Vanguard Applications Ware Software Release Notice

Release 6.2.R000

Overview

Introduction

This notice contains update information for Release 6.2.R000 of the operating software for these Vanguard platforms:

- Vanguard 320
- Vanguard 340, 342
- Vanguard 6435, 6455
- Vanguard 7310, 7330

Release 6.2.R000 does not support the following:

- Vanguard 100 (supported by Release 5.3M)
- Vanguard 200 (supported by Release 5.1M)
- Vanguard 300 (supported by Release 5.4)
- Vanguard 305 (supported by Release 5.5)
- Vanguard 311 (supported by Release 5.1M)
- Vanguard 311*PLUS* and 312*PLUS* (supported by Release 5.3M)
- Vanguard 6425/6430/6450 (supported by Release 6.0.R00A)
- Vanguard 6520 (supported by Release 5.5)
- Vanguard 6560 (supported by Release 6.0.R00A)
- 6500*PLUS* (supported by Release 5.1M)
- 650D (supported by Release 5.0C)
- Voice feature on the Vanguard 100 (supported by Release 5.2)

This notice supplements the full set of the Vanguard user documentation.

T0001-43 B

Memory Requirements for Release 6.2.R000

The memory requirements have changed for some Vanguard products supported by Release 6.2.R000 For more information on the memory changes that affect your Vanguard unit, refer to "Memory Requirements for Vanguard Applications Ware Release 6.2.R000" section on page 7.

SAKs

Software Access Keys (SAKs) are not generally used with Release 5.2 and later products. Pre-Release 5.2 products, however, still use their SAKs. If you purchased SAKs for an earlier release, they can still be used with this release.

In This Notice

Applications Ware

Introduction

This section explains how the Applications Ware are organized, implemented, and modified.

Applications Ware Licenses and Upgrades

The Applications Ware is divided into three base licenses and three license upgrades for Vanguard products. Customers are required to purchase only one base license and can purchase optional upgrade licenses to the base license:

Standard Applications Ware Packages

- IP+ Applications Ware
- SNA+ Applications Ware
- Multi-Service Applications Ware

License Upgrades

- Voice Applications Ware License Upgrade
- Security Applications Ware License Upgrade
- AS/400 BSC Applications Ware License Upgrade

Note
A license refers to both a legal document that allows a customer to use features and to the software that contains the features.

Note
One base license must be purchased for each hardware platform.

Default Software Images and Functionality

Each license contains a large number of software features and functions. In addition, each hardware platform has a default factory image that contains a subset of the full license.
In some cases, the default image might not completely meet your needs. You can either create a new Vanguard customer image using the Software Builder application on the Vanguide CD-ROM, or use our Vanguard Customer Ware Program.
For details about all features in a particular Applications Ware License, refer to the appropriate section further on in this document.

Software Upgrade Options

Introduction

If you are upgrading the software in your network, do not skip releases. You must upgrade to each intermediate release to ensure the integrity of your configuration memory (CMEM). This upgrade procedure applies to all Vanguard products. Upgrade your software by using the step-by-step upgrade option or use the Software Upgrader application. Both upgrade options are listed below.

Step by Step Software Upgrade

The step by step software upgrade is the traditional way to upgrade Vanguard devices. The process requires you to step though loading each individual release of Applications Ware, which will update the CMEM configuration file, and then continue through to the desired final release of the Application Ware. Assuming that you want to upgrade your network software from Release 5.4 to Release 6.2.R000, you must follow this example:

Step	*Upgrade From Release*	*To Release*
1	5.4 (Including any 5.4 point releases)	5.5
2	5.5 (Including any 5.5 point releases)	5.6.R000
3	5.6 (Including any 5.6 point releases)	6.0.R00A
4	6.0.R00A (Including any 6.0 point releases)	6.1.R000
5	6.1.R000 (Including any 6.1 point releases)	6.2.R000

Note

The Vanguard 7300 Series can be upgraded from 5.4 to Release 6.2.R000 without loading 5.5, or 5.6.

Software Upgrader Application

The Software Upgrader is a Window-based PC application that eliminates the release-by-release upgrade process, by converting an existing image file to the latest Application Ware release in a single step. Once you have an upgraded CMEM, use Vanguard Configuration Loader to load the CMEM into your Vanguard.
The goal of the software is to bring your network up to the most current versions of Applications Ware. You can quickly upgrade all the node's records with minimum downtime.
The current version of Software Upgrader, upgrades releases from 4.96 to 6.2.

Note

Contact a Service Representative to obtain a copy of Software Upgrader.

Step	*Description*
1	Save old CMEM and convert it
2	Upgrade Vanguard Software and then default CMEM
3	Load converted CMEM

Downgrading to Prior Releases

Be aware that downgrading to and from any prior release is not supported and note that problems will occur with the configuration memory. To properly downgrade, the configuration should be defaulted and then restored with the saved CMEM that was running in the prior release. (DRCaa22736)

License Upgrades

Introduction

The License Upgrades differ from standard Applications Ware packages in that they do not operate in a "stand-alone" capacity. For example, if you want the functions available in the SNA+ Applications Ware, you purchase that license and load it into your unit. However, a License Upgrade cannot be loaded into a unit by itself. You must:

- Purchase one of the standard Applications Ware packages
- Purchase the License Upgrade
- Use Software Builder to add the License Upgrade to the standard Applications Ware package

Voice Upgrade

The Voice Upgrade adds support for Voice features. The Voice Upgrade must be used with one of the standard Applications Ware packages.

Note

The Multiservice Applications Ware already contains the Voice features. Therefore, if you have Multiservice, you do not need to purchase the Voice License Upgrade.

Security Applications Ware License Upgrade

The Security Applications Ware License Upgrade adds support for encryption and VPN (Virtual Private Network). The Security Applications Ware License Upgrade must be used with one of the standard Applications Ware packages and the Data Encryption SIMM. VPN provides Triple DES, IPSec (IP Security) and GRE Tunneling (General Router Encryption) for Vanguard 64xx Series and Vanguard 340.

AS/400 BSC Applications Ware License Upgrade

The AS/400 BSC Applications Ware License Upgrade adds support for the AS/400 Communication Server feature, and the BSC 3270-to-SNA Conversion feature and the BSC 2780/3780-to-SNA LU0 for the Vanguard 6455 and 7300 Series. The AS/400 BSC License Upgrade must be used with one of the standard Applications Ware packages listed previously.

Memory Requirements for Vanguard Applications Ware Release 6.2.R000

Memory Changes for Release 6.2.R000

In order to support the Vanguard Applications Ware Release 6.2.R000, some Vanguard products require memory upgrades. The *total memory* required for each product at release 6.2.R000 is listed in this table:

Product	*Total Memory Required at Release 6.2.R000*
Vanguard 320	8MB or 12 MB DRAM
Vanguard 340	16MB or 32MB DRAM 4M Flash
Vanguard 342	32MB
Vanguard 6435	16MB or 32MB DRAM
Vanguard 6455	32MB DRAM
Vanguard 7310, 7330 (Version 1 and 2)	32M Flash 128M DRAM

Note

The table above lists the memory that is shipped.

If you intend to use Release 6.2.R000 and your Vanguard unit does not have sufficient memory, please contact your representative to order memory upgrades.

Product	*What to order for Memory Upgrade*	
	If your Vanguard unit currently has...	*You must order...*
Vanguard 320	4MB DRAM	4MB DRAM or 8MB DRAM upgrade
Vanguard 340	16MB	
Vanguard 342	32MB	
Vanguard 6435	16MB	
Vanguard 6455	32MB	
Vanguard 7310, 7330 (Version 1 and 2)	32M Flash 128M DRAM	

Note

The Vanguard 6425, 6430, 6450, 6520, 6560, 100, 200, 300, 305, 311, 311*PLUS*, and 312*PLUS* are not supported at Release 6.2.R000 and do not require memory upgrades.

Products Supported

Products Supported for Release 6.2.R000

Products supported by release 6.2.R000:

Product	*Support*
Vanguard 320	Normal product release.
Vanguard 340	Normal product release.
Vanguard 342	Normal product release.
Vanguard 6435 and 6455	Normal product release.
Vanguard 7310 and 7330 (Version 1 and 2)	Normal product release.

Products Not Supported

Release 6.2.R000 is not supported on these products:

Product	*Support*
Vanguard 100	This product is maintained at 5.3M.
Vanguard 200	This product is maintained at 5.1M.
Vanguard 300	This product is maintained at 5.4.
Vanguard 305	This product is maintained at 5.5.
Vanguard 311	This product is maintained at 5.1M.
Vanguard 31x+	This product is maintained at 5.3M.
Vanguard 6425, 6430, and 6450	This product is maintained at 6.0.R00A.
6500+	This product is maintained at 5.1M.
650-D	This product is maintained at 5.0c. The battery backup version has been sunset.
Vanguard 6520	This product is maintained at 5.5.
Vanguard 6560	This product is maintained at 6.0.R00A.

New Features

Introduction

The new features available for Release 6.2.R000 are described briefly below. This section also lists where to find user documentation that contains detailed explanations of these features.

Documentation on the Web

You can find detailed descriptions of the new Release 6.2.R000 features in the referenced documents at the following web site:

http://www.vanguardms.com/support/documentation

Instructions for obtaining on-line and hardcopy versions of the documents that contain detailed explanations of these features appear in the "How to Obtain User Documentation" section on page 57.

Release 6.2.R000 Features

These are the new features available with Release 6.2.R000:

Vanguard 342 (Second LAN Port)

The Vanguard 342 is a flexible, high performance RISC based multiservice router designed for small branch, and home offices that depend on efficiently consolidating serial protocols such as, SNA/SDLC, BSC with LAN traffic over dedicated or switched services. The Vanguard 342 offers cost-effective integrated solutions that simultaneously supports:

- Data
- Fax
- Voice over Frame Relay and Voice over IP
- Virtual Private Network (VPN)
- Broadband access
- Two 10/100BT LAN Ports (The second LAN port is port 8.)

The Vanguard 342 includes support for a compression and encryption interface. For more information, refer to the *Vanguard 342 Installation Manual* (Part Number T0257).

Warning

Your Vanguard product was designed and certified for use with specific memory option SIMMs. It is IMPORTANT that you install only the devices that are certified for use with your Vanguard product. Installation of an incorrect FLASH SIMM module could result in damage to the SIMM device or your Vanguard Product. Please see the list below for the memory device that is compatible with your hardware platform.

Vanguard 340 Compatible FLASH SIMM Devices are as follows:

4-Meg FLASH Devices
PN - "EDI7F292MC100BNC"
PN - "SM70848XA2JIES2"

Vanguard 342 Compatible FLASH SIMM Devices are as follows:

8-Meg FLASH Devices
PN - "IW-388DL3-R-120"
PN - "CT8M8FJV120.M1M"

The FLASH SIMM Device Part Number (PN) can be found in small print on the face of the SIMM device. For further assistance, please call VanguardMS Service.

Vanguard Point-to-Point Protocol over Ethernet (PPPoE)

Release 6.2 or greater now enables Vanguard 7300 Series, 6435/6455, 340, 342 and 320 to utilize high-speed WAN access applications with broadband modems. A typical environment would be DSL, cable and wireless. For more information, refer to the *Point-to-Point Protocol Manual* (Part Number T0106-08).

Vanguard 6435/6455 Flash and CMEM Increase

Release 6.2 and greater allows the Vanguard 6435 and 6455 to increase the FLASH memory and expand the CMEM area. Existing Vanguard 6435 and 6455's can be updated to 8 Mbyte SIMM as long as the bootprom is also updated. A new bootprom is required to support the 12MB Flash option with the 128 kbyte CMEM. To use 128k CMEM, 8 Mbyte SIMM must be installed and the bootprom updated.

Note

The 8meg SIMM is not officially supported prior to release 6.2, however it can be installed in a 6455 running a 6.1 release without harm. It will simply be recognized and treated as a "4 Meg SIMM".

Once a node is running 6.2 with the presence of an 8meg flash SIMM you cannot downgrade either the software or SIMM size as the configuration will be deleted.

Warning

Your Vanguard product was designed and certified for use with specific memory option SIMMs. It is IMPORTANT that you install only the devices that are certified for use with your Vanguard product. Installation of an incorrect FLASH SIMM module could result in damage to the SIMM device or your Vanguard Product. Please see the list below for the memory device that is compatible with your hardware platform.

Vanguard 6400 Compatible FLASH SIMM Devices are as follows:

4-Meg FLASH Devices
PN - "EDI7F292MC100BNC"
PN - "SM70848XA2JIES2"

8-Meg FLASH Devices
PN - "IW388X1-R-120"
PN - "EDI7F492MC120BNC"

The FLASH SIMM Device Part Number (PN) can be found in small print on the face of the SIMM device. For further assistance, please call VanguardMS Service. For more information on the Vanguard 6435 and 6455 Series increases, refer to the Installing Flash and CMEM section of the *6435/6455 Installation Manual* (Part Number T0166).

Vanguard Dynamic Host Configuration Protocol (DHCP)

Dynamic Host Configuration Protocol (DHCP) is a communications protocol that allows administrators to automate the assignment of Internet Protocol (IP) addresses in a network. Every unit connected to the Internet needs a unique IP address. This feature enables the Vanguard to act as a DHCP client and request configuration information for a DHCP server. For more information, refer to the *Vanguard IP Routing Manual* (Part Number T0100-03).

Vanguard Ethernet QoS 802.1 P & Q VLAN Support

A Virtual LAN (VLAN) is a switched network that is logically segmented on an organizational basis rather than on a physical or geographical basis. Workstations or servers used by a particular work group team, can be connected to the same VLAN, regardless of their physical connection to the network. For more information, refer to the *Vanguard IP Routing Manual* (Part Number T0100-03).

Vanguard Interoperability with RADIUS Authentication

The purpose of Remote Authentication Dial-In User Server (RADIUS) is to enable Vanguard routers to interoperate and support RADIUS attributes. Vanguard routers are able to act as a RADIUS client. For more information, refer to the *Vanguard IP Routing Manual* (Part Number T0100-03).

Vanguard 6455 T1/E1 DC/FC Performance Improvement

Increased T1/E1 feature card performance for the Vanguard 6455 is available with Release 6.2 and greater software. For more information, refer to the *Vanguard 6435/6455 Installation Manual* (Part Number T0166).

Vanguard V.90 Daughtercard

A V.90 Daughtercard provides dial back-up for a customers PPP async applications. The V.90 enables our service organization to dial in to a customer node and get a CTP prompt to configure or debug a customers node. The V.90 Daughtercard connects to the Vanguard 320, 340, 342, 6435 and 6455 through a 68-pin connector. For more information, refer to the *Vanguard Daughtercard Guide* (Part Number T0020).

Release 6.1.S100 and Greater

Vanguard 6435 and 6455 Voice Switching Table Entry Increase

An increase to the voice switching table entries from 3,000 to 6,000 on the Vanguard 6435/6455 is available with Service Pak 6.1.S100 and greater software. (DRFaa20092)

Note

Save your CMEM ***before*** configuring a large number of entries. If your CMEM becomes too large, you might not be able to save it. (DRCaa23348)

All Vanguards - Software Images Using TFTP

With Service Pak 6.1.S100 and greater software images, Vanguard Routers may now act as a TFTP server for CMEM and software image transfers. Using TFTP software on a PC, users may now upload the software image the node is currently running to the PC. Another aspect of the feature is a node to node download mechanism, where a single server node can download CMEM and software images to multiple client nodes (up to ten). (DRFaa20656)

Note

When using a TFTP application to connect to a Vanguard Router running release 6.0.R00A or greater software through its WAN link, use the WAN address instead of the internal or LAN address. (DRFaa21052)

For more information regarding the Vanguard TFTP Server, access the Vanguard Managed Solutions Product Documentation web site at:

http://www.vanguardms.com/support/documentation

TFTP Server information is included in the *Installation and Coldloading Manual* (Part Number T0028).

Vanguard 7300 Series Routers - Version 1 and Version 2

Release 6.1 Vanguard 7300 Chassis Redesign (Version 2)

The Vanguard 7300 Series chassis has been redesigned. The redesigned chassis is referred to as The Vanguard 7300 Series Version 2. Software must be configured to match the chassis type and version. (DRFaa20456)

7300 Version 1 Enclosure Features

The table below summarizes common and distinct features of each Vanguard Version 1 Series enclosure:

Feature	*Vanguard 7310 Version 1*	*Vanguard 7330 Version 1*
Number of Slots	5 (horizontal)	8 (vertical)
Height	3U	8U
Rack-mountable	Yes	Yes
Redundant AC and DC Power	none	Yes, dual power supplies

7300 Version 2 Enclosure Features

The table below summarizes common and distinct features of each Vanguard Version 2 Series enclosure:

Feature	*Vanguard 7310 Version 2*	*Vanguard 7330 Version 2*
Number of Slots	5 (horizontal)	8 (horizontal)
Height	4U	4U
Rack-mountable	Yes	Yes
Redundant AC and DC Power	Yes, dual power supplies	Yes, dual power supplies

Set the Chassis Version Settings

When upgrading a 7300 Series Version 1 to release 6.1.R000 or greater, you must set the chassis version setting. If the setting is incorrect (for example, upgrading a Version 1 7310 to 6.1 or greater software) the interface cards will not be recognized by the node in the correct physical slot location. Incorrect settings can be fixed by setting the software Chassis Version through the ZAP diagnostics menu.

Note

Units shipping from the factory with Release 6.1.R000 or greater will have the version set to match the chassis. Release 6.1.R000 or greater software is required for Vanguard 7310 and 7330 Version 2.

Verification

Verification can be done by checking the Chassis Version printed at the top right of page one of the Detailed Node Statistics.

```
Node: 7310_1    Address: 100 Date: 13-AUG-2002 Time:15:53:07

Detailed Node Statistics Page:  1 of 11

Product Type: VANGUARD 7310        Chassis Version: 2

Bootprom Revision: V1.50
```

Figure 1. Page 1 of the Detailed Node Statistics

Configuration

If a Vanguard 7300 Series Version 1 is set to Version 2 and needs to be configured, use the ZAP menu to set it to Version 1. This is required for the node to work properly. Follow the steps below to set the correct version.

Configuring and Setting the Version

Step	*Procedure*
1	Load 6.1.R000 or greater on the Vanguard 7300 Series.
2	Reset the node, either by a software cold boot (CTP menu item 7.5) or by pressing the reset button on the CPU card. When the hardware diagnostics program starts executing, type ZAP (upper or lower case). Figure 2 shows the menu that will appear.
3	Change the Chassis version.
4	Reboot. **■ Note** Once the Chassis Version is set, it is maintained regardless of the clearing or loading of CMEM. The only way this pararmeter could be lost is if the FLASH is reformatted.

```
      Diagnostics ZAP Mode Menu (Rev: 1.6)
================================================================
       <ESC> Exit
1 - Force ColdLoad                      2 - Activate Current CMEM
3 - Activate Alternate CMEM             4 - Clear All CMEM
5 - Change Chassis Version

Selection: 5

 Change Chassis Version [1/2] ? (Currently set to 1): ==>>

or (Currently set to 2)
```

Figure 2. Diagnostics Zap Mode Menu

The Vanguard 7300 family of high-performance, redundant, multiservice routers includes Models 7310 and 7330 Version 1 and Version 2 with the following features:

- CompactPCI architecture designed for carrier class requirements.
- Rack-mountable 5-slot and 8-slot chassis with AC or DC power.
- MCP750 processor card with industry-standard peripheral and I/O options.

The following table lists Vanguard 7300 high-density port capacities. Port counts are given for both the Vanguard Model 7310 and the Vanguard Model 7330, along with the total port capacity for a typical seven-foot rack of Vanguard 7330 routers.

