IVR Interface Option 7.5

IVR Driver for MPS and Periphonics

System Administrator’s Guide

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Table of Contents

Preface

Welcome to the *IVR Interface Option 7.5 IVR Driver for MPS and Periphonics System Administrator's Guide*. This guide describes the IVR Driver for MPS500, MPS1000, and Periphonics (Solaris OS only), which is the driver component of Genesys IVR Interface Option 7.5. This document also describes the Genesys-provided functions that IVR Interface Option 7.5 supports.

Note: Although the full product name for this driver is IVR Driver for MPS500, MPS1000, and Periphonics, throughout this document it is referred to as the IVR Driver for MPS and Periphonics.

This document is valid only for the 7.5 release of this software.

Note: For releases of this document created for other releases of this product, please visit the Genesys Technical Support website, or request the Documentation Library CD, which you can order by e-mail from Genesys Order Management at `orderman@genesyslab.com`.

This preface contains the following sections:

- Intended Audience, page 6
- Chapter Summaries, page 6
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Interactive Voice Response (IVR) technology has emerged as an integral part of contact centers, financial institutions, and the travel industry. IVR components provide the initial interface when a client calls a business. Using IVRs, businesses can realize significant savings and customers can conduct their business more efficiently.

The IVR Interface Option 7.5 architecture simplifies the integration of vendor-provided IVRs with the Genesys environment. Genesys IVR Interface Option 7.5 has two major components, the IVR Server and the IVR Driver. For more information about these and other IVR Interface Option 7.5 components, see "Architecture" on page 12.

Intended Audience

This guide, primarily intended for contact center administrators, contact center managers, operations personnel, and IVR developers, assumes that you have a basic understanding of:

- Computer-telephony integration (CTI) concepts, processes, terminology, and applications.
- Network design and operation.
- Your own network configurations.

You should also be familiar with the Genesys Framework architecture and functions.

Chapter Summaries

In addition to this preface, this guide contains the following chapters and appendix:

- Chapter 1, "IVR Driver Overview," on page 11, generally discusses deployment of IVR Interface Option 7.5 and provides a description and illustrations of the IVR Interface Option 7.5 architecture.
- Chapter 2, "Pre-Installation Setup for the IVR Driver," on page 19, describes the pre-installation tasks for the IVR Driver.
- Chapter 3, "Installing the IVR Driver," on page 25, describes how to install the IVR Driver.
- Chapter 4, "Starting and Stopping the IVR Driver," on page 33, describes how to start and stop the IVR Driver.
- Chapter 5, "Functions," on page 37, describes the Genesys-provided functions.
- An Appendix, "Customer Test Package" on page 65, describes how to test the IVR Driver installation and configuration.

Document Conventions

This document uses certain stylistic and typographical conventions—introduced here—that serve as shorthands for particular kinds of information.

Document Version Number

A version number appears at the bottom of the inside front cover of this document. Version numbers change as new information is added to this document. Here is a sample version number:
`75fr_ref_10-2006_v7.5.000.10`

You will need this number when you are talking with Genesys Technical Support about this product.

Type Styles

Italic

In this document, italic is used for emphasis, for documents' titles, for definitions of (or first references to) unfamiliar terms, and for mathematical variables.

Examples:

- Please consult the *Genesys 7 Migration Guide* for more information.
- *A customary and usual practice* is one that is widely accepted and used within a particular industry or profession.
- Do *not* use this value for this option.
- The formula, x +1 = 7 where x stands for . . .

Monospace Font

A monospace font, which looks like `teletype or typewriter text`, is used for all programming identifiers and GUI elements.

This convention includes the *names* of directories, files, folders, configuration objects, paths, scripts, dialog boxes, options, text and list boxes, operational modes, all buttons (including radio buttons), check boxes, commands, tabs, CTI events, and error messages; the values of options; logical arguments and command syntax; and code samples.

Examples:

- Select the `Show variables on screen` check box.
- Click the `Summation` button.
- In the `Properties` dialog box, enter the value for the host server in your environment.
- In the `Operand` text box, enter your formula.
- Click `OK` to exit the `Properties` dialog box.
- The following table presents the complete set of error messages T-Server distributes in `EventError` events.
- If you select `true` for the `inbound-bsns-calls` option, all established inbound calls on a local agent are considered business calls.

Monospace is also used for any text that users must manually enter during a configuration or installation procedure, or on a command line:

Example:

- Enter `exit` on the command line.

Screen Captures Used in This Document

Screen captures from the product GUI (graphical user interface), as used in this document, may sometimes contain a minor spelling, capitalization, or grammatical error. The text accompanying and explaining the screen captures corrects such errors *except* when such a correction would prevent you from installing, configuring, or successfully using the product. For example, if the name of an option contains a usage error, the name would be presented exactly as it appears in the product GUI; the error would not be corrected in any accompanying text.

Square Brackets

Square brackets indicate that a particular parameter or value is optional within a logical argument, a command, or programming syntax. That is, the parameter's or value's presence is not required to resolve the argument, command, or block of code. The user decides whether to include this optional information. Here is a sample:

```
smcp_server -host [/flags]
```

Angle Brackets

Angle brackets indicate a placeholder for a value that the user must specify. This might be a DN or port number specific to your enterprise. Here is a sample:

```
smcp_server -host <confighost>
```

Related Resources

Consult the following additional resources as necessary:

- The *IVR Interface Option 7.5 IVR Server System Administrator's Guide*, which describes how to install, configure, and use the IVR Server.
- The *Genesys Technical Publications Glossary*, which ships on the Genesys Documentation Library CD, and which provides a comprehensive list of the Genesys and CTI terminology and acronyms used in this document.
- The *Genesys 7 Migration Guide*, also on the Genesys Documentation Library CD, which contains a documented migration strategy for Genesys product releases 5.x and later. Contact Genesys Technical Support for additional information.

- The Release Notes and Product Advisories for this product, which are available on the Genesys Technical Support website at `http://genesyslab.com/support`.

Information about supported hardware and third-party software is available on the Genesys Technical Support website in the following documents:

- *Genesys 7 Supported Operating Systems and Databases Reference Manual*
- *Genesys 7 Supported Media Interfaces Reference Manual*

Genesys product documentation is available on the:

- Genesys Technical Support website at `http://genesyslab.com/support`.
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Chapter

1 IVR Driver Overview

This chapter describes the architecture of Genesys IVR Interface Option 7.5, and how the IVR Driver is used in this solution. It also discusses deployment tasks and tips. This chapter contains the following sections:

New in Release 7.5

The following changes have been implemented in release 7.5 of the IVR Driver for MPS and Periphonics:

- With MPS 3.0, the Genesys IVR Driver functions in the *N+1 redundancy mode*. This is a Nortel system backup configuration in which one node serves as a backup (secondary) node for multiple operational (primary) nodes. You must install and configure the Genesys IVR Driver on each node. The redundant driver then functions as in Warm Standby mode. For more information, see the *Media Processing Server Series System Reference Manual*.

Note: To take advantage of the full range of IVR Driver 7.5 functions, you must use IVR Server 7.5, Genesys Framework 7.5, and Genesys 7.5 licensing.

Deployment

This *System Administrator's Guide* describes how to install the IVR Driver for MPS500, MPS1000, and Periphonics, and how to configure it in Configuration Manager.

The IVR Interface Option 7.5 deployment process includes the installation and configuration of the following components:

- IVR Driver
- IVR Server

Before deploying IVR Interface Option 7.5, see the deployment planning chapters in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

In order for the IVR Driver to operate successfully, the IVR Server must be installed and running. For compatible IVR Driver and IVR Server releases, see the *Genesys 7 Migration Guide.*

For information about installing and configuring the IVR Server, see the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

For information about the Genesys functions provided for this IVR Driver, see Chapter 5 on page 37. For information about the Customer Test Package, see the Appendix on page 65.

Note: You must make sure that the `LD_LIBRARY_PATH` environmental variable is properly set and in effect when the driver process (`mps2is` or `peri2is`) is in use.

Architecture

This section describes the architecture of IVR Interface Option 7.5. This software application integrates vendor-provided Interactive Voice Response (IVR) software and hardware with Genesys Framework.

IVR Server

IVR Server, the key component of Genesys IVR Interface Option 7.5, provides the following functionality:

- Tracks call flow
- Interfaces multiple drivers with multiple T-Servers
- Works with other Genesys services (such as T-Server, Stat Server, and Universal Routing Server)
- Can be used in Load Sharing or Warm Standby mode

Genesys provides the following configuration modes for the IVR Server:

- IVR-Behind-Switch, a basic configuration in which a T-Server that is connected to the premise switch (using computer-telephony integration [CTI] links) can monitor the call activity on IVR channels. For more information, see "IVR-Behind-Switch Configuration."

- IVR-In-Front, in which a CTI link is not involved in the call processing. For more information, see "IVR-In-Front Configuration."
- IVR Network T-Server, in which the IVR Server is a link to a user-provided Network IVR application. The Service Control Point (SCP) and a Genesys Network T-Server are used to redirect calls to the Network IVR for processing. In this mode, IVR Server functions as a Network T-Server. Although Genesys IVR Drivers 7 do not support the IVR Network T-Server configuration mode, you can use it with a driver that you build using the IVR XML SDK. For more information about the IVR Network T-Server configuration mode, see the *IVR Interface Option 7.5 IVR Server System Administrator's Guide.*

Library Usage

IVR Server is built with 7.x T-Library, and therefore it can connect to T-Servers. IVR Server supports connection to a regular T-Server, the `TServer_IVR` function of an IVR Server operating in IVR-In-Front mode, and a Network T-Server.

IVR-Behind-Switch Configuration

In the IVR-Behind-Switch configuration, an incoming call arrives at the premise switch before going to the vendor-provided IVR (see Figure 1). The premise switch and T-Server are at the same site.

