Vanguard Managed Solutions

Vanguard Applications Ware
IP and LAN Feature Protocols

Slim Internet Protocol (SIP)

Notice

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Proprietary Material

Overview

Introduction

This document describes how to configure and use Slim Internet Protocol (SIP) on Vanguard devices. SIP is a subset of the IP protocol that lets a device communicate with an SNMP manager.

You can also refer to the *IP Routing Manual* (Part Number T0100-03) for information on:

- Switched IP which allows a device to communicate with an SNMP manager and provides routing capabilities by using direct interfaces and a static routing table
- Full IP routing

In This Manual

Enhancements to Slim IP

In addition to the existing SIP functionality, these enhancements have been introduced to support On Demand SVC and RFC877.

- Support SVC disconnect on SNMP inactivity (On Demand SVC). This means that an SVC stays inactive (does not exist) until there is data to send over that WAN link. The SVC is initiated by data on the local node triggering the need to establish the SVC. The SVC stays active as long as there is data remaining to be sent. Once the data is sent, the SVC is deactivated. The SVC remains inactive until the next data trigger.
- Support for RFC877. In RFC877, the first byte of the Call User Data (CUD) of Call Request is used for protocol demuxing. The value "CC" is used for IP. IP datagrams are subsequently sent as complete packet sequences. This applies to both PVC and SVC. This functionality is made available by adding the RFC 877 to the encapsulation types already supported.

These enhancements require that two of the SIP parameters (Encapsulation type and Internal Timer) in the Configure SNMP IP menu set have additional options added.

Slim IP Two-Way Calling

Slim IP supports two-way calling. This means your Vanguard node running Slim IP can accept inbound calls from an X.25 or Annex G Frame Relay network, as well as make outbound calls to a network. No configuration is required to accept inbound calls.

Refer to the "Configuring SIP in Vanguard Devices" section on page 6, for details on setting up two-way calling.

Alarms and Reports

For details on SIP alarms and reports, refer to the *Alarms and Reports Manual* (Part No. T0005).

SNMP Management Using Slim Internet Protocol

What Is SIP?   Slim Internet Protocol (SIP) is a subset of the IP protocol. SIP is available on the Vanguard 100, Vanguard 200, Vanguard 6520, and Vanguard 6560. The complete IP Protocol is available on the Vanguard 6520, Vanguard 6560, and the Vanguard 200.

You can install SIP on a Vanguard 6520, Vanguard 6560 Vanguard 100, or Vanguard 200 when the device needs only the IP functions to communicate between an SNMP Manager and the internal SNMP Agent. The device does not need to know how to forward IP traffic. SIP terminates within the Vanguard devices.

■**Note**
   A SIP WAN connection is only supported on a master CPU.

Example of SNMP Management Using SIP   Figure 1 shows a 6500^{PLUS}, Vanguard 100, or Vanguard 200 running SIP.
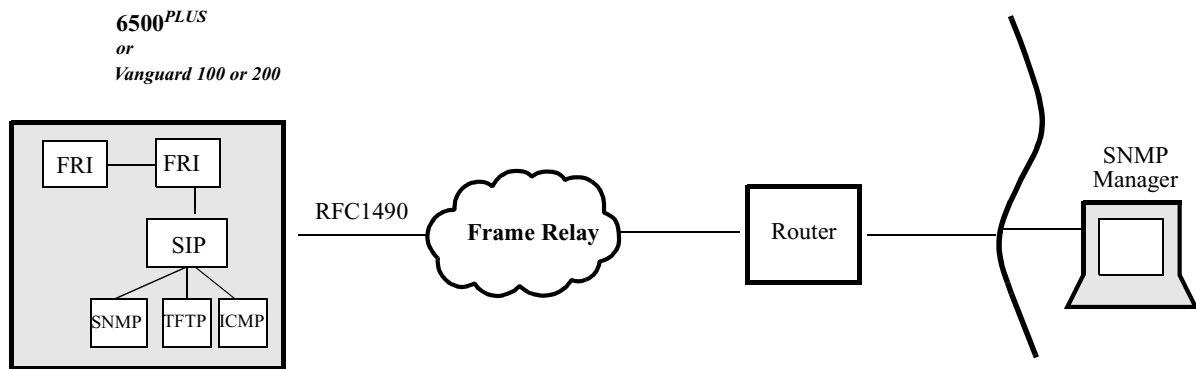
Figure 1. SNMP Management Using SIP

Options for SIP Configuration

Introduction	Two options exist for configuring SIP:

- SVCs using SIP to initiate call establishment
- PVCs using the PVC Setup Table to establish connection

Devices with Full IP Routing Capability	The application examples used in this document show a device with full IP routing capability as well as the device with SIP. Possible devices include the Vanguard 200, Vanguard 300, Vanguard 305, Vanguard 310, Vanguard 6400, Vanguard 6520 or Vanguard 6560, and 6500^{PLUS}.

