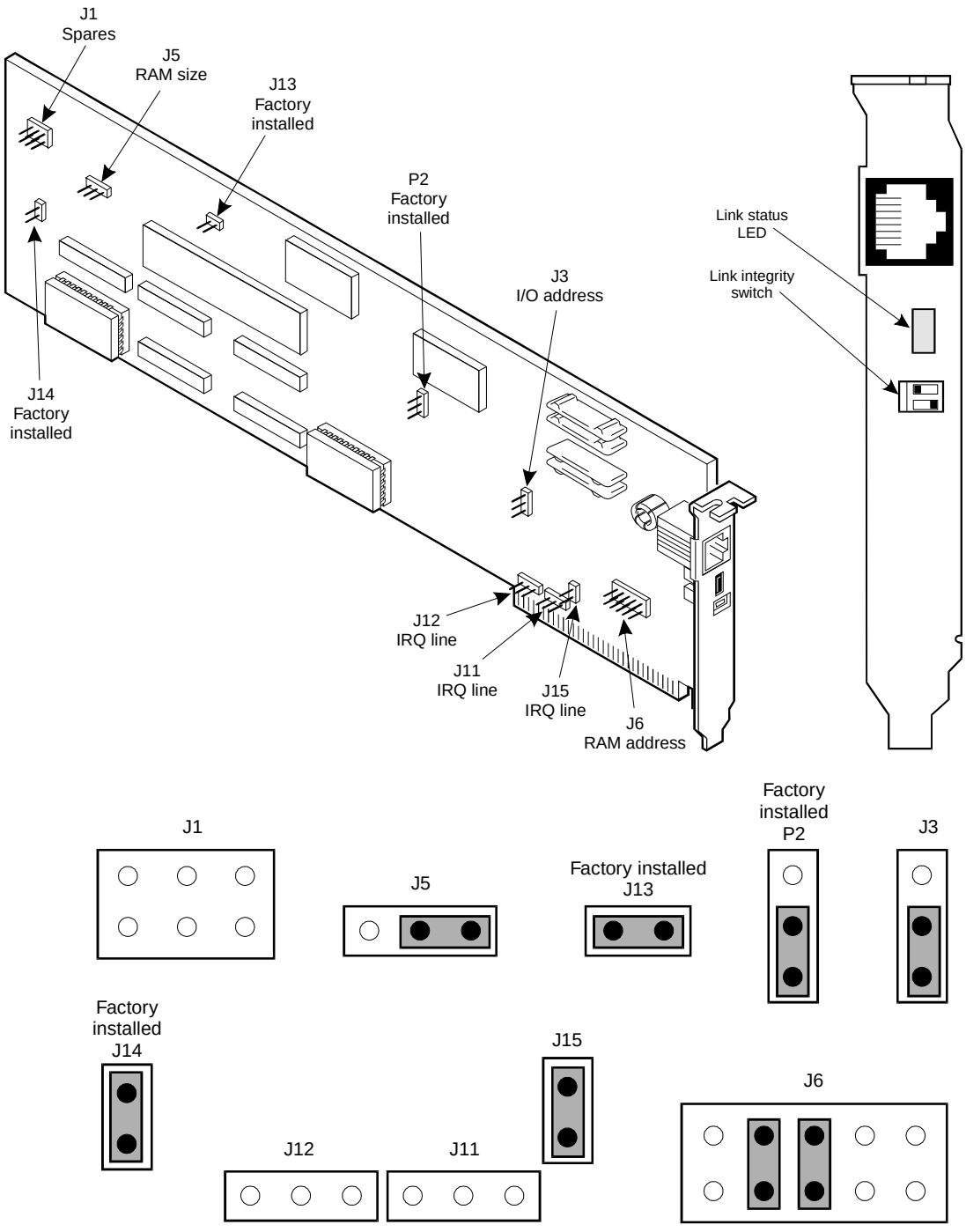


Figure 8-20. StarLAN A Card Jumper Settings

StarLAN NAU (B) Card (Slot 21)

This section describes how to configure and install the StarLAN 10 Network PC NAU (B) card in slot 21 of the VPs.

NOTE:
The StarLAN 10 network PC NAU cards in slots 19 and 21 are the same physical card but are configured differently. The StarLAN 10 network PC NAU card in slot 21 is referred to as the StarLAN B card because it is connected to the LAN B hub in the PM cabinet.

When the link-integrity switch is enabled, the physical connection between the StarLAN 10 network PC NAU card and the LAN hub is monitored by the link-status LED on the front of the card.

All VP machines must have a card configured for StarLAN B in slot 21.

See Figure 8-21 and configure the StarLAN B card in slot 21:

1. Configure the I/O address jumper J3 to address 368-36F, as shown.
2. Configure the RAM size jumper J5 to the default 16-Kbyte setting, as shown.
3. Configure the RAM address jumper J6 to address D8000, as shown.
4. Configure the IRQ line jumpers J11, J12, and J15 to IRQ 7, as shown.
5. On the card faceplate, set the link-integrity switch to the left to enable it.
6. Install the StarLAN B card in slot 21.

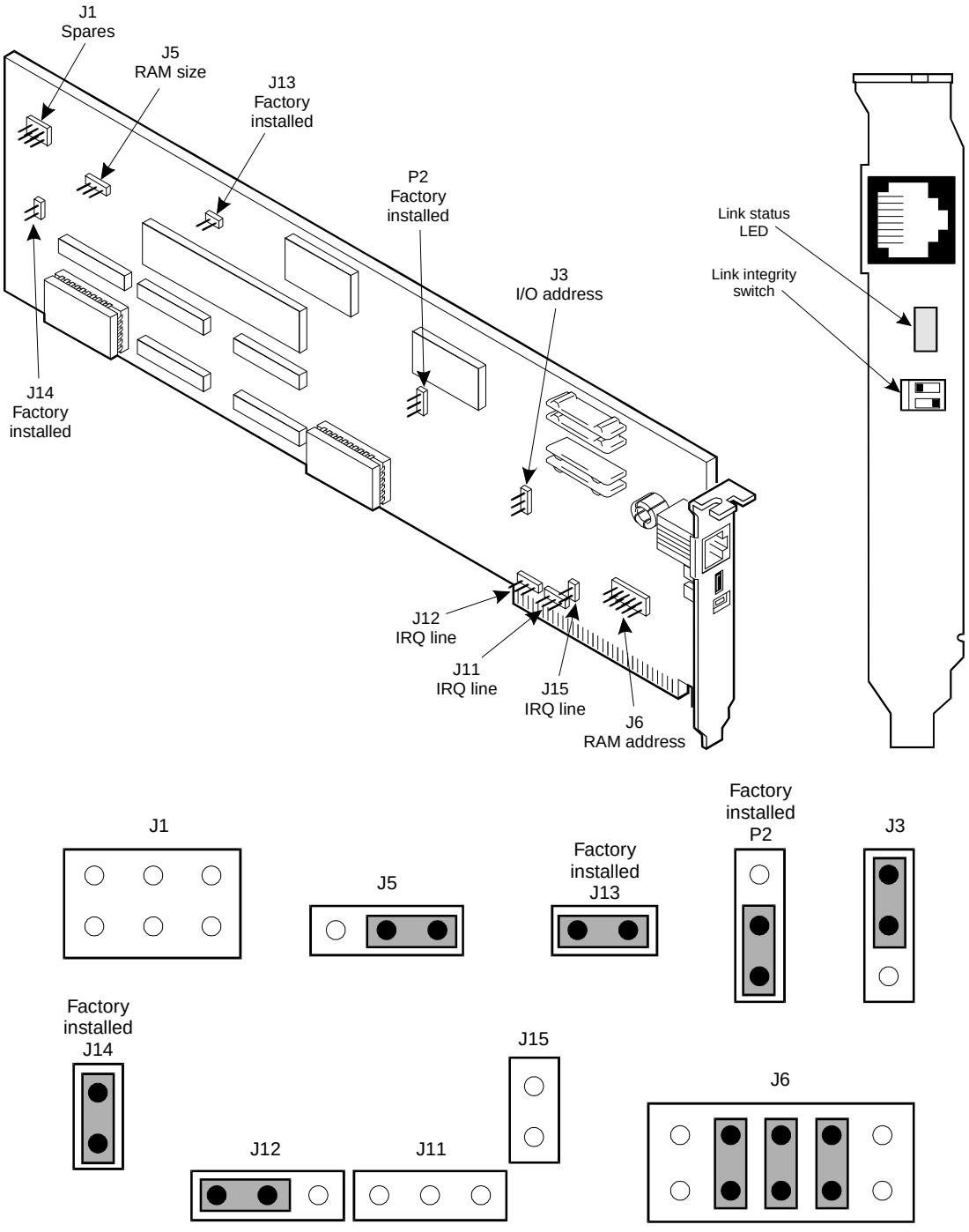


Figure 8-21. StarLAN B Card Jumper Settings

10-Mbps LAN Cards

The next 2 sections describe how to configure and install the 10-Mbps LAN cards, which are used only in the PM machines.

NOTE:
WSN 1.1 uses 2 types of 10-Mbps LAN cards.

- See Figure 8-22 for the SMC 8216C LAN card.
- See Figure 8-23 for the SMC 8416 LAN card.

The LAN cards in slots 20, 21, and 22 of the PM are alike, but are connected to different LANs.

- The LAN card in slot 20 is referred to as the LAN A card because it is connected to a LAN A hub in the PM cabinet.
- The LAN card in slot 21 is referred to as the LAN B card because it is connected to a LAN B hub in the PM cabinet.
- The LAN card in slot 22 is referred to as the LAN C card because it is connected through a router to the AT&T WorldSHARE core server.

Wire LAN cards A and B as 2 separate LANs. LANs A and B provide NAP LAN connectivity. The LAN C cards connect the NAP PM machines and the AT&T WorldSHARE core server through routers over 2 56-Kbps lines (1 line to each PM).

Type 1 (SMC 8216C)

This section describes how to configure and install the SMC 8216C 10-Mbps LAN cards[1] in the PM machines. These cards are Ethernet ISA network cards.

Configuring the Jumper

See Figure 8-22 and configure the 3 LAN cards in slots 20, 21, and 22 of the PMs:

1. Configure jumper W1 to soft-configured firmware, as shown.

   Jumper W1 determines the I/O address, IRQ line, RAM address, and ROM address.

2. Install the LAN A card in slot 20.
3. Install the LAN B card in slot 21.
4. Install the LAN C card in slot 22.

1. The LAN card SMC 8216C is manufactured by SMC, Inc. (Lucent Technologies Comcode 407199538).

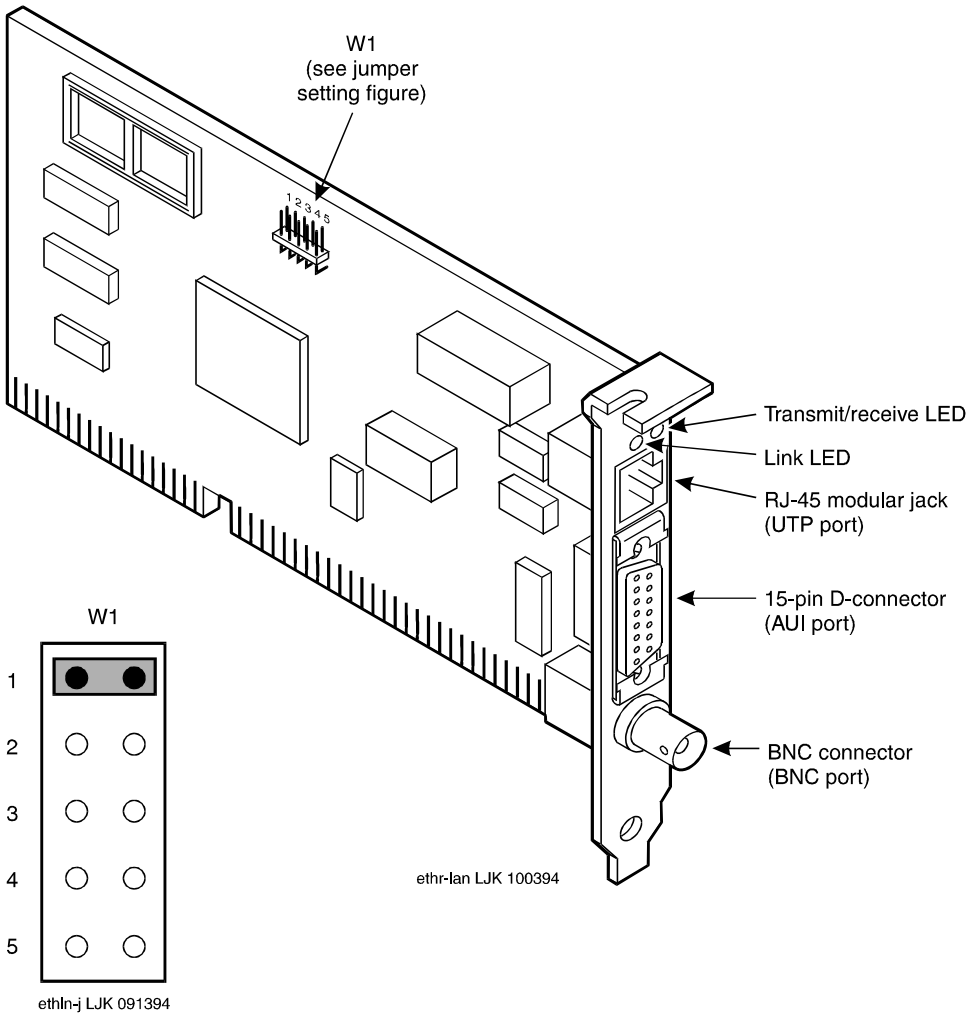


Figure 8-22. SMC 8216C LAN Card and Jumper Setting

Configuring the LAN Cards' Firmware

Configure the firmware for the SMC 8216C LAN cards using the following procedure.

The procedure needs to be performed when:

- The LAN cards are new and have never been configured (for example, when they are shipped from the factory)
- A LAN card has been replaced and the new card needs to be configured

Perform the procedure for each LAN card after performing the CMOS procedure.

The procedure takes about 5 minutes to configure the 3 LAN cards for 1 PM machine.

NOTE:
The physical connection between the LAN card and the LAN hub is monitored by the link LED on the front of the card. The transmit/receive LED indicates when the LAN card is transmitting or receiving data.

Perform the following 4 processes. 3 of the processes configure the LAN cards, and the fourth process checks their settings.

Configure the LAN Card in Slot 20.

1. Enter the command **chgstate down** and power off the PM machine.
2. Remove the LAN B and C cards in slots 21 and 22.

   NOTE:
   If the SMC LAN drivers have not already been installed (see ''Verify the NAP 3.0 Software on the PM'' on page 4-21), insert the EZSETUP DOS boot diskette in the diskette drive.

3. Power up the PM machine.
4. After the boot sequence finishes, enter **ezsetup**

   This screen appears.

```
I/O Base  Address        260
IRQ                      5
RAM Size                 16K
WIN Size                 16K
RAM Base Address         0D0000
Add Wait States          Yes
Network Connection       BNC/10BaseT
Link Integrity           n/a
ROM Size                 Disabled
ROM Base Address         Disabled.
Pnpboot                       n/a
```

5. Make sure the fields match the settings on the screen.
6. Exit the EZSETUP software as directed.

Configure the LAN Card in Slot 21.

1. Power down the machine.
2. Push the LAN B card in slot 21 back into the PM. (Leave the LAN C card out of the machine.)
3. Remove the LAN A card in slot 20.
4. Power up the machine.
5. After the boot sequence finishes, enter **ezsetup**

   This screen appears.

```
I/O Base  Address        280
IRQ                      10
RAM Size                 16K
WIN Size                 16K
RAM Base Address         0D4000
Add Wait States          Yes
Network Connection       BNC/10BaseT
Link Integrity           n/a
ROM Size                 Disabled
ROM Base Address         Disabled.
Pnpboot                       n/a
```

6. Make sure the fields match the settings shown on the screen. These settings differ from the settings on the screen shown in ‘‘Configure the LAN Card in Slot 20’’.

Configure the LAN Card in Slot 22.

1. Power down the machine.
2. Push the LAN C card back into slot 22. (Leave the LAN A card out of the machine.)
3. Remove the LAN B card in slot 21.
4. Power up the machine.
5. After the boot sequence finishes, enter **ezsetup**

This screen appears.

```
I/O Base  Address        2A0
IRQ                      7
RAM Size                 16K
WIN Size                 16K
RAM Base Address         0D8000
Add Wait States          Yes
Network Connection       BNC/10BaseT
Link Integrity           n/a
ROM Size                 Disabled
ROM Base Address         Disabled.
Pnpboot                       n/a
```

6. Make sure the fields match the settings shown on the screen. These settings differ from the settings on the screens shown in ‘‘Configure the LAN Card in Slot 20’’ and ‘‘Configure the LAN Card in Slot 21’’.
7. Exit the EZSETUP software as directed.

Check LAN Card Settings.

1. Power down the machine.
2. Push the LAN A and B cards back into slots 20 and 21.
3. Power up the machine.
4. Display the card settings and make sure they are correct.

   NOTE:
   If you configured the LAN cards’ firmware using the EZSETUP DOS boot diskette, remove the diskette from the diskette drive and keep it with the installation package.

5. Do one of the following:
   - If you have not installed the software, power down the PM machine. Follow the instructions for loading the software from the diskettes. See ‘‘Installing a New Site’’ on page 4-5.
   - If the application has already been loaded to the PM machine, then power up the machine to return it to service.

Type 2 (SMC 8416)

This section describes how to configure and install the SMC 8416 10-Mbps LAN cards[1] in the PM machines. These cards are Ethernet ISA network cards.

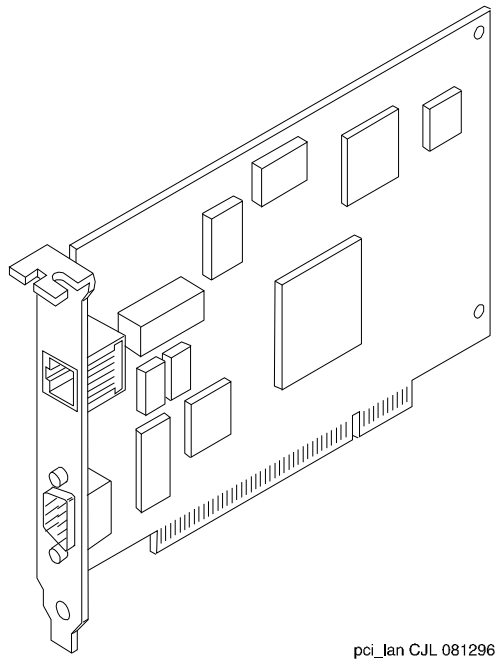


Figure 8-23. SMC 8416 Ethernet LAN Card

There are no jumpers or switches associated with the SMC 8416 LAN card.

Configuring the LAN Cards' Firmware

The following procedure needs to be performed when:

- The LAN cards are new and have never been configured (for example, when they are shipped from the factory)
- A LAN card has been replaced and the new card needs to be configured

1. The LAN card SMC8416 is manufactured by SMC, Inc. (Lucent Technologies Comcode 407592930).

Table 8-3 shows the final firmware administration in the SMC Adapter Setup Program, Version 1.21.

Table 8-3. SMC 8416 LAN Card Firmware Administration

	Board 1	Board 2	Board 3
Board Type	8416BT	8416BT	8416BT
Node Address	unique to card	unique to card	unique to card
I/O Base Address	260	280	2A0
IRQ	5	10	7
RAM Size	8 K	8 K	8 K
WIN Size	8 K	8 K	8 K
RAM Base Address	0D0000	0D4000	0D8000
Add Wait States	Yes	Yes	Yes
Network Connection	AutoDetect	AutoDetect	AutoDetect
Link Integrity	n/a	n/a	n/a
ROM Size	Disabled	Disabled	Disabled
ROM Base Address	Disabled	Disabled	Disabled
Pnpboot	Disabled	Disabled	Disabled

To configure the firmware on the SMC 8416 LAN cards, do the following:

1. Select the 3 SMC8416 LAN cards that are to be used in the PM machine.

   If the 3 LAN cards are already in the PM machine, remove them.
2. Write down the Node Address values printed on each card.
3. Bring the PM machine down and power off.
4. Place the card with the lowest Node Address value in slot 20 (LAN A, Board 1).

   NOTE:
   If the SMC LAN drivers have not already been installed (see ‘‘Verify the NAP 3.0 Software on the PM’’ on page 4-21), insert the SMC8416 Firmware Administration diskette in the diskette drive.
5. Power up the machine.

6. Press ENTER to date prompt and boot up to DOS prompt
7. Enter **ezsetup**
8. Enter **1** to specify the number of the board to be set up.
9. Configure the values to the Board 1 set shown in Table 8-3.
10. Confirm and press **q** to quit the **ezsetup** program.
11. Power off the machine.
12. Remove the LAN A card.
13. Place the card with the next higher Node Address value in slot 21 (LAN B, Board 2).
14. Power up the machine.
15. Press ENTER to date prompt and boot up to DOS prompt.
16. Enter **ezsetup**
17. Enter **2** to specify the number of the board to be set up.
18. Configure the values to the Board 2 set shown in Table 8-3.
19. Confirm and press **q** to quit the **ezsetup** program.
20. Power off the machine.
21. Remove the LAN B card.
22. Place the card with the highest Node Address value in slot 22 (LAN C, Board 3).
23. Power up the machine.
24. Press ENTER to date prompt and boot up to DOS prompt.
25. Enter **ezsetup**
26. Enter **3** to specify the number of the board to be set up.
27. Configure the values to the Board 3 set shown in Table 8-3.
28. Confirm and press **q** to quit the **ezsetup** program.
29. Power off the machine.
30. Reinsert the LAN A card in slot 20 and the LAN B card in slot 21.

