Vanguard Applications Ware Software Release Notice

Release 6.1.R000

Overview

Introduction

This notice contains update information for Release 6.1.R000 of the operating software for these Vanguard platforms:

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

Release 6.1.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.

T0001-42 C

Memory Requirements for Release 6.1.R000

The memory requirements have changed for some Vanguard products supported by Release 6.1.R000 For more information on the memory changes that affect your Vanguard unit, refer to "Memory Requirements for Vanguard Applications Ware Release 6.1.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.

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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 Vanguide devices. The process requires you to step though loading each individual release of Applications Ware, 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 6.1.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

■Note

The Vanguard 7300 Series can be upgraded from 5.4 to Release 6.1.R000 without loading 5.5 and 5.6. Vanguard 7300 Series:

Step	*7300 Series Upgrade From Release*	*To Release*
1	5.4.P0LB (Last 7300 Series Release before 6.0.R00A)	6.0.R00A
2	5.4.P0LB (Last 7300 Series Release before 6.0.R00A) & 6.0.R00A (Including any 6.0 point releases)	6.1.R000

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 image, use the Software Loader to load the image into your Vanguards's CMEM.
The goal of the software is to bring your networks up to the most current versions of Applications Ware. You can quickly upgrade all the node's records with minimum downtime. The more recent enhancements in Applications Ware; Quality of Service

(QoS), Virtual Private Network (VPN), Voice over IP (VoIP), Border Gateway Protocol (BGP-4), Voice over Frame Relay, and IP routing features are included. The current version of Software Upgrader, upgrades releases between 4.96 and 5.3 to release 5.3M or 5.4. Upgrades from 5.4 onward can be achieved by the process described in the step by step upgrade.

Note

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

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 6.1.R000

Memory Changes for Release 6.1.R000

In order to support the Vanguard Applications Ware Release 6.1.R000, some Vanguard products require memory upgrades. The *total memory* required for each product at release 6.1.R000 is listed in this table:

Product	***Total Memory Required at Release 6.1.R000***
Vanguard 320	8MB or 12 MB DRAM
Vanguard 340	16MB or 32MB DRAM 4M Flash
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 6.1.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 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 6.1.R000 and do not require memory upgrades.

Products Supported

Products Supported for Release 6.1.R000

Products supported by release 6.1.R000:

Product	Support
Vanguard 320	Normal product release.
Vanguard 340	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 6.1.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 6.1.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 6.1.R000 features in the referenced documents at the following web site:

http://www.vanguardms.com/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 66.

Release 6.1.R000 Features

These are the new features available with Release 6.1.R000:

Vanguard 7300 Series Token Ring

Token Ring has been added to the 7300 Series Products. The Token Ring port statistics screen has changed slightly in 6.1, three new statistics have been added: Frame Count, Frames-per-second Count, and Average Frame Size Count. For more information, refer to the *Vanguard 7300 Installation Manual* (Part Number T0185).

Vanguard 7300 Series, 6455 DS0 Switching

The Vanguard 7300 Series and the 6455 now include support for CAS and clear channel Timeslot Bypass. For more information, refer to the *Vanguard Voice Manual* (Part Number T0104-05).

Vanguard 7300 Series, 6435/6455, 320 and 340 Port and DS0 Remote Loopback

Release 6.1 or greater now adds the option of loopback for port loopback on the Vanguard 7300 Series, 6435/6455, 340, and 320. The ability to perform port/interface and DS0 loopbacks is added to all T1/E1 ports/interfaces in these platforms. Remote loopback is the loopback towards the carrier. A DS0 loopback will loopback anything received on a single or a group of timeslots back to the transmit side of the same timeslot(s). A full port loopback will loopback all DS0 channels from the receiver to the transmitter. For more information, refer to the *Vanguard Voice Manual* (Part Number T0104-05).

Vanguard 6435/6455 and 340 Quad Card Enhancement

With release 6.1 the quad card can now establish an audio path for an Auto Call or No Signalling call type without detecting an off-hook condition. This permits the Vanguard's to work in a radio network with base microphone transmissions and voice comparator's functionality for incoming radio traffic. For more information, refer to the *Vanguard Daughtercard Guide* (Part Number T0020).

Vanguard 7300 Series Table Size Increases (Included in 6.0.P02A, 6.0.P02B, and 6.1.R000)

The software configuration maximum limits have been increased to enhance performance on the Vanguard 7310 and 7330 routers.

Vanguard 7300 Series	*Original Maximum Limits*	*New Maximum Limits*
NAT Entries - Table Size	255	1,023
Number of Static Routes	1,024	8,000
Number of LCONS	2,000	8,000
Number of Mnemonic Table Entries	2,000	8,000
Outbound Translation Table Entries	1,600	16,000
Number of Multi-link PPP Profiles	600	1,000
Number of Bridge Link Entries	250	1,000
MAC Filter Table Entries	300	1,200
Transparent Bridge Forwarding Table	8,000	16,000
Number of Frame Relay SLAC Stations	1,000	2,000
LLC LAN Conversion Stations: Vanguard 7300 Series - 1,000 per interface, 2,000 per node (Release 6.0 and greater) Vanguard 340, 6435/55 - 250 per interface, 500 per node 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, 6435/55 - 250 per node Vanguard 320 - 64 per node		

For more information on the Vanguard 7300 Series increases, refer to the *"Software Configuration Limits" section on page 21* of this Software Release Notice (Part Number T0001-42).

Vanguard 7300 Series Software Performance - Annex G

Annex G performance can be increased by 40 percent with proper tuning. Release 6.1 and greater includes a new parameter called Window Subtractor. The window subtractor parameter changes the point in the receive window that the layer 3 acknowledgment is to be sent when there are not any packets to send in the reverse direction. The acknowledgment is sent when the number of packets equivalent to the W Packet Window minus the Window Subtractor has been received. If the W packet Window is 32 and the window subtractor is 8, the layer 3 acknowledgment is sent once 24 packets have been received.

Setting the Window Subtractor to a non-zero value when INL or INL+INLB are set has no impact on the functionality of the routing loop detection feature of INL. It only effects functionality when the layer 3 acknowledgment is sent. If INL is specified and the subtractor is zero, the router uses the previous setting of 2. If INL+ INLB is specified and the subtractor is zero, the router will send an Acknowledgment for every packet received. This is also what occurs if INL or INLB are not specified and the subtractor is zero.

You should increase the value of the subtractor when you are using high speed end-to-end connections or when path delays are unusually high. This sends the acknowledgments sooner so the remote window stays open and the remote node can continue to send data without being stopped (waiting for an acknowledgment).

The "Window Subtractor" Value is dependent on the "W" (packet) window setting and interacts with many other settings and factors such as the speed of the line, the "K" (frame) window setting, circuit propagation delay, etc. Tuning can result in CPU utilization savings and higher throughput.

Recommended Window Settings

Annex G/X.25 Window Guidelines

Link Description	*Recommended Window Settings*		*Recommended Window Subtractor*
	K (Frame)	*W (Packet)*	
8 Mbps Serial	63	30	25
4 Bps Serial	30	20	15
2 Mbps Serial	30	20	15
E1	30	20	15
1536 Kbps Serial	25	15	10
T1	30	20	15
512 Kbps	15	10	6
256 Kbps	10	7	4
128 Kbps	10	7	4
64 Kbps	10	7	4
64 Kbps	10	7	4

These recommendations were determined in a controlled environment. In links with long delays adjustments may be required. A general rule would be to be bring the Window Subtractor value close to or equal with the “W’ Packet window. This effectively allows the acknowledgments to be sent out faster accommodating the added delay.
The new Window Subtractor parameter is downward compatible with previous releases. It can be set independently at one end of the link without effecting the remote node that may not have this parameter. In addition to the recommendations in the table above the following two parameters should be always be set as shown below:

- Data queue upper threshold = 15
- Data queue lower threshold = 4

Note

The Vanguard 7300 W Packet Window parameter’s default has been changed from 2 to 7 in release 6.1 and greater.