Network Example Using SVCs	Figure 2 shows the option of configuring SIP using SVC connections.
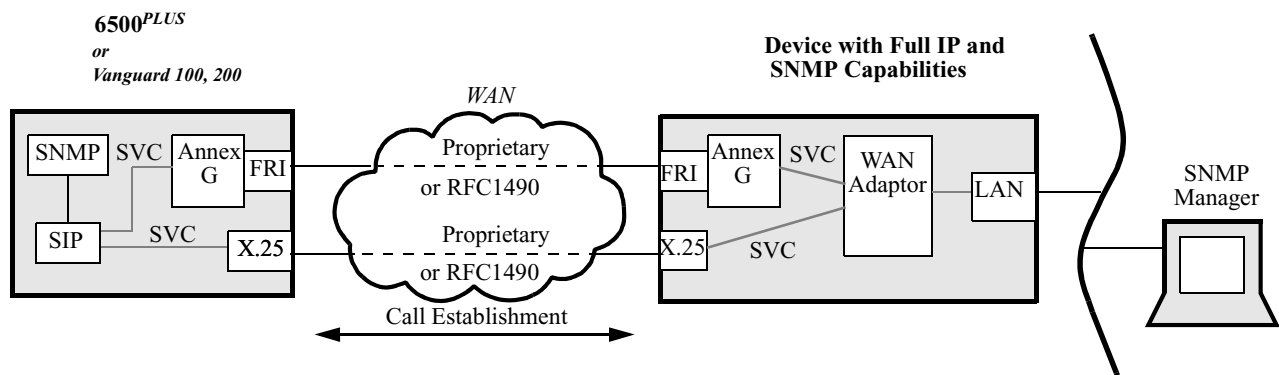
Figure 2. Using SVCs to Configure SIP

Network Example Using PVCs	Figure 3 shows the option of configuring SIP using PVC connections.
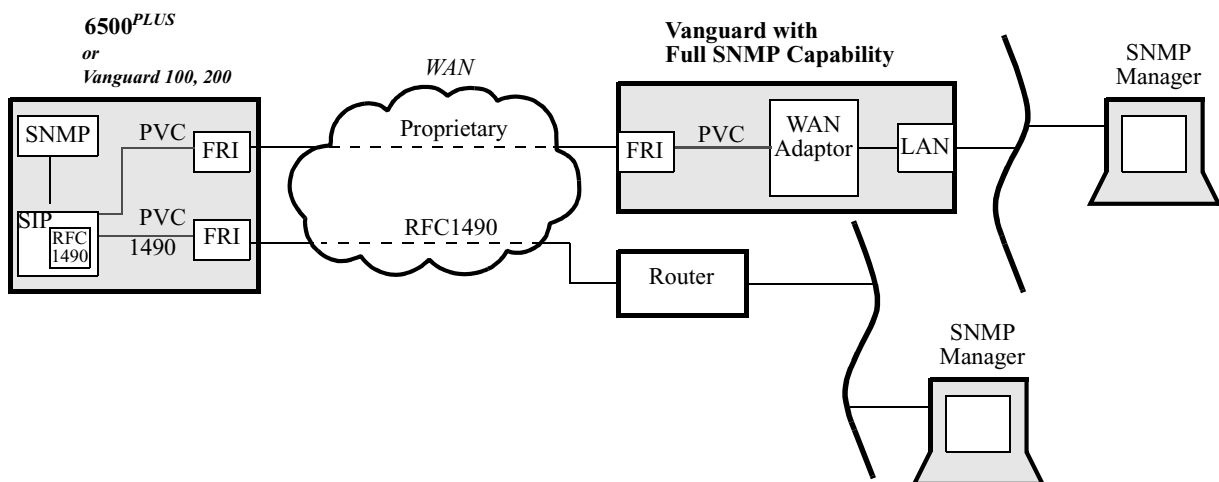
Figure 3. Using PVCs to Configure SIP

SIP Block Diagram   SIP has three components as labeled in Figure 4. Although you configure only one SIP record, you can display statistics for all the components.
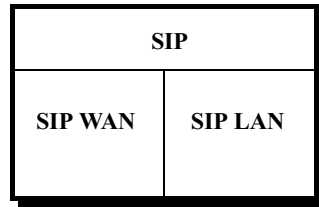
Figure 4. SIP Block Diagram

Component Description   This table describes the SIP components.

Component	Function
SIP	Manages the SIP module; handles configuration and statistics reporting.
SIP WAN	Handles packet conversion when needed. Also handles connection over the WAN and handshaking with remote applications when needed.
SIP LAN	Handles client registration when requested by the intended client. Handles encoding and decoding of the IP packet. Also handles packet forwarding to the clients.

Configuring SIP in Vanguard Devices

Configuration Requirements

This table shows the requirements for configuring the options for the SIP application.

Refer to the *Vanguard Basic Configuration Manual* (Part Number T0113) for additional configuration information.

For All SIP Configurations, Configure...	*If You Use SVCs, Configure...*	*If You Use PVCs, Configure...*
• SIP record • SNMP Agent Configuration record	• Mnemonic Table • Route Selection Table This process lets SIP establish SVCs across the WAN.	PVC Setup Table Include SIP-WAN as the source in the PVC Setup Table. The PVC Setup Table lets the node reserve PVCs during initialization.

Before You Begin

Before you configure SIP in the Vanguard device, configured the WAN port connecting the node to the network.

Configuring SIP

This table describes how to configure SIP in the Vanguard device.

Step	Action	Result/Description
1	Select **Configure SNMP** from the Configure menu.	The Configure SNMP record appears.
2	Select **SNMP IP** from the Configure SNMP menu.	The SIP record appears.
3	Complete the parameters as described in the "SIP Parameters" section on page 7.	The type of configuration determines the parameters that are displayed.