    NOTE:
    If you configured the LAN cards' firmware using the SMC8416 Firmware Administration diskette, remove the diskette from the diskette drive and keep it with the installation package.

31. Power up the machine.

This completes the firmware administration procedure.

SCSI Host Adapter Card (Slot 25)

This section describes how to configure and install the SCSI Host Adapter card in slot 25. The SCSI host adapter card[1] is configured in the same way for the VP and PM machines.

See Figure 8-24 and configure the SCSI host adapter card in slot 25:

1. Set the 8-position DIP switch 1 (SW1) to: 1111 1101 (the switch is numbered 1 to 8, left to right).
2. Set the eight-position DIP switch 2 (SW2) to: 1110 0110 (the switch is numbered 1 to 8, left to right).
3. Install terminating resistors on RP6, RP7, and RP8.
4. Install the following jumpers:
    a. W 2 (factory installed)
    b. W 4 (host interrupt channel 14)
    c. W 9 (factory installed)
    d. W 11 (DMA transfer speed used with W 13, host bus transfer rate is 8.0-MB/sec)
    e. W 13 (DMA transfer speed used with W 11, host bus transfer rate is 8.0-MB/sec)
    f. W 15 (enable floppy system controller, default)
    g. W 16 (enable floppy system controller, default)
    h. W 17 (3-pin jumper, pins A and B)(host I/O channel ready enabled, default)
    i. W 19 (reserved for testing)
5. If these jumpers are installed, remove them:
    a. W 3 (host interrupt channel 15)
    b. W 5 (host interrupt channel 12)
    c. W 6 (host interrupt channel 11, default)
    d. W 7 (host interrupt channel 10)
    e. W 8 (host interrupt channel 9)
    f. W 14 (floppy subsystem primary address 3FX, default)
    g. W 18 (reserved)
6. Install the SCSI host adapter card in slot 25.

1. The SCSI host adapter card model BT-542B is manufactured by BusLogic,® Inc. (AT&T Comcode 407021856).

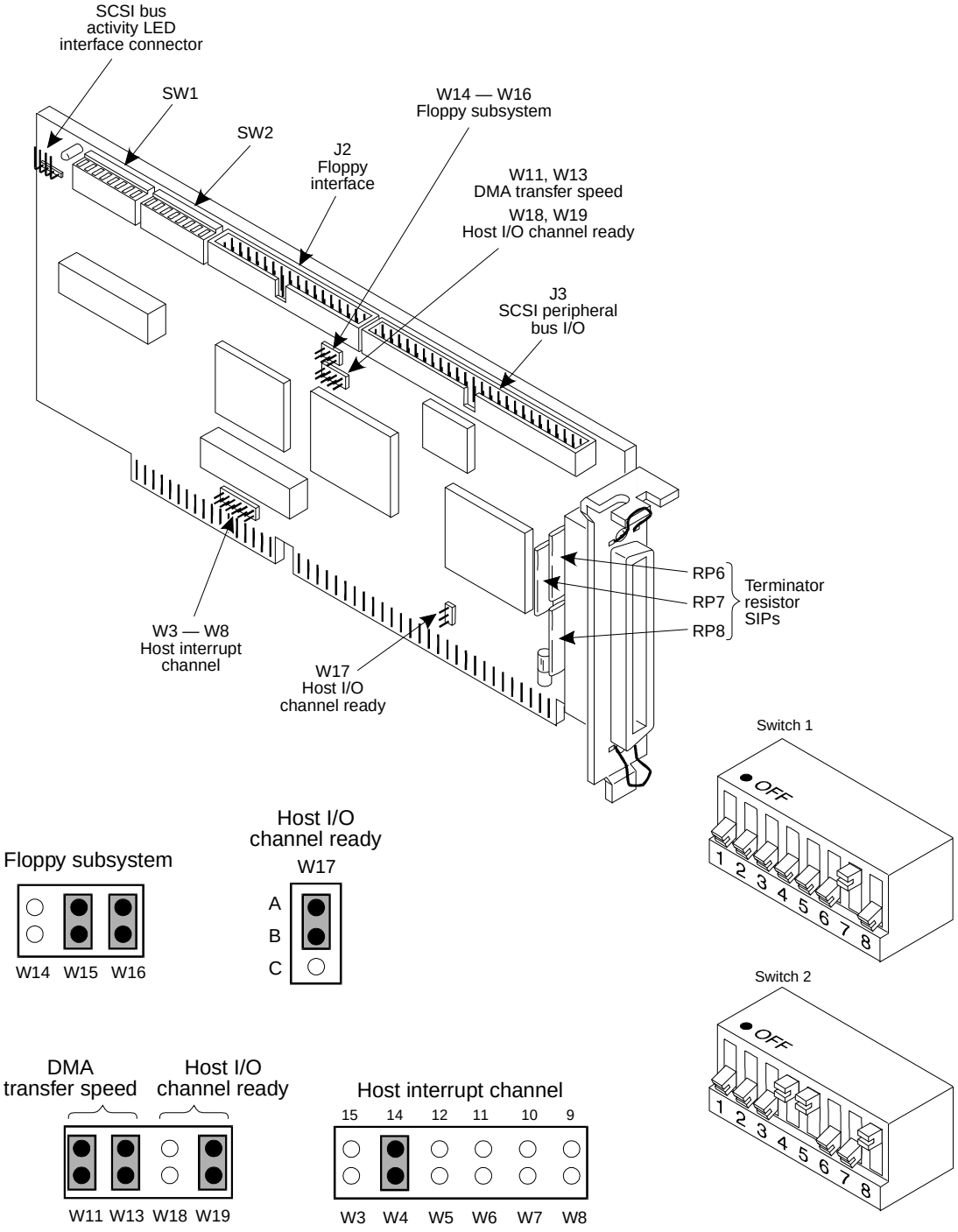


Figure 8-24. SCSI Host Adapter Switch and Jumper Settings

TDM Bus Cable

This section describes how to install the time-division multiplexed (TDM) bus cable.

The TDM bus cable is a 24-wire ribbon cable having fifteen 24-pin connectors embedded in it. Two of these connectors attach the AYC2C signal-processing cards and the AYC11 T1 cards.

NOTE:
Before performing the following steps, verify that you are using the correct TDM cable. The correct cable is beige with red stripes.

Install the TDM bus cable:

1. Verify that terminating resistors are installed on the AYC2C signal-processing card in slot 1. Terminating resistors are located below the TDM bus card connector on the card when it is installed. If terminating resistors are not installed, remove the card. Refer to ‘‘Configuring/Installing Circuit Cards and Modules’’ on page 8-18 to install terminating resistors.
2. Make sure that terminating resistors are *not* installed on any of the circuit cards installed between slot 1 and the last circuit card on the TDM bus. The TDM bus spans slots1 through 15.
3. Verify that terminating resistors are installed on the last circuit card in the TDM bus.
4. With the stripe on the ribbon cable facing down, plug the connectors on the TDM bus cable into the connector on each card from slot 1 to slot 15. The connectors on the cable and the cards are keyed. See Figure 8-25 for an example of an installed TDM bus cable.

   NOTE:
   Problems are often caused by a bad TDM bus cable connection. When installing the TDM bus cable, press each connector firmly into the connector until you hear it snap into place.

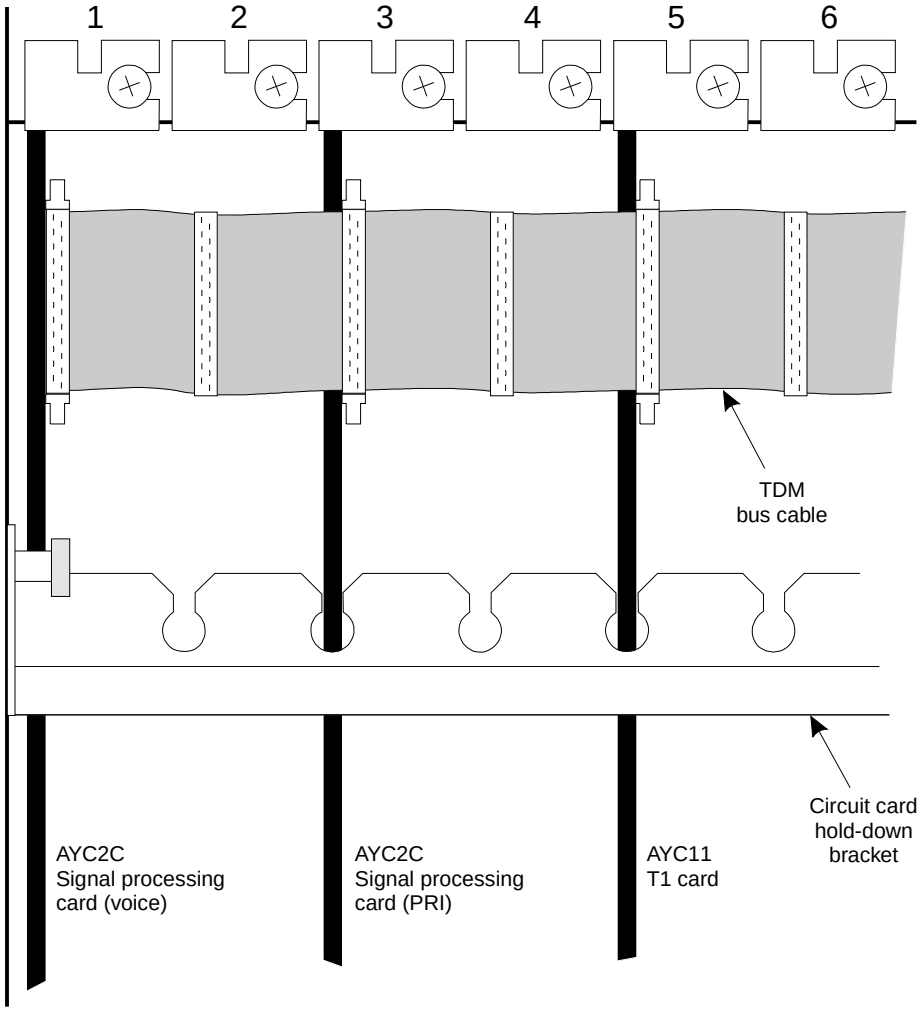


Figure 8-25. TDM Bus Cable on a MAP/100C

2-Gbyte SCSI Hard-Disk Drives

The next 3 sections describe how to configure the 2-Gbyte SCSI hard-disk drives used in the VPs and PMs.

NOTE:
NAP 3.0 uses 3 types of 2-Gbyte hard-disk drives.

- See Figure 8-26 for the IBM® Starfire™ 2-Gbyte hard-disk drive (comcode 407340942).
- See Figure 8-27 for the IBM® Orion™ 2-Gbyte hard-disk drive (comcode 407596857).
- See Figure 8-28 for the Seagate® Medalist Pro™ 2-Gbyte hard drive (comcode 407773555).

Type 1 (IBM Starfire)

This section describes how to configure the IBM Starfire 2-Gbyte SCSI hard-disk drive.

The IBM Starfire hard-disk drive[1] is configured in the same way for the VP and PM machines.

See Figure 8-26 and configure the IBM Starfire hard-disk drive:

1. Install the following jumpers on the option block:
   a. JP 11 to 12 (enables auto start)
   b. JP 13 to 14 (enables active termination)
   c. Use JP 17 to 18 to install the LED cable connector. Connect the black wire to JP17 and the red wire to JP 18.
2. If these jumpers are installed on the option block, remove them:
   a. Pins JP 1 to 2 have been removed by the manufacturer.
   b. JP 3 to 4 (SCSI address)
   c. JP 5 to 6 (SCSI address)
   d. JP 7 to 8 (SCSI address)
   e. JP 10 (reserved)
   f. JP 15 to 16 (master sync/slave sync)
   g. JP 19 to 20 (write protect)
   h. JP 21 to 22 (auto start delay)
   i. JP 23 to 24 (option block, when enabled, affects JP 25 to 32)

1. The Starfire SCSI hard disk drive is manufactured by IBM® Corporation (AT&T Comcode 407340942).

j. JP 25 to 26 (disable target-initiated synchronous negotiation)

k. JP 27 to 28 (disable SCSI parity)

l. JP 29 to 30 (disable unit attention)

m. JP 31 to 32 (customizing option, reserved)

3. If installed, remove the termination power enable jumper from pins 1 and 2 of the power termination block located next to the option block.
4. Install the 2-Gbyte SCSI hard-disk drive in the peripheral-bay shelf.

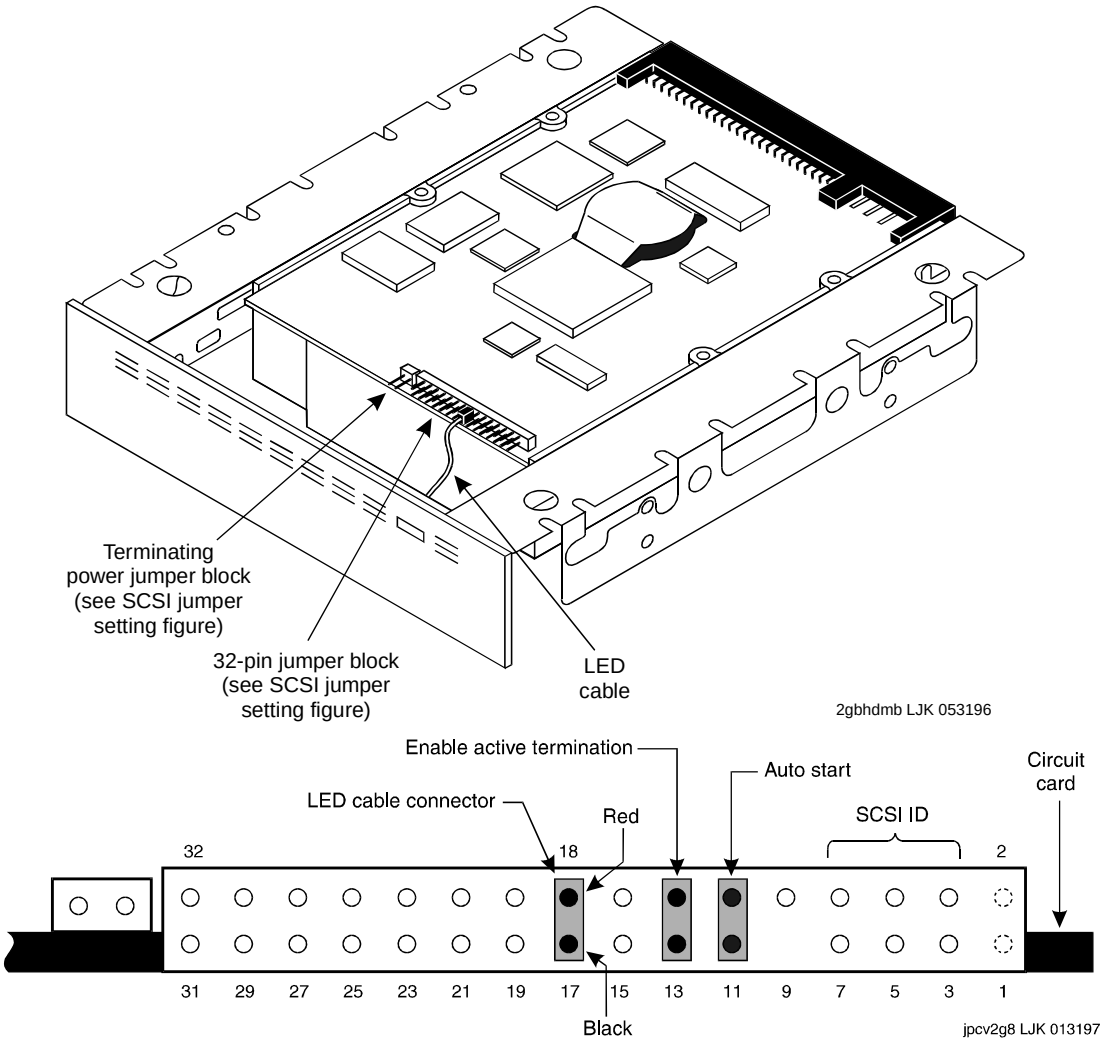


Figure 8-26. IBM Starfire 2-Gbyte SCSI Hard Disk Drive Jumper Settings

5. Perform a low-level format of the hard disk drive:
    a. Insert the diskette labeled Low-Level Format V1.3 into the diskette drive.
    b. Boot the system from the A: drive using the Low-Level Format diskette.
    c. At the A:\> prompt, enter

        debug

        to start this UNIX utility. The system responds by changing the prompt.
    d. Enter **g=c800:6**

        The system responds with a menu. Select 0.
    e. Select option 2 and use TAB key to select the hard-disk drive.
    f. Select option 3 to format the selected hard-disk drive. Formatting the hard-disk drive takes approximately one hour.
    g. Enter **0** when prompted to set your interleave factor.
    h. Enter **Y** to continue when the system warns you about the destructive nature of a low-level format.
    i. Select option 5 to quit the menu.
    j. Remove the Low-Level Format diskette from the diskette drive.
6. If you have an IBM Starfire® hard disk in any of the MAP/100Cs at your site you may need to upgrade the firmware for that drive. Upgrading the drive's firmware takes about 10 minutes per drive.
    a. Obtain the diskette labeled:

        IBM Starfire
        2.0 Gbyte Disk Drive
        (AT&T Comcode 407340942)
        Firmware Upgrade Version "4343".

        Be sure the diskette is write-enabled.
    b. Discontinue traffic to the MAP/100C receiving the upgrade. See ''Removing a Machine from Service'' on page 4-64.
    c. Insert the diskette into the diskette drive.
    d. Press the reset button.
    e. When the machine reboots, look for these messages on the screen:

```
TARGET LUN 0-0 is ATT OHIODFMSS2F                3232
TARGET LUN 0-3 is TANDBERT TDC 4200              =07:
```

        If the firmware is 4343, it is up to date. Go to step k.

        If the firmware is 3232, as in the example above, it is out of date. Go to step f.

f. The machine boots with MS-DOS.

g. When the menu displays, select 1, code update.

h. Observe the following text on the first line:

```
Target=0       Update = YES    Filename = a:\imla24c.bin
```

If your screen does not match the previous line, contact the appropriate support organization.

i. Press **F2** to start the firmware upgrade.

Upgrading takes about 2 minutes.

j. When the upgrade process is complete, press **F3** to exit the menus.

k. Remove the diskette.

l. Reboot the machine by power-cycling the machine.

m. Restore the machine to service following normal procedures. See ‘‘Restoring a Machine to Service’’ on page 4-65.

7. Contact the TCC to reload software and to return the unit to service. Refer to ‘‘Software Installation and Administration Checklists’’ on page 4-4 and select the appropriate installation procedure for VP or PM machine.

Type 2 (IBM Orion)

This section describes how to configure the IBM Orion 2-Gbyte SCSI hard-disk drive.

The IBM Orion hard-disk drive[1] is configured in the same way for the VP and PM machines.

See Figure 8-27 and configure the IBM Orion hard-disk drive:

1. Install the following jumpers on the option block:
    a. JP 6 (enable SCSI terminator)
    b. Use JP 12 to install the LED cable connector. With the circuit-card side facing up, connect the LED cable connector with the red wire on top.
2. If these jumpers are installed on the option block, remove them:
    a. JP 1 (reserved)
    b. JP 2 (DAS2 SCSI device ID bit 3)
    c. JP 3 (DAS1 SCSI device ID bit 2)
    d. JP 4 (DAS1 SCSI device ID bit 1)
    e. JP 5 (disable auto spin up)
    f. JP 7 (disable unit attention)
    g. JP 8 (reserved)
    h. JP 9 (enable auto start delay)
    i. JP 10 (delay start 6/12)
    j. JP 11 (disable SCSI parity check)
3. Install the 2-Gbyte SCSI hard-disk drive in the peripheral-bay shelf.
4. Ask the TCC to reload the software and return the unit to service.