Improvements in Reporting and Diagnostics - All Products

This feature adds reporting and diagnostic enhancements. Release 6.1 and greater allows up to 20 alarm to be displayed in the Fatal Error Report (FER). The alarms are now organized to provide more useful information. There is a new Alarms Throttling feature that controls the number and levels of generated alarms, similar to the Trap Throttling feature. CSU/DSU alarm capturing history is shown in port statistics. Alarms are generated when DSU signals change (NIS, BPV, DL, C+, C-, RS, LL, CL, IDL, CLK). For more information, refer to the *Alarms and Reports Manual* (Part Number T0005) and *Vanguard Basics Manual* (Part Number T0113).

H.323 ISDN PRI/BRI Supplementary Services Support - All products

Release 6.1 provides transparent support for H.323 ISDN PRI/BRI for Voice over IP, Voice over Frame Relay (VoFR) and SoTCP. PBX supplementary service messages and information elements are passed transparently over H.323. The passing of Supplementary Service does not operate with third party equipment. This feature operates with Vanguard products only. For more information about H.323 ISDN PRI/BRI Supplementary Services, refer to the *Vanguard Voice Manual* (Part Number T0104-05).

Multiple IP Ping (Remote Ping)

Multiple IP Ping allows you create a maximum of ten ping entries. This created ping record is stored in CMEM. For a description of the new parameters, refer to the *Vanguard Basics Manual* (Part Number T0113).

Vanguard 6435/6455 and 7300 Series ISDN PRI AT&T 4ESS Switch

ISDN PRI AT&T switch type 4ESS is now supported in the Vanguard 7300 Series and 6435/6455 platforms. For more information, refer to the *Vanguard Voice Manual* (Part Number T0104-05).

Vanguard 6435/6455 and 7300 Series Calling Number

Currently incoming ISDN PRI ***data*** calls on Vanguard 6435/6455 and 7300 Series can be connected to a virtual port based upon the Called Party Number in the call setup message. This feature adds the option of connecting an incoming call based on the Calling Party Number. The calling number virtual port is used when a PRI interface has a single phone number associated to it, not individual phone numbers. This feature is used for data calls. For more information, refer to the *Vanguard Voice Manual* (Part Number T0104-05).

Serial over TCP (SoTCP) Support for X.25 Interrupt Packets

Serial over TCP (SoTCP) now supports X.25 Interrupt Packets by forwarding Interrupt and Interrupt Confirmation packets received. For more information refer to the *Serial Protocol over TCP Manual* (Part Number T0100-06).

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, when a CPU card is swapped from one chassis to another of a different version) 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 recommended 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 old CMEM to work properly. Follow the steps below to set the correct version.

Configuring and Setting the Version

Step	*Procedure*
1	Load 6.1.R000 on the Vanguard 7300 Series.
2	As the node comes up, proceed to the ZAP menu: 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 outputting to the CTP screen, type ZAP (upper or lower case). Figure 2 shows the menu that will appear.
3	Change the Chassis version.
4	Reboot. Existing CMEM will appear. **■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***	***Per 7-foot Rack***
Ethernet	5	5	20
T1/E1/PRI	48	84	420
Voice Channels -- T1	192	336	1680
Voice Channels -- E1	240	420	2100
Serial Ports: X.21, V.35/V.36, EIA232, EIA530	32	56	280
Token Ring:	2	2	
Power Supplies	*V1 (1) V2 (2)	2	10
*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 VCs IP over ATM No AnnexG	ATM supported over T3 or E3. UBR, VBR and CBR 300 VCs IP over ATM AnnexG over ATM

Feature	Vanguard 6560	Vanguard 6450/6455	Vanguard 7300
CLI (Command Line Interface)	The following 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 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 16bit 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, and 6.1.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

Software Configuration *(continued)*	***7300 Series***	***6435/55***
Number of multi-link PPP profiles (7300 Series original size was 600)	1,000	60
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	2,000	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	2,000	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
Outbound Translation Table Entries (7300 Series original size - 1,600)	16,000	1,600
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 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	10,000	3,000
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 340, 6435/55 - 250 per interface, 500 per node 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, 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
Queue size in ARP	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 Forwarding Table Size	255	255
UDP Forwarding Table Size	255	255
ATM Stations * Vanguard 6400 Series - 300 * Vanguard 6560 - Not Applicable	4,000	*
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

Software Configuration *(continued)*	***7300 Series***	***6435/55***
BGP to OSPF Import Policy Table	1,024	1,024
BGP Maximum peers	128	16
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	*

Boot Prom Software Updates

Introduction

This section provides instructions for Coldloading the Boot prom using Software Loader and 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 30.
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 31 shows the various product directories.