Configure SNMP Menu and SIP Record

Figure 5 shows the Configure SNMP menu and the entries for the SIP record.

```
Node:                  Address:            Date:          Time:
Menu: Configure SNMP                                      Path: (Main.6.30)

   1.   SNMP Agent
   2.   SNMP Communities
   3.   SNMP IP
```

— Entry Number
— IP Address
— Number of Clients
— WAN Connection type
— Remote Connection Index:
— Call Mnemonic:
— Subaddress
— Billing
— Encapsulation type
— Internal Timer
— Calculate UDP Checksums
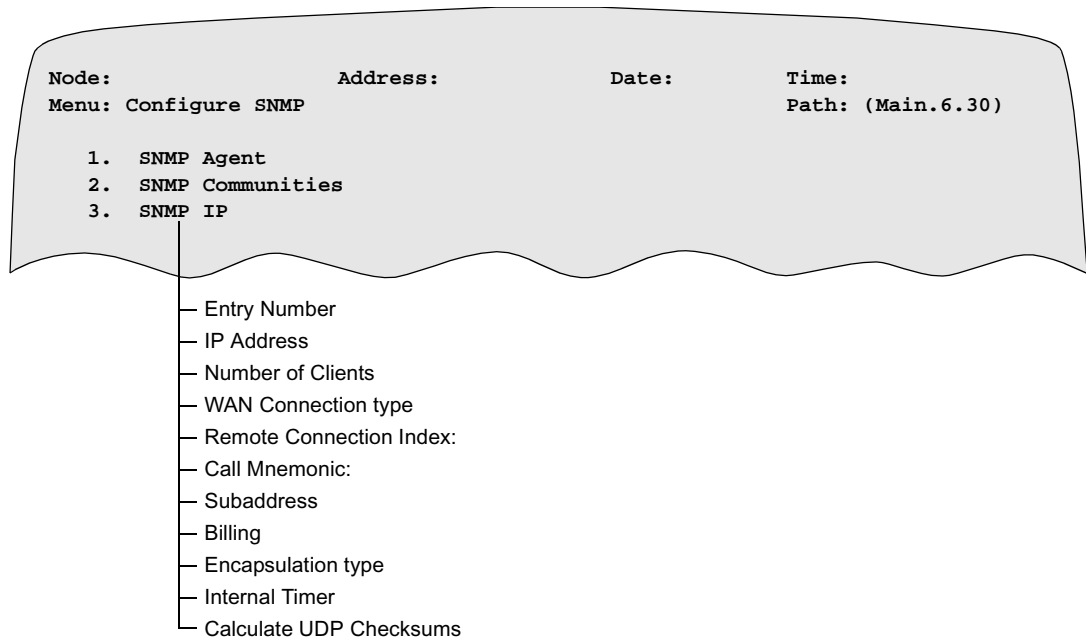
Figure 5. SIP Record

SIP Parameters

These are the SIP parameters.

■**Note**

A change to the parameter marked with an asterisk (*) requires a Node boot to take effect.

IP Address

Range:	A valid IP address in dotted notation.
Default:	(blank)
Description:	Internet address that identifies the node where the SIP application is installed.
Boot Type:	An SNMP Agent boot is required for the change to take effect.

Number of Clients

Range:	1 to 10
Default:	2
Description:	The allowed number of upper layer clients, for example, SNMP, TFTP, or Internet Control Message Protocol (ICMP), also known as ping.
Boot Type:	An SNMP Agent boot is required for the change to take effect.

*WAN Connection Type

Range:	SVC, PVC
Default:	SVC
Description:	• SVC connects the SIP WAN to a remote WAN adaptor using Switched Virtual Circuit (SVC). • PVC connects the SIP WAN to a remote WAN adaptor using Permanent Virtual Circuit (PVC). **■Note** You may need a SAK to enable the WAN adaptor. Refer to the *Vanguard Basic Configuration Manual* (Part Number T0113) and the *6500^{PLUS} Installation Guide.*

*Remote Connection Index

Range:	1 to 254
Default:	1
Description:	Specifies the number of the remote LAN Connection (LCON) to which SIP connects if the WAN Connection type is configured for SVC or PVC. (Appears only if you have SVC or PVC connections.)

Call Mnemonic

Range:	0 to 8 alphanumeric characters
Default:	(blank)
Description:	A text string that has a matching entry in this node's Mnemonic Table that has call attributes. It references the address of a remote node that is called by SIP if the WAN connection type is configured for SVC. (Appears only if you have an SVC connection.) The SVC can make outbound calls as well as accept inbound calls. If you leave this parameter blank, the SVC only accepts incoming calls. **■Note** Use the value SIP-WAN for the channel identifier in the Destination parameter in the Route Selection table.
Boot Type:	An SNMP Agent boot is required for the change to take effect.

Subaddress

Range:	0 to 3 decimal digits <Space> blanks the field
Default:	93
Description:	Specifies the internal subaddress used by SIP. (Appears only if you have an SVC connection.)
Boot Type:	An SNMP Agent boot is required for the change to take effect.

Billing

Range:	ENABLE, DISABLE
Default:	DISABLE
Description:	When enabled, billing records are generated for all calls to and from this port and also for failed calls from this port. (Appears only if you have an SVC connection.)
Boot Type:	An SNMP Agent boot is required for the change to take effect.

