



Passport 4400

Release Notes for R3.1.2

Part Number 800-1953-31, Rev. D

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Introduction 1

The document provides information on the Passport 4400, Release 3.1.up to Release 3.1.2., available for general customer release. You will find information on the software files, the documentation and the new features. Additionally, there is a section on current known issues with the software and one on manual updates.

Documentation

The following relevant Passport 4400 documents are available on the following Nortel Networks Web site:

<http://esweb2.us.nortel.com/imds?pg=/prod/passport4000>

Note: We recommend that you use the Passport 4400 Introduction, 800-1982-31 as a guide through the other documentation. It provides a *roadmap* and *master index* of all the documentation.

- 800-1982-31, Passport 4400 Introduction Manual
- 800-1951-31, Passport 4400 Hardware Installation Manual
- 800-1983-31, Passport 4400 InstallTool Release 2.0 Startup Manual
- 800-1952-31, Passport 4400 Operator's Manual
- 800-1950-31, Passport 4400 CLI Reference Manual
- 800-1943-31, Passport 4400 Analog Voice Modules Manual
- 800-1944-31, Passport 4400 T1/E1 and Digital Voice Module Manual
- 800-1942-31, Passport 4400 ISDN BRI Voice Module Manual
- 800-1961-20, Passport 4400 Low-Speed Data Services Manual
- 800-1988-31, Installation Instructions for 16 MB Flash Memory

These are available on CD-ROM, which can then be installed on a workstation and accessed on-line.

In addition, the following Passport 4400/6400 Interworking documents are available from the Nortel Networks Performance Online Web site (access to this site requires a Performance Online password, which can be obtained through your distributor):

- 241-7501-500, Passport 4400 and 6400 Interworking Guide
- 241-7501-505, Passport 4400 and 6400 Quick Start Guide

Upgrading from Previous Releases

Considerations

Passport 4400

- *Upgrading Release 2.0.3 through 2.0.7 to Release 3.1.x:* You must first upgrade to Release 2.0.8 or later before upgrading to Release 3.1.x. This phased approach will preserve your custom configurations.

Note: Upgrading to Release 2.0.3 from earlier 2.0.n releases requires a system default reset of the Passport 4400.

- *Upgrading from Release 2.0.6.0.0.1 to Release 3.1.x:* You can upgrade directly to Release 3.1.x. This upgrade can be made without a default reset of the Passport 4400.

Note: If the traffic management parameter *Weighted Round Robin* is enabled, you must first disable it prior to upgrading. Re-enable the parameter after the upgrade is complete.

When upgrading from Release 2.0.x to 3.1.x, any IP routing RIP compatibility parameters that were configured as Rip1 will be converted automatically to Rip1Compatible. If Rip1Compatible is not the desired RIP compatibility setting, you will need to change this parameter back to Rip1.

InstallTool

- Notes:**
- InstallTool Version 1.0 only supports Release 3.0 software.
 - InstallTool Version 2.0 only supports Release 3.1 software.
 - InstallTool Version 2.01 supports Release 3.1, Release 3.1.1 and Release 3.1.2 software.

Upgrading from Release 2.0.3 to 2.0.8

Note: You may want to save the current configuration file to a TFTP server first, and then reload the configuration file after the upgrade.

1. Load the Passport 4400 Release 2.0.8 software onto your TFTP server. The Passport 4400 Release 2.0.8 files can be obtained by (from your certified distributor) copying the appropriate files from one of the following sites:

<http://esweb2.us.nortel.com/imds?pg=/prod/passport4000>
<http://www3.nortelnetworks.com/iso/protect/FtpServer>
<http://www3.nortelnetworks.com/iso/protect/passport/index.html>

2. If necessary, start a telnet session with the Passport 4400 and access the CLI.

3. If necessary, disable weighted round robin traffic management:

```
define tm weightedRoundRobin disabled
```

4. Download the Release 2.0.8 application code on to the Passport 4400 using TFTP. For detailed information on performing this download, refer to "TFTP Software Download" on page 9-5 of the Operator's Manual. A summary of the steps follows:
 - a. Commit the application code bank that will be write-protected during the download. Example:

```
set system firmware commitcodebank bank1
```

This will write-protect application code bank 1. The application code will be downloaded into bank 2.

- b. Download the application code. Example:

```
download base image specific 192.168.15.30 "pr206001.bld"
```

This will download the file pr200031.bld from the TFTP host with IP address 192.168.15.30.

5. Commit the new application software to the write-protected bank. Example:

```
set system firmware commitcodebank bank2
```

6. Default reset the Passport 4400.

```
reset system default reset
```

At this point, the Passport 4400 is ready to be upgraded to Release 3.1.x.

Upgrading Release 2.0.8 to Release 3.1.2

1. Load the Passport 4400 Release 3.1.2 software onto your TFTP server. The Passport 4400 3.1.2 files can be obtained from your certified distributor. The distributor can download these files from the following sites::

```
http://esweb2.us.nortel.com/imds?pg=/prod/passport4000  
http://www3.nortelnetworks.com/iso/protect/FtpServer.  
http://www3.nortelnetworks.com/iso/protect/passport/index.html
```

2. If necessary, start a TELNET session with the Passport 4400 and access the CLI.
3. If necessary, disable weighted round robin traffic management:

```
define tm weightedRoundRobin disabled
```

4. Download the Release 3.1.2 application code onto the Passport 4400 using TFTP. For detailed information on performing this download, refer to "TFTP Software Download" on page 9-5 of the Operator's Manual. A summary of the steps follows:

- c. Commit the application code bank that will be write-protected during the download. Example:

```
set system firmware commitcodebank bank1
```

This will write-protect application code bank 1. The application code will be downloaded into bank 2.

- d. Download the application code. Example:

```
download base image specific 192.168.15.30 "pr312080.bld"
```

This will download the file pr312080.bld from the TFTP host with IP address 192.168.15.30.

5. Commit the new application software to the write-protected bank. Example:

```
set system firmware commitcodebank bank2
```

6. Restart the Passport 4400.

```
reset system current reset
```

7. Reconnect to the CLI. If necessary, establish another telnet session with the Passport 4400.

8. Re-enable weighted round robin traffic management, if necessary:

```
define tm weightedRoundRobin enabled
```

9. If you used rip1 operation, the upgrade will change the operation to rip1compatible. To return to rip1 operation, enter the following:

```
define ip base ripCompatibility rip1
```

Note: When migrating from Release 2.0.8 to Release 3.1.2, the following parameters need to be checked:

- input gain and output level attenuation will change. (60092415,10236240)
- nodes using FR tunnel lindex 149. The parameters will return to the default parameter. You will have to reconfigure that parameter. (60092410)
- FR tunnel, after upgrade, defaults to 64 kbps, which will give you 5 voice calls. You must provision frtunnel parameters for additional calls.

Required Hardware Release Levels

Release 3.1.x is compatible with all Release 2.0 and later hardware. All five versions of the Ethernet Base Module are supported:

- NTAU01AA
- NTAU01BA
- NTAU01CA
- NTAU01NA
- NTAU01MA

If you have a Marathon and wish to use some of the existing voice modules in the Passport 4400, use the following table to select the modules that can be used.

Equivalent Voice Modules

Description	Passport 4400 Module	Marathon Model Number Equivalent
T1 Voice Module (TVM/1), single channel	NTAY99AA	5000TAM/1E, Rev M or later
T1 Voice Module (TVM/2), dual channel	NTAU14AA	5000TAM/2, Rev M or later
E1 Voice Module (EVM/1), single channel	NTAY15AA	5000EAM/1E, Rev K or later
E1 Voice Module (EVM/2), dual channel	NTAY16AA	5000EAM/2, Rev K or later
Digital Voice Expansion Module (DVEM)	NTAY18AA	5000DVEM/12
Digital Voice Module (DVM)	NTAU60AA (also kits NTBQ54AA and NTBQ55AA)	5000DVM, Rev L or later
Analog Voice/Fax Module (AVM), single channel	NTAU61AA	5000CVM/1
Analog Voice/Fax Module (AVM), dual channel	NTAU62AA	5000CVM/2
Universal Analog Voice Module (UAVM)	NTAU50AA	5000UVM/*T (* = 1 or 20)
FXS Interface for UAVM	NTAY12AA	5000V/XSL
FXO Interface for UAVM	NTLM23AA	5000V/XOL
E&M Interface for UAVM	NTAY09AA	5000V/EM+

Note: Once these modules are installed in a Passport 4400, they should remain as Passport 4400 modules.

Software

InstallTool

InstallTool is the recommended tool for initially configuring the basic services of your Passport 4400. It is sufficient to make the unit accessible within a Passport network. The InstallTool software resides on the following Web/ftp site: <http://www3.nortelnetworks.com/iso/protect/FtpServer>.

Nortel-approved distributors may download the InstallTool software, at no cost, from the Nortel Networks distributor Web site. The InstallTool filenames are as follows:

- it3100034.exe (InstallTool software)
- m1986331b.pdf (InstallTool manual, 800-1983-31, Rev B)

To install the Passport 4400 InstallTool:

1. Access the CD ROM from Windows Explorer (95, 98, NT) and double-click on the file named it3100xx.exe (where xx is the build number).
2. See “Verifying That Dial-Up Networking Is Installed” in the Passport 4400 InstallTool Startup Guide (800-1983-31). You may need to install some files on your PC if dial-up networking is not installed.

Passport 4400 Software

Passports 4400 units are shipped from the factory with the current software version and associated boot code installed. The Passport 4400 application software, boot code, and latest MIB files in the formats below are available on the following Web/ftp site (this site is accessible by your Certified Distributor):

<http://www3.nortelnetworks.com/iso/protect/FtpServer>

The installation procedure is described in the Passport 4400 Operator's Manual (800-1952-31). The following files are on the Web site referenced above. (This site is accessible by your Certified Distributor):

InstallTool

- it3100034.exe (InstallTool software)
- it201readme.doc [pdf] (InstallTool readme file)
- m1986331b.pdf (InstallTool manual 800-1983-31, Rev B)

4430/4450

- bt312080.bld (Passport 4430/50 boot code)
- bt312080.bin (Passport 4430/50 boot code binary image)
- pr312080.bld (Passport 4430/50 application code)
- pr312080.tar (Passport 4430/50 MIB files in tar format)
- pr312080.zip (Passport 4430/50 MIB files in zip format)

4455

- thb312080.bld (Passport 4455 boot code)
- thb312080.bin (Passport 4455 boot code binary image)
- thb312080.bld (Passport 4455 application code)
- th312080.tar (Passport 4455 MIB files in tar format)
- th312080.zip (Passport 4455 MIB files in zip format)

LDM

- ACCGFELX.FIM0200 (LDM code 2.0 for Passport 4400)
- r020.pdf (Release notes for LDM code 2.0 in PDF format)
- r020.ps (Release notes for LDM code 2.0 in postscript format)

The Passport 4400 Application software, is a single file supplied in a “**bld**” format, consisting of the following seven executable images:

- Ethernet Base Module code that runs on the 68040 processor
- Ethernet Base Module code that runs on the 68060 processor
- DSP code for AVM
- DSP code for UAVM
- DVM code for the DVM’s installed on the TVM, EVM and DVEM
- T1 module code for the 80186 CPU on the TVM
- E1 module code for the 80186 CPU on the EVM

Passport 4400 and 6400 Interworking

For proper interworking between the Passport 4400, Release 3.1.x (and later) and the Passport 6400, the following 6400 release levels are required:

- Passport 6400 Release 4.2, SSUP #23
- Passport 6400 Release 5.0, SSUP #10

Network Management

- NMS Release 10.9
- OMS Release 3.1.

New Features

2

The Passport 4400 series of multiservice access devices provides reduced networking costs through the consolidation of various traffic and network requirements. Unique to the Passport 4400 series is end-to-end Quality of Service (QoS) guarantees for various traffic types, simplified operations through integrated management and switched networking, and superior reliability features.

Release 3.1.x targets multiservice Wide Area Network (WAN) consolidation for small and large organizations. It provides both independent networking using Passport 4400 devices in a small network, as well as integrated services and features with Passport 6400/7400 switches for larger networking applications.

Small and medium enterprises (SMEs)—as few as two sites and up to approximately 50 Sites—can now deploy Passport 4400 series-based networks in their WANs. The Passport 4400 series Release 3.1.x answers the requirements of the small WAN with up to 24/30 voice channels at 8 kbps each, plus data combined up to a full T1/E1.

Note that there are no new features in Release 3.1.2. Refer to the Known Features, Section 4, for information on any enhancements.

New Hardware in Release 3.1.x

- **Passport 4455**

The new Passport 4455 uses the same chassis as the 5-slot 4450 model. There is a new CPU on the base module, which approximately doubles the performance. The Passport 4455 is designed for sites where a high volume of telephony and data traffic must be handled. All Passport 4430/4450 interface modules and WAN modules are identical for the Passport 4455.

