Avaya Computer Telephony 1.3

Avaya MultiVantage Simulator User's Guide

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Acknowledgment

This document was written by the CRM Information Development group.

Avaya Computer Telephony
Release 1.3
Avaya MultiVantage Simulator User's Guide

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Chapter 1: Simulator Overview

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- The TSAPI Exerciser on page 11
- The Simulator DLL on page 13
- The Simulator Console Interface on page 14
- Simulator Operation on page 14

Introduction

The purpose of the Avaya™ PBX Simulator is to provide a DEFINITY environment for preliminary software development of applications using Avaya Computer Telephony (Avaya CT). This document assumes a basic knowledge of Microsoft Windows operating systems (Windows NT, Windows 2000, or Windows XP) and Avaya CT.

Throughout this document, the term "G3PD" refers to the DEFINITY Generic 3 PBX Driver.

The terms "PBX" and "switch" are used interchangeably to mean "private branch exchange."

Throughout this document, the terms MultiVantage and Definity are used synonymously.

The Avaya PBX Simulator is a functional subset of the DEFINITY Enterprise Communications Server (ECS) PBX environment in that it cannot simulate the full range of possible scenarios that can be encountered on a PBX. The Simulator does allow an application developer to issue most of the commands. (See the *Avaya Computer Telephony 1.2 G3 PBX Driver and CVLAN Administration and Maintenance Guide*.)

Note:

Complete testing of any application can only be accomplished on a PBX. The Simulator is not a substitute for final testing of all features on an actual PBX.

The DEFINITY Simulator (hereinafter referred to as the Simulator) simulates the DEFINITY G3 PBX Driver (hereinafter referred to as the PBX Driver) and the DEFINITY PBX. As such, the PBX Simulator:

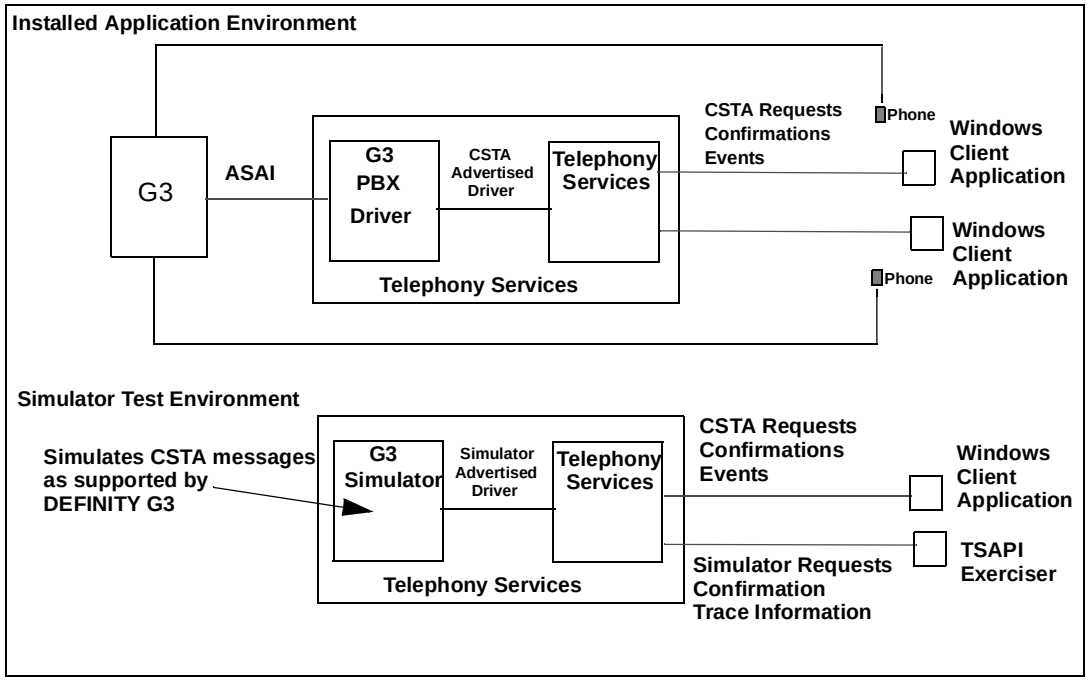
- Registers with the Telephony Server as a PBX Driver would register
- Accepts and processes CSTA requests from an application using the *Telephony Services API.* See *the Telephony Services Application Programming Interface (TSAPI) Programmer's Reference* and *Avaya Computer Telephony G3 PBX Driver and CVLAN Administration and Maintenance*)
- Returns confirmation and asynchronous events, as if the application were running with a DEFINITY PBX with the DEFINITY PBX Driver

For example, if the application issues a make call request between two stations in the Simulator configuration and the stations are administered appropriately (see Chapter 3 for details), then the:

- Application would receive the appropriate confirmation event from the Simulator indicating that the PBX had received the make call request
- Appropriate asynchronous events would be delivered to any monitoring parties as if the receiving station was alerting
- Appropriate events would be delivered to any monitoring parties as if the user of the receiving station went off-hook and answered the call

The illustration below shows two configurations. The top configuration depicts Telephony Services with a PBX and a PBX Driver installed. The bottom figure is the same configuration with the Simulator replacing the PBX and the PBX Driver.

Figure 1-1: Application and Test Environments — Two Configurations



The Simulator handles CSTA requests based on current simulated call and device state and also simulates some aspects of call control from your (that is, the user's) viewpoint. You must first build a configuration file that tells the Simulator what stations, trunks, and ACDs to simulate. This file is read in by the Simulator when it is loaded. The configuration of stations, etc., that is specified in the file is the configuration that the Simulator uses in its simulation.

It is important to note that the configuration file does not specify a specific simulation, but rather specifies parameters that dictate how some aspects of call control are simulated. The configuration file also specifies device attributes that are used to determine how the Simulator responds to CSTA requests. How the actual simulation proceeds is then entirely dependent on requests made by the applications and the TSAPI Exerciser. For example, a configuration file does not state that station A calls station B. Instead, it defines the stations that are available and their attributes, so that the application can request that station A call station B. Creating the configuration file is analogous to administering the DEFINITY G3 PBX.

The Simulator is capable of processing requests from more than one client concurrently, enabling users to see how their application functions in an environment where multiple clients are using the Simulator simultaneously, thus mirroring a real application environment.

Simulator Environment

The term "simulator" refers to the actual "hidden" program that runs on the Telephony Server that simulates the functionality of the PBX driver and the DEFINITY PBX. The simulator by itself has no user interface and is a single DLL. The TSAPI Exerciser is a program used to administer the parameters of the simulator and also to make TSAPI function calls to the Telephony Server through a friendly user interface. The TSAPI Exerciser is used to administer telephony objects in the G3 Simulator.

There is an additional program called simcons.exe that can be run on the Avaya CT server that will display current state information about the simulator. For more information, see "The Simulator Console Interface" section that follows in this chapter and "Using the Simulator Console Interface" in Chapter 2.

The TSAPI Exerciser

The TSAPI Exerciser is an application that runs on any Windows client using Avaya CT and the Avaya Private Data DLL. It will also run on a server if the telephony services Win32 client libraries are installed on the server.

The TSAPI Exerciser runs in two modes: Simulator mode (in which it connects to the Simulator) and Exerciser mode (in which it connects directly to any registered driver providing CSTA services, including the Simulator). Simulator mode is more commonly used and is the primary concern of this document. Differences in operation between the two modes are noted where they occur.

The TSAPI Exerciser connects to either the Simulator or driver using the ACSOpenStream() call. In Simulator mode, the TSAPI Exerciser requests a Simulator stream with the following attributes:

- It accepts both CSTA and special Simulator request messages.
- It does not perform password protection.
- It does not perform security checks on requests.

In Exerciser mode, the TSAPI Exerciser requests a CSTA stream with the following attributes:

- It only processes CSTA messages.
- It performs security checks and processes only CSTA messages.

Output Display

The TSAPI Exerciser can open a stream either to the Simulator or a PBX Driver. When such a stream is active, a trace of activity received on that stream is printed on the main window and may be saved in a file for later analysis. The information is time-stamped and displayed in the order that it is received.

Message Input

The TSAPI Exerciser can be used to send CSTA messages to either the Simulator or the PBX Driver, depending on the type of session established. If you have opened a Simulator stream, then you can also send messages to simulate manual operations that would normally be performed on a PBX. These messages include: going on- and off-hook at a telephone (station), placing an incoming call from off the PBX (inbound call) and indicating that a monitor has ended. These functions are provided under the "PBX" menu.

Simulation Status

Because it is easy to lose track of the state of the simulation, the TSAPI Exerciser provides a way to request the status of a device or a call in the Simulator. This is available only in simulation mode. Users of Exerciser mode who have a real PBX can check the actual telephones or use CSTA snapshot requests for this type of information. These functions are provided under the "Simulator" menu.

Configuration Files

The Simulator needs to know the extensions of the stations, trunks, and ACDs it is simulating and any additional parameters that affect call control. You administer this information using the TSAPI Exerciser in much the same way that the information would be administered on the DEFINITY PBX. Each set of configuration data is saved to a file and may be retrieved and modified at any time. This file is loaded by the Simulator when the Simulator is first loaded by the Telephony server. This functionality applies only to simulation mode.

A sample configuration file is included with the Simulator, named INPUT.SIM. The default path for this file is C:\Program Files\Avaya\CT \G3Sim\Examples\INPUT.SIM. See Chapter 3 for additional information on configuration files.

TSAPI Exerciser Status

The status of the TSAPI Exerciser is displayed in the title bar of the main window. Two types of title bars are displayed, depending on the type of stream active at the current time. If a Simulator stream to the Simulator is active, a SIMULATOR title bar is displayed which contains information about the stream status, the name of the configuration file being edited, and the name of the output file to which trace information is being written. (The name of the configuration file does not necessarily correspond to the file currently loaded by the Simulator.) If there is no configuration file being worked on or if you have started a new configuration file, the field "Configuration:" reads "NEW". Otherwise, the name of the configuration file is displayed. The "Stream:" field displays "ACTIVE" or "INACTIVE" depending on whether a stream has been opened. Should the stream go down during processing, the status is updated. When the stream is closed, the trace file is closed and the name no longer appears in the title bar.

If an exerciser stream is open, the title bar display is slightly different. The "Stream" and "Trace" fields appear as usual, but the "Configuration:" field is eliminated since configuration files do not apply to Exerciser mode.

If no stream is active, the title bar defaults to a Simulator-type display.

Figure 1-2: Simulator-Type Display — No Active Stream

The Simulator DLL

The Simulator DLL (hereafter referred to as the Simulator) runs on the Avaya CT server and is the component that actually simulates the Avaya CT Definity PBX Driver and the DEFINITY PBX that is connected to the server via a Computer Telephony Integration (CTI) link. This Simulator receives CSTA request messages from the Telephony Server and processes the messages simulating the actions that would occur in the DEFINITY PBX. It sends back confirmation events, status events, and asynchronous events, just as the PBX Driver would, to inform the client applications of PBX changes resulting from their requests, the requests of other applications, and manual operations on the simulated devices.

Applications to be tested should connect to the Telephony Server using ACSOpenStream() as usual but should request a server ID as follows:

AVAYA#CSTASERV#CSTA#<server name>

The server name is the name of the server on which the Simulator is loaded.

It is not necessary to run the TSAPI Exerciser when testing an application with the Simulator. However, doing so with an active simulator session open to the specific server can provide useful trace information and the ability to manipulate the simulation to see how an application will react. It is also not necessary to run the console interface to the simulator (simcons.exe), but doing so will provide useful information about the state of the Simulator.

The Simulator Console Interface

A Server Console application (simcons.exe) that runs on the Avaya CT server console screen is supplied with the Simulator. It provides an interface to the simulator that displays not only the static administration of the simulator, but also the dynamic state of the calls and devices and any other state at any given point in time. It allows you to view information more conveniently than having to continuously query through the TSAPI Exerciser interface (TSAPI Exerciser). The application will only run on the server where the Telephony Server and simulator are loaded. It should only be started after the Simulator has been loaded by the Telephony Server. It is not necessary to run the simcons application for the simulator to work; however, it may prove to be an effective tool to understanding the simulator and how your application interacts with it.

To run the simcons application, double-click on the Simulator Console icon in the DEFINITY G3 Simulator program folder. You can also use the Start program and follow this path: Start>Programs>Avaya Computer Telephony>DEFINITY PBX Simulator> Simulator Console. Another way to start the simcons application is to double-click on the file name SIMCONS.EXE in the C:\Program Files\Avaya\CT\tsrv\program directory.

Simulator Operation

The Simulator operates on two types of input: CSTA requests from client applications and requests from the TSAPI Exerciser (which include CSTA requests and Simulator-specific commands). You can open the TSAPI Exerciser with 2 types of sessions, Simulator or Exerciser. If you are using an Exerciser session, you can only make CSTA requests.

As client applications request CSTA services from the Simulator, the Simulator executes the request, changes the states of the devices and calls that are involved, and returns the responses to monitoring applications as a DEFINITY PBX would.

Like a DEFINITY PBX, the Simulator keeps track of the state of each device and call. Requests from applications and manual operations on devices can alter the state of both devices and calls during normal operations. For example, during a makecall operation the initiator of the call goes off-hook, dials the phone, and hears ringing from the destination. The state of the initiator changes from on-hook to off-hook with a call delivered to the destination station. The destination station begins alerting. A new call is created and its state is alerting. All these changes are recorded in the Simulator and reported, as they occur, to the applications monitoring the devices involved. You can determine, at any time, the state of a device and/or the state of a call through the TSAPI Exerciser via query operations or from the simulator console application (simcons.exe). See "Using the Simulator Console Interface" in Chapter 2 for more information. For a detailed explanation of the call states, device states and unsolicited events that occur, refer to the *Avaya Computer Telephony Telephony Services Application Programming Interface (TSAPI) for Avaya MultiVantage Programmer's Reference*, and the *Avaya Computer Telephony 1.2 G3 PBX Driver and CVLAN Administration and Maintenance Guide*.

The intent of the Simulator is to imitate as much as possible the functionality of the DEFINITY PBX. However, the complexity of the DEFINITY switch makes an exact simulation impossible. You should be aware of the differences between the Simulator and the DEFINITY switch. Most of the differences should not affect application design and code. In fact, understanding the differences and programming so that applications can handle the differences should make your program more robust and allow operation with fewer changes when run with PBX Drivers other than the DEFINITY PBX Driver. Because the Simulator is not a substitute for the actual PBX Driver and the PBX, you should always test applications with the actual product before releasing them to the general population.

Differences Between the Simulator and the DEFINITY PBX

The major differences between the Simulator and the DEFINITY PBX are described below.

- **ACDs**:
  - — In order to simplify the Simulator, ACD agents are associated with a specific extension and a single ACD. The ability to log an agent into different ACDs or different extensions is not provided. Thus, neither logical Agent IDs nor agent passwords are supported. If Agent IDs or passwords are provided in any calls, they are ignored by the Simulator.
  - — The Simulator restricts applications from performing Make Predictive calls from an ACD that has a registered routing server.
  - — The Simulator restricts Make Predictive calls to only between ACDs and a trunk (an off-PBX extension), whereas the DEFINITY PBX allows a Make Predictive call to use an on-PBX extension as the called party instead of just an off-PBX number.

- **Call IDs**:

A unique identifier, the call ID, is assigned to each call that is created on the DEFINITY PBX. For each device (except Trunks) on the call, the PBX Driver assigns that device a unique static device identifier which corresponds to its extension on the PBX. The combination of the call ID and the device ID form a unique connection ID for the application controlling the device, enabling it to uniquely reference the connection when issuing CSTA service requests.

The Simulator also assigns each call created a unique call ID and assigns each device (except Trunks) a unique static device ID which corresponds to its administered extension in the configuration file. (The dynamic device identifier assigned to trunks is the letter "T", followed by a unique number.)

The difference between the Simulator and the DEFINITY PBX is as follows:

— When the DEFINITY PBX merges two calls as the result of a 2-step conference or transfer operation, the DEFINITY assigns a unique call ID to the resulting call, which may be the same call ID as of one of the calls that have been merged. The device IDs remain the same. Any dynamic device IDs used to identify trunks remain the same across any conferencing or transferring of the call.

— The Simulator, however, does not reuse one of the existing call IDs. It redefines the call ID of a call resulting from a merged request. The actual value should not be important to the application developer. What is important is that the new call again has a unique value separate from all other active calls. The developer should always rely on the values provided in confirmation events and in unsolicited events and never rely on heuristics as to what they think the resultant call ID value will be.

- **Coverage**:

— Coverage was originally provided in the R1 Simulator in order to allow applications to test how they would handle diverted calls. It should be noted that the Simulator's implementation of coverage is not entirely similar to that of the DEFINITY PBX. The Simulator does not implement any sort of simulated bridges. Therefore, the events received from the Simulator from a call going to coverage may differ from that of the DEFINITY PBX.

- **Call Prompter Digits**:

— For call prompter digits to be provided in events by the DEFINITY PBX Driver, it is necessary to have the VDN that is collecting the digits be monitored via Monitor Calls Via Device and then have the call routed to another VDN which will actually report the digits. This is slightly different from the Simulator's functionality. The Simulator also requires that the ACD (VDN) that is collecting the digits be monitored by Monitor Calls Via Device, but it does not require that the call be routed through another ACD (VDN) in order to report the digits.

— The DEFINITY PBX also allows an application to request digit collection on a route select; however, the Simulator does not support this feature.

- **Private Data**:
  - The Simulator supports private data Version 2 or greater.
  - Not all Version 2 or greater private data is supported. For the most part, if the Simulator does not support a private data field, then it ignores any data provided in the field rather than rejecting it. Refer to the appropriate section in Chapter 4 that explains the specific message for more details on which private data fields are supported by the Simulator.
- **Routing**:
  - The DEFINITY PBX Driver will support TSAPI V1 or V2 messages based on what the application requests. However, the Simulator only supports the TSAPI V2 routing messages.
  - When routing a call and the route does not finish normally, the DEFINITY PBX will go on to the next step in vector processing. Since the Simulator does not fully simulate VDNs, it acts as if the next step in the vector is to route the call to the next available agent in the split. Therefore, whenever a route request times out or is ended in the Simulator, the call will immediately be routed to the first available agent.
- **Universal Failures**:
  - In some instances where the Simulator cannot perform a function that the G3PD is able to perform, a GENERIC UNSPECIFIED universal failure is sent. This failure may not be seen when using the G3PD. Refer to the *Avaya Computer Telephony Telephony Services Application Programming Interface (TSAPI) for Avaya MultiVantage Programmer's Reference* and subsequent chapters in this manual for more details on the universal failures.
- **Unsupported Features**:

  The following features are supported by the G3PD but not the Simulator:
  - The Query Device Information function is not supported on Trunk Access Codes.
  - Conference or transfer of more than one instance of the same extension will give incorrect results, such as the same party being on the call more than once. The G3PD handles this scenario correctly.
  - Pickup Call on ACDs (VDNs) is not supported.
  - When performing a Route Select, the Route Select destination cannot be an ACD.

  Note:

  Always perform final testing of applications against the DEFINITY PBX. Event streams from the Simulator cannot fully simulate those of the PBX.

Chapter 2: Using the Simulator

This chapter describes how to install, start and establish a Simulator session.

The following topics are covered in this chapter:

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- Installing the Simulator on page 20
- Configuring the Simulator on page 20
- Testing the Application on page 22
- Starting the Simulator and Selecting the TSAPI Exerciser on page 23
- Establishing a Simulator Session at the TSAPI Exerciser on page 24
- Establishing an Exerciser Session at the TSAPI Exerciser on page 26
- Closing the Session at the TSAPI Exerciser on page 28
- Message Tracing at the TSAPI Exerciser on page 28
- Simulating Manual Operations with the TSAPI Exerciser on page 29
- Using the Simulator Console Interface on page 32
- Main Dialog Box on page 34
- Determining What Version of the Console Simulator (SimCons) You are Using on page 59

Installation Overview

Before running the Simulator, do the following:

- Set up a network with a client machine running a supported version of MS Windows and a server running a supported version of Windows NT.
- Install Telephony Services on the server, and install client software on the client. (You may want to use the server as a client.)
- Install the Simulator (SIM.DLL) and associated software.

- Design and write at least the first program that interfaces with the Telephony Services API and link that program with the import libraries provided with the Avaya Computer Telephony Software Developer Kit (SDK).

Installing the Simulator

1. Stop the Telephony Server if it is running.
2. Run setup.exe in the sdk\tsapi\sim directory on the CD-ROM.
3. Follow the prompts of the installation script. Be sure to read the Simulator readme file before proceeding. It contains important information about installation and possible difficulties you may encounter.
4. Start the Telephony Server using TSSTART.exe. This will automatically load the simulator driver.

Note:

The Simulator can be installed from either the JTAPI or TSAPI SDK but here the TSAPI SDK is being used as the example.

Configuring the Simulator

The first step in executing and testing a program with the Simulator is to create a Configuration File. The information contained in the configuration file tells the Simulator what objects and devices it currently has that are available to test against.

To create a new configuration file, start the System Admin tool on the MS Windows client. (You can do this by double-clicking on the System Admin tool Interface icon in the DEFINITY G3 Simulator program group, or by double-clicking on the file name System Admin tool in the C:\Program Files\Avaya\CT\G3Sim\program directory.) Use the "Admin" option on the menu bar to specify system parameters, stations, trunk and ACDs. (See The Admin Menu on page 63 for more detailed information on specifying these objects).

When you have finished specifying a configuration and have entered all the required parameters, use the "Save As" option on the "File" drop-down menu to save the information to a file. You must use the suffix .sim for the file type, and place the file on the NT Server machine where the Simulator is located. You can modify information in configuration files at a later date by opening the file to be changed in the System Admin tool, making the necessary changes, and rewriting the file back to its original directory on disk.

Note:

Changes to the input file <filename>.sim do not take effect unless you first save the file and then reload the Simulator with the modified file.

A sample configuration file is included with the Simulator, named INPUT.SIM. The default path for this file is C:\Program Files\Avaya\CT \G3Sim\Examples\INPUT.SIM. You can open this file by starting the Simulator Admin tool and using the "Open" option on the "File" drop-down menu.

Loading the Simulator

The simulator is installed with the Autoload option enabled and is loaded when the Telephony Server is started. Should you require manual control over this, you can load the simulator driver by using the Telephony Services Maintenance Application (TSM32.EXE) in the same way as loading any PBX driver. For details, see "Loading and Unloading PBX Drivers" in Chapter 8 of the *Avaya Computer Telephony, Telephony Services Administration and Maintenance Guide*.)

Note:

The Simulator must be provided with a configuration file to load in order for it to be able to perform any valuable functions. When initially installed, it will use the sample input file provided.

Testing the Application

Once the Simulator is loaded on the server, you can begin testing an application. Application code should not have to be modified to run with the Simulator instead of the PBX Driver and PBX. The only difference is in the choice of stream ID in the ACSOpenStream() request. When using the Simulator, you should request

AVAYA#CSTASERV#CSTA#<server name>

where <server name> is the name of the server where the Simulator resides.

Note:

When using a CSTA-specific stream, password protection and security checks will be in place. Therefore, you must first administer any users and devices that will be used for the CSTA-specific stream (see Chapter 4 of *Avaya Computer Telephony 1.2, Telephony Services Administration and Maintenance*.

While it is not necessary to run the TSAPI Exerciser during the test session, doing so does provide valuable information on all requests the Simulator is receiving and the responses the Simulator is sending back to the application program during the course of testing. Therefore, it is recommended that the TSAPI Exerciser be started before running the application that is to be tested.

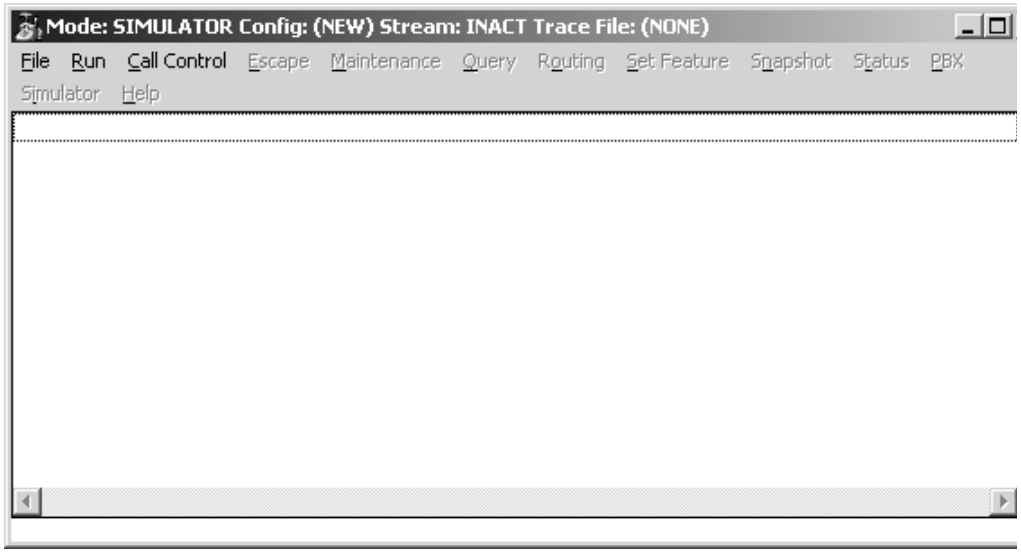
The Simulator mimics PBX operation in that it executes each request completely before proceeding with the next request. The actions taken by the Simulator depend on the state of affected devices at the time the request is processed. This is straightforward if only one application is using the Simulator. If more than one application is using the Simulator and the same devices are used by each, a request made by one application may proceed differently because a request by another application has changed the state of that device. If two clients are to work with the Simulator simultaneously and interactions between the two applications are to be avoided, each application should use a group of devices that does not interact with the other client's application.

Starting the Simulator and Selecting the TSAPI Exerciser

To start the TSAPI Exerciser, click on the file name, TSAPI Exerciser.

The Simulator menu interface appears:

Figure 2-1: The TSAPI Exerciser Menu Interface

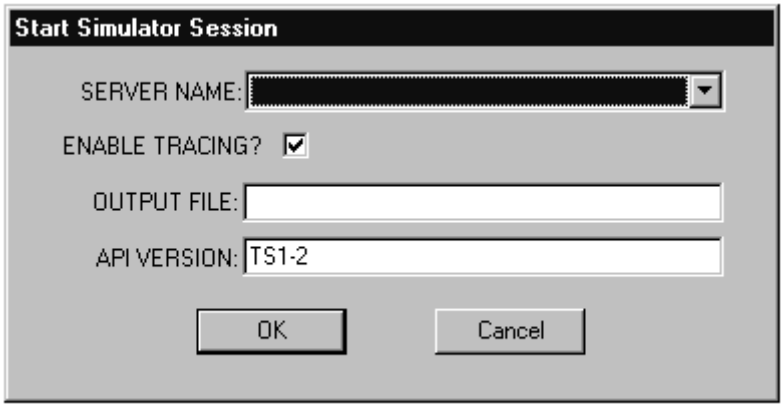


Establishing a Simulator Session at the TSAPI Exerciser

While testing, it is often helpful to see the requests sent to and the responses made by the Simulator as well as to be able to send additional messages to the Simulator. This can be accomplished by setting up a link or session between the Simulator and the TSAPI Exerciser. Once established, the Simulator sends a copy of all message traffic to the TSAPI Exerciser where it is displayed.

To set up this connectivity between the TSAPI Exerciser and the Simulator, use the "Run/Start Simulator Session" option on the main menu to display the "Start Simulator Session" dialog.

Figure 2-2: Start Simulator Session Dialog Box



Simulator Session

The following list describes how to complete the Simulator Session dialog.

- **SERVER NAME** — Choose the advertised name of the Simulator from the drop down list
- **ENABLE TRACING?** — This field indicates whether or not trace information is to be sent to the TSAPI Exerciser. An "x" in the field indicates that tracing is enabled. This is discussed in more detail in the "Message Tracing at the TSAPI Exerciser" section of this chapter.

- **OUTPUT FILE:** — If a valid file name and path are entered in the standard dialog box, the exerciser output is written to a text file as well as to the screen. The output file is opened when the CSTA stream to the service is successfully opened and closed automatically when the stream is closed. Output files can only be Selected when a stream is opened. If an output file is chosen that already exists from a previous session, the new information is appended to that file. If an output file is designated, the name is displayed in the title bar after the "Trace" tag.
- **API VERSION:** — Enter the version of the Telephony Services Application Programming Interface your application will use.
- **OK** — Choosing this field initiates the connection to the designated Simulator. Once the stream has opened successfully, the trace file, if selected, is opened for logging.
- **Cancel** — Choosing this field ends the screen session and does not open the connection or the trace file.

When the confirmation that the session has been opened is returned to the TSAPI Exerciser, the "Stream" field in the title bar is updated to reflect the "Active" status of the stream. The confirmation is displayed in the following format: (hh:mm:ss <unique number to identify the Simulator Client connection> CONFIRM Open Stream), as in the following sample screen.

Figure 2-3: Simulator Client Connection — Open Stream

At this point, the TSAPI Exerciser begins to receive and display the trace information from the Simulator.

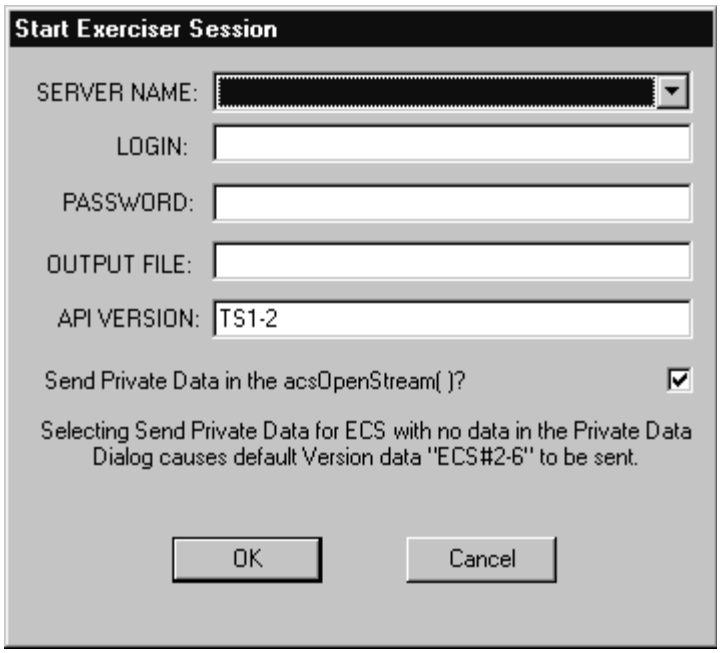
Establishing an Exerciser Session at the TSAPI Exerciser

A second type of session called an exerciser session can be established at the TSAPI Exerciser. This sets up a CSTA session with any server advertising CSTA type services. This could be a PBX Driver or the Simulator. By connecting to any one of these servers, you can see the exact response that an application would receive in answer to a request.

Since a CSTA-specific stream is being used when running in exerciser mode, the Simulator messages (go off-hook, inbound call, etc.) are not available. When an exerciser session is successfully established, the menu options are updated to reflect allowed functionality.

To begin an exerciser session, select the "Run/Start Exerciser Session..." option on the main menu. A valid "login" and "password" are required to successfully establish the session.

Figure 2-4: Start Exercise Session Dialog Box



Start Exerciser Session Dialog

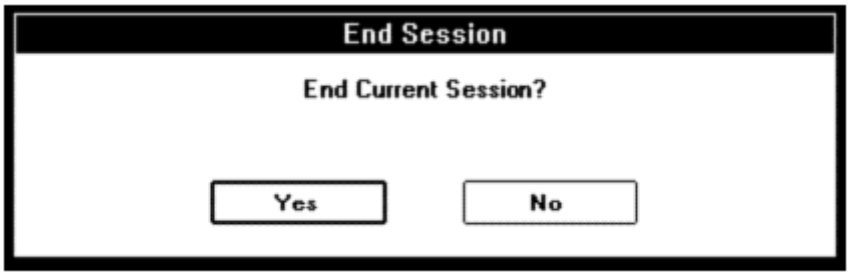
- **SERVER NAME:** — Select the correct service name from the drop down list of servers advertising CSTA services. A Simulator can be Selected but only CSTA functions can be used; Simulator specific functions are not allowed.
- **LOGIN:** — Enter the user's Windows NT Login ID.
- **PASSWORD:** — Enter the user's Windows NT password.
- **OUTPUT FILE:** — If a valid file name and path are entered in the standard dialog box, the exerciser output is written to a text file as well as to the screen. The output file is opened when the CSTA stream to the service is successfully opened and closed automatically when the stream is closed. Output files can only be Selected when a stream is opened. If an output file is chosen that already exists from a previous session, the new information is appended to that file. If an output file is designated, the name is displayed in the title bar after the "Trace" tag.
- **API VERSION:** — Enter the version of the Telephony Services Application Programming Interface your application will use.
- **Send Private Data in the acsOpenStream( )?** — Check this box to have private data sent in the acsOpenStream( ). You can specify the version of private data to be sent via the Private Data dialog box. See Figure 4-29.
- **OK** — Choosing this field makes the connection to the designated server and, if Selected, opens the output file for logging.
- **Cancel** — Choosing this field ends the screen session and does not open the connection or open the trace file.

When the confirmation that the session has been opened is returned to the TSAPI Exerciser, the "Stream" field in the title bar is updated to reflect the "Active" status of the stream. The confirmation displayed on the screen has the same format as simulation mode.

Closing the Session at the TSAPI Exerciser

To close the session, choose the "Run" title bar menu item and select the "End Session" from its menu. This closes the active stream, Simulator, or exerciser, causing the stream of trace messages to the TSAPI Exerciser to end.

Figure 2-5: End Session Dialog Box



Message Tracing at the TSAPI Exerciser

Message tracing via the TSAPI Exerciser Interface is controlled and viewed via the "Simulator" menu. A view of all message activity at the Simulator is provided in an output window of the TSAPI Exerciser and may be saved in a file for further examination at a later date. To display this trace data, the TSAPI Exerciser must be connected to the Simulator. When connected, any messages going to the Simulator and any messages sent from the Simulator to the client applications are displayed in the output window of the TSAPI Exerciser.

As the Simulator gets a request on any opened stream, it forwards the information to the TSAPI Exerciser in a trace message. As it confirms each request and sends additional unsolicited events as a result of change in call status, it also forwards a copy of this information in a trace message to the TSAPI Exerciser. The following information is displayed for each message:

- A time-stamp indicating when the message was received by the TSAPI Exerciser.
- A message class: "SERVICE" (API calls), "EVENT" (Unsolicited events), "CONFIRM" (Confirmation events), ("REQUEST" (Requests), and "REPORT" (Event Reports).

- A number identifying the sender of a request or receiver of a confirmation message (driverHandle). This field is zero for EVENT reports which are not reported on a per client basis. This field is always zero when running in exerciser mode because the only messages displayed are those sent/received by the TSAPI Exerciser.
- A message type indicating the type of request, confirmation or event.
- Detailed information that is specific to each message type.

When tracing is enabled, monitor requests are confirmed, but no unsolicited events relating to the monitors are displayed. Instead, tracing only is in effect, and the individual field has a generic value rather than a value that is specific to the monitor. With tracing enabled, when a call is alerting at a device, the local connection information for the delivered event is None.

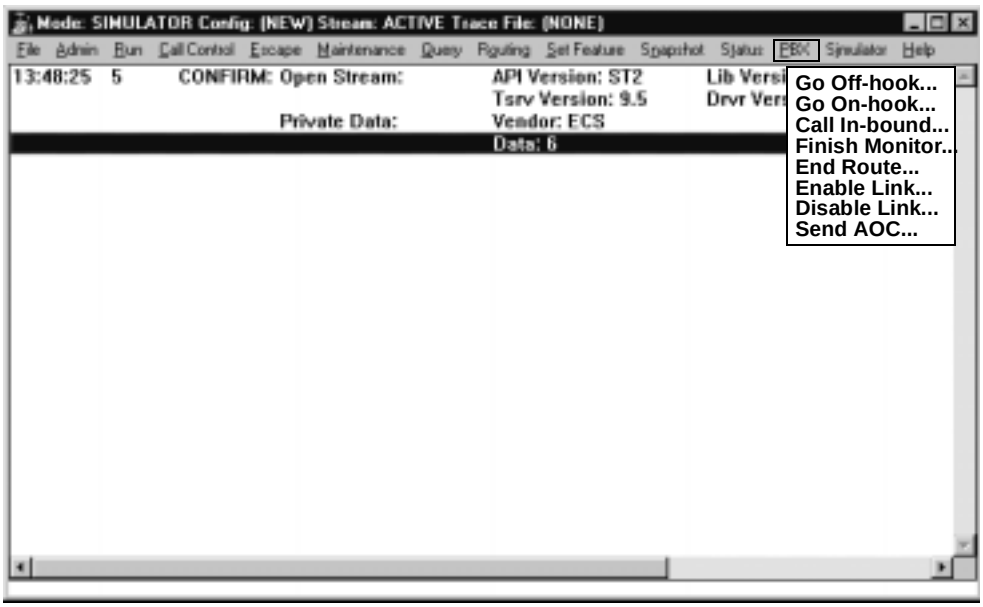
When tracing is not enabled, each monitor request is confirmed, any unsolicited events relating to the monitor are displayed, and the individual field has a value that is specific to the monitor. With tracing disabled, when a call is alerting at a device that is being monitored, the local connection information for the event is also alerting.

Simulating Manual Operations with the TSAPI Exerciser

Applications can change the state of a device or call by sending CSTA requests and responding to the resulting messages. In actual use, however, the devices and calls can be affected by manual operations (for example, people picking up their handsets) or by CSTA requests placed by other applications. Any application that deals with telephony must be able to respond to such changes in call and station states.

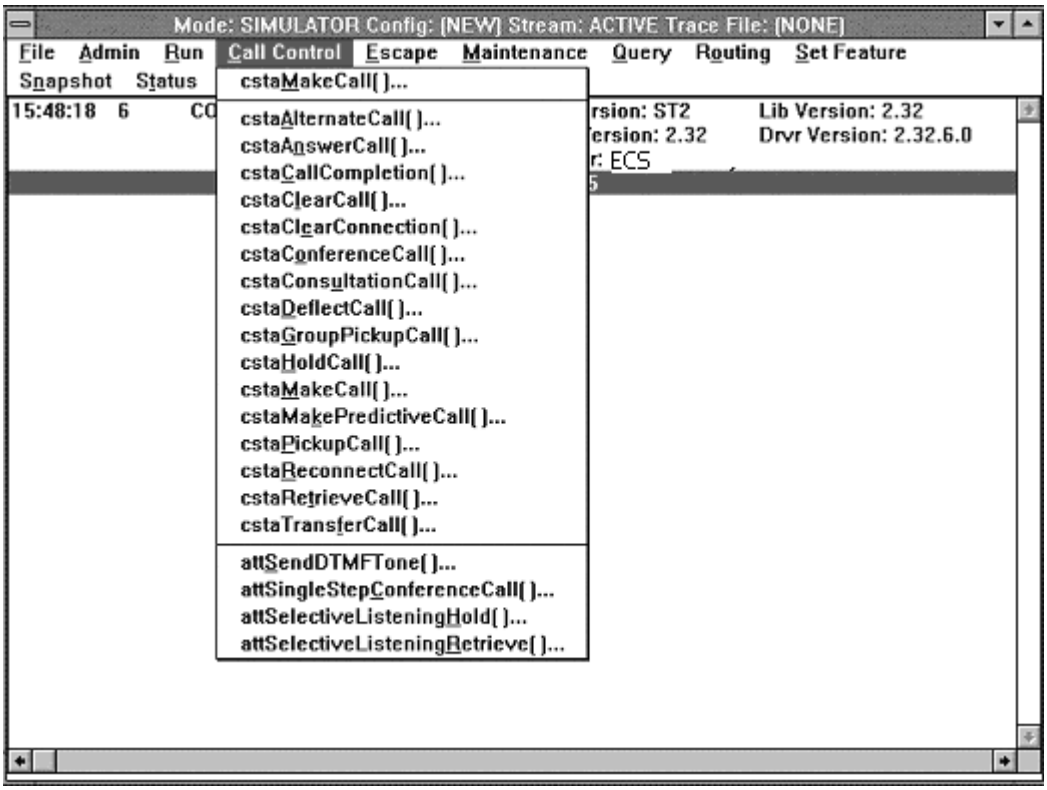
There are two menus that handle the simulation of these two types of manual operations, the "PBX" menu (see Figure 2-6) and the "Functions" menu. The "PBX" menu on the TSAPI Exerciser lists messages which cannot be done via any CSTA or private G3 function. These manual operations are "Go Off-hook", "Go on-hook", "Call In-bound", "Finish Monitor", "End Route", "Enable Link", and "Disable Link". [These messages are not enabled when an exerciser stream is established since an actual PBX is available to perform the manual operations.] In the sample screen that follows, the "Off-hook" operation is selected:

Figure 2-6: The PBX Menu



Other manual operations, like dialing the phone to make a call, putting a phone call on hold by hitting the hold button, or requesting that a phone be forwarded by dialing the feature access code can be simulated using the CSTA and private G3 messages in the "Call Control" menu:

Figure 2-7: Call Control Menu



These operations can all be simulated at any time during the simulation.