Encapsulation Type

Range:	Codex, 1294, 877
Default:	Codex
Description:	Specifies the type of encapsulation used over the WAN. • Codex proprietary encapsulation • RFC 1294 Multiprotocol encapsulation • RFC 877 - IP over X.25 (Appears only if you have an SVC connection.)
Boot Type:	SNMP IP

Internal Timer

Range:	0 to 255
Default:	10
Description:	Time interval in seconds used by the internal timers of SIP to establish socket connections within the node. **When set to zero, an On Demand circuit is required. It has no effect for PVC connection.**
Boot Type:	SNMP IP

Calculate UDP checksums

Range:	ENABLE, DISABLE
Default:	ENABLE
Description:	• ENABLE enables the UDP checksum calculations. • DISABLE disables the UDP checksum calculations.
Boot Type:	An SNMP Agent boot is required for the change to take effect.

Configuring the SNMP Agent Vanguard Devices

Introduction

This section describes the changes you make to the SNMP Agent parameters in a Vanguard 100, Vanguard 200, Vanguard 6520, or Vanguard 6560.

■**Note**

Refer to the *Vanguard Basic Configuration Manual* (Part Number T0113) for configuration information for SNMP.

Configuring SNMP Agent

This table describes the changes you make to the SNMP Agent.

Step	*Action*	*Result/Description*
1	Select **Configure SNMP** from the Configure menu.	The Configure SNMP record appears.
2	Select **SNMP Agent** from the Configure SNMP menu.	The SNMP Agent record appears as shown in Figure 6.
3	Configure the Connection Type parameter as described below.	

Prompt:	*Range:*	*Description:*
Connection Type:	• UDP	Connects the agent to the full IP protocol. Set this parameter on the Vanguard 6560, Vanguard 6520, and Vanguard 200 only when the full IP protocol is used. ■**Note** Be sure that the image has the full IP protocol.
	• SIP_W	• Connects the agent to SIP. Set this parameter when you are just using SIP and the IP protocol is not implemented.
	• SIP_L	• Do not use this parameter.
	• APAD	• Do not use this parameter.

Configure SNMP Menu with SNMP Agent Record

Figure 6 shows the Configure SNMP menu with the entries for the SNMP Agent record.

```
Node:             Address:            Date:           Time:
Menu: Configure SNMP                                  Path: (Main.6.30)

   SNMP Agent
```

— Entry Number
— SNMP-UDP connection Subaddress:
— Secondary Channel Subaddress:
— UDP Retry Timer (seconds):
— Connection Type
— Trap generation: ENABLE/
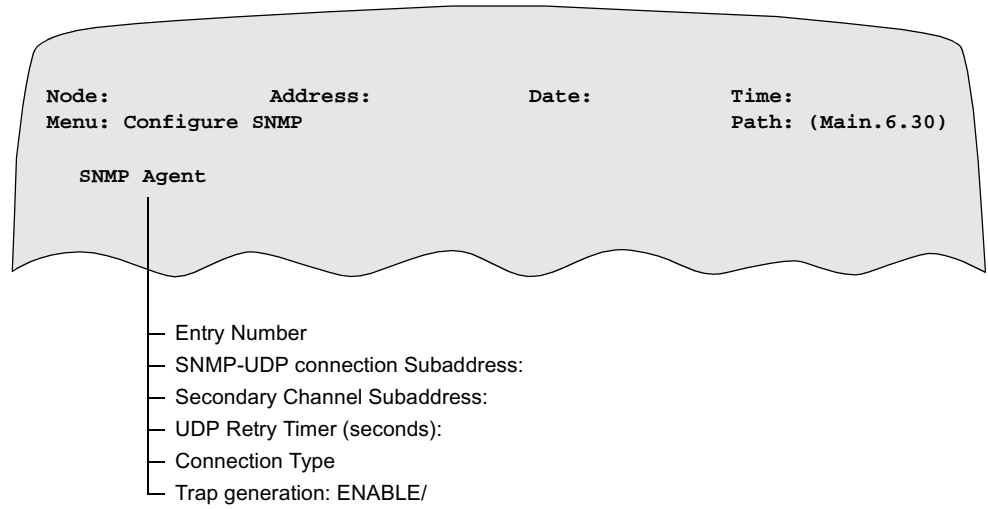
Figure 6. SNMP Agent Record

Configuring the Mnemonic Table and Route Selection Table

Introduction   You need to configure the Mnemonic Table and Route Selection Table in the Vanguard 6560, Vanguard 6520, Vanguard 100, or Vanguard 200 device if the WAN connection type is SVC.

Refer to the *Vanguard Basic Configuration Manual* (Part Number T0113) for additional configuration information.
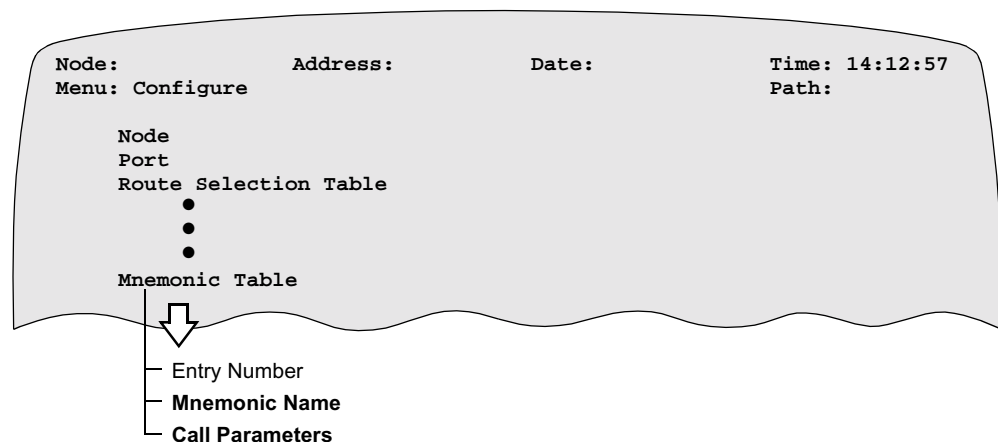
Configuring the Mnemonic Table   The following table describes how to configure the Mnemonic Table in the Vanguard 6560, Vanguard 6520, Vanguard 100, or Vanguard 200 device if the WAN connection type is SVC.