- Notes:**
- Passport models 4430 and 4450 are not field-upgradeable to the model 4455.
 - Passport 4455 does not support the ISDN BRI Voice Module

- **ISDN BRI voice module (NTAU76BA)**

The ISDN BRI Voice Module provides

- Two voice channels on a single ISDN BRI interface from a PBX or Key System
- ETSI common channel signaling protocol and overlap dialing.
- Interworking with the Passport 6400 series MVP using Q.SIG (E1 MVP).
- Basic calling features like call setup and tear-down.
- Pass-through for all QSIG features, and support for the following QSIG IE options:
 - Sending Complete
 - Locking Shift (local significance)
 - Segmented Message (local significance)
 - Bearer Capability
 - Cause
 - Restart Indicator (local significance)
 - Channel Identification (local significance)
 - QSIG GF Facility (Q.931 code 0x1C, UIPE code 0x37)
 - Progress Indicator
 - Calling Party Number
 - Calling Party Subaddress
 - Called Party Number
 - Called Party Subaddress
 - Connected Party Number
 - Connected Party Subaddress
 - Low Layer Compatibility
 - High Layer Compatibility
 - Transit Counter (codeset 5)
 - Party Category (codeset 5)
 - Redirection Number (Q.931 code 0x76, UIPE code 0x21)

- Notification Indicator
- User to User Info

Note: The ISDN BRI voice module is not supported on the Passport 4455.

- **16 MB Flash memory on base module**

The Passport 4400 series base module now ships with 16 MB Flash memory as standard. This feature is not required for 3.1.x software, but will be required for all subsequent releases. Kits for the upgrade of existing Passport 4400 units to 16 MB Flash are available.

- **Stac Data Compression Hardware Option (for Future Functionality)**

Passport 4400 can now be ordered with the Stac compression processor SIMM module included on the EBM (Ethernet Base Module) to enable the use of hardware data compression once this feature is supported. Stac compression can also be ordered as an upgrade to existing Passport 4400 units, but requires an ethernet base module of NTAU01BA or higher, which contains the socket for this SIMM module.

- **E1 DSU WAN Module**

The E1 WAN module inserts into either the primary or secondary WAN port on the base module. It has a built-in DSU that frames the data to conform to ITU-TG.703/G.704. You can save the cost of purchasing or leasing an external DSU that is often quite expensive. There are two versions of the module due to the following two electrical standards:

- G.703: 120 ohm, twisted pair (DB-156 or RJ48C connector) or,
- 75 ohm coaxial (Male BNC connector).

- **Single Port T1 or E1 Module (T1: NTAY99A or E1: NTAY15AA)**

For smaller applications that do not require two ports or the data ports. This module is most cost effective for this application.

Release 3.1.1 Features

- **RIPv2**

IP/IPX routing is enhanced to offer RIPv2 Variable Length Subnet Mask (VLSM) capabilities and Classless Inter-Domain Routing (CIDR). This provides the flexibility to integrate Passport 4400 series products into any type of IP addressing structure, as required in some large, complex networks (which often use OSPF in the backbone). This feature overcomes the limitation of the previously implemented RIPv1 standard.

Note: The Passport 6400 series will offer RIPv2 in 1999; interworking with Release 3.1.1 is provided using RIPv1.

- **Constant Bit Rate (CBR)**

CBR is available on the base module (Port 1) and on the High-speed Data Module (HDM). This new bit-transparent service is intended to operate at speeds from 600 bps to 384 Kbps to provide clear-channel access and point-to-point service for legacy and video services that are not able to utilize HTDS (HDLC Transparent Data Service). This is particularly useful for running Bisync as well as streaming and surveillance video.

Notes:

- A Passport 4400 device is also required at the destination for termination of these services.
- For video conferencing applications that support HTDS, the HTDS service should be selected.

- **Node and link backup support**

Passport 4400 series supports link backup to a Passport 4400 or 6400/7400 device. As well, node backup provides the ability to designate a second Passport 4400 node as the alternate backup host in case of failure of the primary node.

- **DHCP/BootP relay agent**

Dynamic Host Control Protocol (DHCP) and BootP packets can now be both bridged and routed through the Passport 4400. This permits any third party DHCP server to automatically send IP address assignments/configuration information to your user devices passing traffic through the Passport 4400.

- **IPX filtering**

In addition to the IP filtering capabilities that were in Release 2.0, we now support IPX filtering capabilities allowing the Passport 4400 to accept or ignore specific types of packets based on protocol, source and destination address, and patterns. This can isolate network traffic for security and bandwidth control, thus improving LAN performance.

- **IPX RIP/SAP Request Spoofing**

The RIP/SAP spoofing feature enables the Passport 4400 that is NOT configured for routing to store the most recently used RIP/SAP information locally so that RIP/SAP requests can be intercepted and replied to without the need to send the RIP/SAP packet to the network across the WAN. This feature reduces bandwidth utilization.

Note: For Release 3.1.1, the RIP/SAP spoofing feature is implemented to only intercept RIP/SAP requests from the ethernet side (i.e., not for requests from the WAN side).

- **Transparent CCS voice service**

Transparent CCS (on TVM and EVM digital voice modules) enables support for all PBX CCS protocols in a point-to-point configuration. This signaling channel only uses WAN bandwidth when it is sending signaling information, compared to competitive solutions that continuously reserve 64 kbps of bandwidth. The signaling channel is dropped out of a data port on a digital voice module and connected to a serial port operating HTDS.

Note: Passport 6400/7400 series interworking with transparent CCS is not currently supported.

- **Hoot and Holler**

Hoot 'n' Holler is a trader voice application providing a permanent end-to-end connection across the network. When a broker wishes to communicate with the trading floor, he/she simply presses a button on the handset and starts talking. There is ZERO delay as no call set-up is required. For *Hoot* applications, the far end does not even ring—it is already *offhook*.

Note: Interworking with the Passport 6400/7400 series Hoot and Holler service is not provided.

- **TVM and EVM Enhancements**

Release 3.1.1 provides support of a second T1/E1 interface port on the TVM/2 and EVM/2. It also adds support for the two data ports on all digital voice card versions, with *Drop and Insert* capability. Some voice channels from the first T1/E1 port can be dropped and inserted at 64 kbps (uncompressed) onto a channelized carrier service on the second port for connection to the PSTN. The Drop and Insert feature provides flexible capabilities similar to a small channel bank.

- **Legacy data support**

Interworking with the Passport 6400/7400 series products, the Passport 4400 series uses the LDM (Legacy Data Module) and LEM (Legacy Expansion Module) to provide a rich suite of legacy services including SNA/SDLC, SNA/X.25/QLLC, SNA/Token-Ring, X.25, async X.3/X.28/X.29 and LAN/IP over token ring support. These services require features provided by the Passport 6400/7400 series. These modules are *not supported in a Passport 4400 only network*. New in Release 3.1.1 is that the LDM module is fully manageable using OMSplus Release 3.1.1.

- **InstallTool enhancements**
 - A wizard leads you through the minimum steps needed to bring the Passport 4400 into the network.
 - Auto-discovers the modules installed in the Passport to which it is connected
 - Various tests help you to determine the state or possible problem with the WAN ports and voice modules.
 - Telnet access to CLI for further configuration
 - Popup status dialog boxes show more details

Release 3.0 Features

- **RFC 1490 WAN PVC for direct connect to third-party routers, FRADs and the public Internet**

Passport 4400 allows configuration of a single permanent virtual circuit (PVC) using the standard RFC 1490 encapsulation protocol for connection from a Passport 4400 switch to third-party routers or FRADs in the WAN, or to connect to the public Internet. This PVC is in addition to the standards-based PANL (Passport Access Network Link) protocol PVC already available on the Passport 4400.

- **Switching and cascading for Passport 4400-based networks**

This feature allows Passport 4400 products to be used as the network switch in lieu of a Passport 6400 series product, providing connectivity for one, or a group of Passport 4400 devices. This feature also enables the Passport 4400 series to cascade a third tier (or more) of Passport 4400 devices, where an additional layer of switching can be added to the network topology to provide concentration of low-speed devices into a regional Passport 4400 device. Regional nodes can then be fed to a central-site Passport 4400 device. Up to a total of four tiers, or three switching tiers, are supported. This feature provides for a total WAN size of up to 25 – 50 locations depending on traffic levels.

Note: Additional network scalability can be achieved by adding a Passport 6400/7400 series product, for higher-performance and capacity in the switching sites.

- **TFTP configuration backup and restore**

This unique reliability and serviceability feature allows the network operator to save a Passport 4400 unit's configuration on a TFTP server or management workstation. The configuration can then be downloaded to a new or existing unit. This significantly reduces the amount of on-site time needed to configure a newly installed Passport 4400 unit, or for the deployment of many units with similar configurations.

- **Network management options: NMS and SNMP**

Nortel Networks' NMS provides an integrated network management solution for the Passport 4400 series that offers scalable, carrier-class features. Release 3.1.1 uses NMS Release 10.8 software.

The Passport 4400 series is fully manageable using SNMP where an SNMP management application can be configured to perform the management.

- All of the Release 2.0 feature content.
 - Three and five slots models;
 - Ethernet LAN routing and bridging
 - A variety of expansion modules for serial data and analog and digital voice;
 - Branch access from a Passport 6400/7400 switch or network;
 - Wide area speeds up to T1/E1, with WAN links using public frame relay, leased lines, or ISDN BRI.

This chapter highlights considerations relevant to this release of Passport 4400 software.

Network Requirements

Note: To further ensure proper operation of the Passport 4400 3.1.x software, please refer to the Passport 4400 Engineering Notes and Guidelines document, which can be found on the following Web site:

<http://esweb2.us.nortel.com/imds?pg=/prod/passport4000&view=TechnicalTools>

This document provides guidelines to proper integration of the Passport 4400 into your network, and offers suggested configuration settings based upon specified network scenarios.

Configuration Guidelines

- When both CBR and HTDS services are running simultaneously, some performance and quality problems have been seen. Therefore, only one of these services should be configured at a time.
- The unit will not boot up if the existing IP address is deleted.
- The standalone IP throughput in Release 3.1.2. has been measured at 1500 packets per second with a 64 byte packet size.

Voice Requirements

- **Passport 4400 Network:** You must set up the NAS/NAC services prior to establishing a call across the network.
- **Passport 4400 Interworking with a Passport 6400:** You must provision the VNCS RSA/RSI services prior to establishing a call across the network.
- **RSI Server DNA:** Do not add any RSI servers with a DNA that duplicates an existing RSI server's DNA.

LAN Services

- **Routing:** Do not configure RIP for static routes.
- **Inverse Arp:** For point-to-point links, Inverse Arp (invarp) should only be configured in Basic routing mode (not Easyrouting mode), and only for the unit

receiving the call (e.g., if a Regional Site is calling in to a Central Site, only the Central Site unit should be configured for Inverse Arp).

- **Bridging:** When changing the Bridge Priority on the 4400, save the configuration and reset the Passport 4400 to avoid a spanning tree root bridge re-election.

Device/Network Management

- **InstallTool** is the recommended tool for installing, configuring and monitoring the 4400. See “InstallTool” on page 3-2 for special considerations.
- **Passport 4400 only network:** Any third party network management system can be used to monitor the Passport 4400 only network.
- **Passport 6400 interworking networks** can be configured and monitored via the Passport NMS Tool Release 10.8 (10.9 recommended), or OMS Release 3.1.

6400 Interworking

- Passport 6400 Software should be at a minimum of Release 4.2 (SSUP #23) or 5.0 (SSUP #10).

InstallTool

- InstallTool is not designed to configure Port 1 as the Primary link and Port 2 as a backup link. To do so, you must use the CLI, and follow the procedure for setting up the Primary and Backup as documented in the Operator’s manual.
- **To Change an IP Address on either the Ethernet port or WAN port,** you must delete the first (old) one and then add the second (new) one. On-line help includes detailed instructions on how to do this at the IP address screen.

Software Fixes and Known Issues

4

- Notes:**
- To further ensure proper operation of the Passport 4400 3.1.x software, please refer to the Passport 4400 Engineering Notes and Guidelines document, which can be found on the following Web site:

<http://esweb2.us.nortel.com/imds?pg=/prod/passport4000&view=TechnicalTools>

- This document provides guidelines to proper integration of the Passport 4400 into your network, and offers suggested configuration settings based upon specified network scenarios.

Software Fixes

The following sections describe issues that were problematic in previous Passport 4400 software releases, but have now been resolved. This not a comprehensive listing of all software fixes—just the major fixes.

Note: Voice and fax improvements in Release 2.0.9 are not in Release 3.1.2 They will be in the next RSUP release.

InstallTool Fixes

- Several problems with status colors of ports have been corrected.
- Status screens now display correct information.
- Traffic Management CIR; the InstallTool now sets values according to the Passport 4400 Operator's Manual (800-1952-31).
- Can now set up CBR on Port 1.
- Diagnostics now determine the type of configuration on a serial port and diagnose that service.
- ISDN diagnostics now display correct values.
- Problems with the port icons being grayed out have been fixed.
- Additional documentation is now available on setting up modems connected to the Passport 4400.
- Status and tests on ports with more than one PANL link now show all links.
- Configuring a link for RFC1490 is now performed correctly.

- Configuring and displaying IPX network numbers greater than 4 hex digits is now performed correctly.
- A problem preventing you from changing the Default Gateway DNA was fixed.

