GENESYS®
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IVR Interface Option 7.5

IVR Server

System Administrator’s Guide

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Each product has its own documentation for online viewing at the Genesys Technical Support website or on the Documentation Library DVD, which is available from Genesys upon request. For more information, contact your sales representative.

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Table of Contents

Preface

Welcome to the *IVR Interface Option 7.5 IVR Server System Administrator's Guide*. This guide describes the IVR Server, which is the server component of IVR Interface Option 7.5 and the IVR Software Developer's Kit (SDK). It also describes the Genesys-provided functions supported in IVR Interface Option 7.5 and the IVR SDK.

This document is valid only for the 7.5.0 release of this product.

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:

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 the IVR Interface Option 7.5 components, see Chapter 1 on page 15.

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 appendixes:

- Chapter 1, "IVR Interface Option Overview," on page 15, provides a description and illustrations of the IVR Interface Option 7.5 architecture, describes the concepts of Load Balancing, Warm Standby, and managing service availability; and provides general information about the deployment of IVR Server.
- Chapter 2, "T-Server Fundamentals," on page 29, describes T-Server, its place in the GenesysFramework 7.5 architecture, T-Server redundancy functionality, and multi-site issues.
- Chapter 3, "Multi-Site Support," on page 43, describes the variations that are available for T-Server implementations across geographical locations.
- Chapter 4, "Pre-Installation Setup," on page 93, describes the setup tasks that you must complete before you can install IVR Server.
- Chapter 5, "Installing IVR Server," on page 133, describes how to install IVR Server.
- Chapter 6, "Wizard Configuration," on page 137, describes how to use wizards to configure IVR Interface Option 7.5 objects in Configuration Manager.
- Chapter 7, "Manual Configuration," on page 143, describes how to manually configure IVR Interface Option 7.5 objects in Configuration Manager.
- Chapter 8, "Starting and Stopping IVR Server," on page 199, describes how to start and stop IVR Server.
- Chapter 9, "T-Server Common Configuration Options," on page 203, describes the configuration options that are common to all T-Server types, including options for multi-site configurations.

- Chapter 10, "Common Log Options," on page 227, describes the log configuration options that are common to all Genesys server applications.
- Chapter 11, "IVR Configuration Options," on page 241, describes the configuration options that are available for IVR Server, and the valid values for those options.
- Appendix A, "Sample Configurations," on page 265, provides examples of IVR-In-Front, IVR-Behind-Switch, and IVR Network T-Server configurations.
- Appendix B, "GLI Layer Configuration," on page 299, provides information about GLI Layer configuration.
- Appendix C, "Configuring Application Connections," on page 305, lists the application connections that are required for each IVR Server configuration mode.

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:

`75iv_ad_ivr-svr_02-2007_v7.5.001.00`

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 System Administrator's Guide* for each IVR Driver, for details on how to install, configure, and use the IVR Driver.
- 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 *Genesys 7 Licensing Guide*, also on the Genesys Documentation Library CD, which introduces the concepts, terminology, and procedures that are relevant to the Genesys licensing system.
- 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 the 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 Interface Reference Manual*

Genesys product documentation is available on the:

- Genesys Technical Support website at `http://genesyslab.com/support`.
- Genesys Documentation Library CD, which you can order by e-mail from Genesys Order Management at `orderman@genesyslab.com`.

For more information, consult the following resources:

- *IVR SDK 7.5 C Developer's Guide*
- *IVR SDK 7.5 XML Developer's Guide*
- *Voice Platform SDK 7.5 .NET (or Java) API Reference*
- *Framework 7.5 Deployment Guide*
- *Framework 7.5 T-Server Deployment Guide*
- *Framework 7.5 Configuration Options Reference Manual*

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Chapter

1 IVR Interface Option Overview

This chapter provides an overview of IVR Interface Option 7.5, describes the architecture, and provides general information about the deployment process. It also provided an overview of Load Balancing and Warm Standby, the two configuration modes that IVR Server offers for achieving redundancy and increased availability, and describes the process of implementing Load Balancing.

This chapter contains the following sections:

IVR Server 7.5 also supports Advanced Disconnect Detection Protocol (ADDP), which you can specify on both the `I-Server` and `TServer_IVR` applications in Configuration Manager. For more information, see Chapter 2 on page 29 and Chapter 9 on page 203.

Note: Although Hot Standby is supported for some T-Servers, and although it is documented in Chapter 2 on page 29, IVR Server does not support Hot Standby.

IVR Interface Option 7.5

IVR Interface Option 7.5 is a software application that integrates vendor-provided Interactive Voice Response (IVR) software and hardware with the Genesys Framework. It consists of three components: IVR Server, IVR Driver, and IVR Library. It is installed and configured within the Genesys 7.5 environment, which includes the Configuration Layer, the Management Layer, the Media Layer, and other components. For more information about these other Genesys components, refer to the specific Genesys documentation.

New in Release 7.5

The following changes have been implemented in release 7.5 of IVR Server:

- Load-sharing IVR Servers deployed in `In-Front` mode can now be designated as destination locations for Inter Server Call Control (ISCC), with the transaction type set to `dnis-pool`. The destination load-sharing `TServer_IVR` applications must be configured on the `Connections` tab of the source T-Server.

  Note: Universal Routing Server (URS) version 7.5.002.02 or later is a required element within the solution. There is no new configuration information required for IVR Server.

  This new configuration information must be entered in the `default` section on the `Options` tab of the URS Server application as follows:

  - `use_extrouter = "false"`—URS delegates routing functionality to IVR Server
  - `use_extrouting_type = "dnis"`—URS is required to provide an access number that is to be used at the remote site.

  Note: For more details on this new feature, refer to the *Universal Routing Server 7.5 System Administrator's Guide*.

- Genesys supports an optional use of the TLS protocol to secure data transfer between its components. TLS is an industry-standard protocol for secure communications on the Internet, and is the successor of SSL 3.0. This feature is only available for certain operating systems and versions. For more information, see the *Genesys 7.5 Transport Layer Security Deployment Guide*.

- Three new `TServer_IVR` options have been added to the `gli_server_group_<n>` section:
  - `gli-tls-cert`
  - `gli-tls-cert-key`
  - `gli-tls-trusted-ca`

For UNIX, these options contain the path and file name of a `.pem` encoded file that contains the host private key. For Windows, only the first option contains the thumbprint that is obtained from a user certificate generated for the host. For more information about these options, see "gli_server_group_<n>" on page 245.

Note: To take advantage of the full functionality of IVR Server 7.5, Genesys recommends that you use Framework 7.5 and IVR Driver 7.5.

Architecture

As previously mentioned, IVR Interface Option 7.5 consists of the following components:

- IVR Server
- IVR Driver

The following subsections describe each of these components in turn.

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 Balancing 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" on page 18.
- IVR Network T-Server, in which the IVR Server (an IVR T-Server running in `Network` mode) is a link to a user-provided Network IVR application. The routing strategy and a Genesys Network T-Server are used to route the calls to the Network IVR for processing. For more information, see "IVR Network T-Server Configuration" on page 20.

IVR Server supports the predictive dialing method used by Genesys outbound components (Outbound Contact Solution and Voice Callback Solution).

Library Usage

IVR Server uses the standard 7.5 T-Server Library (T-Lib) for its interactions. 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 it goes to the vendor-provided IVR (see Figure 1). The premise switch and T-Server are at the same site.

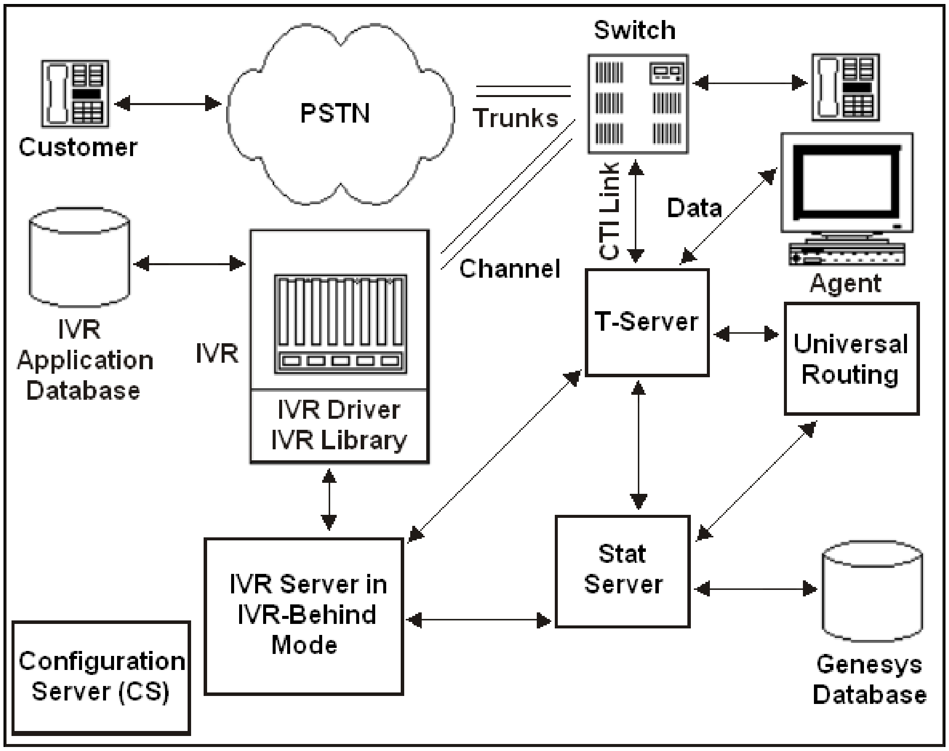


Figure 1: IVR-Behind-Switch Configuration

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 the T-Server and the Stat Server.

IVR-In-Front Configuration

When 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.

In the IVR-In-Front configuration, the `TServer_IVR` function resides within the IVR Server.

IVR Server operating in IVR-In-Front mode supports IVRs that are connected directly to a PSTN, by performing functions similar to a regular T-Server. When 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, IVR Server provides this functionality.

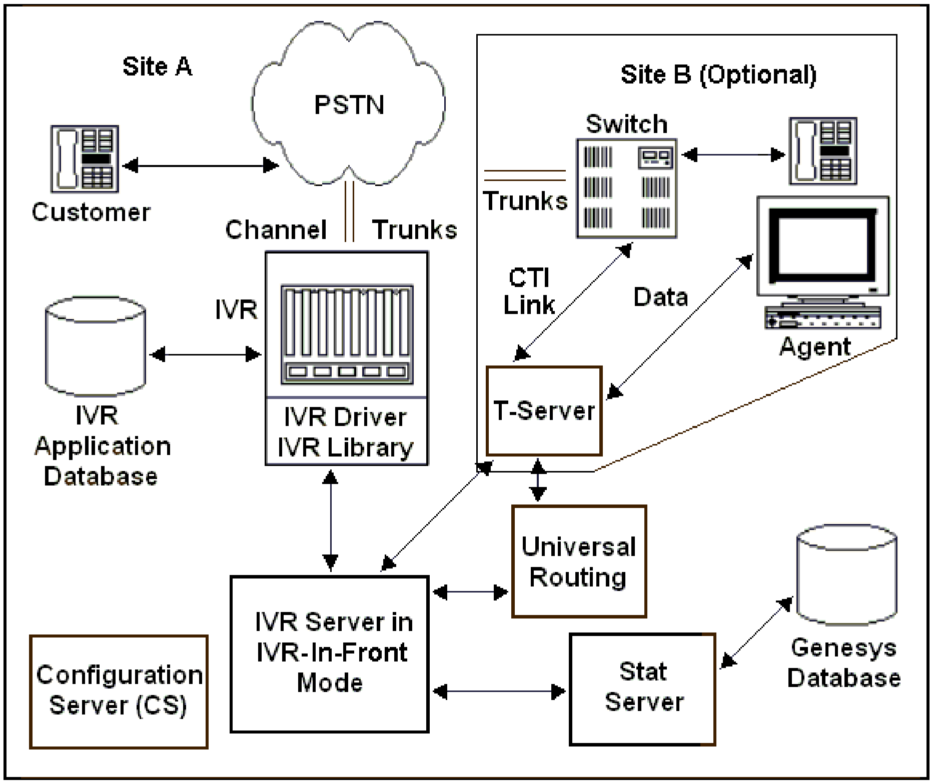


Figure 2: IVR-In-Front Configuration

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 (URS), and the Stat Server. The IVR Server also simulates a T-Server and can 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 physical 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 Network T-Server Configuration

When a vendor-provided IVR and a Network T-Server are connected directly to a PSTN, without a premise switch, the configuration is called IVR Network T-Server (see Figure 3).

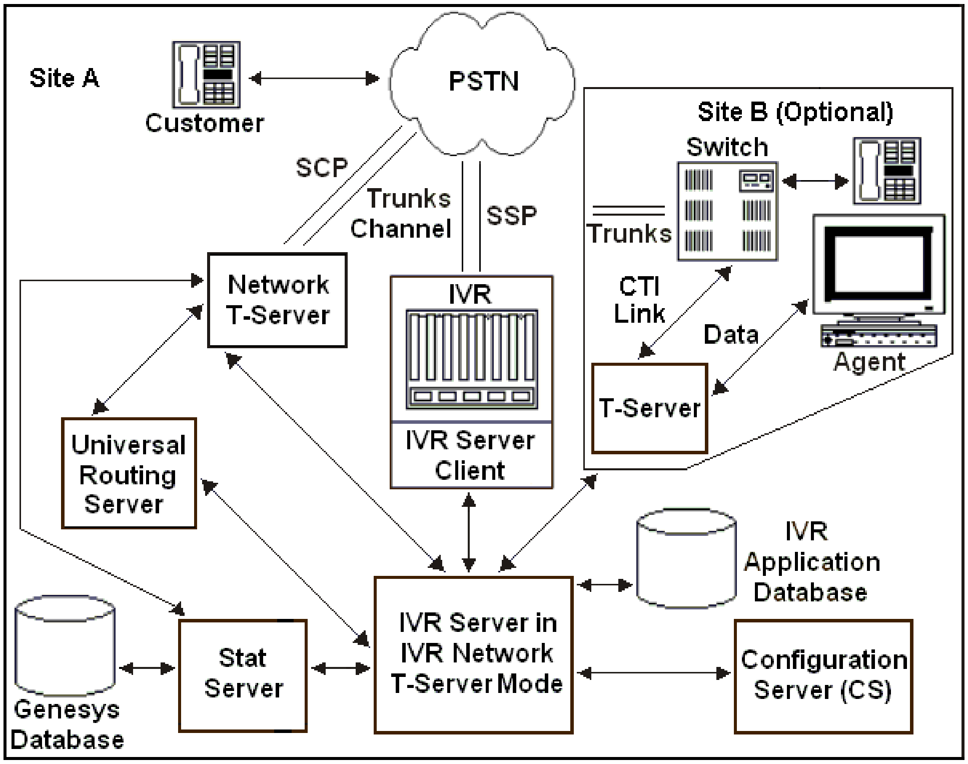


Figure 3: IVR Network T-Server Configuration

1. The PSTN sends a request for a destination to the Network T-Server, which forwards the request to URS.
2. URS responds with a destination address to the Network T-Server, which forwards the response to the PSTN.
3. The call is then routed from the PSTN to the IVR.
4. The IVR notifies the IVR Server that a new call has arrived.
5. The IVR Server then tells the IVR which treatments to apply for this call.
6. When an available agent is located at the destination address specified by URS, the call is routed to the premise T-Server where the agent's desktop resides.

Genesys IVR Drivers do not support the IVR Network T-Server configuration for IVR Server. Therefore, in this configuration mode, an IVR Server client application is used in the place of a Genesys IVR Driver for communication between the vendor-provided IVR and the IVR Server. You can use the IVR XML SDK to create your own IVR Server client application.

IVR Server (in Network mode) supports the Network Call Monitoring feature, which enables the CTI-less T-Server of the Expert Contact Solution to receive Call Monitoring Events such as call created, call deleted, call party added, and call party deleted (see the *Genesys Expert Contact Solution* documentation).

IVR Driver

The IVR Driver component integrates vendor-specific IVR hardware and software with the Genesys environment. It adds to the IVR 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 run vendor-provided IVRs from various manufacturers, each IVR must have a corresponding IVR Driver that is designed for it.

Note: IVR Drivers 7.5 do not support the IVR Network T-Server configuration mode for IVR Server 7.0.

IVR Library

The IVR Library component is embedded in Genesys IVR Drivers. Typically, it is used to return any IVR Driver error messages.

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*.

Warm Standby

In Warm Standby mode, all client applications connect to the single `I-Server` application that is designated as the primary IVR Server. If the primary IVR Server is not running, the IVR Server that is designated as the backup begins functioning as the primary. All calls that are in progress when the primary fails are lost. The backup (now serving as the primary) processes all subsequent calls, until the original primary IVR Server comes back online and returns to the primary role. For more information about Warm Standby mode, see Chapter 2 on page 29.

Note: With Warm Standby, the backup IVR Server must be configured as a Load Balanced secondary `I-Server` application (using the instructions in "Load Balancing"). However, if you are using the IVR Network T-Server configuration mode with Warm Standby, the Load Balancing configuration is not required. Instead, for IVR Network T-Server mode, you must use the Solution Control Interface (SCI), Solution Control Server (SCS), and Local Control Agent (LCA).

Load Balancing

You enable IVR Server Load Balancing by creating multiple, separate IVR Servers. You need both a `TServer_IVR` and an `I-Server` application for each IVR Server in the Load Balancing group. One IVR Server must be designated as the primary, with all the others configured as secondary.

Note: The primary IVR Server is designated by using the `app-name` option, in the `LoadBalance` section on the `Options` tab of each *secondary* IVR Server's `Properties` dialog box. No configuration setting is required in the primary IVR Server's `Properties` dialog box.

IVR Server clients that are implemented with the Genesys IVR Library (including all the Genesys IVR Drivers 7.5) route calls to the IVR Servers in a Load Balancing group according to the following formula:

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

When 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 this 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.

To create a different routing algorithm for IVR Server Load Balancing, you can write your own interface by using the Genesys IVR SDK XML. See the specific IVR Driver documentation for details.

Note: When routing to a group of Load Balanced IVR Servers, externally routed data can be delivered only to the primary IVR Server, not to any of the secondary IVR Servers. Therefore, secondary Load Balanced IVR Servers cannot be the targets of Inter Server Call Control (ISCC) routing, and routing to this configuration is not supported.

If a software failure occurs on any IVR Server in the group (including the primary), any calls that are already in progress on that IVR Server are lost, but all the other IVR Servers continue to operate. Subsequent calls are distributed to the rest of the IVR Servers, bypassing the one that is down. When that IVR Server comes back online, calls are distributed to it again.

The IVR Servers in the Load Balancing group can reside on either the same machine or multiple machines. Because no limit is imposed on the number of IVR Servers that you can include in a Load Balancing group, this configuration method is highly scalable.

Note: In Load Balancing (but not Warm Standby), the secondary IVR Servers are not controlled by SCI switchover. Although the primary and secondary IVR Servers can be started in any order, the primary must be running before IVR Drivers 7.5 for Aspect Unixware and CONVERSANT can connect to any IVR Server. Other drivers can connect to IVR Servers that have been started in any order.

Implementing IVR Server Load Balancing

To implement IVR Server Load Balancing:

1. For each of the secondary I-Server applications, open the `I-Server_700 Properties` dialog box, click the `Options` tab, and do the following:
   - In the `LoadBalance` section, enter the following:

     ```
     app-name <primary IVR Server application name>
     ```

     For example:

     ```
     app-name I-Server_700
     ```
   - If you have an IVR-Behind-Switch configuration and you are using Virtual Routing Points, create Virtual Routing Point entries. These entries can include alias names.
2. If you are using a Genesys IVR Driver 7, you must configure Load Balancing in the `IVR_Driver` application as well. For more information, see “IVR_Driver Options” on page 257.

Example 1 — Basic

```
[VirtualRoutePoints]
   tsname=vrp1:vrp2:vrp3
```

Here, `tsname` is the T-Server application on which the Virtual Routing Points are defined, and `vrp1`, `vrp2`, and `vrp3` are the Virtual Routing Point DN names.

Example 2 — Alias

This syntax is still supported, but it has been extended to enable you to assign an alias name to a Virtual Routing Point. For example, to assign the alias name `sales` to `vrp1`, code the following:

```
tsname=vrp1|sales:vrp2:vrp3
```

From the IVR Driver, you can then send a `RouteGet` on DN `sales`, and this would be translated into a route request on Virtual Routing Point `vrp1`.

This feature becomes important when you are configuring Load Balanced IVR Servers, because it is not possible for two (or more) IVR Servers to use the same Virtual Routing Point. In other words, each IVR Server *owns* the Virtual Routing Points with which it is configured. In this case, you would configure two Virtual Routing Points—one for each IVR Server—and give them the same alias name. In this way, the IVR client can balance the load between multiple IVR Servers, and use the same logical Route Point for routing operations (that is, the Virtual Routing Point alias name).

For example, on IVR Server 1, code the following:

```
[VirtualRoutePoints]
    tsname=vrp1|sales
```

On IVR Server 2, code the following:

```
[VirtualRoutePoints]
    tsname=vrp2|sales
```

Route requests on the `sales` alias to IVR Server 1 would be issued on `vrp1`, and route requests on the `sales` alias on IVR Server 2 would be issued on `vrp2`.

Example 3 — More Than 255 Virtual Routing Points

To configure more than 255 Virtual Routing Points for an `I-Server` application, segment the Virtual Routing Point definitions by using an extension delimiter:

```
[VirtualRoutePoints]
<tsname><ExtensionDelimiter><ID> = vrp1|sales...
```

In processing, `<ID>` is stripped, and the definitions to the right of the equal sign are merged with the other options that are specified in the `VirtualRoutePoints` section, on the `Options` tab of the T-Server that is specified by `<premise T-Server application name in CME>` (shown as `<tsname>` in this example). For more information, see the description of the `VirtualRoutePoints` section on page 253.

Managing 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. This section describes the various methods for managing service availability for IVRs.

Link Status for IVR Server

When there are no IVR Driver clients connected to IVR Server, an `EventLinkDisconnected` message is sent to all connected T-Library clients. For IVR-In-Front and IVR Network T-Server configations, this prevents the Genesys Framework from routing calls to this location.

For configurations in which only a single `IVR` object is associated with an IVR Server application, calls will be prevented from being sent to this IVR from another Genesys contact center when the IVR Driver is not connected to the IVR Server and ready to process calls.

However, for configurations in which multiple `IVR` objects are associated with an IVR Server application, calls can be routed to this IVR Server when any one or more IVR Drivers are connected to the IVR Server. In this case, calls can still be routed to an IVR when the IVR Driver that serves it is not operational.

For configurations in which multiple `IVR` objects are associated with a single IVR Server application, you must take additional steps to prevent calls from being routed to an IVR when the IVR Driver is not operational. These steps are discussed in the following subsections.

DN Availability for IVR-In-Front Mode

For IVR-In-Front configurations that are operating in Warm Standby or stand-alone mode, you can configure IVR Server to report DN status events (`EventDNOutOfService` and `EventDNBackInService`). If you set the `report-dn-status` configuration option (see page 247) to `true`, IVR Server will report the DNs that are associated with an IVR as out of service when the IVR Driver is not connected to IVR Server. After the IVR Driver connects to IVR Server, the DNs that are associated with the IVR are placed back in service.

When DNs are reported as out of service, calls from other Genesys contact centers will not be routed to the IVR that serves these IVR Ports if the driver is not ready to service new calls.

Note: This feature is not supported for Load Balanced IVR Server configurations.

Agent State Management

All prior releases of IVR Server have provided the capability to associate a contact center agent with an IVR Port and to manage the associated agent status. This enables advanced call routing techniques such as skills-based routing and agent availability. By default, this behavior remains unchanged since release 7.2, and existing deployments will continue to work in the same way as in previous releases (see the description of the LegacyMode configuration option on page 260). However, there are some features related to agent state management that were introduced starting with release 7.2. You must change the following configuration options in order to use these features:

- report-dn-status (see page 247)
- LegacyMode (see page 260)
- LogoutOnDisable (see page 256)
- flow-control (see page 247)

For configurations in which agents are associated with IVR Port objects (see the description of the AgentLogin section of the IVR Port configuration object's Annex tab on page 256), the default system behavior is for IVR Server to control agent state, beginning at application startup and extending to the time when IVR Server is shut down. This works well when all the IVR Drivers are available and able to form network connections to IVR Server. However, if the IVR Driver is not able to connect to IVR Server for any reason, the agents appear as logged in and ready to receive calls, but any calls that are routed to this IVR cannot be processed properly. To resolve this issue, two features were introduced starting with release 7.2: Agent Logout and Agent State Status Management.

Agent Logout

The first feature enables agent logout to be triggered when IVR Port or IVR configuration objects are disabled. This provides a convenient way to manually make specific IVR ports unavailable, or to make all IVR ports that are associated with an IVR unavailable.

This feature is available only when IVR Server is controlling agent status (that is, when the LegacyMode option (see page 260) is set to true, which is the default value), and when the LogoutOnDisable configuration option (see page 256) is set to true.

When an IVR port is disabled in this configuration, the IVR Server sends a TAgentLogout request, and then stops monitoring events for the DN that is assigned to this IVR port. When an IVR port is enabled, IVR Server begins monitoring the DN for this IVR port again, and places the agent into the proper state.

Note: Enabling/disabling an IVR object has the effect of enabling/disabling all the configured IVR ports for this IVR.

Agent State Status Management

The second feature transfers responsibility for agent state status management from IVR Server to the IVR Driver application.

This feature is available for select IVR Drivers. The LegacyMode configuration option (see page 260) of an IVR must be set to false. In this mode, the IVR Server application does not perform any of the following agent-related requests for DNs that are associated with this IVR:

- login
- logout
- ready
- notready

Instead, the IVR Driver application manages agent status directly. This eliminates situations in which IVR Server logs in agents before the IVR Driver is ready to receive calls.

To determine whether this feature is supported, and to find information about configuring the driver application to support it, consult the documentation for your particular driver.

The LegacyMode option is configured on an IVR object, and multiple IVR objects can be associated with a single IVR Server. Therefore, agent state management can be performed by IVR Server in some cases, and by IVR Driver in other cases. However, for a single IVR, agent status is controlled exclusively by either IVR Server (LegacyMode = true) or IVR Driver (LegacyMode = false).

Note: The LogoutOnDisable configuration option (see page 256) has no effect on agents associated with an IVR object that is configured with LegacyMode set to false.

Flow Control

To enable an IVR Server application instance to be taken out of service with no impact on existing calls, the flow control feature was introduced starting with release 7.2.

Note: In order for this feature to function properly, the IVR Server and IVR Driver applications must support it. To determine whether flow control is supported, consult the documentation for your particular driver.

Flow control enables IVR Server to instruct all connected IVR Drivers to stop delivering new calls. In a Load Balanced configuration, these calls are directed to another instance of the IVR Server application. This means that service for new calls is not affected. Calls that have already started or that are in progress when flow control is enabled proceed normally. Then, after all these calls have been handled normally, it is safe to shut down the IVR Server application. For more information, see the description of the flow-control configuration option on page 247.

Deployment Overview

The IVR Interface Option 7.5 deployment process includes the installation and configuration of the IVR Server and IVR Driver.

Note: In order for IVR Interface Option 7.5 and/or IVR SDK to operate properly, you must first install and configure the other components in the Genesys 7.5 environment (the Configuration Layer, Management Layer, Media Layer, and so on). For information about how to deploy these components, see the specific Genesys documentation.

For information about how to install the IVR Driver, see the *IVR Interface Option 7.5 System Administrator's Guide* for your particular IVR Driver.

For detailed information about the IVR SDK, see the *IVR SDK 7.5 C Developer's Guide*, the *IVR SDK 7.5 XML Developer's Guide*, and the *IVR API Reference Tree* help file.

Before you install IVR Interface Option 7.5 on Windows and UNIX operating systems, verify that a supported Genesys Framework release is installed, configured, and running in your computing environment.

IVR Server 7.5 is interoperable and compatible with specific earlier releases of Genesys Framework and IVR Drivers, as well as with customer applications built with the IVR SDK. You can use IVR Server 7.5 with releases 6.5, 7.0, 7.1 and 7.2 of these products.

Note: If you use IVR Server 7.5 with earlier Genesys products and custom applications, the functionality of IVR Server 7.5 will be limited to that which was available for those particular releases.

Prior to installation, verify that the computers on which the IVR Interface Option 7.5 components will operate meet the minimum hardware and software requirements. Consult the following resources:

- The *Genesys 7 Migration Guide*, which contains a documented migration strategy for each software release. Refer to the applicable portion, or contact Genesys Technical Support for additional information.
- *Genesys 7 Supported Media Interfaces* and *Genesys 7 Supported Operating Systems and Databases*, which provide lists of the supported IVRs, operating systems, and databases.
- The *Genesys 7 Licensing Guide*, for detailed information about the licensing that IVR Server requires. Refer to the applicable portion, or contact Genesys Technical Support for additional information.

All these documents are available on the Genesys Technical Support website at `http://genesyslab.com/support`.

Chapter

2 T-Server Fundamentals

This chapter provides general information about T-Server features and functionality and about its configuration and installation.

This chapter has various levels of information, some of it intended for people who have configured, installed, and used previous releases of T-Server, and some of it aimed at those less familiar with such T-Server operations. That means some sections will not necessarily be relevant for you.

If you are new to T-Server, begin with "Learning About T-Server." Once you have read through that and subsequent sections, you are ready for the other chapters in Part One that go into detail about T-Server configuration and installation.

Generally, this chapter presents overview information that applies to all T-Servers (and Network T-Servers) and their deployment. This chapter is divided into the following sections:

Learning About T-Server

The *Framework 7.5 Deployment Guide* provides you with a high-level introduction to the role that T-Server plays in the Genesys Framework. If you have already looked through that guide, you may recall that T-Server is the most important component of the Framework Media Layer (the other two components are Load Distribution Server (LDS) and HA Proxy). The Media Layer enables Genesys solutions to communicate with various media, including traditional telephony systems, voice over IP (VoIP), e-mail, and the Web. This layer also provides the mechanism for distributing interaction-related business data, also referred to as *attached data,* within and across solutions.

Framework and Media Layer Architecture

Figure 4 illustrates the position Framework holds in a Genesys solution.

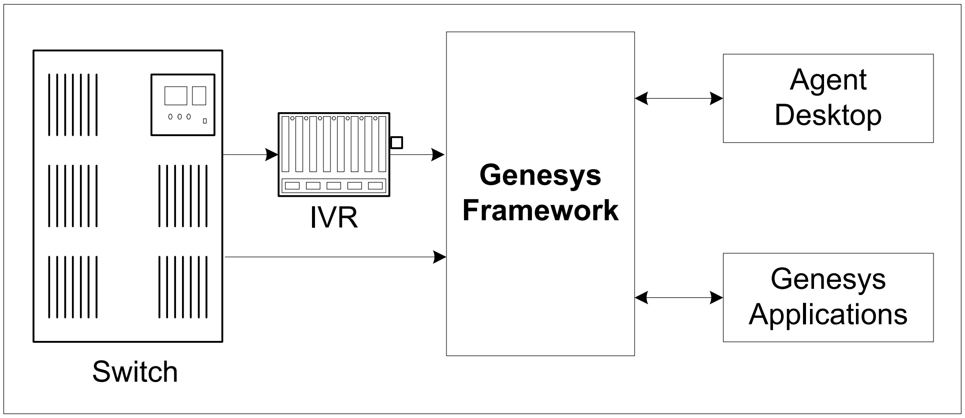


Figure 4: Framework in a Genesys Solution

Moving a bit deeper, Figure 5 presents the various layers of the Framework architecture.

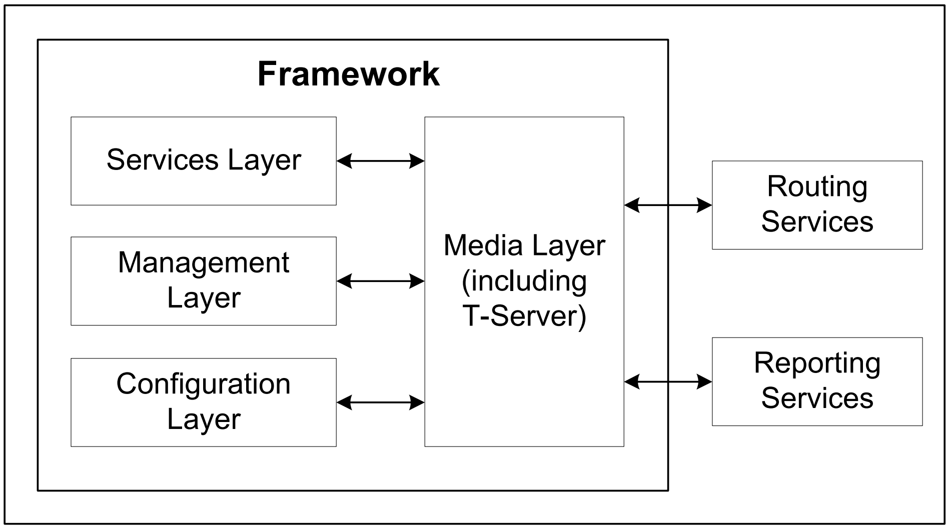


Figure 5: The Media Layer in the Framework Architecture

T-Server is the heart of the Media Layer—translating the information of the media-device realm into information that Genesys solutions can use. It enables your contact center to handle the computer-based form of the interactions that arrive and it translates the information surrounding a customer contact into reportable and actionable data.

Figure 6 presents the generalized architecture of the Media Layer.

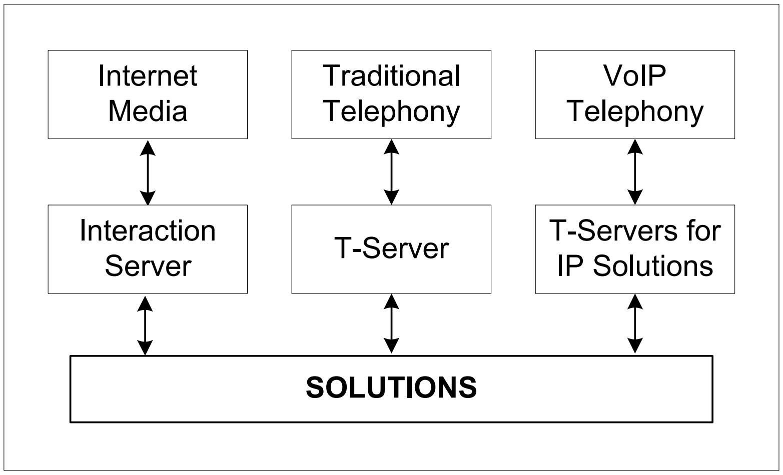


Figure 6: Media Layer Architecture

In addition to being the most important component of the Media Layer, T-Server plays the most significant role in making information about telephony traffic and its data available to Framework as a whole.

One or more components in practically every solution are T-Server clients. Solutions comprise a number of different Genesys software packages, from collections of components for various types of routing to those that allow for outbound dialing to still others. Framework in general, and T-Server in particular, enable these solutions to function in your enterprise.

T-Server has several typical clients: Stat Server, Call Concentrator, Universal Routing Server, and agent desktop applications. T-Server gets the information it needs about the enterprise from Configuration Server. Additionally, if you use the Management Layer, T-Server provides its ongoing status and various other log messages to server components of the Management Layer (for instance, allowing you to set alarms).

T-Server Requests and Events

This section outlines the roles that T-Server plays in a contact center. While it is possible to describe roles for all T-Servers, at a detailed level, T-Server's functionality depends on the hardware to which it is connected. (For example, when connected to a traditional switch, it performs CTI functions, but when connected to a VOIP-based telephony device, it controls IP traffic.) The CTI connection is only for the switch.

Details of T-Server Functionality

T-Server is a TCP/IP server that enables intelligent communication between media-specific protocols (such as the various CTI protocols, including CSTA and ASAI) and TCP/IP-based clients of T-Server. Applications that are clients to T-Server use the T-Library format to transmit requests to T-Server through a TCP/IP socket. T-Server can then either translate those requests to CTI protocol for switch use or relay them directly to other TCP/IP clients.

T-Server performs three general functions in the contact center: Bridging, Messaging, and Interaction Tracking.

Bridging

T-Server acts as a platform-independent interface between media devices and business applications. In the case of a telephony device, for instance, it receives messages from and sends commands to the telephony equipment using either CTI links provided by the switch manufacturer or interface protocols provided by telephony network vendors.

On the client-application end, T-Server offers three models (call model, agent model, and device model) unified for all switches. The core functionality (such as processing an inbound call, an agent login, or a call-forwarding request) translates into a unified application programming interface (API) called T-Library, so that applications do not need to know what specific switch model they are dealing with. On the other hand, T-Library accommodates many functions that are unique to a specific switch, so that client applications are able to derive the maximum functionality offered by a particular switch.

Refer to the *Genesys 7 Events and Models Reference Manual* for complete information on all T-Server events and call models and to the `TServer.Requests` portion of the *Voice Platform SDK 7.5 .NET* (or *Java*) *API Reference* for technical details of T-Library functions.

Messaging

In addition to translating requests and events for the client application involved in an interaction, T-Server:

- Provides a subscription mechanism that applications can use to receive notifications about interaction-related and non-interaction-related events within the contact center.
- Broadcasts messages of major importance (such as a notification that the link is down) to all clients.
- Broadcasts messages originated by a T-Server client to other T-Server clients.

The subscription mechanism consists of two parts, the DN subscription and event-type masking. Applications must register for a DN or a set of DNs to receive notifications about all events that occur in association with each registered DN. For example, when two softphone applications are registered for the same DN, and the first application initiates a call from the DN, T-Server notifies both applications that the call is initiated from the DN.

Client applications can also specify one or more types of events, and T-Server will filter out events of the non-specified types and only send events of the requested types. For example, if agent supervisors are interested in receiving agent-related events, such as `AgentLogin` and `AgentLogout,` they have to mask `EventAgentLogin` and `EventAgentLogout,` provided that a particular T-Server supports these events.

The combination of each client's subscription for DNs and masking of event types defines what messages T-Server distributes to what client.