For example, to clear an established call and place all the phones back on-hook, any of the following techniques could be used:

- The application under test could request a "clear connection" which would automatically clear the connection and place the two parties on-hook.
- The TSAPI Exerciser could request the "on-hook" manual operation for one of the two devices using the "PBX/Go On-hook" message.
- The TSAPI Exerciser could request a "Functions/clear call" message.

Using the Simulator Console Interface

This section details the simulator console interface for Telephony Services for Windows NT.

A Server Console application (simcons.exe) that runs on the NT server's console screen is supplied with the Simulator. It provides an interface to the simulator that displays not only the static administration of the simulator, but also the dynamic state of the calls and devices and any other state at any given point in time. It allows you to view information more conveniently than having to continuously query through the TSAPI Exerciser interface.

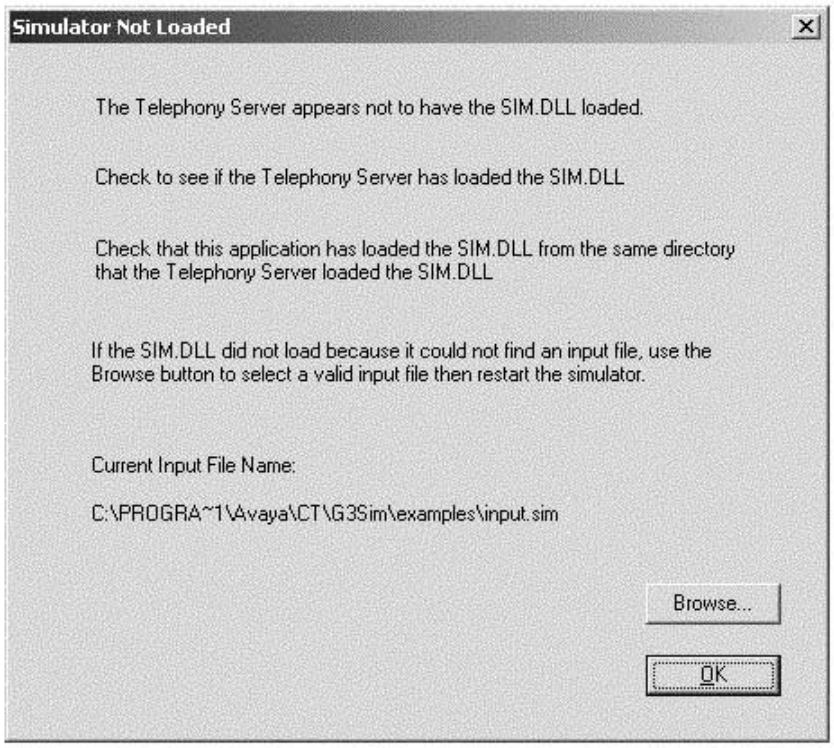
The simcons.exe application will only run on the server where the Telephony Server and simulator are loaded, and should only be started after the simulator has been loaded by the Telephony Server. It is not necessary to run the simcons.exe application for the simulator to work; however, it may prove to be an effective tool to understand the simulator and how your application interacts with it.

To run the simcons application, double-click on the Simulator Console icon in the DEFINITY G3 Simulator program folder. You can also use the Start program and follow this path: **Start**>**Programs**>**Avaya Computer Telephony**>**DEFINITY PBX Simulator**>**Simulator Console**. Another way to start the simcons application is to double-click on the file name SIMCONS.EXE in the **C:\Program Files\Avaya\CT\tsrv\program** directory.Two rules apply when using the console interface:

- The Simulator DLL must already be loaded by the Tserver service.
- Both the Tserver and the simcons.exe application must load the DLL from the same directory.

If either of these conditions is not met, the Simulator DLL cannot be started and the simulator console interface will not run. The following dialog box will appear. See Figure 2-1.

Figure 2-8: Simulator Not Loaded

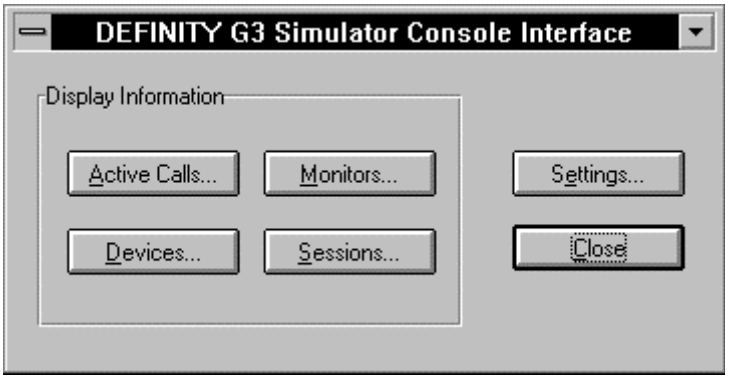


The Browse button on this dialog box allows the user to select a file to be loaded by the simulator the next time the simulator is loaded by the Telephony Server. This field is kept in the registry so the setting will remain until the next time the user selects the Browse button and changes the file to something different.

Main Dialog Box

When the Simulator console interface is successfully loaded, the following dialog box appears:

Figure 2-9: Main Dialog Box



This dialog box allows you to do the following:

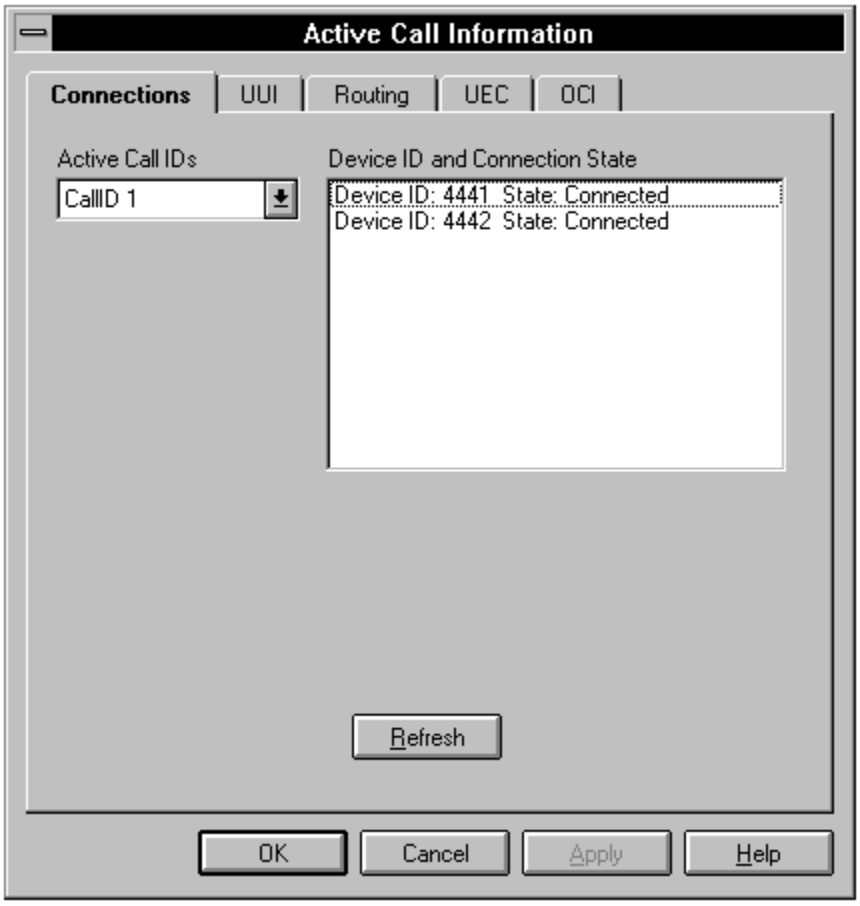
- Display information about:
  - active calls
  - devices
  - monitors
  - or sessions
- Change some simulator settings
- Close the application.

These activities are described in the remainder of this chapter.

Active Calls Button

The Active Calls button, one of the four Display Information options, displays information about the currently active calls in the simulator. When you select Active Calls, the Active Call Information dialog box appears.

Figure 2-10: Active Call Information Dialog Box

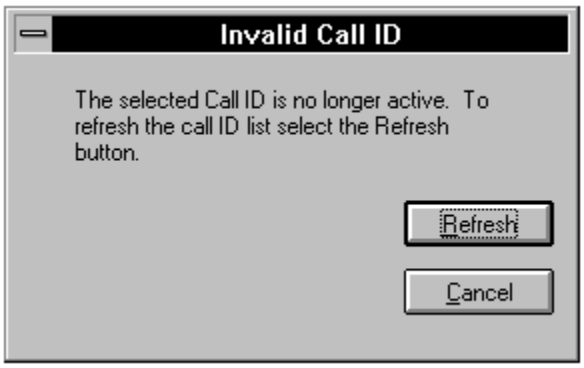


Active Call Information Dialog

The five tabs across the top of the Active Call Information Dialog Box indicate the types of information available. When the dialog box is first displayed, information for the Connections tab (the default tab) is displayed and the first call displayed in the Active Call IDs list is automatically selected. If there are no active calls, the Active Call IDs list is blank.

- When you select other tabs for a call, the information displayed for that call relates to the call at the moment you selected the Call ID in the Active Call IDs list box. Thus, the information may be out of date.
- If the Active Call Ids combo box is out of date and you select a Call ID that is no longer active, the following dialog box will appear and you can Refresh or Cancel. **This applies to all tabs**.

Figure 2-11: Invalid Call ID Dialog Box



- The navigational buttons that appear at the bottom of the Active Call Information dialog box are as follows:
  - — **Refresh** — Updates the list of active calls in the Active Calls Ids combo box. Blanks out all fields. (Select a new call ID to see current information.)
  - — **OK** — Returns you to Main Dialog box.
  - — **Cancel** — Returns you to Main Dialog Box
  - — **Apply** — Not used
  - — **Help** — Not used

The next sections describe the following tabs on the Active Call Information dialog box.

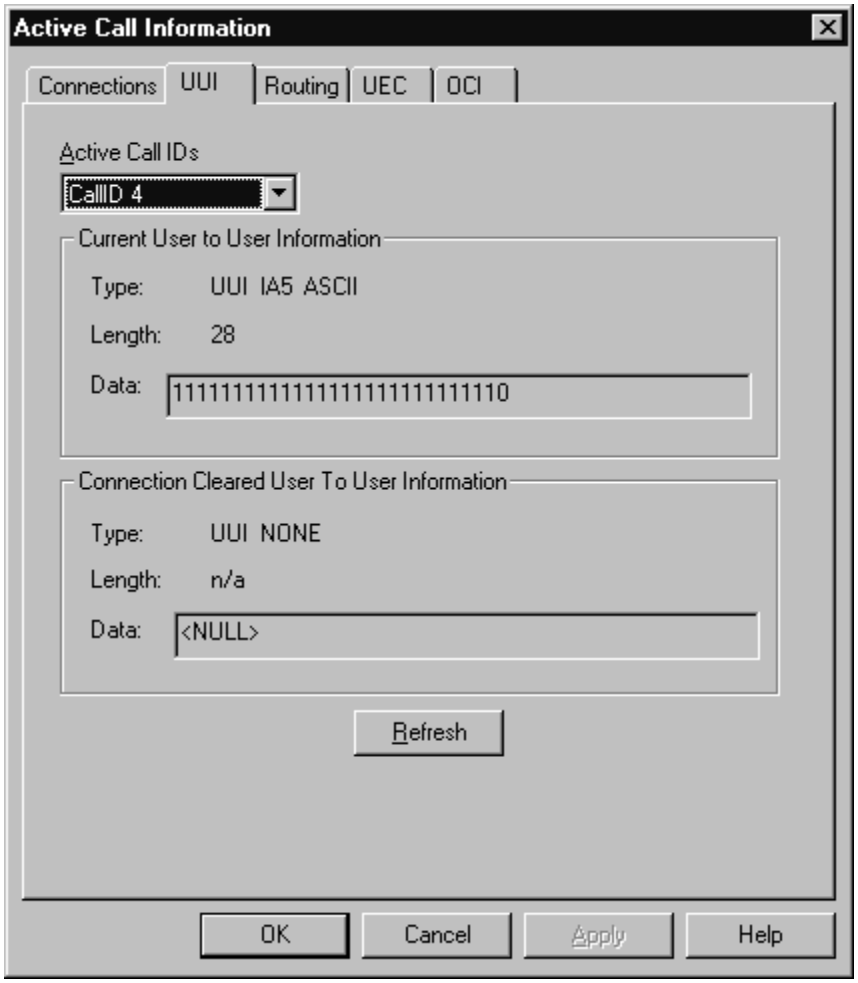
- Connections
- UUI
- Routing
- UEC
- OCI

Connections - this tab displays connection information abut a selected call. The connections tab fields are as follows:

- — **Active Call IDs** - The Active Call IDs drop down combo box appears on every tab and displays Call IDs of all calls that were active when the Active Calls button was selected. You may select a new call ID at any time.
- — **Device Id and Connection Stat** - This box displays all connections currently on the call (at the time you selected the call ID). Displays both the device ID and the local connection state of that connection. Also displays queued and failed connections. If a call is waiting for a route select or collected digits, then there will be only one connection displayed in this box, the connection from which the call originated.

UUI - The UUI (User to User Information) tab displays the current UUI associated with the call and any Connection Cleared UUI. If no UUI is associated with the selected call, then no UUI is displayed.

Figure 2-12: UUI Tab — User-To-User Information



— **Active Call IDs** - The Active Call IDs drop down combo box appears on every tab and displays Call IDs of all calls that were active when the Active Calls button was selected. You may select a new call ID at any time.

— **Current User to User Information** - The fields in this section display the User to User Information (UUI) currently associated with the active call. The UUI can be set via private data on various CSTA requests such as make call and consultation call.

- **Type** — Denotes the type of UUI that is present with the active call. It can be one of three values, UUI_NONE indicating that there is no private data, UUI_IA5_ASCII indicating that it is an ASCII string, and UUI_USER_SPECIFIC indicating that it is a sequence of bytes.
- **Length** — Denotes the length of the UUI data. If there is a UUI, it will be a positive number up to 96 bytes. If the type is UUI_NONE, this field will contain "na".
- **Data** — Displays the data. This field will only accurately display UUI_IA5_ASCII data. If UUI_USER_SPECIFIC data is encountered with embedded nulls or no null terminator, then unpredictable results will occur. You can scroll to the right to view the additional data if it extends beyond the border of this field.

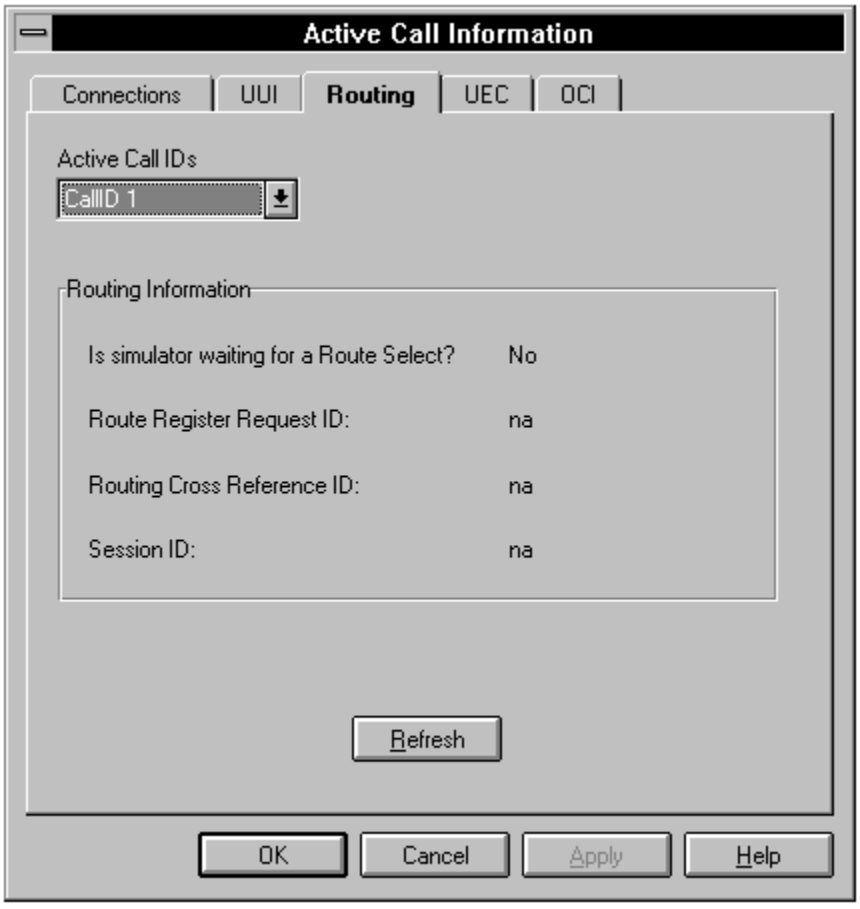
— **Connection Cleared User to User Information** - The fields in this section display the User to User Information (UUI) associated with any clear connection requests or reconnect call requests on the call. This UUI has no connection to OCI UUI or Current UUI. This UUI is only passed back with the connection cleared events.

- **Type** — Denotes the type of UUI that is present with the active call. It can be one of three values, UUI_NONE indicating that there is no private data, UUI_IA5_ASCII indicating that it is an ASCII string, and UUI_USER_SPECIFIC indicating that it is a sequence of bytes.
- **Length** — Denotes the length of the UUI data. If there is UUI, it will be a positive number up to 96 bytes. If the type is UUI_NONE then this field will contain "na".
- **Data** — Displays the data. Currently this field will only accurately display UUI_IA5_ASCII data. If UUI_USER_SPECIFIC data is encountered with embedded nulls or no null terminator, then unpredictable results will occur. You can scroll to the right to view the additional data if it extends beyond the border of this field.

If the Invalid Call ID combo box appears, refer back to the Active Calls Button section for information.

Routing - The Routing Tab displays routing information about the selected call.

Figure 2-13: Routing Tab — Routing Information About Call



— **Active Call IDs** - The Active Call IDs drop down combo box appears on every tab and displays Call IDs of all calls that were active when the Active Calls button was selected. You may select a new call ID at any time.

— **Routing Information** - The Routing Information fields describe the status of a call. If the simulator is in a wait state, a Route Register Request ID and a Routing Cross Reference ID are displayed.

- **Is simulator waiting for a Route Select?** — This field can be either "YES" or "NO". If it is "NO", then the call either was never routed or is no longer waiting to receive a route select from a routing server. The following three fields will be populated with "na" (not applicable) when this field is set to "NO".
- **Route Register Request ID** — When the "Simulator is waiting for a Route Select" field is set to "YES", then this field will display the Route Register Request ID that is used to identify the routing server's registration session. It is the same

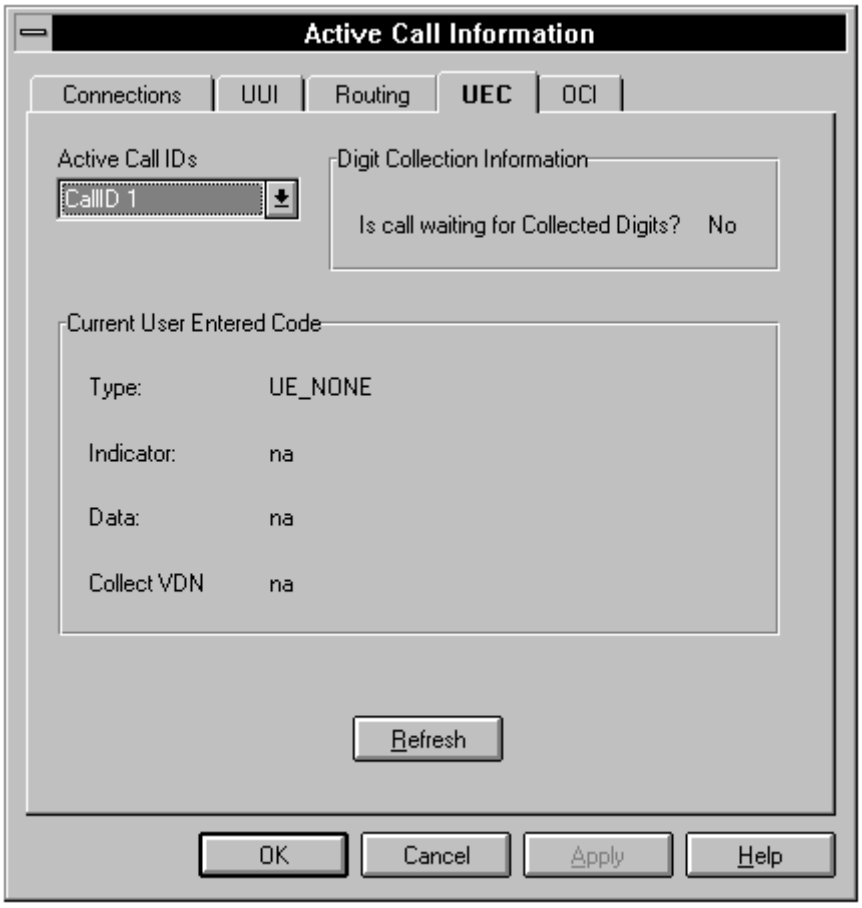
ID that was returned in the confirmation event to the CSTARouteRegisterRequest.

- **Routing Cross Reference ID** — When the "Simulator is waiting for a Route Select" field is set to "YES", then this field will display the Routing Cross Ref ID that uniquely identifies the specific routing dialog between the Simulator and the routing server.
- **Session ID** — When the "Simulator is waiting for a Route Select" field is set to "YES", then this field will display the session ID that corresponds to the open stream over which the route request has been sent to the routing server.

If the Invalid Call ID combo box appears, refer back to the Active Calls Button section for information.

UEC - The UEC (User Entered Code) tab displays the UEC associated with the selected call and also indicates whether the selected call is currently waiting for collected digits.

Figure 2-14: UEC Tab — User Entered Code



— **Active Call IDs** - The Active Call IDs drop down combo box appears on every tab and displays Call IDs of all calls that were active when the Active Calls button was selected. You may select a new call ID at any time.

— **Digit Collection Information** - This section contains only one field: "Is call waiting for Collected Digits?". This field will be populated with either "YES" or "NO". If it is displaying "YES", then the following conditions are true:

- The call was placed to an ACD that is administered to collect digits.
- The ACD is being monitored by monitor calls via device.
- There are currently TSAPI Exerciser interfaces (CLSIM application) with streams open to this Simulator.

When the call is waiting for collected digits, it has sent a message to all of the TSAPI Exerciser Interfaces that have streams open to it, and requests that one of them respond with digits before a time-out period expires. As soon as one of the TSAPI Exerciser Interfaces responds with digits or the time-out expires, then the call will no longer wait for collected digits and the "Is call waiting for Collected Digits?" field will be set to "NO".

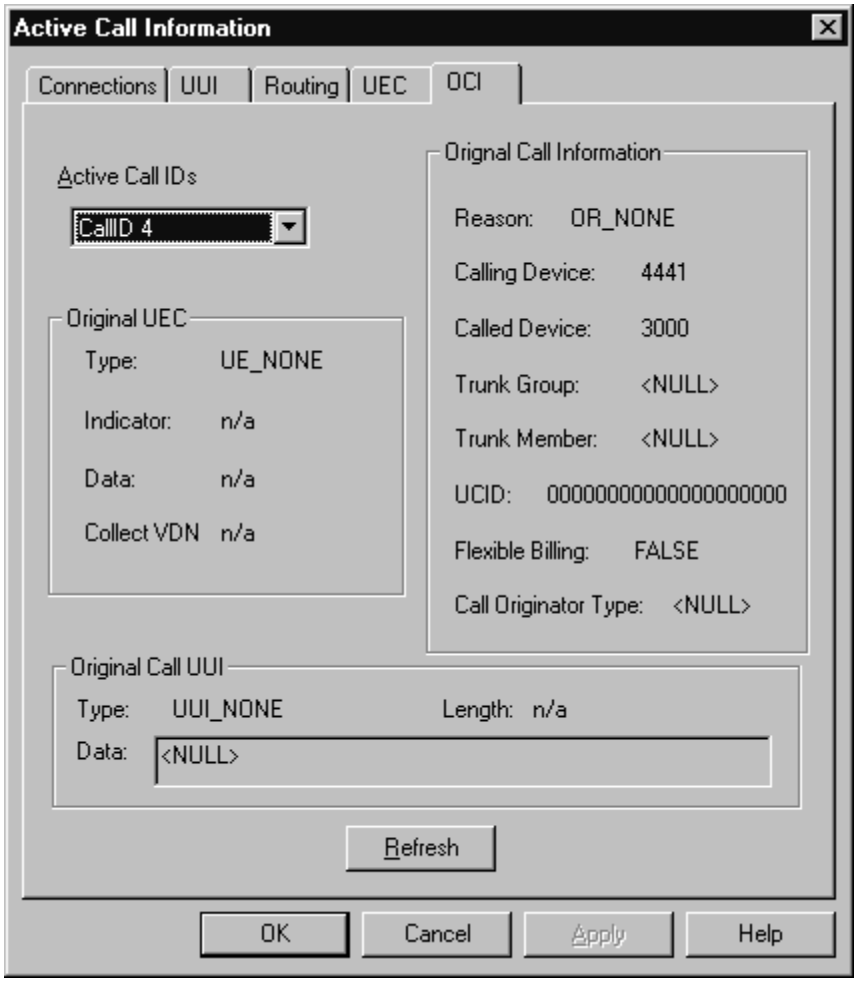
— **Current User Entered Code** -The fields in this section are as follows:

- **Type** — This field denotes the type of User Entered Code (UEC) that is currently associated wit the call. It can be one of a number of types.
  - — **UE_NONE** - This value indicates that there is no UEC
  - — **UE_CALL_PROMPTER** - This value indicates that the data (digits) were collected via the collect digits mechanism built into the Simulator.
  - — **UE_DATA_BASE_PROVIDED** - This value indicates that the data was provided via the route select message. (The G3 PBX Driver has more values for this field but they are not supported by the G3 Simulator.)
- **Indicator** — This field denotes whether the digits were collected or entered. It can have one of two values:
  - — **UE_COLLECTED** - This value indicates that the digits were collected via the digit collection mechanism in the Simulator (analogous to call prompter digits in the G3PD).
  - — **UE_ENTERED** -This value indicates that the digits were user-provided in a route select message.
- **Data** — This field contains the data (up to 24 characters) that was collected or entered for this active call.
- **Collect VDN** — If the digits were collected via the digit collection mechanism, then this field will contain the device ID of the VDN that collected the digits. If the digits were entered via a route select message, then this field will be null.

If the Invalid Call ID combo box appears, refer back to the Active Calls Button section for information.

OCI - The OCI (Original Call Information) tab displays all OCI information associated with the selected call.

Figure 2-15: OCI Tab — Original Call Information



— **Active Call IDs** - The Active Call IDs drop down combo box appears on every tab and displays Call IDs of all calls that were active when the Active Calls button was selected. You may select a new call ID at any time.

— **Original UEC** - This section displays any collected digits or user-provided codes that were associated with the original call. The information originates either from a digit collection request as described above or from a route select message containing a user-provided code. This UEC is set only if there was UEC associated with the call and the call was transferred or conferenced or was involved in a consultation call.

- **Type** — This field denotes the type of User Entered Code (UEC) that is currently associated wit the call. It can be one of a number of types.

  - — **UE_NONE** - This value indicates that there is no UEC
  - — **UE_CALL_PROMPTER** - This value indicates that the data (digits) were collected via the collect digits mechanism built into the Simulator.
  - — **UE_DATA_BASE_PROVIDED** - This value indicates that the data was provided via the route select message. (The G3 PBX Driver has more values for this field but they are not supported by the G3 Simulator.)
- **Indicator** — This field denotes whether the digits were collected or entered. It can have one of two values:
  - — **UE_COLLECTED** - This value indicates that the digits were collected via the digit collection mechanism in the Simulator (analogous to call prompter digits in the G3PD).
  - — **UE_ENTERED** -This value indicates that the digits were user-provided in a route select message.
- **Data** — This field contains the data (up to 24 characters) that was collected or entered for this active call.
- **Collect VDN** — If the digits were collected via the digit collection mechanism, then this field will contain the device ID of the VDN that collected the digits. If the digits were entered via a route select message, then this field will be null.

— **Original Call Information** - The fields in this section display information about the call when it was originally set up. The OCI has meaning when a call has been transferred or conferenced, or was involved in a consultation call.

- **Reason** — This field denotes the reason for the original call information. It can be any of the following: OR_TRANSFERRED, OR_CONFERENCED, OR_CONSULTATION, OR_NEW_CALL, or OR_NONE.
- **Calling Device** — Displays the original calling device on the call.
- **Called Device** — Displays the original called device on the call.
- **Trunk Group** — Displays the trunk group number from which the call originated (if applicable; otherwise, NULL is displayed).
- **Trunk Member** — This field is currently not in use and always displays NULL.
- **UCID** — Displays the unique Universal Call Identifier (UCID) for the call. A valid UCID is a null-terminated ASCII character string. If there is no UCID associated with the call, a 20-character string of all zeroes is displayed.
- **Flexible Billing** — Indicates whether the Flexible Billing option is allowed for the call. For the Simulator, this option is set to TRUE for all inbound calls.

- **Call Originator Type** — Displays the Call Originator Type of the call (if applicable; otherwise, NULL is displayed). The Call Originator Type is a 2-digit numeric code that indicates the type of the originating call (e.g., 24 denotes an 800 service call, 27 denotes a coin call, 61 denotes Type 1 Cellular, etc.) based on a network-wide standard. Although the code has special meaning, neither the G3 PBX nor the G3PD interprets these values.

— **Original Call UUI** - The fields in this section display the User to User Information (UUI) associated with the original call. This UUI is set only if there was UUI associated with a call and the call was transferred or conferenced or was involved in a consultation call.

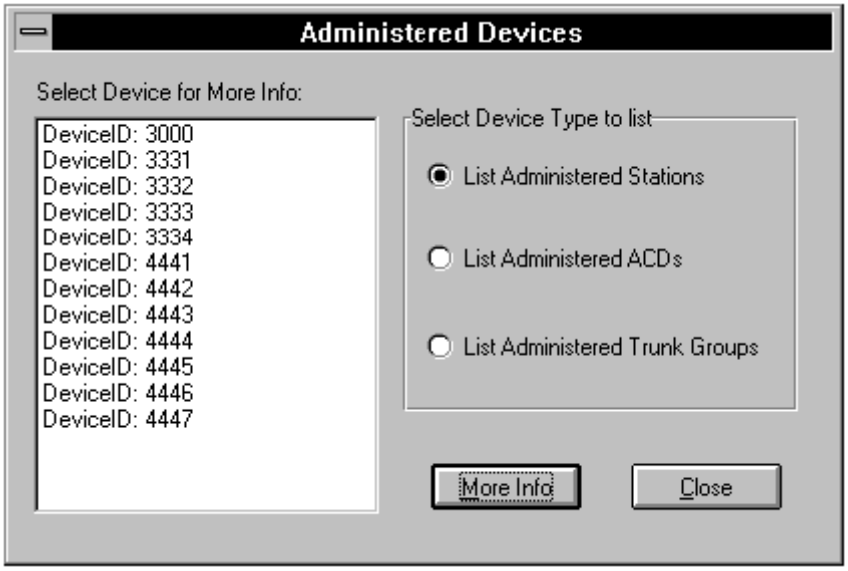
- **Type** — Denotes the type of UUI that is present with the active call. It can be one of three values, UUI_NONE indicating that there is no private data, UUI_IA5_ASCII indicating that it is an ASCII string, and UUI_USER_SPECIFIC indicating that it is a sequence of bytes.
- **Length** — Denotes the length of the UUI data. If there is UUI, it will be a positive number up to 96 bytes. If the type is UUI_NONE, then this field will contain "na".
- **Data** — Displays the data. Currently this field will only accurately display UUI_IA5_ASCII data. If UUI_USER_SPECIFIC data is encountered with embedded nulls or no null terminator, then unpredictable results will occur. You can scroll to the right to view the additional data if it extends beyond the border of this field.

If the Invalid Call ID combo box appears, refer back to the Active Calls Button section for information.

Devices Button

The Devices button on the Main dialog box allows you to display information about all administered devices known by the simulator.

Figure 2-16: Administered Devices Dialog Box



The Administered Devices dialog box contains the following information.

Select Device for More Info:

This list box displays information based on the selections you make under "Select Device Type to list." To view additional information about specific devices, either double-click a device in the list box or select a device and click on More Info.

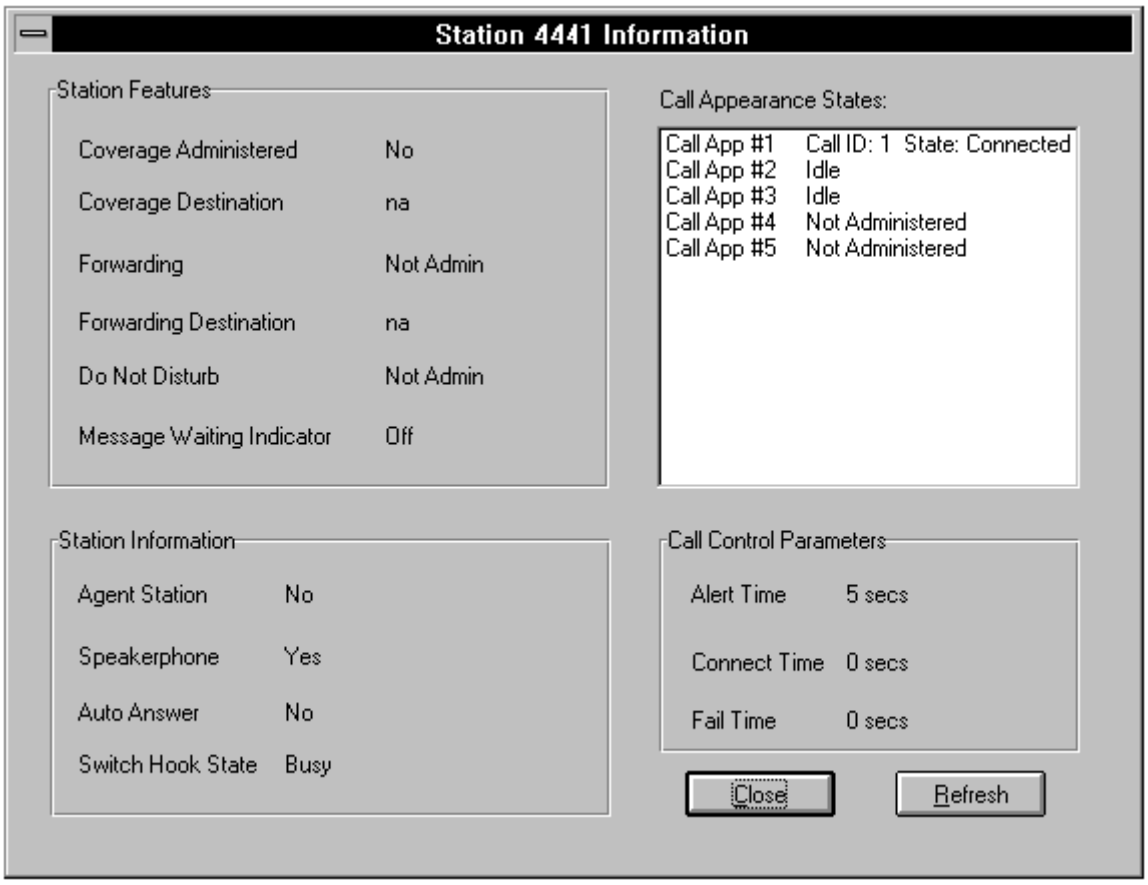
Select Device Type to list:

The three radio buttons under Select Device Type to list indicate the types of information available for Administered Devices. When the dialog box is first displayed, List Administered Stations, the default, is selected, and information for all administered stations appears in the list box.As you select different radio buttons, the list box updates with corresponding devices.

When you select **List Administered Stations**, the list box on the left displays a list of all administered stations. To view more detailed information about a selected station, select More Info. The Simulator displays the Station Information dialog (the title of this dialog

bears the extension number of the device you selected, for example "Station 4441 Information.")

Figure 2-17: Station Information Dialog Box



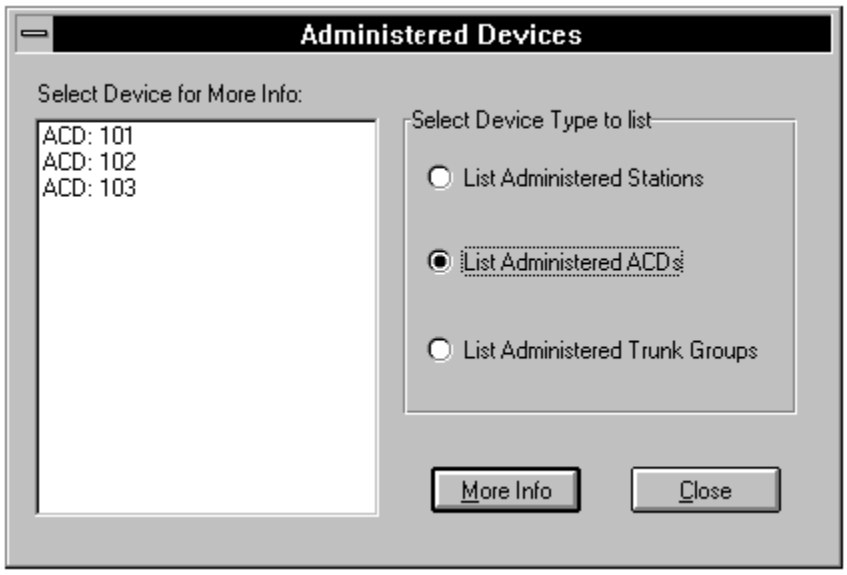
- **Station Features**
  - — **Coverage Administered** — Indicates via "YES" or "NO" whether the station has coverage administered.
  - — **Coverage Destination** — This field is only applicable if coverage is administered. If it is administered, then a station extension denoting the covering device will be displayed in this field.
  - — **Forwarding** — Indicates whether forwarding is "On," "Off," or "Not Administered." If it is "On," then the Forwarding Destination field will contain the destination to which it is forwarded.
  - — **Forwarding Destination** — If the Forwarding field indicates that forwarding is set "On", then this field will contain the destination to which the station is forwarding.

- — **Do Not Disturb** — Indicates if the Do Not Disturb feature is "On", "Off", or "Not Administered." This feature can only be administered in conjunction with coverage.
- — **Message Waiting Indicator** —Indicates whether the station's Message Waiting Indicator lamp is "On", "Off," or if it does not have a Message Waiting Indicator.

- **Station Information**:
  - — **Agent Station** — Indicates whether the selected station is an administered agent in an ACD. If it is an agent station, then further information can be found out about the station via the "List Administered ACDs" option on the "Administered Devices" dialog box.
  - — **Speakerphone** — Indicates whether the station is administered with a speakerphone. The existence of a speakerphone indicates to the Simulator that it can automatically take the station off-hook when initiating a call or answering a call through the answerCall feature. If no speakerphone is administered, then the user must manually go off-hook before initiating a make call. This can be done through the TSAPI Exerciser Interface.
  - — **Auto Answer** — Indicates whether the station will automatically answer an incoming call into the station. For a station to be administered as auto answer, it must also have a speakerphone administered.
  - — **Switch Hook State** — Indicates the switch hook state of the station. Valid values are on-hook, idle, dialtone, or busy. Idle indicates the station is off-hook but has no initiated call (that is, no dialtone). Dialtone indicates that the station is off-hook and hears dialtone (that is, an initiated call). Busy indicates that the station is off-hook and is on an active call.
- **Call Appearance States** - The five lines in this section indicate the status of a maximum of five call appearances that can be administered for a station. If the call appearance is administered, it will display any active call ID associated with the call appearance and its state. If the call appearance is not administered, it will indicate it as such.
- **Call Control Parameters**:
  - — **Alert Time** — The call control attribute that indicates how long to simulate the alerting state of a call coming into this station. If it is zero, then the call will stay in the alerting state until specifically acted upon.
  - — **Connect Time** — The call control attribute that indicates how long to simulate the connected state of a call coming into this station before the Simulator will drop the call. If it is zero, then the call will stay in the connected state until specifically acted upon.
  - — **Fail Time** — The call control attribute that indicates how long to simulate a failed connection to this station before dropping the call. If it is zero, then any call in the failed state associated with this station will stay in the failed state until terminated.Administered Devices Dialog — List Administered ACDs Radio Button:

- **List Administered ACDs** - When you select the Administered ACDs radio button on the Administered Devices Box, the list box on the left displays a list of all administered ACDs.

Figure 2-18: Administered Devices (ACDs)



To view more detailed information about a selected device in the list box, press More Info.

The simulator displays the ACD Information dialog box (the title of this dialog bears the extension number of the device you selected, for example "Station 4441 Information").

Figure 2-19: ACD Information Dialog Box

The ACD Information Dialog Box dialog box contains the following information about an ACD.

