

Vanguard Managed Solutions

**Vanguard Applications Ware
Serial Feature Protocols**

Smart Line Controller Premise Protocol

Notice

©2003 Vanguard Managed Solutions, LLC
575 West Street
Mansfield, Massachusetts 02048
(508) 261-4000
All rights reserved
Printed in U.S.A.

Restricted Rights Notification for U.S. Government Users

The software (including firmware) addressed in this manual is provided to the U.S. Government under agreement which grants the government the minimum “restricted rights” in the software, as defined in the Federal Acquisition Regulation (FAR) or the Defense Federal Acquisition Regulation Supplement (DFARS), whichever is applicable.

If the software is procured for use by the Department of Defense, the following legend applies:

Restricted Rights Legend

Use, duplication, or disclosure by the Government
is subject to restrictions as set forth in
subparagraph (c)(1)(ii) of the
Rights in Technical Data and Computer Software
clause at DFARS 252.227-7013.

If the software is procured for use by any U.S. Government entity other than the Department of Defense, the following notice applies:

Notice

Notwithstanding any other lease or license agreement that may pertain to, or accompany the delivery of, this computer software, the rights of the Government regarding its use, reproduction, and disclosure are as set forth in FAR 52.227-19(C).

Unpublished - rights reserved under the copyright laws of the United States.

Notice (continued)

Proprietary Material

Information and software in this document are proprietary to Vanguard Managed Solutions, LLC (or its Suppliers) and without the express prior permission of an officer, may not be copied, reproduced, disclosed to others, published, or used, in whole or in part, for any purpose other than that for which it is being made available. Use of software described in this document is subject to the terms and conditions of the Software License Agreement.

This document is for information purposes only and is subject to change without notice.

Part No. T0102-13, Rev G
Publication Code: DS
First Printing: November 1998

Manual is current for Release 6.2 of Vanguard Applications Ware

To comment on this manual, please send e-mail to LGEN031@vanguardms.com

Overview

Introduction

This manual describes how to configure and use the Smart Line Controller (SLC) Premise Protocol PAD on Vanguard 6560 ports.

Alarms and Reports

For details about SPP alarms and reports, refer to the *Vanguard Applications Ware Alarms and Reports Manual* (Part Number T0005).

In This Manual

Topic	See Page
SLC Premise Protocol	2
Application	3
Port Configuration	4
Statistics	7
Port Statistics	8
Station Statistics	11
Codes	14

SLC Premise Protocol

What is SPP?

The SLC (Smart Line Controller) Premise Protocol (SPP) is a multi-session async PAD which supports the Wells Fargo SLC Premise Protocol. It is a packet oriented session layer protocol that allows the SLC to communicate with a terminal adapter (TA) over an ISDN line using the D-Channel X.25 packet-switch data service.

The SPP PAD provides an interface between the SLC and the remote TA over an X.25 network. It translates the data from an SLC, so it can be understood by an X.25 network and intercepted by an ISDN TA.

The protocol, SPP, extends end-to-end acknowledgment and packet retransmission beyond the X.25 network. In this way, SPP ensures that messages reach their ultimate destination. SPP also provides monitoring at the SLC. This function allows early detection of failures in the premise ISDN line or terminal equipment

The SPP PAD supports the Vanguard 6560 only.

Features

SPP supports these features:

- Up to 255 stations per port
- Session control and status provided through service signals
- Local error checking between SLC and PAD port
- Detailed port and station statistics

Limitations

The SPP PAD application has these limitations:

- Each SPP PAD can support a maximum 255 stations
 - Each station must be dedicated to one TID
-

Application

Introduction

The SPP PAD is intended for use with the Wells Fargo SLC. The SLC is installed at Wells Fargo branches and supports up to 32 asynchronous lines. These lines are connected to a Vanguard 6560.