Note

Boot Prom revision 1.50 is current for release 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.

```
 Node:          Address: 200                Date:  8-MAR-2001  Time: 11:48:08
 Detailed Node Statistics                                   Page:  1 of 11

Product Type:             VANGUARD 7310

Bootprom Revision:        V1.30

Running Software Image:   V5.4tP08Y4_MS_7310 (6-Mar-2001 15:28:20)
                   Size:  7313580 bytes
Current Software Image:   V5.4tP08Y1_MS_7310  Size: 5393280 bytes
Alternate Software Image: V5.4tP08Y4_MS_7310  Size: 5391288 bytes
The Software will reboot to alte_img.

Last power up or reset:       07-MAR-2001 17:33:56
Last node boot:               07-MAR-2001 17:42:29
Last watch-dog timeout event: <none>
Last configuration change:    07-MAR-2001 16:20:25

The Running Configuration uses CURRENT. A Reboot will use CURRENT.
Compressed Configuration:   1964800 bytes avail,   4556 bytes (0%) used
Uncompressed Configuration: 4063232 bytes avail,  13018 bytes (0%) used

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

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**

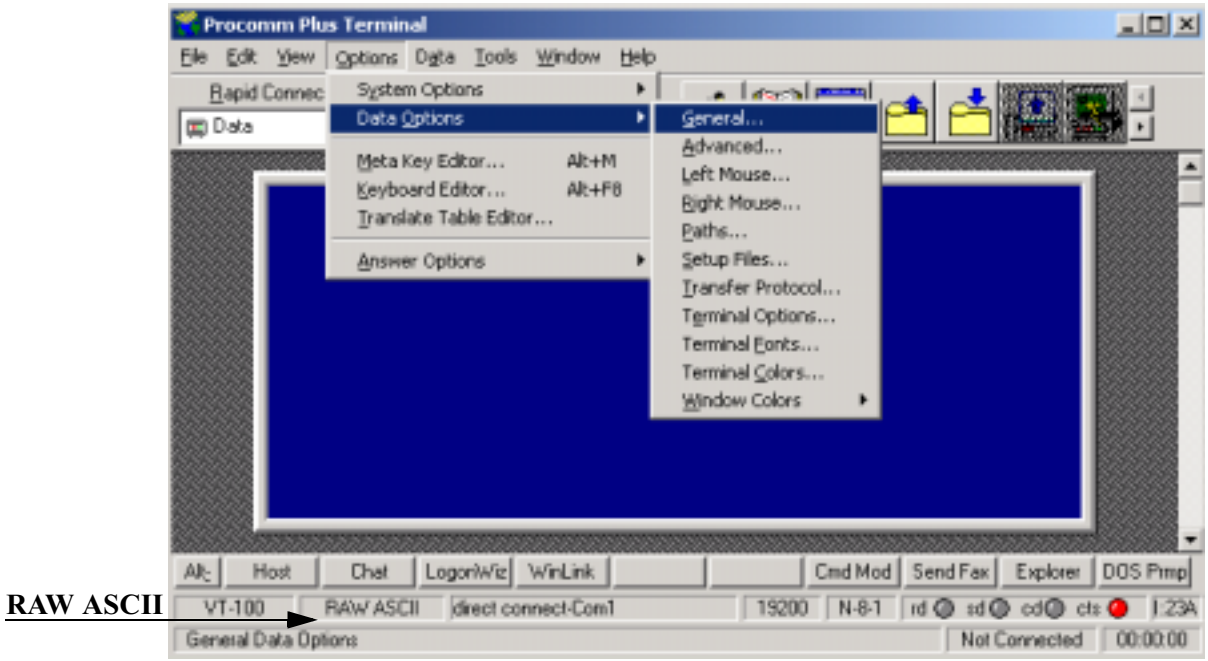

Figure 4. Procomm Plus Terminal

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

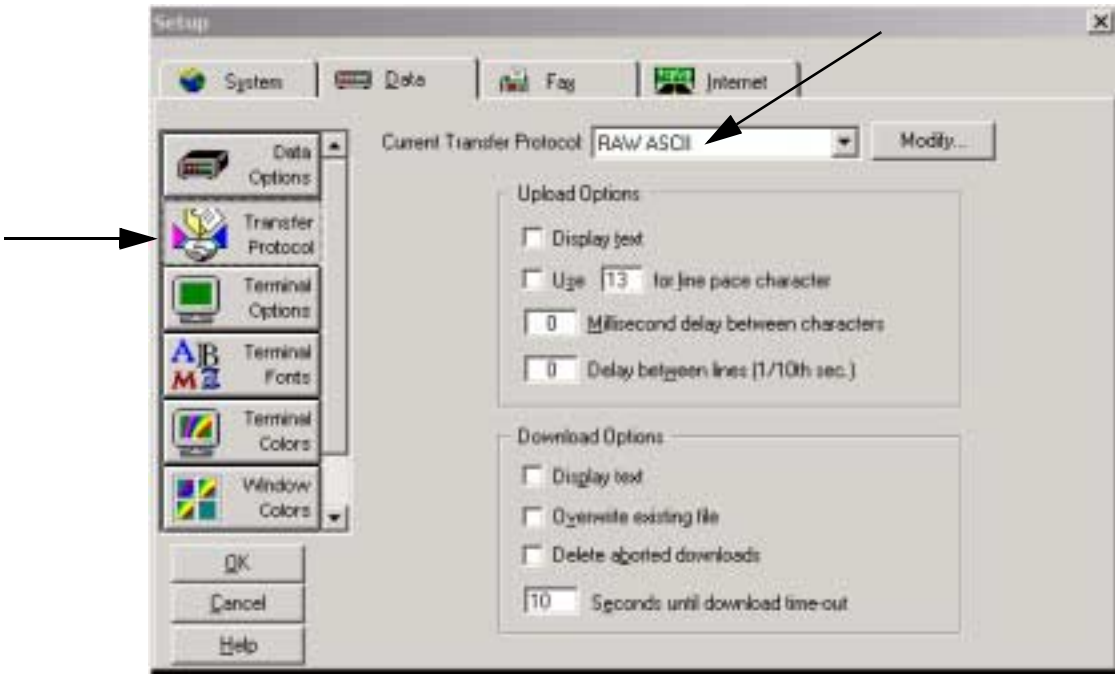

Figure 5. Procomm Setup Menu

Send File

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

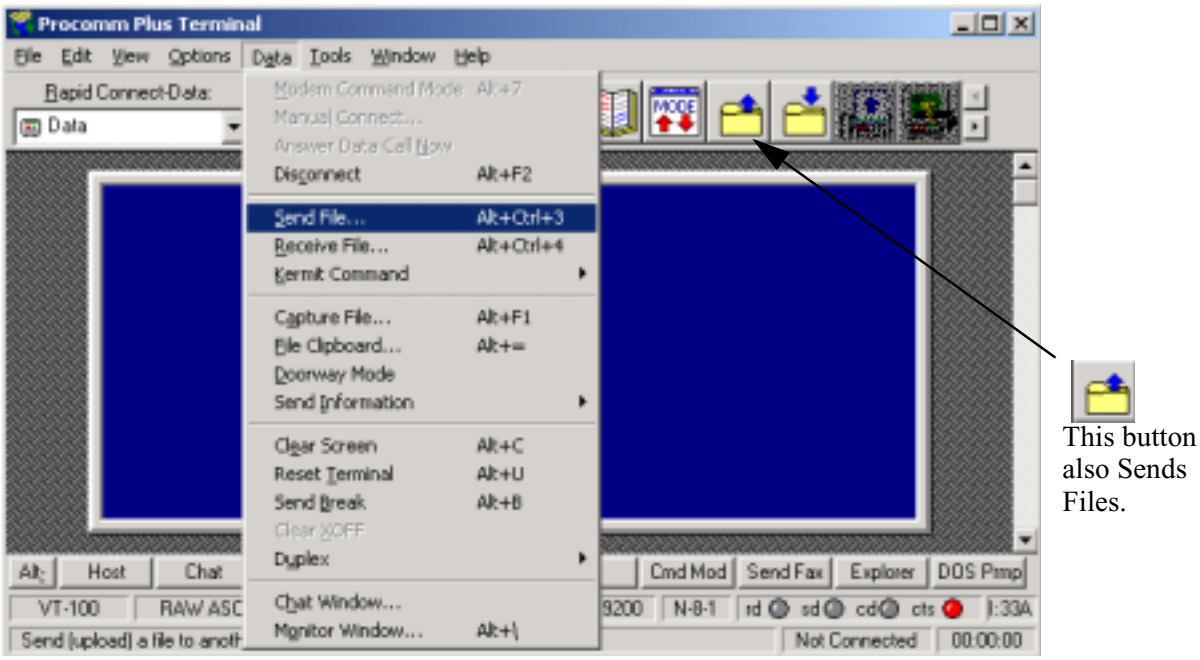

Figure 6. Procomm Plus Terminal Send File

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	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

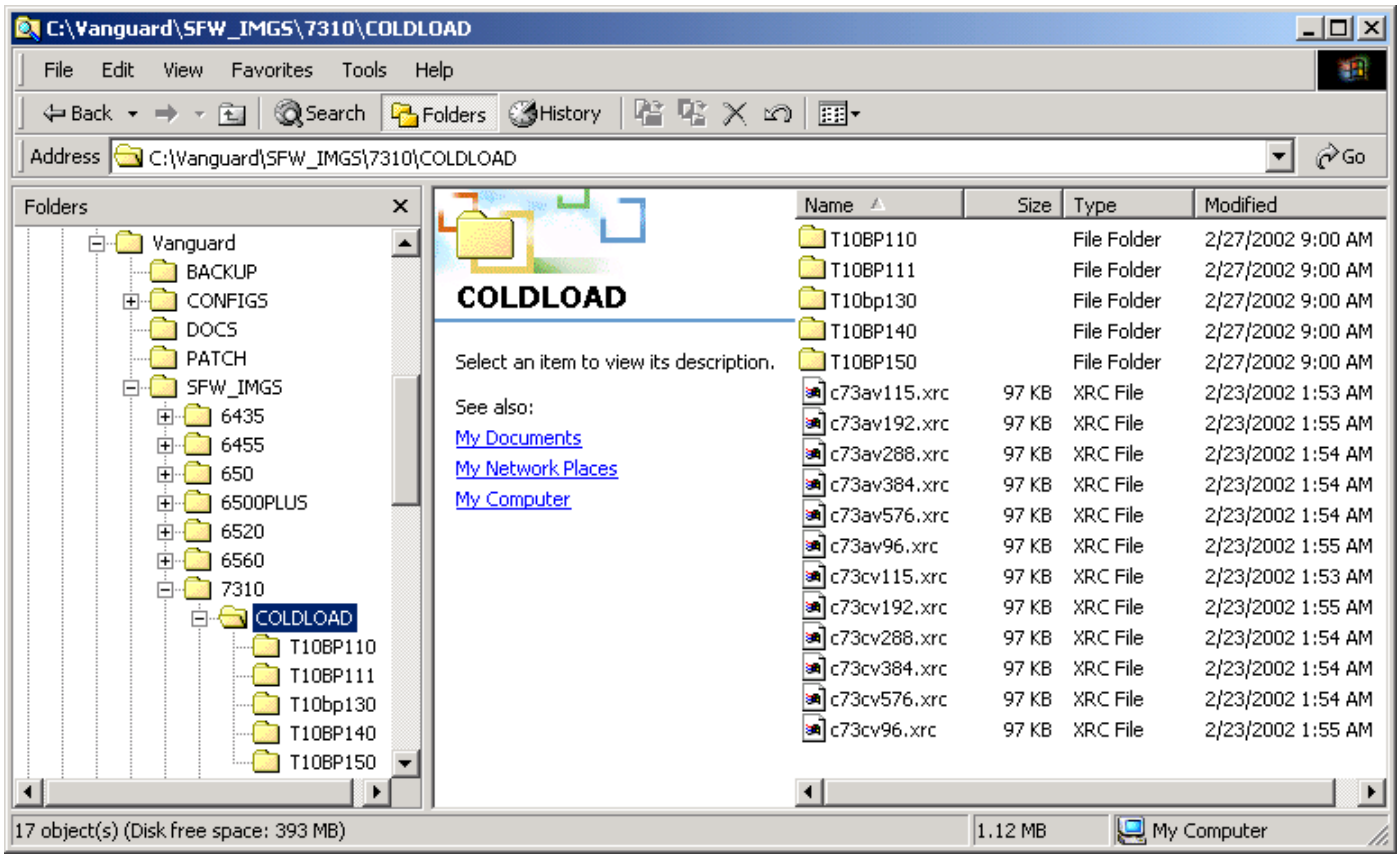

Figure 7. COLDLOAD Directory

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/documentation

Also refer to the “Boot Prom Software Updates” section on page 25 of this Software Release Notice.

Controller Card Board Assembly Number Location

Refer to Figure 8 to locate your board assembly number:

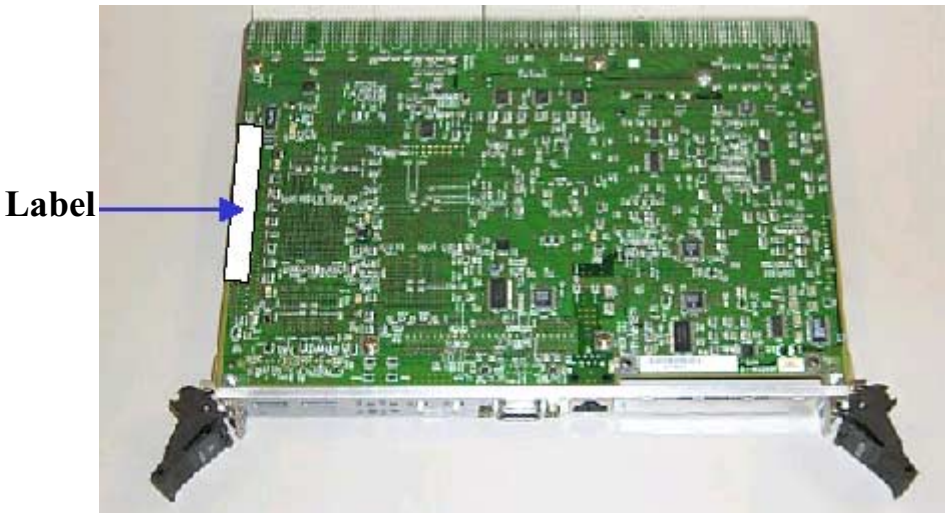

Figure 8. Board Assembly Number Label

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
```