- **General Information** — The fields in this section contain information about the agents and calls in the queue.
  - — **Total Agents Administered** — Shows the total number of agents that have been administered as part of this ACD. NOTE: This is different from the DEFINITY PBX switch implementation that allows agents to be logged into different ACDs (VDNs). The Simulator associates an agent with a station extension and that agent is administered into a maximum of one ACD. The agent may only log into and out of the ACD in which he or she is administered.
  - — **Total Agents Administered** — Shows the total number of agents that have been administered as part of this ACD.

Note:

This is different from the DEFINITY PBX switch implementation that allows agents to be logged into different ACDs (VDNs). The Simulator associates an agent with a station extension and that agent is administered into a maximum of one ACD. The agent may only log into and out of the ACD in which he or she is administered.

— **Number of agents logged in** — Shows the number of agents that are currently in a logged in state for this ACD. As a default, all agents administered in an ACD will be logged in and in a ready state, or logged out, when the Simulator is loaded by the Tserver.

Note:

Shows the number of agents that are currently in a logged in state for this ACD. As a default, all agents administered in an ACD will be logged in and in a ready state, or logged out,when the Simulator is loaded by the Tserver.

This number can never be greater than the total number of agents administered for the ACD. If no agents are logged in and a call comes into the ACD, one of the following will occur: a) The call will still queue and will wait until an agent logs in and becomes ready, b) the call will time out in the queue, or c) the call will be terminated.

— **Number of available agents** — Shows the number of agents that are currently in the AG_READY state with a talk state of TS_IDLE (see the *Avaya Computer Telephony G3 PBX Driver and CVLAN Admin. and Maintenance Guide* for more detailed information). This number can never be greater than the number of agents that are logged into the ACD.

— **Number of calls in queue** — Shows the number of calls that are currently queued at this ACD waiting for an available agent. The calls will remain in queue until an agent becomes available, the call times out of the queue and is terminated, or the call is disconnected by a clear call or on-hook operation.

- **Routing Information -** The fields in this section indicate whether this ACD is administered as a routing device and if there are any routing servers registered with this device.

  — **Administered as a routing server** — Indicates whether this particular ACD is administered as a routing device. If it is administered as a routing device and there is a registered routing server, either a specific one for this device or a default routing server, then any calls coming into this ACD will cause a route request to be sent to the routing server and the call will wait for the route select or time-out and route to an agent in the group.

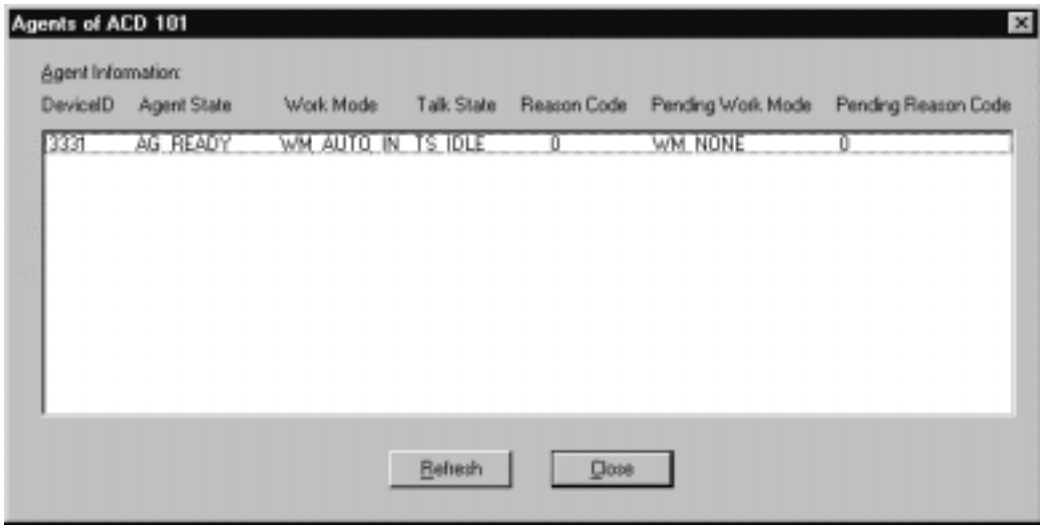
  — **Route Request timeout (ms)** — If this ACD is administered as a routing device, then this field indicates the amount of time that the device will wait (in milliseconds) for a route select to be returned from the routing server. If the ACD is not a routing device, then this field will display "na".

- — **Routing Server register request ID** — Displays the routing register request ID of a registered routing server if one has registered. If there is no registered server, then this field will display "None Registered". If the ACD is not a routing device, then this field will display "na".
- — **Routing Server TSDI handle** — Displays the handle of the open stream session over which the routing server has registered if one has registered and this is an administered routing device. Otherwise, it will display "na".

- **Digit Collection Information** - The fields in this section display information about the mechanism that the Simulator uses for digit collection (that is, call prompter digits).
  - — **Administered to collect digits** — Indicates whether this ACD has been administered to perform digit collection. NOTE: Before digit collection will be performed on calls coming into this ACD, it must have a monitor call via device session opened to it. This is done to mimic the G3 PBX Driver behavior. If the events from this monitoring session are not of interest, then they can be filtered out using the csta filtering mechanism.
  - — **Number of digits to collect** — If this ACD is administered to collect digits, then this field indicates the number of digits for which the TSAPI Exerciser Interface will prompt. Otherwise, this field will display "na".
  - — **Digit collection timeout** — If this ACD is administered to collect digits, then this field indicates how long the Simulator will wait for a reply from any TSAPI Exerciser Interface for the collected digits before timing out and continuing the call's progress. Otherwise, this field will display "na".

Select the **View Agents** button from the ACD Information dialog box to see more information about agents administered for a selected ACD. The simulator displays the Agents of ACD dialog box (the title of this dialog bears the extension number of the device you selected, for example "Agents of ACD 101").

Figure 2-20: Agents of ACD Dialog Box



This dialog box displays information about administered agents for an ACD displayed on the preceding dialog box. The fields are as follows:

- **DeviceID** — Displays the extension number of the administered agent in the ACD.
- **Agent State** — Displays the agent's CSTA Agent State which can be any of the possible agent states except AG_WORK_READY which is not supported by the G3 Simulator or G3 PBX Driver.
- **Work Mode** — Displays the agent's G3 private Work Mode state which can be any one of four possible work modes: WM_AUX_WORK, WM_AFTCAL_WK, WM_AUTO_IN, and WM_MANUAL_IN.
- **Talk State** — Displays the agent's G3 private Talk State, which can either be TS_IDLE or TS_ON_CALL.
- **Reason Code** — Displays the numeric identifier that indicates the reason the agent is in AUX work mode or logged out. Valid values are 1 through 9 inclusive. A zero (0) value is allowed but does not map to any valid reason code for the Simulator. A zero value simply indicates that no code was specified.
- **Pending Work Mode** — Displays the agent's G3 private Pending Work Mode state which can be any one of five possible work modes: WM_NONE, WM_AUX_WORK, WM_AFTCAL_WK, WM_AUTO_IN, and WM_MANUAL_IN.
- **Pending Reason Code** — Displays the numeric identifier that indicates the reason the agent is in AUX work mode or logged out.

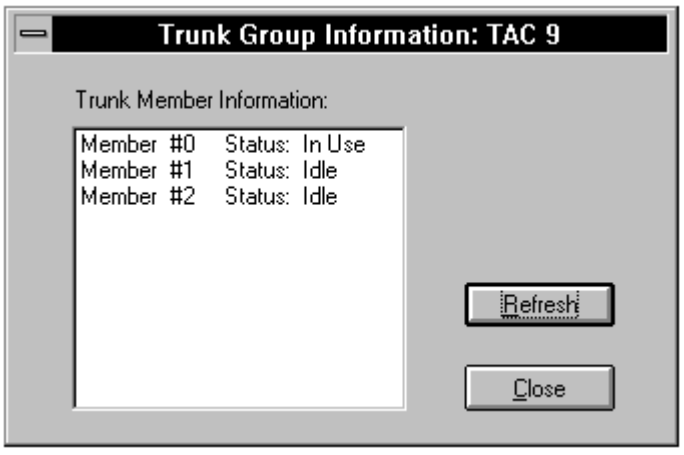
List Administered Trunk Groups Radio Button – When you select Administered Trunk Groups radio button on the Administered Devices dialog box, all administered trunk groups are displayed in the list box on the left.

Figure 2-21: Administered Trunk Groups

To view more detailed information about a selected trunk, highlight it in the list box and press More Info. The Trunk Group Information dialog box appears.

The Trunk Member Information combo box lists the status (In Use or Idle) of each trunk group member.

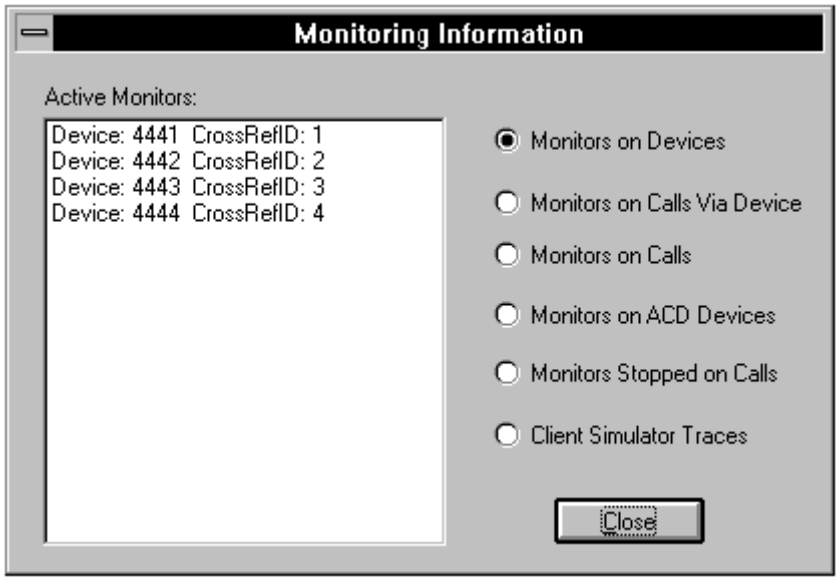
Figure 2-22: Trunk Group Information Dialog Box



Monitors Button

When you select the Monitors Button on the Main Dialog box, the Monitoring information dialog box is displayed.

Figure 2-23: Monitoring Information Dialog Box

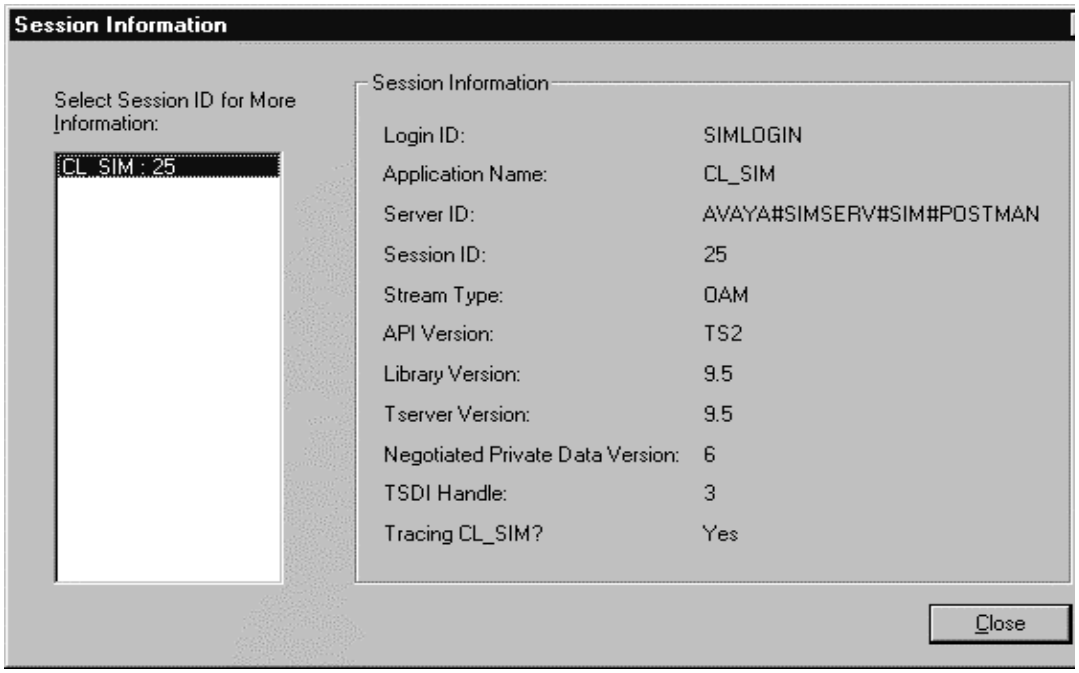


The active monitors are displayed in the list box on the left. To display the various types of active monitors/traces, select the corresponding radio button.

Sessions Button

When you select the Sessions Button on the Main Dialog box, the Session Information dialog box appears:

Figure 2-24: Session Information Dialog Box



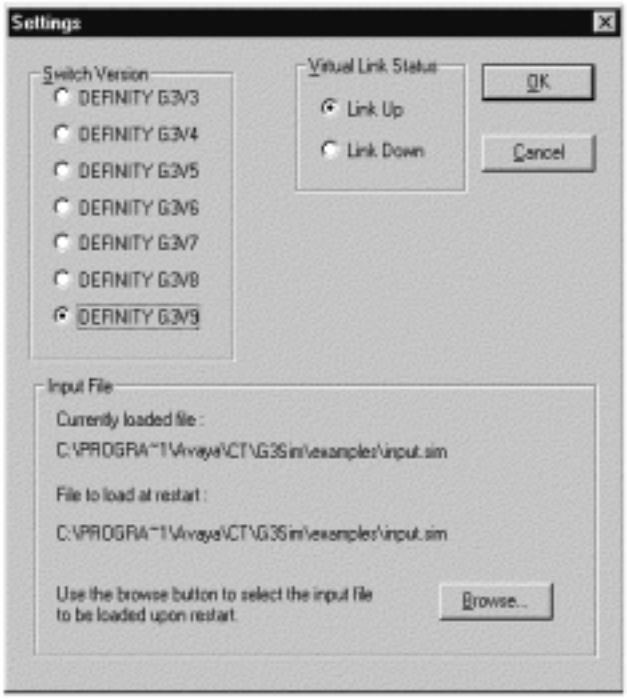
- **Select Session ID for more information** - The active Session Ids are displayed in the list box on the left. The first session is selected when the dialog first appears, and the information corresponding to that session is displayed on the right. If there are no active sessions, then no information is displayed in the fields.
- **Session Information**
  - — **Login ID** — Denotes the login ID used by the application to open the stream to the advertised service.
  - — **Application Name** — This is the string that the application passed in the acsOpenStream call which identifies itself.
  - — **Server ID** — Denotes the advertised service name to which the application opened the stream.
  - — **Session ID** — Denotes the value passed back to the application to uniquely identify the session.

- **Stream Type** — Denotes the type of stream that is opened. It can either be ST_CSTA indicating a CSTA stream or it can be ST_OAM indicating that it is a stream opened by the TSAPI Exerciser interface.
- **API Version** — Denotes the version of the API requested by the application.
- **Library Version** — Denotes the version of the TSLIB library being used by the application.
- **Tserver Version** — Denotes the version of the Tserver being used.
- **Negotiated Private Data Version** — Denotes the version of private data negotiated by the application and the Simulator. If none was negotiated then "No Private Data" will be displayed here.
- **SDI Handle** — Denotes the value given to the simulator to identify the TSDI interface to communicate over.
- **Tracing CL_SIM?** — Denotes whether this application is a CLSIM application and if it is tracing or not.

Settings Button

When you select the Settings button on the Main Dialog box, the Settings dialog box appears. The options on the Settings dialog allow you to change switch versions or the virtual link status. Select the desired option and press OK, or press Cancel to leave the settings in their current state.

Figure 2-25: Settings Dialog Box



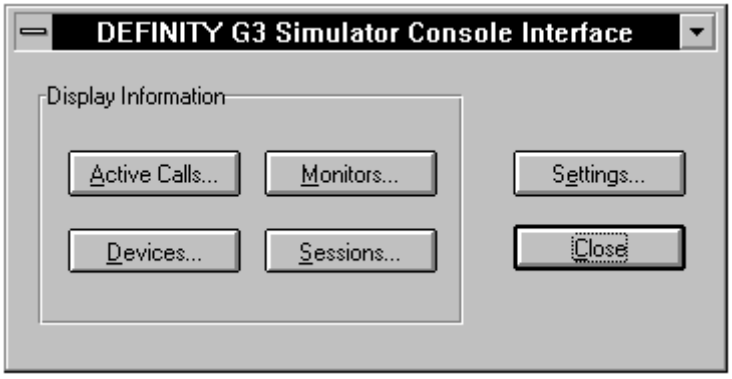
- **Switch Version** - The radio buttons on the Settings dialog box identify the message set supported. Each button allows you to change the DEFINITY switch version that the Simulator supports. It is recommended that any application developed with the Simulator be thoroughly tested with DEFINITY PBX.
- **Virtual Link Status** - The link can also be enabled/disabled from the TSAPI Exerciser Interface.
  - — Link Up/Link Down — Allows you to enable or disable the G3 Simulator's virtual link, which would be analogous to taking down the ASAI link to the DEFINITY G3 PBX Driver. By doing so, you can see how an application reacts to the link going down. The link going down will cause:
    - all routing dialogs to be terminated with a route end message;
    - all routing registration sessions to be aborted with a route register abort message to the registered routing server; and
    - all monitoring sessions to be ended with a monitor ended event, and all subsequent CSTA requests to be rejected with an appropriate error code.

- **Input File**
  - — **Currently loaded file** — This field displays the full path to the file that the simulator used to load configuration information when it was loaded by the Telephony Server. The information in this file will be used until the simulator is unloaded by the Telephony Server.
  - — **File to load at restart** — This field displays the full path to the file that the simulator will use to load configuration information the next time it is loaded by the Telephony Server. This field will only be different from the Currently loaded file field if the user has previously pressed the Browse button and selected a different input file.
  - — **Browse** — This button allows the user to select a file to be loaded by the simulator the next time the simulator is loaded by the Telephony Server. This field is kept in the registry so the setting will remain until the next time the user selects the Browse button and changes the file to something different.

Close Button

Selecting the close button on the Main Dialog box exits you from the simulator console interface.

Figure 2-26: Close Button

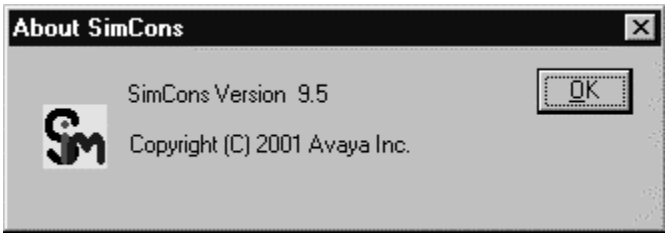


Determining What Version of the Console Simulator (SimCons) You are Using

This box appears when you select About SimCons from the Main Dialog box.

Select About SimCons from < > to determine what version of the Console Simulator (simcons.exe) you are using. The icon on the left is displayed at the bottom of the screen if you minimize the application.

Figure 2-27: Version Information Display



Chapter 3: Configuration Files

This chapter covers the steps necessary to create a configuration file to be used by the Simulator.

The following topics are covered in this chapter:

- The Admin Menu on page 63
- Simulator Capacities on page 77
- Saving Configuration File(s) on page 77

Introduction

The Simulator is used to substitute for the PBX and all its stations and trunks. In order to work correctly, the Simulator must be made to look like the PBX. It must know about all the stations, trunks and ACDs, as well as the parameters specific to each, before it can know how to react to an application request. This PBX-like environment is created using the Simulator Admin tool and saved to a file which can then be read by the Simulator at startup time.

Two items from the menu of the Simulator Admin tool are used in creating and saving configuration data. The "File" menu option provides the file handling functionality to write data to disk or to read an existing file. The "Admin" menu option lists the general categories of information required by each configuration file. These include:

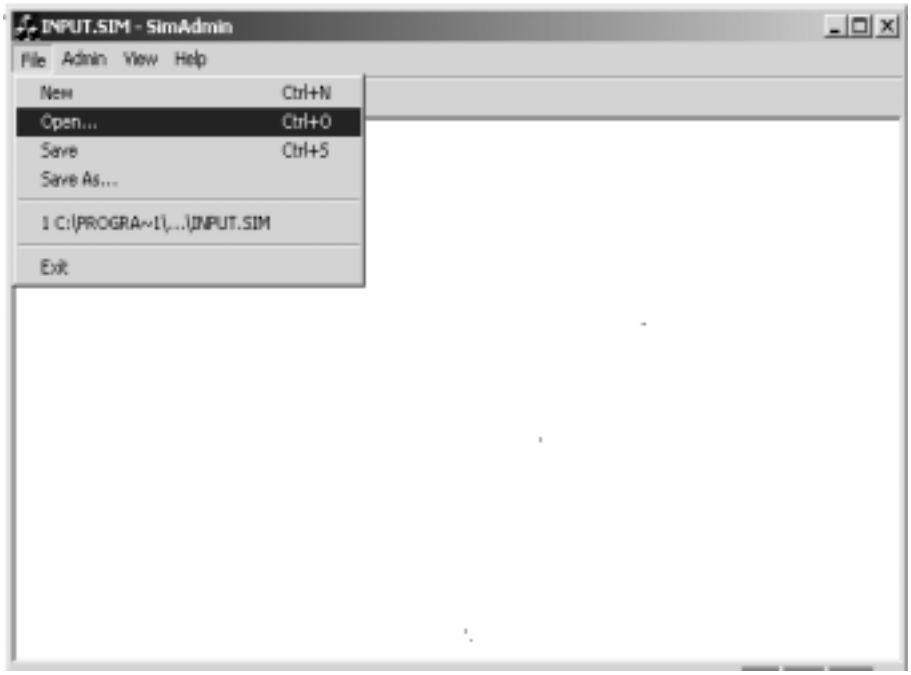
- System Parameters
- First Digit Table
- Stations
- Trunk Groups
- ACDs

For information on loading the configuration in the Simulator, refer to Chapter 2.

The File Menu

This value indicatesIf an existing file is read using the "Open" option on the "File" menu, the data describing the simulation is stored in this memory and can be modified and rewritten. While a file is opened, the name of the file is displayed in the title bar. If no file has been opened or the memory has been initialized by using the "New" option, the word "UNTITLED" is displayed in the title bar. If you open the sample configuration file, the name "INPUT.SIM" is displayed in the title bar.

Figure 3-1: The File Menu

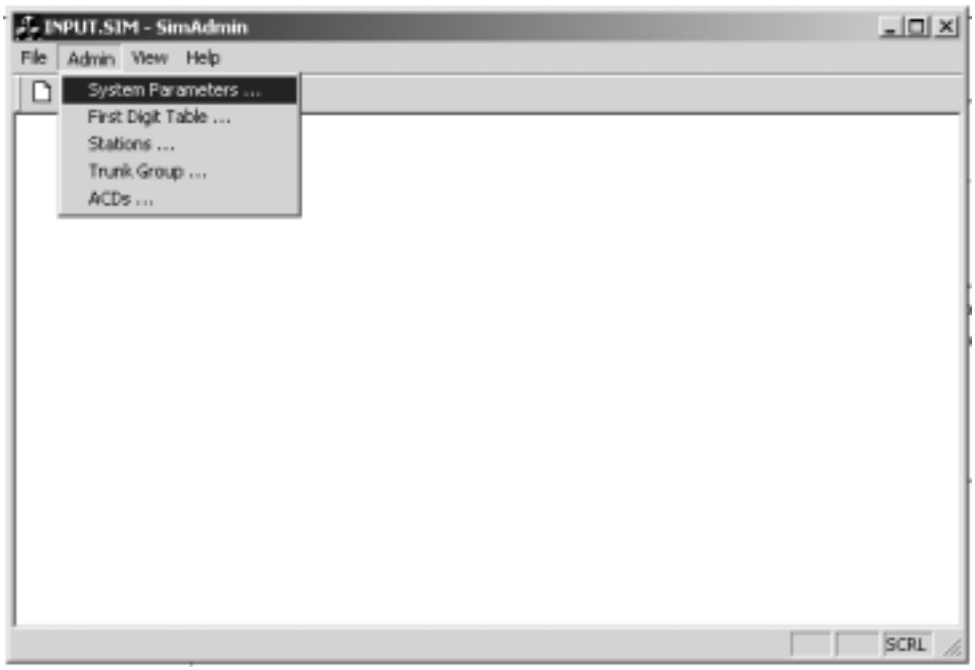


The Admin Menu

The "Admin" menu contains forms to administer all the devices that make up the PBX configuration. Users should be aware that these forms display data only for the Simulator. This information does not reflect any administered data on a PBX. In fact, this menu is disabled when an exerciser session has been established to prevent confusion between the two.

Choosing the "Admin" menu item generates the following display:

Figure 3-2: The Admin Menu

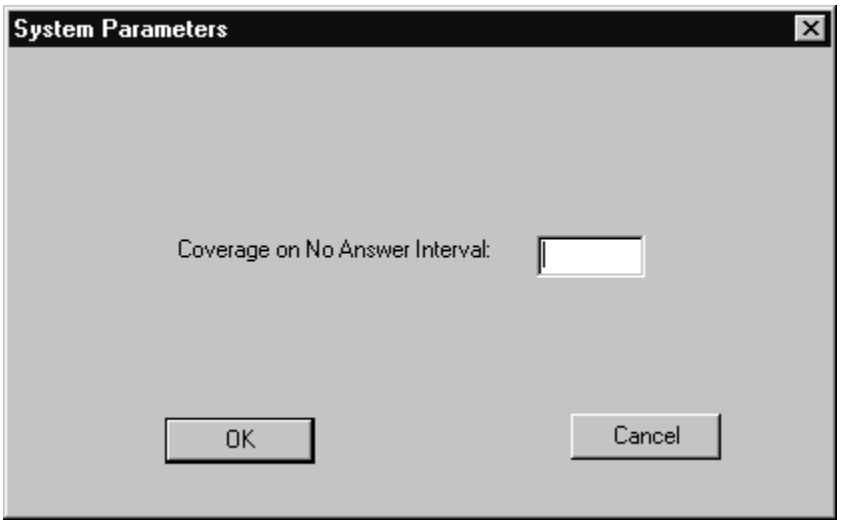


When this menu is selected after initializing memory with the "New" option, only the "System Parameters" and "First Digit Table" are enabled. Data must be entered in the First Digit Table before valid data can be entered in the "Station", "Trunk Groups" and "ACDs" forms. If an existing file is read in, data in the first digit table of the file is examined and the appropriate fields enabled. For more details, refer to the "First Digit Table" section.

System Parameters

Parameters that affect Simulator operation globally are administered in the System Parameters form.

Figure 3-3: System Parameters Form



- **Coverage on No Answer Interval** — This field determines how long, in seconds, a call alerts at a destination device before the call goes to coverage, if coverage is administered for that station. See the section on "Alerting Time" in the station form section (Stations) that follows for details about interactions with that feature.
- **OK** — Choosing this field ends the screen session and saves the data in memory.
- **CANCEL** — Choosing this field ends the screen session and does not save any data.

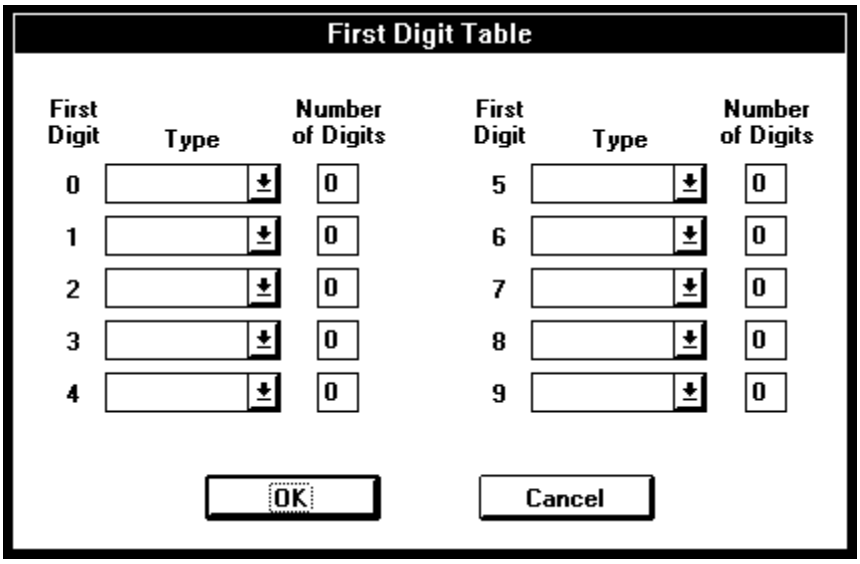
First Digit Table

When someone dials a number at a telephone on a PBX, the PBX that processes the number needs to know what type of number it is getting. For example, in many PBX installations, the number "9" is used to indicate that the user wants to get an outside trunk. When the PBX receives a digit stream beginning with a "9", it knows that the number is to be treated as a trunk. Similarly, an on-PBX station whose DID number is 555-4213 can be accessed by other stations on the PBX by dialing "4213" because the PBX recognizes the "4" as an internal station type. Since these different types of devices are handled in very different ways by the PBX, it is much more efficient to classify them into types by their first digit.

The Simulator needs this type of information to streamline its own processing. It needs to know what type of device is associated with each digit, "0" through "9". Once a device type has been assigned to a digit, no other types of devices may use that first digit in their identifier. This is enforced by each form entry. For example, the station form checks that the first digit of the entered station extension maps to a station type in the first digit table. In fact, until at least one digit is associated with a device group, the menu item for that device form is not enabled.

Choose First Digit Table to generate the following screen:

Figure 3-4: First Digit Table Form



- **First Digit** — This system generated field designates the first digit value. The range is from "0" to "9".
- **Type** — Data in this field determines whether the digits for this table entry are associated with a trunk group access code (tac), an extension, an acd or is not used (none). Valid values are tac, extension, acd and none. None is used to blank out the previous selection.

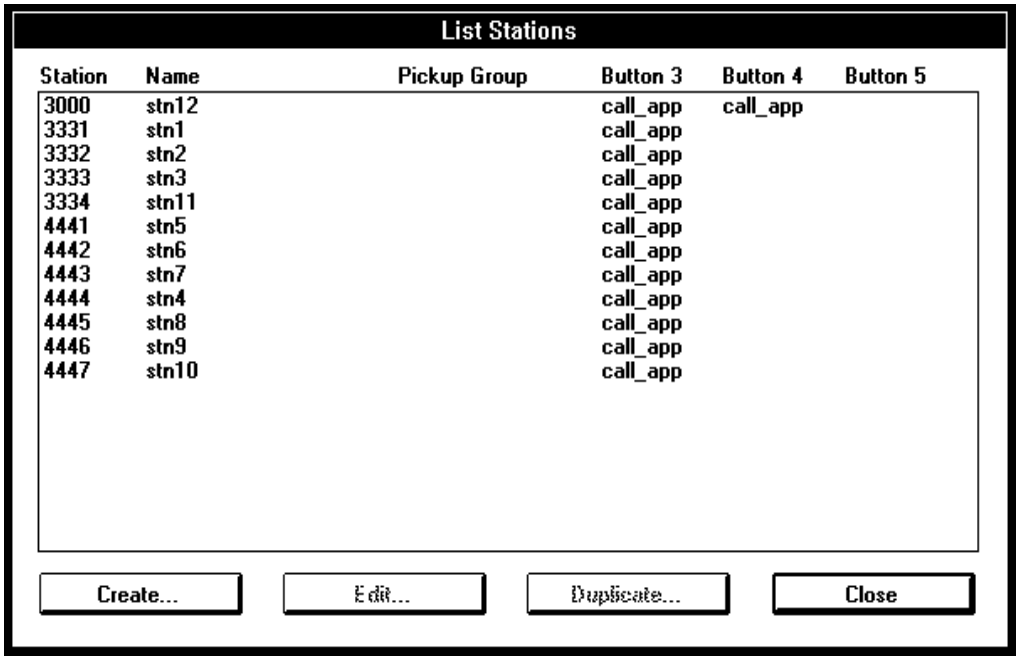
  Data in this field cannot be changed if there are any devices administered with this first digit. Use the "List" menu to determine the devices with this first digit.
- **Number of Digits** — Data in this field defines the digit length of the tac, extension or acd. Valid values are from 1 to 7 inclusive. A number is required if a device type has been entered for this digit. If the device type is erased, this field is also cleared prior to accepting the record.

  Data in this field cannot be changed if there are any devices administered whose identifiers are this length. Use the "List" menu to determine the affected devices.
- **OK** — Choosing this field ends the screen session and saves the data in memory.
- **CANCEL** — Choosing this field ends the screen session and does not save any data.

Stations

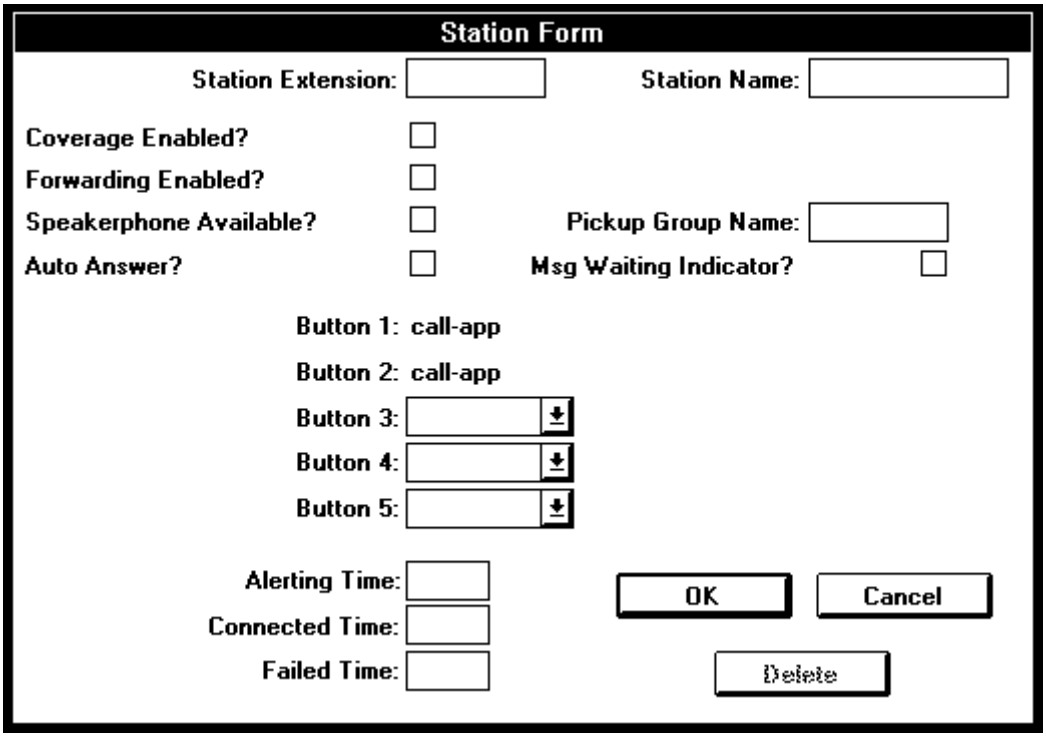
Selecting Stations will display a list of the currently administered stations. From this form, you may create a new station record by pressing Create, or you may edit, duplicate, or delete an existing entry by selecting that entry and pressing Edit, Duplicate, or Delete, respectively.

Figure 3-5: Currently Administered Stations



Choosing either to create or edit an entry will cause the Station Form to appear:

Figure 3-6: Station Form — Add, Change, or Delete Stations



The Station Form is used to add, change or delete stations in the station list. The key to the station record is the extension. If the create option was used, all fields will appear blank and a new extension must be chosen. However, if the edit option was chosen, then the currently administered values will appear. By entering a new station extension in the Station Extension field, if the entered extension is already in the list of extensions, the data for that record is displayed. If there is no record, the user may add the record by filling in the appropriate information. Once the data are correct, the changes/additions can be saved by pressing OK. Station records may be removed from the station list by entering the station extension, verifying that is indeed the station to be removed, and pressing Delete.

Pressing Duplicate permits the rapid addition of stations. When duplicating, one station record acts as the "master" record and a copy is made whenever Duplicate is pressed. In duplicating the station, the Simulator Admin tool automatically generates a new station extension by adding "1" to the extension of the master record (or the last duplicated station). If adding "1" causes the extension to become illegal, for example, "499" becomes "500" and the first digit, "5", is not a station type, the Simulator Admin tool looks for another first digit associated with stations. If none is found, a message, "NO AVAILABLE EXTENSIONS - MODIFY FIRST DIGIT TABLE", is displayed. If more stations are needed, another first digit must be assigned to a station group.

A station may not be deleted:

- if the station is a member of an ACD. If the station must be deleted, it must first be deleted from the ACD. To find out which ACD the station is in, use the "list/ACDs" menu option to display all ACDs and their member stations.
- if the station is the covering station for another station. The message "STATION IS REFERENCED BY ANOTHER STATION" is displayed if this error occurs. Use the "list/station" command to determine which stations are covered by this station.
- if another station is forwarded to this station. The message "STATION IS REFERENCED BY ANOTHER STATION" is displayed if this error occurs. Use the "list/station" command to determine which stations are forwarded to this station.

The Simulator replicates the call appearance functionality of the DEFINITY PBX. Regardless of the number of call appearances administered on a station, one call appearance is reserved so that the user can always initiate a call. [This is necessary if users are to use the conference or transfer features. Both of these features require that an active call be put on hold and a second call initiated.] If all call appearances but one are in use, the DEFINITY PBX does not deliver an incoming call to that station; the remaining call appearance is reserved for an outgoing call. Thus, if a station is administered with only one call appearance, it cannot receive incoming calls. To prevent this situation, the Simulator automatically administers two buttons as call appearances.

The fields on the Station Form are as follows:

- **Station Extension:** — This field designates the station extension. When a complete extension has been entered, the first digit of the extension is checked against the first digit table to make sure the device type is "extension" and the length matches the number of digits in the extension. If the extension is correct, the Simulator Admin tool looks for a match in the station list. If a match is found, the data for that extension is displayed.
- **Station Name:** — This field can be populated with an alphanumeric value that will then be associated with the specific station. The name provided in this field will be displayed on the list station form and will also be provided in future query functions.
- **Coverage Enabled?** — Coverage is a feature that causes an incoming call to be diverted to another station if the original station does not answer in a preset amount of time. [The time interval for the Simulator is set on a system wide basis using the "System Parameters" menu item.] If this field is not enabled, incoming calls alert until the station answers or the caller hangs up. Incoming calls can also be diverted if "Do Not Disturb" is administered and activated.
- **Covering Extension:** — If the previous field has been chosen, this field must be populated with the covering extension. The entered station is validated against the list of stations. If it is not found, the error "EXTENSION NOT VALID" is displayed.
- **Forwarding Enabled?** — Call forwarding is a feature that, when activated, immediately diverts incoming calls to the forwarding extension.
- **Forwarding Extension:** — If the previous field is enabled, a forwarding extension must be provided. If an extension is provided, forwarding is administered and activated. The

entered station is validated against the list of stations. If it is not found, the error "EXTENSION NOT VALID" is displayed.

- **Speakerphone Available?** — Check this field if the station is to have a speakerphone. A speaker phone allows the Simulator to automatically take a station off-hook when initiating or answering a call. This is identical to the switch functionality. If a station is not administered with a speakerphone, the station must be in an off-hook state before it can originate a call. This can be done using the "Send Message/Go Off-hook" option (Simulator mode) or manually going off-hook at the PBX (exerciser mode). A station without a speakerphone cannot automatically answer incoming calls.
- **Msg Waiting Indicator?** — Check this field if there is a message waiting indicator on the station. If checked, the Simulator turns it on at the beginning of a simulation. The state can be modified by sending a "Send Message/Set Feature/Message Waiting Indicator" message.
- **Auto Answer?** — Choose this field to indicate that the station is auto answer. (This is typical of headset operation.) The significance of AutoAnswer on a station is that it causes the Simulator to automatically establish any call that is delivered to the station as long as there is a speakerphone administered. A station administered with auto answer and a speakerphone automatically answers all incoming calls. If no speakerphone is administered, the Simulator leaves the call in the alerting state.
- **Button 1:** and **Button 2:** — Feature telephones reserve one call appearance for outgoing calls so that features like conference and transfer, which require a second call appearance to make a call, can complete. If a station is administered with only one call appearance, it could not receive any incoming calls. For this reason, buttons 1 and 2 are designated as call appearances (**call-app**) by the Simulator Admin tool.
- **Button 3:**, **Button 4:**, and **Button 5:** — Buttons 3 to 5 can be defined as **call-app**, **send-calls** or **none**. The dropdown list box displays the valid choices for this field. Each call appearance button represents the ability to connect to another party.
- Creating a "send all calls" (SAC) button allows the Do Not Disturb feature to be administered and activated. The station must have coverage enabled in order to administer the "send-all-calls" button. When the "send-all-calls" (or DND) is activated, incoming calls are immediately diverted to the covering extension.
- **Alerting Time**: — "Alerting time" is a Simulator-specific parameter that allows it to simulate call control. On an actual PBX this would equate to the time it takes for the station user to pick up the handset. The role of this field depends on several other features: the coverage on no answer interval, call coverage for this station and auto answer and speakerphone administration.