Interaction Tracking

T-Server maintains call information for the life of the call (or other T-Server-supported media type) and enables client applications to attach user data to the call. Call information includes:

- A unique identifier, connection ID, that T-Server assigns when creating the call.
- Automatic Number Identification (`ANI`) and Dialed Number Identification Service (`DNIS`), if reported by the CTI link.
- User data that a client application (such as an Interactive Voice Response unit or Genesys Universal Routing Server) provides.

Difference and Likeness Across T-Servers

Although Figure 6 on page 31 (and other figures) depicts T-Server that works with telephony systems as a single product, this is a simplification. Because almost every traditional telephony device has its own characteristics and communication protocols, Genesys makes different T-Servers for different telephony systems. (That means T-Server you have will not work with another switch.) Thus, all T-Servers play a common role in the architecture, but their specific features differ from implementation to implementation, based on the media device in use.

Despite their switch-based differences, T-Servers for telephony systems are similar to one another in at least one important respect: they are all built with a certain amount of shared software code. This shared code is rolled into a single unit and is called T-Server Common Part (TSCP). TSCP is the central, common component for all T-Servers and has its own Release Note, which is accessible via a hyperlink from your T-Server's Release Note.

Note: This document separates common-code features based on TSCP into separate sections and chapters, such as the "T-Server Common Options" chapter. These are the options for all T-Servers that TSCP makes available for configuration.

T-Server Functional Steps During a Sample Call

The following example, Figure 7, outlines some basic steps that T-Server might take when a call arrives from outside the contact center. In this scenario, T-Server starts tracking the call even before it is delivered to the agent. T-Server then informs the selected agent that a call has arrived. When the switch delivers the call to the agent's extension, T-Server presents account information, collected at an Interactive Voice Response (IVR) unit, to the agent at the agent desktop application.

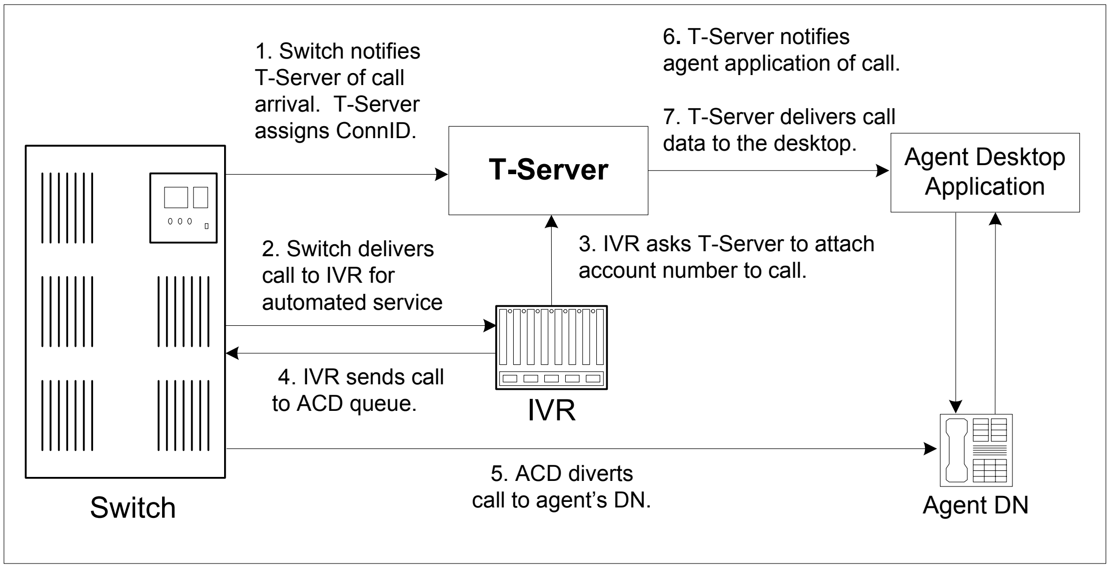

1. Switch notifies T-Server of call arrival. T-Server assigns ConnID.
6. T-Server notifies agent application of call.
7. T-Server delivers call data to the desktop.
T-Server
Agent Desktop Application
2. Switch delivers call to IVR for automated service
3. IVR asks T-Server to attach account number to call.
4. IVR sends call to ACD queue.
IVR
5. ACD diverts call to agent's DN.
Switch
Agent DN

Figure 7: Functional T-Server Steps

Step 1

When the call arrives at the switch, T-Server creates a call in its internal structure. T-Server assigns the call a unique identifier, connection ID.

Step 2

The switch delivers the call to an Interactive Voice Response (IVR) unit, which begins automated interactions with the caller.

Step 3

IVR acquires user information from the caller through prompts and requests T-Server to attach that information to the call. T-Server updates the call with the user information.

Step 4

IVR sends the call to an ACD (Automated Call Distribution) queue.

Step 5

The ACD unit distributes the call to an available agent logged in to a particular DN (directory number).

Step 6

T-Server notifies the agent desktop application that the call is ringing on the agent's DN. The notification event contains call data including `ANI`, `DNIS`, and account information that the IVR has collected.

Step 7

The agent desktop application presents the account information, including the name of the person whose account this is, on the agent's screen, so that the agent answering the call has all the relevant information.

These seven steps illustrate just a small part of T-Server's bridging, messaging, and interaction-processing capabilities.

Advanced Disconnect Detection Protocol

Since the 6.0 release of T-Server, the Advanced Disconnect Detection Protocol (ADDP) has replaced the Keep-Alive Protocol (KPL) as the method to detect failures for certain T-Server connections, including connections between two T-Servers and between a T-Server and its clients.

Notes:

- Starting with release 7.5, the KPL backward compatibility feature is no longer supported.
- ADDP applies only to connections between Genesys software components.

With ADDP, protocol activation and initialization is made on the client's side and you can change these parameters. No additional messages are sent when there is existing activity over the connection. T-Server client applications and the remote T-Server (if any) must be listening to the socket and respond promptly to the polling signal for the connection to be preserved.

If you are going to enable ADDP, you must do it using the `protocol`, `addp-timeout`, `addp-remote-timeout`, and `addp-trace` configuration options. When configuring a timeout, consider the following issues:

- The configured timeout must be at least twice as long as the maximum network latency.
- There may be an interval when T-Server does not check for network activity.

- If the link connection fails but the client is not notified (for example, because the host is turned off, or because a network cable is unplugged), the maximum reaction time to a link-connection failure is equal to double the configured timeout plus the established network latency.

Also keep in mind that the T-Server receiving the polling signal may not respond immediately, and that a delay occurs between the polling signal and the response to travel from one T-Server to another. If you don't account for these contingencies when configuring a timeout, the connection that ADDP is monitoring will be dropped periodically.

Redundant T-Servers

T-Servers can operate in a high-availability (HA) configuration, providing you with redundant systems. The basics of each T-Server's redundant capabilities differ from T-Server to T-Server. One basic principle of redundant T-Servers is the standby redundancy type, which dictates how quickly a backup T-Server steps in when the primary T-Server goes down.

The Framework Management Layer currently supports two types of redundant configurations: `warm standby` and `hot standby`. All T-Servers offer the `warm standby` redundancy type and, starting with release 7.1, the `hot standby` redundancy type is implemented in T-Servers for most types of switches. (See Table 1.)

Specifics on your T-Server's HA capabilities are outlined in Part Two of this document.

Notes:

- Network T-Servers use a load-sharing redundancy schema instead of `warm` or `hot standby`. Specifics on your T-Server's HA capabilities are discussed in Part Two of this document.
- IVR Server does not support simultaneous configuration of both Load Balancing functionality and `warm standby`. Only one of these is supported at a time.

Support for Hot Standby Redundancy in Various T-Servers

Use Table 1 to determine whether your T-Server supports the `hot standby` redundancy type. The table also indicates whether HA Proxy components are required for this support, and, if so, how many are required per pair of redundant T-Servers (or per link if so noted).

Table 1 only summarizes `hot standby` redundancy support in various T-Servers. For detailed, up-to-date information on the subject, see the *Genesys*

7 Supported Media Interfaces white paper located on the Technical Support website at http://genesyslab.com/support/dl/retrieve/default.asp?item=A9CB309AF4DEB8127C5640A3C32445A7&view=item.

Table 1: T-Server Support of the Hot Standby Redundancy Type

T-Server Type	Hot Standby Supported	HA Proxy Required	Number of HA Proxy Components
Aastra Matra Nexpan 50	Yes	No	—
Alcatel A4200/OXO	Yes	No	—
Alcatel A4400/OXE	Yes	No	—
Aspect ACD	Yes	No	1
Avaya Communication Manager	Yes	No[a]	—
Avaya INDeX	Yes	No	—
Cisco CallManager	Yes	No	—
DataVoice Dharma	Yes	No	—
Digitro AXS/20	Yes	No	—
EADS Intecom M6880	Yes	No	—
eOn eQueue	Yes	No	—
Ericsson MD110	Yes	No	—
Fujitsu F9600	Yes	No	—
Huawei C&C08	Yes	No	—
Mitel SX-2000/MN-3300	Yes	No	—
NEC NEAX/APEX	Yes	No	—
Nortel Communication Server 2000/2100	Yes	Yes[b], No[c]	1 per link
Nortel Communication Server 1000 with SCCS/MLS	Yes	No	—
Philips Sopho iS3000	Yes	No[d]	1
Radvision iContact	No	—	—
Rockwell Spectrum	Yes	No	—

Table 1: T-Server Support of the Hot Standby Redundancy Type (Continued)

T-Server Type	Hot Standby Supported	HA Proxy Required	Number of HA Proxy Components
Samsung IP-PCX IAP	Yes	No	—
Siemens Hicom 300/HiPath 4000 CSTA I	Yes	No	—
Siemens HiPath 3000	Yes	No	—
Siemens HiPath 4000 CSTA III	Yes	No	—
Siemens HiPath DX	Yes	No	—
SIP Server	Yes	No	—
Tadiran Coral	Yes	No	—
Teltronics 20-20	Yes	Yes	1
Tenovis Integral 33/55	Yes	No	—
Network T-Servers[e]			
AT&T	No	—	—
Concert	No	—	—
CRSP	No	—	—
DTAG	No	—	—
GenSpec	No	—	—
ISCP	No	—	—
IVR Server, using network configuration	No	—	—
KPN	No	—	—
MCI	No	—	—
NGSN	No	—	—
Network SIP Server	No	—	—
Sprint	No	—	—
SR3511	No	—	—
Stentor	No	—	—

a. With release 7.1, T-Server for Avaya Communication Manager no longer uses HA Proxy for its support of `hot standby`. Earlier releases of this T-Server require two HA Proxies (for which there is a Configuration Wizard) to support `hot standby`.

b. For T-Server for Nortel Communication Server 2000/2100 in high-availability (`hot standby`) configuration, Genesys recommends that you use link version SCAI14 or above with call-progress messages enabled. See the switch-specific information in Part 2 of this *Deployment Guide* for additional information on HA configurations.

c. Starting with release 7.5, T-Server for Nortel Communication Server 2000/2100 supports HA without HA Proxy when operating in Dual CTI Links mode. See the switch-specific information in Part 2 of this *Deployment Guide* for additional information on HA configurations.

d. Starting with release 6.5.3, T-Server for Philips Sopho iS3000 supports HA both with and without HA Proxy.

e. Although they do not support high availability per se, Network T-Servers do support a load-sharing schema.

Multi-Site Support

Multi-site configuration implies the existence of two or more switches that belong to the same enterprise or service provider, and that share the Genesys Configuration Database. (In some cases this may include isolated partitions on a given switch served by different T-Servers.) The main goal of T-Server support for multi-site operations is to maintain critical information about a call as it travels from one switch to another.

For instructions on installing and configuring a multi-site environment, including information on the Inter Server Call Control (ISCC) features, please see Chapter 3, “Multi-Site Support,” on page 43.

Agent Reservation

T-Server provides support for clients to invoke the agent reservation function, `TReserveAgent()`. This function allows a server application that is a client of T-Server to reserve a DN along with an agent, a `Place`, or both, so that no other T-Server client can route calls to it during a specified reservation interval. Alternatively, when clients use the ISCC feature (see “ISCC Call Data Transfer Service” on page 45), they can use an agent reservation embedded in an ISCC request. (To do so, clients have to specify a certain `Extensions` attribute in an ISCC request when initiating an ISCC transaction. See page 50 for the list of ISCC requests.)

The reservation does not currently prevent the reserved objects from receiving direct calls or calls distributed from ACD Queues; agent reservation is intended as a way of synchronizing the operation of several clients. See `RequestReserveAgent` in the *Voice Platform SDK 7.5 .NET* (or *Java) API Reference* for more details on this function from the client’s point of view.

To reserve an agent, in addition to invoking the `TReserveAgent` function on the client side, you must also configure options in the Configuration Layer. This is also necessary in order to coordinate multiple possible reservation requests. See “Agent Reservation” in the “T-Server Common Options” chapter in Part Two for more details.

Licensing Requirements

Starting with release 7.2, the licensing requirements for T-Server have changed from previous releases. Please read this section carefully and refer to the *Genesys 7 Licensing Guide* for complete licensing information.

Licensing the Media Layer

All Genesys software is licensed—that is, it is not shareware. Genesys products are protected through legal license conditions as part of your purchase contract. However, the level of technical license-control enforcement varies across different solutions and components.

Before you begin to install T-Server, remember that, although you may not have had to use technical licenses for your software when you deployed the Configuration and Management Layers in their basic configurations, this is not the case with the Media Layer.

T-Server requires seat-related DN technical licenses to operate even in its most basic configuration. Without appropriate licenses, you cannot install and start T-Server. If you have not already done so, Genesys recommends that you install License Manager and configure a license file at this point. For complete information on which products require what types of licenses, and on the installation procedure for License Manager, refer to the *Genesys 7 Licensing Guide* available on the Genesys Documentation Library CD.

The sections that follow briefly describe the T-Server license types.

Licensing Basic Implementations

A stand-alone T-Server serving a single site requires licenses to register all DNs it monitors. DNs that agents use in day-to-day contact center operations, such as Extensions and ACD Positions, have to be registered using licenses that control agent seats.

Note: Configure all seat DNs that agents use (Extensions and ACD Positions) in the Configuration Layer. This enables detailed call monitoring through Genesys reporting, and generally allows you to control access to individual DNs.

Licensing HA Implementations

T-Servers operating with the hot standby redundancy type require a special CTI HA technical license, which allows for high-availability implementations, in addition to regular T-Server licenses. Neither T-Server in a redundant pair configured for hot standby starts if this license is unavailable. Moreover, the primary and backup T-Servers must use the same licenses to control the same pool of DNs. If your T-Servers are configured with the hot standby redundancy type, order licenses for CTI HA support.

Licensing Multi-Site Implementations

T-Servers performing multi-site operations require licenses that allow for such operations, in addition to regular T-Server licenses. If some of your T-Servers are configured for multi-site routing while others are not, either order licenses for multi-site support for all T-Servers or install an additional License Manager to handle the T-Servers involved in multi-site routing.

Note: You do not need licenses for multi-site support if some T-Server clients include the local location as the location attribute value in their requests for routing within the same site.

Client Connections

The number of connections T-Server can accept from its clients depend on the operating system that T-Server runs. Table 2 illustrates the number of client connections that T-Server support.

Table 2: The Number of T-Server's Client Connections

Operating System	Number of Connections
AIX 32-bit and 64-bit modes (versions 4.3.3, 5.1, 5.2, 5.3)	32767
HP-UX 32-bit and 64-bit modes (versions 11.0, 11.11, 11i v2)	2048
Linux 32-bit mode (versions RHEL 3.0, RHEL 4.0)	1024
Solaris 2.6 32-bit mode (versions 2.6, 2.7, 8, 9, 10)	1024

Table 2: The Number of T-Server's Client Connections (Continued)

Operating System	Number of Connections
Solaris 7 64-bit mode (versions 2.7, 8, 9, 10)	65536
Tru64 UNIX (versions 4.0F, 5.1, 5.1B)	4096
Windows Server 2003	4096

Chapter

3 Multi-Site Support

This chapter contains general information about multi-site environments, as well as information on deploying a multi-site environment for your T-Server.

This chapter is divided into the following sections:

Note: Each switch/T-Server combination offers different multi-site options. For details describing your specific switch/T-Server environment, refer to Chapter 9, “T-Server Common Configuration Options,” on page 203.

The following instructions apply to both local and remote switches and T-Servers. Because different vendor switches can be installed at the local and remote locations, this chapter covers several, but not all, possible configurations. To help determine which sections of this chapter apply to your situation, refer to Table 3 on page 59 and Table 4 on page 63.

For more information on your specific switch/T-Server environment, refer to the multi-site topics in Part Two of this guide.

Multi-Site Fundamentals

A multi-site configuration has two or more switches that belong to the same enterprise or service provider and that share the Genesys Configuration Database. (In some cases, this may include isolated partitions on a given switch served by different T-Servers.) The main goal of T-Server support for multi-site operations is to maintain critical information about a call as it travels from one switch to another.

T-Server supports multi-site operations using its *Inter Server Call Control* (ISCC; formerly called External Routing), which supports the following functions:

- **Call matching**—To link instances of a call distributed across multiple sites and to re-attach essential data associated with the call (`ConnID`, `UserData`, call history). The following T-Server features support this capability:
    - ISCC Call Data Transfer Service (active external routing)—when requested by a T-Server client by specifying the desired destination in the `Location` parameter, and also with various ISCC strategies performed by direct dial or by using the Transfer Connect Service. See "ISCC Transaction Types" on page 50 and "Transfer Connect Service Feature" on page 62.
    - Inter Server Call Control/Call Overflow (ISCC/COF) feature (passive external routing)—applicable when calls are overflowed to another site either directly or manually (see page 63).
    - Number Translation feature (see page 67).
    - Network Attended Transfer/Conference (NAT/C) feature (see page 75).

Note: When ISCC detects call instance reappearance on a given site, the call is assigned a unique `ConnID` and the user data is synchronized with the previous call instances. This ensures that `ConnID`s assigned to different instances of the same call on a given site are unique.

- **Call data synchronization between associated call instances (ISCC Event Propagation)**—To provide the most current data to call instances residing on remote T-Servers. The following T-Server features support this capability:
    - User Data propagation (see page 77)
    - Party Events propagation (see page 78)

Note: ISCC automatically detects topology loops and prevents continuous updates.

Note: In distributed networks, Genesys recommends using call flows that prevent multiple call instance reappearance and call topology loops. This approach ensures that all T-Servers involved with the call report the same `ConnID`, and also optimizes telephony trunk allocation (that is, it prevents trunk tromboning).

The T-Server configuration contains information about other T-Servers with which it will communicate. T-Server uses this information to connect with the other T-Servers. During this "handshake" process, T-Servers exchange information about the following parameters:

- Protocol type
- Switch type
- Server name
- Location name (switch name)
- T-Server role (backup or primary)

To complete the handshake process, T-Servers exchange messages about the current condition of the links to their switches. After the handshake process is complete, T-Server is ready to support a multi-site operation.

ISCC Call Data Transfer Service

Because ISCC supports active external routing, T-Servers that serve different switches (usually on different sites) can exchange call data when a call is passed from one switch to another. With this functionality, T-Server provides its clients with the following additional information about each call received from another switch:

- The `ConnID` of the call
- Updates to user data attached to the call at the previous site
- Call history

Note: Network T-Servers cannot be designated as the destination location for ISCC.

Figure 8 shows the steps that occur during a typical external routing (ISCC) transaction. Note that the location where a call is initially processed is called the *origination location,* and the location to which the call is passed is called the *destination location.*

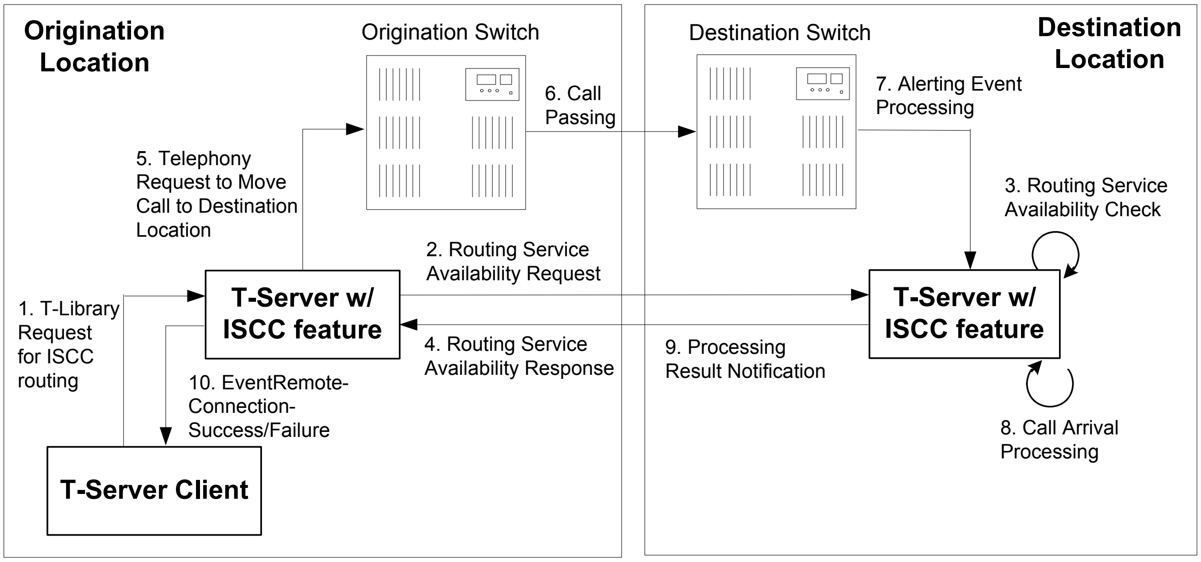

Origination Location
Origination Switch
Destination Switch
Destination Location
6. Call Passing
7. Alerting Event Processing
5. Telephony Request to Move Call to Destination Location
3. Routing Service Availability Check
2. Routing Service Availability Request
1. T-Library Request for ISCC routing
T-Server w/ ISCC feature
T-Server w/ ISCC feature
4. Routing Service Availability Response
9. Processing Result Notification
10. EventRemote-Connection-Success/Failure
8. Call Arrival Processing
T-Server Client

Figure 8: Steps in the ISCC Process

ISCC Call Flow

The following section identifies the steps (shown in Figure 8) that occur during an ISCC transfer of a call.

Step 1

A client connected to the T-Server at the origination location requests this T-Server to pass a call with call data to another location. For this purpose, the client must specify the `location` parameter (Attribute `Location`) when calling a corresponding T-Library function. ISCC processes the following T-Library requests:

- `TInitiateConference`
- `TInitiateTransfer`
- `TMakeCall`
- `TMuteTransfer`
- `TRouteCall`
- `TSingleStepTransfer`

Step 2

Upon receiving a client’s request, the origination T-Server checks that the:

a. Connection to the destination T-Server is configured in the origination T-Server `Properties` dialog box.

b. Connection to the destination T-Server is active.

c. Destination T-Server is connected to its link.

d. Origination T-Server is connected to its link.

If these four conditions are met, the origination T-Server determines the transaction type that will be used for passing call data to another location in this transaction. The following possibilities exist:

- The client can request what *ISCC transaction type* (or simply *transaction type*) to use by specifying an appropriate key-value pair in the `Extensions` attribute of the request. The key-value pair must have a key equal to `iscc-xaction-type` and either an integer value as specified in the `TXRouteType` enumeration (see the *Voice Platform SDK 7.5 .NET (*or *Java) API Reference*) or a string value equal to one of the following: `default`, `route`, `direct` (or `direct-callid`), `direct-network-callid`, `direct-notoken`, `direct-ani`, `direct-uui`, `direct-digits`, `reroute`, `dnis-pool`, `pullback`, or `route-uui`.
- If the client does not specify the transaction type in the request or specifies the `default` transaction type, T-Server checks the Switch configuration for the transaction type configured in the Access Code (or Default Access Code) properties:
  - If the `Route Type` property of the Access Code is set to any value other than `default`, T-Server uses the specified value as the transaction type.
  - If the `Route Type` property of the Access Code is set to the `default` value, T-Server uses the first value from the list specified in the `cast-type` configuration option configured for the destination T-Server. If no value has been specified for the `cast-type` option, the default value of `route` is used as the transaction type.

Note: See "Switches" on page 81 for more information on Access Codes and Default Access Codes.

After the origination T-Server determines the requested transaction type, it determines if the destination T-Server supports this transaction type.

You must list the transaction types T-Server supports in the `cast-type` configuration option.

The origination T-Server issues a request for routing service availability and sends it to the destination T-Server. The T-Server request contains data that should be passed along with the call to the destination location. This data includes the transaction type, `ConnID`, `UserData`, and `CallHistory`.

The timer specified by the `request-tout` configuration option is set when the origination T-Server sends the request. If either the specified timeout expires or the call is abandoned before the origination T-Server receives a response from the destination T-Server, the operation is considered failed. In this scenario, the origination T-Server:

a. Generates a request to the destination T-Server to cancel the request for routing service.

b. Sends `EventError` to the client that requested the service.

c. Deletes information about the request.

Step 3

The destination T-Server receives the request for routing service availability and checks the requested type of routing. Depending on the ISCC transaction type, it stores the request information and, when appropriate, allocates access resources for the coming call. For example, an External Routing Point is allocated when the transaction type is `route`, and a DNIS number is allocated when the transaction type is `dnis-pool`.

Note: The `resource-allocation-mode` and `resource-load-maximum` configuration options determine how resources are allocated. Refer to Chapter 9, "T-Server Common Configuration Options," on page 203 for option descriptions.

If resources are unavailable, the request is queued at the destination location until a resource is free or the origination T-Server cancels the request. If the request is canceled, the destination T-Server deletes all information about the request.

If resources are unavailable because of incorrect configuration, the destination T-Server returns an error event to the origination T-Server.

Step 4

If resources are available, the destination T-Server generates a positive response and the timer is started for the interval specified by the `timeout` configuration option of the destination T-Server.

Step 5

If the origination T-Server receives a negative response, it sends an `EventError` to the client and clears all data about the request.

If the origination T-Server receives the confirmation about routing service availability, it processes the client's request and sends a corresponding message to the switch. The timer on the origination T-Server is also started for the interval specified by the `timeout` configuration option of the destination T-Server.

Step 6

The origination switch processes the T-Server request and passes the call to the destination switch.

Step 7

If the call arrives at the destination switch, the switch generates an alerting event.

The destination T-Server waits for the call no longer than the interval specified by the timeout configured on the destination T-Server. If the call is not received at the destination location within this interval, the destination T-Server issues a failure notification to the origination T-Server, deletes all data about the request, and, when appropriate, frees the resources previously allocated for the request.

If either the specified timeout expires or the call is abandoned before the origination T-Server receives a response from the destination T-Server, the operation is considered failed. In this case, the origination T-Server:

a. Generates a request to the destination T-Server to cancel the request for routing service.

b. Responds to the client that requested the service in one of the following ways:

- If the origination T-Server has already sent a response to the request the client sent in Step 1, the origination T-Server supplements its response with EventRemoteConnectionFailed.
- If the origination T-Server has not yet sent a response to the client, the origination T-Server sends EventError.

c. Deletes information about the request.

Step 8

If the destination T-Server matches the arrived call, it updates the ConnID, UserData, and CallHistory attributes with the data received in the request for routing service availability. The connection ID is updated as follows:

The arrived call is assigned the ConnID that is specified in the request for routing service availability, but only if this ConnID does not coincide with the ConnID of a call that has existed at the destination site. If two such ConnIDs are identical, the arrived call is assigned a new unique ConnID.

For direct-* transaction types (where the asterisk stands for a callid, uui, ani, or digits extension), the call reaches the destination DN directly.

For the transaction types route and route-uui, the call first arrives at an External Routing Point from which it is routed to the destination DN. The call info is updated when the call reaches the External Routing Point. An External Routing Point is considered free when the first alerting event (EventQueued or EventRouteRequest) is distributed.

Please keep the following issues in mind when using the ISCC feature:

- If routing from a dedicated External Routing Point to the destination DN fails, T-Server considers the transaction failed. However, the ConnID, UserData, and CallHistory attributes are updated. Then, T-Server attempts to route the call to one of the Default DNs configured for this External Routing Point.
- If the destination T-Server did not receive a request for routing service availability, but a call arrives at an External Routing Point, T-Server considers the call to be unexpected and routes the call to the DN specified

by the dn-for-unexpected-calls configuration option. When no alternative targets are defined, the call remains at the External Routing Point until diverted by the switch or abandoned by the caller.

For reroute and pullback transaction types, the call returns to the network location. For the dnis-pool transaction type, the call reaches the destination DN directly.

Step 9

If, in Step 8, the call does not arrive within the configured timeout, or the transaction fails, the destination T-Server sends a notification of failure to the origination T-Server.

Otherwise, the destination T-Server notifies the origination T-Server that the routing service was successful and deletes all information about the request.

Step 10

The origination T-Server notifies the client that the routing service was successful (or failed) and deletes all information about the request.

ISCC Transaction Types

As switches of different types provide calls with different sets of information parameters, a single mechanism for passing call data between the switches is not feasible in some cases. Therefore, the ISCC feature supports a number of mechanisms for passing call data along with calls between locations. This section describes ISCC transaction type principles, identifies which transaction types are supported for each T-Server, and defines each transaction type (beginning with “direct-ani” on page 51).

It is important to distinguish the two roles that T-Servers play in an external routing (ISCC) transaction—namely *origination T-Server* and *destination T-Server.*

- The origination T-Server initiates an ISCC transaction. It prepares to send the call to another T-Server and coordinates the process.
- The destination T-Server receives call data from an origination T-Server and matches this data to a call that will arrive at some time in the future.

The distinction between these roles is important because the range of telephony-hardware functionality often requires T-Servers to support two entirely different sets of ISCC transactions based on which of the two roles they play. For instance, it is very common for a particular T-Server to support many types of ISCC transactions when it takes on the origination role, but fewer when it takes on the role of a destination T-Server.

The ISCC transaction type Reroute is a good example. Most T-Servers support Reroute as origination T-Servers, but very few support Reroute as destination T-Servers.

Determining and Configuring Transaction Type Support

You can find descriptions of these transaction types starting on page 51. Use Table 3 on page 59 to identify the transaction types your destination T-Server supports. A blank table cell indicates that T-Server does not support a certain transaction type.

You can configure the transaction types specific to your T-Server as values of the `cast-type` configuration option specified in the ISCC configuration section `extrouter`. Refer to Chapter 9, "T-Server Common Configuration Options," on page 203 for the option description.

ISCC Transaction Type General Principles

Generally, since most of the ISCC implementation is done at the T-Server Common Part (TSCP) code level, all T-Servers support certain ISCC transaction types. Any T-Server can act as the origination T-Server for the following transaction types:

- `direct-ani`, page 51
- `direct-notoken`, page 54
- `dnis-pool`, page 54
- `pullback`, page 56
- `reroute`, page 56
- `route` (aliased as `route-notoken`), the default transaction type, page 57

The following transaction types are unevenly supported for both the origination and destination T-Server roles:

- `direct-callid` (aliased as `direct`), page 52
- `direct-digits` (reserved for Genesys Engineering)
- `direct-network-callid`, page 53
- `direct-uui`, page 53
- `route-uui`, page 58

The `reroute` and `pullback` transaction types are supported only for selected T-Servers in the *destination* role. However, if you implement this support, other transaction types require additional configuration and testing—even those that would normally be supported by default.

direct-ani

With the transaction type `direct-ani`, the `ANI` network attribute is taken as the parameter for call matching. Properly configured switches and trunks can keep the `ANI` attribute when a call is transferred over the network. T-Server is capable of using this network feature for call matching.

Warnings!

- Depending on the switch platform, it is possible to inherit the ANI attribute after routing a call to a remote destination, and after performing a Single-Step Transfer and other telephone actions. However, ISCC only works properly in scenarios where the ANI attribute on the destination T-Server is represented by exactly the same digit string as on the origination T-Server.
- Typically, the ANI attribute represents the original call identifier (customer phone number), which guarantees that the attribute remains unique. However, you can use the non-unique-ani resource type to block ISCC from matching calls based on an ANI that is known to be non unique. (See “Access Resources for Non-Unique ANI” on page 87 for details.)

Notes:

- Some switches, such as Nortel Communication Server 2000/2100 (formerly DMS-100) and Avaya Communication Manager (formerly DEFINITY ECS (MV), may omit the ANI attribute for internal calls—that is, for calls whose origination and destination DNs belong to the same switch. If this is the case, do not use the direct-ani transaction type when making, routing, or transferring internal calls with the ISCC feature.
- When the direct-ani transaction type is in use, the Number Translation feature becomes active. See “Number Translation Feature” on page 67 for more information on the feature configuration.
- With respect to the direct transaction types, Network T-Servers and load-sharing IVR Servers are not meant to play the role of destination T-Servers for call routing. Using Network T-Server with these transaction types requires special architecture.

direct-callid

With the transaction type direct-callid, the call reaches the destination DN directly from another location, and the CallID of the call is taken as the attribute for call matching. When a call arrives at the final destination, the destination T-Server identifies its CallID, and updates the call info if the CallID matches.

Use this transaction type when the destination switch has the capability to assign to an incoming call the same network-wide unique CallID that the origination switch has already assigned to that call.

Notes:

- The direct-callid transaction type is used only in conjunction with the TRouteCall and TSingleStepTransfer function calls. They are applied only to the call that is in progress, and do not apply to functions that involve in the creation of a new call (for example, TMakeCall.)
- For T-Server for Nortel Communication Server 2000/2100, the direct-callid transaction type is also applied to the TMuteTransfer function.

direct-network-callid

With the transaction type direct-network-callid, the call reaches the destination DN directly from another location, and the NetworkCallID of the call is taken as the attribute for call matching. When a call arrives at the final destination, the destination T-Server identifies its NetworkCallID, and updates the call info if the NetworkCallID matches.

Use this transaction type when the destination switch has the capability to assign to an incoming call the same network-wide unique NetworkCallID that the origination switch has already assigned to that call.

Note: To support this transaction type, you must configure Target Type and ISCC Protocol Parameters fields of the corresponding Switch Access Code in the Configuration Layer. Refer to Part Two of this document for information about settings specific for your T-Server type.

direct-uui

With the transaction type direct-uui, so-called user-to-user information (UUI) is taken as the attribute for call matching. Some switches make it possible to send a small data packet along with a call. T-Server can use this data to recognize a call passed from one switch to another. The destination T-Server generates a local unique value for UUI, and then notifies the origination T-Server. The origination T-Server uses a provided value to mark the call coming from the origination location. The destination T-Server receives a call and checks whether it is marked with an exact UUI value. If so, the call is considered as matched.

On the Avaya Communication Manager and the Aspect ACD, UUI is referred to as “user-to-user information.” On the Siemens Hicom 300 switch with CallBridge, UUI is referred to as “Private User Data.” On the Alcatel A4400/ OXE switch, UUI is referred to as “correlator data.”

Note: To support this transaction type, you must configure your switches to pass the UUI provided by your T-Server. Moreover, the trunks involved must not drop this data.

direct-notoken

With the transaction type `direct-notoken`, T-Server expects a call to arrive from another location to the destination DN specified in the request for routing service availability. When a call reaches the specified DN, T-Server processes the call as the expected externally routed call.

Notes:

- This matching criterion is weak because any call that reaches the specified DN is considered to be the expected call. Genesys recommends that you use this transaction type only in a contact center subdivision that can be reached from within the contact center only (for example, the second line of support, which customers cannot contact directly).
- With respect to the `direct` transaction types, Network T-Servers and load-sharing IVR Servers are not meant to play the role of destination T-Servers for call routing. Using Network T-Server with these transaction types requires special architecture.

dnis-pool

With the `dnis-pool` transaction type, T-Server reserves one of its DNIS access resources and waits for the call that has the same `DNIS` attribute as the name of the reserved DNIS access resource.

If the arrived call is matched successfully, the destination T-Server may update the value of the `DNIS` attribute of the call (along with `ConnID`, `UserData`, and `CallHistory`) with the value of the `DNIS` attribute of the original call. This occurs when the value of the `DNIS` attribute of the original call is specified as a value of the key-value pair `_ISCC_TRACKING_NUMBER_` in the `Extensions` attribute of the original client request.

The DNIS matching can be based on any number of digits out of all the digits that comprise the `DNIS` attribute. The number of digits that T-Server should use for DNIS matching is specified for the destination switch as the `ISCC Protocol Parameters` property of the Switch Access Code. The value syntax should be as follows:

```
dnis-tail=<number-of-digits>
```

For example, if this property is set to the `dnis-tail=7` value, ISCC matches only the last seven digits of a `DNIS`.

You must configure DNIS access resources in the switch; otherwise, ISCC fails to use this transaction type and sends `EventError` in response to the client application request.

Note: The `dnis-pool` transaction type is typically used for networks employing a "behind the SCP" architecture—network IVR. Network T-Server for GenSpec and IServer are two examples of this, but other Network T-Servers might also be used in this architecture.

In Load-Balancing Mode

When T-Server uses load balancing for call routing with the `dnis-pool` transaction type, the following processes occur:

1. A client of the origination T-Server sends a request to pass a call to the location with a DNIS access resource specified in the key-value pair `iscc-selected-dnis`.
2. The origination T-Server distributes the request for a routing service to all destination T-Servers.
3. The destination T-Servers receive the request and check that the specified DNIS is not being used by another routing service request.
4. The origination T-Server expects to receive a positive response from each destination T-Server. If the origination T-Server receives a negative response from at least one T-Server, it sends an `EventError` to the client and clears all data about the request. If the origination T-Server receives the confirmation about routing service availability from all destination T-Servers, it processes the client's request and sends a corresponding message to the switch.
5. The origination switch processes the T-Server request and passes the call to the destination switch.
6. The call arrives at the destination switch, which generates an alerting event to one of the corresponding load-balanced destination T-Servers.
7. That destination T-Server processes the call and notifies the origination T-Server that the routing service was successful and deletes all information about the request.
8. The origination T-Server sends a routing service request cancellation to all other destination T-Servers.
9. The origination T-Server notifies the client that the routing service has been successful and deletes all information about the request.

pullback

`Pullback` is used in the following scenario, for those T-Servers that support it:

1. A call arrives at Site A served by a Network T-Server.
2. At Site A, a Network T-Server client requests to pass the call by means of ISCC routing to Site B served by a premise T-Server. Any transaction type except `reroute` or `pullback` can be specified in this request.
3. The call arrives at Site B and is either answered by an agent or delivered to a routing point.
4. A client of the premise T-Server at Site B sends a `TRouteCall`, `TSingleStepTransfer`, or `TGetAccessNumber` request to transfer the call to the network.
5. The Site B premise T-Server notifies the Network T-Server about this request.
6. The network T-Server receives the notification and issues an `EventRouteRequest` to obtain a new destination.
7. After receiving the new destination information, the Network T-Server disconnects the call from its current premise location at Site B and attempts to route the call to the new destination.
8. The Site B premise T-Server stops tracking the call, which has disconnected from the premise's agent DN or routing point and is delivered to the network.
9. The network T-Server completes routing the call to its new destination.