Release 3.1.2 Software Fixes:

- **Issue Resolved:** Bus errors no longer detected in voice applications with Passport 4400 ISDN BRI voice calls to the Passport 6400 MVP. (10230864)
- **Issue Resolved:** Cosmetic PrintF messages are prevented from displaying during rebooting. This message was intermittent and only cosmetic, No buffer failed to release as indicated by the message. (10251389)
- **Issue Resolved:** When using the BRI voice applications with the overlap dialing functionality, the Passport 4400 prematurely disconnected calls when extra digits were dialed too quickly. This no longer occurs. (30118946)
- **Issue Resolved:** The Ethernet interface no longer locks up due to high volume of broadcast packets. System memory buffer depletions were corrected. (50130963)
- **Issue Resolved:** Improved the system stability. Intermittent node resets resolved when running IP, IPX and voice traffic applications. (60086661)
- **Issue Resolved:** Backup ISDN BRI calls now work Passport 4400 to Passport 4400. Incoming backup calls are now supported (5ESS, NI1 protocol). (60088269, 60089241)
- **Issue Resolved:** The MPANL link no longer intermittently fails to synchronize after backup activation. (60089100)
- **Issue Resolved:** The display is now the same for the “show sys firm” and “show sys admin” commands. (60089218)
- **Issue Resolved:** Ethernet LAN connections to the Passport 4400 no longer cause the system memory buffers depletion resulting in resets. (60089648)
- **Issue Resolved:** Both an ISDN WAN backup link and a primary T1/E1 CSU link are now supported on the same unit. Any interface module that is configured for DS0 channels will function properly when there is also an ISDN WAN interface module configured on the same unit. (60089915)
- **Issue Resolved:** Bridging lock up when erroneous ARP packets are received no longer occurs. (60090119)
- **Issue Resolved:** Improved system stability and corrected the central node loss of remote node connections. Automatic Reboot Recovery improvement prevents unnecessary reboots. Memory buffer leaks are now prevented; these previously caused the system to lock up and reset intermittently. (60090191)
- **Issue Resolved:** The maximum number of streams that can be successfully open to IP has been increased to 32; previously, the maximum number was 16. This includes IP addresses, UDP, TCP, SNMP NAS...etc. (60090229)
- **Issue Resolved:** It is now possible to configure up to 30 FRDCE DLCIs (of any type) per port. (60090274)

- **Issue Resolved:** With a T1 CSU in Port 2 and a BRI ISDN backup in Port 3, the primary to backup switching functionality now operates correctly with INS64 protocol. (60091361)
- **Issue Resolved:** IP routes are no longer lost from the table. RIP/SAP updates were getting lost in networks with heavy LAN traffic loads. (60091434)
- **Issue Resolved:** Loss of IPX connectivity no longer occurs. (60091972)
- **Issue Resolved:** When the msm traps were enabled and a "show msm link table" command was requested, the CLI did not respond. This no longer occurs. (60092062)
- **Issue Resolved:** There have been improvements to traffic management to cope with instances when the CIR is exceeded. (60092064)
- **Issue Resolved:** IPX has been improved so it does not cause resets. (60092424)
- **Issue Resolved:** Interworking problems faxing from a Passport 6400 MVP
- **Issue Resolved:** No longer do we have PANL links dropping under high LAN load overdriving traffic management. (60092538)
- **Issue Resolved:** When T1 WAN fluctuations occur from the central office, PANL now recovers (when the line stabilizes). (60092639, 60092235)
- **Issue Resolved:** Misconfiguring the ISDN backup will no longer reset the Passport 4400 unit. (60092673)
- **Issue Resolved:** The central node no longer continuously resets when it is configured for six links and two are ISDN. (60092675)
- **Issue Resolved:** Switching from backup to primary SPVC no longer fails to establish with an E1 CSU interface as primary. (60092931)
- **Issue Resolved:** Improvements for incoming ISDN BRI backup calls have been made. The Central side has ISDN on the primary and backup link (both for incoming calls). Branches trying to access the central node will intermittently not get an ISDN connection. (60093237)
- **Issue Resolved:** Manual backup is now working properly. (60093440, 60092828)
- **Issue Resolved:** Voice call connections caused CLI lock ups and the system crashed. This no longer happens. (60093846)
- **Issue Resolved:** The system stability has been improved when running heavy FRDCE loads. (60094789)
- **Issue Resolved:** Corrected the situation when, in certain circumstances, multicast messages would bounce between two Passport units creating high WAN and CPU utilization. (60095055)
- **Issue Resolved:** The restart timer of MPANL has been reduced from two minutes to 30 seconds. This improves the link recovery time. (60095586)

Release 3.1.1 Software Fixes:

- The E1 CSU WAN module feature is now functioning on all Passport 4400 platforms (4430/50/55). (1019979, 10212612, 1026484, 60080097, 60080192, 60081761, 60082088, 60082646, 60083161, 60087881)
- The T1 and E1 modules will permit you to configure more than one DS0 connection on either data port 1 or data port 2, and all configured connections will be operational. See the section “Passport 4400 T1/E1 Digital Voice Modules Manual (800-1944-31, Rev. A):” on page 5-11 for configuration procedures. (50113496, 60086812)
- Port 1 now supports CBR service. (60087023)
- ISDN BRI Voice Q.Sig now features full IE support. See “Release 3.1.1 Features” on page 2-4 for a list of all the Q.Sig IE features now supported.
- Voice quality improvements have been made to reduce voice clipping and general degradation.
- IP/Bridging forwarding rate performance is up by 50%.
- CBR service now operates at speeds as low as 600 bps. Additionally, operation at 2400/4800/9600 baud rate has been improved. (60083597)
- The number of cases of unit lockup, including IPX lockups, have been significantly reduced. In addition, if a unit does lock up, there is now a system recovery mechanism built into the Passport 4400. The unit now auto-resets when a lockup occurs. Activity logs will still show a reset, but the system will have already recovered automatically. (10198278, 10231163, 10234716, 30112326, 60084313, 60086688, 60086978, 60087444, 60090191, 60090257)
- Increased configuration options for the switch from backup link to primary link. You can now configure the Passport 4400 to delay up to 24 hours before it switches from the backup link back to the primary link. (60082643)
- RIP1 packets now send the proper subnet mask. (60083579)
- RIP2 now sends multicast packets to third-party routers. (60084934)
- RFC 1490 link down status now displays.(60083509)
- The show command for 56K CSU now displays correct ifIndex. (60083547)
- The console port can now be configured for 2400 bps. (1015198)
- T1 alarms display correct DS-1 or DSX-1 interface. (60068735)
- T1/E1 CSU WAN modules can now be configured in data port 2. (60083690)
- The Passport 4455 platform can now function as a branch access device.
- The ISDN BRI Voice module can now operate in TE mode, thus solving problems with fax calls using Brother and Ricoh fax equipment. (30113022)
- ISDN BRI voice improvements have been made. (30112498)
- ISDN BRI voice/fax call completion rate has been improved. (10218258)
- ISDN BRI voice collision occurs less frequently. (60087338)

- ISDN backup has been improved to support North American switch types in a 4400 to 6400 interworking network. (60089100)
- 56K CSU CLI initialization display has been corrected. (60083665)
- ARP/routing table entries now display correctly. (10197841, 60084702, 60086809)
- Bridging interoperability between Passport 4400 and Passport 6400 is now functioning properly. (10218694)
- The MAC addresses for transparent bridging between the Passport 4400 and Passport 6400 no longer shift a digit.
- Reboots no longer occur when FRDCE traffic is running with Traffic management enabled. (10229655)
- BECN now reduces the CIR when traffic reaches the congestion point. (1022851)
- When rate enforcement and line efficiency are enabled, the Passport 4400 is now setting the DE bit on out bound frames that exceed the CIR. (60083690)
- IP filtering no longer degrades system performance. (60087520)
- IP multihoming is now supported. (50123016)
- IP supernetting now correctly functions. (50123020)
- The CLI can now be accessed even if all IP addresses have been deleted. (60072134)
- GCM, PANL, LMI, Bridging and Frame Relay traps are now all operational. (10211496, 10213016, 10212589, 10222553, 10225434, 60021334)
- Show system hardware command now displays correct information. (60087137)

Known Open Issues

The following known problems exist in Release 3.1.x. This list in no way illustrates all outstanding known issues. Each outstanding issue is under consideration for a software fix in a future release.

The numbers enclosed in parenthesis (nnnnnnn) are internal tracking numbers.

InstallTool Known Open Issues for v2.01

- **Issue:** This release of InstallTool was designed to work with Passport 4400 Release 3.1.1. A change in the MIB variables that determine the state of a link was made in Passport Release 3.1.1. This change in the InstallTool code means that the status of a FR-DCE, CBR or HTDS link will show incorrectly when those links are on a Passport 4400 running Release 3.1.

Resolution: Install Passport 4400 Release 3.1.1 or 3.1.2. Use the CLI command to check the status of the link:

```
CLI> show fr switch map operational entry <ifIndex> <DLCI>
```

See sections 6 and 7 in the Passport 4400 Operator's Manual (800-1952-31, Rev A.) for instructions on monitoring the status of a Frame Relay, HTDS or CBR link.

- **Issue:** The InstallTool has a problem when the user attempts to configure more than one IP address or DLCI in the Wizard mode. This also occurs in the Configure mode if the user doesn't click on the "Apply" button between each change. The changes or additions will not be made correctly. (60086195, 60086248)

Resolution: If you are in Wizard mode, return to the port after the Wizard completes and use the Configure mode to add or change the information. In Configure mode, always click the "Apply" button after each change. You can check that the changes were saved to the Passport by closing the Configure Panel and restarting it. If the changes took effect, they will be reflected in the screens when the dialog re-opens.

- **Issue:** If you select the "NextPort" button on any screen except the initial screen of a port, it requires all information for the screen be entered. (60085501, 60086689)

Resolution: Use the "Back" button to return to the previous screen, then use the "NextPort" button to advance to the next port.

- **Issue:** InstallTool expects all phone numbers in the network to be the same number of digits. InstallTool fills in the first entry of the Ingress Table with a set of "*" equal to the number of digits in the longest phone number entered, if the table is initially empty. If the Ingress Table already contains a value in table, InstallTool will not alter the table. This means that for network phone numbers shorter than the longest one entered on a particular unit, the Passport 4400's ten-second timeout will take place before the digits are forwarded. (No SR number associated with this issue.)

Resolution: If this behavior is not desirable, you can use the CLI to manipulate the Ingress Table to the desired state. (Refer to the voice manuals).

- **Issue:** On some Windows systems (the problem has been observed only on freshly installed Windows 95 systems so far), when installing the InstallTool, an error message occurs indicating the file MSVCRT.DLL cannot be found. (60079656)

Resolution: The missing file can be installed from the Windows 95 distribution CD by running the setup.exe found in the admin\netools\bsetup directory of the CD. This problem has been reported to the manufacturer of the installation software used to install InstallTool.

- **Issue:** Panels do not re-paint properly when InstallTool is busy. Several of the screens will fail to update if moved or disturbed while the tool is communicating with the Passport 4400. (60080778)
Resolution: This is caused by problems in the Java environment. No user action is required. When the tool is no longer busy, the screens will be refreshed.
- **Issue:** Sometimes the direct connect modem will not set up a PPP connection to the Passport 4400 when it is first installed. (60090172, 60090445)
Resolution: Change the flow control setting of the modem to not use flow control. This is found on the Properties/Connection/Advanced settings section of the modem. Run the Modems control in the Control Panel, select the direct connect modem, and then the properties button.
- **Issue:** The SPID option is not available via the InstallTool. (60089641)
Resolution: Use the CLI to configure the SPID option.

```
def isdn ph Endpoint
```
- **Issue:** When the InstallTool is used to set up a Passport 4400 unit as a Central Site, the ISDN ports are not set in Answer Mode. (60087149)
Resolution: Use the CLI to configure each ISDN port to be in Answer Mode.
- **Issue:** InstallTool erroneously displays the T1/E1 voice module port status reversed. (60086681)
Resolution: Use the CLI to monitor the T1/E1 port status.
- **Issue:** InstallTool cannot be used to set the WAN link speed to 192K baud. (60090424)
Resolution: Use the CLI to configure the WAN link speed if you want to set it for 192K.
- **Issue:** The PPP direct connect occasionally locks up. Users cannot disconnect through the InstallTool. (60090493)
Resolution: Use the Dial-Up Networking icon on the PC from which you are running InstallTool to disconnect.
- **Issue:** The DSP operational status for the EVM displays erroneous information. (60090494)
Resolution: Use the CLI to display EVM information.
- **Issue:** No status information can be displayed for DVM port 10 via the InstallTool. (60090495)
Resolution: Use the CLI to display status information for DVM port 10.
- **Issue:** The InstallTool allows more than 24 T1 CSU channels to be configured. (60090497)
Resolution: Before configuring T1 CSU channels using the InstallTool, check the number of channels you have already configured, and do not configure more than 24. Also, be sure to do a manual save and reset when you configure T1 CSU channels.

Release 3.1.2 Known Open Issues

Note: Voice and fax improvements in Release 2.0.9 are not in Release 3.1.2. They will be in the next RSUP release.

- **Issue:** Do not configure more than six physical (PANL) links. (60095373)
- **Issue:** In the HDM 8-port expansion module, you can only use a maximum of four ports. These must be all of the same bank, either ports 1-4 or ports 5-8. There is a hardware ECO in progress. If you are experiencing this problem, contact GTS. (60094096)
- **Issue:** The ISDN primary switch delay is not working. (60002260)
Resolution: Do not use this feature.
- **Issue:** There are intermittent voice lock ups with ISDN BRI calls over a Meridian PBX switch. This will be fixed in a future release. (60094723, 50125865)
- **Issue:** LAPF failure occurs during CPU utilization of 100% in a switching configuration (as in a central node). This will be fixed in a future release. (60095613)

Release 3.1.1 Known Open Issues

- **Issue:** The loopback feature for troubleshooting the ISDN BRI U interface is non-functional.
- **Issue:** In some test environments, the call completion success rate for bulk (high density) faxes is approximately 70 percent when the ISDN BRI voice module is set to NT mode. (60083099)

Resolution: Use TE mode whenever possible for bulk fax transmissions.

- **Issue:** When the traffic management parameter Rate Enforcement is enabled, fax transmissions experience transmission errors when the 9600 bps voice profile is selected. (No SR number is associated with this issue.)