Port Capacities	***Vanguard 7310***	***Vanguard 7330***
Ethernet	5	5
T1/E1/PRI	48	84
Voice Channels -- T1	192	336
Voice Channels -- E1	240	420
Serial Ports: X.21, V.35/V.36, EIA232, EIA530	32	56
Token Ring:	2	2
Power Supplies	*V1 (1) V2 (2)	2
*Version 1, V1 or Version 2, V2		

Note

For more information on the Vanguard 7300 Series, refer to the *Vanguard 7300 Installation Guide* (Part Number T0185) is included on this CD-ROM.

Vanguard Feature Comparison Chart

Below is the Vanguard Feature Comparison Chart:

Feature	*Vanguard 6560*	*Vanguard 6450/6455*	*Vanguard 7300*
Dual T1 Network Interface Specification	Connectors: Dual RJ-45 (100 ohm) Framing: SF and ESF Line Coding: AMI, B8ZS, B7ZS Timing Source: Int, Receive T1 CSU: Optional Daughtercard	Connectors: Dual RJ-45 (100 ohm) Framing: SF and ESF Line Coding: AMI, B8ZS Timing Source: Int, Receive T1 CSU: Built In	Two card versions: **1.** 12 port T1 or E1 (RJ-45 120 ohm) **2.** 8 port T1 or E1 (RJ-45 120 ohm) E1-75 ohm support Future Node wide CLOCK control
Dual E1 Network Interface Specification	Connectors: Dual RJ-45 (120 ohm) BNC Via Ext Cable Framing: E1_CAS, E1_CAS_CRC, E1_CAS_FEBE Line Coding: HDB3, AMI Timing Source: Int, Receive	Connectors: Dual RJ-45 (120 ohm) - Dual BNC (75 ohm) Framing: E1_CAS, E1_CAS_CRC, E1_CAS_FEBE Line Coding: HDB3, AMI Timing Source: Int, Receive	T1 Framing: SF & ESF Line Coding: AMI, B8ZS Timing Source: Int, Receive T1 CSU: Built In E1 Framing: E1_CAS, E1_CAS_CRC, E1_CAS_FEBE Line Coding: HDB3, AMI
Channelized Data Support	Protocols Supported: X.25, FR, TBOP, PPP Maximum Number of Channels: 30 Maximum Aggregated rate: 1.920 Mbps	Protocols Supported: X.25, FR, TBOP, PPP Maximum Number of Channels: 24 (T1) Maximum Number of Channels: 31 (E1) Maximum Aggregated rate: 1.984 Mbps	Protocols Supported: X.25, FR, TBOP, PPP Max Number of Channels per T1/E1 port: 24 (T1), 31 (E1) Total No. of channels per card: (T1) 8*24=192, 12*24=288 (E1) 8*31=248, 12*31=372 Total No. of channels per System: (7310 T1) 192*4=768, 288*4=1152 (7310 E1) 248*4=992, 372*4=1488 (7330 T1) 192*7=1344, 288*7=2016 (7330 E1) 248*7=1736, 372*7=2604 *Note: all numbers subject to processing capabilities of the 7300.*

Feature	Vanguard 6560	Vanguard 6450/6455	Vanguard 7300
ISDN PRI Data Support	Switch Types (1): 4ESS, 5ESS, DMS100, DMS250, Siemens, NTT, CCITT, MD110 Switch Variants: AT&T, NT, NI-2, JATE, Net5, 1TR6, VN3 TS014 (Austel)	Switch Types (User Side Only): N/A Bundle (T1) NI-1, 4ESS, 5ESS, DMS100 European Bundle (E1) ETSI Asia Bundle (T1) NTT Switch Variants: None Required	Switch Types (User Side Only): N/A Bundle (T1) NI-1, 4ESS, 5ESS, DMS100 European Bundle (E1) ETSI Asia Bundle (T1) NTT Switch Variants: None Required
Voice Signaling Support	CAS: E&M (Wink, Delay, Immediate Colisee, and Seizure Ack) FXS (Loopstart) FXO (Loopstart) CSS: All Switch Types/Variants included in PRI Data (1) Q.SIG (Master/Slave) • Basic Call • Supplementary Services • Segmentation Transparent CCS	CAS: E&M (Wink, Delay, Immediate Colisee, and Seizure Ack) FXS (Loopstart) FXO (Loopstart) CCS (2,3,4): • N/A Bundle (T1) – Q.Sig (Master/Slave) (5) – 5ESS (Network/User) (6) – NI-1 (Network/User) (6) – DMS100 (Network/User) (6) •Euro Bundle (E1) –ETSI (Network/User) –Q.Sig (Master/Slave) (5)	CAS: E&M (Wink, Delay, Immediate Colisee, and Seizure Ack) FXS (Loopstart) FXO (Loopstart) CCS (2,3,4): • N/A Bundle (T1) – Q.Sig (Master/Slave) (5) – 5ESS (Network/User) (6) – NI-1 (Network/User) (6) – DMS100 (Network/User) (6) •Euro Bundle (E1) –ETSI (Network/User) –Q.Sig (Master/Slave) (5)
Proprietary Features	Timeslot Bypass CCS Bypass	Timeslot Bypass	Timeslot Bypass
Additional Clocking Features	None	Node Wide Network Clock Source	Node Wide Network Clock Management Data Applications: Each Group of 4 T1/E1 ports can synchronize to a different carrier Voice & Data Applications: Each card has to be connected to one carrier
SDLC HPAD/ TPAD	Protocols: SDLC Characteristics: HDX, FDX, TWA Network:QLLC/X.25/Frame Relay (Annex G) Host Interface:SDLC PTP, SDLC MP, X.25 (IBM NPSI) Physical Interface:V.21, V.24, V.35	Protocols: SDLC Characteristics: HDX, FDX, TWA Network:QLLC/X.25/Frame Relay (Annex G) Host Interface:SDLC PTP, SDLC MP, X.25 (IBM NPSI) Physical Interface:V.21, V.24, V.35	Same as 6560 except: Characteristics: no HDX
LLC2 (SNA) Conversion	Protocols: LLC2, X.25 (QLLC), SDLC, FR (RFC1490) Characteristics: HDX, FDX, TWA Network:QLLC/X.25/Frame Relay (Annex G) Frame Relay (RFC1490) Host Protocols: SDLC PTP, SDLC MP, X.25 (IBM NPSI), LLC2, Frame Relay (RFC1490) LAN: Token Ring (4 or 16 mbps), Ethernet 802.3 (10 mbps), Ethernet2. WAN Physical Interface: V.21, V.24, V.35	Protocols: LLC2, X.25 (QLLC), SDLC, FR (RFC1490) Characteristics: HDX, FDX, TWA Network:QLLC/X.25/Frame Relay (Annex G) Frame Relay (RFC1490) Host Protocols: SDLC PTP, SDLC MP, X.25 (IBM NPSI), LLC2, Frame Relay (RFC1490) LAN: Token Ring (4 or 16 mbps), Ethernet 802.3 (10 mbps), Ethernet2. WAN Physical Interface: V.21, V.24, V.35	Same as 6560 except: Characteristics: no HDX

5) Q.Sig Support now includes Basic Call, Supplementary Services and Segmentation.
6) Enblock Signalling Support only at this time.

Feature	Vanguard 6560	Vanguard 6450/6455	Vanguard 7300
AS/400 5494 Communications Server	Protocols: LLC2, X.25 (QLLC), SDLC, FR (RFC1490) Characteristics: HDX, FDX, TWA Network:QLLC/X.25/Frame Relay (Annex G) Frame Relay (RFC1490) Host Protocols: LLC2, Frame Relay (RFC1490) LAN: Token Ring (4 or 16 mbps), Ethernet 802.3 (10 mbps), Ethernet2. WAN Physical Interface: V.21, V.24, V.35	Protocols: LLC2, X.25 (QLLC), SDLC, FR (RFC1490) Characteristics: HDX, FDX, TWA Network:QLLC/X.25/Frame Relay (Annex G) Frame Relay (RFC1490) Host Protocols: LLC2, Frame Relay (RFC1490) LAN: Token Ring (4 or 16 mbps), Ethernet 802.3 (10 mbps), Ethernet2. WAN Physical Interface: V.21, V.24, V.35	Same as 6560 except: Characteristics: no HDX
Other SNA protocols	BSC3270 HPAD/TPAD BSC2780/3780 IBM 2260 PAD TCOP TBOP MX25 NCRBSC HPAD/TPAD ALC Pad Scope	BSC3270 HPAD/TPAD BSC2780/3780 IBM 2260 PAD TCOP TBOP MX25 NCRBSC HPAD/TPAD ALC Pad Scope	TBOP All others not supported
BSC3270 -to-SNA Conversion	Not supported	Supported on the 6455 256 Devices Supported	2,000 Devices Supported
BSC2780/3780-to-SNA/LU0 Conversion	Not supported	Supported on the 6455 256 Devices Supported	256 Devices Supported
Frame Relay	FRI, FRA and FRF.12 Supported	FRI, FRA and FRF.12 Supported	Same as 6450/ except no FRA and FRF.12 support
IP/LAN	VPN/IPSEC/3DES	VPN/IPSEC/3DES	Not supported, planned for future.
ATM	No ATM Support	2 T1 or E1 EDC cards supported on 6455 UBR, VBR and CBR 300 VCCs IP over ATM No AnnexG	ATM supported over T3 or E3. UBR, VBR and CBR 4000 VCCs IP over ATM AnnexG over ATM

Feature	Vanguard 6560	Vanguard 6450/6455	Vanguard 7300
CLI (Command Line Interface)	The following new commands are supported: > getdefault > getdefaultall > getnondefault > getnondefaultall > update CLI instance value: Support HEX instance value Supporting port number: Up to 255 port number	The following new commands are supported: > getdefault > getdefaultall > getnondefault > getnondefaultall > update CLI instance value: Support HEX instance value Supporting port number: Up to 255 port number	Commands supported only in 7300: > flash copyimage > flash copycmem > flash activeimage > flash activecmem > flash deleteimage CLI instance value: Support only INTEGER instance value Supporting port number: Up to 65536 bit port number
SNMP	The following MIB objects are supported only in 6560/5.5 platform. cdx6500T1E1VGTable cdx6500TdmClkTable	The following MIB objects are supported only in 6560/5.5 platform. cdx6500T1E1VGTable cdx6500TdmClkTable	The following MIB objects are supported only in 7300 platform. cdx6500PSTT1E1TGPortTable cdx6500PSTT1E1TGTable cdx6500STTdmtgClkGroup

1) All signalling types/variant combinations support user or Network side and T1 or E1.

2) Q.Sig/Euro ISDN support on T1 interfaces is now available in Release 5.5, 5.6, 6.0.R00A, 6.1.R000 and 6.2.R000

3) NTT Signalling support is currently unavailable and is targeted to be added in a future release.

4) Transparent CCS can be supported manually by means of configuring the TBOP data channel for "Signalling" channel and Voice Bearer channels with None for signalling. Virtual port mapping table entries for voice ports must be TDM-VOICE.

5) Q.Sig Support now includes Basic Call, Supplementary Services and Segmentation.

6) Enblock Signalling Support only at this time.

Software Configuration Limits

Introduction

This section describes the software configuration limits.

Configuration Limits

This table lists the software configuration limits for:

- Physical Ports (physical port counts are set by software, not the actual number of physical ports)
- Frame Relay
- Sessions
- Network Services
- LAN - (IP specific)
- Voice
- SNA/IBM Support

Software Configuration	***7300 Series***	***6435/55***
Physical Port	***Maximum Limits***	
Physical ports	88	20
Ethernet ports per node (performance limited at 100MB speed per port)	5	
Total LAN ports (Ethernet) per node (not bridge port support count)	5	
Devices supported per Ethernet segment (Relevant to Bridge operation)	255	255
High speed (V.35) serial links per node	56	
PRI ports (data only) per node	84	2
T1/E1/PRI voice only ports per node	14	2
T3/E3 ATM ports per node	2	0
Voice circuits per voice server card	60	60
Number voice calls per node (Number shown is E1 max.)	420	60
Number voice calls per node (Number shown is T1 max.)	336	60
Frame Relay		
Number of DLCIs per FR Port	820	254
Number of PVCs per FR Annex-G station	128	128
Number of SVCs per FR Annex-G station	512	512
Number of Voice SVC per Annex-G station	15	15
Number of DLCIs per node	8,000	1,024
Session		
Number of LCON	2,000	2,000
Number of Virtual Ports (FR, X25, PPP, Voice)	2,000	155
Number of multi-link PPP profiles (7300 Series original size was 600)	1,000	60

Software Configuration *(continued)*	***7300 Series***	***6435/55***
Number of UDP (soTCP) sessions terminating in the node	2,000	188
Number of TCP (soTCP) sessions terminating in the node	2,000	500
Number of simultaneous calls per node	8,000	300
Network Services		
Number of Network Services Tables Entries	1,000	128
Number of PVCs table entries	8,000	2,000
Number of mnemonic table entries (7300 Series original size - 2,000)	8,000	2,000
Number of Switch Service table entries	1,024	1,024
Number of X25 routing table entries	8,000	2,000
LAN IP (Specific)		
Routing table size	15,000	4,000
Routing Cache	512	512
Accelerated/ Aggregated Route cache	512	512
Number of LCONs (7300 Series original size - 2,000)	8,000	2,000
Number of Interfaces	1,000	255
Access Control List table size	255	255
Policy based routing table size	255	255
Static ARP table	255	255
Number of static routes (7300 Series original size - 1,024)	8,000	8,000
MAC Filter Table Entries (7300 Series original size - 300)	1,200	300
RIP route control table	255	255
NAT table size (7300 Series original size - 255)	1,023	255
IP Multicast DVMRP Tables size	255	255
CIDR: RIP aggregate table	255	255
CIDR: Multihome table size	255	255

Software Configuration *(continued)*	***7300 Series***	***6435/55***
Voice		
Number of voice switching table entries: An increase to the voice switching table entries from 3,000 to 6,000 on the 6435 and 6455 platforms is available with Service Pak 6.1.S100 and greater software. **Note** Save your CMEM before configuring a large number of entries. If your CMEM becomes too large, the node may reset or default its configuration.	10,000	6,000
SNA/IBM Support		
Number of stations per LAN **interface** (SLAC) - *Note: Two LAN interfaces allowed per node -- 1,000 stations per interface,*	1,000	250
Number of stations per **Node** (SLAC) - *Note: Two LAN interfaces allowed per node -- 2,000 max stations per node.* **LLC LAN Conversion Stations:** Vanguard 7300 Series - 1,000 per interface, 2,000 per node (Release 6.0 and greater) Vanguard 6435/55 - 250 per interface, 500 per node Vanguard 340, 342 - 250 stations on one port Vanguard 320 - 64 per node **LLC FRI Conversion Stations:** Vanguard 7300 Series - 2,000 per node (Release 6.1 and greater) Vanguard 7300 Series - 1,000 per node (Prior to Release 6.1) Vanguard 340, 342, 6435/55 - 250 per node Vanguard 320 - 64 per node	2,000	500
Additional Limits		
Number of bridge links entries (7300 Series original size - 250)	1,000	1,000
ARP (queue size)	50	50
Max. number of IPX interfaces+	1,000	1,000
Number of OSPF routes	7,500	2,048
Max. SVCs per SoTCP session	64	50
Max. Total Data SVCs (SoTCP)	2,000	1,024
Max. Total Voice SVCs (SoTCP)	2,000	1,024
IP Broadcast Forwarding Table Size	255	255
UDP Broadcast Forwarding Table Size	255	255
Outbound Translation Table Entries (7300 Series original size - 1,600)	16,000	1,600

Software Configuration *(continued)*	***7300 Series***	***6435/55***
Additional Limits - ATM		
ATM Stations * Vanguard 6400 Series - 300 * Vanguard 6560 - Not Applicable	4,000	*
Maximum FRST Entries * Vanguard 6400 Series - 300 * Vanguard 6560 - Not Applicable	4,000	*
SAR Profile * Vanguard 6400 Series - 50 * Vanguard 6560 - Not Applicable	500	*
X25 Profile * Vanguard 6400 Series - 50 * Vanguard 6560 - Not Applicable	500	*
Maximum Compressed Data Connections	500	
Additional Limits - LAN		
Transparent Bridge Forwarding Table Size (7300 Series original size - 8,000)	16,000	255
Max. number of OSPF interfaces	255	255
Max. number of PPP switched links	30	60
BGP Policy Table	2,048	768
BGP to OSPF Import Policy Table	1,024	1,024
BGP Maximum peers	128	16
QoS Parameter **Note** The QoS parameter fields can be configured to a maximum of 1,000 or 10,000 (in the case of IP Flow Table Size).	1,000	*

Boot Prom Software Updates

Introduction

This section provides instructions for Coldloading the Boot prom using Software Loader or Procomm Communication software.

Software Loader

Software Loader automatically upgrades or downgrades the boot prom. When an image is loaded and it requires a version of bootprom different from the one currently loaded, Software Loader changes the boot prom to successfully load the image. For more information on bootprom-image compatibility, refer to the Bootprom Directory table on page 29.
The bootprom can be uploaded and downloaded manually using a communication application such as Procomm.

Caution

Backup your configuration. Upgrading to a new release could cause configuration loss. If you choose to downgrade to a previous release, you must reload the configuration saved from that release or risk corrupting the configuration.

Procomm Procedure

Below is a step procedure on how to coldload the Bootprom using Procomm Communication software. This procedure example was documented using a Vanguard 7300 Series router. Figure 7 on page 30 shows the various product directories.

Note
Boot Prom revision 1.50 is current for release 6.2.R000, 6.1.R000 and 6.0.R00A software on the Vanguard 7300 Series.

1) To determine the current version of Bootprom loaded on your Vanguard, perform these steps:

Step	*Action*
a)	Access the Console Terminal Program's (CTP) Main Menu.
b)	Select Option 5, **Status/statistics**.
c)	Select Option 1, **Node Stat**, from the Status/statistics menu. The Node Stats' displays the Bootprom Revision: 7300 Series Examples: Version 1.10, 1.11, 1.30, 1.40 or Version 1.50. **Note** Refer to the Bootprom Directory table in Step 9.

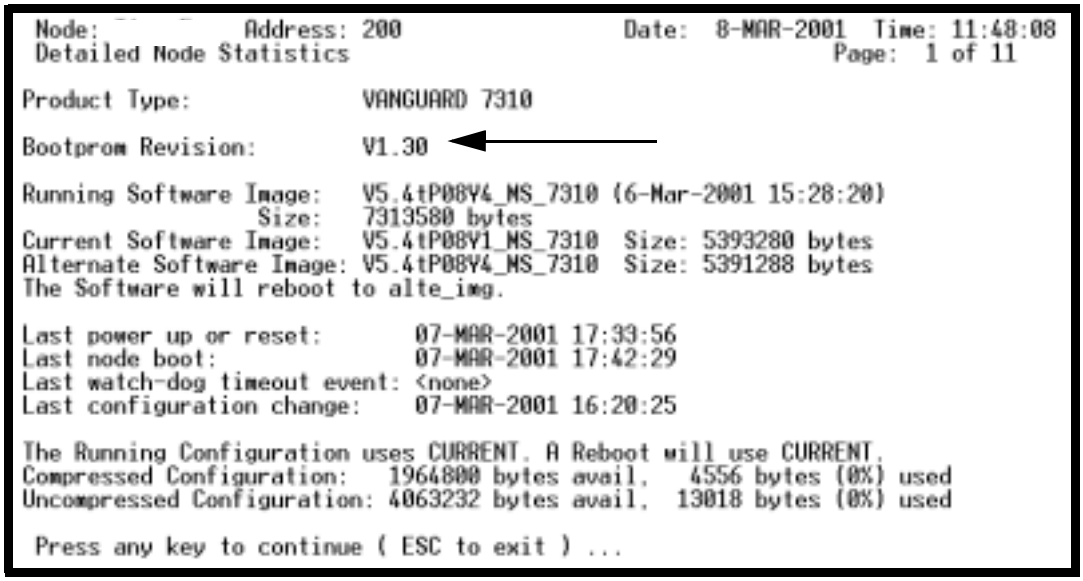


Figure 3. Bootprom Revision Example

2) Use the Procomm application to update the Bootprom. Open the Procomm application to get a Data Terminal Window. The settings should be 9.6k, N-8-1, and RAW-ASCII transfer mode. Use a regular Control Terminal Port (CTP) connection.