Note: The transaction type `pullback` can be used only to return a call from a premise T-Server to the Network T-Server that serves the site from which the call was previously transferred.

reroute

Only Network T-Servers use the transaction type `reroute`, and only in the following scenario:

1. A call arrives at Site A served by a Network T-Server.
2. At site A, a Network T-Server client requests to pass the call by means of ISCC to Site B served by a premise T-Server. Any transaction type except `reroute` or `pullback` can be specified in this request.
3. An agent at Site B answers the call.
4. A client of the premise T-Server at Site B sends a `TSingleStepTransfer` or `TRouteCall` request to transfer the call elsewhere (to a PSTN, to an agent, or to a routing point).

5. The Site B premise T-Server notifies the Network T-Server about this request and releases the call leg that resides at the agent's phone (using TReleaseCall) or at the Routing Point (using TRouteCall with the parameter RouteTypeCallDisconnect).
6. The Network T-Server receives the notification and reroutes the call to the requested destination—that is, it sends EventRouteRequest and attaches the call's user data.

Notes:

- The transaction type reroute can be used only to return a call from a premise T-Server to the Network T-Server that serves the site from which the call was previously transferred.
- To perform multi-site operations that are initiated with TRouteCall and for which the reroute transaction type is requested, the origination T-Server must support the RouteTypeCallDisconnect subtype of TRouteCall.

route

With the transaction type route (aliased as route-notoken), a call from the origination location reaches a dedicated External Routing Point, and from there, it is routed to a destination DN.

To control configured External Routing Points, T-Server must register these DNs with the switch. Failure to register implies that the External Routing Point is not available for ISCC purposes. Client applications can register External Routing Points via T-Server for monitoring purposes only.

Point-to-Point (One-to-One)

In the Point-to-Point access mode, only one trunk line is used to access an External Routing Point (for example, VDN, CDN) at the destination site. See Figure 9.

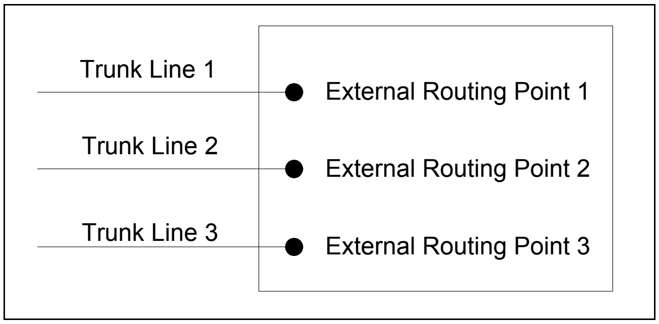


Figure 9: Point-to-Point Trunk Configuration

Note: Dedicated DNs of the External Routing Point type must be configured in a switch. See "Configuring Multi-Site Support" on page 79.

Multiple-to-Point (Multiple-to-One)

In the Multiple-to-Point access mode, trunk lines are assigned to the destination switch's trunk group, from which calls are routed to the final destination. See Figure 10.

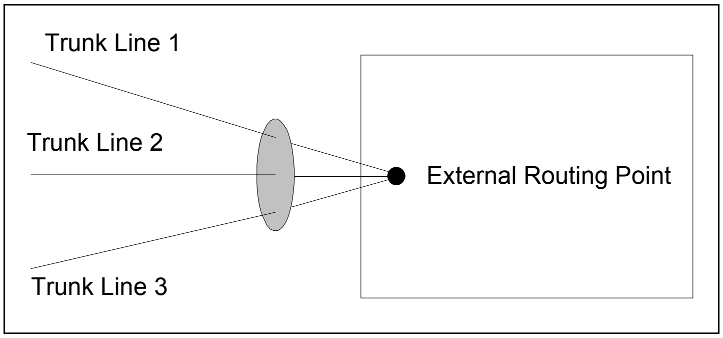


Figure 10: Multiple-to-Point Trunk Configuration

With this configuration, all calls reach the same External Routing Point. The DNIS attribute of a specific call differs from that of other calls and uniquely identifies the trunk from which the call arrived.

Note: To switch to this operating mode, you must configure the route-dn configuration option for T-Server.

route-uui

The route-uui transaction type employs the dedicated External Routing Point feature of the route transaction type (page 57) and the UUI matching feature of the direct-uui transaction type (page 53). This transaction type accommodates those switches that require a designated External Routing Point even though they use UUI for tracking.

Note: To support this transaction type, you must configure your switches to pass the UUI provided by your T-Server. Moreover, the trunks involved must not drop this data.

T-Server Transaction Type Support

Table 3 shows which transaction types are supported by a specific T-Server. Use this table to determine the transaction types that are available for use with your T-Server. This applies both to the `cast-type` you specify in the configuration options for your T-Server, and to any client-designated route-type requests specified for transfers of calls. A blank table cell indicates that T-Server does not support a certain transaction type.

Table 3: T-Server Support of Transaction Types

T-Server Type	Transaction Type										
	route		re-route	direct-callid	direct-uui / route-uui	direct-no-token	direct-ani	direct-digits	direct-network-callid	dnis-pool	pull-back
	one-to-one	multiple-to-one									
Aastra Matra Nexpan 50	Yes			Yes		Yes	Yes				
Alcatel A4200/OXO	Yes			Yes		Yes	Yes				
Alcatel A4400/OXE	Yes			Yes[a,b,c]	Yes[d]	Yes	Yes[a]		Yes[e]		
Aspect ACD	Yes	Yes		Yes		Yes[f]	Yes[f]				
Avaya Communication Manager	Yes			No	Yes	Yes	Yes	Yes[g]			
Avaya INDeX	Yes			Yes		Yes	Yes				
Cisco CallManager	Yes			Yes		Yes	Yes				
DataVoice Dharma	Yes			Yes		Yes	Yes				
Digitro AXS/20	Yes			Yes		Yes					
EADS Intecom M6880	Yes			Yes		Yes	Yes				
eOn eQueue	Yes			Yes		Yes					

Table 3: T-Server Support of Transaction Types (Continued)

T-Server Type	Transaction Type										
	route		re-route	direct-callid	direct-uui / route-uui	direct-no-token	direct-ani	direct-digits	direct-network-callid	dnis-pool	pull-back
	one-to-one	multiple-to-one									
Ericsson MD110	Yes			Yes[a]		Yes	Yes[a]				
Fujitsu F9600	Yes					Yes					
Huawei C&C08	Yes			Yes							
Mitel SX-2000/MN3300	Yes			Yes		Yes	Yes				
NEC NEAX/ APEX	Yes			Yes		Yes	Yes				
Nortel Communication Server 2000/2100	Yes			Yes[f]		Yes[f]	Yes[f]				
Nortel Communication Server 1000 with SCCS/MLS	Yes			Yes		Yes	Yes		Yes		
Philips Sopho iS3000	Yes			Yes		Yes	Yes				
Radvision iContact	Yes		Yes								Yes
Rockwell Spectrum	Yes	Yes		Yes		Yes[f]	Yes[f]				
Samsung IP-PCX IAP	Yes			Yes		Yes					
Siemens Hicom 300/ HiPath 4000 CSTA I	Yes			Yes	Yes[b]	Yes	Yes				

Table 3: T-Server Support of Transaction Types (Continued)

T-Server Type	Transaction Type										
	route		re-route	direct-callid	direct-uui / route-uui	direct-no-token	direct-ani	direct-digits	direct-network-callid	dnis-pool	pull-back
	one-to-one	multiple-to-one									
Siemens HiPath 3000	Yes			Yes		Yes					
Siemens HiPath 4000 CSTA III	Yes			Yes	Yes[b]	Yes	Yes				
Siemens HiPath DX	Yes			Yes	Yes	Yes	Yes				
SIP Server	Yes				Yes	Yes					
Tadiran Coral	Yes			Yes		Yes	Yes				
Teltronics 20-20	Yes			Yes		Yes	Yes				
Tenovis Integral 33/55	Yes			Yes		Yes	Yes				
Network T-Servers											
AT&T											
Concert											
CRSP											Yes
DTAG			Yes								
GenSpec	Yes	Yes	Yes							Yes	
IVR Server, using network configuration	Yes	Yes	Yes							Yes	Yes
KPN			Yes								
ISCP											
MCI											
NGSN	Yes										Yes

Table 3: T-Server Support of Transaction Types (Continued)

T-Server Type	Transaction Type										
	route		re-route	direct-callid	direct-uui / route-uui	direct-no-token	direct-ani	direct-digits	direct-network-callid	dnis-pool	pull-back
	one-to-one	multiple-to-one									
Network SIP Server	Yes					Yes	Yes			Yes	
Sprint	Yes										
SR-3511											
Stentor											

a. Not supported in the case of function TRequestRouteCall on a virtual routing point: a routing point can be simulated using a hunt group with calls being deflected or transferred from the hunt-group member when routing. When a two-step (typically mute) transfer is used on such a hunt-group member, CallID and ANI usually change; thus, the direct-callid and direct-ani types do not work.

b. Not supported in the case of function TSingleStepTransfer when the T-Server service is simulated using a two-step transfer to the switch. In this case, CallID and ANI change; thus, the direct-callid and direct-ani types do not work.

c. Not supported if two T-Servers are connected to different nodes.

d. There are some switch-specific limitations when assigning CSTA correlator data UUI to a call.

e. Supported only on ABCF trunks (Alcatel internal network).

f. To use this transaction type, you must select the Use Override check box on the Advanced tab of the DN Properties dialog box.

g. Supported only for the DEFINITY 5ESS edition.

Transfer Connect Service Feature

The Transfer Connect Service (TCS) feature supports transfer connect services available on some telephony networks. When this feature is enabled, ISCC passes user data to remote locations to which calls are transferred or conferenced using transfer connect services.

To activate the TCS feature, set the tcs-use configuration option to always, and set the tcs-queue configuration option to the number of a DN on the origination switch. ISCC uses this DN as an intermediate step when sending calls to the remote location. The DN that is configured as tcs-queue receives attached data indicating the Feature Access Code (FAC) needed to reach the remote site. After a call is directed to the DN with data, a monitoring application takes the data and generates the required DTMF (dual-tone multifrequency) tones to redirect the call through the network to the remote location.

Note: With T-Server for Avaya Communication Manager, you can use RequestRouteCall with RouteTypeOverwriteDNIS to initiate the playing of DTMF tones. This is done through the use of another intermediate DN (typically, an announcement port configured to give the silence treatment), to which the call is routed. When the call is established on this DN, T-Server requests that the digits sent in the DNIS field of the TRequestRouteCall be played via the ASAI-send-DTMF-single procedure.

ISCC/COF Feature

The Inter Server Call Control/Call Overflow (ISCC/COF) feature of T-Server, that supports passive external routing, is specifically designed to handle calls delivered between sites by means other than ISCC. Such scenarios include contact center overflows and manual call transfers.

An *overflow situation* occurs when a call comes into a contact center where all agents are currently busy. In this situation, the switch can transfer (overflow) the incoming call to another site where there is an available agent.

T-Server uses two methods to handle call overflow and manual transfer scenarios. The first method is based on NetworkCallID matching and the second method is based on ANI/OtherDN matching.

When connected to each other via switch-specific networks, switches of some types can pass additional information along with transferred calls. This information may contain the NetworkCallID of a call, which is a networkwide unique identifier of the call.

When connected via a regular PSTN, switches of all types can send the ANI and/or OtherDN attributes to the destination switch during any call transfer operation.

While all T-Servers support the ISCC/COF feature using the ANI and/or OtherDN attributes, only a few support this feature using the NetworkCallID attribute. Table 4 shows the switches that provide the NetworkCallID of a call.

Table 4: T-Server Support of NetworkCallID for ISCC/COF Feature

T-Server Type	Supported NetworkCallID Attribute
Alcatel A4400/OXE	Yes
Aspect ACD	Yes

Table 4: T-Server Support of NetworkCallID for ISCC/COF Feature (Continued)

T-Server Type	Supported NetworkCallID Attribute
Avaya Communication Manager	Yes
Nortel Communication Server 2000/2100	Yes
Nortel Communication Server 1000 with SCCS/MLS	Yes
Rockwell Spectrum	Yes

The ISCC/COF feature can use any of the three attributes (`NetworkCallID`, `ANI`, or `OtherDN`) as criteria for matching the arriving call with an existing call at another location. Consequently, the attribute that is used determines what `ConnID`, `UserData`, and `CallHistory` are received for the matched call from the call's previous location.

Warning! Depending on the switch platform, it is possible to inherit the ANI attribute after routing a call to a remote destination, and after performing a Single-Step Transfer and other telephone actions. However, ISCC/COF works properly only in scenarios where the `ANI` attribute on the destination T-Server is represented by exactly the same unique digit string as on the origination T-Server. Typically the `ANI` attribute represents the original call identifier (customer phone number), which guarantees that the attribute remains unique.

Note: When the ISCC/COF feature is in use, the Number Translation feature becomes active. See "Number Translation Feature" on page 67 for more information on the feature configuration.

ISCC/COF Call Flow

Figure 11 shows the sequence of steps that occur in an ISCC/COF scenario when a call is made or transferred by an agent at Site A to a DN at Site B, or when a call is overflowed from Site A to Site B.

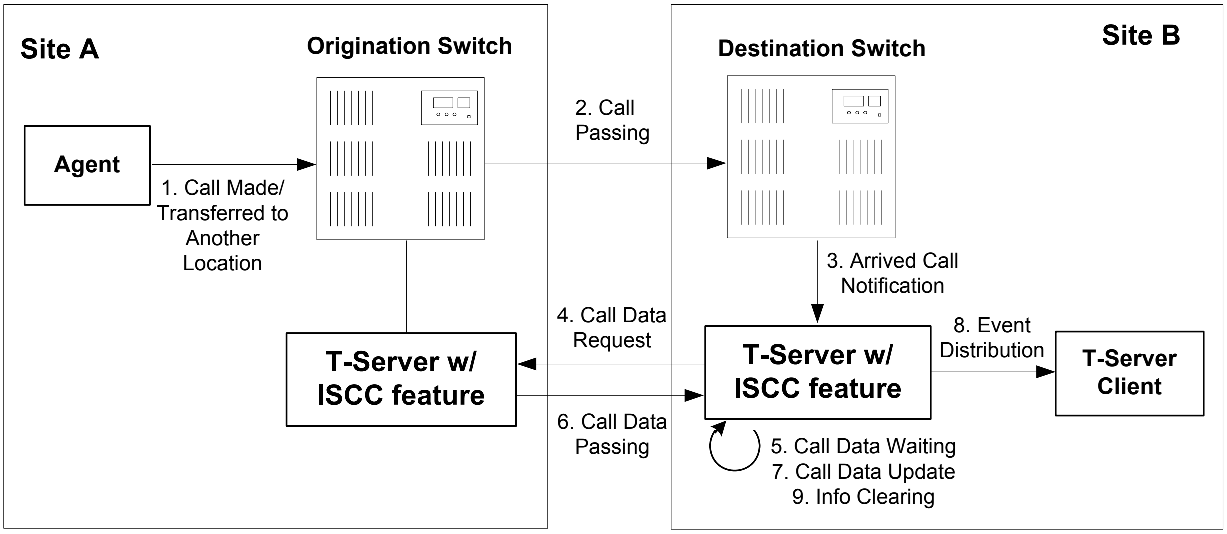


Figure 11: Steps in the ISCC/COF Process

Step 1

An agent makes or transfers a call manually to another location or a call is overflowed from Site A (origination location) to Site B (destination location).

Step 2

Switch A (the origination switch) passes the call to Switch B (the destination switch).

Step 3

The call reaches the destination switch, which notifies the destination T-Server about the arrived call.

Step 4

The destination T-Server verifies with remote locations whether the call was overflowed from any of them.

To determine which calls to check as possibly overflowed, T-Server relies on the `Switch` object configuration:

- If no COF DNs (that is, DNs of the `Access Resources` type with the `Resource Type` set to `cof-in` or `cof-not-in`) are configured for the destination switch, the ISCC/COF feature of the destination T-Server checks all arriving calls.
- If a number of COF DNs are configured for the destination switch, one of three scenarios occurs:

  - If the COF DNs with the cof-in setting for the Resource Type property are configured, the ISCC/COF checks for overflow only those calls that arrive to those cof-in DNs that are Enabled.
  - If no DNs with the cof-in setting for the Resource Type property are configured, but some DNs have the cof-not-in setting for the Resource Type property, the ISCC/COF checks for overflow only those calls that arrive to those cof-not-in DNs that are Disabled.
  - If no DNs with the cof-in setting for the Resource Type property are configured, some DNs have the cof-not-in setting for the Resource Type property, and some other DNs do not have any setting for the Resource Type property, the ISCC/COF checks for overflow only those calls that arrive to the DNs without any setting for the Resource Type property.
- In all other cases, no calls are checked for overflow.

To determine which location the call arrived from, T-Server checks the call type and checks whether the call has the NetworkCallID, ANI, or OtherDN attribute:

- If the call is not an inbound call, the request for call data is sent to all remote locations *except* those whose Switch Access Code has the ISCC Call Overflow Parameters property set to inbound-only=true.
- If the call of any type has the NetworkCallID attribute, the destination T-Server sends a request for call data to the remote locations of the same switch type as the destination location if their Switch Access Codes have the ISCC Call Overflow Parameters property set to match-callid.
- If the call of any type has the ANI or OtherDN attribute, the request for call data is sent to remote locations whose Switch Access Code has the ISCC Call Overflow Parameters property set to match-ani.

Step 5

The destination T-Server waits (suspending events related to that call) for the call data from the remote T-Server for the time interval specified in the cof-ci-req-tout configuration option. Within this interval, T-Server holds any events related to the call. In addition, the cof-ci-defer-delete option on the origination T-Server establishes the time interval only after which that T-Server deletes the call information. And the cof-ci-wait-all, if set to true, forces the origination T-Server to wait for responses related to possible call overflow situations before updating call data.

Step 6

The T-Server at the location from which the call was transferred or overflowed sends call data to the requesting T-Server.

Step 7

If a positive response to the call-data request is received, T-Server updates ConnID, UserData, and CallHistory, distributes all suspended events related to that call and deletes all information regarding the transaction (Step 9).

Step 8

If the timeout set by cof-ci-req-tout expires, T-Server distributes all suspended events, and starts the timeout specified by the cof-rci-tout option. If a positive response is received within the timeout set by cof-rci-tout, T-Server updates the ConnID, UserData, and CallHistory and notifies client applications by distributing EventPartyChanged.

Step 9

T-Server deletes all information regarding the transaction when one of these results occurs:

- The first positive response to the call-data request is received.
- Negative responses from all queried locations are received.
- The timeout specified by the cof-rci-tout option expires.

Number Translation Feature

The Number Translation feature of T-Server extends the ISCC/COF and direct-ani transaction type functions to provide more flexibility for handling calls distributed across multiple sites. T-Server translates the input string (ANI string) into a number defined by the translation rules. This processing is called number translation. T-Servers participating in handling calls at multiple sites exchange the translated numbers in order to match the call instances.

The translation process involves two algorithms, one for rule selection and the other for the actual translation. Through the first algorithm, T-Server selects a rule that will be used for number translation. Through the second algorithm, T-Server translates the number according to the selected rule definition. See "Number Translation Rules" on page 68 for more information on configuring rules for your environment.

Number translation occurs as follows:

1. The switch reports a number, typically via AttributeANI.
2. T-Server evaluates all configured inbound rules to determine which one is the best fit for the received number. The best fit is determined by comparing the length of, and the specific digits in, the input number with the inbound pattern of each configured rule. See "Rule Examples" on page 72 for specific examples.
3. T-Server translates the number according to the selected rule.

To enable T-Server to translate numbers, you must perform specific configuration tasks that are associated with translation. See “Configuration Procedure” on page 74.

Number Translation Rules

T-Server uses the number translation rules that you define in the T-Server configuration object in two ways:

- **Rule selection—**To determine which rule should be used for number translation
- **Number translation—**To transform the number according to the selected rule

Using ABNF for Rules

The number translation rules must conform to the following syntax, represented using Augmented Backus-Naur Form (ABNF) notation. For more information about ABNF, see RFC 2234, “Augmented BNF for Syntax Specifications: ABNF.”

Note: The notations are explained starting at the highest level, with the name of a component notation and a basic definition of each component that comprises it. Some components require more detailed definitions, which are included later in this section.

Common Syntax Notations

Syntax notations common to many of these rules include:

- `*`—Indicates that 0 to an infinite number of the item following this symbol are acceptable.
- `1*`—Indicates that one repetition is required. For T-Server, only one instance is acceptable.
- `/`—Indicates that any of the items mentioned, or a combination of those items, is acceptable.

Component Notations

Component notations include:

- `dialing-plan = *dialing-plan-rule`

  where:

  - `dialing-plan-rule` represents the name of the rule. Each rule must have a unique name. There are no other naming restrictions, and you do not need to model your names according to the examples in this chapter.

The rules are represented as separate options in the configuration. Also, fields from a rule are represented as parameters in a single option string.

- `rule = [name] in-pattern [out-pattern]`

  where:

  - `[name]` is the name for the rule option, for example, `rule-01`. In ABNF notation, the brackets `[]` indicate that 0 or 1 instance of the component is required. However, for T-Server, a name is required.
  - `in-pattern` is the part of the rule to which T-Server looks when attempting to match the input number.
  - `[out-pattern]` is the part of the rule that instructs T-Server on how to translate the input number into the required format. The brackets indicate that either 0 or 1 instance is required. You must create an `out-pattern` for number translation rules.

- `name = *( ALPHA / DIGIT / "-")`

  where:

  - `ALPHA` indicates that letters can be used in the name for the rule option.
  - `DIGIT` indicates that numbers can be used in the name for the rule option.
  - `"-"` indicates that a dash (-) can also be used in the option name, for example, `rule-01`.

- `in-pattern = 1*(digit-part / abstract-group)`

  where:

  - `digit-part` represents numbers. T-Server uses this when selecting the most appropriate rule from the entire dialing plan.
  - `abstract-group` represents one or more letters with each letter representing one or more numbers. T-Server uses this when transforming a dial string.

  For example, `[1-9]` is the `digit-part` (representing a range of numbers) and `ABBB` is the `abstract-group` for `in-pattern=[1-9]ABBB`.

- `out-pattern = 1*(symbol-part / group-identifier) *param-part`

  where:

  - `symbol-part` represents digits, symbols, or a combination. Symbols are rarely used. They are not used in the United States.
  - `group-identifier` are letters that represent groups of numbers. A letter in the `out-pattern` represents one or more digits, based on the number of times the letter is used in the `in-pattern`.
  - `*param-part` represents an additional parameter, such as `phone-context`. Reminder: an asterisk means that 0 to an infinite number of these are acceptable.

  For example, in `rule-04; in-pattern=1AAABBBCCC;out-pattern=91ABC, 91` is the `symbol-part`; `A, B,` and `C` are `group-identifiers` in the `out-pattern`, each representing three digits, since there are three instances of each in the `in-pattern`.

Note: Prefix an `out-pattern` value with a plus sign (+) for the inbound rule when the output must be in a global form (E.164 format).

- `digit-part = digits / range  / sequence`

  where:

  - `digits` are numbers 0 through 9.
  - `range` is a series of digits, for example, 1-3.
  - `sequence` is a set of digits.
- `symbol-part = digits / symbols`

  where:

  - `digits` are numbers 0 through 9.
  - `symbols` include such characters as `+`, `-`, and so on.
- `range = "[" digits "-"  digits "]" group-identifier`

  where:

  - `"[" digits "-"  digits "]"` represents the numeric range, for example, `[1-2]`.
  - `group-identifier` represents the group to which the number range is applied.

    For example, `[1-2]` applies to group identifier `A` for `in-pattern=[1-2]ABBB`. When T-Server evaluates the rule to determine if it matches the number, it examines whether the first digit of the number, identified as `group-identifier A`, is `1` or `2`.
- `sequence = "[" 1*(digits [","] ) "]" group-identifier`

  where:

  - `"[" 1*(digits [","] ) "]"` represents a sequence of digits, separated by commas, and bracketed. T-Server requires that each digit set have the same number of digits. For example, in `[415,650]` the sets have three digits.
  - `group-identifier` represents the group to which the number sequence is applied.

    For example, in `in-pattern=1[415,650]A*B, [415,650]` applies to `group-identifier A`. When T-Server evaluates the rule to determine if it matches the number, it examines whether the three digits (`group-identifier A`) following the 1 in the number are `415` or `650`.
- `abstract-group = fixed-length-group / flexible-length-group / entity`

  where:

  - `fixed-length-group` specifies a group composed of a specific number of digits and determined by how many times the group identifier is included in the `in-pattern`. For example, for `in-pattern=1AAABBBCCCC`, there are three digits in group `A` and `B` but four in group `C`.

    When you create an `out-pattern`, you include the group identifier only once because the `in-pattern` tells T-Server how many digits belong in that group. For example, `rule-04` (see page 73) is `in-pattern=1AAABBBCCCC; out-pattern=91ABC.`

  - `flexible-length-group` specifies a group composed of 0 or more digits in the group represented by the `group-identifier`. For example, in `in-pattern=1[415,650]A*B`, `*B` represents the flexible length group containing the remaining digits in the number.
  - `entity` represents digits defined for a specific purpose, for example, country code.

  The component `abstract-group` is used only for the `in-pattern`.

- `fixed-length-group = 1*group-identifier`

  See the earlier explanation under `abstract-group`.

- `flexible-length-group = "*" group-identifier`

  See the earlier explanation under `abstract-group`.

- `entity = "#" entity-identifier group-identifier`

  where:

  - `"#"` indicates the start of a Country Code `entity-identifier`.
  - `entity-identifier` must be the letter `C` which represents Country Code when preceded by a pound symbol `(#)`. Any other letter following the # causes an error.
  - `group-identifier` represents the Country Code group when preceded by `#C`.

  The `entity` component is a special group that assumes some kind of predefined processing, such as the Country Code detection.

- `param-part = ";" param-name "=" param-value`

  where:

  - `";"` is a required separator element.
  - `param-name` is the name of the parameter.
  - `"="` is the next required element.
  - `param-value` represents the value for `param-name`.

- `param-name = "ext" / "phone-context" / "dn"`

  where:

  - `"ext"` refers to extension.
  - `"phone-context"` represents the value of the `phone-context` option configured on the switch.
  - `"dn"` represents the directory number.

- `param-value = 1*ANYSYMBOL`

  where:

  - `ANYSYMBOL` represents any number, letter, or symbol with no restrictions.

- `group-identifier = ALPHA`
- `entity-identifier = ALPHA`
- `digits = 1*DIGIT`
- `symbols = 1*("-" / "+" / ")" / "(" / ".")`

Recommendations for Rule Configuration

The configuration of rules for inbound numbers usually depends on the settings in the corresponding PBX. These settings often define the form in which the PBX notifies its client applications about the number from which an inbound call is coming.

As a general guideline, configure rules that define how to process calls from:

- Internal numbers.
- External numbers within the same local dialing area.
- External numbers within the same country.
- International numbers.

Rules for inbound numbers, typically for North American locations, might look like this:

1. Two rules to transform internal numbers (extensions):
   ```
   name=rule-01;in-pattern=[1-9]ABBB;out-pattern=AB
   name=rule-02;in-pattern=[1-9]ABBBB;out-pattern=AB
   ```
2. A rule to transform local area code numbers (in `333-1234` format in this example):
   ```
   name=rule-03;in-pattern=[1-9]ABBBBBB;out-pattern=+1222AB
   ```
3. A rule to transform U.S. numbers (in `+1(222)333-4444` format):
   ```
   name=rule-04;in-pattern=1AAAAAAAAAA;out-pattern=+1A
   ```
4. A rule to transform U.S. numbers without the `+1` prefix (in `(222)333-4444` format):
   ```
   name=rule-05;in-pattern=[2-9]ABBBBBBBBB;out-pattern=+1AB
   ```
5. A rule to transform U.S. numbers with an outside prefix (in `9 +1(222)333-4444` format):
   ```
   name=rule-06;in-pattern=91AAAAAAAAAA;out-pattern=+1A
   ```
6. A rule to transform international numbers with an IDD (international dialing digits) prefix (in `011 +44(111)222-3333` format):
   ```
   name=rule-07;in-pattern=011*A;out-pattern=+A
   ```
7. A rule to transform international numbers without an IDD prefix (in `+44(111)222-3333` format)
   ```
   name=rule-08;in-pattern=[2-9]A*B;out-pattern=+AB
   ```

Rule Examples

This section provides examples of six rules that are configured as options in the Genesys Configuration Database. It also provides examples of how T-Server applies rules to various input numbers.

Rules

rule-01 `in-pattern=[1-8]ABBB;out-pattern=AB`

rule-02 `in-pattern=AAAA;out-pattern=A`

rule-03 `in-pattern=1[415,650]A*B;out-pattern=B`

rule-04 `in-pattern=1AAABBBCCCC;out-pattern=91ABC`

rule-05 `in-pattern=*A913BBBB;out-pattern=80407913B`

rule-06 `in-pattern=011#CA*B;out-pattern=9011AB`

Example 1 T-Server receives input number `2326`.

As a result of the rule selection process, T-Server determines that the matching rule is `rule-01`:

```
name=rule-01;in-pattern=[1-8]ABBB;out-pattern=AB
```

The matching count for this rule is `1`, because Group `A` matches the digit `2`.

As a result of the parsing process, T-Server detects two groups: Group `A = 2` and Group `B = 326`.

T-Server formats the output string as `2326`.

Example 2 T-Server receives input number `9122`.

As a result of the rule selection process, T-Server determines that the matching rule is `rule-02`:

```
name=rule-02;in-pattern=AAAA;out-pattern=A
```

The matching count for this rule is `0`; however, the overall length of the input number matches that of the `in-pattern` configuration.

As a result of the parsing process, T-Server detects one group: Group `A = 9122`.

T-Server formats the output string as `9122`.

Example 3 T-Server receives input number `16503222332`.

As a result of the rule selection process, T-Server determines that the matching rule is `rule-03`:

```
name=rule-03;in-pattern=1[415,650]A*B;out-pattern=B
```

The matching count for this rule is `4`, because the first digit matches and all three digits in Group `A` match.

As a result of the parsing process, T-Server detects two groups: Group `A = 650` and Group `B = 3222332`.

T-Server formats the output string as `3222332`.

Example 4 T-Server receives input number `19253227676`.

As a result of the rule selection process, T-Server determines that the matching rule is `rule-04`:

```
name=rule-04;in-pattern=1AAABBBCCCC;out-pattern=91ABC
```

The matching count for this rule is `1`, because the first digit matches.

As a result of parsing process, T-Server detects three groups: Group `A = 925`, Group `B = 322`, and Group `C = 7676`.

T-Server formats the output string as `919253227676`.

Example 5 T-Server receives input number `4089137676`.

As a result of rule selection process, T-Server determines that the matching rule is `rule-05`:

```
name=rule-05;in-pattern=*A913BBBB;out-pattern=80407913B
```

The matching count for this rule is `3`, because three digits match.

As a result of the parsing process, T-Server detects two groups: Group `A = 408` and Group `B = 7676`.

T-Server formats the output string as `804079137676`.

Example 6 T-Server receives input number `011441112223333`.

As a result of the rule selection process, T-Server determines that the matching rule is `rule-06`:

```
name=rule-06;in-pattern=011#CA*B;out-pattern=9011AB
```

The matching count for this rule is `3`, because three digits match.

As a result of the parsing process, T-Server detects two groups: Group `A = 44` and Group `B = 1112223333`.

T-Server formats the output string as `9011441112223333`.

Configuration Procedure

The Number Translation feature becomes active when the ISCC/COF feature and/or the `direct-ani` transaction type are used.

The following configuration procedure must be completed within the T-Server `Application` object corresponding to your T-Server:

1. Open the T-Server `Application's Properties` dialog box.
2. Click the `Options` tab. Create a new section called `extrouter` or open an existing section with this name.
3. Create a new option called `inbound-translator-<n>`. This option points to another section that describes the translation rules for inbound numbers.
4. In this section, create one configuration option for each rule. Specify the rule name as the option name. The values of these options are the rules for the number translation. For the option description and its valid values, see Chapter 9, "T-Server Common Configuration Options," on page 203.
5. When you are finished, click `Apply`.
6. Click `OK` to save your changes and exit the `Properties` dialog box.

Network Attended Transfer/ Conference Feature

The Network Attended Transfer/Conference (NAT/C) feature is designed to enable agents working in multi-site contact centers to consult with each other before making call transfers or conferences, regardless of whether both agents work at the same or different sites. It also enables the agent who requests a consultation to maintain his or her conversation with the customer while the system is looking for an available agent and setting up the consultation call.

The NAT/C feature does not rely on the call transfer capabilities of the local switch.

There are two modes in which the network attended transfer/conference can be performed: *direct* and *URS-controlled*. Figure 12 shows the sequence of steps that occur in *URS-controlled* mode, when Agent A, who is handling a customer call, requests a consultation with another agent, and URS (Universal Routing Server) selects Agent B, who is working at another site. The *direct* mode is similar to the *URS-controlled* mode, with the difference that URS is not involved in the process (Step 2 and Step 3 are omitted).

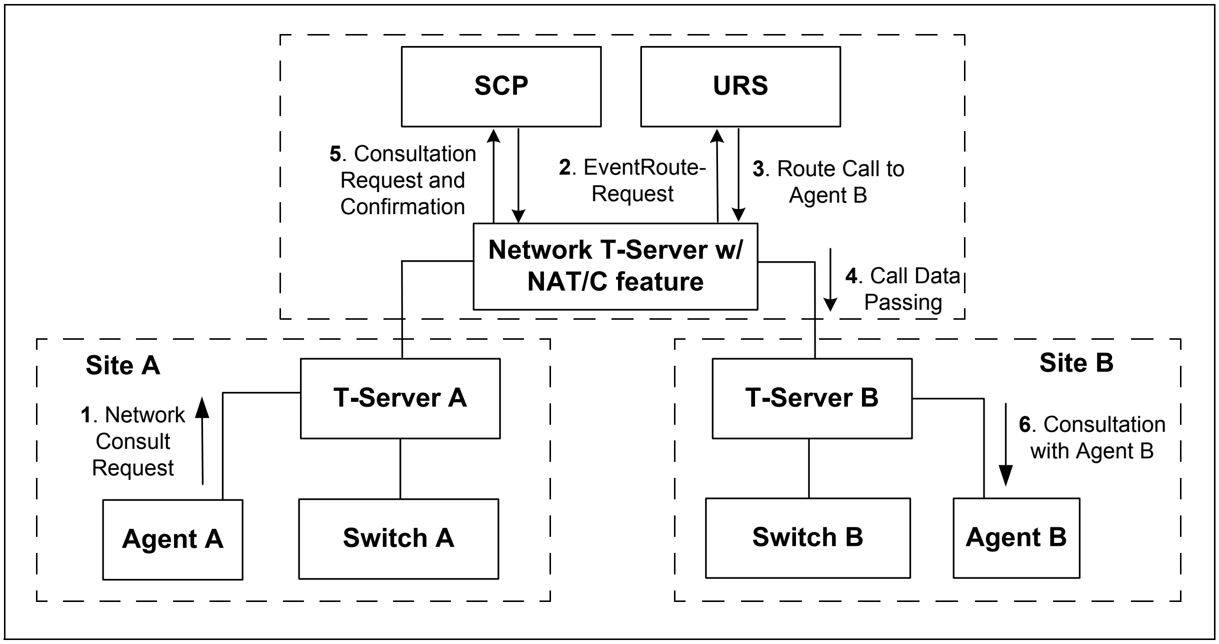


Figure 12: Steps in the NAT/C Process in URS-Controlled Mode

Step 1

Agent A makes a request for a consultation with another agent. A `TNetworkConsult` request is relayed to the Network T-Server. Depending on the parameter settings of the `TNetworkConsult` request, the NAT/C feature will operate in either *direct* or *URS-controlled* mode. For more information, see the *Voice Platform SDK 7.5 .NET* (or *Java) API Reference.*

Step 2

(*URS-controlled* mode only.) The Network T-Server sends `EventRouteRequest` to URS.

Step 3

(*URS-controlled* mode only.) URS locates an available agent at Site B and instructs the Network T-Server to route the call to Agent B. The Network T-Server confirms the initiation of the network transfer by sending `EventNetworkCallStatus` to T-Server A, which then relays it to Agent A.

Step 4

The Network T-Server proceeds to obtain the access number from T-Server B, and passes the call data to T-Server B. (See "ISCC Call Data Transfer Service" on page 45 for details.)

Step 5

The Network T-Server instructs the Service Control Point (SCP) to initiate a new voice path with Agent B. Once the connection is confirmed, the Network T-Server distributes `EventNetworkCallStatus` to both T-Server A and T-Server B, which then relay it to Agent A and Agent B respectively, to indicate that the consultation call is being established.

The Network T-Server also distributes `EventRouteUsed` to URS to confirm successful routing of the call to the selected agent.