Resolution: In networks in with voice/fax applications, and in which Rate Enforcement is mandatory, configure the voice profile for Fax Digitizing Rate, and select one of the following:

- Voice Rate
- 7200 bps
- 4800 bps
- 2400 bps

- **Issue:** For video applications, using 256Kbps or higher speeds does not improve the quality of the video. And, there may, in fact, be quality degradation at these higher rates.(6008347, 60083162, 60084194, 60085527)

Resolution: It is recommended that you use speeds of 64 kbps or 128 kbps for video applications.

- **Issue:** When using the Passport 4400 in Bridging mode for IPX, and spoofing is enabled, a client device will fail to attach to the server. (60089915)

Resolution: Do not enable spoofing while bridging IPX packets until the software is fixed. Also, if you have more than two nodes, it is recommended that Easyrouting be enabled as follows:

```
define framerelay port virtual mode 2 easyrouting
```

- **Issue:** Entering the 56K CSU loopback test command does not activate a loopback test. (60089483)
- **Issue:** BRI voice call connections register lost speech and control frames during the call connection. During voice conversations, lost speech and control frame registrations should not increment. (50125144)
- **Issue:** In Bridging mode, invalid addresses have been detected in the SAP entry table. This does not affect functionality. (60089570)
- **Issue:** If the WAN link between two Passport 4400s, each running CBR, goes down for any length of time, there is clock drift, and the clocking will not be synced once the WAN reestablishes its connection. The units must be reset. (60089709)
- **Issue:** When the 56K CSU tx Out of Frame service is invoked and the PANL status displays "Down," the 56K link status displays "Operational" instead of showing an alarm condition. (60089712)
- **Issue:** If your Passport 4400 unit is operating at 100 percent CPU utilization, you will see some degradation in IPX performance. Please consult the Passport 4400 Engineering Guidelines document (URL: <http://esweb2.us.nortel.com/imds?pg=/prod/passport4000&view=TechnicalTools>) to make sure you have configured your passport 4400(s) to operate properly in your network. (60089850)
- **Issue:** E1 CSU set commands require the `save configuration update` and `system reset` commands before the parameter configuration takes effect. (60090108)
- **Issue:** The CLI show presentations are not accurate when you request a show command after provisioning more than the maxdlcsperline configuration allows. (60090355, 60090367)
- **Issue:** The Traffic Management parameter Packet Round Robin is not functioning properly. (60089649)

Resolution: Use the traffic management parameter Weighted Round Robin instead.

- **Issue:** In Bridging mode, the ARP table displays as empty; the bridging functionality is not affected. (60090275)
- **Issue:** When provisioning an ISDN BRI WAN interface as a *leased line* backup from the Passport 4400 to the Passport 6400, the PANL protocol fails to establish a connection. (60090368)
- **Issue:** Voice profile data is not maintained when an upgrade is made from Passport 4400 software release 2.0.7 to release 3.1.1. See "Upgrading from Previous

Releases” on page 1-2 for the suggested upgrade procedure. This will be fixed in a future release. (10236240, 60092415)

- **Issue:** Some problems using the ISDN BRI DTMF (Detection/Regeneration) feature. (30005884)
- **Resolution:** If you experience problems with IVR, voice mail, or pager applications using the DTMF (Detection/Regeneration) feature of the ISDN BRI voice service, you should disable the feature. Another option, which has improved performance for some DTMF applications, is to adjust the DTMF TWIST in the attached voice equipment.
- **Issue:** The ISDN BRI WAN card is set for TE mode, but when the CLI command `show isdn physical basicrate operational table` is issued, the table still shows NT for the attribute `IfMode`. (30115885)
- **Issue:** The bandwidth utilization is displayed for only one primary port when the `show system statistics` command is used. (60082859)
- **Issue:** Problems have been observed with fax transmissions via the Canon L series fax machines.

Resolution: Whenever possible, run ISDN BRI in TE mode.

- **Issue:** The ISDN BRI DSP voice feature does not display a voice level status. (60086828)
- **Issue:** The CLI does not allow for a setting of 56K for the T1 CSU WAN module. You must use the InstallTool to set the T1 CSU to 56K. (60087024)

Resolution: Use the InstallTool to configure a T1 CSU WAN module for 56K.

- **Issue:** For filters set by the Network # and Filter Port (WAN, ethernet, or both), the Passport 4400 fails to filter any packets received from the specified Network # on the WAN if the filter address is set for Source, Destination, or Both. (60088154)

Resolution: If the above problem occurs, disable filtering.

- **Issue:** A filter set based on the Network # in Inclusive mode prevents the Passport 4400 from learning any other nodes in the network. (60088155)

Resolution: Do not use Inclusive mode when you are filtering for Network #.

- **Issue:** If the RIP filter is set to ON for the WAN network address, the RIP packet is still forwarded on the WAN. (60088156)
- **Issue:** Erroneous T1/E1 DS0 alarms. If a T1 or E1 module is not fully populated with all 24/30 DS0s, you will get erroneous status alarms from the Nortel NMS product, Release 10.8. Please disregard the erroneous alarms.
- **Issue:** CBR/HTDS Traffic Problems. When both CBR and HTDS services are running simultaneously, some performance and quality problems have been seen. Therefore, only one of these services should be configured at a time. (60081383)

- **Issue:** RFC 1490: Problems receiving packets from Cisco router with 64 byte size. When the traffic is sent from a Cisco router to a Passport 4400 with 1 ms gap, the traffic will run for approximately one minute, and then the Passport 4400 will stop receiving. The router will report `Interface Serial0 - DLCI 250 state changed to Inactive` and then to `Active`. With larger size packets, this does not occur. (60081692)
- **Issue:** Unit will not boot up if the existing IP address is deleted. (60082840)
Resolution: Enable the commit/rollback feature. If you changed configuration, which isolates the Passport 4400, it will rollback to a configuration that will allow access to the Passport 4400 so that these configuration errors can be corrected. *You do not need to factory default the unit to recover from this problem.*
- **Issue:** Once the primary link comes back up, all traffic on the backup link will time out. This remains in effect until the backup timer counts down to zero. (60083562)
Resolution: When configuring the backup link `ifIndex`, ensure that the number is higher than primary link `ifIndex`. For example, if the primary `ifIndex` is 153, the backup should be 154 or higher.
- **Issue:** Several CLI commands are either obsolete or are being reserved for future software enhancements. (60089533, 60089535, 60089537, 60089564, 6008966, 60089567)
- **Issue:** The WAN optimization feature is not functioning currently. If this feature is enabled, a system lockup can occur.

Manual Updates

5

The following updates have been made to the Passport 4400 user manuals since the manuals went into production. Please make note of these updates in your copy of the specified manual.

Hardware Installation Manual (800-1951-31, Rev A)

- **Page 1-15:** The table contained in the second bullet item under "User's Responsibility" in the **Digital Voice Modules** section, should be replaced with the following table.

Engineering Code	Number used for Agency	Description
NTAY99AA	5000TAM/1E	T1 Voice Module (TVM/1)
NTAY14AA	5000TAM/2	T1 Voice Module (TVM/2)
NTAY15AA	5000EAM/1E	E1 Voice Module (EVM/1)
NTAY16AA	5000EAM/2	E1 Voice Module (EVM/2)
NTAY18AA (requires DVEM Power Cable Harness NTAU32AA)	5000DVEM/12	Digital Voice Expansion Module - 12 Channels (DVEM/12 for TVM/EVM)
NTAU60AA	5000DVM/1	DVM/1 - Single Channel Digital Voice SIMM Module
NTBQ54AA	5000DVM/6	DVM/6 - 6 Single Channel Digital Voice SIMM Modules
NTBQ55AA	5000DVM/12	DVM/12 - 12 Single Channel Digital Voice SIMM Modules

- **Page 1-16:** The table contained in the second bullet item under "User's Responsibility" in the **Analog Voice Modules (AVM, UAVM)** section, should be replaced with the following table.

Engineering Code	Name for Agency (EU)	Description (see note) (for EU only)
NTAU61AA	5000CVM/1	AVM/1 - Analog Voice Module, single channel
NTAU62AA	5000CVM/2	AVM/2 - Analog Voice Module, dual channel (CVM)
NTAU50AA	5000UVM	UAVM/2 - Universal Analog Voice Module (TUVM)
NTLN23AA	5000V/XOL	VIM/FXO - Voice Interface Module for FXO. Approved for Spain, Sweden, Switzerland, Netherlands, France, U.K. and Germany.
NTAY09AA	5000V/EM+	VIM/E&M - Voice Interface Module for E&M
NTAY12AA	5000V/XSL	VIM/FXS - Voice Interface Module for FXS

- **Page 8-2:** Replace Table 8-1, "Description of Ethernet Base Module Indicators," with the following.

Protocol	Indicator	Color	Meaning
All	CP	Flashing green	Application is operational
All	CC	Green	Reserved
All	F3	Green	Reserved
All	F4	Green	Reserved
Switching and Standard Frame Relay Only	P1, P2, P3 (representing Ports 1, 2, and 3)	Off	Interface not present
		Amber	Physical connection exists however PVC LMI is not operational
		Green	PVC LMI is operational
		Red	Physical connection is lost, PVC LMI is not operational
HTDS and CBR Only	P1, P2, P3 (representing Ports 1, 2, and 3)	Off	Interface not active
		Amber	No physical connection
		Green	Application operational
		Red	Not used

- **Pages 9-5 and 9-6:** Replace Tables 9-1, 9-2, and 9-3 with the following:

Table 9-1. Configuring the Power Supplies

For Units Containing...	4400 with Standard Power Supply	4400 with Redundant Power Supply	AC Units...	DC Units...
1-3 Modules including the base module	Unplug the AC/DC input connector of the top power supply	Unplug AC/DC input connectors of the top two power supplies	Position jumper J12 according to Table 9-2	Position jumper J12 according to Table 9-3
4-5 Modules including the base module	Plug in all four AC/DC input connectors of the power supplies	Plug in all five AC/DC input connectors of the power supplies		

Table 9-2. Passport 4400 jumper 12 strapping for AC units

Passport 4400 model and configuration	Jumper Positions (J-12)							
	1	2	3	4	5	6	7	8
5-slot standard, AC, 1 to 3 modules		X	X	X	X	X	X	X
5-slot standard, AC, 4 to 5 modules		X	X	X	X	X	X	
5-slot redundant, AC, 1 to 3 modules	X	X	X	X	X	X	X	X
5-slot redundant, AC, 4 to 5 modules	X	X	X	X	X	X		

Table 9-3. Passport 4400 jumper 12 strapping for DC units

Passport 4400 model and configuration	Jumper Positions (J-12)							
	1	2	3	4	5	6	7	8
5-slot standard, DC, 1 to 3 modules		X	X	X		X	X	X
5-slot standard, DC, 4 to 5 modules		X	X	X		X	X	
5-slot redundant, DC, 1 to 3 modules	X	X	X	X		X	X	X
5-slot redundant, DC, 4 to 5 modules	X	X	X	X		X		

- **Page 5-3: should read** " Use an RJ48C Cable (typically a modular STRAIGHT cable) to connect the DSX-1 port to your local equipment: (600096453)
- **Page A-1:** In Table A-1, "Cable Selection for Ethernet Base Module and Data Modules," there should be a note to indicate that while the V.35 cables listed are 15 ft., if higher speed services (greater than 192 kb/s), are being run, the cable length should not exceed three (3) meters to conform to ITU V.35 specifications.
- **Replace Chapter 9,** Power Supplies with the new Chapter 9 (following this section). (30120081)

Operator's Manual (800-1952-31, Rev A)

- **Page 2-6:** In the section "Network Limits," the maximum number of PANL DTEs per Passport 4400 should be 1. (SR 60088713)
- **Page 2-11:** For the msm dtelink options dceReceiverBW and dtcReceiverBW, the rate should be set to either the WAN link baud rate, if the WAN link baud rate is set to the default and there is only one frame relay tunnel link configured, *or*, if the WAN baud rate is other than the default or there is more than one frame relay tunnel link configured, these options should be set to the CIR of the frame relay tunnel DLCI. (SR 60087369)
- **Page 5-9:** Step 7 of the IP Routing Configuration procedure should make it clear that Inverse ARP should only be set for the unit receiving calls. Also, Step 8 of the same procedure should say to enable Basic Routing for Inverse ARP, NOT Easyrouting. (SR 60087508)
- **Page 7-8:** The following section should be added for configuration of HTDS or CBR service at speeds higher than 64K.
- When RIP learns a route from another router, it tries to update the IP routing table. If there is already a static route this takes precedence and the new RIP route is not added to the IP routing table. If this static route is then deleted, there is not mechanism to tell RIP that the static route has been deleted and that it should add the new route to the IP. To add the new route to the IP table you must reset the unit (50123019).
- The Operator's manual and CLI Reference manual document the X25 and *sna-sdlc* options of the add fr sw map command. These options are not supported in Release 3.1.x software. They will be supported in a future release. (60089535)
- The Operators Manual and the CLI Reference document the four options of the "def gcm unit switch type": fastswitch, voiceswitch, backupmanualswitch and manualswitch. Backupmanualswitch and manualswitch are not supported. (600899798)
- Chapter 8 Traffic Management of Operators Manual contains incorrect information about RFC 1490 traffic and an incorrect diagram. Please replace pages 8-1 and 8-2 with a new 8-1 and 8-2 which follow this section.
- In the Operators Manual and CLI Reference documentation of the **def isdn phy sig prot 2** command, the following protocols are listed but currently are not supported: *dss1*, *vn2*, *vn3*, and *ltr6*. (60089598)

Configuring HTDS or CBR for Baud Rates Higher Than 64K

To configure the Passport 4400 for HTDS or CBR running at a baud rate higher than 64K, a number of other procedures should be followed in addition to those described in the previous section, “Configuring HTDS or CBR for Baud Rates Higher Than 64K” (of the Operator’s Manual). The following procedures ensure the baud rate and throughput values for the WAN link and SVCs are large enough to support the higher speed HTDS or CBR services.