3) Activate a Force Cold-Load (16.12.y.y):

Flash Memory->Force-Cold-Load->yes

Cold Boot the node (7.5.y):

Boot->Node (cold)->yes

A Download Coldloader prompt from the (CTP) displays.

4) Choose an appropriate speed coldloader indicated in the current bank column of the table below. Typically the **c73cv115.xrc** file is used.

Current Bank	*Kbps*
c73cv115.xrc	115
c73cv192.xrc	19.2
c73cv288.xrc	28.8
c73cv384.xrc	38.4
c73cv576.xrc	57.6
c73cv96.xrc	9.6

5) Download the appropriate coldloader to your PC for the correct Bootprom version, from the following directory example:

C:\Vanguard\SFW_IMGS\73*0\COLDLOAD\T10BP1**

Note

You must use the coldloader from the current bank column of the table in step 4 to load the Bootproms.

6) When using the Procomm application:

- Select Send File from the Procomm Data Menu
- Select RAW ASCII transfer mode
- Select 9600 for the Coldloader speed

The following figures show the Procomm application.

Note

To be sure you are in RAW ASCII transfer mode, when in Procomm, check the setup file. **Options->Data Options**

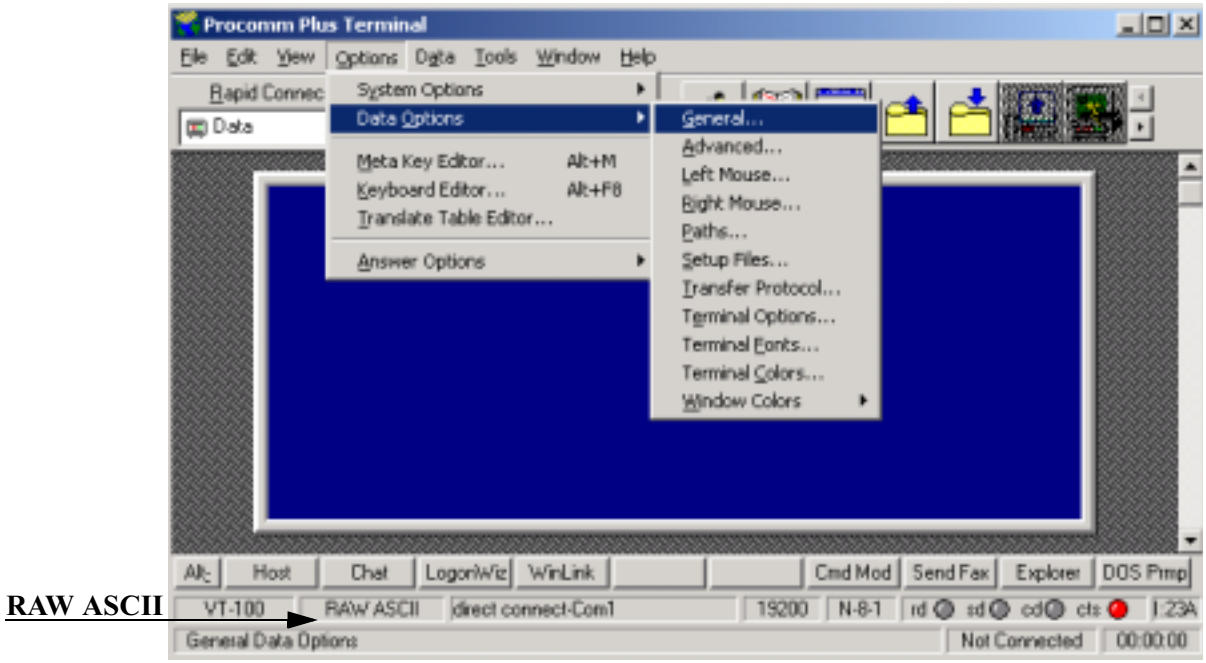


Figure 4. Procomm Plus Terminal

Procomm Setup

When **Options->Data Options->Transfer Protocol** is selected, a Setup menu displays.

- Select RAW ASCII from the Current Transfer Protocol pull down menu
- Click the Transfer Protocols button

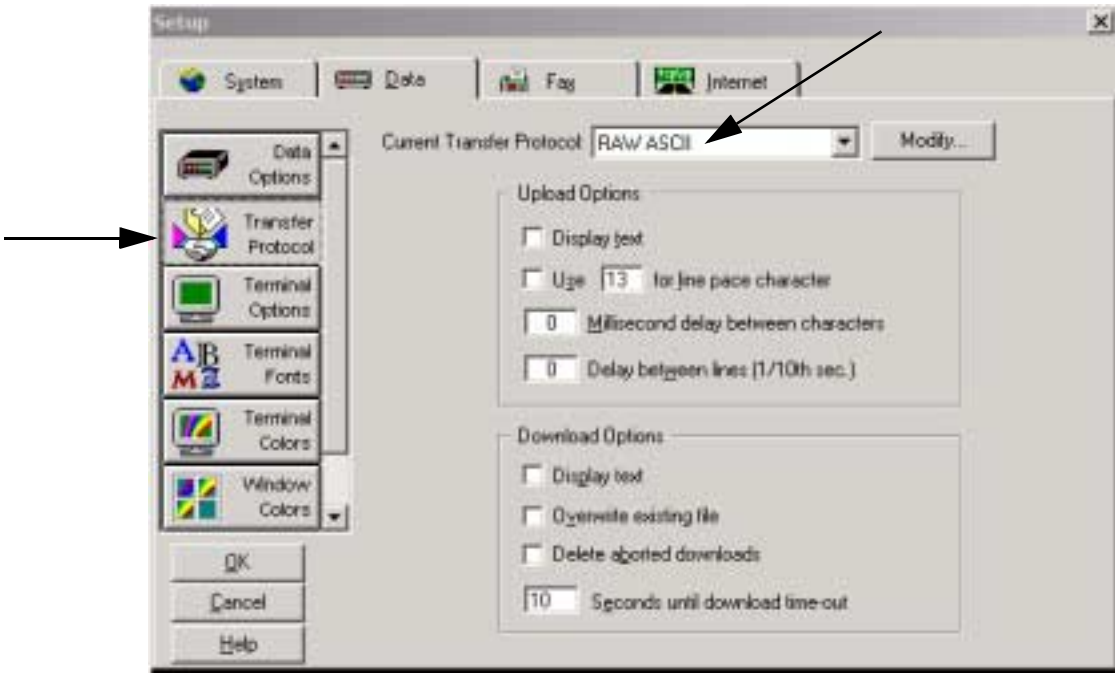
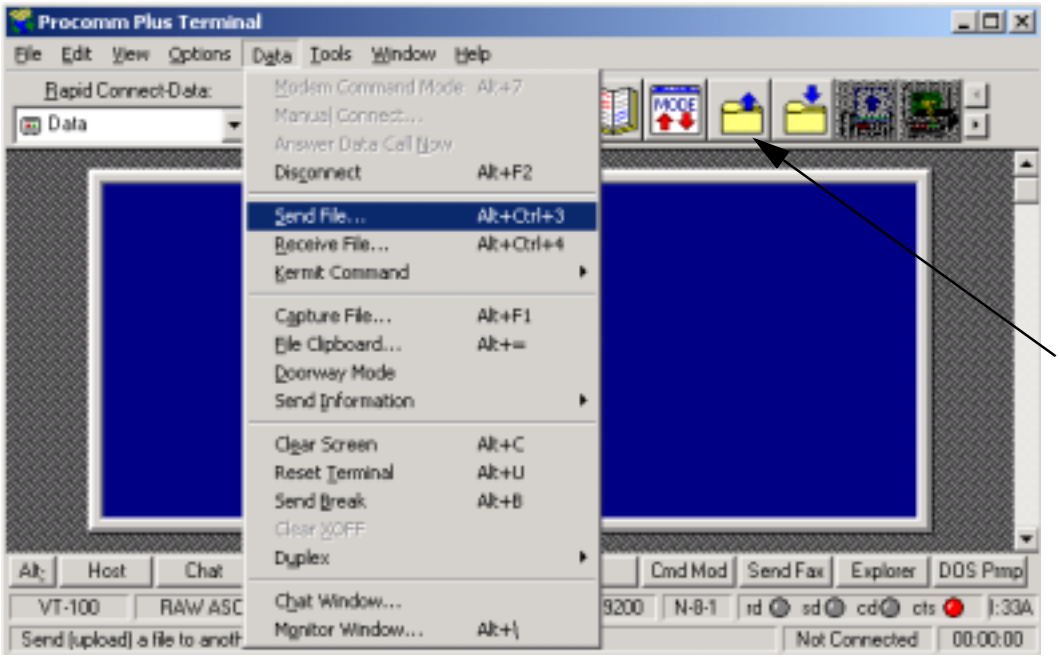


Figure 5. Procomm Setup Menu

Send File

To send a file, open the Procomm application. Under the **Data Menu** select **Send File**.



This button also Sends Files.

Figure 6. Procomm Plus Terminal Send File

Send the correct file using one of the enclosed “c73 loaders” below:

c73cv115.xrc for 115 Kbps **c73cv288.xrc for 28.8 Kbps**

c73cv192.xrc for 19.2 Kbps **c73cv384.xrc for 38.4 Kbps**

c73cv576.xrc for 57.6 Kpbs **c73cv96.xrc for 9.6 Kbps**

Note

To reduce the download time, Vanguard Managed Solutions recommends **c73cv115.xrc for 115 Kbps**.

7) Once the download is complete, **change the terminal speed to the appropriate coldloader speed chosen in step 4**. Download the Bootprom.xrc file. The required Bootprom version (such as T10BP111.xrc) can be acquired from the directory containing the same name:

C:\Vanguard\SFW_IMGS\73*0\COLDLOAD\T10BP1**

8) Open the Procomm Plus Terminal Manual application:

- Select Send File, under the Procomm Data Menu
- Select the correct bootprom version

9) Choose the correct bootprom directory that includes the coldloaders. The example below shows the 7300 Series Bootprom Directories. **T10BP1**** refers to:

- T10BP110
- T10BP111
- T10BP130
- T10BP140
- T10BP150

Bootprom Directory	*ONS Image Compatibility*	*Bootprom Version*
T10BP110	5.4.P08A 5.4.P08B	1.10
T10BP111	5.4.P08# **Note** The pound sign "#" represents a letter from C to Z.	1.11
T10BP130	5.4.P0LA, 5.4.P0KA, and 5.4.P0JA **Note** Bootprom version 1.30 is required to run the 5.4 Point Release L software. The 1.30 version of the bootprom does not work with any earlier 5.4.P08* software. **If you have a new CPU card, use bootprom 1.40 or 1.50.** The asterisk "*" represents a letter from A to Z.	1.30 or greater
T10BP140	5.4.P0LB **Warning** Bootprom version 1.40 or greater is required to run with the new CPU cards.	1.40 or greater
T10BP150	6.0.R00A 6.1.R000 6.2.R000	1.50

Note
The respective .xrc file is contained in the directory with the same name. **Example:** T10BP140.xrc would be found in the T10BP140 directory. T10BP150.xrc would be found in the T10BP150 directory.

Directory Example

Figure 7 shows a Vanguard 7310 Directory selected.
C:\Vanguard\SFW_IMGS\7310\COLDLOAD

Note

Under the SFW_IMGS directory all the Vanguard products are listed. To select a Vanguard 6455 the path would be:
C:\Vanguard\SFW_IMGS\6455\COLDLOAD

C: Vanguard

SFW_IMGS

7310

COLDLOAD

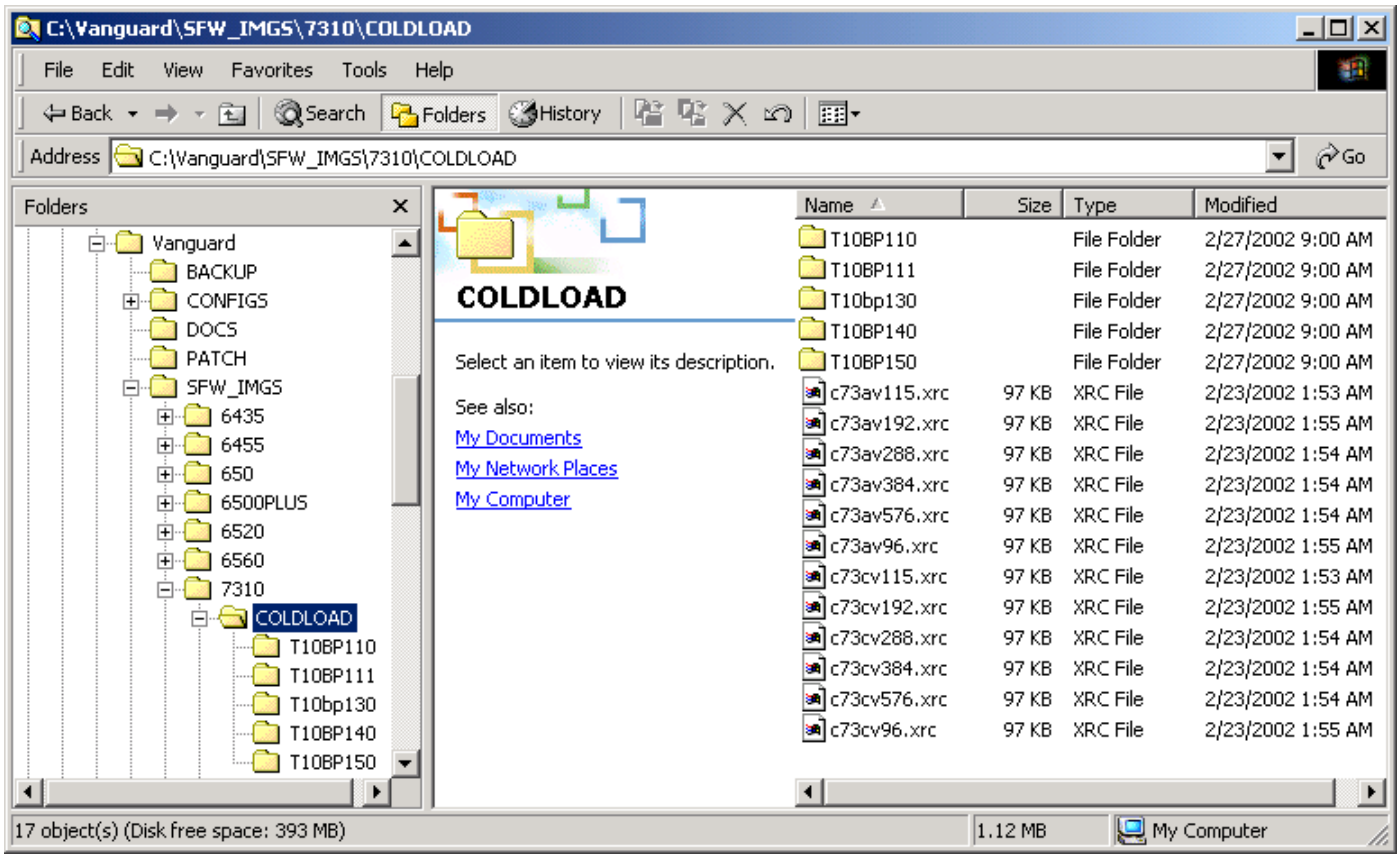


Figure 7. COLDLOAD Directory

10) Once completed, the 7300 shows “Restarting”. **Change your terminal speed immediately back to 9600**. The unit should automatically reboot and go to ONS, provided that the bootprom and ONS images are compatible.

Note

If the ONS images are not compatible, the node responds by removing the current image and prompts the user with a "download coldloader" message. If you received this message check the table in step 9. The table contains the correct compatibility information. To load a compatible ONS image, repeat these steps substituting the ONS image instead of the bootprom image instruction in step 8.

11) Upon completion of loading a compatible image, the node restarts.

Boot Prom Information for the new Controller Card

Any controller card numbered 75836G01 with revision D or greater **REQUIRES** the new boot prom code and must not be downgraded past 1.40. You must **NOT** load an earlier version of boot prom or attempt to load software with a Vanguide CD prior to release 5.4.P0LB. This new card is functionally equivalent to the original card, but does require new boot prom code and coldloaders to operate. This new boot prom code is release 1.40 or greater.

The new 1.40 or greater boot prom is fully compatible with the original controller card and all software versions that worked with boot prom revision 1.30. If you use an older Vanguide CD to load an older image, it attempts to downgrade the boot prom which renders the controller card inoperable and it will have to be replaced. In order to prevent inadvertently loading boot prom revision 1.30 onto a new system controller card, please discard any CD's previous to the 5.4.P0LB CD.

For more information, refer to the Vanguard 7300 Controller Card Hardware Advisory Notice (Part Number T0185-04) located on the web at:
http://www.vanguardms.com/support/documentation

Also refer to the "Boot Prom Software Updates" section on page 24 of this Software Release Notice.

Controller Card Board Assembly Number Location

Refer to Figure 8 to locate your board assembly number:

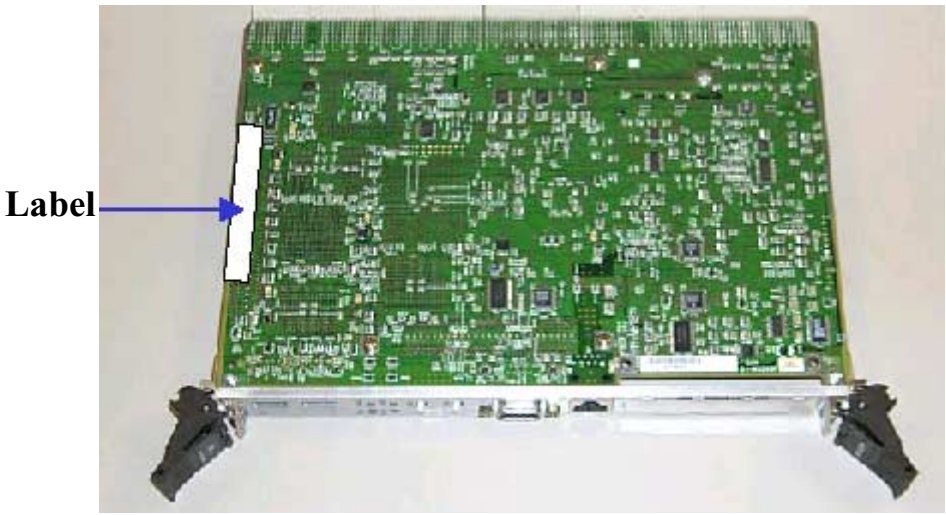


Figure 8. Board Assembly Number Label

Vanguard 7300 CPU Card Upgrade

The Vanguard 7300 Series MCP750 (part number 75836G02) system cards are supported by software releases 6.1.T14A and greater. If you have a part number 75836G02 system card and are running older versions of release 6.1, a new 6.1 software patch is required (6.1.T14A). The system cards have a different revision PCI-PCI bridge than previous system cards (part number 75836G01). The new system cards are not being recognized by software older than 6.1.T14A. Software patch 6.1.T14A must be installed when using part number 75836G02. For more information reference the 7300 Hardware Advisory Notice (part number T0258).

Software Improvements

Introduction

This section describes specific improvements to the Applications Ware software. It includes:

- Corrected limitations
- Customer-initiated Change Requests

Corrected Limitations

Central Voice Switching Table - All Products

Central Voice Switching Table lookups indicate the wrong entry if a blank entry exists. (DRCaa22754)
This is fixed

Vanguard 7300 Series, DSP Configuration Crash

A DSP failure occurred when using a certain configuration. The failure occurred when using a certain T1/E1 card, DSPM daughtercard and when voice calls were disconnected. (DRCaa23026)
This is fixed.