Step	*Action*	*Description*
1	Select **Mnemonic Table** from the Configure menu.	The Mnemonic Table record appears as shown in Figure 7.
2	Configure the Mnemonic Name and Call Parameters as described below.	

Prompt:	*Range:*	*Description:*
Mnemonic Name	0 to 8 alphanumeric characters	Represents the Branch Node's address, for example, RUSS.
Call Parameters	0 to 64 alphanumeric characters	Specifies the X.25 address and subaddress of the node across the WAN to which the connection is being made, for example, 10094.

Configure Menu and Mnemonic Table Record   Figure 7 shows the Configure menu and the entries for the Mnemonic Table record.

```
Node:              Address:          Date:            Time: 14:12:57
Menu: Configure                                      Path:

     Node
     Port
     Route Selection Table
        ●
        ●
        ●
     Mnemonic Table
```

        Entry Number
        Mnemonic Name
        Call Parameters
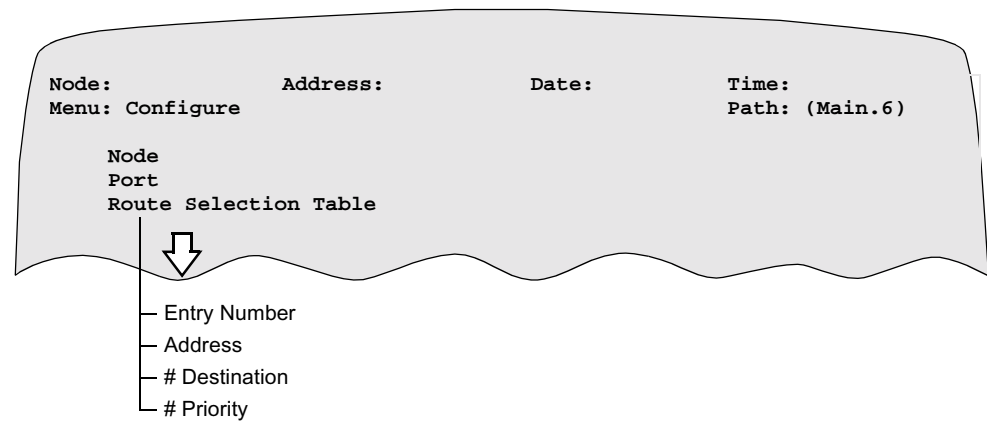
Figure 7. Mnemonic Table Record

Configuring the Route Selection Table

This table describes how to configure the Route Selection Table in Vanguard 6560, Vanguard 6520, Vanguard 100, or Vanguard 200 devices if the WAN connection type is SVC.

Step	*Action*		*Description*
1	Select **Route Selection Table** from the Configure menu.		The Route Selection Table record appears as shown in Figure 8.
2	Configure the Address and destination as described below.		
	Prompt:	*Range:*	*Description:*
	Address	0 to 15 digits	Specifies the X.25 address on the other side of the WAN to which the calls are routed, for example 100*.
	#1 Destination	0 to 32 alphanumeric characters	Describes the path of how to get to an external node. For example, X25-1 means that the calls are routed to X-25 port 1, and FRI-3S1 means that the calls are directed to Frame Relay Port 3, Station 1.

Configure Menu and Route Selection Table Record

Figure 8 shows the Configure menu and the entries for the Route Selection Table record.

Figure 8. Route Selection Table Record

Configuring the PVC Setup Table in Vanguard Devices

Introduction   You need to configure the PVC Setup Table in Vanguard 6560, Vanguard 6520, Vanguard 100, or Vanguard 200 devices if the WAN connection type is PVC.

Refer to the *Vanguard Basic Configuration Manual* (Part Number T0113) for additional configuration information.
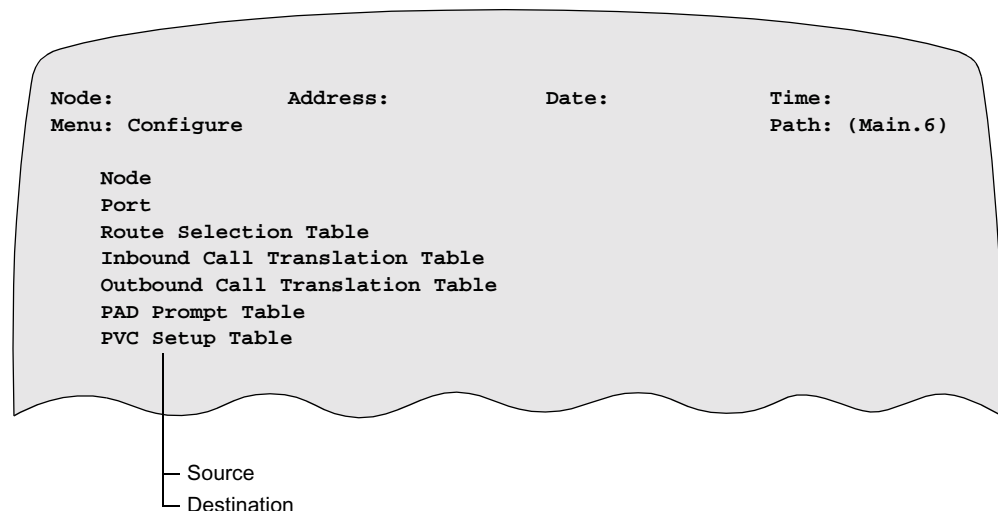
Configuring the PVC Setup Table   This table describes how to configure the PVC Setup Table in Vanguard 6560, Vanguard 6520, Vanguard 100, or Vanguard 200 devices if the WAN connection type is PVC.

