Avaya Aura™ Contact Center

CPSEE_TSP500
User Guide

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Chapter 1 Overview

This chapter provides an overview of this document, document conventions, and CPSEE_TSP500. It contains the following sections:

- Introduction to This Guide
- Document Conventions
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- CPS_TSP500 System and Upgrades
- System Capacity
- The CPS_TSP500 Telephony Cards
- TSP System Connections

Introduction to This Guide

The CPSEE_TSP500™ User Guide is intended for use by SER Solutions support personnel and administrators. It describes the various menu options, and how to navigate through the menus. It also includes terminal commands and configuration information.

Document Conventions

This guide uses the following conventions.

Any screen fields, buttons, tabs, or other controls that you can manipulate are printed in **bold** type. Keys that you press on the keyboard are also printed in bold type. For example:

Press the **Exit** button.

Press the **Enter** key.

Keyboard keys that you must press simultaneously are printed in bold type and separated by a hyphen (-). For example:

Press **Ctrl** - **C**.

Instructions that require you to use the menu bar start with the menu name in bold type, followed by a right arrow (>), followed by the menu option in bold type. For example:

Select **File**>**Exit**.

Special notes, references to other sections in the guide, cautions, and warnings are marked by an icon and located in the left margin. These icons are illustrated and explained in below.

Table 1-1: Guide Icons

Icon	Description
	Note — important information you must be aware of to use the system successfully.
	See also — a reference to information elsewhere in the guide that is relevant to this topic or procedure.
	Caution — a recommendation that you perform or avoid particular actions to ensure smooth operation of the system.
	Warning — an indication that a significant problem with the system or contact cEnter operations may be possible under certain circumstances.

Introduction to the CPSEE_TSP500

The CPSEE_TSP500 Call Processing System combines predictive dialing with voice recognition techniques and information processing. The CPSEE_TSP500 currently supports 1152 ports domestically and 1200 ports internationally, and can be delivered in various configurations

The TSP 500 can support multiple inbound and outbound campaigns up to ninety-six in total, depending on the adjunct, the actual usable number may be less. Currently CPSEE_TSP500 supports forty campaigns and Gateway can support up to sixty campaigns.

The CPSEE_TSP500 distinguishes between busy signals, ring no answers, number unobtainable tones, fax/modems, disconnects, human voice, and recorded announcements (answering machines).

CPS_TSP500 System and Upgrades

CPS_TSP500 consists of three major components including the CPS_TSP500 Application software, NMS drivers and the TSP500 Configuration Tool. This version operates on Red Hat Enterprise Linux Version 3 only.

TSP500 Systems being upgraded from version CPS_TSP500.02 or earlier will require a pre-loaded processor card which includes Red Hat Enterprise Linux Version 3, NMS NA2004-1, and CPS_TSP500.03.000 or later.

All TSP500 systems configurations should be rebuilt using the TSP Configuration Tool to insure that all new capabilities are being utilized to the fullest.

System Capacity

The CPS_TSP500 System uses telephony cards, supplied by NMS (Natural Micro Systems), for domestic and international configurations. There are several factors involved in determining a system's capacity.

Slots

There are up to six cPCI slots available for configuring the CPS_TSP500 System.

Type of Cards

Different combinations of telephony cards determine the TSP System's capacity.

Ports on the Circuit Cards

The NMS T1/E1 Card provides eight or sixteen T1/E1 spans per card, so system capacity can vary greatly depending on the number of ports per card. The T1 configuration can have from 192 to 384 ports per card and the E1 configuration can have from 240 to 480 ports per card.

Ratio of Trunk and Station Ports

The TSP is configured to maintain close to a three to one (3:1) ratio between trunks and stations. Standard systems are configured with a (2:1) trunk to station ratio.

Power

Each card requires one or more DC Voltages provided by the redundant power supplies. Various configurations are selected so that the total power on each output of the power supplies remains below the maximum output.

Slot Configuration

The system cards are installed in the cPCI slots. The T1 or E1 cards are installed in the first available slots starting from the bottom, above the CPU-Card.

The current maximum Agent configuration allows for 768 channels for dialing and 384 channels for agents for T1, (810 + 390 channels for E1).

The CPS_TSP500 Telephony Cards

Standard telephony cards for the CPS_TSP500 include three models.

Table 1-2: TSP500 Telephony Cards

Model Name	Description	T1Systems	E1 Systems
CG 6500C-0L/8TE:	8 Trunk T1/E1 card, 32 DSP Cores.	X	X
CG 6500C/64-0L/8TE:	8Trunk T1/E1 card, 64 DSP Cores.		X
CG 6500C/64-0L/16TE:	16 Trunk T1/E1 card, 64 DSP Cores.	X	

Note:

It is important to understand that even though each of the standard Telephony cards used in the CPS_TSP500 has the ability to interface to either a T1 or E1 Network, it is not possible to mix T1 and E1 Network circuits in the same CPS_TSP500 system. All Telephony cards must all be either T1 or E1.

TSP System Connections

Monitor and Keyboard Connections

Connect a standard 102 key PC keyboard to the connector on the rear of the CPU Card. Connect a standard VGA monitor to the 15-pin D style connector on the rear of the CPU Card.

Agent Telephone Connections

There are various methods to connect agent phones to the TSP. The CPS_TSP500 does not have an integrated analog interface. All agent connections are made using a T1/E1 interface. This means that all agent connections are considered to be Digital Stations. These can be Inbound Digital Stations or Outbound Digital Stations.

Inbound Digital Station

A Digital Station Interface where the agent creates a connection to the TSP by seizing a specific channel on the T1/E1 interface. This method is transparent to the adjunct and appears to the adjunct as a fixed station. The seizure can be initiated from a variety of telephony devices, such as:

- Channel Banks
- PBXs
- VOIP gateways
- PSTN

Outbound Digital Station

A Digital Station where the adjunct launches a dial to a specific telephone number. The dialed number could be to an extension on a PBX, an extension in a VOIP network, or a telephone number in the PSTN. The dial launched to the Outbound Digital Station is a classified dial. That is, voice detection or Answer Supervision is used to determine when the call has connected to the agent.

Chapter 2 TSP User Procedures

This section includes the following:

- Shutting Down The CPSEE_TSP500
- Rebooting the CPSEE_TSP500
- Starting and Stopping The CPSEE_TSP500
- Auto Booting the TSP
- Setting the Time/Date on the TSP

Shutting Down The CPSEE_TSP500

To shutdown and Power Off the TSP do the following:

1. Log into “tspshutdown” (password is “tspshutdown”)
2. Answer “y” to the question to Shutdown. This will cause the Processor Board in the TSP to shutdown.
3. When the screen goes blank, you can power down the TSP.

Rebooting the CPSEE_TSP500

To instruct the CPSEE_TSP500 to reboot and restart Linux do the following:

1. Login to “tspreboot” (password is “tspreboot”)
2. Answer “y” to the questions to reboot. If configured for “Auto Start”, the CPSEE_TSP500 application should automatically start when powered-up or rebooted. The following will explain how to start and stop the TSP manually without rebooting:

Starting and Stopping The CPSEE_TSP500

Starting The TSP From The menu

From the TSP User Interface,

1. Select “Admin_Terminal”
2. If TSP was just started – give it time to initialize before using the TSP. (around 1 minute)

To Exit the Admin_Terminal

From the TSP500 Admin terminal,

Type **quit.**

To Stop the CPSEE_TSP500

From the TSP500 Admin terminal

1. Select the “AdminTerminal”
2. Type “stoptsp”
3. Answer “yes” to the question:
   “Are you sure you want to shutdown the T. S. P.?”

Auto Booting the TSP

The TSP can be started using the pick and choose menu system of the TSP. However, it may be more useful to have the TSP auto start when LINUX is restarted, and automatically shutdown when LINUX is shutdown.

The following will explain how to configure the TSP for auto startup and shutdown.

Activating Auto Booting

1. Login into root.
2. Enter cd /etc/rc.d/rc3.d
3. Enter ln –s ../init.d/cpstsp S99xtsp
4. Enter ln –s ../init.d/cpstsp K99xtsp

Disable Auto Booting

1. Login to “root”
2. Enter cd /etc/rc.d/rc3.d
3. Enter rm –i S99xtsp
4. Enter rm –i K99xtsp

Setting the Time/Date on the TSP

Using “date” to set the time while the TSP is running is dangerous. It could ruin system files and interfere with the dialing algorithms.

The best way to set the time and date is:

1. Stop the TSP application (“stoptsp” using the Admin Terminal).
2. Use **timeconfig** to select the time zone. Also select the **GMT flag**.
3. Use **hwclock** to set the local time of the TSP in the hardware clock.

Example:

```
hwclock  --set  --date="2/20/03 18:24:00"  --utc
```

(note - those are double dashes)

4. Use **hwclock** to update the system clock: **hwclock --hctosys**
5. Reboot the TSP. On a reboot, the system time will be taken from the hardware clock.

Chapter 3 Starting/Configuring TSP500

This section includes the following:

- Logging Into TSP
- The Main Menu
- The TSP Configuration Menu

Logging Into TSP

The TSP application is protected by a login and password. You can access the application by either performing a Telnet to the session or by access a console. To login to TSP, enter the following:

```
Login: cpstsp
Password: cpstsp
```

Press **Enter**. The CPSEE - TSP copyright and Main Menu appears.

The Main Menu

The Main Menu has the following options:

- Quit
- Activate_TSP
- Admin_Terminal
- Configuration
- Simulated_TSP
- Unix_Shell

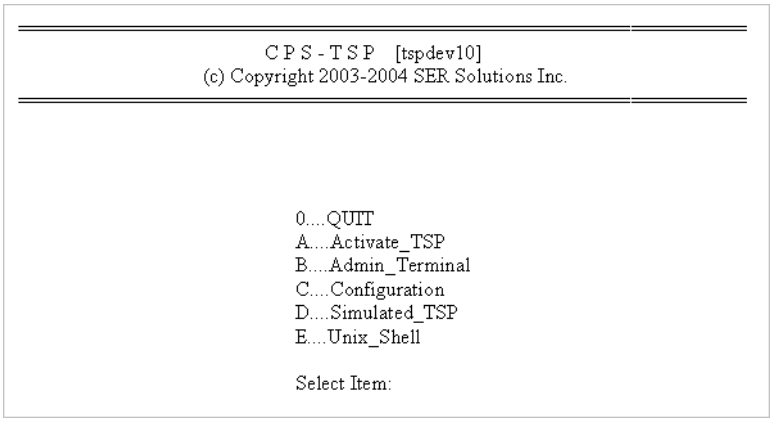


Figure 3-1. The Main Menu.

Quit

Note:
The state of the TSP is not effected. If it was running, it will still be running after you "Quit" the User Interface

Selecting the Zero (0) key will exit the TSP application and close the Linux Session.

Activating the CPSEE_TSP500

To start the TSP, do the following:

1. Select **Activate_TSP**. If the TSP is already running, the message **TSP Already Running...** displays. Otherwise, the TSP will be launched as a background process, and the message **TSP Started** displays.
2. Press **Enter** to return to the TSP Main Menu.

If for some reason the TSP fails to start, the **tsp.log** file located in **/usr/home/cpstsp/cps01/log** should be examined to determine the cause of the failure.

Admin Terminal

Once the TSP is running, you can access the Admin Terminal (dumb terminal) by selecting the **Admin_Terminal** item in the menu. You can also access the Admin Terminal using the Linux login **dumb1.**

The Admin_Terminal selection from the TSP menu system has options to control the TSP. The following are some key pieces of information regarding the Admin_Terminal:

1. Customer Support can use the Admin_Terminal command **stoptsp** to shutdown the TSP application remotely. You can select Activate_TSP to to restart the TSP.
2. The Admin_Terminal command **quit** is used to disconnect the Admin_Terminal from the TSP. You must then press **Enter** twice to finish the disconnection process. You will return to the TSP Main Menu.
3. Immediately after starting the TSP application and entering into the Admin_Terminal, you will see “Enter Command.” After entering a command, it may take one to two minutes for the full application to start before you receive a response from the terminal. This is normal.
4. See **TSP500 Admin Terminal Commands** in “Features and Enhancements” on page 4-1 of this document.

The TSP Configuration Menu

The TSP Configuration Menu has selections for each TSP500 configuration file. Pressing **Esc** will bring you back to the Main menu.

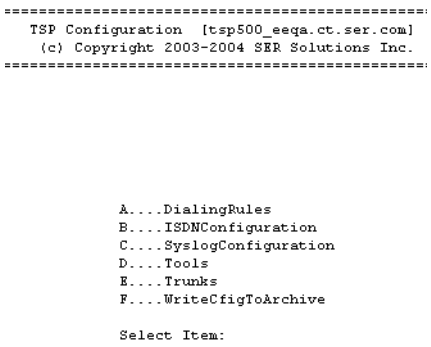


Figure 3-2. The Configuration Menu.

Accessing the Dialing Rules

Selecting Dialing Rules opens the dialing rules with the vi editor. The vi editor is a screen editor that operates in a command or data mode. You enter the command mode by typing ":" and the command. For example, to quit the vi session without saving changes, you would type **:q**. Table 3-1 identifies a list of commands and their key value.

See Also:
"Key Words of Dialing Rules" on page 6-5 for a detail description of the fields in this file.

Table 3-1: Red Hat Linux VI Commands.

Command	Description
vi <file-name>	Opens a file for editing
h	Moves cursor one location to the left
j	Moves cursor one line down
k	Moves cursor one line up
l	Moves cursor one location to the right
i	Enter insert mode at location of cursor
r	Replace character
R	Enter overwrite character mode
a	Enter append character mode
A	Enter append character mode at the end of the current line
w	Write out current file

Table 3-1: Red Hat Linux VI Commands.

Command	Description
q! or q	Quit current edit session
x	Deletes character at the cursor
dd	Deletes current line
p	Paste of line in deleted line buffer
<Esc>	Breaks out of a character mode edit command

See Also:
"Key Words of Dialing Rules" on page 6-5 for a detail description of the fields in this file.

```
LOCNAME                         TSP - Dialing Rules
!
VERSION                         1
!
AUTO_LOG                        287 ! 287 = bug 11f
!
NAI_ZERO                        1   ! Always 1 for the USA
COUNTRY                         USA ! Host Country
ALAW                            0   ! 0 = ULAW   1 = ALAW
!
NUM_TRUNKS                      1152 ! Number of Trunks(Including Digital Stations)
NUM_STATIONS                    288 ! Number of Agents(Including Digital Stations)
! OUTBOUND_DIGITAL_TRUNKS       865-1152   ! These are trunks - not stations
!
```

Figure 3-3. Dialing Rules File Item.

Modifying the ISDN Configuration

```
****************************************************************
*                        ISDN Configurator                     *
*                  SER Solutions Inc. Copyright 2002           *
****************************************************************

          1 ... Edit Configuration
          2 ... View Configuration
          3 ... Reset Default Configuration
          4 ... Help
          q ... Quit

          Enter Choice>
```

Figure 3-4. Modify Configuration menu for ISDN.

Overview

The ISDN Configuration tool permits the configuration of each ISDN span. The tool can either configure each span separately or all spans at once when there is no distinction between the spans.

Upon entering the ISDN Configurator three options are displayed: Edit, View and Help.

.

Table 3-2: ISDN Options.

Option	Description
Edit:	The Edit option will ask which span is being edited. Enter the span number to be changed or "ALL" to indicate the changes affect all spans. The next screen displays the configuration items available and the current definitions. If editing one span, the current definitions apply to only that span. If editing ALL spans, the definitions either apply to all spans or the default value is being displayed. If the default value is being displayed, at least one span has a different value for this configuration item. The default value is indicated by an asterisk (*) before the definition name. Once a configuration item is selected to be changed by either entering the configuration item number or the name, another screen is displayed listing the options available for this configuration item or a prompt requesting the text string be entered. By entering the number of the option selected (or the name) or the text string followed by the enter key will return you to the Configuration item screen. Enter "q" at any time will return you to the previous menu. Upon entering "q" at the span prompt you will be prompted if you would like to save any the changes made. Replay "yes" or "no".
View:	The View option allows you to view the current settings for an individual span or all spans. If all spans is selected you will be shown one screen for each span and entering "q" at a prompt will return you to the main menu.
Help:	The Help option displays this user information from his section file.
Quit:	The Quit option exits you from the ISDN Configuration tool.

Editing the ISDN Configuration

To use the ISDN configuration tool you must first select the trunk spans that you want to configure. The example below used “ALL” as the range of trunks.

```
*****************************************************************
*                  Edit ISDN Configuration                      *
*                  Span  1 2 3 4 5 6 7 8                        *
*****************************************************************

Enter Span Number or "ALL" for all spans (q to quit): ALL
```

Figure 3-5. Selecting the ISDN Span to Configure.

The ISDN Configuration has two different types of configuration variables:

- Static configurations that can changed but will not take effect to after a system reboot
- Dynamic configurations that can be modified and dynamically loaded.

The ISDN configuration consists of fourteen screens of configurations. It must be stated that some of these configuration screens must never be changed without direct approval from SER Engineering.

Note:
An asterisk (*) next to a line item indicates that one or more spans are configured differently than the rest.

In Figure 3-6, the “L” indicates that that item can be dynamically loaded without rebooting the system. All of the configuration parameters that contain “origination,” “destination,” “facility,” and “Calling” are dynamic. Configurations for “signaling,” “transfer,” and “user” are static.

```
*********************************************************************
*                    Edit ISDN Configuration                        *
*                    Span  1 2 3 4 5 6 7 8                          *
*********************************************************************
  1. Transfer_Capability             Speech
  2. Transfer_Mode                   Circuit
  3. Transfer_Rate                   64Kbits/sec
  4. User_Info_Layer_1               G.711_U-Law
  5. Network_Signaling_Behaviour     Default
  6. Destination_Number_Plan         ISDN                          (L)
  7. Destination_Number_Type         National                      (L)
  8. Origination_Number_Plan         ISDN                          (L)
  9. Origination_Number_Type         National                      (L)
 10. Origination_Number_Screen       User_Provided_Passed          (L)
 11. Origination_Number_Presentation Presentation_Allowed          (L)
 12. Facility_Feature_Service        None                          (L)
 13. Facility_Coding_Value           None                          (L)
 14. Calling_Name                    Facility_IE                   (L)

'*' = Some spans have a different value (default printed).
'L' = Item can be dynamically loaded.

Enter Configuration Item Number or Name (q to quit):
```

Figure 3-6. Editing the ISDN Configurations.

Subscreens of the ISDN Configurations

```
*********************************************************************
*                    Edit ISDN Configuration                        *
*                     1. Transfer_Capability                        *
*********************************************************************
         1. Speech
         2. 7KHz_Audio
         3. Video
         4. Undefined

Enter Value Name or Number (q to quit, d to use default):
       [current Transfer_Mode, default Speech]
```

Figure 3-7. ISDN Configuration: Transfer Capability.

```
*****************************************************************
*                    Edit ISDN Configuration                    *
*                     2. Transfer_Mode                          *
*****************************************************************
         1. Circuit
         2. Packet
         3. Undefined

Enter Value Name or Number (q to quit, d to use default):
       [current Transfer_Rate, default Circuit]
```

Figure 3-8. ISDN Configuration: Transfer Mode.

```
*****************************************************************
*                    Edit ISDN Configuration                    *
*                     3. Transfer_Rate                          *
*****************************************************************
         1. 64Kbits/sec
         2. 384Kbits/sec
         3. H11_1536Kbits/sec
         4. H12_1536Kbits/sec
         5. 1920Kbits/sec
         6. Undefined

Enter Value Name or Number (q to quit, d to use default):
       [current User_Info_Layer_1, default 64Kbits/sec]
```

Figure 3-9. ISDN Configuration: Transfer Rate.

```
*****************************************************************************
*                          Edit ISDN Configuration                          *
*                          4. User_Info_Layer_1                             *
*****************************************************************************
     1. CCITT_V.110/X.30
     2. G.711_U-Law
     3. G.711_A-Law
     4. G.721
     5. G.722
     6. H.261
     7. Non-CCITT
     8. CCITT_V.120
     9. CCITT_X.31
    10. Undefined

Enter Value Name or Number (q to quit, d to use default):
     [current G.711_U-Law, default G.711_U-Law]
```

Figure 3-10. ISDN Configuration: User Information Layer 1.

default = 2 (T1)

default = 3 (E1)

```
*****************************************************************
*                   Edit ISDN Configuration                     *
*                    5. Network_Signaling_Behaviour             *
*****************************************************************
         1. Disable_Restart_Procedure
         2. Ignore_Unknown_IE
         3. Disable_Restart_Ignore_Unkn_IE
         4. Default

Enter Value Name or Number (q to quit, d to use default):
       [current Destination_Number_Plan, default Default]
```

Figure 3-11. ISDN Configuration: Network Signaling Behavior.

```
*****************************************************************
*                   Edit ISDN Configuration                     *
*                   6. Destination_Number_Plan                  *
*****************************************************************
      1. ISDN
      2. Telephony
      3. Data
      4. Telex
      5. National
      6. Private
      7. Unknown

Enter Value Name or Number (q to quit, d to use default):
     [current ISDN, default ISDN]
```

Figure 3-12. ISDN Configuration: Destination Number Plan.

```
*****************************************************************
*                   Edit ISDN Configuration                     *
*                    7. Destination_Number_Type                 *
*****************************************************************
         1. International
         2. National
         3. Network Specific
         4. Local
         5. Abbreviated
         6. Unknown

Enter Value Name or Number (q to quit, d to use default):
       [current Origination_Number_Plan, default National]
```

Figure 3-13. ISDN Configuration: Destination Number Type.

```
*****************************************************************
*                   Edit ISDN Configuration                     *
*                    8. Origination_Number_Plan                 *
*****************************************************************
         1. ISDN
         2. Telephony
         3. Data
         4. Telex
         5. National
         6. Private
         7. Unknown

Enter Value Name or Number (q to quit, d to use default):
       [current Origination_Number_Type, default ISDN]
```

Figure 3-14. ISDN Configuration: Destination Number Plan.

```
*****************************************************************
*                   Edit ISDN Configuration                     *
*                    9. Origination_Number_Type                 *
*****************************************************************
         1. International
         2. National
         3. Network Specific
         4. Local
         5. Abbreviated
         6. Unknown

Enter Value Name or Number (q to quit, d to use default):
        [current Origination_Number_Screen, default National]
```

Figure 3-15. ISDN Configuration: Origination Number Type.

```
*****************************************************************
*                   Edit ISDN Configuration                     *
*                   10. Origination_Number_Screen               *
*****************************************************************
         1. User_Provided_Not_Screened
         2. User_Provided_Passed
         3. User_Provided_Failed
         4. Network_Provided
         5. User_Provided_Not_Screened

Enter Value Name or Number (q to quit, d to use default):
        [current Origination_Number_Presentation, default User_Provided_Not_Screened]
```

Figure 3-16. ISDN Configuration: Origination Number Screen.

```
*****************************************************************
*                   Edit ISDN Configuration                     *
*                   11. Origination_Number_Presentation         *
*****************************************************************
         1. Presentation_Restricted
         2. Presentation_Not_Available
         3. Presentation_Allowed_Explicit
         4. Presentation_Allowed

Enter Value Name or Number (q to quit, d to use default):
        [current Facility_Feature_Service, default Presentation_Allowed]
```

Figure 3-17. ISDN Configuration: Origination Number Presentation.

```
*****************************************************************
*                   Edit ISDN Configuration                     *
*                   12. Facility_Feature_Service                *
*****************************************************************
         1. Feature
         2. Service
         3. None

Enter Value Name or Number (q to quit, d to use default):
        [current Facility_Coding_Value, default Service]
```

Figure 3-18. Configuration: Facility Feature Service.

Note:
This parameter must be configured to “service” 4ESS protocols.

```
*****************************************************************
*                    Edit ISDN Configuration                    *
*                    13. Facility_Coding_Value                  *
*****************************************************************
         1. CPN_(SID)_Preferred
         2. BN_(ANI)_Preferred
         3. CPN_(SID)_Only
         4. BN_(ANI)_Only
         5. Call_Associated TSC
         6. TSC_Clearing/Unavailable
         7. Operator
         8. Pre-subscribed_Common_Carrier
         9. SDN
        10. MEGACOM 800
        11. MEGACOM
        12. ACCUNET
        13. International_Long_Distance
        14. International_800
        15. AT&T_MultiQuest
        16. None

Enter Value Name or Number (q to quit, d to use default):
        [current Calling_Name, default None]
```

Figure 3-19. ISDN Configuration: Facility Coding Value.

Note:
This is the second parameter that must be set up for 4ESS trunks. There is no one answer that works for all ISDN trunks. The customer should ask their carrier about the types of services available. SDN is typical.

```
*****************************************************************
*                    Edit ISDN Configuration                    *
*                    14. Calling_Name                           *
*****************************************************************
         1. Facility_IE
         2. Display_IE_Codeset_0
         3. Display_IE_Codeset_5
         4. Display_IE_Codeset_6
         5. Display_IE_Codeset_7
         6. User_To_User_IE_Codeset_0
         7. User_To_User_IE_Codeset_5
         8. User_To_User_IE_Codeset_6
         9. User_To_User_IE_Codeset_7
        10. Do_Not_Send

Enter Value Name or Number (q to quit, d to use default):
        [current , default Do_Not_Send]
```

Figure 3-20. ISDN Configuration: Calling Name.

Consult carrier for calling name and proper configuration.

Note:
Do not activate without carrier acknowledgement of support.

View ISDN Configurations

The View ISDN Configurations screen displays current ISDN configuration for selected spans.

```
*                    View ISDN Configuration                    *
*****************************************************************


Enter Span Number or "ALL" for all spans (q to quit): ALL

Span Number:  1
Transfer_Capability                 Speech
Transfer_Mode                       Circuit
Transfer_Rate                       64Kbits/sec
User_Info_Layer_1                   G.711_U-Law
Network_Signaling_Behaviour         Default
Destination_Number_Plan             ISDN
Destination_Number_Type             National
Origination_Number_Plan             ISDN
Origination_Number_Type             National
Origination_Number_Screen           User_Provided_Passed
Origination_Number_Presentation     Presentation_Allowed
Facility_Feature_Service            None
Facility_Coding_Value               None
Calling_Name                        Facility_IE

<more>
Press Enter to continue (or q to quit):
```

Figure 3-21. View ISDN Configuration.

Reset ISDN Configuration

Reset ISDN Configuration will reset the selected span(s) to default settings.

```
*****************************************************************
*                  Reset ISDN Configuration                     *
*****************************************************************

Enter Span Number or "ALL" for all spans (q to quit):
```

Figure 3-22. Reset ISDN Configuration.

Configuring the Syslog

The configuration file for controlling the TspLogger will be the file **syslog.cnf** (probably located in the **/opt/ser/cfg** directory). The following describes the keywords used for configuring the **TspLogger**.

There are three configuration items that you can use to configure the **TspLogger**. SYSLOG_HOST is the only required assignment. The other two are optional.

Table 3-3: TspLogger configuration elements.

Element	Description
SYSLOG_HOST	IP address of the PC where the syslogger resides. This should be entered using dot notation. **Example**: SYSLOG_HOST 192.168.2.10

Table 3-3: TspLogger configuration elements.

Element	Description
SYSLOG_PORT	This keyword is optional. The default port used for TspLogger is the industry standard port 514. If for some reason you need to use another port, this keyword can be used to assign it. **Example**: SYSLOG_PORT 9400
SYSLOG_NAME	This keyword is optional. It is used to specify a name that will display on the syslogger to identify the TSP. By default, the hostname is displayed. However, if you would like some other label that might be more meaningful displayed, this configurations item can be used to assign it. **Example**: SYSLOG_NAME Omaha TSP

SYSLOG Viewers

There is a variety of syslogger software on the market. We can use any RFC-3164 compliant syslogger that used UDP messages for receiving events.

Testing for this feature is being done using the syslogger from kiwisyslog.com.

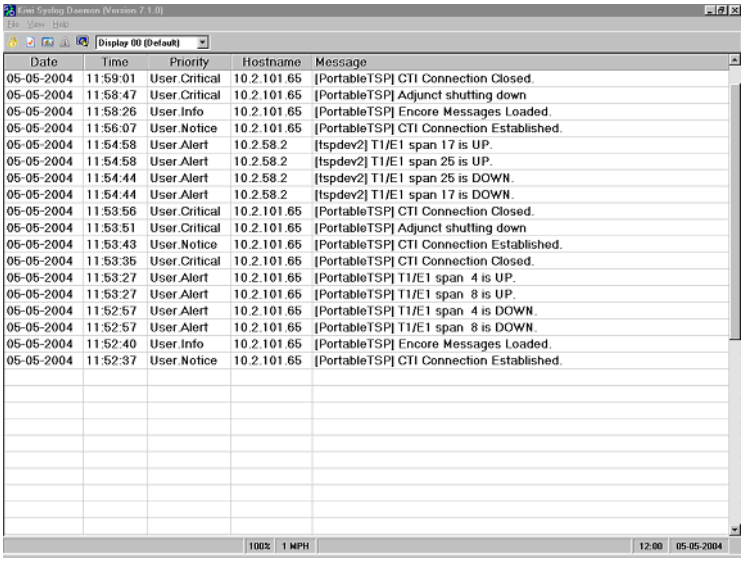


Figure 3-23. The syslogger from kiwisyslog.com.

Select System Tools

System Tools are for monitoring T1/E1 signaling.

Figure 3-24. TSP Tools.

AgTrace_3073

```
Enter Board Number (7 thru 2) [7]

Please wait....
AG Trace 3073 Started.

Enter q to stop tracing.
```

Figure 3-25. AgTrace_3073.

BoardInfo

```
CG family command line tool, V3.00 (Apr 15 2003) (c) NMS Communications

Found 5 board(s)
Board  SubSysID  Bus:Slot  Shelf-Slot  Temp    DSP Cores  Trunks
  0      6500      2:11       1-3     33.5 C      32        8
  1      6500      2:12       1-4     34.0 C      32        8
  2      6500      2:13       1-5     35.0 C      32        8
  3      6500      2:14       1-6     34.5 C      64        8
  4      6500      2:15       1-7     37.0 C      64        8
```

Figure 3-26. Board Information example.

CAS Signals

```
This program will monitor CAS Signaling Bits for the specified span.

Enter Board Number (7 thru 4) [7]


Enter Span Number (1 thru 8 or 16) [1]

SHOWSG95 Version 1.0   Apr 15 2003

Monitoring Trunk 0 slot 0 of agsw board 7, sending and receiving
Sampling interval 1 second
```

Figure 3-27. CAS Signals.

ISDN Trace

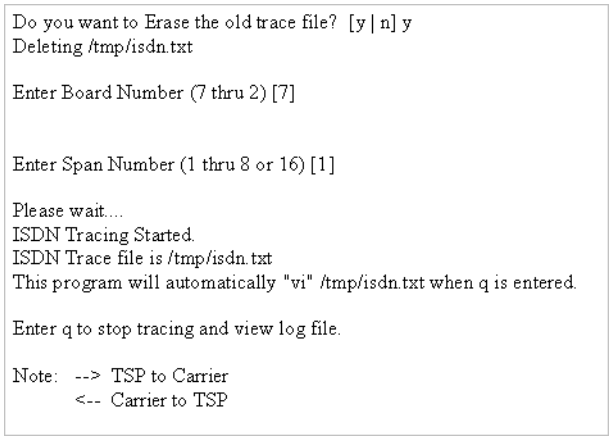


Figure 3-28. ISDN Trace.

View Trace File

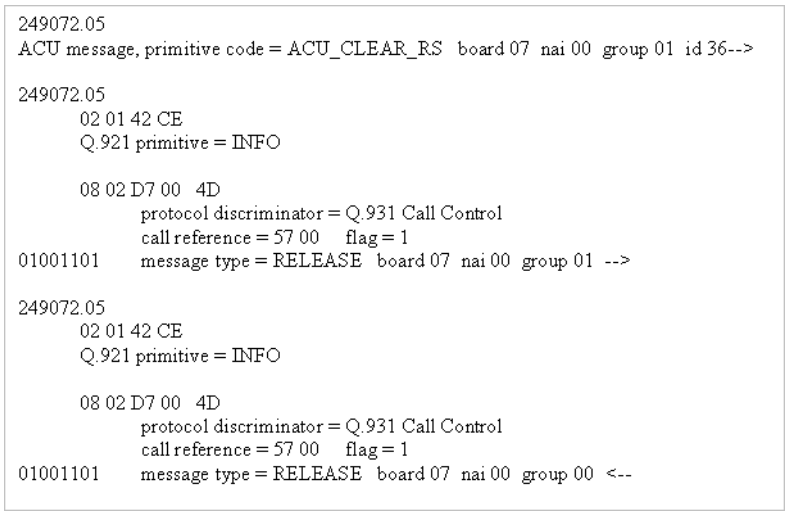


Figure 3-29. View Trace File example.