Step 6

At this point, the customer is on hold, and Agent A is consulting with Agent B. Agent A can do one of the following:

- End the consultation and retrieve the original customer call
- Alternate between Agent B and the customer
- Set up a conference call with Agent B and the customer
- Transfer the customer call to Agent B

Note: All T-Servers support NAT/C requests with `AttributeHomeLocation` provided that this attribute identifies a network location that is capable of processing such requests. Refer to the *Network T-Server Deployment Guides* to determine whether a specific Network T-Server can process these requests.

Event Propagation Feature

The Event Propagation feature complements the ISCC and ISCC/COF features by distributing updated user data and party-related events to remote T-Servers. This feature is used when a call is being made, transferred, or conferenced to another location, and when, as a result, one or more instances of the call reside at one location while other call instances reside at another location. In this scenario, when a client at one location makes changes to user data, updated user data is passed *(propagated)* to T-Servers at other locations.

The Event Propagation feature consists of User Data update propagation and Party Events propagation.

To enable the Event Propagation feature of your T-Server, you must set the `event-propagation` configuration option to the `list` value. To enable the Event Propagation feature to also distribute party events, you must set the `use-data-from` configuration option to the `consult-user-data` value. (See "Activating Event Propagation" on page 88 and "T-Server Common Configuration Options" on page 203.)

If one of the T-Servers along the call distribution path has the Event Propagation feature disabled, that T-Server does not distribute events to remote locations.

User Data Propagation

User data propagation takes place when a client at one location makes changes to user data associated with a call that was made, transferred, conferenced, or routed to other locations. The remote clients involved with the call are notified about the changes with `EventAttachedDataChanged`.

When T-Server receives a local update to user data (that is, when a client of this T-Server has changed the call's user data), T-Server determines if parties at remote locations are involved with the call and, if so, sends (propagates) the updated user data to the T-Servers at remote locations.

When T-Server receives a remote update to user data (that is, when a client of a remote T-Server has changed the call's user data and the remote T-Server has used the Event Propagation feature to send the updated user data), T-Server:

1. Updates the user data of the corresponding local call.
2. Determines if parties at other remote locations are involved with the call and, if so, propagates the updated user data to T-Servers at other remote locations.

The locations to which user data is propagated are selected based on a call distribution topology. That is, the updated user data is passed directly to the location to which a call was sent and to the location from which the call was received, excluding the location from which the update was received.

For example, consider a call made from location A to location B, and then conferenced from location B to location C. The three instances of the call reside at different locations: the first instance is at location A, the second instance is at location B, and the third instance is at location C. The Event Propagation feature is employed in the following scenarios:

- When T-Server at location A receives a local update to user data, it notifies T-Server at location B (to which it sent the call) about changes to the call's user data. Thus, T-Server at location B receives a remote update to user data and, in turn, notifies T-Server at location C (to which it sent the call) about these changes.

  Although T-Server at location C receives a remote update to user data, it does not pass the notification to any other T-Servers, because it did not send the call to any other locations. As mentioned earlier, T-Servers at locations B and C update the user data of the corresponding local calls and notify their clients about the changes with `EventAttachedDataChanged`.
- When T-Server at location B receives a local update to user data, it notifies T-Server at location C (to which it sent the call) and T-Server at location A (from which it received the call) about changes to the call's user data. Thus, T-Servers at locations C and A receive a remote update to user data.

  Because T-Server at location C did not send the call to any other locations, and T-Server at location A originated the call, neither of these T-Servers passes the notification to any other T-Servers. T-Servers at locations C and A update the user data of the corresponding local calls and notify their clients about the changes with `EventAttachedDataChanged`.
- When T-Server at location C receives a local update to user data, it notifies T-Server at location B (from which it received the call) about changes to the call's user data. Thus, T-Server at location B receives a remote update to user data and, in turn, notifies T-Server at location A (from which it received the call) about these changes.

  Although T-Server at location A receives a remote update to user data, it does not pass the notification to any other T-Servers, because it originated the call. T-Servers at locations B and A update the user data of the corresponding local calls and notify their clients about the changes with `EventAttachedDataChanged`.

When a call is distributed between location A and location C using location B, and is then deleted on location B, propagation between locations A and C still occurs through the transit node at location B.

Party Events Propagation

Party events propagation takes place when a transfer or a conference is completed for a call that was made to or from one or more remote locations, or when a conference party is removed from the conference.

In these cases, the Event Propagation feature distributes party events, such as EventPartyChanged, EventPartyAdded, and EventPartyDeleted, to remote locations involved with the call, according to appropriate call model scenarios.

For example, consider a call made from DN 1 to DN 2 on location A. A TInitiateConference request is then issued for DN 2 to transfer the call to external DN 3 on location B. That transfer is made by means of ISCC routing. When this conference is completed on location A, the Event Propagation feature sends EventPartyChanged to location B and distributes this event to involved client applications that are connected to location B and registered for DN 3. After that, if a party of the conference is removed from the conference (for example, a party on DN 2), the Event Propagation feature sends EventPartyDeleted to location B and distributes this event to client applications registered for DN 3.

Warnings!

- The OtherDN and ThirdPartyDN attributes might not be present in the events distributed via the Event Propagation feature.
- The Event Propagation feature will not work properly with installations that use switch partitioning.

If a call involved in the propagation has no local parties but has two or more remote parties, the party events propagation is processed in the same manner as the propagation of user data updates.

For a complete event flow in such scenarios, refer to the *Genesys 7 Events and Models Reference Manual.*

Configuring Multi-Site Support

Prior to configuring T-Server to support multi-site operation, you must read the “Licensing Requirements” on page 40, as well as previous sections of this chapter on multi-site deployment. In particular, Table 3 on page 59 shows which transaction types are supported by a specific T-Server, while Table 4 on page 63 shows whether your T-Server supports the NetworkCallID attribute for the ISCC/COF feature. Use this information as you follow the instructions in this chapter.

Note: Before attempting to configure a multi-site environment, Genesys recommends that you plan the changes you want to make to your existing contact centers. You should then gather the configuration information you will need (such as the names of each T-Server application, port assignments, switch names, and so on), and use Configuration Manager to create and partially configure each T-Server object. Review multi-site option values in the "Multi-Site Support Section" on page 211 and determine what these values need to be, based on your network topology.

For T-Server to support multi-site operation, you must create and configure three types of objects in the Configuration Layer: Applications, Switches, including Access Codes, and DNs. You must configure these objects for origination and destination locations. Multi-site support features activate automatically at T-Server startup. See "Configuring DNs" on page 85 for details.

Applications

Ensure that T-Server Application objects, and their corresponding Host objects, exist and are configured for origination and destination locations.

Once you've done that, use Configuration Manager to add this configuration to a T-Server Application:

1. Open the T-Server Application's Properties dialog box.
2. Click the Connections tab and click Add to add a connection to the appropriate T-Server. The Connection Info Properties dialog box displays.
3. Use the Browse button to search for the T-Server you want to connect to, and fill in the following values:
    - Connection Protocol
    - Local Timeout
    - Remote Timeout
    - Trace Mode
4. Click the Options tab. Create a new section called extrouter or open an existing section with this name.

    Note: If you do not create the extrouter section, T-Server works according to the default values of the corresponding configuration options.

5. Open the extrouter section. Configure the options used for multi-site support.

Note: For a list of options and valid values, see the "Multi-Site Support" section of the "T-Server Common Options" chapter in Part Two of this document.

6. When you are finished, click Apply.

Repeat this procedure for all T-Servers for origination and destination locations that are used for multi-site operations.

Switches

Ensure that Switching Office and Switch objects are configured for both origination and destination locations. You configure Access Codes to a destination switch in the origination Switch's Properties dialog box. The only exception is the Default Access Code, which is configured at the destination Switch's Properties dialog box.

You can configure two types of switch Access Codes in the Switch's Properties dialog box:

- A Default Access Code (for inbound calls)—Specifies the access code that other switches can use to access this switch when they originate a multi-site transaction.
- An Access Code (for outbound calls)—Specifies the access code that this switch can use when it originates a multi-site transaction to access another switch.

When the origination T-Server processes a multi-site transaction, it looks for an access code to the destination switch. First, T-Server checks the Access Code of the origination Switch:

- If an access code to the destination switch is configured with the target type Target ISCC and with any transaction type except Forbidden, T-Server uses this access code to dial the destination switch.
- If the access code to the destination switch is not configured on the Access Code tab of the origination switch, the origination T-Server checks the Default Access Code tab of the destination switch. If an access code is configured there with the target type Target ISCC and with any transaction type except Forbidden, T-Server uses this access code to dial the destination switch.
- If no access code with the required properties is found, T-Server rejects the transaction.

Configuring Default Access Codes

After you have configured Switching Office and Switch objects, follow this procedure to configure the Default Access Codes (one per Switch object):

1. Among configured Switches, select the Switch that the configured T-Server relates to.
2. Open the Switch Properties dialog box and click the Default Access Codes tab.
3. Click Add to open the Access Code Properties dialog box.
4. In the Code field, specify the access code used by remote switches to reach a DN at this switch. An access code is used as a prefix to the remote switch numbers.

Note: If no prefix is needed to dial to the configured Switch, you can leave the Code field blank.

5. In the Target Type field, select Target ISCC.
6. In the Route Type field, select a value corresponding to the transaction type you want to use (given that it is supported for your switch type).

Configuring Access Codes

After you have configured Switching Office and Switch objects, follow this procedure to configure one or more Access Codes:

1. Among configured Switches, select the Switch that the configured T-Server relates to.
2. Open the Switch Properties dialog box and click the Access Codes tab.
3. Click Add to open the Access Code Properties dialog box.
4. In the Switch field, specify the switch that this switch can reach using this access code. Use the Browse button to locate the remote switch.
5. In the Code field, specify the access code used to reach a DN at the remote switch from this switch. An access code is used as a prefix to the remote switch numbers.

Note: If no prefix is needed to dial from one switch to another, you can leave the Code field blank.

6. In the Target Type field, select Target ISCC.

7. In the Route Type field, select a value corresponding to the transaction type you want to use (given that it is supported for your switch type). Table 5 contains cross-reference information on transaction types that the Configuration Layer and T-Server use.

Table 5: Transaction Types

Route Type Field Value	ISCC Transaction Type
Default	The first value from the list of values specified in the cast-type option for the T-Server at the destination site
Direct	direct-callid
Direct ANI	direct-ani
Direct Digits	direct-digits
Direct DNIS and ANI	Reserved
Direct Network Call ID	direct-network-callid
Direct No Token	direct-notoken
Direct UUI	direct-uui
DNIS Pooling	dnis-pooling
Forbidden	External routing to this destination is not allowed
ISCC defined protocol	Reserved
PullBack	pullback
Re-Route	reroute
Route	route

After configuring a switch for multi-site support, proceed with the configuration of DNs assigned to this switch.

Configuring Extended Parameters in Access Codes

If you select Target ISCC as your target type, as specified in Step 6 above, the Properties dialog box changes its lower pane to the Source pane. It is here that you enter the extended parameters for your access codes, by specifying the ISCC Protocol and ISCC Call Overflow Parameters. To set these parameters, locate the two drop-down boxes that appear below the Target Type field in the Source pane of that Properties dialog box.

1. In the `ISCC Protocol Parameters` drop-down box, enter the appropriate ISCC Protocol parameter, as a comma-separated list of one or more of the following items:

`dnis-tail=<number-of-digits>`	Where `number of digits` is the number of significant DNIS digits used for call matching. `0` (zero) matches all digits.
`propagate=<yes, udata, party, no>`	Default is `yes`. For more information, see "Activating Event Propagation" on page 88.
`direct-network-callid=<>`	For configuration information, see Part Two of this document. (Use Table 3 on page 59 to determine if your T-Server supports the `direct-network-callid` transaction type.)

2. In the `ISCC Call Overflow Parameters` drop-down box, enter call overflow parameters, as a comma-separated list of one or more of the following items:

`match-callid`	Matches calls using network `CallID`.
`match-ani`	Matches calls using ANI.
`inbound-only=<boolean>`	Default is `true`. Setting `inbound-only` to `true` disables COF on consultation and outbound calls.

Compatibility Notes

When migrating from previous releases of T-Servers to 7.5, or when using T-Servers of different releases (including 7.5) in the same environment, keep in mind the following compatibility issues:

- The `Target External Routing Point` value of the `Target Type` field is obsolete and provided only for backward compatibility with T-Servers of releases 5.1 and 6.0. When two access codes for the same switch are configured, one with the `Target ISCC` target type and the other with the `Target External Routing Point` target type, T-Servers of releases 7.x, 6.5, and 6.1:
  - Use the `Target ISCC` access code for transactions with T-Servers of releases 7.x, 6.5, and 6.1.
  - Use the `Target External Routing Point` access code for transactions with T-Servers of releases 5.1 and 6.0.

  When the only access code configured for a switch has the `Target External Routing Point` target type, T-Server uses this access code for all transactions.
- When the `Target External Routing Point` value of the `Target Type` field is configured, you must set the `Route Type` field to one of the following:

- Default to enable the route transaction type
- Label to enable the direct-ani transaction type
- Direct to enable the direct transaction type

Note: The direct transaction type in releases 5.1 and 6.0 corresponds to the direct-callid transaction type in releases 6.1, 6.5, and 7.x.

- UseExtProtocol to enable the direct-uui transaction type
- PostFeature to enable the reroute transaction type

These values are fully compatible with the transaction types supported in T-Server release 5.1.

- For successful multi-site operations between any two locations served by release 5.1 T-Servers, identical Route Type values must be set in the Switch's Access Code Properties dialog boxes for both the origination and destination switches.

Configuring DNs

Use the procedures from this section to configure access resources for various transaction types.

Access Resources for the route Transaction Type

To use the transaction type route, you must configure dedicated DNs as follows:

1. Under a configured Switch, select the DNs folder. From the main menu, select File > New > DN to create a new DN object.
2. On the General tab of the DN's Properties dialog box, specify the number of the configured DN as the value of the Number field. This value must correspond to the Routing Point number on the switch.
3. Select External Routing Point as the value of the Type field.
4. If a dialable number for that Routing Point is different from its DN name, specify the number in the Association field.
5. Click the Access Numbers tab. Click Add and specify these access number parameters:
   - Origination switch.
   - Access number that must be dialed to reach this DN from the origination switch.

In determining an access number for the Routing Point, T-Server composes it of the values of the following properties (in the order listed):

1. Access number (if specified).

2. Switch access code from the switch of the origination party to the switch to which the Routing Point belongs, concatenated with its `Association` (if the `Association` value is specified).
3. Switch access code from the switch of the origination party to the switch to which the Routing Point belongs, concatenated with the number for the DN.
4. Default access code of the switch to which the Routing Point belongs, concatenated with its `Association` (if the `Association` value is specified).
5. Default access code of the switch to which the Routing Point belongs, concatenated with the number for the DN.

Note: If option `use-implicit-access-numbers` is set to `true`, the access number composed of switch access code and DN can be used for external transfers of calls originating at switches for which an access number is not specified.

Access Resources for the dnis-pool Transaction Type

To use the transaction type `dnis-pool`, you must configure dedicated DNs as follows:

1. Under a configured `Switch`, select the `DNs` folder. From the main menu, select `File > New > DN` to create a new `DN` object.
2. On the `General` tab of the DN's `Properties` dialog box, specify the number of the configured DN as the value of the `Number` field. This value must be a dialable number on the switch.
3. Select `Access Resource` as the `Type` field and type `dnis` as the value of the `Resource Type` field on the `Advanced` tab.
4. Click the `Access Numbers` tab. Click `Add` and specify these `Access Number` parameters:
   - Origination switch.
   - Access number that must be dialed to reach this DN from the origination switch.

An access number for the access resource is determined in the same manner as for the `route` access resource.

Access Resources for direct-* Transaction Types

You can use any configured DN as an access resource for the `direct-*` transaction types. (The `*` symbol stands for any of the following: `callid`, `uui`, `notoken`, `ani`, or `digits`.)

You can select the `Use Override` check box on the `Advanced` tab to indicate whether the override value should be used instead of the number value to dial to the DN. You must specify this value if the DN has a different DN name and dialable number. In fact, this value is required for T-Servers for some switch types—for example, Aspect ACD, Nortel Communication Server 2000/2100, and Spectrum.

Access Resources for ISCC/COF

Note: Use Table 4 on page 63 to determine if your T-Server supports the ISCC/COF feature.

To use the ISCC/COF feature, you must configure DNs as follows:

1. Under a configured `Switch`, select the `DNs` folder. From the main menu, select `File > New > DN` to create a new `DN` object.

   Note: The number of the access resource must match the name of a DN configured on the switch (usually, an ACD Queue) so that T-Server can determine if the calls arriving to this DN are overflowed calls.

2. On the `General` tab of the DN `Properties` dialog box, specify the number of the configured DN as the value for the `Number` field.
3. Select `Access Resource` as the value for the `Type` field.
4. Click `Apply`.
5. On the `Advanced` tab, type `cof-in` or `cof-not-in` as the value for the `Resource Type` field.

   Note: Calls coming to DNs with the `cof-not-in` value for the `Resource Type` are never considered to be overflowed.

Access Resources for Non-Unique ANI

The `non-unique-ani` resource type is used to block `direct-ani` and `COF/ani` from relaying on ANI when it matches configured/enabled resource digits. Using `non-unique-ani`, T-Server checks every ANI against a list of `non-unique-ani` resources.

To use the ISCC/COF feature, you must configure dedicated DNs as follows:

1. Under a configured `Switch`, select the `DNs` folder. From the main menu, select `File > New > DN` to create a new `DN` object.
2. On the `General` tab of the DN `Properties` dialog box, specify the ANI digits that need to be excluded from normal processing.
3. `Access Resource` as the value for the `Type` field.
4. On the `Advanced` tab, specify the `Resource Type` field as `non-unique-ani`.

Additional DN Configuration for Isolated Switch Partitioning

When using switch partitioning, identify DNs that belong to a particular partition and modify their configuration as follows:

1. Under a `Switch` object, select the `DNs` folder.
2. Open the `Properties` dialog box of a particular `DN`.
3. Click the `Annex` tab.
4. Create a new section named `TServer`.
5. Within that section, create a new option named `epn`. Set the option value to the partition name to which the DN belongs.
6. Repeat Steps 1–5 for all DNs, including DNs of the `External Routing Point` type, that belong to the same switch partition.

This configuration instructs T-Server to select an External Routing Point that has the same partition as the requested destination DN.

Note: When a target DN is not configured or has no configured partition name, T-Server allocates a DN of the `External Routing Point` type that belongs to any partition.

Activating Event Propagation

To activate the Event Propagation feature during ISCC transactions, modify the configuration of the `Switch` at the location where a T-Server client changes user data, as described in the following section.

When determining whether to notify other T-Servers of changes to user data, or to distribute party events, T-Server checks:

1. Call topology (what location a call came from and to what location the call was then transferred or conferenced).
2. Outbound parameters of the `Switch` this T-Server relates to (whether propagation parameters are configured for the access codes this switch uses to reach the switch at the location a call came from and the switch at the location to which the call was then transferred or conferenced).

Warning! The direction of user-data or party-events propagation does not necessarily match the direction of call distribution. Therefore, the access code used to deliver the call can differ from the access code used for the purpose of Event Propagation.

You can set Event Propagation parameters using:

- The `Default Access Code` properties of the `Switch` that receives an ISCC-routed call (the destination switch).

- The Access Code properties of the Switch that passes an ISCC-routed call (the origination switch).

Note: You can also use the value of the event-propagation configuration option in the extrouter section in T-Server Application object to enable Event Propagation. The option value has a higher priority than the Switch settings.

If you do not set up Event Propagation parameters for a given Access Code, T-Server uses corresponding settings configured for the Default Access Code of the destination switch.

The procedures for modifying Default Access Codes and Access Codes are very similar to each other:

1. Among configured Switches, select the Switch that the configured T-Server relates to.
2. Open the Switch's Properties dialog box and click either the Default Access Codes tab or the Access Codes tab.
3. Select a configured Default Access Code or configured Access Code and click Edit.

   Note: If no Default Access Code is configured, see page 82 for instructions. If no Access Codes are configured, see page 82 for instructions.

4. In the Switch Access Code Properties dialog box that opens, specify a value for the ISCC Protocol Parameters field as follows:
   - To enable distribution of both user data associated with the call and call-party–associated events[1], type:

     propagate=yes

     which is the default value.
   - To enable distribution of user data associated with the call and disable distribution of call-party–associated events, type:

     propagate=udata
   - To disable distribution of user data associated with the call and enable distribution of call-party–associated events, type:

     propagate=party
   - To disable distribution of both user data associated with the call and call-party–associated events, type:

     propagate=no

[1] The following are call-party–associated events: EventPartyChanged, EventPartyDeleted, and EventPartyAdded.

5. Click OK to save configuration updates and close the Switch Access Code Properties dialog box.
6. Click Apply and OK to save configuration updates and close the Switch Properties dialog box.

Example 1

This section demonstrates the difference in how ISCC directs a call when you specify two different transaction types (route and direct-ani).

In this example, you configure an origination and a destination switch for Nortel Communication Server 2000/2100 (formerly DMS-100) as described in "Switches" on page 81. Set the Access Code field to 9. Under the destination switch, configure a DN as described in "Access Resources for the route Transaction Type" on page 85. Set the DN Number field to 5001234567. In addition, select the Use Override check box on the Advanced tab of this DN's Properties dialog box and enter 1234567 in the Use Override field.

Then, use a softphone application to register for this new DN with the destination T-Server and, therefore, with the switch. Finally, request to route a call from any DN at the origination switch to the destination DN you have just configured:

- If you are using the route ISCC transaction type, the client requests that T-Server deliver a call to a destination location using the DN number 5001234567. ISCC requests that the switch dial one of the external routing points at the destination location, using the value either of the Access Number field or of the Access Code field, which is 9, concatenated with the external routing point at the destination location. The call is routed to the DN number 5001234567.
- If you are using the direct-ani ISCC transaction type, the client requests that T-Server deliver a call to a destination location using the DN number 1234567, which is the Use Override value. ISCC requests that the switch dial 91234567, which is a combination of the Switch Access Code value and the Use Override value. The destination T-Server is waiting for the call to directly arrive at DN number 5001234567.

Example 2

This section demonstrates how to indicate which overflow methods a switch supports.

In this example, for T-Server to use ANI/OtherDN matching in call overflow and manual transfer scenarios, set the ISCC Call Overflow Parameters to

```
match-ani, inbound-only=true
```

when configuring Switch Access Codes as described on page 82.

With this setting, the switch's location is queried for call data each time the destination T-Server receives an inbound call with the ANI or OtherDN attribute.

For T-Server to use `NetworkCallID` matching in call overflow and manual transfer scenarios, set the `ISCC Call Overflow Parameters` to (for example)

```
match-callid, inbound-only=false
```

when configuring `Switch Access Codes` as described on page 82.

With this setting, the switch's location is queried for call data each time the destination T-Server receives a call of any type (including inbound) with the `NetworkCallID` attribute.

Chapter

4 Pre-Installation Setup

This chapter describes the setup tasks that you must complete before you can install the IVR Server or an IVR Driver.

Note: If you use the IVR Interface Option Wizard that is available with IVR Interface Option 7.5, most of these pre-installation tasks described in this chapter are unnecessary. Although you must still manually install prerequisite products before you install IVR Server or an IVR Driver, you can use the wizard to import application templates, and to create the Application objects for IVR Server 7.5 and IVR Driver 7.5.

This chapter contains the following sections:

For information about how to install an IVR Driver, see the *IVR Interface Option 7.5 System Administrator's Guide* for your particualr IVR Driver.

Note: The examples in this chapter are based on IVR Server 7.5. The release number of the actual application templates that you import into your system might differ, depending on the current release of your IVR Server.

IVR Interface Option Application Templates

Table 6 lists the application templates that you must import and configure in Configuration Manager, depending on your configuration mode.

Table 6: Application Templates and Configuration Modes

Application Template	Configuration Modes Required	Notes
IVR_Driver	IVR-In-Front IVR-Behind-Switch	A component of the IVR Driver product, this application template enables communication between the IVR Driver and the IVR Server. This template is available on the IVR Driver CD. **Note:** The IVR Drivers 7.5 for Aspect and CONVERSANT do not require, and cannot use, the `IVR_Driver` application template.
I-Server	IVR-In-Front IVR-Behind-Switch	A component of the IVR Server product, this application template enables Load Balancing, statistics, and other IVR Server functions. This template is available on the IVR Server CD.
TServer_IVR	IVR-In-Front IVR-Behind-Switch	A component of the IVR Server product, this application template starts and stops the IVR Server, enables network logging, and communicates with other Genesys products (for example, Configuration Server). This template is available on the IVR Server CD.
TServer_IVR_Network	IVR Network T-Server	This application template provides similar functions to the `TServer_IVR` application template. It includes the capability to communicate with a Network T-Server. This template is available on the IVR Server CD.

Setting up the IVR_Driver Application

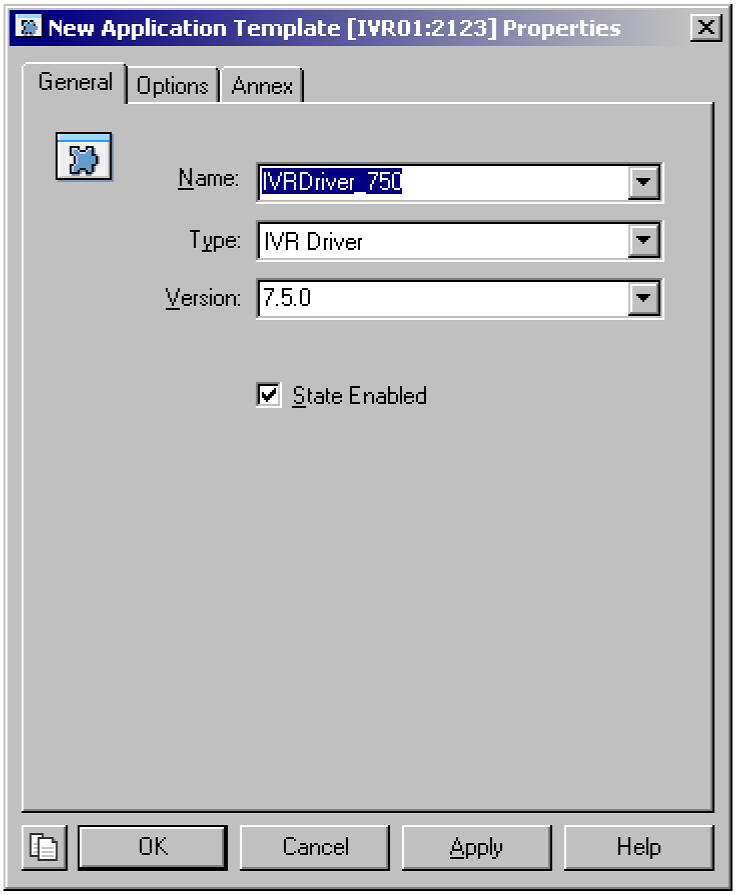
This section describes how to set up the `IVR_Driver` application. It contains the following subsections:

- “Importing the IVR_Driver Application Template” on page 95
- “Defining the IVR_Driver Application” on page 96
- “Configuring the IVR_Driver Application” on page 97

Importing the IVR_Driver Application Template

To import the IVR_Driver application template into Configuration Manager:

1. In Configuration Manager, expand Environment, right-click Application Templates, and select Import Application Template.
2. Navigate to the directory that contains the IVR_Driver template file (IVRDriver_750.apd), select the file, and click Open. The New Application Template Properties dialog box appears (see Figure 13).



Name: IVRDriver_750

Type: IVR Driver

Version: 7.5.0

☑ State Enabled

Figure 13: New Application Template Properties Dialog Box

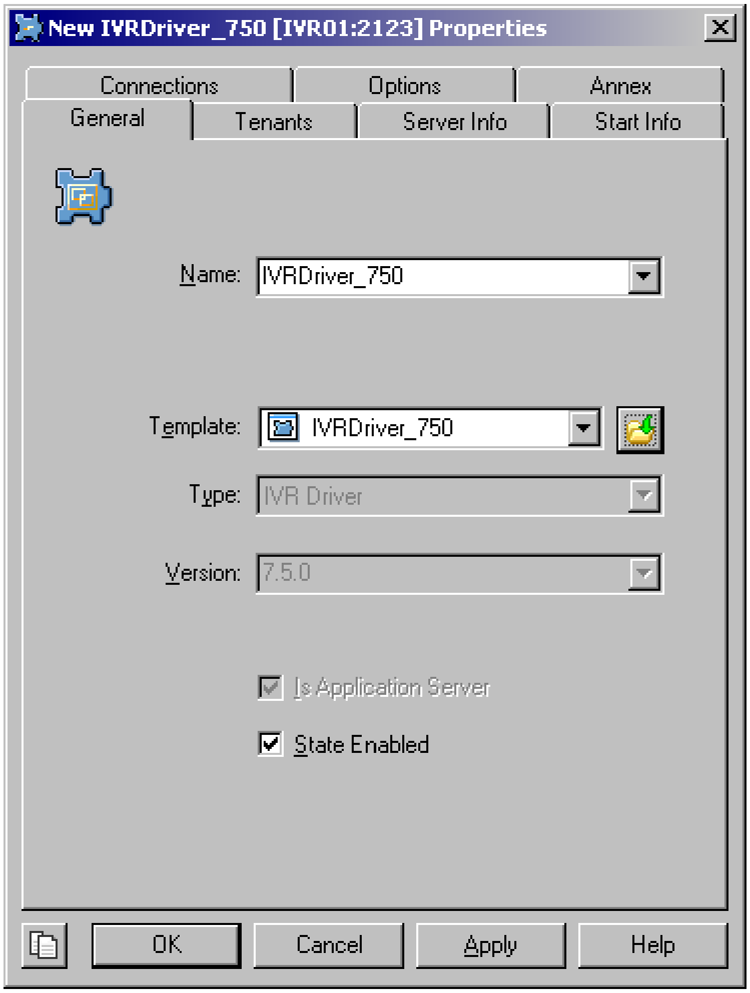
3. In the Name box, accept the default value, or enter a new name for the IVR_Driver template.
4. In the Type box, verify that IVR Driver is selected.
5. In the Version box, verify that the correct version number is selected.
6. Click OK to import the IVR_Driver application template.

You are now ready to define the IVR_Driver application.

Defining the IVR_Driver Application

To define the IVR_Driver application in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. A list of the available application templates is displayed.
2. Select the IVR_Driver application template that you defined in "Importing the IVR_Driver Application Template" on page 95, and then click OK. The New IVRDriver_750 Properties dialog box appears, with the General tab displayed (see Figure 14).


New IVRDriver_750 [IVR01:2123] Properties

Name: IVRDriver_750

Template: IVRDriver_750

Type: IVR Driver

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 14: New IVRDriver_750 Properties Dialog Box—General Tab

3. In the Name box, accept the default value, or enter a new name for the IVR_Driver application.
4. Click OK to create the IVR_Driver application and close the New IVRDriver_750 Properties dialog box; or click Apply to create the application without closing the dialog box, so that you can perform additional actions.

You are now ready to configure the `IVR_Driver` application.

Configuring the IVR_Driver Application

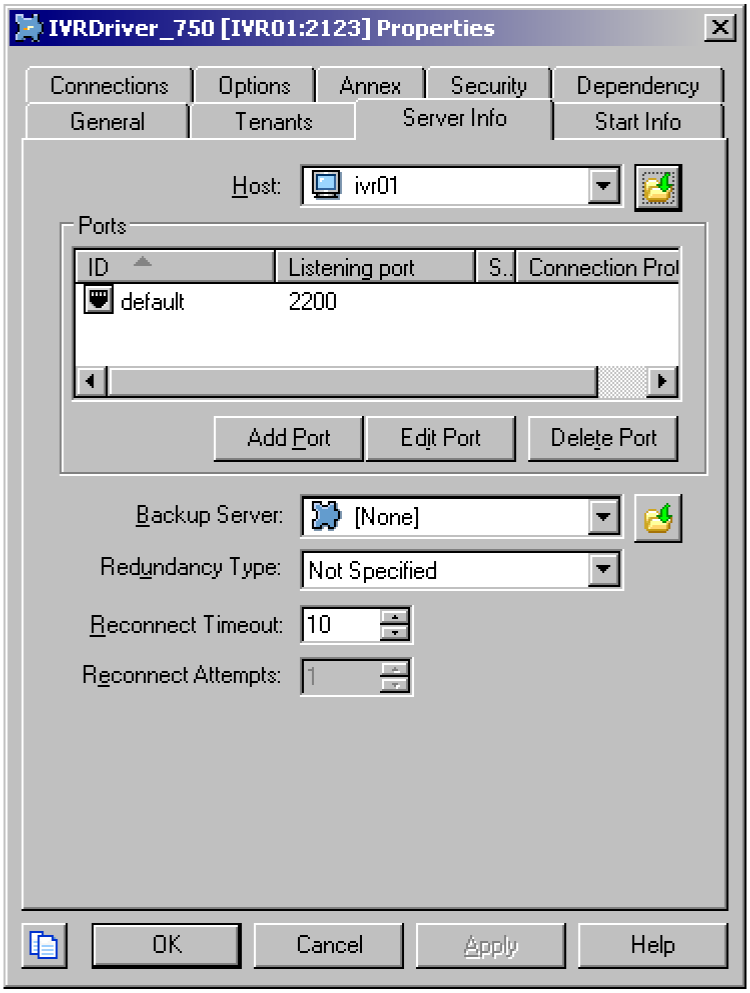
The following sections describe how to configure the `IVR_Driver` application in Configuration Manager:

- "Assigning an IVR_Driver Host" on page 97
- "Defining Start Parameters for the IVR_Driver Application" on page 98
- "Adding Connections for the IVR_Driver Application" on page 100

Assigning an IVR_Driver Host

The vendor-provided IVR must be configured on the same host. To assign an `IVR_Driver` host:

1. In the `IVRDriver_750 Properties` dialog box, click the `Server Info` tab (see Figure 15).



Host: ivr01

Ports

ID	Listening port	S..	Connection Prot
default	2200		

Backup Server: [None]

Redundancy Type: Not Specified

Reconnect Timeout: 10

Reconnect Attempts: 1

Figure 15: IVRDriver_750 Properties Dialog Box—Server Info Tab

2. In the Host box, select the host on which the IVR_Driver application is installed.

Note: In order for a host to appear for selection in the drop-down list, you must predefine it by doing one of the following:

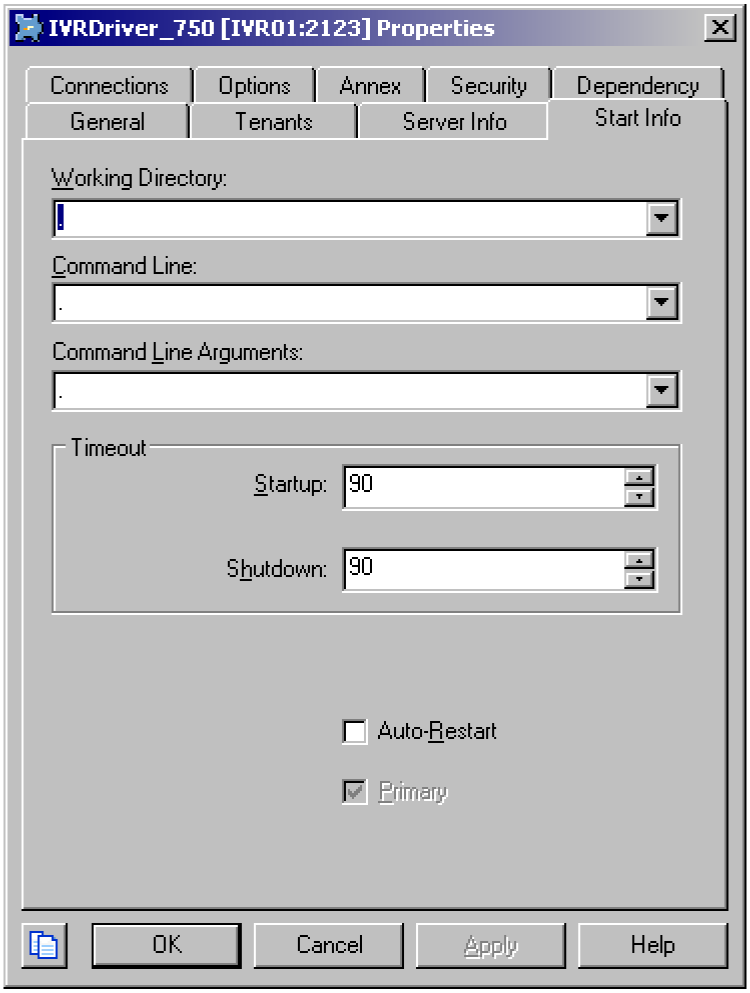
- Clicking the Folder icon next to the Host box.
- In the main Configuration Manager window, select Environment > Host.

3. In the Ports box, add a new port number or edit an existing one.
4. In the Backup Server box, accept the default value ([None]), because this option is not supported for the IVR_Driver application.
5. In the Reconnect Timeout and Reconnect Attempts boxes, accept the default values.
6. Click Apply to assign the IVR_Driver host.

Defining Start Parameters for the IVR_Driver Application

To define the start parameters for the IVR_Driver application:

1. In the IVRDriver_750 Properties dialog box, click the Start Info tab (see Figure 16).



Working Directory: .

Command Line: .

Command Line Arguments: .

Timeout

Startup: 90

Shutdown: 90

□ Auto-Restart

☑ Primary

Figure 16: IVRDriver_750Properties Dialog Box—Start Info Tab

2. Enter a single period (.) in the following boxes:
   - `Working Directory`
   - `Command Line`
   - `Command Line Arguments`

   Note: These three boxes will be updated during the installation process.

3. In the `Startup` and `Shutdown` boxes, accept the default values.
4. Make sure that the `Auto-Restart` check box is not selected.
5. Click `Apply` to define the start parameters.