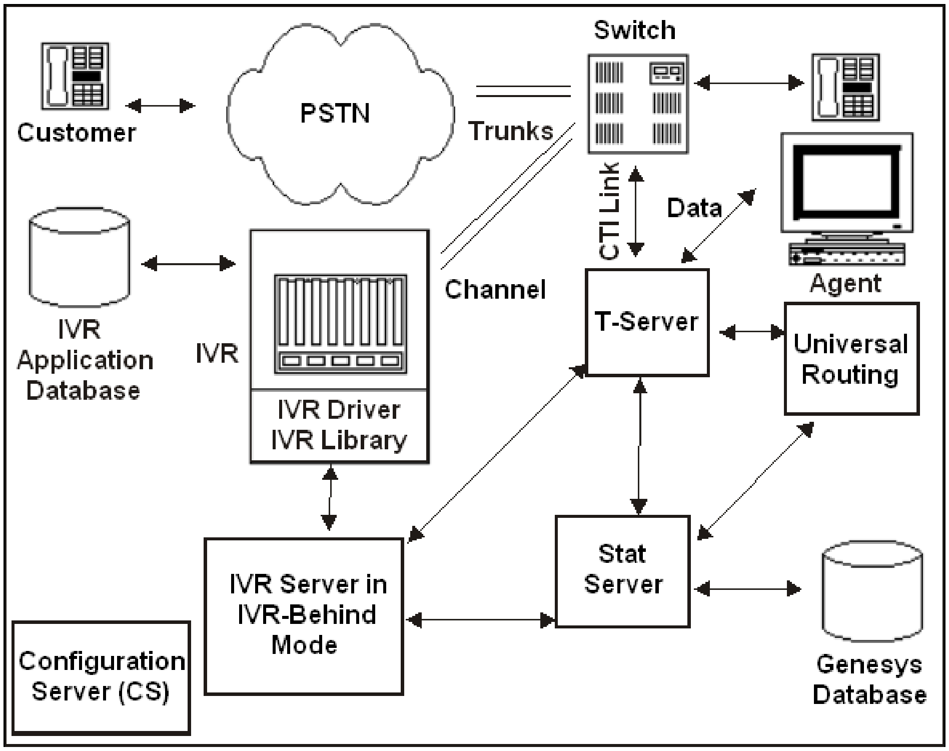


Figure 1: IVR-Behind-Switch Configuration

In this configuration, a T-Server is connected to a premise switch, and the IVR is connected directly to both the switch (through phone lines) and the IVR Server (through data lines). The IVR Server communicates with T-Server and Stat Server.

IVR-In-Front Configuration

If a vendor-provided IVR is connected directly to the PSTN (Public Switched Telephone Network), without a premise switch, the configuration is called IVR-In-Front. In the Site A configuration shown in Figure 2, there is no T-Server to connect to, because there is no premise switch. The `TServer_IVR` function resides within the IVR Server.

An IVR Server operating in IVR-In-Front mode supports IVRs that are connected directly to a PSTN, by performing functions similar to those of a regular T-Server. If an IVR is considered a termination point for incoming calls, no premise switch is involved, and no local T-Server receives notification of the incoming call. Instead, the IVR Server provides this functionality.

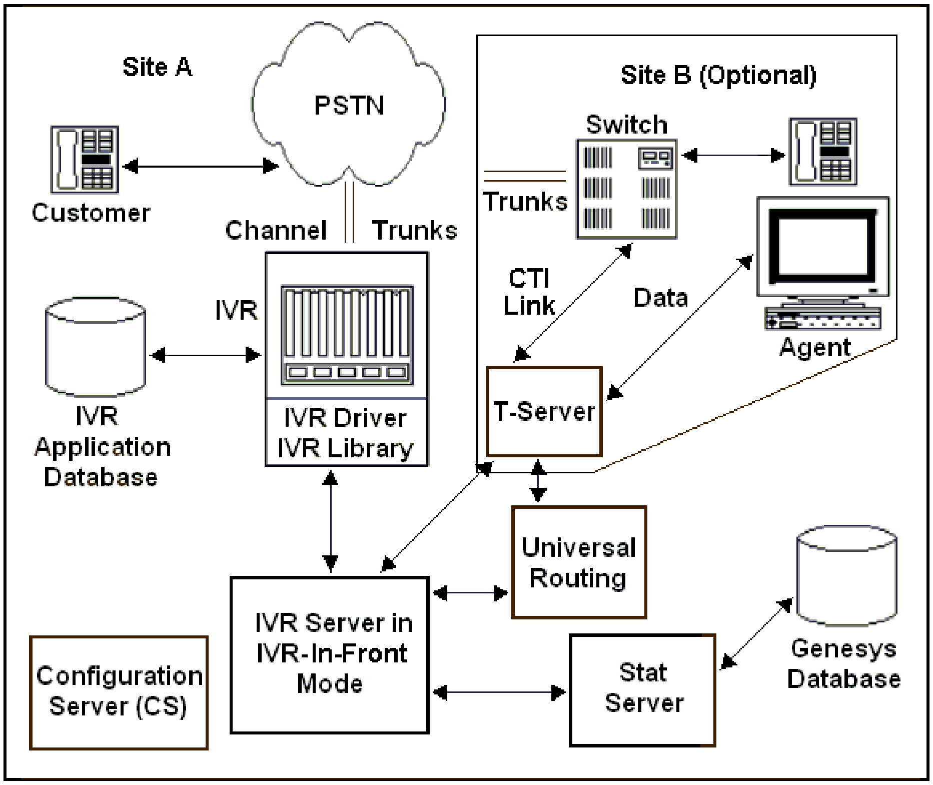


Figure 2: IVR-In-Front Configuration

In the IVR-In-Front configuration shown in Figure 2, Site A is configured for IVR-In-Front mode. The IVR Server communicates with the IVR, the Universal Routing Server, and Stat Server. The IVR Server also simulates a T-Server, which enables it to communicate with other T-Servers, such as the

T-Server at Site B. The IVR at Site A is physically connected to the public telephony network for phone lines, and to the IVR Server for data lines.

Site B includes a physical switch connected to a T-Server, which, in turn, provides data to agents in an agent pool. This distributed configuration across Sites A and B enables coordinated Call Data Transfers.

IVR Driver

The IVR Driver component integrates vendor-specific IVR hardware and software with the Genesys environment. This adds to the IVR's user interface a set of functions or calls that can be used to generate scripts and to integrate the vendor-provided IVR with the Genesys environment. All interactions between the IVR Driver and other IVR Interface Option components are based on the request-response architecture of the IVR Library and use a TCP/IP connection.

The major functions provided by the IVR Driver include:

- Telephony function support (such as transfer, conference, answer, and release).
- Call data manipulation (such as attach, update, and delete).

Each vendor-provided IVR needs one Genesys IVR Driver in order to operate in the Genesys environment. If you want to run vendor-provided IVRs from various manufacturers, each must have a corresponding IVR Driver that is designed for it.

IVR Library

The IVR Library component is embedded in Genesys IVR Drivers. It is used to perform common functions that are needed between the IVR application layer and the IVR Server.

With IVR Interface Option 7.5, the IVR Library's communication interface uses the industry-standard XML (eXtensible Markup Language) protocol for the transport layer. For more information about the XML interface, see the *IVR SDK 7.5 XML Developer's Guide*, which is available only with purchase of the Genesys IVR SDK.

For more information about the IVR Library interface, see the *Genesys Developer Program 7 IVR SDK C Developer's Guide*.

IVR Server Redundancy Methods

You can achieve redundancy for IVR Servers by using either Warm Standby or Load Sharing. The following sections briefly discuss each of these configuration modes in turn. For more information about how to configure IVR Server applications, see the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

Note: You configure Load Sharing and Warm Standby in Configuration Manager, on the `Options` tab of the `Properties` dialog box for the `I-Server` and `IVR_Driver` applications. For more information, see the concepts and the configuration option sections in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide.*

Warm Standby

If two IVR Servers are in a Warm Standby configuration, the primary IVR Server handles all calls on all IVR ports until it fails. At that point, the IVR Server that is configured as the Warm Standby backup server takes over the load.

Benefit You can perform Inter Server Call Control (ISCC) routing with the IVR Servers as the target of an ISCC transfer.

Drawback If the primary server fails, you lose all calls that were in progress at the time of failure.

Load Sharing

If two or more IVR Servers are in a Load Sharing configuration, calls on the IVR ports are distributed according to the following formula:

```
<number of ports> modulo <number of active IVR Servers>
```

If one IVR Server fails, this configuration enables the surviving IVR Server(s) to continue handling their current calls, and new incoming calls are distributed according to the preceding formula, with the number of active IVR Servers now decreased by one. When the failed IVR Server is restored, it is automatically added back into the distribution.

Benefit If an IVR Server fails, you lose only the active calls that were in progress on that server.

Drawback You cannot perform ISCC routing with the Load Sharing IVR Servers as the target of an ISCC transfer.

Note: If you want redundancy, but you do not need to use ISCC, Load Sharing is the better method, because you lose only a portion of the calls that are in progress. The number of calls that are lost when an IVR Server fails follows the formula:

```
1 / <number of Load Sharing IVR Servers>
```

For example, if you configure three Load Sharing IVR Servers, and one fails, you will lose one-third of the calls that are in progress—namely, the calls on the IVR Server that failed.

N+1 Redundancy Warm Standby Mode (MPS 3.0 Only)

N+1 redundancy is a system backup configuration in which one node serves as a backup (secondary) node for multiple operational (primary) nodes. The group composed of primary components and their secondary component(s) is referred to as a *cluster*. For more information, see the *Media Processing Server Series System Reference Manual*.

Managed Service Availability

In the management of a complex contact center environment, it is occasionally necessary to remove individual IVR ports, entire IVRs, or entire IVR Server applications from service, due either to planned maintenance, or to unplanned hardware or software failures. Starting with the 7.2 release of IVR Interface Option, a feature called managed service availability enables you do to this.

To use this feature for the IVR-Behind-Switch configuration, you must implement a switch-specific ACD queue that is serviced by one or more IVR Drivers and/or IVR Servers. For the IVR-In-Front configuration, you must use a facility (for example, a router) that prevents additional calls from arriving at a specific IVR Driver and/or IVR Server, based on Agent state (see “AgentControl” on page 22).