View the Trunks File

```
!*********************************************************
!*********************************************************

!          * * *  W A R N I N G   * * *
! This file is automatically generated.  Any changes
! made manually will be lost when file is re-generated.
!          * * *  W A R N I N G   * * *

!*********************************************************
!*********************************************************

! Span  Type Protocol BoardNumber Variant WaitlstDig WaitForDigs
  1     T    isdn     7           AT4     0         0
  2     N    isdn     7           AT4     0         0
  3     T    isdn     7           AT4     0         0
  4     T    isdn     7           AT4     0         0
  5     T    isdn     7           AT4     0         0
  6     T    isdn     7           AT4     0         0
  7     T    isdn     7           AT4     0         0
  8     T    isdn     7           AT4     0         0
  9     T    wo       6           NONE    0         0
  10    T    imm      6           NONE    0         0
  11    T    wo       6           NONE    0         0
  12    T    wo       6           NONE    0         0
  13    T    wo       6           NONE    0         0
  14    T    wo       6           NONE    0         0
  15    T    wo       6           NONE    0         0
  16    T    wo       6           NONE    0         0
  17    T    wo       6           NONE    0         0
  18    T    wo       6           NONE    0         0
  19    T    wo       6           NONE    0         0
  20    T    wo       6           NONE    0         0
  21    T    wo       6           NONE    0         0
  22    T    wo       6           NONE    0         0
  23    T    wo       6           NONE    0         0
  24    T    wo       6           NONE    0         0
  25    T    wo       5           NONE    0         0
  26    T    wo       5           NONE    0         0
  27    T    wo       5           NONE    0         0
  28    T    wo       5           NONE    0         0
  29    T    wo       5           NONE    0         0
  30    T    wo       5           NONE    0         0
  31    T    wo       5           NONE    0         0
  32    T    wo       5           NONE    0         0
  33    T    wo       4           NONE    0         0
  34    T    wo       4           NONE    0         0
  35    T    wo       4           NONE    0         0
  36    T    wo       4           NONE    0         0
  37    D    wi       4           NONE    300       300
  38    D    wi       4           NONE    300       300
  39    D    wi       4           NONE    300       300
  40    D    wi       4           NONE    300       300
  41    D    wi       4           NONE    300       300
  42    D    wi       4           NONE    300       300
  43    D    wi       4           NONE    300       300
  44    D    wi       4           NONE    300       300
  45    D    wi       4           NONE    300       300
  46    D    wi       4           NONE    300       300
  47    D    wi       4           NONE    300       300
  48    D    wi       4           NONE    300       300
```

Figure 3-30. View Trunks file.

Trunk Protocol

You must assign a specific “Protocol” name to each trunk span. Currently supported protocols are:

Table 3-4: Trunk Span Protocols.

isdn	T1 or E1 ISDN Trunks.	
wi	US T1 Robbed Bit Protocol	Wink Inbound.
wo	US T1 Robbed Bit Protocol	Wink Outbound.
wio	US T1 Robbed Bit Protocol	Wink Inbound/Outbound.

Table 3-4: Trunk Span Protocols.

immi	US T1 Robbed Bit Protocol	Immediate Start Inbound.
imm	US T1 Robbed Bit Protocol	Immediate Start Outbound.
r2i	MFC-R2 E1 Inbound	Inbound
r2o	MFC-R2 E1 Outbound	Outbound
r2io	MFC-R2 E1 Inbound Outbound	Inbound/Outbound
ap2i	AP2 E1 Inbound	Inbound
ap2o	AP2 E1 Outbound	Outbound
ap2io	AP2 E1 Inbound/Outbound	Inbound/Outbound

Trunk Type

The “Type” field indicates whether this span is used as a normal span connected to the network (T), as a normal span acting as the network (N), or specifically used as a Digital Station span (D).

Trunk Board Number

The “BoardNumber” field indicates the assigned physical board number.

Trunk Variant

The “Variant” field indicates the network protocol variant.

Table 3-5: Trunk Protocol Support Variants.

Variant	Description
AT4	AT&T 4ESS.
E10	AT&T 5ESS10.
DMS	Northern Telecome DMS-100
NI2	Bellcore National 2.
VN6	France Telecom Euro ISDN and Euro Numeris.
QSIG	Signaling at the Q reference point.
NONE	No Variant (for US T1 Robbed Bit Protocol).
AUS	Australian Telecom 1
ETSI	EuroISDN
VN6	France

Trunk Wait for First Digit

The “Wait1stDig” field indicates number of milliseconds to wait for the first digit to arrive on a inbound call.

Trunk Wait for Digit

The “WaitForDig” field indicates number of milliseconds to wait for the subsequent digits to arrive on an inbound call.

Write Configuration to Archive

Selecting item G from the TSP Configuration menu will generate a TAR file of the current configuration. It will have an automatic generate name with a time stamp based on the current date.

```
Creating /tmp/tspcfg0301041651.tar
Completed Saving Configuration
```

This tar file is normally returned to SER Main (server name) as a backup.

Chapter 4 Features and Enhancements

This section includes a list of features and enhancements and their descriptions. It includes the following:

- Introduction
- Restarting Protocols
- Integrated Recording Feature
- Agentless Campaign - Feature
- Text-To-Speech (TTS) Messages - Feature
- Caller ID Name - Feature
- Collect DTMF Digits - Feature
- Personnel Ring Back - Feature
- Trunk Features and Enhancements
- Billing Codes - Feature
- User Data Features and Enhancements
- New Country - Feature
- Monitoring Features and Enhancements
- Dialing Features and Enhancements
- Answering Machine Enhancements
- New Commands

Introduction

The TSP500 Call Processing System is a comprehensive system that combines predictive dialing with voice recognition techniques and information processing. It currently supports 1152 ports domestically and 1200 ports internationally, and can be delivered in various configurations.

Restarting Protocols

Occasionally, it may be necessary to restart the telephony protocol on a specific trunk channel.

You can now start the protocol using the Admin Terminal "**treset**" command with the –**s** option. If the channel is currently in use when the command is issued, the reset will take place when the channel becomes idle.

Examples:

```
treset –s  23
treset –s  11  59
treset –s  1-33
treset –s  all
```

Graceful Campaign Close

The option flag "**Let Dials Complete On Campaign Close**" has been added to the Enterprise Edition TSP. Normally, the TSP will drop any dials in progress when a Campaign Close message is received. This option allows those dials to complete before closing the campaign.

Connected calls (those calls connected to agents, or announcements), are not automatically dropped – just those dials in progress.

Integrated Recording Feature

Integrated Recording is a software solution for recording Agent conversations with contacts and/or conferencing parties. Integrated Recording is useful for quality assurance purposes to review a call for accuracy and content. For Sales Campaigns, you can use Integrated Recording to verify purchases. The recording can be archived and reviewed later.

Initially, Integrated Recording is available with the Wygant Encore recording and archival system.

The following are some of the benefits:

- Supports full recording for up to 192 agents.
- Records full duplex conversations of either the Agent and called party, or the Agent and conference parties.
- Allows continuous Integrated Recording even after the called party disconnects. Occasionally, this may be necessary to comply with contractual or legal requirements that direct the Agent to read a statement or script, even if the called party hanged up.
- Includes a 400MB RAM drive to temporarily house the recordings made by the TSP.
- Uses a SAMBA mount to a shared drive on a recording server (aka. Wygant Encore system) that acts as the mechanism to transfer the locally stored recordings to the recording server.
- Includes a new daemon process called rec_watch.exe to monitor the state of the RAM drive, as well as the health and accessibility of the recording server.

See Also:

“Integrated Recording” on page 12-5

Agentless Campaign - Feature

The campaign mode called “Agentless” dials on behalf of campaigns without live agents.

Non-answered calls (busies, RNAs, etc.) are dispositioned as usual by sending standard dial result messages to the Call Manager.

Transferring a Call off of the TSP

For Agentless Campaigns, the Protocol C messages **M_XFER_DIAL** allows transferring a call off the TSP.

Imbedded in the syntax of this message is a trunk group identifier. It allows the adjunct to select the Third Party Trunk Group, IVR Trunk Group, or Default Trunk Group.

- Third Party Trunks are those trunks assigned to the **THIRD_PARTY** keyword in the Dialing Rules.
- IVR Trunks are those trunks assigned to the **IVR_TRUNKS** keyword in the Dialing Rules.
- The Default Trunk Group selection will use whatever dialing rules are in place to select a trunk group.

As of this writing, Enterprise Edition does not have the ability to set the desired trunk group. Therefore, the default trunk group selection is always used. This may not always be desirable. For instance, it may be necessary to transfer the call over a specific set of trunks.

An interim solution has been implemented in the TSP using a temporary keyword (**TRANSFER_GROUP**) that can be added to the TSP Dialing Rules. This will allow selecting which group to use for this dial type.

The following are the only acceptable assignments:

TRANSFER_GROUP 0! Use whatever is specified in the M_XFER_DIAL message

TRANSFER_GROUP 1! Use the IVR Trunk Goup

TRANSFER_GRPUP 2! Use the Third Party Trunk Group.

Example:

Let’s assume that The TSP already has a Third Party trunks assigned, but the Call Center wants to route Agentless Campaign calls over trunks **241 through 280.** You would add the following keywords to the Dialing Rules, and then, stop and restart the TSP.

IVR_TRUNKS 241-280

TRANSFER_GROUP 1

Text-To-Speech (TTS) Messages - Feature

The ability to play an arbitrary TTS voice message has been added to the TSP500. The creation of the TTS message is not the responsibility of the TSP500, but the TSP500 must have read access to the message. Access to the message is provided by a Samba mount to an external drive. The external drive is mounted locally to the path **/home/tts**. To ensure the drive is mounted, an entry in the **/etc/fstab** file must be inserted. The format of the entry is:

```
//<IP Address>/<external directory path> <local
directory path> username=<name>,password=<pass-
word>,<additional options> 0 0
```

Example:

```
//10.2.109.4/tts /home/tts  smbfs   user-
name=eisadmin,password=admin,defaults  0 0
```

The term “defaults” equivocates to “rw,suid,dev,exec,auto,nouser,async” permissions.

The Adjunct needs to know the audio output format in order to create a voice message that can be played. The current Protocol C Message to send resource information to the Adjunct has been modified to include encoding format, bandwidth, and bit resolution. When the Adjunct starts and requests resource information, an additional resource message (M_GET_RESOURCES) with a mode value of 4 is sent. This message is sent prior to the resource message with a mode value of 3 for backward compatibility. This message includes three data fields for TTS voice specific parameters. The first “data” field contains the encoding format and can have a value of 0 for Mu-Law and 1 for A-Law. The second “data” field contains the bandwidth and is always 8000, since a bandwidth of 8K is only supported. The third “data” field contains the bit resolution and is always 8, since a bit resolution of 8-bit is only supported.

When play voice message request (M_MSG_PLAY) is received, the TSP500 determines if the request can be performed. The “flag” field descriptor with the number one indicates the voice message is to be played immediately. The play immediate option indicates the message is to be played immediately using the trunk’s DSP. Otherwise, the message is placed on a one-second-timer queue and an Encore DSP is used to play the message. The “key” field descriptor may contain a voice message name or (optionally, a relative path and) a filename and extension. If the “key” has an extension, a search of the Text-To-Speech directory (/home/tts) for the existence of the “key” is performed. Otherwise, a search of the Encore directory (/usr/vox) for the “key” plus “wav” extension is performed.

When the non-interruptible voice message completes playing, a route request (M_ROUTE_REQ) is sent to the Adjunct with a result code indicating the voice message completed (SWR_MSG_PLAY_DONE).

Caller ID Name - Feature

You can specify Caller ID name on a dial-by-dial or global basis on the TSP.

Under control of the ISDN configuration tool in the TSP, Caller ID Name can be sent in a variety of ways. For instance; it could be sent by Facility IE, or Display IE, and in variety code sets. Check with your carrier to determine what method they are using, and modify parameter 14 appropriately.

Example

```
*****************************************************************
*                    Edit ISDN Configuration                    *
*                    Span 1-24                                  *
*****************************************************************
 1. Transfer_Capability              Speech
 2. Transfer_Mode                    Circuit
 3. Transfer_Rate                    64Kbits/sec
 4. User_Info_Layer_1                G.711_U-Law
 5. Network_Signaling_Behaviour      Default
 6. Destination_Number_Plan          ISDN                          (L)
 7. Destination_Number_Type          National                      (L)
 8. Origination_Number_Plan          ISDN                          (L)
 9. Origination_Number_Type          National                      (L)
10. Origination_Number_Screen        User_Provided_Not_Screened    (L)
11. Origination_Number_Presentation  Presentation_Allowed          (L)
12. Facility_Feature_Service         None                          (L)
13. Facility_Coding_Value            None                          (L)
14. Calling_Name                     Facility_IE                   (L)
```

Sending Caller ID Name without the Telco carrier configured to collect it could cause dials to fail.

Therefore, there is another parameter that must be set in the TSP to allow it to actually be transmitted. In the “options flags” accessible using the Admin Terminal, the parameter **Allow Caller ID Name** must be set to one.

Example

```
Enter Command-> opt
Options = 20f3
1  Allow Dial Tone To Stations
1  Allow Manual Dialng
0  Perform Zapper Detection
0  Monitor Key - Use Pound Sign - #123#

1  Allow Caller ID Name
1  Ignore Cadence Break
1  Support New Legislation Events
1  Process SITS Via D Channel

0
```

```
0
0
0

0  Let Dials Complete On Campaign Close
1  Dont Route Inbound Calls
0  Always Beep Agent On Connect
0  Dont Answer On Timeout
```

Collect DTMF Digits - Feature

The capability to collect Dual-Tone MultiFrequency (DTMF) digits from the customer is available. Upon receiving a request to collect digits, the TSP500 optionally plays a voice message and collects the requested number of digits. The TSP500 responds with a completion message when the digits have been collected.

To support the collecting of digits, a new Protocol C Message M_COLL_DIGIT has been defined. The M_COLL_DIGIT message requires the number of digits to collect, and optionally the time to wait (in seconds) before digit collection expires and the terminating key to end digit collection. If a timeout value is not supplied, the timeout defaults to ten seconds. If a terminating key is not supplied, the key defaults to the pound key (#). Additionally, the M_COLL_DIGIT message permits the sending of a voice message to be played while collecting digits. The voice message in the “key” field descriptor and the “flag” field descriptor function the same as described in “Text-To-Speech (TTS) Messages” section except that the message can be interrupted by pressing a telephone digit key.

When the request has been satisfied or the timer has expired, a route request (M_ROUTE_REQ) is sent to the Adjunct. This M_ROUTE_REQ message has been modified to send a new result code, SWR_COLL_DIGIT_DONE, indicating that digit collection completed. If digits have been collected, a new field descriptor “user data” is filled with the digits collected and sent to the Adjunct. The “user data” field descriptor is designated with the letter “u”.

Personnel Ring Back - Feature

Cell Phone companies in Europe and the Far East are beginning to offer a service in which a called party will be able to provide a personalized “ring back.” This personalized ring back could be melodies, voice messages, etc. This service is called “personalized ring back” or PRB.

This creates a problem for voice and answering machine detection algorithms. Because the PRB will appear as voice or music, there is no way of recognizing it as a valid ring back signal, and it would normally be declared as either live voice or as an answering machine.

Although primarily limited to cell phone users at the current time, it is expected that this feature will eventually be offered to land line users as well. It is also expected that this feature will be offered here in the USA.

The TSP500 has been modified to offer a mode of operation whereby voice detection will not begin until “answer supervision” is detected (the called party picks up the phone). Other call progress tones such as rings, busy, fast busy, or SIT tones continue to be detected at anytime prior to “answer supervision” being received. It is only voice or answering machine detection that will wait for supervision before being activated.

This should allow us to ignore any non-standard audio received prior to the called party answering the phone.

Certain Telco announcements do not always have SIT tones associated with them. If these type announcements are received without answer supervision, they will be erroneously declared as “Ring No Answers.” Previously they would have been declared as answering machines or unknown SITS (if the option to Check Supervision was turned on).

Telco announcements that have SIT tones at the tail end of the announcement and do not provide supervision will be detected correctly. This was something that was not always possible because voice detection always began prior to answer supervision.

Configuration

This feature can be turned On or Off as follows:

A new dialing rule keyword **WAIT_FOR_SUPERVISION** has been added.

Example:

```
WAIT_FOR _SUPERVISION 1 ! Wait for Supervision
before starting voice detection.
WAIT_FOR _SUPERVISION 0 ! Start voice detection
immediately after dial launch.
```

The default for this keyword is off (unless configured by Call Manager – see below). Protocol B support is being offered using a new message, **Ts**.

Trunk Features and Enhancements

New Trunk Utilization files - Feature

A new method of capturing trunk utilization history has been added to the TSP. The new history files will be saved in a newly created directory under the log directory **(/usr/home/cpstsp/cps01/log/tut**). The naming convention for the new files will be **tuMMDD.txt**, and will allow for 365 days of revolving history.

The content of the history file will be similar to the "**show util**" command in the AdminTerminal. With the following exceptions:

- An asterisk '*' will be placed as the first character on the line that represent the time the snap shot was taken.
- To reduce the file size, duplicate lines will be omitted.
- The label "TrunkBound" will be added to any line that contains any percentage of being trunk bound. This is to allow use of "grep" to find areas where trunks shortages occurred.
  Example **grep TrunkBound *.txt**
- Lines beginning with the letter "y" indicate yesterday's data. Remember this a revolving 24 hours of minute by minute data.
- File will automatically be overwritten on their yearly anniversary.

The generation of these files cam be disabled at any time by adding the following keyword to the dialing rules and typing "**load all**" at the Admin Terminal.

ALLOW_TRUNK_UTIL_FILES 0

New TUT FIles

Note:
These files are for diagnostic purposes and subject to changed without notification.

Also written in the tut directory is another file with similar naming convention, except the extension ends in "**tut"** rather than "**txt**". These files contain more cryptic data and used by SER personnel in analyzing past history.

The generation of these files cam be disabled at any time by adding the following keyword to the dialing rules and typing "**load all**" at the Admin Terminal.

ALLOW_TRUNK_UTIL_ZX_FILES 0

The file contains three type of messages **ZX, ZY**, and **ZZ.**

ZXAAA,BBB,CCC

A Number of configured trunks used for predictive dialing
B Nth minute that the snap shot was taken.
C Number of configured Stations.

ZYDDDD,EEE,FFFF,GG,HH,III;

There will be 1440 ZY messages (one for each minute of the day.

D Nth minute of the day.
E Average Number of In Service Predictive Trunks during that minute
F Percent of Predictive Trunks available..
G Percent of Trunk Bound condition during that minute.
H Number of samples – typically 60 – 1 per second.
I Average Number of active agents during that minute.

ZZ Trailer message – contains no data.

Trunk Bound Alerts Sent to the SysLogger

A Trunk Bound Alert message can now be sent to the SysLogger.

The TSP keeps track of the how much of each minute was spent in a Trunk Bound condition. It will then report it to the Syslogger, provided that:

- There is at least one Campaign open.
- The SysLogger flag “Send Trunk Bound Alerts to the TspLogger” is turned ON.
  The reason for the flag is that a TSP may be experiencing Trunk Bound conditions - but the customer has no intention or addressing it. Or, while the customer waits for an upgrade to address the Trunk Bound condition, he may want to suppress the alerts.
  The reason for only sending alerts while there is at least one Campaign open is to suppress these messages during initialization or diagnostic testing.

Billing Codes - Feature

Billing Digits are pulsed out to the participating carriers to provide a mechanism of categorizing customer's phone bills.

Configuring the sending of Billing Digits is similar to the CP12000. A lower case "c" is placed in the appropriate dialing rule to signify where in the dial string the billing digits should be sent.

Also, "**pauses**" or "**tone detection**" can be added to the dial string to facilitate the necessary hand shaking needed to send the Billing Digits to the carrier.

However, there are some rules:

- For Wink Start lines, pause characters (**P or p**), "tone detection" characters (**T or t**), and the lower case **"c**" can be placed anywhere in the dial string. This is because all characters are sent in-band (pulsed out as DTMF digits).
- For ISDN lines, the telephone numbers are sent as data messages over the D-Channel. Because the Billing Digits are sent as DTMF digits, they must be sent after the telephone number is dialed. Therefore for ISDN, the TSP considers all dialing rule characters after the "d" or "D" character to be "post digits," and they should be sent in-band using DTMF.

User Data Features and Enhancements

Sending User Data over ISDN - Feature

Added the ability for the Adjunct to send User Data over ISDN using UUI Information Element. User data will be sent in code set 0, using IA5 coding standards.

Support for ISDN protocol DMS250 - Feature

Support for ISDN protocol DMS250 has been added to the TSP configurator. The TSP has always supported the DSM250 using the generic DMS protocol specification in the configurator. However, the DMS100 and DMS250 vary slightly in the manner they handle the “Calling Name” field. Specifying DMS250 for DMS 250 switches will allow better handling of this field.

New Country - Feature

See also:
"Initialize Configuration" on page 7-10 for a list of countries.

Support for India has been added to the TSP.

Monitoring Features and Enhancements

Silent Coaching - Feature

Silent Coaching is the ability for a supervisor to talk to an Agent without the called party hearing what the supervisor is saying. The agent will be able to hear the supervisor even across calls, conferences, and in-between calls.

In the past, SER switches only supported “barge in”. This is when a supervisor barges into the call. A conference is created, and all parties can hear and talk to each other.

Silent Coaching was resisted in the past because it cannot be guaranteed that the called party might not hear what the supervisor is saying. This is due to the nature of the two-wire handset used by agents. It is possible if the two-wire interface to the handset is not perfectly balanced, a portion of the audio received by the agent will bleed over onto the transmit side of the interface, and be heard by the other party. With four wire interfaces – like soft phones, this is less likely to happen.

The ability to selectively perform Barge In or Silent Coaching will require adjunct development. In the interim, a new keyword will be added to the TSP dialing rules (**USE_SILENT_COACHING**).

If this keyword is set to 1, then the current “Barge-In” feature will be replaced with the Silent Coaching capability. This will allow us to provide Silent Coaching capability to customers before adjunct development is completed.

Turning this feature on or off does NOT require a TSP restart. The keyword can be changed dynamically by making the change in the DialingRules, and activating it using the “**load all**” command in the AdminTerminal.

Example

```
SILENT_COACHING  1! Use Silent Coaching as the
default.
SILENT_COACHING  0! Use Barge In as the default.
```

Type “**load all**” at the AdminTerminal

Rules

- The Supervisor (coach) does not have to establish a monitoring session prior to requesting Silent Coaching. (It can – but does not need to.)
- Only one Silent Coach is allowed per agent.
- Other Monitors on the call will NOT hear the coach.
- If a monitor session is stopped, Silent Coaching will automatically be stopped.
- Silent Coaching is **NOT** supported for Manual Monitors.

- Client Monitors can perform Silent Coaching. The agent will hear both the Supervisor and Client.
- Silent Coaching spans individual calls. That is, coaching continues between calls.
- Silent Coaching is supported for conferences.

Client Monitoring for Conferences -Enhancement

Removed the restriction that Client Monitors could not monitor conferences. Previously, if a Client Monitor monitored a call, and that call went into conference, the Client and Supervisor were removed from the monitoring session. This was to prevent the conversion of the Supervisor and Client being heard by the agent or called party. Now the TSP will allocate a separate conference resource for monitoring and eliminate the problem.

Client Monitoring for Outbound Remote Stations-Feature

Supervisor controlled Client Monitoring requires that a dial to the Client be established before the Supervisor enters a monitoring session. Once monitoring, the Client is carried along with the Supervisor. They can communicate while simultaneously monitoring agents.

Launching the manual dial to the Client is no problem for regular “nailed up” agents. When they go off hook, they get dial tone and can dial.

For outbound remote agents, it is a little different. The TSP launches a dial to the Supervisor Agent. When he answers, there will be dial tone. However, in previous versions there was no way to re-launch a dial to the Client without dropping the connection to the Supervisor and having the adjunct redial the Supervisor.

With this release, the Supervisor can press the asterisk key on the telephone three times to drop any current call to the Client and have the TSP provide dial tone to the Supervisor. In this manner, the Supervisor can make multiple manual dials without actually going “on-hook.”

If more or less asterisks are desired, the keyword “NUM_ASTERISKS” can be specified in the Dialing Rules.

Example:

Set the number of asterisks required to drop a manual dial and provide dial tone to 4.

```
NUM_ASTERISKS 4
```

Restricted Monitors - Enhancement

This enhancement allows restricting Manual Monitors to specific stations. It can be used to prevent Manual Monitors at different facilities (serviced by the same TSP) from monitoring each other’s agents.

This is accomplished by assigning specific agent stations to Manual Monitors. If a Monitor attempts to monitor a station that is not assigned, a “fast busy” will be played to the Monitor.

Configuring the Manual Monitors is done in the Dialing Rules file using a new keyword **MONITOR_ASSIGN**. The first argument in the list **must** be the Monitor Station. In the following example Manual Monitor Station #4 is being configured:

```
MONITOR_ASSIGN4     1-25 72-78
```

It is then followed by the Station Numbers of the agents that the Monitor is allowed to monitor.

```
MONITOR_ASSIGN4     1-25 72-78
```

Other rules that apply are:

- Monitors who have no assignments are allowed to monitor all agents.
- Each line of configuration can only have one monitor assignment. Monitors cannot be entered as ranges.

Bad Example:

```
MONITOR_ASSIGN4-6   1-24
```

Good Example:

```
MONITOR_ASSIGN   4  1-24
MONITOR_ASSIGN   5  1-24
MONITOR_ASSIGN   6  1-24
```

- Agent Station Numbers can be entered as ranges or individual assignments.
- Multiple lines can be used for the same Monitor.
- The Admin Terminal command “load” is used to activate any configuration changes.

There are some inherent rules in the TSP such as a Monitor cannot monitor another active Monitor or a Monitor cannot monitor himself. These rules are not enforced in the configuration, but rather at runtime. Therefore, it is possible to configure a Monitor to monitor itself or other Monitors, but this type of configuration will be ignored at runtime.

The following are some examples of assigning Agent Stations to Monitors. In the examples, Monitor Stations 4, 5, 6, and 7 are assigned to various Agent Stations.

```
MONITOR_ASSIGN4     1-24
MONITOR_ASSIGN5     25-48
```

```
MONITOR_ASSIGN6    1-48
MONITOR_ASSIGN7    49-57 77 97-104 109
MONITOR_ASSIGN7    120-128
```

From the above examples it should be clear that:

- Different monitors can be assigned to monitor the same agents. (Monitor 6 can monitor all of Monitor 4 and Monitor 5's agents)
- Either ranges or single agents can be assigned.
- Multiple configuration lines are allowed for the same Monitor. (See Monitor 7)

Further notes:

- Monitor Stations do not have to be excluded from the Agent Stations. The TSP will ignore them. See example below – both are acceptable:

Example:

```
MONITOR_ASSIGN 4   1-24
MONITOR_ASSIGN 4   1-3 5-24
```

- If a Monitor is specified with no agents, the Monitor will be unable to monitor anyone.

Example:

```
MONITOR_ASSIGN4
```

From within the TSP application, the Admin Terminal "**load**" command, using the "**misc**" or "**all**" argument, is used to activate any changes.

Example:

`load misc` or **`load all`**

For diagnostic purposes, the following changes were included in the TSP:

- Entries in the TSP log files records the actual assignments. See the following example:

Assume the keyword **MONITOR_ASSIGN 169 2-7**

```
10:40:49.223  Initializing Monitor Station
Assignments
10:40:49.223  for monitor 169, station 2
assigned.
10:40:49.223  for monitor 169, station 3
assigned.
10:40:49.223  for monitor 169, station 4
assigned.
10:40:49.223  for monitor 169, station 5
assigned.
10:40:49.223  for monitor 169, station 6
assigned.
10:40:49.223  for monitor 169, station 7
```

```
assigned.
```

- The Admin Terminal command "**spstuff**" displays "Monitor has Assigned Station List", if a monitor has been restricted via the MONITOR_ASSIGN keyword.

```
Enter Command->    sp 169

Station # 169  Matrix: 0000082c
mvip:  board: 0  st: 9  ts: 20 <-- 7fff
local: board: 3  st:28  ts:  0 <-- 7fff
 Dsp  1189 Assigned
 Dsp is listening to MTX 82c
 Queue = stinact
 Digital Station (trunk=937)
 Phone On Hook
 This Station has Manual Monitor Capability
 Monitor has Assigned Station List
 sflags = [8100]  tflags = [0]  zflags = [0]
 preview queue:  current: 0   Peak: 0
```

Decibel Level Adjustment - Feature

When performing Client Monitoring, the audio level of the monitored call tends to be lower than that of the Client, and Supervisor. A new keyword has been added to the Dialing Rules (CLIMON_GAIN) that will specify some decibel level to increase the volume of the monitored call. The default gain at present is 6db. If customers are complaining of low volume when doing Client Monitoring, add this keyword and type "load all" in the Admin Terminal. The range of adjustment is 0db through 12db.

Example: CLIMON_GAIN 9

The above assignment would raise the volume of the monitored call by 9db.

Dialing Features and Enhancements

Unrestricted Manual Dial - Feature

A TSP limitation of Manual Dialing in the USA is that the TSP is expecting ten digits. Once it receives ten digits, it will launch the dial, and use area code and prefix to determine if the call is local or long distance. In most cases, this is acceptable. However, consider a TSP that is based in the USA, but is configured for Multi-Country dialing. Because of the USA rules on Manual Dialing, it is impossible to launch an International dial manually (*as soon as 10 digits are entered, the dial attempts to launch*).

This does not apply to TSPs based in other counties, because the TSP uses a "dial what you get" strategy for Manual Dialing outside the USA. The dial what you get strategy requires the caller to enter the pound sign (#) after the digits are entered. In this manner, any number (including the addition of international access codes) can be launched.

With this release a new keyword (**UNRETRICTED_MANDIAL**) has been added to the TSP. If set to 1, (the default is 0), the TSP will perform the "dial what you get" strategy, even if it is in the USA.

This keyword can be changed dynamically and activated by typing "load all" at the Admin Terminal.

Example:

```
UNRESTRICTED_MANDIAL 1
```

Digital Station Dials - Enhancement

Systems using Multi Country dialing include the three-digit country code at the beginning of every number. However, it is not normally included in the Digital Station Dial telephone number. Prior to this release, the TSP was stripping the first three digits of the Digital Station number, assuming it was a country code. It no longer does this. Therefore, Digital Station Dials sent from the Adjunct should never include the country code.

Redials of Incompletes - Feature

The Install flag DO_NOT_RETRY controls whether or not to retry dials that resulted in a "reorder" (please hang-up and try your call again). Under certain circumstances, it may also be desirable to retry "incompletes." These are dials where no audio is heard by the TSP. This version of the TSP allows incompletes as well as reorders to be retried one time before sending the dial result to the adjunct.

To ensure "incompletes" are only retried if the call center desires them to be retried, a new dialing rules keyword was created. (RETRY_INCOMPLETES).

Example:

RETRY_INCOMPLETES 1! Incompletes will be retried.

RETRY_INCOMPLETES 0 ! Do Not retry incompletes.

The install flag DO_NOT_RETRY still has over all control over whether dials are retried.

The default for most customers would be to NOT retry reorders or incompletes. The default for the RETRY_INCOMPLETES is 0, and does not have to be entered in the dialing rules unless you wish the feature turned on.

Answering Machine Enhancements

Detecting Beeps on Answering Machines - Feature

The method used to detect answering machine beeps involved waiting for the beep, and then waiting a little longer to ensure it was the last beep. Due to the variety and frequency range of beeps on answering machines, the beep detection was proving not very reliable. Therefore, a new method of simply waiting for a specified period of silence before playing the message is available and is the default method. The default silence period is set to four seconds, and can be changed by using the keyword **ANSM_SILENCE** into the Dialing Rules. This keyword assigns the silent period in 100ms increments. For example, to change the silent period to five seconds, insert "**ANSM_SILENCE 50**" into the Dialing Rules, then type "**load misc**" at the Admin Terminal.

To revert to the old method of detecting answering machine beeps, insert "**ANSM_USETONE 1**" in the Dialing Rules and type "**load misc**" at the Admin Terminal.

Answering Machine Detection Parameters - Enhancement

New default Answering Machine Detection (AMD) parameters have been established. For the new default parameters to take effect, remove any previous AMD keywords from the Dialing Rules.

Previous Keyword values:

```
PAMD_METHOD         1
VOICE_ANSM_LENGTH   2000
VOICE_TONE_RATIO    196608
VOICE_SILENCE_LEVEL 38
```

New Keywords values:

```
PAMD_METHOD         0
VOICE_ANSM_MLENGTH  1600
VOICE_ANSM_LENGTH   2200
VOICE_TONE_RATIO    393216
VOICE_SILENCE_LEVEL 33
```

Table 4-1: Voice Detection Parameters, keywords, and Admin Terminal commands for dynamic adjustments.