If the "alerting time" is "0", the station remains in an alerting state until one of the following occurs: the coverage on no answer time interval elapses (if the station has coverage), the call is answered (CSTAAnswerCall()) or the station is forced off-hook (Go Off-hook). A CSTAClearConnection/Call could be used to tear down the call.

If the station has coverage and the alerting time is non-zero but less than the coverage on no answer interval, an incoming call is answered after an "alert time" interval has elapsed.

If the station has coverage and the alerting time is greater than the coverage on no answer interval, an incoming call is diverted to the covering station after the "coverage on no answer" interval has elapsed.

- **Connected Time** — Connected time is a Simulator-specific parameter that allows it to simulate call control. On an actual PBX this would equate to the time from when the user answers to the time when they hang up.

If the "connected time" is zero, the call, once established, remains in the established state until the connection is explicitly dropped, e.g. by use of the CSTAClearConnection(), CSTAClearCall() or "Send Message/Go Onhook" (Simulator mode only).

If the "connected time" is greater than zero, the station remains in the connected state for the designated amount of time and then is automatically dropped from the call.

Connected time applies only to calls that have been established by the call control simulation. If a call moves to the established state as a result of a CSTAAnswer() request or a Go-Off-hook message, the call stays established until another explicit request.

- **Failed Time:** — When a call cannot be completed at a station, the station gives some audible feedback as to why the call failed (e.g., busy, reorder) and continues to give this feedback until the originator hangs up. This field provides the capability of dropping a failed call automatically after a "failed time" interval instead of requiring a message explicitly dropping the connection.

  If the "failed time" is a positive number, the Simulator leaves the connection in the failed state for that number of seconds and then drops the connection. If the "failed time" is "0", the connection remains in the failed state.

  Note:

  If a failed connection is dropped because of an elapsed Failed Time interval or CSTAClear Call/Connection, the Simulator leaves the device off-hook, giving dialtone. A Service Initiated Event is sent to any monitoring clients and the connection is in the initiated state.

  Note:

  Normally, the Failed Time used is the value administered for the called device. If, however, a failed event is received because of an invalid called destination, the Failed Time administered for the calling device is used.

- **OK** — Choosing this field ends the screen session and saves the data in the station list.
- **CANCEL** — Choosing this field ends the screen session and does not save any data.

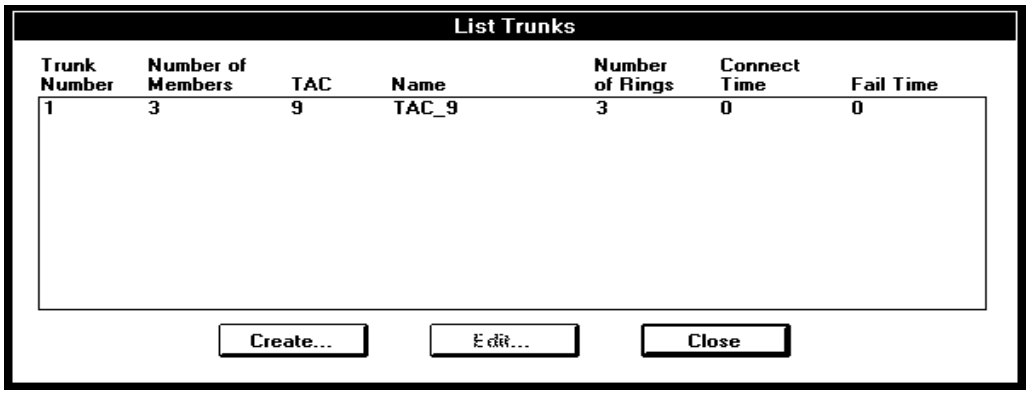
- **DUPLICATE** — Pressing Duplicate indicates that the information in the current station record is to be duplicated in a second station record. If the current record has not been saved, it is written to the station list, a new station extension is generated and the data displayed on the form. The user can make changes in this new record and duplicate it again. It is important to note that the duplicated record with the new extension is not saved in the station list until you press OK or Duplicate. If Cancel is pressed, the record is not saved. Only 50 station records may be created in any one simulation file. If this number is exceeded, the message "NO ROOM TO ADD STATIONS" is displayed.
- **DELETE** — This field removes a station record from the station list. Validations described above are made before the station may be removed.

Trunk Groups

A trunk group is a set of trunks which connect a PBX to the outside world. All members of the trunk group are associated with the same Trunk Access Code or TAC. If a user wants to call an outside number, he or she must dial the TAC of the trunk group to be used and then the actual number. This very basic functionality is simulated by the Simulator which uses the TAC in the device ID to pick the trunk group. It then picks one member of that group for the outgoing call. Subsequent changes to the connection states depend on the variables described below.

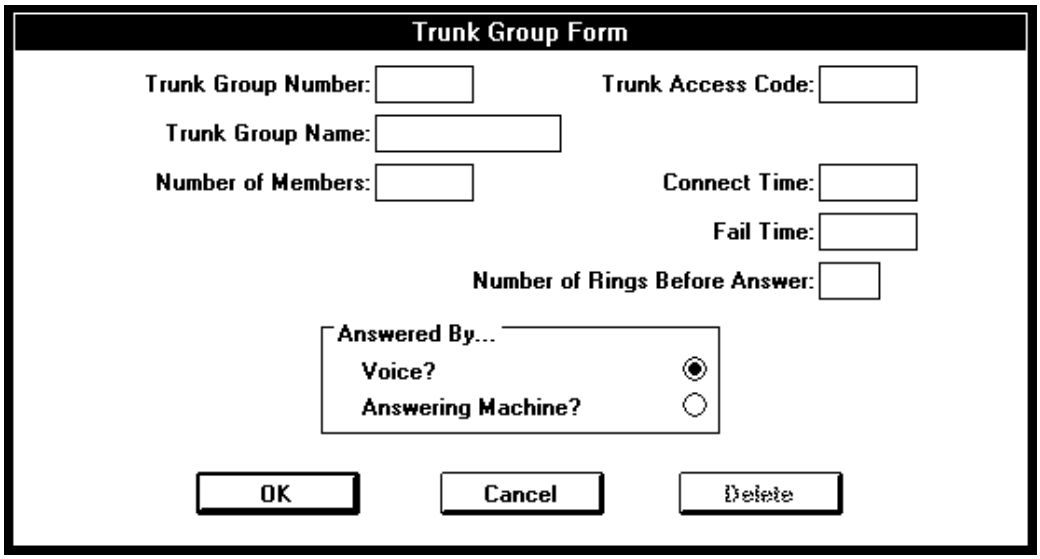
From the initial screen, choose the Admin title bar item and from its menu the "Trunk Groups" item. The following screen, which displays the currently administered trunk groups and their associated parameters, will appear:

Figure 3-7: List of Administered Trunk Groups



From this screen, you may either choose an existing trunk group and select Edit to change the parameters of a trunk group or you may choose Create and enter a new trunk group and parameters. Selecting either of these options will cause the system to display the following Trunk Group Form which you can populate or modify.

Figure 3-8: Trunk Group Form - Edit or Create



- **Trunk Group Number:** — This field designates the trunk group number. This is simply an identification number. Valid values are from 1 to 5 inclusive.
- **Trunk Group Name:** — This field can be populated with an alphanumeric value that will then be associated with the specific trunk.
- **Number of Members** — This field designates the number of trunk members in this trunk group. Valid values are 1 to 10 inclusive.
- **Trunk Access Code:** — The trunk access code identifies the trunk group to be used. This field is validated against the first digit table. The first digit of the TAC must correspond to a TAC device type and the length of the TAC must equal the length for that digit. [The length allows the Simulator to know where the actual telephone number in the device ID begins.] Each trunk group must have a unique TAC.
- **Connect Time:** — This field determines the time, in seconds, the trunk member remains active on a call. If the "connected time" is greater than zero, the trunk member remains in the connected state for the designated amount of time before being dropped automatically. If the "connected time" is zero, the trunk member remains in the connected state until the call is cleared using a CSTAClearCall(), CSTAClearConnection or Go Onhook (Simulator mode only) message.

- **Fail Time:** — This field determines the time, in seconds, the trunk member remains in the failed state before the connection is dropped.

  Note:

  Normally the failed time used is the one administered for the called device. If, however, a call fails because the TAC is invalid, the calling device remains in the failed state for a period of time corresponding to the failed time for the originating device.

- **Number of Rings Before Answer:** — This field is used in conjunction with the make predictive call feature. This field indicates how many times the call will ring before the Simulator "answers" the call. This means that the Simulator classifies the call as established at the off-PBX number. By classifying the call as established, this indicates to the Simulator that the make predictive call can continue with the call and try to establish the call at the originating device. The value in this field is only used for the make predictive call feature. This field defaults to 5 so that make predictive calls that use the default of 10 maximum rings will be classified as answered.
- **Answered By:** — This field is used in conjunction with the make predictive call feature. This field indicates whether the off-PBX device is answered by an answering machine or by a human. This allows the Simulator to simulate the Answering Machine Detection feature of the make predictive call. This field is meaningless to any feature other than make predictive call.
- **OK** — Choosing this field ends the screen session and saves the data in the trunk list.
- **CANCEL** — Choosing this field ends the screen session and does not save any data.
- **DELETE** — This field removes the record from the trunk list in memory.

ACDs

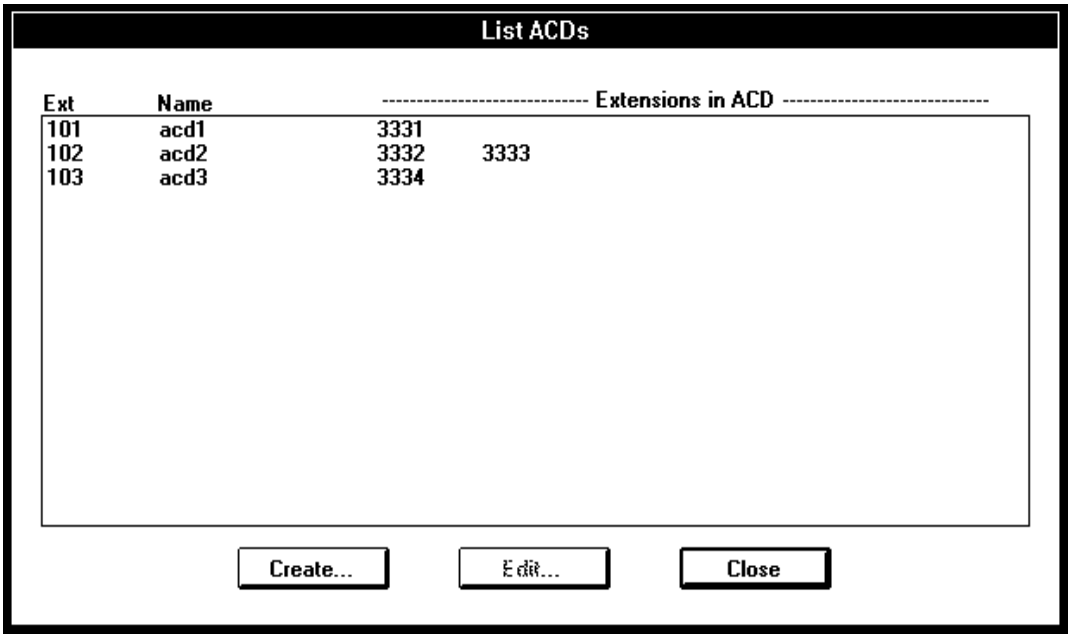
In the Simulator, an ACD is similar in functionality to, but more simplified than, a VDN in the DEFINITY PBX. It acts as a split extension for ACD agents for incoming calls. It also functions as a routing device and as a mechanism for digit collection.

Note:

The algorithm used to determine agent availability is greatly simplified from that used by the PBX.

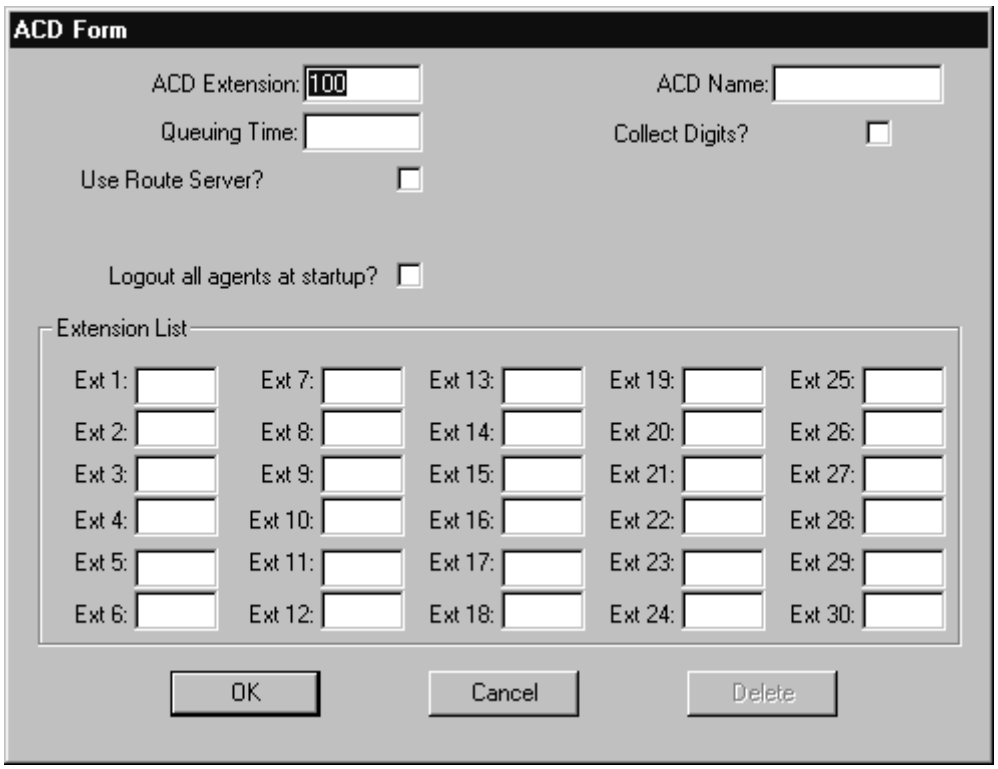
To create new ACDs or modify existing ones, Select the ACDs option under the Admin menu. By doing so, the following screen listing the currently administered ACDs will be displayed.

Figure 3-9: List of Currently Administered ACDs



From this screen, you may either select an existing ACD and choose Edit to change the parameters of an ACD or you may choose Create and enter a new ACD and its associated parameters. By selecting either of these options, the following ACD Form will appear for you to populate or modify.

Figure 3-10: ACD Form — Edit or Create



- **ACD Extension:** — This field designates the extension of the ACD, commonly referred to as the "split extension". The first digit and number of digits are checked against the first digit table to make sure the device type is "acd".
- **ACD Name** — This field can be populated with an alphanumeric value that will then be associated with the specific ACD.
- **Queuing Time** — An incoming call queues at the ACD if there is no available agent. The queuing time simulates how long the caller waits in the queue before giving up. If an agent becomes available before this time expires, the queued call is routed to the agent. If the queuing time is "0", the call remains in the queue until an agent becomes available or some message from the application or TSAPI Exerciser acts on the connection.
- **Use Route Server?** — Selecting this check box will indicate that this ACD will allow an application to register with it as a routing server. The ACD will then send a route request to the application when calls come into the ACD indicating that it needs a route selection. After the routing server application sends back a route select to the Simulator, then the ACD will route the call to the destination selected by the routing server.
- **Log out all agents at startup?** — Selecting this checkbox will indicate that all agents of this ACD will be logged out when the Tserver first loads the Simulator.

- **Route Time-out:** — This item specifies the time (in seconds) that the ACD will wait for a route select from a registered routing server. If the time-out expires, then the ACD will route to the first available agent in that ACD.

This field will only appear if the "Use Route Server?" check box has been selected.

Note:

If you enter 0, time-out will be instantaneous. Since replying to the request may involve a manual step, you might want to leave enough time to act on the request before time-out occurs.

- **Collect Digits?** — Selecting this check box will indicate that this ACD should prompt the user for digits whenever a call comes into the ACD. All TSAPI Exercisers that have an open stream to this Simulator will be prompted. The first one to respond will be used.

Note:

Only the TSAPI Exerciser will receive this prompt. To simulate and test collected digits with JTAPI, use the TSAPI Exerciser to monitor the collecting VDN (ACD). Enter the collected digits through the TSAPI Exerciser before the call is sent to your JTAPI application.

Note:

If you are developing a call center application using JTAPI, do not select this checkbox. When this checkbox is selected, the Simulator returns Extension Class = VDN in the cstaQueryDeviceInfo() request.

- **Number of Digits to Collect:** — A number from 1-24 should be entered which indicates the number of digits that should be collected from the user. This field will only appear if the "Collect Digits?" check box has been selected.
- **Digit Collection Time-out:** — This item specifies the time (in seconds) that the Simulator will wait for the user to enter digits from the TSAPI Exerciser interface. If the Simulator has not received the digits after the time-out period, it will continue processing the call without passing digits in the private data area.

Note:

If you enter 0, time-out will be instantaneous. Since replying to the request may involve a manual step, you might want to leave enough time to act on the request before time-out occurs.

- **Ext 1 through 30** — This field lists the extensions of the agents associated with this ACD extension. Each entered station must be a valid station in the station list. A station may belong to only one ACD and may appear only once in that ACD.
- **OK** — Choosing this field ends the screen session and saves the data in the ACD list.
- **CANCEL** — Choosing this field ends the screen session and does not enter any data.
- **DELETE** — This field removes the record from the ACD list.

Simulator Capacities

The following table is a capacity list for the Simulator. These numbers represent the maximum number of each type of device that may be administered in each configuration file. These limits are enforced by the Simulator Admin tool.

Maximum number of administrable stations:	1000
Maximum number of call appearances per station:	5
Maximum number of trunk groups:	5
Maximum number of trunk group members:	10
Maximum number of ACDs:	10
Maximum number of monitoring sessions:	1000

Saving Configuration File(s)

After entering the desired information, the file should be saved using the "**Save**" or "**Save As**" submenu items under the "**File**" title bar menu item. This file should be saved on the server file system where the Simulator can locate it when loading, and must have a filename format of <filename>.sim.

Note:

Changes to the input file <filename>.sim do not take effect unless you first save the file and then reload the Simulator with the modified file.

Chapter 4: Sending Messages to the Simulator DLL

This chapter covers messages that can be sent over a CSTA stream to either a Simulator or a PBX Driver. All message types are listed under the three menus: Functions, PBX, and Simulator.

The following topics are covered in this chapter:

- Functions - Call Control Services on page 81
- Functions - Escape Services on page 112
- Functions - Maintenance Services on page 116
- Functions - Query Services on page 123
- Functions - Routing Services on page 137
- Functions - Set Feature Services on page 149
- Functions - Snapshot Services on page 158
- Functions - Status Reporting Services on page 161
- The PBX Menu on page 170
- The Simulator Menu on page 177

Introduction

To communicate with a Simulator, either a Simulator Session or an Exerciser session must be initiated from the Run menu. To communicate with a PBX Driver, an Exerciser session must be initiated from the Run menu.

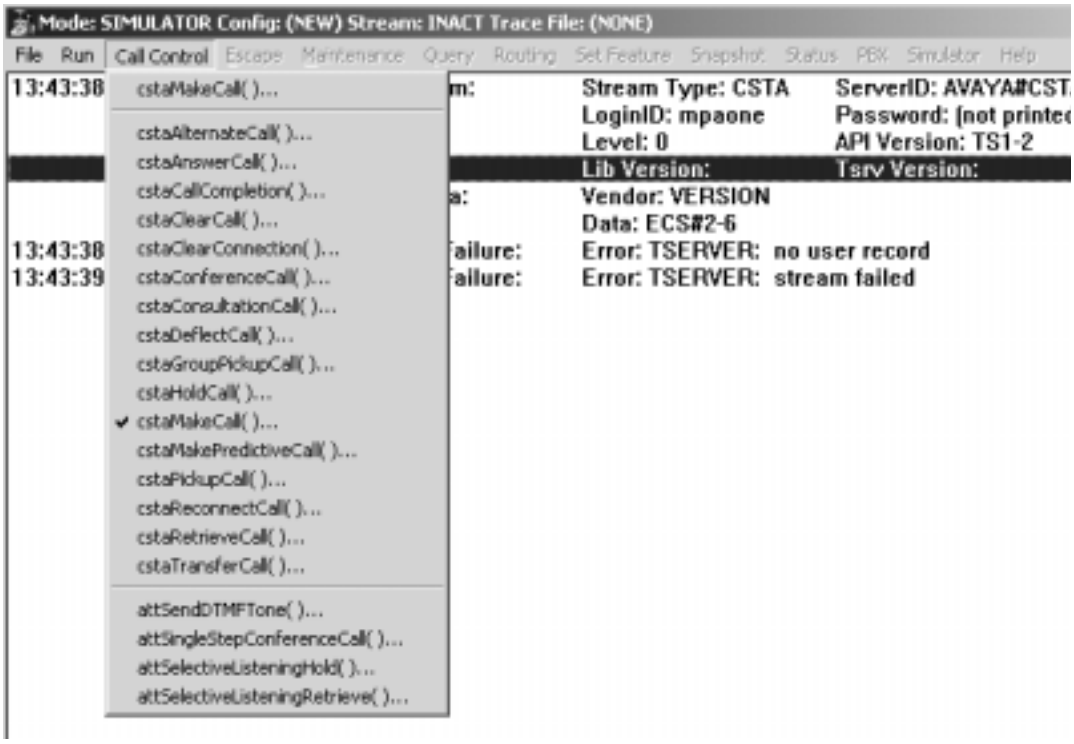
Figure 4-1: The Run Menu

Functions - Call Control Services

Via the dialog boxes available from the "Functions/Call Control Services" menu items, you can opt to generate CSTA messages to either the Simulator or PBX driver (exerciser mode). These dialog boxes provide the screens and field information for CSTA and G3 specific requests that can be made from the Simulator Admin tool and then sent to the Simulator on demand.

There is no validation performed on any data entered in any of these dialog boxes.

Figure 4-2: The Call Control Services Menu



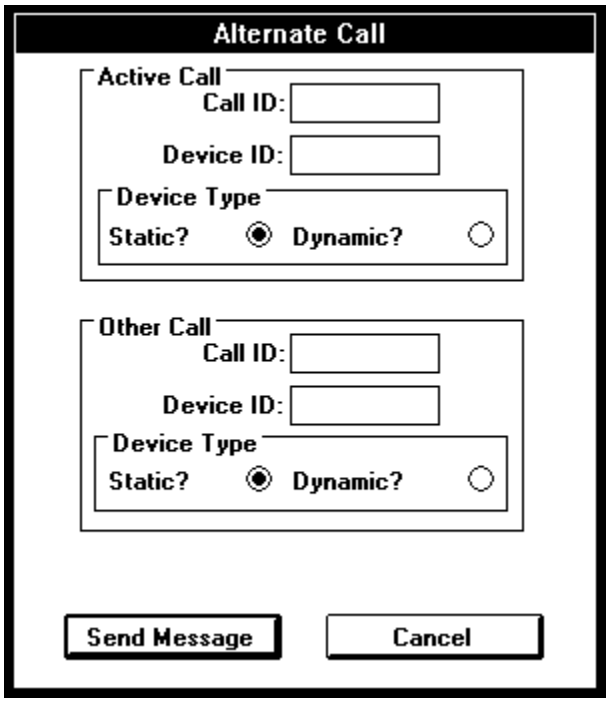
Alternate Call

The following table describes key elements of the Alternate Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaAlternateCall()	(not applicable)	No	Yes	Yes

This message provides a compound action of the Hold Call feature, followed by the Retrieve Call feature. It causes an existing active call to move to the held state and then retrieves a previously held call or connects an alerting call at the same device. If the held call cannot be retrieved, the call that was just put on hold will be retrieved and left in the active state.

Figure 4-3: Alternate Call Dialog Box



- **Active Call ID:** — Enter the call ID that is provided in either the makecall confirmation or the delivered event for the ACTIVE call on the device.
- **Active Device ID:** — Enter the device ID that is provided in either the makecall confirmation or the delivered event for the ACTIVE call. For the Simulator and G3PD this should be the static station extension for the device.
- **Active Device Type:** — Select the device type for the active connection. For the Simulator and G3PD the only valid device type for a connection ID for an Alternate Call request is Static.
- **Other Call ID:** — Enter the call ID that is provided by the Simulator for the held or alerting call that will be used in the Alternate call action.
- **Other Device ID:** — Enter the device ID for the other call. The device ID should match that of the active device ID. For the Simulator and G3PD this should be the static station extension for the device.

- **Other Device Type:** — Select the device type for the other connection. For the Simulator and G3PD the only valid device type for a connection ID for an Alternate Call request is Static.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

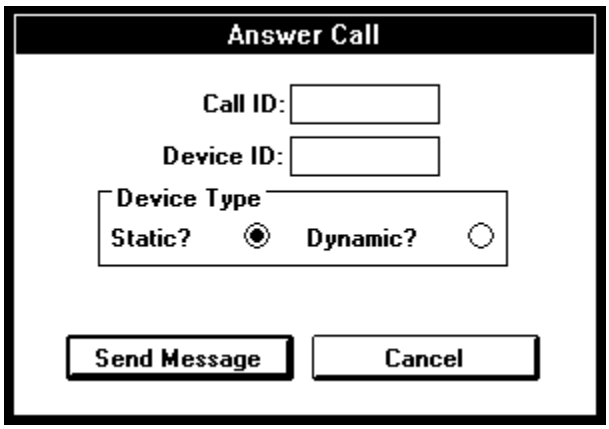
Answer Call

The following table describes key elements of the Answer Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaAnswerCall()	(not applicable)	No	Yes	Yes

This message causes a device that is alerting to move to the established state; that is, to answer the call. Answer cannot succeed unless the station is administered with a speakerphone or the station is already off-hook and is idle or listening to dialtone.

Figure 4-4: Answer Call Dialog Box



- **Call ID:**— Enter the call ID that is provided in either the makecall confirmation or the delivered event.
- **Device ID:**— Enter the device ID (station extension for Simulator and G3PD) of the device that is to answer the call.
- **Device Type:** — Select the device type for the connection. For the Simulator and G3PD the only valid device type for a connection ID for an Answer Call request is Static.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

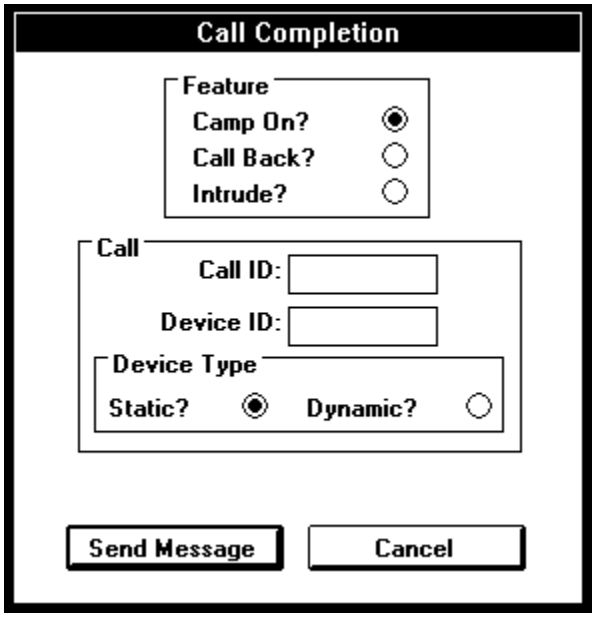
Call Completion

The following table describes key elements of the Call Completion function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaCallCompletion()	(not applicable)	No	No	No

This service invokes specific switch features that may complete a call that would otherwise fail. The feature to be activated is passed as a parameter to the function.

Figure 4-5: Call Completion Dialog Box



- **Feature:**— Select the feature for the Call Completion.
- **Call ID:** — Enter the call ID of the call that is to be completed via the Call Completion feature.
- **Device ID:** — Enter the device ID from the connection ID for which the call completion is being activated.
- **Device Type:** — Enter the device type that is provided in the connection ID.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

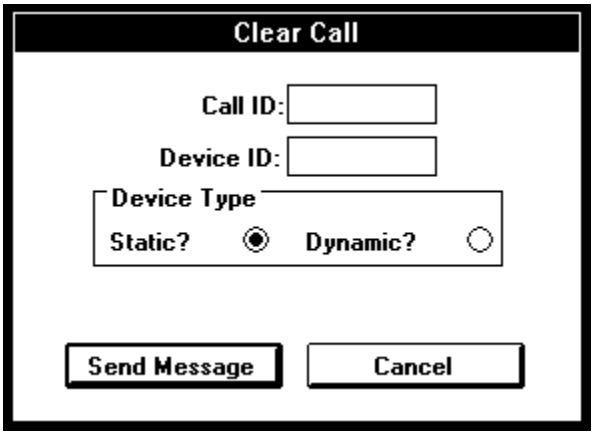
Clear Call

The following table describes key elements of the Clear Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaClearCall()	(not applicable)	No	Yes	Yes

This message disconnects all parties on an active call. In the Simulator, clearing a call that is in the service initiated state will clear that call and cause a new call to be initiated. To not initiate a new call, put the station on-hook. Clearing a call of two or more parties on the Simulator will leave all parties in the on-hook state.

Figure 4-6: Clear Call Dialog Box



- **Call ID:** — Enter the call ID of the call that is to be torn down. This is provided in the makecall confirmation or delivered or established events when the call is created.
- **Device ID:** — Enter the device ID from the connection ID that is being used to identify the call. This is an optional field for the Simulator and G3PD and will be ignored.
- **Device Type:** — Enter the device type of the device ID in the connection ID. This is an optional field for the Simulator and G3PD and will be ignored.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Clear Connection

The following table describes key elements of the Clear Connection function

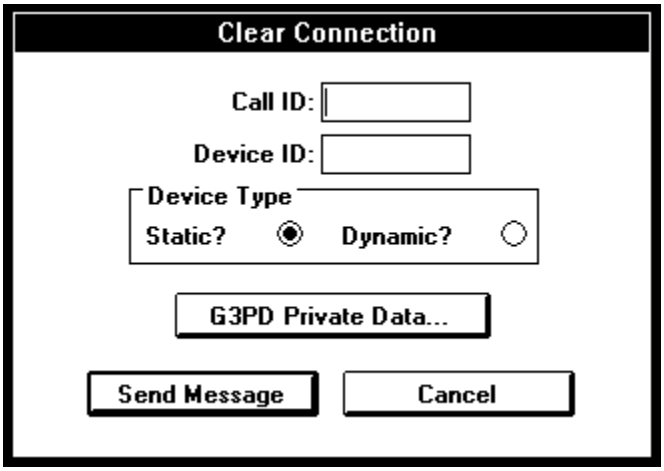
TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaClearConnection()	(not applicable)	Yes	Yes	Yes

This menu item enables the user to clear a specific connection on a call. For example, one party could be disconnected from an active call with three parties using clear connection. The two remaining parties would remain on the call. Note, if the call had only two parties, the clear connection would disconnect one and the remaining party would be disconnected since there are no other parties on the call. An alerting connection cannot be cleared by the Clear Connection request. Also, in the Simulator, clearing a connection of just one party in the service initiated state will cause the call to be cleared and a new call will be initiated. To not initiate a new call put the station on-hook.

The Clear Connection request also has the ability to add or to replace existing Connection Cleared User to User Information on a call. By specifying up to 96 bytes of data in the UUI field, the Clear Connection request will add the Connection Cleared UUI to the call, replacing any existing Connection Cleared UUI associated with the call. Subsequent clear connection events will contain the updated UUI.

The first dialog box appears upon selecting the **cstaClearConnection** item under the "Functions/Call Control Services" menu.

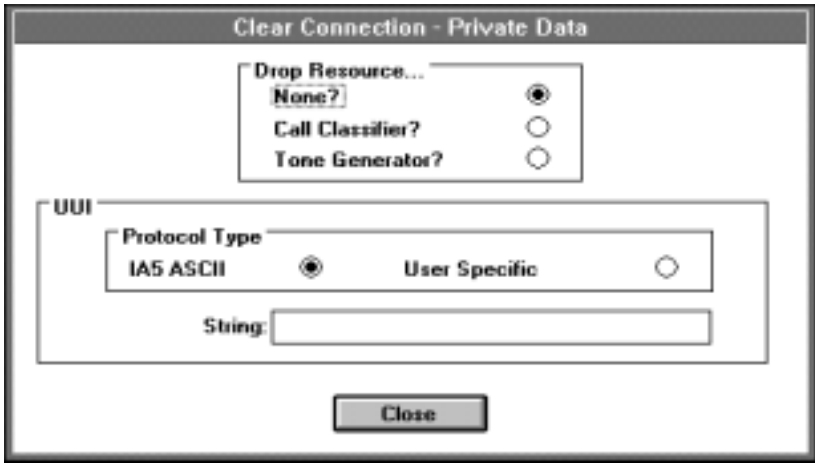
Figure 4-7: Clear Connection Dialog Box



- **Call ID:** — Enter the call ID of the affected call.
- **Device ID:**— Enter the extension of the device that is to be dropped. This device must be a party on the call indicated by the call ID.
- **Device ID Type** — Choose the device ID Type that corresponds to the connection ID that is being cleared. For the Simulator and G3PD this field should be specified as static for stations and ACD groups. It is dynamic for trunk members. The call ID/device ID connection should be what is provided in a delivered or an established event.
- **G3PD Private Data** — Selecting this button to open up a dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. Any information entered in the private data fields will be sent with the message if the Send Message button is selected.

The second dialog box appears when the **G3PD Private Data** button is selected.

Figure 4-8: Clear Connection Dialog Box — Private Data



- **Drop Resource** — Specifies the resource to be dropped from the call. The available resources are None (no resource to be dropped), Call Classifier and Tone Generator. The tone generator is any G3 PBX applied denial tone which is timed by the switch.
- **UUI** — Enter up to 96 bytes of User to User Information. If the Protocol Type Selected is IA5 ASCII, then the string must be entered in alphanumeric format. If the Protocol Type Selected is User Specific, then the string must be entered in hexadecimal format. This Connection Cleared UUI will then be associated with this call for the duration of the call or until it is replaced by other Connection Cleared UUI. It will be delivered with any clear connection event associated with the call. Connection Cleared UUI can only be changed via another clear connection request. It is separate from other types of UUI.

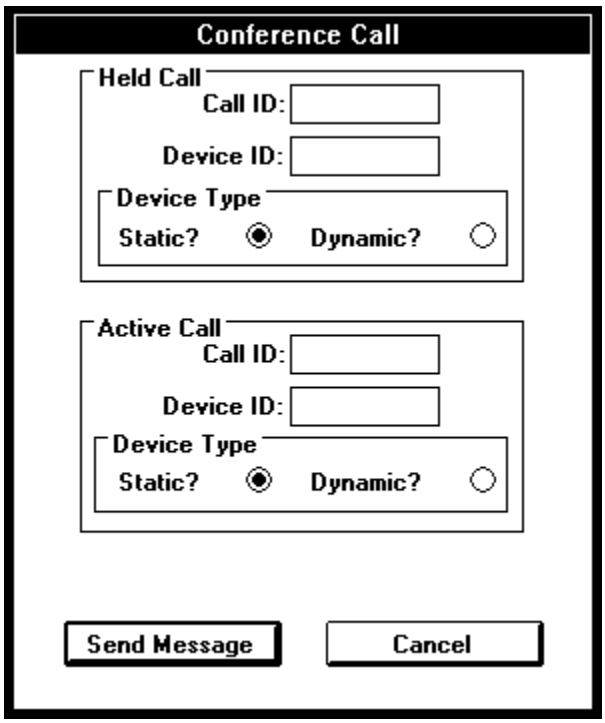
Conference Call

The following table describes key elements of the Conference Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaConferenceCall()	(not applicable)	No	Yes	Yes

This menu item enables the user to conference a held call with an active call. The Simulator creates a new call connecting all the parties on both the held call and the active call and assigns a new Call ID. Only 6 parties can be on the new call. The Simulator rejects any request for a conference that results in more than 6 parties.

Figure 4-9: Conference Call Dialog Box



If there is any UUI information associated with the calls that are being conferenced and if both calls have UUI, then the UUI from the active call will be associated with the new call. If only one call contains UUI then that UUI will be associated with the new call.

Note:

In the simulator, conferencing more than one instance of the same extension will give incorrect results, such as the same party being on the call more than once. The G3PD handles this scenario correctly.

- **Held Call ID:** — Enter the call ID of the call that has been placed on hold prior to this conference attempt.
- **Held Device ID:**— Enter the device ID of the device where the held call is located. For the G3PD and the Simulator this will be a station extension.
- **Held Device Type:** — Choose the device type of the held device ID. For the G3PD and Simulator this will always be static.
- **Active Call ID:** — Enter the call ID of the call that is active and is to be conferenced onto the held call.
- **Active Device ID:**— Enter the device ID of the device where the active call is located. It should be the same as the held device ID. For the G3PD and the Simulator this will be a station extension.

- **Active Device Type:** — Choose the device type of the active device ID. For the G3PD and Simulator this will always be static.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Consultation Call

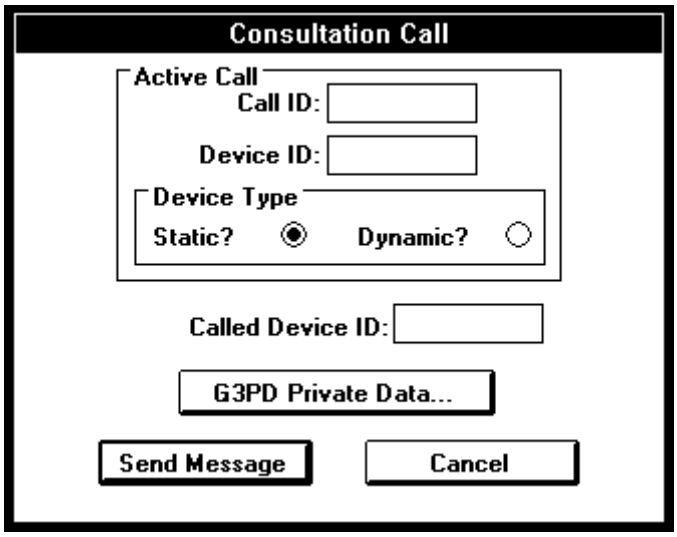
The following table describes key elements of the Consultation Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaConsultationCall()	(not applicable)	Yes	Yes	Yes

This menu item enables the user to provide the compound action of the Hold Call feature followed by the Make Call service. The Simulator will put the active call on hold and then create a new call from the same device to the called device provided that there is an available call appearance.

The first dialog box appears upon selecting the **cstaConsultationCall** item under the "Functions/Call Control Services" menu.

Figure 4-10: Consultation Call Dialog Box

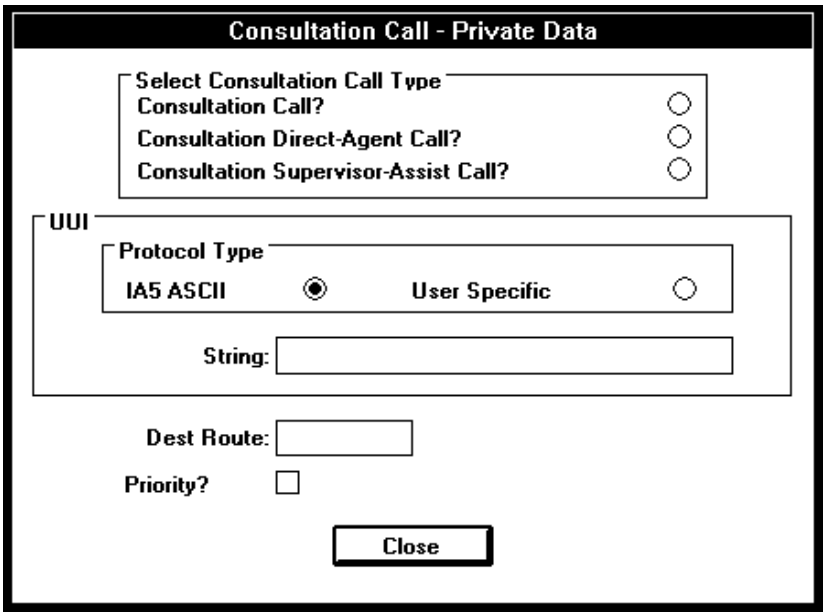


- **Call ID:** — Enter the call ID of the active call that is to be placed on hold.
- **Device ID:** — Enter the device ID of the device where the active call resides. For the G3PD and the Simulator this will be a station extension.

- **Device Type:** — Choose the device type of the device ID. For the G3PD and the Simulator this will always be static.
- **Called Device ID:** — This field contains the station extension number of the device that will be called as part of the Consultation Call service.
- **G3PD Private Data** — Select this button to open up a dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

The second dialog box appears when the **G3PD Private Data** button is selected.