Adding Connections for the IVR_Driver Application

Only the Message Server can be defined (if needed) as a connection for the IVR_Driver application. To add connections for the IVR_Driver application:

1. In the IVRDriver_750 Properties dialog box, click the Connections tab (see Figure 17).

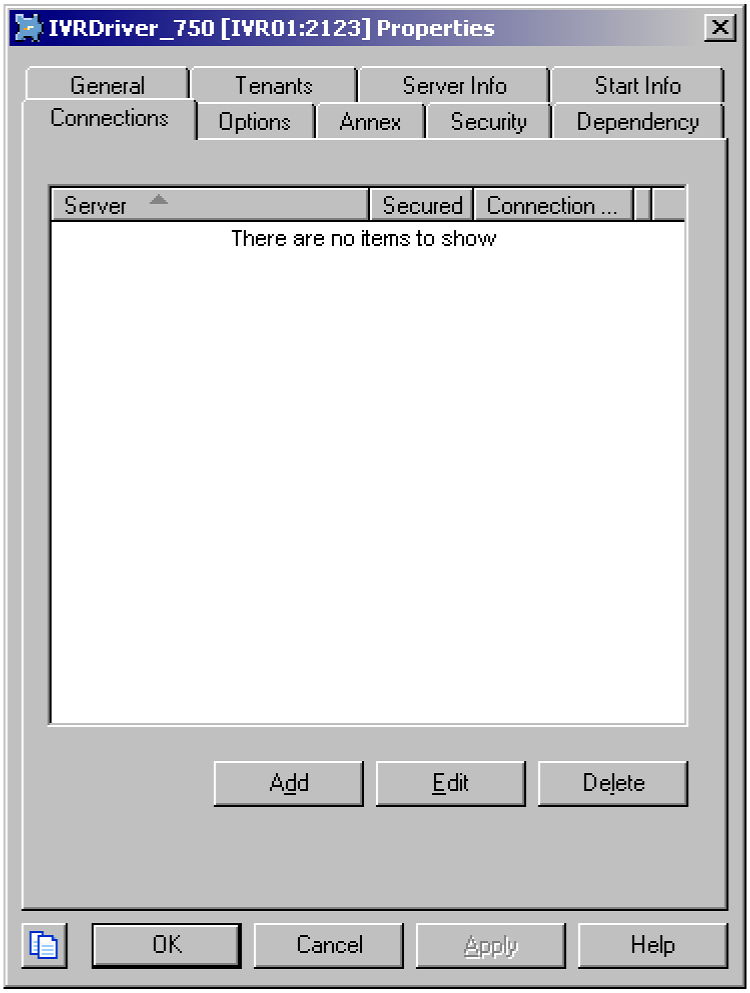
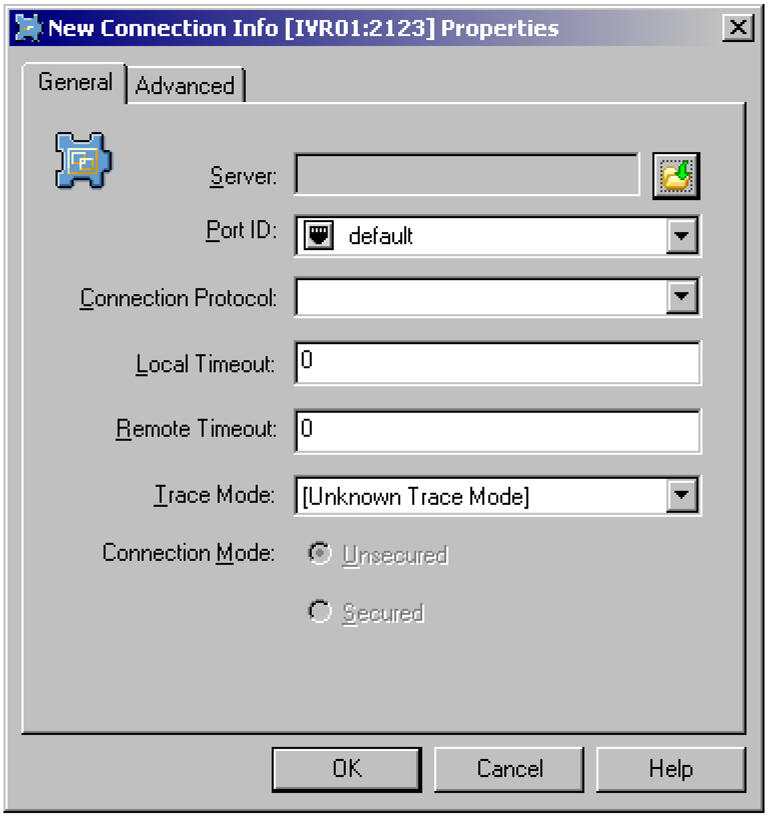


Figure 17: IVRDriver_750 Properties Dialog Box—Connections Tab

2. Click Add to add a connection. The New Connection Info Properties dialog box appears (see Figure 18).



Server:

Port ID: default

Connection Protocol:

Local Timeout: 0

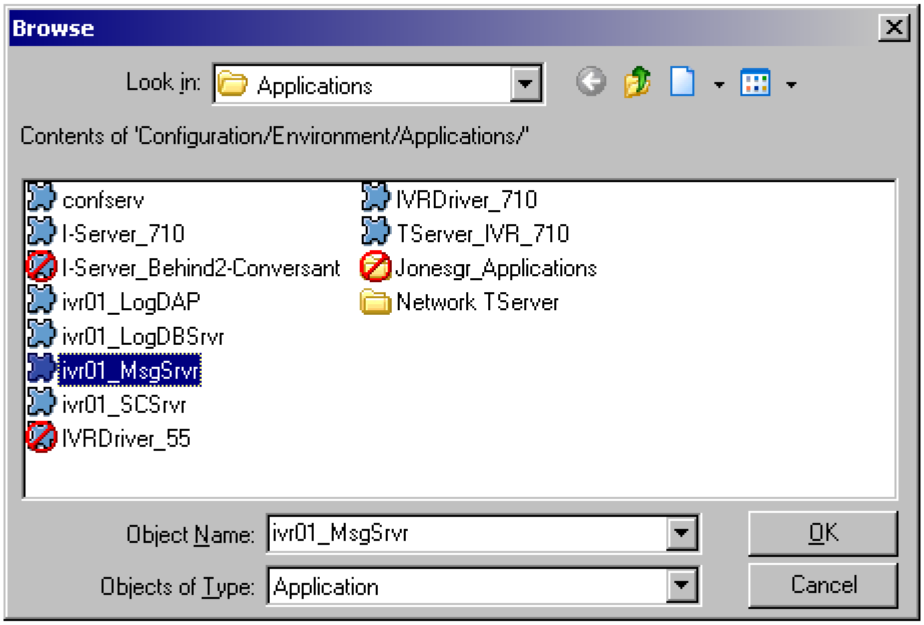
Remote Timeout: 0

Trace Mode: [Unknown Trace Mode]

Connection Mode: ● Unsecured ○ Secured

Figure 18: New Connection Info Properties Dialog Box

3. Click the `Folder` icon next to the `Server` box to open a `Browse` dialog box that displays a list of server applications (see Figure 19).



Look in: Applications

Contents of 'Configuration/Environment/Applications/'

- confserv
- I-Server_710
- I-Server_Behind2-Conversant
- ivr01_LogDAP
- ivr01_LogDBSrvr
- ivr01_MsgSrvr
- ivr01_SCSrvr
- IVRDriver_55
- IVRDriver_710
- TServer_IVR_710
- Jonesgr_Applications
- Network TServer

Object Name: ivr01_MsgSrvr

Objects of Type: Application

Figure 19: Browse Dialog Box

4. Select the Message Server and click OK. You are returned to the Connection Info Properties dialog box (see Figure 18).
5. In the Connection Protocol, Local Timeout, Remote Timeout, and Trace Mode boxes, accept the default values.
6. Click OK to create the Message Server connection.

Setting up the I-Server Application

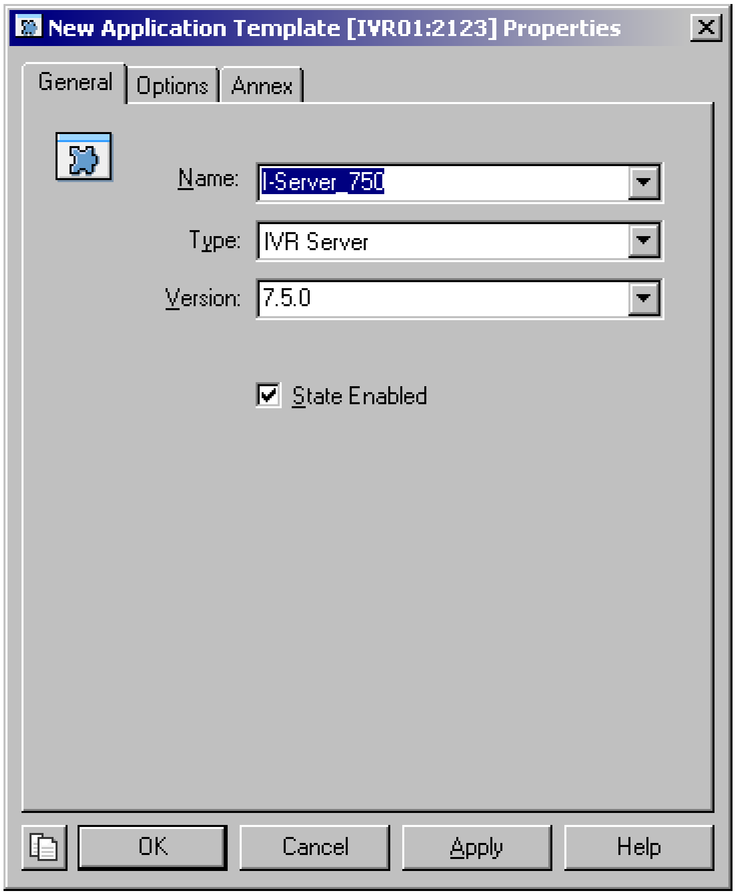
This section describes how to set up the I-Server application. It contains the following subsections:

- "Importing the I-Server Application Template" on page 102
- "Defining the I-Server Application" on page 103
- "Configuring the I-Server Application" on page 104

Importing the I-Server Application Template

To import the I-Server application template into Configuration Manager:

1. In Configuration Manager, expand Environment, right-click Application Templates, and select Import Application Template.
2. Navigate to the directory that contains the I-Server template file (I-Server_750.apd), select the file, and click Open. The New Application Template Properties dialog box appears (see Figure 20).


New Application Template [IVR01:2123] Properties

Name: I-Server_750

Type: IVR Server

Version: 7.5.0

☑ State Enabled

Figure 20: New Application Template Properties Dialog Box

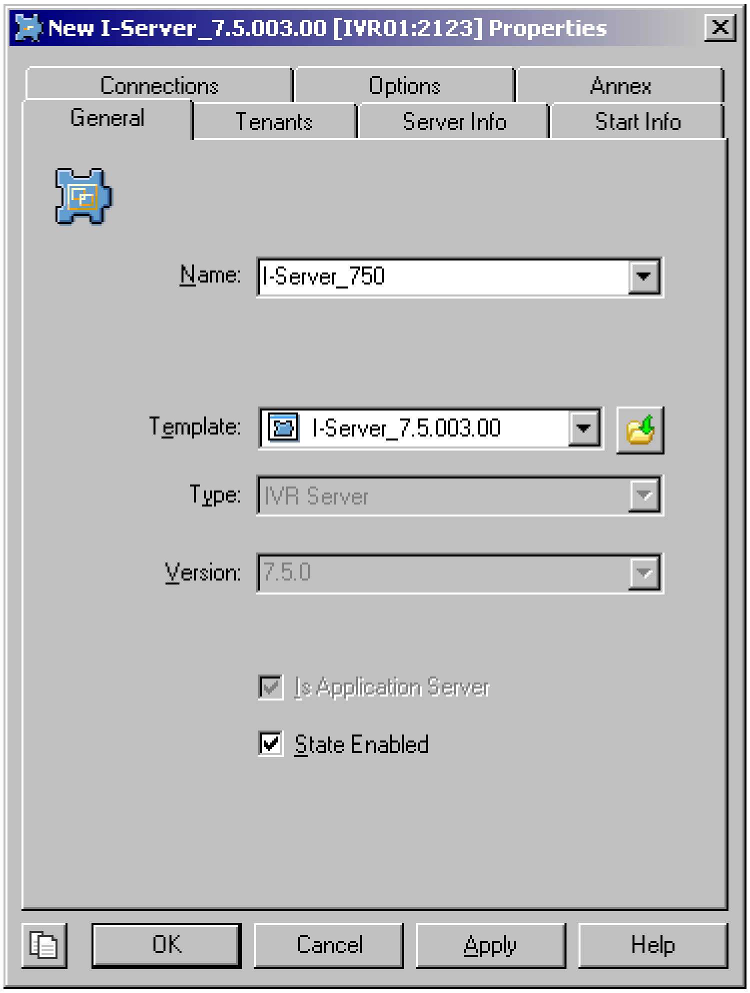
3. In the Name box, accept the default value, or enter a new name for the I-Server template.
4. In the Type box, verify that IVR Server is selected.
5. In the Version box, verify that the correct version number is selected.
6. Click OK to import the I-Server application template.

You are now ready to define the I-Server application.

Defining the I-Server Application

To define the I-Server application in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. A list of the available application templates is displayed.
2. Select the I-Server application template that you defined in "Importing the I-Server Application Template" on page 102, and then click OK. The New I-Server_750 Properties dialog box appears, with the General tab displayed (see Figure 21).



New I-Server_7.5.003.00 [IVR01:2123] Properties

Name: I-Server_750

Template: I-Server_7.5.003.00

Type: IVR Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 21: New I-Server_750 Properties Dialog Box—General Tab

3. In the `Name` box, accept the default value, or enter a new name for the `I-Server` application.
4. Click `OK` to create the `I-Server` application and close the `New I-Server_750 Properties` dialog box; or click `Apply` to create the application without closing the dialog box, so that you can perform additional actions.

You are now ready to configure the `I-Server` application.

Configuring the I-Server Application

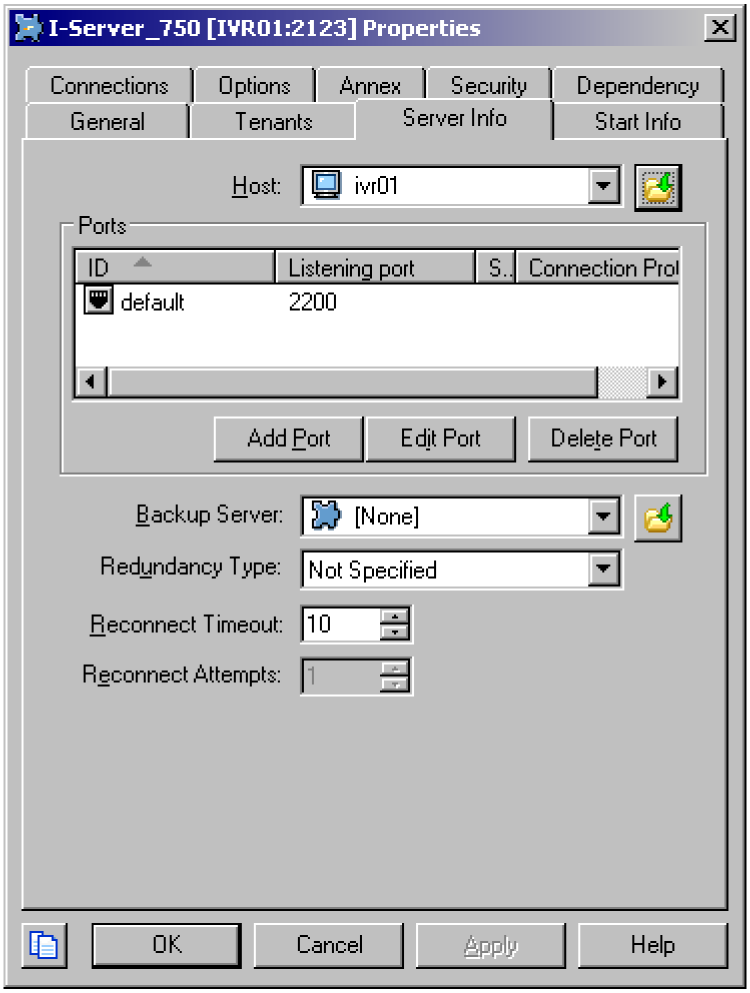
The following sections describe how to configure the `I-Server` application in Configuration Manager:

- "Assigning an I-Server Host" on page 105
- "Defining Start Parameters for the I-Server Application" on page 106
- "Adding Connections for the I-Server Application" on page 107

Assigning an I-Server Host

The `I-Server` and `TServer_IVR` applications must be configured on the same host. To assign an `I-Server` host:

1. In the `I-Server_750 Properties` dialog box, click the `Server Info` tab (see Figure 22).



I-Server_750 [IVR01:2123] Properties

Host: ivr01

Ports

ID	Listening port	S..	Connection Prot
default	2200		

Backup Server: [None]

Redundancy Type: Not Specified

Reconnect Timeout: 10

Reconnect Attempts: 1

Figure 22: I-Server_750 Properties Dialog Box—Server Info Tab

2. In the `Host` box, select the host on which the `I-Server` application is installed.

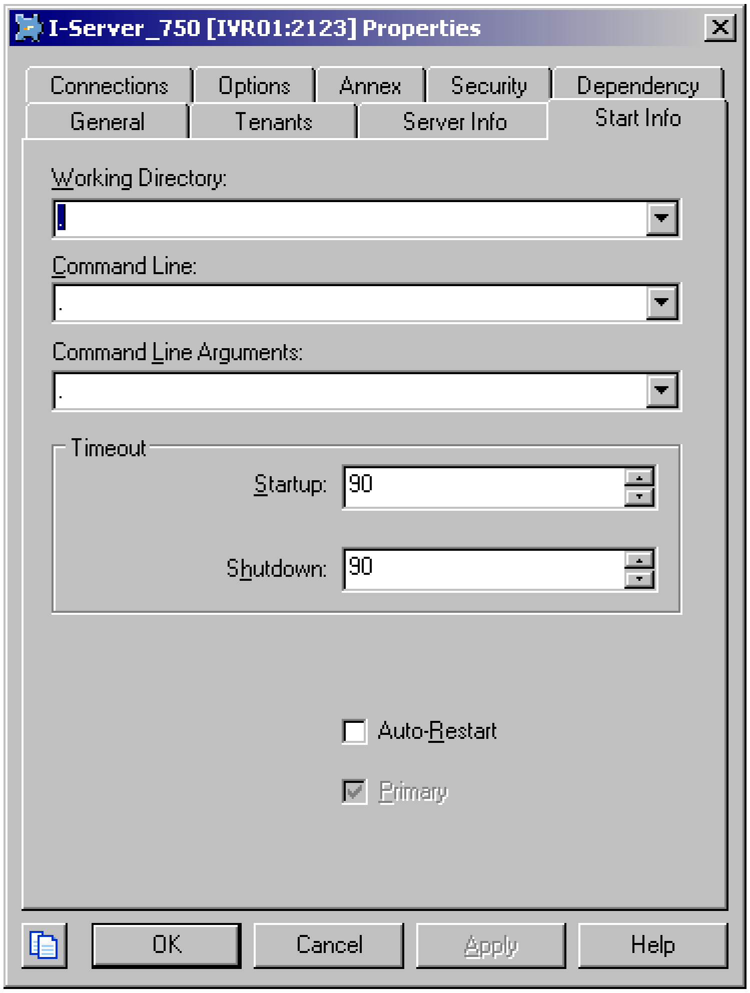
> **Note:** In order for a host to appear for selection in the drop-down list, you must predefine it by doing one of the following:
>
> - Clicking the `Folder` icon next to the `Host` box.
> - In the main Configuration Manager window, select `Environment > Host`.

3. In the `Ports` box, add a new port number or edit an existing one.
4. In the `Backup Server` box, enter the name of your backup server if you want to use Warm Standby mode; otherwise, accept the default value (`[None]`).
5. In the `Reconnect Timeout` and `Reconnect Attempts` boxes, accept the default values.
6. Click `Apply` to assign the `I-Server` host.

Defining Start Parameters for the I-Server Application

To define the start parameters for the `I-Server` application:

1. In the `I-Server_750 Properties` dialog box, click the `Start Info` tab (see Figure 23).



I-Server_750 [IVR01:2123] Properties

Working Directory: .

Command Line: .

Command Line Arguments: .

Timeout

Startup: 90

Shutdown: 90

□ Auto-Restart

☑ Primary

Figure 23: I-Server_750 Properties Dialog Box—Start Info Tab

2. Enter a single period (.) in the following boxes:
   - Working Directory
   - Command Line
   - Command Line Arguments

   Note: These three boxes will be updated during the installation process.

3. In the Startup and Shutdown boxes, accept the default values.
4. Make sure that the Auto-Restart check box is not selected.
5. Click Apply to define the start parameters.

Adding Connections for the I-Server Application

You must define the TServer_IVR application as a connection for the I-Server application. You can also define a connection to the following:

- T-Server (for IVR-Behind-Switch only)
- Message Server (for centralized logging)
- Stat Server

This section describes how to add all these connections.

Note: Before you can add a connection to the TServer_IVR application, you must import it (see “Importing the TServer_IVR Application Template” on page 110) and define it (see “Defining the TServer_IVR Application” on page 111).

1. In the I-Server_750 Properties dialog box, click the Connections tab (see Figure 24).

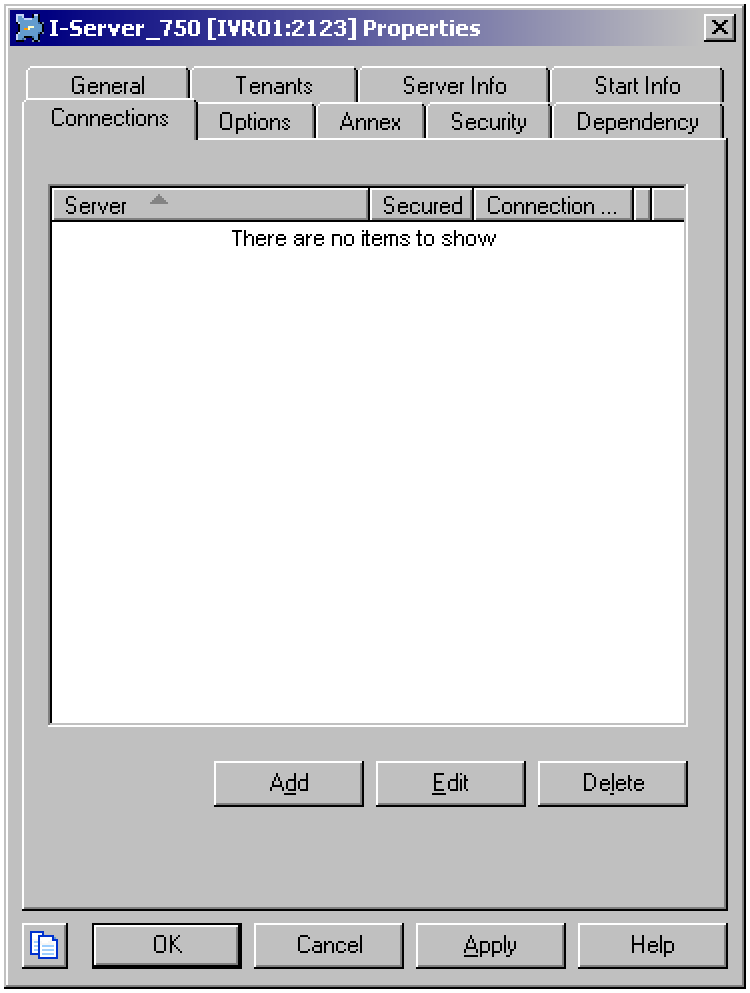
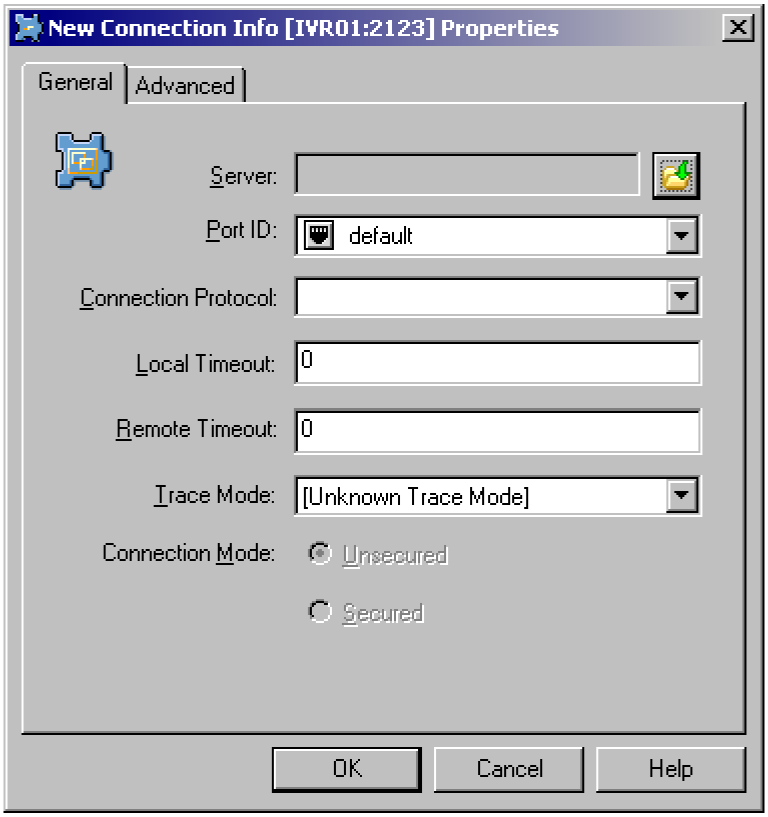


Figure 24: I-Server_750 Properties Dialog Box—Connections Tab

2. Click `Add` to add a connection. The `New Connection Info Properties` dialog box appears (see Figure 25).



Server:

Port ID: default

Connection Protocol:

Local Timeout: 0

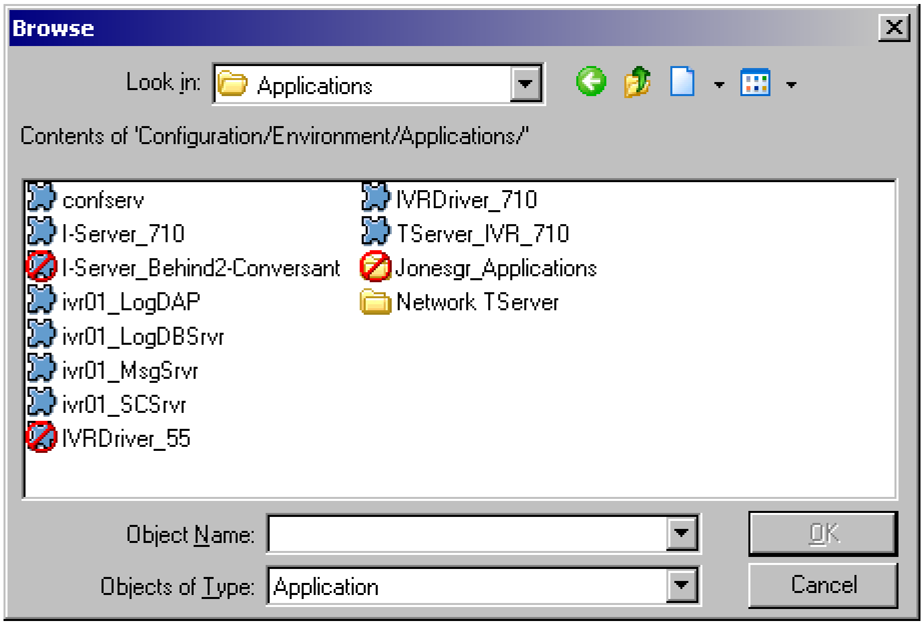
Remote Timeout: 0

Trace Mode: [Unknown Trace Mode]

Connection Mode: ● Unsecured ○ Secured

Figure 25: New Connection Info Properties Dialog Box

3. Click the `Folder` icon next to the `Server` box to open a `Browse` dialog box that displays a list of server applications (see Figure 26).



Look in: Applications

Contents of 'Configuration/Environment/Applications/'

confserv
I-Server_710
I-Server_Behind2-Conversant
ivr01_LogDAP
ivr01_LogDBSrvr
ivr01_MsgSrvr
ivr01_SCSrvr
IVRDriver_55
IVRDriver_710
TServer_IVR_710
Jonesgr_Applications
Network TServer

Object Name:

Objects of Type: Application

Figure 26: Browse Dialog Box

4. Select the TServer_IVR application, and then click OK. You are returned to the New Connection Info Properties dialog box (see Figure 25).
5. In the Connection Protocol, Local Timeout, Remote Timeout, and Trace Mode boxes, accept the default values.
6. Click OK to create the connection.
7. To create connections to the T-Server, Message Server, and Stat Server applications (if necessary), repeat Steps 2 through Steps 6, selecting the appropriate application in Step 4.

Setting up the TServer_IVR Application

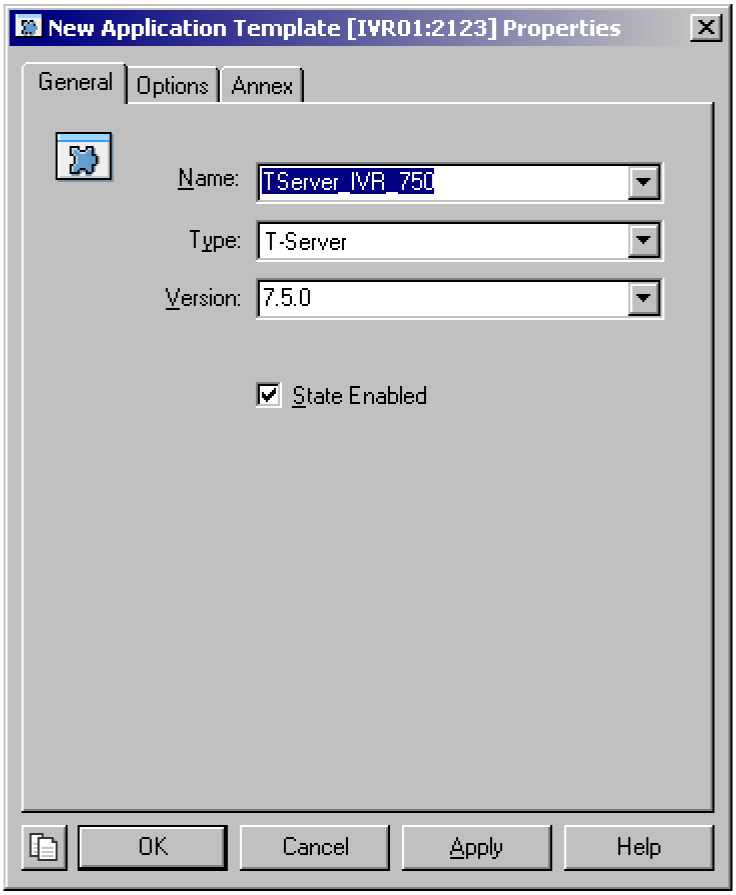
This section describes how to set up the TServer_IVR application. It contains the following subsections:

- "Importing the TServer_IVR Application Template" on page 110
- "Defining the TServer_IVR Application" on page 111
- "Configuring the TServer_IVR Application" on page 113

Importing the TServer_IVR Application Template

To import the TServer_IVR application template into Configuration Manager:

1. In Configuration Manager, expand Environment, right-click Application Templates, and select Import Application Template.
2. Navigate to the directory that contains the TServer_IVR template file (TServer_IVR_750.apd), select the file, and click Open. The New Application Template Properties dialog box appears (see Figure 27).



Name: TServer_IVR_750

Type: T-Server

Version: 7.5.0

☑ State Enabled

Figure 27: New Application Template Properties Dialog Box

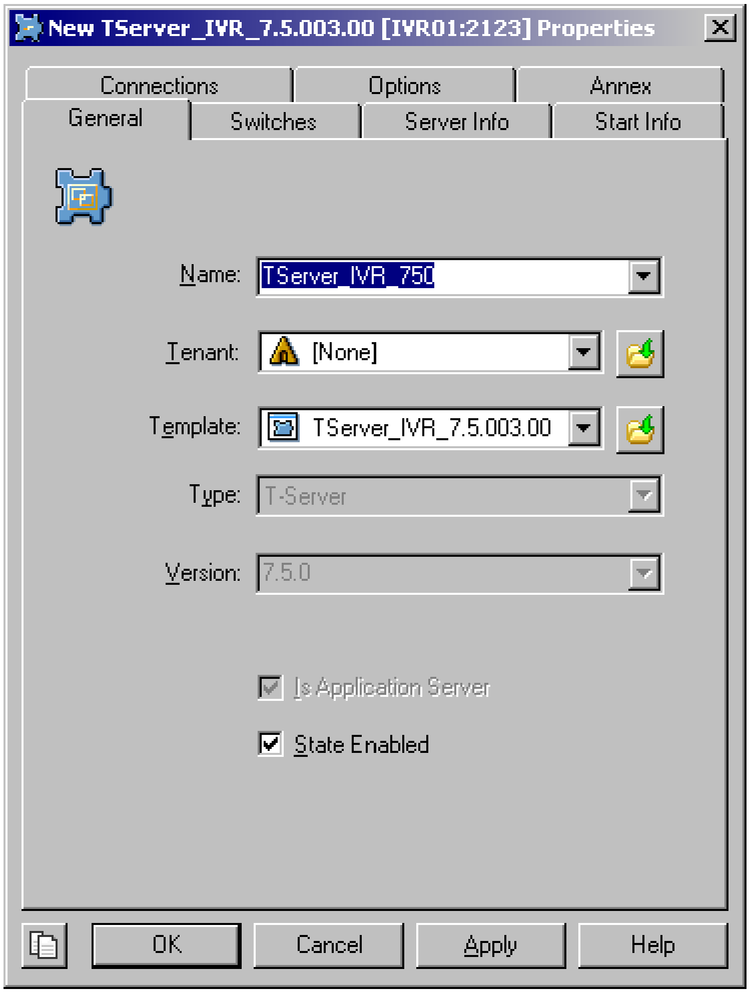
3. In the Name box, accept the default value, or enter a new name for the TServer_IVR template.
4. In the Type box, verify that T-Server is selected.
5. In the Version box, verify that the correct version number is selected.
6. Click OK to import the TServer_IVR application template.

You are now ready to define the TServer_IVR application.

Defining the TServer_IVR Application

To define the TServer_IVR application in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. A list of the available application templates is displayed.
2. Select the TServer_IVR application template that you defined in “Importing the TServer_IVR Application Template” on page 110, and then click OK. The New TServer_IVR_750 Properties dialog box appears, with the General tab displayed (see Figure 28).



New TServer_IVR_7.5.003.00 [IVR01:2123] Properties

Name: TServer_IVR_750

Tenant: [None]

Template: TServer_IVR_7.5.003.00

Type: T-Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 28: New TServer_IVR_750 Properties Dialog Box—General Tab

3. In the Name box, accept the default value, or enter a new name for the TServer_IVR application.

> **Note:** If the name includes blank spaces, you must enclose it in double quotation marks. For more information, see Step 19 on page 172.

4. Click OK to create the TServer_IVR application and close the New TServer_IVR_750 Properties dialog box; or click Apply to create the application without closing the dialog box, so that you can perform additional actions.

You are now ready to configure the TServer_IVR application.

Configuring the TServer_IVR Application

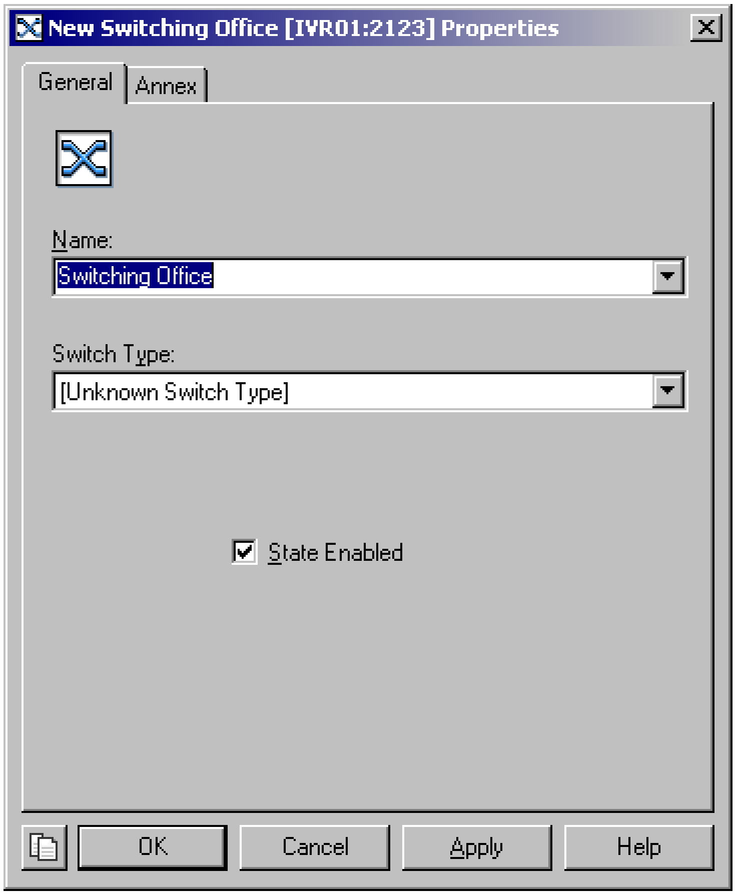
The following sections describe how to configure the `TServer_IVR` application in Configuration Manager:

- "Creating a Virtual Switching Office" on page 113
- "Creating a Virtual Switch" on page 114
- "Assigning a Virtual Switch" on page 115
- "Assigning a TServer_IVR Host" on page 117
- "Defining Start Parameters for the TServer_IVR Application" on page 119
- "Enabling Network Logging" on page 120

Creating a Virtual Switching Office

You must create a virtual switching office in order to configure the `TServer_IVR` application. To create a virtual switching office:

1. Expand `Environment`, right-click `Switching Offices`, and select `New > Switching Office`. The `New Switching Office Properties` dialog box appears (see Figure 29).