Keyword	Default	Admin Terminal	Description
VOICE_TONE_RATIO	393216	voice_ratio	Used to discriminate between tone and voice
VOICE_NOICE_LEVEL	81920	voice_noise	Do not adjust
VOICE_LEAKAGE_TIME	8	voice_leakage	Do not adjust
VOICE_TIME1	60	voice_time	Voice Qualification time 1 (milliseconds)
VOICE_TIME2	60	voice_time	Voice Qualification time 2 (milliseconds)
TONE_TIME1	60	tone_time	Tone Qualification time 1 (milliseconds)
TONE_TIME2	80	tone_time	Tone Qualification time 2 (milliseconds)
VOICE_ANSM_MLENGTH	1600	voice_length	Duration of voice for a Medium Event
VOICE_ANSM_LENGTH	2200	voice_length	Duration of voice for Answering Machine
VOICE_SILENCE_TIME	900	silence_time	Duration of silence after voice for a live connect (milliseconds)
VOICE_SILENCE_LEVEL	33	silence_db	Silence threshold in decibels (assumed negative)
ANSM_TIMEOUT	8	----------	If beep not heard within this time, play Encore anyway (seconds)
ANSM_SILENCE	20	----------	Start Playing Encore to Answering Machine after this period – once a beep is heard (100ms tics. 20 = 2 seconds)
PAMD_METHOD	0	----------	1 = old method, 0 = new method

New Commands

New Dumb Terminal Commands - Feature

load misc

A new option has been added to the “load” command. The “misc” option permits the loading of the current Dialing Rules, ACD Strategies, ACD DNIS Table, and some of the ISDN Configuration items into the TSP. This list of Dialing Rules items is loaded by this option:

- AGENT_BEEP_TIME
- ANSM_SILENCE
- ANSM_TIMEOUT
- CLOCK_POLL
- DISPLAY_IE_TAG
- MAX_LOGSIZE
- RNA_EXTEND_TIME
- TRUNK_CHECK_TIME
- AREACODE_DIGITS
- MAX_TRUNK_ERR
- TRUNK_IDLE_TIME
- LOCAL_WATT
- MEDIUM_WATT
- LONG_WATT
- INTL_WATT
- LOCAL_AREACODE
- LOCAL_EXCHANGE
- TRUNK_GROUP_0-4
- VOICE_ANSM_LENGTH
- VOICE_ANSM_MLENGTH
- VOICE_TIME1
- VOICE_TIME2
- VOICE_SILENCE_LEVEL
- VOICE_SILENCE_TIME
- RULE_0-4
- OUTBOUND_DIGITAL_TRUNKS

Chapter 5 Admin Terminal Commands

This section includes the following:

- Introduction
- List of Commands

Introduction

Once connected to the TSP using the Admin_Terminal, a variety of commands (some similar to Call Processor or TSP-300 commands) are available to control the TSP.

The following is a brief description of each command. Online help for each command is available by typing “help” followed by a specific command.

List of Commands

BUG

This is a diagnostic command that turns on tracing for selected components of the TSP.

Typing **bug** by itself will display a list of items that can be traced. Those of you familiar with the Call Processor, and specifically the **install** command, will recognize the format and method of activating the specific items.

For those of you not familiar with this method, the specific items are turned On and Off by typing **bug** followed a hexadecimal value that represents a bit pattern associated with the items on the screen. The MSN (Most Significant Nibble) is toward the bottom of the screen, and the LSN (Least Significant Nibble) is toward the top.

It is the output of this tracing that is written to the TSP log files.

```
Enter Command-> bug
bug =  3df
1  CTI Link
1  Dial String
1  Station Tones
1  Hook Status

1  DTI Events
0  Alarm Events
1  DSP Events
1  Conference Events

1  Call Events
1  Application Events
0  Debug Monitor
0  Lights

0  DRC
0  Connects
0  ACD
0  Clock
```

Figure 5-1. A typical bug display.

The following is description of the above items:

Table 5-1: Bug Traces.

Bug Trace	Description
CTI Link	Traces the Protocol 'B' messages to and from Call Manager or Gateway.
Dial String	Traces the dialed numbers. It will display the Country, trunk number, actual phone number that arrived at the TSP, and how the phone number was modified per the Dialing Rules.
Station Tones	Traces the DTMF digits received from Digital Station phones. It displays the Station Number and tone received.

Table 5-1: Bug Traces.

Bug Trace	Description
Hook Status	Traces hook changes received from Digital Stations. It displays the Station Number and hook state (On or OFF).
DTI Events	Traces NMS Digital Trunk Monitoring Events. A description of these events can be found in the NMS Digital Trunk Monitor Service Developer's Reference Manual (P/N 9000-6392).
Alarm Events	Traces events, and actions associated with trunk alarms on the TSP.
DSP Events	Traces NMS DSP Events. A description of these events can be found in the ADI Service Developer's Reference Manual (P/N 9000-62162) and the Voice Messaging Service Developer's Reference Manual (P/N 9000-6422).
Conference Events	Traces events, and actions associated with Conferencing or Monitoring.
Call Events	Traces events associated with NMS's Natural Call Control API. Natural Call Control is NMS's generic API used for Call-Setup across a variety of Network Interfaces. A description of these events can be found in the NMS Natural Call Control Service Developer's Reference Manual (P/N 9000-6708).
Application Events	Provides additional tracing information typically associated with NMS events.
Lights	This option traces the Protocol B messages associated with the Light Display. (The light display is not currently supported on the CPSEE_TSP500)
CONNECTS	Traces the low level functions used for time slot connection on the Telephony Buss.
ACD	Traces the Interactive Voice Response (IVR) calls.
CLOCK	Traces changes to the T1/E1 clock.

CALL

Displays the ISDN parameters defined for the specified span

Note:
Intended for engineering use only.

.

```
Syntax:  call <span #>
```

CAPTURE

Allows recording of raw audio signals for use in voice detection analysis.

Note:
Intended for engineering use only.

```
Syntax:  capture <file name> <Matrix Number (in
hex)>
```

CAPTURE_TNUM

Automatically records the call progress (audio) of the specified telephone number the next time it is launched.

A file in the form v<telephone number>.wav will be created in the /usr/vox directory.

Note:
Intended for engineering use only.

This file can be used by engineering to analyze voice detection.

```
Syntax:  capture_tnum <telephone number>
```

CAPTURE_TRK_AUD

Allows automated recording of the next 'n' calls. Call is recorded for a maximum of 60 seconds, or until it is disconnected. Recorded files are placed in the /home/taudio directory. Also created is taudio.log file containing the "tline" output for the recorded calls.

Note:
Intended for engineering use only.

Syntax:

```
capture_trk_aud [<num calls> -t <trunk number> -s
<station number> -m <trunk number> -u]
```

CAUSE

Caution!
Modifying this mapping could result in inaccurate classification of dial results.

Displays or alters the current ISDN cause code to TSP event mapping.

Syntax:

```
cause <ISDN Cause Code (hex)> [APP Event (hex)]
```

CFIG

Displays multiple pages of TSP configuration. Pressing **Enter** will display the next page. The information displayed is the internal TSP's configuration that was generated by reading the tsp.cnf file in cfg directory. For example: /usr/home/cpstsp/cps01/cfg.

CLOCK

Displays the current T1/E1 clock status.

Syntax:

```
clock [-s -u]
```

The “-s” switch displays the current clock status. If no switch is supplied, the “-s” switch is assumed.

The “-u” switch forces the TSP to check for updated clock status.

Table 5-2: "clock s" Command

Option	Description
Board Number	Board Slot Location.
Clock Mode	Indicates if board is A Clock, B Clock, or Slave.
Primary Source	Indicates source of clock: NETWORK with span number, H100 A, H100 B, INTERNAL.
Clock Status	Displays status for A Clock and B Clock. Values: GOOD and BAD.

CMD

This command allowed CTI Protocol B messages to be entered at the Admin_Terminal.

Note:
Intended for engineering use only.

CONF

Displays any conferences or monitoring sessions in progress.

Example:

```
Conf   #001  B7S68 3 C  S1    T1    T4 .... ....
....
```

The above shows conference #1 including 3 parties (Station 1, Trunk 1, and Trunk 24). The conference being used is on Board 7 – Stream 68 (B7S68),

CONNS

Displays the IP addresses of connected Adjuncts or Dumb Terminals.

Example:

```
CTI Connection fd = 4 = 199.199.199.199
Dumb Terminal fd = 3 =  199.199.199.200
```

CRATE

Note:
Intended for engineering use only.

Sets the simulated connect rate. Only affects the Simulated TSP.

DIAL

Performs an unclassified dial by dialing the number given. If a trunk number is supplied, the trunk must have been previously disabled using the disable command.

Note:
Intended for engineering use only.

Syntax: dial <telephone number> [trunk number]

When the dial is launched it is connected to the music on hold port. If music on hold is configured on the TSP, the answering party will hear it. Otherwise the answering party will hear silence.

DISABLE

Disables the specified trunks. It can also be used to disable DSP's or Conferencing on speccific NMS boards.

Syntax: disable <trunk # or range of trunks>

Trunk numbers can be entered as single trunks numbers or a range of trunks by separating the trunks numbers with a dash '-'.

Disabling trunks will prevent their use for dialing. The disable condition will exist until they are enabled via the "enable" command, or the TSP is restarted.

Examples:

disable 7

disable 7 9 14 19-24

disable 1-24 73-96

As stated above, this command disables trunks from being used for outbound dialing. It does not physically disable any hardware or line protocol. If an Inbound call arrives on a disabled trunk, it will be handled normally.

DSP's and Conferences can be disabled by the following syntax:

Syntax: disable dsp <dsp# or range of dsp's>

Note:
Intended for engineering use only.

Examples:

disable dsp 122

disable dsp 14-43

The above command disables DSP 122 in the 1st example. and DSPs 14 through 43 in the 2nd example.

These DSP numbers are associated with logical DSP's and NOT physical DSPs on the NMS board.

Syntax: disable conf <NMS board #>

Examples:

disable conf 7

The above command disables all conferences on board 7. This command would normally only be used by engineering to bypass conferences on failed NMS boards.

ENABLE

Enables the specified trunks that were disabled via the disable command.

Syntax: enable <trunk # or range of trunks>

Trunk numbers can be entered as single trunks numbers or a range of trunks by separating the trunks numbers with a dash '-'.

Examples:

enable 7

enable 7 9 14 19-24

enable 1-24 73-96

Note:
Previously disabled conferences or DSP's can also be re-enabled using this command. (See the "disable" command for details)

FHANG

Simulates a Far End Hang-up condition on the Simulated TSP.

HELP

Displays help information on the specified Admin_Terminal command. If no command is entered, a list of all Admin_Terminal commands is displayed.

HTRUNK (ht)

Forces a **Far End Hang-up** condition. This command should NEVER be used on a live system. It is intended for engineering use only.

INBOUND (inb)

This command provides control over the inbound default strategy. This command provides easy access to the options available in the Protocol B Message **BC**. This command should only be used in-house.

INSTALL

This command allows dynamic setting of certain TSP features.

Entering **install** alone will display a list of options that can be installed. Those of you familiar with the Call Processor, and specifically the **install** command will recognize the format and method of activating the specific items.

For those of you not familiar with this method, the specific items are turned ON and OFF by typing **install** followed by a hexadecimal value that represents a bit pattern associated with the items on the screen. The MSN (Most Significant Nibble) is toward the bottom of the screen, and the LSN (Least Significant Nibble) is toward the top.

Install items are non-volatile. That is, they will survive a reboot or power cycle.

```
install
Enter Command->
Install = 100
0 Monitor Agents Between Calls
0 Disconnect Trunk to Trunk Transfer if connected too long
0 Allow Trunk Prep
0 Host Selects Agents

0 Use Monitor Key *123* when Manual Monitoring
0 Analyze Abandons for Answering Machines
0 Multi Country Dialing
0 Retry Dial Errors and Reorder tones

1 Connect Remote Agent Dials on Supervision
0 Connect All Dials on Supervision
0 Declare Answering Machine with no Supervision as Unknown SIT
0

0
0
0
0
```

The following is a list of options that can be installed:

Table 5-3: Install Flags.

Option	Description
Monitor Agents Between Calls	Allows a Supervisor to monitor an agent's conversation while not on a call. Normally, the Supervisor cannot hear the agent while he/she is waiting for a call.
Disconnect Trunk to Trunk Transfer if connected too long	Specifies whether or not trunks that are tied together too long should be dropped .
Allow Trunk Prep	With this flag turned ON, the TSP will attempt to test the state of the trunks, and remove those that are out of service. Not all protocols support this feature. This feature can be turned ON for the following: 1. ISDN protocols that support "Service Messaging" on the bearer channels. 2. Wink Start protocols. (not immediate start)
Host Selects Agents	Indicates that the TSP is not doing Agent Selection for Predictive Dial connections. This will force the TSP to send a Route Request message to the Adjunct rather than a Predictive Dial Connect message.
Use Monitor Key *123* when Manual Monitoring	Instruct the TSP to only accept Manual Monitor commands that begin with the code *123*.
Analyze Abandons for Answering Machines	NOT CURRENTLY SUPPORTED
Multi Country Dialing	Specifies that a three-digit Country Code must precede every phone number arriving at the TSP. This flag should only be turned on for TSPs doing "Multi Country Dialing."
Retry Dial Errors and Reorder tones	Instructs the TSP to consider all classified dials as "connected" if it sees Answer Supervision. Otherwise the TSP will wait for voice.
Connect Remote Agent Dials on Supervision	Instructs the TSP to consider a call as an Unknown SIT tone if a remote Agent had been detected and NO Answer Supervision had been received.
Connect All Dials on Supervision	Instructs the TSP to consider a call as an Unknown SIT tone if an answering machine had been detected and NO Answer Supervision had been received.
Declare Answering Machine with no Supervision as Unknown SIT	Specifies that reorder SIT Tone dial results will not be redialed.

IPSTATS

This command displays the number of IP Addresses that have been registered to receive TSP Lights and of those the number that have been unregistered. This information is reset when the TSP is rebooted.

LICENSE (lic)

Displays current licensed inventory and features.
Syntax:

```
license
```

LINKP

Establishes a connection between any two devices. A device can be a trunk, station, or DSP.

Note:
For Engineering use only.

Syntax: linkp <source Matrix Number> <dest Matrix Number> [B]

The connection is made so that the <dest> device is listening to the <source> device. Normally, the <source> device is not listening to the <dest> device, but if the B option is used, a connection is made so that the <source> device is listening to the <dest> device. If two stations are connected using the B option, they can carry on a conversation.

LLOOP

Establishes a Local Loopback on the specified T1 or E1 span.

Syntax: lloop <span #>

The span # is the card slot number displayed in the slots screen. Any span that is in local loopback will have the text L_LOOP displayed at the end of the line associated with that span.

Entering the same command again will toggle the local loopback off.

LOAD

Forces a load of the dialing rules. You can import selected configuration items.

Table 5-4: Load categories.

Category	Description
load all	Load All Dynamically
load groups	Load Trunk Groups
load isdn	Load ISDN Configuration

Table 5-4: Load categories.

Category	Description
Load misc	Load the following: • Dialing Rules • ISDN Configuration • Monitor Station Assignments
load rules	Load Dialing Rules
load syslog	Load the syslog IP and Port
load tones [<save|restore>]	Load Tones

LOG

Toggles logging on and off.

TSP maintains a log file located in the log directory.

Example: /usr/home/cpstsp/cps01/log

All errors are automatically written to this file. However, you can choose to log other information such as the events traced using the BUG command.

Caution!
Logging of trace information can create very large log files.

Naming conventions for log files are based on the day of the week. tsp00.log through tsp06.log represents log file for Sunday through Saturday.

Logging will be automatically turned off if the size of the file exceeds the parameter MAX_LOGSIZE in the dialing rules.

MUSIC

This command will turn **Music-On-Hold** on or off.

It will also allow changing the volume by changing the gain. The range is (-54db to +16db).

Caution!
Audio will get louder as the gain is increased.

The default is 0db. Setting the decibels to less than zero will lower the volume. While setting the decibels to above zero will make the audio louder.

To change the gain, you must turn Music OFF first. hen turn Music ON with the new gain level.

Note:
Decibel changes are remembered and will survive a reboot.

Table 5-5: Examples of the MUSIC Command.

Option	Description
music on	turns music "on"
music off	turns music "off"
music on –3	turns music "on", and sets the gain -3 db.
music on 4	turns music "on", and sets the gain to +4 db.

Notes

1. Decibel changes are remembered and will survive a reboot.
2. The Admin Terminal "**dial**" command has been modified to automatically connect to Music-On-Hold when someone answers the call. This will provide a mechanism to test Music-On-Hold.
3. If the Music-On-Hold audio file (**e_music.wav** in /usr/home/cpstsp/cps01/pmt) needs to be changed, you must stop Music-On-Hold (**music off**). Then you can replace the existing **e_music,wav** file, and restart Music-On-Hold (**music on**).
4. If there is an **e_music.wav** present when the TSP stats up – it will automatically be turned on. If you wish to permanently remove Music-On-Hold - you should type "**music off** " at the Admin Terminal, and then delete or re-name **the e_music.wav** file. This will ensure that Music-On-Hold is not automatically turned back on if the TSP is rebooted.
5. The decibel setting is an absolute setting, not a delta. The default is 0db. Zero is playing the file with no gain.

Installing Music-On-Hold

To enable the system to play hold music:

1. On an external PC, create an audio file containing the music that you want the sytem to play. The file must conform to the following telephony industry standards:
   - Domestic: CCIT u-Law, 8KHz, 8-bit, mono
   - International: CCIT A-Law, 8,000 Hz, 8-bit, mono

   The audio file must be named e_music.wav. There are no restrictions on the file size or the time length.
2. FTP the audio file to the following directory on the TSP:
   /usr/home/cpstsp/sps01/pmt

If the e_music.wav file exists in the directory specified above, the system will automatically play hold music to calls in the hold queue when the Encore Pllus Fast Dial feature is used and when the Encore Plus transfer feature is used.

Testing Music On Hold

1. Disable trunk 1.
   ```
   disable 1
   ```
2. Enable Music-On-Hold.
   ```
   music on
   ```
3. Launch a test dial to yourself – when you answer, you should be hearing Music-On-Hold.
   ```
   dial 2035551212 1
   ```

For Example, assume that you want to raise the volume by setting the gain to **+2db**, stop Music On Hold, and restart it with new decibel setting:

```
music off
music on 2
```

You should now hear the music with the +2db gain. To make the music less loud (let's say -3db), set the following:

```
music off
music on –3
```

OPTIONS (opt)

The OPTIONS command allows dynamic setting of certain TSP options.

Note:
Options settings are non-volatile, meaning they will survive a reboot or power cycle.

Typing options by itself will display a list of options that can be set and there current values. The specific items are turned ON and OFF by typing options followed a hexadecimal value that represents a bit pattern associated with the items on the screen. The MSN (Most Significant Nibble) is toward the bottom of the screen, and the LSN (Least Significant Nibble) is toward the top.

```
opt
Enter Command->
Options = 20e3
1  Allow Dial Tone To Stations
1  Allow Manual Dialng
0  Perform Zapper Detection
0  Monitor Key - Use Pound Sign - #123#

0  Allow Caller ID Name
1  Ignore Cadence Break
1  Support New Legislation Events
1  Process SITS Via D Channel

0
0
0
0

0  Let Dials Complete On Campaign Close
1  Dont Route Inbound Calls
0  Always Beep Agent On Connect
0  Dont Answer On Timeout
```

Figure 5-2. The OPTIONS command.

The following is a list of options that can be set:

Table 5-6: Option Flags.

Option	Description
Allow Dial Tone To Stations	1 = Provide dial tone to stations. 0 – Don't provide dial tone to stations.
Allow Manual Dialing	1 = Allow Manual Dialing. 0 = Inhibit Manual Dialing.
Process SITs via D Channel	Specifies that extended call status provided in the ISDN PROGRESSING message is used to classify the call. 1=Analyze the call using extended call status information. 0=Analyze the call using in-band SIT tone detection.
Perform Zapper Detection	1 = Analyze for Zapper devices. – if a SIT is detected and answer supervision is received, the SIT will be ignored and the call will continue to be analyzed for Live voice or Answering Machine. 0 = Don't analyze for Zappers. – If a SIT is detected regardless of supervision, it will be classified as the appropriate SIT.
Monitor Key-Use Pound Sign - #123#	This flag only applicable if the "install" flag MONITOR_KEY is turned ON (in the install flags). It allow choosing the asterisk or pound sign to be used in the key. 1 = Use #123# as the key. 0 = Use *123* as the key. **Note:** #123# is typically used when voice only monitors are used in a conference supplied by a telco conferencing service (i.e. AT&T Conferencing Service) where the use of * will pull in operator assistance.
Allow Caller ID Name	Specifies that the Caller ID's Name can be sent. 1 = Allow sending Caller ID text. 0 = Don't send Caller ID Text. Note: This flag is used as a global prevention method. It should not be turned ON unless the carrier is willing to accept the Caller ID Text. Otherwise, dials may fail.
Ignore Cadence Break	1 = Ignore cadence breaks during Voice Detection. 0 = Consider a break in ring cadence to be an answered call. This flag is normally turned ON.
Support New Legislation Events	Specifies whether events used to comply with FTC regulations will be sent to the adjunct. 1 = Send FTC events to the adjunct. 0 = Don't send FTC events.
Dont Route Inbound	For Engineering Testing Only!
Always Beep Agent on Connect	Specifies that an agent will be beeped prior to being connected to a call. 1 = Beep agent prior to connecting call. 0 = Do not beep agent prior to connecting call.

Table 5-6: Option Flags.

Option	Description
Dont Answer On Timeout	Specifies that an incoming call will not be answered when the Inbound Route Request timer has expired. 1 = Do not answer inbound call on timeout. 0 = Answer inbound call on timeout.

PARK

Connects a device to silence. A device can be a trunk, station, or DSP.

Note:
For Engineering use only.

Syntax: park <Matrix Number>

PLAY

Plays the specified Encore Voice Message to the specified Station.

Syntax: play <message name> <station #>

The <message name> is the file name of the voice message located in the /usr/vox directory (excluding the .wav extension). These voice files could have been created by the record command, or recorded elsewhere and deposited in the /usr/vox directory.

Example: Play a voice message named hello.wav to station 26.

Note:
If voice messages are created external to TSP, they must adhere to the TSP format of 8Khz, 8bit, and U law(for US and Canada) or A law(for EU) companding.

play hello 26

If a 3rd parameter is entered (anything) the message will be played continuously (until the station goes on–hook). This is obviously for diagnostic purposes only.

example: play hello 26 1

POISSON

The poisson command displays a Poisson distribution of the following items:

Table 5-7: Poisson Distributions.

Option	Description
Answer Time	The time it takes calls to be answered. (Measured from the beginning of a launch to voice being detected).

Table 5-7: Poisson Distributions.

Option	Description
Connect Time	The time it takes to connect one audio path.
Connect to Positive Voice Detection Time	The time it takes between receiving the Connect event and positively identifying voice.
Event Time	The time it takes to check for new events.
Event Queue Time	Measures the time that it takes to process writing vendor board events.
Talk Time	Time the agents spend on a call. Includes Wrap-up time.
Wait Time	Time agents spend waiting for calls.
Protocol Stop	Time it takes to stop a protocol.
Protocol Start	Time it takes to start a protocol.

Distribution times are available globally or by campaign.

Syntax: poisson [–a | –e | –p | –q | –t | –v | –w | –z | –c] [campaign number]

Table 5-8: Poisson syntax.

Symbol		Meaning
-a	=	Answer Time
-e	=	Event Time
-p	=	Protocol Stop and Start Time
-q	=	Event Queue Time
-t	=	Talk Time
-v	=	Connection to PVD Time
-w	=	Wait Time
-z	=	Connect Time
-c	=	Clear all distributions.

Table 5-9: Poisson Examples.

Example	Description
poisson	Display All Global Distributions
poisson –a	Display Global Answer Time distribution.
poisson -t	Display Global Talk Time distribution
poisson –w	Display Global Wait Time distribution.
poisson –c	Clear all distributions (Global and Campaign)
poisson –w 6	Display Wait Time distribution for Campaign 6

Note:
For Engineering use only.

PREP

This command checks the state of the specified trunk. If a trunk is determined to be out-of-service, it is placed on a queue of trunks to be checked later.

Entering prep without specifying a trunk will cause all trunks (not currently busy) to be checked.

The install flag PREP_ALLOWED determines whether the prep is actually performed – or not.

QCHECK (qc)

This command displays information about a variety of TSP queues. Included is:

- Name of the queue.
- Memory address of the queue.
- Current count of elements on the queue.
- Peak elements on the queue at any one time.
  Looking at the current and peak counts of these queues may help engineering in diagnosing certain problems.

The following is a description of the various queues.

BeepQueue

Holds stations currently being played a beep tone.

BeepTimer

Holds stations currently being played a warble tone.

CampBusy

Holds the Campaign data structure for Campaigns that are opened. By looking at the current and peak counts, you can tell if any Campaigns are currently opened, and the most Campaigns that have been opened at any one time. If the peak is zero, then no Campaigns have ever been opened since the TSP was started.

CampClose

Holds the Campaign data structure for any Campaigns that are in the process of closing. Campaigns will not actually close until all current calls are handled.

CampIdle

Holds the Campaign data structure for idle campaigns. As Campaigns are opened, the current count should decrease for this queue.

CardExcess

Holds conferencing resources that are unavailable for use.

CardInuse

Hold conferencing resources that are available for use.

ComTask

Holds Protocol B messages from the adjunct. It is from this queue that the received messages will be parsed and processed. A high peak count on this queue would indicate that the TSP is too busy to process this input queue.

ConfInuse

Holds data structures associated with Conference Blocks that are currently used for Conferencing.

Dial

Calls in the process of dialing the digits of the phone number are stored here.

DialPend

Holds trunks waiting to begin the Predictive dialing process. These trunks have already been assigned a telephone number to dial, and has allocated a DSP.

DsIdle

Holds available Trunks that have been assigned for use as Digital Stations.

DspBad

Holds DSPs that have failed. Counts on this queue normally indicate a failure on a NMS Card. However, this failure may be software- (or firmware-) related. Power cycling the TSP may restore the defective DSPs.

DspIdle

Holds any unassigned DSPs.

EventQue

Holds Simulated TSP events and dial results. Only used when the TSP is run in simulation.

Excess

This queue holds any data structures associated with TSP objects that are either not needed or outside the scope of the configuration.

InbBusy

Trunks that are connected to an inbound call are stored here.

InbIdle

Holds available trunks that have been assigned for Inbound only.

McbAvail

Holds available Message Control Blocks. When an Encore Voice Message is loaded, the TSP grabs a Message Control Block from this queue and assigns it to the announcement.

McbInuse

Note:
Examining the “current” count will tell you the number of voice messages loaded into the TSP.

Holds Message Control Blocks that are in use. When an Encore Voice Message is loaded, the TSP grabs a Message Control Block from the McbAvail queue, and places it on the McbInuse queue.

MpAvail

Holds available Message Port Blocks. Message Port Blocks are the data structures for the DSPs used for recording or playing Encore Voice Messages.

MpDead

Holds Out-of-Service DSPs used for recording or playing Encore voice messages. If the TSP fails to Play or Record on a specific DSP or otherwise indicates an error with the DSP, the data structure associated with the DSP is placed on this queue.

MpInuse

Holds Message Port Blocks currently in use. When an Encore Voice message is played to one or more station or trunks, it is played out of the DSP associated with the data structure on this queue. When the message play completes, the Message Port Block is placed back on the MpAvail queue.

SpyAvail

Holds data structures associated with Conference Blocks. It is from this queue that Conference Blocks will be grabbed for use in Conferencing or Monitoring.

SpyBad

Holds data structures associated with Conference Blocks that have failed. An automated daily test verifies that audio paths are functioning properly. If a conference block fails, it is placed on this queue.

SpyInuse

Holds data structures associated with Conference Blocks that are currently used for Monitoring

StInact

Inactive Stations, (those that are not logged into a Campaign) are stored here.

StWait

Holds dial requests for Adjunct Controlled Manual Dials for Stations when there is not a trunk available. When an appropriate trunk becomes available, the request will be removed from the queue and dialed. Peak counts on his queue may (but not necessarily) indicate a trunk bound system.

Talkque

Trunks that are connected are stored here. A trunk is considered connected if an Unclassified Call has completed dialing, or a Classified Call has detected voice.

Tdisabled

Holds Trunks that have been disabled. Trunks may be disabled or enabled by the disable and enable Dumb Terminal command, respectively.

Thang

Holds Trunks that have been hung-up, and are resting before being made available. The amount of time they rest is configurable in the Dialing Rules (typically four seconds).

Tied

The queue holds data structures for trunks that are connected together by the Third Party Transfer feature.

TnAvail

Holds the available Telephone Number Blocks. The TSP is initialized with 4000 such blocks. Every telephone number that arrives at the TSP requires a Telephone Number Block to house it. Also, any station that is off-hook and not logged into a Campaign will have a Telephone Number Block to place any collected DTMF digits from the phone.

TpIdle

Holds available trunks that have been assigned for Third Party Dialing only.

Tpend

Holds Trunks waiting for acknowledgement that they have been successfully hung-up.

Trbidle[0-4]

These queues (0 through 4) hold the available trunks in each Trunk Group. It is from these queues that trunks will be grabbed for Predictive Dialing. A trunk is considered idle if it is on-hook, been through the mandatory rest time, and is not assigned to some specialized trunk queue (such as the Third Party Trunk Queue, or Digital Station Trunk Queue).

Ttry

Holds Out-of-Service Trunks. Trunks on this queue will be tested periodically to see if they can be placed back in-service.

Wvoice

Calls in the process of doing Call Progress detection (voice detection) are stored here.

QMSG (qm)

This command displays information concerning the playing of Encore voice messages.

The -r flag rotates through the items on subsequent displays.

Table 5-10: QMSG Commands.

Command	Description
MSG#	Message number.
MSG_NAME	Encore Message Name.
LEN	Length (in seconds) of the voice message.

Table 5-10: QMSG Commands.

Command	Description
NO_PORTS	Number of times there were no DSPs were available to play a voice message. Consistent counts may indicate a shortage of Encore Ports. A TSP reconfiguration may be in order.
TRUNK QUEUE	Current and Peak number trunks waiting for this voice message to begin. When the message starts, it plays to all trunks simultaneously.
FLAGS	Internal message flags. 0x0004 Message flagged for deletion. 0x0008 Message flagged to check if still exists.
DSPS	Current and Peak number of DSPs used to play this message.
PLAYS	Total number of times this message was played. .  **Note:** It is not a count of the number of parties that this message was played to. Remember, a single instance of a play can be connected to multiple parties

QPORT (qp)

This command will display all Encore Voice Messages currently playing, and the Stations or Trunks that are listening to the messages.

Table 5-11: QPORT Command.

Command	Description
DSP	nth DSP that is being used to play the voice message.
MSG_NAME	Encore Message Name. This should be the name of a file in the “/usr/vox” directory or the “pmt” directory.
PORTS	Stations or Trunks listening to this instance of the voice message. The Stations and Trunks are displayed as S<xxxx> or T<xxxx> where <xxxx> is the actual station or trunk number.

QUIT

Exit the Admin_Terminal

RECBITS

Displays a Record Options mask similar to the “install” and “options” masks. The appropriate bits can be modified to alter the behavior.

Example:

```
Enter Command-> recbits
```

```
RecBits =  0e
0  Recording Required
1  0 = Move File.  1 = Concatenate File.
1  Record 1 Minute  Snipits
1  Use Closing Threads

0  Use VCE instead of ADI
0
0
0

0
0
0
0

0
0
0
0
```

Recording Required

If this bit is set, then the TSP will stop dialing if any of the recording components are not operational.

0 = Move File 1 = Concatenate

Defines whether snippet files should be moved or concatenated.

Record 1 Minute Snippets

If this flag is turned off, then TSP will record a single audio file rather than 1-minute snippets.

Use Closing Threads

Specifies whether a thread should be used to close audio files. This also affects TTS and should normally be set to one.

Use VCE instead of ADI

Specifies to use the alternate method for recording. Under VCE there are no buffer full events generated. However, there may be gaps between the snippet recordings. If snippets are not used, then VCE is the preferred method. If snippets are used, ADI is the preferred method.

RECSTATE

This command display information about the state of the recording components.

Example

```
Enter Command-> recstate

RecControl           is UP
RecWatch Daemon      is UP
RamDrive Space       is OK
ServerAccess         is UP
SharedDisk Space     is OK
RecControlCnt            0
RecCount Current:        0   RecCount Peak:       0
RecSuccess:              0   RecFail:             0
```

RecControl

Displays the status of the link to the Record Management Module. This Link is tunneled through the CTI link, via the SIP Process On E2. If Protocol C recording control messages, or Heart Beats are received from the Recording Control Modules, the link is considered 'UP'. If the TSP stops receiving Heart Beats from the Recording Control, the TSP will condiser the link is 'Down'.

RecWatch Daemon

Displays if the daemon is UP or DOWN. The daemon is assumed to be UP if it has successfully established an IP connection to the TSP. The TSP will reject any requests for recording until RecWatch is UP.

RamDrive Space

Displays "LOW", if the available space on the Ram Drive is below 5%. RecWatch monitors the available drive space of the RecServer and informs the TSP when it is low, and when enough space has been mad available to resume recording. If RecWatch reports low drive space, the TSP will stop recording until space is restored.

Server Access

Displays whether the RecWatch daemon can successfully access the shared drive on the RecServer. Specifically, RecWatch checks its ability to access the /home/EncWorkingData/ImportData directory on the RecServer. If RecWatch cannot access the directory, the TSP is notified, and recording stops.