1. The Orion SCSI hard disk drive is manufactured by IBM® Corporation (AT&T Comcode 407596857).

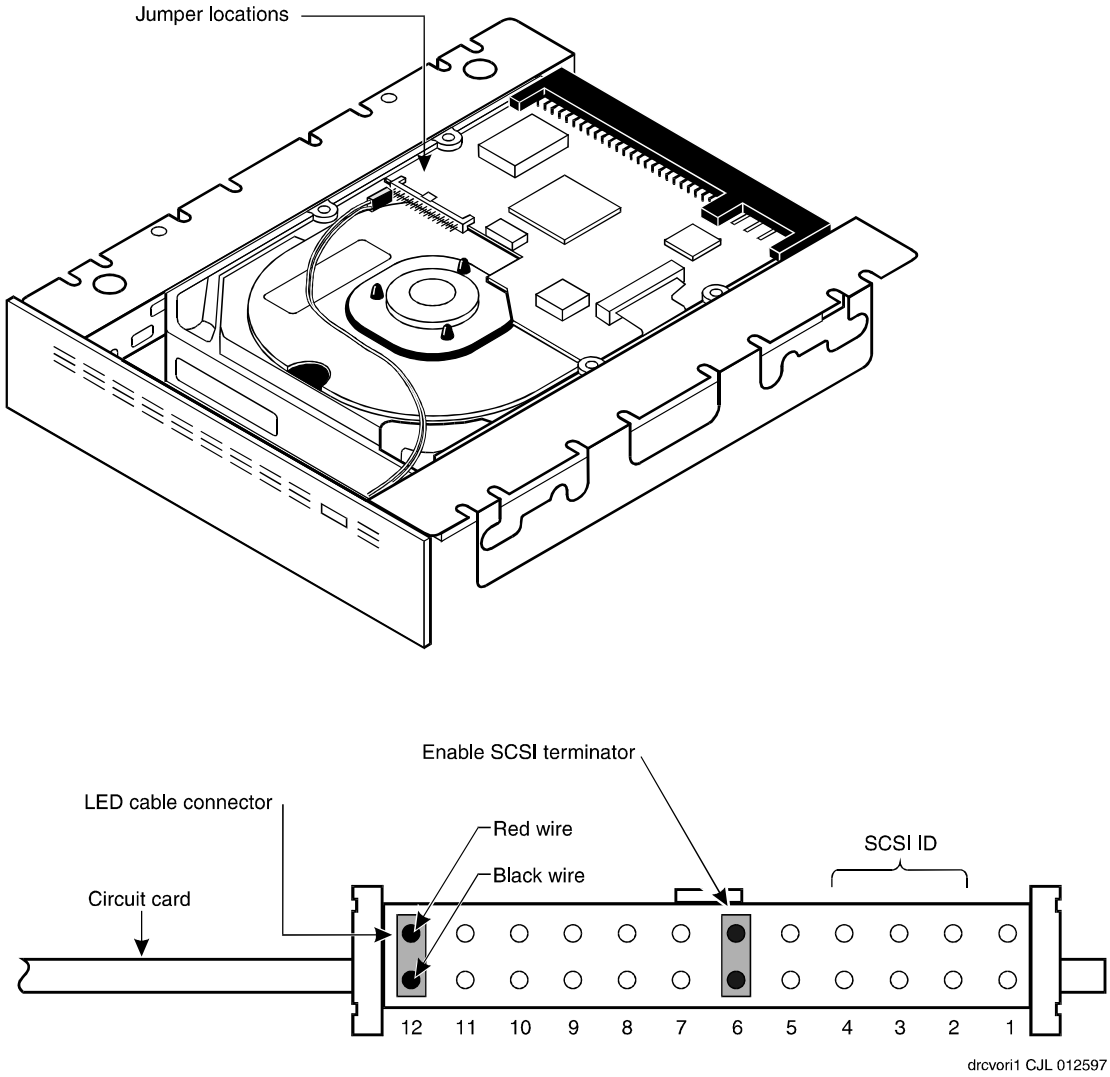


Figure 8-27. IBM Orion 2-Gbyte SCSI Hard Disk Drive Jumper Settings

Type 3 (Seagate Medalist Pro 2160N)

This section describes how to configure the Seagate Medalist Pro 2-Gbyte SCSI hard-disk drive.

The Seagate Medalist Pro hard-disk drive[1] is configured the same way for the VP and PM machines.

See Figure 8-28 and configure the Seagate Medalist Pro hard-disk drive:

1. Install the following jumper on the option block: JP 7 to 8 (enables parity).
2. If these jumpers are installed on the option block, remove them:
    a. JP 1 to 2 (reserved)
    b. JP 3 to 4 (reserved)
    c. JP 5 to 6 (reserved)
    d. JP 9 to 10 (reserved)
    e. JP 11 to 12 (disable motor start)
    f. JP 13 to 14 (no remote LCD connection)
3. Install the Seagate Medalist Pro hard drive in the peripheral-bay shelf.
4. Ask the TCC to reload the software and return the unit to service.

1. The Medalist Pro SCSI hard drive is manufactured by Seagate® Corporation (Comcode 407773555).

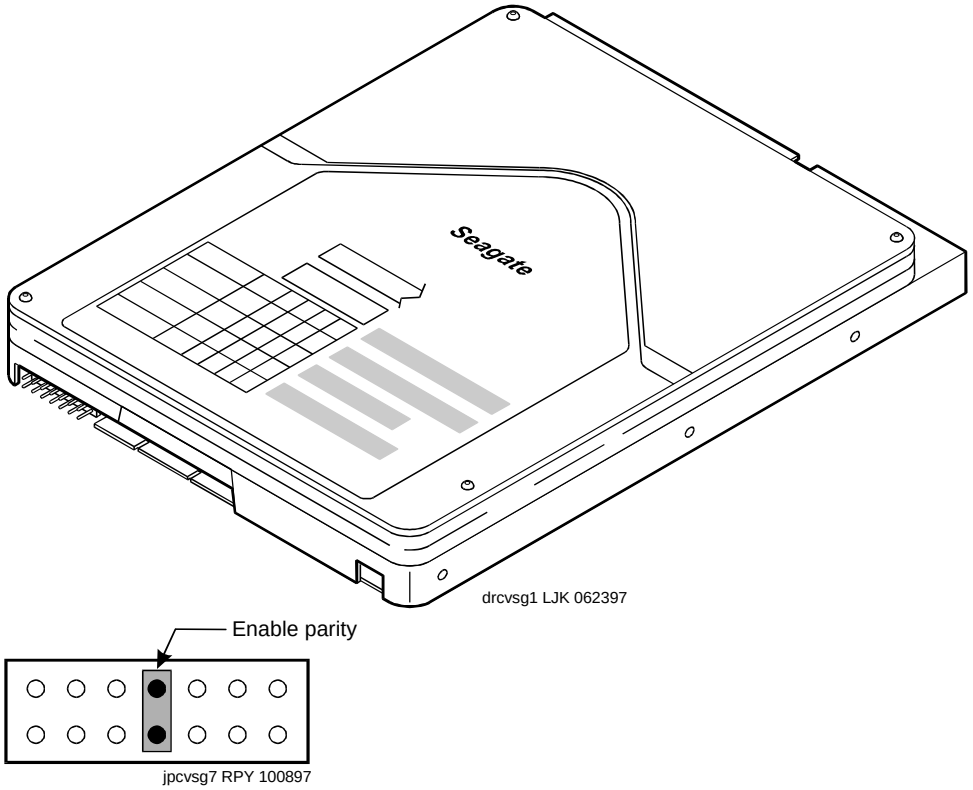


Figure 8-28. Seagate Medalist Pro 2-Gbyte SCSI Hard Drive and Jumper Settings

2.5-Gbyte SCSI Cartridge Tape Drive

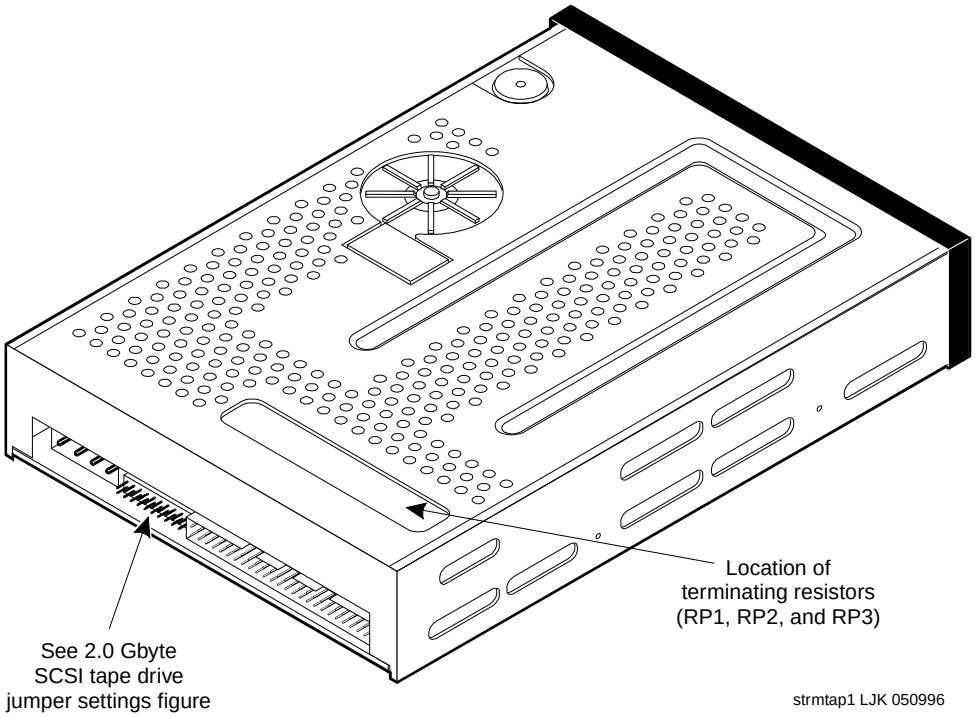
This section describes how to configure the 2.5-Gbyte SCSI cartridge tape drive.

This cartridge tape drive[1] is configured in the same way for the VP and PM machines.

See Figure 8-29 and configure the 2.5-Gbyte SCSI cartridge tape drive:

1. Remove terminating resistors RP1, RP2, and RP3.
2. Install the following jumpers:
    a. Parity
    b. Select 0
    c. Select 1
3. If these jumpers are installed, remove them:
    a. TPWR
    b. Select 2
    c. Test Conn
    d. Test in
    e. Test out
4. Install the 2.5-Gbyte SCSI cartridge tape drive in the peripheral-bay shelf.

1. The SCSI 2.5-Gbyte streaming tape drive is manufactured by Tandberg Data, Inc. (AT&T Comcode 407334507).



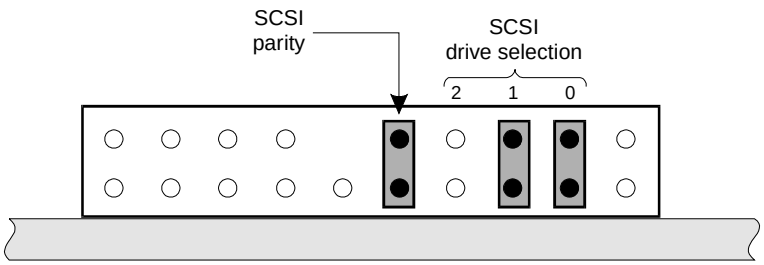


Figure 8-29. 2.5-Gbyte SCSI Cartridge Tape Drive Jumper Settings

Return for Repair Procedure

The NPSC administers the return process. The process involves:

- Requesting a replacement part from the NPSC
- Returning the defective part to the NPSC

Charges

The on-site work force (OSWF) districts will not be responsible for repair charges on the NAP equipment if returned within the warranty period. A defective part, for which the OSWF received a replacement part, must be returned to the NPSC in Little Rock, Arkansas, within 30 calendar days. If not, full price will be charged for that item and the OSWF will be responsible for the charges.

Exchanging a Defective Part during Warranty Period

Requesting a Replacement Part

To request a replacement part for a defective part that is under warranty, follow these steps:

1. Call the NPSC at 800-527-PART to request a defective material return authorization form.
2. Complete the defective material return authorization form, shown in Figure 8-30 on page 8-74. Following the steps in ''Completing the Defective Material Return Authorization Form'' on page 8-73.

   NOTE:
   To request expedited shipment, you must include the organization code for air/overnight shipment charges.

3. Fax the form to the National Parts Sales Center (NPSC) at 800-527-4360 or call 800-222-PART and ask for the CONVERSANT® system representative.

   The NPSC receives the form and ships the replacement part within 24 hours via ground transportation, which is paid by Lucent Technologies.

Returning the Defective Part

Once the replacement part is received, the OSWF must return the defective part to the NPSC.

1. Use the preprinted label provided by the NPSC.

2. Send the defective part in the packing material of the replacement part to:

   NPSC
   7424 Scott Hamilton Drive
   Little Rock, AR 72209

   NOTE:
   The defective part must be returned within 30 days of the date the replacement part was shipped.

Completing the Defective Material Return Authorization Form

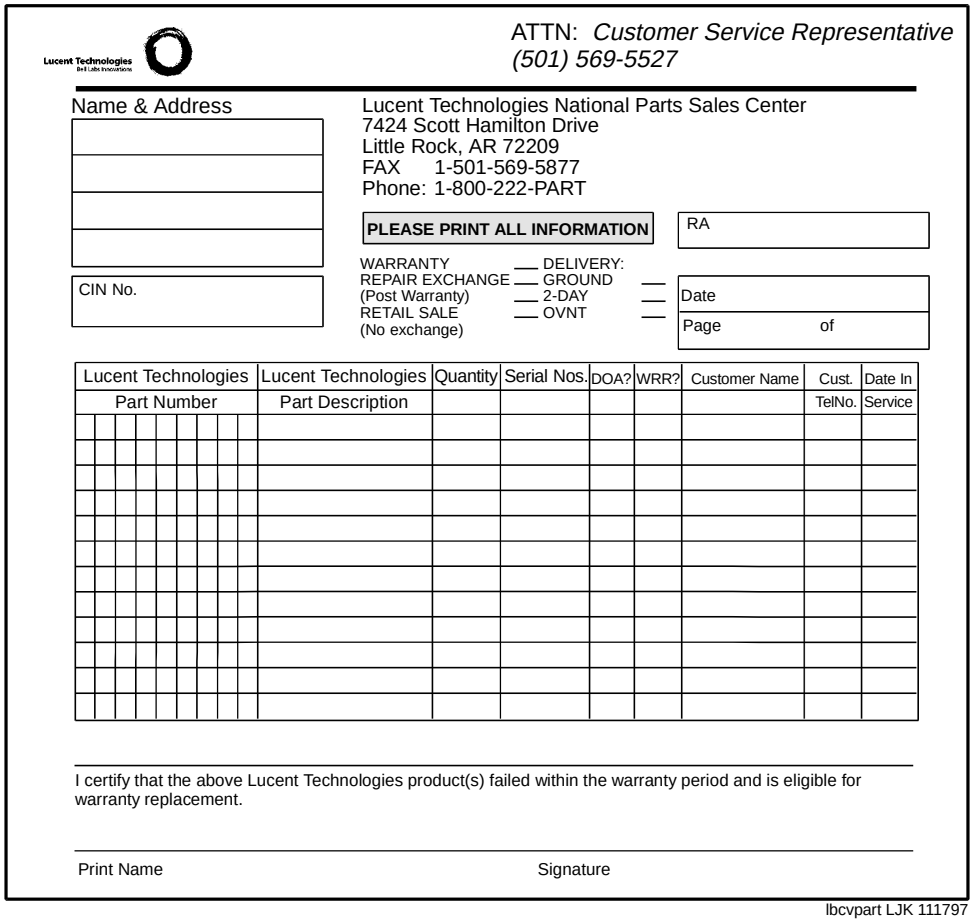
After receiving the defective material return authorization form, the NPSC will fax the form with the return authorization (RA) number back to the on-site work force (OSWF).

The procedure for filling out the form (see Figure 8-30 on page 8-74) is as follows:

1. Provide the name of contact, address, and installed location (IL) in the name and address section. Include a work-site fax number for the NPSC to return a fax with the RA number.
2. Provide the billing unit (BU) number in the customer identification number (CIN) space.
3. Designate what type of transaction is required:
   - WARRANTY
   - REPAIR EXCHANGE (Post Warranty)
   - RETAIL SALE (No Exchange)
4. Indicate the type of delivery required for the replacement part:
   - GROUND
   - 2-DAY
   - OVNT (overnight)

   NOTE:
   To request 2-day or overnight shipment, include the organization code for air/overnight shipment charges.

   The 6-digit RA number will be provided by the NPSC and included on a return confirmation lax.
5. Include the date.
6. Include the comcode (listed in ‘‘NAP Parts Lists’’ on page 8-77) in the part number column.



ATTN: *Customer Service Representative*
(501) 569-5527

Name & Address

Lucent Technologies National Parts Sales Center
7424 Scott Hamilton Drive
Little Rock, AR 72209
FAX 1-501-569-5877
Phone: 1-800-222-PART

PLEASE PRINT ALL INFORMATION

RA

CIN No.

WARRANTY
REPAIR EXCHANGE
(Post Warranty)
RETAIL SALE
(No exchange)

___ DELIVERY:
___ GROUND ___
___ 2-DAY ___
___ OVNT ___

Date

Page of

Lucent Technologies Part Number	Lucent Technologies Part Description	Quantity	Serial Nos.	DOA?	WRR?	Customer Name	Cust. TelNo.	Date In Service

I certify that the above Lucent Technologies product(s) failed within the warranty period and is eligible for warranty replacement.

Print Name Signature

lbcvpart LJK 111797

Figure 8-30. Defective Material Return Authorization Form

Limits on Warranty Returns

The following table provides the conditions placed on returning parts under warranty:

IF...	THEN...
the defective part **is received** with the RA number by the NPSC within 30 days	the transaction is closed (no billing occurs).
the defective part **is not received** by the NPSC within 30 days	the work site is billed the AT&T price for the part.
the defective part **is received** without the RA number	the work site is billed the AT&T price for the part.

NOTE:
The assignment of the RA number is critical in the crediting of return equipment. Include a return fax number on the defective material authorization form for RA number assignment. This 6-digit RA number is assigned, by the NPSC, and must be included with the returned equipment.

Exchanging a Defective Part after Warranty Period

Requesting a Replacement Part

To request a replacement part for a defective part that is not under warranty, follow these steps:

1. Call the NPSC at 800-527-PART to request a defective material return authorization form.
2. Complete the defective material return authorization form, shown in Figure 8-30 on page 8-74. Follow the steps in ''Completing the Defective Material Return Authorization Form'' on page 8-73.
3. Fax the form to the National Parts Sales Center (NPSC) at 800-527-4360 or call 800-222-PART and ask for the CONVERSANT® system representative.

   The NPSC receives the form and ships the replacement part within 24 hours using the transportation method requested by the OSWF on the defective material return authorization form.

Returning the Defective Part

Once the replacement part is received, the OSWF must return the defective part to the NPSC.

1. Use the preprinted label provided by the NPSC.
2. Send the defective part in the packing material of the replacement part to:

   NPSC
   7424 Scott Hamilton Drive
   Little Rock, AR 72209

   NOTE:
   The defective part must be returned within 30 days of the date the replacement part was shipped.

Charges for Replacement Parts

The NPSC bills the customer at the return/exchange price when the replacement part is shipped. The following table describes the restrictions:

IF...	THEN...
the defective part **is received** with the RA number by the NPSC within 30 days	the transaction is closed (no additional billing occurs).
the defective part **is not received** by the NPSC within 30 days	the customer is billed the difference between the repair/exchange price and the full price.
the defective part **is received** without the RA number	the customer is billed the difference between the repair/exchange price and the full price.