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.

Vanguard 6450 Limitation

The Vanguard 6450 is limited to a maximum of 64 LLC-SDLC Stations when the Local Port Pool Heap has been configured to a non-zero value. (DRFaa19027)
The Vanguard 6450 has a maximum installed memory of 16 Megabytes, it is recommended to use the Vanguard 6455 with 32 Megabytes installed if the number of supported LLC-SDLC Stations exceed 64.
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

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 6.1.R000, and where applicable, interim patch releases have been replaced by Release 6.1.R000:

Change Request (CR#)	*Limitation Number*	*Release Where Problem Was Reported*	*Interim Patch Release Replaced by Release 6.1*	*Problem Description*
N/A	DRCaa23154	6.0.R000	6.0.T01A	Vanguard 7300 continually crashes with very large ATM and Frame Relay configurations.
10182	DRFaa15526	5.4.P0CA	5.4.P0CC	Multiple ping SNMP feature was not working correctly.
10228	DRFaa15547	5.4	6.0.T11A	Vanguard 6560, 7300 Series RIP default route is advertised unconditionally when enabled on the interface.
10590	DRFaa16919	5.4.P0CB	5.4.P0CC	Multiple ping SNMP support of a larger instance number.
11067	DRFaa18471	5.4.SBI	5.4.T7FA	Vanguard 6560 node crashed with FAULT: Unassigned interrupt encountered.
11088	DRFaa18580	5.6.R000	N/A	The internal IP address information is not available in the *ipAddress Table* and the *interface Table* of the MIB2 agent.
11098	DRFaa19671	5.3.MC1	5.6.T4BA	Vanguard 6560 sends a frame reject which terminates the LLC session.
11121	DRFaa18638	5.6.T16A	5.6.T2GB	When the PBX sends a RESTART packet, the Vanguard 6455 does not respond with RESTART ACKNOWLEDGE packet.

Change Request (CR#)	Limitation Number	Release Where Problem Was Reported	Interim Patch Release Replaced by Release 6.1	Problem Description
11123	DRFaa18642	5.4.P0LA	6.0.T16A	Vanguard 7300 Series LAN/ WAN interfaces lock up when booting a SoTCP configuration with data compression.
11137 11282	DRFaa18835 DRFaa19331	5.6.s10 5.6.R000	N/A N/A	RTP/UDP compression incompatible with Cisco's FXS ports.
11148	DRFaa18947	5.6.R000	5.6.T08A	Vanguard 6400 Series PRI backup fails if a voice call is received.
11214	DRFaa19655	5.6.S200	5.6.T2GC	Not more than five voice calls can be made from a Vanguard 6560 DSPSM to a Vanguard 6560 HDSM running QSIG.
11216	DRFaa19014	5.6.S200	5.6.T41A	Bridge entries are prematurely aging out when the aging timer is set to its maximum value.
11240	DRFaa19129	5.6.S200	N/A	Vanguard 6435/6455 10/100 Base-T daughtercard does not distinguish if the Ethernet interface is running 10 or 100 Mb in the statistics.
11263	DRFaa19208	5.6.T16D	5.6.T2GC	Vanguard 6560 voice mail is not working properly.
11296	DRFaa19415	5.6.T17A	N/A	Vanguard voice calls are not routed when the Voice Broadcast Table has two leading zero’s in the Node Address. Vanguard 6400 Series.
11299	DRFaa19361	5.6.S200	6.0.T12A	Vanguard 6400 Series conflict between Port one and virtual port that was created on T1/E1 interface one. Node crashes.
11311	DRFaa19393	5.6.T16D	5.6.T44B	Vanguard 6400 Series node crashes with a Software Emulation Exception Encountered error.
11325	DRFaa19467	5.5.T26B	5.6.T26C	Vanguard 6400 reporting incorrect route aging statistics.