Figure 4-11: Consultation Call Dialog Box — Private Data



- **Select Consultation Call Type** — Select the desired Consultation Call type from the available options. The G3PD supports all three types of calls, but the Simulator only supports a simple Consultation Call. All other calls will be ignored.
- **UUI:** — Select the type of protocol to be used. Enter up to 96 bytes of User to User Information in the String field. If the Protocol Type selected is IA5 ASCII, then the string must be entered in alphanumeric format. If the Protocol Type selected is User Specific, then the string must be entered in hexadecimal format This UUI will then be associated with this call for the duration of the call or until it is replaced by other UUI. It will be delivered with any delivered event or route request associated with the call. UUI can be changed via route selects, requests, or conference or transfers. This private data is supported by the Simulator.

- **Dest Route:** — This private data field specifies the TAC/ARS/AAR information for off-PBX destinations. This field is only supported by the G3PD and will be ignored by the Simulator.
- **Priority:** — This private data field specifies if the call is a priority call. If the box is checked, then a priority call is placed if the called device is an on-PBX destination. If the called device is an off-PBX destination, then the call will be denied. This field is only supported by the G3PD and will be ignored by the Simulator.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. Any information entered in the private data fields will be sent with the message if the Send Message button is selected.

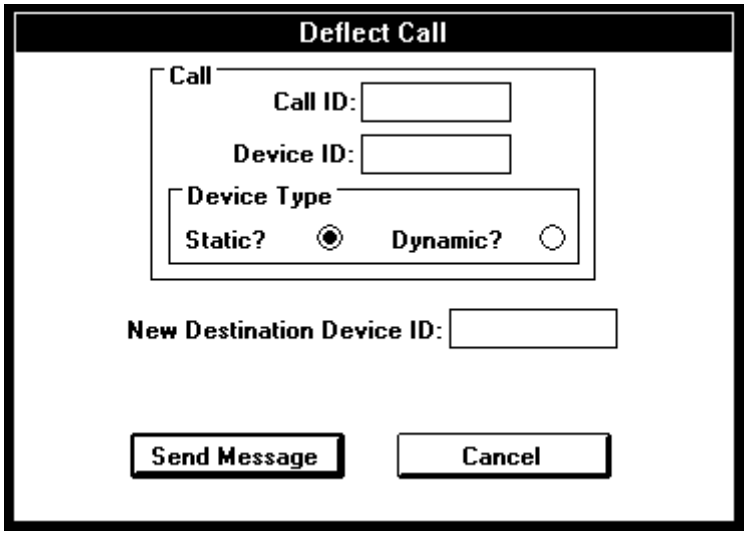
Deflect Call

The following table describes key elements of the Deflect Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaDeflectCall()	(not applicable)	No	Yes	Yes

This menu item enables the user to take an alerting call at a destination and move it to another device either on or off of the switch.

Figure 4-12: Deflect Call Dialog Box



- **Call ID:** — Enter the call ID that is to be deflected.
- **Device ID:** — Enter the device ID where the call is currently alerting. For the G3PD and the Simulator this will be a station extension.

- **Device Type:** — Choose the device type of the device ID. For the G3PD and the Simulator this will always be static.
- **New Destination Device ID:**— Enter the device ID where the call is to be deflected. For the G3PD and the Simulator this can either be an on-PBX or off-PBX number.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

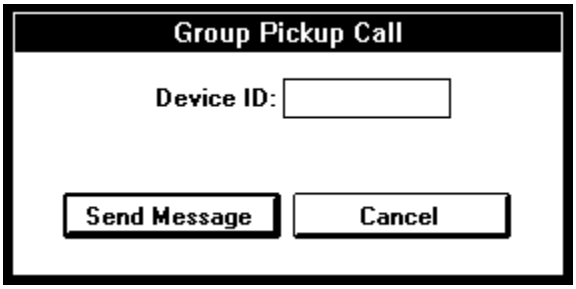
Group Pickup Cal

The following table describes key elements of the Group Pickup Call functionl

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaGroupPickupCall()	(not applicable)	No	No	No

This menu item enables the user to take a ringing (alerting) call at any device in a group of on-PBX devices and move the call to a device within the group.

Figure 4-13: Group Pickup Call Dialog Box



- **Device ID:** — Enter the device ID of the station within the group where the currently alerting call in the group is to be moved to.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

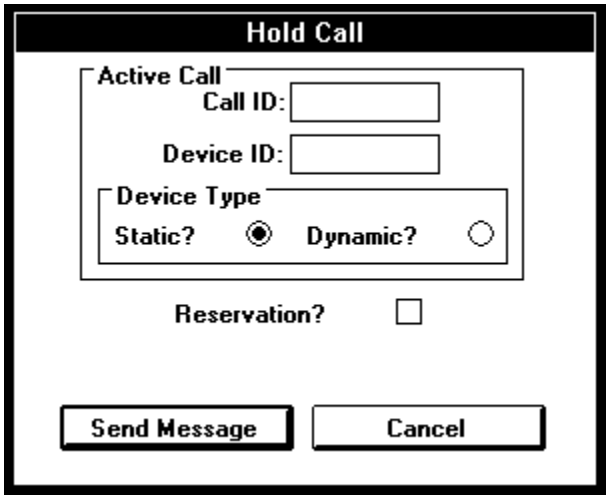
Hold Call

The following table describes key elements of the Hold Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaHoldCall()	(not applicable)	No	Yes	Yes

This menu item enables the user to place an active call at a particular on-PBX device on hold.

Figure 4-14: Hold Call Dialog Box



- **Call ID:**— Enter the call ID of the call that is to be put on hold.
- **Device ID:** — Enter the device ID where the call to be put on hold is currently located. For the G3PD and the Simulator this will be a station extension.
- **Device Type:** — Choose the device type of the device ID. For the G3PD and the Simulator this will always be static.
- **Reservation?** — Checking this box will specify whether to reserve the facility for reuse by the held call. The G3PD and Simulator do not support this feature and will ignore the parameter. The value defaults to On.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Make Call

The following table describes key elements of the Make Call function

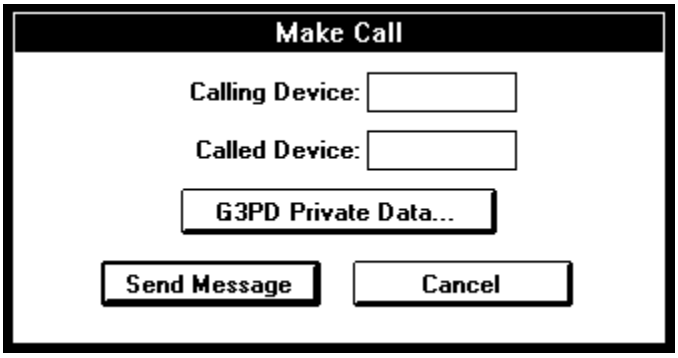
TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaMakeCall()	(not applicable)	Yes	Yes	Yes

This menu item enables the user to initiate a call from one device to another device. The calling device must be an on-PBX extension and for the Simulator it must either have a speakerphone that can be forced off-hook or it must already be off-hook. Also with the

G3PD or Simulator the user also has the option to include up to 32 bytes of alphanumeric data to be included with the call that will be delivered in various call event reports and requests.

The first dialog box appears upon selecting the cstaMakeCall item under the "Functions/Call Control Services" menu.

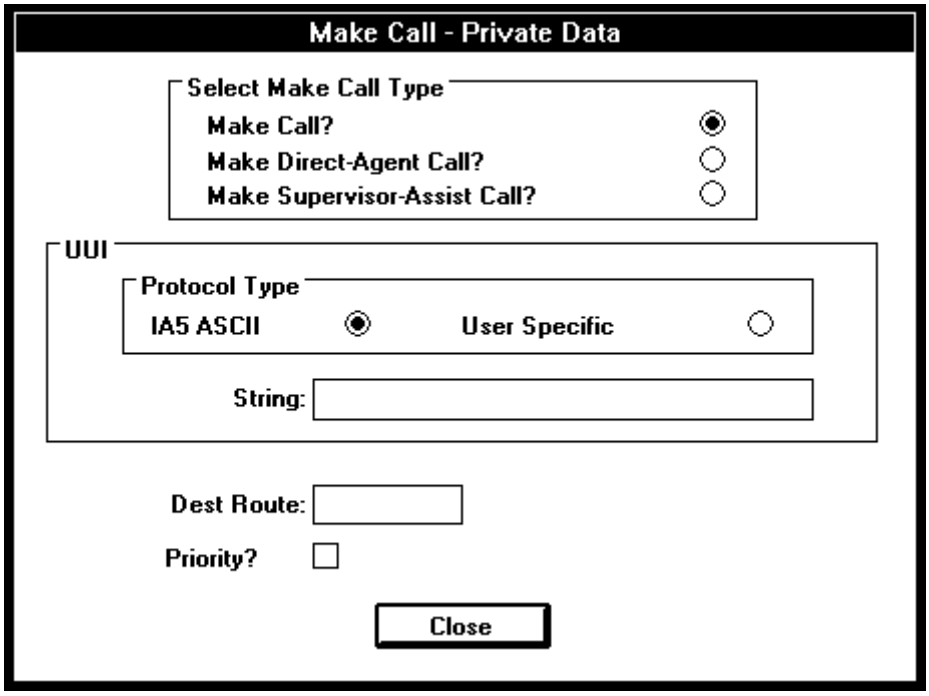
Figure 4-15: Make Call Dialog Box



- **Calling Device:** — Enter the extension of the calling party. This must be the extension of an on-PBX station.
- **Called Device:** — In Simulator mode this field is either the extension of the station or ACD group that is being called or a TAC and any number. In exerciser mode this is any number that can be dialed by an on-PBX telephone; a station, ACD group or complete number that goes off-PBX.
- **G3PD Private Data** — Selecting this button to open up a dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation

The second dialog box appears when the **G3PD Private Data** button is selected.

Figure 4-16: Make Call Dialog Box — Private Data



- **Select Make Call Type:** — Select the type of call to be placed. The G3PD supports all three types of calls, but the Simulator DLL only supports a simple Make Call and all other types will be handled as a regular make call.
- **UUI:** — Enter up to 96 bytes of User to User Information in the String field. If the Protocol Type Selected is IA5 ASCII, then the string must be entered in alphanumeric format. If the Protocol Type Selected is User Specific, then the string must be entered in hexadecimal format This UUI will then be associated with this call for the duration of the call or until it is replaced by other UUI. It will be delivered with any delivered event or route request associated with the call. UUI can be changed via route selects, requests, or conference or transfers.
- **Dest Route:** — This private data field specifies the TAC/ARS/AAR information for off-PBX destinations. This field is only supported by the G3PD and will be ignored by the Simulator.
- **Priority?** — This private data field specifies if the call is a priority call. If the box is checked, then a priority call is placed if the called device is an on-PBX destination. If the called device is an off-PBX destination, then the call will be denied. This field is only supported by the G3PD and will be ignored by the Simulator.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. Any information entered in the private data fields will be sent with the message if the Send Message button is selected.

Make Predictive Call

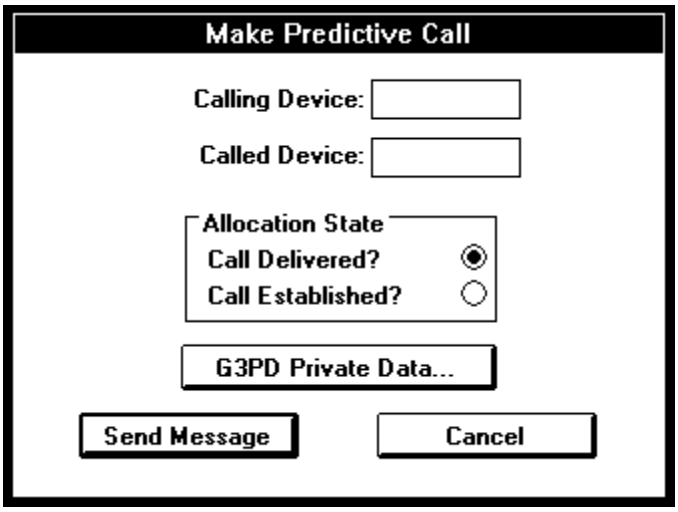
The following table describes key elements of the Make Predictive Call function.l

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaMakePredictiveCall()	(not applicable)	Yes	Yes	Yes

This menu item enables the user to originate a Switch-Classified call between two devices. The service attempts to create a new call and establish a Connection with the terminating (called) device first. The Make Predictive Call service also provides a CSTA Connection Identifier that indicates the Connection of the terminating device. The call will be dropped if the call is not answered after the maximum ring cycle is expired. For the Simulator this means that the user is able to place a call from an ACD to another device (normally an off-PBX number), but it establishes the destination connection at the far end before the call is established to an agent in the ACD group. The user also has the option to include up to 32 bytes of alphanumeric data to be included with the call that will be delivered in various call event reports and requests.

The first dialog box appears upon selecting the **cstaMakePredictiveCall** item under the "Functions/Call Control Services" menu.

Figure 4-17: Make Predictive Call Dialog Box

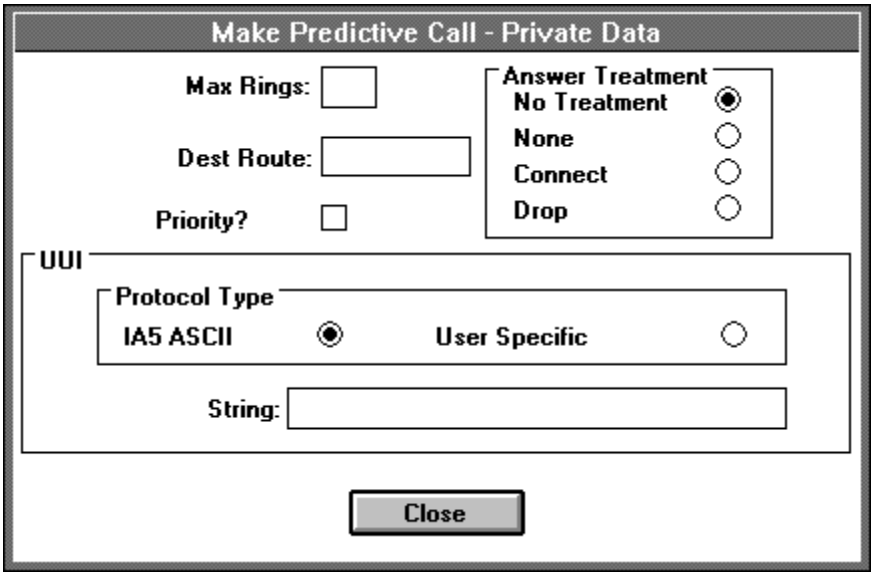


- **Calling Device:** — This is an on-PBX number where the call will terminate upon establishment at the called device. For the Simulator this must be an administered ACD.
- **Called Device:** — This must be a valid on-PBX extension or off-PBX number. The Simulator will only support an off-PBX number for the called device.

- **Allocation State:** — Choose the condition when the call should attempt to connect to the caller. The G3PD and Simulator only support Call Established.
- **G3PD Private Data** — Selecting this button to open up a dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation

The second dialog box appears when the **G3PD Private Data** button is selected.

Figure 4-18: Make Predictive Call Dialog Box — Private Data



- **Max Rings:** — This field allows the user to specify how many rings the Simulator/switch should wait before classifying the call as unanswered and dropping the call. For the Simulator this will be translated to a specified amount of time since there is not a physical phone to ring. The device being called must answer the call before this time period expires for the call to continue. This field is supported by both the G3PD and the Simulator.
- **Dest Route:** — This private data field specifies the TAC/ARS/AAR information for off-PBX destinations. This field is only supported by the G3PD and will be ignored by the Simulator.
- **Answer Treatment:** — Answer treatment refers to how the call will be handled if an answering machine is detected at the far end.

  If the Answer Detect box is checked, then the user must select No Treatment, None, Connect, or Drop for the treatment of the call.

If drop is selected, then the call will be dropped once the Simulator/switch has detected the answering machine. If connect is selected, then the call will be connected and the make predictive call will proceed as normal. None indicates the treatment will follow the switch answering machine detection administration, while No Treatment indicates that no answering machine treatment is specified.

For the Simulator, trunk groups will be administered as either being answered by voice or by answering machine. This will allow the Simulator to classify the call appropriately when Answering Machine Detection is selected for a make predictive call.

- **Priority?** — Checking this box specifies that a priority call should be placed. A priority call can only be placed for an on-PBX extension. This field is only supported by the G3PD, and not by the Simulator.
- **UUI:** — Enter up to 96 bytes of User to User Information in the String field. If the Protocol Type Selected is IA5 ASCII, then the string must be entered in alphanumeric format. If the Protocol Type Selected is User Specific, then the string must be entered in hexadecimal format. This UUI will then be associated with this call for the duration of the call or until it is replaced by other UUI. It will be delivered with any delivered event or route request associated with the call. UUI can be changed via route selects, requests, or conference or transfers. This field is supported by both the G3PD and the Simulator.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. Any information entered in the private data fields will be sent with the message if the Send Message button is selected.

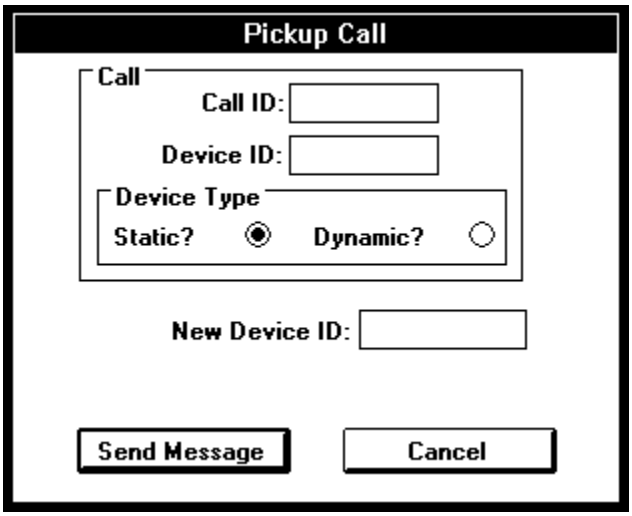
Pickup Call

The following table describes key elements of the Pickup Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaPickupCall()	(not applicable)	No	Yes	Yes

This menu item enables the user to take a ringing (alerting) call at an on-PBX destination and move the call to the invoking device specified which must also be an on-PBX destination.

Figure 4-19: Pickup Call Dialog



- **Call ID:** — Enter the call ID of the connection that is to be picked up.
- **Device ID:** — Enter the device ID of the device where the call is currently alerting. Note: The Simulator cannot perform a Pickup Call at a VDN; the G3PD can.
- **Device Type:** — Choose the device type of the device ID in the connection that is currently alerting. For the G3PD and the Simulator this will always be static.
- **New Device ID:** — Enter the static device ID of the device which is picking up the original call.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

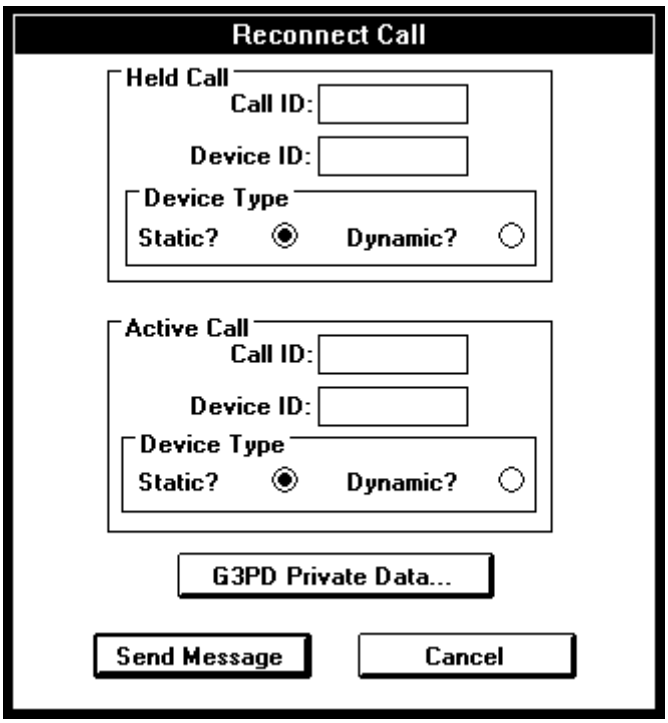
Reconnect Call

The following table describes key elements of the Reconnect Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaReconnectCall()	(not applicable)	Yes	Yes	Yes

This menu item enables the user to perform the compound action of clearing an existing connection and retrieving a previously held call.

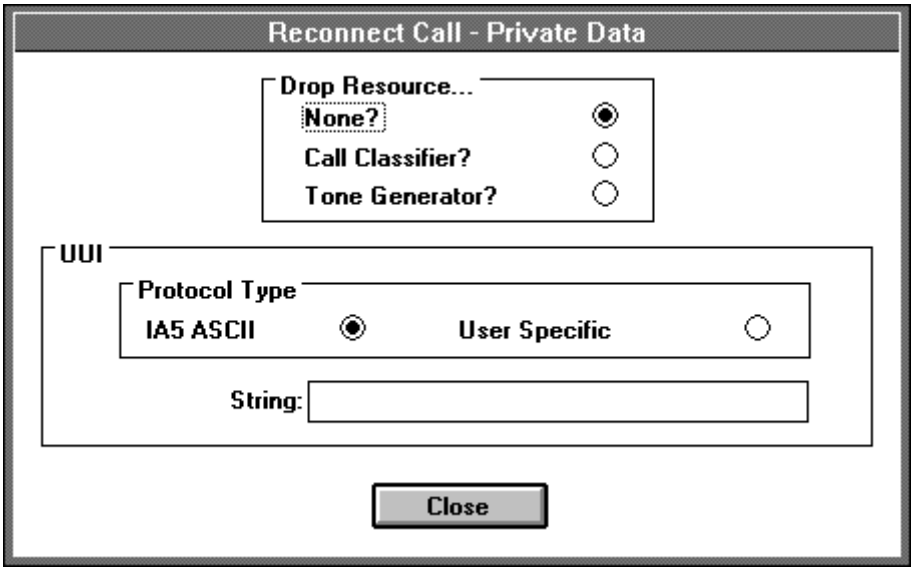
Figure 4-20: Reconnect Call Dialog Box



- **Active Call ID:** — Enter the call ID of the connection that is to be dropped.
- **Active Device ID:** — Enter the device ID of the device where the active call is located.
- **Active Device Type:**— Choose the device type of the device ID for the active connection. For the G3PD and the Simulator this will always be static.
- **Held Call ID:** — Enter the call ID of the connection that is on hold.
- **Held Device ID:** — Enter the device ID of the device where the held call is located. This should be the same as the Active Device ID.
- **Held Device Type:** — Choose the device type of the device ID for the held connection. For the G3PD and the Simulator this will always be static.
- **G3PD Private Data** — Select this button to open up a dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

The second dialog box appears when the **G3PD Private Data** button is selected.

Figure 4-21: Reconnect Call Dialog Box — Private Data



- **Drop Resource** — Specifies the resource to be dropped from the call. The available resources are None (no resource to be dropped), Call Classifier and Tone Generator. The tone generator is any G3 PBX applied denial tone which is timed by the switch. This field is ignored by the Simulator.
- **UUI:** — Enter up to 96 bytes of User to User Information in the String field. If the Protocol Type Selected is IA5 ASCII, then the string must be entered in alphanumeric format. If the Protocol Type Selected is User Specific, then the string must be entered in hexadecimal format. This UUI will then be associated with this call for the duration of the call or until it is replaced by other UUI. It will be delivered with any delivered event or route request associated with the call. UUI can be changed via route selects, requests, or conferences or transfers.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. Any information entered in the private data fields will be sent with the message if the Send Message button is selected.

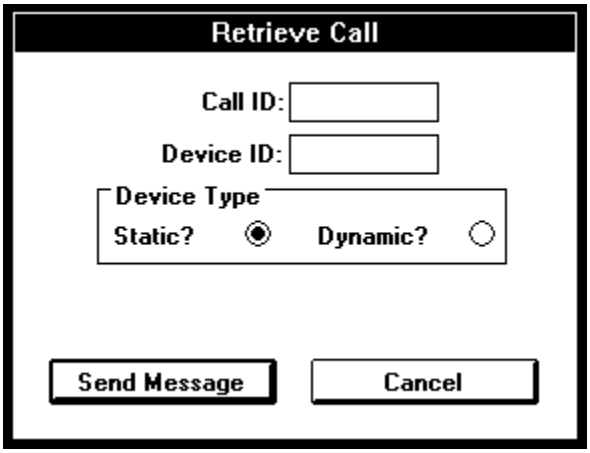
Retrieve Call

The following table describes key elements of the Retrieve Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaRetrieveCall()	(not applicable)	No	Yes	Yes

This menu item enables the user to take a call off hold.

Figure 4-22: Retrieve Call Dialog Box



- **Call ID:** — Enter the call ID of the connection that is on hold.
- **Device ID:** — Enter the device ID of the device where the held call is located.
- **Device Type:** — Choose the device type of the device ID for the held connection. For the G3PD and the Simulator this will always be static.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

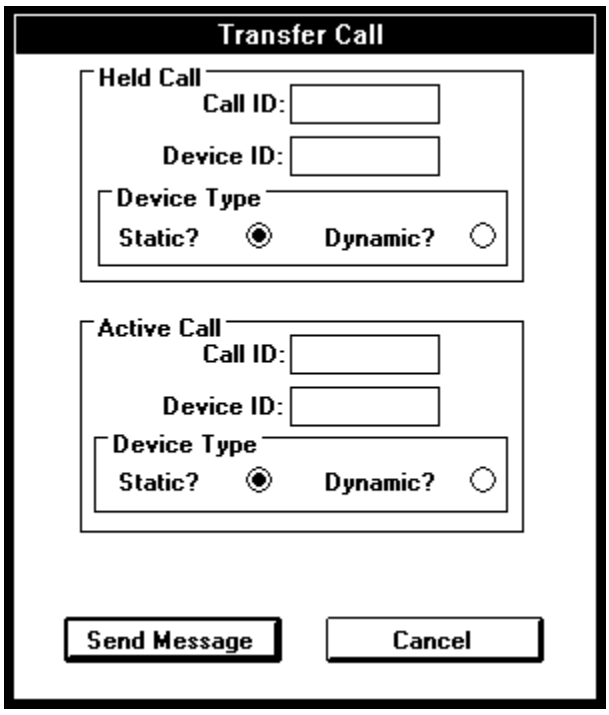
Transfer Call

The following table describes key elements of the Transfer Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaTransferCall()	(not applicable)	No	Yes	Yes

Choosing this menu item enables the user to transfer a held connection to an active connection at the same station. A new call ID is assigned to the call by the Simulator. If there is any UUI information associated with the calls that are being transferred then if both calls have UUI then the UUI from the active call will be associated with the new call. If only one call contains UUI, then that UUI will be associated with the new call.

Figure 4-23: Transfer Call Dialog Box



Note:

In the simulator, transferring more than one instance of the same extension will give incorrect results, such as the same party being on the call more than once. The G3PD handles this scenario correctly.

- **Active Call ID:** — Enter the call ID of the connection that is to be transferred.
- **Active Device ID:** — Enter the device ID of the device where the active call is located.
- **Active Device Type:** — Choose the device type of the device ID for the active connection. For the G3PD and the Simulator this will always be static.
- **Held Call ID:** — Enter the call ID of the connection that is on hold.
- **Held Device ID:** — Enter the device ID of the device where the held call is located. This should be the same as the Active Device ID.
- **Held Device Type:** — Choose the device type of the device ID for the held connection. For the G3PD and the Simulator this will always be static.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

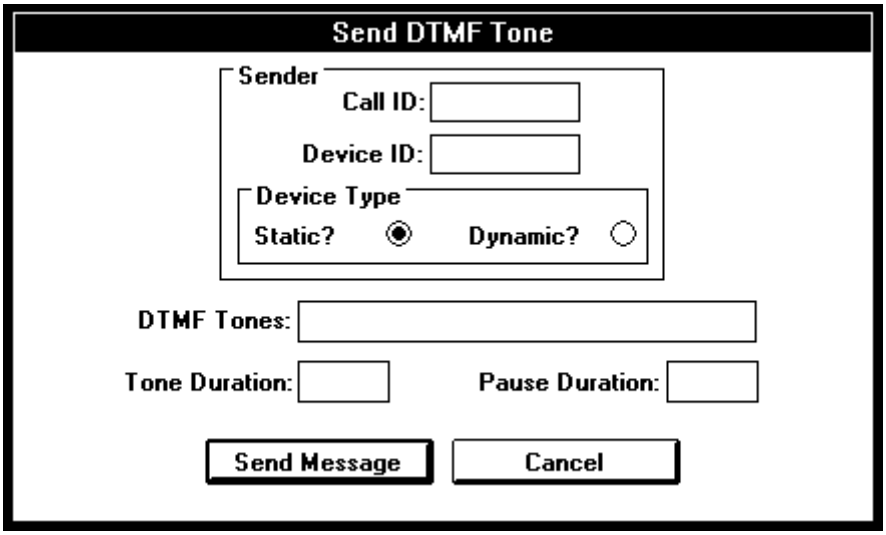
Send DTMF Tone

The following table describes key elements of the Send DTMF function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attSendDTMFTone( )	All	Yes	Yes

The Send DTMF Tone Service, on behalf of an on-PBX endpoint, sends a sequence of DTMF tones (max 32) to endpoints on the call. The endpoints receiving the DTMF signal can be on-PBX or off-PBX. In order to send the DTMF tones, the call must be in an established state. The Simulator only does verification of the connection ID and sends back a confirmation event.

Figure 4-24: Send DTMF Tone Dialog Box



- **Sender Call ID:** — Enter the call ID of the connection that denotes the sender of the DTMF Tones.
- **Sender Device ID:** — Enter the device ID of the sender of the tones.
- **Sender Device Type:** — This should always be static since this is only supported by the G3PD and it must originate from an on-PBX extension.
- **DTMF Tones:** — Enter the sequence of tones that is to be generated. The allowed DTMF tones are digits 0-9 and # and *.
- **Tone Duration:** — This parameter specifies control for tone duration. It is currently not supported by the G3PD, but is reserved for latter use. Any values put in this field will be ignored.

- **Pause Duration:** — This parameter specifies control for pause duration. It is currently not supported by the G3PD, but is reserved for latter use. Any values put in this field will be ignored.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Single Step Conference Call

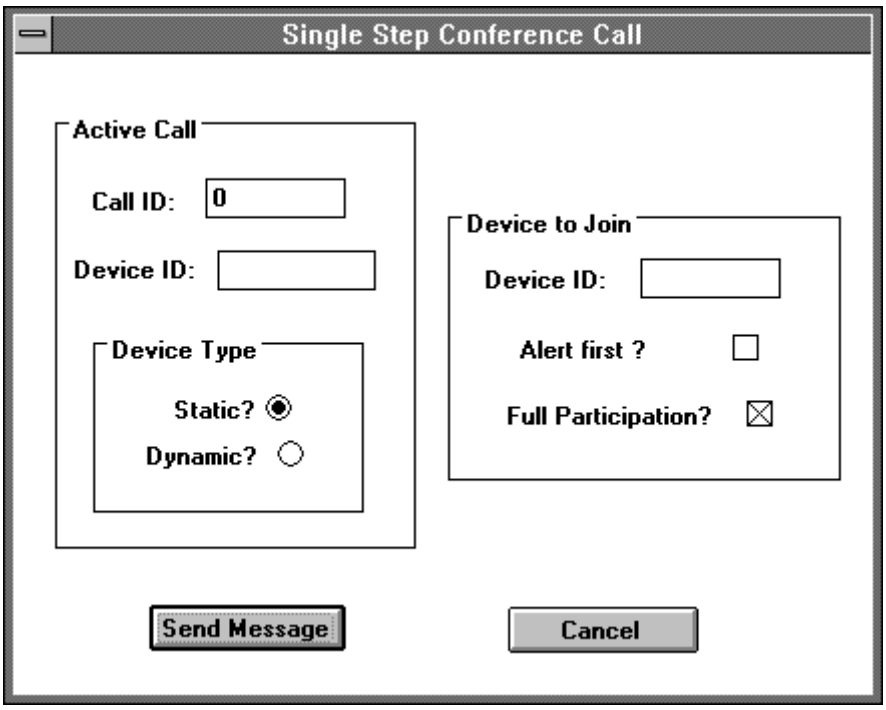
The following table describes key elements of the Single Step Conference Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attSingleStepConferenceCall()	All	Yes	Yes

This feature allows the application to add a device into an existing call for the purpose of playing announcements or facilitating application-initiated transfer and conferences. This is accomplished with a single request, without the need for a local device to be connected in any call, and without the need for a common party.

The regular conference call request requires that a common party be associated with the two calls. Then a sequence of "third-party hold," "third-party make call," and "third-party merge" is used to establish the final conference call. The resultant call will be a new call. In the single step conference request, since it should be the same call, the call ID of the connected single step conference call will be the same as the original call.

Figure 4-25: Single Step Conference Call Dialog Box



- **Active Call ID:** — Enter the call ID of the existing call.
- **Active Call Device ID:** — Enter the device ID of the existing call.
- **Active Device Type:** — This should always be static since this is only supported by the G3PD and it must originate from an on-PBX extension.
- **Device to Join Device ID:** — Enter the device identification of the device to join into an existing call.
- **Alert First** — This allows the user to have the option of alerting the device that will be joining the conference before the device is actually conferenced into the call. The default value is to not alert the device first. (This field is not yet supported in the G3PD or the Simulator.)
- **Full Participation** — This specifies whether the device to join into an existing call will have both the listening and talking path connected or just the listening path.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Selective Listening Hold

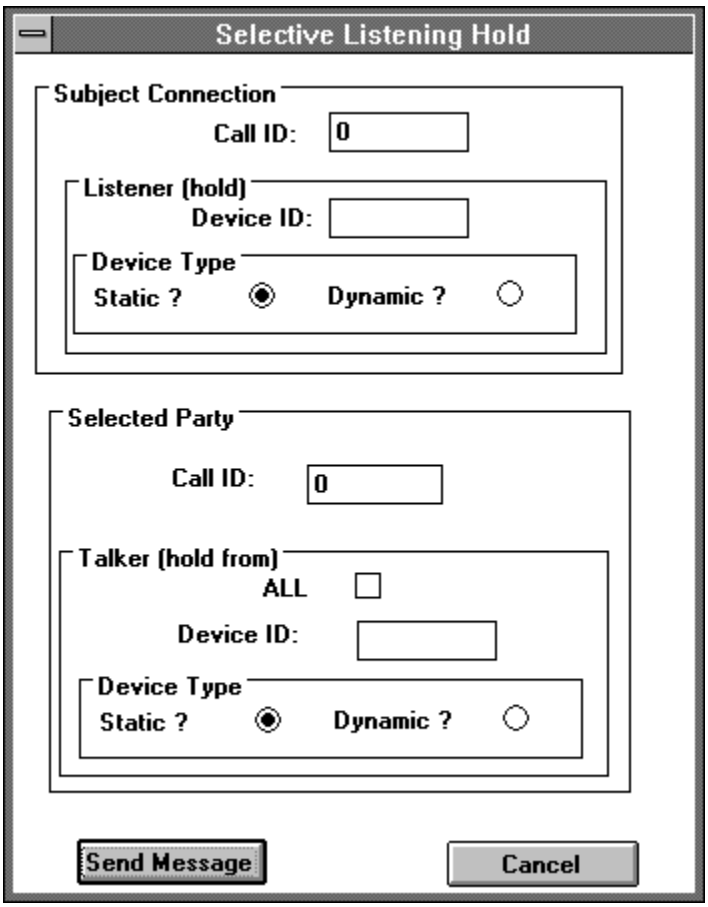
The following table describes key elements of the Selective Listening Hold function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attSelectiveListeningHold()	All	Yes	Yes

Selective Listening allows one party's listen path to be connected or disconnected to one or all parties on a particular call. This feature is used for sending DTMF tones, speech, or any other kind of in-band signals. After the communication is completed, the application can restore the disconnected listen path.

The Selective Listening Hold service allows a client to prevent a party from listening to another party or all other parties on an active call. The party to be held can be a station or a trunk. When a party is in the listening hold state, it will no longer be able to listen to the party from which the listening path is held. A party that has been listen-held may continue to talk and be heard by other parties on the call since this service does not affect the talking or listening path of any other party. This service will also allow the listen-held party to be retrieved (to again hear the other party or parties on the call).

Figure 4-26: Selective Listening Hold Dialog Box



- **Subject Connection Call ID:** — Enter the call ID of the listener.
- **Listener (Hold) Device ID:** — Enter the device ID of the listener.
- **Listener Device Type:** — This should always be static since this is only supported by the G3PD and it must originate from an on-PBX extension.
- **Selected Party Call ID:** — Enter the call ID of the talker. Talkers can be all other devices on the call.
- **Talker (hold from) ALL** — If the talkers are all other devices on the call, **check this box.**
- **Talker (hold from) Device ID** — If only one talker is on the call, enter a specific device ID in the talker's device ID field. This indicates to the function which listening path to disconnect.
- **Talker Device Type** — This should always be static since this is only supported by the G3PD and it must originate from an on-PBX extension.

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Selective Listening Retrieve

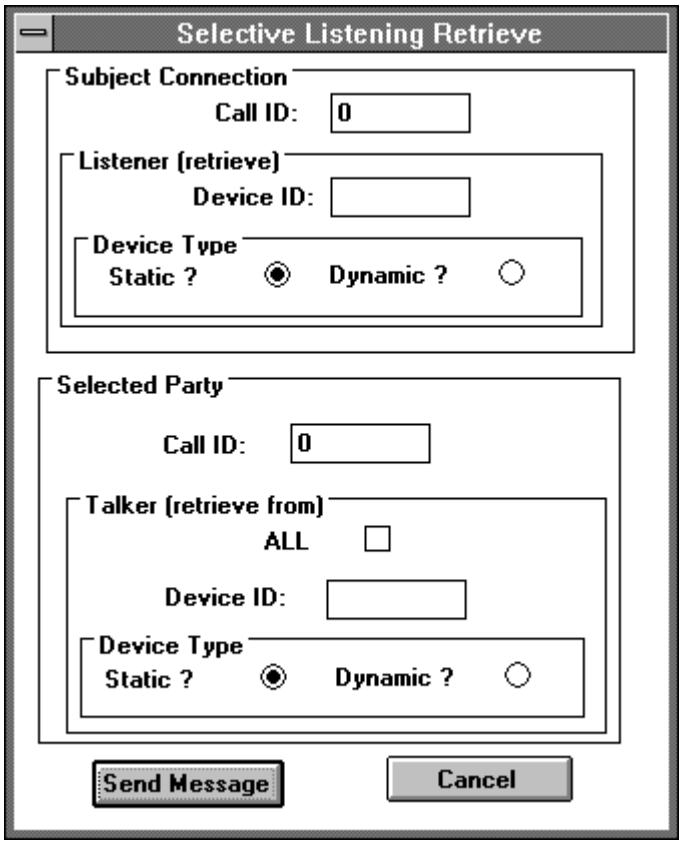
The following table describes key elements of the Selective Listening Retrieve function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attSelectiveListeningRetrieve()	All	Yes	Yes

Selective Listening allows one party's listen path to be connected or disconnected to one or all parties on a particular call. This feature is used for sending DTMF tones, speech, or any other kind of in-band signals. After the communication is completed, the application can restore the disconnected listen path.

The Selective Listening Retrieve service allows a client to retrieve a party that was listening held. Once a party has been retrieved, the listening path will be reconnected and the listener will be able to hear the speakers.