Name: Switching Office

Switch Type: [Unknown Switch Type]

☑ State Enabled

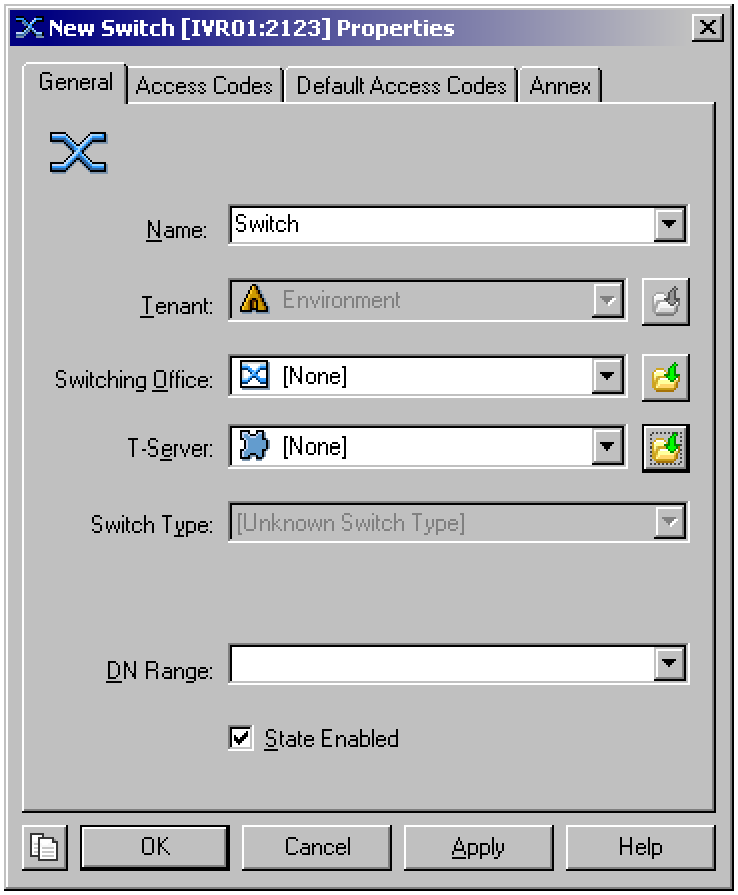
Figure 29: New Switching Office Properties Dialog Box

2. In the Name box, enter Virtual Switching Office.
3. In the Switch Type box, select Virtual Switch for IVR In-Front.
4. Click OK to create the virtual switching office.

Creating a Virtual Switch

To create a virtual switch for the TServer_IVR application:

1. Expand Resources, right-click Switches, and select New > Switch. The New Switch Properties dialog box appears (see Figure 30).



Name: Switch

Tenant: Environment

Switching Office: [None]

T-Server: [None]

Switch Type: [Unknown Switch Type]

DN Range:

☑ State Enabled

Figure 30: New Switch Properties Dialog Box

2. In the Name box, enter Virtual_Switch_750.
3. In the Switching Office box, select Virtual Switching Office.
4. In the T-Server box, select None.
5. In the DN Range box, do one of the following, depending on the IVR Server configuration mode:
   - IVR In-Front: Enter one DN for every IVR port.
   - IVR-Behind-Switch: Specify nothing.

6. Click `OK` to create the virtual switch.

Assigning a Virtual Switch

To assign a virtual switch to the `TServer_IVR` application:

1. In the `TServer_IVR_750 Properties` dialog box, click the `Switches` tab (see Figure 31).

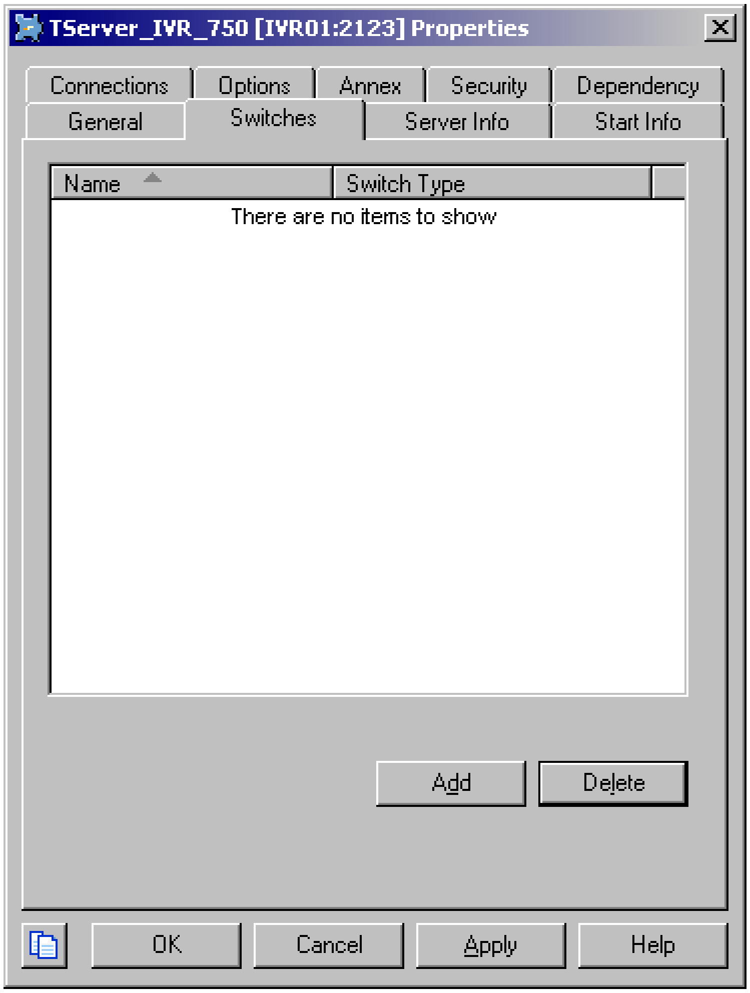
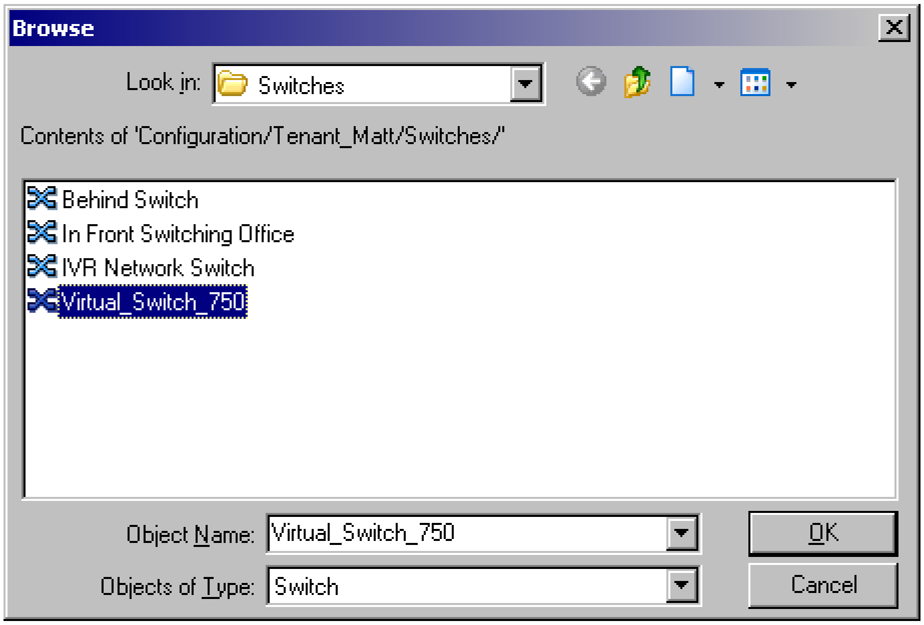


Figure 31: TServer_IVR_750 Properties Dialog Box—Switches Tab

2. Click `Add` to open a `Browse` dialog box that displays a list of switches (see Figure 32).



Look in: Switches

Contents of 'Configuration/Tenant_Matt/Switches/'

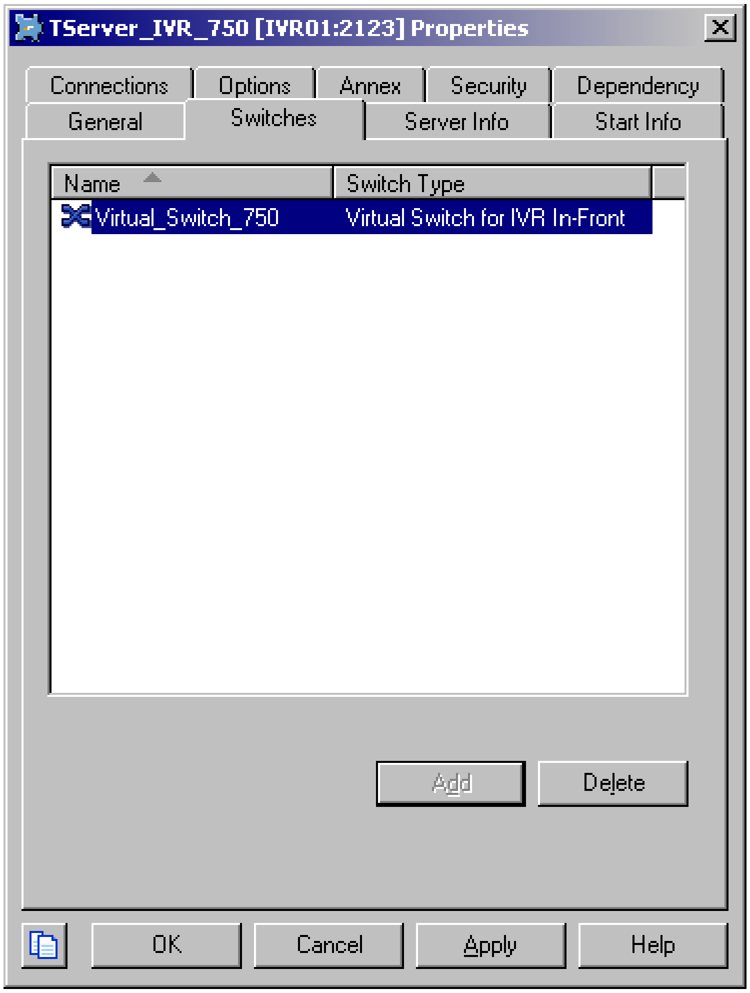
Behind Switch
In Front Switching Office
IVR Network Switch
Virtual_Switch_750

Object Name: Virtual_Switch_750

Objects of Type: Switch

Figure 32: Browse Dialog Box—Virtual Switch

3. Select a virtual switch, and then click `OK`. You are returned to the `TServer_IVR_750 Properties` dialog box, which now displays the virtual switch that you added (see Figure 33).



Name	Switch Type
Virtual_Switch_750	Virtual Switch for IVR In-Front

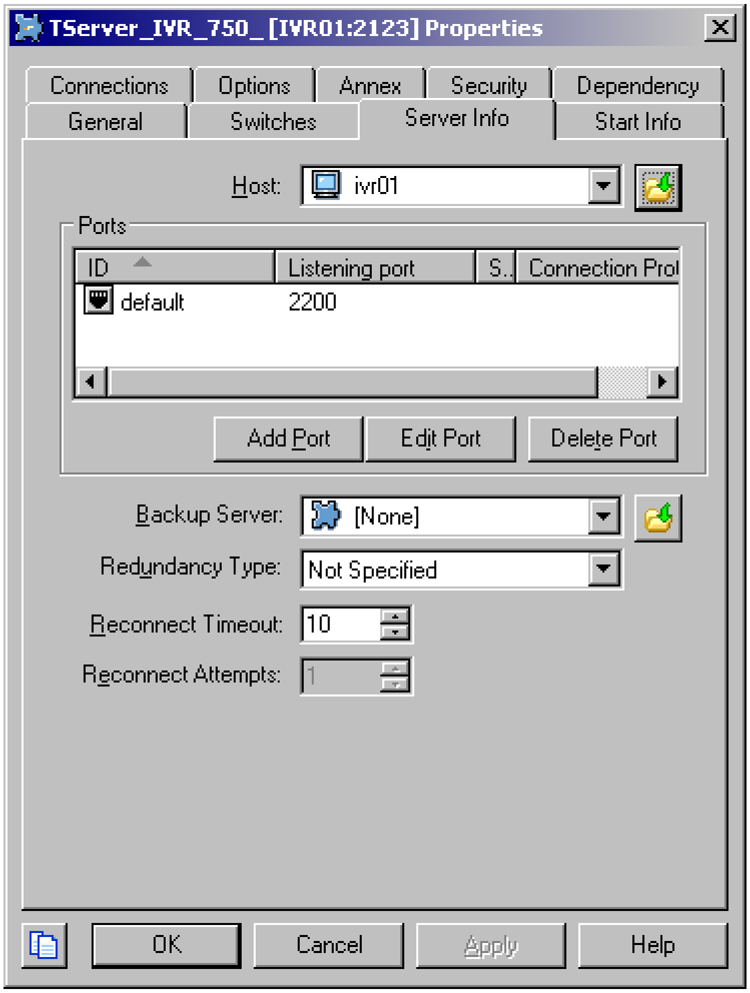
Figure 33: TServer_IVR_750 Properties Dialog Box—Switches Tab

4. Click `Apply` to assign the virtual switch to the `TServer_IVR` application.

Assigning a TServer_IVR Host

The `TServer_IVR` and `I-Server` applications must be configured on the same host. To assign a `TServer_IVR` host:

1. In the `TServer_IVR_750 Properties` dialog box, click the `Server Info` tab (see Figure 34).



TServer_IVR_750_[IVR01:2123] Properties

Host: ivr01

ID	Listening port	S.	Connection Prot
default	2200		

Backup Server: [None]

Redundancy Type: Not Specified

Reconnect Timeout: 10

Reconnect Attempts: 1

Figure 34: TServer_IVR_750 Properties Dialog Box—Server Info Tab

2. In the `Host` box, select the host on which the `TServer_IVR` application is installed.

Note: In order for a host to appear for selection in the drop-down list, you must predefine it by doing one of the following:

- Clicking the `Folder` icon next to the `Host` box.
- In the main Configuration Manager window, select `Environment > Host`.

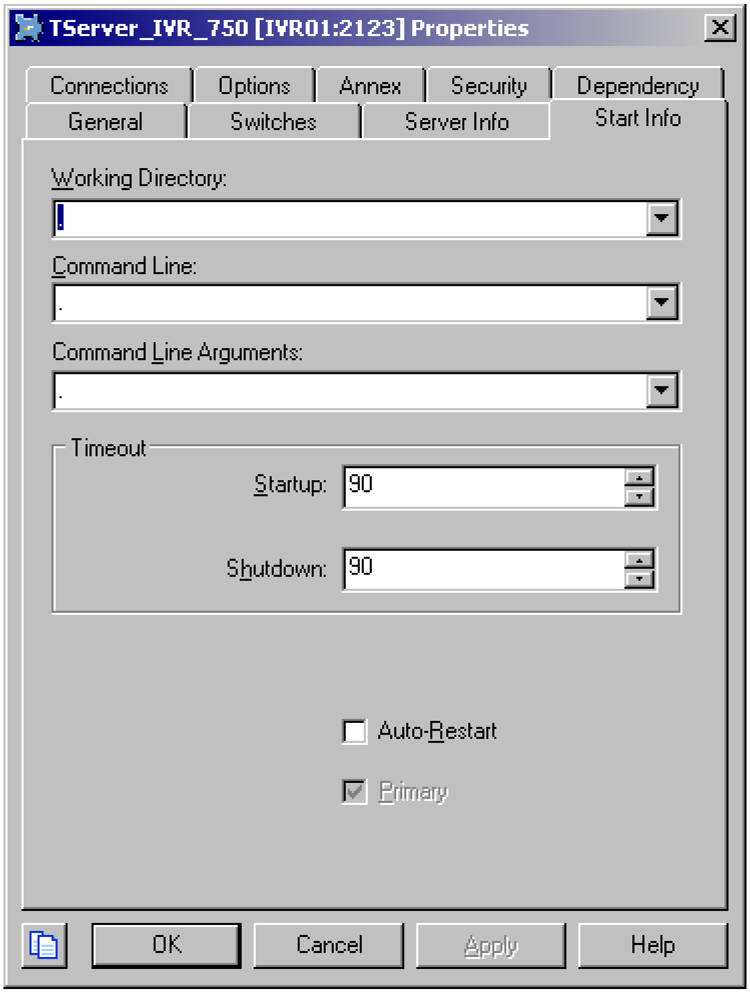
3. In the `Ports` box, add a new port number or edit an existing one.
4. In the `Backup Server` box, enter the name of your backup server if you want to use Warm Standby mode; otherwise, accept the default value (`[None]`).
5. In the `Redundancy Type` box, select `Warm Standby` (if applicable), or accept the default value (`Not Specified`).

6. In the `Reconnect Timeout` and `Reconnect Attempts` boxes, accept the default values.
7. Click `Apply` to assign the `TServer_IVR` host.

Defining Start Parameters for the TServer_IVR Application

To define start parameters for the `TServer_IVR` application:

1. In the `TServer_IVR_750 Properties` dialog box, click the `Start Info` tab (see Figure 35).



Working Directory: .

Command Line: .

Command Line Arguments: .

Startup: 90

Shutdown: 90

☐ Auto-Restart

☑ Primary

Figure 35: TServer_IVR_750 Properties Dialog Box—Start Info Tab

2. Enter a single period (.) in the following boxes:
   - `Working Directory`
   - `Command Line`
   - `Command Line Arguments`

Note: These three boxes will be updated during the installation process.

3. In both the Startup and Shutdown boxes, Genesys recommends that you set the value to 600.
4. Select the Auto-Restart check box. This setting restarts the TServer_IVR application if it closes abnormally, or if it is stopped without using the Solution Control Interface (SCI).

   If Auto-Restart is selected, and you stop the TServer_IVR application without using the SCI, Genesys Framework (and the Local Control Agent [LCA]) will restart it. Therefore, if you want to stop the TServer_IVR application without using the SCI, clear the Auto-Restart check box.

Note: Make sure that you set the Startup box to a value that allows enough time for the TServer_IVR application to fully start. If the time is exceeded, the TServer_IVR application is terminated, and it is not restarted, even if Auto-Restart has been selected.

5. Click OK to define the start parameters.

Enabling Network Logging

Before you can configure IVR Server for centralized logging, you must define the following in Configuration Manager:

- A Message Server and corresponding Database Access Point (DAP).
- A Log DB Server.

For information about defining a Message Server and a DAP, see *Framework 7.5 Configuration Manager Help* and the *Framework 7.5 Deployment Guide.*

To enable Network Logging, you must add a connection between the TServer_IVR application and the Message Server.

1. In Configuration Manager, right-click the TServer_IVR application, and then select Wizard > Configure. The TServer_IVR Properties dialog box appears.
2. On the General tab, click Run Log Wizard.
3. Follow the on-screen prompts, making sure that you select Network Log Server on the Log Outputs screen.

   The Log Wizard creates the Message Server connection for you.

Setting up the TServer_IVR_Network Application

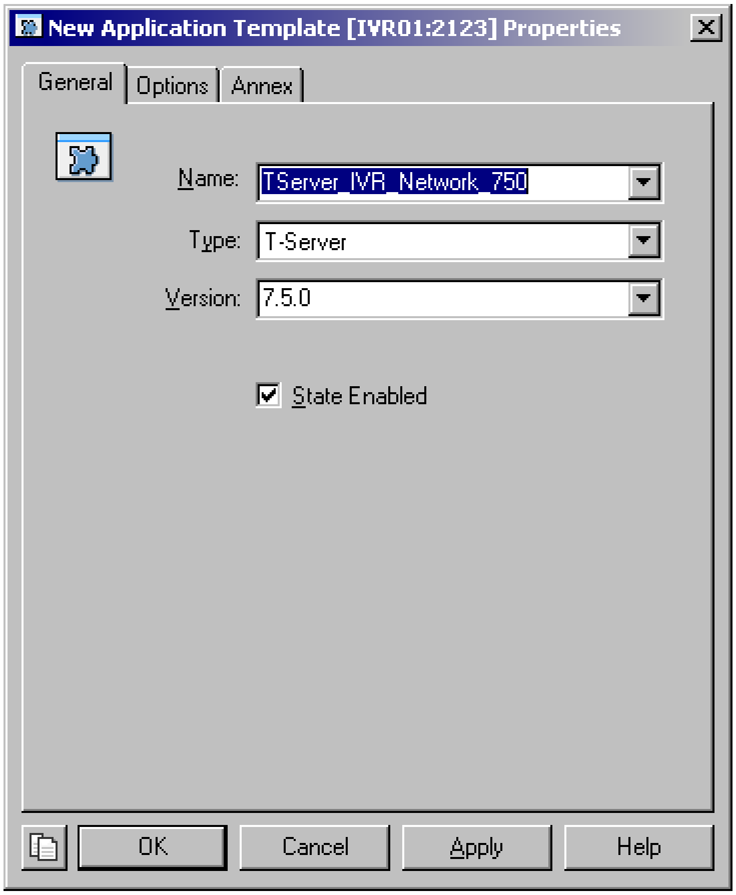
This section describes how to set up the TServer_IVR_Network application. It contains the following subsections:

- "Importing the TServer_IVR_Network Application Template" on page 121
- "Defining the TServer_IVR_Network Application" on page 122
- "Configuring the TServer_IVR_Network Application" on page 124

Importing the TServer_IVR_Network Application Template

To import the TServer_IVR_Network application template into Configuration Manager:

1. In Configuration Manager, expand Environment, right-click Application Templates, and select Import Application Template.
2. Navigate to the directory that contains the TServer_IVR_Network template file (TServer_IVR_Network_750.apd), select the file, and click Open. The New Application Template Properties dialog box appears (see Figure 36).



New Application Template [IVR01:2123] Properties

Name: TServer_IVR_Network_750

Type: T-Server

Version: 7.5.0

☑ State Enabled

Figure 36: New Application Template Properties Dialog Box

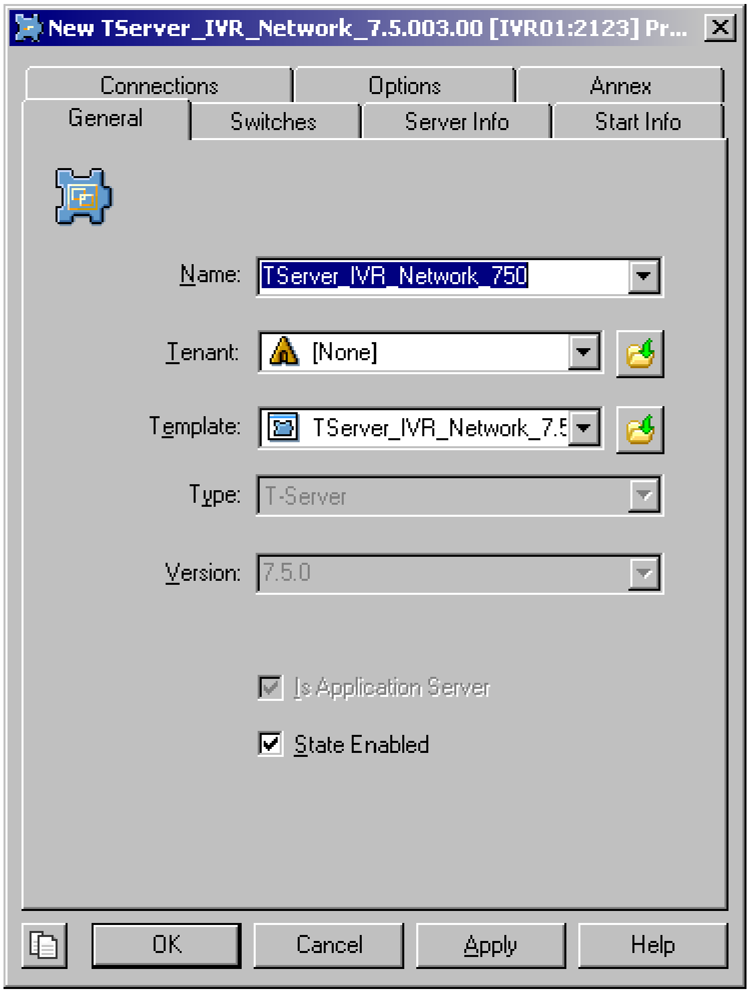
3. In the Name box, accept the default value, or enter a new name for the TServer_IVR_Network template.
4. In the Type box, verify that T-Server is selected.
5. In the Version box, verify that the correct version number is selected.
6. Click OK to import the TServer_IVR_Network application template.

You are now ready to define the TServer_IVR_Network application.

Defining the TServer_IVR_Network Application

To define the TServer_IVR_Network application in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. A list of the available application templates is displayed.
2. Select the TServer_IVR_Network application template that you defined in “Importing the TServer_IVR_Network Application Template” on page 121, and then click OK. The New TServer_IVR_Network Properties dialog box appears, with the General tab displayed (see Figure 37).



New TServer_IVR_Network_7.5.003.00 [IVR01:2123] Pr...

Name: TServer_IVR_Network_750

Tenant: [None]

Template: TServer_IVR_Network_7.5

Type: T-Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 37: New TServer_IVR_Network_750 Properties Dialog Box—General Tab

3. In the `Name` box, accept the default value, or enter a new name for the `TServer_IVR_Network` application.

Note: If the name includes blank spaces, you must enclose it in double quotation marks. For more information, see Step 19 on page 187.

4. Click `OK` to create the `TServer_IVR_Network` application and close the `New TServer_IVR_Network Properties` dialog box; or click `Apply` to create the application without closing the dialog box, so that you can perform additional actions.

You are now ready to configure the `TServer_IVR_Network` application.

Configuring the TServer_IVR_Network Application

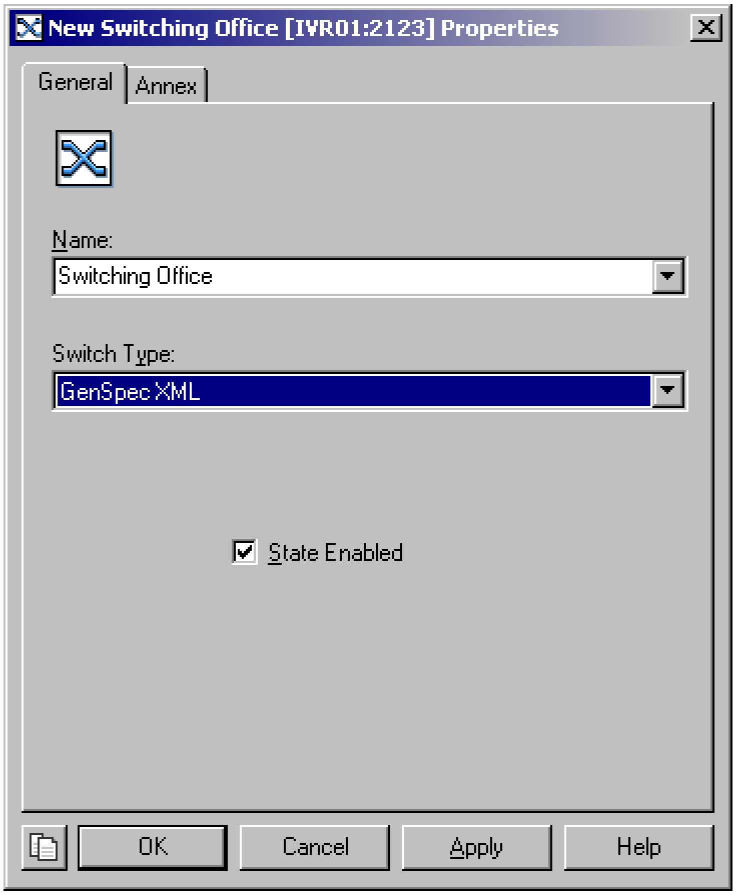
The following sections describe how to configure the `TServer_IVR_Network` application in Configuration Manager:

- "Creating a Network Switching Office" on page 124
- "Creating a Network Switch" on page 125
- "Assigning a Network Switch" on page 126
- "Assigning an IVR Host" on page 129
- "Defining Start Parameters for the TServer_IVR_Network Application" on page 131
- "Enabling Network Logging" on page 132

Creating a Network Switching Office

You must create a network switching office in order to configure the `TServer_IVR_Network` application. To create a network switching office:

1. Expand `Environment`, right-click `Switching Offices`, and select `New > Switching Office`. The `New Switching Office Properties` dialog box appears (see Figure 38).


New Switching Office [IVR01:2123] Properties

Name: Switching Office

Switch Type: GenSpec XML

☑ State Enabled

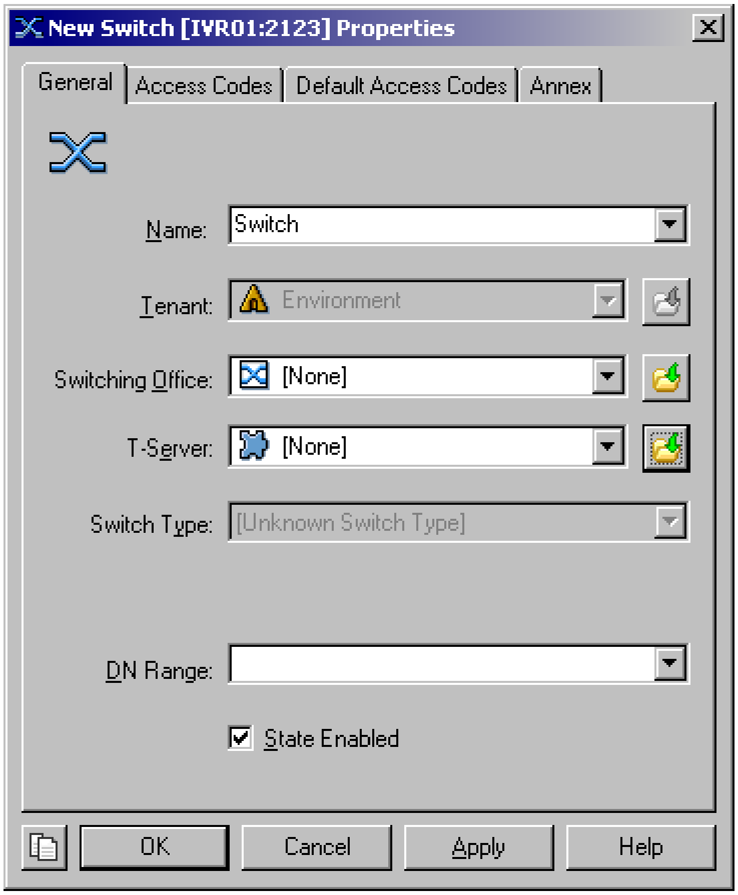
Figure 38: New Switching Office Properties Dialog Box

2. In the Name box, enter Network Switching Office.
3. In the Switch Type box, select GenSpec XML.
4. Click OK to create the network switching office.

Creating a Network Switch

To create a network switch for the TServer_IVR_Network application:

1. Expand Resources, right-click Switches, and select New > Switch. The New Switch Properties dialog box appears (see Figure 39).



Name: Switch

Tenant: Environment

Switching Office: [None]

T-Server: [None]

Switch Type: [Unknown Switch Type]

DN Range:

☑ State Enabled

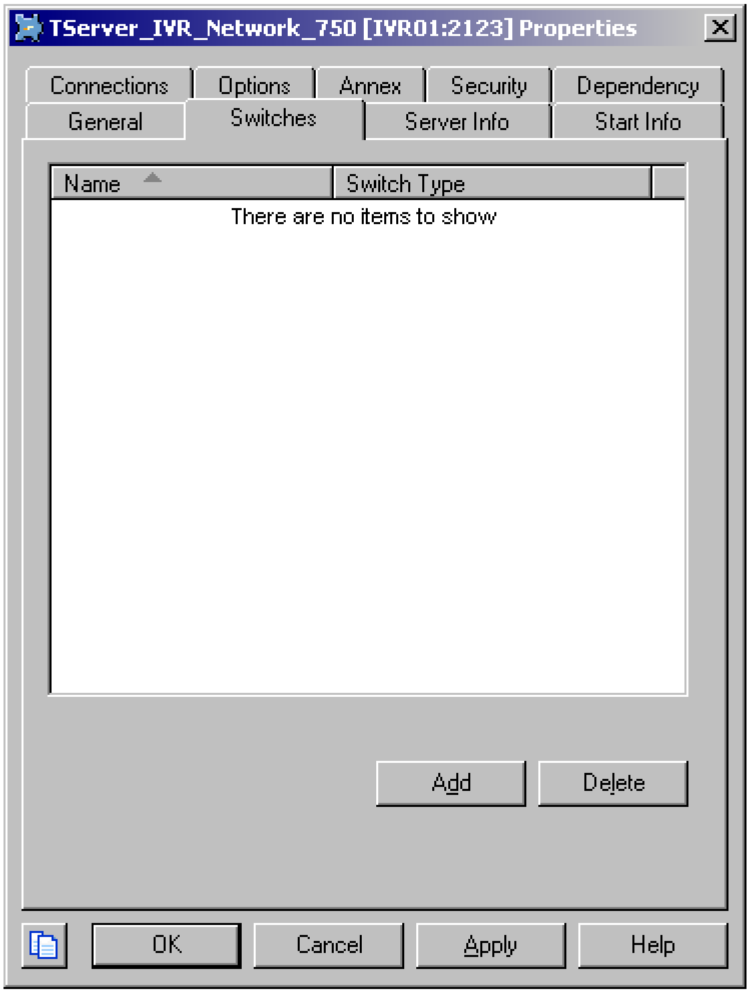
Figure 39: New Switch Properties Dialog Box

2. In the `Name` box, enter `Network Switch`.
3. In the `Switching Office` box, select `Network Switching Office`.
4. In the `T-Server` box, select `None`.
5. Click `OK` to create the network switch.

Assigning a Network Switch

To assign a network switch to the `TServer_IVR_Network` application:

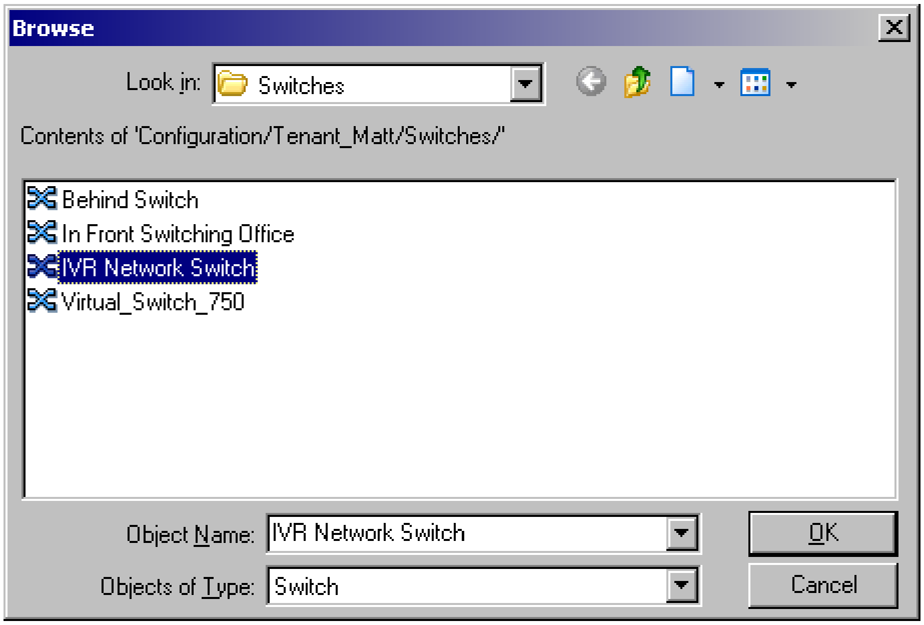
1. In the `TServer_IVR_Network Properties` dialog box, click the `Switches` tab (see Figure 40).



There are no items to show

Figure 40: TServer_IVR_Network_750 Properties Dialog Box—Switches Tab

2. Click `Add` to open a `Browse` dialog box that displays a list of switches (see Figure 41).


Browse

Look in: Switches

Contents of 'Configuration/Tenant_Matt/Switches/'

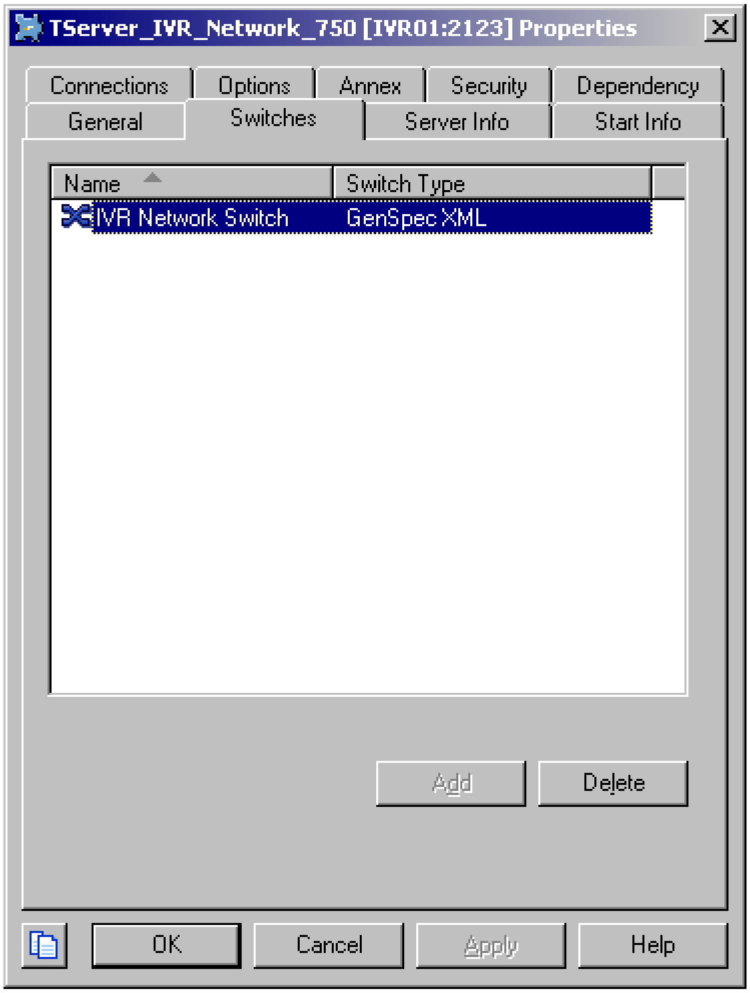
- Behind Switch
- In Front Switching Office
- IVR Network Switch
- Virtual_Switch_750

Object Name: IVR Network Switch

Objects of Type: Switch

Figure 41: Browse Dialog Box—Network Switch

3. Select `IVR Network Switch`, and then click `OK`. You are returned to the `TServer_IVR_Network Properties` dialog box, which now displays the network switch that you added (see Figure 42).