In order to use managed service availability to shut down and start drivers, you must enable the agent login/logout and agent ready/not ready mechanisms. Agent activity monitoring is available only for those IVR ports that are configured as ACD agents within the switch.

Shutting Down a Driver

To shut down a driver by using managed service availability, open the Solution Control Interface (SCI), select the IVR Driver application that you want to shut down, and stop it. The following sequence of events occurs:

1. For all ports that are not in use, the IVR Driver immediately sets the corresponding agents to `notready`.
2. The preconfigured shutdown timer begins counting down.
3. As the calls that are in progress end, the IVR Driver sets the corresponding agents to `notready`.
4. The IVR Driver shuts itself down when either of the following occurs:
   - All calls on all ports have ended.
   - The shutdown timer expires. Any calls that are still in progress are terminated immediately.

Note: It is recommended that you set the shutdown timer to a value that is longer than your longest normal call duration.

To set the timer, configure the `Shutdown_Timeout` option, on the `Server Info` tab of the `IVR_Driver` application's `Properties` dialog box in Configuration Manager.

For information about using managed service availability to stop the IVR Server, see the IVR Interface Option overview chapter in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

Starting a Driver

To start a driver by using managed service availability, follow the startup procedure described in Chapter 4 on page 33. After the driver is started and makes contact with the IVR Server, the agents will be placed into the state that you have configured for them.

Chapter

2 Pre-Installation Setup for the IVR Driver

This chapter describes the steps you must perform before you can successfully install the IVR Driver. It contains the following sections:

Before Configuring the IVR Driver

Before you configure the IVR Driver, you must complete the tasks described in this section.

Component Compatibility

Important: Before you can configure Configuration Manager objects and install IVR Interface Option 7.5, you must install a supported release of Genesys Framework. For IVR-Behind-Switch configurations, you must also install a compatible release of Genesys T-Server. For more information, see the *Framework 7.5 Deployment Guide*, and the IVR Interface Option 7.5 chapters in the *Genesys 7 Migration Guide*.

Installing the IVR

Before you manually install the IVR Driver for MPS and Periphonics on the UNIX operating system, you must install both the hardware and software for the MPS and Periphonics IVR application. For more information, see the vendor-provided MPS and Periphonics IVR documentation.

Install the IVR Driver only on the computer where the vendor-provided IVR is installed. Also, keep in mind that the IVR Driver is intended to be used with the IVR Server.

Installing the IVR Server

You can install the IVR Server on any computer that belongs to the site where the IVR Interface Option 7.5 product is used (including the computer on which the IVR Driver is installed). However, make sure that the operating system of the host on which you install the IVR Server matches the operating system on which the IVR Server was built.

Note: Genesys strongly recommends that, before installing the IVR Driver, you install the IVR Server, and that you configure it, the `IVR` object, and the `IVR_Driver` application in Configuration Manager.

For information about setting up and configuring the Genesys IVR Server, see the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

Installing LCA and Other Configuration

Before you can start the IVR Driver, you must complete the following steps:

1. Install the Genesys Local Control Agent (LCA) on the same computer as the IVR Driver, and then restart the computer. LCA is enabled and starts automatically during system startup.
2. In Configuration Manager, create a `Host` object for your IVR.
3. Open the `Properties` dialog box for the `IVR_Driver` application, and click the `Server Info` tab.
4. In the `Name` box, enter the IVR host name that you specified for the IVR's `Host` object in Step 2.
5. Configure a log file name that is valid for the operating system on which the IVR Driver is running.

Note: If you omit any of these steps, the IVR Driver will not operate or log properly.

Configuring the IVR Driver

This section describes how to configure the IVR Driver.

Note: For information about how to migrate from IVR Driver 6.x releases, see the *Genesys 7 Migration Guide.*

Defining IVRs and IVR Ports

You can use the IVR Interface Option Wizard to define an IVR object, and to define an entire range of IVR ports at once. For information about how to use the wizard, see the wizard configuration chapter in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

You can also define an IVR object or a single IVR port manually in Configuration Manager. For more information, see the manual configuration chapter in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

After you define an IVR object in Configuration Manager (either by using the wizard or manually), you must configure the IVR for use with an IVR Driver, using the procedure in "Configuring IVR Driver Options."

Configuring IVR Driver Options

You must configure all configuration options for the IVR Driver in Configuration Manager, on the Options tab of the IVR_Driver application's Properties dialog box. For information about how to import and configure the IVR_Driver application, see the pre-installation setup chapter and the IVR configuration options chapter in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

You can use the IVR Interface Option Wizard to configure the IVR_Driver application and its options. For more information, see the wizard configuration chapter in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

Notes: IVR Driver configuration options that in 6.x releases were configured on the Annex tab of the IVR object's Properties dialog box are configured in the IVR_Driver application starting with release 7.2. For more information, see the *Genesys 7 Migration Guide*.

For each IVR Driver running on the same IVR, you must define a separate IVR_Driver application.

Managed Service Availability Parameters

The parameters to enable and configure the managed service availability features are located on the Annex tab of the IVR object's Properties dialog box in the AgentControl section (see the IVR configuration options chapter in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*).

AgentControl

There are four parameters in the AgentControl section: LegacyMode, DriverIgnoreReady, DriverReadyWorkMode, and DriverRetryTimeout. These parameters are used to specify which AgentControl values IVR Library expects, and what effect they have. Any values other than those described in this section are ignored.

Warning! It is important to set the Shutdown Timeout option (on the Server Info tab of the IVR_Driver application's Properties dialog box) to a time interval that will allow all calls to end normally on the IVR. Any calls that are still in progress when the timer expires will be terminated immediately.

Note: All parameter names are case-sensitive.

LegacyMode

Default Value: true

Valid Values:	true	The IVR Server controls the agent activity.
	false	The IVR Driver controls the agent activity.

Changes Take Effect: Immediately

Specifies whether the IVR Server or the IVR Driver controls agent state, to provide consistency with the values configured for the IVR ports in the IVR object.

Notes: If LegacyMode is set to false:

- Only one IVR Driver at a time may connect to this IVR object.
- Dynamic disabling of IVR ports while the IVR Driver is running is not supported. If you attempt to dynamically disable IVR ports while the IVR Driver is running, the IVR port's agents might not being logged off.

The following three parameters apply only when LegacyMode is set to false.

DriverIgnoreReady

Default Value: false

Valid Values:	true	The IVR Driver ignores the SetReady parameter.
	false	The IVR Driver attempts to set agents to the configured SetReady state.

Changes Take Effect: Immediately

Specifies whether the IVR Driver attempts to use the SetReady parameter.

DriverReadyWorkMode

Default Value: `ManualIn`

Valid Values:		
	`ManualIn`	The IVR Driver sends `AgentReady` and `AgentNotReady` messages with `workmode` = `ManualIn`. An `AgentReady` message is sent whenever an `AgentNotReady` status is received from IVR Server.
	`AutoIn`	The IVR Driver sends `AgentReady` and `AgentNotReady` messages with `workmode` = `AutoIn`.
	`Unknown`	The IVR Driver sends `AgentReady` and `AgentNotReady` messages with `workmode` = `Unknown`.

Changes Take Effect: Immediately

Specifies the `workmode` for `AgentReady` and `AgentNotReady` messages.

DriverRetryTimeout

Default Value: `60`
Valid Values: Any integer > `0`
Changes Take Effect: Immediately

Specifies the amount of time (in seconds) that the IVR Driver waits to make another attempt, after receiving an error message from IVR Server for a previous `AgentControl` message on that port.

Chapter

3 Installing the IVR Driver

This chapter describes how to install the IVR Driver. It contains the following sections:

Before you install the IVR Driver, complete the tasks described in Chapter 2 on page 19.

Identifying the Driver Version

To help you identify the driver version, the file name of the Genesys IVR Driver package for MPS and Periphonics consists of the following subfields separated by underscores:

- The name and version of the vendor-provided IVR
- The name and version of the operating system on which the product was designed to run
- The Genesys IVR Interface Option type
- The Genesys IVR Driver version

Example for MPS

```
mps2-1_SOS5-8_IS_7-5-000-01.tar
```

The file name in this example indicates the following:

1. `mps2-1`—This Genesys IVR Driver package was created for the MPS 2.1 IVR.

2. `SOS5-8`—It runs on the Sun operating system, version 5.8.
3. `IS`—The IVR Interface Option type is `IS` (IVR Server).
4. `7-5-000-01`—The Genesys IVR Driver version is 7.5.000.01.
5. `.tar`—The package is self-installing.

Example for Periphonics

`peri5-4_2_SOS5-8_IS_7-5-000-01.tar`

The file name in this example indicates the following:

1. `peri5-4_2`—This Genesys IVR Driver package was created for the Periphonics 5.4.2 IVR.
2. `SOS5-8`—It runs on the Sun operating system, version 5.8.
3. `IS`—The IVR Interface Option type is `IS` (IVR Server).
4. `7-5-000-01`—The Genesys IVR Driver version is 7.5.000.01.
5. `.tar`—The package is self-installing.

Note: The text of this chapter uses MPS and Periphonics file and driver names interchangeably. For example, the text might use `peri2is`, but if you are installing the MPS driver, you should substitute `mps2is`. Where information for the two drivers differs, the section heading will specify the driver to which the information pertains.

In some examples, the `|` character is used to denote either the `peri2is` driver or the `mps2is` driver: `peri2is|mps2is`. You should enter the name of the driver that you are installing.

Supported IVR Versions

The IVR Driver for MPS and Periphonics and this *System Administrator's Guide* support only the following Nortel IVR versions and operating systems:

- MPS1000 3.0 on Sun Operating System 5.10 (or Solaris 10)
- MPS1000 2.1 on Sun Operating System 5.8 (or Solaris 2.8)
- MPS500 2.1 on Sun Operating System 5.8 (or Solaris 2.8)
- Periphonics 5.4.2 on Sun Operating System 5.6 or 5.8 (or Solaris 2.6 or Solaris 2.8)

The Customer Test Package (CTP) and Genesys `pprotoolkit` are supported by MPS Developer 3.0.1 for the MPS version 3.0, MPS Developer 3.0.0 for the MPS version 2.1, and by PeriProducer 2.3 for the Periphonics version.