Step	Action		Result
1	Select **PVC Setup Table** from the Configure menu.		The PVC Setup Table record appears as shown in Figure 9.
2	Configure the Source parameter as described below.		

	Prompt:	*Range:*	*Description:*
	Source	0 to 32 alphanumeric characters	Specifies the PVC source. Enter SIP-WAN.

Configure Menu and PVC Setup Table Record   Figure 9 shows the Configure menu and entries for the PVC Setup Table record.


```
Node:               Address:            Date:            Time:
Menu: Configure                                          Path: (Main.6)

    Node
    Port
    Route Selection Table
    Inbound Call Translation Table
    Outbound Call Translation Table
    PAD Prompt Table
    PVC Setup Table
```

— Source
— Destination

Figure 9. PVC Setup Table Record

Configuring the Node with IP Enabled

Introduction

This section describes how to configure the node with IP capability when the node interfaces with a Vanguard device running SIP. The configuration depends on whether there are SVC or PVC connections.

For SVC Connections

When the Vanguard 100, Vanguard 200, Vanguard 6560, or Vanguard 6520 device uses SVCs to initiate connection, be sure to:

- Configure the node with IP capability as an X.25 node.

Refer to the *Vanguard Basic Configuration Manual* (Part Number T0113) for configuration information.

- Match the entries in the node record of the node with IP to the node record of the Vanguard 6560, Vanguard 6520, Vanguard 100, or Vanguard 200 device in the following entries:
    - Codex Proprietary Protocol ID
    - LAN connection subaddress
- Configure the WAN Adaptor LCON entries.
- Configure the router interfaces.
- Configure the LAN interface.
- Configure the WAN interface.

Depending on the router configuration, you may need to configure the Router IP static route.

For PVC Connections

When the Vanguard 100, Vanguard 200, Vanguard 6560, or Vanguard 6520 device uses PVCs to initiate connection, be sure to:

- Configure the node with IP capability as an X.25 node.

Refer to the *Vanguard Basic Configuration Manual* (Part Number T0113) for configuration information.

- Configure the PVC Setup Table.

Refer to *Frame Relay Manual* (Part No. T0106-02) for additional configuration information.

Monitoring SIP

Introduction   This section describes the SIP statistics that you can display. These statistics indicate the running status of SIP as well as the protocol packet counts, for example, in and out packets.

Accessing SIP Statistics   This table describes how to access the SIP statistics.

Step	Action	Result
1	Select **SNMP Statistics** from the Statistics menu.	The SNMP Statistics menu appears as shown in Figure 10.
2	Select **SIP Stats**.	The SIP Statistics record appears.

Example of SNMP Statistics Menu   Figure 10 shows the SNMP statistics menu.

```
Node:                  Address:           Date:        Time:
Menu: SNMP Statistics                                  Path: (Main.5.30)

   SNMP Agent Statistics
   Reset SNMP Agent Statistics
   SIP Stats
   SIP LAN Stats
   SIP WAN Stats
   Reset ALL SIP Stats
```

Figure 10. SNMP Statistics Menu

Example of SIP Statistics   Figure 11 shows the first page of the SIP Statistics screen.

```
Node:                    Address:            Date:           Time:
SIP Statistics                                               Page: 1 of 3

   IP Address: 192.0.5.2          (c0000502)

   Number of Remote Clients allowed: 4

   ICMP ping/echo mechanism: ENABLED

   Internal application sub address: 93

   SIP LAN state:   Initialized

   SIP WAN state:   Initialized
```

Figure 11. SIP Statistics — Page One

Term Descriptions   This table describes the SIP statistics.

Statistics	Description
IP Address	Identifies the node running SIP.
Number of Remote clients allowed	Displays the number of clients allowed.
ICMP ping/echo mechanism	Enabled by default.
Internal application subaddress	Displays the runtime values of the Internet subaddress.
SIP LAN state	Displays the state of initialization for the LAN component of SIP. One of these messages appears: • Initialized • Failed init If "Failed init" appears, it means that the SIP application is not configured or that there are not enough resources for complete initialization.
SIP WAN state	Displays the initial state of initialization for the WAN component of SIP. One of these messages appears: • Initialized • Failed init If "Failed init" appears, it means that SIP is not configured or that there are not enough resources for complete initialization.

Monitoring SIP LAN Statistics

Introduction   This section describes the SIP LAN statistics that you can display.

Accessing the SIP LAN Statistics   This table describes how to access the SIP LAN statistics.

Step	Action	Result
1	Select **SNMP Statistics** from the Statistics menu.	The SNMP Statistics menu appears, as shown in Figure 12.
2	Select **SIP LAN Stats**.	The SIP LAN Statistics records appear, as shown in Figures 13, 14, and 15.