NAP Parts Lists

MAP 2000 Cabinet Parts List

Table 8-4. MAP 2000 Cabinet

Comcode	Description
601783822	Fuse Panel
601783806	Alarm Panel
	Communicore
601792583	Backplane
H600-427, G2	Cable, power (lower subrack)
H600-427, G1	Cable, power (upper subrack)
407066554	Cable, Intersubrack
601795362 H600-434 GR6	Cable, PRI T1 module to 258A adapter
H600-428GR1	Cable, PRI T1 module to AYC11 T1 card
107698441	Control 360 module
107314171	Power/ Maintenance module
107314130	PRI T1 module
107314080	Switch module
107314163	Tone-Det module
107314148	Tone-Gen module
	MAP/100C
	Chassis
406833806	Power supply DC/DC -48 V dc
406798215	Power-supply backplane
406548719	25-slot circuit-card backplane
406783407	Front I/O interface panel w/ LEDs
406783431	Rear I/O interface panel
406693812	Peripheral-bay fan

Continued on next page

Table 8-4. MAP 2000 Cabinet — *Continued*

Comcode	Description
406947333	Card-cage fan
406690818	Peripheral-bay fan filter
406690834	Card-cage fan filter
406690826	Power-supply fan filter
407005255	CPU/RMB keyboard adapter
407023431	Drive-bay power-distribution board W/RMB
	Peripheral devices
406832584	3.5-inch diskette drive, 1.44-MB
407340942	Hard-disk drive, (type 1 IBM Starfire) 2.0-GB SCSI 2
407596857	Hard-disk drive, (type 2 IBM Orion) 2.0-GB SCSI 2
407773555	Hard-disk drive, (type 3 Seagate Medalist Pro) 2.0-GB SCSI 2
406827261	3.5-inch hard-disk universal bracket kit
407334507	Cartridge tape drive 2.5-GB SCSI 2
	Circuit cards
106439839	AYC2C SP card
106406572	AYC9 SP (text-to-speech) card
106406598 601413172	AYC11 TI card AYC11 Kit w/ TDM cable
407019306	486DXC/50-16 CPU release 1 card w/o 16-MB memory
407300342	486DXC/50-16 CPU release 2 card w/o 16-MB memory
407244094	16-MB SIMM
407530013	Video-driver card
407334507	Video-driver card
407095835	Video-driver card
406901884	Video-driver card
406901900	Alarm-relay card
406817999 or 106260409	StarLAN 10 Network PC NAU card

Continued on next page

Table 8-4. MAP 2000 Cabinet — *Continued*

Comcode	Description
407021856	SCSI host-adapter card
	Cables
601412927 ED5P208-30 G7B	TDM-bus cable
ED5P208-30 G29	Keyboard cable, 10-inch
ED5P208-30 G31	Remote maintenance board (RMB) reset cable
ED5P208-30 G32	Internal fan-status cable
407023464	Fan-status discrete wire cable
601834849	PRI to T1 cable
406920504	SCSI-bus cable

Provisioning and Maintenance (PM) Cabinet Parts List

Table 8-5. Provisioning and Maintenance (PM) Cabinet

Comcode	Description
601783830	Fuse Panel
601783814	Alarm Panel
	LANs
407375294	LattisHub 10BASE-T workgroup concentrator Model 2814 (Requires mounting shelf, comcode 847662921, used only in 5ESS cabinets mfg after 1/1/96).
106260433 or 106440936	StarLAN 10 Network SmartHUB Model B (Requires mounting shelf, comcode 847481348 in 5ESS cabinets. Used in 4ESS frames and 5ESS cabinets manufactured before 1/1/96).
407314731	Power strip
	Cables
H600-434 G7	Hub-to-PM00 and -PM01
	MAP/100C PM
	Chassis
406833806	Power supply DC/DC -48 V dc
406798215	Power-supply backplane
406548719	25-slot circuit-card backplane
406783407	Front I/O interface panel w/ LEDs
406783431	Rear I/O interface panel
406693812	Peripheral-bay fan
406947333	Card-cage fan
406690818	Peripheral-bay fan filter
406690834	Card-cage fan filter
406690826	Power-supply fan filter
407005255	CPU/RMB keyboard adapter
407023431	Drive-bay power-distribution board W/RMB

Continued on next page

Table 8-5. Provisioning and Maintenance (PM) Cabinet — *Continued*

Comcode	Description
	Peripheral devices
406832584	3.5-inch diskette drive, 1.44-MB
407340942	Hard-disk drive, type 1 (IBM Starfire) 2.0-GB SCSI 2
407596857	Hard-disk drive, (type 2 IBM Orion) 2.0-GB SCSI 2
407773555	Hard-disk drive, (type 3 Seagate Medalist Pro) 2.0-GB SCSI 2
406827261	3.5-inch hard-disk universal bracket kit
407334507	Cartridge tape drive 2.5-GB SCSI 2
	Circuit cards
601358765	HS386 Datakit card
407019306	486DXC/50-16 CPU release 1 card w/o 16-MB memory
407300342	486DXC/50-16 CPU release 2 card w/o 16-MB memory
407244094	16-MB SIMM
407530013	Video-driver card
407334507	Video-driver card
407095835	Video-driver card
406901884	Video-driver card
406901900	Alarm-relay card
407199538	SMC 8216C LAN card
407592930	SMC 8416 LAN card
407021856	SCSI host-adapter card
	Cables
ED5P208-30 G29	Keyboard cable, 10 inch
ED5P208-30 G31	Remote maintenance board (RMB) reset cable
ED5P208-30 G32	Internal fan-status cable
407023464	Fan-status discrete wire cable
406920504	SCSI-bus cable

Installing WSN Release 1.1

A

What's in This Appendix?

Use the procedures in this appendix to:

- Install a new NAP 3.0/WSN release 1.1
- Upgrade to a new version of NAP3.0/WSN release 1.1

This appendix contains procedures to which the checklists in Chapter 4 refer you.

WSN 1.1 Installation Checklist

This checklist consists of individual steps and references to procedures in this appendix and in Chapter 4. Copy the checklist so that you can reference the procedures easily.

Use this checklist to install WSN 1.1 at an existing site.

Checklist: Installing WSN 1.1 at an Existing Site

- ❒ 1. Perform ‘‘Save the CMF Administration Data’’ on page A-4.
- ❒ 2. Perform ‘‘Create Image Backups with the snapshot Command’’ on page A-4.
- ❒ 3. *If you are upgrading from a previous version of WSN 1.1*, perform ‘‘Manually Shutting Down the Site’’ on page A-5.

  In this procedure, you will make all machines inactive and shut down application software.
- ❒ 4. Perform ‘‘Installing the NAP 3.0 / WSN 1.1 Software Upgrade’’ on page A-8.
- ❒ 5. Perform ‘‘Check the Machine Names’’ on page A-9.
- ❒ 6. Perform ‘‘Administer Logins’’ on page A-10.
- ❒ 7. Perform ‘‘Test the Datakit Interfaces’’ on page A-11.
- ❒ 8. Perform ‘‘Site- and Machine-Specific Administration (TCC)’’ on page A-12.
- ❒ 9. Perform ‘‘Postinstallation Site Administration and Acceptance Testing’’ on page A-19.

  In this procedure, you start application and system software, perform a LAN communications check, restore traffic, and validate NCMF reports.
- ❒ 10. If you upgraded the WSN software using SCANS, perform ‘‘Committing to WSN Release 1.1’’ on page A-23.

(end of checklist)

NOTE:
If necessary, you can back out of the patched version of WSN 1.1 to either of these 2 states:

- You can roll back to the previous version of WSN 1.1 by restoring WSN 1.1 image tapes created before installing a patched version of WSN 1.1
- You can remove WSN 1.1 so that only NAP 3.0 remains on the machines.

For these procedures, refer to ‘‘Rolling Back an WSN Release’’ on page A-24.

Save the CMF Administration Data

Save the CMF administration data:

1. From pm00, enter

   backadm

2. From pm00, enter

   backtape

3. When you are prompted, insert a blank tape in the pm00 tape drive and press ENTER.
4. When the system prompt returns, remove and label the tape.

Create Image Backups with the snapshot Command

Use this procedure to create an image tape of your existing WSN installation.

NOTE:
Use the last image tape you made if you want to remove the current version of WSN 1.1 and revert to the previous WSN 1.1

For this procedure you need:

- 1 2.0-Gb tape for a VP
- 1 2.0-Gb tape for a PM
- 1 diskette labeled “Network Adjunct Platform NAP 3.0-VP Recovery Boot Floppy”
- 3 diskettes labeled “Network Adjunct Platform (NAP) 3.1 Boot Floppy” (for PM)

  NOTE:
  The UnixWare operating system — which normally runs on a NAP 3.1 hardware configuration — runs on a NAP 3.0 PM hardware configuration for the WSN application.

.Refer to ‘‘Making an Application IMAGE Tape’’:

- ‘‘For a VP’’ on page 4-70
- ‘‘For a PM’’ on page 4-70

Manually Shutting Down the Site

Take Site out of Service

Follow this procedure *only* if you are upgrading to a patched version of WSN 1.1.

When planning to shut down the site, consider these factors:

- The site will be out of service.
- Estimated shutdown time is 30 minutes.

Perform these steps:

1. Perform the steps in ‘‘Gracefully Removing a VP from Service’’ on page 4-64.
2. After all traffic has dropped off, put D-channels into a **moos** state.
3. From the TCC, log in to Datakit and the site pm00 machine. Enter

   dkcu *<dkdial_string>*
4. At the `login` prompt enter your user login.
5. At the `password` prompt, enter the password for your user login.
6. At the `term =` prompt, enter the terminal type (for example, **xterm** or **630**).
7. At the prompt, enter

   su - root
8. At the `password` prompt, enter the site-specific root password for pm00.
9. At the `term =` prompt, enter the terminal type (for example, **xterm** or **630**).
10. Check the LAN connection from the LAN hubs to the LAN cards. Enter

    comcheck

The following screen displays:

```
================================================
|     Message Level Communications Check       |
================================================
          -------LAN A------    -------LAN B------
          MESSAGE   MESSAGE     MESSAGE   MESSAGE
MACHINE   SENT      REPLY       SENT      REPLY
--------  --------  --------    --------  --------
vp00      10:02:01  10:02:01    10:02:01  10:02:01
vp01      10:02:01  10:02:01    10:02:01  10:02:01
pm00      10:02:01  10:02:01    10:02:01  10:02:01
pm01      10:02:01  10:02:01    10:02:01  10:02:01
```

Make all Machines Inactive

1. Make all machines inactive, including pm00.
2. At the command line, enter

   machadm -u *<mach_id>*

   where ***<mach_id>*** is the machine ID of the machine you want to make inactive.

   For example, enter the following commands:

   machadm -u vp00
   machadm -u vp01
   machadm -u pm00
   machadm -u pm01

3. Confirm that all machines are inactive. Enter

   comcheck

   A screen like this one displays:

```
================================================
|     Message Level Communications Check       |
================================================
          -------LAN A------    -------LAN B------
          MESSAGE   MESSAGE     MESSAGE   MESSAGE
MACHINE   SENT      REPLY       SENT      REPLY
--------  --------  --------    --------  --------
```

Machines don’t show up on this table when they are out of service.

Shut Down Application Software

Perform the following steps when upgrading your site:

1. After all channels are down, bring down the VPs. From pm00, enter the following commands for the VP machines. Enter

   chgstate -m vp00 off
   chgstate -m vp01 off

2. Shut down the application software on the PMs. From pm00, enter the following commands (making sure to shut down pm01 first, then pm00):

   chgstate -m pm01 off
   chgstate -m pm00 off

   Your prompt is returned after the command completes.

   This is the end of this procedure.

This completes the manual shutdown of the site.

Installing the NAP 3.0 / WSN 1.1 Software Upgrade

Use the following procedures to upgrade software.

To upgrade to a new version of NAP 3.0/WSN 1.1:

- Perform software upgrades
- Administer logins
- Perform site- and machine-specific administration (TCC)
- If you upgraded the WSN 1.1 software using SCANS, activate the WSN software

Consider these factors before performing these procedures:

- The site will be out of service with all VPs and PMs inactive.
- Estimated installation time is 8 hours.
- The best time to install is during a 12-hour maintenance window.

The following procedures install the NAP 3.0/WSN 1.1 software on each PM and VP.

If the NAP 3.0 software is already loaded, go to ‘‘Installing the WSN 1.1 Software’’ on page A-14.

Install NAP 3.0/WSN 1.1 on the PMs

Use this procedure to install the NAP3.0/WSN release 1.1 software on a PM. In this procedure you first power cycle the PM then load the NAP 3.0/WSN 1.1 PM image tape.

Perform the entire procedure for the primary PM. Then repeat the entire procedure for the secondary PM.

1. On the console, log in as **root**.
2. Shut down the system software. Enter

   chgstate -m *<mach_id>* down

   where ***<mach_id>*** is the PM on which you want to install software.
3. When you see the “reboot” prompt, go to step 2 of ‘‘Installing the PM Software’’ on page 4-33.

Install NAP 3.0/WSN 1.1 on the VPs

Use this procedure to install the NAP3.0/WSN release 1.1 software on a VP. In this procedure you first power cycle the VP then load the NAP 3.0/WSN 1.1 VP image tape.

1. On the console, log in as **root**.
2. Shut down the system software. Enter

   chgstate -m *<mach_id>* down

   where ***<mach_id>*** is the VP on which you want to install software.
3. When you see the “reboot” prompt, go to step 2 of ‘‘Installing the VP Software’’ on page 4-26.

Check the Machine Names

The machine names, or *unames*, for the PMs are pm00 and pm01.

1. On the primary PM machine, log in as **root** and enter

   machadm

   The machine table appears.
2. If necessary, administer the table *to match exactly* the one specified by WSN.

   Refer to the following machine table.

```
================================================================
|                        Machine Table                         |
================================================================
Machine  Uname    Machine Machine   Admin  B-LAN Prefix/ Remote
Index             Type    Instance        Suffix/None
---      -------- --      --        -      -             -
001      pm00     pm      00        N      S             N
002      pm01     pm      01        N      S             N
003      vp00     vp      00        N      S             N
004      vp01     vp      01        N      S             N
```

NOTE:
This machine table administration is defined by WSN and *must match exactly* in order for WSN to be uploaded onto the system via SCANS, then be installed by the TCC.

3. To exit, enter **q**

Administer Logins

NOTE:
Before performing this procedure, NAP 3.0/WSN 1.1 must be installed on the VP and both PMs.

Administer the appropriate logins for the TCC, PMO, NESAC, and OSWF:

1. Log in as **root** on each machine for which you want to administer logins.
2. To allow the TCC to gain access, administer a restricted root ID on each machine. Enter

   addruser *<login id> <login_name> 2*

   where ***<login id>*** is 8 characters or fewer.

   <login_name> is the user's name, in quotation marks (“”), 25 characters or fewer.

   This ID is shared by all users for restricted root access.

   Enter the information and password provided by the TCC adjunct group.
3. Administer the number of *restricted shell login IDs* necessary by using the **addruser** command on all PM machines. Enter

   addruser *<login_id> <login_name>* 1

   This administration provides everyone (OSWF, TCC, NESAC, PMO) with restricted-user access. Restricted-user access lets the user log in to the system. The **su** command enables the user to log in as either root or as the restricted root user.
4. As **root**, use the UNIX **passwd** command on each machine. Enter

   passwd -x -1 *<restricted_root_ID>*

   This turns off password aging on the Restricted Root ID just added to the system.
5. As **root**, enter the following commands on each machine:

   passwd *password*

   where ***password*** is the standard root password provided by the TCC adjunct group, and

   passwd -x -1 root

This turns off password aging on the root password just entered.

Test the Datakit Interfaces

Test the Datakit interface on each PM machine.

From the PM system console, use the Datakit command. Enter

dkcu <*dkdial_string*>

where ***dkdial_string*** is the dial string to the other PM. (This value is always the host name with an **.SCCS** suffix, for example, **frhipm0.sccs**.)

If you get a login prompt, the Datakit interface to the PM is working.

To terminate the dkcu connection, enter the Datakit notation:

~. (tilde dot)

CAUTION:
Be sure to call the TCC after completing this step, because they must complete the rest of this procedure before you can continue with the next procedure.

Site- and Machine-Specific Administration (TCC)

TCC personnel will log in as **root** or as a restricted user on the primary PM machine and perform the following site- and machine-specific administration:

1. Administer the Site CLLI (common language location identifier) Code. On the primary PM machine, enter

   clliadm

2. Administer the appropriate machine instance value, which matches the primary PM machine. On the primary PM machine, enter

   primadm

3. Activate all machines at the site and bring the channels into service by using the **siteadm** command. Enter

   siteadm -a vp00 pm00 pm01
   siteadm -a vp00 pm00 pm01

   NOTE:
   The second invocation of **siteadm** brings the channels into service.

4. After all of the machines have been administered to `Admin=Y` in the machine table, check TCP/IP connectivity between all machines. Enter

   lancheck

   Find and fix all LAN problems at this time. Refer to the appropriate steps in the “PM-to-VP LAN Connectivity Symptoms and Solutions” on page 6-24.

5. Check message-level connectivity. Enter

   comcheck

6. On the primary PM machine, enter

   machadm

   Select the `Synchronize Machine Table` option. This option forces all machine table administration to be regenerated on all machines, fixing any omissions due to LAN problems.

7. On the primary PM machine, enter

   clliadm -r

   The **-r** option forces all site CLLI code administration to be regenerated on all machines, fixing any omissions due to LAN problems.

8. On the primary PM machine, enter

   primadm -r

   The **-r** option forces all primary PM value administration to be regenerated on all machines, fixing any omissions due to LAN problems.

9. Enter **s24adm**

   Administer its value to be the value specified by the TCC. It is usually left at the default value of 0 for midnight.

10. Perform machine-specific administration. For each machine, enter

    ficadm -m *<mach_id>*

    Administer the value provided by the TCC.

    CAUTION:
    *Do not run the **cleiadm**, **rcardadm**, **ds1adm**, or **rds1adm** administration commands at this time. The applications install these translations when they install their software. If you change the administration, the applications WILL NOT install their custom translations. They install only over the default administration provided on the NAP 3.0 IMAGE tape.*

11. On pm00, enter

    clockadm -v co/denvnc3/dtccsun1.clock

    This argument is the Datakit address of the time server. This address is available from the TCC adjunct group.

12. Synchronize all the clocks at the site. On pm00, enter

    csynch -f

Installing the WSN 1.1 Software

Use the following procedures to install the WSN software on the VPs and PMs.

NOTE:
The NAP 3.0 software must be installed on the VP and PM machines. If it isn't, see ''Install NAP 3.0/WSN 1.1 on the PMs'' on page A-8 and ''Install NAP 3.0/WSN 1.1 on the VPs'' on page A-9.

You must have 1 combined tape with

- WSN 1.1 VP application image
- WSN 1.1 PM application image

The tape is labeled "WSN 1.1 Application Software."

Perform these procedures once for each machine: vp00, vp01, pm00, and pm01.

If you are upgrading from IETS release 1.0 (the previous release of WSN) or a previous version of WSN 1.1, start with step 1. If you are installing WSN for the first time, start with step 5.

1. Enter

   removepkg iets

   This command finds and removes all IETS or WSN applications.
2. When prompted whether you really want to remove IETS, press ENTER.
3. When prompted to confirm the removal of IETS, press ENTER.
4. When a message that IETS has been removed appears, perform these steps to verify the removal:
   a. Enter the following commands:

      cd /usr/add-on/iets

      ls

      The **iets** directory should have 1 subdirectory: **log**.
   b. To verify the removal of IETS or WSN on the PM, make sure that all processes have been removed by entering the following commands:

      ps -edf | grep gt

      cat /etc/inittab | grep gt

      cat /etc/services | grep gt

      No process should appear for any command.

c. To verify the removal of IETS or WSN on the VP, make sure that all processes have been removed by entering the following commands:

ps -edf | grep iets

cat /etc/inittab | grep iets

No process should appear for either command.

5. Enter

installpkg

The following information appears on the screen.

```
Please indicate the installation medium you intend to
use.
Strike "C" to install from CARTRIDGE TAPE
or "F" to install from FLOPPY DISKETTE.
Strike ESC to stop.
```

6. Enter **C**
7. When prompted, insert the WSN application image cartridge tape for the appropriate machine (PM or VP) into the tape drive and press ENTER.
8. When prompted to re-tension the tape, do so by pressing ENTER.

   Re-tensioning the tape takes awhile. When the process completes, the following information displays on the screen.

```
You will now be prompted to select the packages that you
wish to install from this tape.

You may select one or more packages from the menu by
entering the number listed alongside the package name.

Enter each package number one at a time, pressing ENTER
after each selection. The package numbers may be entered
in any order.

To install all the packages, type the number indicated
at the end of the package list.

When you have made all the selections required, Strike ESC.

To skip this step or cancel any selections made, type
the number as indicated in the package list.

Strike ENTER when ready.
```

9. Press ENTER.

The screen displays information about WSN packages that you can install.

```
Tape Name: Internet Enhanced Telephony Service (IETS) - Software Tape
Packages available for installation:

1. Internet Enhanced Telephony Service (IETS) (OAM&P - INTUITY) V1.1
   R1.1[mm/dd/yy]
2. Internet Enhanced Telephony Service (IETS) (VP - CVIS V4.0) V1.1
   R1.1[mm/dd/yy]

3. Install ALL packages shown above
4. Exit, do not install any packages

Please enter the next package number(s) to install,
followed by ENTER.

Press ESC when all selections have been made.

Enter Package Number: 1
```

NOTE:
The bracketed `[mm/dd/yy]` in the screen shown above indicate that the dated versions may change. The dates depend on the most current release. If you are unsure whether you have the most current release, call the appropriate support organization for current information.

10. Enter the number of the appropriate option.

    For example, on the screen shown above, you would enter **1** to install WSN 1.1 on a PM machine. You would enter **2** to install WSN 1.1 on a VP machine.

11. When you have finished making your selection, press ESC to continue.

    A message confirming your selection displays on the screen.

12. Press ENTER to confirm your selection.

    The following information appears on the screen.

    ```
    REMINDER!
    Depending on the packages you are installing, you may
    be required to provide some input to the installation
    utility to configure the software for your system.
    Strike ENTER when ready.
    ```

13. Press ENTER.

14. When a message that the installation of the WSN package is complete appears, remove the tape from the tape drive.

NOTE:
If the error message `Cannot remove any directory in the path of the current working directory` appears, disregard it.

15. To verify the installation of WSN by checking subdirectories, enter the following commands:

    cd /usr/add-on/iets

    ls

    On both the PM and the VP, the **iets** directory should have 4 subdirectories. 3 of the subdirectories are the same on both machines: **bin**, **data**, and **log**. The VP's fourth subdirectory is **speech**. The PM's fourth subdirectory is **calldata**.

16. To verify the installation of WSN on the PM by checking processes that will automatically start when the machine is rebooted, perform these steps:

    a. Enter **cat /etc/services | grep gt**

       The following information should appear.

```
gts      5000/tcp    #/usr/add-on/iets generic telephony server
gts      5001/udp    #/usr/add-on/iets generic telephony server
```

    b. Enter **cat /etc/inittab | grep gt**

       The following information should appear.

```
IE01:3:respawn:/usr/add-on/iets/bin/iets_exec
     /usr/add-on/iets/bin/gtrs /dev/null 2>&1
IE02:3:respawn:/usr/add-on/iets/bin/exec_gts > /dev/null 2>&1
```

17. To verify the installation of WSN on the VP by checking processes that will automatically start when the machine is rebooted, perform these steps:

    a. Enter **cat /etc/inittab | grep iets**

       The following information should appear.

```
IE00:4:wait:/usr/add-on/iets/bin/appcheck > /dev/null 2>&1
IE01:4:respawn:/usr/add-on/iets/bin/iets_exec
     /usr/add-on/iets/bin/iets > /dev/null 2>&1
```

    b. Enter **ps -edf | grep iets**

       The following information should appear.

```
root  5636 385  0 09:28:31 console  grep iets
root  5635   1  0 09:28:31 ?    0:00 /usr/add-on/iets/bin/iets
```

    This completes the procedure for 1 machine.