SharedDisk Space

Displays "LOW", if the available space on the shared drive of RecServer is below the configured minimum. (4 G-bytes)

RecControlCnt

The Number of 'control" messages received from the Recording Management Module RRM

RECORD (rec)

Records the specified Voice Message from the specified Station.

Syntax: record <message name> <station number>

The <message name> is the file name of the voice message (including any extension). The file will be written to the /usr/vox directory. When this command is entered, the user will hear a beep signifying it is OK to begin recording. When the user wishes to stop recording, he/she should press **Enter** again.

Note:
If voice messages are created external to TSP, they must adhere to the TSP format of 8Khz, 8bit, and U law or A law companding.

You can use the play command to ensure the voice message was recorded properly. Although the filename of the voice message will be stored with a .wav extension, it should not be entered at the Admin Terminal.

Example: Record hello 23

The above command will record a voice file named hello.wav from station 23. It will be stored in the /usr/vox directory.

RLOOP

Establishes a Remote Loopback on the specified T1 or E1 span.

Syntax: rloop <span #>

Note:
This feature is not available at this time.

The span # is the card slot number displayed in the slots screen. Any span that is in remote loopback will have the text R_LOOP displayed at the end of the line associated with that span.

Entering the same command again will toggle the remote loopback off.

SHOOK

Forces a toggle of the specified station's hook status.

Caution!
This command should NEVER be used on a live system. It is intended for engineering use only, or systems running in simulation.

Syntax: shook <station number[or range of stations] >

SHOW (sho)

This command displays information on a variety of components.

This command may be entered with the clear stats switch (-c), or the rotate through switch (-r), if specified below.

The following are valid show commands.

show board

Displays Board related information.

Table 5-12: show board.

Command	Description
Board	Board ID Number.
Slot	PCI Slot Number.
Bus Connections	Number of MVIP Bus Connections for this board.

show camp

Displays Campaign related information. This command can be entered with the rotate through switch (-r).

Table 5-13: show camp.

Command	Description
C#	Campaign Number
LG	Number of Agents logged into the Campaign.
WT	Number of Agents waiting for calls.
CN	Number of Agents talking on a call.
TNU	Number of Telephone Numbers waiting to be dialed.
HLQ	Number of calls waiting for an available agent.
DIALS	Current calls being Dialed.
TOTDL	Total Dials.
CONNS	Total Calls connected to agents.
MACHS	Total Answering Machines.
ABANS	Total Abandoned Calls.

Table 5-13: show camp.

Command	Description
RNA's	Total Ring No Answers.

Example: show camp –a

Displays Campaign related information plus algorithm stats

Table 5-14: show camp –a"

command	Description
C#	Campaign Number
LG	Number of Agents logged into the Campaign
WT	Number of Agents waiting for calls.
CN	Number of Agents talking on a call.
TNU	Number of Telephone Numbers waiting to be dialed.
DIALS	Current calls being Dialed.
TOTDL	Total Dials
CONNS	Total Calls connected to agents.
SWT	Short Term Agent Wait time.
WT	Long Term Agent Wait Time
ARATE	Current Abandon Rate.

show cause

Displays Campaign related information. This command can be entered with the clear stats switch (-c).

Table 5-15: "show cause"

command	Description
Cause	Cause code as a decimal number.
hex	Cause code as a hexadecimal number.
hex	Application cause code as a hexadecimal number.
APP_Event	Application event associated with this application cause code.
Count	Count of occurrences of this cause code.

show cmon

This command will display any active Client Monitors in the TSP. It will show:

- **The Client ID** – The Client ID the Client logged into.
- **Caller ID of Client** - The originating telephone number of the Client.
- **State** - Either waiting or monitoring.
- **Station** - The station the client is currently listening to.

Example

The Client that called in from **4037773434** and logged into Client ID **7777** is currently **monitoring** station number **5.**

```
Enter Command-> show cmon

Client    Caller ID (ANI)    State          Station
------    ---------------    -----          -------
 7777     4037773434        monitoring      5
```

show dsp

Display DSP related information. This command can be entered with the rotate through switch (-r).

Table 5-16: show dsp.

Command	Description
DSP	DSP number and name(dspB<Board>S<stream>C<channel>)
[Matrix]	Internal matrix number
ListenTo[Mtx]	Trunk, Station, DSP device the DSP is listening to and its matrix number. Trunk, Station and DSP are respectively displayed as T<xxxx>, S<xxxx> or D<xxxx> where <xxxx> is the actual Trunk, Station, or DSP number.
Queue	Name of the queue the DSP is currently on.

show dstation

Displays a variety of information on Digital Stations. This command can be entered with the rotate through switch (-r).

Table 5-17: show dstation.

Command	Description
DS#	Digital Station Number.
Type	Type of digital station. (out = outbound)
MTX	Matrix number associated with this digital station.
HOOK	Hook state. (ON or OFF)
Camp	Campaign Number if logged into a campaign, otherwise 0.
ListenTo[Matrix]	Trunk, Station, DSP device the digital station is listening to and its matrix number. Trunk, Station, and DSP are respectively displayed as T<xxx>, S<xxx>, D<xxx> where <xxx> is the actual Trunk, Station,or DSP number.
Queue	Name of the queue the digital station is currently on.
trk	Trunk currently connected to. (0= no connection)
teln	Telephone Number if connected to a call.

show errors

Displays various error counts, and some statistics.

Table 5-18: show errors.

Command	Description
Call	Count of times an attempt to launch a call failed.
CallProg	Count of times an attempt to start Call Progress detection failed.
DropCall	Count of times an attempt to drop a call failed.
Connect	Count of times an attempt to connect devices failed.
TaskFail	Count of times NMS was unable to perform a DSP operation.
ZapprCnt	Count of times a telemarketing zapper was detected.
TrunkErr	Count of times a Dial failed for any reason.
UnsolErr	Count of times unexpected events were received.
DialTMO	Count of times we never detected any Call Progress.

Table 5-18: show errors.

Command	Description
TpendTMO	Count of Times NMS never acknowledged a Drop-Call.
PrioDial	Count of priority dials. (NOT AN ERROR)
PrioRisk	Count of agents who went on-hook while in the wait state. (NOT AN ERROR)
PrioFail	Count of priority dial failures. An abandon of a previously abandoned call. (NOT A TSP ERROR)

show group

Displays the Trunk Numbers assigned to each Trunk Group.

show monids

From the AdminTerminal, you can display the currently configured IDs and passwords using the "**show monids**" command.

Example:

```
Enter Command-> show monid

ClientID    Password    Caller ID (ANI)
--------    --------    ---------------
    1234        5678    2035551212
    9999        9999

Enter Command->
```

show ports

Displays trunk port related information. This command can be entered with the rotate through switch (-r).

Table 5-19: show ports.

Command	Description
TK#	Trunk number.
S	State: o = out of service, d = Digital Station, t = Third Party, i = Inbound
G	Group this trunk belongs to.
State	Application State: IDLE DIAL PROG CONN HANG

Table 5-19: show ports.

Command	Description
Zflags	Internal flags.
Tflags	Internal flags
Trunk	TrkB<Board>S<stream>C<channel>
Mtx	Internal matrix number
ListenTo[Mtx]	Trunk, Station, DSP device the trunk is listening to and its matrix number. Trunk, Station and DSP are respectively displayed as T<xxxx>, S<xxxx> or D<xxxx> where <xxxx> is the actual Trunk, Station, or DSP number.
DSP	Address of DSP attached to this device

show stat

Displays a variety of information on Stations. This command can be entered with the rotate through switch (-r).

In the show stations display, the Dtrk field displays the digital station trunks associated with the station.

The MTX column displays the “matrix number” of the station.

Example:

```
ST# Type  Dtrk  [Mtx]   HOOK  Camp  ListenTo[Mtx]  Queue      trk
teln
  1  inb   289 [0240]*   OFF     2   Parked[7fff]  waitque      0  .
  2  inb   290 [0242]*   OFF     2   Parked[7fff]  connque      0  .
  3  inb   291 [0244]*   OFF     2   Parked[7fff]  waitque      0  .
  4  inb   292 [0246]*   OFF     2   Parked[7fff]  connque      0  .
  5  inb   293 [0248]*   OFF     2   Parked[7fff]  connque      0  .
  6  inb   294 [024a]*   OFF     2   Parked[7fff]  waitque      0  .
  7  inb   295 [024c]*   OFF     2   Parked[7fff]  connque      0  .
  8  inb   296 [024e]*   OFF     2   Parked[7fff]  waitque      0  .
  9  inb   297 [0250]*   OFF     2   Parked[7fff]  connque      0  .
 10  inb   298 [0252]*   OFF     2   Parked[7fff]  connque      0  .
 11  inb   299 [0254]*   OFF     2   Parked[7fff]  connque      0  .
 12  inb   300 [0256]*   OFF     2   Parked[7fff]  connque      0  .
 13  inb   301 [0258]*   OFF     2   Parked[7fff]  connque      0  .
 14  inb   302 [025a]*   OFF     2   Parked[7fff]  connque      0  .
 15  inb   303 [025c]*   OFF     2   Parked[7fff]  connque      0  .
 16  inb   304 [025e]*   OFF     2   Parked[7fff]  connque      0  .
 17  inb   305 [0260]*   OFF     2   Parked[7fff]  connque      0  .
```

```
18  inb   306 [0262]*   OFF     2   Parked[7fff]  waitque      0  .
19  inb   307 [0264]*   OFF     2   Parked[7fff]  connque      0  .
20  inb   308 [0266]*   OFF     2   Parked[7fff]  waitque      0  .
```

Table 5-20: show stat.

Command	Description
ST#	Station number
Type	Type of digital station. (out = outbound, inb = inbound)
Dtrk	Digital trunk slot associated with this digital station.
[Mtx]	Matrix number associated with this station.
Hook	Hook state. (ON or OFF)
Camp	Campaign Number if logged into a Campaign, otherwise 0.
ListenTo[Mtx]	Trunk, Station, DSP device the station is listening to and its matrix number. Trunk, Station and DSP are respectively displayed as T<xxxx>, S<xxxx> or D<xxxx> where <xxxx> is the actual Trunk, Station, or DSP number.
Queue	Name of the queue the station is currently on.
trk	Trunk currently connected to. (0 = no connection)
teln	Telephone number if connected to call.

show switch

Displays the switch connections for every device defined. This command can be entered with the “rotate through” switch (-r).

Table 5-21: show switch.

Command	Description
MTX	Internal Matrix Number.
MVIP	MVIP Bus Connection: <Board-Stream-Timeslot>.
Local	Local Connection on board: <Board-Stream-Timeslot>.
Device	Hook state. (ON or OFF)
ListenTo[Mtx]	Trunk, Station, DSP this device is listening to and its matrix number. Trunk, Station and DSP are respectively displayed as T<xxxx>, S<xxxx> or D<xxxx> where <xxxx> is the actual Trunk, Station, or DSP number.

show trunks

Displays a variety of information on Trunks. This command can be entered with the “clear stats” switch (-c), or the “rotate through” switch (-r).

Table 5-22: show trunks.

Command	Description
TK#	Trunk Number
S	State: o = out of service, d = Digital Station, t = Third Party, i = Inbound
G	Group this trunk belongs to.
Dials	Total Dials.
Conns	Total Calls connected to agents.
Rna’s	Total Ring No Answers
Busys	Total Busys
InCmp	Total Incompletes
API	Total NMS API errors.
Seize	Total dials that failed during call setup.
Glare	Total dials that found an incoming seizure waiting when attempting an outbound dial.
IC	Total SIT count - Changed or Disconnected.
RO	Total SIT count - Reorder.
NC	Total SIT Count - No Circuits.
VC	Total SIT Count - Vacant Number.

show util

If entered without arguments, it will display trunk use for the previous twenty minutes. If a specific time is entered, that period will be displayed. The “**-r**” options can be used to rotate through the previous 24 hours.

The following describes the various columns in the display:

Table 5-23: show util.

Column	Description
Time	The time displayed in hours and minutes.
Inventory	The average number of trunks assigned for use as predictive dialing trunks.

Table 5-23: show util.

Column	Description
Usage(%)	The percentage of trunks that were in use during that minute.
Trunk-Bound(%)	The percentage of time that the TSP was out of trunks during that minute.
ActiveAgents	The average number of agents that were either waiting for a call, talking on a call, or in after call work during that minute.

SILENCE_DB

Sets and/or displays the current after-voice silence decibel level to be used during call progress analysis in order to determine live voice.

Syntax: silence_db <level>

SILENCE_TIME

Sets and/or displays the minimum silence time after voice has been detected during call progress analysis to determine live voice.

Syntax: silence_time <time in milliseconds>

SIMCAMP

Forces Stations to an off-hook state. This command should NEVER be used on a live system.

Note:
This is intended for engineering use only.

SIMIN

Used for Inbound Simulation.

Note:
This is intended for engineering use only.

SLINE

Allows data and audio monitoring of the specified station number. If entered without a Station Number, only text messages (indicating the various states the station number has entered) will be displayed. If a Station Number is entered then the received audio of the station number is piped to the Station Number.

Syntax:

```
sline <station number> [Station Number]
```

SLOTS (sl)

The slots command displays information on a trunk card basis. A trunk card, in the view of TSP, is a single span. The current version of the TSP can hold 48 spans.

This command can be entered with the “clear stats” switch (-c), the “rotate through” switch (-r), or the “query status” switch (-q).

NMS boards may have more than one span on a board. But, from the TSP’s perspective, it views them all as single span boards. So, there is no correlation between the slot number and NMS board number. You would have to know exactly the type of NMS board installed to determine what NMS board is associated with which span.

The slots Screen

The **slots** screen displays the station numbers associated with the digitals station trunks.

Example:

Sl:	Protocol	Trunks	Stations	Alarm	RD	BL	YL	SL	EC	BPV	LSY	FE	LOS
* 1:	T wio	1-24			0	0	0	0	0	0	0	0	0
2:	T wio	25-48			0	0	0	0	0	0	0	0	0
3:	T wio	49-72			0	0	0	0	0	0	0	0	0
4:	T wio	73-96			0	0	0	0	0	0	0	0	0
5:	T wio	97-120			0	0	0	0	0	0	0	0	0
6:	T wio	121-144			0	0	0	0	0	0	0	0	0
7:	T wio	145-168			0	0	0	0	0	0	0	0	0
8:	T wio	169-192			0	0	0	0	0	0	0	0	0
9:	T wio	193-216			0	0	0	0	0	0	0	0	0
10:	T wio	217-240			0	0	0	0	0	0	0	0	0
11:	T wio	241-264			0	0	0	0	0	0	0	0	0
12:	T wio	265-288			0	0	0	0	0	0	0	0	0
13:	D wio	289-312	1-24	RL	1	0	0	0	0	0	0	0	1
14:	D wio	313-336	25-48	RL	1	0	0	0	0	0	0	0	1
15:	D wio	337-360	49-72	RL	1	0	0	0	0	0	0	0	1
16:	D wio	361-384	73-96	RL	1	0	0	0	0	0	0	0	1

Table 5-24: SLOTS Command

Command	Description
Sl	Slot (Span) Number. An "*" indicates this span is the Clock Master.
Type	T = Trunk D = Digital Station. For ISDN lines another 'D" next to the 'T' or 'D' indicates the D channel is down. **Example:** T Trunk (if ISDN, D-Channel is UP) D Digital Station (if ISDN, D-Channel is UP) TD Trunk – D-Channel is DOWN. DD Digital Station – D-Channel is DOWN
Protocol	Network protocol loaded into the firmware.
Trunks	Trunk Numbers associated with this span.
Alarm	Displays current Alarms R = RED, Y = YELLOW, B = BLUE, L = Loss of Signal.
RD	Historic count of RED alarms.
BL	Historic count of BLUE alarms.
YL	Historic count of YELLOW alarms.
SL	Count of slips.
TO	Count of timeouts that occurred on this span.
EC	Count of times error detection threshold was exceeded.
NA	Not applicable at this time.
BPV	Count of Bipolar Violations.
LSY	Count of Loss of Synchronization.
FE	Count of Framing Errors.
LOS	Count of Loss of Signal indications.

At the end for each line may appear a R_LOOP or L_LOOP if the span is in some form of loopback mode.

SPAN

This command is used to control the state of ISDN channels. Currently unavailable because features of this command are not fully supported by the TSP's board venter (NMS).

Table 5-25: SPAN Command

CMD	Function
m	Place specified ISDN span in Maintenance mode.
i	Place specified ISDN span In-Service.
o	Place specified ISDN span Out-of-Service.

Note:
Not all ISDN protocols support the above commands.

Examples:

span 34 m Place span 34 in maintenance mode.

span 34 o Place layer 2 for span 34 “out-of-service.”

span 34 i Place layer 2 for span 34 “in-service.”

SPSTUFF (sp)

Displays a variety of information regarding the specified station.

This command can also be entered with a “d” option to display hex dump information related to the station.

Examples:

sp 34 Display information about station 34.

sp 34 d Display a hex dump of station 34.

SRESET

Force a drop of the Digital Station Trunk associated with the specified station(s).

Syntax:

```
sreset <station number or range> <Insert Caution
message associated with TRESET command>
```

STATUS (st)

Displays Campaign Status on a specified Campaign.

The syntax is: status <campaign #>

Table 5-26: STATUS Command.

Command	Description
CAMP TYPE	Outbound, Inbound, or Validation.
LOGGED IN	Count of Agents currently logged in on this Campaign.
WAITING	Count of Agents waiting for calls.
TALKING	Count of Agents talking on calls.
TEL NUMBS	Count of telephone waiting to be dialed.
DIALS	Count of current Dials for this Campaign.
RING TIME	Average time the phone rang before called party answered.
WAIT TIME	Average (short term) time agents are waiting for calls.
ACC DIALS	Total Dials.
CONNECTS	Total Answered calls.
ABANDONED	Total Abandoned Calls.
RNA'S	Total Ring No Answers.
BUSY's	Total Busy Calls.
DIAL FAIL	Total Dial failures.
INCOMPS	Total Incomplete Dials.
MODEMS	Total Fax or Modems.
UNKNOWNS	Total Unknown SIT tones detected.
CNG_NUMS	Total (IC) type SIT Tones detected.
TRAFFIC	Total (NC) type SIT Tones, or Fast Busy detected.
OOS	Total count Trunks went Out of Service dialing on this Campaign.
ANS_MACH	Total Answering Machines detected.

SYSLOG

The **syslog** command is similar to the **install** or **options** command because it allows setting hexadecimal bits to control what messages are sent to the TspLogger.

The following shows the output of the "syslog command".

```
Syslog Options = 207f
```

```
1  Emergency
1  Alert
1  Critical
1  Error

1  Warning
1  Notice
1  Information
0  Debug

0
0
0
0

0
1  Send Manual Dial Info to TspLogger
0  Allow ALL T1/E1 Alarms to TspLogger
0  Use Strict RFC 3164 message format
```

An additions purpose of the “syslog” command is to send a test message to the syslogger.

Example:

```
syslog test
```

Notes:

- The Debug bit is normally turned OFF. It is for engineering use, and could flood the TspLogger with cryptic information meant for diagnostic purposes.
- “Allow ALL T1/E1 Alarms to TspLogger” is normally turned OFF. Normally the TspLogger will receive a de-bounced UP or DOWN message indicating a T1 or E1 span is in trouble. If all the T1E1 errors are sent to the TspLogger, it could flood the logger and make finding useful information difficult
- “Use Strict RFC 3164 message format” is a matter of choice. If it is turned on, the local time of the TSP sending the event will be logged.

TLINE

This command allows data and audio monitoring of the specified trunk.

Syntax: tline <trunk number> [station number]

This is useful command to judge the effectiveness of the Voice and Answering Machine Detection. If entered without a station number, only text mes-

sages (indicating the various states trunk has entered) will be displayed. If a Station Number is entered then the received audio of the trunk is piped to the station.

TONE_TIME

Displays or alters the qualification times used for tone detection. It temporarily overrides Dialing Rules keywords TONE_TIME1 and TONE_TIME2.

Caution!
Modifying these items can adversely effect tone detection on the TSP.

Syntax:

```
tone_time <time 1> <time 2>
```

TPLAY

Plays the specified Encore Voice Message to the specified Trunk.

Syntax: play <message name> <trunk #>

Note:
If voice messages are created external to TSP, they must adhere to the TSP format of 8Khz, 8bit, and U law or A law companding.

The <message name> is the file name of the voice message located in the /usr/vox directory. These voice files could have been created by the record command, or recorded elsewhere and deposited in the /usr/vox directory.

This command is for diagnostic purposes only.

TRESET

Resets call control information for the specified trunk.

Caution!
This command should NEVER be used on a busy trunk. Depending on the state of the trunk, this command may result in un-predictable behavior.

If a trunk becomes unusable due to errors, this command may restore the trunk to service.

Syntax:

```
treset [-s] <trunk number>
```

This command can be entered with the Start and Stop protocol switch (“-s”).

TRSTUFF (tr)

Displays a variety of information regarding the specified trunk.

This command can also be entered with an option used to control the state of ISDN channels, or to display hex dump information related to the trunk.

Table 5-27: Trunk Trace STUFF.

Command	Description
d	Display hex dump.
m	Place specified ISDN trunk in Maintenance mode.
i	Place specified ISDN trunk In Service.
o	Place specified ISDN trunk Out of Service.

The options (m,i,and o) are for ISDN lines only, and may not be supported on all protocol variants.

Note:
Not all ISDN protocols support the above commands.

Examples:

tr 34 Display information about trunk 34.

tr 34 d Display a hex dump of trunk 34.

tr 34 m Place trunk in maintenance mode.

tr 34 o Place layer 2 for trunk 34 “out of service.”

tr 34 I Place later 2 for trunk 34 “in service.”

VERSION

Displays a variety of configuration information:

Table 5-28: Configuration.

Command	Description
Name	The LOCNAME field in the Dialing Rules file (/usr/home/cpstsp/cps01/cfg/tsp.cnf). This field usually holds the name of the customer.
Version	The TSP release name, date of the last revision, and host name.
Country	The Country where the TSP is located.
Uptime	The days, hours, minutes, and seconds the TSP has been running.
campoffset	Index for the first Campaign on this TSP.
stationoffset	Index for the 1st Station on this TSP
trunkoffset	Index for the 1st Trunk on this TSP.
nstations	Number of configured Stations.

Table 5-28: Configuration.

Command	Description
nttrunks	Number of configured Trunks and Digital Stations.
mports	Number of DSP's configured for Record or Play features of Encore.
iwaittim	Rest time (in seconds) between successive dials on the same trunk.
AreaDigits	Number of digits in the Area Code for this Country.
PredTrunks	Number of predictive dialing trunks.
localwatt	Preferred trunk group for Local Dials.
mediumwatt	Preferred trunk group for Intra Latta Dials.
longwatt	Preferred trunks group for Long Distance dials.
intlwatt	Preferred trunks group for International dials.
Grp 0 - 4	Current Dialing Rules by trunk group.
LOCAL AREA CODES	Local Area Codes.
Global Caller ID Number	Global Caller ID Number if assigned.
Global Caller ID Name	Global Caller ID Name if assigned.

VOICE_LEAKAGE

Caution!
Modifying this item can adversely effect voice detection on the TSP.

Allows changing the leakage time variable. The default is 8. To set the value permanently, use the VOICE_LEAKAGE_TIME keyword in the Dialing Rules.

Syntax:

```
voice_leakage <leakage time>
```

VOICE_LENGTH

Caution!
Modifying this item can adversely effect voice detection on the TSP.

Allows changing the length of time variable. The default is 8. To set the value permanently, use the VOICE_LEAKAGE_TIME keyword in the Dialing Rules.

Syntax:

```
voice_length <medium length> <long length>
```

VOICE_NOISE

Allows changing the noise level. The default is 81920. To set the value permanently, use the VOICE_NOISE_LEVEL keyword in the Dialing Rules.

Caution!
Modifying this item can adversely effect voice detection on the TSP.

Syntax:

```
voice_noise <noise level>
```

VOICE_RATIO

Allows changing the voice to tone ratio. Higher numbers means less emphasis is given to tone and more to voice. The default is 196608. To set the value permanently, use the VOICE_TONE_RATIO keyword in the Dialing Rules.

Caution!
Modifying this item can adversely effect voice detection on the TSP.

Syntax:

```
voice_ratio <voice ratio>
```

VOICE_TIME

Displays or alters the qualification times used for voice detection. It temporarily overrides Dialing Rules keywords VOICE_TIME1 and VOICE_TIME2.

Caution!
Modifying this item can adversely effect voice detection on the TSP.

Syntax:

```
voice_time <time 1> <time 2>
```

VPARMS

Displays the current voice detection parameters and the Admin Terminal commands that can be used to dynamically tune them.

Chapter 6 Trunk Spans and Dialing Rules

This section addresses trunk spans and the Dialing Rule file. It includes the following sections:

- Common Directory
- trunks.cnf
- tsp.cnf (Dialing Rules)
- Building Dialing Rules Tutorial

Common Directory

A new configuration directory now contains files and directories for CPS Enterprise Edition systems. The directory is located under the */opt* directory and is named *ser* (the only other directory under */opt* is *nms*).

Table 6-1: Common Configuration directory.

File/ Directory	Description
cause.bin	ISDN cause code assignments.
country	A directory containing tone definition files for the various countries supported by the TSP.
cfig_data.cnf	Contains the current configuration of the system created by the TSP Configuration Tool.
dnis.cfg	Contains the Inbound default strategy.
inbmsg.tbl	Contains a list of Encore messages used when random timeout strategy is selected. For internal use only.
isdn.cnf	The ISDN Parameters created by the ISDN Configuration Tool.
license.txt	Contains the License Key.
music_db.cfg	Contains the decibel levels for playing Music-On-Hold file.
protocols.def	Contains the currently supported protocols.
simin.txt	Lists DNIS and ANI information for inbound simulation. For internal use only.
syslog.cnf	Configuration file for TSPlogger
tones.def	Contains the tone parameters. Copied from the country directory depending on the country specified during TSP Configuration.
trunks.cnf	Trunks configuration file. This file is created by the TSP Configuration Tool, and was formally in the /usr/home/cpstsp/cfg directory.

trunks.cnf

The trunks.cnf file contains configuration information concerning the type of Trunk Spans installed in your CPSEE_TSP500. It assigns the “protocol” to use (on a per span basis) when bringing up the CPSEE_TSP500.

Although multiple spans may reside on a single NMS board, the CPSEE_TSP500 views each span as an individual entity. Each span must be configured with the specific NMS protocol that will be used for that span.

Each span assignment also contains the letter “T” or “D.” “D” stands for Digital Station and is used to assign agent stations to remote phones over a digital TIE line. The “T” specifies that the span be used for normal Out-bound, Inbound, or Third Party trunks.

This file is built automatically by the TSP Configurator.

tsp.cnf (Dialing Rules)

The tsp.cnf file is the Dialing Rule file. Building Dialing rules can be somewhat complicated and quite often takes experience to utilize the full flexibility of the Dialing Rule scheme.

Although an in depth training course on Dialing Rules is outside the scope of this document, the following is a short tutorial on building Dialing Rules.

Building Dialing Rules Tutorial

The tsp.cnf file is accessible through the Configuration item in the TSP menu. Selecting the DialingRules item invokes a “vi” edit of the tsp.cnf file.

- The Dialing Rules file contains lines of configuration information, with one item per line. A single line must not exceed 80 columns.
- Each line of configuration contains a keyword, followed by the data.
- Keywords must use exact spelling and upper case characters only.
- Lines beginning with the “!” (Exclamation Character) are ignored and assumed to be commented out. Also, any text following an “!” (Exclamation Character) within the line is ignored and assumed to be commented out.

Key Words of Dialing Rules

The following keywords are shown with their default values. As with all keywords, it is not necessary to actually place these keywords in the Dialing Rules file. It is only necessary if you are modifying the default values:

AGENT_BEEP_TIME

This keyword assigns the length (in milliseconds) of the Beep heard by agents when a call is connected to the agent. The default is 150 (150 milliseconds.

Note:
Agents are “beeped” only for connected calls on Campaigns running “Answering Machine Detection”.

ALAW

This keyword assigns the type of audio compression to use. There are two types of audio compression used on telephony networks (A-law or Mu-Law). Mu-Law is used in the USA and Japan, while A-law is used for most other countries. This keyword should be set to 0 for Mu-LAW, which is used in the USA, Canada and Japan, and 1 for other countries that require A-law compression. This keyword is automatically written by the CPSEE_TSP500 configurator and should not be changed.

ANSM_SILENCE

This keyword specifies (in 100 millisecond increments) the duration of silence that must occur after a beep on an Answering Machine is heard before the ENCORE Message should be played. The duration should be of adequate length to ensure that the beep heard is in fact the last beep (in the case of multiple beeps). This analysis only takes place if an ENCORE message is to be played to Answering Machines detected on the specific Campaign. The default is two seconds (20 x 100 = 2000 milliseconds), and should not be changed unless advised to do so by Engineering.

ANSM_TIMEOUT

This keyword specifies the time (in seconds) that the AMD analysis will look for the beep at the end of the Answering Machine. If timeout occurs, the TSP will consider that the beep has been heard and play the appropriate ENCORE message. This analysis only takes place if an ENCORE message is specified to be played to Answering Machines detected during a specific campaign. The default is twenty seconds, and should not be changed unless advised to do so by Engineering.

ANSM_USETONE

This keyword specifies the method to be used for detecting when to play Encore messages to answering machines. The default value of this keyword is zero.

See Also:
Keyword ANSM_SILENCE.

```
ANSM_USETONE 0
```

Wait for a period of silence before playing the message.

```
ANSM_USETONE 1
```

Wait for the beep, and then wait a little longer to ensure it was the last beep.

AREACODE_DIGITS

This keyword defines the number of digits in the area code where the TSP is installed. For the USA this would be set to “3.” For other countries, you should set it appropriately.

AUTO_LOG

If non-zero, it instructs the TSP to automatically log events. The value is the decimal equivalent of the hexadecimal value of the bug setting. A typical setting would be

AUTO_LOG 319

:

Caution!
This equates to “bug 13f” With this flag turned on, certain Admin_Terminal commands may appear not to work. However, it is possible that the output (that would normally go to the screen) may be going to the log files.

You can turn logging off via the “log” command. You may first want to type “bug 0” to prevent all the BUG messages from flooding the screen.

CALLING_NUMBER

This keyword defines a global originating number to be sent as Caller ID information over ISDN lines. The TSP allows originating information to be sent on a dial-by-dial basis, campaign basis, and a globally-assigned basis. The precedence is:

Note:
Caller ID Text can only be assigned by CPS Enterprise Edition. There is no keyword that assigns a default.

1. Number by Number
2. Campaign Assigned
3. Global Assignment

The number assigned by this keyword can be overwritten by the Call Manager or Gateway (and usually is).

CLOCK_MASTER

This keyword specifies the span to be designated the Primary Clock.

CLOCK_POLL

This keyword specifies (in seconds) the time to wait between processing clocking information. The default is five seconds, which should not be changed unless advised to do so by Engineering.

CONN_THREAD

This keyword is reserved for Engineering and should NEVER be modified unless instructed to do so by Engineering. The default value for this keyword is zero.

COUNTRY

This keyword identifies which country the CPSEE_TSP500 is located in. It is automatically assigned by the TSP Configuratior and should not be changed.

DEFAULT_BILLING

This keyword assigns the default "billing digits." They are used if the Call Manager fails to assign send them in the dial request. They are also used for non-campaign dials.

Example:

```
DEFAULT_BILLING 1234
```

Currently the Adjunct can only assign a maximum of four "billing digits." The TSP500 can handle up to sixteen digits. If more than four digits are required, the additional digits can be placed into the Dialing Rule.

Example:

```
"1dP2c"
```

In the first example, "1" plus the phone number is dialed. Then a three-second pause occurs, followed by the DTMF digit 2, and then the assigned "billing digits." If no "billing digits" are assigned to the campaign associated with the dial (or it was a non-campaign related dial), the default "billing digits" are used (if assigned). Remember the default "billing digits" are assigned using the **DEFAULT_BILLING** keyword.

Table 6-2: Dial String Control Characters

Character	Description
0 – 9, *, #	Any discrete digits or the asterisk or pound sign can be entered.
d	Dial full phone number.
D	Dial phone number. Strip area code.
P	Pause 3 seconds
p	Pause 1 second.
T or t	Look for tone. Minimum duration is configured by the keyword TONE_TIME. The default is 100 milliseconds.
c	Send Billing Digits.
i	Send International Country Code.
n	Look for silence. Not used on TSP500.

Examples

The following "ver" screen shows three trunk groups configured for Billing Digits. From the dialing rules it can be assumed that the customer required a five-digit billing code for TrunkGroup 0. Because the Call Manager only supports four digits, the "2" was added to the dialing rule. This of course means that the billing digits will always begin with a "2." (21234, 29877, etc.)