Figure 4-27: Selective Listening Retrieve Dialog Box



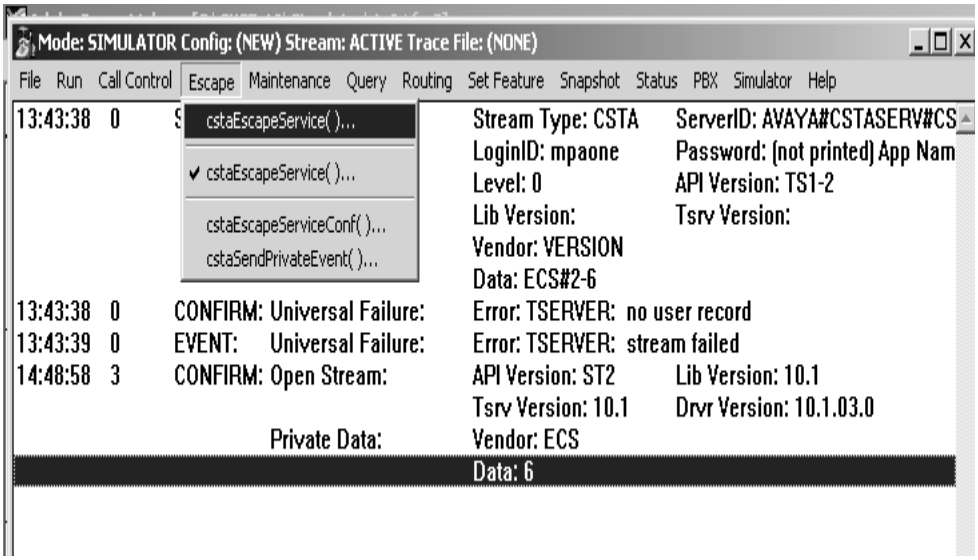
- **Subject Connection Call ID:** — Enter the call ID of the listener.
- **Listener (Hold) Device ID:** — Enter the device ID of the listener.
- **Listener Device Type:** — This should always be static since this is only supported by the G3PD and it must originate from an on-PBX extension.
- **Selected Party Call ID:** — Enter the call ID of the talker. Talkers can be all other devices on the call.
- **Talker (retrieve from) ALL** — If the talkers are all other devices on the call, check this box.
- **Talker (retrieve from) Device ID** — If only one talker is on the call, enter a specific device ID in the talker's device ID field. This indicates to the function which listening path to reconnect.
- **Talker Device Type** — This should always be static since this is only supported by the G3PD and it must originate from an on-PBX extension.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Functions - Escape Services

The Escape Services enable the Simulator to handle DEFINITY ASAI features that use private data and private services. In a manner similar to that used by the DEFINITY PBX Driver, the Simulator software formats the private elements, mimics the passing of these elements to and from the "PBX", and maintains status information on state transitions resulting from the use of private elements. The Simulator supports the following Escape Services:

- Split Status, and Agent Login Queries
- Collected (Call Prompter) Digits (Delivered Event)
- User to User Info
- Query Trunk Group
- Query Station Status
- Query Classifiers
- Query Time-of-Day
- Query Device Name
- Send DTMF Tones
- Monitor Stop on Call

Figure 4-28: The Escape Services Menu

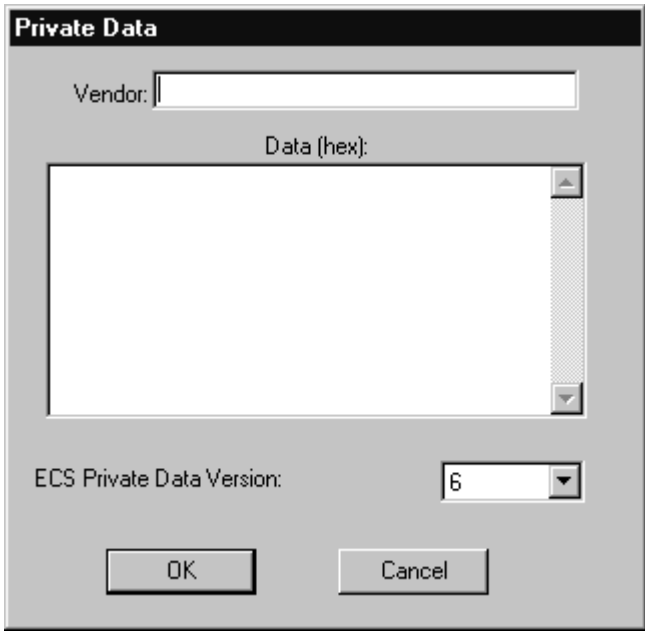


Escape Service

Use the following procedures only if you want to add private data that is invalid or for other PBXs. Interfaces are provided for all DEFINITY private data.

Select "**Run/Private Data**" on the main menu. The "**Private Data**" screen is displayed:

Figure 4-29: Private Data Dialog Box



- **Vendor** — Enter the authorized vendor character string.
- **Data (hex)** — In hexadecimal format, enter the private data to be sent to acsOpenStream.
- **ECS Private Data Version** — This field allows the user to specify which ECS Private Data Version to request for the acsOpenStream. The default version sent with acsOpenStream is private data version 6.
- **OK** — Choosing this field ends the session and saves the data in memory.
- **Cancel** — Choosing this field ends the screen session and does not save the data.

Under the "Functions" item on the main menu, select "Escape Services" and the desired service.

If you select **cstaEscapeService()** from the submenu, the "Escape Service" dialog box is displayed:

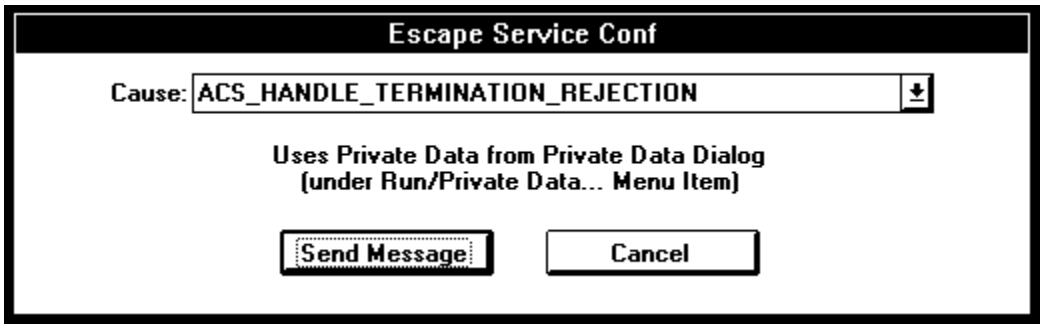
Figure 4-30: Escape Service Dialog Box — Private Data

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Escape Service Confirmation

This confirmation event, which is not supported by either the DEFINITY G3 PBX Driver or the Simulator, is used when a PBX Driver sends an Escape Service request to the Simulator Admin tool.

Figure 4-31: Escape Service Confirmation Dialog Box



- **Cause** — Select the desired type of confirmation message from the available choices in the scrollable box.
- **Send Message** — Choosing this field ends the session and saves the data in memory.
- **Cancel** — Choosing this field ends the screen session and does not save the data.

Send Private Event

This event is used to send a private event to a PBX Driver. There are no private events defined for the DEFINITY G3 PBX Driver or the Simulator. Thus, any private events sent will be rejected.

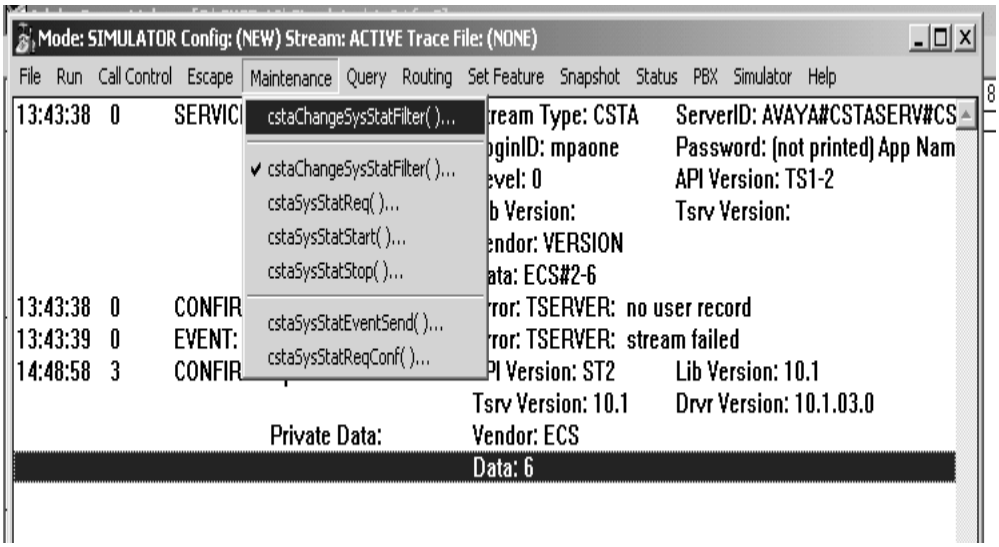
Figure 4-32: Send Private Event Dialog Box

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Functions - Maintenance Services

The Maintenance Services enable the user to set certain status reporting mechanisms and to specify filters to be used when events are reported.

Figure 4-33: The Maintenance Services Menu



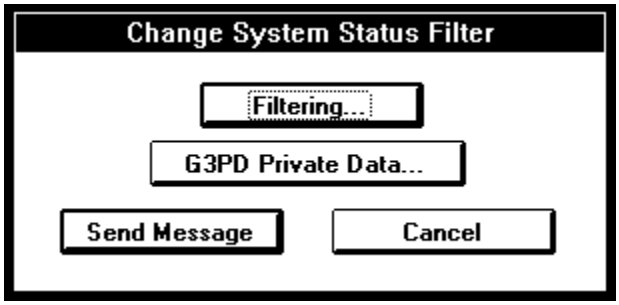
Change System Status Filter

The following table describes key elements of the Change System Status Filter function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaChangeSysStatFilter()	(not applicable)	Yes	Yes	No

This function is used to request a change in the filter options for automatic System Status event reporting for a specific ACS Stream. It allows the application to specify which System Status events it requires.

Figure 4-34: Change System Status Filter Dialog Box



- **Filtering** — Selecting this button will cause the System Status Filtering dialog box to be displayed that will allow you to Select the desired filter. See "System Status Filtering" section below.
- **G3PD Private Data** — Selecting this button will cause the Change System Status — Filter — Private Data dialog box to be displayed that will allow you to indicate via a checkbox whether the link status should be provided.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

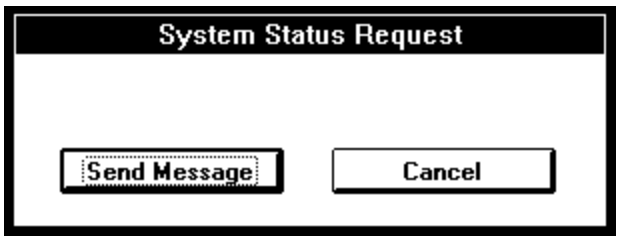
System Status Request

The following table describes key elements of the System Status Request function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSysStatReq()	(not applicable)	No	Yes	No

This service allows the user to request system status information from the driver/switch domain.

Figure 4-35: System Status Request Dialog Box



- **Send Message** — Choosing this field sends the message.

- **Cancel** — Choosing this field voids the operation.

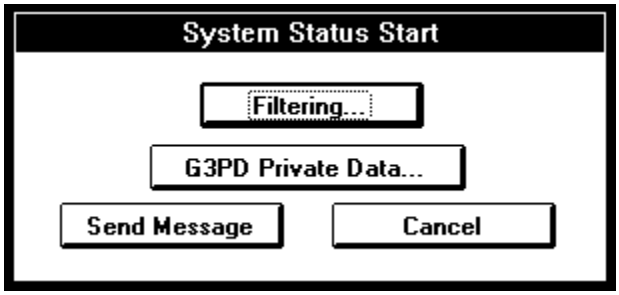
System Status Start

The following table describes key elements of the System Status Start function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSysStatStart()	(not applicable)	Yes	Yes	No

This service allows the user to register for system status event reporting. It can be used by an application to automatically receive a CSTASysStatEvent each time the status of the driver/switch changes.

Figure 4-36: System Status Start Dialog Box



- **Filtering** — Selecting this button will cause the "System Status Filtering" dialog box to appear that will allow for the selection of the desired filter. See "System Status Filtering" section below.
- **3PD Private Data** — Selecting this button will cause the "System Status Start — Private Data" dialog box (see System Status Start) to appear that will allow you to indicate whether the link status should be sent.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.
- **Link Status?** — Checking this checkbox indicates that the PBX Driver should notify the user of changes in link status.
- **Close** — Choosing this field closes the dialog box and returns the user to the previous dialog box. Any information entered in the private data fields will be sent with the message if the Send Message button is selected.

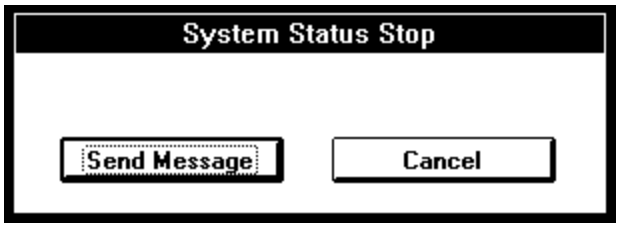
System Status Stop

The following table describes key elements of the System Status Stop function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSysStatStop()	(not applicable)	No	Yes	No

This service is used to cancel a previously registered monitor for system status information.

Figure 4-37: System Status Stop Dialog Box



- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

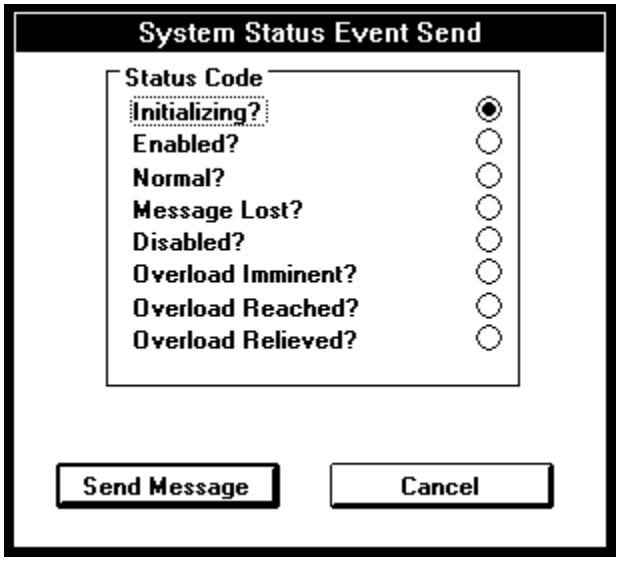
System Status Event Send

The following table describes key elements of the System Status Event Send function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSysStatEventSend()	(not applicable)	No	No	No

This service is used to send application system status information in the form of an unsolicited event to the driver/switch without a formal request for the information. This status information can be sent at any time.

Figure 4-38: System Status Event Send Dialog Box



- **Status Code** — A list of the possible Status Codes to send for the System Status Event.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

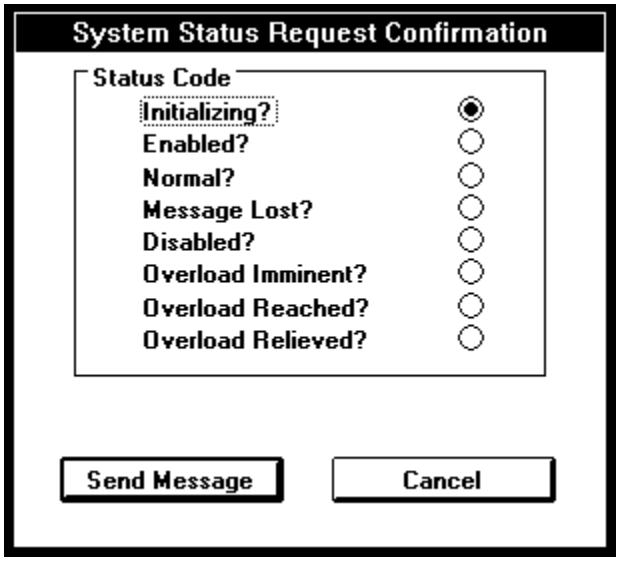
System Status Request Confirmation

The following table describes key elements of the System Status Request Confirmation function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSysStatReqConf()	(not applicable)	No	No	No

This service is used to respond to a CSTASysStatReqEvent unsolicited event from the driver/switch. It provides the driver/switch with information regarding the status of the application.

Figure 4-39: System Status Request Confirmation Dialog Box

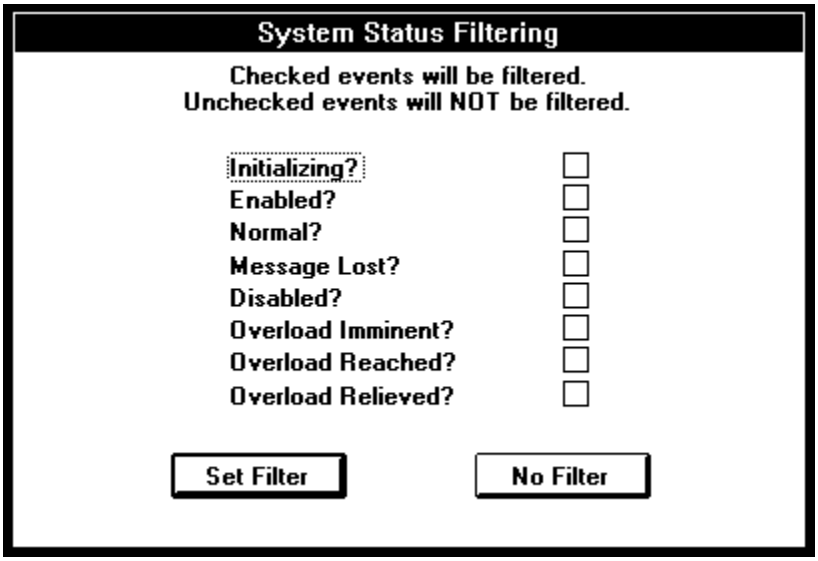


- **Status Code** — A list of the possible Status Codes to send for the System Status Request Confirmation.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

System Status Filtering

If the Filtering button is selected in any of the previous System Status dialog boxes, then the following dialog box will appear and allow you to select the event types you want to be filtered out. In other words, you should mark any check boxes corresponding to the events you do not wish to receive during a system status session.

Figure 4-40: System Status Filtering Dialog Box

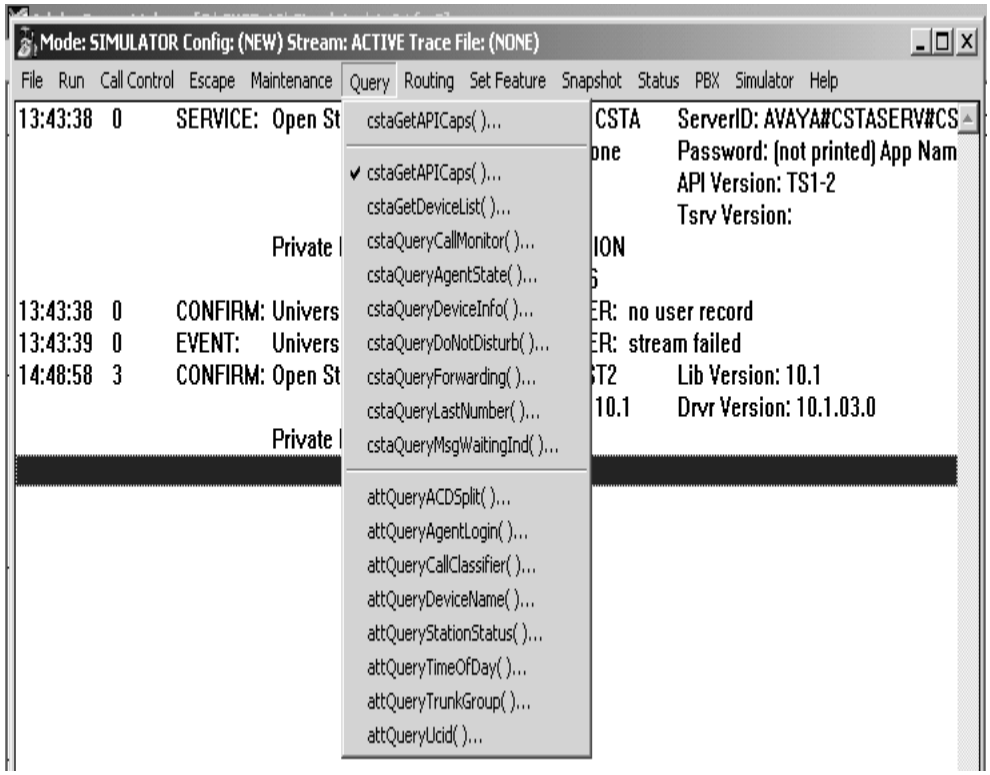


- **Set Filter** — Choosing this field records the filtering information.
- **No Filter** — Choosing this field voids the operation.

Functions - Query Services

The Query Services enable a client application to request that the Simulator/Switch provide the state of device features and static attributes of a device.

Figure 4-41: The Query Services Menu



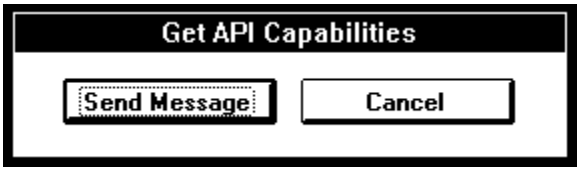
Get API Capabilities

The following table describes key elements of the Get API Capabilities function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaGetAPICaps()	(not applicable)	No	Yes	Yes

This function is used by an application to obtain the CSTA API function and event capabilities which are supported by the driver to which the stream is opened. If a capability is supported, then any corresponding confirmation event is also supported.

Figure 4-42: Get API Capabilities Dialog Box



- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Get Device List

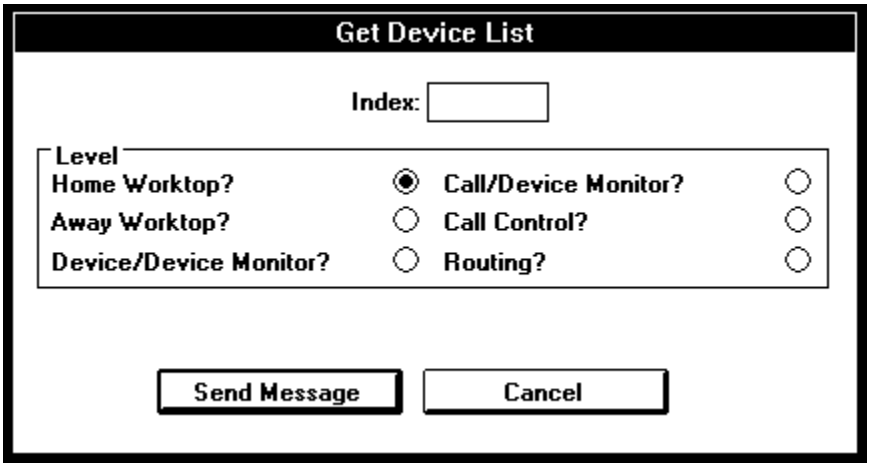
The following table describes key elements of the Get Device List function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaGetDeviceList()	(not applicable)	No	(not applicable)	(not applicable)

This function is processed by the Telephony Server, and the user record associated with the login ID that opened the exerciser stream is used to provide data requested by the command. In the Get Device List command, the administered permission level and the list type requested in the message (monitor, call control or route to) are used to compile a list of devices that may be accessed on the opened stream.

The list of devices is returned in a confirmation message. If there are more than twenty devices in the list, the initial confirmation message contains the first twenty and an index to be used to obtain the next set of devices. This index must be returned in subsequent requests to get the entire list.

Figure 4-43: Get Device List Dialog Box



- **Index:** — The index field is used to indicate where in the list of devices the Telephony Server should start searching. A value of (-1) says to start at the beginning. The index value returned in the confirmation should be used for subsequent messages. When this value is (-1), the list of devices is complete.
- **Level:** — This is the type of device list desired. Select from the following types:
  - — Home Worktop
  - — Away Worktop
  - — Device/Device Monitor
  - — Call/Device Monitor
  - — Call Control
  - — Routing
  - — Call/Call Monitor
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Query Call Monitor

The following table describes key elements of the Query Call Monitor function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaQueryCallMonitor()	(not applicable)	No	(not applicable)	(not applicable)

This function is processed by the Telephony Server. The user record associated with the login ID that opened the stream is used to provide data requested by the command. In the Query Call Monitor command, the class of service option for call/call monitoring is returned. If it is permitted, the confirmation message contains true. If not, false is displayed.

There is no required data for this message.

Figure 4-44: Query Call Monitor Dialog Box

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

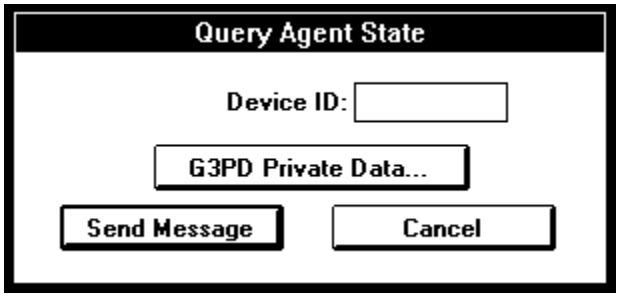
Query Agent State

The following table describes key elements of the Query Agent State function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaQueryAgentState()	(not applicable)	Yes	Yes	Yes

The Query Agent State command queries the Simulator (or PBX) for the current state of a particular agent.

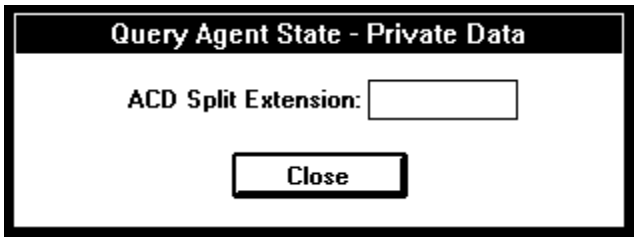
Figure 4-45: Query Agent State Dialog Box



- **Device ID:** — Enter the extension of the device that is to be queried for its agent state.
- **G3PD Private Data** — Select this button to open up a dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

The second dialog box appears when the **G3PD Private Data** button is selected.

Figure 4-46: Query Agent State Dialog Box — Private Data



- **ACD Split Extension** — Enter the split extension to which the agent is logged in. This field is ignored by the Simulator.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. The code selected will be sent with the message if the Send Message button is selected.

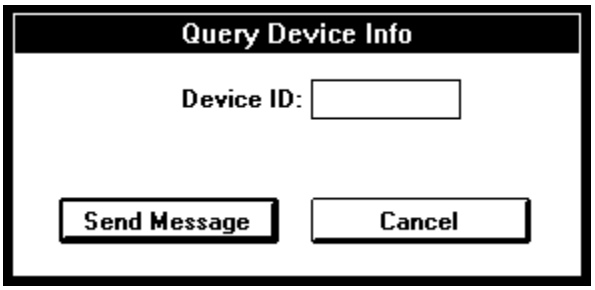
Query Device Information

The following table describes key elements of the Query Device Information function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaQueryDeviceInfo()	(not applicable)	No	Yes	Yes

The Query Device Information command queries the Simulator (or the PBX in exerciser mode) for the class and type of a device. The class will be one of the following: voice, data, image, or other. The type will be either station, ACD, ACD Group, or other.

Figure 4-47: Device Query Info Dialog Box



- **Device ID:** — Enter the extension of the device that is to be queried for information. Note: The Query Device Information function is not supported on TACs in the Simulator.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

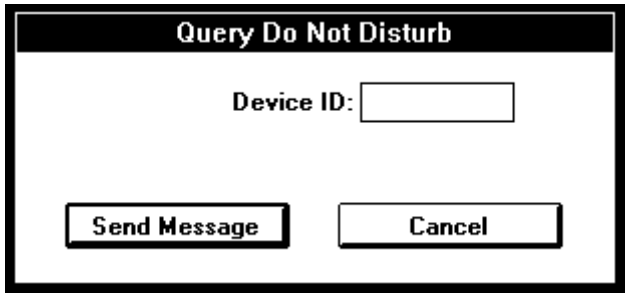
Query Do Not Disturb

The following table describes key elements of the Query Do Not Disturb function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaQueryDoNotDisturb()	(not applicable)	No	Yes	Yes

The Query Do Not Disturb command queries the Simulator (or PBX) for the current state of the Do Not Disturb feature (also referred to as Send All Calls - SAC, for the DEFINITY G3) on a specific device. The station must have the Do Not Disturb feature administered for this query to succeed.

Figure 4-48: Query Do Not Disturb Dialog Box



- **Device ID:** — Enter the extension of the station whose Do Not Disturb status is to be queried.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

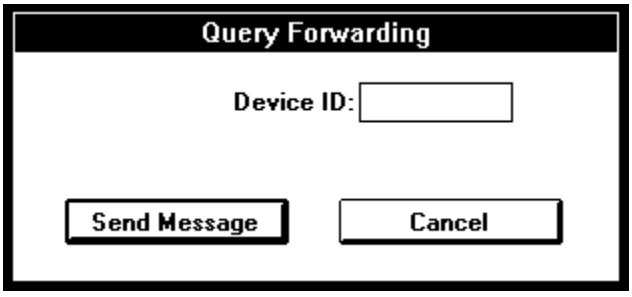
Query Forwarding

The following table describes key elements of the Query Forwarding function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaQueryForwarding()	(not applicable)	No	Yes	Yes

The Query Forwarding command queries the Simulator (or PBX) for the current state of the Forwarding feature on a specific device. The station must have the Forwarding feature administered for this query to succeed.

Figure 4-49: Query Forwarding Dialog Box



- **Device ID:** — Enter the extension of the station whose Forwarding status is to be queried.

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

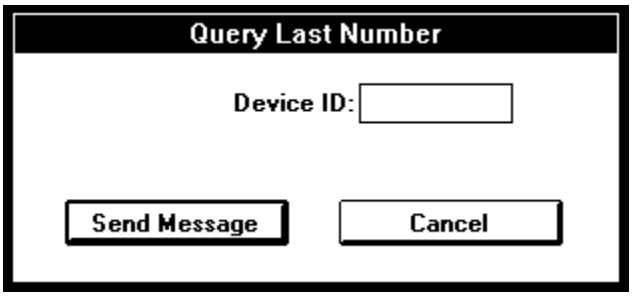
Query Last Number

The following table describes key elements of the Query Last Number function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaQueryLastNumber()	(not applicable)	No	No	No

The Query Last Number command queries the PBX for the last number dialed on a specific device.

Figure 4-50: Query Last Number Dialog Box



- **Device ID:** — Enter the extension of the station whose Last Number Dialed is to be queried.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

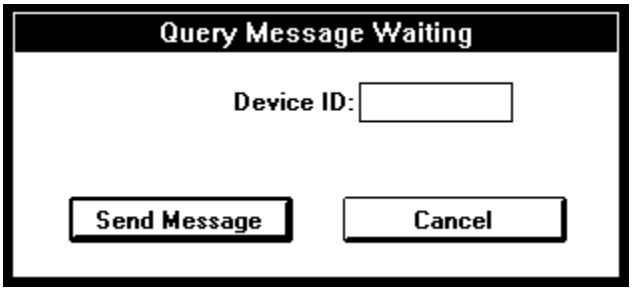
Query Message Waiting Indicator

The following table describes key elements of the Query Message Waiting Indicator function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaQueryMsgWaitingInd()	(not applicable)	No	Yes	Yes

The Query Message Waiting Indicator command queries the Simulator DLL (or PBX) for the current state of the Message Waiting Indicator. The station must have a Message Waiting Indicator for this query to succeed.

Figure 4-51: Query Message Waiting Dialog Box



- **Device ID:** — Enter the extension of the station whose message waiting indicator is to be queried.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

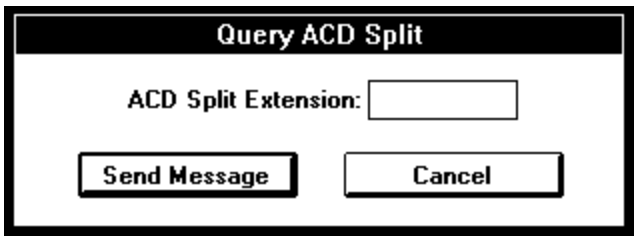
Query ACD Split

The following table describes key elements of the Query ACD Split function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attQueryACDSplit	No	Yes	Yes

The Query ACD Split command queries the Simulator DLL (or DEFINITY G3 PBX) for the number of ACD agents available to receive calls through the split, the number of calls in queue and the number of agents logged in. The number of calls in queue does not include direct-agent calls.

Figure 4-52: Query ACD Split Dialog Box



- **ACD Split Extension:** — Enter the ACD split extension.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

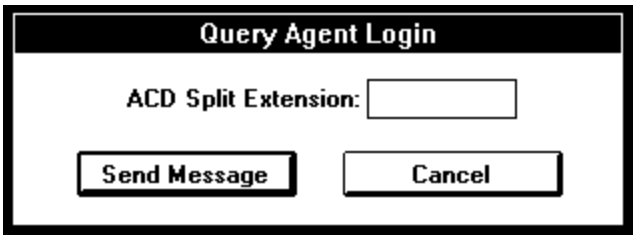
Query Agent Login

The following table describes key elements of the Query Agent Login function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attQueryAgentLogin	All	Yes	Yes

The Query Agent Login command queries the Simulator (or DEFINITY G3 PBX) for the extension of each ACD agent logged into the ACD Split.

Figure 4-53: Query Agent Login Dialog Box



- **ACD Split Extension:** — Enter the ACD split extension.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

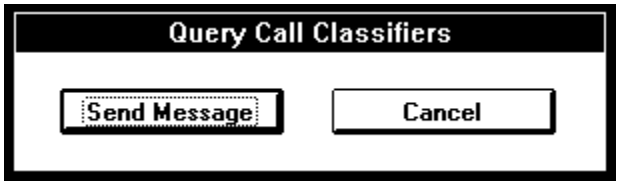
Query Call Classifier

The following table describes key elements of the Query Call Classifier function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attQueryCallClassifier()	All	Yes	Yes

This command queries the DEFINITY G3 PBX for the number of idle and in-use TN744 ports. The in-use number is a snapshot of the call classifier port usage. For the Simulator, the number of in-use and idle trunk members is returned.

Figure 4-54: Query Call Classifiers Dialog Box



- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

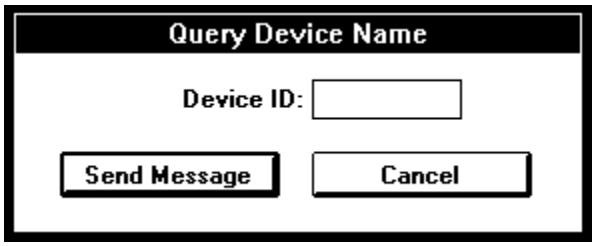
Query Device Name

The following table describes key elements of the Query Device Name function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attQueryDeviceName()	All	Yes	Yes

The Query Device Name command queries the Simulator (or the PBX in exerciser mode) for the administered name of a device.

Figure 4-55: Query Device Name Dialog Box



- **Device ID:** — Enter the extension of the device that is to be queried.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

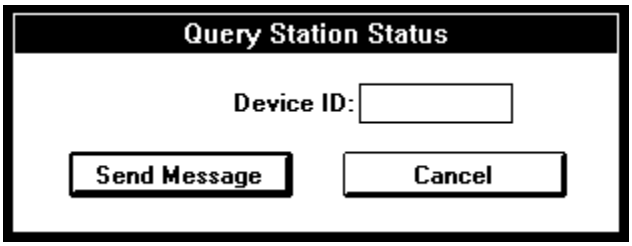
Query Station Status

The following table describes key elements of the Query Station Status function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attQueryStationStatus()	All	Yes	Yes

The Query Station Status command provides the idle and/or busy state of the station. The busy state is returned if the station is active with a call. The idle state is returned if the station is not active an any call.

Figure 4-56: Query Station Status Dialog Box



- **Device ID:** — Enter the extension number of the station to query. The station must be an on-PBX station.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

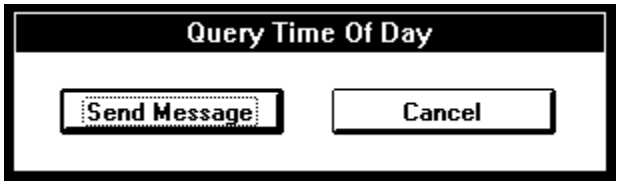
Query Time of Day

The following table describes key elements of the Query Time of Day function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attQueryTimeOfDay()	All	Yes	Yes

The Query Time Of Day service provides the DEFINITY switch information for the year, month, day, hour, minute, and second. The Simulator returns the time of day of the server.

Figure 4-57: Query Time Of Day Dialog Box



- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

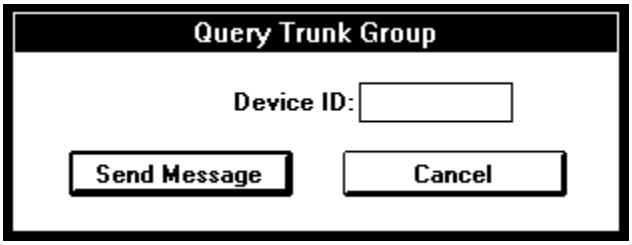
Query Trunk Group

The following table describes key elements of the Query Trunk Group function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attQueryTrunkGroup()	All	Yes	Yes

The Query Trunk Group command provides the number of idle trunks and the number of in-use trunks. The sum of the idle and in-use trunks provides the number of trunks in service.

Figure 4-58: Query Trunk Group Dialog Box



- **Device ID:** — Enter the TAC associated with the trunk group that is to be queried.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Query Universal Call ID (UCID)

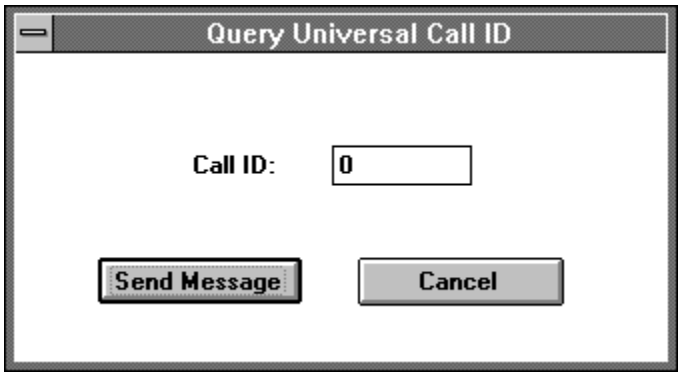
The following table describes key elements of the Query Universal Call ID function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attQueryUcid()	All	Yes	Yes

The Universal Call ID feature uniquely identifies a call across switches and networks. This allows call-related data to be collected from multiple sources across different sites.

The Query Universal Call ID command provides the unique identifier for the call (bear in mind that the Simulator mimics 1 switch only).

Figure 4-59: Query Universal Call ID Dialog Box

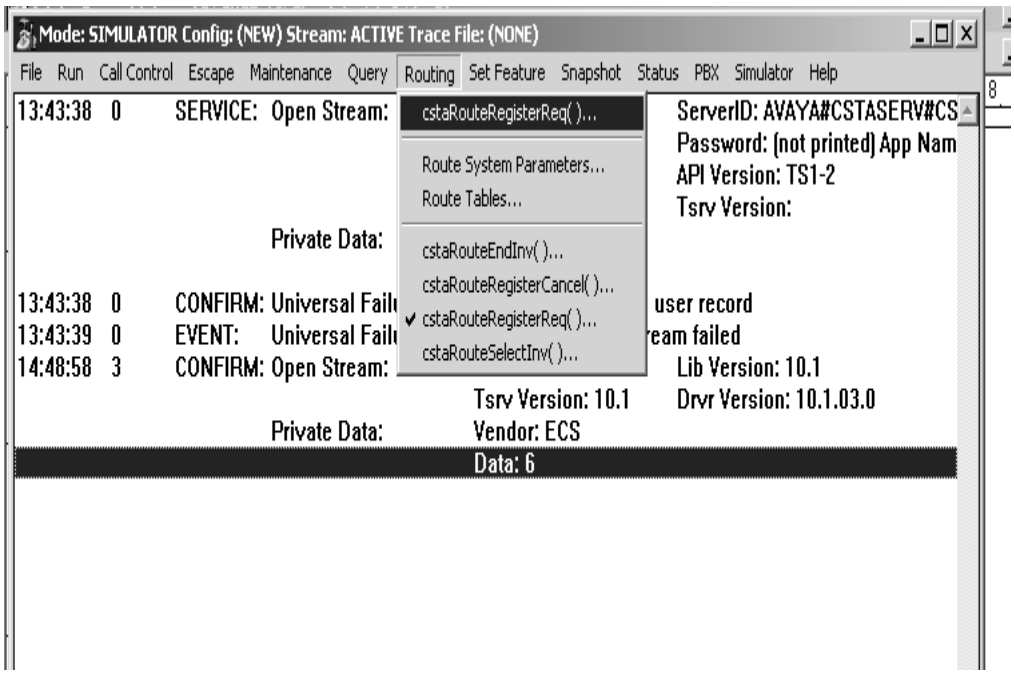


- **Call ID:** — Enter an active call identification in this field. The Universal Call ID will be returned as part of the confirmation for this service.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Functions - Routing Services

The CSTA functions in this menu allow the user to register an application as a routing server and to provide the switch/Simulator with call routing information on a call-by-call basis:

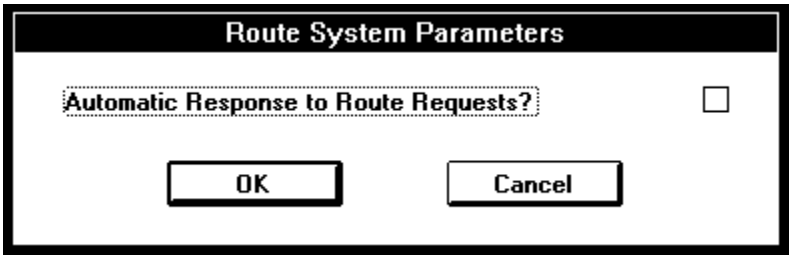
Figure 4-60: The Routing Services Menu



Route System Parameters

This dialog box allows the user of the Simulator Admin tool Interface to choose whether or not to have the application respond automatically to any route requests that it may receive. To receive route requests, the Simulator Admin tool Interface must have previously registered as a routing server. If the Simulator Admin tool Interface is registered as a routing server and the Automatic Response to Route Requests is desired, then the Route Tables must be appropriately filled out so that a route selection can be determined and sent back to the requesting routing device.