Note: The following tasks must be performed on each Passport 4400 unit that is to support an attached device.

1. Determine the baud rate on the physical WAN port.

```
show wan parameter port operational entry 153
```

```
IfIndex           : 153
IfType            : v35
Mode              : dte
BaudRate          : 1544000
MaxRxFrameSize    : 4000
NumOfRxBuffers    : 200
RxQueueSize       : 20
TxQueueSize       : 10
ProtocolSupport   : switchingFr
HTDSCutThrough    : no
IdleChar          : 255
SyncChar          : 126
EncodeMethod      : nrz
```

The BaudRate parameter is the maximum limit for all traffic going through the physical link. This parameter must be set to a higher speed than the total throughput of all SVCs running through that physical link.

2. Determine the configured bandwidth on the netlink.

```
show msm dtelink operational entry
```

```
IfIndex           : 149
MaxSubChannelRange : 63
DTEReceiverBW      : 1544000
DCEReceiverBW      : 1544000
DTEmaxFrameSize    : 80
DCEmaxFrameSize    : 80
```

The DTEReceiverBW and DCEReceiverBW parameters are the configured bandwidth on the netlink for both the PANL DTE and PANL DCE side. These should be configured to be greater than the total throughput of all SVCs running through that netlink.

3. Determine the throughput of the SVCs on the netlink.

show framerelay switch svc circuit table

```

SVCIfIndex      : 149
SVCDLCI         : 17
Type            : switched
DNA             : "[x121]302181147671325"
NegMaxTxSize    : 1600
NegMaxRxSize    : 1600
NegTxThroughput : 1511000
NegRxThroughput : 1511000
NegTxBurstSize  : 63872
NegRxBurstSize  : 63872

```

The NegTxThroughput and NegRxThroughput parameters should not be configured for less than the baud rate on the HTDS/CBR port. If need be, use the following commands to increase these parameters.

To set the default throughput values for all SVCs on the netlink:

```
define FrameRelay line user basesvclmi maxtxthroughput
```

```
define FrameRelay line user basesvclmi maxrxthroughput
```

To set the default throughput values for a specific SVC on the netlink:

```
define framerelay switch svc rxthroughput
```

```
define framerelay switch svc txthroughput
```

- **Page 8-2:** The section titled "RFC 1490 Traffic" erroneously states that RFC 1490 traffic is not subject to Passport 4400 traffic management controls. While it is true that RFC 1490 traffic is not fragmented via the PANL protocol, it is queued as LAN traffic (TP 0-2), and subject to Passport 4400 traffic management rules for WAN link transmission.
- **Page 8-4:** The BECN Response section should include the following statement:

Traffic management rate enforcement must be set to **enable** in order for the Passport 4400 to respond to BECN bits.

CLI Reference For the Command Line Interface (800-1950-31, Rev A)

Pages 3-19 and 3-20: Replace the information on these pages for the CLI command `define ip` with the following pages.

Defines IP parameters and objects.

- base
- bootp
- invArp

define ip base parameters

Parameter	Default	Description
bcastAddress	255.255.255.255	The value of the IP address used to send broadcasts on this IP interface.
dataLinkType	ether	Select either frame relay or ethernet.
forwardBcast	off	Specify whether IP address forwarding is on or off.
ipNumbered	numbered	Parameter not supported.
keepAlive	on	This value determines if keep alive's are sent over this interface.
mtu	octets	For interfaces that are used for transmitting datagrams, this is the size of the largest network datagram that can be sent on the interface.
netMask	255.0.0.0	The subnet mask associated with the IP address of this entry. The value of the mask is an IP address with all the network bits set to 1 and all the host bits set to 0.
ripCompatibility	rip1	This value indicates the Routing Internet Protocol (RIP) version. rip1 indicates only RIP version 1 packets are broadcasted. rip1Compatible indicates RIP version 1 packets are broadcast, but both RIP version 1 and RIP version 1 packets are understood. rip2 indicates RIP version 2 packets are multicast.
routeProtocolType	disable	Enter rip, passive rip or disable.

define ip base rip

Define base rip as on or off. Default value is off.

define ip base ripCompatibility

Indicates the version of the routing internet protocol.

Parameter	Description
rip1	Only RIP version 1 packets are broadcast.
rip1Compatible	Indicates RIP version 1 packets are broadcast, but both RIP version 1 and RIP version 2 packets are understood.
rip2	Indicates RIP version 2 packets are multicast

define ip bootp

Parameter	Description
numberOfHops	Indicates the number of hops a Bootp packet is allowed to make.
relayBootpPkts	Determines if the access device will relay Bootp packets.
serverAddress	Indicates the IP address to which Bootp relay agent will relay Bootp requests.

define ip invArp

Parameter	Description
ifIndex	Define the ifIndex associated with this circuit.
protocol	Define as the IP protocol.
status	Sets inverse arp as enabled or disabled. If this is set to enabled, it means a station is allowed to request the IP address corresponding to a given physical address. The default value is disabled.

All Voice Manuals

The Passport 4400 Release 3.1 voice module manuals each contain references to configuring modem settings, which is in error. The Passport 4400, up through Release 3.1.1, does not currently support modem configuration. The following list specifies which page(s) in each Passport 4400 voice manual contains the erroneous modem configuration information (30113669):

- **Passport 4400 ISDN BRI Manual (800-1942-31, Rev A):** Pages 4-14, 4-17, 5-2, and 5-4.
- **Passport 4400 Analog Voice Modules Manual (800-1943-31, Rev A):** Pages 3-23, 3-28, 4-4, and 4-6.
- **Passport 4400 T1/E1 & Digital Voice Modules Manual (800-1944-31, Rev A):** Pages 5-27, 5-30, 6-2, and 6-4.
- The Passport 4400 DTMF detect/regenerate is only available for fixed length. Both sides (Passport 6000 MVP and Passport 4400) **must** be set the same way (such as DTMF detector enable and in fixed length). (SR 10255133)
- Please note that the maximum number of forwarding digits is 36, not 40 as stated in the voice manuals (60093752).

ISDN BRI Manual (800-1942-31, Rev A)

To configure Overlap Dialing for BRI Voice applications the following settings should be used (note: you must substitute numbers appropriate for your system):

If the following is true

```
Originate-PBX    --4400 ---FR---4400--PBX--Answer
X1111                x3333          x4444
```

then the following should be configured:

```
Ingress =          Egress Phone =  Egress Manipulation =  VNCS =3333?
"3333*#"          "3333*#"          "D4#"          "
```

Passport 4400 T1/E1 Digital Voice Modules Manual (800-1944-31, Rev. A)

Chapter 3 of the Passport 4400 T1/E1 Digital Voice Modules Manual (800-1944-31, Rev. A) should be replaced with the following, which incorporates multi-DS0 channel configuration.

This chapter describes the procedures used to configure and connect the T1 and E1 Voice Modules. It includes information about the following topics:

- Using the Command Line Interface (CLI) to enter commands.
- Configuring the T1/E1 Voice Modules to meet the requirements of your network.
- Interconnecting the DSX-1/L1 line and DS-1/L2 line with the voice modules and with the Ethernet Base Module (EBM) ports.

Note: To perform any of the procedures described in this chapter, the T1 or E1 Voice Module, and any Digital Voice Modules (DVMs) or Digital Voice Expansion Modules (DVEMs), must be installed in the Passport 4400 chassis and physically connected. For information about installing T1 or E1 Voice Modules and any of their components, see the Passport 4400 Hardware Installation Manual, 800-1951.

Command Line Interface Overview

The Command Line interface is used to configure, provision and monitor Passport 4400 units. With the proper security authorization, you can use the CLI to access any of the units in your network. Once you have accessed a unit, you can examine the modules in each slot, select the T1 or E1 card, and monitor or update its settings.

To access the Command Line Interface, please refer to the instructions in the Passport 4400 Operator's Manual, 800-1952.

Using the Command Line Interface

The following points will assist you when using the CLI:

- Use the *ENTER* key to complete each command line entry.
- If you do not know the parameters to complete a command, type *ENTER*, and the CLI will respond with the next level of options for that command. If you type *ENTER* at the CLI> command line, the Passport 4400 unit will respond with a list of all major commands.
- You can enter abbreviated command names; however, you must enter enough characters to uniquely define the command. For instance, the Passport 4400 will not recognize **s**, because the command could be save, set, or show. When you enter **sh**, the Passport 4400 will recognize the command for show and respond with the next level of options.

Logging into the CLI

After connecting a PC or a terminal to the management port on the Passport 4400 base module, use the procedure listed below to log into the CLI.

Logging into and out of the CLI

Press the *ENTER* key several times until you receive the following prompt:

login:

1. At the login prompt, enter:

cli

The Passport 4400 unit will then prompt you for a password. Once you have entered the appropriate password, the Passport 4400 unit will respond with the following message:

```
Welcome to the Passport 4400Series Command Line Interface
Nortel/MICOM Communications Corporation

CLI>
```

Once you receive the CLI> prompt, you can enter the commands used to configure and connect the T1 or E1 voice modules.

2. To exit the CLI utility, type:

l (for logout)

Configuring the T1 or E1 Line

The T1 or E1 line configuration consists of five parts:

- Profile configuration
- Line parameters configuration
- Profile assignment (to a line)
- Data port configuration
- System clock configuration

Note: All commands involving the DSX-1 or L2 line are applicable, respectively, only to the dual-port T1 or E1 voice modules.

Profile Configuration

To configure the T1/E1 line parameters, you must first create two profiles: one for the local end (DSX-1/L1) and one for the network end (DS-1/L2), if applicable. Each profile includes a set of parameters that uniquely matches either the local T1/E1 line, or the network T1/E1 line. Once the two profiles have been created, you assign them to the applicable T1/E1 line. Assigning a profile to a line involves the *CLI>set t1e1 lineParameters* command.

Note: It is assumed that profile 1 will be used for DSX-1/L1 (local end) and profile 2 for DS-1/L2 (network end).

T1 Line Parameters

The configurable T1 line parameters are:

- T1 BuildOut
- T1 Frame Format
- T1 Line Code
- T1 Loopback Status
- Idle Code

Each command is described below.

Note: Changes made using these commands take effect immediately; a system reset is not required. However, to retain the changes, save the configuration before the system reset.

T1BuildOut

Use the *t1BuildOut* command to configure the T1 DSX-1 interface line length, the cable length attached to a local T1 line. Values include: less than 110 ft, less than 220 ft, less than 330 ft, less than 440 ft, less than 550 ft, less than 660 ft, greater than 665 ft, and external line build out (LBO).

Using the *t1BuildOut* command

1. Configure the DSX-1 (local end) *t1BuildOut* by entering the following command:

CLI> set t1e1 profile t1BuildOut

Parameter	Range of Values	Required Action
<Profile>	INTEGER (1..2)	Select 1 (for DSX-1).
<T1BuildOut>	lessThan110feet lessThan220feet lessThan330feet lessThan440feet externalLBO greaterThan665feet lessThan550feet lessThan660feet	Select the appropriate line length for the DSX-1 (local end) connection. * The DS-1 (network end) line length selection is implemented by a set of DIP switches as detailed in Chapter 1. Default is <i>lessThan110feet</i> .

2. As detailed in Chapter 1, configure the DS-1 line length, using the set of dip switches.

T1FrameFormat

Use the *t1FrameFormat* command to configure the profile for either superframe (D4), or extended superframe (ESF). The superframe format consists of 12 frames, and extended superframe consists of 24 frames.

Using the *t1FrameFormat* command

1. Configure the DSX-1 (local end) *t1FrameFormat* by entering the following command:

CLI> set t1e1 profile t1FrameFormat

Parameter	Range of Values	Required Action
<Profile>	INTEGER (1..2)	Select 1 (for DSX-1).
<T1FrameFormat>	superFrame(D4) extendedSuperFrame (ESF)	Select the frame format appropriate to your interface. Default is <i>superframe (D4)</i> .

2. Repeat step 1 and configure the *t1FrameFormat* for DS-1 (profile value = 2).

T1 LineCode

Use the *t1LineCode* command to select either of the following line coding format settings:

- B8ZS (Bipolar Eight Zeros Substitution) is a method of zero suppression where a succession of 8 zeros is replaced with a B8ZS code. At the remote end the B8ZS code is recognized and replaced with an all zeros byte. B8ZS format can be enabled only when supported by the connecting equipment or the T1 service provider.
- AMI (Alternate Mark Inversion), which indicates that B8ZS suppression is disabled. When AMI is selected, you must ensure that the Data Terminal Equipment is generating at least one 1 in every four bits.

Using the *t1LineCode* command

1. Configure the DSX-1 (local end) *t1LineCode* by entering the following command:

CLI> set t1e1 profile t1LineCode

Parameter	Range of Values	Required Action
<Profile>	: INTEGER (1..2)	Select 1 (for DSX-1).
<T1LineCode>	: ami b8zs	Enter <i>ami</i> or <i>b8zs</i> . Default is <i>ami</i> .