Also note that on Trunk Group 0 and 1, the TSP is instructed to wait for a tone before pulsing out the "billing digits." On Trunk Group 2, a four-second pause is needed. Observe the upper case "P" plus the lower case "p" equals four seconds (three seconds plus one second).

```
ver
Enter Command->
SER Solutions - Dialing Rules
Version CPS_TSP500.02 004.11 August 11,2005 [tspdev2]
Country = USA
Uptime:(DDD:HH:MM:SS) 000:03:17:28
campoffset    0     stationoffset  0
trunkoffset   0     nstations      192
Nttrunks      960   mports         277
iwaittim      4     AreaDigits     3
PredTrunks    768   localwatt      0
Mediumwatt    0     longwatt       0
intlwatt      0     AMD RingCnt    1
 Grp 0:    DT2c, DT2c,  dT2c,  dT2c, dT2c, 011idT2c,
 Grp 1:    DTc,  DTc,   dTc,   dTc,  dTc,  011idTc,
 Grp 2:    DPpc, DPpc,  dPpc,  dPpc, dPpc, 011idPpc,
 Grp 3:    d,    d,     d,     d,    d,    011id,
 Grp 4:    d,    d,     d,     d,    d,    011id,
LOCAL AREA CODES:  203
Default Billing Digits:  1234
```

Notes:

- If a "T" or "t" is entered into the dialing rule, the TSP will timeout after ten seconds if it has not detected a tone. The dial then fails. If it is a predictive dial, the "DI" message (incomplete) will be sent to the Call Manager.
- Timeouts looking for tone (T or t) will bump the **DialTO** stat in the "**show error**" screen. They will also be counted in the "**Seize**" column of the Admin Terminal "**show trunks**" screen.
- Default Billing Digit assignments will be displayed in the "**ver**" screen.
- For Manual Dials, "post_digits" are not used. That is, the Manual Dial does not process any dialing rule characters after the "d" or "D" in the dial string. This allows callers to hear billing digit tones from the carrier.

DEVICES_PER_THREAD

This keyword is reserved for Engineering and should NEVER be modified unless instructed to do so by Engineering. The default value for this keyword is zero.

DIALED_DIGITS_ANI

This keyword indicates that dialed digits are to be placed in the ANI field when the call is launched. This was needed when dialing through the Aspect switch.

DISABLED_TRUNKS

This keyword specifies a trunk or range of trunks that are considered disabled. As disabled trunks, they will not be used for dialing, and error reports on them will NOT be sent to the Call Manager. This keyword is generally used to disable trunks that are expected to be out-of-service permanently or for an extended period of time.

Trunks can be entered either as individual numbers, or ranges.

Example:

```
DISABLED_TRUNKS 3 5 17-29
```

DISPLAY_IE_TAG

This keyword specifies a tag to be inserted into the Display IE for delivering Caller ID Name. Nortel requires a 0xB1. AT&T on a 4e wants no tag. Note: The value associated with the keyword must be entered as decimal.

Example: For a hex B1, enter the following:

```
DISPLAY_IE_TAG   177
```

DOWNLOAD_BOARDS

This keyword indicates whether the NMS boards should be downloaded with firmware prior to starting the TSP application. This keyword should always be set to one unless instructed by engineering to change it.

INBOUND

This keyword specifies a trunk or range of trunks that are considered Inbound only trunks. Trunks can be entered either as individual trunks, or ranges.

Note:
This keyword is generally NOT used. The Call Manager or Gateway normally assigns trunks to be used as Inbound Trunks.

Example:

```
INBOUND 3 17-19
```

INTL_WATT

This keyword specifies a trunk group preferred for use when dialing International telephone numbers. This is a trunk preference, and not a guaranteed

assignment. That is, if at the time of the dial request, no trunks are available in that specified trunk group, a search will begin for a trunk in another group. In order to dial internationally, the install flag INTERNATIONAL must be set to a 1. If this flag is set, all telephone numbers arriving at the TSP must have a three-digit country pre-pended to it, even if it is a non-international number. For example; if the INTERNATIONAL flag is set for a TSP in the USA, USA numbers must arrive at the TSP in the form 0012035551212. (001 is the country code for the USA).

INTRUSION_TONE

Some countries outside the USA require that an Intrusion Tone be played to agents and called parties if they are being monitored. The frequency, cadence and decibel level of this Intrusion Tone can be different for each country that requires it.

If the **INTRUSION_TONE** keyword is NOT defined in the Dialing Rules file, or is defined, and set to zero, there will be no Intrusion Tone injected into calls that are monitored.

If the **INTRUSION_TONE** keyword is set to one (1), the tone (specified by the **ITONE** parameter in the **tones.def** file) will be injected into calls being monitored. This includes both two-party calls and conferences that are being monitored.

The default is for Intrusion tone is to be turned OFF. To specify that the Intrusion tone should be used, enter the following line into the Dialing Rules.

INTRUSION_TONE 1

IVR_TRUNKS

The IVR_TRUNKS keyword assigns specific trunks to the IVR Trunk Queue. It is this queue where trunks are grabbed for external transfers via the internal IVR. Trunks can be assigned individually, in contiguous ranges, or both.

Example:

```
IVR_TRUNKS  1 3-43 47 48
```

LOCAL_AREACODE_00

Specifies the area code where the TSP is located. It is your Local Area Code.

Note:
Only one area code can be specified.

LOCAL_AREACODE_01 through LOCAL_AREACODE_31

Note:
Only one area code can be specified per LOCAL_AREACODE_<#>..

Specifies other area codes that have telephone numbers local to you.

LOCAL_EXCHANGE_0 through LOCAL_EXCHANGE_31

Associated with each Area Code is exchanges within the specified Area Code that are local to your TSP. These exchanges are specified in the keywords LOCAL_EXCHANGE_0 through LOCAL_EXCHANGE_31. LOCAL_EXCHANGE_0 are the local exchanges that are local within your Area Code.

LOCAL_WATT

This keyword specifies the preferred trunk group to use when dialing local telephone numbers. This is a trunk preference, not a guaranteed assignment. That is, if at the time of the dial request, no trunks are available in that specified trunk group, a search will begin for a trunk in another group.

LOCNAME

This keyword identifies a line of text that will appear when Admin Terminal command ver is invoked. This text can be anything, but is usually delegated to the Customer Name and CPS Enterprise Edition number.

LONG_WATT

This keyword specifies the preferred trunk group to use when dialing Long Distance telephone numbers. This is a trunk preference, and not a guaranteed assignment. That is, if at the time of the dial request, no trunks are available in that specified trunk group, a search will begin for a trunk in another group.

MAX_LOGSIZE

This keyword defines the maximum size of a TSP log file in one megabyte increments. The default is 520 (520 megabytes). There can be up to seven TSP log files (one for each day of the week). So, the maximum disk space used for TSP logging will be seven times the value of this keyword (3.64 gigabytes).

MAX_TRUNK_ERR

This keyword defines the number of consecutive trunk errors that must occur before a trunk is temporarily disabled. See keyword TRUNK_CHECK_TIME.

MEDIUM_WATT

This keyword specifies the preferred trunk group to use when dialing Intra-Latta telephone numbers. Intra-Latta numbers are those numbers that are in our Area Code, but not considered local. This is a trunk preference, and not a

guaranteed assignment. That is, if at the time of the dial request, no trunks are available in that specified trunk group, a search will begin for a trunk in another group.

MONITOR_ONLY

This keyword specifies Stations, or a range of Stations, that can Manual Monitor, also known as Voice only monitor. These are stations that will NOT be used as Agents. You can assign a maximum of 32.

Stations can be entered either as individual numbers, or ranges.

Example:

```
MONITOR_ONLY 3 5 17-29
```

MONITOR_ASSIGN

This keyword restricts a Manual Monitor to specific stations. If a Manual Monitor attempts to monitor a station that is not in its assignment list, a “fast busy” tone will be played to the Monitor. The following rules apply:

- Monitors who have no assignments are allowed to monitor all agents.
- Multiple “MONITOR_ASSIGN” keywords may be present in the Dialing Rules, but only one monitor may be assigned per entry.
- Multiple entries can be used for the same Monitor
- Agent stations may be entered as individual numbers or ranges.
- The Admin Terminal command “load misc” can be used to activate changes.
- Different Monitors can monitor the same station.

Syntax:

```
MONITOR_ASSIGN <monitor> <station number or range of stations>
```

Example:

```
MONITOR_ASSIGN    4    1-24
MONITOR_ASSIGN    4    72-80
MONITOR_ASSIGN    20   72-80
```

NAI_ZERO

This keyword specifies whether the NAI (Network Access Identifier) for ISDN lines should always be zero, or consecutive unique numbers. Typically, our connections to ISDN lines require that the NAI be zero. It is automatically assigned by the TSP Configurator.

NUM_STATIONS

This keyword specifies how many stations can be connected to the TSP. This number includes all agents and voice monitoring stations, it is automatically assigned by the TSP Configurator.

NUM_TRUNKS

This keyword specifies the total number of trunks and Stations configured on the CPSEE_TSP500. It is automatically assigned by the TSP Configurator.

OUTBOUND_DIGITAL_TRUNKS

This keyword assigns trunks that will be used for Outbound Digital Stations

Digital Stations are identified by the "D" character in the trunks.cnf file. By default all Digital Stations are assumed to be Inbound Digital Stations. This keyword must be used to change their default assignment to Outbound Digital Stations (sometimes called Remote Agents).

Example:

Assume T1 span 37 is to be used for Outbound Digital Stations:

```
OUTBOUND_DIGITAL_TRUNKS  865-888
```

PAMD_METHOD

See also:
Keyword VOICE_ANSM_MLENGTH.

This keyword indicates the type of Answering Machine Detection to be used. The default value of this keyword is zero.

```
PAMD_METHOD 0
```

Allow NMS to determine voice length by indicating an interim time.

```
PAMD_METHOD 1
```

Determine voice length by timing voice begin to voice end.

Caution!
These changes are for engineering and should not be activated without their approval.

RECEIVE_PORT

This optional key word assigns the port that the TspRelay listens to. This key word is not needed if the default port of 514 is used.

Example:

```
RECEIVE_PORT 1199
```

REVERSE_STATIONS

This keyword indicates that the stations will be mapped to digital trunk spans in the reverse order (starting at the last span). This will allow customers to add stations without moving cables.

Example:

	REVERSE_STATIONS Value	
Digital Trunk Spans	0	1
37	1-24	49-72
38	25-48	25-48
39	49-72	1-24

RNA_EXTEND_TIME

This keyword specifies the number of seconds to extend call analysis if the Ring No Answer timeout has occurred but the call has been answered.

RULE_0 through RULE_4

There are five trunk groups within the CPSEE_TSP500. Trunk Group 0 is the default for all trunks not assigned elsewhere. Each trunk group has a dialing rule associated with it.

This keyword specified the method of dialing on the indicated trunk group for the various dial types supported (six of them). A vertical bar separates each dial specification.

The following is an explanation of the various dial types associated with each trunk group.

1. Local telephone number.
2. Local, but NOT in our area code.
3. Intra-Latta – Not local, but in our area code.
4. Long Distance.
5. Special. This rule is used for telephone numbers that are less than ten digits (USA only). For example, an extension on a PBX is considered Special. Special is also the rule that will be used for dialing Remote Agents (Outbound Digital Stations).
6. International dialing.

Individual dialing rules can be made up of various characters. The following is an explanation of those characters.

Table 6-3: Dialing Rules Special Characters

Character	Description
0 thru 9	DTMF digits added to the dialed number.
D	Dial only the local number (strip the area code)
d	Dial the complete telephone number.
p	pause one second.
P	pause three seconds.
t (or T)	Look for tone.
c	Add campaign Billing Digits.
i	Add Country Code (for international dialing).
*	DTMF Digit (asterisk)
#	DTMF Digit (pound sign)

The character “n” is kept for backward compatibility, and equates to a one second pause.

SPYLIST

This keyword specified a station, or range of stations, that are allowed to Manual Monitor. These are normal Agent Stations that are assigned Monitor capability. You can assign a maximum of 32. This should not be confused with MONITOR_ONLY stations that will be explained later.

Stations can be entered either as individual numbers, or ranges.

Example:

```
SPYLIST 3 5 17-29
```

THIRD_PARTY

This keyword specifies a trunk or range of trunks that are considered Third Party only trunks. Trunks can be entered either as individual numbers, or ranges.

Note:
This keyword is generally NOT used. The Call Manager or Gateway normally assigns trunks to be used as Third Party Trunks.

Example:

```
THIRD_PARTY  3 5 17-29
```

TONE_FREQ 450

Caution!
This item is intended for engineering use, and should not be modified unless instructed by engineering.

TONE_FREQ specifies the frequency of the tone to be detected after the telephone number has been launched. It is the mid-range frequency of the expected tone. The default value for this keyword is 450Hz.

TONE_RANGE

Caution!
This item is intended for engineering use, and should not be modified unless instructed by engineering.

This keyword specifies the bandwidth of the frequency of the tone to be detected after the telephone number has been launched. In other words, the TSP will detect TONE_FREQ (plus or minus) (TONE_RANGE/2). The default value for this keyword is 300Hz. See keyword TONE_FREQ.

TONE_TIME

This keyword specifies the duration of the tone to be detected after the telephone number has been launched. The default value is 100 milliseconds.

TONE_TIME1 and TONE_TIME2

Caution!
This item is intended for engineering use, and should not be modified unless instructed to by engineering.

These keywords control the minimum time needed for detecting tone.

TOSSED_MESSAGES

Caution!
This keyword should not be turned on unless approved by engineering.

This keyword indicates whether the TSP will or will not block on the transmit socket. Blocking on this socket could cause the NMS queues to become to overflow and become out of sync with the TSP application. The default value of this keyword is zero.

TRUNK_CHECK_TIME

This keyword defines the time (in minutes) that trunks, disabled by too many consecutive errors, will be retried. See keyword MAX_TRUNK_ERR (default is five minutes).

TRUNK_GROUP_0 through TRUNK_GROUP_4

These keywords assign specific trunks to different trunk groups. Any trunks not assigned are automatically assigned to Trunk Group 0.

Trunks can be entered either as individual numbers, or ranges.

Example

```
TRUNK_GROUP_1   3 5 17-29
```

TRUNK_IDLE_TIME

This keyword defines the minimum time a trunk must rest (in seconds) before being used again. The default is four seconds.

USE_SILENT_COACHING

Silent Coaching is the ability for a supervisor to talk to an agent without other parties on the call hearing the supervisor.

If this keyword is set to 1, then the current "Barge-In" feature will be replaced with the Silent Coaching capability. This will allow us to provide Silent Coaching capability to customers before adjunct development is completed.

Note:
Due to the nature of two-wire telephony, it is possible for some of the audio reaching the agent's handset to bleed over onto the transmit side of the telephone connection. If this were to happen, other parties may hear the coach. This is external to, and outside the control of, the TSP.

Turning this feature on or off does NOT require a TSP restart. The keyword can be changed dynamically by making the change in the DialingRules, and activating it using the "**load all**" command in the AdminTerminal.

Example
Add the following line to the DialingRules:

```
USE_SILENT_COACHING  1
```

Type "**load all**" at the AdminTerminal

Rules

- The Supervisor (coach) does not need to establish a monitoring session prior to requesting Silent Coaching. (It can – but does not need to.)
- Only one Silent Coach is allowed per agent.
- Other Monitors on the call will NOT hear the coach.
- If the monitor session is stopped, Silent Coaching will automatically be stopped.
- Silent Coaching is NOT supported for Manual Monitors.
- Client Monitors can perform Silent Coaching. The agent will hear both the Supervisor and Client.
- Silent Coaching spans individual calls. That is, coaching continues between calls.
- If an agent places a call on-hold, the agent will still be able to hear the coach.
- Silent Coaching is supported for conferences.

VOICE_ANSM_LENGTH

This keyword specifies (in milliseconds) the minimum length of time continuous voice must be detected before classifying the call to be an answering

machine. The default is 2200 milliseconds (2.2 seconds), and should not be changed unless advised to do so by Engineering.

VOICE_ANSM_MLENGTH

This keyword specifies (in milliseconds) the minimum length of time continuous voice must be detected before classifying the call to be an answering machine. The default is 1600 milliseconds (1.6 seconds), and should not be changed unless advised to do so by Engineering. See keyword PAMD_METHOD.

VOICE_LEAKAGE_TIME

This keyword allows changing the noise level. The default is 81920.

Caution!

This item is intended for engineering use, and should not be modified unless instructed to by engineering.

VOICE_NOISE_LEVEL

This keyword allows changing the leakage time variable. The default is 8.

Caution!

This item is intended for engineering use, and should not be modified unless instructed to by engineering.

VOICE_SILENCE_LEVEL

This keyword specifies the maximum decibel level that is considered to be silence. The value entered is assumed to be negative. The default is 33db, and should not be changed unless advised to do so by Engineering.

VOICE_SILENCE_TIME

This keyword specifies (in milliseconds) the minimum length of a silence after voice has been detected before call analysis reports that live voice has ended. The default is 800 milliseconds, and should not be changed unless advised to do so by Engineering.

VOICE_TIME1 and VOICE_TIME2

These keywords control the minimum voice time needed before voice begin event is sent.

Caution!

This item is intended for engineering use, and should not be modified unless instructed to by engineering.

VOICE_TONE_RATIO

This keyword allows changing the voice to tone ratio. Higher numbers means less emphasis is given to tone and more to voice. The default is 393126.

Caution!
This item is intended for engineering use, and should not be modified unless instructed to by engineering.

WAIT_FOR_SUPERVISION

This keyword is used to determine when voice detection will begin on classified dials. It is needed due to a new service called PRB (Personal Ring Back) being offered by cell phone carriers. This service allows cell phone users to specify non-standard ringback tones or music to be played to calling parties.

If set to 0, voice detection begins once the classified call has completed dialing. If set to a 1, voice detection will not begin until “Answer Supervision” has been received. (someone has picked up the phone)

Call Progress such as Busy, Fast Busy, and SIT Tones will be detected prior to supervision regardless of the setting of this keyword. It is only voice detection and answering machine detection that is affected by this keyword.

Chapter 7 The TSP Configuration Tool

This section includes the following:

- Configuration Tool Overview
- Using the Configuration Tool
- Configuration Files
- Configuring the System
- Sample T1 Configuration Initialization
- Sample T1 Configuration Modification
- Sample E1 Configuration Initialization

Configuration Tool Overview

The CPSEE_TSP500 Call Processing System combines predictive dialing with voice recognition techniques and information processing. The CPSEE_TSP500 is a 1152 port switch that is provided in different configurations.

The CPSEE_TSP500 can support any multiple of inbound and outbound campaigns with up to forty in total.

The CPSEE_TSP500 distinguishes between busy signals, ring no answers, number unobtainable tones, fax/modem answers, disconnects and human voice; any call attempts not answered by human voice (live or recorded) are terminated. Busy signals and ring-no-answers can be scheduled for redial.

The TSP Configuration tool supports E1 and International. In preparation for the release of the CPS Enterprise Edition system, the tool updates the necessary TSP Configuration files in the CPS configuration directory and the CPS Enterprise Edition configuration directory.

Using the Configuration Tool

Requirements

- You have a CPSEE_TSP500 switch running version CPS_TSP500.01.028 or higher.

Audience

This guide is designed for:

- CPS Enterprise Edition system administrators who are responsible for configuring and maintaining a TSP switch.
- SER Solutions personnel who support systems that use a TSP switch.

Text Conventions

This guide uses the following conventions.

Any screen fields, buttons, tabs, or other controls that you can manipulate and keys that you press on the keyboard are printed in bold type. For example:

Type yes.
Press Enter.

Keyboard keys that you must press simultaneously are printed in bold type and separated by a plus sign (+). For example:

Press Ctrl+C.

Configuration Files

NMS Directory Structure

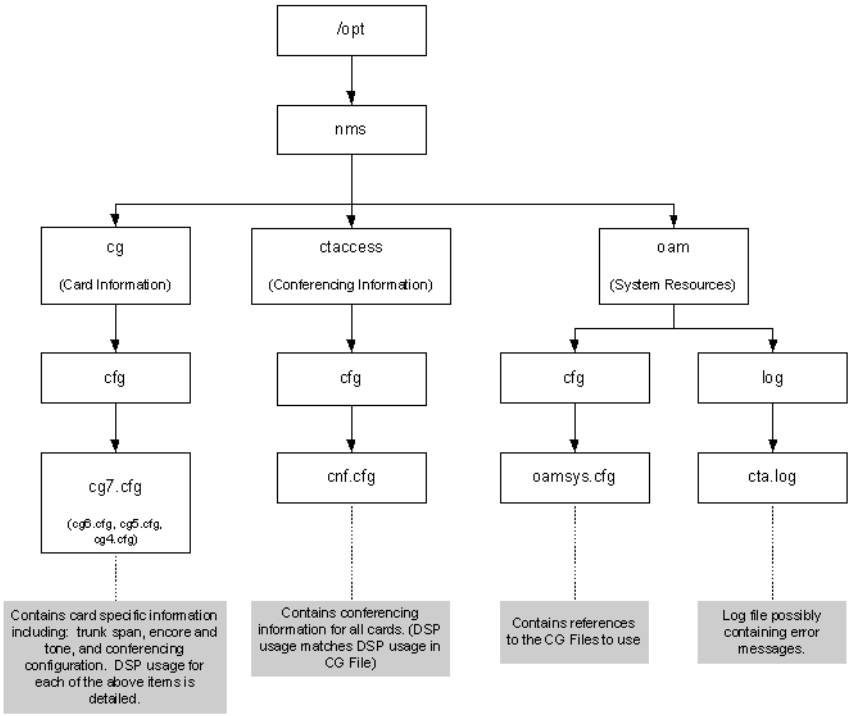


Figure 7-1. NMS Directory Structure.

The “cg” branch of the structure contains the necessary files for the CG type cards. The “cfg” directory underneath contains a configuration file for each of the CG cards installed in the chassis. These files are named “cg<slot>.cfg” where “slot” indicates the Slot portion of the Shelf-Slot. The cards in the chassis must be loaded from the bottom slot (Shelf-Slot 1-7) to the top slot. For example the file “cg7.cfg” contains the configuration for the CG 6500 card installed into Shelf-Slot 1-7. There will always be a “cg7.cfg” file and additional cards will be loaded into Shelf-Slot 1-6, followed by Shelf-Slot 1-5, etc.

The “cg<slot>.cfg” configuration files contain the number of trunk spans on the card and the trunk protocol running on each of those spans (ISDN or CAS). It also contains how each DSP is used. A DSP can be assigned for a trunk protocol, Encore and Tone Ports, or Conferencing. There is notable limitation on CG cards that permit only one ISDN variant to run on a card. For example, a card can run 4ESS or 5ESS, but it cannot run 4ESS and 5ESS.

The “ctaccess” branch contains a configuration file for conferencing that is located under the “cfg” directory. The conferencing configuration file, “cnf.cfg,” contains the DSPs assigned for conferencing on each card. The

DSPs assigned for a card in this file must match the DSPs assigned for conferencing in the card's "cg<slot>.cfg" file.

The "oam" branch contains configuration information, as well as log files. The "cfg" directory contains a file called "oamsys.cfg" which contains a list of the cards installed in the chassis and the name of each card's configuration file located in the "cg/cfg" directory. The "log" directory contains some files used by NMS to log messages. The file "cta.log" is populated when the cards are downloaded and occasionally when some errors occur.

TSP Configuration Directory Structure

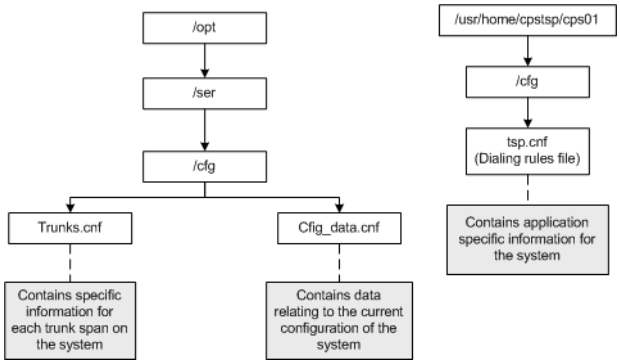


Figure 7-2. NMS Configuration Directory Structure.

trunks.cnf

The trunks.cnf file contains detailed information for each trunk span. It lists the following:

- Trunk span type (Trunk or Digital Station Trunk)
- Trunk protocol and if appropriate the variant running
- Card number associated with the trunk span
- Wait time for digits on an inbound trunk span.

tsp.cnf

The tsp.cnf file, known as the Dialing Rules file, contains configuration items used by the application to run the system. The keywords modified during initialization are COUNTRY, ALAW, and NAI_ZERO. The keywords modified during initialization and editing are NUM_TRUNKS and NUM_STATIONS. This file is not new to the TSP500.

Note:
he above configuration files should not be manually modified since changes will be lost when the files are re-generated.

cfig_data.cnf

The "cfig_data.cnf" file contains the information necessary for the Configuration Tool to recreate the current configuration of the system. This file is required to modify the configuration of a system.

Trunk Protocol Selection and Storage Information

The available ISDN Protocol Variants are listed in Table 7-1. The NMS Variant Name is stored in the **/opt/ser//cfg/trunks.cnf** file. The NMS Downloadable Module name is stored in the card's configuration file **/opt/nms/cg/cfg/cg<slot>.cfg**.

Table 7-1: ISDN Protocol Variants.

Printed Name	NMS Variant Name	T1 or E1	NMS Downloadable Module (DLM)
AT&T 4ESS	AT4	T1	c65igen
AT&T 5ESS	E10	T1	c65igen
DMS	DMS	T1	c65igen
NI2	NI2	T1	c65igen
Australian Telecom 1	AUS	E1	c65igen
EMCA-QSIG	QSIG	E1	c65igen
EuroISDN	ETSI	E1	c65igen
France Telecom VN6	VN6	E1	c65igen

The available CAS Protocols are listed in Table 7-2. The Protocol Name is stored in the **/opt/ser//cfg/trunks.cnf** file.

The TSP also supports AP2 CAS Protocol. This is a non-compelled R2 CAS protocol utilized in Australia. Although targeted for Australia, this protocol can be connected to the International Addit600 channel bank to provide an Analog Station solution in other countries.

Table 7-2: CAS Protocols

Printed Name	T1 or E1	Protocol Name
WINK INBOUND	T1	wi
WINK OUTBOUND	T1	wo
WINK INBOUND/OUTBOUND	T1	wio
IMMEDIATE INBOUND	T1	immi
IMMEDIATE OUTBOUND	T1	imm

Table 7-2: CAS Protocols

Printed Name	T1 or E1	Protocol Name
MFC-R2 INBOUND	E1	r2i
MFC-R2 OUTBOUND	E1	r2o
MFC-R2 INBOUND/OUTBOUND	E1	r2io
AP2 INBOUND	E1	ap2i
AP2 OUTBOUND	E1	ap2o
AP2 INBOUND/OUTBOUND	E1	ap2io

Line Codes

The available Line Codes are listed in Table 7-3. The available Line Codes available vary with T1 and E1 Lines.

Table 7-3: T1 and E1 Line Codes.

Line Code	Algorithm	T1 or E1
AMI_ZCS	Alternate Mark Inversion – Zero Code Suppression	T1
B8ZS	Binary 8-Zero Suppression	T1
AMI	Alternate Mark Inversion	E1
HDB3	High Density Bipolar 3 Code	E1

Framing Types

The available Framing Types are listed in Table 7-4. The Framing Types available vary with T1 and E1 Lines.

Table 7-4: Framing Type.

Framing Type	T1 or E1
D4 (Standard SuperFrame)	T1
ESF (Extended SuperFrame)	T1
CEPT	E1

Card Type Selection

The available Card Types are listed in Table 7-5. All card types can be used on a system, but there are desirable card types associated with T1 and E1 Lines.

Table 7-5: TSP500 Card Types.

Card	Number of Trunk Spans	Number of DSP Cores	Primary usage (T1 or E1)
CG 6500C-0L/8TE	8	32	T1 and E1
CG 6500C/64-0L/8TE	8	64	E1
CG 6500C/64-0L/16TE	8	64	T1

Configuring the System

The first thing that must be done is the initialization of the system configuration. Without doing this, the system cannot run.

Accessing Configuration Tool

To access the Configuration Tool, you must log into the system using the "tspcfg" user (the password is the same as the user name).

- Enter Login: tspcfg
- Enter Password: tspcfg. A warning is displayed asking if you really want to configure the system.
- Enter "y" for Yes.The Configurator Menu displays.

```
************************************************************
                      W A R N I N G

      *** YOU ARE ABOUT TO RUN A CONFIGURATION TOOL ***
            THAT MAY MAKE YOUR SYSTEM INOPERABLE

************************************************************


Do you want to run this Tool?  [y | n]
```

Configurator Menu

This is the main menu for the configuration tool.

```
************************************************************************
*                          TSP Configurator Menu                       *
*                   SER Solutions Inc. Copyright 2004                  *
************************************************************************

      1 ... Initialize Configuration
      2 ... Edit/View Configuration
      3 ... Download Configuration
      4 ... Restore Configuration
      5 ... Help
      q ... Quit

      Enter Choice>
```

Table 7-6: Configurator Menu Items.

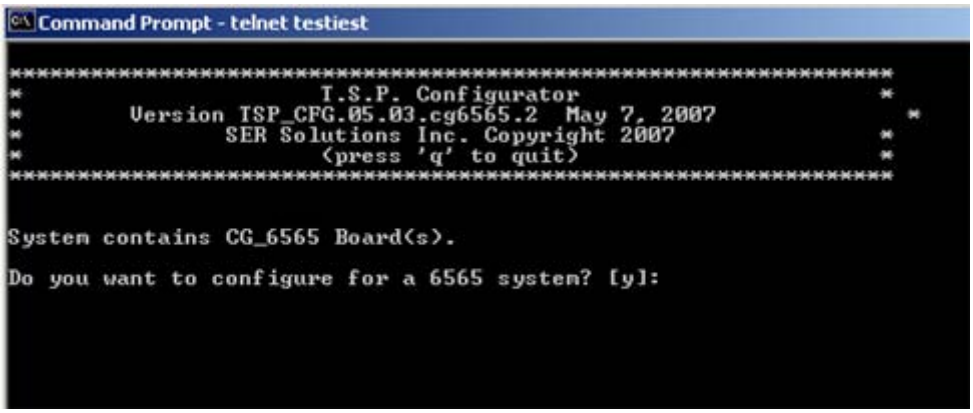
Option	Description
1 Initialize Configuration	Creates country specific and system configuration files
2 Edit/View Configuration	Allows changes to system configuration.
3 Download Configuration	Downloads NMS configuration files.
4 Restore Configuration	Restores previously saved set of configuration files.

Table 7-6: Configurator Menu Items.

Option	Description
5 Help	Displays online help.
q Quit	Logs off “tspcfg” user.

Boards

Depending on the board, it will say CG_6565 or CG_6500.



If Yes,

If no, asks if youwant to configue for a 650 instead?

Initialize Configuration

The initial configuration of the system will load the files necessary for the country selected and create the necessary NMS and TSP Application configuration files described in “The TSP Configuration Menu” on page 3-5. This option prompts for system level information, which should be available on the Sales Order, rather than information at the card level. Also, this option assumes that CG 6500C/64-0L/8TE cards are loaded into the system starting at Shelf-Slot 1-7, followed by CG 6500C-0L/8TE cards then CG 6500C/64-0L/16TE cards. To perform the initialization, the TSP Application cannot be running.

To initialize the configuration of a system, you must answer the questions.

```
*****************************************************************
*                        T.S.P. Configurator                    *
*          Version TSP_CFG.05.03.000    February 23, 2005       *
*                  SER Solutions Inc. Copyright 2004            *
*                        (press 'q' to quit)                    *
*****************************************************************

Is this a CPS-EE TSP? [n]:n
```

Note:
Distinguishes between a CPS and CPS Enterprise Edition TSP and identifies the location for the TSP Configuration files to be saved.

Select the country where this system will be installed:

```
*****************************************************************
*                        T.S.P. Configurator                    *
*          Version TSP_CFG.05.03.002    January 10, 2006        *
*                  SER Solutions Inc. Copyright 2004            *
*                        (press 'q' to quit)                    *
*****************************************************************

Select the country where this system will be installed:
        1. United States
        2. Australia
        3. Austria
        4. Belgium
        5. Brazil
        6. Canada
        7. Czech Republic
        8. Denmark
        9. Finland
       10. France
       11. Germany
       12. Greece
       13. Iceland
       14. India
<more>
Enter Country Name or Item Number []:
```

```
*****************************************************************
*                        T.S.P. Configurator                    *
*          Version TSP_CFG.05.03.002    January 10, 2006        *
*                  SER Solutions Inc. Copyright 2004            *
*                        (press 'q' to quit)                    *
*****************************************************************

Select the country where this system will be installed:
       15. Ireland
       16. Italy
       17. Japan
       18. Luxembourg
       19. Mexico
       20. Netherlands
       21. Norway
       22. Philippines
       23. Poland
       24. Portugal
       25. Russia
       26. Spain
       27. Sweden
       28. Switzerland
<more>
Enter Country Name or Item Number []:
*****************************************************************
*                        T.S.P. Configurator                    *
*          Version TSP_CFG.05.03.002    January 10, 2006        *
*                  SER Solutions Inc. Copyright 2004            *
*                        (press 'q' to quit)                    *
*****************************************************************

Select the country where this system will be installed:
       29. United Kingdom




Enter Country Name or Item Number []:
```

Note:
If “<more>” is displayed at the bottom of the screen, press Enter to view additional countries supported.