Starting the Installation for MPS

Notes: The same installation package (.tar file) is used for both MPS500 and MPS1000.

If you want to take advantage of the new N+1 redundancy warm standby mode (only in MPS 3.0):

- You must install the Genesys IVR Driver on each node and configure it in /opt/vps/common/etc/GenesysIVRDriver.cfg on each node.
- On the primary node, set startup mode = warm in the $MPSHOME/common/etc/rcd.cfg file.
- On the secondary node set startup mode = warm in the $MPSHOME/common.standby/etc/rcd.cfg file.
- In the 7.x configuration mode, you must configure two differently named IVR applications. The first host will be designated as the primary MPS host, while the second one will be designated as the secondary MPS host.
  Both hosts must point to the same IVR object. For the primary host, configure the IVR Driver specified in the GenesysIVRDriver.cfg file to run the first IVR application. For the secondary host, configure the IVR Driver to run the second IVR application.
- The redundant driver then operates in the Nortel warm standby mode.

To start the installation procedure for the IVR Driver for MPS1000, un-tar the Genesys software package, as follows:

1. Become superuser.
2. On the local MPS1000 host, create a suggested directory called /home/mps/gcti. Make sure that it has 20 MB of free space.
3. Insert the IVR Interface Option 7.5 installation CD.
4. Locate the MPS1000/solaris folder on the installation CD.
5. Open the subfolder for the operating system that you use for your IVR, and locate the .tar file (for example, mps2-1_SOS5-8_IS_7-2-000-01.tar for MPS 2.1 or mps3-0_SOS5-10_IS_7-2-000-01.tar for an MPS 3.0).
6. Copy the .tar file into the /home/mps/gcti directory that you created in Step 2.
7. At the command line, enter the command to untar the .tar file—for example:

   ```
   tar -xvf mps2-1_SOS5-8_IS_7-2-000-01.tar
   ```

This procedure extracts the following files from the .tar file:

- mps2is—This file is the IVR Driver for MPS1000.

- *.so—These files are the dynamic libraries used by mps2is.
- GenesysIVRDriver.cfg—This is the configuration file for mps2is.
- CTP.ppr, CTP.mmi, CTP.mmd—These files provide the Customer Test Package that shows how user-defined function calls can be used.
- cf_gsys.c—This file facilitates the communication between the MPS1000 IVR system and the IVR Driver, mps2is.
- Genesys.pprotoolkit—This toolkit file makes the IVR Driver for MPS1000 function call icons available in the PeriPro environment. You add the toolkit (folder) of icons, and then drag and drop the icons as you author a Genesys-enabled application.
- genesys subdirectory—This subdirectory contains the function calls (function_name.ppr) and the icons for the function calls (function_name.icon).

Starting the Installation for Periphonics

To start the installation procedure for the IVR Driver for Periphonics, un-tar the Genesys software package, as follows:

1. Become superuser.
2. On the local Periphonics host, create a suggested directory called /home/peri/gcti. Make sure that it has 20 MB of free space.
3. Insert the IVR Interface Option 7.5 installation CD.
4. Locate the peri/solaris folder on the installation CD.
5. Open the subfolder for the operating system that you use for your IVR, and locate the .tar file (for example, peri5-4-2_SOS5-8_IS_7-2-000-01.tar).
6. Copy the .tar file into the /home/peri/gcti directory that you created in Step 2.
7. At the command line, enter the command to untar the .tar file—for example:

   ```
   tar -xvf peri5-4-2_SOS5-8_IS_7-2-000-01.tar
   ```

This procedure extracts the following files from the .tar file:

- peri2is—This file is the IVR Driver for Periphonics.
- *.so—This file is the dynamic library used by peri2is.
- GenesysIVRDriver.cfg—This is the configuration file for peri2is.
- CTP.ppr, CTP.mmi, CTP.mmd—These files provide the Customer Test Package that shows how user-defined function calls can be used.
- cf_gsys.c—This file facilitates the communication between the Periphonics IVR system and the IVR Driver, peri2is.

- Genesys.pprotoolkit—This toolkit file makes the IVR Driver for Periphonics function call icons available in the PeriPro environment. You add the toolkit (folder) of icons, and then drag and drop the icons as you author a Genesys enabled application.
- genesys subdirectory—This subdirectory contains the function calls (function_name.ppr) and the icons for the function calls (function_name.icon).

Installing the IVR Driver

This section describes the main tasks that you must complete in order to install the IVR Driver for MPS and Periphonics.

Installing the Genesys Toolkit

After untarring the package, complete the following steps:

1. Edit the GenesysIVRDriver.cfg file, adding your configuration values for the command parameters:

Note: For release 7.*x*, all the configuration values are specified in one command line.

a. For the New style indicator parameter, enter GS_7.0.

b. For the Locating token parameter, enter the name of the token that identifies the IVR Driver instance.

c. For the cfg_server_host parameter, enter the name of the host on which the Configuration Server will be running.

d. For the cfg_server_port parameter, enter the port number of the Configuration Server, as defined in the TServer_IVR application's Properties dialog box in Configuration Manager. The default value is 2020.

e. For the driver_app_name parameter, enter the name of the IVR_Driver application, as defined in the TServer_IVR application's Properties dialog box in Configuration Manager.

Note: For each IVR Driver that is running on the same IVR, you must define a separate IVR_Driver application.

f. For the ivr obj parameter, enter the name assigned to the IVR in Configuration Manager (for example, mps).

g. The cps/tms_number parameter is the system identifier for the CPS/TMS equipment with which the IVR Driver for MPS interacts. Enter the Nortel CPS or TMS number. The default value is 1.

h. For the first_ivr_port parameter, enter the number to be assigned to the first port in this IVR Driver's port range.

i. For the last_ivr_port parameter, enter the number to be assigned to the last port in this IVR Driver's port range.

j. For the internal_port parameter, enter the number of the port on which the IVR Driver communicates with the IVR.

k. If you choose to start your IVR Driver from the Genesys Solution Control Interface (SCI) (see page 34), you must:

- Install the Genesys Local Control Agent (LCA) that is provided on the Genesys Framework 7.5 product CD.
- Run the install.sh script that is located in the directory to which you installed the IVR Driver. This script creates a gs_start_drv.sh script that the SCI can invoke.

2. Using root access, move the Genesys.pprotoolkit file and the genesys subdirectory to the $VPSHOME/PERIppro directory. The genesys directory contains all the necessary .icon and .ppr files for creating the Genesys toolkit.

3. Move the GenesysIVRDriver.cfg file to the /opt/vps/common/etc directory.

Note: After you complete Steps 2 and 3, you no longer need root access.

4. Restart the PeriProducer application to enable the Genesys toolkit.

Generating the Libraries

Before you can use the IVR Driver for MPS and Periphonics, you must compile and build the libraries that are necessary for communication between the IVR Driver and the MPS and Periphonics IVR.

The cf_gsys.c file is used to communicate with the IVR Driver application.

Note: A version of the C compiler that is compatible with your operating system must be installed on the same computer as the IVR; otherwise, the compile in Step 4 will fail.

To generate the libraries:

1. Open a Command Tool window, and go to the directory in which the IVR Driver is installed.

2. If debug is not required, proceed to Step 4. If debug is required, do the following:

   a. Open the cf_gsys.c file in a text editor.

   b. Edit the #define DEBUG line to change the DEBUG flag.

3. Save the cf_gsys.c file.

4. Compile the `cf_gsys.c` file by entering the following command at the command line:

   ```
   makecall cf_gsys.c
   ```

   The MPS or Periphonics IVR begins generating the libraries.

For more information about generating libraries, see the vendor-provided MPS and Periphonics IVR documentation.

Note: The `makecall` function is provided by the MPS and Periphonics IVR for the purpose of compiling and building libraries that can be used to call external functions—that is, functions that are not provided through the built-in features of PeriProducer.

Testing the Installation and Configuration

As part of the standard installation, Genesys has provided a Customer Test Package (CTP) to help test the installation and configuration of the IVR Driver. You should configure the IVR Driver before using the CTP. For information about how to use the CTP, see the Appendix on page 65.

Chapter

4

Starting and Stopping the IVR Driver

This chapter describes how to start and stop the IVR Driver, which you can do only after you have properly installed and configured both the IVR Server and the IVR Driver. For more information about installing and configuring the IVR Server, see the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

This chapter contains the following sections:

Prestart Information

After installing and configuring the IVR Server and the IVR Driver, you can start the vendor-provided IVR. Genesys recommends that you start the IVR Server before you start the IVR Driver.

Starting the IVR Driver

You can start the IVR Driver for MPS and Periphonics manually or through the Genesys Solution Control Interface (SCI).