    Repeat the procedure for all machines.

    Return to the procedure or checklist that sent you to this procedure.

Updating WSN 1.1 via SCANS

NOTE:
This procedure is used only if you are updating an existing WSN site with a new version of the WSN software. To install WSN software at a new WSN site, see ''Installing a New Site'' on page 4-5.

After the NAP 3.0 software has been installed and administered on each machine at the site:

1. Get the Software Update (SU) Number for WSN 1.1 from NESAC or TCC.
2. Schedule the WSN SU to be downloaded to the NAP site.
3. Make sure that all PM and VP machines that are to be installed are visible on the LAN.
4. Once the WSN SU has been downloaded to the site follow the instructions in Appendix E, ''SCANS (Software Change Administration and Notification System)'' and perform each of these steps for the WSN SU number:
    a. Option 4: Archive the WSN 1.1 SU
    b. Option 6: Distribute the WSN 1.1 SU
    c. Option 8: Apply the WSN 1.1 SU

NOTE:
If any of the above steps show ABORTED for a machine, *stop* and correct the problem before proceeding.

Postinstallation Site Administration and Acceptance Testing

Perform this entire procedure on one PM machine.

Start Application and System Software

NOTE:
Machine names for the PMs are pm00 and pm01. Machine names for the VPs are vp00 and vp01.

1. From the primary PM, enter:

   siteadm -a pm00 pm01 vp00 vp01

   siteadm -a pm00 pm01 vp00 vp01

   Include all of the machines at the site.

   NOTE:
   The second invocation of **siteadm** synchronizes all the machine tables so that the WSN software can function.

Perform LAN Communications Check

From the PM, run a communications check on all machines to ensure that they are all numbered correctly.

1. Enter **comcheck**

   A screen like this one displays:

```
================================================
|    Message Level Communications Check        |
================================================
          -------LAN A------    -------LAN B------
          MESSAGE   MESSAGE     MESSAGE   MESSAGE
MACHINE   SENT      REPLY       SENT      REPLY
--------  --------  --------    --------  --------
vp00      10:02:01  10:02:01    10:02:01  10:02:01
vp01      10:02:01  10:02:01    10:02:01  10:02:01
pm00      10:02:01  10:02:01    10:02:01  10:02:01
pm01      10:02:01  10:02:01    10:02:01  10:02:01
```

2. Enter **lancheck -m pm00**

   A screen like this one displays:

```
running command "/usr/add-on/sms/bin/lancheck" on pm00
Please wait while TCP/IP PING operations are done to all machines.
================================
| TCP/IP LAN Connectivity Check |
================================
Machine  LAN-A LAN-B
-------- ----  ----
pm00     UP    UP
pm01     UP    UP
vp00     UP    UP
vp01     UP    UP
```

   Make sure that both LANs to all machines are up. You should see the word up is displayed under the LAN A and LAN B columns for the VP machines.

Restore Traffic

1. On each VP, enter

   chkconfig -m vp*xx* -v

   where ***xx*** is the VP machine number.

   Verify that there are no configuration errors.

2. For each VP, enter

   dispstatus -m vp*xx* card all

   where ***xx*** is the VP machine number.

   Verify that all cards are in service.

3. Monitor the site traffic flow for one hour.

Table A-1. Service States

Status	Meaning	Action
foos	The card the channel is on is not physically connected to the 4ESS.	Connect it, then run the **chgstate** command again.
manoos	The channel has been manually removed from service.	Restore the channel by using the **restore** command described on page 5-120.
appoos	The application has removed the channel from service and is waiting.	Investigate and correct the cause of the application failure.
netoos	The channel is busied-out at the 4ESS.	
inserv	The channel is in service to the 4ESS.	
hwoos	The channel is waiting for another channel or card to come into service.	

Validate NCMF Reports

1. Run the following site-based reports from pm00:

   NOTE:
   Perform ‘‘Core Maintenance Feature Package Administration and Verification’’ on page 4-60 if you did not do so when you upgraded to the previous version of WSN release 1.1 (for example, IETS release 1.0). ***If this is a new site installation, you must perform CMF administration before continuing.*** Failure to administer this package will cause report generation to fail. If you have already administered the core maintenance feature package, proceed with step a.

   a. Generate the DS1 report. Enter

      ds1rep

   b. Generate a detailed status report. Enter

      dsrrep

   c. Generate an equipment inventory report. Enter

      eqirep

   d. Generate an equipment inventory summary report. Enter

      eqisrep

2. Save the new CMF administration:

   a. Insert a blank cartridge tape in the tape drive of pm00.

      Make sure that the cartridge tape is *not* write-protected.

   b. On pm00, enter

      backtape

   c. Attach a label on the tape with application name, release, date, and machine name, for example, BACKTAPE CMF ADMINISTRATION, NAP/WSN RELEASE 1.1, 8/04/97, pm00.

   d. From pm00, enter

      backadm -m pm00

NOTE:
If this is a new site installation, return to the checklist in ‘‘Installing a New Site’’ on page 4-5.

Committing to WSN Release 1.1

Use this procedure to commit the WSN release 1.1 software on the VPs and PMs.

In planning for the procedure, consider these factors:

- The site will be in service with the VPs and PMs active.
- Estimated commit time is 30 minutes.
- The procedure can be run at any time.
- You must know the SU number. Contact NESAC for this number.

1. Perform the commit procedure:
    a. From the TCC, log in to Datakit and the site's pm00 machine. Enter

        dkcu *<dkdial_string>*

    b. At the `login` prompt enter your user login.
    c. At the `password` prompt, enter the password for your user login.
    d. At the `term =` prompt, enter the terminal type (for example, **xterm** or **630**).
    e. At the prompt, enter

        su - root

    f. At the `password` prompt, enter the site-specific root password.
    g. At the `term =` prompt, enter the terminal type (for example, **xterm** or **630**).
    h. Enter **scansui**
    i. Select: `11) Make Software Update Official`

        Refer to ''Making a Software Update Official'' on page E-11 if you need more information about making the update official.
2. Create 2 application image VP tapes for the VP machine (1 image tape for onsite backup and 1 for offsite). Refer to ''Making an Application IMAGE Tape'' on page 4-70.
3. Create 2 application PM image tapes for pm00 (1 for onsite backup and 1 for offsite). Refer to ''Making an Application IMAGE Tape'' on page 4-70.

This completes the commit process for WSN release 1.1.

Rolling Back an WSN Release

You can roll back an WSN release to either of these two states:

- You can roll back to an unpatched version of WSN 1.1.
- You can remove WSN so that only NAP 3.0 remains on the machines.

Restore Unpatched Version of WSN 1.1

To restore an unpatched version of WSN 1.1, you must reload the IMAGE tapes created before installing the patched version. To do this, perform this procedure:

1. Power down each machine.
2. Reload the 1.1 IMAGE tapes created before loading the patched WSN 1.1.
3. Make all machines active. Enter

   machadm -a vp00
   machadm -a vp01
   machadm -a pm00
   machadm -a pm01

4. Verify LAN connectivity. Enter

   comcheck

5. Using the unpatched WSN 1.1 CMF Administration tape created before installing the patched version of WSN 1.1, reload the unpatched WSN 1.1 CMF administration files:
   a. Insert the CMF tape in the PM00 tape drive.
   b. From the PM00 console, enter:

      resttape
      restadm -m pm00
      restadm -m pm01
      restadm -m vp00
      restadm -m vp01

6. Perform the procedures in Appendix C “Site Acceptance Procedures.”

Remove WSN 1.1 and Leave NAP 3.0

To remove the WSN 1.1 application from the machine (leaving only the NAP 3.0 platform software) use the SCANS UI Backout Software Update option. Refer to ‘‘Backing Out of a Software Update’’ on page E-10.

This completes the rollback process to and unpatched version of WSN Release 1.1 or NAP 3.0 platform software.

Wiring Diagrams

B

What's in This Appendix?

This appendix provides wiring diagrams for NAP equipment in both 5ESS and 4ESS cabinets.

NAP Wiring Diagrams

Refer to these diagrams for cabling information for NAP sites:

- PWR ARCH-018 *Power system Architecture for the MAP 2000*
- J1P336A-1 *Intuity Conversant MAP 2000 Voice Processing (VP) Cabinet*
- J1P336B-1 *Intuity Conversant MAP 2000 Provisioning and Maintenance (PM) Cabinet*
- NJ1P336 *Network Adjunct Platform (NAP) Intuity Conversant MAP 2000 Central Office Order Guide*
- NT1P336 *Network Adjunct Platform (NAP) Intuity Conversant MAP 2000 Central Office Provisioning, Interconnection and Installation*
- NE-00356-30 *Alarm Panel*
- NT-00356-32 *Alarm Panel*
- NE-00262-31 *Fuse Panel*
- NT-00262-31 *Fuse Panel*

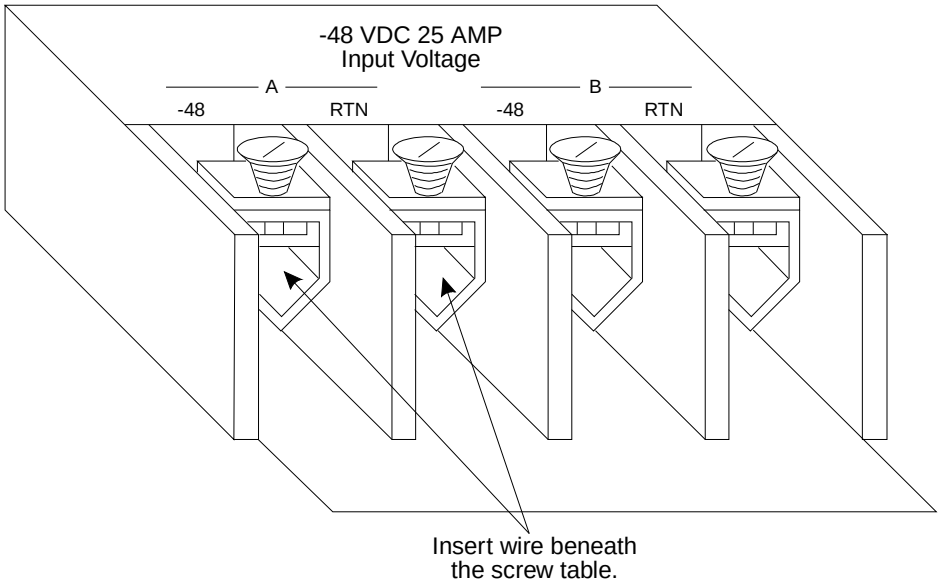


Figure B-1. Power Input Terminal on the MAP/100C

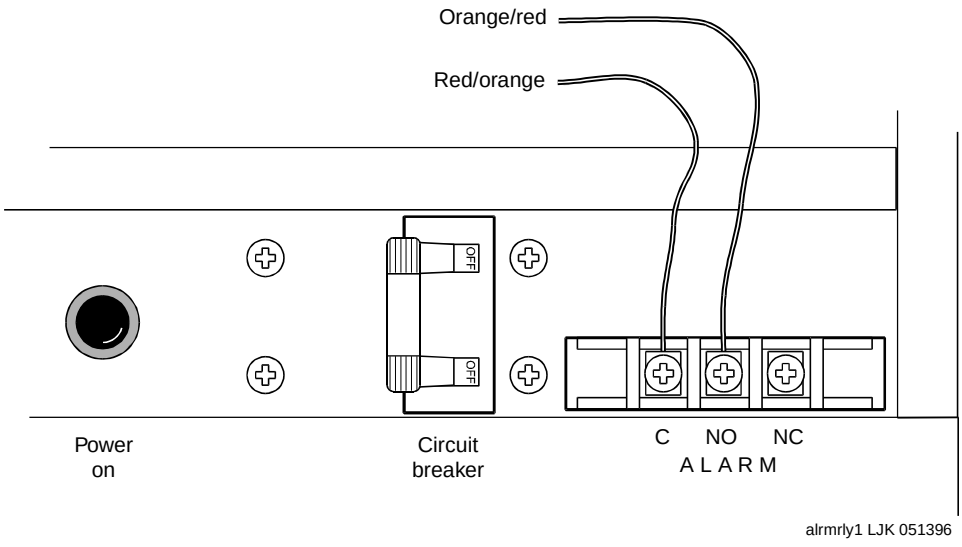


Figure B-2. Alarm Relay Terminal Block on MAP/100C

StarLAN 10 Network SmartHUB Model B

NOTE:
Figure B-3 and Figure B-4 show recommended cabling for new WSN installations. Existing installations may not match these figures.

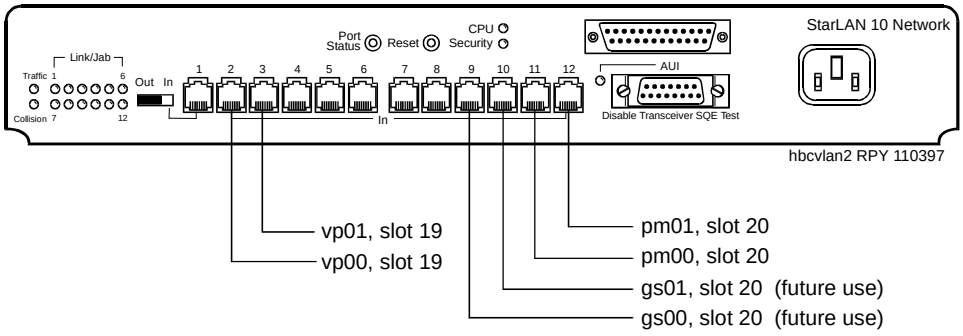


Figure B-3. Cabling the StarLAN 10 Network SmartHUB Model B toLAN A Circuit Cards

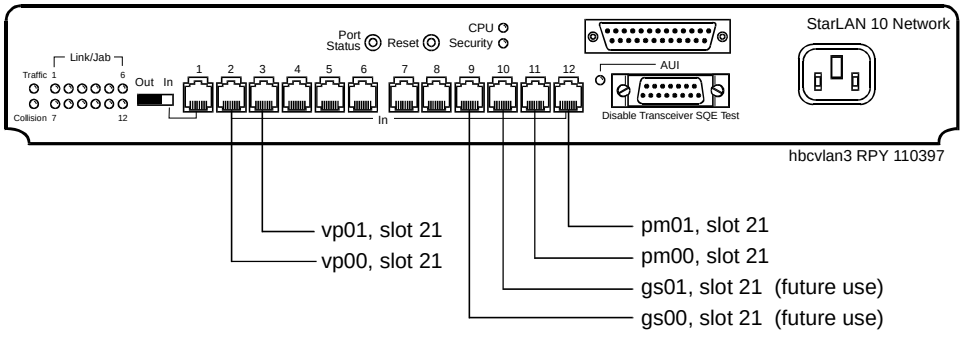


Figure B-4. Cabling the StarLAN 10 Network SmartHUB B to LAN B Circuit Cards

LattisHub 2814 10BASE-T Workgroup Concentrator

NOTE:
Figure B-5 and Figure B-6 show recommended cabling for new WSN installations. Existing installations may not match these figures.

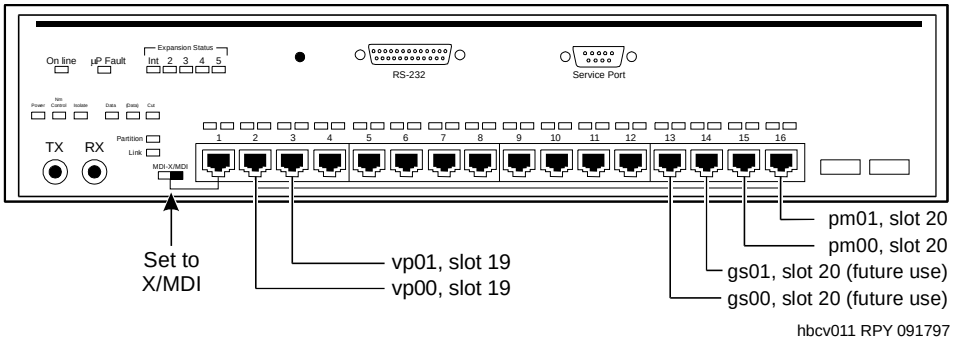


Figure B-5. Cabling the LattisHub 2814 10BASE-T Workgroup Concentrator to LAN A Circuit Cards

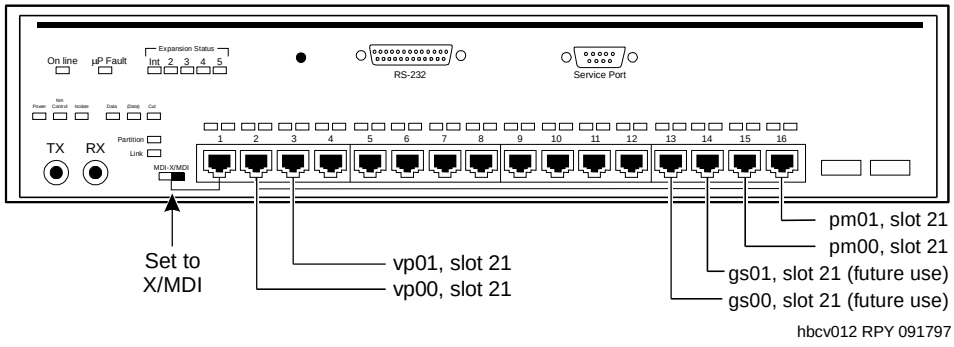


Figure B-6. Cabling the LattisHub 2814 10BASE-T Workgroup Concentrator to LAN B Circuit Cards

Cabinets, Machines, LAN Hubs, and Routers

NOTE:
Figure B-7 shows a diagram of the cabinets, machines, LAN hubs, routers, and cables for WSN 1.1. Not all ports are shown on the LAN hubs.

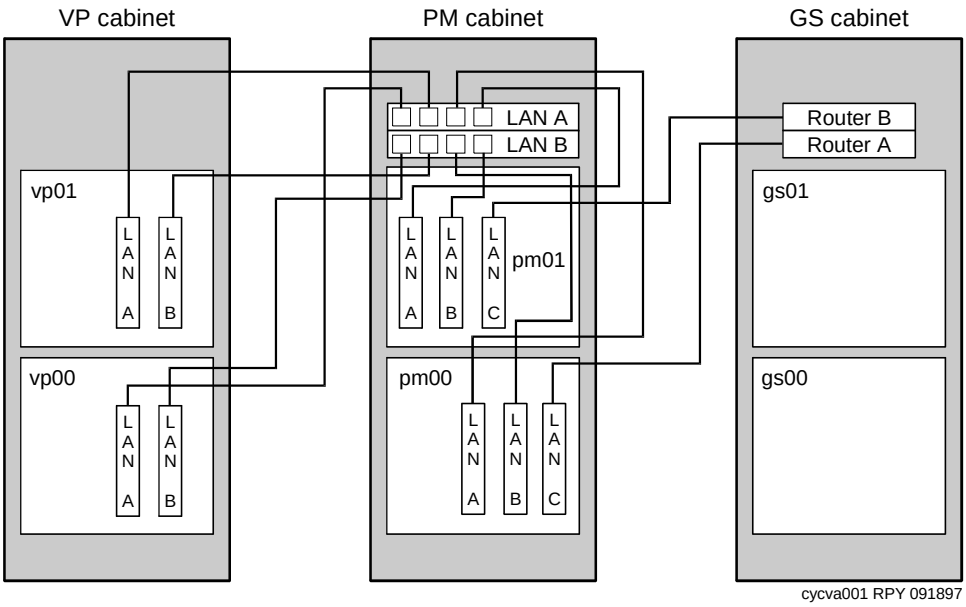


Figure B-7. Cabinets, Machines, LAN Hubs, and Routers

Site Acceptance Procedures for Hardware and Software Installations

C

What's in This Appendix?

This appendix provides the hardware acceptance testing checklist and system acceptance testing procedures. Use these instructions to check hardware installation, software installation, and administration.

Hardware Acceptance Testing Checklist

1. Verify that all documentation and drawings are on site.
2. Verify that software tapes and diskettes are on site and are stored properly.
3. Verify that spare equipment is on site. Refer to *AT&T Network Adjunct Platform, Release 3.0, Operations Support Guide* Issue 4.0 for a list of spare equipment.

   WARNING:
   Equipment power is on. Use care when checking cables and components. Do not disconnect or reconnect cables when the power is on.