Figure 4-61: Route System Parameters Dialog Box



- **Automatic Response to Route Requests?** — Check this box if you wish to have the Simulator Admin tool Interface automatically respond with Route Select to any Route Requests that it may receive based on a previous route registration with a routing device. If you do not check this box, and certain conditions are true, the system will display the Route Request Response dialog box. For more information, see the "Manual Routing Dialog" section below.

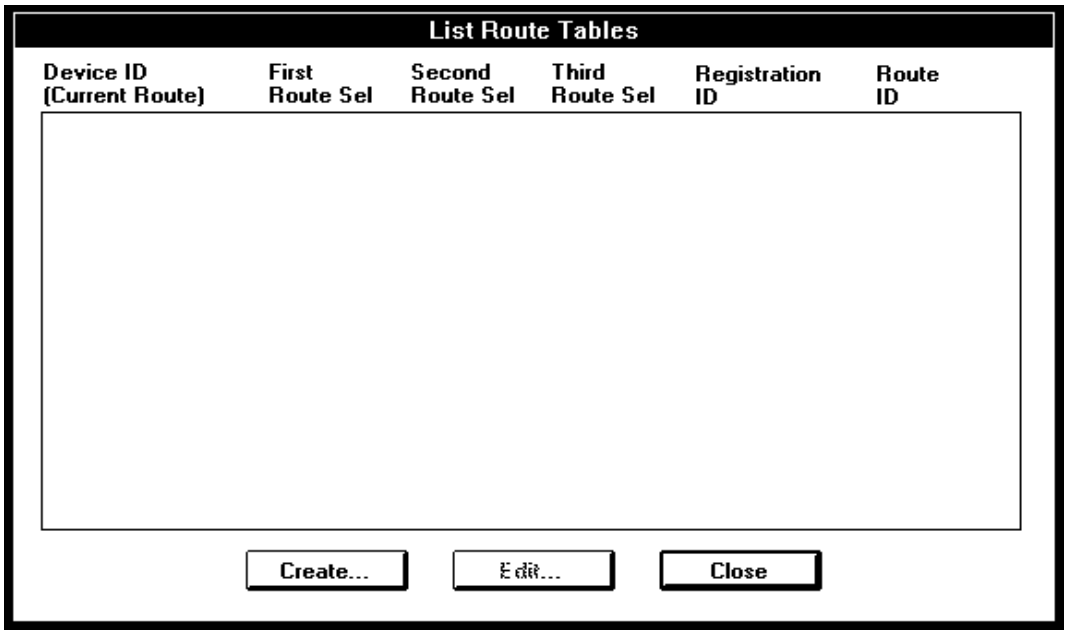
  All route select information that is sent back is based on user input to the routing tables described in the Route Tables section below.

- **OK** — Choosing this sets the Automatic Response to Route Requests parameter.
- **Cancel** — Choosing this field voids the operation.

Route Tables (Automatic Routing Feature)

The Route Table forms are used when you check the Automatic Response to Route Requests checkbox.

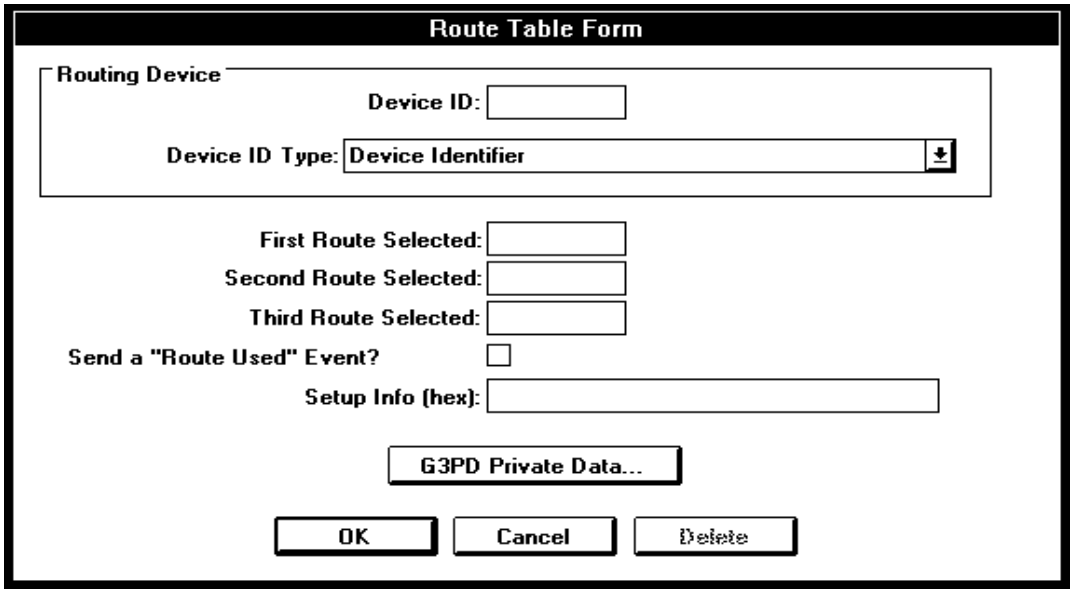
Figure 4-62: Route Table Form



- **Device ID** — (Current Route): Specifies the current destination of the call. This is the ACD extension number first entered by the call.
- **Dest 1, 2, and 3:** — Enter the extension(s) of the device(s) to which the call is to be routed. The G3PD and the Simulator do not support the Second Destination and Third Destination.
- **Registration ID** — The registration ID that was returned by the previously executed Route Register Request command.
- **Route ID** — The unique identifier for a call within a routing session.
- **Edit** — Choosing this button opens the Route Table Form dialog box on an entry to edit.
- **Create** — Choosing this button opens the Route Table Form dialog box.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. The code selected will be sent with the message if the Send Message button is selected.

Selecting the **Create** button displays a second window.

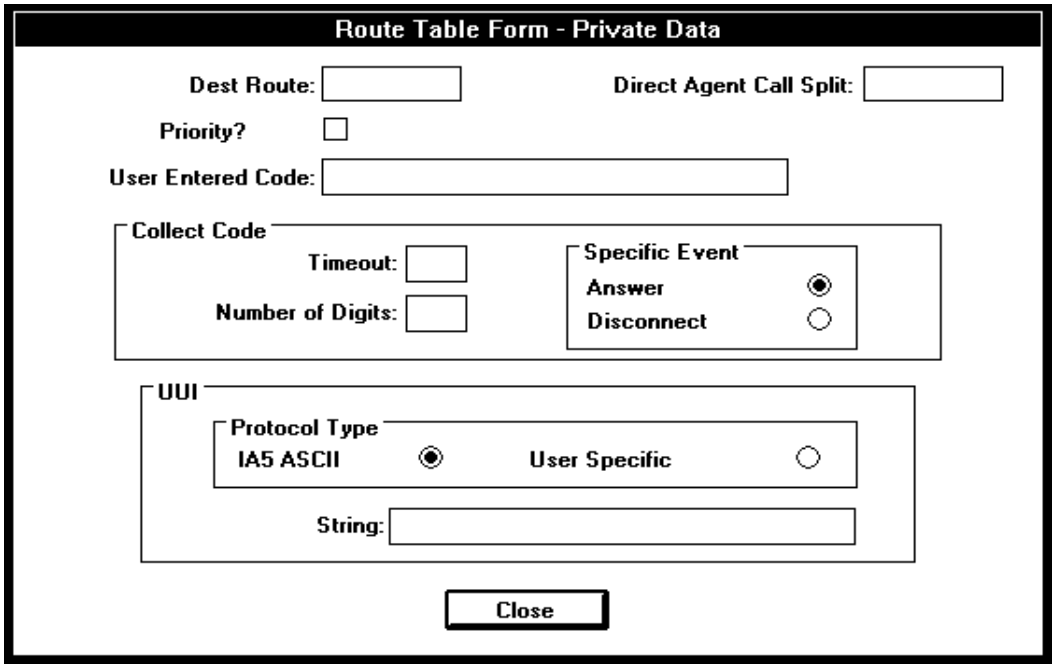
Figure 4-63: Route Table Form — Create Routes



- **(Routing Device) Device ID** — The extension of the device on the switch that is making the route request of the application providing routing service.
- **Device ID** — Enter the appropriate extension.
- **Device ID Type** — Select the appropriate device ID type from the drop down list.
- **First, Second, and Third Destination** — The extension(s) of the device(s) to which the call is to be routed. The G3PD and the Simulator do not support the Second Destination and Third Destination.
- **Send a "Route Used" Event?** — Check the box if the PBX/Simulator is to send this message to the routing server application.
- **Setup Info (Hex)** — Enter the desired setup information in hexadecimal format.
- **G3PD Private Data** — Select this button to open up the Route Table Form — Private Data dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **OK** — Choosing this field enters the information for the current session. To save for later sessions the Save option must be performed.
- **Cancel** — Choosing this field voids the operation.
- **Delete** — Choosing this field deletes the entry.

Selecting the G3PD Private Data button displays a third window.

Figure 4-64: Route Table Form — Private Data



- **Dest Route:** — This private data field specifies the TAC/ARS/AAR information for off-PBX destinations. This field is only supported by the G3PD and will be ignored by the Simulator.
- **Direct Agent Call Split:** — Specifies the extension of the ACD agent's split extension for Direct Agent call routing. This field is ignored by the Simulator.
- **Priority?** — Checking this box specifies that a priority call should be placed. A priority call can only be placed for an on-PBX extension. This field is only supported by the G3PD, and not by the Simulator.
- **User Entered Code:** — This field can be filled in with a code/digits to allow the application to send code/digits with the routed call. These code/digits are treated as dial-ahead digits for the call, which are stored in a dial-ahead buffer. They can be collected using the collect digits vector command(s) on the switch. The User Entered Code and the Collect Code are mutually exclusive. If User Entered Code is present, Collect Code cannot be present. A NULL parameter specifies no user entered code.
- **(Collect Code) Timeout:** — Enter the timeout length for the Collect Code request. This parameter in combination with the next parameter allow the application to request a DTMF tone detector to be connected to the routed call and to detect and collect caller entered code/digits. The Collect Code is mutually exclusive with the User Entered Code above. This field is ignored by the Simulator.

- **(Collect Code) Number of Digits** — Enter the number of digits to be collected. This parameter in combination with the previous parameter allow the application to request a DTMF tone detector to be connected to the routed call and to detect and collect caller entered code/digits. The Collect Code is mutually exclusive with the User Entered Code above. This field is ignored by the Simulator.
- **(Specific Event) Answer:** — The amount of time the switch should wait for the far end to answer.
- **(Specific Event) Disconnect:** — The amount of time the switch should for the far end to answer before disconnecting the call.
- **UUI:** — Enter up to 96 bytes of User to User Information in the String field. If the Protocol Type Selected is IA5 ASCII, then the string must be entered in alphanumeric format. If the Protocol Type Selected is User Specific, then the string must be entered in hexadecimal format This UUI will then be associated with this call for the duration of the call or until it is replaced by other UUI. It will be delivered with any delivered event or route request associated with the call. UUI can be changed via route selects, requests, or conference or transfers.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. The code Selected will be sent with the message if the Send Message button is selected.

Manual Routing Dialog

The purpose of the Route Request Response dialog box is to supply necessary information to the Driver via a manual routing dialog.

The Route Request Response dialog box is displayed when:

1. the Simulator Admin tool is the routing server

   AND

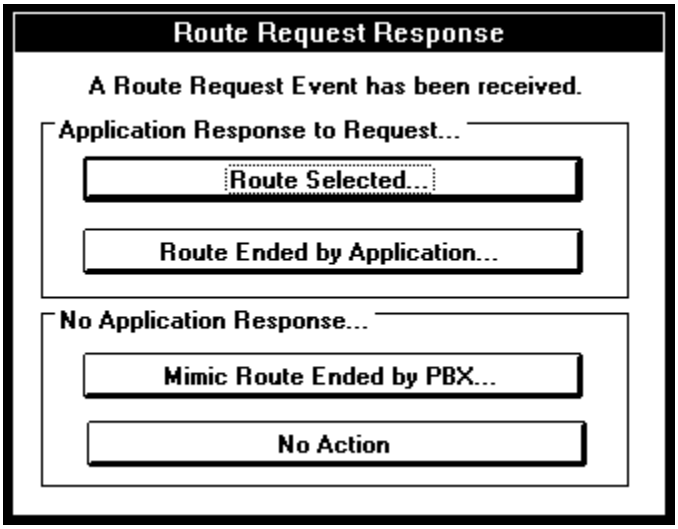
2. the PBX Driver sends a Route Request for a specific device,

   AND, either of the following is true:

   a. Automatic Routing has not been selected OR

   b. Automatic Routing has been selected but no routing administration has been entered for the device for which the Simulator Admin tool is the registered routing device.

Figure 4-65: Route Request Response Dialog Box



- **(Application Response to Request) Route Selected:** — Pressing this button is analogous to selecting the cstaRouteSelect item on the Functions/Routing Services menu. The route select function provides a destination to the Simulator or switch/driver in response to a cstaRouteRequest Event for a call.
- **(Application Response to Request) Route Ended by Application** — Pressing this button is analogous to selecting the cstaRouteEnd item on the Functions/Routing Services menu. The route end function enables the application to send a route end message with the cause value you select from the choices in the resulting drop down box.
- **No Application Response) Mimic Route Ended by PBX:**— (Simulator mode only) Pressing this button is analogous to selecting the PBX/Route End menu item. Doing so enables the Simulator to mimic a route end action by the PBX.

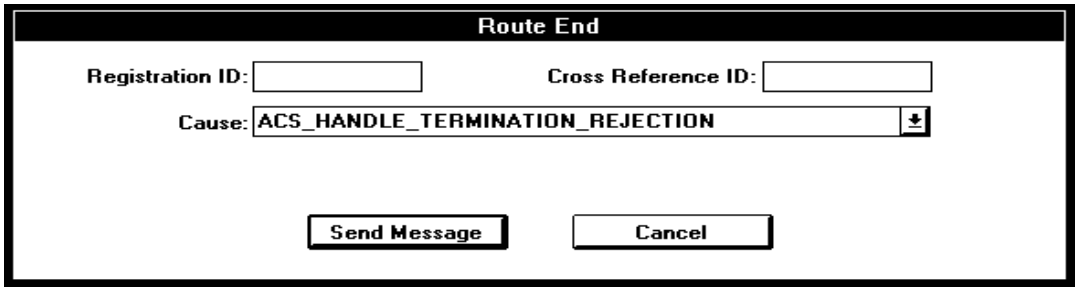
Route End

The following table describes key elements of the Route End function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaRouteEnd()	(not applicable)	No	Yes	Yes

This menu item allows the user to cancel an active routing dialog for a call.

Figure 4-66: Route End Dialog Box — Cancel Active Routing



- **Registration ID:** — Enter the registration ID that was returned by the previously executed Route Register Request Command.
- **Cross Reference ID:** — Enter the routing dialog cross-reference ID that is to be ended.
- **Cause:** — From the available options in the scrollable list, enter the error value that indicates the reason why the routing dialog is ending.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

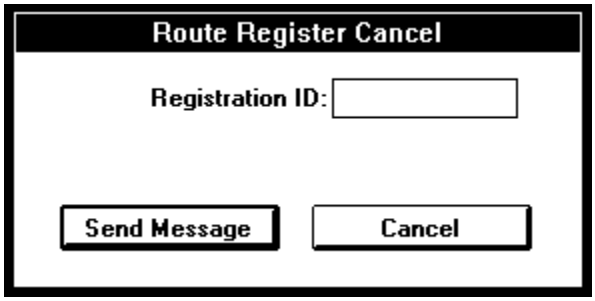
Route Register Cancel

The following table describes key elements of the Route Register Cancel function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaRouteRegisterCancel()	(not applicable)	No	Yes	Yes

This menu item allows the user to cancel a previously registered routing server session. This request terminates the routing session and the application receives no further routing messages for that session.

Figure 4-67: Route Register Cancel Dialog Box — Cancel Routing Session



- **Registration ID:** — Enter the registration ID that was returned by the previously executed Route Register Request Command.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

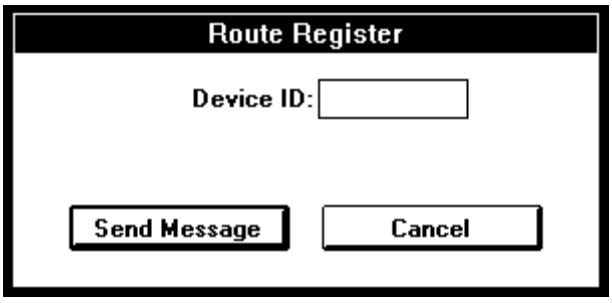
Route Register

The following table describes key elements of the Route Register function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaRouteRegisterReq()	(not applicable)	No	Yes	Yes

This menu item allows the user to register an application as a routing server such that it will receive routing requests on a call-by-call basis. The register must be done by the application before it will receive any route requests from the switch/driver or Simulator.

Figure 4-68: Route Register — Register Application as Routing Server



- **Device ID:** — Enter the device ID of the routing device.
- **Send Message** — Choosing this field sends the message.

- **Cancel** — Choosing this field voids the operation.

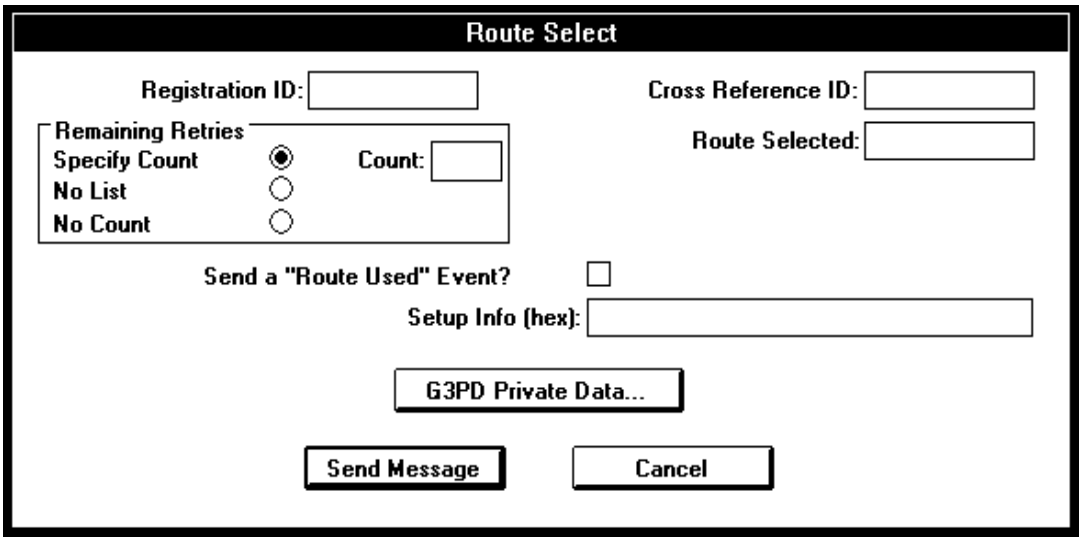
Route Select

The following table describes key elements of the Route Select function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaRouteSelect	(not applicable)	Yes	Yes	Yes

The route select menu item allows the user to provide a destination to the switch in response to a cstaRouteRequestEvent for a call. This function can only be used if the Automatic Response to Route Requests system parameter is not set. If the Simulator Admin tool interface has the Automatic Response to Route Requests system parameter set then the route select will be automatically sent upon receipt of the route request. If a route select is sent without a corresponding route request it will be rejected by the Simulator or switch/driver.

Figure 4-69: Route Select Dialog Box

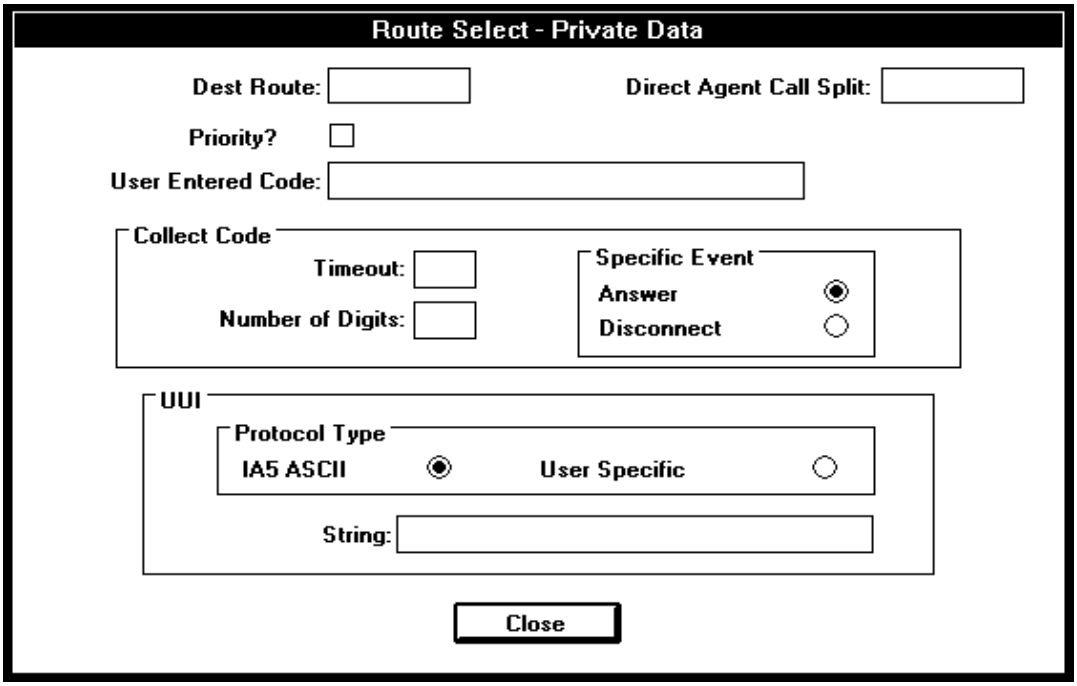


- **Registration ID:** — Enter the registration ID that was returned by the previously executed Route Register Request Command.
- **Cross Reference ID:** — Enter the routing dialog cross-reference ID that was provided in the Route Request event.
- **Remaining Retries:** — These fields (Specify Count, Count, No List, No Count) specify the number of times that the application is willing to receive a CSTARouteRequestEvent for this call in case the switch needs to request an alternate route. These fields are not supported by the G3PD or the Simulator.

- **Route Selected:** — Enter the destination for the call. It can either be an on-PBX number or an off-PBX number.
- **Send a Route Used Event?** — Check this box to indicate a request to receive a CSTARouteUsedEvent for the call. Note that if specified for the G3PD or Simulator, the same destination information that is specified in the Destination Device ID field will be returned.
- **Setup Info (hex):** — Enter a revised ISDN call setup message that the switch will use to route the call. This field is not supported by the G3PD or the Simulator.
- **G3PD Private Data** — Select this button to open up a dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Selecting the **G3PD Private Data** button displays a second window.

Figure 4-70: Route Select Dialog Box — Private Data



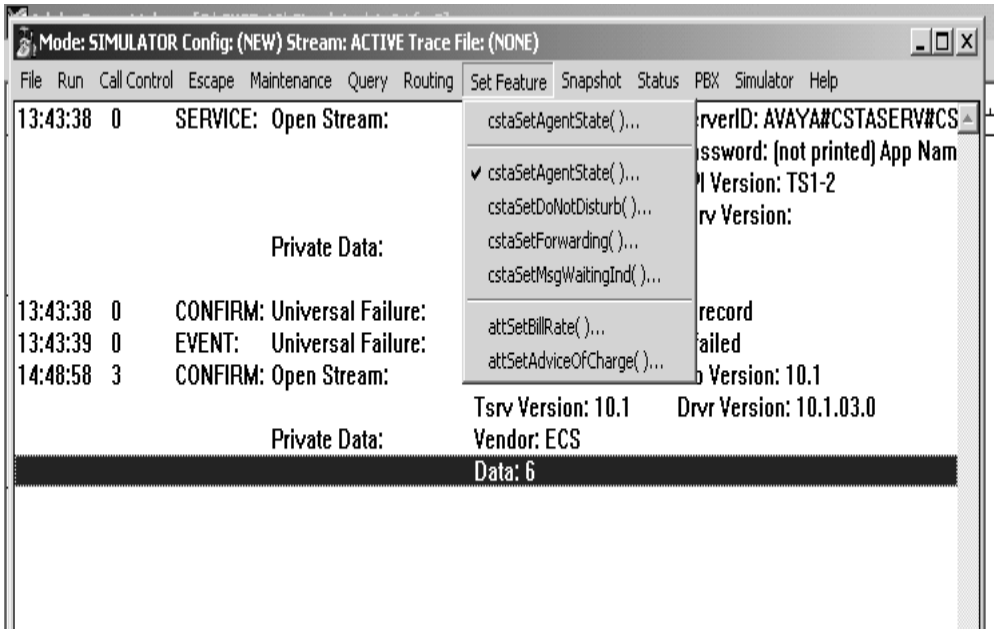
- **Dest Route:** — This private data field specifies the TAC/ARS/AAR information for off-PBX destinations. This field is only supported by the G3PD and will be ignored by the Simulator.

- **Direct Agent Call Split:** — Specifies the extension of the ACD agent's split extension for Direct Agent call routing. This field is ignored by the Simulator.
- **Priority?** — Checking this box specifies that a priority call should be placed. A priority call can only be placed for an on-PBX extension. This field is only supported by the G3PD, and not by the Simulator.
- **User Entered Code:** — This field can be filled in with a code/digits to allow the application to send code/digits with the routed call. These code/digits are treated as dial-ahead digits for the call, which are stored in a dial-ahead buffer. They can be collected using the collect digits vector command(s) on the switch. The User Entered Code and the Collect Code are mutually exclusive. If User Entered Code is present, Collect Code cannot be present. A NULL parameter specifies no user entered code.
- **(Collect Code) Timeout:** — Enter the timeout length for the Collect Code request. This parameter in combination with the next parameter allow the application to request a DTMF tone detector to be connected to the routed call and to detect and collect caller entered code/digits. The Collect Code is mutually exclusive with the User Entered Code above. This field is ignored by the Simulator.
- **(Collect Code) Number of Digits** — Enter the number of digits to be collected. This parameter in combination with the previous parameter allow the application to request a DTMF tone detector to be connected to the routed call and to detect and collect caller entered code/digits. The Collect Code is mutually exclusive with the User Entered Code above. This field is ignored by the Simulator.
- **(Specific Event) Answer:** — The amount of time the switch should wait for the far end to answer.
- **(Specific Event) Disconnect:** — The amount of time the switch should for the far end to answer before disconnecting the call.
- **UUI:** — Enter up to 96 bytes of User to User Information in the String field. If the Protocol Type Selected is IA5 ASCII, then the string must be entered in alphanumeric format. If the Protocol Type Selected is User Specific, then the string must be entered in hexadecimal format This UUI will then be associated with this call for the duration of the call or until it is replaced by other UUI. It will be delivered with any delivered event or route request associated with the call. UUI can be changed via route selects, requests, or conference or transfers.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. Any information entered in the private data fields will be sent with the message if the Send Message button is selected.

Functions - Set Feature Services

The CSTA functions in the Set Feature Services menu allow the user to set certain states on the Simulator/PBX:

Figure 4-71: The Set Features Services Menu



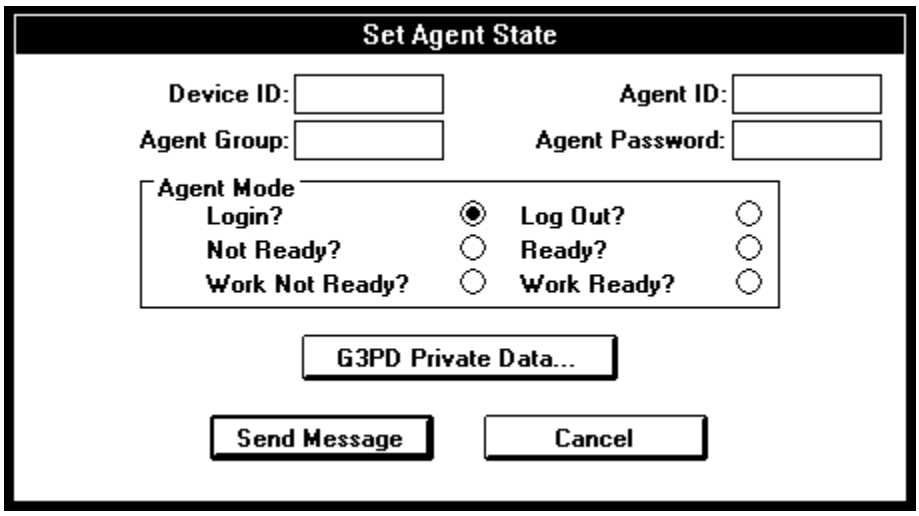
Set Agent State

The following table describes key elements of the Set Agent State function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSetAgentState()	(not applicable)	Yes	Yes	Yes

The Set Agent State command sets the current work mode of an agent to any one of the predefined agent states. These states affect whether an agent in an ACD group will receive calls through the ACD. For the Simulator and G3PD, when logging in an agent, the default mode will be Not Ready. To change this, another Set Agent State command must be performed immediately after logging the agent into the ACD.

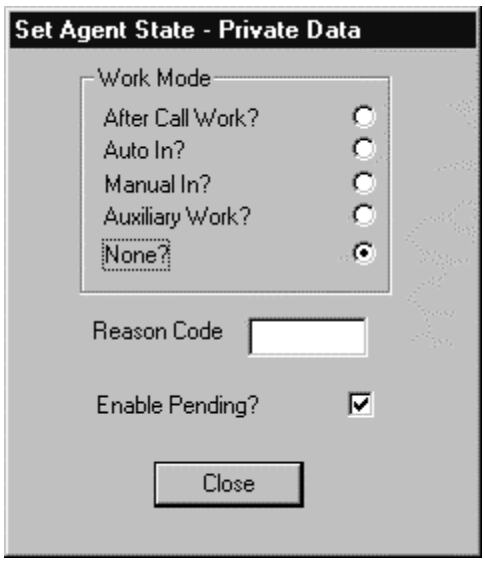
Figure 4-72: Set Agent State Dialog Box



- **Device ID:** — Enter the device ID of the agent station. If using the Simulator, the station must be administered as being an agent station.
- **Agent ID:** — Enter the Agent login identifier for the ACD agent. For the G3PD, this parameter is optional unless the Agent Mode is Log In; then it is mandatory. The Simulator does not support this field and it will be ignored.
- **Agent Group:** — Enter the ACD agent split to login, logout or change the work mode. This parameter is optional for the G3PD and is not supported by the Simulator.
- **Agent Password:** — This field should be filled in with the password associated with the particular agent specified above. This parameter need only be filled in for the G3PD when the Agent Mode is login. This field is ignored by the Simulator.
- **Agent Mode** — Select the agent mode to which the specified agent will be set.
- **G3PD Private Data** — Select this button to open up a dialog box that allows for entering G3PD Private Data. All fields in the G3PD dialog box are supported by the G3PD, but in some instances they are not supported by the Simulator. See specific definitions of fields for clarification.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Selecting the **G3PD Private Data** button displays a second window.

Figure 4-73: Set Agent State Dialog Box — Private Data



- **Initial Work Mode** — Enter the work mode for the agent based on the Agent Mode entered. This is supported by the G3PD and the Simulator.
- **Reason Code** — This feature allows call center agents to enter a numeric identifier when they change to the AUX work mode or when they log out. The numeric identifier indicates the specific reason for logging out (such as training, lunch, etc). Call center supervisors can use this information to track the agent's location and how time is being spent.

  Valid values are from 1 through 9 inclusive. A zero (0) value is allowed, but does not map to any valid reason code for the Simulator. A 0 value simply indicates that no code was specified.
- **Enable Pending?** — This field specifies whether the request work mode or agent work mode can be made pending. This feature will allow agents to change their work mode without being idle.

  The work mode of NONE is only valid in the context that pending is enabled. Therefore, **None?** will only appear in the dialog box if pending is enabled.

  Note:

  This feature and its associated reason code is only available with private data version 6 or later. If private data version 5 or earlier is in use, this field will be grayed out.
- **Close** — Choosing this button closes the dialog box and returns the user to the previous dialog box. The code Selected will be sent with the message if the Send Message button is selected.

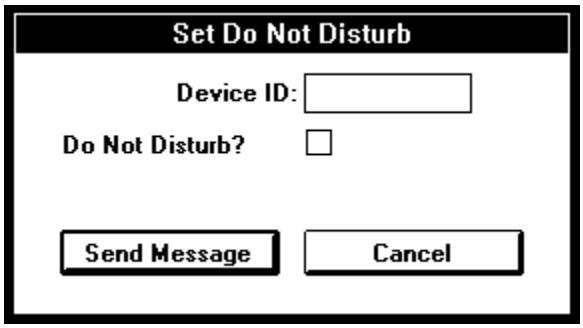
Set Do Not Disturb

The following table describes key elements of the Set Do Not Disturb function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSetDoNotDisturb()	(not applicable)	No	Yes	Yes

The Do Not Disturb command instructs a station to send all incoming calls to its covering station immediately. For this request to be successful in the Simulator, the station must be administered with coverage enabled and a send-calls button.

Figure 4-74: Set Do Not Disturb Dialog Box



- **Device ID:** — Enter the device ID of the station on which to set the Do Not Disturb feature.
- **Do Not Disturb?** — Check this field if Do Not Disturb is to be enabled at this station. Clear the field if the feature is to be disabled.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Set Forwarding

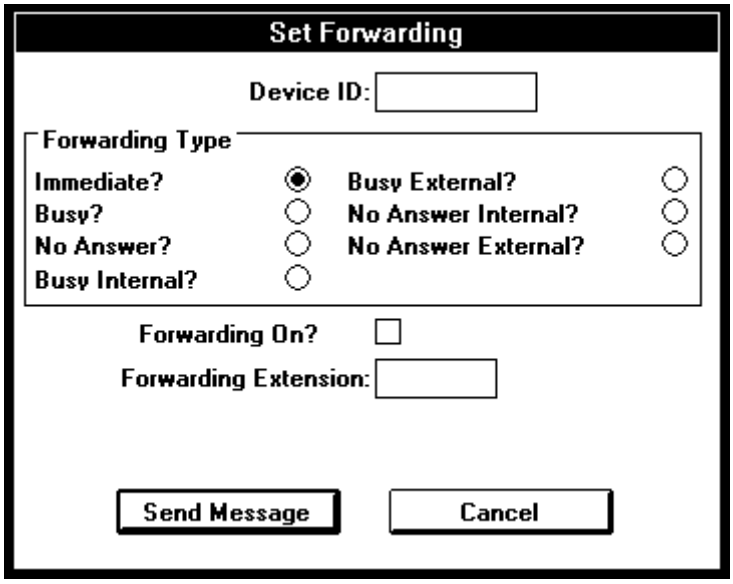
The following table describes key elements of the Set Forwarding function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSetForwarding()	(not applicable)	No	Yes	Yes

The Set Forwarding command turns on forwarding at the designated station so that all incoming calls to that station are immediately sent to the forwarding station. The forwarding station may also be changed using this request. For the Simulator, the station

must be administered with forwarding enabled if this request is to be successful (see "Stations on page 66").

Figure 4-75: Set Forwarding Dialog Box



- **Device ID:** — Enter the extension number of the forwarding station.
- **Forwarding Type:** — Choose the type of forwarding to be set for the device. The G3PD and the Simulator only support IMMEDIATE. Any other type will be rejected.
- **Forwarding On?** — Check if forwarding is to be turned on. Leave blank if the field is to be turned off. The forwarding type is defaulted to immediate which is the only type supported by the DEFINITY G3 PBX.
- **Forwarding Extension:** — The device ID to which calls are to be forwarded.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

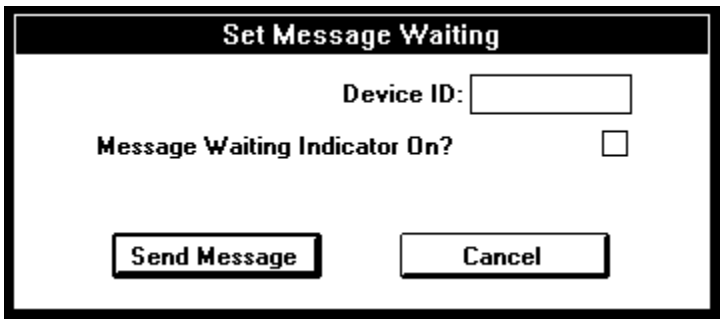
Set Message Waiting Indicator

The following table describes key elements of the Set Message Waiting Indicator function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSetMsgWaitingInd()	(not applicable)	No	Yes	Yes

The Set Message Waiting command turns the message waiting indicator on a station either on or off.

Figure 4-76: Set Message Waiting Dialog Box



- **Device ID:** — Enter the device ID of the station whose message waiting indicator is to be set.
- **Message Waiting Indicator On?** — Check this field if the indicator is to be turned on; a blank field turns off the indicator.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

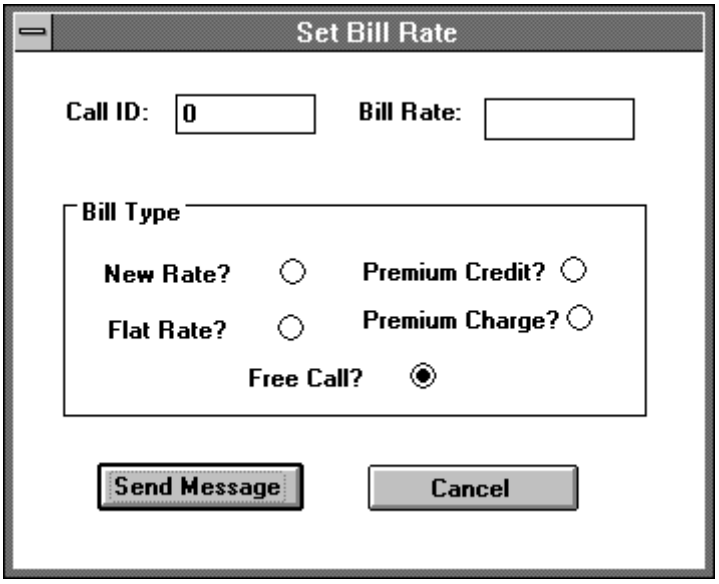
Set Bill Rate

The following table describes key elements of the Set Bill Rate function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attSetBillRate()	All	Yes	Yes

The Set Bill Rate Feature allows applications to modify the rates for 900-type calls, depending on the services provided.

Figure 4-77: Set Bill Rate Dialog Box



- **Call ID:** — Enter the call id for which the rate will be set.
- **Bill Rate:** — Enter the billing rate to use for this call id.
- **Bill Type** — Select a billing type for this call id. The rate treatment depends on the billing type, and will change as the type changes.

  For example, a flat rate might be charged for consulting support, while premium credit might be used as a promotional discount for first-time users of the service.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

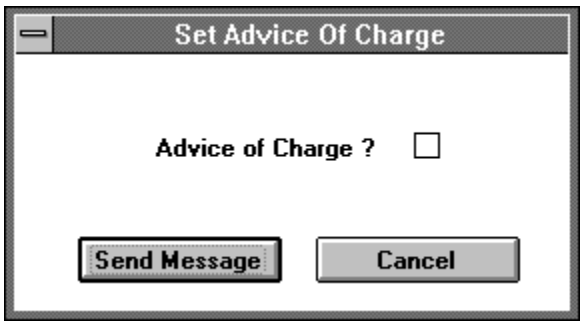
Set Advice of Charge

The following table describes key elements of the Set Advice of Charge function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attSetAdviceOfCharge()	All	Yes	Yes

Advice of Charge is network-provided information that is received either during or after an active outbound call (sometimes both during and after the call). The information indicates the current charges or incremental additions to the cost of a particular outgoing call.

Figure 4-78: Set Advice of Charge Dialog Box



Note:

When using the Simulator, the Charge Advice Event is automatically returned after the outbound call is terminated. Using the Simulator Admin tool, you can make a request for the Charge Advice Event to be returned (see "Send Advice of Charge" later in this chapter).

Set Advice of Charge is a function that allows the Advice of Charge feature to be turned on or off.

Note:

This feature is only available if a stream is opened with private data version 5 or later. If private data version 4 or earlier is in use, this field will be grayed out.

- **Advice of Charge?** — Check this field to turn on the Advice of Charge feature. If it is not checked, the feature will be turned off.