Starting Manually

To start the IVR Driver manually:

1. Open a `Command Tool` window, and go to the directory in which the IVR Driver is installed.
2. At the command line, enter the following command:

   ```
   set LD_LIBRARY_PATH = /home/peri/gcti
   ```

   In this command, `/home/peri/gcti` is this library path setting. It must match the directory to which you unpacked the `*.so` files from the `.tar` file at installation. If you used a directory other than `/home/peri/gcti`, enter that directory instead.
3. Enter the following command:

   ```
   peri2is|mps2is [ivr_DriverName]
   ```

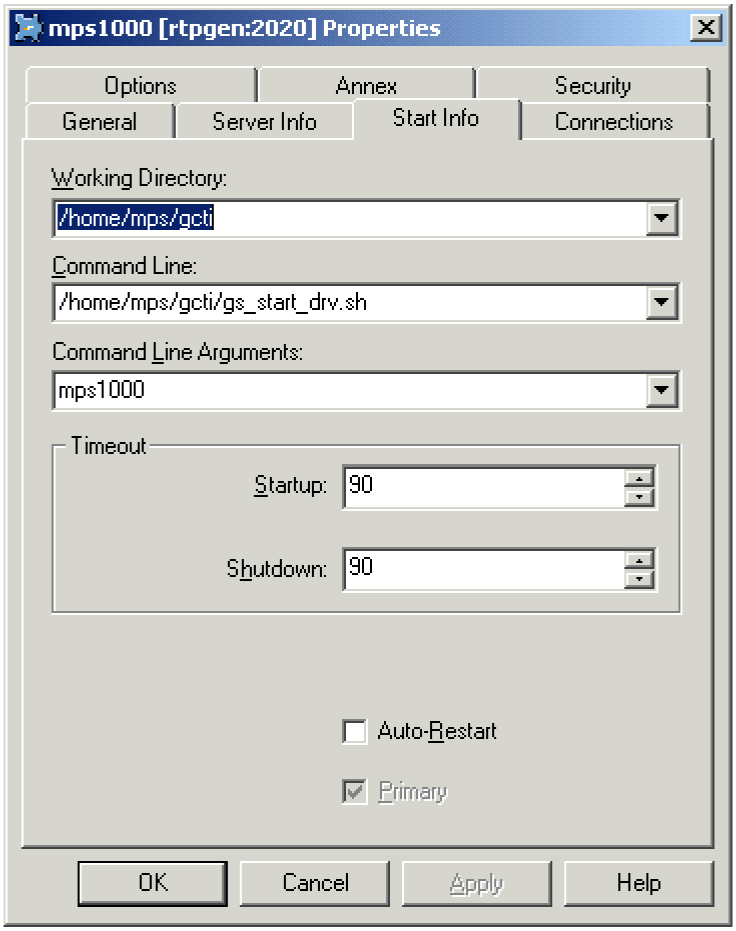
   In this command, `ivr_DriverName` is the name of the IVR Driver (as configured in the `GenesysIVRDriver.cfg` and in Configuration Manager).

Starting Through SCI

To start the IVR Driver using the SCI:

1. Create an `IVR_Driver` application as described in "Configuring the IVR Driver" on page 20, and in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.
2. Click the `Start Info` tab of the `IVR_Driver` application's `Properties` dialog box, and configure the following settings (see Figure 3):
   - In the `Working Directory` box, enter the directory path to which you installed the IVR Driver.
   - In the `Command Line` box, enter the following line:

     ```
     <Working Directory path>/gs_start_drv.sh
     ```
   - In the `Command Line Arguments` box, enter the name of the IVR Driver instance to be started (as configured in the `GenesysIVRDriver.cfg` file).



Working Directory: /home/mps/gcti

Command Line: /home/mps/gcti/gs_start_drv.sh

Command Line Arguments: mps1000

Timeout

Startup: 90

Shutdown: 90

□ Auto-Restart

☑ Primary

Figure 3: IVR_Driver Application Properties Dialog Box—Start Info Tab

3. Make sure that the `gs_start_drv.sh` script exists in the working directory of your IVR. If it does not, run the `install.sh` script to create it.
4. In the SCI, right-click your `IVR_Driver` application, and then select `Start`.

Stopping the IVR Driver

You can stop the IVR Driver manually or through the SCI.

Stopping Manually

To stop the IVR Driver manually, open a `Command Tool` window, and then do one of the following at the command line:

- Press `CTRL+C`.
- Enter the UNIX `kill` command.

Stopping Through SCI

To stop the IVR Driver by using the SCI:

- In the SCI, right-click your `IVR_Driver` application, and then select `Stop`.

Running Multiple Instances of the IVR Driver

Note: You must configure a unique `ivr_DriverName` for each instance of an MPS or Periphonics IVR Driver.

To manually start multiple instances of the IVR Driver:

1. Open a `Command Tool` window, and go to the directory in which the IVR Driver is installed.
2. At the command line, enter the following command:

   ```
   set LD_LIBRARY_PATH = /home/peri/gcti
   ```

   In this command, `/home/peri/gcti` is this library path setting. It must match the directory to which you unpacked the `*.so` files from the `.tar` file at installation. If you used a directory other than `/home/peri/gcti`, enter that directory instead.
3. Enter the following command for each IVR Driver (using a unique `ivr_DriverName` for each instance):
   - `Driver_Directory/peri2is|mps2is [ivr_DriverName] &`

In this command, `ivr_DriverName` must match the name of an IVR Driver (as configured in the `GenesysIVRDriver.cfg` file and in Configuration Manager).

To manually stop the IVR Driver, enter the UNIX `kill` command at the command line.

Chapter

5 Functions

After you install, configure, and start the IVR Driver, you can use and test IVR Interface Option 7.5 as a user function within the vendor-provided IVR application. This chapter describes the functions that IVR Interface Option 7.5 supports. It contains the following sections:

Input Constraints

Some of the functions described in this chapter use key-value pairs. The following constraints apply:

- Characters with a value less than `0x20` are not valid in key names or data values. The only exceptions are the characters `0x09`, `0x0A`, and `0x0D`, which correspond to the ASCII control characters `TAB`, `LINE FEED`, and `CARRIAGE RETURN`. No other ASCII control characters are allowed.
- Although you can use a colon (`:`) when defining the values for a key, a key that includes a colon can be used to perform only the following operations:
  - `UDataAddKVP`
  - `UDataAddList`
  - `UDataDelKVP`
- You cannot issue a `UDataGetKVP` function call from the IVR Driver by using a key that contains a colon (although other Genesys software might be able to access this type of key-value pair).
- The length of the key can be no more than 2048 bytes. The length of any individual data string is limited to 2048 bytes. The combined key-value pairs (including delimiters) on a given call instance can total no more than 4096 bytes.

Genesys-Provided Functions

The Genesys IVR Driver provides all the functions described in this chapter. You can call these from within the application of the MPS or Periphonics system. When a script is initiated, these external functions make the corresponding IVR Driver interface functionality available to the Interactive Voice Response (IVR) system. For more information about using the external functions during the script building process, see the vendor-provided MPS and Periphonics IVR documentation.

All *input parameters* specify parameters that are sent from the script to the `peri2is|mps2is` driver, and all function *output parameters* specify parameters that are returned by `peri2is|mps2is`.

Note: The type of parameter (`String` or `Number`) is given in MPS or Periphonics terminology.

When a function returns more than one variable, the script logic must check the `Result` before any other variable can be used. Other variables can be used only if the `Result` is successful.

To execute a request:

1. Call the required function. After the function is executed, a Request ID (`ReqID`) is returned to confirm this.
2. Call the `GetReply` function to obtain the result of this executed function. `GetReply` has a `ReqID` parameter that verifies the previously called function (see Step 1).

The "Output" section for each function description describes the results that are returned by the `GetReply` function.

Each Genesys-provided function is available through a function button in the PeriPro application (see Figure 4).

Note: The function buttons shown in Figure 4 are from PeriPro version 3.0.

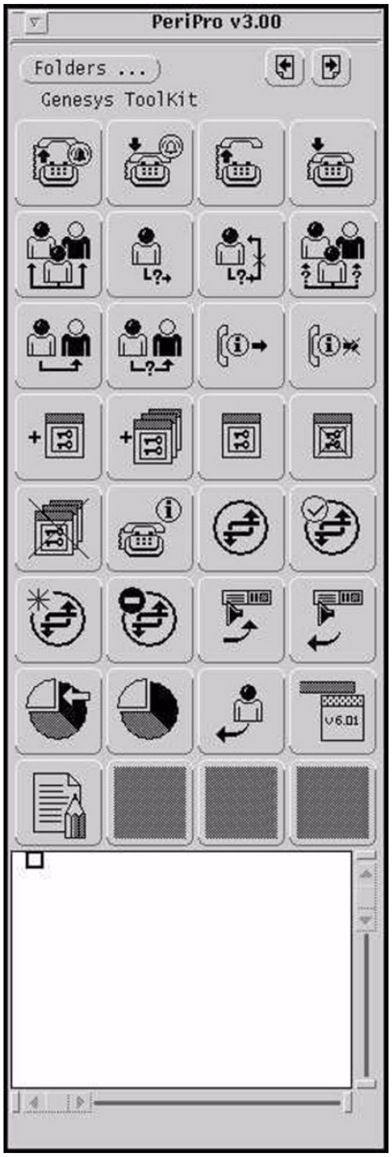


Figure 4: PeriPro Function Buttons

Table 1 lists the Genesys-provided functions, including a graphic of the PeriPro function button for each. The remaining sections of this chapter describe each of these functions in detail.

Table 1: Functions

Function	Button	Summary	Page
Notify Functions			
NotifyCallStart	☎	Notifies the IVR Server that the call has started.	Page 43
NotifyCallEnd	☎	Notifies the IVR Server that the call has ended.	Page 44
Telephone Functions			
CallInit	☎	Initiates a new call to the destination DN.	Page 45
CallTransfer	👥	Makes a transfer to the DN (mute transfer).	Page 45
CallComplete	☎	Completes the current call.	Page 46
CallConference	👥	Completes the call by creating a conference.	Page 47
CallConsultInit	👤	Initiates a consulting call with a DN.	Page 47
CallConsultRetrieve	👤	Retrieves the original consulting call.	Page 48
CallConsultTransfer	👥	Completes the consulting call by making a transfer.	Page 49

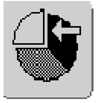
Table 1: Functions (Continued)

Function	Button	Summary	Page
CallConsultConference		Completes the consulting call by creating a conference.	Page 50
User Data Manipulation Functions			
UDataGetKVP		Returns an attached key value that is associated with a key-value pair.	Page 50
UDataAddKVP		Attaches (updates) a key-value pair to a call.	Page 51
UDataDelKVP		Deletes a key-value pair from the call database.	Page 52
UDataAddList		Attaches (updates) a list of key-value pairs to a call.	Page 52
UDataDelAll		Deletes all user data from the call database.	Page 53
Call Information Functions			
GetCallInfo		Returns the requested information from the call database.	Page 53
Call Data Transfer Functions			
CDT_Init		Requests an access number in order to make a Call Data Transfer to a remote destination.	Page 54

Table 1: Functions (Continued)

Function	Button	Summary	Page
CDT_Cancel		Cancels the `CDT_Init` request.	Page 55
Route Functions			
RouteRequest		Requests a service point from the router.	Page 57
RouteStart		Requests the start of a new session from the router (assigned to the service point).	Page 58
RouteAbort		Aborts the previously requested service session from the router.	Page 59
GetRequest		Takes the request (or reply) for the next job that the IVR is to perform.	Page 59
SendReply		Sends a reply for the previously called `GetRequest` function.	Page 61
General-Purpose Functions			
GetReply		Takes the reply for a previously issued request.	Page 62
GetVersion	v6.01	Returns the version number of the IVR Driver or the IVR Library.	Page 62
ToLog		Places a specified text string into the log file.	Page 63

Table 1: Functions (Continued)

Function	Button	Summary	Page
Statistical Functions			
StatPeek		Sends a request to the Stat Server to provide information about a predefined statistic.	Page 63

Notify Functions

NotifyCallStart

This function notifies the IVR Server that the IVR channel has answered the call.