Quad FXO ports Booting to the Correct State

Intermittently Quad FXO ports may not boot to the correct state during a node boot (cold or warm). This condition can be observed within page three of the ports Detailed Port Statistics. (DRCaa23122)

```
Node: 100       Address: 100                  Date:  9-APR-2002  Time: 12:04:44
Detailed  VOICE Port Statistics: Port 61                        Page:  3 of  6

Tx/Rx Signaling Sequence Trap     Time Since Last Trace Change:   00:01:35
Tx State  Rx State    Voice State   Time Since Last Change    Comment
========  ========    ===========   ======================    =======
0000      1000        IDLE_UNCON         35 msec              loop current on
0000      0000        IDLE_UNCON          0 msec              send idle sig
0000      0000        IDLE_UNCON          0 msec              change state
0000      0000        CONFIGURED          0 msec              UNCONNECTED_IDLE
0000      0000        CONFIGURED          1 msec              PORT RESTART
0000      0000        CONFIGURED          0 msec              send idle sig
0000      0000        CONFIGURED          0 msec              change state
0000      0000        INITIALIZED         0 msec              send idle sig
0000      0000        INITIALIZED       431 msec              PORT SET_PARAMS
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec

Press any key to continue ( ESC to exit ) ...
```

Figure 9. Detailed Port Statistics - Correct State

Figure 9 shows that the port statistics page reports the following conditions as the current port state:

- Rx State = 1000 and Voice State = IDLE_UNCON - This means that the port has booted to the correct state.

Figure 10 shows that the port statistics page reports the following conditions as the current port state:

- Rx State = 0000 and Voice State = IDLE_UNCON - This means that the port has booted to the incorrect state.

```
Node: 100       Address: 100                 Date:  9-APR-2002  Time: 12:03:36
Detailed  VOICE Port Statistics: Port 64                      Page:  3 of  6

Tx/Rx Signaling Sequence Trap     Time Since Last Trace Change: 25592 msec
Tx State  Rx State    Voice State   Time Since Last Change    Comment
========  ========    ===========   ======================    =======
0000      0000        IDLE_UNCON          0 msec              send idle sig
0000      0000        IDLE_UNCON          0 msec              change state
0000      0000        CONFIGURED          0 msec              UNCONNECTED_IDLE
0000      0000        CONFIGURED          1 msec              PORT RESTART
0000      0000        CONFIGURED          0 msec              send idle sig
0000      0000        CONFIGURED          0 msec              change state
0000      0000        INITIALIZED         0 msec              send idle sig
0000      0000        INITIALIZED       436 msec              PORT SET_PARAMS
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000        NULL                0 msec
0000      0000
```

Figure 10. Detailed Port Statistics - Incorrect State

If the Rx State = 0000 this means that:

- the port has booted to an incorrect state
- the port is not physically connected to a PBX Station or CO trunk

This is fixed.

Vanguard 6400 Series Event Log Port Information

When a Vanguard 6455 is defaulted with an ISDN data card in slot 1 the node comes up and alarms appear in the event log for ports 51-53, even if a quad card is not installed. (Ports 51-53 are for the quad FXS/FXO card.) If you have a quad FXS port installed and configured in slot 2, and you remove this card and install a single FXO the log should show a problem. The node comes up, but there is no log that states “cannot boot ports 61-64 because of a hardware mismatch”. (DRCaa23067)
This is fixed.

Vanguard 6455 PRI-DATA and PRI-Voice Alarm Errors

Upon completion of a node boot, level one alarms are generated for every virtual port mapping table entry with Virtual Port Type configured as PRI-DATA or PRI-VOICE. Example: **(1) 102 20-JUN-2001 08:25 Assert 897 vpmt.c** (DRCaa22532)
This is fixed.

Vanguard 340, Vanguard 6400 Series - G.711 Coder Types Do Not Appear Under Voice Port Statistics

Voice port statistics do not show that G.711 coders are available in the build. (DRCaa23042)
This is fixed.

Time Slot Number is always One on the First Page of the Statistics - Vanguard 6400 Series

When there are multiple voice calls connected with the same T1/E1 interface, the "Time Slot" value on the first page of the Virtual Port Statistics always shows the time slot number of the first virtual port associated with that T1/E1 interface. (DRCaa22116)
This is fixed.

Vanguard 6560 QLLC State

QLLC state remains at LINK_OPENED after the DCP reconnection timeout. (DRCaa22766)
This is fixed.

Improper Default Bridge Link/Router Interface Numbers for LAN Ports Vanguard 7300 Series

All LAN ports receive the same default bridge link (1) and router interface number (1) when the node is defaulted. (DRCaa21838)
This is fixed.

NS Strings with Port Number for Primary Ethernet card does not work

With dual Ethernet cards, Vanguard 6520, 6560 and 6400 Ethernet cards are unable to handle Network Services Table's Port/Station Identifier if the Primary Ethernet card's strings have port number after LSC-ETH. The strings entered into the Network Services Entry for LLC to SDLC Stations on the first Ethernet ports are limited to: LSC-ETH1, LSC-ETH2,...LSC-ETH250, or LSC-ETH*. (DRFaa15760)
This is fixed.

Ethernet PMC Installed - Ethernet Port Null - Vanguard 7300 Series

The Ethernet port 101 does not work if you load a CMEM that was created on a node that did not have an Ethernet PMC installed, into a node that does. If you attempt to look at the port's statistics the node states that it does not exist. Attempting a port boot indicates it is a NULL port (DRCaa22566)
This is fixed.

All Vanguards - Directory Limitation when Creating Images

Vanguide Application Builder and Service Patches can only be installed under a directory that is no more than eight characters (DOS 8.3 format), since Vanguide Builder calls a third party image LINKER which only supports the directory/file name in DOS 8.3 format. (DRFaa19749)
This is fixed.

SNABSC HPAD and TPAD Entries - Vanguard 6455, 7300 Series

The Destination Control Unit Address and Destination Device Address parameters in the SNABSC entry in HPAD must match one of the following set of parameters of BSC3270 TPAD device table, for the device it is connecting to: (DRCaa22909)
1) BSC Control Unit Address and BSC Device Address.
2) Destination Control Unit Address and Destination Device Address.
When placing the call from HPAD, the Destination Control Unit Address and Destination Device Address must match the BSC3270 device table parameters: BSC Control Unit Address and BSC Device Address. When placing the call from TPAD, the Destination Control Unit Address and Destination Device Address must also match the BSC3270 device table parameters: Destination Control Unit Address and Destination Device Address.
This is fixed.

Single DLCI Multiplexing SNA/IP/IPX Causes Node Crash - All Products

RFC1490 Single DLCI Multiplexing and De-Multiplexing SNA/IP/IPX will cause the node to crash. If you configure the string FRISNA-xSy as either a source or destination in the PVC Setup Table and then boot the node, the node will not come up. The node will repeatedly crash. Multiplexing IP and IPX in the same DLCI works fine. (DRFaa16306)
This is fixed.

Vanguard 7300 Series BGP Initial Configuration

The initial configuration of BGP requires a warm boot. (DRFaa19411)
This is fixed.

Vanguard 7300, 6455 ISDN D-Channel Statistics Reports

Statistics are incorrect for a Vanguard 7300 or 6455 node configured for ISDN PRI (5ESS, Network). When you connect the T1 PBX cable to the Interface, and the RED Alarm clears, the D-channel will go ACTIVE and all virtual ports report IDLE. If you do not place a call within one minute the D-Channel reports that it is DOWN and the voice ports report OUT OF SERVICE. If you place a call it will go through
This is fixed.

Vanguard 320, SoTCP Calls not Connecting

SoTCP calls (data or voice) are not connecting if the SoTCP "TCP Keep Alive Timer" is disabled. If enabled, a SoTCP boot does not initialize the timer. A warm boot is required. (DRFaa19651)
This is fixed.

Customer Initiated Change Requests

These Change Requests were reported to Customer Service and interim patch releases were released to fix the problems. These Change Requests are incorporated into Release 6.2.R000, and where applicable, interim patch releases have been replaced by Release 6.2.R000:

Change Request (CR#)	*Limitation Number*	*Release Where Problem Was Reported*	*Interim Patch Release Replaced by Release 6.2*	*Problem Description*
11312	DRFaa19402	5.6.S200	5.6.T4QA	All Vanguards - Node crashes with a “no room for LS Node” error.
11368	DRFaa19648	5.6.T2JA	5.6.T4FC	Vanguard 6400 Series voice problems due to random noise on the line and unclear voice calls.
11482	DRFaa19923	5.6.T44A	6.0.T1PA	Vanguard 320 if a call is generated from a ISDN remote end, the port does not send Call Proceeding message to the remote end.
11483	DRFaa19924	5.6.T44A	6.0.T1PA	Vanguard 320 is unable to receive calls due to incorrect filtering of the ISDN IEs.
11519	DRFaa20099	6.0.R00A	6.0.T1PA	Vanguard 6400 Series echo canceller is not working properly on the 4-port FXO cards.
11523	DRFaa20107	6.0.R00A	5.6.T4JA	Vanguard 6400 Series when NAT transfers the RIP v2 routes, it uses the route's network mask. It should use the route's subnet mask.
11578	DRFaa20202	6.0.P02A	6.0.T19C	Vanguard 7300 Series table overflow error, router needs to be rebooted.
11584	DRFaa20241	6.0.R00A	6.0.T14A	Vanguard 7300 Series voice port hangs in the IDLE_CON state.
11654	DRFaa20503	6.0.T16A	6.0.T1MA	Vanguard 6400 block size greater than 2046 cannot cross TPA-X.25 to TPA-TCP. TPA-TCP locks up and needs to be rebooted.
11656 11657	DRFaa20489 DRFaa20490	6.0.S100 6.0.S100	N/A N/A	Vanguard 6400 Series node crashes with a “Program Exception Encountered” error.

Change Request (CR#)	*Limitation Number*	*Release Where Problem Was Reported*	*Interim Patch Release Replaced by Release 6.2*	*Problem Description*
11671	DRFaa20546	5.6.T16E	6.0.T1PA	Vanguard 6400 Node crashes frequently when processing digital voice traffic.
11673	DRFaa20585	6.0.T1EA	6.0.T1EB	Vanguard 6400 Series problem installing dual E1 into slot two. When using transparent CCS for E1 in slot 2, then booting the TBOP port, E1 crashes.
11680	DRFaa20618	6.0.R00A	N/A	Vanguard 6400 Series CPU utilization statistics were inaccurate.
11696 11795	DRFaa20700 DRFaa21067	6.0.R000 6.0.p019C	N/A 6.0.T19D	Vanguard 7300 Series RIP does not accept advertised route. Internally generated subnet routes are taken precedence over RIP routes.
11683 11723 11749 11769	DRFaa20635 DRFaa20705 DRFaa20779 DRFaa20883	6.0.R00A 6.0.T1CA 6.0.S100 6.0.T16C	N/A 6.0.T1CB 6.0.T16D N/A	Vanguard 340 node crashed with “FAULT: Data TLB Miss Exception Encountered.”
11710	DRFaa20750	6.0.S100	N/A	Vanguard 6435/6455 cannot manage Frame Relay traffic properly.
11734	DRFaa20724	6.1.R000	6.1.T01A	Vanguard 340, 6435/6455 Software builder problems occur when Quad FXS/FXO and FT1/FE1 features are selected.
11736	DRFaa20722	6.2.iR00M	6.0.T1RA	Vanguard 6400 Series NAT external dynamic address assignment does not work correctly after idle time.
11737	DRFaa20732	6.0.T2A	6.0.T1SA	Vanguard 6400 3780 Bisync conversion is not working properly within a single node.
11738 11806	DRFaa20746 DRFaa21008	6.0.T15A 6.0.T19C	N/A 6.1.T13A	Vanguard 7300 Series node crash with ISI 750 Exception Encountered error.

Change Request (CR#)	*Limitation Number*	*Release Where Problem Was Reported*	*Interim Patch Release Replaced by Release 6.2*	*Problem Description*
11746	DRFaa20765	6.0.T1QA	6.0.T1QA	Vanguard 6400 when a 2780 TPAD and 2780 device bid for the line at the same time a NAK/ ACK loop is generated.
11754	DRFaa20816	6.0.R000	N/A	Vanguard 7300 Series SDLC statistics are not displaying correctly.
11757	DRFaa20818	6.0.S100	N/A	Vanguard 340 lost CMEM due to attached modem with echo enabled.
11759	DRFaa20848	6.0.aSP1	6.1.T11A	Vanguard 7300 Series MIB incorrectly represents an internal IP address.
11760	DRFaa20826	6.1.R000	N/A	Vanguard 6400 When a TFTP or Telnet is issued from Vanguard routers, outgoing IP interface is used as IP address source.
11772	DRFaa20896	6.0.T16A	6.0.T16E	Vanguard 6400 when using SNMP QoS Statistics Query the node crashes with a “Data TLB Miss Exception Encountered” error.
11774	DRFaa20911	6.1.R000	6.2.iR00N	Vanguard 6400 Code alarms and Debug alarms are enabled.
11776	DRFaa20919	6.1.R000	6.2.iR00N	When you have a Quad FXS card installed in port two of a V340 and then go into CLI and do a “getdes command” it reports NONE for the port.
11779	DRFaa20923	6.0.S100	N/A	Vanguard 7300 Series unable to build an image with IP Tunneling.

Change Request (CR#)	*Limitation Number*	*Release Where Problem Was Reported*	*Interim Patch Release Replaced by Release 6.2*	*Problem Description*
11780	DRFaa20961	6.0.sp1	6.0.T1TA	When a STATUS message is received, Telenetworks software records the cause code in NLCB context. The next message to be received is overwritten (corrupted) by Telenetworks because the recorded cause code is not zero.
11782	DRFaa20925	6.0.T16C	N/A	Vanguard 340 node crashed "FER FAULT: Program Exception Encountered."
11783	DRFaa20958	6.1.R000	N/A	Vanguard 6400 BRI Dial on demand does not work in an French network.
11790	DRFaa20984	6.0.T19C	6.0.T19D	Vanguard 7300 FRI stations are not recovering without a station boot.
11791	DRFaa20983	6.0.R00A	N/A	All Vanguards - when using route control (none, <list> to block a subnet) the router stops accepting all routes.
11811	DRFaa21028	N/A	N/A	Vanguard Terminal does not capture data correctly.
11826	DRFaa21080	5.6.T17A	5.6.T17C	Vanguard 340 when using H323, a bit should be initialized as zero before calling H323_RAS SendMsg.
11845	DRFaa21120	6.0.R00A	N/A	Vanguard 320 NAT Static Port Binding. Port numbers over 35000 change.
11848	DRFaa21127	6.0.R00A	N/A	Vanguard 6455 Ethernet errors running 10 FULL.
11854	DRFaa21150	6.0.S100	6.0.T1XA	Vanguard 6400 detailed link statistics not working properly.
11868	DRFaa21167	6.1.T02A	6.1.T02C	Vanguard 7300 SoTCP fails with Debug Alarm "IDCM invalid packet type 1".

Change Request (CR#)	*Limitation Number*	*Release Where Problem Was Reported*	*Interim Patch Release Replaced by Release 6.2*	*Problem Description*
11881	DRFaa21196	6.2.iR00U	6.1.T12A	Vanguard 7300 cannot run Channelized T1 data using 56K channels with B8ZS and ESF.
11886	DRFaa21236	6.1.T02B	6.1.T02C	Vanguard 7300 conditional default route is not being advertised until node boot.
11887	DRFaa21240	6.1.S100	6.1.T13A	Vanguard 7300 ATM FRST X.25 profiles does not support Extended Frame and Packet Sequence Counting.
11890	DRFaa21255	6.1.R000	N/A	Vanguard 6400 MIB tables not indexed correctly.
11891	DRFaa21244	6.1.R000	6.1.T14A	Vanguard 7300 Revision K System Processor cards reset before getting to the OK prompt.
11894	DRFaa21278	6.1.T02B	6.1.T02C	Vanguard 7300 PPP single T1 port and 4 T1 MLPPP bundle produce errors on every RIP update.
11896	DRFaa21270	6.1.R000	6.1.T13A	Vanguard 7300ATM FRST X.25 profile does not support Window Subtractor.
11898	DRFaa21287	5.6.R000	6.0.T1YA	Vanguard 6400 when telco ISDN cables are connected to BRI CD, statistics show layer one state is loop test.
11903	DRFaa21300	6.0.R00A	6.1.T13A	Vanguard 7300 AAM Station Down is a medium alarm and it should be a high alarm.
11904	DRFaa21302	5.6.S200	N/A	Vanguard 6400 cannot use the IP address of the outbound Interface as the source IP address.
11907	DRFaa21331	6.1.S100	6.1.T13A	Vanguard 7300 ATM alarm does not indicate which ATM station the error occurred on.

Known Software Limitations

Introduction

This section lists limitations known to exist in Release 6.2.R000 Applications Ware software.

Vanguard 7300 Default Value for the W Window Packet Parameter

In release 6.1 the default value for the W Packet Window parameter for FRI AnnexG station configuration has been changed from 2 to 7. When a 6.1 release software loaded node is connected to a 6.0 release software loaded node is connected to each other via FRI AnnexG with default settings, this causes mismatch in packet layer window size and the connection does not work properly causing large delays or no data going through. (DRFaa20377)
Workaround: This is a matter of mismatched configuration and setting the W Packet Window parameter to be the same in the two nodes will allow the connection to work properly.

RTP Header Compression

RTP Header Compression Interoperability Between Cisco and Vanguard Managed Solutions Products over Frame Relay Limitations

Incompatible Cisco Features- There are a few Cisco proprietary features that must be disabled in order to ensure proper interoperability over Frame Relay links. The table below identifies the incompatible features.

Feature	*Comments*
tcp header-compression	Vanguard Managed Solutions products do not support tcp header compression over Frame Relay. TCP header compression must be disabled on Cisco Frame Relay interfaces.
Frame relay end-to-end keepalives	Encapsulation for keep alive packets is Cisco proprietary and as a result is not supported on links between Vanguard Managed Solutions and Cisco nodes.
Cisco discovery protocol	CDP must be disabled on links connected to non-Cisco devices.

Protocols Not Supported - Vanguard Frame Relay links configured for CENCAP encapsulation do not support Transparent Bridging traffic.
Configuration - The “Number of Session to be Compressed” parameter must not be configured to a value greater than 255 when the encapsulation is configured to “CENCAP”. Cisco products are limited to 8-bit Context Identifiers (CIDs) over Frame Relay. Configuring a Vanguard node for more than 255 sessions will cause it to use 16-bit CIDs.

Descriptions

Encrypted (SAM) Tunnel

Encrypted (SAM) Tunnel over WAN/LAN with (RTP+UDP/UDP)+IP Header compression is not working for certain size UPD-IP packets where IP packet length is greater than 46 (Version 5.5 and 5.6). Compression works for IP packets where the IP packet length is less than 46. (INDaa01629)
Workaround: At present, there is no workaround.

Node crashes when Bridge is configured on VPN over LAN

When you have TB Bridge traffic over the LAN Tunnel (Tunnel over LAN Link), the traffic from TB-1 is transported to TB-2 and from TB-2 to TB-1 over Tunnel. Refer to Figure 11 below:

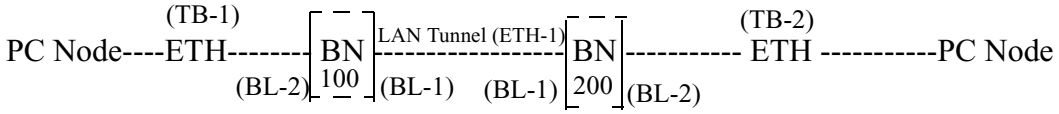


Figure 11. TB Bridge Traffic over A LAN Tunnel

The tunnel carrier ETH-1 does not have Bridge enabled. If the user (by mistake) enables the Bridge Link (BL-1) corresponding to ETH-1 which is the tunnel physical link, the node starts to repeatedly crash until the Bridge Link (BL-1) is disabled. (INDaa01627)
Workaround: In the practical scenario, you do not have to enable the Bridge link corresponding to the ETH physical link of Tunnel. To avoid the node crashing, disable the Bridge Link (BL-1) corresponding to the ETH-1 (which is the Tunnel carrier). This workaround does not impact the other functionality's. All the functionality (including Bridge Traffic over LAN Tunnel) will work as usual.