TServer_IVR_Network_750 [IVR01:2123] Properties

Name	Switch Type
IVR Network Switch	GenSpec XML

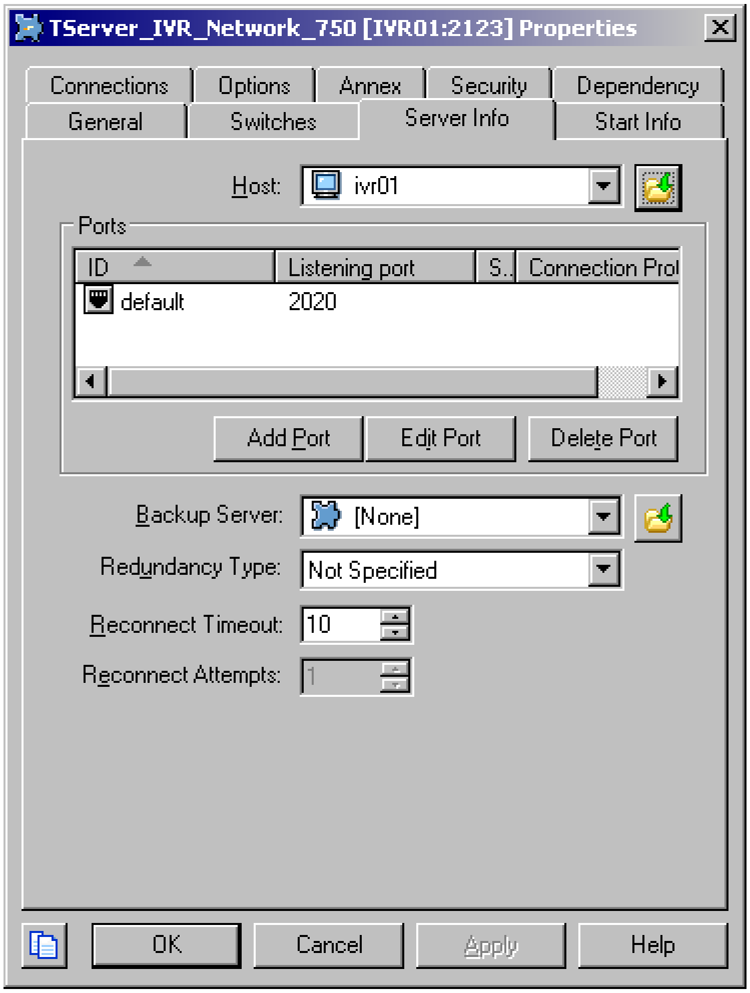
Figure 42: TServer_IVR_Network_750 Properties Dialog Box—Switches Tab

4. Click `Apply` to assign the switch to the `TServer_IVR_Network` application.

Assigning an IVR Host

To assign an IVR host to the `TServer_IVR_Network` application:

1. In the `TServer_IVR_Network Properties` dialog box, click the `Server Info` tab (see Figure 43).



TServer_IVR_Network_750 [IVR01:2123] Properties

Host: ivr01

Ports

ID	Listening port	S..	Connection Prot
default	2020		

Backup Server: [None]

Redundancy Type: Not Specified

Reconnect Timeout: 10

Reconnect Attempts: 1

Figure 43: TServer_IVR_Network_750 Properties Dialog Box—Server Info Tab

2. In the Host box, select the host on which the TServer_IVR_Network application is installed.

Note: In order for a host to appear for selection in the drop-down list, you must predefine it by doing one of the following:

- Clicking the Folder icon next to the Host box.
- In the main Configuration Manager window, select Environment > Host.

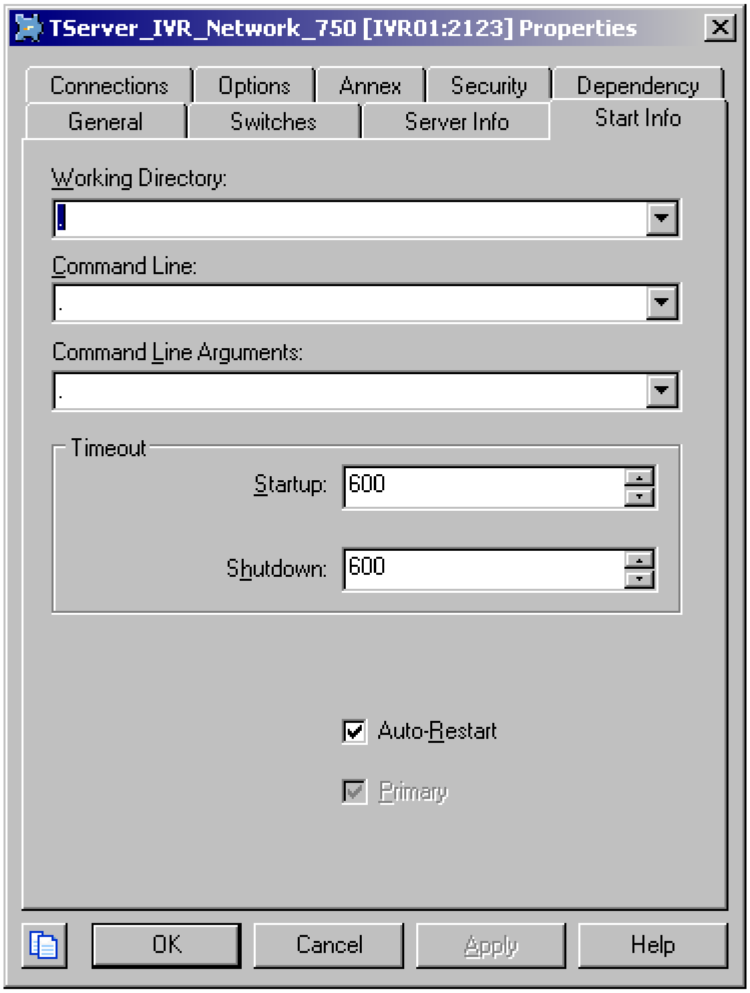
3. In the Ports box, add a new port number or edit an existing one.
4. In the Backup Server box, enter the name of your backup server if you want to use Warm Standby mode; otherwise, accept the default value ([None]).
5. In the Redundancy Type box, select Warm Standby (if applicable), or accept the default value (Not Specified).

6. In the `Reconnect Timeout` and `Reconnect Attempts` boxes, accept the default values.
7. Click `Apply` to assign the `TServer_IVR_Network` host.

Defining Start Parameters for the TServer_IVR_Network Application

To define start parameters for the `TServer_IVR_Network` application:

1. In the `TServer_IVR_Network Properties` dialog box, click the `Start Info` tab (see Figure 44).



Working Directory: .

Command Line: .

Command Line Arguments: .

Timeout

Startup: 600

Shutdown: 600

☑ Auto-Restart

☑ Primary

Figure 44: TServer_IVR_Network_750 Properties Dialog Box—Start Info Tab

2. Enter a single period (.) in the following boxes:
   - `Working Directory`
   - `Command Line`
   - `Command Line Arguments`

Note: These three boxes will be updated during the installation process.

3. In both the Startup and Shutdown boxes, Genesys recommends that you set the value to 600.
4. Select the Auto-Restart check box. This setting restarts the TServer_IVR_Network application if it closes abnormally, or if it is stopped without using the SCI.

   If Auto-Restart is selected, and you stop the TServer_IVR application without using the SCI, Genesys Framework (and the LCA) will restart it. Therefore, if you want to stop the TServer_IVR_Network application without using the SCI, clear the Auto-Restart check box.

Note: Make sure that you set the Startup box to a value that allows enough time for the TServer_IVR_Network application to fully start. If the time is exceeded, the TServer_IVR_Network application is terminated, and it is not restarted, even if Auto-Restart has been selected.

5. Click OK to define the start parameters.

Enabling Network Logging

Before you can configure IVR Server for centralized logging, you must define the following in Configuration Manager:

- A Message Server and corresponding DAP.
- A Log DB Server.

For information about defining a Message Server and a DAP, see *Framework 7.5 Configuration Manager Help* and the *Framework 7.5 Deployment Guide*.

To enable Network Logging, add a connection between the TServer_IVR_Network application and the Message Server.

1. In Configuration Manager, right-click the TServer_IVR_Network application, and then select Wizard > Configure. The TServer_IVR_Network Properties dialog box appears.
2. On the General tab, click Run Log Wizard.
3. Follow the on-screen prompts, making sure that you select Network Log Server on the Log Outputs screen.

   The Log Wizard creates the Message Server connection for you.

Chapter

5 Installing IVR Server

This chapter describes the standard installation procedure for an IVR Server application on the UNIX and Windows operating systems. It contains the following sections:

Note: You can install 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, the operating system of the host on which you install the IVR must match the operating system on which the IVR Server was built.

For more information about installing server applications on the UNIX and Windows operating systems, see the *Framework 7.5 Deployment Guide*.

Installing on UNIX

The installation process for UNIX-oriented operating systems uses a new method for identifying the license file that is to be used for IVR Server. For migration purposes, IVR Server still supports the previous method of specifying the directory path (through the `-l` command-line parameter). Furthermore, the Installation Wizard still includes the following prompt: `Please enter the full path to the license file`. However, Genesys recommends that you use the new format `portnumber@hostname`, to specify the license file. For a description, see the *Genesys 7 Licensing Guide*.

For UNIX-oriented operating systems, when you enter a value in the format `portnumber@hostname`, the Installation Wizard displays the following message: `This is an invalid path. Do you want to enter another path?` Answer `No` to this prompt, and the installation continues and completes successfully.

For UNIX-oriented operating systems, the Installation Wizard creates a `*.sh` file (for example, `run.sh`), which presents the prompted information in the following format:

```
-host <cfgSrvr_Host> -port <cfgSrvr_CommPort> -app
"<AppName_defined_nCME>" -l "<license_path>"
```

If this information is accurate, the `*.sh` file will execute correctly.

To install a Genesys IVR Server application on UNIX:

1. Insert the product CD into the CD-ROM drive of the host computer.
2. In the appropriate directory, locate the shell script called `INSTALL.SH`.
3. Run the script from the command line by typing `sh` and the file name, as follows:

   ```
   sh INSTALL.SH
   ```
4. When prompted, specify the host name of the computer on which this server is to run.
5. When prompted, specify the:
   - Host name of the computer on which Configuration Server is running.
   - Port that client applications use to connect to Configuration Server.
   - User name and password that are used to log in to the Configuration Layer.
6. The installation displays a list of those applications of the specified type that are configured for the host. Type the number corresponding to the server application that you want to install.
7. Specify the destination directory into which want to install the server application, with the full path to it.
8. If asked which version of the product to install, the 32-bit or the 64-bit, choose the one that is appropriate to your environment.

As soon as the installation process is finished, a message appears, announcing that the installation was successful. The installation process places the server application in the directory that you specified in Step 7.

Installing on Windows

To install a Genesys IVR Server application on Windows:

1. Insert the product CD into the CD-ROM drive of the host computer.
2. In the appropriate directory, locate and double-click the `Setup.exe` file to start the installation.

3. When prompted, specify the host and port of Configuration Server. Accept `ITCUtility` as the name of the Installation Configuration Utility application.
4. When prompted, specify the user name and password that are used to log in to the Configuration Layer.
5. Confirm the host name of the computer on which this server is to run.
6. From the list of applications of the specified server type that are configured for the host, select the server application that you want to install.
7. Specify the destination directory into which you want to install the server application.
8. Specify the program folder into which you want to add this server application.
9. Decide whether you want to install this server as a Windows Service. For more information, see the *Framework 7.5 Deployment Guide*.
10. When icons for this server appear, click `Finish` to complete the installation.

Chapter

6 Wizard Configuration

This chapter describes how to use the Genesys 7.5 IVR Interface Option Wizard to configure IVR Server, IVR Drivers, and other required objects.

Note: If you want to use the IVR Network T-Server configuration mode, you can use either the wizard, or the manual configuration procedures described in Chapter 7 on page 143.

This chapter contains the following sections:

Note: For example configurations, see Appendix A on page 265.

Before Using the Wizard

Before you can use the Genesys 7.5 IVR Interface Option Wizard, you must complete the following tasks:

1. Install the Genesys Wizard Manager from the Management Framework product CD, if it has not already been installed in your environment. It must be installed on the same machine as Configuration Manager, but not necessarily on the same machine as the IVR Server.
2. Install the IVR Interface Option Wizard from the IVR Server product CD. It must be installed on the same machine as the Genesys Wizard Manager and Configuration Manager.
3. Collect the information that you will be asked to enter when you run the wizard. This information is described in “Before You Configure” on page 144.

4. Enable the correct licenses for IVR Server. For more information, see "License Section" on page 208, and the *Genesys 7 Licensing Guide*.

Using the Wizard in Configuration Manager

If you are migrating from a previous release of IVR Interface Option, you can use the following wizard instructions to associate the objects that you have already defined in Configuration Manager with the 7.5 releases of the IVR Server and IVR Driver.

For example, although you must create a new object for the `IVR_Driver` application, you can upgrade your existing `I-Server`, `TServer_IVR`, `IVR`, and other objects for use with IVR Interface Option 7.5.

After you have created new objects for IVR Interface Option 7.5, or upgraded existing 6.5, 7.0, 7.1, or 7.2 objects, you can use the IVR Interface Option Wizard in `configure` mode to modify those objects. For example, you can:

- Add or modify secondary I-Server applications for Load Balancing.
- Configure ranges of IVR ports with DNs and agent logins (see "Creating a Range of IVR Ports").
- Define statistics.
- Add or modify connections to premise T-Servers.

If you want to preserve your 6.5, 7.0, 7.1, or 7.2 objects, complete the steps in "Using the Wizard Manager" to create new objects for release 7.5.

Notes: Because the `IVR_Driver` application is new in release 7.2, you cannot select an existing `IVR_Driver` application by using the `Wizard > Configure` command in Configuration Manager. However, as part of the `TServer_IVR` upgrade process, you can select an existing 6.5 `TServer_IVR` object and create a new `IVR_Driver` application. You can also create an `IVR_Driver` application manually in Configuration Manager, or you can use the Wizard Manager to create one.

Because the IVR Interface Option Wizard does not support the `TServer_IVR_Network` application, you can only create a `TServer_IVR_Network` application manually in Configuration Manager.

To upgrade existing IVR Interface Option 6.5, 7.0, 7.1, or 7.2 objects to release 7.5 in Configuration Manager:

1. Right-click the 6.5, 7.0, 7.1, or 7.2 `IVR` object name, and then select `Wizard > Configure`. The object's `Properties` dialog box appears.
2. Click `upgrade` to start the IVR Interface Option Wizard in `configure` mode.
3. Follow the on-screen prompts to upgrade the object.

Creating a Range of IVR Ports

To create a range of IVR ports with associated DNs and agent logins in Configuration Manager:

1. Right-click the appropriate `IVR` object, and then select `Wizard > Configure`. The `IVR Properties` dialog box appears.
2. Click the `IVR Ports` tab.
3. Click `New Range` to start the IVR Ports Range Wizard.
4. Follow the on-screen prompts to create a range of IVR ports.

Using the Wizard Manager

Use the Genesys Wizard Manager to create new objects in Configuration Manager for the 7.5 release of the IVR Server and IVR Driver. These new objects, which can be used with IVR Interface Option 7.5, include:

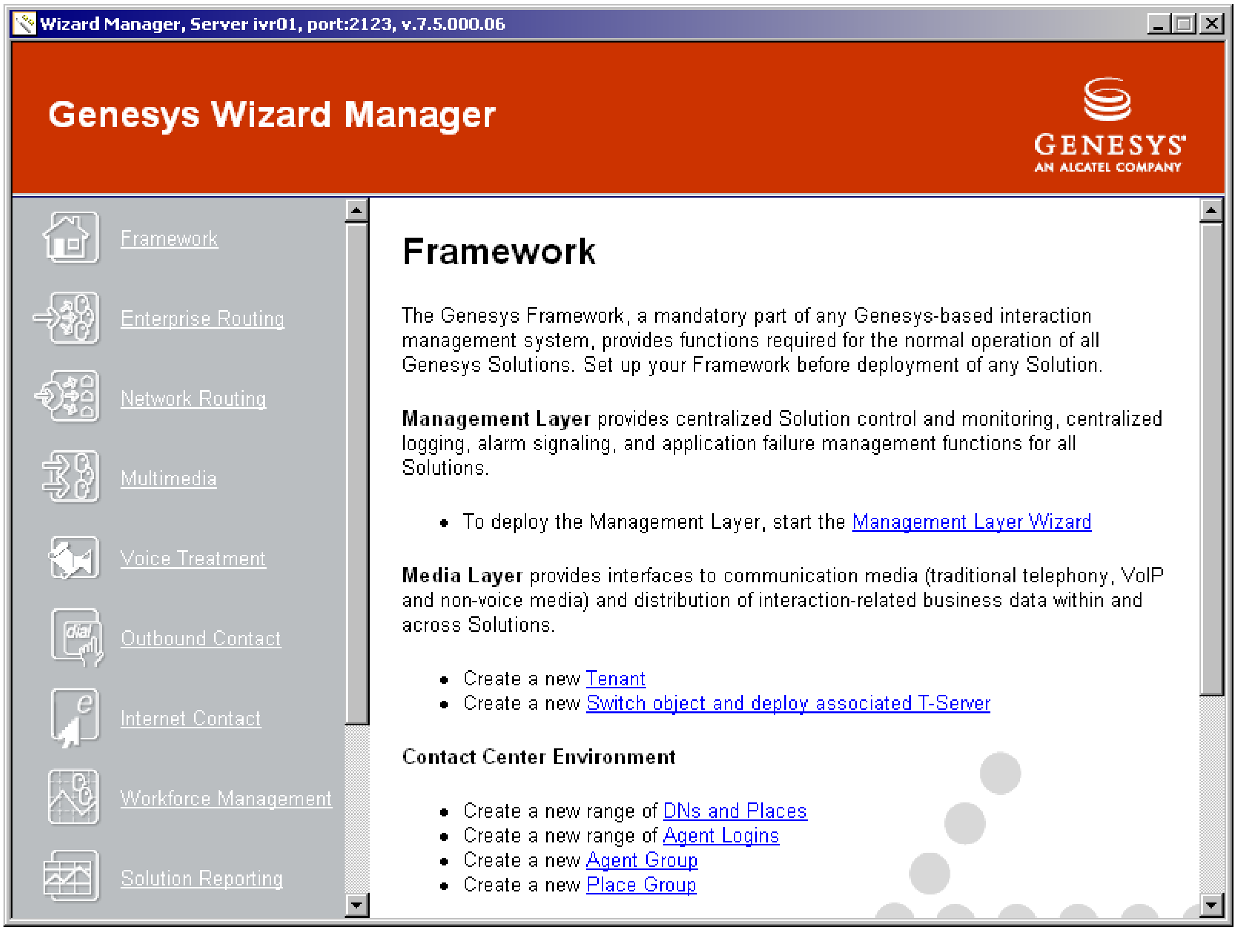
- `I-Server` application.
- `TServer_IVR` application.
- `IVR_Driver` application.
- `TServer_IVR_Network` application.

> **Note:** This application object is required *only* for the IVR Network T-Server configuration mode.

- `IVR` object (including a range of ports with assigned DNs and agent logins).
- Switch object.
- Switching Office object.

To configure new IVR Interface Option 7.5 objects in Configuration Manager:

1. From the Windows `Start` menu, select `Genesys Solutions > Genesys Wizards Manager > Genesys Wizard Manager` to start the Genesys Wizard Manager.
2. Log in to open the Genesys Wizard Manager main window (see Figure 45).



Framework

The Genesys Framework, a mandatory part of any Genesys-based interaction management system, provides functions required for the normal operation of all Genesys Solutions. Set up your Framework before deployment of any Solution.

Management Layer provides centralized Solution control and monitoring, centralized logging, alarm signaling, and application failure management functions for all Solutions.

- To deploy the Management Layer, start the Management Layer Wizard

Media Layer provides interfaces to communication media (traditional telephony, VoIP and non-voice media) and distribution of interaction-related business data within and across Solutions.

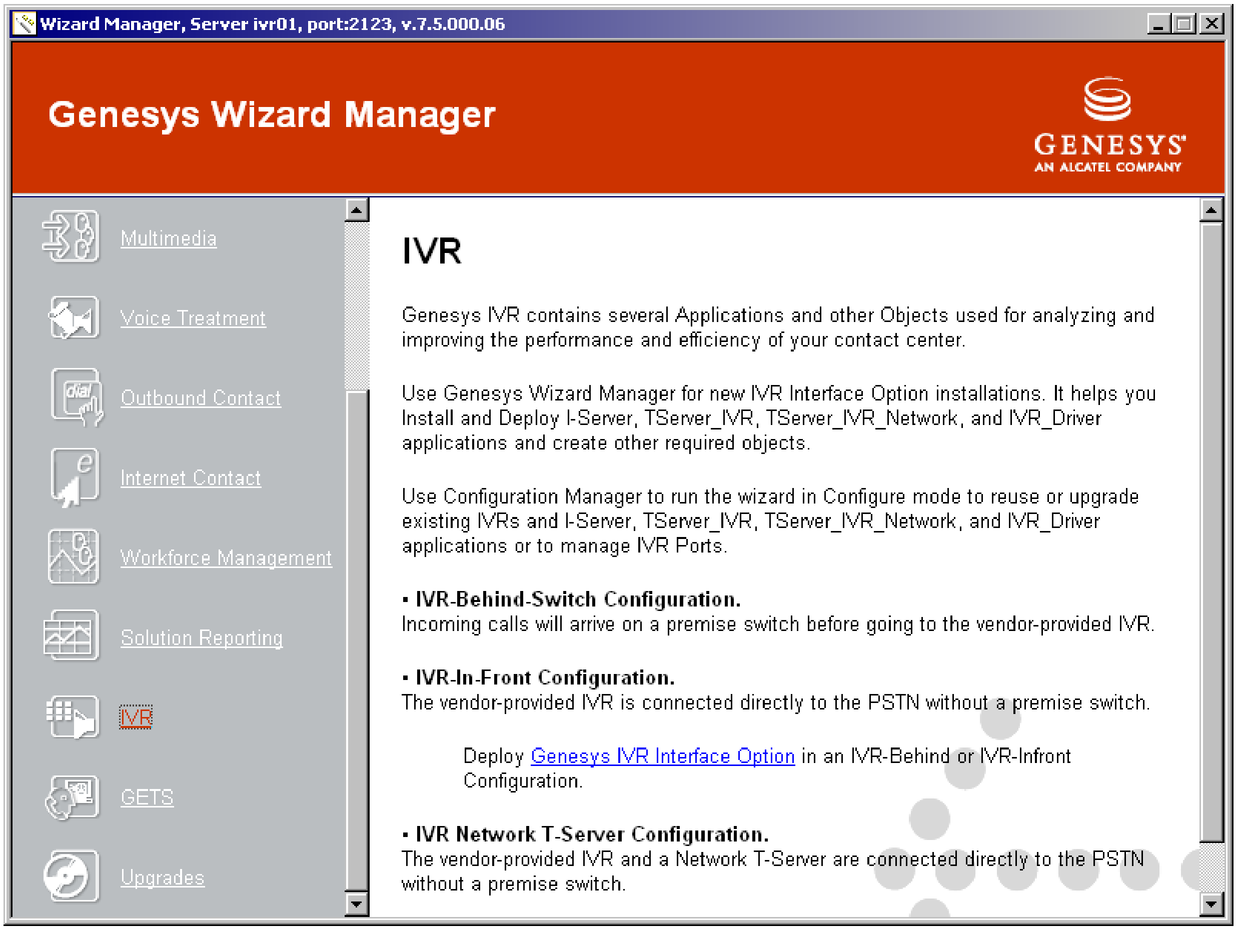
- Create a new Tenant
- Create a new Switch object and deploy associated T-Server

Contact Center Environment

- Create a new range of DNs and Places
- Create a new range of Agent Logins
- Create a new Agent Group
- Create a new Place Group

Figure 45: Genesys Wizard Manager Main Window

3. On the left pane, select IVR. The right pane displays the IVR screen (see Figure 46).



IVR

Genesys IVR contains several Applications and other Objects used for analyzing and improving the performance and efficiency of your contact center.

Use Genesys Wizard Manager for new IVR Interface Option installations. It helps you Install and Deploy I-Server, TServer_IVR, TServer_IVR_Network, and IVR_Driver applications and create other required objects.

Use Configuration Manager to run the wizard in Configure mode to reuse or upgrade existing IVRs and I-Server, TServer_IVR, TServer_IVR_Network, and IVR_Driver applications or to manage IVR Ports.

- **IVR-Behind-Switch Configuration.**
Incoming calls will arrive on a premise switch before going to the vendor-provided IVR.

- **IVR-In-Front Configuration.**
The vendor-provided IVR is connected directly to the PSTN without a premise switch.

Deploy Genesys IVR Interface Option in an IVR-Behind or IVR-Infront Configuration.

- **IVR Network T-Server Configuration.**
The vendor-provided IVR and a Network T-Server are connected directly to the PSTN without a premise switch.

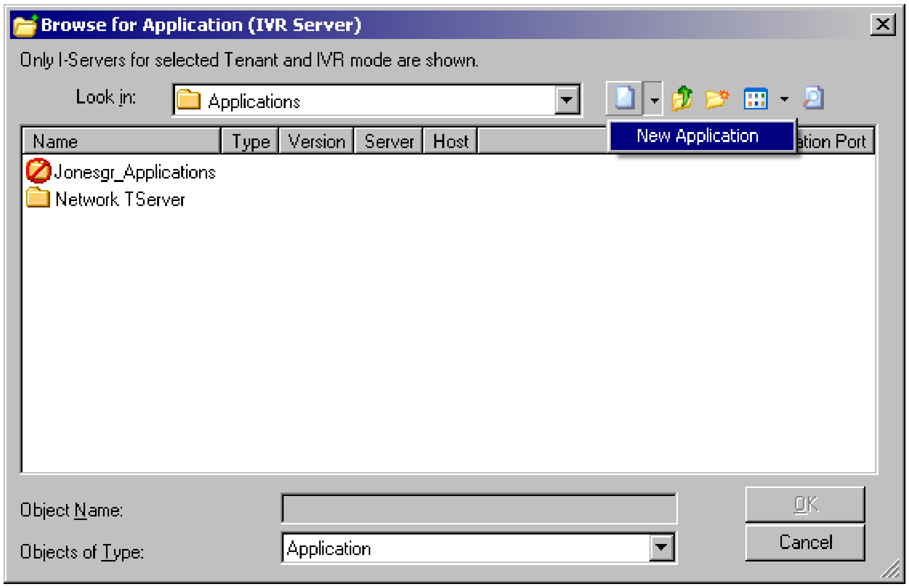
Figure 46: Genesys Wizard Manager—IVR Screen

4. Select `Deploy Genesys IVR Interface Option in your contact center` to start the IVR Interface Option Wizard.
5. Click `Next`.
6. Follow the on-screen prompts to create new configuration objects for use with IVR Interface Option 7.5.

Wizard Manager Usage Notes

- On some wizard screens, to enter an application name in a box, you must click the `Folder` icon next to that box. In some cases, you can use the `Browse for Application` dialog box that appears in two ways:
  - Select from among the existing applications that are displayed in the dialog box.
  - Create a new application by clicking the `New Application` icon at the top of the dialog box.

  Figure 47 shows the wizard's `Browse for Application` dialog box for the `I-Server` application.



Browse for Application (IVR Server)

Only I-Servers for selected Tenant and IVR mode are shown.

Look in: Applications

Name	Type	Version	Server	Host	ation Port
Jonesgr_Applications					
Network TServer					

Object Name:

Objects of Type: Application

Figure 47: Browse for Application (IVR Interface Server) Dialog Box

- When you select an existing 6.5, 7.0, 7.1, or 7.2 `I-Server` application in the Genesys Wizard Manager, the wizard upgrades it to release 7.5. If you upgrade an existing 6.5, 7.0, 7.1, or 7.2 `I-Server` application, you must upgrade the corresponding `TServer_IVR` application. If you choose to create a new release 7.5 `I-Server` application instead, you must also create a new `TServer_IVR` application.
- During configuration of the `I-Server` application, the wizard opens a dialog box in which you can specify statistics for the `I-Server` to monitor. Before `I-Server` can monitor these statistics, they must be defined in the `TimeProfiles` section of the `Options` tab for the Stat Server application. For more information on configuring `TimeProfiles` options, see the *Framework 7.5 Stat Server User's Guide*.

Chapter

7

Manual Configuration

This chapter describes how to manually configure the IVR Server, IVR Drivers, and other required objects. It also lists the information that you need to gather before you perform the configuration tasks.

You can also use the IVR Interface Option 7.5 Wizard (see Chapter 6 on page 137) to create and configure most of the required objects in Configuration Manager. Even if you use the wizard, you can use the procedures in this chapter to add individual objects, or to change existing objects.

Note: If you want to use the IVR Network T-Server configuration mode, you must use the manual configuration procedures in this chapter, because the IVR Interface Option Wizard does not support this configuration mode.

This chapter contains the following sections:

Note: For example configurations, refer to Appendix A on page 265.

Before You Configure

This section describes the information that you will need in order to successfully complete the IVR Server configuration tasks that are described in the rest of this chapter. Genesys recommends that you gather this information before you begin configuration.

Also, before you can configure IVR Server, you must enable the correct licenses for it. For more information, see "License Section" on page 208 and the *Genesys 7 Licensing Guide*.

Note: Until all components are installed, each configured application appears in Configuration Manager as `Disabled`, without a template assigned to it, and with `Unknown Application Type` displayed on the `General` tab of its `Properties` dialog box. After you install them, each application's `State` changes to `Enabled`, a correct template is assigned to it, and the correct application type is displayed on the `General` tab.

Preconfiguration Notes

This section contains special instructions that apply to IVR Server general releases 6.x and 7.x in the following cases:

1. You are adding IVR ports in Configuration Manager, and you need to know what DN type to use, regardless of the T-Server release.
2. You are upgrading the T-Server from release 6.x to 7.x, and you need to order a new license file.

This section discusses the following topics:

- Which DN type to use when configuring IVR ports in CME.
- How many agent seat and technical DN licenses are required for each IVR port if a T-Server 7.x is used.

  (The 7.x T-Servers implemented a new licensing methodology in which you must determine the number of agent seat and technical DN licenses for each IVR port.)

  Note: The configuration of the IVR ports directly affects these numbers.

IVR Port Configuration Exceptions

Although Genesys generally recommends that you configure IVR ports in Configuration Manager as Voice Treatment Ports, there are exceptions, and in these cases you must configure them as ACD Positions, or as ACD Position/ Extension pairs. In order to configure the IVR ports correctly, it is important that you understand these exceptions.

IVR Ports and Switch Configuration

There are two different ways to configure a computer-telephony integration (CTI)-controlled IVR port on the switch:

- As a regular DN that is always ready to receive calls.
- As a DN that requires an agent login in order to receive calls.

In some cases, you can also associate an IVR port with both a regular DN and an agent login DN.

IVR Ports and Genesys Configuration Manager Configuration

If Genesys Universal Routing Server (URS) will be distributing calls to IVR ports for treatment, you should enter all IVR ports in Configuration Manager and add them to Places. URS will distribute calls to IVR ports for treatment based on the availability of the Places. Stat Server determines Place availability, using an algorithm that depends greatly on the Configuration Manager DN type. For more information, see "Stat Server Place Status Algorithm."

Table 7 contains recommendations for what DN type to use when configuring an IVR port in Configuration Manager, depending on the way in which the IVR port is configured on the switch. It also outlines the T-Server 7.x license requirements for each configuration type.

Table 7: DN Type Recommendations

IVR port configuration on the switch	Recommended DN Type in CME	Required T-Server 7.x license type and amount
A regular DN that is always ready to receive calls.	Voice Treatment Port	One technical DN license
A DN that requires an agent login in order to receive calls.	ACD Position	One agent seat license
A DN that requires an agent login and a regular DN (an agent login happens at the former and calls are distributed to the latter).	ACD Position and Extension	Two agent seat licenses

Stat Server Place Status Algorithm

This section explains how Stat Server determines a Place Status, in order to clarify the reasoning behind the IVR port configuration rules. In the following discussion, an IVR *Port Place* is defined as a Place in CME that includes a DN that represents an IVR port. In some cases—for example, for switches such as Nortel Meridian—an IVR Port Place can include two DNs, representing an analog ACD Position and an Extension.

Out of the rules that Stat Server uses to determine a Place Status, the following apply to IVR Port Places:

1. Generally, a Place inherits its Status from the DN that is linked to it. In other words, the Place Status is the same as the Status of the DN that is linked to the Place. If tmore than one DN is linked to the Place, and if these DNs have different Statuses, the Place inherits the DN Status with the highest priority, according to the Agent Status Priority Table.

   For example, suppose that an ACD Position and an Extension are linked to the Place. If the ACD Position Status is `WaitForNextCall`, and the Extension Status is `CallInbound`, the overall Place Status will be `CallInbound`.

2. If there is an Agent Login at the DN that is associated with the Place (at least one of the DNs), Rule 1 applies.

3. If there is no Agent Login at any of the DNs that are associated with the Place, Rule 1 applies, with the following exception: If the resulting Status, according to Rule 1, is `WaitForNextCall`, Stat Server sets the Place Status to `NotReadyForNextCall`.

   For example, suppose that an Extension is linked to the Place, and that there is no Agent Login. If the Extension Status is `CallInbound`, the overall Place Status will be `CallInbound`. However, if the Extension Status is `WaitForNextCall`, the overall Place Status will be `NotReadyForNextCall`.

4. If there is no Agent Login at the DN that is associated with the Place, but the DN type is `Voice Treatment Port`, Rule 1 applies.

   For example, suppose that a Voice Treatment Port is linked to the Place, and that there is no Agent Login. If the Voice Treatment Port Status is `WaitForNextCall`, the overall Place Status will be `WaitForNextCall`.

For the complete set of IVR port configuration rules, see the *Framework 7.5 Stat Server User's Guide*.

Configuration Tasks

1. Switching office name
2. Switch name

3. DNs on the switch:
    - Extensions
    - Routing Points (if required)
    - ACD queues (if required)
4. IVR name
5. Key/Value pairs to be returned to clients at login (if required)
6. Login response data
7. IVR ports, and how they map to the DNs on the switch
8. Auto login information for each IVR port (if required):
    - `Agent ID`
    - `Queue`
    - `Password`
    - `SetReady`
    - `SetLoggedIn`
9. IVR Server application name
10. Statistics information for each Stat (if required):
    - Statistic name (as specified in network messages)
    - `obj_id`
    - `obj_type`
    - `server_name`
    - `stat_type`
    - `time_profile`
    - `update_frequency`
11. `TServer_IVR` application name
12. Host/port for the `TServer_IVR` application
13. GLI Server host/port
14. `UseQueue` option, if you will be using external routing

Required Configuration Tasks

Table 8 shows the required configuration tasks for each IVR Server configuration mode.

Table 8: Required Configuration Tasks

Required Configuration Tasks	IVR-In-Front	IVR-Behind-Switch	IVR Network T-Server	Configuration Notes
Log in (page 149)	X	X	X	
Enable the Annex tab (page 150)	X	X	X	Enables the Annex tab for all objects that offer it.
Configure the switching office (page 151)	X	X	X	• IVR-In-Front mode—Associate the switching office with a virtual switch. • IVR-Behind-Switch and IVR Network T-Server modes—Associate the switching office with a physical switch.
Configure switches (page 152)	X	X	X	• IVR-In-Front mode—Create a virtual switch and associate it with a TServer_IVR application (instead of a premise T-Server). • IVR-Behind-Switch mode—Create a physical switch and associate it with a premise T-Server. • IVR Network T-Server mode—Create a physical switch and associate it with a TServer_IVR_Network application.
Configure DNs (page 155)	X	X	X	
Configure IVRs (page 157)	X	X	X	
Configure IVR ports (page 159)	X	X	X	
Configure the I-Server application (page 166)	X	X		The I-Server application is not used in IVR Network T-Server mode, and therefore should not be configured for it.