4. Verify that the following procedures have been completed:
   - ''Verifying the 5ESS Cabinet Hardware Installation'' on page 2-12
   - ''Power-Up Procedures'' on page 3-31

   The preceding procedures check these items:
   - 5ESS cabinet installation
   - Component installation
   - Circuit card and module installation
   - 5ESS cabinet cabling
   - CO alarm cabling to the 5ESS cabinet
   - DSX-1 cabling to the 5ESS cabinet
   - Power and ground cabling to the 5ESS cabinet
   - Power and ground cabling to the MAP/100C and the Communicore
5. Verify that these administration and software tasks have been completed:
   - CPU firmware administration
   - NAP software installation
   - Application software installation
   - Initial software administration

T1 Status Check

1. Verify that the MAP/100C T1 slot 5 is wired properly to the Communicore using the loopback method.
2. Verify that the connections between the Communicore and the DSX-1 are of the proper polarity.
   a. Make sure that the loopback plug is in the DSX-1 jack for each T1 on the VP.
   b. Set up a T-BERD[1] 209A test set (or equivalent) with MODE set at ESF and Rec-input set at DSX-MON. Then plug the cord into the DSX-1. You should see T1 pulses with no synchronization.
   c. From the PM, enter

      dispstatus -m vp*xx*

      where ***xx*** stands for the number identifying the VP. You should see these statuses:

      Card 4: Function: PRI State: netoos
      All other PRI modules show PRI State: hwoos

      NOTE:
      Although the modules on the Communicore are physically labeled 1 through 15 on each subrack, their logical numbering (which displays as the result of a command) differs. The lower subrack counts the modules from left to right as 1 through 15, and the power module as slot 16. The upper subrack is numbered logically 17 through 32, where 32 is the power module. Refer to Chapter 8, ‘‘Maintenance’’ for the Communicore module layout.

   d. Remove the loopback plug from *one* of the T1s at the jack associated with the DSX-1. The T-Berd set should still see T1 pulses. If it doesn’t, the DSX-1 IN/OUT jacks are wired turned-over and should be given back to the installer to correct.
   e. Determine whether the affected PRI module has changed to foos status. Enter

      dispstatus -m vp*xx*

      where ***xx*** stands for the number identifying the VP.
   f. If you removed the loopback plug in step 2(d), reinstall it into the DSX-1 jack.

1. Registered trademark of Telecommunications Techniques Corporation

g. Verify that the affected PRI module changed back to the status originally seen in step 2(c). Enter

dispstatus -m vp*xx*

where ***xx*** stands for the number identifying the VP.

h. Repeat steps 2(c) through 2(g) to verify continuity and wiring on *each* T1 card of *each* VP.

System Acceptance Testing Procedures

Use these procedures after the platform and application software have been installed and the site has been administered. During the system acceptance test, you perform these tasks:

- Run a Communications Check
- Check Datakit Connectivity
- Check Machine Status
- Check the Alarm-Relay System
- Run Site-Based Reports

Perform this entire procedure on one PM machine, then perform steps 1 through 5 for the second PM.

Log on to the PM machine as a restricted user.

Run a Communications Check

1. Run a communications check on all machines to ensure that they are all numbered correctly. Enter

   lancheck

   Make sure that both LANs to all machines are up. You should see the word up under the LAN A and LAN B columns for each VP machine connected and administered.

Check Datakit Connectivity

2. Call yourself to check Datakit connectivity:
   a. Enter **dkcu *<dkdial_string>***.
   b. Verify that you get a login prompt, which means you have Datakit connectivity.
   c. Enter **~.** (a tilde followed by a period) to drop the connection.

   Perform these procedures on both PMs. For the second PM, the procedure ends here.

Check Machine Status

3. Perform the following steps for each VP machine. Enter these commands on the PM:
   a. Enter **diagnose -m *<mach_id>* all**.

      Make sure that all tests show passed.

   b. Enter:

      chgstate -m *<mach_id>* on
      chgstate -m *<mach_id>* off
      chgstate -m *<mach_id>* on

      Wait two minutes.

   c. Enter **dispstatus -m *<mach_id>*** and check the status for the modules and cards. You should see:
      1. Resource card 0 listed as a T1 card with FUNCTION: PRI
      2. Resource card 1 listed as an SP card with FUNCTION: VOICE and STATE: inserv
      3. Resource card 2 listed as an SP card with FUNCTION: PRI and STATE: inserv
      4. Resource card 3 listed as an SP card with FUNCTION: TTS and STATE: inserv

      Check the channel status. Refer to ‘‘Service States for Modules, Cards, and Channels’’ on page 6-2 for more information.

Check the Alarm-Relay System

4. Perform the following steps to check the alarm-relay card wiring:
   a. Clear any existing alarms. Enter

      clrlights -m *<mach_id>*

   b. Generate test alarms. Enter

      tstalarms -s -w2

   c. Verify that you hear the frame alarm and that the alarm light on the frame and the row light at the end of the row are both lit.

      The alarm lights are cleared automatically by the **tstalarms** command.

Run Site-Based Reports

5. Run these site-based reports from pm01. All report commands must be run as root to function properly.

   NOTE:
   The reports generated by these four commands can be directed to your screen or be transferred to a file over the Datakit network to a predefined and preauthorized host machine, if you are preauthorized to do file transfers between the PM machine and your destination host machine on the Datakit network. The screen prompts you to choose the machines to be included in the reports and where you want the reports sent.

   Refer to Chapter 5, ‘‘Command Reference’’ if you want more details on these commands.

   a. Generate the DS1 report. Enter

      ds1rep

   b. Generate the detailed status report. Enter

      dsrrep

   c. Generate the equipment inventory report. Enter

      eqirep

   d. Generate the equipment inventory summary report. Enter

      eqisrep

This completes the acceptance procedures for the hardware and software at your INTUITY CONVERSANT System NAP site.

Datakit Switch Administration

D

What's in This Appendix?

This appendix explains how to administer the Datakit switch for NAP.

WARNING:
*The HS386 Datakit card must be installed **before** you perform Datakit Switch Administration.*

Administer the Datakit Switch

Perform steps 1 through 4 for each PM no matter where the Datakit card is installed (at the site or in the Datakit VCS). You will administer the group for the PMs.

NOTE:
The unames for the PMs are the TCC-defined, site-specific Datakit names. The first three characters provide the city designation (frh for Freehold). The fourth character identifies the application(i for IETS, the name of WSN on R1.0). The last three characters are the machine name.

You might have to enter a password to perform this administration, depending on the agreement between your organization and Datakit Administration. For each machine you also must know the following (supplied by the MMOC DWAN Support Group):

- Host name
- Datakit node

- Slot number

Step 1: Define the Group Name

Type **enter group** and press ENTER.

1. GROUP: Enter the name for the PM, up to 8 characters, all in lowercase. This name must match the UNIX host name for the PM to which the fiber is connected.
2. TYPE: **local**
3. DIRECTION: **2way** (for primary) or **receive** (for secondary)
4. DEVICE OR HOST: Enter the name for the primary group, all lowercase.
5. PASSWORD: **none**
6. ROUND ROBIN SERVICE: **none**

Step 2: Define the Server Name for the Primary Group

Type **enter address** and press ENTER.

1. LEVEL: **local**
2. TYPE: **mnemonic**
3. MNEMONIC ADDRESS: Enter the name for the primary group, up to 8 characters, all lowercase.
4. PAD SUPPORT: **no**
5. DIRECTORY ENTRY: Enter the name for the server, which can be up to 30 characters. Enclose the name in double quotes. If there is no dkserver, enter **none**
6. GROUP (S): Enter the name for the primary group, all lowercase.
7. ORIGINATING GROUP NAME SECURITY PATTERN (S): **none**
8. INITIAL SERVICE STATE: **in**

Step 3: Define the Server Name for the Secondary Group

Type **enter address** and press ENTER.

1. LEVEL: **local**
2. TYPE: **mnemonic**
3. MNEMONIC ADDRESS: Enter the name for the secondary group, all in lowercase.

4. PAD SUPPORT: **no**
5. DIRECTORY ENTRY: Enter the name for the listener, which can be up to 30 characters. Enclose the name in double quotes. If there is no listener, enter **none**
6. GROUP (S): Enter the 8-character for the secondary group, all lowercase. Remember to append an **s** to this group name.
7. ORIGINATING GROUP NAME SECURITY PATTERN (S): **none**
8. INITIAL SERVICE STATE: **in**

Step 4: Configure the CPM-HS Card

Perform this procedure for each PM at your site.

1. Type **enter cpm** and press ENTER.
   a. MODULE ADDRESS [2-127]: Enter the slot number on the MPC/Datakit VCS where the CPM-HS card is installed.
   b. COMMENT: **fiber interface**
   c. HARDWARE TYPE: **hs**
   d. NUMBER OF CHANNELS: **64**
   e. CONNECT-TIME BILLING: **off**
   f. SINGLE or MULTIPLE GROUP (S): **single**
   g. GROUP: Enter the name for the group, all lowercase, followed by a comma. For example:

      frhipm0

   h. ENDPOINT NUMBER OR RANGE: **none**
2. Type **restore cpm** and press ENTER.

SCANS (Software Change Administration and Notification System)

E

What's in This Appendix?

This appendix provides:

- A brief explanation of SCANS
- A discussion of the two SCANS interfaces
- Explanations for using the SCANS SU menu options to update software at a NAP site

This appendix *does not* explain:

- How to access and use the SCANS server
- Which of the SCANS SU menu options are used for your application
- Which non-SCANS procedures you also perform when updating software

What Is SCANS?

The Software Change Administration and Notification System (SCANS) is a software support package provided by AT&T that offers the following services to Electronic Switching System (ESS)™ offices:

- Distributes emergency software fixes
- Distributes bulletins, or information about generic software fixes
- Distributes software updates, or generic software fixes
- Introduces new feature software

The SCANS Interfaces

For NAP sites, SCANS enables the electronic transfer of software updates from DBL (Denver Bell Laboratories) to NAP (Network Adjunct Platform) sites via the SCANS server in Lisle, Illinois.

There are two SCANS interfaces that are used by NAP sites.

The SCANS Server Interface

The SCANS server provides a menu interface for administration of the SUs.

Accessing the SCANS server is explained in the *SCANS User's Guide* from AT&T.

The SCANS Software Update (SU) Interface

NAP provides the SCANS software update (SU) interface, a user interface to SCANS for updating the software at a NAP site after it is sent via the SCANS server.

This appendix explains how to use the SCANS SU interface.

Before You Begin

Before you can use the SCANS SU interface, the TCC must set up an office profile for you.

Following is an example DISPLAY OFFICE PROFILE screen:

```
                              AT&T SCANS
            D I S P L A Y   O F F I C E   P R O F I L E

Company:     AT&T NSD            SCC:     DENVER-ADJ
 Office: sl0ndin0502t                                    Term Type:  1
                                                        Designated:  N

Base-CG:                   CLBI: sl0ndin0502t          CLEI: sl0ndin0502t
 System: NAP            Generic: WSN                  Issue: 1.1

Address:                    City: DENVER               Last Load: **********
 2535 EAST 40TH AVE        State: CO                   Last Read: **********
 ************************   Zip: 80525

Emergency   1. MICHAEL      IRVIN                    (303) 294-6043
Contacts    2. TOM          PRITCHARD                (303) 299-5843

Device: 4  UUCP Download UUCP uname: frhipm0
                            UUCP login: frhipm0
```

Most of the fields for the office profile are self-explanatory. Following are explanations for the for fields that are not:

`Office:`	The CLLI (common language location identifier) for your location
`CLBI:`	Same as above
(common language building identifier}	
`CLEI:`	Same as above
(common language equipment identifier}	
`UUCP uname:`	Host name of the Datakit dialstring
`UUCP login:`	Host name of the Datakit dialstring

Using the SCANS SU Interface

Before You Begin

The following provides information that you should know when you use the SCANS SU menu options.

NOTE:
Not all menu options may be supported by every software update. See specific information about each software update for more information.

The SCANS SU Procedures

Usually, these SCANS SU procedures are performed during a software update:

- Accessing the SCANS SU interface
- Starting a software update to a NAP platform
- Verifying a software update
- Distributing a software update
- Applying a software update
- Making a software update official
- Archiving a software update
- Exiting the SCANS SU user interface

This appendix also explains these menu options and when they might be useful:

- Stopping the transfer of a software update
- Deleting a software update
- Purging a software update
- Backing out of a software update
- Canceling a Software Update
- Monitoring the software update progress
- Displaying the software update level
- Listing the archived software update packages

The following sections explain how to use the SU user interface.

The SU States

The SU will progress through the following states as you update using the SCANS SU menu options:

- archived

  SCANS has sent the SU files to the NAP site

- distributed

  SCANS has placed copies of the installation files on all of the appropriate machines at the site.

- soaked

  The software has been loaded on the site but you can still cancel or back out.

- official

  You can no longer cancel or back out of the SU.

Accessing the SCANS SU Interface

After developers at Denver Bell Labs post a SU to the SCANS system for production release, follow these steps to access the SCANS SU interface:

1. Log in to the primary PM at the NAP site as restricted **root** user.
2. Type **scansui**

   The SCANS SU Interface Menu displays:

```
SCANS SU Interface Menu
================================
 1) Start Software Update
 2) Stop Software Update
 3) Verify Software Update
 4) Archive Software Update
 5) Delete Software Update
 6) Distribute Software Update
 7) Purge Software Update
 8) Apply Software Update
 9) Back Out Software Update
10) Cancel Software Update
11) Make Software Update Official
12) Monitor Software Update Progress
13) Display Software Update Level
14) List Archived Software Update Packages
15) Exit
```

NOTE:
If an option is unsupported for your application, you receive a message to that effect when you select that option.

The following sections explain the actions you can perform from the SU interface menu.

In many of the SCANS SU menu options, you are prompted for an SU number. This number is the registration number Lucent assigns to the software update when Lucent places the update on SCANS.

Starting a Software Update to a NAP Platform

This menu option initiates a software update transfer from the SCANS server to the NAP site.To use this menu option, follow these steps:

1. From the menu, select: `1) Start Software Update`

   A transaction ID (TID) appears.

2. Record the TID.

Downloading the SU to the NAP Site

NOTE:
This step is *not* performed from the SCANS SU Interface menu on the primary PM and is *not* on the SCANS SU menu.

From another window, log into the SCANS server to download the SU to the NAP site using the TID you recorded.

Refer to the *SCANS User's Guide* from AT&T for this procedure.

When the download is completed, the files are located in **/etc/bwm/*SU_number***. Read the SCANS file for any special instructions or warnings.

Stopping the Transfer of a Software Update

This menu option stops the transfer of a SU from the SCANS server to the NAP site.You may stop an SU transfer at any time before it has actually been received by the PM.

As soon as you determine that you do not want to transfer the software update, perform these steps:

1. Select: `2) Stop Software Update`

   A status message appears indicating whether or not the transfer was stopped.

Verifying the Software Update

This menu option performs checksum and bytecounts on the files delivered in the SU.

To use this menu option, follow these steps:

1. Select: 3) `Verify Software Update`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   SCANS checks the bytecount and checksum values for the files delivered in the SU and sends a message indicating whether the SU verified properly.

3. If the SU does not verify, do not continue.

Archiving the Software Update

This menu option moves the SU from the download area to the install area. It runs any application-specific archive commands and updates the SCANS database.

To use this menu option, follow these steps:

1. Select: 4) `Archive Software Update`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the download area (**/etc/bwm**), SCANS moves it to the archive area (**/usr/install**).

   - If an archive section exists in the MSGS file, SCANS displays the display lines and runs the command lines.
   - If there are errors with the command lines, SCANS displays a message containing the command filenames for troubleshooting purposes.
   - If the commands run properly, SCANS adds the SU to the database in the archived state.

Deleting the Software Update

This menu option removes the SU from the install area and from the database.

To use this menu option, follow these steps:

1. Select: `5) Delete Software Update`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database in the archived state, SCANS removes it from the archive area and from the database.

Distributing the Software Update

This menu option distributes copies of the installation files to all the call processing and PM machines.

To use this menu option, follow these steps:

1. Select: `6) Distribute Software Update`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database in the archived state, SCANS performs a profile match check.

   The profile match is a value that represents a previous package name that should be in the official state at the site or the word NONE.

   - If the SU named in the profile match is not in the official state, an error message appears.
   - If the SU named in the profile match is in the official state or NONE, SCANS checks the MSGS file for a distribute section.
   - If a distribute section exists in the MSGS file, the display lines appear and the command lines run.
   - If there are errors with the command lines, a message appears containing the command filename for troubleshooting purposes.
   - If the commands run properly, SCANS updates the SU in the database to the distributed state.

Purging the Software Update

This menu option can be used to remove previously distributed SUs from the call processing and PM machines.

To use this menu option, follow these steps:

1. Select: `7) Purge Software Update`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database in the distributed state, SCANS checks the MSGS file for a purge section.

   - If a purge section exists in the MSGS file, the display lines appear and the command lines run.
   - If there are errors with the command lines, a message appears containing the command filename for troubleshooting purposes.
   - If the commands run properly, SCANS updates the SU in the database to the archived state.

Applying the Software Update

This menu option installs the software on all of the call processing and PM machines.

To use this menu option, follow these steps:

1. Select: `8) Apply Software Update`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database in the distributed state, SCANS checks the MSGS file for an apply section.

   - If an apply section exists in the MSGS file, the display lines appear and the command lines run.
   - If there are errors with the command lines, a message appears containing the command filename for troubleshooting purposes.
   - If the commands run properly, SCANS updates the SU in the database to the soak state.

Backing Out of a Software Update

This menu option can be used to back out previously installed SUs on the call processing and PM machines.

To use this menu option, follow these steps:

1. Select: `9) Back Out Software Update`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database in the soak state, SCANS checks the MSGS file for a backout section.

   - If a backout section exists in the MSGS file, the display lines appear and the command lines run.
   - If there are errors with the command lines, a message appears containing the command filename for troubleshooting purposes.
   - If the commands run properly, SCANS updates the SU in the database to the distributed state.

Canceling a Software Update

This menu option can be used to cancel a previously scheduled apply or backout of an SU.

To use this menu option, follow these steps:

1. Select: `10) Cancel Software Update`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database in the distributed or soak state, SCANS checks the MSGS file for a cancel section.

   - If a cancel section exists in the MSGS file, the display lines appear and the command lines run.
   - If there are errors with the command lines, a message appears containing the command filename for troubleshooting purposes.
   - If the commands run properly, the SU is unchanged in the database.

Making a Software Update Official

This menu option makes the software release permanent on the machines.

To use this menu option, follow these steps:

1. Select: `11) Make Software Update Official`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database in the soak state, SCANS checks the MSGS file for an official section.

   - If an official section exists in the MSGS file, the display lines appear and the command lines run.
   - If there are errors with the command lines, a message appears containing the command file name for troubleshooting purposes.
   - If the commands run properly, SCANS updates the SU in the database to the official state.
   - After you run this option, you cannot cancel or back out of the software update.

3. If successful, you may remove the installation directory for this SU, for example, **/usr/install/BWM96-*XXXX***

Monitoring the Software Update Progress

This menu option displays the current state of an SU.

To use this menu option, follow these steps:

1. Select: `12) Monitor Software Update Progress`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database, SCANS displays the current state of the SU, either archived, distributed, soaked, or official.

Displaying the Software Update Level

This menu option displays all SU information in the database.

To use this menu option, follow these steps:

1. Select: `13) Display Software Update Level`

   SCANS prompts you for a SU number.

2. Enter the SU number.

   If the SU exists in the database, SCANS displays all information about the SU, including SU number, package name, profile match, and current state.

Listing Archived Software Update Packages

This menu option lists the SU numbers of all SUs in the archived state.

To use this menu option, do the following:

1. Select: `14) List Archived Software Update Packages`

   SCANS lists the SU number and package name of all SU's in the archived state.

Exiting the SCANS SU Interface

To use this menu option, do the following:

1. Select: `15) Exit`

   The **scansui** process exits.

WSN Technical Data

F

What's in This Appendix?

This appendix provides more detailed technical information about WSN 1.1.

It contains information about:

- Recorded announcements
- Text-to-speech (TTS) announcements
- Digit collection:
  - Maximum number of digits
  - Timer parameters
  - End of digit collection
  - Delimiter
- ANI Presentation Indicator
- Call-detail data
- Traffic manager configuration
- Application processes

Recorded Announcements

This section provides information about WSN recorded announcements. Table F-1 contains the announcement ID # and content for each announcement in the 4 announcement categories:

- Standard WorldSHARE
- CSR (agent)
- End user
- Dedicated

To play a standard WorldSHARE, CSR, or end user announcement, WSN reserves a channel on 1 of the VP machines.

Each dedicated announcement plays all the time on a dedicated channel. To play a dedicated announcement to a caller or agent, WSN bridges the call to the announcement's dedicated channel.

Table F-1. Announcements

ID #	Announcement Content
	Standard WorldSHARE Announcements (1000-1999)
1000	*<AT&T sparkle tone>* Please enter your agent identification number.
1001	Thank you.
1002	*<AT&T sparkle tone>*
1003	Please enter your agent ID number.
1004	Thank you for using AT&T Worldnet services.
1005	Thank you for using AT&T.
1006	Please enter your access code.
1007	Please re-enter your access code.
	CSR Announcements (2000-2999)
2000	Your call cannot be completed at this time. Please try again.
2001	The call to the end user disconnected.
2002	*<1 tone played to a CSR when an end user has been connected/bridged.>*

Continued on next page

Table F-1. Announcements

ID #	Announcement Content
2003	*<2 tones played to a CSR when they enter invalid digits, for example, request a push page that is invalid.>*
2004	*<3 tones played to CSR when the end user is no longer connected to a browser.>*
	End User Announcements (3000-3999)
3000	Hello, this is your requested Internet call. Please press the pound key to accept the call and stay on the line while we connect you to a customer service representative. Please stay on the line if you have a rotary phone.
3001	Hello, this is your requested Internet call. Press the pound key to accept the call or stay on the line while we connect you to an agent.
3002	Hello, this is your requested Internet call. Please confirm this request by pressing the pound key or stay on the line while we connect you to an agent.
3003	Hello, this call was requested from the Internet. Please confirm this request by pressing the pound key or stay on the line while we connect you to an agent.
3004	Please wait.
3005	Please wait for the next available agent.
3006	Your call cannot be completed at this time. Please try again.
3007	Your call to the call center disconnected. Please try again.
3008	*<AT&T Bong>* For sharing information such as Web Pages during your call with your family and community, click on the sharing information button.
3009	*<1 tone played to an end user when a CSR has been connected/bridged.>*
	Dedicated Announcements (4000-4999)
4000	*<Music>*
4001	AT&T Internet Call, please press the pound sign to continue.
4002*	Internet Call, please press the pound sign to continue.