Basic Rate Interface (BRI) Boot - Vanguard 6400 Series, Vanguard 320

A BRI interface does not recover with the first BRI interface boot following a node boot. A second BRI interface boot clears and recovers the interface. (DRFaa18340)
Workaround: Boot the interface twice.

Alarms when Doing Warm or Cold Boot of Release 5.5 - Vanguard 6455

The alarm message "DBG-Error-Module:L3 Function:L3_Go Error:L3_Get_NLCB failed" may display when you boot the node during the handling of the T314_timer expiry. These alarms do not impact the node's functionality. (DRCaa22131)
Workaround: At present, there is no workaround.

T1 N. American ISDN B-Channels appear IDLE - Vanguard 6400 Series

When you look at the detailed PRI statistics with the D-channel connected, all of the associated B-channels are shown to be in an IDLE state, even if some of the channels are not configured in the ISDN interface. (DRCaa22080)
Workaround: At present, there is no workaround.

Digital Voice Server Card - Vanguard 6400 Series

T1/E1 Interface 5 will not get initialized if Interface 4 is not configured. T1/E1 Interface 7 will not get initialized if Interface 6 is not configured. (DRCaa21619)
Workaround: Always configure both interfaces even if only the second interface on the card is used.

Packet Re-construction Statistic Running 8kbps is Inaccurate - Vanguard 6400 Series

When the time for packets to reach DSP exceeds the smoothing-delay time, DSP increments the reconstruct packet counter. With 60 voice ports configured and Voice Activity Detection (VAD) turned on, excessive reconstructed packets are reported. (DRCaa21596)
Workaround: At present, there is no workaround.

Received PRI Voice SETUP messages with Incompatible Coder are Not Rejected - Vanguard 6400 Series

If a PRI Voice virtual port is configured incorrectly as U-Law (or A-Law) and receives a SETUP from the PBX with the opposite bearer capability of A-Law (or U_Law), the call is not rejected. When the call goes through, the audio quality is unsatisfactory. (DRFaa15495)
Workaround: Be sure to configure the PRI Voice virtual port correctly to match the PBX.

PAD Port Dynamic Configuration - Vanguard 6560, 6400 Series

When a node is configured for Dynamic Configuration, a PAD port running as a PVC connection cannot switch to SVC mode unless the PAD port is dynamically booted. If you fail to boot the PAD port dynamically, the port reverts to an unusable state and you see these symptoms:

- The PAD port sends this error message: “Cannot forward data, there is no connection.”
- There is no associated PVC entry in the PVC Connection Summary table.
- The PAD port statistics show Port State as PAD.

(DRFaa11231)
Workaround: At present, there is no workaround.

Configuring the Date in the Vanguard 6400 Series Products

In the Vanguard 6400 node record, the range for the Date/Year record is 1988 to 2100. Two limitations exists:

- On the Vanguard 6425, 6430, and 6450, if you enter a date and time beyond Feb 6, 2037, 6:28:10, the node resets the date to an arbitrary date.
- On the Vanguard 6435 and 6455, if you enter a date between 2088 and 2100, the node subtracts 100 years from the date and set the date to a value between 1988 and 2000. (DRFaa11666).

Workaround: At present, there is no workaround.

Vanguard 6560 Input/Output Signal Level - Statistics

The statistics for a Vanguard 6560 with a Voice Server Feature Card and a Vanguard 6560 with a DSPM/SM card differ in the display of the Input/Output Signal Level. For a Voice Server Feature Card:

- The input signal level statistic displays the actual input level on the line. This differs from the DSPM/SM card which displays the input level after gain/loss adjustments.
- The output signal level statistics displays the power on the line after gain/loss adjustments. This is also true for the DSPM/SM card. (DRCaa21113).

Workaround: At present, there is no workaround.

CTP Alarms Cause CLI To Lock Up - Vanguard 6400 Series

When running a CLI script, the terminal locks up if an alarm comes out while that CLI operation is in progress. (DRFaa13008)
Workaround: To avoid this, do not turn alarms on when CLI scripts are being run. If this lockup occurs in a node configured with APAD, press CONTROL+P and then type **`clr`** to escape from the CTP. If this lockup occurs in a node configured with ATPAD, type **`+++ath`** to escape from the CTP.

FAX Statistics in Detailed Voice Port Statistics - Vanguard 6560

These FAX statistics on the second page of the Detailed Voice Port Statistics are not supported by the Voice Server Feature Card:

- FAX Transmission
- FAX Transmission Unsupported Format

The value for these FAX statistics remains at 0.
The number of FAX pages transmitted is provided by “FAX page transmitted” and “FAX page transmission” statistics. (DRCaa21172).

Workaround: At present, there is no workaround.

Encryption Channel Summary Statistics - Vanguard 6400, 6560 and 340

Encryption Channel Summary Statistics can display “DATA” when the channel claims to be in a “NONDATA” state. (DRFaa15846)
Workaround: At present, there is no workaround.

VPN Tunnels with RUIHC Limitation - All Products

Configuring the maximum number of Tunnels (255) with RUIHC on each tunnel., causes the node to not come up or reset continually. (DRFaa17913)
Workaround: To configure and use the maximum number of tunnels with RUIHC (255) use tunnel boot instead of node boot. In the RUIHC profile configuration of each tunnel have the parameter “Number of sessions to be compressed” configured to less than 100.

Four Digit Virtual Port Number (Destination Subaddress) Vanguard 7300 Series

The four digit virtual port number cannot be used as the destination subaddress. Only three digit subaddresses are allowed. (DRCaa22259)

Workaround: The three digit Hunt Group must be used. If you need to target a virtual port, that virtual port should have a unique Hunt Group value.

Software Image Naming Convention is Different - Alternate and Current Vanguard 7300 Series

The software image naming convention is different for the Vanguard 7300 platform. In the Vanguard 7300 platform, you are able to boot from the Alternate image and the system shows that it was booted from Alternate. The Alternate image ***does not*** become the Current image, as in the other Vanguard products. (DRCaa22270)

Note

When using the other (non-73xx) Vanguard products, when you boot from Alternate, the Alternate image becomes the Current image.

Workaround: At present, there is no workaround.

Vanguard 7330 Power Supplies

When the Vanguard 7330 Version 1 or a 7310 or 7330 Version 2 is configured with multiple power supplies, each power supply shares the load. If a power supply should enter a failure condition, the second power supply provides power for the entire system. Failure conditions can be determined by viewing the LED on each power supply. Power supply fail conditions are not reported as alarm conditions through the CTP menu or SNMP trap. The only failure indication is the LED associated with the failed power supply. If one of the power supplies fail, you will be operating in a non-redundant mode. (DRCaa22496)

Workaround: None. Periodically check the power supply LEDs.

RTP+UDP Compression - Vanguard 6455

Compression may not occur on LCONs with RTP and UDP compression enabled, (RTP or RTP+UDP) when non-RTP UDP packets are passed over the LCON. The characteristics of the user data portion of the UDP packet can cause all the transmit compression contexts to be consumed such that no compression occurs. This condition may persist while the non-RTP UDP data is present on the LCON. Once the data is removed, the contexts are released. (DRCaa22524).

Workaround: Configure UDP compression only on links which carry RTP and UDP traffic. Limit non-RTP UDP data to a range of ports not configured for RTP compression.

Vanguard 7300 Series H.323 Statistics

In certain configurations, once a call is established, the PSTN port statistic show that TX and RX pps do not match the H.323 port statistics. The H.323 port pps rate is 1 or 2 pps less than the PSTN port. It should be equal. (DRFaa18071)

Workaround: At present, there is no workaround.

Vanguard 7300 Series Embedded Web Group Configuration

When you configure the voice port interface type (FXS), the next parameter is Signaling Mode. When you change the port interface type to E&M, the next parameter should change to Signal Type. Currently the next menu displayed is Signaling Mode. (DRFaa18769)

Workaround: At present, there is no workaround.

Password Limitation BGP - All Products

The Vanguard Router supports limited passwords. Cisco supports MD5. Currently we do not have Authentication compatible with Cisco. MD5 should be supported in the Vanguard products in future releases. (DRFaa18829)
Workaround: At present, there is no workaround.

Building Older Images

Follow the instructions listed in the workaround to revert back to an older build image (if you have installed the Vanguide Application Release 6.0.R00A from the 6.0.R00A CD). (DRFaa18867)
Workaround: Start Vanguide Software Builder, insert the older Vanguide release CD (A release before 6.0.R00A, example: 5.6.R000 CD) into CD driver. In Vanguide Software Builder, select the "Settings" menu, then change "CD ROM directory:" to say D:\Motorola (if D is the CD driver letter). Then you are able to build an image for a release before 6.0.R00A.

3270 BSC Message Size Limitation - Vanguard 6400 Series

An error may occur when 3270 BSC handles large message sizes. If a host sends a message that is larger then the 254 characters allowed in a block, when transmitted on the TPAD end, the first block ends with the End of Text Block (ETB). Once there is an acknowledgment received for the first block, the TPAD sends a End of Transmission (EOT) before sending the second block, which ends the message, and has the BSC controller write to the device. This causes an error in some applications as it expects the whole message in multiple blocks before the EOT. (DRFaa18075)
Workaround: At present, there is no workaround.

Vanguard 7300 Port Speed

The "Port Speed:" field in the FRI, PPP, X25, SDLC, and TBOP statistics screen is the configured Port Speed for the Vanguard 7300 Serial Port. If the "Clock Source" parameter in the FRI, PPP, X25, SDLC, or TBOP serial port is set to EXT or EXTLP, the "Port Speed:" field in the FRI, PPP, X25, SDLC, and TBOP statistics screen may not match the speed of the actual clock on the serial line. (DRCaa21740)
Workaround: To determine the actual speed on the serial line, an external datascope or protocol analyzer needs to be attached. The "Clock Speed" parameter in the Port Record needs to be configured to the actual Clock Speed that the port is attached to.

Improper Configuration for LLC-SDLC-Stations - Vanguard 7300, Vanguard 6400 Series

LLC-SDLC-Station Records in the Second Ethernet Station Table become the Records of the First Ethernet Station Table if the First Ethernet port record is deleted. (DRCaa21097) (DRCaa22325)
Workaround: The first work around is not to delete the first Ethernet port. The second work around is to re-configure the LLC-SDLC-Station Records with the Ethernet port that has not been deleted.

Vanguard 7300 Series Call Not Transferred with ALT-Dest set in VST

When placing a call from either an FXS, FXO or E&M to H.323 and the destination does not answer the phone (ALT_DEST_NO_ANSER) or the phone is busy (ALT_DEST) and the alternate destination is either an FXS, FXO or E&M, there is no audio. (DRCaa22329)
Workaround: At present, there is no workaround.

Vanguard 7300 Series Large QoS Parameter Values May Disable QoS

Although the QoS Parameter fields can be configured to a maximum of 1000 or 10000 (in case of IP Flow Table Size), this is subject to the node's RAM availability. The software checks the node for sufficient RAM to accommodate a QoS parameter configuration. If the node's memory size is less than the requirement for the configuration, the software disables QoS. (DRCaa22432)
Workaround: Configure the minimum required parameters for QoS.

Incorrect Configuration Can Disable QoS Scheduler Feature Vanguard 7300 Series

The sum of the %BW per custom PHB configured in the custom PHB menu must be the same as the %BW for custom PHB configured in the Queueing and Scheduling Profile Parameter. Failing to do so leads to the disabling of the QoS Scheduler feature. For example, if the %BW for custom PHB in the Queueing and Scheduling Profile parameter is set to zero, the %BW per custom PHB must all be zero to satisfy the above condition. (DRCaa22433)
Workaround: At present, there is no workaround.

Vanguard 7300 Series Using the Same TCP Session for Local and Remote Nodes

If the remote node initiates a call using SoTCP and the local node attempts to make a call in the reverse direction over the same TCP session, a new session might be required to make the call. (DRCaa22437)
Workaround: Include in the Mapping Table, all possible IP addresses that might be used by a remote destination node. For more information, refer to the *Serial Protocol over TCP Manual* (Part number T0100-06).

Vanguard 7300 Series CLI setscript with T1/VPMT does not Download

CLI setscript with T1/VPMT does not download after using the "getscript". CLI errors occur because the VPMT is configured before the voice port or the T1 port. (DRFaa16143)
Workaround: If the CLI set script file includes the "create vpmt" statement, move it behind the create virtual port statement. If the "set minimum-cpu" statement is in the script file, turn on the debug mode.

Vanguard 7300 Series H.323 Limitation on Number of Calls

When a Vanguard 7300 is configured to use H.323, the total number of voice calls over all H.323 ports is limited to 216. (DRCaa23314)
Workaround: Use 6.0S100 or if you require H.323 Supplementary Services Support, a 6.1 based software patch will be available shortly. Please contact your customer service representative.

Large SDLC-to-LLC2 (SLAC) Calling Addresses - All Products

For incoming X.25 calls over Frame Relay SVC, Vanguard network services updates the X.25 table with calling address and station ID, interpreting the calling address as XX...X**. That is, the last two digits are assumed to be sub address and the rest as node address. For calls using large sub addresses, such as SDLC SLAC station calls, this leads to a wrong node address. For example, a calling address of 2000822, where 0822 is the sub address, is interpreted as 20008** with 22 as the sub address. (DRFaa16491)
Workaround: The sub address must be two digits long, or X.25 calls should be made in one direction only.

Vanguard 7330 Data Buffer Performance

When the number of Data Buffers used reaches a level above the configured WAN congestion start blocking threshold (default of 89 percent), the throughput of the node may drop to a very low level until the steady state buffer utilization drops below the configured stop blocking WAN congestion threshold (default of 86 percent). A number of factors effect the number of buffers used, including the number of SVCs used and the rate of data transfer through the node. (DRFaa16497)
Workaround: Reduce number of connections (SVCs) or traffic through node in order to reduce number of buffers used.

V.34 Modem Calls not Connecting - Vanguard 6560, 6400 and 7300

V.34 Modem calls do not consistently connect over Autocall and Transparent connection types. (DRCaa22907)
Workaround: At present, there is no workaround.

Virtual Links between two OSPF Area Border Routers Fail - Vanguard 7300 Series

Virtual links between two OSPF Area Border Routers do not work properly. (DRFaa17076)
Workaround: At present, there is no workaround.

Voice Server Card Removal - Vanguard 7300 Series

If the voice server card is removed from the T1 card and there is a voice configuration in the node, the node will not boot. (DRCaa22978)
Workaround: Delete the voice configuration or default the node before removing the voice server card.

BGP Global TCP Segment Size and Peer TCP Segment Size Vanguard 6560

The Global TCP segment size is overriding peer TCP segment size if any one peer is configured for zero. (DRFaa19391)
Workaround: At present, there is no workaround.

Voice Port Loopback Test Output Level - Vanguard 340 and 6400 Series

The local voice port loopback test does not display the correct output level. (DRCaa23032)
Workaround: At present, there is no workaround.

Vanguard 6455 Conversion Options in Vanguide Builder

When creating an image for the Vanguard 6455 using the Vanguide builder, the LLC-TR and LLC-FR LLC-to-SDLC Conversion options do not appear under the BSC-to-SNA Conversion option. Only LLC-ETH appears and this is automatically selected. (DRFaa19586)
Workaround: If the user wishes to create a Vanguard 6455 image that supports either BSC 3270 to SNA Conversion or BSC 2780 to SNA Conversion that runs over a LLC Token Ring session or LLC Frame Relay session, the user should:

1) Select BSC 3270-to-SNA Conversion or BSC 2780-to-SNA Conversion from the BSC-to-SNA Conversion Options

2) Then select LLC Token Ring Conversion and/or LLC Frame Relay Conversion from the IBM SNA Features list.

Vanguard 340 Series Audio on the FXS port

Passing 6.3k audio on three of the four ports on the quad FXS card causes MIPS errors. MIPS errors are causing static on the output audio. (DRCaa23051)
Workaround: At present, there is no workaround.

Alarms Can Indicate Poor Voice Quality - Vanguard 6400 Series

If you are running G.729 (8kbps), you might see the MED level alarm reported: VOICE-125 DEBUG INFO: OP_ALARM_NFY: Error_indication 0, Error_code c. This could indicate poor voice quality. (DRCaa21755)
Workaround: If this alarm message appears and you are experiencing voice quality problems, run G.723 (6.3kb).

Vanguard 340 Quad FXS Board Failure

A board failure occurs when you place a call between any voice port and a quad FXS voice port, and then enter the diagnostics menu and initiate a Voice Port Loopback test while the call is up. The quad FXS board fails with a background diagnostics failure. (DRCaa23031)
Workaround: At present, there is no workaround.

Vanguard 340, Vanguard 6400 Series - Rx Offhook/Onhook Filter Timer

The Rx Offhook/Onhook Filter Timer is not working correctly on the Quad FXS card. (DRCaa23046)
Workaround: At present, there is no workaround.

Vanguard Data Compression Not Supported in ATM Bypass Stations

LCON's connected to ATM stations via PVC connections will not work properly with Vanguard's Frame Data compression. (DRFaa21038)
Workaround: LCON frame data compression is supported through SVC connection via FRST module to ATM station.

Vanguard V90 Cannot Establish a PPP connection over a V23 Modulation Mode

V23 Modulation Mode is selectable on a PPP modem port, but it is not supported. (DRCaa23442)
Workaround: Select a faster modulation mode for PPP.

Vanguard 7300 NAT Node Reset

If a large number of NAT entries are configured each having multiple interfaces, upon a Boot-Router-NAT-ALL the router could reset (with an FER) instead of just booting the NAT entries. (DRFaa20065)
Workaround: In order to avoid having the router reset, only configure a single interface per NAT entry. If an entry requires to be applied to multiple interfaces, you may configure multiple entries, but depending on the number of entries the node may reset upon boot.

SNABSC Requires a Second Boot

SNABSC Requires two LU boots when adding a record. (DRFaa21434)
Workaround: To add a new SNABSC device configuration and activate it:
1) Go to Main-Configure-SNA Features Configure-SNA to BSC Conversion Device Table. Configure a new device in a blank entry in "SNA to BSC Conversion Device Configuration."
2) Go to Main-Boot-SNA Features Records Boot-SNA to BSC Conversion Device. Do the boot of the new entry in "Boot SNA to BSC Conversion Device Records" TWICE.
3) At this point, the SNA Host must activate the LU assigned to the new device to start the new session.

Vanguard 7300 MAC Address Filter Table Displays an Extra Hyphen

The MAC Addresses displayed in the MAC Address filter table are not displaying correctly. (DRCaa23181)
Workaround: Ignore the extra hyphen.

Node Crash May Occur When Running RADIUS Voice Accounting and H.323 Voice Calls

The RADIUS voice accounting data forwarding function should not be used together with H.323 voice calls, it may cause a node crash (DRCaa23452).
When running H.323 voice call together with RADIUS, the forwarding of voice accounting data to the RADIUS server should be disabled. Follow the procedure described below: (Accounting data is available through SNMP MIB query.)

Main Menu->Configuration->Configure RADIUS->Configure RADIUS Client

Entry Number: 1/
[1] Radius Application: Default/
[1] Enable Radius Client: Disabled/enable
[1] Authentication Method: Remote-then-Local/
[1] Username/Password Buffer Number: 0/;

Storing updated record in configuration memory

Entry Number: 2/
[2] Radius Application: Default/Voice-Accounting
[2] Enable Radius Client: Disabled/;

All Vanguards Using Radius and HP Openview - Two RADIUS MIB Files Corrupted

Two RADIUS MIB files were corrupted on the 6.2 CD: rfc2618a.mib and rfc2620a.mib. This caused a problem with the HP Openview MIB complier.
Workaround: Download the corrected versions of the .mib files from our external web site at:
http://www.vanguardms.com/support/software_and_tools/vanguard/mibs/
Files "mib62ux.zip" and "mib62pc.zip" contain the Unix and PC 6.2 files.