Note:
The "United States" is listed first, but all other countries are listed in alphabetical order. The maximum number of stations is dependent on the country selected and whether that country uses T1 or E1 Lines.

```
Enter Number of Stations [<maximum stations>]:
```

.

```
Enter Number of Cards to be used
        CG 6500C-0L/8TE Span Cards (if unknown, enter 0) [0]:
        CG 6500C/64-0L/8TE Span Cards (if unknown, enter 0) [0]:
        CG 6500C/64-0L/16TE Span Cards (if unknown, enter 0) [0]:
```

If a 6565 this is what you will see:

Note:
If zero is entered for all card types, you will be prompted to enter the number of network trunks on the system.

Trunk Information

```
Enter Number of Trunk Spans configured as ISDN Group 1 - N []:
Available ISDN Protocols
   <List of available ISDN Protocols>
Enter ISDN Protocol []:
```

The list of available ISDN Protocols is dependent on the usage of T1 or E1 Lines. Refer to Table 7-1 for the actual list displayed.

The ISDN Groups represent the number of trunks spans running a particular ISDN Protocol. The "N" indicates that there is no limitation on the number of ISDN Groups. You will be prompted for ISDN Groups until all remaining trunk spans have been assigned a protocol or a "0" is entered.

```
Remaining Number of Trunk Spans Available <Number remaining>
Enter Number of Trunk Spans configured as CAS Group 1 - N []:
Available CAS Protocols
   <List of available CAS Protocols>
Enter CAS Protocol []:
```

The list of available CAS Protocols is dependent on the usage of T1 or E1 Lines. Refer to Table 7-2 for the actual list displayed.

The CAS Groups represent the number of trunks spans running a particular CAS Protocol. The "N" indicates that there is no limitation on the number of CAS Groups. You will be prompted for CAS Groups until all remaining trunk spans have been assigned a protocol.

Station Information

```
Total Number of Stations Configured          <Value from 1st screen>
Total Number of Spans used for Stations      <Calculated value>


       Would you like the tool to determine the protocols needed
       for the Digital Stations by asking you a few questions? [y]:
```

Note:
Only systems using T1 Lines are asked this question. By responding "yes", the following three prompts are displayed.

```
Enter Number of Analog Stations []:

Enter Number of Digital Stations []:
        Are these Stations:      1. Remote Agent (Dial Out)
                                 2. Nailup
        Enter item number [1]:

Enter Number of VoIP Stations []:
        Are these Stations:      1. Remote Agent (Dial Out)
                                 2. Nailup
        Enter item number [1]:
```

Note:
Systems using T1 Lines that responded "no" to the above question and systems using E1 Lines will be prompted for the following items.

```
*****************************************************************
*                        T.S.P. Configurator                    *
*                  SER Solutions Inc. Copyright 2003            *
*                        (press 'q' to quit)                    *
*****************************************************************

Enter Number of Digital Stations configured as CAS Group 1 - N []:
Available CAS Protocols
   <List of available CAS Protocols>
Enter CAS Protocol []:
```

The list of available CAS Protocols is dependent on the usage of T1 or E1 Lines. Refer to Table 7-2 for the actual list displayed.

The CAS Groups represent the number of digital stations running a particular CAS Protocol. The “N” indicates that there is no limitation on the number of CAS Groups. You will be prompted for CAS Groups until all remaining digital stations have been assigned a protocol or a “0” has been entered.

```
Remaining Number of Digital Stations Available <Number remaining>
Enter Number of Digital Stations configured as ISDN Group 1 - N []:
Available ISDN Protocols
   <List of available ISDN Protocols>
Enter ISDN Protocol []:
```

The list of available ISDN Protocols is dependent on the usage of T1 or E1 Lines. Refer to Table 7-1 for the actual list displayed.

The ISDN Groups represent the number of trunks spans running a particular ISDN Protocol. The “N” indicates that there is no limitation on the number of ISDN Groups. You will be prompted for ISDN Groups until all remaining trunk spans have been assigned a protocol.

Encore and Conferencing Information

```
Number of Encore Ports                  <Calculated value>
Number of Conference Bridges            <Calculated value>
Do you want more Encore and less Conferences? [n]:
Do you want more Conferences and less Encore? [n]:
```

The number of each card type determines the values displayed for the number of Encore Ports and Conference Bridges. Unless directed by Engineering, these values should not be changed.

Edit/View Configuration

The initial configuration of the system must have been previously done before you will be allowed to use this option. This option prompts for card level information, rather than information at the system level. It does not assume that cards are installed into the chassis in any specific order, and it does not prompt for country selection. Country selection is only available during initialization.

When you select this option, a summary of the current configuration of the system is displayed.

```
**********************************************************************
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000   February 23, 2005       *
*                SER Solutions Inc. Copyright 2004                   *
*                          (press 'q' to quit)                       *
**********************************************************************

Is this a CPS-EE TSP? [n] :n
```

Distinguishes between a CPS and CPS Enterprise Edition TSP and identifies the location for the TSP Configuration files to be saved.

Note:
The Trunk Cards section lists only the card types currently configured.

```
*********************************************************************
*****************   T.S.P. Configurator Summary   ***************
*********************************************************************

<Country>

CARD INVENTORY
Trunk Cards:
        CG 6500C-0L/8TE           <Number of cards>
        CG 6500C/64-0L/8TE                <Number of cards>
        CG 6500C/64-0L/16TE               <Number of cards>

PORT INVENTORY
Stations                  <Number of stations>
Network Trunks            <Number of trunks>
Encore Ports              <Number of encore ports>
Conference Bridges        <Number of conference bridges>
```

Note:
:If zero is entered for all card types, you will be prompted to enter the number of network trunks (excluding stations) that are on the system.

The editing session starts immediately following this screen. To modify the configuration of a system, you must answer the following questions:

```
*********************************************************************
*                    T.S.P. Configurator                            *
*                  SER Solutions Inc. Copyright 2003                *
*                      (press 'q' to quit)                          *
*********************************************************************

Enter Number of Cards to be used
        CG 6500C-0L/8TE Span Cards [<Number of cards>]:
        CG 6500C/64-0L/8TE Span Cards [<Number of cards>]:
        CG 6500C/64-0L/16TE Span Cards [<Number of cards>]:
```

Encore and Conferencing Information

```
Number of Encore Ports                  <Current value>
Number of Conference Bridges            <Current value>
Do you want more Encore and less Conferences? [n]:
Do you want more Conferences and less Encore? [n]:
```

If the number of each card type has not been changed then the number of Encore Ports and Conference Bridges will be the currently stored value. If the number of each card type has been changed then the number of Encore Ports and Conference Bridge will be re-calculated. Unless directed by Engineering, these values should not be changed.

Card Information

```
Card 1:

Enter # of Trunk Spans [<Current value>]:

Enter # of DSP Cores [<Current value>]:

Enter the Range of ISDN Trunk Spans -
  include ISDN Digital Station Trunk Spans -0 (0=none)[<Current range>]:

Available ISDN Protocols
   <List of available ISDN Protocols>
Enter ISDN Protocol Selection [<Current value>]:
```

The list of available ISDN Protocols is dependent on the usage of T1 or E1 Lines. Refer to Table 7-1 for the actual list displayed.

```
Available ISDN Frame Types
<List of available ISDN Frame Types>
Enter ISDN Frame Type Selection [<Current value>]:
```

The list of available ISDN Frame Types is dependent on the usage of T1 or E1 Lines. Refer to Table 7-4 for the actual list displayed.

```
Available ISDN Line Codes
<List of available ISDN Line Codes>
Enter ISDN Line Codes Selection [<Current value>]:
```

The list of available ISDN Line Codes is dependent on the usage of T1 or E1 Lines. Refer to Table 7-3 for the actual list displayed.

```
Of the range of ISDN Trunk Spans entered before,
 which are ISDN Digital Station Trunk Spans(0=none)[<Current range>]:

Enter the Range of CAS Trunk Spans -
  include CAS Digital Station Trunk Spans -<Current range> (0=none) [<Current range>]:

Are all CAS Trunk Spans running the same Protocol? [<Current value>]:
Available CAS Protocols
   <List of available CAS Protocols>
Enter CAS Protocol Selection for Trunk Span 5 [<Current value>]:
Enter CAS Protocol Selection for Trunk Span 6 [<Current value>]:
Enter CAS Protocol Selection for Trunk Span 7 [<Current value>]:
Enter CAS Protocol Selection for Trunk Span 8 [<Current value>]:
```

The list of available CAS Protocols is dependent on the usage of T1 or E1 Lines. Refer to Table 7-2 for the actual list displayed.

```
Are all CAS Trunk Spans running the same Frame Type?
[<Current value>]:
Available CAS Frame Types
<List of available CAS Frame Types>
Enter CAS Frame Type Selection [<Current value>]:
```

The list of available CAS Frame Types is dependent on the usage of T1 or E1 Lines. Refer to Table 7-4 for the actual list displayed.

```
Are all CAS Trunk Spans running the same Line Code?
[<Current value>]:
Available CAS Line Codes
<List of available CAS Line Codes>
Enter CAS Line Codes Selection [<Current value>]:
```

The list of available CAS Line Codes is dependent on the usage of T1 or E1 Lines. Refer to Table 7-3 for the actual list displayed.

```
Of the range of CAS Trunk Spans entered before,
  which are CAS Digital Station Trunk Spans <Current range> (0=none) [Current value>]:
```

Displaying the Configuration

The “Initialize Configuration “and “Edit/View Configuration” options display a system level summary of the configuration and each card configuration. The output below is for a T1 system with a CG 6500-0L/8TE card.

The summary screen looks as follows:

```
*****************************************************************
******************    T.S.P. Configurator Summary    **************
*****************************************************************

United States

CARD INVENTORY
Trunk Cards:
        CG 6500C-0L/8TE          1
        CG 6500C/64-0L/8TE               0
        CG 6500C/64-0L/16TE              0

PORT INVENTORY
Stations                48
Network Trunks          144
Encore Ports            55
Conference Bridges      20
```

The card level screen is displayed for each card defined in the system. Card 1 corresponds to the card in Shelf-Slot 1-7 and the screen looks as follows:

```
**********************************************************************
******************  T.S.P. Configurator Results  *********************
**********************************************************************
Card 1 (Slot 7)
     Network Trunk Spans          8
     CAS Trunk Spans              4
     CAS Timeslots                96
     ISDN Trunk Spans             4
     ISDN Timeslots               96
     Digital Station Trunk Spans  2
     Encore Timeslots             55
     Encore DSPs                  26-30
     Conference Bridges           20
     Conference DSPs              3 22-25
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


 Trunk                              Frame                Wait Time For Digits
 Span  Protocol                     Type   Line Code     1st      Next

 1     AT&T 4ESS                    ESF    B8ZS         0        0
 2     AT&T 4ESS                    ESF    B8ZS         0        0
 3     AT&T 4ESS                    ESF    B8ZS         0        0
 4     AT&T 4ESS                    ESF    B8ZS         0        0
 5     WINK OUTBOUND                D4     AMI_ZCS      0        0
 6     WINK OUTBOUND                D4     AMI_ZCS      0        0
 7  D  IMMEDIATE INBOUND            D4     AMI_ZCS      0        0
 8  D  IMMEDIATE INBOUND            D4     AMI_ZCS      0        0
```

The “D” next to the trunk span number indicates that this is a Digital Station trunk span.

Displaying Card Layout

When the tool is done displaying the configuration, it displays the location in the chassis where each card should be installed. The screen is:

```
**********************************************************************
**********************    T.S.P. Card Layout    ***********************
**********************************************************************


|-------------------------------------------------------------|
|                  CG 6500C/64-0L/16TE                        |
|-------------------------------------------------------------|
|                  CG 6500C/64-0L/16TE                        |
|-------------------------------------------------------------|
|                  CG 6500C-0L/8TE                            |
|-------------------------------------------------------------|
|                  CG 6500C-0L/8TE                            |
|-------------------------------------------------------------|
|                  P R O C E S S O R    C A R D               |
|-------------------------------------------------------------|


Press Enter to continue:
```

For this configuration it is expected that two CG 6500C-0L/8TE cards be loaded above the Processor Card followed by two CG 6500C/64-0L/16TE cards.

Saving a Configuration

Initialize Configuration Option

The “Initialize Configuration“ option will always prompt you to save a set of configuration files and the “Edit/View Configuration” option will prompt you to save a set of configuration files if any information has been changed.

Warning!

It is very important to reboot the system in order for the correct country information to be used.

The “Initialize Configuration“ option displays the following screen for country selection and saving configuration files is:

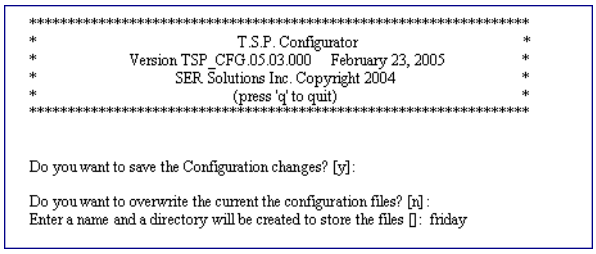
```
**************************************************************************
*                              T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000    February 23, 2005          *
*                      SER Solutions Inc. Copyright 2004                 *
*                              (press 'q' to quit)                       *
**************************************************************************


Do you want to save the Configuration changes? [y]:

Updating Dialing Rules file...


Country:  <Country Selected>

     Updating configuration file...
     Updating system (Requires a minute to complete)...please wait


Downloading Cards...please wait

Do you want to view the log file to verify a successful download? [y]:

<View Download Log File>
```

Refer to the “Download Configuration” section for an understanding of the contents of the download log file.

```
**************************************************************
*                        T.S.P. Configurator                 *
*          Version TSP_CFG.05.03.000    February 23, 2005    *
*                SER Solutions Inc. Copyright 2004           *
*                        (press 'q' to quit)                 *
**************************************************************


The Initialization was completed successfully.


              *** WARNING ***

     The system MUST be rebooted for these changes to take effect!!


Press Enter to continue:
```

Edit/View Configuration Option

The Edit/View Configuration option will prompt you to save a set of configuration files if any information has been changed.

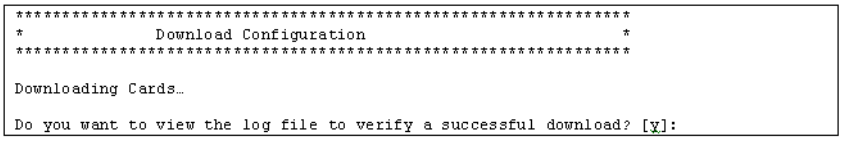


If you answered “y” to the question about overwriting the current configuration files, a backup copy of the current set of configuration files will be created. A directory is created containing the set of configuration files and is named “cfg_<index_number>_<date & timestamp>.dir”. For example, a valid backup copy name would be “cfg_3_110320031212.dir” which means that this backup copy has an index of 3 and was created November 3, 2003 at 12:12pm.

By answering “n” to that question, you are prompted to enter a name in which to store the configuration files about to be created due to initializing or editing the configuration. An extension of “.dir” will be added to the name you supply, such as in the case above the directory name will be “friday.dir”.

Download Configuration

Once a set of configuration files has been saved permanently, then you may want to perform a download to ensure the files are valid. To perform the download, the TSP Application cannot be running. When this option is selected, the screen below is displayed.



While downloading, the lights on the NMS card will turn off then start blinking. If the span is connected to a valid T1 line, the lights may become solid.

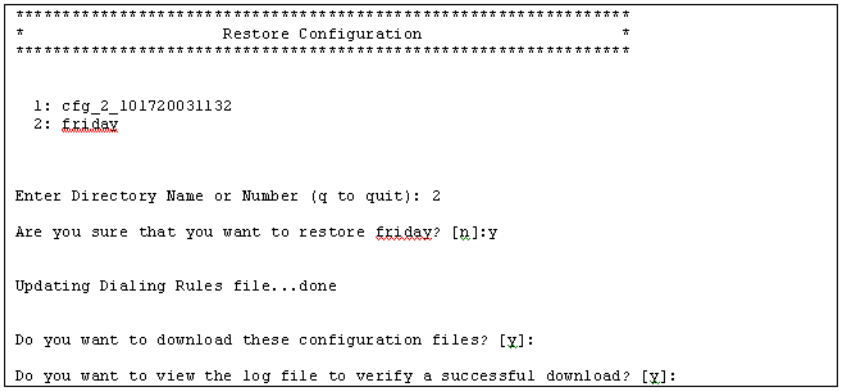
Once the files have been downloaded, you are asked whether you would like to view the log file. It is important that you view this log file and ensure no errors occurred. Search for “err,” “ERR,” or “fail.” If errors have occurred, contact customer support or engineering because the system is not in a good state and cannot run.

Restore Configuration

There may be a time when you want to recover a set of configuration files for some reason. This may be due to a new set of configuration files not downloading correctly or a previous system configuration is needed.

Whenever you save a new set of permanent configuration files, a backup copy of the current set is saved prior to overwriting. A directory is created containing the set of files and is named "cfg_<index number>_<date & timestamp>.dir". For example, a valid backup copy name would be "cfg_3_110320031212.dir" which means that this backup copy has an index of 3 and was created November 3, 2003 at 12:12 pm.

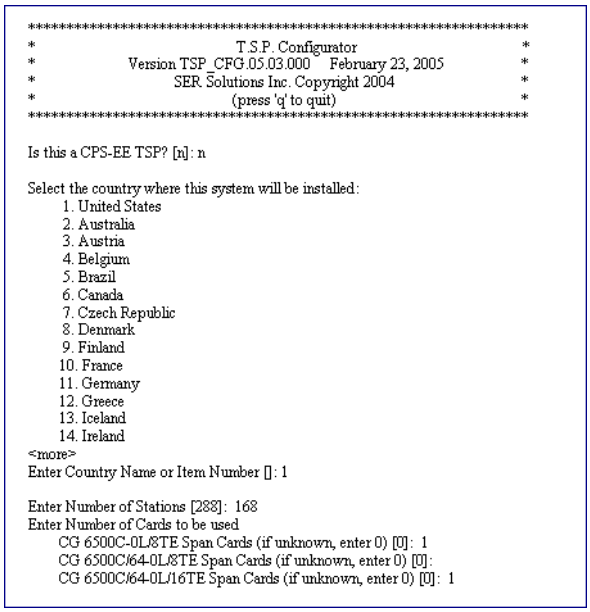
In addition to these directory names there may be other directories that have been created to save a set of configuration files that were not immediately (or ever) copied over the permanent configuration files. These directory names are supplied by the person running the configuration tool, but they have a ".dir" extension.



By selecting a directory to restore, the current set of configuration files is overwritten with the files from the directory selected.

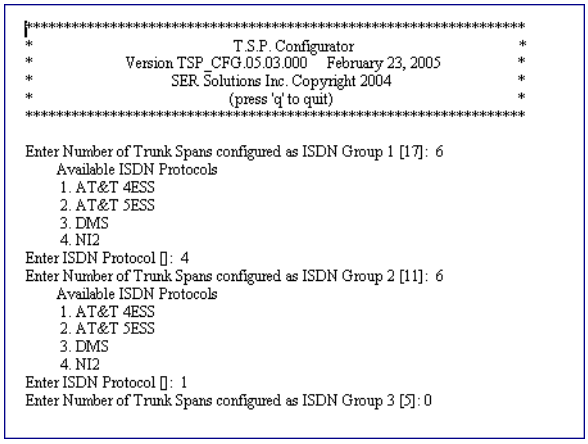
Once the files have been restored, you are asked if you would like to download the configuration files. If you answer "y," the cards are downloaded and you are asked whether you would like to view the log file. As in the "Download Configuration" section, it is important that you view this log file and ensure no errors occurred. Search for "err," "ERR," or "fail." If errors have occurred, contact customer support or engineering because the system is not in a good state and cannot run.

Sample T1 Configuration Initialization



```
**********************************************************************
*                                                                    *
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000    February 23, 2005      *
*                        SER Solutions Inc. Copyright 2004           *
*                                (press 'q' to quit)                 *
**********************************************************************

Is this a CPS-EE TSP? [n]: n

Select the country where this system will be installed:
      1. United States
      2. Australia
      3. Austria
      4. Belgium
      5. Brazil
      6. Canada
      7. Czech Republic
      8. Denmark
      9. Finland
     10. France
     11. Germany
     12. Greece
     13. Iceland
     14. Ireland
<more>
Enter Country Name or Item Number []: 1

Enter Number of Stations [288]:  168
Enter Number of Cards to be used
     CG 6500C-0L/8TE Span Cards (if unknown, enter 0) [0]:  1
     CG 6500C/64-0L/8TE Span Cards (if unknown, enter 0) [0]:
     CG 6500C/64-0L/16TE Span Cards (if unknown, enter 0) [0]:  1
```

Trunk Information



```
**********************************************************************
*                                                                    *
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000    February 23, 2005      *
*                        SER Solutions Inc. Copyright 2004           *
*                                (press 'q' to quit)                 *
**********************************************************************

Enter Number of Trunk Spans configured as ISDN Group 1 [17]:  6
     Available ISDN Protocols
      1. AT&T 4ESS
      2. AT&T 5ESS
      3. DMS
      4. NI2
Enter ISDN Protocol []:  4
Enter Number of Trunk Spans configured as ISDN Group 2 [11]:  6
     Available ISDN Protocols
      1. AT&T 4ESS
      2. AT&T 5ESS
      3. DMS
      4. NI2
Enter ISDN Protocol []:  1
Enter Number of Trunk Spans configured as ISDN Group 3 [5]: 0
```

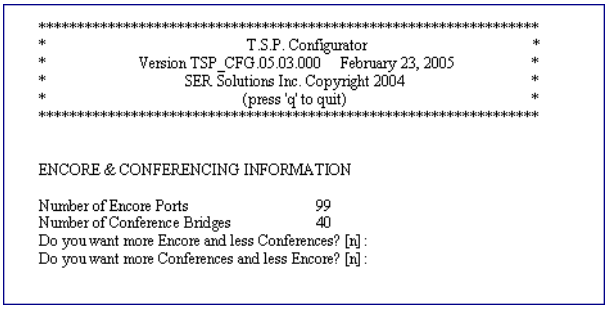
```
*********************************************************************
*                          T.S.P. Configurator                      *
*                Version TSP_CFG.05.03.000   February 23, 2005      *
*                SER Solutions Inc. Copyright 2004                  *
*                          (press 'q' to quit)                      *
*********************************************************************

Remaining Number of Trunk Spans Available 5
Enter Number of Trunk Spans configured as CAS Group 1 [5]:  5
     Available CAS Protocols
       1. WINK INBOUND
       2. WINK OUTBOUND
       3. WINK INBOUND/OUTBOUND
       4. IMMEDIATE INBOUND
       5. IMMEDIATE OUTBOUND
Enter CAS Protocol []:  2
```

Station Information

```
*********************************************************************
*                          T.S.P. Configurator                      *
*                Version TSP_CFG.05.03.000   February 23, 2005      *
*                SER Solutions Inc. Copyright 2004                  *
*                          (press 'q' to quit)                      *
*********************************************************************

STATION INFORMATION

Total Number of Stations Configured        168
Total Number of Spans used for Stations     7


     Would you like the tool to determine the protocols needed
     for the Digital Stations by asking you a few questions? [y]:  y
```

```
*********************************************************************
*                          T.S.P. Configurator                      *
*                Version TSP_CFG.05.03.000   February 23, 2005      *
*                SER Solutions Inc. Copyright 2004                  *
*                          (press 'q' to quit)                      *
*********************************************************************

Enter Number of Analog Stations [168]:      48
Enter Number of Digital Stations [120]:     48
     Are these Stations:    1. Remote Agent (Dial Out)
                            2. Nailup
     Enter item number [1]:
Enter Number of VoIP Stations [72]:
     Are these Stations:    1. Remote Agent (Dial Out)
                            2. Nailup
     Enter item number [1]:  2
```

Encore and Conferencing Information



In this example we have defined there to be 168 Stations using a CG 6500-0L/8TE card and a CG 6500C/64-0L/16TE card. The number of total channels available on this system is calculated by multiplying the number of trunk spans on a card by the number of channels on 1 trunk span which is 24 on a T1 line. So the equation is:

(8 x 24) + (16 x 24) = 192 + 384 = 576 Total Channels

Since there are 168 Stations, the number of network trunks is:

576 – 168 = 408 Network Trunks

408 / 24 = 17 Trunk Spans

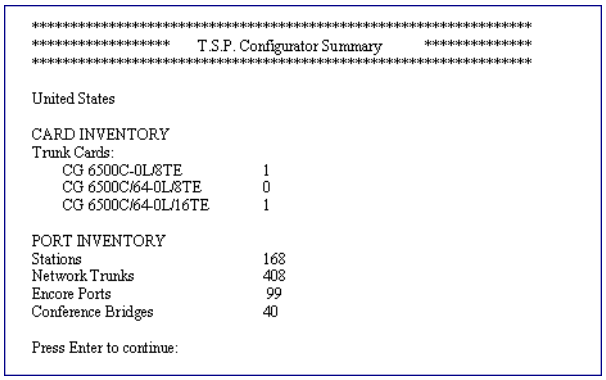
We have determined that there are 17 Trunk Spans not being used for Stations that need to be configured. Six of those trunk spans are running ISDN NI2 and another six are running ISDN AT&T 4ESS. The remaining five trunk spans are configured to be CAS running Wink Outbound.

For the 168 Stations, there are:

- 48 Analog Stations
- 48 Digital Stations that are Remote Agent Stations
- 72 VoIP Stations that are Nailups

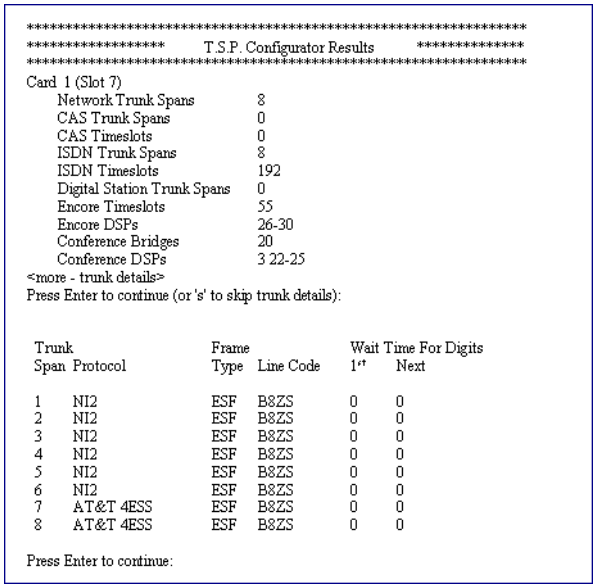
The calculated Encore Ports and Conference Bridges, derived from the number of each card type, were not changed.

The summary of the system configuration is as follows:



```
**********************************************************************
******************      T.S.P. Configurator Summary      **************
**********************************************************************

United States

CARD INVENTORY
Trunk Cards:
      CG 6500C-0L/8TE          1
      CG 6500C/64-0L/8TE       0
      CG 6500C/64-0L/16TE      1

PORT INVENTORY
Stations                       168
Network Trunks                 408
Encore Ports                    99
Conference Bridges              40

Press Enter to continue:
```

The configuration for Card 1 located in Shelf-Slot 1-7 is as follows:



```
**********************************************************************
******************      T.S.P. Configurator Results      **************
**********************************************************************
Card 1 (Slot 7)
      Network Trunk Spans      8
      CAS Trunk Spans          0
      CAS Timeslots            0
      ISDN Trunk Spans         8
      ISDN Timeslots           192
      Digital Station Trunk Spans  0
      Encore Timeslots         55
      Encore DSPs              26-30
      Conference Bridges       20
      Conference DSPs          3 22-25
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


 Trunk                    Frame                Wait Time For Digits
 Span  Protocol           Type   Line Code     1st     Next

 1     NI2                ESF    B8ZS          0       0
 2     NI2                ESF    B8ZS          0       0
 3     NI2                ESF    B8ZS          0       0
 4     NI2                ESF    B8ZS          0       0
 5     NI2                ESF    B8ZS          0       0
 6     NI2                ESF    B8ZS          0       0
 7     AT&T 4ESS          ESF    B8ZS          0       0
 8     AT&T 4ESS          ESF    B8ZS          0       0

Press Enter to continue:
```

Since multiple ISDN Protocols can run on the same card, the six trunk spans running ISDN NI2 protocol are on this first card. The remaining two trunk spans are configured to run some of the ISDN Group 2 which is AT&T 4ESS. That leaves four trunk spans that need to be configured to run the remainder of ISDN Group 2.

The configuration for Card 2 located in Shelf-Slot 1-6 is as follows:

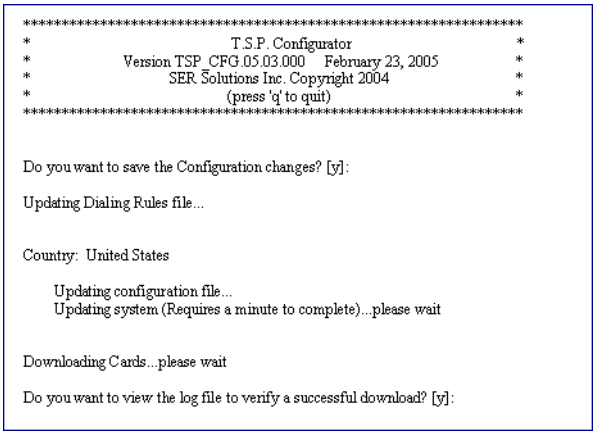
```
*******************************************************************
******************      T.S.P. Configurator Results      **************
*******************************************************************
Card 2 (Slot 6)
    Network Trunk Spans          16
    CAS Trunk Spans              12
    CAS Timeslots                288
    ISDN Trunk Spans             4
    ISDN Timeslots               96
    Digital Station Trunk Spans  7
    Encore Timeslots             44
    Encore DSPs                  44-47
    Conference Bridges           20
    Conference DSPs              39-43
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


Trunk                            Frame              Wait Time For Digits
Span  Protocol                   Type   Line Code      1st      Next

1     AT&T 4ESS                  ESF    B8ZS           0        0
2     AT&T 4ESS                  ESF    B8ZS           0        0
3     AT&T 4ESS                  ESF    B8ZS           0        0
4     AT&T 4ESS                  ESF    B8ZS           0        0
5     WINK OUTBOUND              D4     AMI_ZCS        0        0
6     WINK OUTBOUND              D4     AMI_ZCS        0        0
7     WINK OUTBOUND              D4     AMI_ZCS        0        0
8     WINK OUTBOUND              D4     AMI_ZCS        0        0
9     WINK OUTBOUND              D4     AMI_ZCS        0        0
10 D  WINK INBOUND               D4     AMI_ZCS        300      300
11 D  WINK INBOUND               D4     AMI_ZCS        300      300
12 D  WINK INBOUND               D4     AMI_ZCS        300      300
13 D  WINK OUTBOUND              D4     AMI_ZCS        0        0
14 D  WINK OUTBOUND              D4     AMI_ZCS        0        0
15 D  IMMEDIATE INBOUND          D4     AMI_ZCS        0        0
16 D  IMMEDIATE INBOUND          D4     AMI_ZCS        0        0
```

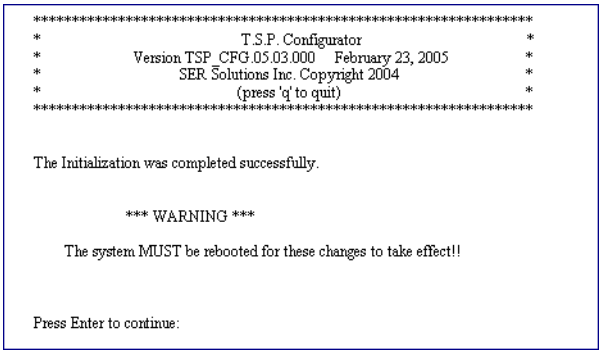
The first four trunk spans on this card are running ISDN AT&T 4ESS protocol. The next five trunk spans are configured to run CAS Group 1 which is Wink Outbound. The last seven trunk spans are for Stations. The Analog Stations are defined last and will always run Immediate Start Inbound. The Digital Stations are defined above the Analog Stations and are running CAS protocol Wink Outbound since they were defined as Remote Agents. Finally the VoIP Stations are defined running CAS protocol Wink Inbound since they were defined to be Nailups.

The card layout for this configuration is:

```
*******************************************************************
************************      T.S.P. Card Layout      *****************
*******************************************************************


|-------------------------------------------------------|
|           CG 6500C/64-0L/16TE                         |
|-------------------------------------------------------|
|           CG 6500C-0L/8TE                             |
|-------------------------------------------------------|
|           P R O C E S S O R   C A R D                 |
|-------------------------------------------------------|
```

For this configuration it is expected that a CG 6500C-0L/8TE card be loaded above the Processor Card followed by a CG 6500C/64-0L/16TE card.