Your script must call the `NotifyCallStart` function as the first Genesys function at the start of each call instance—typically after the script's `Answer` function.

After a successful `NotifyCallStart`, the next calls must be `GetCallInfo(EventName)` and `GetReply`. These calls must return a valid Genesys event (`EventEstablished`, `EventAttachedDataChanged`, or `EventPartyChanged`) before the script can use any other function calls (except `NotifyCallEnd`).

The script must call `NotifyCallEnd` as its last function. The script must call only one `NotifyCallStart` and one `NotifyCallEnd` function for each call.

To ensure that your application has received an `EventEstablished`, `EventAttachedDataChanged`, or `EventPartyChanged` event:

1. Issue the `NotifyCallStart` call.
2. Issue a `GetReply` call for this request.
3. Issue a `GetCallInfo` call on the line, asking for the `EventName`.
4. Issue a `GetReply` call for the `GetCallInfo` call.
5. Verify that your application receives an `EventEstablished`, `EventAttachedDataChanged`, or `EventPartyChanged` event.

The IVR Driver is ready to perform additional application programming interface (API) requests only after the `EventEstablished`, `EventAttachedDataChanged`, or `EventPartyChanged` event has been received.

Input

`String szCallID`

The Call ID.

`String szDNIS`

DNIS information.

`String szANI`

ANI information.

`String szCDT_Tag`

A tag used by the Call Data Transfer protocol.

Note: The `String szDNIS` and `String szANI` parameters can be included (if available) if the PBX is not present at the site, and the IVR Server operates in IVR-In-Front mode. If the PBX is present at the site, these strings must be empty.

Output

`ReqID`

If = `0`, the function failed.

If = `Request ID`, a Request ID must be used later with the `GetReply` function.

NotifyCallEnd

This function notifies the IVR Server that the IVR channel has disconnected the call. No Genesys function call other than a `GetCallInfo(LastEvent)` is expected for the call session after this function.

Genesys recommends that this function be called as the last function in the script. This function must be invoked *after* the `Disconnect` action of the State Table.

Input

None.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

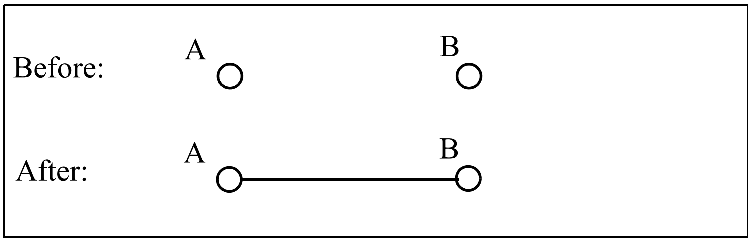
Telephone Functions

CallInit

This function initiates a new call to the destination DN (B) (see the scenario that follows). The `CallInit` function works with the switch, which is monitored by T-Server.

This function is used only for an IVR-Behind-Switch configuration.

Scenario



Input

`String DstDN`

The phone number of the new destination party.

Output

`Number Result`

If = `0`, the function failed.

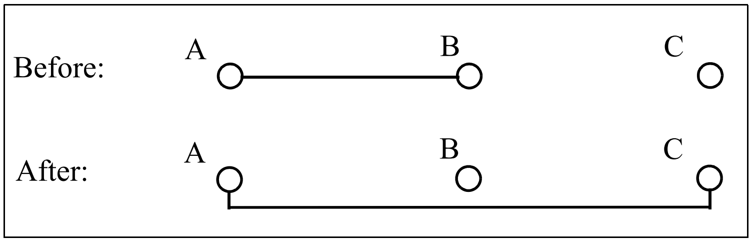
If = `Request ID`, a Request ID can be used later with the `GetReply` function.

CallTransfer

This function produces a *direct transfer* without an intervening conference call (see the description in the *Genesys 7 Events and Models Reference Manual*). The call moves from an extension (B), where a transfer is initiated, to a new extension (C) specified in the destination DN (see the scenario that follows). In other words, the party who initiates the call (A) is disconnected from the original DN (B) and reconnected to the destination DN (C).

This function is used only for an IVR-Behind-Switch configuration.

Scenario



Input

`String DstDN`

The phone number of the new destination party.

Output

`Number Result`

If = `0`, the function failed.

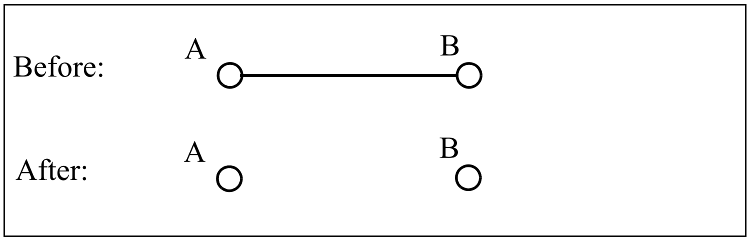
If = `Request ID`, a Request ID can be used later with the `GetReply` function.

CallComplete

This function completes the current call (see the scenario that follows).

This function is used only for an IVR-Behind-Switch configuration.

Scenario



Input

None.

Output

`Number Result`

If = `0`, the function failed.

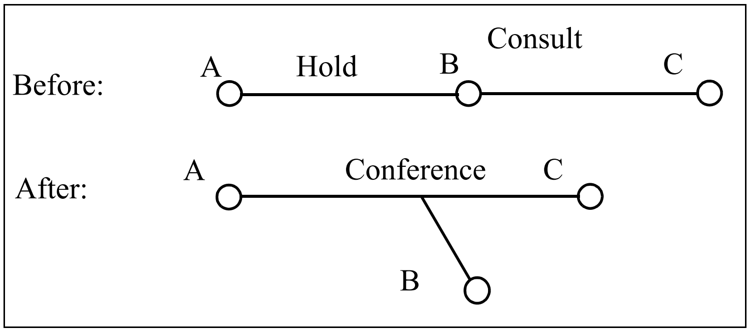
If = `Request ID`, a Request ID can be used later with the `GetReply` function.

CallConference

This function makes a *conference call* to a new DN (see the description in the *Genesys 7 Events and Models Reference Manual*) by connecting the two parties (A and B) of the original conversation with an additional party (C) (see the scenario that follows). As a result, three or more people can participate in the same phone conversation, talking from three or more extensions.

This function is used only for an IVR-Behind-Switch configuration.

Scenario



Input

`String DstDN`

The phone number of the new destination party.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

CallConsultInit

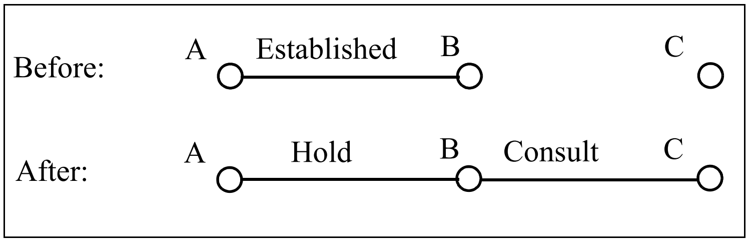
This function initiates a *consulting call* (see the description in the *Genesys 7 Events and Models Reference Manual*). The original party (A) is placed on hold for the duration of the consulting call, and the party (B) who requests the `CallConsultInit` function is involved in a new consulting call with a third party (C) (see the scenario that follows).

Note: After calling this function, use one of the following functions to complete the operation:

- `CallConsultRetrieve` (see page 48)
- `CallConsultTransfer` (see page 49)
- `CallConsultConference` (see page 50)

This function is used only for an IVR-Behind-Switch configuration.

Scenario



Input

`String DstDN`

The phone number of the new destination party.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

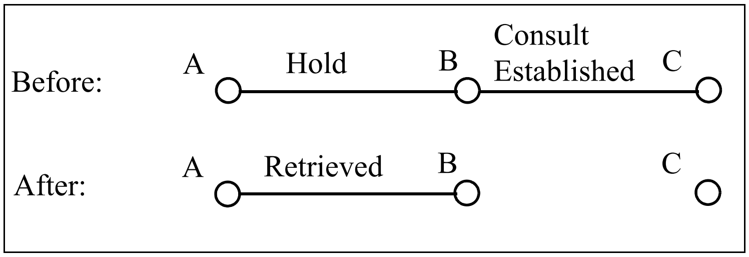
CallConsultRetrieve

This function completes a consulting call. The original party (A) is placed on hold for the duration of the consulting call; the second party (B) then creates a consulting call to the third party (C) (see the scenario that follows). After the `CallConsultRetrieve` function, the third party (C) is released, and the call between the first party (A) and second party (B) is restored.

This function is used only for an IVR-Behind-Switch configuration.

Note: Use this function only after `CallConsultInit` (see page 47) has been successfully completed.