Documentation Supplements

Introduction

This section lists supplemental information to the current set of user documentation.

Documentation Supplements

Fax Over H.323 Backward Compatibility

Fax over H.323 is not backward compatible with pre-5.4 versions of software.

Optimum Operation of Voice over an LCON

For optimum operation of voice over an LCON the Voice SVC parameter within the LAN Connection Table Configuration Menu should be set to enable.

User Documentation

Organization

User documentation supporting the 6.2 Applications Ware is organized as:

- Vanguard Applications Ware Basic Protocols
- IP and LAN Feature Protocols
- SNA Feature Protocols
- Serial Feature Protocols
- Multiservice Feature Protocols
- Multimedia Feature Protocols

Each of these sets, which are available on our website, consists of several manuals. The contents of each set and the manual part numbers are described below.

Note

For information about obtaining these documents, refer to the "How to Obtain User Documentation" section on page 57.

Vanguard Applications Ware Basic Protocols

The Vanguard Applications Ware Basic Protocols Manual (Part Number T0106) consists of these manuals:

- Vanguard Configuration Basics (Part Number T0113)
- Frame Relay (Part Number T0106-02)
- Trans Polled Async (Part Number T0106-03)
- SNMP (Part Number T0106-04)
- Async Bypass (Part Number T0106-05)
- SLIP (Part Number T0106-06)
- TELNET (Part Number T0106-07)
- Point to Point (Part Number T0106-08)
- Command Line Interface (Part Number T0106-09)
- X.25 Configuration Basics (Part Number T0107)
- Configuration for APAD/ATPAD (Part Number T0110)
- Bandwidth Management (Part Number T0108)

IP and LAN Feature Protocols

The IP and LAN Feature Protocols Manual (Part Number T0100) consists of these manuals:

- Vanguard Router Basics (Part Number T0100-01)
- Bridging (Part Number T0100-02)
- IP Routing (Part Number T0100-03)
- OSPF (Part Number T0100-04)
- SIP (Part Number T0100-05)
- SoTCP (Part Number T0100-06)
- IPX (Part Number T0100-07)
- AppleTalk (Part Number T0100-08)
- Protocol Priority (Part Number T0100-09)
- Quality of Service (Part Number T0100-10)
- Asynchronous Transfer Mode (Part Number T0100-11)
- 7300 Series T3 ATM (Part Number T0100-12)
- Border Gateway Protocol (BGP-4) (Part Number T0100-13)
- Ethernet Basics (Part Number T0109)
- Token Ring Basics (Part Number T0111)

SNA Feature Protocols

The SNA Feature Protocols Manual (T0101) consists of these manuals:

- BSC 2780/3780 (Part Number T0101-02)
- BSC 3270 (Part Number T0101-03)
- IBM 2260 (Part Number T0101-04)
- SDLC (Part Number T0101-05)
- XDLC (Part Number T0101-06)
- AS/400 Communication Server (Part Number T0101-07)
- BSC 3270-to-SNA Conversion (Part Number T0101-08)
- BSC 2780/3780-to-SNA LU0 Conversion (Part Number T0101-09)

Serial Feature Protocols

The Serial Feature Protocols Manual (T0102) consists of these manuals:

- Burroughs Poll/Select (Part Number T0102-02)
- NCR BSC (Part Number T0102-03)
- TBOP (Part Number T0102-04)
- NCCP (Part Number T0102-05)
- TCOP (Part Number T0102-06)
- SHDLC (Part Number T0102-07)
- T3POS (Part Number T0102-08)
- 3201 (Part Number T0102-09)
- X.42 (Part Number T0102-10)

- TNPP (Part Number T0102-11)
- TPDU (Part Number T0102-12)
- SPP (Part Number T0102-13)
- AC100 (Part Number T0102-14)
- ALC (Part Number T0102-15)

Multi-Service Feature Protocols

The Multi-Service Feature Protocols Manual (T0103) consists of these manuals:

- Internal DSD (Part Number T0103-02)
- Multipoint X.25 (Part Number T0103-03)
- Frame Data Compressor (Part Number T0103-04)
- Vanguard 6560/6520 ISDN (Part Number T0103-05)
- Vanguard ISDN (Part Number T0103-06)
- Remote DataScope (Part Number T0103-07)
- SMDS (Part Number T0103-08)
- Data Encryption (Part Number T0103-09)
- Virtual Private Network (Part Number T0103-10)

Multimedia Feature Protocols

The Multimedia Feature Protocols Manual (Part Number T0104) consists of these manuals:

- Voice Technology Reference Guide (Part Number T0104-04)
- Vanguard Voice Manual (Part Number T0104-05)
- Vanguard Voice Hardware Reference Card (Part Number T0104-06)

Alarms and Reports Manual

The Vanguard Applications Ware Alarms and Reports Manual (Part Number T0005) is updated for Release 6.2.R000. This manual contains a listing of all alarm and report messages generated by the Vanguard Applications Ware. The manual explains the actions you must perform in order to correct unexpected network situations that might arise while using any of the Applications Ware licenses on Vanguard Products.

How to Obtain User Documentation

Introduction

There are two ways to obtain software documentation:

- Download the most current, up-to-date document files from the On-line Library on our World Wide Web page.
- Use the electronic navigation and search capability provided on the Vanguide 6.2.R000 CD-ROM.

World Wide Web

On the Web

The latest Vanguard user documentation, including detailed descriptions of new features and enhancements, is available on the World Wide Web.

Finding New Feature Documentation

Find your information faster and easier when you use the Product Documentation website. Eliminate the need to flip through several documentation updates. For example, suppose feature enhancements are made to ISDN over the course of several software releases. Each release provided a separate document describing the details of those ISDN features. The details of the features are described in the *ISDN Manual* in context with the rest of the feature information.

Getting New Documentation From the Web

The full set of Vanguard Documentation is available for download from the Vanguard Managed Solutions Product Documentation website:

http://www.vanguardms.com/support/documentation

To read the files, you need a copy of Adobe Acrobat Reader with Search. This application is free from many locations on the World Wide Web. You can define how you use Acrobat with your Web browser.

Keeping a Set of Manuals Current

Keep a current set of documentation for Release 6.2.R000. To download a current printed set acquire a:

- Connection to the Vanguard Managed Solutions product documentation website:
  http://www.vanguardms.com/support/documentation
- Printer
- Copy of Adobe Acrobat for your platform

Download manuals from the WWW for the desired features you need. Print the files, and replace the pages in your set of documentation with the new version.

Documentation on the Vanguide 6.2.R000 CD-ROM

Using the Vanguide 6.2.R000 CD-ROM

The Vanguide 6.2.R000 CD-ROM contains:

- All Vanguard Product documentation up to the current shipping release.
- Default Vanguard Applications Ware software images

. The CD-ROM supports Windows and UNIX platforms and includes a free copy of Adobe Acrobat Reader with Search functionality. Acrobat Reader provides a powerful search functionality across the entire volume of titles.

Note

When installing Acrobat (4.0 or greater) Reader, you may be required to accept the Software Licence Agreement. Acrobat Reader is freeware.

Vanguide CD-ROM with Vanguard Software Builder

Introduction

With Release 5.3, the Vanguide and Vanguide Plus! CD-ROMs are consolidated into one CD-ROM called Vanguide CD-ROM with Software Builder. Vanguard Software Builder is now included on the Vanguide CD-ROM. This software application was previously available as a separate product on the Vanguide Plus! CD-ROM.

Vanguard Software Builder

Vanguard Products come with a factory default Applications Ware software image. However, you can create your own Applications Ware, with a specific mix of features by using Vanguard Software Builder. This application lets you create custom features sets with features and functions suited for your specific needs. The features available for selection depend on the Applications Ware License you purchased. Vanguard Software Builder operates on Windows XP, Windows NT, Windows 2000, 95 or 98 platform.

What is Vanguard Software Builder?

Vanguard Software Builder is part of the Vanguide Application Set. This set also includes the Vanguide Application Manager which provides access to the Software Loader and Software Builder applications.
Once Software Builder is installed, you can:

- Select a specific software release
- Choose the product which you are loading/configuring
- Create a name and 2-digit number for the Applications Ware Package you want to create
- Follow a series of command prompts to select features/protocols for your Package

Detailed Information

For more information, refer to *Vanguard Software Builder Manual* (Part Number T0030).

Applications Ware for the Vanguard 320

Introduction

Vanguard 320 supports Vanguard Managed Solution's broad library of protocols, thereby providing a diverse set of solutions via a single hardware platform. Vanguard 320 offers multiprotocol access, depending on the Applications Ware Package you purchase. Vanguard 320 must be ordered with one of the Applications Ware listed in the tables in this section.

Vanguard 320 Applications Ware

Release 6.2.R000 makes available these Applications Ware for the Vanguard 320. Each Package supports a suite of default features. Other features, however, can be added by using Vanguard Software Builder. For more information, refer to the "Vanguide CD-ROM with Vanguard Software Builder" section on page 59.

Note

When using Vanguard Software Builder, be sure to make note of the warnings regarding memory limitations.

Information about the Applications Wares is divided into two tables.

- The first table lists each Applications Ware and its file number.
- The second table lists each Applications Ware and its features (default features as well as non-default features).

Applications Ware Name	*Source Filename*	*Version String*	*Description Filename*
IP+ Applications Ware	62R000k11.xrc	6.2.R000_@IP+_V320	62R000k11.des
SNA+ Applications Ware	62R000k12.xrc	6.2.R000_@SNA+_V320	62R000k12.des
Multiservice Applications Ware	62R000k15.xrc	6.2.R000_@MS_V320	62R000k15.des

Vanguard 320 Features	*IP+*	*SNA+*	*Multi-Service*	*Voice*	*Special*
Network Management					
SNMP	**D**	**D**	**D**		
TELNET	**D**	**D**	**D**		
TFTP	**D**	**D**	**D**		
CLI	**D**	**D**	**D**		
Embedded Web HTTPD	**L**	**L**	**L**		
Async					
ATPAD	**D**	**D**	**D**		
APAD	**L**	**L**	**L**		
ISDN					
SoftSCC	**L**	**L**	**L**		
ISDN-NOAM	**L**	**L**	**L**		
ISDN-EURO	**L**	**L**	**L**		
ISDN-ASIA	**L**	**L**	**L**		
Vanguard Voice Relay					
G.723			**D**	**A**	
G.729			**L**	**A**	
CVSELP			**L**	**A**	
H.323			**L**	**A**	
Digital Voice - 6450/6455					
Vanguard T1/E1 Digital Voice Server					
Voice Options (All Products)					
Centralized Voice Switch			**L**	**A**	
VOICE-IP-ENCAPSULATION			**L**	**A**	
LAN					
Router IP	**D**	**D**	**D**		

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 320 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Special***
Router IPX	**L**	**L**	**L**		
LAN Option Protocols					
LLC-Eth		**D**	**L**		
LLC-TR					
IPXWAN	**L**	**L**	**L**		
OSPF	**L**	**L**	**L**		
BGP-4					
Appletalk	**L**	**L**	**L**		
Bandwidth on Demand (LD-Bal)	**L**	**L**	**L**		
IP-Multicast	**D**	**D**	**L**		
Router Proxy	**D**	**D**	**D**		
Router Discovery	**L**	**L**	**L**		
Network Address Transl	**L**	**L**	**L**		
Policy Based Routing	**L**	**L**	**L**		
RTP Header Compression	**L**	**L**	**L**		
TR-Bridge					
ETH-Bridge	**D**	**D**	**D**		
XLB-Bridge					
Tunnel	**L**	**L**	**L**		
IPSEC					
DHCP Client	**L**	**L**	**L**		
Radius	**L**	**L**	**L**		
Network Protocols					
FRF12	**L**	**L**	**L**		
FRA *(only for backward compatibility)*		**L**	**L**		
FRI *(includes FRA)*	**D**	**D**	**D**		
FR SVC					**A**
X.25	**D**	**D**	**L**		

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Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 320 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Special***
SMDS			**L**		
MX25			**L**		
PPP	**L**	**L**	**L**		
PPPoE	**L**	**L**	**L**		
SoTCP (=Voice Relay Enc. In IP)	**L**	**L**	**L**		
Fractional T1/E1	**L**	**L**	**L**		
ATM Protocols					
ATM Protocols					
Serial Asynchronous Protocols					
ASYNC-BYPASS	**L**	**L**	**L**		
IBM2260					**A**
SLIP	**L**	**L**	**L**		
TNPP					**A**
TNPP-ROUT			**L**		
X.42 (GSC)					**A**
T3POS		**L**	**L**		
T3POS over TCP		**L**	**L**		
DATAPAC	**L**	**L**	**L**		
SPP-PAD					**A**
AC100					**A**
Serial Synchronous Protocols					
SDLC		**D**	**L**		
XDLC		**L**	**L**		
TBOP		**D**	**D**	**A**	
LLC-FR		**D**	**L**		
SHDLC		**L**	**L**		
TBOP-BYPASS		**D**	**L**		
X32	**L**	**L**	**L**		

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Vanguard 320 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Special***
Serial Character-Oriented Protocols					
BSC3270		**L**	**L**		
BSC2780		**L**	**L**		
BSTD					**A**
TCOP		**L**	**L**		
TCOP-BYPASS		**L**	**L**		
NCRBSC					**A**
RS366		**L**	**L**		
TPDU Adaptors					
TPA-TPDU		**L**	**L**		
TPA-SDLC					**A**
TPA-3270		**L**	**L**		
TPA-2780		**L**	**L**		
TPA-TCP		**L**	**L**		
TPA-UDP		**L**	**L**		
Node Features					
ATCIF (AT Dial/Telnet)	**L**	**L**	**L**		
LBU	**L**	**L**	**L**		
DCP		**D**	**L**		
DSCOPE		**L**	**L**		
DSD			**L**		
NCCP		**L**	**L**		
BCST					**A**
NUI	**L**	**L**	**L**		
QOS Features					
TOW	**L**	**L**	**L**		
QoS - Protocol Priority (5.3M)	**L**	**L**	**L**		

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Vanguard 320 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Special***
QoS - Diff Serv (5.4)	**D**	**D**	**D**		
FRAME Data Comp	**L**	**L**	**D**		
BSC 3270-to-SNA Conversion					
BSC 2780/3780-to-SNA LU0 Conv.					
AS/400 5494 Comm. Server					
Security and VPN					
Security: Encryption & VPN- DES & 3DES					

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Applications Ware for the Vanguard 340 and 342

Introduction

Vanguard 340 and 342 support Vanguard Managed Solution's broad library of protocols, thereby providing a diverse set of solutions via a single hardware platform. Vanguard 340 and 342 offer multiprotocol access, depending on the Applications Ware Package you purchase. Vanguard 340 and 342 must be ordered with one of the Applications Ware listed in the tables in this section.

Vanguard 340 and 342 Applications Ware

Release 6.2.R000 makes available these Applications Ware for the Vanguard 340 and 342. Each Package supports a suite of default features. Other features, however, can be added by using Vanguard Software Builder. For more information, refer to the "Vanguide CD-ROM with Vanguard Software Builder" section on page 59.

Note

When using Vanguard Software Builder, be sure to make note of the warnings regarding memory limitations.

Information about the Applications Wares is divided into two tables.

- The first table lists each Applications Ware and its file number.
- The second table lists each Applications Ware and its features (default features as well as non-default features).

Applications Ware Name	*Source Filename*	*Version String*	*Description Filename*
IP+ Applications Ware	62R000p11.xrc	6.2.R000_@IP+_V340	62R000p11.des
SNA+ Applications Ware	62R000p12.xrc	6.2.R000_@SNA+_V340	62R000p12.des
Multiservice Applications Ware	62R000p15.xrc	6.2.R000_@MS_V340	62R000p15.des

Vanguard 340 and 342 Features	*IP+*	*SNA+*	*Multi-Service*	*Voice*	*Security*	*Special*
Network Management						
SNMP	**D**	**D**	**D**			
TELNET	**D**	**D**	**D**			
TFTP	**D**	**D**	**D**			
CLI	**D**	**D**	**D**			
Embedded Web HTTPD	**L**	**L**	**L**			
Async						
ATPAD	**D**	**D**	**D**			
APAD	**L**	**L**	**L**			
ISDN						
SoftSCC	**L**	**L**	**L**			
ISDN-NOAM	**L**	**L**	**L**			
ISDN-EURO	**L**	**L**	**L**			
ISDN-ASIA	**L**	**L**	**L**			
Vanguard Voice Relay						
G.723 & G.711			**D**	**A**		
G.729 & G.711			**L**	**A**		
CVSELP & G.711			**L**	**A**		
H.323			**L**	**A**		
Quad FXS			**D**	**A**		
Quad FXO			**D**	**A**		
Digital Voice - 6450/6455						
Vanguard T1/E1 Digital Voice Server						
Voice Options (All Products)						
Centralized Voice Switch			**D**	**A**		
VOICE-IP-ENCAPSULATION			**L**	**A**		

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 340 and 342 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	***Special***
LAN						
Router IP	**D**	**D**	**D**			
Router IPX	**L**	**L**	**L**			
LAN Option Protocols						
LLC-Eth		**D**	**D**			
LLC-TR						
IPXWAN	**L**	**L**	**L**			
OSPF	**D**	**L**	**L**			
BGP4	**L**	**L**	**L**			
Appletalk	**L**	**L**	**L**			
Bandwidth on Demand (LD-Bal)	**L**	**L**	**L**			
IP-Multicast	**D**	**D**	**D**			
Router Proxy	**D**	**D**	**D**			
Router Discovery	**L**	**L**	**L**			
Network Address Transl	**L**	**L**	**L**			
Policy Based Routing	**L**	**L**	**L**			
RTP Header Compression	**L**	**L**	**L**			
TR-Bridge						
ETH-Bridge	**D**	**D**	**D**			
XLB-Bridge						
Tunnel	**L**	**L**	**L**			
IPSEC					**A**	
DHCP Client	**L**	**L**	**L**			
Radius	**L**	**L**	**L**			
Network Protocols						
FRF12	**L**	**L**	**L**			
FRA *(only for backward compatibility)*		**L**	**L**			
FRI *(includes FRA)*	**D**	**D**	**D**			

D: Default License Feature.
L: In License; add with Software Builder.
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Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 340 and 342 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	***Special***
FR SVC						**A**
X.25	**D**	**D**	**D**			
SMDS			**L**			
MX25			**L**			
PPP	**D**	**D**	**D**			
PPPoE	**L**	**L**	**L**			
SoTCP (=Voice Relay Enc. In IP)	**L**	**L**	**L**			
Fractional T1/E1	**L**	**L**	**L**			
ATM Protocols						
All Supported ATM Protocols						
Serial Asynchronous Protocols						
ASYNC-BYPASS	**D**	**D**	**D**			
IBM2260						**A**
SLIP	**D**	**D**	**D**			
TNPP						**A**
TNPP-ROUT			**L**			
X.42 (GSC)						**A**
T3POS		**L**	**L**			
T3POS over TCP		**L**	**L**			
DATAPAC	**L**	**L**	**L**			
SPP-PAD						**A**
AC100						**A**
Serial Synchronous Protocols						
SDLC		**D**	**L**			
XDLC		**L**	**L**			
TBOP		**D**	**D**	**A**		
LLC-FR		**D**	**D**			
SHDLC		**L**	**L**			

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 340 and 342 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	***Special***
TBOP-BYPASS		**D**	**D**			
X32	**L**	**L**	**L**			
Serial Character-Oriented Protocols						
BSC3270		**L**	**L**			
BSC2780		**L**	**L**			
BSTD						**A**
TCOP		**D**	**D**			
TCOP-BYPASS		**D**	**D**			
NCRBSC						**A**
RS366		**L**	**L**			
TPDU Adaptors						
TPA-TPDU		**L**	**L**			
TPA-SDLC						**A**
TPA-3270		**L**	**L**			
TPA-2780		**L**	**L**			
TPA-TCP		**L**	**L**			
TPA-UDP		**L**	**L**			
Node Features						
ATCIF (AT Dial/Telnet)	**L**	**L**	**L**			
LBU	**D**	**D**	**D**			
DCP		**D**	**L**			
DSCOPE		**L**	**L**			
DSD			**L**			
NCCP		**L**	**L**			
BCST						**A**
NUI	**L**	**L**	**L**			
QOS Features						

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 340 and 342 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	***Special***
TOW	**D**	**D**	**D**			
QoS - Protocol Priority (5.3M)	**L**	**L**	**L**			
QoS - Diff Serv (5.4)	**D**	**D**	**D**			
FRAME Data Comp	**L**	**L**	**D**			
BSC3270-to-SNA Conversion						
BSC2780/3780-to-SNA/LU0 Conv.						
AS/400 5494 Comm. Server						
Security and VPN						
Security: Encryption & VPN-DES & 3DES					**A**	

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Applications Ware for the Vanguard 6435/6455

Introduction

This section provides detailed information about the Applications Ware available for Vanguard 6435 and the Vanguard 6455.