Change Request (CR#)	Limitation Number	Release Where Problem Was Reported	Interim Patch Release Replaced by Release 6.1	Problem Description
11335 11335 N/A	DRFaa19744 DRFaa19619 DRCaa23110	5.4.P0LF 5.4.P0LF 5.4.P0LJ	5.4.P0LJ 6.0.P01B N/A	Vanguard 7300 Series frame relay ports and stations intermittently lock up and require a node boot to reactivate the port.
11350	DRFaa19664	5.6.S200	N/A	Vanguard 6455 virtual TBOP has CRC errors when running channelized data.
11353 11536 11548 11601 11627 11643	DRFaa19608 DRFaa20140 DRFaa20149 DRFaa20299 DRFaa20369 DRFaa20412	5.6.T26B 5.6.T44C 5.6.T44C 5.6.R000 6.1.iR00P 6.1.iR00P	5.6.T26D 5.6.T4FA 5.6.T26D 6.0.T16B 6.0.T1CA 6.0.T1DA	Vanguard 6400 Series node crash with Data TLB Miss Exception Encountered error.
11356	DRFaa19620	5.6.S200	5.6.T49A	Vanguard 6400 Series SoTCP and TCP sessions are not cleared if the connection is incomplete.
11364	DRFaa19641	5.6.T2JA	5.6.T44B	Vanguard 6400 Series nodes are generating PRESERVING DBUFFER INTEGRITY alarms.
11375	DRFaa19672	5.6.T16A	5.6.T44A	Vanguard 6400 Series Supplementary Services is not working properly, the calling party's user name is not being displayed.
11379	DRFaa19691	5.6.T16D	N/A	Vanguard 6400 Series page numbers in PRI Statistics are incorrect.
11380	DRFaa19689	5.6.R000	5.6.T48A	Vanguard 6400 Series Debug Alarms are generated when Debug is not enabled.
11383	DRFaa19706	5.5.S300	5.5.T51A	Vanguard 6400 Series SNTP server does not respond when leap year indication is set to three.
11385	DRFaa19708	5.5.S300	5.5.T51A	Vanguard 6400 Series SNTP client does not recognize source IP address when alternate route is used.

Change Request (CR#)	Limitation Number	Release Where Problem Was Reported	Interim Patch Release Replaced by Release 6.1	Problem Description
11386	DRFaa19701	5.6.S200	5.6.T43A	Vanguard 6400 Series NAT FTP passive mode fails to translate the address.
11389	DRFaa19737	5.6.S200	5.6.T46A	Vanguard 6560 OSPF default route does not advertise after a node boot.
11391	DRFaa19721	5.6.T26B	5.6.T26C	Vanguard 6400 Series loss of LSA's when the router is under stress.
11399	DRFaa19759	5.6.S400	5.6.T4AA	Vanguard 6400 Series unable to get primary rate ISDN events and statistics from SNMP.
11403	DRFaa19771	5.6.R000	N/A	Vanguard 6400 Series H.323 Prefix Field does not accept certain characters (Example: #, *).
11405	DRFaa19757	5.6.T2LA	6.0.T02A	Vanguard 6400 series unable to send large messages from BSC 3270 to LLC.
11414 11579	DRFaa19779 DRFaa20234	5.5.S100 6.0.S100	5.5.T51A 6.0.T16A	Vanguard 6400 node crash with buffer pool dry error when sending large frames over Frame Relay to SoTCP.
11419	DRFaa19844	5.6.T2LA	N/A	Vanguard 6400 Series ADT Security Panel looses IP connectivity after a node boot.
11426	DRFaa19797	5.4.P0LJ	N/A	Vanguard 7300 Series clock parameters may hang when the port is reset or disabled/enabled.
11430	DRFaa19811	5.5	N/A	Vanguard 6400 Series OSPF load balancing is only working with four links.
11432	DRFaa19795	6.0.R00A	N/A	Vanguard 6400 Series - When Dynamic Port Boot is not configured, booting SoTCP disables SoTCP.

Change Request (CR#)	Limitation Number	Release Where Problem Was Reported	Interim Patch Release Replaced by Release 6.1	Problem Description
11440	DRFaa19829	5.4 and 6.0.R00A	6.0.T01A	When using a large number of Annex-G stations (more than 1,000) certain stations may not come up. This is due to an overflow of the receive buffers.Vanguard 7300 Series.
11441	DRFaa19826	6.0.R00A	6.0.P02A	Vanguard 6400 Series BGP-4 routes are lost after port boot when the number of routes is larger than 768.
11449	DRFaa19834	5.6.R000	6.0.T15A	Vanguard 6400 SNA withholds pacing response which causes the SNA host to go into transaction reversial.
11467	DRFaa19876	5.6.R000	6.0.T15A	Vanguard 6400 polling algorithm for BSC 3270 has slow performance and control.
11468 11471	DRFaa19883 DRFaa19884	6.0.R00A 6.0.R00A	6.0.T12A 6.0.T12A	Vanguard 6400 node crash when FE1 daughtercard is booted and Format Type is Channelized.
11469	DRFaa19878	5.6.S100	5.6.T4MA	Vanguard 340 node crash with Data TLB Miss Exception Encountered error.
11472	DRFaa19885	5.6.T2DA	N/A	Vanguard 6400 products running fractional T1 and E1 cards will see errors (including FRMRs) on the third port if running 3 ports per card.
11474	DRFaa19911	6.0.R00A	6.0.P02A	Vanguard 7300 Series BGP-4 dynamic memory error occurs when exceeding the minimum route table size.
11484	DRFaa19933	6.0.R00A	N/A	Vanguard 6400 Series crashes when the voice port is not configured with a “Data TLB Miss Exception Encountered error”.

Change Request (CR#)	Limitation Number	Release Where Problem Was Reported	Interim Patch Release Replaced by Release 6.1	Problem Description
11490	DRFaa19946	6.0.R00A	N/A	Vanguard 340 Quad FXS and FXO cards do not show up properly in the node statistics inventory screen running 6.0 or 6.0.R00A IP+ or SNA+ software.
11501	DRFaa19995	6.0.P02A	N/A	Vanguard 6400 An informational alarm was generated at priority 1 (high) at node boot and at 24 hour intervals.
11511	DRFaa20060	5.6.T2GA	6.0.T13A	Vanguard 6400 AT command string is not executing correctly when preceded by an LF character.
11517	DRFaa20090	6.0.R000	N/A	Vanguard 7300 Series could not use TFTP to load software image.
11518	DRFaa20089	5.5.R000	6.0.T16B	Vanguard 6400 Series packet buffers were consuming memory.
11519	DRFaa20099	6.0.R00A	6.1.R000	Vanguard 6400 Echo Canceller is not working on 4 port FXO cards.
11535	DRFaa20139	6.0.R00A	6.0.T18A	Vanguard 7300 Series image lost intermittently after a reboot.
11551	DRFaa20154	5.6.T2LA	5.6.T4HA	Vanguard 320 cannot keep internal modem from answering when port is PPP.
11552	DRFaa20170	6.0.R000	5.5.T53B	Vanguard 6400 LCON statistics incorrectly show connection to MLPPP after a node boot.
11553	DRFaa20173	5.5.S200	6.0.T16B	Vanguard 6400 Series node crashes due to memory management.
11565	DRFaa20176	6.0.R00A	N/A	Vanguard 340 Cannot boot or Enable/Disable T3POS Port.
11587	DRFaa20270	6.0.S100	6.0.T1EA	Vanguard 6400 timeslot-DSP connection is not performed. Audio path failed.
11588	DRFaa20273	6.0.S100	N/A	Vanguard 6400 SNTP displays incorrect reference clock ID.

Change Request (CR#)	Limitation Number	Release Where Problem Was Reported	Interim Patch Release Replaced by Release 6.1	Problem Description
11600	DRFaa20291	6.0.S100	6.0.T19B	Vanguard 6400 Node crashed with FAULT: invalid semaphore.
11600	DRFaa20353	6.0.P02A	6.0.T19B	Vanguard 7300 Series Mishandling of incoming UPDATE messages when peer has become inactive.
11609	DRFaa20320	6.0.S100	N/A	Vanguard 7300 On Net Proxy configuration causing node to continually reset.
11612	DRFaa20332	6.0.R00A	6.0.T1AA	Vanguard 7300 Series LCON MIB correction needed for Entuity compatibility.
11623	DRFaa20506	6.0.P02A	N/A	Vanguard 7300 Series cannot access the node through IP when the CPU is running at one hundred percent.
11628	DRFaa20368	6.0.R00A	N/A	Vanguard 6400 Series Unable to make ATPAD to ATPAD calls after upgrading.
11633	DRFaa20403	6.0.T02A	6.0.T15B	Vanguard 320 is unable to run two TCOP ports. The node reports “Insufficient Ram for Configuration”.
11636	DRFaa20400	5.6.T2GA	N/A	Vanguard 6400 Series When a call comes into an E1 port configured as Q.Sig and the “Called Party Address” contains more than 17 digits, the called number is not recognized and the VG rejects the call as “RX_MAX_FIRST_DIGIT”.
11639	DRFaa20405	6.0.T12A	6.0.T12B	Vanguard 6400 Series Node crash, FAULT: Program Exception Encountered error.
11642	DRCaa23278	6.0.S100	6.0.T1EA	Vanguard 6455 node crash caused by an attempt to register a ISDN socket without ISDN software loaded.