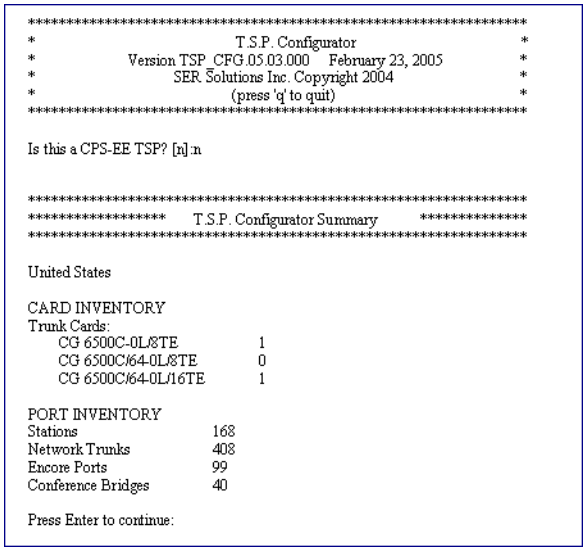


Warning!

It is very important to reboot the system in order for the correct country information to be used.

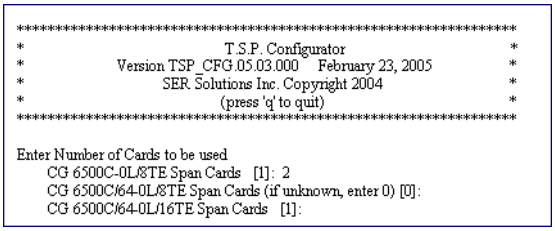
Sample T1 Configuration Modification

This chapter contains a sample for modifying a system configuration

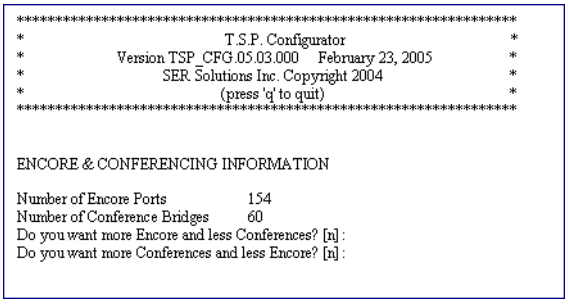


In this example, the system is currently defined for 168 Stations using an CG 6500C-0L/8TE card and a CG 6500C/64-0L/16TE card. There are 99 Encore Ports and 40 Conference Bridges.

You will first be asked if the number of cards on the system has changed.



We are adding another CG 6500C-0L/8TE card which causes the number of Encore Ports and Conference Bridges to be re-calculated. Both items have been increased due to a trunk card being added.



The Editing tool proceeds by prompting for specific information on each card. "Card 1" corresponds to the card located in Shelf-Slot 1-7, "Card 2" corresponds to the card located in Shelf-Slot 1-6, and so on for the other cards.

Since "Card 1" is currently defined, the tool prompts for information and uses the stored value as the default value for this item.

```
**********************************************************************
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000   February 23, 2005       *
*                      SER Solutions Inc. Copyright 2004             *
*                          (press 'q' to quit)                       *
**********************************************************************


Card 1:

Enter # of Trunk Spans [8]:
Enter # of DSP Cores [32]:
Enter the Range of ISDN Trunk Spans -
      include ISDN Digital Station Trunk Spans - 1-8 (0=none) [1-8]:
Are all ISDN Trunk Spans running the same Protocol? [n]:
      Available ISDN Protocols
       1. AT&T 4ESS
       2. AT&T 5ESS
       3. DMS
       4. NI2
Enter ISDN Protocol Selection for Trunk Span 1 [NI2]:
Enter ISDN Protocol Selection for Trunk Span 2 [NI2]:
Enter ISDN Protocol Selection for Trunk Span 3 [NI2]:
Enter ISDN Protocol Selection for Trunk Span 4 [NI2]:
Enter ISDN Protocol Selection for Trunk Span 5 [NI2]:
Enter ISDN Protocol Selection for Trunk Span 6 [NI2]:
Enter ISDN Protocol Selection for Trunk Span 7 [AT&T 4ESS]:
Enter ISDN Protocol Selection for Trunk Span 8 [AT&T 4ESS]:
Are all ISDN Trunk Spans running the same Frame Type? [y]:
      Available ISDN Frame Types
       1. D4
       2. ESF
Enter ISDN Frame Type Selection [ESF]:
Are all ISDN Trunk Spans running the same Line Code? [y]:
      Available ISDN Line Codes
       1. AMI_ZCS
       2. B8ZS
Enter ISDN Line Codes Selection [B8ZS]:
Of the range of ISDN Trunk Spans entered before,
      which are ISDN Digital Station Trunk Spans 0 (0=none) [0]:
```

Trunk Spans 1 through 6 on this card are running ISDN NI2 protocol. Trunk Spans 7 and 8 are running ISDN AT&T 4ESS. None of these trunk spans are being used as Digital Stations. We have not changed any information on this card.

```
**********************************************************************
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000   February 23, 2005       *
*                      SER Solutions Inc. Copyright 2004             *
*                           (press 'q' to quit)                      *
**********************************************************************


Card 2:

Enter # of Trunk Spans [16]:
Enter # of DSP Cores [64]:
Enter the Range of ISDN Trunk Spans -
      include ISDN Digital Station Trunk Spans - 1-4 (0=none) [1-4]:
Are all ISDN Trunk Spans running the same Protocol? [y]:
      Available ISDN Protocols
       1. AT&T 4ESS
       2. AT&T 5ESS
       3. DMS
       4. NI2
Enter ISDN Protocol Selection [AT&T 4ESS]:
Are all ISDN Trunk Spans running the same Frame Type? [y]:
      Available ISDN Frame Types
       1. D4
       2. ESF
Enter ISDN Frame Type Selection [ESF]:
Are all ISDN Trunk Spans running the same Line Code? [y]:
      Available ISDN Line Codes
       1. AMI_ZCS
       2. B8ZS
Enter ISDN Line Codes Selection [B8ZS]:
Of the range of ISDN Trunk Spans entered before,
      which are ISDN Digital Station Trunk Spans 0 (0=none) [0]:
Enter the Range of CAS Trunk Spans -
      include CAS Digital Station Trunk Spans - 5-16 (0=none) [5-16]:
Are all CAS Trunk Spans running the same Protocol? [n]:
```

```
  Available CAS Protocols
       1. WINK INBOUND
       2. WINK OUTBOUND
       3. WINK INBOUND/OUTBOUND
       4. IMMEDIATE INBOUND
       5. IMMEDIATE OUTBOUND
Enter CAS Protocol Selection for Trunk Span 5 [WINK OUTBOUND]:
Enter CAS Protocol Selection for Trunk Span 6 [WINK OUTBOUND]:
Enter CAS Protocol Selection for Trunk Span 7 [WINK OUTBOUND]:
Enter CAS Protocol Selection for Trunk Span 8 [WINK OUTBOUND]:
Enter CAS Protocol Selection for Trunk Span 9 [WINK OUTBOUND]:
Enter CAS Protocol Selection for Trunk Span 10 [WINK INBOUND]:
Enter CAS Protocol Selection for Trunk Span 11 [WINK INBOUND]:
Enter CAS Protocol Selection for Trunk Span 12 [WINK INBOUND]:
Enter CAS Protocol Selection for Trunk Span 13 [WINK OUTBOUND]:
Enter CAS Protocol Selection for Trunk Span 14 [WINK OUTBOUND]:
Enter CAS Protocol Selection for Trunk Span 15 [IMMEDIATE INBOUND]:
Enter CAS Protocol Selection for Trunk Span 16 [IMMEDIATE INBOUND]:
Are all CAS Trunk Spans running the same Frame Type? [y]:
      Available CAS Frame Types
       1. D4
       2. ESF
Enter CAS Frame Type Selection [D4]:
Are all CAS Trunk Spans running the same Line Code? [y]:
      Available CAS Line Codes
       1. AMI_ZCS
       2. B8ZS
Enter CAS Line Codes Selection [AMI_ZCS]:
Of the range of CAS Trunk Spans entered before,
      which are CAS Digital Station Trunk Spans 10-16 (0=none) [10-16]:
```

Trunk Spans 1 through 4 on this card are running ISDN AT&T 4ESS protocol and none of these ISDN trunk spans are to be used as Digital Stations. Trunk Spans 5,6, 7, 8, 9, 13, and 14 are running CAS Wink Outbound; Trunk Spans 10, 11, and 12 are running CAS Wink Inbound; and Trunk Spans 15 and 16 are running CAS Immediate Inbound. Trunk Spans 10 through 16 are being used as Digital Stations. The Analog Stations are Trunk Spans 15 and 16, Digital Station Remote Agents are Trunk Spans 13 and 14, and the VoIP Station Nailups are Trunk Spans 10 and 12. We have not changed any information on this card.

```
**********************************************************************
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000   February 23, 2005       *
*                      SER Solutions Inc. Copyright 2004             *
*                           (press 'q' to quit)                      *
**********************************************************************


Card 3:

Enter # of Trunk Spans [8]:
Enter # of DSP Cores [32]:
Enter the Range of ISDN Trunk Spans -
      include ISDN Digital Station Trunk Spans - 1-8 (0=none) [1-8]:  1-4
Are all ISDN Trunk Spans running the same Protocol? [y]:
      Available ISDN Protocols
       1. AT&T 4ESS
       2. AT&T 5ESS
       3. DMS
       4. NI2
Enter ISDN Protocol Selection [NONE]:  3
Are all ISDN Trunk Spans running the same Frame Type? [y]:
      Available ISDN Frame Types
       1. D4
       2. ESF
Enter ISDN Frame Type Selection [D4]:  2
Are all ISDN Trunk Spans running the same Line Code? [y]:
      Available ISDN Line Codes
       1. AMI_ZCS
       2. B8ZS
Enter ISDN Line Codes Selection [B8ZS]:
Of the range of ISDN Trunk Spans entered before,
      which are ISDN Digital Station Trunk Spans 0 (0=none) [0]:
Enter the Range of CAS Trunk Spans -
      include CAS Digital Station Trunk Spans - 5-8 (0=none) [5-8]:
Are all CAS Trunk Spans running the same Protocol? [y]:
```

```
 Available CAS Protocols
       1. WINK INBOUND
       2. WINK OUTBOUND
       3. WINK INBOUND/OUTBOUND
       4. IMMEDIATE INBOUND
       5. IMMEDIATE OUTBOUND
Enter CAS Protocol Selection [NONE]:  1
Are all CAS Trunk Spans running the same Frame Type? [y]:
      Available CAS Frame Types
       1. D4
       2. ESF
Enter CAS Frame Type Selection [D4]:
Are all CAS Trunk Spans running the same Line Code? [y]:
      Available CAS Line Codes
       1. AMI_ZCS
       2. B8ZS
Enter CAS Line Codes Selection [AMI_ZCS]:
Of the range of CAS Trunk Spans entered before,
      which are CAS Digital Station Trunk Spans 0 (0=none) [0]:  5-8
```

Trunk Spans 1 through 4 on this card are running ISDN DMS protocol and none of these ISDN trunk spans are to be used as Digital Stations. Trunk Spans 5 through 8 are running CAS Wink Inbound and are being used as Digital Stations. The Digital Stations are either Digital Station Nailups or VoIP Station Nailups.

The configuration for Card 1 located in Shelf-Slot 1-7 is as follows:

```
*****************************************************************
******************        T.S.P. Configurator Results        **************
*****************************************************************
Card  1 (Slot 7)
      Network Trunk Spans          8
      CAS Trunk Spans              0
      CAS Timeslots                0
      ISDN Trunk Spans             8
      ISDN Timeslots               192
      Digital Station Trunk Spans  0
      Encore Timeslots             55
      Encore DSPs                  26-30
      Conference Bridges           20
      Conference DSPs              3 22-25
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


 Trunk                        Frame              Wait Time For Digits
 Span  Protocol               Type   Line Code   1st     Next

 1     NI2                    ESF    B8ZS        0       0
 2     NI2                    ESF    B8ZS        0       0
 3     NI2                    ESF    B8ZS        0       0
 4     NI2                    ESF    B8ZS        0       0
 5     NI2                    ESF    B8ZS        0       0
 6     NI2                    ESF    B8ZS        0       0
 7     AT&T 4ESS              ESF    B8ZS        0       0
 8     AT&T 4ESS              ESF    B8ZS        0       0

Press Enter to continue:
```

The configuration for Card 2 located in Shelf-Slot 1-6 is as follows:

```
*****************************************************************
******************        T.S.P. Configurator Results        **************
*****************************************************************
Card  2 (Slot 6)
      Network Trunk Spans          16
      CAS Trunk Spans              12
      CAS Timeslots                288
      ISDN Trunk Spans             4
      ISDN Timeslots               96
      Digital Station Trunk Spans  7
      Encore Timeslots             44
      Encore DSPs                  44-47
      Conference Bridges           20
      Conference DSPs              39-43
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


 Trunk                         Frame              Wait Time For Digits
 Span  Protocol                Type   Line Code     1st     Next

 1     AT&T 4ESS               ESF    B8ZS          0       0
 2     AT&T 4ESS               ESF    B8ZS          0       0
 3     AT&T 4ESS               ESF    B8ZS          0       0
 4     AT&T 4ESS               ESF    B8ZS          0       0
 5     WINK OUTBOUND           D4     AMI_ZCS       0       0
 6     WINK OUTBOUND           D4     AMI_ZCS       0       0
 7     WINK OUTBOUND           D4     AMI_ZCS       0       0
 8     WINK OUTBOUND           D4     AMI_ZCS       0       0
 9     WINK OUTBOUND           D4     AMI_ZCS       0       0
 10 D  WINK INBOUND            D4     AMI_ZCS       300     300
 11 D  WINK INBOUND            D4     AMI_ZCS       300     300
 12 D  WINK INBOUND            D4     AMI_ZCS       300     300
 13 D  WINK OUTBOUND           D4     AMI_ZCS       0       0
 14 D  WINK OUTBOUND           D4     AMI_ZCS       0       0
 15 D  IMMEDIATE INBOUND       D4     AMI_ZCS       0       0
 16 D  IMMEDIATE INBOUND       D4     AMI_ZCS       0       0
Press Enter to continue:
```

The configuration for Card 3 located in Shelf-Slot 1-5 is as follows:

```
*******************************************************************
*******************      T.S.P. Configurator Results      ***************
*******************************************************************
Card  3 (Slot 5)
      Network Trunk Spans          8
      CAS Trunk Spans              4
      CAS Timeslots                96
      ISDN Trunk Spans             4
      ISDN Timeslots               96
      Digital Station Trunk Spans  4
      Encore Timeslots             55
      Encore DSPs                  26-30
      Conference Bridges           20
      Conference DSPs              3 22-25
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


 1      DMS                        ESF   B8ZS      0     0
 2      DMS                        ESF   B8ZS      0     0
 3      DMS                        ESF   B8ZS      0     0
 4      DMS                        ESF   B8ZS      0     0
 5  D  WINK INBOUND                D4    AMI_ZCS   300   300
 6  D WINK INBOUND                 D4    AMI_ZCS   300   300
 7  D WINK INBOUND                 D4    AMI_ZCS   300   300
 8  D WINK INBOUND                 D4    AMI_ZCS   300   300


Press Enter to continue:
```

The card layout for this configuration is

```
*******************************************************************
************************      T.S.P. Card Layout      *****************
*******************************************************************


|-----------------------------------------------------------|
|            CG 6500C-0L/8TE                                |
|-----------------------------------------------------------|
|            CG 6500C/64-0L/16TE                            |
|-----------------------------------------------------------|
|            CG 6500C-0L/8TE                                |
|-----------------------------------------------------------|
|            P R O C E S S O R   C A R D                    |
|-----------------------------------------------------------|



Press Enter to continue:
```

For this configuration it is expected that a CG 6500C-0L/8TE card be loaded above the Processor Card followed by a CG 6500C/64-0L/16TE card, then a CG 6500C-0L/8TE card.

Sample E1 Configuration Initialization

This chapter contains a sample for initializing a system configuration.

```
**********************************************************************
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000   February 23, 2005       *
*                      SER Solutions Inc. Copyright 2004             *
*                          (press 'q' to quit)                       *
**********************************************************************

Is this a CPS-EE TSP? [n]:


**********************************************************************
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000   February 23, 2005       *
*                      SER Solutions Inc. Copyright 2004             *
*                          (press 'q' to quit)                       *
**********************************************************************

Select the country where this system will be installed:
      1. United States
      2. Australia
      3. Austria
      4. Belgium
      5. Brazil
      6. Canada
      7. Czech Republic
      8. Denmark
      9. Finland
     10. France
     11. Germany
     12. Greece
     13. Iceland
     14. Ireland
<more>
Enter Country Name or Item Number []:
```

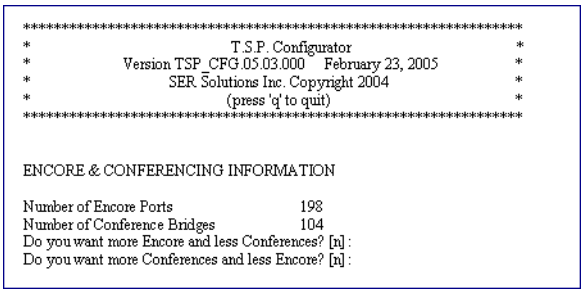
```
**********************************************************************
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000   February 23, 2005       *
*                      SER Solutions Inc. Copyright 2004             *
*                          (press 'q' to quit)                       *
**********************************************************************

Select the country where this system will be installed:
     15. Italy
     16. Japan
     17. Luxembourg
     18. Mexico
     19. Netherlands
     20. Norway
     21. Philippines
     22. Poland
     23. Portugal
     24. Russia
     25. Spain
     26. Sweden
     27. Switzerland
     28. United Kingdom

Enter Country Name or Item Number []:  28
Enter Number of Stations [270]:  180
Enter Number of Cards to be used
      CG 6500C-0L/8TE Span Cards (if unknown, enter 0) [0]:  1
      CG 6500C/64-0L/8TE Span Cards (if unknown, enter 0) [0]:  2
      CG 6500C/64-0L/16TE Span Cards (if unknown, enter 0) [0]:  0
```

Trunk Information

```
**********************************************************************
*                                T.S.P. Configurator                 *
*                Version TSP_CFG.05.03.000    February 23, 2005      *
*                        SER Solutions Inc. Copyright 2004           *
*                                (press 'q' to quit)                 *
**********************************************************************

Enter Number of Trunk Spans configured as ISDN Group 1 [18]:  16
      Available ISDN Protocols
       1. Australian Telecom 1
       2. EMCA-QSIG
       3. EuroISDN
       4. France Telecom VN6
Enter ISDN Protocol []:  3
Enter Number of Trunk Spans configured as ISDN Group 2 [2]:
      Available ISDN Protocols
       1. Australian Telecom 1
       2. EMCA-QSIG
       3. EuroISDN
       4. France Telecom VN6
Enter ISDN Protocol []:  2
```

Station Information

```
**********************************************************************
*                                T.S.P. Configurator                 *
*                Version TSP_CFG.05.03.000    February 23, 2005      *
*                        SER Solutions Inc. Copyright 2004           *
*                                (press 'q' to quit)                 *
**********************************************************************


STATION INFORMATION

Total Number of Stations Configured         180
Total Number of Spans used for Stations      6
Press Enter to continue:

**********************************************************************
*                                T.S.P. Configurator                 *
*                Version TSP_CFG.05.03.000    February 23, 2005      *
*                        SER Solutions Inc. Copyright 2004           *
*                                (press 'q' to quit)                 *
**********************************************************************

Enter Number of Digital Stations configured as CAS Group 1 [180]:  0

**********************************************************************
*                                T.S.P. Configurator                 *
*                Version TSP_CFG.05.03.000    February 23, 2005      *
*                        SER Solutions Inc. Copyright 2004           *
*                                (press 'q' to quit)                 *
**********************************************************************

Remaining Number of Digital Stations Available 180
Enter Number of Digital Stations configured as ISDN Group 1 [180]:
      Available ISDN Protocols
       1. Australian Telecom 1
       2. EMCA-QSIG
       3. EuroISDN
       4. France Telecom VN6
Enter ISDN Protocol []:  2
```



In this example, we have defined 180 Stations using two CG 6500C/64-0L/8TE cards and a CG 6500C-0L/8TE card. The number of total channels available on this system is calculated by multiplying the number of trunk spans on a card by the number of channels on 1 trunk span which is 30 on a E1 line. So the equation is:

(8 x 30) + (8 x 30) + (8 x 30) = 240 + 240 + 240 = 720 Total Channels

Since there are 180 Stations, the number of network trunks is:

720 – 180 = 540 Network Trunks

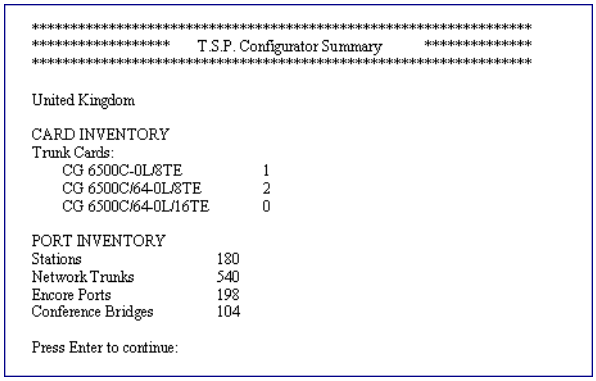
540 / 30 = 18 Trunk Spans

We have determined that there are 18 Trunk Spans not being used for Stations that need to be configured. Sixteen of those trunk spans are running ISDN EuroISDN and the remaining 2 trunk spans are configured as ISDN EMCA-QSIG.

The 180 Stations are configured as ISDN EMCA-QSIG.

The calculated Encore Ports and Conference Bridges, derived from the number of each card type, were not changed.

The summary of the system configuration is as follows:



The configuration for Card 1 located in Shelf-Slot 1-7 is as follows:

```
**********************************************************************
******************        T.S.P. Configurator Results        **********
**********************************************************************
Card 1 (Slot 7)
      Network Trunk Spans          8
      CAS Trunk Spans              0
      CAS Timeslots                0
      ISDN Trunk Spans             8
      ISDN Timeslots             240
      Digital Station Trunk Spans  0
      Encore Timeslots            99
      Encore DSPs                 27-31 41-44
      Conference Bridges          40
      Conference DSPs             3 18-26
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


 Trunk                    Frame                 Wait Time For Digits
 Span  Protocol           Type   Line Code      1st      Next

 1     EuroISDN           CEPT   HDB3           0        0
 2     EuroISDN           CEPT   HDB3           0        0
 3     EuroISDN           CEPT   HDB3           0        0
 4     EuroISDN           CEPT   HDB3           0        0
 5     EuroISDN           CEPT   HDB3           0        0
 6     EuroISDN           CEPT   HDB3           0        0
 7     EuroISDN           CEPT   HDB3           0        0
 8     EuroISDN           CEPT   HDB3           0        0

Press Enter to continue:
```

Eight of the 16 ISDN EuroISDN Trunk Spans are defined on this card.

The configuration for Card 2 located in Shelf-Slot 1-6 is as follows:

```
**********************************************************************
******************        T.S.P. Configurator Results        **********
**********************************************************************
Card 2 (Slot 6)
      Network Trunk Spans          8
      CAS Trunk Spans              0
      CAS Timeslots                0
      ISDN Trunk Spans             8
      ISDN Timeslots             240
      Digital Station Trunk Spans  0
      Encore Timeslots            99
      Encore DSPs                 26-31 41-43
      Conference Bridges          36
      Conference DSPs             3 18-25
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


 Trunk                    Frame                 Wait Time For Digits
 Span  Protocol           Type   Line Code      1st      Next

 1     EuroISDN           CEPT   HDB3           0        0
 2     EuroISDN           CEPT   HDB3           0        0
 3     EuroISDN           CEPT   HDB3           0        0
 4     EuroISDN           CEPT   HDB3           0        0
 5     EuroISDN           CEPT   HDB3           0        0
 6     EuroISDN           CEPT   HDB3           0        0
 7     EuroISDN           CEPT   HDB3           0        0
 8     EuroISDN           CEPT   HDB3           0        0

Press Enter to continue:
```

The remaining 8 ISDN EuroISDN Trunk Spans are defined on this card.

The configuration for Card 3 located in Shelf-Slot 1-5 is as follows:

```
*********************************************************************
*******************        T.S.P. Configurator Results        **************
*********************************************************************
Card  3 (Slot 5)
       Network Trunk Spans          8
       CAS Trunk Spans              0
       CAS Timeslots                0
       ISDN Trunk Spans             8
       ISDN Timeslots               240
       Digital Station Trunk Spans  6
       Encore Timeslots             0
       Encore DSPs                  0
       Conference Bridges           28
       Conference DSPs              3 26-31
<more - trunk details>
Press Enter to continue (or 's' to skip trunk details):


  Trunk                      Frame               Wait Time For Digits
  Span  Protocol             Type  Line Code     1st    Next

  1      EMCA-QSIG           CEPT  HDB3          0      0
  2      EMCA-QSIG           CEPT  HDB3          0      0
  3  D  EMCA-QSIG            CEPT  HDB3          0      0
  4  D  EMCA-QSIG            CEPT  HDB3          0      0
  5  D  EMCA-QSIG            CEPT  HDB3          0      0
  6  D  EMCA-QSIG            CEPT  HDB3          0      0
  7  D  EMCA-QSIG            CEPT  HDB3          0      0
  8  D  EMCA-QSIG            CEPT  HDB3          0      0

Press Enter to continue:
```

All of the trunk spans on this card are running ISDN EMCA-QSIG protocol and trunk spans 3 through 8 are to be used as Digital Stations.

The card layout for this configuration is:

```
|-------------------------------------------------------------|
|             CG 6500C-0L/8TE                                  |
|-------------------------------------------------------------|
|             CG 6500C/64-0L/8TE                               |
|-------------------------------------------------------------|
|             CG 6500C/64-0L/8TE                               |
|-------------------------------------------------------------|
|             P R O C E S S O R   C A R D                      |
|-------------------------------------------------------------|


Press Enter to continue:
```

For this configuration it is expected that the two CG 6500C/64-0L/8TE cards are loaded above the Processor Card followed by a CG 6500C-0L/8TE card.

```
*********************************************************************
*                          T.S.P. Configurator                      *
*             Version TSP_CFG.05.03.000    February 23, 2005        *
*                  SER Solutions Inc. Copyright 2004                *
*                          (press 'q' to quit)                      *
*********************************************************************


Do you want to save the Configuration changes? [y]:

Updating Dialing Rules file...


Country:  United Kingdom

      Updating configuration file...
      Updating system (Requires a minute to complete)...please wait

Downloading Cards...please wait

Do you want to view the log file to verify a successful download? [y]:
```

Warning!

It is very important to reboot the system in order for the correct country information to be used.

```
**********************************************************************
*                          T.S.P. Configurator                       *
*                Version TSP_CFG.05.03.000   February 23, 2005       *
*                SER Solutions Inc. Copyright 2004                   *
*                          (press 'q' to quit)                       *
**********************************************************************

The Initialization was completed successfully.

                *** WARNING ***

    The system MUST be rebooted for these changes to take effect!!

Press Enter to continue:
```

Chapter 8 TSPLogger

This section includes the following:

- Overview
- Description
- Configuration
- SYSLOG Viewers
- TSP Control
- Events
- TspRelay

Overview

CPSEE_TSP500 has the capability to log specified messages and events to a centralized logger. When there are multiple TSPs, it is desirable to provide a method of generating event messages and directing them to a centralized logger. These messages provide information on major events and errors occurring on the TSPs. The method chosen for the **TspLogger** is the UNIX style syslog messaging described in (RFC-3164).

You can choose among a variety of “sysloggers” available on the market, such as the one provided freely at www.kiwisyslog.com. Some of these sysloggers are quite powerful, allowing emails or pager messages to be sent based on certain events. The CPSEE_TSP500 can use any RFC-3164 compliant syslogger that uses UDP messages for receiving events. Testing for this feature was done using the syslogger from www.kiwisyslog.com.

TspLogger

The centralized logging feature of the CPSEE_TSP500.

Rlogger

A utility on the TSP that allows sending TspLogger messages from a command line or script file.

Description

Activating the **TspLogger** is accomplished by assigning the IP address of the PC running the syslogger. The configuration file for the TspLogger is **/opt/ser/cfg/syslog.cnf**.

When the TSP is started (or the “load syslog” is entered via the Admin Terminal), the TSP will begin forwarding event messages to the remote syslogger.

Other configurable items are available and will be described below.

Configuration

The configuration file for controlling the TspLogger will be the file **syslog.cnf** (located in the **/opt/ser/cfg** directory). The following describes the keywords used for configuring the **TspLogger**.

This file can be accessed via an item in the Configuration Menu on the TSP.

Example:

```
================================================
        TSP Configuration  [tspdev10]
(c) Copyright 2003-2004 SER Solutions Inc.
================================================

   A....DialingRules
   B....DnisConfiguration
   C....ISDNConfiguration
   D....Strategies
   E....SysLogConfiguration
   F....Tools
   G....Trunks
   H....WriteCfigToArchive

   Select Item:
```

The following describes the three configuration items used to configure the **TspLogge**r. SYSLOG_HOST is the only required assignment. The other two are optional.

SYSLOG_HOST

IP address of the PC where the syslogger resides. This should be entered using dot notation.

Example:

SYSLOG_HOST 192.168.2.10

SYSLOG_PORT

This keyword is optional. The default port used for TspLogger is the industry standard port 514. If for some reason you need to use another port, this keyword can be used to assign it.

Example:

SYSLOG_PORT 9400

SYSLOG_NAME

This keyword is optional. It is used to specify a name that will display on the syslogger to identify the TSP. By default, the **hostname** is displayed. However, if you would like some other label that might be more meaningful displayed, this configurations item can be used to assign it.

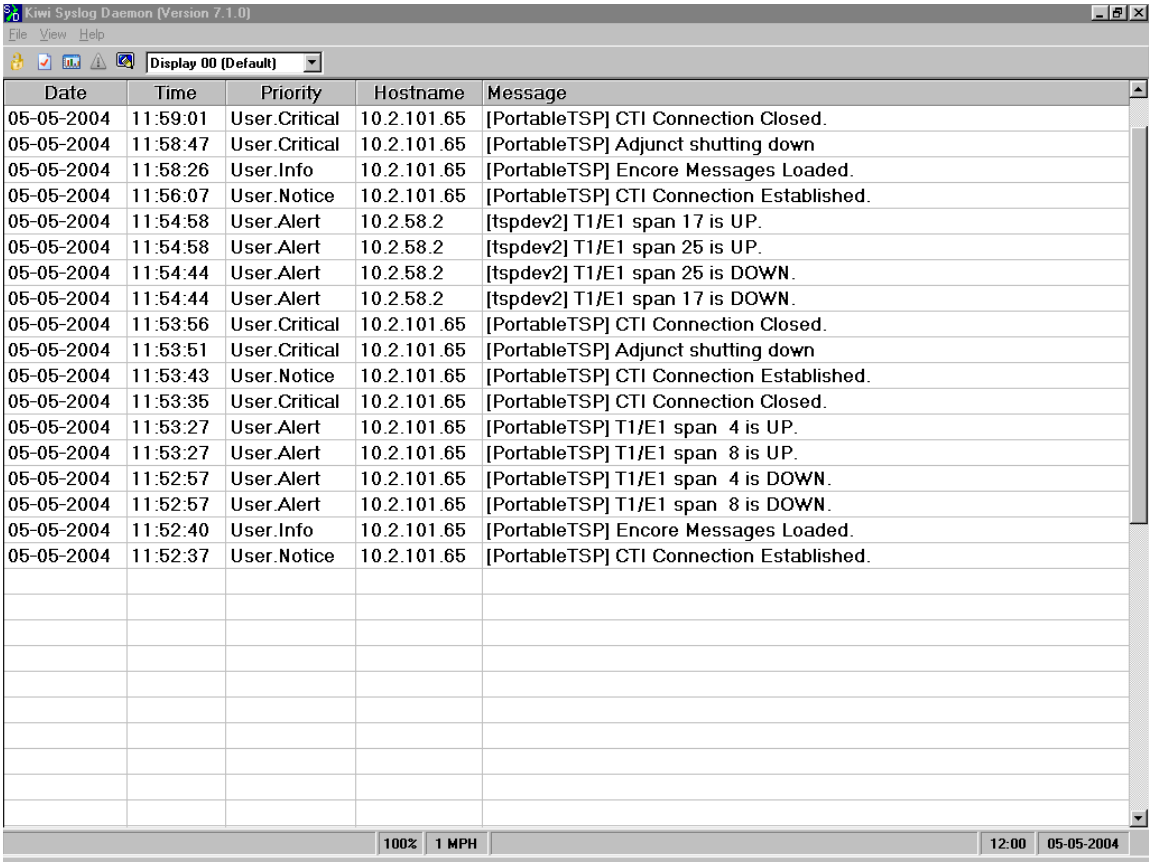
Example:

SYSLOG_NAME Omaha TSP

SYSLOG Viewers

There is a variety of syslogger software on the market. We can use any RFC-3164 compliant syslogger that used UDP messages for receiving events.

Testing for this feature was done using the syslogger from www.kiwisys-log.com. The following is a display from that syslogger.