SPP PAD

Figure 1 shows the typical application of SPP PAD:

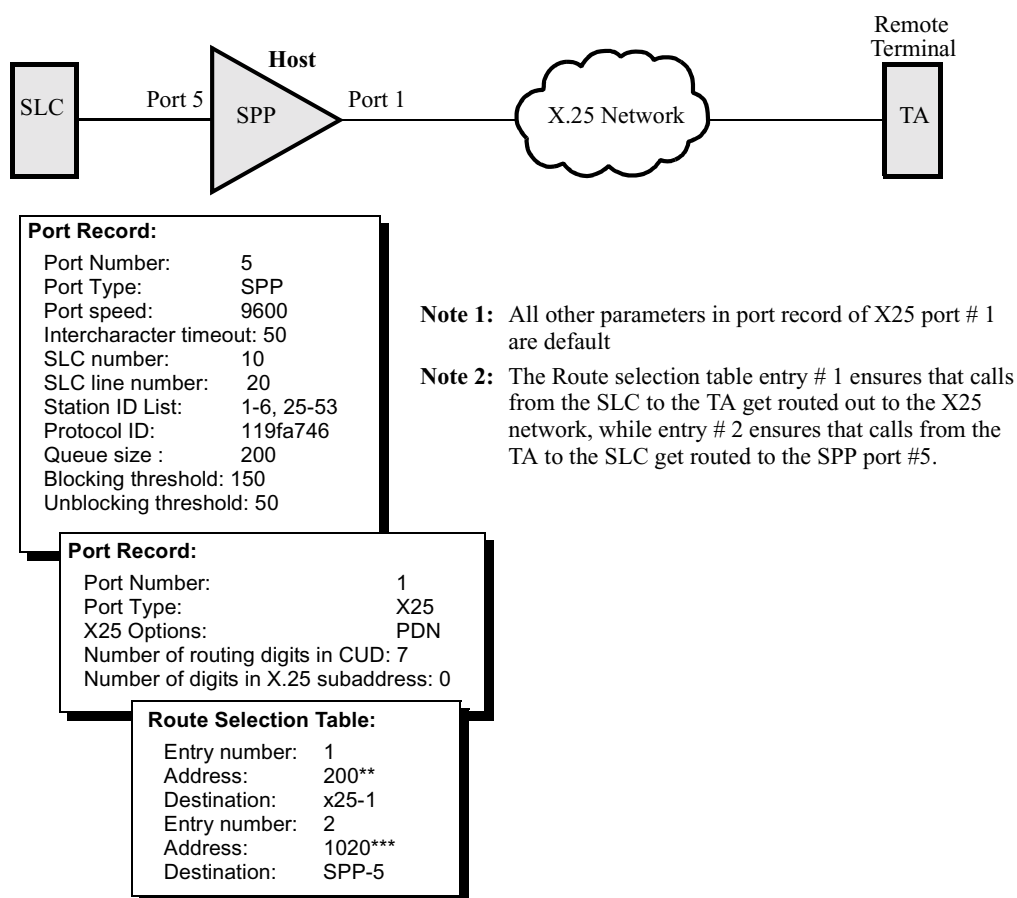


Figure 1. Configuration for SPP PAD Application.

The application uses a permanently assigned ISDN Terminal Adapter (TA) address for each Wells Fargo Alarm Services customer premise location.

Each premise TA is connected to the Vanguard 6560 by an SVC through X.25 network. The SVC is not disconnected when a transaction is completed but remains in tact. "Keep alive" signals are sent between the premise and central nodes at least every 200 seconds.

Port Configuration

Introduction

This section describes the parameters that you configure to implement the SPP PAD protocol option. In addition to other X.25 parameters, these attributes must be configured when you are establishing an SPP PAD.

Note

When you are configuring a SPP port, the station parameters are also configured during this process.

Navigating the CTP Menu

Figure 2 shows the CTP path to the SPP PAD parameters:

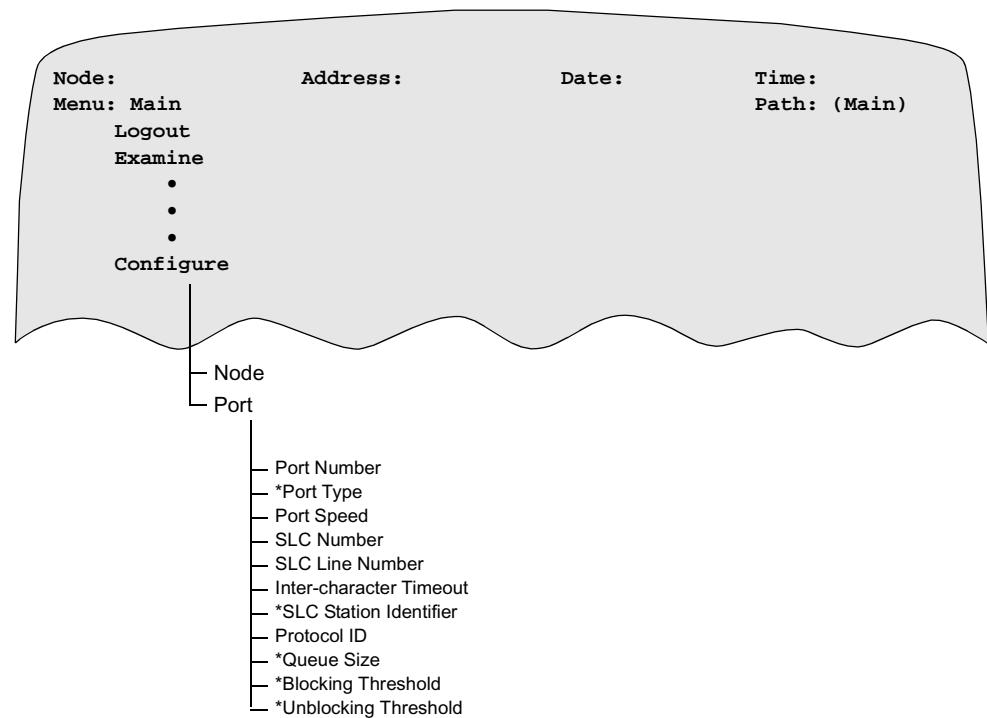


Figure 2. SPP PAD Parameter Available in the CTP Menu

Port Parameters

When you are configuring an SPP PAD port, these parameters appear:

Port Number

Range:	1 to 54
Default:	n/a
Description:	Specifies the number of the port to configure and serves as the entry number in the port record.

Port Type

Range:	Contingent on software image.
Default:	n/a
Description:	Specifies the port type. For this software option, enter SPP.

Port Speed

Range:	300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200
Default:	9600
Description:	Determines port processes data at the speed (in bits per second) specified in this parameter .

SLC Number

Range:	0 to 99
Default:	0
Description:	Specifies the SLC to which the port is connected.

SLC Line Number

Range:	0 to 31
Default:	0
Description:	Specifies the line on the SLC to which the port is connected.

Inter-character Timeout

Range:	50, 100, 150, 200, 250
Default:	50
Description:	Specifies the maximum time period allowed between received characters.

SLC Station Identifier

Range:	1 to 255 <space> blanks the field
Default:	1 to 64
Description:	Specifies the station identifiers that the port supports. A range of station identifiers can be entered. For example, a range of 1, 6, 8-12, 250-255 indicates 1, 6, 8, 9, 10, 11, 12, 250, 251, 252, 253, 254, 255 are supported by this port.

Protocol ID

Range:	0 to 8 hexadecimal digit
Default:	119FA746
Description:	Specifies the protocol identifier is the first four bytes of the call user data.

Queue Size

Range:	1to 2000
Default:	10
Description:	Specifies the size of the queue which stores the packets to be forwarded to SLC.

Blocking Threshold

Range:	1 to 2000
Default:	7
Description:	Specifies the blocking threshold for the queue used by the SPP.

Unblocking Threshold

Range:	1 to 2000
Default:	5
Description:	Specifies the unblocking threshold for the queue used by the SPP.

Statistics

Introduction

This section describes the SPP PAD statistics. You can view these statistics through the CTP Statistics menu.

What You Can View

From the CTP menu, you can view detailed port and station statistics for a SPP PAD.

Port Statistics

Introduction

This section describes the information available from the Detailed Port Statistics windows.

How to View Port Statistics

Follow these steps to display detailed port statistics for an SPP PAD:

Step	Action
1	Select Status/statistics from the CTP Main menu.
2	Select Detailed Port Stats from the Status/statistics menu.
3	At the Port Number: 1/ prompt, enter the number of the SPP port that you want to examine.