*Announcement 4002 is in the WSN 1.1 speech file, but WSN 1.1 does not use it.

Interrupting Announcements

All announcements specified with the **PlayAnnc** or **PlayAnncAndCollect** request are interruptible by setting the interrupt flag.

Changing Announcements

Announcements can be changed only as part of scheduled software releases. No announcement provisioning architecture is provided in WSN 1.1.

This list of announcements is current as of WSN 1.1. Software updates to WSN 1.1 may contain changes to the list. For the most up-to-date list of announcement IDs and wording, contact:

Greg Cinque
WorldSHARE
Telephone: (732) 576-5482

Limitations and Restrictions

WSN 1.1 has the following limitations and restrictions for recorded announcements:

- A maximum of 100 announcements are available for WorldSHARE use.
- Announcements can be no longer than 5 minutes.
- Only 1 announcement is used for music on hold across all MAP 2000s.
- All requests to play tones to a call leg are supported by recorded announcements.

When the announcement ID received in the TCP/IP **PlayAnnc** request does not match any of the announcement IDs for announcements stored on WSN, the NAP platform will raise a CONVERSANT generic VROP009 alarm.

Text-to-Speech Announcements

Messages for text-to-speech (TTS) announcements may have from 1 to 300 characters.

TTS announcements are generated with the standard volume and dynamic range settings on the TTS SP board.

Interrupting Announcements

All announcements specified with the **PlayTTS** or **PlayTTSAndCollect** request are interruptible by setting the interrupt flag.

Digit Collection

The following requests support digit collection:

- **CollectDigits**
- **MonitorDigits**
- **PlayAnncAndCollect**
- **PlayTTSAndCollect**

Maximum Number of Digits

A maximum of 25 digits are allowed in 1 digit-collection request.

The maximum number includes the delimiter.

Timer Parameters

The **CollectDigits**, **PlayAnncAndCollect**, and **PlayTTSAndCollect** requests include both first-digit and inter-digit timer parameters.

The **MonitorDigits** request includes an inter-digit timer parameter.

First-Digit Timer

The first-digit timer (that is, the time allowed from the end of an announcement to the start of digit collection) is a mandatory parameter with a range of 1 to 10 seconds. There is no default value.

Inter-Digit Timer

The inter-digit timer (that is, the time allowed between entered digits) is a mandatory parameter with a range of 1 to 10 seconds. There is no default value.

End of Digit Collection

The following conditions indicate the end of digit collection:

- The first-digit timer expires.
- The inter-digit timer expires.
- The specified delimiter is collected, indicating the end of digits.
- The maximum number of digits is collected.

The MAP 2000 supports simultaneous digit collection on all tone detector channels.

Delimiter

The end-of-digits delimiter can be customized through the ***<delimiter>*** parameter to the **CollectDigits, MonitorDigits, PlayAnncAndCollect,** and **PlayTTSAndCollect** requests.

- The **MonitorDigits** request can accept any delimiter.
- The **CollectDigits, PlayAnncAndCollect,** and **PlayTTSAndCollect** requests can accept only ***** or # as a delimiter.

ANI Presentation Indicator

The AT&T WS CS uses the ANI Presentation Indicator to provide information to WSN that indicates whether the ANI should be delivered to the destination party.

The MAP 2000 screens the ANI Presentation indicator received with a **ConnectCall** request.

If the ANI Presentation indicator = 0, WSN sends the Q.931 Setup Message with Calling Party Number IE with:

- Presentation indicator = Presentation restricted
- Screening indicator = User provided (not screened by network)

If the ANI Presentation indicator = 1, WSN sends the Q.931 Setup Message with Calling Party Number IE with:

- Presentation indicator = Presentation permitted
- Screening indicator = Network provided

Regardless of the value of the ANI Presentation indicator, the Billing Party Number IE in the Q.931 Setup Message should always have:

- Presentation indicator = Presentation permitted
- Screening indicator = Network provided

Call-Detail Data

Call-detail data is stored for a maximum of 30 days on the VP.

Traffic Manager Configuration

When the traffic manager does not receive any trunk-status information from a VP, it queries the VP every 30 seconds. If the traffic manager does not receive a reply from the VP within 70 seconds, it removes all DS0 channels associated with the VP from the available trunk resources.

Application Processes

Table F-2 lists the following information about each WorldSHARE NAP process:

- The name of the process
- The machine on which the process runs
- The directory containing the process
- The function of the process

Table F-2. WorldSHARE NAP Processes

Name	Machine	Directory	Function
iets	VP	**/usr/add-on/iets/bin**	Application DIP
gts	PM	**/usr/add-on/iets/bin**	Receives messages from AT&T WS CS and passes them on to **iets** DIP process. Receives messages from **gtrs** process and passes them back to AT&T WS CS.
gtrs	PM	**/usr/add-on/iets/bin**	Receives messages from **iets** DIP process and passes them on to **gts** process.

Figure F-1 shows how the AT&T WorldSHARE Core Server (WS CS) communicates with WSN's **iets** process, which runs on the VP.

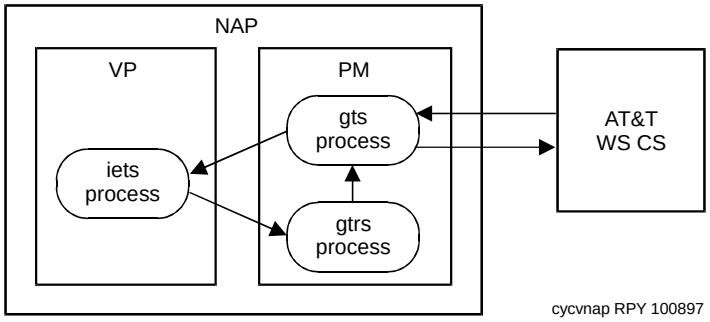


Figure F-1. How the AT&T WS CS and WSN's iets Process Communicate

For more information about these processes, see ''Application Software'' on page 1-10.

Application Programming Interface

G

What's in This Appendix?

This appendix provides a brief description of functions in the WorldSHARE API library.

API Library

The following 18 functions are listed in alphabetical order.

AssociateHoldMute

The **AssociateHoldMute** function places a voice call on hold, mute, or both, or allows a voice call to be taken off hold, mute, or both.

BridgeAnnc

The **BridgeAnnc** function bridges a dedicated announcement channel to a voice call.

BridgeCleanup

The **BridgeCleanup** function tears down the communication TCP/IP socket between the AT&T WorldSHARE core server (WS CS) and WorldSHARE NAP (WSN).

BridgeInit

The **BridgeInit** function initializes a bridge by creating a communication TCP/IP socket connecting the AT&T WorldSHARE core server (WS CS) with WorldSHARE NAP (WSN). This socket is used to send and receive Voice Bridge Control (VBC) API messages.

BridgeInit uses a configuration file, **gts_admin**, that contains a list of names of host PM machines on which the Gateway Telephony Server (**gts**) process is running.

BridgeSession

The **BridgeSession** function bridges all call handles in a session.

CollectDigits

The **CollectDigits** function collects DTMF entries from a voice call.

ConnectCall

The **ConnectCall** function tells WSN to send a SETUP message to the switch. At any time, multiple call requests can be pending.

CreateCall

The **CreateCall** function creates a call handle for a new voice call in a session. At any time, multiple call creation requests can be pending.

CreateSession

The **CreateSession** function creates a new bridge session handle. At any time, multiple session requests can be pending.

DestroyCall

The **DestroyCall** function destroys an active call specified by a call handle. All WSN resources associated with the call handle are returned to the system.

DestroySession

The **DestroySession** function destroys the bridge session specified by the session handle.

DisconnectCall

The **DisconnectCall** function disconnects an active call on a call handle. The call handle itself is still valid and can be used to originate other voice calls. At any time, multiple call disconnect requests can be pending.

MonitorDigits

The **MonitorDigits** function monitors for dual-tone multi-frequency (DTMF) entries during a voice call.

PlayAnnc

The **PlayAnnc** function plays a pre-recorded announcement on a voice call. **PlayAnnc** is not interruptible.

PlayAnncAndCollect

The **PlayAnncAndCollect** function plays a pre-recorded announcement on a voice call and collects any DTMF entered.

PlayTTS

The **PlayTTS** function plays a text-to-speech announcement on a voice call. **PlayTTS** is not interruptible.

PlayTTSAndCollect

The **PlayTTSAndCollect** function plays a text-to-speech announcement on a voice call and collects any DTMF entered.

UnbridgeAnnc

The **UnbridgeAnnc** function unbridges a dedicated announcement channel from a voice call.

WorldSHARE Call Scenarios

H

What's in This Appendix?

This appendix provides 2 sample call scenarios, 1 for Just4Me and 1 for Instant Answers.

Disclaimer

AT&T is responsible for the information in this appendix, including maintaining the information and making sure that it is current. Lucent Technologies is not responsible for the accuracy of this information.

Contact Information

For questions about WorldSHARE call scenarios, contact:

Greg Cinque
WorldSHARE
Telephone: (732) 576-5482

Just4Me Call Scenario

Just4Me provides WorldSHARE Web-page capabilities to individuals who have subscribed to the service.

This call flow shows the processing of a Just4Me call between the AT&T WorldSHARE core server (WS CS) and WorldSHARE NAP (WSN).

NOTE:
The Just4Me feature does not use the following capabilities in WSN 1.1: text-to-speech announcements, dedicated announcements, digit collection, and digit monitoring.

The WS CS initializes the API library and communications between the WS CS and WSN. For more information about the API library, see Appendix G, ‘‘Application Programming Interface’’.

1. The *host party*, a web surfer who has subscribed to Just4Me, initiates a Just4Me session from his or her personal computer.
2. The AT&T WorldSHARE core server (WS CS) sends the WSN PM machine a request for a new call session via the application programming interface (API). The PM forwards the request to the VP.
3. The WSN VP creates a new session handle and returns it to the PM. The PM sends the new session handle to the WS CS.
4. The WS CS sends a create-call request to the WSN PM for the VP.
5. The WSN VP allocates an outgoing channel and creates a new call handle. The PM receives the call handle from the VP and sends it to the WS CS.
6. The WS CS sends a connect-call request with the host party’s telephone number to the WSN PM for the VP.
7. The VP launches the call to the host party’s number through the 4ESS to the AT&T switched network.
8. The WSN PM receives call-status information (for example: connected, busy, or ring — no answer) from the VP and sends it to the WS CS.
9. The WSN VP establishes a call with the host party. The PM receives the call status from the VP and sends it to the WS CS.
10. The WS CS sends a request to play an announcement to the WSN PM for the VP.
11. The WSN VP plays the announcement to the host party.
12. The host requests that a second party be added to the session.
13. The WS CS begins to set up the second party by sending a create-call request to the WSN PM for the VP.
14. The WSN VP allocates an outgoing channel and creates a new call handle. The PM receives the call handle from the VP and sends it to the WS CS.
15. The WS CS sends a connect-call request to the WSN PM with the telephone number of the second party to be added to the call, and the WSN PM sends the request to the to the VP.
16. The VP launches the call to the second party’s number through the 4ESS to the AT&T switched network.

17. The WSN PM receives call-status information (for example: connected, busy, or ring — no answer) from the VP and sends it to the WS CS.
18. The WSN VP establishes a call with the second party. The PM receives the call status from the VP and sends it to the WS CS.

    NOTE:
    The host party may decide to abort the call while it is being set up in the network. In this case, the WS CS sends a request to destroy the call to the WSN PM. The request terminates the call and frees the resources used for the call.

19. After the second party answers, the WS CS sends a request to bridge the 2 parties together to the WSN PM for the VP.
20. The VP bridges the host party and second party together.
21. The WSN PM sends the bridge-completion status to the WS CS.
22. The host party can decide to alter the session by using his or her web browser to perform 1 or more of the following actions, in any order:
    - Add parties to the call.
    - Drop parties from the call.
    - Put parties on hold, mute, or both.

      Non-host parties may also have the ability to put themselves on hold, mute, or both if they are equipped with a web browser or the proper client software.
    - Choose to give another party control of the session, making this party the new host of the call.
23. Interactions between the host and the other parties on the call continue until the call is ended. This occurs when:
    - The host decides to end the call.
    - The host hangs up.
    - The host party's call leg has been the only call leg in the session for more than 4 minutes.
    - All parties hang up.
    - The session exceeds 4 hours.

    If 1 or more parties hangs up, the WSN PM sends the WS CS a message for each call leg has been disconnected.
24. The WS CS ends the call by sequentially sending requests to the WSN PM to destroy the calls for each remaining call leg in the session and to destroy the bridge session. The WSN PM instructs the VP to tear down any existing calls and release any resources allocated to those calls.

Instant Answers Call Scenario

WorldSHARE Instant Answers (iA) provides WorldSHARE Web-page capabilities to businesses whose Customer Service Representatives (CSRs) do not have access to the Internet. The CSRs enter dual-tone multi-frequency (DTMF) digits on their telephone key pads. Instant Answers service translates the digits into Web pages for display to end users.

This call flow shows the processing of an Instant Answers call between the AT&T WorldSHARE core server (WS CS) and WorldSHARE NAP (WSN).

NOTE:
The Instant Answers feature does not use the hold/mute capabilities in WSN 1.1.

The WS CS initializes the API library and communications between the WS CS and WSN. For more information about the API library, see Appendix G, ‘‘Application Programming Interface’’.

1. The AT&T Instant Answers (iA) Call Manager requests that the AT&T WorldSHARE core server (WS CS) establish a new iA session with WSN.

   The end user will be connected to the call before the Customer Service Representative (CSR) is connected to the call.

2. The WS CS sends the WSN PM machine a request for a new call session via the application programming interface (API). The PM forwards the request to the VP.
3. The WSN VP creates a new session handle and returns it to the PM. The PM sends the new session handle to the WS CS.
4. The WS CS sends a create-call request to the WSN PM for the VP.
5. The WSN VP allocates an outgoing channel and creates a new call handle. The PM receives the call handle from the VP and sends it to the WS CS.
6. The WS CS sends a connect-call request with the end user’s telephone number to the WSN PM for the VP.
7. The VP launches the call to the end user’s number through the 4ESS to the AT&T switched network.
8. The WSN PM receives call-status information (for example: connected, busy, or ring — no answer) from the VP and sends it to the WS CS.
9. The WSN VP establishes a call with the end user. The PM receives the call status from the VP and sends it to the WS CS.
10. The WS CS sends a request to play an announcement and collect digits to the WSN PM for the VP.

11. The WSN VP plays the announcement to the end user and allocates a single tone-detector channel for the end user's leg of the call. The announcement prompts the end user to accept the call.
12. If the end user enters digits in response to the prompt, the WSN VP collects the digits and releases the tone-detector channel. The PM receives the digits from the VP and sends them to the WS CS.
13. The WS CS can send a request to play a second announcement to the WSN PM for the VP.
14. The WSN VP bridges the end user's call leg to the dedicated channel, which continuously plays an announcement (music) to the end user while waiting for the connection to the CSR.
15. The WSN VP tells the PM that the call has been bridged, and the PM forwards the information to the WS CS.
16. The WS CS sends a create-call request to the WSN PM for the VP.
17. The WSN VP allocates an outgoing channel and creates a new call handle. The PM receives the call handle from the VP and sends it to the WS CS.
18. The WS CS sends a connect-call request with the CSR's toll-free number to the WSN PM for the VP.
19. The VP launches the call to the CSR's number through the 4ESS to the AT&T switched network.
20. The WSN PM receives call-status information (for example: connected, busy, or ring — no answer) from the VP and sends it to the WS CS.
21. The WSN VP establishes a call with the CSR. The PM receives the call status from the VP and sends it to the WS CS.
22. After the CSR answers, the WS CS sends a request indicating that digit collection must be active throughout the call to the WSN PM for the VP.
23. The VP allocates a single tone detector channel for the CSR's call leg.
24. The WS CS sends a request with the CSR's call handle and the announcement ID of a dedicated channel to the WSN PM for the VP.
25. The WSN VP bridges the CSR's call leg to the dedicated channel, which continuously plays an announcement to the CSR prompting for call acceptance.
26. If the CSR enters a digit in response to the prompt, the VP unbridges the CSR's call leg from the dedicated channel and collects the digit. The WSN PM receives the digit from the VP and sends it to the WS CS.
27. The WS CS can send a request to play a text-to-speech announcement to the WSN PM for the VP.
28. The VP plays the requested announcement to the CSR.

29. If the CSR enters a DTMF response to the prompt, the VP terminates the announcement (if still playing) and collects the digits. The WSN PM receives the digits from the VP and sends them to the WS CS.
30. Steps 27 to 29 can be repeated.
31. The WS CS sends a request to play an announcement to the WSN PM for the VP.
32. The VP plays the announcement, which indicates that the end user will be bridged.
33. Upon receiving an unbridge request from the WS CS via the WSN PM, the VP unbridges the end user from the dedicated announcement (music).
34. Upon receiving a bridge request from the WS CS via the WSN PM, the VP bridges the end user and CSR together.
35. If the CSR inputs digits to push a page to the end user, the VP collects the first digit, mutes the end user's call leg, collects the entire series of digits, and unmutes the end user's call leg. The PM receives the digits from the VP and sends them to the WS CS.
36. The WS CS sends the digits to the Instant Answers Call Manager, which maps them to the appropriate Web page to present to the end user.
37. If an error occurs (for example, when the end user browses away from the CSR's page), the WS CS can send a request to play an announcement to the WSN PM for the VP. The announcement alerts the CSR to the error.
38. Voice communication ends when either party hangs up or the WS CS instructs the WSN VP via the PM to end the call.
39. The WS CS ends the call by sending requests to the WSN PM to destroy the calls to the end user and CSR and to destroy the bridge session. The WSN PM instructs the VP to tear down any existing calls and release any resources allocated for those calls.

Configuring Routers

I

What's in This Appendix?

This appendix contains:

- Who to contact with questions about connectivity between WorldSHARE NAP and the AT&T WorldSHARE core server
- Procedures for configuring Cisco 2524 routers

Disclaimer

AT&T is responsible for the information in this appendix, including maintaining the information and making sure that it is current. Lucent Technologies is not responsible for the accuracy of this information.

Contact Information

For questions about setting up and maintaining connectivity between WorldSHARE NAP and the WorldSHARE core server, contact IETS Platform Support at the telephone numbers listed below.

Router Configuration and IP Addresses

For question about router configuration and IP addresses for the machines and routers on the 2 56-Kbps lines, contact IETS Platform Support:

Abhay Raut
Telephone (732) 576-5569
Pager: (800) 756-1133, PIN 908 262 3331

Alternate contact:

Nisar Ahmad
Telephone (732) 576-5564

Router Maintenance, 56-Kbps Lines, and Connectivity Alarms

For question about router maintenance, the 56-Kbps lines, and alarms for loss of facilities, contact IETS Maintenance:

Greg Sheehan
Telephone (732) 576-5477

Cisco 2524 Router

Assumption: The router to be configured in this procedure is new.

This procedure has been written using similar routers (models 2501 and 2509). As a result, some of the responses may vary for the 2524 router.

Configuring the Router

You need:

- Cisco 2524 router
- PC or dumb terminal with serial interface.
- Router console port to serial port cable

Connect the Router to the CSU/DSU

1. Connect cable **Male DTE V35** to DSU/CSU port **V35** and router port **Serial 0**.
2. Connect **56K link AREZ 311271** to the 56K link port of the CSU/DSU.
3. Power up the CSU/DSU and check for any error conditions.

Connect the Router to the Terminal

1. Connect the cable to the console port of the router.
2. Connect the other end to a PC serial port.
3. Start application **hyperterm** and connect to same port as the router cable.
4. Connect the 56K link **AREZ 311271** to the first router.
5. Connect the other 56K link **AREZ 311273** to the second router.

Procedure to Set up the Router

1. Power up the first router.

   You should see messages similar to the following:

   ```
   System Bootstrap, Version 5.2(8a), RELEASE SOFTWARE
   Copyright (c) 1986-1995 by cisco Systems
   2500 processor with 4096 Kbytes of main memory
   . . .
   . . .
   ```

2. Make the responses shown in boldface type for each of the following system messages.

   ```
   Continue with configuration dialog? [yes]: <Enter>
   ```

   ```
   First, would you like to see the current interface
   summary? [yes]: <Enter>
   ```

   ```
   Interface  IP-Address  OK?  Method   Status                Protocol
   Ethernet0  unassigned  YES  not set  administratively down  down
   Serial 1   unassigned  YES  not set  administratively down  down
   ```

   NOTE:
   You may see more interfaces in the summary.