Scenario



Input

None.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

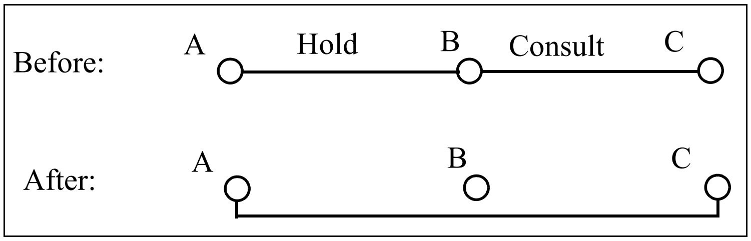
CallConsultTransfer

This function completes the consulting call by making a *transfer* (see the description in the *Genesys 7 Events and Models Reference Manual*). During the transfer, the caller (A) is placed on hold; the original recipient (B) makes a call to a new party (C); and a consulting call is established between the original recipient (B) and the new party (C). The `CallConsultTransfer` function initiates the completion of the transfer. When the transfer is complete, the original recipient (B) who initiated the transfer is dropped. The ongoing call involves only two participants: the original caller (A) and the new party (C).

This function is used only for an IVR-Behind-Switch configuration.

Note: Use this function only after `CallConsultInit` (see page 47) has been successfully completed.

Scenario



Input

None

Output

`Number Result`

If = `0`, the function failed.

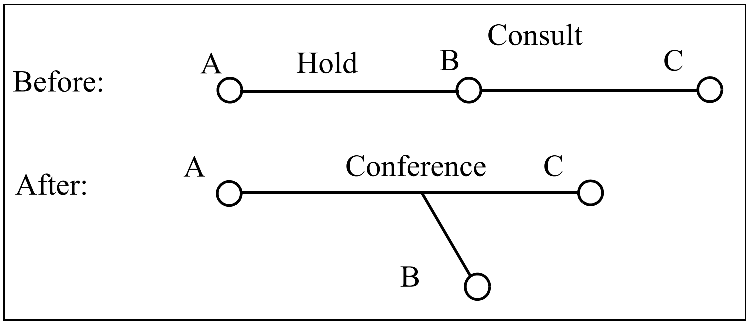
If = `Request ID`, a Request ID can be used later with the `GetReply` function.

CallConsultConference

This function completes a consulting call by creating a connection between the two parties (A and B) of the original conversation with an additional party (C) from the consulting call (see the scenario that follows). As a result, three or more people can participate in the phone conversation, talking from three or more extensions. See the description in the *Genesys 7 Events and Models Reference Manual.* This function is used only for an IVR-Behind-Switch configuration.

Note: Use this function only after `CallConsultInit` (see page 47) has been successfully completed.

Scenario



Input

None.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

User Data Manipulation Functions

UDataGetKVP

This function returns the user data associated with a key-value pair that was previously attached to the call database. If a key is given that is not in the current call information, the string `NoMatch` is returned by default.

Input

`String szKey`

The key value of the searched pair.

Note: The length of the `szKey` string can be no more than 2048 bytes. The length of any individual data string is limited to 2048 bytes. The combined key-value pairs (including delimiters) on a given call instance can total no more than 4096 bytes.

Output

`ReqID`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

UDataAddKVP

This function attaches user data (a *value*) and a corresponding name (a *key*) to the current call. T-Server (or T-Server IVR-In-Front, in the case of an IVR-In-Front configuration) uses this key-value pair to track data for a call that is handled at the contact center. If the key-value pair (which is created when new user data is attached) duplicates a key-value pair that already exists, the new pair replaces the existing pair.

Note: Both the `User Key` and `User Value` fields must be filled out—for example:

```
Key = Customer ID
Value = 1583
```

Input

`String szKey`

The key value of the attached pair.

`String szValue`

The data value of the attached pair.

Output

`ReqID`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

UDataDelKVP

This function deletes one key-value pair from the current call.

Input

`String szKey`

The key string for deleting the pair.

Note: The length of the `szKey` string can be no more than 2048 bytes.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

UDataAddList

This function adds a list of key-value pairs to the current call.

Input

`String KVList`

A list of key-value pairs, in the following format:

`<delimiter>Key<delimiter>Value`

Note: The length of any individual `Key` string can be no more than 2048 bytes. The length of any individual `Value` data string is limited to 2048 bytes. The combined key-value pairs (including delimiters) in the `KVList` string can total no more than 4096 bytes.

Example: `*Customer ID*4942`

This example shows a key-value pair that contains the key `Customer ID`, with the value `4942`, separated by the delimiter `*`.

Example: `#Customer ID#4943#Customer2 ID#1234`

In this example, the delimiter is `#`.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

UDataDelAll

This function deletes all user data from the current call.

Input

None.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

Call Information Functions

GetCallInfo

This function requests information related to an active call.

Input

`String TypeInfo`

The type of requested information. Table 2 lists the possible `TypeInfo` values.

Note: If a particular value (for example, `ANI`) is not available, the string `NULL` is returned by default.

Table 2: TypeInfo Values

Value	Requested Information
All	All call information that is available from the IVR Server, as described in the rest of this table
ANI	ANI information
CallID	PBX Call ID
ConnID	T-Server Connection ID
DN	Current port assigned to the IVR channel
DNIS	DNIS information

Table 2: TypeInfo Values (Continued)

Value	Requested Information
EventName	Name of the last event received on the current IVR channel
FirstHomeLocation	First Home Location of the call
OtherDN	Destination DN (if any)
OtherQueue	Destination queue (if any)
OtherTrunk	Destination trunk (if any)
ThisDN	Current DN assigned to the IVR channel (port)
ThisQueue	Current queue assigned to the IVR channel (port)
ThisTrunk	Current trunk assigned to the IVR channel (port)

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

`String Info`

The requested information from the call database.

Call Data Transfer Functions

CDT_Init

This function requests an access number to make a Call Data Transfer (CDT) between two T-Servers. The request can be canceled later by calling the `CDT_Cancel` function (see page 55).

Input

`String DN`

The destination DN for the requested Call Data Transfer.

`String Location`

The name of the destination Call Data Transfer server.

`String CDT_Type`

The type of Call Data Transfer protocol. Table 3 lists the possible Call Data Transfer types.

Table 3: Call Data Transfer Types

Value	Description
Default	Uses the type already configured in your multi-site routing environment.
Indirect	`CDT_Type` is changed to `Route`.
DirectNT	`CDT_Type` is changed to `DirectNotoken`.
DirectTO	`CDT_Type` is changed to `Direct`.
DirectTI	Used for direct dialing to the destination DN, with a tag coming *in* to the client (that is, the Call Data Transfer generates the tag).
ReRoute	Passes unchanged to the IVR Server.

Note: If your IVR application passes in a string that is not equal to one of these CDT types, the string is passed on to the IVR Server unchanged.

The IVR Server supports the following types:

`Default|Route|Reroute|Direct|DirectAni|DirectNotoken|DirectAniDnis|DirectUUI|DirectDigits|DnisPool`

`String CDT_Tag`

The Call Data Transfer tag.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

CDT_Cancel

This function cancels the preceding request by the `CDT_Init` function for an access number. It can be used only after the `CDT_Init` function has been called.

Input

None.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

Route Functions

When you use the IVR Driver routing functions in your applications, they must be coded in a certain order. The pseudocode example in Figures 5 and 6 shows the correct order in which the routing APIs should be used. You will need to convert this example into valid code for your applications.

```
/*
 Port              = type iLPORT with the port of IVR channel
                                (see interface.h)
 iLRQRouteStart    = type iLRQ - returned Request ID for Route Start
                                (see interface.h)
 psRouteStartRep   = type PSTR - pointer to buffer - preallocated
                                for Get Reply to return result in
 iRepLen           = type int - length of above buffer
 iLGetReplyRet     = type iLRet - returned from Get Reply indicating
                                 result of request (see interface.h)
 iLRQGetRequest    = type iLRQ - returned Request ID for Get Request -
                                used in Send Reply (see interface.h)
 iLSendReplyRet    = type iLRet - returned from Send Reply
                            indicating result of request (see interface.h)
 bResult           = type BOOL - set true if treatment was success -
                                else false (see interface.h)
 psReply           = type CPSTR - pointer to buffer with result of
                        treatment - if return is required
      (see interface.h)

  iLRQ_ANY - generate the request id (see interface.h)

 nlrepeat = a number if type int to indicate strategy still active
*/
```

Figure 5: Comments About the Pseudocode

```
ilRQRouteStart = ilSRqRouteStart(ilRQ_ANY,Port,"7000");
                 /* route sequence start on route dn */
if (ilRQRouteStart > 0)
                /* make sure Route Start worked */
{
    nlrepeat = 1;
    while(nlrepeat == 1)
    {
        ilGetReplyRet = ilGetReply(ilRQRouteStart,psRouteStartRep,iRepLen);
                /* check reply for Route Start */
                /* timeout means that the routing strategy */
        if(ilGetReplyRet == ilRET_TIMEOUT)
                /*  is still active */
        {
            ilRQGetRequest = ilGetRequest(Port,psRep,iRepLen);
                /* retrieve the next treatment - if one exists */
                /* treatment details in the return buffer      */

            if(ilRQGetRequest>0)
                /* make sure Get Request worked before        */
            {
             /* processing the returned treatment          */
                /* processing by application to apply treatment */
               ilSendReplyRet = ilSendReply(ilRQGetRequest,bResult,psReply);
                     /* send treatment result to URS */
            }
        }
        else
           nlrepeat = 0;
                /* the get reply returned other than timeout */
    }
    /* this implies the strategy has ended - and */
    /* a RouteResponse has been processed by the library */
    /* the route destination - if it exists in the */
    /* RouteResponse will be returned in psRouteStartRep */
}
else /* RouteStart failed */
```

Figure 6: Pseudocode for Routing Functions

RouteRequest

This function sends a request to the router, and the IVR waits for routing instructions. The router returns the destination DN of the next service point.

This function is used for both IVR-In-Front and IVR-Behind-Switch configurations.

Note: For more information about how to code and use the `RouteStart`, `GetRequest`, `SendReply`, and `RouteAbort` function calls, see the Appendix on page 65.

Input

`String Service`

The name of the service that is being requested from the router.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

`String NextService`

The name of the next service point/destination DN provided by the router.