Vanguard 6345/ 6455 Applications Ware

Release 6.2.R000 makes available the following Applications Ware for the Vanguard 6435/6455. Each Applications Ware supports a suite of default features. Other features, however, can be added by using Vanguard Software Builder. For more information, refer to the "Vanguide CD-ROM with Vanguard Software Builder" section on page 59.

Note

When using Vanguard Software Builder, be sure to make note of the warnings regarding memory limitations.

Information about the Applications Ware is divided into four tables.

- The first two tables list each model's Applications Ware and file information.
- The last two tables list each model's Applications Ware and its default, optional, and add-on features.

6435 Applications Ware Name	*Source Filename*	*Version String*	*Description Filename*
IP+ Applications Ware	62R000q11.xrc	6.2.R000_@IP+_V6435	62R000q11.des
SNA+ Applications Ware	62R000q12.xrc	6.2.R000_@SNA+_V6435	62R000q12.des
Multiservice Applications Ware	62R000q15.xrc	6.2.R000_@MS_V6435	621R000q15.des

6455 Applications Ware Name	*Source Filename*	*Version String*	*Description Filename*
IP+ Applications Ware	62R000s11.xrc	6.2.R000_@IP+_V6455	62R000s11.des
SNA+ Applications Ware	62R000s12.xrc	6.2.R000_@SNA+_V6455	62R000s12.des
Multiservice Applications Ware	62R000s15.xrc	6.2.R000_@MS_V6455	62R000s15.des

Vanguard 6435 Features	*IP+*	*SNA+*	*Multi-Service*	*Voice*	*Security*	** AS/400 BSC*	*Special*
Network Management							
SNMP	**D**	**D**	**D**				
TELNET	**D**	**D**	**D**				
TFTP	**D**	**D**	**D**				
CLI	**D**	**D**	**D**				
Embedded Web (HTTPD)	**L**	**L**	**L**				
Async							
ATPAD	**D**	**D**	**D**				
APAD	**L**	**L**	**L**				
ISDN							
SoftSCC							
ISDN-NOAM	**L**	**L**	**L**				
ISDN-EURO	**L**	**L**	**L**				
ISDN-ASIA	**L**	**L**	**L**				
Vanguard Voice Relay							
G.723 & G.711			**D**	**A**			
G.729 & G.711			**L**	**A**			
CVSELP & G.711			**L**	**A**			
H.323			**L**	**A**			
Quad FXS			**D**	**A**			
Quad FXO			**D**	**A**			
Digital Voice - 6450/6455							
Vanguard T1/E1 Digital Voice Server							
Voice Options (All Products)							
Centralized Voice Switch			**D**	**A**			

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note for the 6400 Series: AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6435 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
VOICE-IP-Encapsulation			**L**	**A**			
LAN							
Router IP	**D**	**D**	**D**				
Router IPX	**L**	**L**	**L**				
LAN Option Protocols							
LLC-Eth		**D**	**D**				
LLC-TR		**L**	**L**				
IPXWAN	**L**	**L**	**L**				
OSPF	**L**	**L**	**L**				
BGP4	**L**	**L**	**L**				
Appletalk	**L**	**L**	**L**				
Bandwidth on Demand (LD-Bal)	**L**	**L**	**L**				
IP-Multicast	**D**	**D**	**D**				
Router Proxy	**D**	**D**	**D**				
Router Discovery	**L**	**L**	**L**				
Network Address Transl	**L**	**L**	**L**				
Policy Based Routing	**L**	**L**	**L**				
RTP Header Compression	**L**	**L**	**L**				
TR-Bridge							
Token Ring							
ETH-Bridge	**D**	**D**	**D**				
XLB-Bridge	**L**	**L**	**L**				
Tunnel	**L**	**L**	**L**				
IPSEC					**A**		
DHCP Client	**L**	**L**	**L**				
Radius	**L**	**L**	**L**				
Network Protocols							

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note for the 6400 Series: AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6435 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
FRF12	**L**	**L**	**L**				
FRA *(only for backward compatibility)*		**L**	**L**				
FRI *(includes FRI)*	**D**	**D**	**D**				
FR SVC							**A**
X.25	**D**	**D**	**D**				
SMDS			**L**				
MX25			**L**				
PPP	**D**	**D**	**D**				
PPPoE	**L**	**L**	**L**				
SoTCP *(=Voice Relay Enc. In IP)*	**L**	**L**	**L**				
Fractional T1/E1	**L**	**L**	**L**				
ATM Protocols							
ATM Protocols			**L**				
Serial Asynchronous Protocols							
ASYNC-BYPASS	**D**	**D**	**D**				
IBM2260							**A**
SLIP	**D**	**D**	**D**				
TNPP							**A**
TNPP-ROUT			**L**				
X.42 (GSC)							**A**
T3POS		**L**	**L**				
T3POS over TCP		**L**	**L**				
DATAPAC	**L**	**L**	**L**				
SPP-PAD							**A**
AC100							**A**
Serial Synchronous Protocols							

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note for the 6400 Series: AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6435 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
SDLC		**D**	**L**				
XDLC		**L**	**L**				
TBOP		**D**	**D**	**A**			
LLC-FR		**D**	**D**				
SHDLC		**L**	**L**				
TBOP-BYPASS		**D**	**D**				
X32	**L**	**L**	**L**				
Serial Character-Oriented Protocols							
BSC3270		**L**	**L**				
BSC2780		**L**	**L**				
BSTD							**A**
TCOP		**D**	**D**				
TCOP-BYPASS		**D**	**D**				
NCRBSC							**A**
RS366		**L**	**L**				
TPDU Adaptors							
TPA-TPDU		**L**	**L**				
TPA-SDLC							**A**
TPA-3270		**L**	**L**				
TPA-2780		**L**	**L**				
TPA-TCP		**L**	**L**				
TPA-UDP		**L**	**L**				
Node Features							
ATCIF (AT Dial/Telnet)	**L**	**L**	**L**				
LBU	**D**	**D**	**D**				
DCP		**D**	**L**				

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note for the 6400 Series: AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6435 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
DSCOPE		**L**	**L**				
DSD			**L**				
NCCP		**L**	**L**				
BCST							**A**
NUI	**L**	**L**	**L**				
QOS Features							
TOW	**D**	**D**	**D**				
QoS - Protocol Priority (5.3M)	**L**	**L**	**L**				
QoS - Diff Serv (5.4)	**D**	**D**	**D**				
FRAME Data Comp	**L**	**L**	**D**				
BSC 3270-to-SNA Conversion							
BSC 2780/3780-to-SNA LU0 Conversion							
AS/400 5494 Comm. Server						**A**	
Security and VPN							
Security: Encryption & VPN-DES & 3DES					**A**		

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note for the 6400 Series: AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6455 Features	*IP+*	*SNA+*	*Multi-Service*	*Voice*	*Security*	** AS/400 BSC*	*Special*
Network Management							
SNMP	**D**	**D**	**D**				
TELNET	**D**	**D**	**D**				
TFTP	**D**	**D**	**D**				
CLI	**D**	**D**	**D**				
Embedded Web (HTTPD)	**L**	**L**	**L**				
Async							
ATPAD	**D**	**D**	**D**				
APAD	**L**	**L**	**L**				
ISDN							
SoftSCC							
ISDN-NOAM	**L**	**L**	**L**				
ISDN-EURO	**L**	**L**	**L**				
ISDN-ASIA	**L**	**L**	**L**				
Vanguard Voice Relay							
G.723 & G.711			**D**	**A**			
G.729 & G.711			**L**	**A**			
CVSELP & G.711			**L**	**A**			
H.323			**L**	**A**			
Quad FXS			**D**	**A**			
Quad FXO			**D**	**A**			
Digital Voice - 6450/6455							
Vanguard T1/E1 Digital Voice Server			**D**	**A**			
Voice Options (All Products)							

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6455 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
Centralized Voice Switch			**D**	**A**			
VOICE-IP-ENCAPSULATION			**L**	**A**			
LAN							
Router IP	**D**	**D**	**D**				
Router IPX	**L**	**L**	**L**				
LAN Option Protocols							
LLC-Eth		**D**	**D**				
LLC-TR		**L**	**L**				
IPXWAN	**L**	**L**	**L**				
OSPF	**L**	**L**	**L**				
BGP4	**L**	**L**	**L**				
Appletalk	**L**	**L**	**L**				
Bandwidth on Demand (LD-Bal)	**L**	**L**	**L**				
IP-Multicast	**D**	**D**	**D**				
Router Proxy	**D**	**D**	**D**				
Router Discovery	**L**	**L**	**L**				
Network Address Transl	**L**	**L**	**L**				
Policy Based Routing	**L**	**L**	**L**				
RTP Header Compression	**L**	**L**	**L**				
TR-Bridge							
Token Ring	**L**	**L**	**L**				
ETH-Bridge	**D**	**D**	**D**				
XLB-Bridge	**L**	**L**	**L**				
Tunnel	**L**	**L**	**L**				
IPSEC					**A**		
DHCP Client	**L**	**L**	**L**				
Radius	**L**	**L**	**L**				

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6455 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
Network Protocols							
FRF12	**L**	**L**	**L**				
FRA *(only for backward compatibility)*		**L**	**L**				
FRI *(includes FRA)*	**D**	**D**	**D**				
FR SVC							**A**
X.25	**D**	**D**	**D**				
SMDS			**L**				
MX25			**L**				
PPP	**D**	**D**	**D**				
PPPoE	**L**	**L**	**L**				
SoTCP *(=Voice Relay Enc. In IP)*	**L**	**L**	**L**				
Fractional T1/E1	**L**	**L**	**L**				
ATM Protocols							
All Supported ATM Protocols			**L**				
Serial Asynchronous Protocols							
ASYNC-BYPASS	**D**	**D**	**D**				
IBM2260							**A**
SLIP	**D**	**D**	**D**				
TNPP							**A**
TNPP-ROUT			**L**				
X.42 (GSC)							**A**
T3POS		**L**	**L**				
T3POS over TCP		**L**	**L**				
DATAPAC	**L**	**L**	**L**				
SPP-PAD							**A**
AC100							**A**

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6455 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
Serial Synchronous Protocols							
SDLC		**D**	**L**				
XDLC		**L**	**L**				
TBOP		**D**	**D**	**A**			
LLC-FR		**D**	**D**				
SHDLC		**L**	**L**				
TBOP-BYPASS		**D**	**D**				
X32	**L**	**L**	**L**				
Serial Character- Oriented Protocols							
BSC3270		**L**	**L**				
BSC2780		**L**	**L**				
BSTD							**A**
TCOP		**D**	**D**				
TCOP-BYPASS		**D**	**D**				
NCRBSC							**A**
RS366		**L**	**L**				
TPDU Adaptors							
TPA-TPDU		**L**	**L**				
TPA-SDLC							**A**
TPA-3270		**L**	**L**				
TPA-2780		**L**	**L**				
TPA-TCP		**L**	**L**				
TPA-UDP		**L**	**L**				
Node Features							
ATCIF *(AT Dial/Telnet)*	**L**	**L**	**L**				
LBU	**D**	**D**	**D**				
DCP		**D**	**L**				

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Vanguard 6455 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
DSCOPE		**L**	**L**				
DSD			**L**				
NCCP		**L**	**L**				
BCST							**A**
NUI	**L**	**L**	**L**				
QOS Features							
TOW	**D**	**D**	**D**				
QoS - Protocol Priority (5.3M)	**L**	**L**	**L**				
QoS - Diff Serv (5.4)	**D**	**D**	**D**				
FRAME Data Comp	**L**	**L**	**D**				
BSC 3270-to-SNA Conversion						**A**	
BSC 2780/3780-to-SNA LU0 Conversion						**A**	
AS/400 5494 Comm. Server						**A**	
Security and VPN							
Security: Encryption & VPN- DES & 3DES					**A**		

D: Default License Feature.
L: In License; add with Software Builder.
A: Add-on Upgrade License Feature
P: Premium Feature; contact a representative for more information.
***Note AS/400 BSC - BSC support is available for the Vanguard 6455 only.**
Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com

Applications Ware for the Vanguard 7300 Series Products

Introduction

This section provides detailed information about the Applications Ware available for Vanguard 7300.

Vanguard 7300 Applications Ware

Release 6.2.R000 makes available the following Applications Ware for the Vanguard 7300. Each Applications Ware package supports a suite of default features. Other features, however, can be added by using Vanguard Software Builder.
Information about the Applications Ware is divided into these two tables:

Vanguard 7310 Applications Ware

Applications Ware Name	*Source Filename*	*Version String*	*Description Filename*
IP+	62R000t11.xrc	6.2.R000_@IP+_V7310	62R000t11.des
SNA+	62R000t12.xrc	6.2.R000_@SNA+_V7310	62R000t12.des
Multi-Service	62R000t15.xrc	6.2.R000_@MS_V7310	62R000t15.des

Vanguard 7330 Applications Ware

Applications Ware Name	*Source Filename*	*Version String*	*Description Filename*
IP+	62R000u11.xrc	6.2.R000_@IP+_V7330	62R000u11.des
SNA+	62R000u12.xrc	6.2.R000_@SNA+_V7330	62R000u12.des
Multi-Service	62R000u15.xrc	6.2.R000_@MS_V7330	62R000u15.des

Applications Ware Features

Introduction This table lists each Applications Ware license and the features it offers:

Vanguard 7300 Features	*IP+*	*SNA+*	*Multi-Service*	*AS/400*	*Special*
Network Management					
SNMP	**D**	**D**	**D**		
TELNET	**D**	**D**	**D**		
TFTP	**D**	**D**	**D**		
CLI	**D**	**D**	**D**		
Embedded Web (HTTPD)	**D**	**D**	**D**		
Async					
ATPAD	**D**	**D**	**D**		
ISDN					
T1/E1/PRI Data (North American in Default)	**D**	**D**	**D**		
T1/E1/PRI Data (European)	**L**	**L**	**L**		
T1/E1/PRI Data (Asia)	**L**	**L**	**L**		
T1/E1/PRI Voice (includes all voice signaling, NA in Default)	**D**	**D**	**D**		
T1/E1/PRI Voice (includes all voice signaling, Europe)	**L**	**L**	**L**		
Digital Voice					
Voice Relay with G.723.1 and G.729a	**D**	**D**	**D**		
Voice Relay Encapsulated in IP (SoTCP)	**D**	**D**	**D**		
H.323 v.2 Standards Based Voice	**D**	**D**	**D**		
Voice Options (All Products)					
Centralized Voice Switch	**D**	**D**	**D**		
VOICE-IP-ENCAPSULATION	**D**	**D**	**D**		
LAN					
Router IP	**D**	**D**	**D**		
Router IPX	**D**	**D**	**D**		
LAN Option Protocols					
LLC-Eth		**D**	**D**		
IPXWAN	**D**	**D**	**D**		

Vanguard 7300 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***AS/400***	***Special***
OSPF	**D**	**D**	**D**		
BGP4	**D**	**D**	**D**		
Bandwidth on Demand (LD-Bal)	**D**	**D**	**D**		
IP-Multicast	**D**	**D**	**D**		
Router Proxy	**D**	**D**	**D**		
Router Discovery	**D**	**D**	**D**		
Network Address Translation	**D**	**D**	**D**		
Policy-Based Routing	**D**	**D**	**D**		
RTP Header Compression	**D**	**D**	**D**		
Token Ring	**D**	**D**	**D**		
Eth-Bridge	**D**	**D**	**D**		
DHCP Client	**D**	**D**	**D**		
Radius	**D**	**D**	**D**		
Network Protocols					
FRF.12	**D**	**D**	**D**		
FRI *(includes FRA)*	**D**	**D**	**D**		
FR SVC					**A**
X25	**D**	**D**	**D**		
PPP	**D**	**D**	**D**		
PPPoE	**L**	**L**	**L**		
SoTCP *(Voice Relay Encl. in IP)*	**D**	**D**	**D**		
T1/E1 Interface	**D**	**D**	**D**		
T3/E3 ATM			**D**		
Serial Synchronous Protocols					
SDLC		**D**	**D**		
TBOP		**D**	**D**		
LLC-FR		**D**	**D**		
X32					
Node Features					
ATCIF (AT Dial/Telnet)	**D**	**D**	**D**		
LBU	**D**	**D**	**D**		
DCP		**D**	**D**		

Vanguard 7300 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***AS/400***	***Special***
QOS Features					
TOW	**D**	**D**	**D**		
QoS - Diff Serv (5.4)	**D**	**D**	**D**		
Data Compression	**D**	**D**	**D**		
SNA Features					
BSC 3270-to-SNA Conversion		**D**	**D**		
BSC 2780/3780-to-SNA LU0 Conversion		**D**	**D**		
AS/400 5494 Comm. Server				**A**	
D = in default image for particular license **A = add-on feature (part of upgrade license)** **L = in license** **Specials - license available from service only - submit end user customer info (including all contact info), unit type and count to: karengarcia@vanguardms.com**					

Note

Token Ring for the Vanguard 7300 Series is available in 6.0 Point Release 01A or greater.

MIB Downloading Instructions for Non-Vanguard Managed Solutions SNMP Managers

Introduction

This section lists Vanguard MIB files needed for SNMP management of Vanguard devices when using a non-Vanguard Managed Solutions SNMP Network Management System (NMS).

Obtaining MIB Files

Vanguard MIB files for your non-Vanguard Managed Solutions NMS are available from the Vanguide 6.2.R000 CD-ROM. Refer to your Vanguide 6.2.R000 CD-ROM user documentation for the directory location of the MIB files.
You can also download MIB files from the internet. The address for the server is:
http://www.vanguardms.com/support/software_and_tools/vanguard/mibs
On the internet, there is one ZIP file for the PC and one ZIP file for UNIX. You must unzip the ZIP file to get the MIB files. The contents of these two ZIP files are identical. However, the formats of the files in these two ZIP files are slightly different due to the way PCs and UNIX systems handle text files.Depending on the protocols and options provided by the Applications Ware image installed in your node, you might not need all the MIB files.See the Required Files and Loading section below for details on the files you should have to support SNMP management for Vanguard products.

Upgrading 9000 OMS to support 6.2 software

Install the 9000 OMS version 6.1 from CD first (for details on installation please refer to Software_Release_Notice.pdf on the 9000 6.1 CD). If you do not have 9000 OMS version 6.1 CD, you need to contact your VanguardMS sales representative to purchase the CD prior to the 9000 OMS release 6.2 installation.

1) Download DFF62.zip from **http://www.vanguardms.com/support/software_and_tools/#9000**, unzip the zip file with Winzip to obtain all the 6.2 DFF files and the trap.conf file.