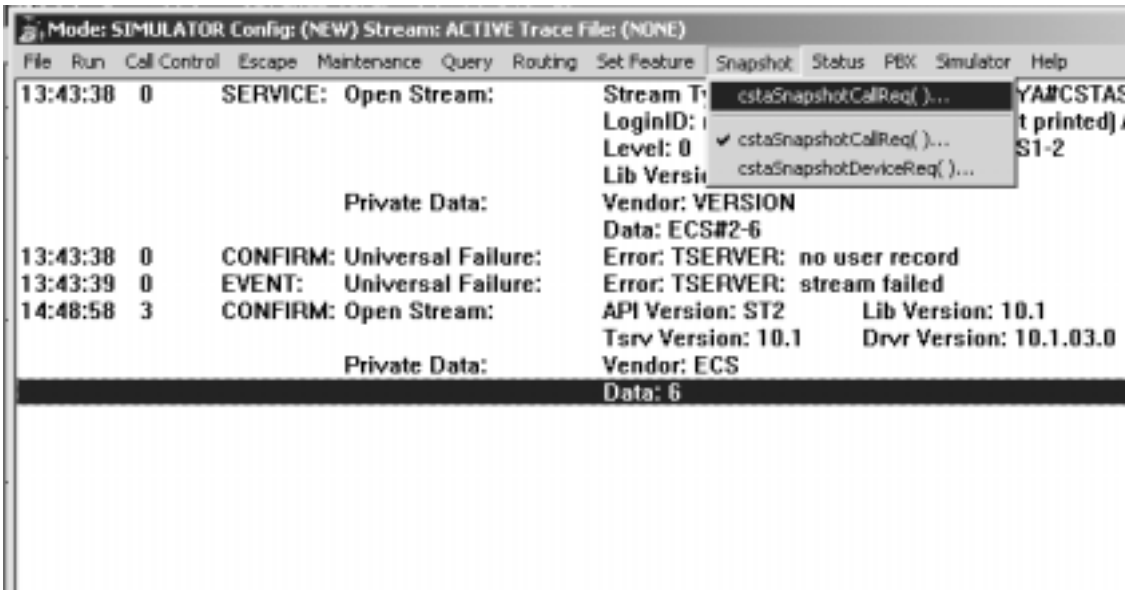
  In order to receive any advice of charge event, the feature must be turned on through this function.

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Functions - Snapshot Services

The CSTA functions in this menu allow the user to obtain a "snapshot" status of calls and devices on the Simulator/PBX:

Figure 4-79: The Snapshot Services Menu



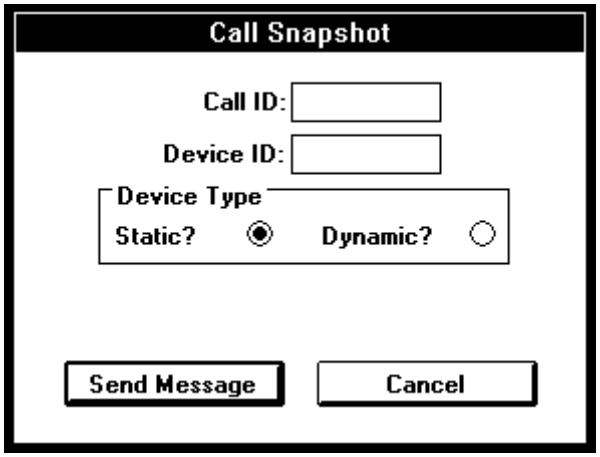
Snapshot Call

The following table describes key elements of the Snapshot Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSnapshotCallReq()	(not applicable)	No	Yes	Yes

This menu item allows the user to receive a snapshot of information for a given call ID. It will return the devices associated with the given call and the connection state for each device.

Figure 4-80: Call Snapshot Dialog Box



- **Call ID:** — Enter the call ID of the call that is to have a snapshot taken.
- **Device ID:** — Enter the device ID from the connection ID that identifies the call.
- **Device Type:** — Enter the device type that is provided in the connection ID.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

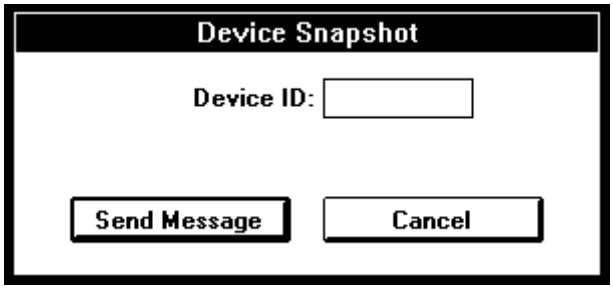
Snapshot Device

The following table describes key elements of the Snapshot Device function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaSnapshotDeviceReq()	(not applicable)	No	Yes	Yes

This menu item allows the user to receive a snapshot of information for a given device. It will return a list of calls associated with the given device and the connection state of each of those calls at that device.

Figure 4-81: Device Snapshot Dialog Box

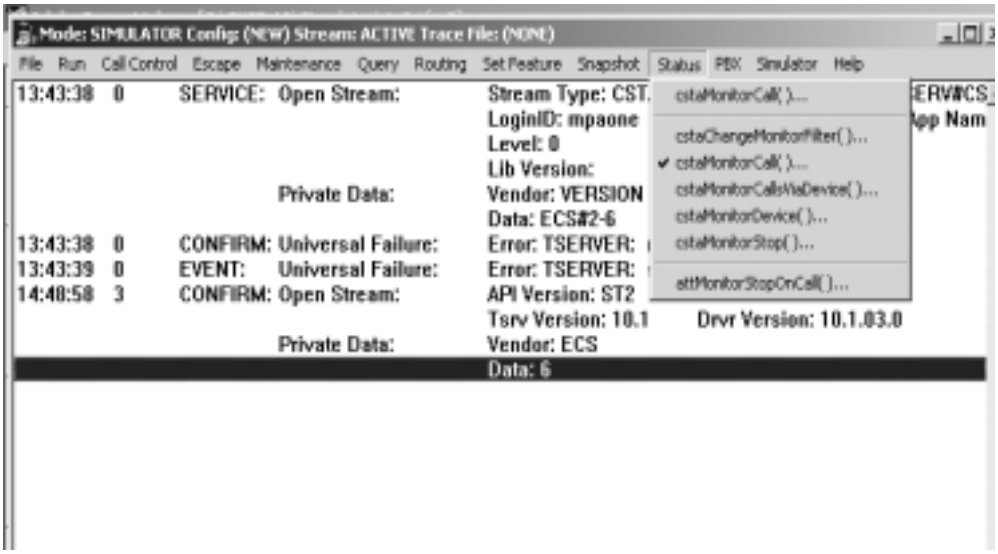


- **Device ID:** — Enter the device ID of the device that is to have its snapshot taken.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Functions - Status Reporting Services

These CSTA functions allow the user to establish, end, and modify monitoring sessions on CSTA objects such as devices and calls. They include the functions in the following sub-menu:

Figure 4-82: The Status Reporting Services Menu



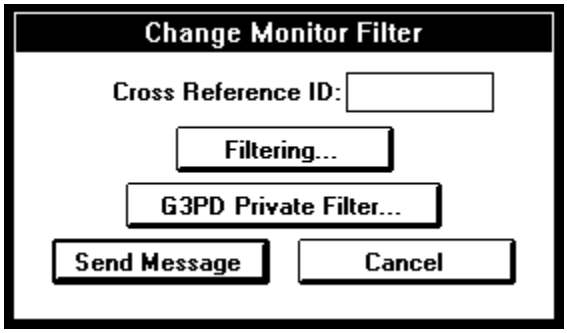
Change Monitor Filter

The following table describes key elements of the Change Monitor Filter function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaChangeMonitorFilter()	(not applicable)	Yes	Yes	Yes

Choosing this menu item allows the user to specify which unsolicited events should be sent back to the application and which ones should be filtered out.

Figure 4-83: Change Monitor Filter Dialog Box



- **Cross Reference ID:** — This is the number that identifies the specific monitoring session for which the filtering is to be changed. The cross reference ID is returned in the confirmation message for the set device monitor, the set call monitor by device, or the set call monitor request.
- **Filtering** — Select this button to change the filtering of events. See explanation in "Filter Selection" section below.
- **G3PD Private Filter** — Select this button to change the filtering of G3 Private events. See explanation in the "Filter Selection" section.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

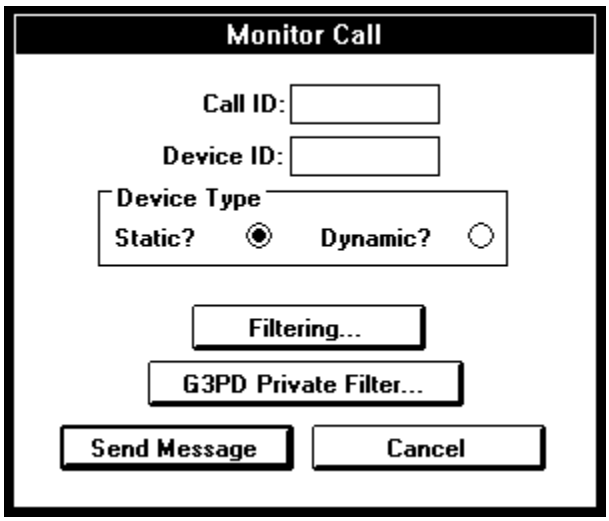
Monitor Call

The following table describes key elements of the Monitor Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaMonitorCall()	(not applicable)	Yes	Yes	Yes

This menu item allows you to monitor a particular call. The call ID should be obtained from either a monitoring session of a device or from a make call function.

Figure 4-84: Monitor Call Dialog Box



- **Call ID:** — Enter the Call ID of the call to be monitored.
- **Device ID:** — Enter the Device ID from the Connection ID of the call to be monitored.
- **Filtering** — Select this button to change the filtering of events. See explanation in "Filter Selection" section at the end of this section.
- **G3PD Private Filter** — Select this button to change the filtering of events when using G3PD Private Data.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

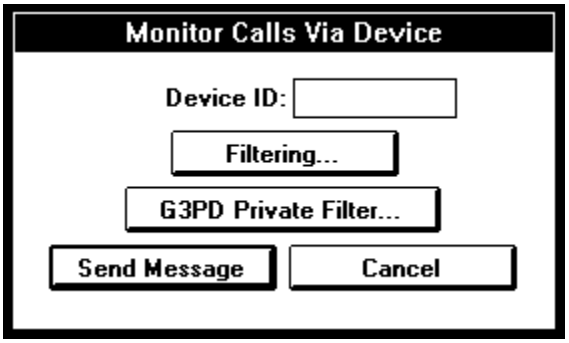
Monitor Calls Via Device

The following table describes key elements of the Monitor Calls Via Device function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaMonitorCallsViaDevice()	(not applicable)	Yes	Yes	Yes

This menu item allows the user to monitor what happens to a call once it reaches a particular device. The Simulator DLL supports this feature only for ACD groups. That is, this type of monitor may be set on an ACD group extension. When an incoming call arrives at this ACD group, monitoring begins. Events are reported as normal for all actions taken on this call.

Figure 4-85: Monitor Calls Via Device Dialog Box



- **Device ID:** — Enter the device ID to monitor calls on. For the G3PD this must be a VDN, and for the Simulator it must be an administered ACD.
- **Filtering** — Select this button to change the filtering of events. See explanation in "Filter Selection" section at the end of this section.
- **G3PD Private Filter** — Select this button to change the filtering of events when using G3PD Private Data.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

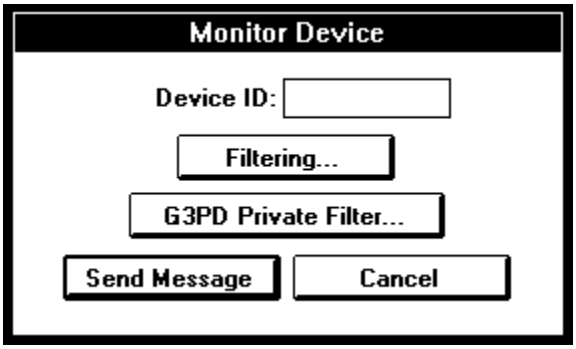
Monitor Device

The following table describes key elements of the Monitor Device function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaMonitorDevice()	(not applicable)	Yes	Yes	Yes

This menu item allows the user to enable device monitoring for a specific device and to change the filter to specify which events should be filtered out.

Figure 4-86: Monitor Device Dialog Box



- **Device ID:** — Enter the device ID of the device to be monitored.
- **Filtering** — Select this button to change the filtering of events. See explanation in "Filter Selection" at the end of this section.
- **G3PD** Private Filter — Select this button to change the filtering of events when using G3PD Private Data.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

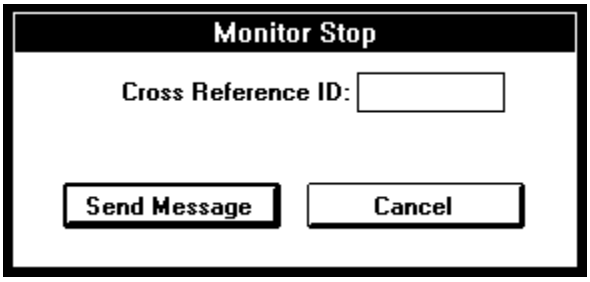
Monitor Stop

The following table describes key elements of the Monitor Stop function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaMonitorStop()	(not applicable)	No	Yes	Yes

Choosing this menu item allows the user to terminate a monitoring session of any type (by device, by call, or by calls via device).

Figure 4-87: Monitor Stop Dialog Box



- **Cross Reference ID:** — This is the number that identifies the specific monitor that is to be terminated. The cross-reference ID is returned in the confirmation message for the Set Device Monitor, the Set Call Monitor by Device, or the Set Call Monitor request.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

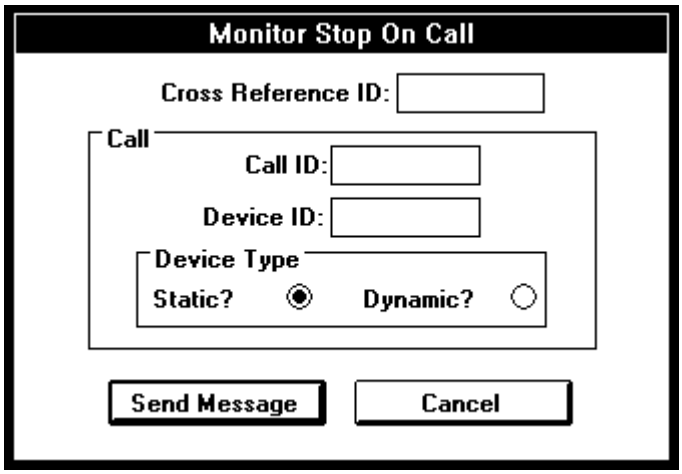
Monitor Stop on Call

The following table describes key elements of the Monitor Stop on Call function

TSAPI Function Name	Escape Service	Private Data	G3PD Support	Sim Support
cstaEscapeService()	attMonitorStopOnCall	All	Yes	Yes

An application uses the Monitor Stop On Call Service to stop call event reports for a specific call reported by a cstaMonitorCall, cstaMonitorDevice, or cstaMonitorCallsViaDevice service when it no longer has an interest in that call.

Figure 4-88: Monitor Stop On Call Dialog Box

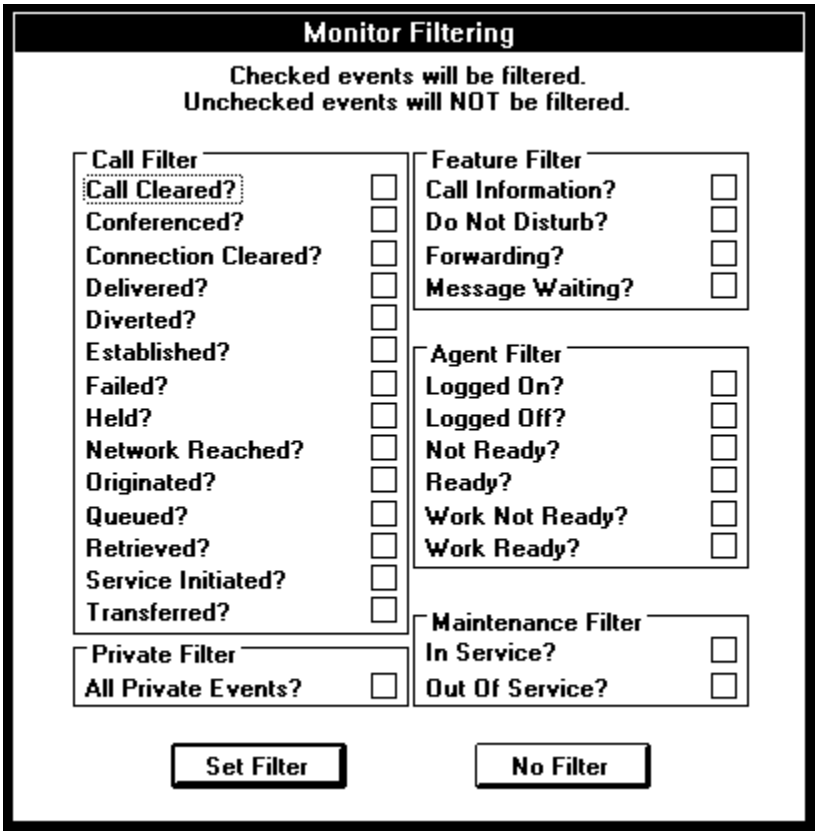


- **Cross Reference ID** — The Cross-Reference ID that was returned in a previous csta MonitorConfEvent of this session.
- **Call ID** — The unique identifier of the call being monitored
- **Device ID** — The extension of the device with the call.
- **Device Type Static?** — Indicates if the device identifier is one that is stable and unique over time; that is, it remains constant and unique over calls.
- **Device Type Dynamic?** — Indicates if the device identifier is one that changed by the switch over time.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Filter Selection

If the Filtering button is selected in any of the previous set of monitoring dialog boxes, then the following dialog box will appear allowing you to select the event types to be filtered out. In other words, you should mark any check boxes corresponding to the events you do not wish to receive during a monitoring session.

Figure 4-89: Monitor Filter Dialog Box



If the G3PD Private Filter button is selected in any of the previous set of monitoring dialog boxes, then the following dialog box will appear allowing you to indicate if Entered Digits are to be filtered out. In other words, you should mark any check box if you do not wish to receive Entered Digits during a monitoring session.

Figure 4-90: G3PD Monitor Filtering Dialog Box

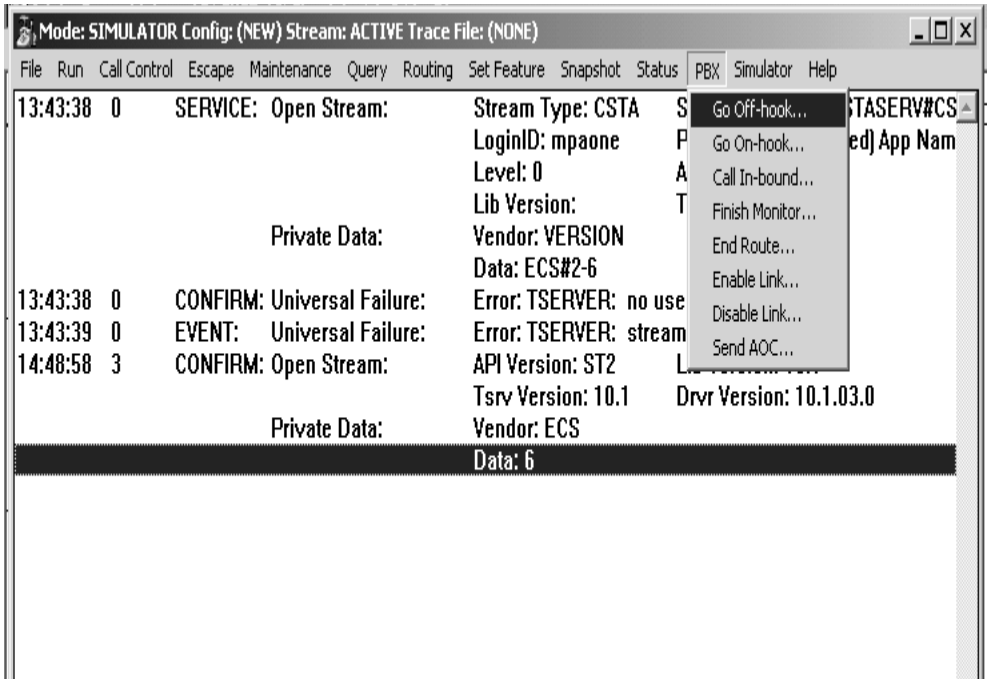
- **Entered Digits?** — Check this box filter out the user-Entered Digits event.
- **Charge Advice?** — Check this box to filter out the Charge Advice event. In order to filter this information, the Advice of Charge feature must be turned on (using the Set Feature Services function).

  This field is only valid if the stream is opened with private data version 5 or later. For private data version 4 or earlier, the Charge Advice checkbox does not appear.
- **Set Filter** — Choosing this field records the filtering information.
- **No Filter** — Choosing this field voids the operation.

The PBX Menu

The following set of messages is used to simulate actions that would normally occur at a station on a PBX or originate from the PBX. They are dynamic events that can not be satisfactorily simulated without some form of user input. Therefore, the Simulator Admin tool user interface is used to initiate the actions listed in this menu. These menu items are enabled only when a simulator session has been established.

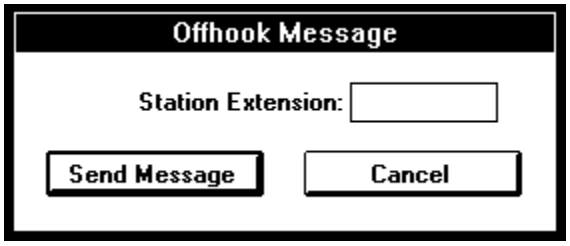
Figure 4-91: The PBX Services Menu



Off-hook

The Off-hook menu item enables the user to force a change in the switchhook state of a particular station from on-hook to off-hook. The form below causes the switchhook of the designated station to go off-hook. This operation is only valid on station extensions, not ACDs or trunks.

Figure 4-92: Off-hook Message Dialog Box

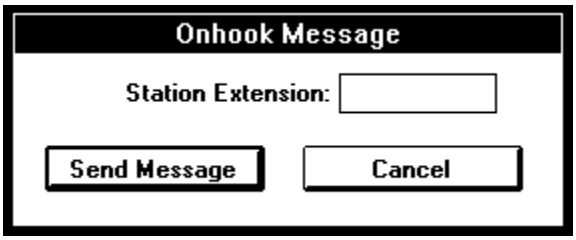


- **Station Extension:** — Designate the extension of the station which is to go off-hook.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

On-hook

The On-hook menu item enables the user to force a change in the switchhook state of a particular station from off-hook to on-hook. The form below causes the switchhook of the designated station to go on-hook. This operation is only valid on station extensions, not ACD groups or trunks.

Figure 4-93: On-hook Message Dialog Box

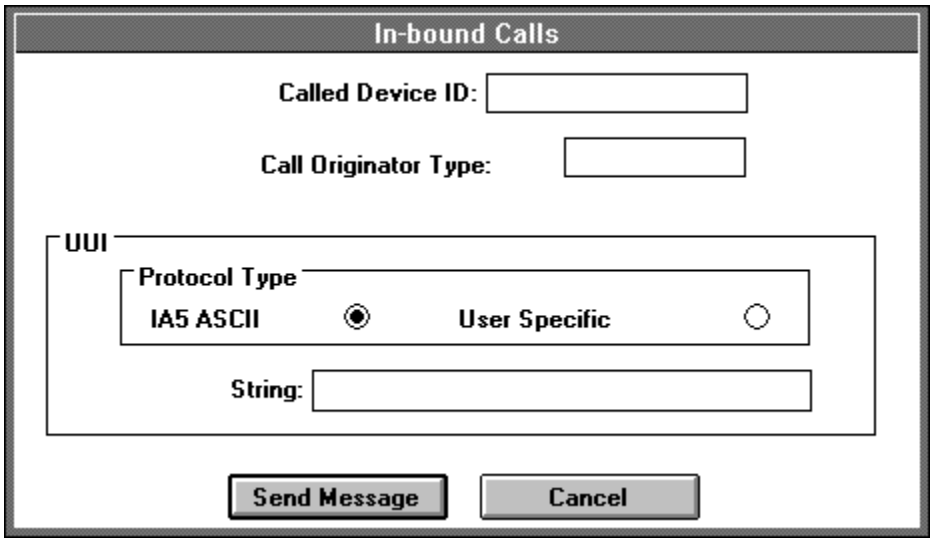


- **Station Extension:** — Designate the extension of the station which is to go on-hook.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

In-bound Calls

The message sent by this menu item causes the Simulator to act as if a call from an off-PBX device is coming in over a trunk. The message contains only the destination device; the Simulator DLL picks a free trunk and initiates a call from that trunk to the destination device.

Figure 4-94: In-bound Calls Dialog Box

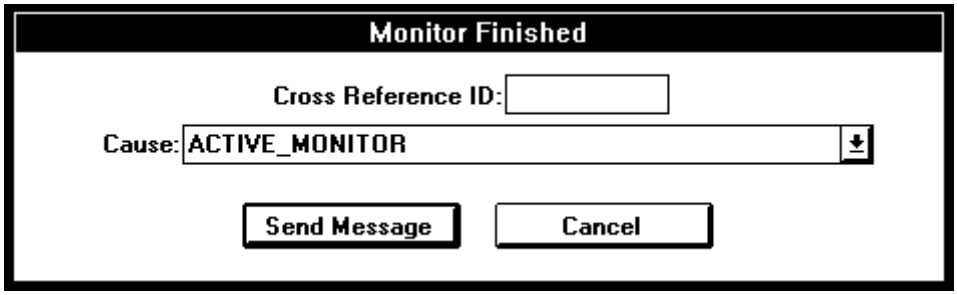


- **Called Device ID**: — Enter the extension of an on-PBX device (either a station extension or an ACD group) that is to receive the incoming call.
- **Call Originator Type** — Specify the type of call coming from the originating line. (These are calls coming from outside the PBX, such as pay phones, prison phones, etc.) This feature simulates the call originator information that is usually passed from the LEC to the DEFINITY switch.
- **UUI:** — Enter up to 96 bytes of User to User Information in the String field. If the Protocol Type selected is IA5 ASCII, then the string must be entered in alphanumeric format. If the Protocol Type selected is User Specific, then the string must be entered in hexadecimal format. This UUI will then be associated with this call for the duration of the call or until it is replaced by other UUI. It will be delivered with any delivered event or route request associated with the call. UUI can be changed via route selects, requests, or conferences or transfers.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Finish Monitor

This command requests the Simulator to send a monitor ended event as if the PBX had done it. This is different from the stop monitor in that it is PBX-generated and not user-requested.

Figure 4-95: Monitor Finished Dialog Box

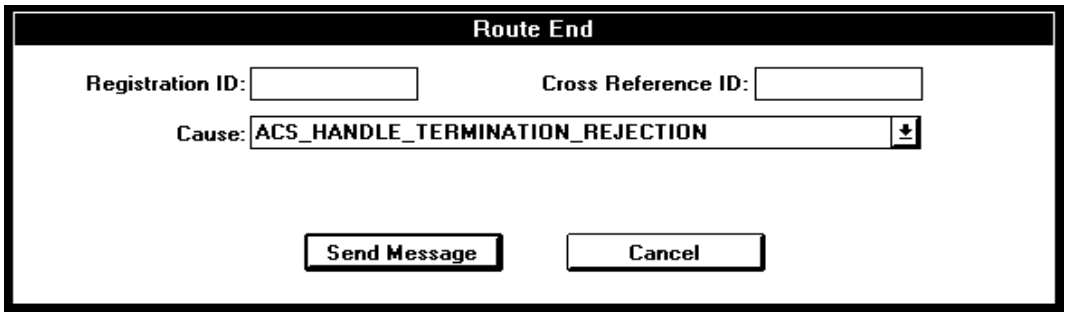


- **Cross Reference ID:** — This is the number that identifies the specific monitor that is to be terminated. The cross-reference ID is returned in the confirmation to the set monitor request.
- **Cause:** — This field gives the reason that the monitor is being terminated.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Route End

This command requests the Simulator to send a route end as if the PBX had done it. This is different from the route end request in the Functions menu, which is application-generated.

Figure 4-96: Route End Dialog Box

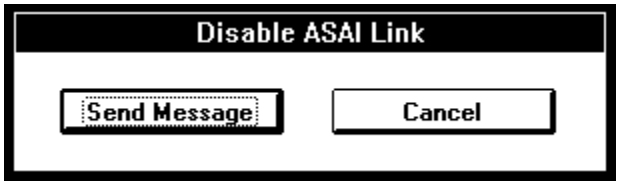


- **Registration ID:** — Enter the registration ID that was returned by the previously executed Route Register Request Command.
- **Cross Reference ID:** — This is the number that identifies the specific monitor that is to be terminated. The cross-reference ID is returned in the confirmation to the set monitor request.
- **Cause:** — This field gives the reason that the monitor is being terminated.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Disable Link

This command allows the user to disable the simulated link to the switch. This will allow the user to see how applications will react when the link to the DEFINITY G3 PBX goes down. The disabling of the link will cause all routing dialogs to be ended, all routing registrations to be canceled, and all further requests to be rejected.

Figure 4-97: Disable ASAI Link Dialog Box

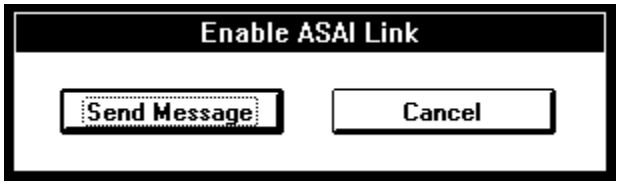


- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Enable Link

This command allows the user to enable the simulated link to the switch after it has been previously disabled. This will allow the user to see how applications will react when the link to the DEFINITY G3 PBX comes back into service.

Figure 4-98: Enable ASAI Link Dialog Box



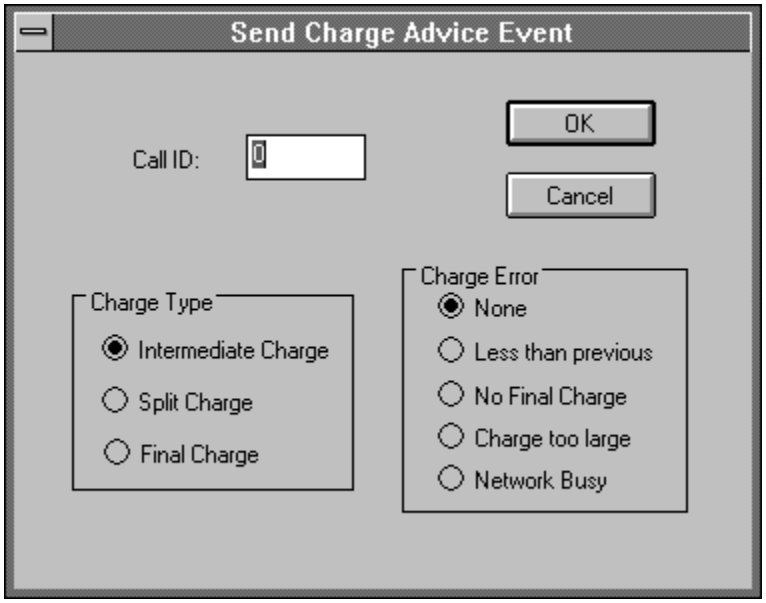
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Send Advice of Charge

Advice of Charge is network-provided information that is received either during or after an active outbound call (sometimes both during and after the call). The information indicates the current charges or incremental additions to the cost of a particular outgoing call.

During an active outbound call, a user can use the Send Advice of Charge command to generate a Charge Advice Event. If the Advice of Charge Feature is turned on, the Charge Advice Event is sent back to any client application that is monitoring the device or call.

Figure 4-99: Send Advice of Charge Event Dialog Box



- **Call ID:** — Enter the call ID of an active outbound call for which the charge will be sent.
- **OK** — Choosing this field sends the information.
- **Cancel** — Choosing this field voids the operation.
- **Charge Type** — Enter the type of charge to be returned.
- **Charge Error** — Indicate the error code for the type of charge selected.

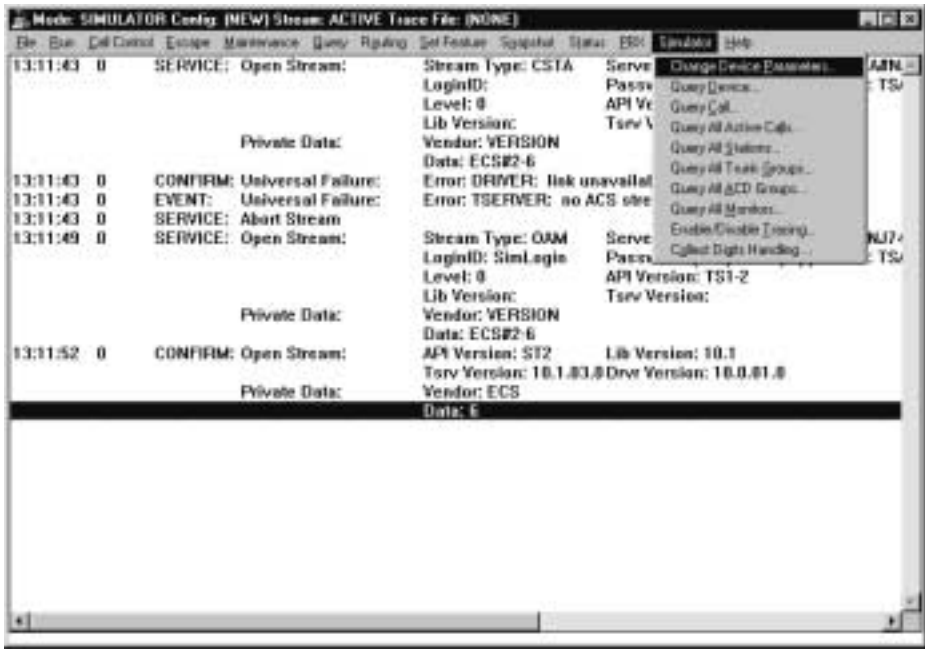
Note:

The Simulator does not verify any of the Charge Type or Charge Error selections.

The Simulator Menu

The following set of messages is used to query or set Simulator-specific data. These menu items are enabled only when a simulator session has been established.

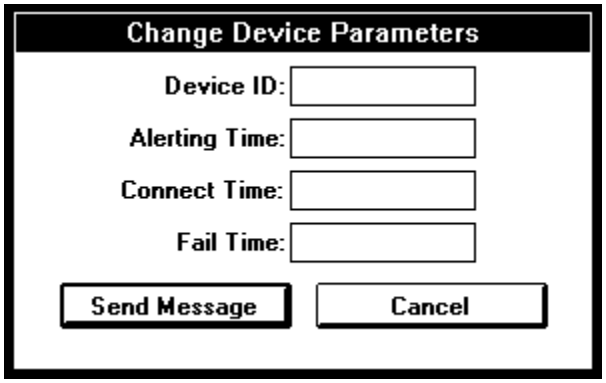
Figure 4-100: The Simulator Menu



Change Device Parameters

Data administered using the First Digit Table, Station, Trunk Groups, and ACD screens is set when the configuration file is saved. This message allows the user to change the alerting time, connect time and fail time for a particular station during a simulation. Note that the configuration file is not modified by this operation. Therefore, when the Simulator is restarted, the values return to their original settings.

Figure 4-101: Change Device Parameters Dialog Box

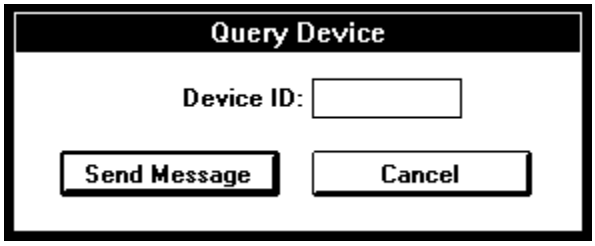


- **Device ID:** — The extension of the device to be changed.
- **Alerting Time:** — The time in seconds that the calls alert at this device (see "Stations on page 66").
- **Connect Time:** — The time in seconds that the call is in the connected state at this device (see "Trunk Groups on page 71").
- **Fail Time:** — The time in seconds that a failed call at this device remains in the failed state.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field ends the session.

Query Device

This command does not simulate a manual operation but provides information regarding the state of a specific device during a simulation. This command can be executed at any point during the simulation. Output is displayed on the Simulator Admin tool window.

Figure 4-102: Query Device Dialog Box

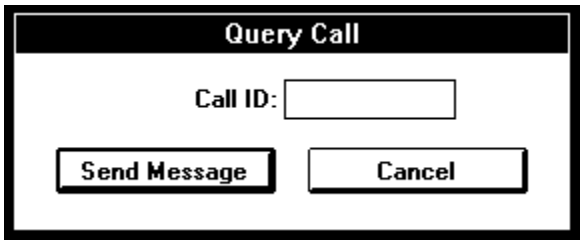


- **Device ID:** — Enter the extension of the station to be queried. Stations are the only device type supported.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Query Call

This command does not simulate a manual operation but provides information regarding the state of a specific call during a simulation. This command can be executed at any point during the simulation. Output is displayed on the Simulator Admin tool window.

Figure 4-103: Query Call Dialog Box



- **Call ID:** — Enter the desired call ID.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Query All Active Calls

This command does not simulate a manual operation but provides information regarding the state of all calls at a point in time during a simulation. This command can be executed at any point during the simulation. Output is displayed on the Simulator Admin tool window.

Figure 4-104: Query All Active Calls Dialog Box

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Query All Stations

This command will cause the Simulator to send information about all administered stations to the Simulator Admin tool Interface.

Figure 4-105: Query All Stations Dialog Box

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Query All Trunk Groups

This command will cause the Simulator to send information about all administered trunk groups to the Simulator Admin tool Interface.

Figure 4-106: Query All Trunk Groups Dialog Box

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Query All ACD Groups

This command will cause the Simulator to send information about all administered ACD groups to the Simulator Admin tool Interface.

Figure 4-107: Query All ACD Groups Dialog Box

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Query All Monitors

This command will cause the Simulator to send information about all active monitors and tracing Simulator Admin tool Interfaces to the Simulator Admin tool Interface.

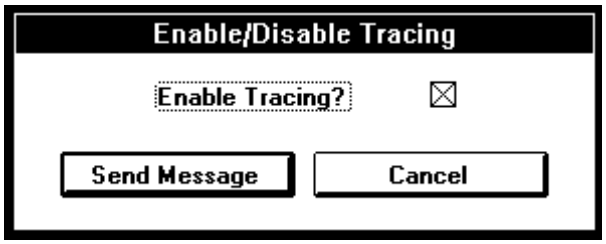
Figure 4-108: Query All Monitors Dialog Box

- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Enable/Disable Tracing

The following dialog box enables the user to enable or disable tracing for this particular session. See "Simulator Session on page 24" for more details on the impact of this change.

Figure 4-109: Enable/Disable Tracing Dialog Box



- **Enable Tracing?** — Check this box if tracing is to be enabled. This causes the Simulator to send trace messages of all transactions it processes. If the box is not checked, these messages are not sent. The only messages displayed at the Simulator Admin tool are confirmations to requests made by the Simulator Admin tool and unsolicited events that are the result of monitors set by the Simulator Admin tool.
- **Send Message** — Choosing this field sends the message.
- **Cancel** — Choosing this field voids the operation.

Collect Digits Handling

- **(Collect Digits Request Handling) Manual Response** — This field is the first choice under the Collect Digits Request Handling. When you select this option, a dialog box is displayed when the TSAPI Exerciser receives a collect digits request from the Simulator. (For more information, see the "Manual Digit Collection" section that follows.)
- **(Collect Digits Request Handling) Automatic Response** — This field is the second choice under the Collect Digits Request Handling. When you select this option, the TSAPI Exerciser automatically responds to the request for digit collection by the Simulator without user input. The digits generated are basically random.
- **(Collect Digits Request Handling) Ignore Request** — This field is the third choice under the Collect Digits Request Handling. Selecting this option tells the application to ignore all such requests for digits from the Simulator.
- **OK** — Choosing this field ends the screen session and saves the data in memory.
- **CANCEL** — Choosing this field ends the screen session and does not save any data.

Manual Digit Collection

When you select the Manual Response option under Collect Digits Request Handling on the System Parameters form, the dialog box below is displayed when the TSAPI Exerciser receives a collect digits request from the Simulator DLL. The TSAPI Exerciser will receive a collect digits request when a call is made to an ACD that has Collect Digits administered and there is at least one Monitor Calls Via Device session active for the ACD.

Note:

The TSAPI Exerciser must be running in Simulator mode and have tracing turned on to pop this dialog box.

Figure 4-110: Collect Digit Handling

- **Enter xx digits to be collected:** — Enter 1-24 digits as was administered on the ACD Form. This field will only appear if the "Collect Digits?" check box has been Selected.
- **Number of Digits Entered** — This is a dynamic display showing the number of digits that you have entered thus far.
- **Digits Needed to be Entered** — This is a dynamic display showing the number of digits that you still must enter.
- **Ignore this AND future Collect Digits Requests?** — Check this box if you do not want to be prompted by the Simulator to supply the requested digits.
- **OK** — Choosing this field ends the screen session and saves the data in memory.
- **CANCEL** — Choosing this field ends the screen session and does not save any data.

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