2. Repeat Step 1 and configure the *t1LineCode* for DS-1 (profile value =2).

T1LoopbackStatus

Use the *T1LoopbackStatus* command to enable or disable T1 line network-invoked loopback tests. When enabled, the T1 Voice Module recognizes and responds to network-invoked loopback commands. When disabled, the T1 Voice Module will not respond to network-invoked loopback commands.

Using the T1LoopbackStatus command

1. Enable or disable the DSX-1 (local end) T1LoopbackStatus by entering the following command:

CLI> set t1e1 profile t1LoopbackStatus

Parameter	Range of Values	Required Action
<Profile>	INTEGER (1..2)	Select 1 (for DSX-1).
<T1LoopbackStatus>	disable enable	Select <i>enable</i> or <i>disable</i> , as appropriate for your interface. Default is <i>disable</i> .

2. Repeat step 1 and configure the T1LoopbackStatus for DS-1 (profile value = 2).

IdleCode

Use the *idleCode* command to set the idle code for the DS0 channels. It specifies the code to be filled in the line when the line is idle. Values can range from 0 to 255.

Using the idleCode command

1. Configure the DSX-1 (local end) idleCode by entering the following command:

CLI> set t1e1 profile idleCode

Parameter	Range of Values	Required Action
<Profile>	INTEGER (1..2)	Select 1 (for DSX-1).
<IdleCode>	INTEGER (0..255)	Select a value between 0 and 255. The default value is 127 (0X7F). You may enter it in either decimal form (NNN), or hexadecimal form (0XNN).

2. Repeat step 1 and configure the idle code for DS-1 (profile value = 2).

E1 Line Parameters

The configurable E1 line parameters are:

- E1 CRC4 Status
- E1 Line Code
- E1 TS16 Connection
- Idle Code

Each command is described below.

Note: Changes made using these commands take effect immediately; a system reset is not required. However, to retain the changes, save the configuration before the system reset.

E1CRC4 Status

Use the *e1CRC4Status* command to enable or disable the CRC-4 Cyclic Redundancy Check feature. When enabled, the E1 Voice Module generates and monitors for the CRC algorithm carried on bit 1 of Time Slot 0 of an E1 frame.

Using the *e1CRC4Status* command

1. Enable or disable the L1 (local end) *e1CRC4Status* by entering the following command:

CLI> set t1e1 profile e1CRC4Status

Parameter	Range of Values	Required Action
<Profile>	INTEGER (1..2)	Select 1 (for L1).
<E1CRC4Status>	disable enable	Select <i>enable</i> or <i>disable</i> , as appropriate for your interface. Default is <i>disable</i> .

2. Repeat step 1 and configure the *e1CRC4Status* for L2 (profile value = 2).

E1LineCode

Use the *e1LineCode* command to select either of the following line code settings:

- *HDB3* (High Density Bipolar 3), an ITU-TSS-recommended coding method which limits the maximum number of consecutive zeros to three.
- *AMI*, which indicates that HDB3 suppression is disabled. When AMI is selected, you must ensure that the Data Terminal Equipment is generating at least one 1 in every four bits.

Using the *e1LineCode* command

1. Configure the L1 (local end) *e1LineCode* by entering the following command:

CLI> set t1e1 profile e1LineCode

Parameter	Range of Values	Required Action
<Profile>	INTEGER (1..2)	Select 1 (for L1).
<E1LineCode>	ami hDB3	Select either <i>ami</i> or <i>hDB3</i> , as appropriate for your interface. Default is <i>ami</i> .

2. Repeat step 1 and configure the `e1LineCode` for L2 (profile value = 2).

E1 TS16 Connection

Use the `e1TS16Connection` command to specify the signaling system to be used in time slot 16. The following options are available:

- *toCAS*, which supports G.704 channel associated signaling (CAS). In this method, a multiframe structure of 16 consecutive frames numbered 0 through 15 is used. In each frame, time slot 16 allocates four bits to two channels in the following pattern: Frame 0 = multiframe alignment; Frame 1 = ABCD of Ch 1 and ABCD of Ch 17; Frame 2 = ABCD of Ch 2 and ABCD of Ch 18; etc., up to Frame 15.
- *idle*, places time slot 16 into an idle state.
- *bypass*, bypasses time slot 16 of L1 to time slot 16 of L2.
- *toDataPort1*, connects time slot 16 to DataPort 1.
- *toDataPort2*, connects time slot 16 to DataPort 2.

Using the `e1TS16Connection` command

1. Configure the L1 (local end) `e1TS16Connection` by entering the following command:

CLI> set t1e1 profile e1TS16Connection

Parameter	Range of Values	Required Action
<Profile>	INTEGER (1..2)	Select 1 (for L1).
<T1LoopbackStatus>	toCAS idle bypass toDataPort1 toDataPort2	Select the option applicable to your system, as described above. The default is <i>toCAS</i> .

2. Repeat step 1 and configure the `e1TS16Connection` appropriate for L2 (profile value = 2).

Idle Code

Use the `idleCode` command to configure the idle code for the DS0 channels. It specifies the code to be filled in the line when the line is idle. Values can range from 0 to 255.

Using the *idleCode* command

1. Configure the L1 (local end) *idleCode* by entering the following command:

CLI> set t1e1 profile idleCode

Parameter	Range of Values	Required Action
<Profile>	INTEGER (1..2)	Select 1 (for L1).
<IdleCode>	INTEGER (0..255)	Select a value between 0 and 255 The default value is 127 (0X7F). You may enter it in either decimal form (NNN), or hexadecimal form (0XNN).

2. Repeat step 1 and configure the *idleCode* for L2 (profile value = 2).

Assigning the T1/E1 Profile

The *lineParameters* subcommand is used to assign a previously configured T1/E1 profile to a T1/E1 line.

Command Structure

To access the T1/E1 Line Parameters command, follow this path:

CLI> set t1e1 lineParameters

Parameter	Range of Values	Required Action
<LineIndex>	localEnd (T1 =DSX-1/E1 =L1) networkEnd (T1=DS-1/E1=L2)	Select <i>localEnd</i> for the DSX-1/L1 line, and <i>networkEnd</i> for the DS1/L2 line.
<Profile>	INTEGER (1..2)	It is recommended that you select 1 for the DSX-1/L1 line, and 2 for the DS-1/L2 line

Configuring the Data Port

The configurable T1/E1 data port (data port 1 and data port 2) parameters are:

- Clock
- DTR Control
- Rate
- RTS Control

Note: Changes made with these commands take effect immediately; a system reset is not required. However, to retain these settings, save the configuration before resetting the Passport 4400.

Configure the data port clock parameter by entering the following command:

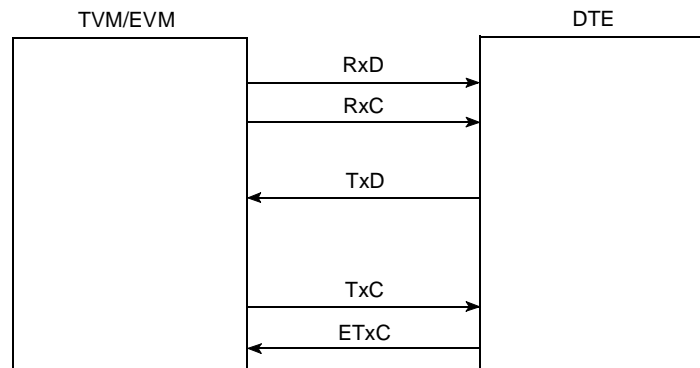
CLI> set t1e1 portParameters clock

Parameter	Range of Values	Required Action
<PortNumber>	port1 port2	Select the number of the data port you are configuring.
<Clock>	internallySupplied tailCircuit	Enter the required clock source: internallySupplied or tailCircuit. Default is <i>internallySupplied</i> . *Refer to the section on Data Port clocking for additional information.

Data Port Clocking

Each Data Port is implemented as a DCE interface, and supplies the attached DTE equipment with both TxC and RxC clocks.

When *internallySupplied* is selected, the attached DTE equipment samples the RxD signal from the TVM/EVM, based on the clock provided by the TVM/EVM. The attached DTE will clock transmit data (TxD) to the Data Port based on the TVM/EVM-provided transmit clock (TxC). The ETxC input to the Data Port is ignored.



When *tailCircuit* is selected, the attached DTE equipment samples Received Data (RxD) from the TVM/EVM, based on the TVM/EVM-provided Receive Clock (RxC). The attached DTE equipment must use either RxC or TxC to generate the local External Transmit Clock (ETxC). This clock is used by the DTE to clock transmit data (TxD) into the Data Port. ETxC from the attached DTE is provided as an input to the Data Port, and is required to be based on the TVM/EVM-provided clocking, with only short-term jitter and phase differences.

Default = *internallySupplied*.

DTR Control

Use the *dtrControl* command to indicate how the data terminal ready (DTR) signal is supplied. The following options are available:

- *Normal* - in which the DTR must be supplied by the DTE, and the data set ready (DSR) signal follows the DTR.
- *Forced on* - in which the DTR signal from the DTE is ignored, and the DSR is forced on.

Using the *dtrControl* command

Configure the method of the data port DTR control by entering:

CLI> set t1e1 portParameters dtrControl

Parameter	Range of Values	Required Action
<PortNumber>	port1 port2	Select the number of the data port you are configuring.
<DTRControl>	normal forcedOn	Select <i>normal</i> or <i>forcedOn</i> . Default is <i>normal</i> .

Rate

Use the *rate* command to set the base rate of the data port. The actual rate is determined by the selected base rate multiplied by the number of DS0 channels assigned for the connection to that port. For example, if the rate is set to 56 kb/s, and the number of connected DS0 channels is 2, the actual rate is 112 kb/s.

Using the *rate* command

Configure the data port base rate by entering:

CLI> set t1e1 portParameters rate

Parameter	Range of Values	Required Action
<PortNumber>	port1 port2	Select the number of the data port you are configuring.
<Rate>	64kbps 56kbps	Select <i>64kbps</i> or <i>56kbps</i> . Default is <i>64kbps</i> .

RTS Control

Use the *rtsControl* command to indicate how the Request To Send (RTS) signal is supplied. The following options are available:

- *Normal* - in which the RTS must be supplied by the DTE, and the Clear To Send (CTS) signal follows the RTS.
- *Forced on* - in which the RTS signal from the DTE is ignored, and the CTS is forced on.

Using the *rtsControl* command

Configure the method of the data port RTS control by entering:

CLI> set t1e1 portParameters rtsControl

Parameter	Range of Values	Required Action
<PortNumber>	port1 port2	Select the number of the data port you are configuring.
<RTSControl>	normal forcedOn	Select <i>normal</i> or <i>forcedOn</i> . Default is <i>normal</i> .

Configuring the T1 or E1 System Clock

This command is used to select one of three system clock sources, as follows:

- *networkLineClock* - in which the clock source is taken from the DS-1/L2 interface (dual-port only).
- *localLineClock* - in which the clock source is taken from the DSX-1/L1 interface.
- *internalClock* - in which the clock source is taken from an internal clock source.

Using the *t1e1 SystemClock* command

Configure the system clock by entering:

CLI> set t1e1 systemClock

Parameter	Range of Values	Required Action
<TimeResource>	networkLineClock localLineClock internalClock	Select the system clock source which applies. Default is <i>networkLineClock</i> .

Interconnecting the DS0 Channels

The T1/E1 DS0 channels of the DSX-1/L1 line can be connected logically to any of the digital voice modules, to the Primary WAN Link or Backup WAN Link channels of the Passport 4400 Ethernet Base Module, to Data Ports 1 or 2, or be bypassed to equivalent channels of the DS-1/L2 line.

Note: You cannot connect the DS0 channels of a single-port T1 or E1 Voice Module directly to any link of the Ethernet Base Module.

Using the DS0Connect command

The *DS0Connect* command is used to determine how each of the DS0 channels available on the DSX-1/L1 interface will be used. To complete this command, you must define the following parameters:

- *LineIndex*
- *DS0ConnString*
- *ConnectionState*

Each parameter is described below.

LineIndex

The *Lineindex* parameter is used to indicate whether the DS0 channels you are connecting are taken from the DSX-1/L1 or DS-1/L2 line. Enter either *localLine* (T1=DSX-1/E1=L1) or *networkLine* (T1=DS-1/E1=L2), as appropriate.

DS0ConnString

The *DS0ConnString* parameter is used to indicate which DS0 channels are to be connected. Up to 83 characters may be entered, with the following restrictions. The characters must be decimal digits, with commas or hyphens used to define a list of multiple DS0 channels or a range of DS0 channels.

ConnectionState

The *ConnectionState* parameter is used to indicate how the DS0 channels are to be connected. The following options are available:

Idle

The *idle* option is used to place DS0 channels into an idle state. In this state all existing connections to a DS0 channel will be removed, and new assignments can be made. All DS0s (24 maximum for T1, or 30 maximum for E1) may be assigned to the idle state.

When disconnecting a range of DS0s from a data port, the full range of channels (not just individual channels) of the connected DS0s must be set to the *idle* state.

bypassVoice

The *bypassVoice* option is used to allow *voice* traffic to pass from a T1 DSX-1 DS0 channel directly to its equivalent T1 DS-1 DS0 channel, or from an E1 L1 DS0 channel directly to its equivalent E1 L2 DS0 channel. When *bypassVoice* is selected, signaling information is also bypassed. This command is not applicable to single-port models.

For *bypassVoice*, all DS0s (24 maximum for T1, or 30 maximum for E1) may be assigned.

bypassData

The *bypassData* option is used to allow *data* traffic to pass from a T1 DSX-1 DS0 channel directly to its equivalent T1 DS-1 DS0 channel, or from an E1 L1 DS0 channel directly to its equivalent E1 L2 DS0 channel. This command is not applicable to single-port models.