Change Request (CR#)	Limitation Number	Release Where Problem Was Reported	Interim Patch Release Replaced by Release 6.1	Problem Description
11644	DRFaa20450	6.0.R00A	N/A	Vanguard 6400 DVMRP module does not consider the interface up/down event and does not update the route flag properly.
11645	DRFaa20432	6.0.R000	N/A	Vanguard 6400 Cannot prioritize FR SLAC.
11647	DRFaa20438	5.6.R000	N/A	Vanguard 340 When the the circuit drops the 340 (remote) has to be power cycled to recover.
11651	DRFaa20451	6.0.S100	6.0.T1FA	Vanguard 6400 QSIG not responding to a B-Channel restart.
11663	DRFaa20505	6.0.R00A	N/A	Vanguard 6400 QUAD FXO port gets hung in OFF HOOK state.
11665	DRFaa20509	6.0.T19B	N/A	Vanguard 6400 BGP session hangs in Error State.
11666	DRFaa20513	5.6.T2LD	5.6.T2LE	Vanguard 6400 When in a multiblock upload, if the last block contains just one byte, that byte is never passed to the SNA host and the end of chain is never sent out. This causes a lock up on the LU.
11667	DRFaa20531	6.0.P02B	N/A	Vanguard 7300 Ethernet port 101 always selects Router Interface1 and BridgeLink 1.
11677	DRFaa20603	6.0.T19B	6.0.T19C	Vanguard 7300 BGP routes were lost in the route table.

Known Software Limitations

Introduction

This section lists limitations known to exist in Release 6.1.R000 Applications Ware software.

Clocking Limitations Vanguard 340

Clocking Limitations (Port 3)

(DRFaa16033, DRFaa16038)
These are the clocking issues relating to Port 3 of the Vanguard 340:

Vanguard 340 DCE INT --> VG6560/VG320/VG64xx EXT at 1.5 Mbps

When a Vanguard 340 Port 3 is configured as internally clocked and is connected to a 6560/320/64xx which is configured as EXT clocked, and the Vanguard 340 internal clock is configured at 1.5 Mbps, the link will have clock slippage and CRC errors.
Workaround: Configure the VG6560/VG320/VG64xx port "Invert TX Clock" to "YES".

Vanguard 340 DCE INT --> VG6560 SDB2 EXT

When a Vanguard 340 Port 3 is configured as internally clocked and is connected to a SDB2 card on a Vanguard 6560 which is configured as EXT clocked, the link will not come up.
Workaround: Configure the Vanguard 6560 SDB2 port as INT clocked and the Vanguard 340 as EXT clocked. Connect the ports with a crossover cable. The DIM on the Vanguard 6560 SDB2 port should be in the DCE position.

Vanguard 340 DCE EXTLP --> VG6560 SDB2 or SDB INT

When a Vanguard 340 Port 3 is configured as EXTLP clocked and is connected to a SDB2 or SDB card in a Vanguard 6560, the link will not come up.
Workaround: Configure the Vanguard 6560 SDB2 or SDB port as INT clocked and the Vanguard 340 as EXTLP clocked. Connect the ports with crossover cable. The DIM on the Vanguard 6560 SDB2 or SDB port should be in the DCE position.

In general, configuring a DTE device as Internally clocked or a DCE device as externally clocked or EXTLP are not recommended configurations.

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:

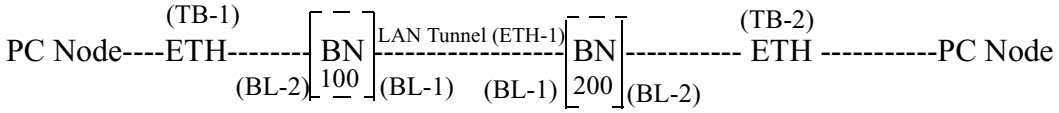

Figure 11. TB Bridge Traffic over A LAN Tunnel

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.

Node cold boot or Node Warm Boot Logs a Fatal Error Reporting Software Failure Logged - Vanguard 320

The BRI voice card can cause the node to crash if the voice port used for BRI is previously configured as another voice port type. (DRCaa22044)
Workaround: Null the port before installing the BRI voice card.

AS/400 Communications Server Alarm ID Error - Vanguard 64xx, 65xx

If you configure an incorrect LU ID into the 5494 Conversion Station, the AS/400 software accepts the ID value, autocreates a workstation with the incorrect LU ID, and the AS/400 Communications Server Alarm reports: “WORKSTATION UP, LU ID: x”, although the intended workstation might not be active. However, the 5494 Conversion Station statistics correctly report that the workstation is in the “INITIALIZING” state. (DRCaa20861)
Workaround: Be sure to configure the correct LU ID into the 5494 Conversion Station.

Input Data Rate for SoTCP Sessions - Vanguard 6560

If the input data rate exceeds a certain limit, SoTCP sessions can disconnect because of loss of IP datagrams in the underlying network and excessive TCP retransmissions. The report “SOTCP-n -TCP session timed out with x.y.z.w” is generated under such conditions. (INDaa01195)
The input data rate is controlled by the port speed setting on the X.25 access port as shown in the figure:

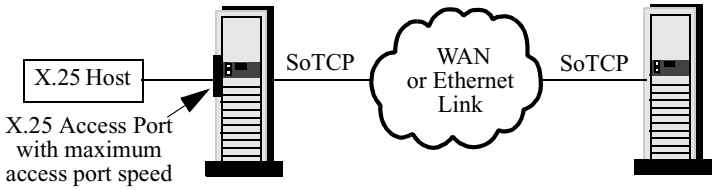

Figure 12. Input Data Rate for SoTCP Sessions

The maximum access port speed that can be supported by SOTCP varies with the number of SoTCP sessions in place. These tables show the recommended maximum limit on access port speed for a given number of SoTCP sessions:

With intermediate WAN link at 2 Mbps

Access Port Speed	1024 Kpbs	768 Kpbs	128 Kpbs	128 Kpbs	80 Kpbs	57.6 Kpbs
Maximum number of SoTCP sessions	***500***	***250***	***100***	***50***	***10***	***1***

With intermediate Ethernet link

Access Port Speed	1024 Kpbs	512 Kpbs	384 Kpbs	256 Kpbs	128 Kpbs	128 Kpbs
Maximum number of SoTCP sessions	***500***	***250***	***100***	***50***	***10***	***1***

Caution

Exceeding these data transfer rates may cause SoTCP sessions to disconnect. Based on X.25 access port data packet size set to 128 bytes; window sizes set to K=7 and W=15.

When TCP (SOTCP) is heavily loaded, the TCP session will be dropped. This is due to congestion issues when running traffic over Ethernet. TCP is flooding the Ethernet with bidirectional traffic and the CPU usage hits 100%. This delays the consumption of received frames and causes the number of collisions to rise.

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.

Using IP Multicast on a Vanguard 6560

On a Vanguard 6560, multicast traffic running on more than two Ethernet ports, generates Cyclic Redundancy Check (CRC) -errored frames on the Ethernet port configured with the highest interface number, excluding port 4. For example, if port 4 is interface 3, port 7 is interface 2, and port 13 is interface 1, the errored frames are generated by port 7. (DRFaa14892)
Workaround: Try to limit multicast traffic to a maximum of two Ethernet ports.

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.

Channelized Data is not Supported for Ports 7, 10 or 13 - 6400 Series

Although the "Channelized" and "ISDN-PRI" data features are configurable under the "Format Type" parameter for T1/E1 daughter cards on the Vanguard 6400 Series products, these features are not supported, and their use can result in unpredictable behavior. (DRCaa22019)
Workaround: Do not configure "Format Type" to "Channelized" or "ISDN-PRI". Be sure to set the default "Format Type" parameter to "Fractional".