Note: Universal Routing Server (URS) returns the destination of the next service point, and the IVR Server immediately responds to URS with a `RouteDone` event. If the IVR is unable to route the call to the destination that URS has requested, there is no way to indicate that the new route has failed. If this error condition could occur, you need to use the `RouteStart` function instead of `RouteRequest`.

RouteStart

This function requests the start of a new session from the router (assigned to the service port).

This function begins the information interchange between the IVR channel and the router. During this session, the router can send IVR commands (`treatments`), which the IVR must execute. The IVR uses the `GetRequest` function to receive treatments, and the `SendReply` function to inform the router that treatments have been executed.

When the session ends, the router has the option of sending the name of the next service (usually a phone number for the transfer call) to the IVR. The IVR can also end the session, with the `RouteAbort` function.

This function returns no router response. To receive a response from the router, the IVR script must call the `GetReply` or `GetRequest` function. The `GetReply` function can be used only when the routing strategy sends the next service (DN for transfer only), not when it sends the treatment command. If the routing strategy uses treatments, the `GetRequest` function must be used in the IVR script.

Note: For more information about how to code and use the `RouteStart`, `GetRequest`, `SendReply`, and `RouteAbort` function calls, see the Appendix on page 65.

Input

`szRouterPoint`

The name associated with the service that is being requested from the router. The router must be loaded with a valid routing strategy at this location.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

RouteAbort

This function aborts the previously requested service session from the router.

Note: For more information about how to code and use the `RouteStart`, `GetRequest`, `SendReply`, and `RouteAbort` function calls, see the Appendix on page 65.

Input

`ReqID`

The Request ID assigned to the `RouteStart` function.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

GetRequest

This function takes the request (or reply) for the next operation that the IVR is to perform.

Note: For more information about how to code and use the `RouteStart`, `GetRequest`, `SendReply`, and `RouteAbort` function calls, see the Appendix on page 65.

Commands that come from the Genesys router are represented by strings in the following (ordered list) format:

```
":","CommandType",":","Data",...
```

This format begins with a delimiter that is used later in the string to divide fields. The number of actual parameters that come with a command depends on the particular command type. The command string contains at least a delimiter and a `CommandType` field. Table 4 lists the set of Genesys routing commands and their equivalent T-Server treatment types.

Table 4: Routing Commands

Routing Command	T-Server Treatment
IVR	TreatmentIVR
Music	TreatmentMusic
RingBack	TreatmentRingBack
Silence	TreatmentSilence
Busy	TreatmentBusy
CollectDigits	TreatmentCollectDigits
PlayAnnouncement	TreatmentPlayAnnouncement
PlayAnnouncementAndDigits	TreatmentPlayAnnouncementAndDigits
VerifyDigits	TreatmentVerifyDigits
RecordAnnounce	TreatmentRecordUserAnnouncement
DeleteAnnounce	TreatmentDeleteUserAnnouncement
CancelCall	TreatmentCancelCall
PlayApplication	TreatmentPlayApplication
SetDefaultRoute	TreatmentSetDefaultRoute
TextToSpeech	TreatmentTextToSpeech
TextToSpeechAndDigits	TreatmentTextToSpeechAndDigits

Table 4: Routing Commands (Continued)

Routing Command	T-Server Treatment
FastBusy	TreatmentFastBusy
RAN	TreatmentRAN

For a detailed description of treatments and parameters, see the *Universal Routing 7.5 Reference Manual*. See the vendor-provided MPS and Periphonics IVR documentation for a description of whether and how the IVR supports these treatments.

Input

`Timeout`

The amount of time (in seconds) that the function waits for a new request/reply. The function is blocked until either a new request/reply arrives or the timeout expires, whichever comes first.

Output

`Number Result`

If = `0`, if function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

In the case of success, it is possible for the Request ID and request/reply string to be taken in the `szData` string. An error means that I-Library did not receive a request/reply within the specified time frame.

`String szData`

Request-specific information.

SendReply

This function sends a reply from the IVR script to the IVR Server. Within the router session, this function sends the result of the treatment execution.

Note: For more information about how to code and use the `RouteStart`, `GetRequest`, `SendReply`, and `RouteAbort` function calls, see the Appendix on page 65.

Input

`ReqID`

The Request ID from the router, which was received by using the `GetRequest` function.

`szResult`

The result of the requested job. The possible values are `OK` and `NOTOK`. These values are case-sensitive.

`szData`

A string that contains reply information. The specific content depends on the type of request.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

General-Purpose Functions

GetReply

This function gets the reply for a previously sent request.

Input

`ReqID`

The Request ID received from a previously submitted request.

Output

`Number Result`

If = `1`, the function succeeded.

If = `0`, the function failed.

If = `-1`, a timeout occurred, and the `GetReply` function can be called later for the required Request ID.

In the case of success, it is possible to obtain the expected value from the `Reply` string.

`String Reply`

Request-specific information. For the exact values of each `Reply` string, see the “Output” section of each function description.

GetVersion

This function requests the version number of the `mps2is` server or another service.

Input

`String Service`

The name of the service for which the version number is requested:

- If this argument is null or a single space, the IVR Library version is returned.
- If this argument is the name of the IVR, the IVR Driver version is returned.
- If this argument is anything else, the IVR Server version is returned.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

ToLog

This function prints the string to either the IVR Driver or the IVR Server log.

Input

`String PrintString`

The string that is printed to the log.

`String Service`

The name of the service for which the log is written.

- If this argument is the name of the IVR, as defined in Configuration Manager, the function sends the string to the IVR Server.
- If this argument is any other value, or if it is empty, the function prints the string to the IVR Driver log.

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

Statistical Functions

StatPeek

This function requests that Stat Server provide information about a predefined statistic. The parameters of the statistic are defined in the configuration environment.

Note: The supported statistics (which must be configured in the IVR Server) are `CurrNumberWaitingCalls` and `ExpectedWaitTime`. For more information, see the IVR Server options section in the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*.

Input

`String StatName`

The name of the required statistic. The name must be defined in the configuration environment (by using Configuration Manager).

Output

`Number Result`

If = `0`, the function failed.

If = `Request ID`, a Request ID can be used later with the `GetReply` function.

Appendix

Customer Test Package

This appendix provides information about the Customer Test Package (CTP) that is included on the IVR Driver product CD. It contains the following sections:

Introduction

The IVR Driver includes a CTP that contains an Interactive Voice Response (IVR) application and a corresponding voice prompt database. You can install the IVR application on the vendor-provided IVR, and use it to test the configuration of the IVR Interface Option 7.5 components and other Genesys applications.

Using the Customer Test Package

You can use the CTP with both IVR-In-Front and IVR-Behind-Switch configurations. However, some CTP functions are available in only one of these configurations.

After installing the CTP, complete the following steps to run the application:

1. Load the `CTP.ppr` file, generate the `CTP.vex` file, and assign the test application to the IVR channels.
2. If you are using the IVR-Behind-Switch configuration, start the T-Server.
3. Start the `TServer_IVR` application.
4. Start the IVR Driver.
5. Using a telephone set, dial the Directory Number (DN) associated with the IVR channel, to activate the CTP and test the integration of IVR Interface Option 7.5 with the Genesys Framework software.

6. To run the CTP, follow the voice menu prompts. For more information, see "CTP Voice Menu."
7. To learn how to invoke the Genesys IVR Interface Option 7.5 functions, follow the script example within the application.
8. For explanations of the calls within the CTP application, read the notes attached to the various calls.

CTP Voice Menu

Table 5 lists the voice menu options that are available in the CTP.

Table 5: CTP Voice Menu Options

Option	Key
Main Menu	
Open the User Data Menu	Press 1
Open the Information Menu	Press 2
Open the Transfer Menu	Press 3
Open the Call Data Transfer Menu	Press 4
Open the Router Instruction Menu	Press 5
Open the Statistics Menu	Press 6
Quit	Press 0
User Data Menu	
Attach data	Press 1
Get attached data	Press 2
Delete a key-value pair	Press 3
Remove all attached data	Press 4
Attach a list of user-data pairs	Press 5
Print a string to a log	Press 6
Return to the Main Menu	Press 0

Table 5: CTP Voice Menu Options (Continued)

Option	Key
Information Menu	
Get the Last Event Name	Press 1
Get the PBX Call ID	Press 2
Get the T-Server Connection ID	Press 3
Get the DNIS	Press 4
Get the ANI	Press 5
Go to the Called call information	Press 6
Go to the Calling call information	Press 7
Get the Version of the IVR Driver	Press 8
Return to the Main Menu	Press 0
Called Information Menu	
Get the called DN	Press 1
Get the called ACD queue	Press 2
Get the called Trunk	Press 3
Return to the Information Menu	Press 0
Calling Information Menu	
Get the calling DN	Press 1
Get the calling ACD queue	Press 2
Get the calling Trunk	Press 3
Return to the Information Menu	Press 0
Transfer Menu	
Transfer using the IVR	Press 1
Transfer using T-Server	Press 2
Initiate a transfer	Press 3
Complete a transfer	Press 4

Table 5: CTP Voice Menu Options (Continued)

Option	Key
Retrieve an original call	Press 5
Initiate a conference	Press 6
Complete a conference	Press 7
Perform a single-step conference	Press 8
Return to the Main Menu	Press 0
Call Data Transfer Menu	
Perform an indirect Call Data Transfer	Press 1
Perform a direct Call Data Transfer with no tag	Press 2
Perform a direct Call Data Transfer with a tag generated by the caller	Press 3
Perform a direct Call Data Transfer with a tag generated by the Call Data Transfer Layer	Press 4
Return to the Main Menu	Press 0
Transfer Methods Menu	
Perform a transfer by IVR	Press 1
Perform a transfer by T-Server	Press 2
Cancel the Call Data Transfer request	Press 0
Router Instruction Menu	
Perform a RouteStart, GetRequest, SendReply sequence	Press 1
Perform a RouteRequest	Press 2
Return to the Main Menu	Press 0
Statistics Menu	
Perform a StatPeek	Press 1
Return to the Main Menu	Press 0

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