   ```
   Configuring global parameters:
   ```

   ```
   Enter host name [Router]: rtlzil12
   ```

   NOTE:
   The enable secret is a one-way cryptographic secret used instead of the enable password when it exists.

```
Enter enable secret []: <Enter password 1>
```

NOTE:
The enable password is used when there is no enable secret and when using older software and some boot images.

```
Enter enable password []: <Enter password 2>
Enter virtual terminal password: <Enter password 2>
Configure SNMP Network Management? [no]: <Enter>
Configure IP? [yes]: <Enter>
Configure IGRP routing? [yes]: n<Enter>
Configure RIP routing? [no]: n<Enter>

Configuring interface parameters:

Configuring interface Ethernet0:
Is this interface in use? [no]:<Enter>

Configuring interface Serial0:
Is this interface in use? [yes]: <Enter>
Configure IP on this interface? [yes]: <Enter>
Configure IP unnumbered on this interface? [no]: <Enter>

IP address for this interface []: 135.25.86.250

Number of bits in subnet field []: 14<Enter>
```

3. Answer NO to all other questions until the following message is displayed.

```
Use this configuration? [yes/no]: yes
Building configuration...
[OK]
Use the enabled mode 'configure' command to modify this
configuration.
```

4. Confirm that the configuration for serial link looks like:

```
rtlzil12(boot)# show conf <Enter>

!
interface Serial0
ip address 135.25.86.245 255.255.255.252
!
```

Abbreviations

Numeric

4ESS
Electronic Switching System 4

5ESS
Electronic Switching System 5

µ

µP
microprocessor

A

A
Ampere

AC
alternating current

Ack
acknowledgment

ACO
alarm cut off

AFSC
Advanced Features Service Center

ALRM_MGR
alarm manager

ALRM_SND
alarm send

AMA
automated message accounting

AMI
alternate mark inversion

API
application programming interface

APN
action point numbering

appoos
application out of service

APPL
application (alarm)

ASN
AT&T switched network

AUI
attachment (or autonomous) unit interface

B

B8ZS
binary 8-zero substitution

B-channel
bearer channel (for ISDN)

BD
board

BDFB
battery distribution fuse board

BIOS
basic input/output system

BPV
bipolar violation

BTFN
base traffic number

C

CAFS
CONVERSANT Applications Field Support

CD
card (for example, CD type or CD options)

CLEI
common language equipment identifier

CLLI
common language location identifier

CMF
Core Maintenance Features

CMOS
complementary metal-oxide semiconductor

CNI
common network interface

CO
central office

Col
collision

COM
communications port

CS
core server (WorldSHARE)

COS
class of service

CP
calling party

CPE
customer-premises equipment

CPU
central processing unit

CRC
cyclic redundancy check

CSR
customer service representative

CVIS
CONVERSANT Voice Information System

D

DB
database

DBFM
database file manager

DBMS
database management system

DCRIP
DCROS interface process

DCROS
Data Collection and Reporting Operations System

DC
direct current

D-channel
data (signaling) channel (for ISDN)

DCS
data collection service

DFP
data file propagation

DID
direct inward dialing

DIP
data interface process

DIR
directory

DMA
direct memory access

DN
dialed number

DNIS
Dialed number identification service

DS0
Digital Service 0

DS1
Digital Service 1

DSP
digital signal processor

DSR
demand status report

DSU
data service unit

DSX
digital signal cross-connect

DTMF
dual-tone multifrequency

DWAN
Datakit wide-area network

E

EGA
enhanced graphics adapter

EMI
electromagnetic interference

ENAC
Engineering Network Administration Center

EPROM
erasable/programmable read-only memory

ESD
electrostatic discharge

ESDI
enhanced small-device interface

ESF
extended superframe

ESP
enhanced service provider

ESS
electronic switching system

ET
error tracker

F

FAC
facility number

facility message

FACE
Framed Access Command Environment

FE
framing bit error

FIC
frame identification code

fifo
first in, first out

foos
facility (far end) out of service

FS
framing slip (error)

G

Gbyte
gigabyte (2^{30} or 1,073,741,824 bytes)

GS
gateway server

H

Hex
hexadecimal

hwoos
hardware out of service

Hz
Hertz (cycles per second)

I

iA
Instant Answers

ID
identification

IDE
integrated drive electronics

IDF
Intermediate Distribution Frame

IE
information element

IETS
Internet Enhanced Telephony Service

inserv
in service

I/O
input/output

IP
Internet protocol

IPC
interprocess communication

IRQ
interrupt request (level)

ISC
intersubrack cable

ISDN
Integrated Services Digital Network

ISDN-PRI
Integrated Services Digital Network Primary Rate Interface

ITN
Integrated Test Network

J

J
jumper block

JP
jumper plug

K

Kbyte
kilobyte (2^{10} or 1024 bytes)

L

LAN
local area network

LED
light-emitting diode

LIP
LAN interface process

LOS
loss of signal

LPBK
loopback

LRPA
long-running process alarm

M

mach
machine

manoos
manually out of service

MAP
Multi-Application Platform

Mbyte
megabyte (2^{20} or 1,048,576 bytes)

MCOL
measurement collector

MDI
media dependent interface

MEGA
MAP 2000 (platform alarm)

MHz
megaHertz (10^6 or 1,000,000 cycles per second)

MML
machine-to-human language

MMLI
machine-to-human language interface

MMOC
Minicomputer Maintenance Operations Center

moos
manually out of service

MPC
Multi-Purpose Concentrator

MSG
message

N

NAP
Network Adjunct Platform

NAU
network access unit

NCS
Network Computing Services

NEBS
Network Equipment Building System requirements

NESAC
National Electronic Systems Assistance Center

netoos
network out of service

NFAS
nonfacility-associated signaling

NM
network management (control LED)

NOC
Network Operations Center

NPA
numbering plan area

NSD
Network Services Division

NSCX
network services complex

O

OA&M
operations, administration, and maintenance

OAM&P
operations, administration, maintenance, and provisioning

OAS
Originating AT&T Switch

ONAC
Operations Network Administration Center

OOB
out-of-band

OPM
other PM

OSWF
onsite work force

P

PBX
private branch exchange

PC
personal computer

PDD
post-dial delay

Perl
Practical Extraction and Reporting Language

PID
process ID

PM
provisioning and maintenance machine

PMO
Production Management Organization

POTS
plain old telephone service

PPE
packet processing element

PRI
primary rate interface

PRIB
PRI B-channel

PRID
PRI D-channel

PROM
programmable read-only memory

PTY
parity

Q

QIC
quarter-inch cartridge (drive standard)

R

RAI
remote alarm indication

RAM
random access memory

RES
resource

RP
redirecting party

ROMS
read-only memory shadowing

RS
recommended standard

RTN
return

RX
receive

S

SCCS
switching control center system

SCSI
small computer systems interface

SCANS
Software Control and Notification System

SIMM
single in-line memory module

SIOA
start of input/output address

SIP
single in-line module with pins

SLAN
StarLAN

SMW
service management workstation

SMWI
SMW interface

SP
signal processor

SPIP
SP interface

SR
subrack

SSC
Special Service Code

STP
solution and technology planning

SW
switch

SWAN
Security Watchdog for the AT&T Network

T

T1
transmission interface 1

TCAP
Transaction Capability Access Part

TCC
Technology Control Center

TCP/IP
transmission control protocol/internet protocol

TD
tone detector

TDET
tone detector

TDM
time-division multiplexing

TGEN
tone generator

TM
time manager

TMM
Telocator Message Manager

TNM
Total Network Management

TOPAS
Testing Operations Provisioning Administrative System

TP
target party

TSC
temporary signaling connection

TSG
Technical Support Group

TSM
transaction state machine

TTS
text to speech

TWIP
T1 input process

TX
transmit

U

UART
universal asynchronous receiver/transmitter

URL
uniform resource locator

UTC
Coordinated Universal Time

V

V
Volt

VCS
Virtual Circuit Switch

VGA
variable graphics array

VIS
Voice Information System

VP
voice processor

VROP
voice response output process

VRU
voice response unit

W

WIP
WSFE interface process

WS
WorldSHARE

WS CS
WorldSHARE core server

WSN
WorldSHARE NAP

WSFE
wideband switch-fabric entity

Glossary

Numerics

4ESS
The AT&T electronic switching system used in central offices (COs).

4ESS frame
Rack used for NAP systems. All new systems are delivered in 5ESS cabinets.

5ESS cabinet
Cabinet used for NAP systems.

A

Advanced Features Service Center (AFSC)
An AT&T work center with responsibilities that include provisioning and maintaining the SSA-based call redirection features.

alarm manager (ALRM_MGR)
A software process that collects potential alarms from provisioning and maintenance (PM) systems, gateway server (GS) systems, and voice processing (VP) systems at a NAP site, determines which of these alarms to raise, and alerts the ALRM_MGR on the primary PM.

alarm send (ALRM_SND)
A software process that transmits alarms to Total Network Management (TNM).

application programming interface (API)
A set of standard software calls that an application program uses to communicate with another application program or with a computer operating system. Applications running on the AT&T WorldSHARE core server and WSN 1.1 running on the NAP communicate through an API.

AUDIT
A software process that runs continuously or on demand, and performs functions such as ensuring that both Provisioning and Maintenance (PM) systems are synchronized.

B

backup
The preservation of the information in a file in a different location, so that the data is not lost in the event of hardware or system failure.

B-channel
A bearer channel, which ISDN uses to carry either voice or data. The D-channel provides call data and signaling information for the B-channels.

byte
A unit of measurement for data storage. On many systems, a byte is 8 bits (binary digits), the equivalent of one character of text.

C

card
On a command line, the designation for a module in the Communicore, or a card in a MAP/100C PM.

cartridge tape drive
A high-capacity data storage/retrieval device that can be used to transfer large amounts of information onto high-density magnetic cartridge tape based on a predetermined format. This tape can be removed from the system and stored as a backup, or used on another system.

caution
An admonishment used when there is a possibility of a service interruption or a loss of data.

class of service
A collection of features and services assigned to each phone in a system.

common language location identifier (CLLI)
An equipment location code that identifies each NAP location.

common network interface
A connecting point in or between networks that can be accessed using a standard set of protocols.

Communicore
A programmable switch controlled by a CONVERSANT. In the NAP platform, the Communicore is part of a MAP 2000 and is controlled by a MAP/100C. Previously referred to as an MCH-1000 or a WSFE.

control 360 module
A Communicore module that provides communications between itself, other Communicore modules, and the MAP/100C. The control 360 module gathers and disseminates a variety of status reports and control directives.

CONVERSANT System
A system used to automate functions such as supplying information to banking customers that would otherwise need human attendants. The CONVERSANT system software runs on an AT&T 6386 and on the CONVERSANT Multi-Application Platform (MAP) 100C. Also called an INTUITY CONVERSANT system.

Core Maintenance Features (CMF)
A NAP software package that provides standardized OAM&P support utilities, commands, and reports to the system.

core server
See *WorldSHARE core server*

D

danger
An admonishment used when there is a possibility of personal injury.

database file manager (DBFM)
A software process that receives call record updates from the provisioning and maintenance (PM) systems, looks up data for call processing and routing, and searches the application database for routing information when a call setup message comes in from a PM system.

Data Collection and Reporting Operation System (DCROS)
A CONVERSANT Multi-Application Platform (MAP/100C) that collects, stores, and formats call records from NAP sites.

data interface process (DIP)
A software function that supplies call redirection logic for VP call-processing channels. The DIP handles application software calls by choosing trunks, setting up outgoing calls, and controlling conferences, speech recordings, digit collection, and the application script.

database
A structured set of files, records, or tables.

Datakit
The fiber circuit and software hubs that compose a Datakit wide-area network (DWAN).

D-channel
A data channel, which ISDN uses to carry control signals and call data, including signaling information for its B-channels. The B-channels carry voice or data.

DCROS interface process (DCRIP)
A software function that retrieves call records from the provisioning and maintenance (PM) systems.

dedicated wide-area network (DWAN)
An AT&T fiber network that connects all the 4ESS sites in the United States. Datakit hubs supply software functions for the network.

dialed number
The number dialed by the person making a call. This may not be the same number sent out by the switch when it routes the call.

Dual-tone multi-frequency (DTMF)
The signals used for dialing and signalling on a voice line. Also known as a touch-tone.

E

end user
Originator of a WorldSHARE call.

Engineering Network Administration Center (ENAC)
An AT&T work center with responsibilities that include NAP machines and PRI 4ESS traffic engineering and customer load balancing.

enhanced service provider (ESP)
A machine or series of machines that collects digits entered by a caller, such as a credit card number, before the caller is connected to an attendant. An ESP may or may not be owned by AT&T.

error tracker (ET)
A software process that filters error conditions and determines whether alarms will be generated for them.

F

firmware
Computer programming functions that are implemented through memory units on the Communicore modules.

facility number (FAC)
A 4ESS field that must be administered with a specific trunk group number to ensure that each PRI channel is identified correctly.

fast flash LED
A state in which a Communicore module LED flashes 3 times per second.

flash LED
A state in which a Communicore module LED flashes once per second.

flutter-flash LED
A state in which a Communicore module LED flashes rapidly (in a pattern that can be irregular).

G

gateway server
A MAP/100C, combined with a provisioning and maintenance machine on WSN 1.1, that processes call requests from the AT&T WorldSHARE core server.

gigabyte (Gbyte)
Approximately one thousand million bytes (1,073,741,824 bytes).

ground bushing
A bushing that is used to ground a Communicore subrack. A ground wire is attached from the bushing on the subrack to a mounting hole on the 5ESS cabinet.

H

hard-disk drive
A high-capacity data storage/retrieval device located inside a computer platform.

hub
A device that connects nodes and other network devices in a LAN network.

I

image tape
A full image backup tape of a machine. An image tape can be used to reload software on machines of the same type in case of disaster recovery.

inbound subscriber
An AT&T 800 service customer.

information element (IE)
A logical block of data in a Q.931 message - for example, information about calling, called, and redirecting-party identification.

Instant Answers
A WorldSHARE service that provides Web-page capabilities to businesses whose agents do not have access to the Internet. Instant Answers translates dual-tone multi-frequency (DTMF) digits from a telephone key pad into Web pages for display on the Internet.

Internet Enhanced Telephony Service (IETS)
The name of WorldSHARE NAP on the 1.0 release.

interprocess communication (IPC)
A software process used by the data interface process (DIP) to control the script of an application software program.

intersubrack cable (ISC)
A cable that is used to connect Subrack-1 to Subrack-2 of the Communicore. One end of the ISC is labeled “Subrack-1.”

INTUITY CONVERSANT System
A system used to automate functions such as supplying information to banking customers that would otherwise need human attendants. The CONVERSANT system software runs on an AT&T 6386 and on the CONVERSANT Multi-Application Platform (MAP) 100C. Also called a CONVERSANT system.

L

LEDs
See *Status LEDs*

M

machine-to-human language (MML)
A language used to segment data transmitted across the TNM link.

machine-to-human language interface process (MMLI)
The process used to segment data transmitted across the TNM link.

MAP/100C
A frame-mounted 80486DX PC used primarily to provide services for large central office (CO) telecommunication switches and services.

MAP 2000
The hardware platform for the voice processing service at a NAP site. A MAP 2000 consists of a MAP/100C configured for voice processing and a Communicore.

MCH-1000
Previous name for Communicore. See Communicore.

measurement collector process (MCOL)
A software function that synchronizes data between provisioning and maintenance (PM) systems and stores call measurement data.

megabyte (Mbyte)
A unit of measurement for data storage equal to 1,048,576 bytes.

Minicomputer Maintenance and Operations Center (MMOC)
An AT&T work center with responsibilities that include maintaining DCROS and CompuLert, and administering and maintaining the Datakit network.

module
A Communicore circuit pack, covered with a plastic shell, that is inserted into the chassis/backplane assembly of a subrack.

mounting bracket
A Communicore part that fastens to the 5ESS cabinet in order to hold a chassis/backplane assembly in place.

mounting hole
A hole, located on the 5ESS cabinet, that is used to ground a Communicore subrack. A ground wire is attached from a bushing on the Communicore subrack to the mounting hole.

N

National Electronic Systems Assistance Center (NESAC)
The AT&T organization responsible for providing support to the TCC, PMO, and ONAC for resolution of adjunct platform and application problems. NESAC is the NCS interface to Lucent.

network
In this book, the AT&T 4ESS-based switched network.

Network Adjunct Platform (NAP)
A platform consisting of software, MAP 2000s, and PMs interconnected by a LAN and connected to the AT&T switch network by a standard AT&T 4ESS interface such as ISDN-PRI. This platform and the applications that run on it provide various types of 800 number call processing services. Small Scale Adjunct (SSA) formerly referred to the combination of the above platform and the application software now called Transfer Connect Service (TCS).

Network Computing Center (NCS)
Organization responsible for operating and maintaining the AT&T Long Distance Network.

Network Operations Center (NOC)
Center located in Bedminster, NJ responsible for monitoring AT&T Switched Network activity.

network services complex (NSCX)
A device that collects digits and plays announcements.

Network Systems
The AT&T business unit responsible for the AT&T network.

non-facility associated signalling
A method of signalling using Link Access Protocol for a D channel that is designed to control many T spans of 64Kb bearer channels.

O

onsite workforce (OSWF)
An AT&T work center with responsibilities that include hands-on work with 4ESS equipment and access.

Operational Support Center (ONAC)
An AT&T work center with responsibilities that include NAP architecture update and DCROS software support.

option strap
A plastic strap positioned over pins on the network access unit (NAU) and used to assign options.

other PM (OPM) process
A software function that applies database changes to local copies of the database on that provisioning and maintenance (PM) system.

out-of-band signaling
Signaling carried by a PRI D-channel between customer premises equipment (CPE) and the AT&T network.

P

peg count
Raw count of the number of calls. Usually peg counts display the number of calls received in a 24-hour period, a week, or a month. Peg counts do not reflect duration or any other call attributes.

Perl
Practical Extraction and Reporting Language

power/maintenance module
A Communicore module that provides power and maintenance functions for a single Communicore subrack.

power cord
A Communicore cord that is used to supply power to a subrack. The power cord is attached from the fuse panel to the Power/Maintenance module on the Communicore subrack.

PRI (T1) module
A Communicore module that provides ISDN Layer 1 Primary Rate Interface T1 termination.

Primary PM machine
The PM machine that collects alarms and measurements.

Primary Rate Interface
A digital interface capable of both receiving and originating telephone calls directly to/from an AT&T 4ESS switch.

Production Management Organization (PMO)
An AT&T work center with responsibilities that include resolving NAP and Service Management Workstation (SMW) problems, and supplying administration and maintenance support to DCROS.

provisioning and maintenance (PM) system
A system of centralized database management for NAP applications. Each PM is a CONVERSANT Multi-Application Platform (MAP) 100C.

R

rcard
On a command line, the designation for a circuit card in the MAP/100C VP.

resource card
A circuit card in a MAP/100C. In command lines, designated by **rcard**.

S

script
A high-level program in a language the user can understand.

secondary PM
A PM that is not the primary PM; a PM that is the backup to the primary PM.

Service Management Workstation (SMW)
A Sun Microsystems-based workstation in a system with file servers that enables provisioning and maintenance of customer records throughout the 4ESS network.

signal processor (SP) board
One of three circuit boards used by the MAP/100C in the VP for voice processing and connectivity. One SP board provides voice announcements (with T1 boards). The second SP board provides announcements by converting text to speech. The third SP board terminates the PRI for the calls.

SMW interface (SMWI) process
A software function that applies customer record add/update/delete operations to the local provisioning and maintenance (PM) system database and directs REMTRANS to propagate the records to all VPs and to the secondary PM.

SP input process (SPIP)
A software function that interfaces with the signal processor (SP) circuit boards.

StarLAN (SLAN)
An AT&T 1-Mbps PC local area network (LAN) that links intelligent workstations, asynchronous terminal, printers, modems, and host computers.

status LEDs
Circuit-board LEDs that indicate the status of a Communicore circuit board.

SWAN
Security Watchdog for the AT&T Network. SWAN monitors security-related events and generates reports that point out where security vulnerabilities may lie.

switch module
A Communicore module that provides connections between interfaces for both packet and circuit switching.

T

Technology Control Center (TCC)
The AT&T organization responsible for resolving basic hardware and software alarms, isolating faults, and diagnosing problems. The TCC escalates unresolved issues to the NESAC.

time-division multiplexing (TDM)
A technique for transmitting a number of separate signals simultaneously over one communications medium by quickly interleaving a piece of each signal one after another.

tone detector module
A Communicore module that contains a Digital Signal Processor (DSP) capable of detecting tones on a voice call.

tone generator module
A Communicore module that contains a Digital Signal Processor (DSP) capable of generating tones on a voice call.

traffic
The flow of information or messages through a communications network for voice, data, or audio services.

transaction state machine (TSM)
A software process that runs the script of a NAP software application.

T1 input process (TWIP)
A software function that interfaces with the T1 circuit boards.

U

UNIX
A multiuser, multitasking computer operating system developed by Bell Laboratories.

V

voice response output process (VROP)
A software function that plays and retrieves speech phrases.

W

warning
An admonishment used when there is a possibility of equipment damage.

WSFE
Previous name for the Communicore. See Communicore.

WIP
Communicore (previously known as the WSFE) interface process.

WorldSHARE
An AT&T service that enables subscribers to administer voice calls through the AT&T switched network (ASN) from appropriately equipped Web pages on the Internet.

WorldSHARE core server
An AT&T machine that interfaces with WorldSHARE and Instant Answers Web servers, looks up call information, and communicates call requests via an application programming interface (API) to the NAP PM/GS and VP machines.

WorldSHARE NAP (WSN)
A NAP software application package that supports AT&T's WorldSHARE service.

Index

Numerics

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

R

S

T

U

V

W