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.

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).

Inaccurate FXS Port Statistics Regarding Delay - All products

On the FXS port statistics second page, the values presented for delay are not accurate and might erroneously indicate delay problems. (DRCaa20935)
Workaround: To determine the actual delay, enable DELAY TRACE under the FXS port options.

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.

Limitation for Voice Calls over SoTCP/VoIP - Vanguard 6560

Voice calls fail during heavy traffic. The Voice Port Statistics indicate long call establishment times greater than eight seconds. (DRCaa21160).
Workaround: Increase the value of the “TCP Connection establishment/clearing timeout” parameter in the SoTCP Parameter record.

Vanguard 6400 Series SoTCP Destination

In the Route Selection Table, if SOTCP is configured as a destination with a priority other than zero, the SOTCP destination will always be chosen over any other destination regardless of the priority configured for those other destinations. (DRFaa19750)
Workaround: make sure you configure the priority for SOTCP destination as zero unless it is the only possible destination for a particular address in the Route Selection Table.

IPX WAN Node Boot - All Products

When you add an interface with IPX WAN enabled, you must boot the node. (INDaa00790)
Workaround: At present, there is no workaround.

DTR Connection Type and BSC3270 Port - All Products

DTR connection type does not work as configured in the BSC3270 port record. (DRFaa07855)
Workaround: At present, there is no workaround.

Backup Link and Alternate Destination - All Products

If the backup link is configured as an alternative destination in the Route Selection Table as well as configured in the Switched Service Table, the backup link is activated under CALL/EITHER activation mode, when a call arrives for this destination, even if the monitor port is active. In FAIL/FAIL_ALL modes, the backup link is not activated if the Monitored Port is active. (INDaa01138)
Workaround: The backup link should not be configured in the route selection entry.

Vanguard 320 Coldloading Speeds

When using the Vanguard Software Loader to coldload software images into the Vanguard 320, coldloading can fail if the speed is 115200 bps. (DRFaa08207)
Workaround: Select a lower coldload speed of 57600 bps or 38400 bps.

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.

Unnumbered IP Interface and OSPF - Vanguard 6560, 6400 Series

When using OSPF as the routing protocol, unnumbered IP interfaces do not activate or become active. (DRCaa21050)
Workaround: Configure the mask of the unnumbered IP interface to 0.0.0.0 and boot the node so the unnumbered IP interface comes up.

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.

Vanguard 6400 Series Bandwidth Limitations

Constant Bit Rate (CBR) bandwidth is limited to MaxPCR/*n*, where *n* is an integer. For T1, MaxPCR is 181 and for E1, MaxPCR is 240. (DRFaa13234)
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.

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)
Workaround: At present, there is no workaround.

Vanguard 340 ALC Protocol only runs on V.24 interface for Port 3

When the ALC protocol is configured on port 3 of the Vanguard 340, only the V.24 interface is available. When ALC is configured on ports 1 or 2, options for V.21, V.24, V.35, or V.36 are available. (DRFaa15863)
Workaround: At present, there is no workaround for port 3. If an X.21, V.35, or V.36 interface is required, you may use ports 1 or 2.

G.723 Coder Type and 6.3k Compression Calls to a Vanguard 340 Voice Card may not work properly

When making voice calls from a Vanguard 6455 to a Vanguard 340 using G.723.1 coder type and 6.3K compression on the 340 and 5.3K compression on the 6455 port, it is possible to get Voice Daughtercard communication Errors:32- and a failed daughtercard state on the 340. (DRCaa22258)
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.

Voice Over SoTCP - Vanguard 6560

Voice calls have only one way audio for twenty-five seconds and then the audio disappears. Related to node hops. (DRFaa17912)
Workaround: Ensure all intermediate LCONs have "Voice SVC's" enabled under the LCON configuration.

Vanguard 6560/6520 Crash - Node Release Incompatibility

A Vanguard 6560/6520 node running release 5.5 can crash if executing a Centralized Voice table look-up to a node running release 5.6. (DRFaa17916)
Workaround: For Vanguard 6560 nodes, run release 5.6; for 6520 nodes, ensure that the dial string contains the same amount of digits in the voice switch table.

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 H.323 Webphone Interoperability Issue - G.711

One way audio occurs when a call is placed from a Vanguard to a NetSpeak Web-Phone product. Incompatible bundle formats are the cause. (DRFaa18114)
Workaround: At present, there is no workaround.

Vanguard 7300 Series H.323 Interoperability

H.323 interoperability issues exists between the Vanguard 7300, Netmeeting and Webphone. (DRFaa18230)
Workaround: At present, there is no workaround.

Vanguard 7300 Series ATM CBR Station Configuration

Occasionally Constant Bit Rate ATM stations were deactivated. (The total aggregate PCR did not exceed the link speed.) This occurs because the CBR scheduling is very rigid and has to fit into the transmit scheduling table in a certain way. Even though it appears that bandwidth is available, if it does not fit in the scheduling table, the station is not created. To increase the chances of fitting into the scheduling table, the larger CBR entries (PCR rate) should be created first. (DRFaa18518)
Workaround: Use VBR stations instead.

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.

Vanguard 6560 Redial Timer

On a Vanguard 6560 if the redial time in the switched service is changed (from its default of 300 seconds) to a value that is less then it takes frame relay to establish its control protocol, then switched services places another call before the first one completes. This creates a call collision and both calls are cleared. (DRFaa18849)
Workaround: Increase the redial time in the switched services record so that it is greater than the time required for the frame relay port to declare itself up. Any value greater than 60 seconds should be sufficient.

IP Fragmenting - Vanguard 6560

Fragmenting occurs when a Vanguard 340 and Vanguard 6560 are running software using tunneling between two sites for Intranet traffic. (Both devices are configured for standard IP routing over FR bypass, with MTU=1500 on all IP interfaces.) When IP packets greater than 1500 bytes try to pass through the tunnel, the tunnel does not fragment the packets, it forwards them as they are. (DRFaa18942)
Workaround: Reduce MTU to a number less than 1500 bytes.

Vanguard 6450 Limitation

The Vanguard 6450 is limited to a maximum of 64 LLC-SDLC Stations when the Local Port Pool Heap has been configured to a non-zero value. (DRFaa19027)
Workaround: Because the Vanguard 6450 has a maximum installed memory of 16 Megabytes, it is recommended to use the Vanguard 6455 with 32 Megabytes installed if the number of supported LLC-SDLC Stations exceed 64.

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.

There is no SET_UP ACK generated for ISDN PRI Voice Calls with Overlap Sending - Vanguard 6400 and 7300 Series

Overlap Sending/Receiving is not supported by North American switch types (DMS100, 5ESS, NI-2) (DRCaa22328) (DRCaa22105).
Workaround: When configured for these switches, the attached device or switch must use Enblock mode only.

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.

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 per-

cent). 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.

Vanguard 7300 Series T3 ATM PMC Card Only Supported in Slot 1 of the Carrier Expansion Card

Due to the design of the T3 ATM Rear Transition Module, only the top slot of the Carrier Expansion Card supports the T3 ATM PMC. (DRFaa16824)
Workaround: For information on installing the T3 ATM PMC, refer to the *7300 Series Installation Manual* (Part Number T0185).

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

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.

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.

Vanguard 6435/6455 T1E1 ATM Port Configuration

If you are running T1 ATM on a Vanguard 6400 Series product, the AAM port may not function after upgrading to release 6.0.R00A or greater (when certain parameters are not at default). You must have local CTP access to the node if this is the case. Do not upgrade to release 6.0.R00A if you have no other way to access the CTP than through ATM. The ATM connection could be down after booting in Release 6.0.R00A (DRFaa19362)
Workaround: At present, there is no workaround. You must have local CTP access if the following parameters are not configured as follows (prior to the upgrade):

Parameter	*Default*
*Port Type:	AAM
*Maximum VPI Range:	3
*Maximum VCI Range:	127
F5 Link Assurance Timer:	3
F5 Link Assurance Count:	3
CC Activate/Deactivate Timer:	5
CC Activate/Deactivate Count:	3

If these parameters are not set at default, you must reconfigure all AAM ports after release 6.0.R00A has been booted on-line and then reboot the node again. All AAM station configurations are correctly transferred in the upgrade and will function once the AAM port is reconfigured properly.