For *bypassData*, all DS0s (24 maximum for T1, or 30 maximum for E1) may be assigned.

toPrimaryLink

The *toPrimaryLink* option is used to connect one or more DS0 channels directly to the primary WAN link on the Passport 4400 ethernet base module. This command is not applicable to single-port models. For WAN ports, you may assign a total of 1, 2, 3, 4, 6, or 8 DS0s -- but NOT a total of 5 or 7 DS0s. The total number may not exceed 8 DS0s.

toBackupLink

The *toBackupLink* option is used to connect a one or more DS0 channels directly to the backup WAN link on the Passport 4400 ethernet base module. This command is not applicable to single-port models. For WAN ports, you may assign a total of 1, 2, 3, 4, 6, or 8 DS0s -- but NOT a total of 5 or 7 DS0s. The total number may not exceed 8 DS0s.

toDataPort1

The *toDataPort1* option is used to connect one or more DS0 channels to data port 1 on the TVM or EVM. For data ports, you may assign a total of 1, 2, 3, 4, 6, or 8 DS0s -- but NOT a total of 5 or 7 DS0s. The total number may not exceed 8 DS0s.

toDataPort2

The *toDataPort2* option is used to connect one or more DS0 channels to data port 2 on the TVM or EVM. For data ports, you may assign a total of 1, 2, 3, 4, 6, or 8 DS0s -- but NOT a total of 5 or 7 DS0s. The total number may not exceed 8 DS0s.

B1-B6, C1-C12, D1-D12 (voice channels)

Enter any of the voice channels B1 through D12 to connect the corresponding Digital Voice Modules to the selected DS0 channels. Voice channels may be assigned only one DS0 channel each.

The location of each voice channel is described below:

- *B1-B6* - refers to the six voice channels (Digital Voice Modules) on the T1 or E1 Voice Modules in logical slot B (limB) of the Passport 4400 unit.
- *C1-C12* - refers to the twelve voice channels of the Digital Voice Expansion Module in logical slot C (limC) of the Passport 4400 unit.
- *D1-D12* - refers to the twelve voice channels of a Digital Voice Expansion Module in logical slot D (limD) of the Passport 4400 unit.

Connecting the DS0 channels

The following procedure lists the steps used to connect a DS0 channel to a voice channel, or to connect multiple DS0 channels to a data port, WAN link port, or to the idle, voice bypass, or data bypass connection states.

Note: To connect a DS0 channel to a voice channel, WAN link channel, or data port, that DS0 channel must first be set to **idle**.

Before a voice channel can be seized by the local PBX to obtain a local dial tone, that voice channel must first be connected to one of the idle DS0 channels (time slots) as described on the next page.

Accessing the DS0Connect Command

To access the *DS0Connect* command, follow this path:

CLI> set t1e1 ds0connect

<LineIndex>	:	localLine (DSX-1 or L1)	networkLine (DS-1 or L2)	
<DS0ConnString>	:	"String" of size (0..83)		
<ConnectionState>	:	idle	bypassVoice	
		bypassData	toPrimaryLink	
		toBackupLink	toDataport 1	
		toDataport 2	b1	
		b2	b3	
		b4	b5	
		b6	c1	
		c2	c3	
		c4	c5	

c6	c7	
c8	c9	
c10	c11	
c12	d1	
d2	d3	
d4	d5	
d6	d7	
d8	d9	
d10	d11	
d12		

1. For *lineIndex*, select *localLine* or *networkLine*, as applicable.
2. For *ds0ConnString*, enter the DS0 channel number(s) you want to connect, enclosed within quotation marks. If you want to connect more than one DS0 channel (24 maximum for T1, 30 maximum for E1), enter a “String” of up to 83 characters. This can specify a single DS0, multiple DS0s separated by commas, a range of DS0s, separated by a hyphen, or any combination of these components.

Example:

Single DS0 - “3”

Multiple DS0s - “5,8,12”

Range - “9-20”

Combination - “2,5-10,14,16,20-26”

A range of DS0s can be assigned to one of the following connection states: *idle*, *bypassVoice*, *bypassData*, *toPrimaryLink* (WAN), *toBackupLink* (WAN), *toDataPort1* and *toDataPort2*.

In the case of voice channels, a range of DS0s can also be assigned to multiple connection states (b1-b6, c1-c12, d1-d12). For example, if the user specifies “1-5” for the DS0s, and DVM channel b1 for the connection state, DS0 1 will be assigned to DVM channel b1. The next available DVM channel, such as b2, will be assigned for DS0 2. If, for some reason, a connection state or DS0 is not available, then the next DVM channel will be selected for assignment, if available. When all available DVM channels on one voice module are assigned, the available DVM channels on the next voice module (such as c1-c12) will be assigned.

3. For *connectionState*, select one of the following:
- **idle**. This is required if the channel is already connected and you wish to make another connection choice.
 - **toPrimaryLink**. (Primary WAN Link on the Ethernet Base Module) Multiple DS0 channels (1, 2, 3, 4, 6, or 8 DS0 channels) may be assigned to the Primary WAN Link.
 - **toBackupLink**. (Backup WAN link on the Ethernet Base Module) Multiple DS0 channels (1, 2, 3, 4, 6, or 8 DS0 channels) may be assigned to the Backup WAN Link.
 - **bypassVoice** (if voice is to be bypassed) Multiple DS0s (up to 24/T1 or 30/E1 may be assigned to the bypassVoice connection state.
 - **bypassData** (if data is to be bypassed) Multiple DS0s (up to 24 maximum for T1 or 30 maximum for E1 may be assigned to the bypassData connection state.
 - **toDataPort1** - Multiple DS0 channels (1, 2, 3, 4, 6, or 8 DS0 channels) may be assigned to the toDataPort1 connection state.
 - **toDataPort2** - Multiple DS0 channels (1, 2, 3, 4, 6, or 8 DS0 channels) may be assigned to the toDataPort2 connection state.
 - One of the voice channels, **B1 through D12**. Only one DS0 channel can be connected to an individual voice channel.

Example 1: To set time slot 3 (DS0 Index) of the DSX-1 T1 interface to idle, enter:

```
CLI> set t1e1 ds0c local "3" idle
```

Example 2: To connect time slot 3 (DS0 Index) of the L1 E1 interface to digital voice channel 2, enter:

```
CLI> set t1e1 ds0c local "3" b2
```

Example 3: To set time slot 29 (DS0 Index) of the L1 E1 interface to idle, enter:

```
CLI> set t1e1 ds0c local "29" idle
```

Example 4: To connect time slot 29 (DS0 Index) of the L2 E1 interface to digital voice channel 14, enter:

```
CLI> set t1e1 ds0c network "29" C8
```

Note: While you are entering the command string, you may reach the end of the screen. In this case, you will receive the following message:
[Q to Quit or Carriage Return to Continue. Press the ENTER key to continue.

Traffic Management 8

What's In This Chapter:

- Overview of Passport 4400 Traffic Management
- Traffic Management Parameters
- Defining Traffic Management Parameters
- Traffic Management Examples
- Monitoring Traffic Management

Passport 4400 Traffic Management

The Passport 4400 traffic management controls the flow of outbound traffic being multiplexed within the unit. Its traffic management is designed to allow small voice frames and large data frames to co-exist in the same outbound link, without compromising the quality of transmission.

Transfer Priority and SVC queues

Each switched virtual circuit (SVC) carries a transfer priority (TP) based on the type of traffic (service) carried. This is the level of importance assigned to frames passed along a particular SVC. Possible TP values range from 0 to 15, with 15 having the highest priority.

Before transmitting outbound traffic, the Passport 4400 examines the TPs of all outbound SVCs. The TP of an SVC determines into which queue the frames will be sent. There are five available SVC queues (numbered 0 to 4), with 4 having the highest priority.

The following priorities are the Passport 4400 default TP values for various traffic types:

- Signaling (LAPF and LMI) traffic: TP 15, queue 4
- Voice traffic: TP 11, queue 3
- FRDCE and HTDS traffic: TP 6, queue 1
- LAN traffic: TP 0, queue 0
- RFC 1490 traffic: queue 0

From the SVC queues, traffic is allocated to fill the outbound (WAN) bandwidth according to its queue number. The WAN link is filled with the higher-priority queues first. For an illustration of how the Passport 4400 fills emission queues and how WAN link bandwidth is allocated, see Figure 8-1.

RFC1490 Traffic

RFC1490 traffic is not subject to all the same traffic management process that affects other traffic over PANL netlinks. RFC1490 frames will not be fragmented. Notice the position of RFC1490 frames in the outbound traffic flow in Figure 8-1.

Caution: If your Passport 4400 is configured for RFC1490 traffic, set the throughput and frame size to the **minimum values required**. Large throughput or frame size values will **severely impact** other traffic, causing delays that can affect voice quality.

The default maximum frame size (or MTU) for RFC1490 netlinks on the Passport 4400 is 300 bytes; this prevents RFC1490 traffic from creating delays for other outbound frames (such as voice traffic). Make sure that the maximum frame size is set appropriately at the destination node (such as a third-party router).

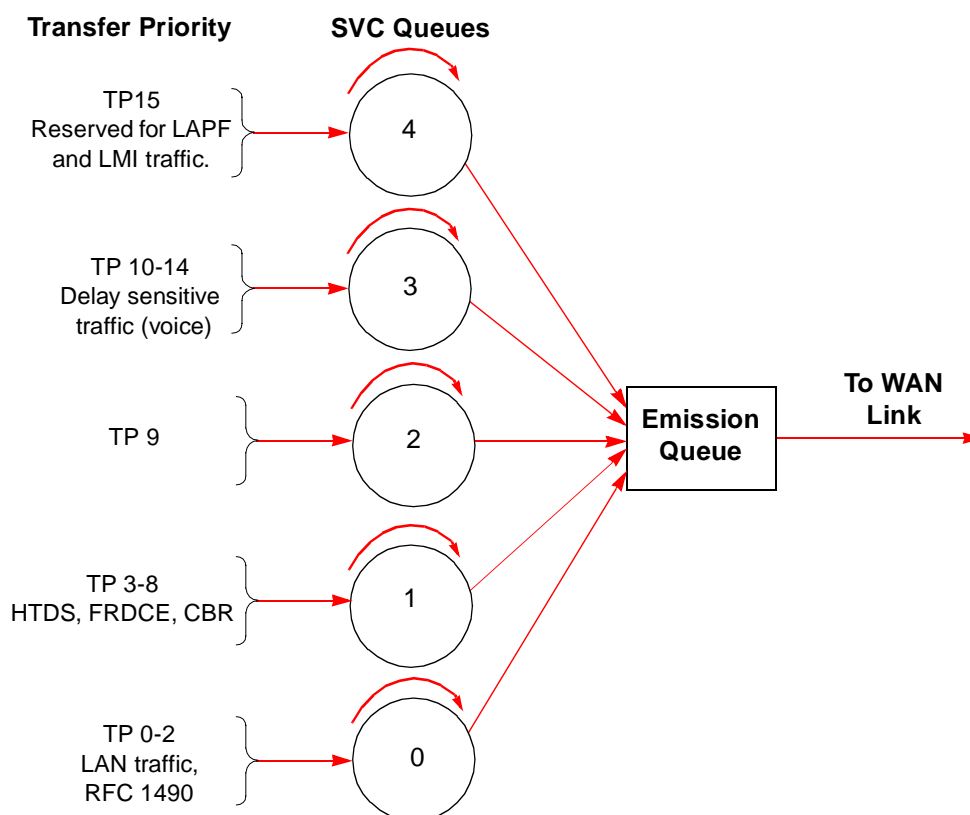


Figure 8-1. Passport 4400 Allocation of Traffic to WAN Link

Power Supplies 9

This chapter discusses the power supplies available for the following Passport units:

- 3-slot Chassis power supply (page 9-1)
- 5-slot Chassis power supply (page 9-2)
- 5-slot Redundant power supply (page 9-3)

3-slot Chassis

The 3-slot Passport 4430 chassis uses a 135W AC power supply to provide power to the Ethernet Base Module and expansion modules.

Note: The three-slot Passport 4430 unit uses AC power only. There is no option for DC power.

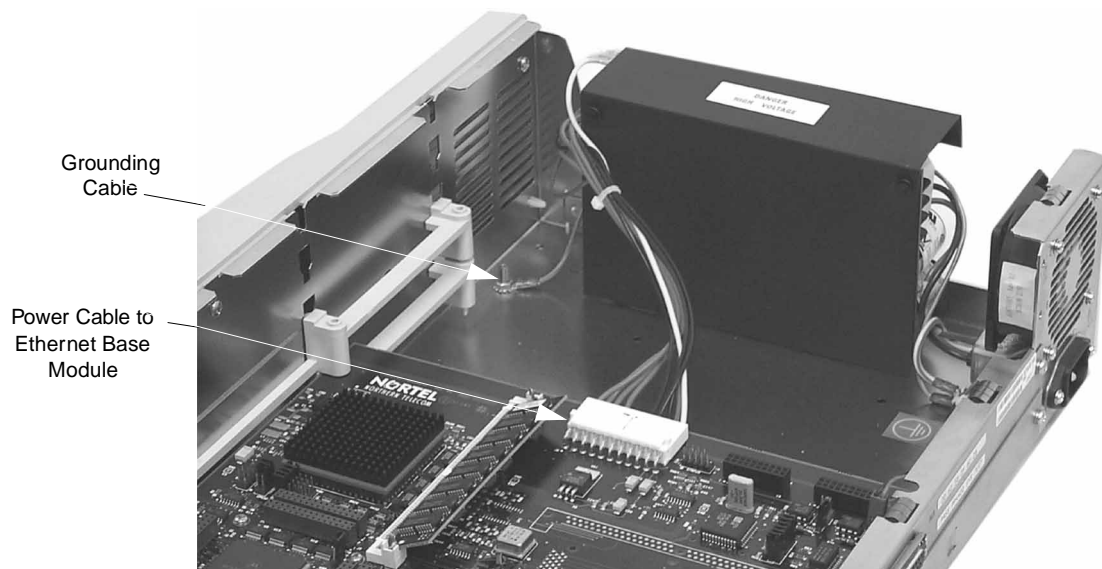


Figure 9-1. 3-slot Power Supply

The power cable connects to the Ethernet Base Module. All expansion modules in the unit draw power from the Ethernet Base Module through stacking connectors on the modules.