Example of SNMP Statistics Menu   Figure 12 shows the menu for the SNMP statistics.

```
Node:                  Address:            Date:          Time:
Menu: SNMP Statistics                                     Path: (Main.5.30)

    SNMP Agent Statistics
    Reset SNMP Agent Statistics
    SIP Stats
    SIP LAN Stats
    SIP WAN Stats
    Reset ALL SIP Stats
```

Figure 12. SNMP Statistics Menu

Example of SIP LAN Statistics Screens

Figures 13 through 15 show the SIP LAN statistics.

```
Node:                 Address:           Date:            Time:
SIP LAN Statistics                                        Page: 1 of n

 SIP internal IP address: 192.0.5.2 (c0000502)

 SIP LAN Application                      RUNNING

 Connection to WAN                        ACTIVE

 ICMP option                             ENABLED

 Number of allowed Clients:  4
 Last outbound IP Packet ID: 17

SIP LAN Packet Counts:
======================
   WAN in              0         WAN out            17
   WAN errors          0         WAN dropped        0

   IP in               0         IP out             17
   IP errors           0         IP dropped         0

   ICMP in             0         ICMP out           0
   ICMP errors         0         ICMP dropped       0

   UDP in              0         UDP out            17
   UDP errors          0         UDP dropped        0

   IP Pass in          0         IP Pass out        0
   IP Pass errors      0         IP Pass drpd       0
```

Figure 13. SIP LAN Statistics — Screen One

```
Node:                 Address:           Date:            Time:
SIP LAN Statistics                                        Page: 2 of n

     SIP LAN Remote client #1, index[0]
  ===============================================

 SIP Remote State: ACTIVE
 ip_address:      192.0.5.2              (c0000502)
 protocol:        ICMP                       ( 1)
 transport port #: 1

 up packets:      0

     SIP LAN Remote client #2, index[1]
  ===============================================

 SIP Remote State: ACTIVE
 ip_address:      192.0.5.2              (c0000502)
 protocol:        UDP                        (11)
 transport port #: 161

 up packets:      0
 down packets:    17
```

Figure 14. SIP LAN Statistics — Screen Two

```
Node:               Address:          Date:            Time:
SIP LAN Statistics                                     Page: 3 of n

     SIP LAN Remote client #3, index[2]
 ============================================

SIP Remote State: INACTIVE
ip_address:        0.0.0.0                  (00000000)
protocol:          NOT Registered               (ff)
transport port #: 0

up packets:        0
down packets:      0


    SIP LAN Remote client #4, index[3]
 ============================================

SIP Remote State: INACTIVE
ip_address:        0.0.0.0                  (00000000)
protocol:          NOT Registered               (ff)
transport port #: 0

up packets:        0
down packets:      0
```

Figure 15. SIP LAN Statistics — Screen Three

Term Descriptions   This table describes the SIP LAN statistics.

Lan Statistics	Description
Application Statistics	
SIP Internal IP address	Identifies the node where SIP is running.
SIP LAN application	Indicates one of these states: • Boot — application is in the process of booting • Initializing • Initialized • Running • Inactive
Connection to WAN	• Inactive • Active
ICMP Option	Indicates that the SIP module can respond to PING requests over the LAN. It is always enabled.
Number of clients allowed	Indicates the number of clients allowed to register at one time, for example, SNMP Agent, TFTP, or ICMP.
Last outbound IP packet ID	Specifies the IP identifier of the last outbound IP packet.

Lan Statistics	*Description* (continued)
Packet Counts	
WAN in	Specifies the number of packets from the WAN side of the application.
WAN out	Specifies the number of packets to the WAN side of the application.
WAN errors	Specifies the number of packet encode/decode errors.
WAN dropped	Specifies the number of packets dropped because: • The client was not registered. • Not enough nodal resources were available to pass the packets.
IP in	Specifies the number of IP packets in from the WAN side of the application.
IP out	Specifies the number of IP packets out to the WAN side of the application.
IP errors	Specifies the number of IP errors.
IP dropped	Specifies the number of IP packets dropped.
ICMP in	Specifies the number of ICMP packets in from the WAN side of the application.
ICMP out	Specifies the number of ICMP packets out to the WAN side of the application.
ICMP errors	Specifies the number of ICMP errors.
ICMP dropped	Specifies the number of ICMP packets dropped.
UDP in	Specifies the number of UDP packets in from the WAN side of the application.
UDP out	Specifies the number of UDP packets out to the WAN side of the application.
UDP errors	Specifies the number of UDP errors.
UDP dropped	Specifies the number of UDP packets dropped.
IP Pass in	Specifies the number of packets in from the WAN side of the application that have been passed to clients without removing the IP headers.
IP Pass out	Specifies the number of packets out to the WAN side of the application that have been passed to clients without adding the IP headers.
IP Pass errors	Specifies the number of IP Pass errors.
IP Pass dropped	Specifies the number of IP packets dropped.

Lan Statistics	*Description* (continued)
Registered Clients	
SIP Remote state	Indicates one of these states: • Inactive • Active
IP address	Specifies the registered IP address of the client.
Protocol	Registered protocol name that resides above IP, for example, ICMP.
Transport port #	Specifies the port number on the Transport layer (layer 4) to which the application connects.
Up packets	Specifies the number of packets sent up to the client.
Down packets	Specifies the number of packets sent down from the client.

Monitoring SIP WAN Statistics

Introduction   This section describes the SIP WAN statistics that you can display.