2) Procedure for parsing DFF files into the 9000 OMS database:

For the MS Windows system:

- Parsedff.exe is located in the path /Vanguard/motnm/bin->Parsedff.exe (Parsedff.exe is the executable program for parsing).
- Gather all the DFF files to be parsed on the desktop or to the path selected. The DFF files match the platforms. Example: MOTNAv6455, MOTNA7310, MOTNA7330, MOTNAv320, MOTNAv340.
- Make a different folder with the release name to put all the parsed DFF files in. Example: A folder named “6.2dffs”.
- At the DOS prompt, change the directory to the new folder name or to the directory where you chose to keep the parsed DFF files in.

- Execute the parsedff program. Example **c:\Vanguard\motnm\6.2dffs> ..\bin\parsedff.exe MOTNAv340.dff ..\db\nmdb.db**
  MOTNAv340.dff -> is the dff file to be parsed.
  ..\bin\parsedff.exe -> is where the parsedff.exe program is located.
- Executing this program results in users getting the message parsed successfully.

For the Unix system, logon as root

- Parsedff is located in the path /opt/MotNM/tools->Parsedff (Parsedff is the executable program for parsing).
- Gather all the DFF files to be parsed to the path and locations selected. The DFF files match the platforms. Example: MOTNAv6455, MOTNA7310, MOTNA7330, MOTNAv320, MOTNAv340.
- Make a different folder with the release name to put all the parsed DFF files in. Example: A folder named “6.2dffs”.
- At the shell prompt change the directory to where the new folder name or to the directory you chose to keep the parsed DFF files in.
- Execute the parsedff program. Example **#> /opt/MotNM/tools/parsedff MOTNAv340.dff /opt/MotNM/db/nmdb.db**
  MOTNAv340.dff -> is the dff file to be parsed.
  /opt/MotNM/tools/parsedff -> that’s where the parsedff program is located.
- Executing this program results in users getting the message parsed successfully.

Update trap.conf for HP-OV:

For Unix (logon as root), enter, #> /opt/OV/bin/xnmevents -load trap.conf
For MS Windows, enter, c:\> \Program Files\HP OpenView\NNM\bin -load trap.conf

3) Download MIB62.zip from **http://www.vanguardms.com/support/software_and_tools/#9000**, unzip the zip file with Winzip to get all the 6.2 MIB files.

4) Load MIB file (e.g. Trap.mib) you need through HP OV MIB loading utility (from HP OV menu Options | Load/Unload MIB: SNMP)

MIB files changed in release 6.2 for your loading reference:

New MIB files: ppp_opt.mib, pppoe_opt.mib, radius_opt.mib, rfc2618a.mib, rfc2620a.mib

MIB files with new changes: bridge_opt.mib, cdx_6500.mib, eia_opt.mib, eth_opt.mib, iso3201_opt.mib, pad_opt.mib, router_opt.mib, tr_opt.mib, trap.mib

5) Download Help62.zip from **http://www.vanguardms.com/support/software_and_tools/#9000,** and unzip the zip file with Winzip to get 6.2 Help file.

6) To update the 9000 OMS Help file: For Unix (logon as root), enter,
#> cp MOTBASEhelp.txt /opt/MotNM/data/MOTBASEhelp.txt

For MS Windows, enter, c:\> copy MOTBASEhelp.txt c:\vanguard\motnm\data\MOTBASEhelp.txt

Required Files and Loading

The following MIB files are required by your NMS to perform SNMP management of Vanguard products:

- rfc1213.mib
- cdx_6500.mib

These files must be loaded first and in the order shown.
After you load these required files onto your NMS, you can load the MIB files for the options and protocols installed on your Vanguard hardware. See the MIB Files for Options/Protocols section below.

MIB Files for Options/Protocols

This table lists the contents of options and protocol MIB files for Vanguard products. Use this table to determine which MIB files you need to download.

Download This MIB File	*If you want this option, protocol, or base MIB software*
alc.mib	ALC protocol
bcst.mib	Broadcast
bri.mib	ISDN BRI protocol
bridge.mib	Bridging option
bsc2780.mib	BSC2780 protocol
bsc3270.mib	BSC3270 protocol
bstd.mib	Burroughs Poll/Select protocol
cdx_6500.mib	Required base MIB for Vanguard Products MIBs
de.mib	Data Encryption option
dc.mib	Data Compression option
dcp.mib	Data Connection Protection option
dsd.mib	Digital Sharing Device Option
e1.mib	Physical E1 port
eia.mib	EIA protocol (required file for serial protocol support)
eth.mib	Ethernet option
frdce.mib	Frame Relay DCE option
frdte.mib	Frame Relay DTE option
fri.mib	Frame Relay option
gcs.mib	GSC protocol
hub.mib	Ethernet Hub option
ibm2260.mib	IBM2260 protocol

Download This MIB File	***If you want this option, protocol, or base MIB software*** *(continued)*
isdn.mib	ISDN protocol
iso3201.mib	3201 protocol
mx25.mib	MX.25 protocol
ncrbsc.mib	NCR Binary Synchronous protocol
ns.mib	Network Service (required file)
pad.mib	PAD protocol
ping_opt.mib	Remote Ping Option
qos.mib	Quality of Service option - QoS-Kit- includes: QoS_CORE, QoS_CLSSIFIER and QoS_SCHEDULER
qos_pp.mib	Quality of Service option - QoS-PP (Protocol Priority) includes: QoS_CCM, PACKET_CLASSIFIER and PACKET SCHEDULER
rfc.1155.smi	Structure and identification of management information
rfc1212.smi	Concise MIB definitions
rfc1213.mib	MIB-II for managing TCP/IP -based internets
rfc1231.mib	IEEE 802.5 Token Ring MIB
rfc1286.mib	Definitions of managed objects for bridges
rfc1315.mib	Management Information Base for Frame Relay DTEs
rfc1398.mib	Managed objects for Ethernet-type interfaces
rfc1657a.mib	BGP4 MIB (Converted to SNMP version 1 from the original rfc1657 mib).
rfc1850.mib	OSPF MIB (Requires rfc1903.mib and is converted from rfc1850.mi2 to version 1 of SNMP).
rfc1903.mib	Textual conventions for version 2 of SNMP (Converted from rfc1903.mi2 to version 1 of SNMP).
rfc2496a.mib	DS3/E3 Interface Type MIB (Converted to SNMP version 1 from the original rfc2496 mib).
rfc1850a.mi2	OSPF Version 2 MIB
rfc1850b.mi2	OSPF Version 2 MIB (Trap definitions)
rfc1903.mi2	Textual conventions for version 2 of SNMP
router.mib	Routing option (required file)
rs366.mib	EIA RS366 support
sdlc.mib	SDLC protocol
slac.mib	LLC Ethernet/Frame Relay/Token Ring Conversion option

Download This MIB File	***If you want this option, protocol, or base MIB software*** *(continued)*
spp.mib	SPP protocol
ss.mib	Switched Services (required file)
t1e1vg.mib	Fractional T1E1 Interface option
t1.mib	Physical T1 port
t1e1.mib	Virtual T1/E1 port mapping table
tbop.mib	TBOP protocol
tcop.mib	TCOP protocol
tdlc.mib	TDLC protocol
tftp.mib	TFTP option
tdmclk.mib	TDM Network Clock option
tnpp.mib	Telocator Network Paging Protocol (TNPP)
tow.mib	TOW option
tr.mib	Token Ring option
v.mib	Voice Relay option
vpmt.mib	Virtual Port Mapping Table option
wan.mib	WAN support (required file)
x25.mib	X.25 option
xdlc.mib	XDLC protocol

Applications Ware RFC Compliance

Listing

This table identifies the RFCs (Request for Comments) with which Vanguard Applications Ware software is compliant.

RFC	*Description*
768	User Datagram Protocol. J. Postel. Aug-28-1980.
791	Internet Protocol. J. Postel. Sep-01-1981.
792	Internet Control Message Protocol. J. Postel. Sep-01-1981. Not all messages covered by RFC 792 are supported by Vanguard Applications Ware.
793	Transmission Control Protocol. J. Postel. Sep-01-1981.
826	An Ethernet Address Resolution Protocol-or-Converting network protocol addresses to 48.bit Ethernet Address for Transmission on Ethernet hardware. D.C. Plummer. Nov-01-1982.
854	Telnet Protocol Specification. J. Postel, J.k. Reynolds. May-01-1983.
858	Telnet Suppress Go Ahead Option. J. Postel, J.K. Reynolds. May-01-1983.
877	Standard For The Transmission Of IP Datagrams Over Public Data Networks. J.T. Korb. Sep-01-1983.
894	Standard for the Transmission of IP data grams over Ethernet networks. C. Hornig. Apr-01-1984.
919	Broadcasting Internet Datagrams. J.C. Mogul. Oct-01-1984.
922	Broadcasting Internet datagrams in the presence of subnets. J.C. Mogul. Oct-01-1984.
950	Internet Standard Subnetting Procedure. J.C. Mogul, J. Postel. Aug-01-1985.
951	Proposed Bootstrap protocol (BOOTP) for ARPA-Internet W. Croft, J. Gilmore. Sept-01-1985.

RFC	Description (continued)
1009	Requirements for Internet Gateways R.Braden, J. Postel. Jun-01-1987.
1042	Standard For The Transmission Of IP Datagrams Over IEEE 802 Networks. J. Postel, J.k. Reynolds. Feb-01-1988.
1055	Nonstandard For Transmission Of IP Datagrams Over Serial Lines: SLIP. J.l. Romkey. Jun-01-1988.
1058	RIP Version 2 Carrying Additional Information. G. Malkin. January 1993.
1060	Assigned values used in network protocol implementations. J. Reynolds, J. Postel. Mar-01-1990.
1075	Distance Vector Multicast Routing Protocol. D. Waitzman, C Partridge, S. Deering. Nov-010-1988.
1091	Telnet Terminal-type Option. J. Vanbokkelen. Feb-01-1989.
1112	Host Extensions for IP Multicasting S. Deering. Aug-01-1989.
1122	Requirements for Internet hosts - communication layers. R.T. Braden. Oct-01-1989.
1123	Requirements for Internet hosts - application and support. R.T. Braden. Oct-01-1989.
1144	Compressing TCP/IP headers for low-speed serial links. V.Jacobson. Feb-01-1990.
1155	Structure And Identification Of Management Information For TCP/IP-based Internets. M.t. Rose, K. Mccloghrie. May-01-1990.
1156	MIB for Network Management of TCP/IP based Internets.
1157	Simple Network Management Protocol (SNMP). J.D. Case, M. Fedor, M.L. Schoffstall, C. Davin. May-01-1990.
1209	Transmission Of IP Datagrams Over The SMDS Service. D.m. Piscitello, J. Lawrence. Mar-01-1991.
1212	Concise MIB Definitions. M.t. Rose, K. Mccloghrie. Mar-01-1991.

RFC	Description (continued)
1213	Management Information Base For Network Management Of TCP/IP-based Internets:MIB-II. K. Mccloghrie, M.t. Rose. Mar-01-1991.
1215	A Convention for Defining Traps for use with the SNMP. M. Rose, Editor, Performance Systems International. March 1991.
1231	IEEE 802.5 Token Ring MIB. K. Mccloghrie, R. Fox, E. Decker. May-01-1991.
1250	IAB Official Protocol Standards. J. Postel. Aug-01-1991.
1256	ICMP Router Discovery Messages. S. Deering. September 1991.
1286	Definitions Of Managed Objects For Bridges. E. Decker, P. Langille, A. Rijsinghani, K. Mccloghrie. December, 1991.
1293	Inverse Address Resolution Protocol. T. Bradley, C. Brown. Jan-01-1992.
1294	Multiprotocol Interconnect Over Frame Relay. T. Bradley, C. Brown, A. Malis. January 1992.
1315	Management Information Base for Frame Relay DTEs. C. Brown, F. Baker, C. Carvalho. April 9, 1992.
1332	PPP Internet Protocol Control Protocol (IPCP). G. McGregor. May 1992.
1334	PPPAuthentication Protocols B. Lloyd, W. Simpson. Oct-01-1992.
1340	Status of Assigned Numbers J. Reynolds, J. Postel. July-01-1992.
1349	Type of Service in the Internet Protocol Suite P. Almquist. Jul-01-1992.
1356	Multiprotocol Interconnect On X.25 And ISDN In The Packet Mode. A. Malis, D. Robinson, R. Ullmann. August 1992.
1362	Novell IPX over Various WAN Media (IPXWAN). M. Allen. Sept-01-1992.
1398	Definitions Of Managed Objects For The Ethernet-like Interface Types. F. Kastenholz. January 1993.
1483	Multiprotocol Encapsulation over ATM Adaptation Layer 5 Juha Heinanen, July 1993.

RFC	Description (continued)
1490	Multiprotocol Interconnect Over Frame Relay. T. Bradley, C. Brown, & A. Malis. July 1993.
1517	Applicability Statement For The Implementation Of Classless Inter-Domain Routing (CIDR). Internet Engineering Steering Group, R. Hinden. September 1993.
1518	An Architecture For IP Address Allocation With CIDR. Y. Rekhter & T. Li. September 1993.
1519	Classless Inter-Domain Routing (CIDR): an Address Assignment and Aggregation Strategy. V. Fuller, T. Li, J. Yu, & K. Varadhan. September 1993.
1520	Exchanging Routing Information Across Provider Boundaries in the CIDR Environment. Y. Rekhter & C. Topolcic. September 1993.
1534	Interoperation between DHCP and BOOTP. R. Droms. Oct-01-1993.
1542	Clarifications and Extensions for the Bootstrap Protocol. W. Wimer. Oct-01-1993.
1577	Classical IP and ARP over ATM M. Laubach, January 1994.
1583	OSPF Version 2. J. Moy. Mar-01-1994.
1631	The Network Address Translator (NAT). K. Egevang, P. Francis. May 1994.
1634	The text/enriched MIME Content-type. N. Borenstein. Jan-01-1994.
1661	The Point-to-Point Protocol (PPP). W. Simpson, Editor. July 1994.
1694	Definitions of Managed Objects for SMDS Interfaces Using SMIv2. T. Brown & K. Tesink, Editors. August 1994.
1700	Assigned Numbers. J. Reynolds, J. Postel. October, 1994.
1812	Requirements for IP Version 4 Routers. F. Baker. June 1995.
1903	Textual Conventions for Version 2 of the Simple Network Management Protocol (SNMPv2). J. Case, K. McCloghrie, M. Rose, S. Walbusser. January 1996.

RFC	Description (continued)
1918	Address Allocation for Private Internets. Y. Rekhter, B. Moskowitz, D. Karrenberg, G. J. de Groot & E. Lear. February 1996.
2131	Dynamic Host Configuration Protocol. R. Droms, Bucknell University, March, 1997.
2132	DHCP Options and BOOTP Vendor Extensions. S. Alexander, Silicon Graphics, Inc., R. Droms, Bucknell University. March 1997.
2474	Definition: Differentiated Services Field (DS Field) in IPv4/IPv6 Headers. K. Nichols, S. Blake, F. Baker, D. Black. December, 1998.
2475	An Architecture for Differentiated Services. S. Blake, D. Black, M. Carlson, E. Davies, Z. Wang, W. Weiss. Dec. 1998.
2508	Compressing IP/UDP/RTP Headers for Low-Speed Serial Links. S. Casner, V. Jacobson. Cisco Systems. February 1999.
2516	The Method for Transmitting PPP over Ethernet (PPPoE). L. Mamakos, K. Lidl, J. Evarts, UNET Technologies Inc., D. Carrel, D. Simone, RedBack Networks Inc., R. Wheeler, RouterWare Incorporated. February 1999.
2597	Assured Forwarding PHB Group. J. Heinanen, F. Baker, W. Weiss, J. Wroclawski. June, 1999.
2598	An Expedited Forwarding PHB. V. Jacobson, K. Nichols, K. Poduri. June, 1999.
2865	Remote Authentication Dial In User Service (RADIUS). C. Rigney, S. Willens, Livingston, A. Rubens, Merit W. Simpson, Daydreamer. June, 2000.
2866	RADIUS Accounting. C. Rigney, Livingston. June, 2000.

Product Declarations and Regulatory Information

The following sections provide information about standards compliance, safety statements, and Type Approvals.

Warnings And Cautions

The following special notices apply to all equipment handling procedures in this installation guide.

Warning

Ports capable of connecting to ports on other apparatus are defined as Safety Extra Low Voltage (SELV). To conform with EN60950, ensure that these ports are only connected to ports of the same type on other apparatus.

Les ports qui sont susceptibles d'être connectés à des équipements sont désignés comme TBTS. Pour garantir la conformité à la norme EN 60950, n'interconnecte ces ports qu'avec des ports du même type sur des autres matériels.

Anschlusse, die mit anderen Geraten verbindet werden konnen, sind als SELV beschrieben. Um Konformitat mit EN 60950 zu versichern, sichern Sie es, daß diese Anschlusse nur mit den des selben Type auf anderen Geraten verbindet werden.

CE Marking

The mark in the following diagram appears on each Vanguard Series product, and the statement that follows explains its significance.

CE

This product is CE marked to indicate compliance with the following European Directives:

- 1999/5/EC Radio & Telecom Terminal Equipment (R&TTE)
- 73/23/EEC Low Voltage Directive (Safety)
- 89/336/EEC EMC Directive

Declarations of Conformity

English

Declaration of Conformity:

Hereby, Vanguard Managed Solutions declares that this Vanguard Router is in compliance with the requirement and other relevant provisions of Directive 1999/5/EC.

Danish

Konformitetserklæring:
Hermed erklærer Vanguard Managed Solutions, at indestående Vanguard Router er i overensstemmelse med de grundlæggende krav og de relevante punkter i direktiv 1999/5/EF.

Dutch

Verklaring van overeenstemming:

Hierbij verklaart Vanguard Managed Solutions dat diens Vanguard Router voldoet aan de basisvereisten en andere relevante voorwaarden van EG-richtlijn 1999/5/EG.

Finnish

Vaatimustenmukaisuusvakuutus:

Vanguard Managed Solutions vakuuttaa täten, että Vanguard Router on direktiivin 1999/5/EC keskeisten vaatimusten ja sen muiden tätä koskevien säännösten mukainen

French

Déclaration de conformité :

Par la présente, Vanguard Managed Solutions déclare que ce routeur Vanguard est conforme aux conditions essentielles et à toute autre modalité pertinente de la Directive 1999/5/CE.

German

Konformitätserklärung:

Hiermit erklärt Vanguard Managed Solutions dass der Vanguard Router die grundlegenden Anforderungen und sonstige maßgebliche Bestimmungen der Richtlinie 1999/5/EG erfüllt.

Greek

ήλωση Συμμόρφωσης:
ια του παρόντος, η εταιρεία Vanguard Managed Solutions δηλώνει ότι η παρούσα συσκευή (δρομολογητής) Vanguard Router πληροί τις βασικές απαιτήσεις και άλλες βασικές προϋποθέσεις της Οδηγίας 1999/5/ΕΚ.

Italian

Dichiarazione di conformità:

Con la presente Vanguard Managed Solutions dichiara che il router Vanguard soddisfa i requisiti essenziali e le altre disposizioni pertinenti della direttiva 1999/5/CE.

Portugese

Declaração de Conformidade:

Através da presente, a Vanguard Managed Solutions declara que este encaminhador Vanguard se encontra em conformidade com os requisitos essenciais e outras disposições relevantes da Directiva 1999/5/CE.

Spanish

Declaración de conformidad:

Por la presente declaración, Vanguard Managed Solutions declara que este encaminador Vanguard cumple los requisitos esenciales y otras cláusulas importantes de la directiva 1999/5/CE.

Swedish

Överensstämmelseförklaring:

Vanguard Managed Solutions förklarar härmed att denna Vanguardrouter överensstämmer med de väsentliga kraven och övriga relevanta stadganden i direktiv 1999/5/EG.