Date	Time	Priority	Hostname	Message
05-05-2004	11:59:01	User.Critical	10.2.101.65	[PortableTSP] CTI Connection Closed.
05-05-2004	11:58:47	User.Critical	10.2.101.65	[PortableTSP] Adjunct shutting down
05-05-2004	11:58:26	User.Info	10.2.101.65	[PortableTSP] Encore Messages Loaded.
05-05-2004	11:56:07	User.Notice	10.2.101.65	[PortableTSP] CTI Connection Established.
05-05-2004	11:54:58	User.Alert	10.2.58.2	[tspdev2] T1/E1 span 17 is UP.
05-05-2004	11:54:58	User.Alert	10.2.58.2	[tspdev2] T1/E1 span 25 is UP.
05-05-2004	11:54:44	User.Alert	10.2.58.2	[tspdev2] T1/E1 span 25 is DOWN.
05-05-2004	11:54:44	User.Alert	10.2.58.2	[tspdev2] T1/E1 span 17 is DOWN.
05-05-2004	11:53:56	User.Critical	10.2.101.65	[PortableTSP] CTI Connection Closed.
05-05-2004	11:53:51	User.Critical	10.2.101.65	[PortableTSP] Adjunct shutting down
05-05-2004	11:53:43	User.Notice	10.2.101.65	[PortableTSP] CTI Connection Established.
05-05-2004	11:53:35	User.Critical	10.2.101.65	[PortableTSP] CTI Connection Closed.
05-05-2004	11:53:27	User.Alert	10.2.101.65	[PortableTSP] T1/E1 span 4 is UP.
05-05-2004	11:53:27	User.Alert	10.2.101.65	[PortableTSP] T1/E1 span 8 is UP.
05-05-2004	11:52:57	User.Alert	10.2.101.65	[PortableTSP] T1/E1 span 4 is DOWN.
05-05-2004	11:52:57	User.Alert	10.2.101.65	[PortableTSP] T1/E1 span 8 is DOWN.
05-05-2004	11:52:40	User.Info	10.2.101.65	[PortableTSP] Encore Messages Loaded.
05-05-2004	11:52:37	User.Notice	10.2.101.65	[PortableTSP] CTI Connection Established.

TSP Control

The TSP will have some control over the messages that are sent to the TspLogger. It is by the “syslog” command in the AdminTerminal.

The “syslog” command is similar to the “install” or “options” command. That is, it allows setting hexadecimal bits to control what messages are sent to the TspLogger.

The following shows the output of the “syslog command”.

```
Syslog Options = 207f
1  Emergency
1  Alert
1  Critical
1  Error
1  Warning
1  Notice
1  Information
0  Debug

0
0
0
0

0
1  Send Manual Dial Info to TspLogger
0  Allow ALL T1/E1 Alarms to TspLogger
0  Use Strict RFC 3164 message format
```

Notes

- The **Debug** bit is normally turned **OFF.** It is for engineering use, and could flood the TspLogger with cryptic information meant for diagnosing problems.
- **“Send Manual Dial Info to TspLogger”** will send a notification to the TspLogger whenever a manual dial is issued. The telephone number and station from where the call is being made will be displayed. It is suggested that this bit be turned ON only for those sites where manual dialing is NOT the norm. Otherwise the TspLogger could be flooded with manuals dial messages.
- **“Allow ALL T1/E1 Alarms to TspLogger”** is normally turned **OFF**. Normally the TspLogger will receive a de-bounced UP or DOWN message indicating a T1 or E1 span is in trouble. If all the T1E1 errors are sent to the TspLogger, it could flood the logger and make finding useful information difficult.

- **"Use Strict RFC 3164 message format"** is a matter of choice. If it is turned on, the local time of the TSP will be displayed.

Events

The following lists the currently defined events. Others may be added or existing ones modified as necessary.

```
[TSP NAME] TSP Initializing.......
```

The TSP application has just been started and is going through its initialization phase.

```
[TSP NAME] *** TSP Started. Ver. CPS_TSP500.xx.xxx ***.
```

The TSP application has completed its initialization phase and is up and running. It is now safe to connect the Call Manager/Gateway.

```
[TSP NAME] *** TSP Stopped ***
```

The TSP application has been stopped via the Admin Terminal command "**stoptsp**"

```
[TSP NAME] CTI Connection Established.
```

A Call Manger or Gateway has connected to the TSP.

```
[TSP NAME] CTI Connection Failed.
```

An attempt by a Call Manager or Gateway to connect to the TSP has failed.

```
[TSP NAME] CTI Connection Closed.
```

The connection between the Call Manager or Gateway to the TSP has closed.

```
[TSP NAME] Stopped Receiving Heartbeats.
```

The TSP has stopped receiving heartbeats form the Call Manager or Gateway.

```
[TSP NAME] Duplicate Connection Attempted from IP xx.xx.xx.xx.
```

Another Call Manager or Gateway (or some device) is attempting to connect to the TSP that is already connected. The IP address is that of the 2nd Call Manager or Gateway.

```
[TSP NAME} Adjunct shutting down.
```

The Call Manger or Gateway is performing an orderly shutdown. (example: "cmshut")

```
[TSP NAME] T1/E1 Span xx Failed To Initialize.
```

A T1 or E1 span failed to initialize. This could be due to an invalid configuration, or perhaps the TSP was stopped and restarted too quickly. Reboot the TSP. If the problem continues, contact SER.

`[TSP NAME] T1/E1 span xx is DOWN.`

The specified T1 or E1 span “Out of Service” due to network alarms. Also occurs for ISDN lines when the D Channel goes down.

`[TSP NAME] T1/E1 span xx is UP`

The specified T1 or E1 span is back “In Service”. This occurs when all network alarms have cleared, and the D Channel is back up for ISDN lines. This message is only sent if a failed T1 or E1 has recovered and been stable for 15 seconds.

`[TSP NAME] Trunk xx Disabled - too many consecutive errors.`

The specified trunk has been disabled due to too many consecutive errors. The threshold for how many errors constitute “too many” is configurable in the Dialing Rules. *Disabled trunks are retried at a later time (also configurable in the Dialing Rules).*

`[TSP NAME] Conference Test Failed on Board xx.`

Conference circuits are tested daily (or by an Admin Terminal command). This event signifies a conference circuit has failed the test and been taken “Out of Service”.

`[TSP NAME] Switch Errors – Contact SER.`

Indicates that the underlying switching fabric has experienced an error. Continued errors probably means that a “reboot” is in order. SER should be notified.

`[TSP NAME] Encore Messages Loaded.`

Occurs whenever the TSP notifies the Call Manager or Gateway that new Encore Messages are present.

`[TSP_NAME] No Available Encore Ports.`

An attempt to play an Encore message was delayed because all Encore Ports were in-use. If this message is seen repeatedly, the TSP should be reconfigured to provide more Encore Ports.

`[TSP_NAME]  No Third Party Trunks available – using general pool.`

A Third Party Dial was forced to use a trunk from the general pool of trunks because either all Third Party Trunks were in use, or not assigned.

```
[TSP_NAME] Third Party Dial Failed – No Trunks.
```

A Third Party Dial failed because no trunks were available. (not even in the general pool)

```
[TSP_NAME] Stn: xxx Unable to get Conference Resource.
```

A request for a conference resource failed because all resources are in use. If this message occurs repeatedly, the TSP should be re-configured to provide more conference resources.

```
[TSP NAME] Linux Started...
```

Linux was rebooted or powered up.

```
[TSP NAME] Linux Stopped...
```

Linux is shutting down. (possible reboot or shutdown issued)

```
[TSP NAME] Manual Dial to xxxxxxxxxx from Stn: xx
```

This message is optional. It will display the phone number and stations number from where the Manual Dial was launched. This message is useful for centers to track unauthorized Manual Dials.

TspRelay

Note:
TSPRelay will initially only be available on Gateway systems using SCO 0s5.0.5. It will be released at a later time with Call Manager.

Quite often TSPs are on isolated networks behind Call Managers or Gateways. Access to a centralized logger directly may not be possible. For these installations we offer a daemon called **TspRelay** that is installed on the Call Manager or Gateway. This daemon will accept **TspLogger** messages from the TSP and forward them to the PC running the syslogger.

Two versions of the TspRelay are available:

- **tsprelay_sco** for Call Managers/Gateways running SCO Open Server.
- **tsprelay_lx** for Call Managers/Gateways running Linux.

Note:
CPSEE_TSP500 systems that have direct network access to syslogger will not require the TSPRelay and will be able to use the syslog feature.

The program (**tsprelay_sco or tsprelay_lx**) should be started as a daemon. When started, it will look in the **/etc** directory for a file called **relay.conf**. It is this file that will contain the assignments for the IP address of the PC running the syslogger, as well as the optional receive and send port assignments.

Supported Key Words

The following three key words are supported:

- SYSLOG_HOST
- RECEIVE_PORT
- SEND_PORT

By default the TspRelay uses port 514 for the receive and send ports. If it is necessary to change the port assignments, they can be changed via the optional keywords RECEIVE_PORT and (or) SEND_PORT.

Example:

Suppose port 514 on the Call Manger is already used, and we decided to use port 1199 instead. You would enter the following text into the **relay.conf** file.

```
RECEIVE_PORT 1199
```

Note:
If the “receive port” is changed, then the TspLogger on the TSP must be reconfigured to send its messages out the new port assignment. If the “send port” is changed, it must match the port that the PC running the syslogger is listening to.

The above tells the TspRelay to listen on port 1199 for messages to forward. However, we will still be sending to the syslogger using the default port 514. If that also needed to be changed, you would use the SEND_PORT keyword.

```
SEND_PORT1199
```

Starting the TspRelay

Ports below 1024 usually require the program using them to have root privileges. Normally, the TspRelay would be started as root and run in the background using the UNIX/LINUX init scripts.

However, you could start it from the command line. An example of starting the TspRelay on a Call Manager running SCO UNIX would be:

```
nohup tsprelay_sco &
```

For a Call Manager running Linux, it would be

```
nohup tsprelay_lx &
```

Errors

The TspRelay will exit abnormally for the following reasons:

- The file “relay.conf” is not present, or has insufficient privileges to allow the TspRelay to open it.
- The receive port cannot be opened. This could be because the TspRelay was not started with root privileges, or the port is already in use by some other application.
- An error is detected when attempting to open the socket.
- An error is detected when reading or writing the socket.

Notes

- TspRelay receives and sends UDP datagrams.
- If the file “relay.conf” file cannot be found or opened in the /etc directory, the TspRelay will look for the file in the /tmp directory. This is mainly for testing the TspRelay without having to run as root.
- TspRelay should use very little CPU. It generally sleeps waiting for a message on the receive port. Once a valid message is received, it is transmitted out the “send port” intact. The TspRelay does not modify the message.

RLOGGER

Rlogger is a program that sits on the TSP in the directory **/usr/bin**. It provides the capability to send TspLogger messages from the command line or script files.

Rlogger use the same configuration parameters as the TspLogger (specified in the **syslog.cnf** file in the **/opt/ser/cfg** directory.

Example:

```
rlogger “hello world”
```

The above example would send the text *hello world* to the TspLogger.

Note:

The text string must be double quoted. Rlogger is a Linux based executable. Although not developed for the Call manager, tt could be placed on a Linux based Call Manager to allow script files on the Call Manager to send event messages to the TspLogger.

Chapter 9 Intrusion Tone

This section includes the following:

- Overview:
- Implementing Intrusion Tone
- Using Intrusion Tone

Overview:

Some countries outside the USA require that an Intrusion Tone be played to agents and called parties if they are being monitored. The frequency, cadence and decibel level of this Intrusion Tone can be different for each country that requires it.

Experience had shown that most (if not all) customers will have it turned off. The argument put forth by these customers was that they could not perform adequate quality control over their agents, if the agents know they are being monitored.

The Intrusion Tone will be offered with a single cadence only (1 On and 1 Off Cycle). This cadenced tone will be repeated for the life of the monitoring session.

Generating multiple cadenced tones with NMS's tone generation functions requires starting and stopping the DSP for each cadence. It multiple cadences is absolutely required – then we could implement it as an audio file that loops (like "Music On Hold"). However, someone would have to generate the file.

Intrusion Tones can be configured for either single or multi-frequency tones.

Because implementing Intrusion requires that the monitoring session be in a full conference, the "Client Monitoring" feature will be disabled if Intrusion is being used. Otherwise the called party and agent would hear the Monitor and Client Monitor's conversation.

Implementing Intrusion Tone

When implementing the Intrusion Tone, you acquire the following:

1. Produce a tone compliant with the country where the TSP is located. There is a **tones.def** file in the **/usr/home/cpstst/cfg** directory of the TSP that specifies the characteristics of tones generated by the TSP. A new item (**ITONE)** will be added to specify the characteristics of the Intrusion Tone.
2. Provide a mechanism to specify whether the Intrusion Tone should be used or not.
   A new Dialing Rules keyword **(INTRUSION**) will be added to the TSP. The default is for Intrusion Tone is to be turned OFF. To specify that the Intrusion Tone should be used, enter the following line into the Dialing Rules.

   INTRUSION 1

Using Intrusion Tone

- If the **INTRUSION** keyword is NOT defined in the Dialing Rules file, or is defined, and set to zero, there will be no Intrusion Tone injected into calls that are monitored.
- If the **INTRUSION** keyword is set to one (1), the tone (specified by the **ITONE** parameter in the **tones.def** file) will be injected into calls being monitored. This includes both two-party calls and conferences that are being monitored.
- If a Monitor Barges In on a call, the Intrusion Tone will cease while the Monitor is an active party in the conference.

Example:

```
!************************************************
!**************** UK  ***************************
!************************************************
!Tone   Freq1   Ampl1   Freq2   Ampl2   On      Off
DTONE  350     -27     440       0     8000      0
BUSY   400     -37       0       0     375     375
FBUSY  400     -43       0       0     250     250
RING   400     -37     450       0     4000    2000
ITONE  500     -23       0       0     100     5000
!************************************************
```

Because playing an Intrusion Tone requires a full conference while monitoring, the TSP feature “Client Monitor” will be deactivated if the INTRUSION keyword is set to 1. Otherwise, the agent and called party would hear the Monitor and Client Monitor’s conversation.

Chapter 10 TSP Lights

This section includes the following:

- The TSP Light Display

The TSP Light Display

The Light display used by engineering is now available to any user that can access the TSP with a Web Browser.

Note:
TSP Lights requires a direct connection to the user network. It will not work if the CPSEE_TSP500 is on the Call Manager's private network and no other connection is pro-

Table 10-1: Color of trunk and station lights.

Color	Meaning
White	Trunk is idle (on-hook)
Green	Trunk is off-hook. Dialing or connected.
Red	Trunk is out or service, or disabled due to too many consecutive errors.
Black	Trunk is disabled. Either in the Dialing Rules or via the "disable" command.
Light Blue	Station is off-hook.
Dark Blue	Stations is off-hook and on a call.

The bottom six rows of the light display indicate the health of the associated spans.

Table 10-2: Health of associated spans.

Light	Health	Description
Span Status	Green = OK Red = Error during initialization. White - Inactive	Indicates current status of the span.
Red Alarm	Red = Span in Red Alarm White = OK	(Lost synchronization)
Blue Alarm	Blue = Receiving AIS. White = OK	(Framed All Ones). Sent by carrier or CSU to indicate a problem upstream
Yellow	Yellow = Receiving yellow alarm. White = OK	Yellow alarms are sent if the far end is having trouble synchronizing to us.
Loss of Signal	Red = LOS White = OK	A LOS indicates that there is no signal on the T1/E1 cable.
D Channel	RED = D Channel is DOWN Green = D Channel is UP. White = NON-ISDN span.	Monitors the status of the ISDN D Channel.

Chapter 11 Accessing Text-To-Speech

This section addresses configuration necessary for reading Text-To-Speech messages on the TSP500. It includes the following:

- Accessing Text-To-Speech Messages
- Mounting the External Drive

Accessing Text-To-Speech Messages

TSP500 has the ability to play an arbitrary Text-To-Speech (TTS) voice message. The creation of the TTS message is not the responsibility of the TSP500, but the TSP500 must have read access to the message.

Access to the message is to be provided by a Samba mount to an external drive. You would mount the external drive locally to the path **/home/tts**. To ensure that the drive is always mounted, you must insert an entry into the **/etc/fstab** file.

An example of the entry is:

```
//<IP Address>/<directory path> <local directory path>
username=<name>,password=<password>,<additional options> 0 0
```

OR

```
//<Host Name>/<directory path>  <local directory path>
username=<name>,password=<password>,<additional options> 0 0
```

Example:

```
//10.2.109.245/audio/home/tts smbfs  username=eisadmin/Shelton,pass-
word=admin,defaults 0 0

//Minnie/Apps      /home/tts  smbfs  username=eisadmin/Shelton,pass-
word=admin,defaults0 0

//10.2.55.6/tts    /home/tts  smbfs  defaults 0 0
```

Note:

"defaults" = rw,suid,dev,exec,auto,nouser, async

Mounting the External Drive

To mount an external drive, do the following:

1. Login to the TSP500 as **root**.
2. Edit the file containing filesystem information:
   ```
   [root@tsp500]#   cd /etc
   [root@tsp500]#   vi fstab
   ```
3. Insert the entry at the bottom of the file (See examples above).
4. Save the file.
5. Ensure the external drive is not already mounted:
   ```
   [root@tsp500]#   mount
   ```
6. If "/home/tts" is listed, do the following.
   ```
   [root@tsp500]#   umount /home/tts
   ```
   Otherwise proceed to the next step.
7. Mount the external drive:
   ```
   [root@tsp500]#   mount –a
   ```

Chapter 12 Integrated Recording

This section addresses configuration necessary for Integrated Recording. It includes the following sections:

- Introduction
- Components of Integrated Recording
- Integrated Recording Operation

Introduction

Integrated Recording is a software solution for recording Agent conversations with contacts and/or conferencing parties. The recording can have different uses, depending upon the needs of the business customer.

One way to use Integrated Recording is for quality assurance purposes. A Supervisor may want to review the call to ensure that the Agent is working with a provided script or to review the contact conversation for feedback, for example.

Another common use of Integrated Recording is sales validation. The recording can be archived and reviewed later if there was a dispute on a purchase or if there are inconsistencies in the order.

Recording of the Agent can continue even after the called party has disconnected. Occasionally, this may be necessary to comply with contractual or legal requirements that direct the Agent to read a statement or script, even if the called party hanged up.

The TSP500 has Integrated Recording capability for up to 192 simultaneous conversations. Each conversation will result in a single file of merged audio, including the agent and the other party that the agent is connected to (called party or conference), that transfers to a remote archive server.

See Also:

“Integrated Recording Feature” on page 4-5

Components of Integrated Recording

Recording Agent conversations on the TSP500 requires the following components:

- RAM Disk
- Recording Server
- Disk Monitor Daemon
- Recording Resource Manager

RAM Disk

You must create a RAM disk with at least a 400MB capacity to hold the temporary snippets of audio. The file **grub.conf**, located in the **/boot/grub** directory, will be modified to allocate the memory needed for the RAM disk. New entries in the /**etc/rc.d/rc.local** file will create the RAM disk at **/mnt/rd** during boot-up.

These modifications take place when you install a recorder during a TSP500 upgrade. You must **reboot** the system after installation to activate the RAM drive

Recording Server

To activate Integrated Recording, you must mount SAMBA to a shared drive on a Recorder Server. The Recorder Server is the server that will archive the completed recordings. The Recorder Server will be referred to as the **RecServer** in this document.

On Linux, you would mount the shared drive using an entry in the **fstab** file in the **/etc** directory. This entry requires an IP address or "nodename". Although this could vary from site to site, the TSP software installation will configure a default "nodename" (**recserv**), and IP address on the 199 network (**199.199.199.220**).

Table 12-1: Files modified during installation.

File	Directory	Comment
fstab	/etc	Add mount statement
hosts	/etc	Add "nodename" and IP address of the Rec-Server
.tsp_profile	/usr/home/cpstsp	Add environment variables.

If a different IP address, and "node name" is required, it can be reconfigured during the installation, or afterwards, using the "**rec_watch_setup**" program located in the **/usr/home/cpstsp/cps01/utl/exe** directory.

The mount point for the shared drive is **/home/EncWorkingData**. A subdirectory **EncImport** is created for storing the audio files created by the TSP.

Disk Monitor Daemon

The daemon process (**rec_watch.exe**) must be started. Its purpose is to move the audio files from their temporary storage on the RAM disk to the shared drive on the RecServer. This daemon process will establish a socket connection with the TSP. This connection will allow the TSP to control the movement of the audio files from the RAM disk to the shared drive on the **RecServer**.

This daemon process is referred to as **RecWatch** in this document. **RecWatch** is integrated in the TSP500 software installation. Because it requires the IP address of the **RecServer**, the auto-startup features are disabled at installation (similar to the TSP500 application), but can be activated by the installer.

Recording Resource Manager

A remote node, the **Recording Resource Manager** (**RRM),** sends recording control messages (Start, Stop, Pause Resume and Delete) to the TSP500 using CPS Enterprise Edition SIP. Protocol C messages arrive at the TSP500 using the standard CTI link. However, Call IDs generated by the **RRM** process will not be synchronized with the Call IDs generated by CPS Enterprise Edition SRM. This is because the **RRM** is tunneling through the CPS Enterprise Edition SIP, and not interfacing with the CPS Enterprise Edition SRM process.

To prevent conflicts with the Call ID generated by the SRM, a fixed Call ID (**10996**) has been defined for exclusive use by the **RRM**. Support has also been added for handling a **M_HEARTBEAT** message from the **RRM**. This heartbeat is in addition to the heartbeat generated by CPS Enterprise Edition, and is distinguishable by the fixed Call ID allocated to the **RRM**. Once a heartbeat is received from the **RRM**, the TSP500 will monitor the receipt of future heartbeats. If it notices the loss of heartbeats from the **RRM**, it will assume the **RRM** is down and terminate all current recordings. If a subsequent **M_HEARTBEAT** or Recording command is received from the **RRM**, the TSP500 will assume the **RRM** is back up.

The **RRM** talks to both the TSP500 and **RecServer**. It is responsible for issuing recording commands to the TSP, and sending notifications to the **RecServer** as well as the data associated with the audio recordings.

A protocol C message **M_RECORD_CONTROL** has been defined. This is the only message sent from the **RRM** to the TSP.

The Call ID field used in this message type is the fixed (reserved) call ID (**10996)** Keeping track of multiple recording sessions will be handled using the Agent ID field in the message, and not by the Call ID.

This Protocol C message contains a “flag” field that specifies five possible actions:

- Start Recording
- Stop Recording
- Pause Recording
- Resume Recording
- Delete Recording.

Also included in the message is a unique key that will be used in generating file names for the recorded audio.

See Also:

“Integrated Recording Operation” on page 12-10

“Integrated Recording Feature” on page 4-5

Integrated Recording Operation

Integrated Recording involves sending messages to and from the TSP, generating a file, recording a conversation, and moving the audio recordings to the recording server.

The sequence for Integrated Recording is as follows:

1. An agent is connected to a call.
2. The **RRM** issues a **M_RECORD_CONTROL** message to the TSP indicating a "start recording" command.
3. The TSP issues an immediate **M_COMPLETED** message signaling the acceptance or rejection of the request.
4. Assuming success – the TSP obtains a free conference block, and places the audio from the Agent and Called Party into the conference. If the agent was already in a conference, the output of the Agent's conference is placed into the recording conference.
5. The TSP generates a file name using the supplied key in the received Protocol C message and adds a three-digit sequence number and Alaw or MuLaw identifier. Example: assume a key of **recording0001**. The resulting file name would be **recording0001.001.mu8**, for the first file name generated on a MuLaw system. Alaw systems will use **".al8**" as the extension.
6. The DSP attached to the Digital Station Trunk of the Agent (Station) performs the recording.
7. The TSP allocates three buffers. Each buffer is **32,000** bytes will hold **4-seconds** worth of audio. Every **4-seconds**, the TSP will receive a buffer full event. The TSP will write the contents of the buffer to the audio snippet file on the RAM disk. When **one minute's** worth of audio has been written, the snippet file is closed, and a new one opened.
8. The TSP will then send a **M_MOVE_RECORDING** command the **RecWatch** daemon. In the message, the TSP will specify whether **RecWatch** should move the snippet, as a single file to the **RecServer**, or whether it should concatenate the snippet to a file already existing on the **RecServer**. If a file does not already exist, one will be created using this first snippet. In the concatenate mode, the sequence number is dropped from the snippet filename when it is created on the **RecServer**.
9. Also in the **M_MOVE_RECORDING** message is a flag that tells **RecWatch** if this is the last snippet or not. It is only on the last snippet that **RecWatch** will respond to the TSP with an **M_MOVE_DONE** message. When the TSP receives this message, it will forward an **M_DONE_RECORDING** message to the **RRM** using the CTI link. The **RRM** will then inform the **RecServer** server that the complete file is resident on the server.

   RecWatch performs other tasks as well:
   - Monitors the RAM disk for files that have not been modified for period of time (currently configured for **fifteen seconds**). It is assumed that if this file has not been modified during this time, and **RecWatch** has not been notified to move this file, then the TSP must

be down, and **RecWatch** will delete the file. Because of the limited capacity of the RAM disk, it is **RecWatch's** primary goal to keep the RAM disk as unoccupied as possible, by removing any lost or orphaned audio snippets.

- Monitors and informs the TSP if the shared drive on the RecServer is full (currently specified by Wygant to be less than **four GBytes** remaining). If this occurs, the TSP will stop recording, and reject any future recording requests until sufficient disk space has been restored. To prevent oscillation, recording will not resume until an additional ten percent has been made available (4.4 GBytes).
- Monitors the availability of the **RecServer**. Every five seconds, RecWatch checks to ensure it still has access to the shared directory **EncImport** on the **RecServer**. If access fails, the TSP is notified, and any subsequent requests for recording by the **RRM** are denied until access is restored.
- Deletes audio files from the **RecServer** if instructed to do so by the TSP.

See Also:

"Components of Integrated Recording" on page 12-7

"Integrated Recording Feature" on page 4-5

Appendix A Troubleshooting

This section includes the following:

- Common Questions
- CPSEE_TSP500 Hard Drive Diagnostic
- Enhanced Logging for Socket Connections

Common Questions

1. Is there a way to reload the telephony boards without actually rebooting the TSP?
   Yes. Stop the TSP application (**stoptsp**). Then login to root and type **oamsys**. Wait until it is finished, and restart the TSP application.
2. In the trunks configuration file, how should I set the "Wait1stDig" and "WaitForDig" parameters?
   The parameters apply only to T1 Robbed bit lines. (Not ISDN). For basic configuration these values are assigned by the TSP Configuration program. The settings depend on what they are connected to.

```
PSTN or PBX            1000       300
Adit 600 Channel Bank  0          0
VOIP Gateway           300        300
```

Wait1stDig — The maximum time the Trunk Control Protocol waits for the first DTMF digit to arrive before presenting the inbound call to the TSP.

WaitForDig — The maximum time the Trunk Control Protocol will wait for subsequent DTMF digits before presenting the inbound call to the TSP.

If other means of connecting to the TSP is implemented, these values may need to be adjusted. These values represent the parameters for collecting DNIS and ANI information.

Inbound Digital Stations — Although the TSP does not need DNIS information when connecting Digital Stations, the Trunk Control Protocol will go through the motions based in these parameters. This gives us some control over how quickly we will answer the call once presented with the inbound seizure. For certain devices that may be used to connect to the TSP, the inbound call will fail if we answer too quickly.

3. How do I assign "Outbound Digital Agents" and Inbound Digital Agents?
   All agents on the CPSEE_TSP500 are Digital Agents and have trunks associated with them. The spans associated with the digital station trunks are declared by placing a capitol **D** next to the span assignment in the **trunks.cnf** file. **(/usr/home/cpstsp/cps01/cfg/trunks.cnf)**
   Inbound Digital Agents are the default and require no other configuration.
   Outbound Digital Agents need to have their trunks assigned as such. This is done via the keyword **OUTBOUND_DIGITAL_TRUNKS** in the dialing rules file. **(/usr/home/cpstsp/cps01/cfg/tsp.cnf)**.

Caution!
Remember these are trunk numbers NOT station numbers.

Common Questions on Caller ID

1. What is the maximum number of digits that I can use for the Client ID?
   You can use up to four digits.
2. Can I use variable length Client IDs?
   Yes, up to four digits. However, this will require that the COLLECT Strategy use variable collected digits for the "Client ID" rather than fixed. The announcement should say; "enter the Client ID – followed by the pound sign".
3. What is the maximum number of digits that I can use for the password.
   You can use up to eight digits for the password.
4. Can I use variable length passwords?
   Yes, up to eight digits. However, this will require that the COLLECT Strategy use variable collected digits for the "password" rather than fixed. The announcement should say; "enter your password – followed by the pound sign".
5. Will this feature work on CAS (Robbed Bit) lines?
   Yes, assuming the CAS line is supplying DNIS information. The Caller ID verification feature will only work if the CAS line sends ANI information. Typically CAS lines send ANI and DNIS in the ***ani*dnis** format.
6. What happens if no campaigns are configured with the Client ID that the Client logged in with?
   The Client will be remain in the "waiting" state, listening to "music on hold" until a Campaign is assigned the Client ID, and the agent takes a call.
7. Can multiple Clients log into the same Client ID?
   Yes. However, the TSP limits only four simultaneous monitors listening to the same agent. So, although multiple clients can log in, only the first four will be attached to an agent. The remainder will have to wait until the next agent connect.
8. How do I prevent a specific Client from logging in and monitoring?
   If this is the only Client monitoring a specific Client ID, you can do any of the following:
   - Change the password in the Client ID/Password assignment.
   - Remove the Client ID/Password assignment.
   - Have the Call Manager de-assign (or change) the Client ID of the Campaign(s).
   - Remove the Strategy, or the DNIS assignment to it.

   If there are multiple Clients monitoring the same ID, it is best to change the password, and notify the remaining Clients of the change.

CPSEE_TSP500 Hard Drive Diagnostic

All CPSEE_TSP500's are installed with an IDE Smart Drive test/reporting tool. This tool reports the status of the specified IDE Smart Drive.

Instructions

1. Login to "**root**"
2. Type: **ide-smart /dev/hda**

The following is an example of the output:

```
[root@tspdev2 root]# ide-smart /dev/hda
Id=  1  Status=15  {Prefailure  Online }  Value=100  Threshold= 46  Passed
Id=  2  Status= 5  {Prefailure  OffLine}  Value=100  Threshold= 30  Passed
Id=  3  Status= 3  {Prefailure  Online }  Value=100  Threshold= 25  Passed
Id=  4  Status=50  {Advisory    Online }  Value=100  Threshold=  0  Passed
Id=  5  Status=51  {Prefailure  Online }  Value=100  Threshold= 24  Passed
Id=  7  Status=15  {Prefailure  Online }  Value=100  Threshold= 47  Passed
Id=  8  Status= 5  {Prefailure  OffLine}  Value=100  Threshold= 19  Passed
Id=  9  Status=50  {Advisory    Online }  Value= 96  Threshold=  0  Passed
Id= 10  Status=19  {Prefailure  Online }  Value=100  Threshold= 20  Passed
Id= 12  Status=50  {Advisory    Online }  Value=100  Threshold=  0  Passed
Id=192  Status=50  {Advisory    Online }  Value=100  Threshold=  0  Passed
Id=193  Status=50  {Advisory    Online }  Value= 98  Threshold=  0  Passed
Id=194  Status=34  {Advisory    Online }  Value=100  Threshold=  0  Passed
Id=195  Status=26  {Advisory    Online }  Value=100  Threshold=  0  Passed
Id=196  Status=50  {Advisory    Online }  Value=100  Threshold=  0  Passed
Id=197  Status=18  {Advisory    Online }  Value=100  Threshold=  0  Passed
Id=198  Status=16  {Advisory    OffLine}  Value=100  Threshold=  0  Passed
Id=199  Status=62  {Advisory    Online }  Value=200  Threshold=  0  Passed
Id=200  Status=15  {Prefailure  Online }  Value=100  Threshold= 60  Passed
OffLineStatus=0 {NeverStarted}, AutoOffLine=No, OffLineTimeout=7 minutes
OffLineCapability=123 {Immediate Auto SuspendOnCmd}
SmartRevision=16, CheckSum=221, SmartCapability=3 {SaveOnStandBy AutoSave}
```

The last column will show whether a specific test Passed, or Failed. If a test "Fails", arrangements should be made to replace the hard drive as soon as possible. Engineering should also be notified.

Note:
If while your logged into a TSP, you notice any unsolicited messages referencing "I/O Error", or you receive "I/O errors" in response to any commands, DO NOT reboot the TSP, and contact Engineering immediately.

Enhanced Logging for Socket Connections

The CPSEE_TSP500 now logs when a socket connection closes.

Example:

```
tsp06.log:21:10:54.845  Closing Socket on fd 13 - CTI
tsp06.log:21:12:08.439  Closing Socket on fd 14 - dumb1
```

Also, if a second Call Manager or Gateway attempts to connect to the TSP, a message will be logged including the IP Address of the duplicate connection.

Example:

```
tsp05.log:20:23:55.378  Duplicate Connection Attempted from 127.0.0.1
```

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