BGP Global TCP Segment Size and Peer TCP Segment Size All Vanguards

The Global TCP segment size is overriding peer TCP segment size if any one peer is configured for zero. (DRFaa19391)
Workaround: Ensure that all peer segment sizes are equal.

Vanguard 7300 Series BGP Initial Configuration

The initial configuration of BGP requires a warm boot. (DRFaa19411)
Workaround: Set global TCP segment size at a high value and configure remote BGP peer to control over TCP segment size.

Vanguard 6400 Default Configuration

The Vanguard 6400 Series default configuration is different from the Vanguard Application Ware Frame Relay Interface Documentation. (DRFaa18862)

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.

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 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)
Workaround: At present, there is no workaround.

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.

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.

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 but, the statistics show that everything is DOWN. (DRCaa23214)
Workaround: At present, there is no workaround.

All Vanguard Platforms - Tunnel "Boot All"

Boot all tunnels boots only the tunnels which Tunnel Table configuration has changed. If the tunnel includes compression or encryption, first boot the compression or encryption feature, then boot the specific tunnel. (DRFaa20567).
Workaround: Boot Specific Tunnels.

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.

Documentation Supplements

Introduction

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

Documentation Supplements

PAD Profiles - Vanguard 6400 Series

Two PAD profiles: INT1984 and TRANSP1, are always copied to CMEM during defaulting of CMEM. (DRFaa10524)
Workaround: Before downgrading to an earlier version of software, you must have the CMEM configuration file you saved when you first upgraded.

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.

FRA TPA Support - All Products

Effective Release 6.0.R000 and greater, FRA TPA is no longer supported as a TPDU Protocol. (DRCaa22860)

User Documentation

Organization

User documentation supporting the 6.1 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 66.

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 6.1.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 6.1.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/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 6.1.R000. To download a current printed set acquire a:

- Connection to the Vanguard Managed Solutions product documentation website:
  http://www.vanguardms.com/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 6.1.R000 CD-ROM

Using the Vanguide 6.1.R000 CD-ROM

The Vanguide 6.1.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 6.1.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 68.

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	61R000k11.xrc	6.1.R000_@IP+_V320	61R000k11.des
SNA+ Applications Ware	61R000k12.xrc	6.1.R000_@SNA+_V320	61R000k12.des
Multiservice Applications Ware	61R000k15.xrc	6.1.R000_@MS_V320	61R000k15.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**		

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.

Vanguard 320 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Special***
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**		
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**		

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.

Vanguard 320 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Special***
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					
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**		
SMDS			**L**		
MX25			**L**		
PPP	**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**		

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.

Vanguard 320 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Special***
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**		
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**		

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.

Vanguard 320 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Special***
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**		
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					

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.

Applications Ware for the Vanguard 340

Introduction

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

Vanguard 340 Applications Ware

Release 6.1.R000 makes available these Applications Ware for the Vanguard 340. 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 68.

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	61R000p11.xrc	6.1.R000_@IP+_V340	61R000p11.des
SNA+ Applications Ware	61R000p12.xrc	6.1.R000_@SNA+_V340	61R000p12.des
Multiservice Applications Ware	61R000p15.xrc	6.1.R000_@MS_V340	61R000p15.des

Vanguard 340 Features	*IP+*	*SNA+*	*Multi-Service*	*Voice*	*Security*	*Special*
Network Management						
SNMP	**D**	**D**	**D**			
TELNET	**D**	**D**	**D**			
TFTP	**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.

Vanguard 340 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	***Special***
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			**L**	**A**		
Quad FXO			**L**	**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**		
LAN						
Router IP	**D**	**D**	**D**			
Router IPX	**L**	**L**	**L**			
LAN Option Protocols						
LLC-Eth		**D**	**D**			
LLC-TR						
IPXWAN	**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.

Vanguard 340 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	***Special***
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**	
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**			
SoTCP (=Voice Relay Enc. In IP)	**L**	**L**	**L**			
Fractional T1/E1	**L**	**L**	**L**			
ATM Protocols						
All Supported ATM Protocols						
Serial Asynchronous 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.

Vanguard 340 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	***Special***
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**			
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**			

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.

Vanguard 340 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	***Special***
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						
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.

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 6.1.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 68.

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	61R000q11.xrc	6.1.R000_@IP+_V6435	61R000q11.des
SNA+ Applications Ware	61R000q12.xrc	6.1.R000_@SNA+_V6435	61R000q12.des
Multiservice Applications Ware	61R000q15.xrc	6.1.R000_@MS_V6435	61R000q15.des

6455 Applications Ware Name	*Source Filename*	*Version String*	*Description Filename*
IP+ Applications Ware	61R000s11.xrc	6.1.R000_@IP+_V6455	61R000s11.des
SNA+ Applications Ware	61R000s12.xrc	6.1.R000_@SNA+_V6455	61R000s12.des
Multiservice Applications Ware	61R000s15.xrc	6.1.R000_@MS_V6455	61R000s15.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			**L**	**A**			
Quad FXO			**L**	**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**			
LAN							

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.**

Vanguard 6435 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
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**		
Network Protocols							
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**				

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.**

Vanguard 6435 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
SMDS			**L**				
MX25			**L**				
PPP	**D**	**D**	**D**				
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							
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							

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.**

Vanguard 6435 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
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							
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							

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.**

Vanguard 6435 Features (continued)	IP+	SNA+	Multi-Service	Voice	Security	* AS/400 BSC	Special
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.**

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				

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.**

Vanguard 6455 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
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			**L**	**A**			
Quad FXO			**L**	**A**			
Digital Voice - 6450/6455							
Vanguard T1/E1 Digital Voice Server			**D**	**A**			
Voice Options (All Products)							
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**				

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.**

Vanguard 6455 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
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**		
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**				
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**				

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.**

Vanguard 6455 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
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**				
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**				

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.**

Vanguard 6455 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***Voice***	***Security***	**** AS/400 BSC***	***Special***
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							
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.**

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 6.1.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+	61R000t11.xrc	6.1.R000_@IP+_V7310	61R000t11.des
SNA+	61R000t12.xrc	6.1.R000_@SNA+_V7310	61R000t12.des
Multi-Service	61R000t15.xrc	6.1.R000_@MS_V7310	61R000t15.des

Vanguard 7330 Applications Ware

Applications Ware Name	*Source Filename*	*Version String*	*Description Filename*
IP+	61R000u11.xrc	6.1.R000_@IP+_V7330	61R000u11.des
SNA+	61R000u12.xrc	6.1.R000_@SNA+_V7330	61R000u12.des
Multi-Service	61R000u15.xrc	6.1.R000_@MS_V7330	61R000u15.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**		
Network Protocols					
FRF.12	**D**	**D**	**D**		
FRI *(includes FRA)*	**D**	**D**	**D**		
FR SVC					
X25	**D**	**D**	**D**		
PPP	**D**	**D**	**D**		
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**		
QOS Features					
TOW	**D**	**D**	**D**		
QoS - Diff Serv (5.4)	**D**	**D**	**D**		

Vanguard 7300 Features *(continued)*	***IP+***	***SNA+***	***Multi-Service***	***AS/400***	***Special***
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					

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 6.1.R000 CD-ROM. Refer to your Vanguide 6.1.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/customersupport/drivers.html

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.

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

Download This MIB File	***If you want this option, protocol, or base MIB software***
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
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

Download This MIB File	***If you want this option, protocol, or base MIB software***
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
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.
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.
1490	Multiprotocol Interconnect Over Frame Relay. T. Bradley, C. Brown, & A. Malis. July 1993.

RFC	***Description*** *(continued)*
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.

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2131	Dynamic Host Configuration Protocol. R. Broms. 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.
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.

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.