Detailed Statistics- Page 1

Figure 3 shows an example of SPP PAD port statistics:

```

Node:                Address:                Date:                Time:
Detailed SPP Port Statistics: Port 3                Page: 1 of 3

Port Number: 1        Port Type : SPP        Port Utilization In : 0 %
Port Status: Up        Port Speed: 9600        Port Utilization Out: 0 %
SLC Number : 0        SLC Line Number: 0        Flow Control State: Unblocked

Data Summary:                Last Statistics Reset 17-APR-1993 23:11:47
      IN                OUT                IN                OUT
Characters: 0                10                Characters/sec: 0                0
Frames: 0                1                Frames/sec: 0                0

Number of Erroneous Frames: 0
Interface Summary: EIA-232-D DCE                INPUT                OUTPUT
DTR RTS MB P14        DSR DCD RI CTS
State: Connected (SIMPLE)                L L L L                H H L H

Number of Stations: 64

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

Figure 3. SPP PAD Port Statistics - Page 1

Screen Terms -
Page 1

This table describes the screen terms shown in Figure 3:

Screen Term	Indicates....
Port Number	physical port number.
Port Status	operational status of the port (that is, it shows whether the port is Up or Disabled).
Port Type	type of access protocol for this port.
Port Speed	port speed (in bits per second).
Port Utilization In	port utilization for the line to port direction.
Port Utilization Out	port utilization for the port to line direction.
SLC number	number of the SLC to which the port is connected.
SLC line number	line number SLC to which the port is connected.
Flow Control state	whether the port is blocked by SLC or not.
Data Summary	number of frames and characters that have been transmitted and received by the port. It also reflects the rate of transfer and the number of erroneous frames received by the port.
EIA Summary	current status of RS232 control lead (H - High, L- Low) and State of the EIA connection type (Idle, Connected, or Disconnected).
Number of stations	number of stations on this SLC line.

Detailed Statistics - Page 2 - Figure 4 shows a sample page of SPP PAD port statistics

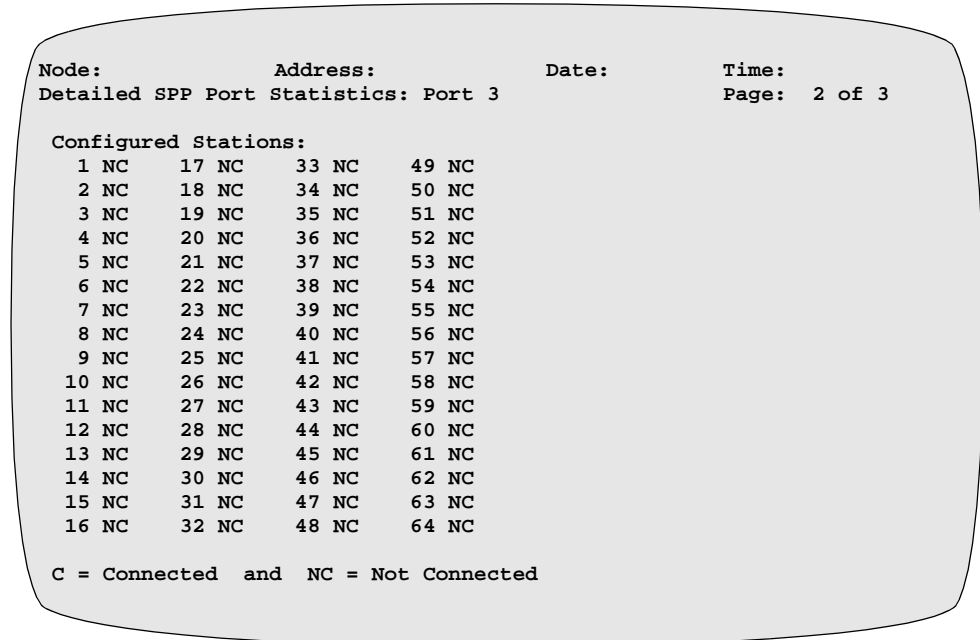


Figure 4. SPP PAD Port Statistics - Page 2

Screen Terms - Screen 2

This table describes the screen terms shown in Figure 4:

Screen Term	Indicates...
Configured stations	configured stations, listed by their Station Identifiers, and an indication of their current status <ul style="list-style-type: none"> • C means the station is connected • NC means the station is not connected

Station Statistics

Introduction

This section describes the information available from the Detailed Station Statistics windows.

How to View Station Statistics

Follow these steps to display detailed station statistics for an SPP PAD.

Step	Action
1	Select Status/statistics from the CTP Main menu.
2	Select SPP Station Stats from the Status/statistics menu.
3	At the Port Number: 1/ prompt, enter the number of the SPP Port that you want to examine.
4	At the Station Number: /1 prompt, enter the number of the station that you want to examine.

Detailed Statistics - Page 1 - Figure 5 shows an sample page of SPP PAD station statistics:

```

Node:           Address:           Date:           Time:
Detailed SPP Station Statistics:           Page: 1 of 2

Port Number: 3   Station Id: 1       Station Status: Up
SLC Number : 0   SLC Line Number: 0   Adjacent Channel State: Unblocked
Call Summary:
Current Status: Disconnected
Last clear cause code: 0 (Cleared by other end)
Last clear diagnostic code: 0 (No more information)

Last Inbound Call:
Called Address:
Calling Address:
Facilities:
CUD:

Last Outbound Call:
Called Address:
Calling Address:
Facilities:
CUD:

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

Figure 5. SPP PAD Station Statistics - Page 1

Screen Terms -
Screen 1

This table describes the screen terms shown in Figure 5:

Screen Terms	Indicates...
Port Number	port to which the station is connected.
Station Id	SLC Station ID of the station being reported on.
Station Status	whether the station is operational (Up) or not (Disabled).
SLC Number	number of the SLC in which data originates.
SLC Line Number	number of the SLC line over which data is travelling.
Adjacent Channel State	whether the station is blocked from the network side or not.
Call Summary	<p>details of most recent call on this port:</p> <ul style="list-style-type: none"> • Last clear cause code: the cause code received in the last clear packet • Last clear diagnostic code: the diagnostic code received in the last clear packet
Current Status	<p>status of calls placed from this station to the host by one of the following messages:</p> <ul style="list-style-type: none"> • Calling: the station is waiting Call Accept from a host • Connected: the host accepts the connection • Idle: the station is waiting for timeout
Last Inbound Call	<p>details of the last inbound call:</p> <ul style="list-style-type: none"> • Calling Address: the called address in the last call request packet received by this station • Calling Address: the calling address in the last call received packet requested by this station • Facilities: the facilities in the last call request packet received by this station • CUD: the data in the Call User Data field in the last call request packet sent by this station
Last Outbound Call	<p>details of the last outbound call:</p> <ul style="list-style-type: none"> • Calling Address: the called address in the last call request packet sent by this station • Calling Address: the calling address in the last call request packet sent by this station • Facilities: the facilities in the last call request packet sent by this station • CUD: the data in the Call User Data field in the last call request packet sent by this station

**Detailed Statistics-
Page 2**

Figure 6 shows an sample page of SPP PAD station statistics:

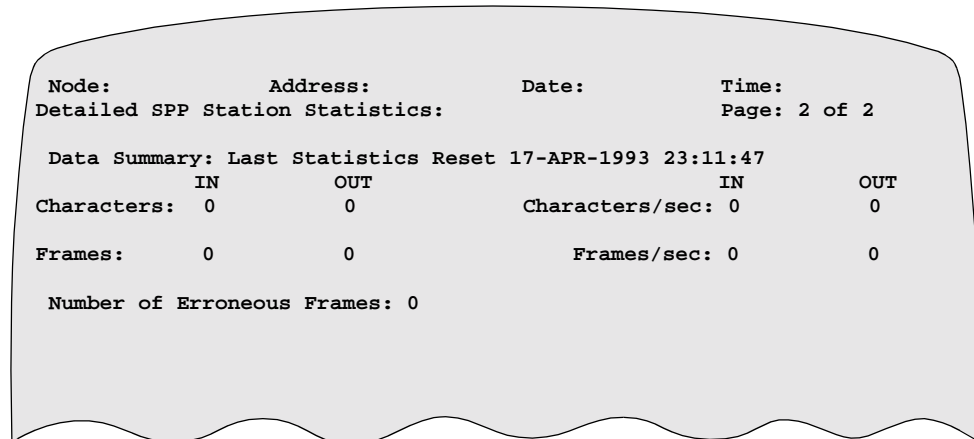


Figure 6. SPP Station Statistics - Screen 2

**Screen Terms
Page 2**

This table describes the screen terms shown in Figure 6:

Screen Terms	Indicates...
Characters IN/ OUT	number of characters received (IN) and transmitted (OUT) on the line. (Data and control characters are included.)
Characters/sec IN/ OUT	number of characters per second received (IN) and transmitted (OUT) on the line. (Data and control characters are included.)
Frames IN/OUT	number of frames that are received (IN) and transmitted (OUT) on the line which goes to this TID.
Frames/sec IN/ OUT	number of frames (per second) that are received (IN) and transmitted (OUT) on the line which goes to this TID.
Number of Erroneous Frames	number of erroneous frames received on the line from this TID.

Codes

Introduction

The SPP PAD uses service and error codes (embedded within frames) to communicate with SLC.

Service Codes

SPP uses X.25 diagnostic codes to indicate the status of the PAD. For a detailed description of X.25 diagnostic codes, refer to the *Vanguard Configuration Basics Manual* (Part No.T0113).

Cause Codes

If an ERR code is sent across the D-channel, it is accompanied by one of the following cause codes:

Cause Code	Description
1	ESC insertion not done in frame.
2	Inter-character timeout occurred during frame reception.
3	Incorrect CRC value
4	TID in frame does not match the configured station IDs.
5	Incorrect frame format.
6	Unrecognized service signal.
7	Call request received for a TID which is already connected.
8	Station not connected.

A

Adjacent channel state [12](#)
Alarms [1](#)
Alarms and Reports Manual [1](#)
application [3](#)

B

Blocking threshold [6](#)

C

Call summary [12](#)
Cause codes [14](#)
Characters IN/OUT [13](#)
Characters/sec IN/OUT [13](#)
Configured stations [10](#)
Current status [12](#)

D

Data summary [9](#)
Detailed port statistics [8](#)
 page 1 [8](#)
 page 2 [10](#)
 screen terms [9, 10](#)
Detailed station statistics [11](#)
 page 2 [13](#)
 screen terms [12, 13](#)
Detailed stations statistics
 page 1 [11](#)

E

EIA summary [9](#)
ERR code [14](#)

F

Flow control state [9](#)
Frames IN/OUT [13](#)
Frames/sec IN/OUT [13](#)

I

Inter-character timeout [5](#)
ISDN terminal adapter [3](#)

L

Last inbound call [12](#)
Last outbound call [12](#)

N

Number of erroneous frames [13](#)
Number of stations [9](#)

P

Parameters
 blocking threshold [6](#)
 inter-character timeout [5](#)
 port number [4](#)
 port speed [5](#)
 port type [5](#)
 protocol ID [6](#)
 queue size [6](#)
 SLC line number [5](#)
 SLC number [5](#)
 SLC station identifier [6](#)
 unblocking threshold [6](#)
parameters [4](#)
 configuring [4](#)
 CTP path [4](#)
Port number [4, 9, 12](#)
Port Speed [5](#)
Port speed [5, 9](#)
Port status [9](#)
Port Type [5](#)
Port type [5, 9](#)
Port utilization in [9](#)
Port utilization out [9](#)
Protocol ID [6](#)

Q

Queue size [6](#)

R

Reports [1](#)

S

service codes [14](#)
SLC line number [5, 9, 12](#)
SLC number [5, 9, 12](#)
SLC Premise Protocol [2](#)
SLC Station Identifier [12](#)
SLC station identifier [6](#)
SPP
 definition [2](#)
 features [2](#)
Station status [12](#)

Statistics
 port [8](#)
 station [11](#)
 TCOP [11](#)

T

TCOP
 statistics [11](#)

U

Unblocking threshold [6](#)

W

Wells Fargo [2, 3](#)

X

X.25 diagnostic codes [14](#)