Accessing the SIP WAN Statistics   This table describes how to access the SIP WAN statistics.

Step	Action	Description
1	Select **SNMP Statistics** from the Statistics menu.	The SNMP Statistics menu appears.
2	Select **SIP WAN Stats**.	The SIP WAN Statistics report appears.

Example of SIP WAN Statistics   Figure 16 shows the first page of the SIP WAN Statistics screen.

```
Node:              Address:            Date:              Time:
SIP WAN Statistics                                        Page: 1 of 4

 SIP WAN Application                  RUNNING
 LAN channel                         CONNECTED
 WAN channel                         CONNECTED

 Handshakes in         0              Handshakes out      0
 Pkts to WAN           17             Pkts to LAN         0
 Pkts from WAN         0              Pkts from LAN       17
 WAN Pkts dropped      0              LAN Pkts dropped    0

 Number of inbound packets that were only fragments 0
```

Figure 16. SIP WAN Statistics — Page One

Term Descriptions This table describes the SIP WAN statistics.

WAN Statistics	Description
SIP WAN Application	Indicates one of these states: • Running • Initializing • Initialized • Handshaking (with remote application)
LAN channel	Indicates one of these states: • Running • Initialized disconnected — was initialized, but did not try to connect • Connected • Disconnected — was initialized and tried to connect at least once before disconnection • Clearing
WAN channel	Indicates one of these states: • Initialized disconnected — was initialized, but did not try to connect • Connected • Disconnected — was initialized and tried to connect at least once before disconnection • Calling • Clearing
Handshakes in Handshakes out	Specifies the synchronization commands from the remote application; valid only for SVCs or PVCs.
Pkts to WAN	Specifies the number of packets to the WAN, for example, Frame Relay, X.25, or the WAN adaptor.
Pkts to LAN	Specifies the number of packets to the LAN side of the application.
Pkts from WAN	Specifies the number of packets from the WAN, for example, Frame Relay, X.25, or the WAN adaptor.
Pkts from LAN	Specifies the number of packets from the LAN side of the application.
WAN pkts dropped	Specifies the number of WAN packets dropped.
LAN pkts dropped	Specifies the number of LAN packets dropped.
Number of inbound packets that were only fragments	Specifies the number of packets over the WAN that were only pieces of a larger LAN packet.

Viewing Other Statistics

Introduction   You can view other statistics on Vanguard 100, or Vanguard 200, Vanguard 6560, or Vanguard 6520 devices and on the node with IP capability. The types of statistics available depend on the type of connection.

SVC Connection   For Vanguard 100, or Vanguard 200, Vanguard 6560, or Vanguard 6520 devices, you can view statistics such as:

- Call summary statistics
- Detailed port statistics
- Detailed link statistics

For the node with full IP capability, you can view statistics such as:

- Call summary statistics
- LCON summary statistics
- LCON detailed statistics

PVC Connection   For Vanguard 100, or Vanguard 200, Vanguard 6560, or Vanguard 6520 devices, you can view statistics such as:

- FRA/FRI station statistics
- Detailed link statistics
- Detailed port statistics

For the node with IP capability, you can view statistics such as:

- Port statistics
- Detailed link statistics
- Detailed FRA/FRI station statistics
- LCON summary statistics
- LCON detailed statistics

WAN Adaptor Connection   For the node with IP capability, you can view statistics such as:

- PVC Connection Table statistics
- Detailed port statistics
- Detailed link statistics
- Detailed FRI/FRA station statistics
- LCON summary statistics
- LCON detailed statistics
- Detailed WAN adaptor statistics

Rebooting the SIP Application

Introduction

You may have to reboot SIP if you are having problems or when you change some parameters. The configuration parameters that require a full node boot to take effect are marked with an asterisk (*).

Rebooting SIP

This table describes how to reboot SIP.

Step	Action	Result
1	Select **SNMP IP boot**. from the Boot menu, shown in Figure 17.	The "Boot the SIP Application" screen displays the warning shown in Figure 18.
2	Enter **Y**.	The system performs these actions: • Disconnects all the clients. • Breaks internal WAN-LAN connections. • Resets all the statistics. • Initializes all the SIP external structures. • Runs SIP through its normal startup procedure. • Registers the clients with the SIP application.

Example of Boot Menu

Figure 17 shows the Boot menu.

```
Node:                    Address:          Date:          Time:
Menu: Boot                                                Path: (Main.7)

   Port                                    (reserved)
   FRI Station                             (reserved)
   Table and Node Record                   (reserved)
   Node (warm)                             (reserved)
   Node (cold)                             (reserved)
   Internal DSD                            (reserved)
   XDLC Station                            (reserved)
   LAN Connection                          (reserved)
   Enable CPU card                         (reserved)
   Update Software.                        (reserved)
   FRA Station                             (reserved)
   Extended Software Control               SNMP Agent boot
   (reserved)                              (reserved)
   (reserved)                              SNMP IP boot
   (Reserved)
   (Reserved)
   (Reserved)
   (Reserved)

#Enter Selection: 32
```

Figure 17. Boot Menu

Example of SIP Warning

Figure 18 shows the warning displayed when you boot the SIP application.

```
Boot the SIP Application


WARNING: Booting the SIP Application will be disruptive to all
clients


WARNING: Upon rebooting SIP, some configuration changes may take effect.


Proceed with SIP Boot (y/n): y
```

Figure 18. SIP Warning