5-slot Chassis

The five-slot Passport 4450 chassis uses a 160W power supply to provide power to the Ethernet Base Module and expansion modules. Both AC and DC models are available; the figure below shows an AC unit.

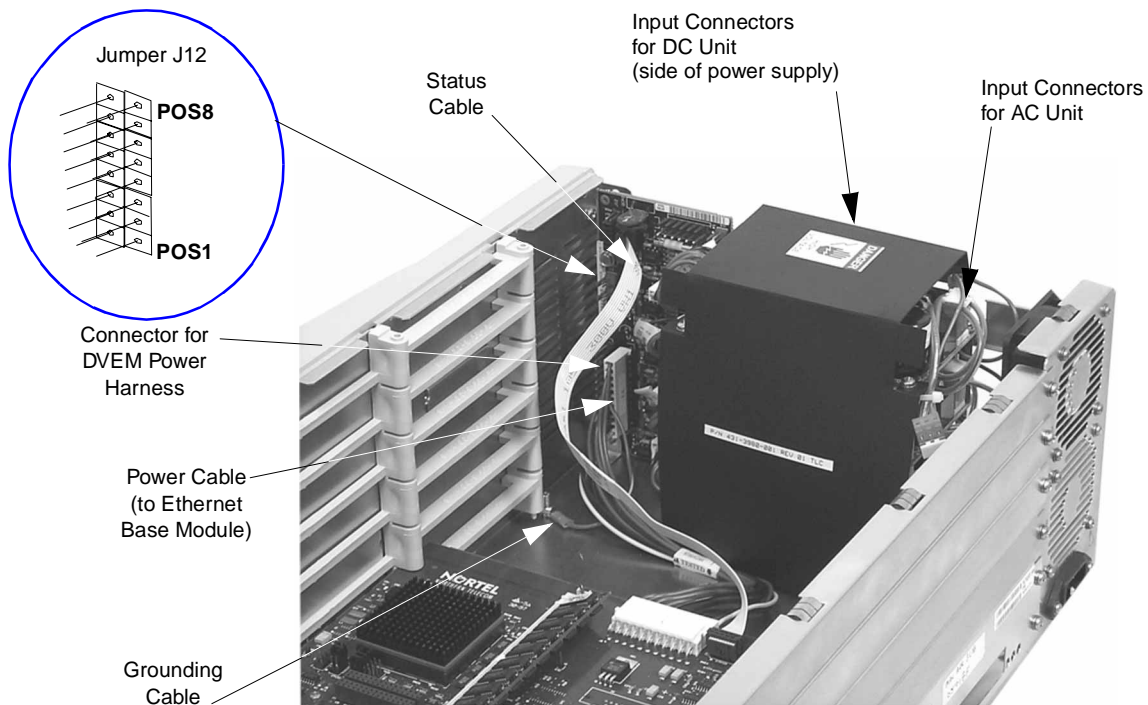


Figure 9-2. 5-slot Passport 4450 Power Supply

Digital Voice Expansion Module Power Harness

The Digital Voice Expansion Module power harness provides redundant power for Passport 4450 units containing one or more Digital Voice Expansion Modules. The power harness connects the modules to the power sharing board (see Figure 9-2 above, and Figure 5-15 on page 5-14 for more information).

5-slot Chassis with Redundant Power Supply

A 5-slot Passport 4450 chassis with the redundant power supply option contains a subassembly that houses an extra power supply in the event that one of the original four fails. This unit is available in either AC and DC power; the figure below shows an AC unit.

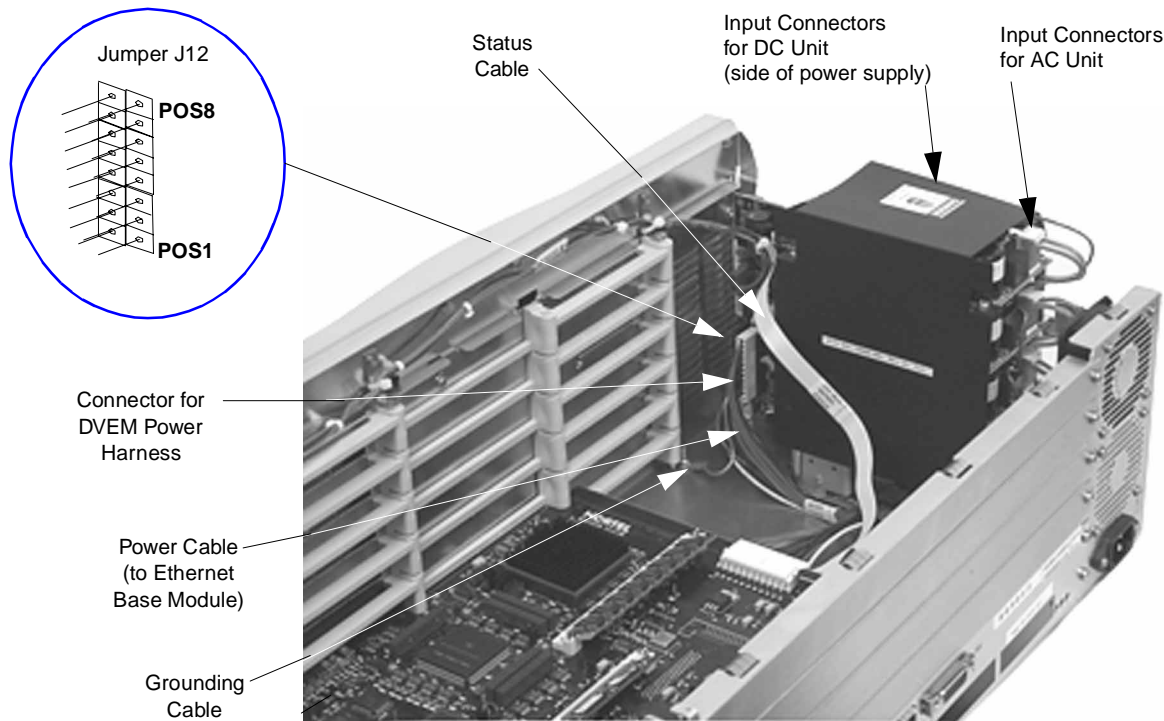


Figure 9-3. 5-slot Passport 4455 with Redundant Power Supply

Two indicator lights that monitor the power supplies are located at the top right side of the front bezel. The triangle-shaped (green) indicator is lit when all power supplies are working properly. The rectangle-shaped (red) indicator lights up when there is a problem with one or more power supplies in the unit, or when too many power supplies are connected (see Table 10-1 on page 9-5).

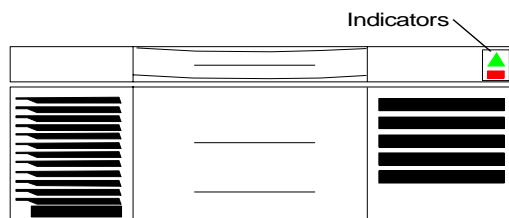


Figure 9-4. Indicators for Passport 4400 Unit with Redundant Power Supply

DC Power Supplies

The DC power supply system allows the Passport 4400 unit to be installed in a telephone company environment with the necessary DC power input being furnished by the telephone company to the input of the Passport 4400 unit.

Note: The Input Connectors on the DC power supply are located at the side of the power supply closest to the edge (see Figure 9-2 and Figure 9-3).

The -48 volts DC version of the Passport 4400 unit power supply system is identical to the AC version except for the addition of a terminal power adapter that plugs into the line cord Electronic Industry Association (EIA) jack on back of the unit. The five power supplies stack identically to the AC version. The connectors accept the same cables for input and output power.

The DC input voltage must be within the range of -32 volts DC and 72 volts DC. The plus (+) and minus (-) markings on the input power adapter box indicate the polarity of corresponding battery connections. They are electrically floating and can either be connected to house ground or the appropriate DC return. An additional case ground screw is also on the power adapter box. This connection must be grounded to the chassis safety ground for safety and electrical noise suppression. Do not operate the unit without the ground screw connected to the safety ground.

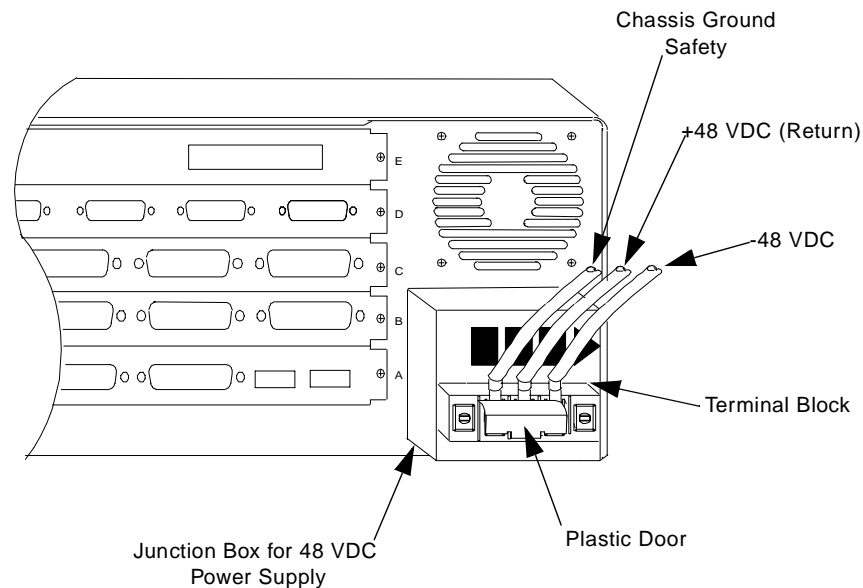


Figure 9-5. DC Power Supply

Configuring the Power Supplies

Note: The following information applies to five-slot Passport 4450 unit only. Three-slot Passport 4430 units do not need to be configured.

The power supply at the bottom of the stack is called the master supply. All other supplies located above the master are called slave supplies. The five-slot models have one master and three slave power supplies.



Caution:

Disconnect all power from the unit before performing these procedures.

The AC input connectors (orange in color) are located at the rear of the unit, behind the fan (see Figure 9-2 on page 9-2).

The DC input connectors (orange in color) are located at the outer side of the power supply (see Figure 9-2 on page 9-2).

If adding new modules to a unit, ensure that the power supplies are properly configured by following these procedures.

Table 9-1. Configuring the Power Supplies

For Units Containing...	Standard Power Supply	Redundant Power Supply	AC Units...	DC Units...
1-3 Modules including the base module	Be sure that the AC/DC input connector of the top power supply is unplugged	Be sure that the AC/DC input connectors of the top two power supplies are unplugged	Strap jumper J12 according to Table 9-2	Strap jumper J12 according to Table 9-3
4-5 Modules including the base module	Plug in all four AC/DC input connectors of the power supplies	Plug in all five AC/DC input connectors of the power supplies		

**Caution:**

Prior to turning on your unit, be sure to check the straps for proper positioning according to the particular unit you have. Incorrect strapping will cause the unit to malfunction.

- Notes:**
- Jumper position one is strapped only when you have a redundant power supply installed. Notice for a 5-slot standard model that position number one is not strapped, regardless if it has 1 to 3, or 4 to 5 modules installed.
 - Jumper position six is strapped for all 5-slot models regardless of the number of modules installed.
 - Jumper position eight is for detecting failed power supplies. Make sure that position eight is NOT strapped for a 5-slot model with 4 to 5 modules installed. If position eight is strapped, then the unit can not detect if the fourth or fifth power supply fails. This strap is installed at the factory and needs to be removed when you add the fourth module.

Table 9-2 Jumper 12 Strapping for the AC Units

Passport 4400 Unit Model and Configuration	Jumper Positions (J-12)							
	1	2	3	4	5	6	7	8
5-slot standard, AC, 1 to 3 modules		X	X	X	X	X	X	X
5-slot standard, AC, 4 to 5 modules		X	X	X	X	X	X	
5-slot redundant, AC, 1 to 3 modules	X	X	X	X	X	X	X	X
5-slot redundant, AC, 4 to 5 modules	X	X	X	X	X	X		

Table 9-3 Jumper 12 Strapping for the DC Units

Passport 4400 Unit Model and Configuration	Jumper Positions (J-12)							
	1	2	3	4	5	6	7	8
5-slot standard, DC, 1 to 3 modules		X	X	X		X	X	X
5-slot standard, DC, 4 to 5 modules		X	X	X		X	X	
5-slot redundant, DC, 1 to 3 modules	X	X	X	X		X	X	X
5-slot redundant, DC, 4 to 5 modules	X	X	X	X		X		

Passport 4400
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