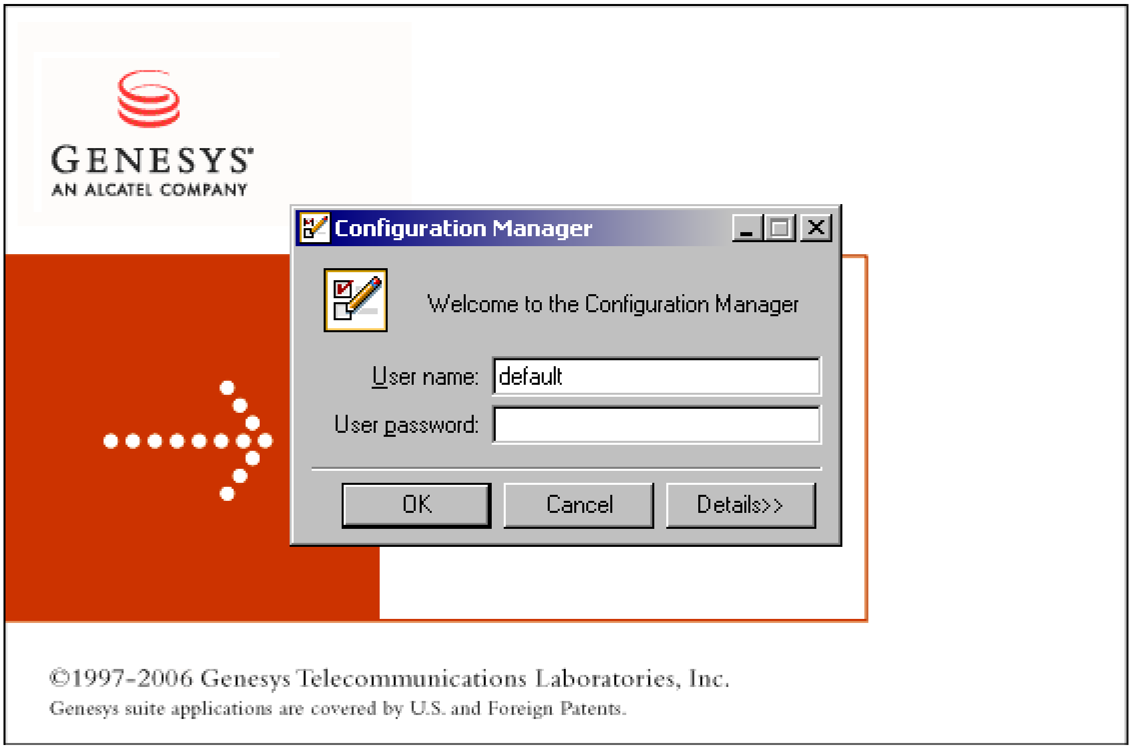
Table 8: Required Configuration Tasks (Continued)

Required Configuration Tasks	IVR-In-Front	IVR-Behind-Switch	IVR Network T-Server	Configuration Notes
Configure the `TServer_IVR` application (page 172)	X	X		The `TServer_IVR` application is not used in IVR Network T-Server mode, and therefore should not be configured for it. Instead, use the `TServer_IVR_Network` application.
Configure the `IVR_Driver` application (page 180)	X	X	X	The `IVR_Driver` application is required in all modes, unless you are using IVR Driver 7 for Aspect, CONVERSANT, or Microsoft Speech Server. The `IVR_Driver` application is not available for use with these IVR Drivers.
Configure the `TServer_IVR_Network` application (page 187)			X	The `TServer_IVR_Network` application is required *only* for IVR Network T-Server mode. In other modes, use the `TServer_IVR` application instead.

Logging In

Note: This guide describes how to define and configure the required IVR Interface Option 7.5 objects by using the Configuration Manager component of Genesys Framework 7.5. Other releases of Genesys Framework might also be supported. For information about the supported releases, see the *Genesys 7 Migration Guide*. For a detailed description of Configuration Manager, and how to create a new application, see the *Framework 7.5 Configuration Manager Help* and the *Framework 7.5 Deployment Guide*.

Start Configuration Manager and log in (see Figure 48).


GENESYS
AN ALCATEL COMPANY
Configuration Manager
Welcome to the Configuration Manager
OK
Cancel
Details>>
©1997-2006 Genesys Telecommunications Laboratories, Inc.
Genesys suite applications are covered by U.S. and Foreign Patents.

User name: default

User password:

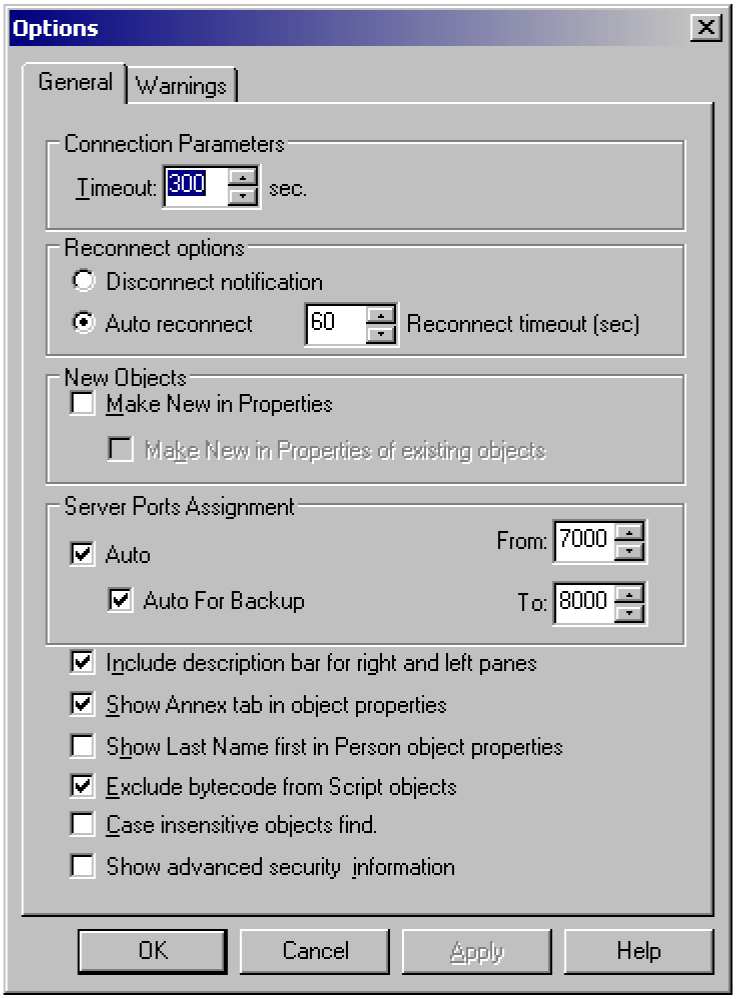
Figure 48: Configuration Manager Login Dialog Box

Enabling the Annex Tab

Note: You must enable the Annex tab in order to successfully configure IVR Server.

To enable the Annex tab in the Properties dialog box for all applicable objects:

1. In the Configuration Manager main window, select View > Options. The Options dialog box appears (see Figure 49).



Connection Parameters

Timeout: 300 sec.

Reconnect options

○ Disconnect notification

● Auto reconnect 60 Reconnect timeout (sec)

New Objects

□ Make New in Properties

□ Make New in Properties of existing objects

Server Ports Assignment

☑ Auto From: 7000

☑ Auto For Backup To: 8000

☑ Include description bar for right and left panes

☑ Show Annex tab in object properties

□ Show Last Name first in Person object properties

☑ Exclude bytecode from Script objects

□ Case insensitive objects find.

□ Show advanced security information

Figure 49: Options Dialog Box

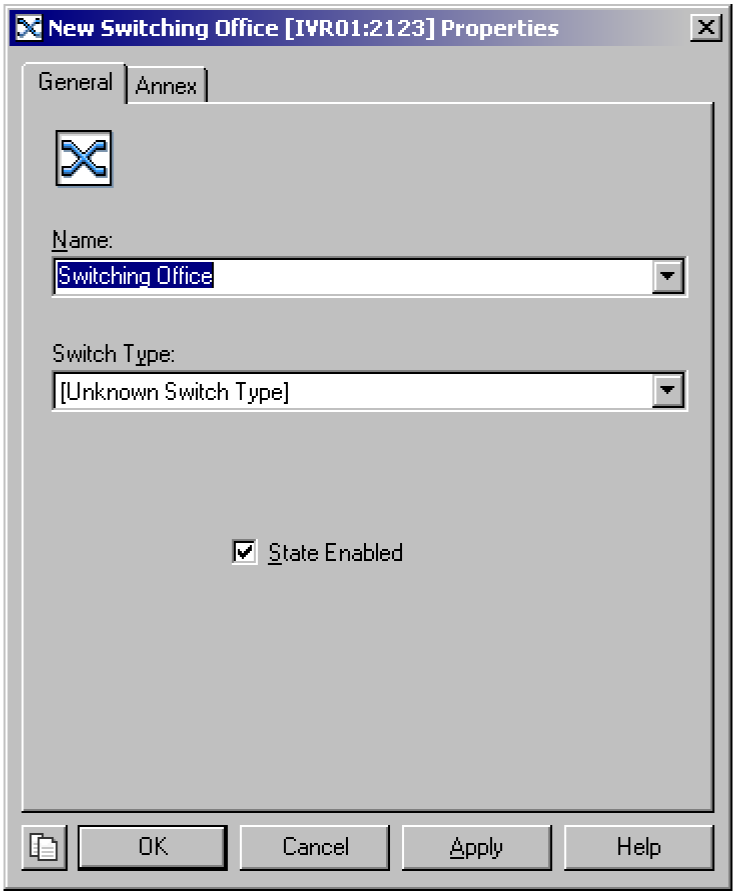
2. Select the `Show Annex tab in object properties` check box.
3. Click `OK`.

Configuring the Switching Office

You must configure the switching office at this point only if your environment uses premise T-Servers, and if they have not already been configured.

To configure the switching office in Configuration Manager:

1. Expand `Environment`, right-click `Switching Offices`, and select `New > Switching Office`. The `New Switching Office Properties` dialog box appears (see Figure 50).



Name: Switching Office

Switch Type: [Unknown Switch Type]

☑ State Enabled

Figure 50: New Switching Office Properties Dialog Box

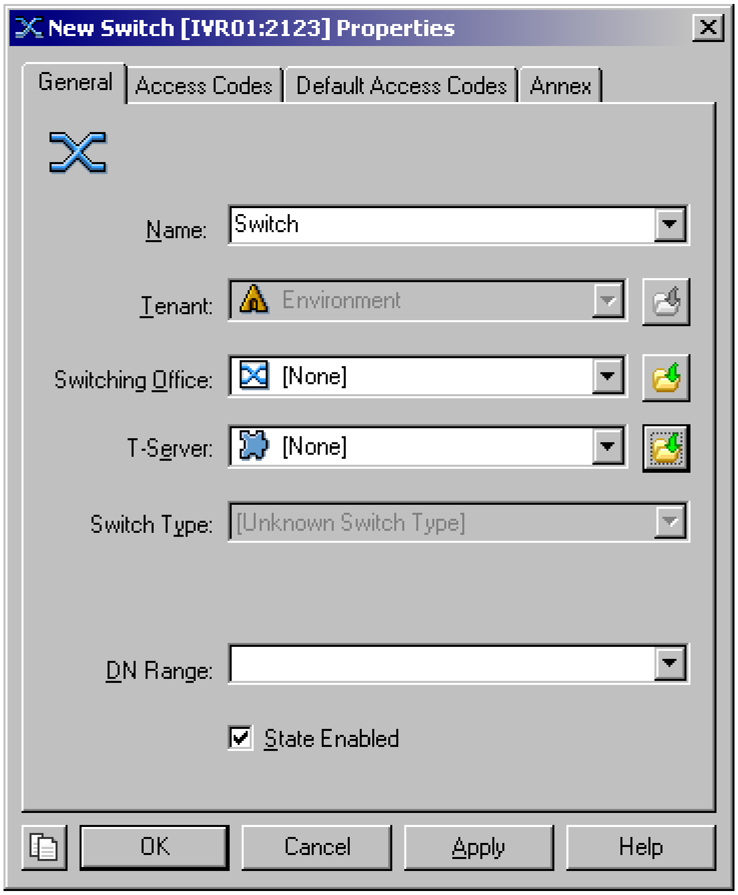
2. In the `Name` box, enter a name for the switching office. This name is required, and it must be unique within the Configuration Database.
3. In the `Switch Type` box, select a switch type. After it is specified, the type cannot be changed.
4. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.
5. Click `OK` to complete the configuration of the switching office.

Configuring Switches

A *switch* is an aggregate of telephony resources within a switching office, controlled through one T-Server or `TServer_IVR` application. When a new switch is registered in the Configuration Database, the Configuration Layer automatically creates two folders under it, one for DNs, and one for Agent Logins.

To configure a switch in Configuration Manager:

1. Expand `Resources` (or `Tenant Name`), right-click `Switches`, and select `New` > `Switch`. The `New Switch Properties` dialog box appears (see Figure 51).



Name: Switch

Tenant: Environment

Switching Office: [None]

T-Server: [None]

Switch Type: [Unknown Switch Type]

DN Range:

☑ State Enabled

Figure 51: New Switch Properties Dialog Box

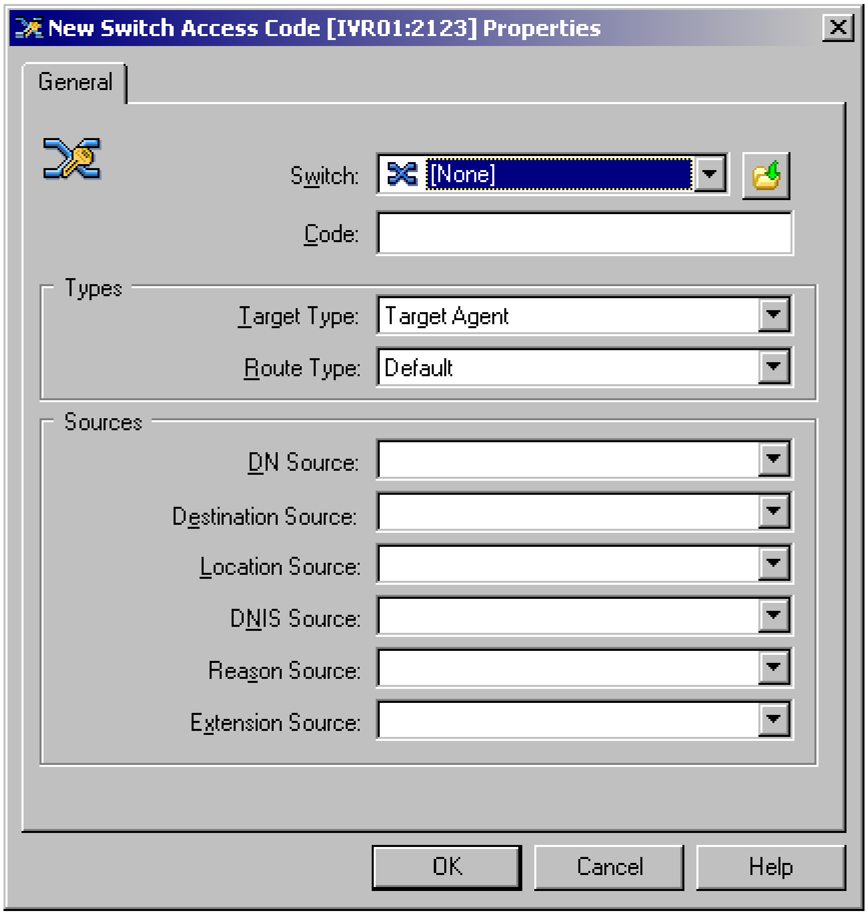
2. In the `Name` box, enter a name for the switch. This name is required, and it must be unique within the switching office or tenant.
3. In the `Switching Office` box, select the switching office. After it is specified, the switching office cannot be changed.
4. In the `T-Server` box, select the `TServer_IVR` application through which the telephony objects of this switch are controlled. Each `TServer_IVR` can be associated with only one switch.
5. In the `Switch Type` box, select a switch type. After it is specified, the type cannot be changed.
6. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.
7. If you want to add or edit an access code, see "Using Access Codes."
8. Click `OK` to complete the configuration of the switch.

Using Access Codes

To add or edit an access code in Configuration Manager:

1. Expand `Resources` (or `Tenant Name`), right-click `Switches`, and select `New > Switch`. The `New Switch Properties` dialog box appears (see Figure 51).
2. Click either the `Access Codes` or the `Default Access Codes` tab.
3. Do one of the following:
   - To add an access code, click `Add`.
   - To edit an existing access code, select the code, and then click `Edit`.

   The `New Switch Access Code Properties` dialog box appears (see Figure 52).



New Switch Access Code [IVR01:2123] Properties

General

Switch: [None]

Code:

Types

Target Type: Target Agent

Route Type: Default

Sources

DN Source:

Destination Source:

Location Source:

DNIS Source:

Reason Source:

Extension Source:

Figure 52: New Switch Access Code Properties Dialog Box

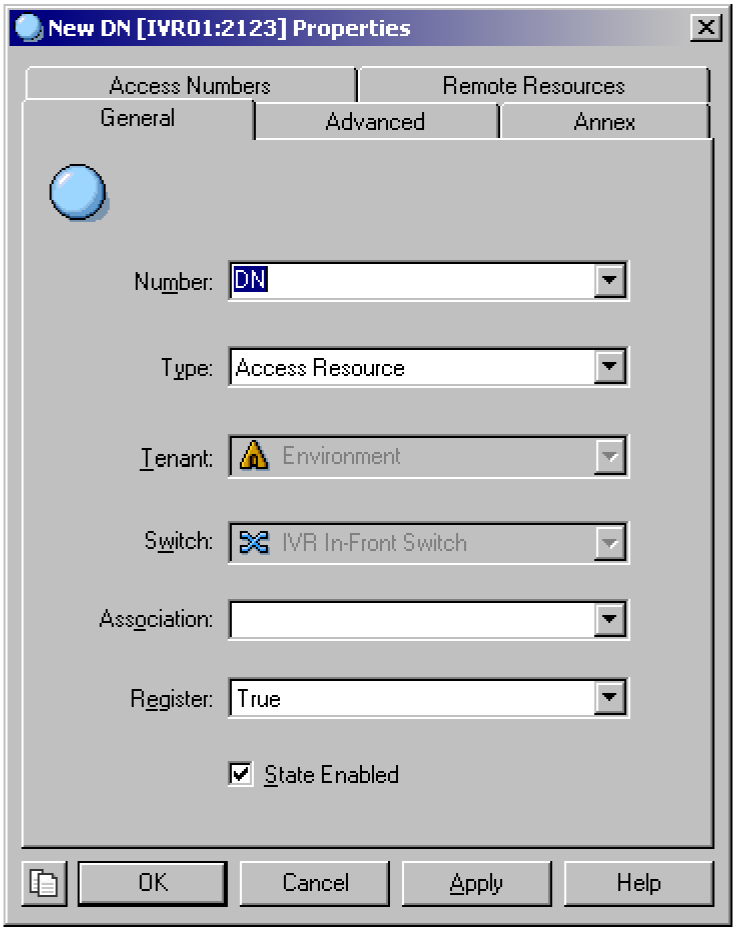
4. In the `Switch` box, select the switch to which the access code is assigned. If this is a default access code, this box is not available.
5. In the `Code` box, enter the prefix that is used to reach DNs of the switch (specified in the `Switch` box) when placing or transferring calls from DNs of the switch that is to be configured.
6. In the `Target Type` box, select the type of target within the switch.

7. In the Route Type box, select the type of routing for the target (specified in the Target Type box) for this switch.
8. In the DN Source box, enter the source of the information that is used to specify the origination point in routing instructions.
9. In the Destination Source box, enter the source of the information that is used to specify the destination in routing instructions.
10. In the Location Source box, enter the source of the information that is used to specify the location in routing instructions.
11. In the DNIS Source box, enter the source of the information that is used to specify the DNIS in routing instructions.
12. In the Reason Source box, enter the source of the information that is used to specify the reasons in routing instructions.
13. In the Extension Source box, enter the source of the information that is used to specify the extensions in routing instructions.
14. Click OK to add or edit the access code.

Configuring DNs

To configure a DN in Configuration Manager:

1. Expand Resources **(**or Tenant Name**)** > Switches > Switch, right-click DNs, and select New > DN. The New DN Properties dialog box appears (see Figure 53).



New DN [IVR01:2123] Properties

Number: DN

Type: Access Resource

Tenant: Environment

Switch: IVR In-Front Switch

Association:

Register: True

☑ State Enabled

Figure 53: New DN Properties Dialog Box

2. In the `Number` box, enter the directory number that is assigned to this DN within the switch. This value is required, and it must be unique within the Configuration Database.
3. In the `Type` box, select the DN type. To use the IVR Server 7.x pool of licenses for Voice Treatment Ports, you must define DNs here with the `Voice Treatment` type.
4. In the `Association` box, enter an entity that is to be permanently associated with this DN—for example, an IVR port number, channel name, or access number.
5. In the `Register` box, select whether the Premise T-Server is to register this DN within the switch.

> **Note:** This option must be set to `false` if you are configuring a Virtual Routing Point in IVR-Behind-Switch mode.

6. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.

7. Click `OK` to complete the configuration of the DN.

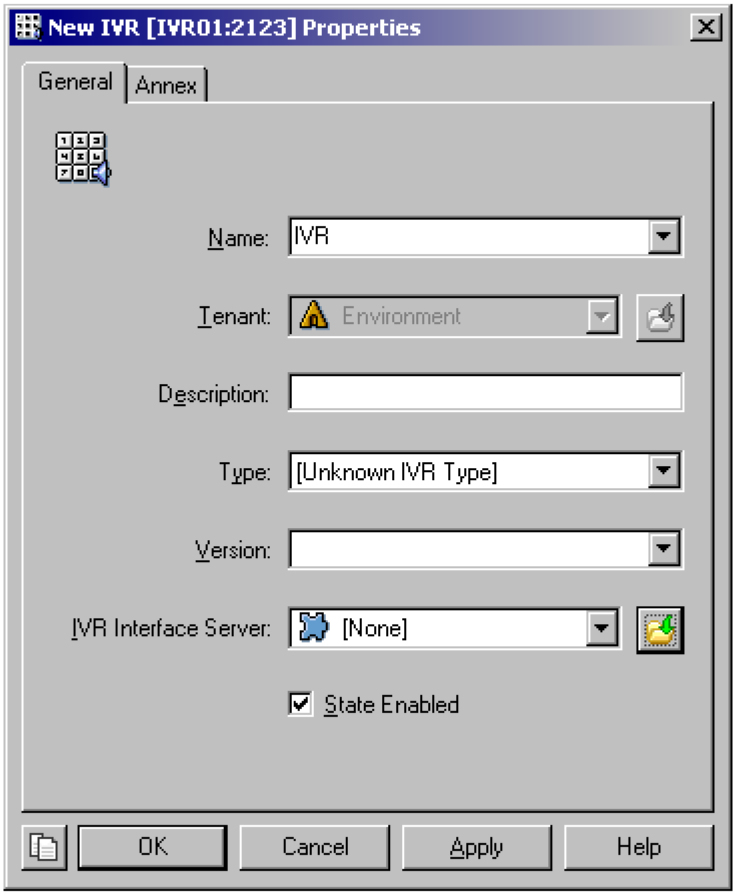
Configuring IVRs

IVRs (Interactive Voice Response devices) are telephony objects that consist of IVR ports, which are controlled through IVR Drivers. When a new IVR is registered in the Configuration Database, the Configuration Layer automatically creates an `IVR Ports` folder under it.

Note: If you have more than one IVR, you should plan a naming scheme for each of the corresponding IVR Drivers before you complete these configuration tasks.

To configure IVRs in Configuration Manager:

1. Expand `Resources` (or `Environment`), right click `IVRs`, and select `New > IVR`. The `New IVR Properties` dialog box appears (see Figure 54).



Name: IVR

Tenant: Environment

Description:

Type: [Unknown IVR Type]

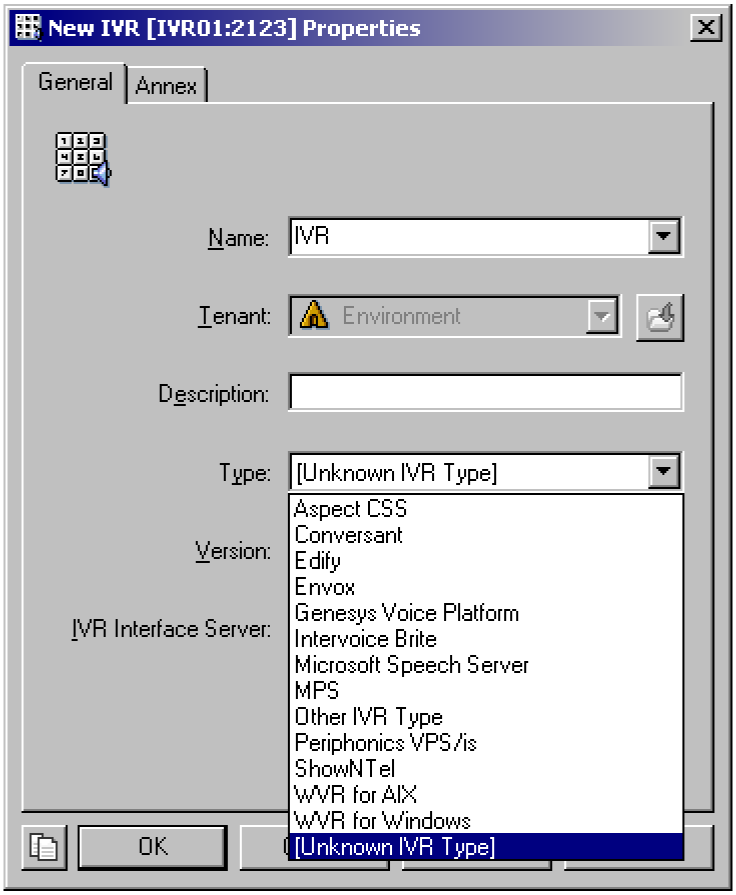
Version:

IVR Interface Server: [None]

☑ State Enabled

Figure 54: New IVR Properties Dialog Box

2. In the `Name` box, enter the name of the IVR Driver. This value is required, and it must be unique within the Configuration Database (in an enterprise environment) or tenant (in a multi-tenant environment).
3. In the `Description` box, enter a brief description of the IVR.
4. In the `Type` box, select the type of this IVR. This value is required, and it cannot be changed if at least one IVR port is associated with this IVR. If your specific IVR type is not listed, select `Unknown`. See Figure 55 for a list of the available IVR types.



New IVR [IVR01:2123] Properties

Name: IVR

Tenant: Environment

Description:

Type: [Unknown IVR Type]

Figure 55: Available IVR Types

5. In the `Version` box, enter the version of the IVR. This value is required.
6. In the `IVR Interface Server` box, select the name of the application of the IVR Server type that serves this IVR. You can assign the IVR Interface Server to this driver by clicking the `Folder` icon.
7. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.
8. Click `OK` to complete the configuration of the IVR.

Configuring IVR Ports

IVR ports are telephony objects at which telephone calls can reside and be handled; they are uniquely identified by the numbers within IVRs.

Note: Each DN must be assigned to, at most, one IVR port.

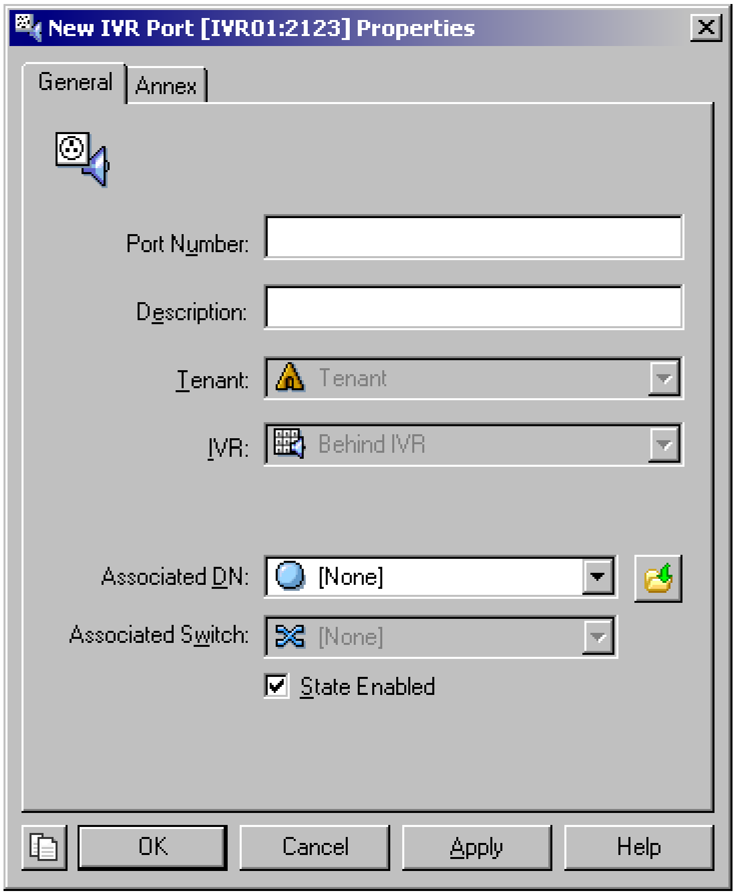
The following subsections describe how to configure IVR ports in Configuration Manager:

- Creating a Single IVR Port, page 159
- Configuring Multiple IVR Ports, page 161
- Configuring the Auto-Login Feature, page 163

Creating a Single IVR Port

To create a single IVR port:

1. Expand Resources (or Environment) > IVRs > [specific IVR], right click IVR Ports, and select New > IVR Port. The New IVR Port Properties dialog box appears (see Figure 56).



New IVR Port [IVR01:2123] Properties

Port Number:

Description:

Tenant: Tenant

IVR: Behind IVR

Associated DN: [None]

Associated Switch: [None]

☑ State Enabled

Figure 56: New IVR Port Properties Dialog Box

2. In the `Port Number` box, enter the number of the IVR port. See Table 9 for the starting port number to use for your IVR Driver.
3. In the `Description` box, enter a brief description of this IVR port.
4. In the `Associated DN` box, enter the DN associated with this IVR port.

> **Note:** Do not configure two IVR ports to point to the same DN/switch combination.

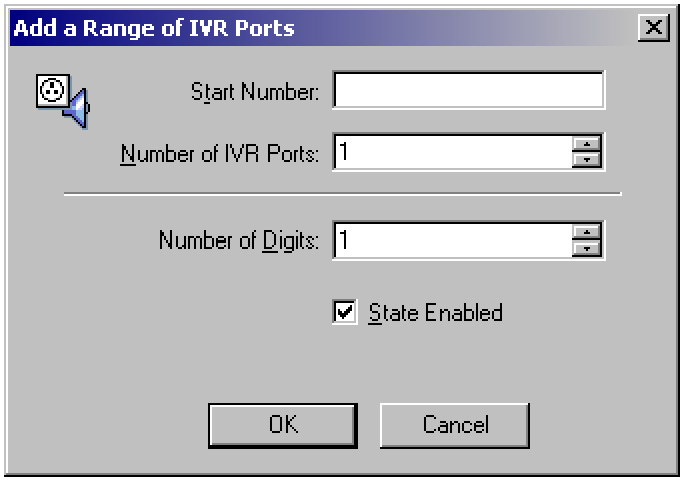
5. Click the `Folder` icon next to the `Associated DN` box to define the association between the IVR port and a DN for the switch that is connected to this IVR. The IVR port/DN association is completed through additional steps.
6. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.
7. Click `OK` to create the IVR port.

Note: If your IVR ports must be able to log in as agents, see “Configuring the Auto-Login Feature” on page 163.

Configuring Multiple IVR Ports

To configure your IVR to manage multiple telephony ports:

1. Expand `Resources` (or `Environment`) > `IVRs` > `[specific IVR]`, right click `IVR Ports`, and select `New` > `Range of IVR Ports`. The `Add a Range of IVR Ports` dialog box appears (see Figure 57).



Start Number:

Number of IVR Ports: 1

Number of Digits: 1

☑ State Enabled

Figure 57: Add a Range of IVR Ports Dialog Box

2. In the `Start Number` box, enter the starting number for the range of IVR ports that you want to assign.
3. In the `Number of IVR Ports` box, enter the total number of ports that you want to assign.
4. Click `OK` to define the ports and list them in Configuration Manager.

   Table 9 shows the starting port number for the IVR types that the Genesys 7.5 IVR Drivers supports.

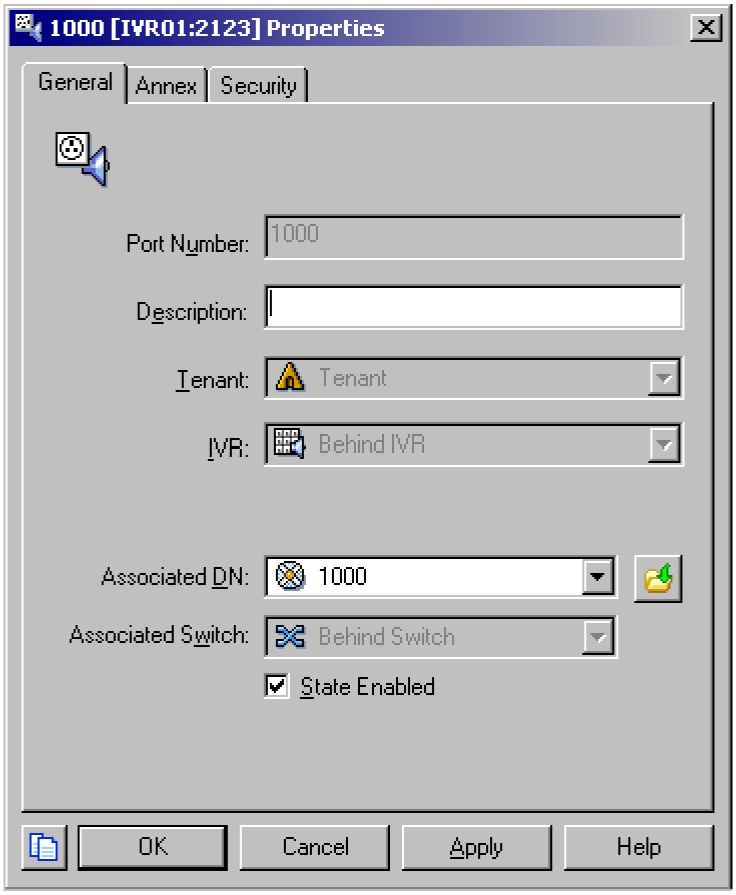
Table 9: Starting Number for IVR Ports

Genesys IVR Driver	Starting Port Number
Aspect Edify CONVERSANT Show N Tel	0
MPS500 & MPS1000 WVR for Windows	1

Table 9: Starting Number for IVR Ports (Continued)

Genesys IVR Driver	Starting Port Number
Microsoft Speech Server	Six-digit number with the following syntax: • **Digit 1**—The number that is assigned to the Telephony Application Services (TAS) instance • **Digit 2**—The board number • **Digit 3**—The trunk number • **Digits 4–6**—The port number, with leading zeroes **Example:** `101001` is the complete port number for TAS instance `1`, board number `0`, trunk number `1`, and port number `001` (port `1` with two leading zeroes).
WVR for AIX	WVR for AIX port numbers are derived using the following formula: `(100 x T1/E1 number) + 1` **Examples:** The first port on the first span is `101`, and the first port on the second span is `201`.
GVP	• IVR-In-Front mode—The IP address as a character string (12 characters), followed by a three-digit port number (`001`–`999`). • IVR-Behind-Switch mode—The number starts with `01`, and goes up to the number of ports.

5. Right-click a port number, and then select `Properties`. The `Port Properties` dialog box appears (see Figure 58).



Port Number: 1000

Description:

Tenant: Tenant

IVR: Behind IVR

Associated DN: 1000

Associated Switch: Behind Switch

☑ State Enabled

Figure 58: Port Properties Dialog Box

6. Click the `Folder` icon next to the `Associated DN` box to define the association between the IVR port and a DN for the switch that is connected to this IVR. The IVR port/DN association is completed through additional steps.
7. Repeat Step 6 for each port in the range.

Note: If your IVR ports must be able to log in as agents, see "Configuring the Auto-Login Feature."

Configuring the Auto-Login Feature

To configure the Auto-Login feature:

1. In the `Port Properties` dialog box appears (see Figure 58), click the `Annex` tab (see Figure 59).

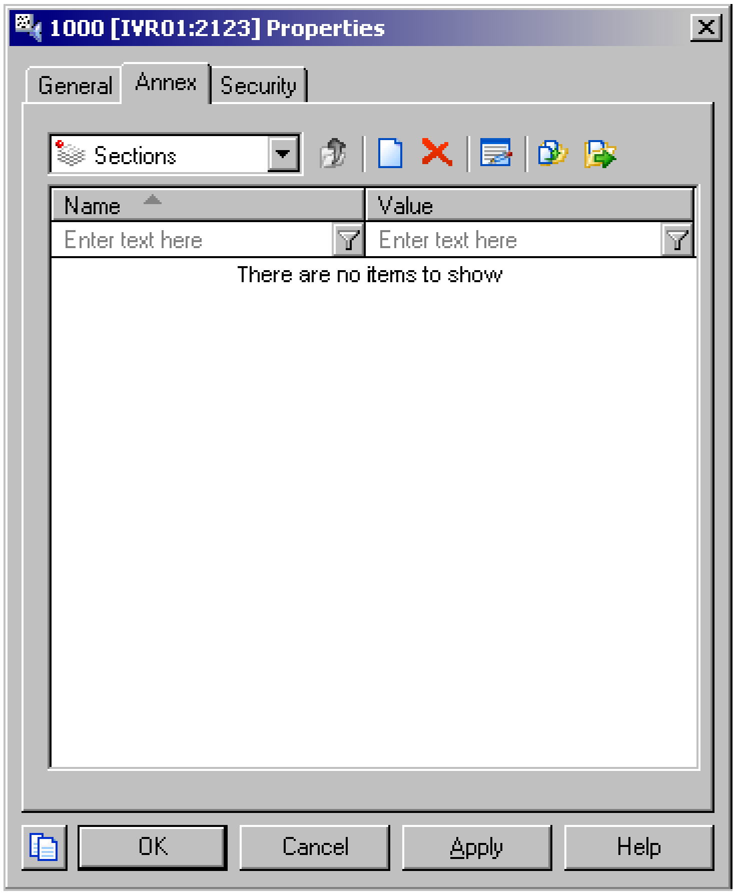
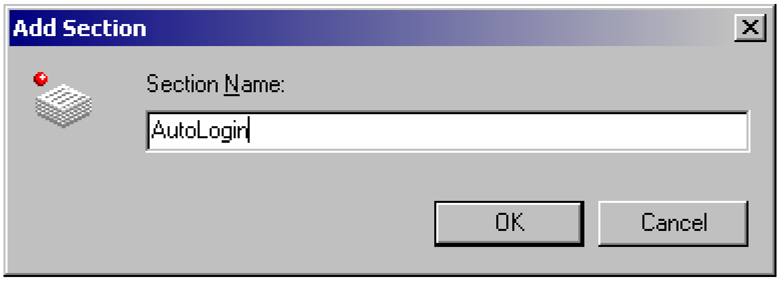


Figure 59: Port Properties Dialog Box—Annex Tab

2. Right-click in an empty area at the bottom of the Annex tab, and then select New. The Add Section dialog box appears.
3. In the Section Name box, enter AutoLogin (see Figure 60).



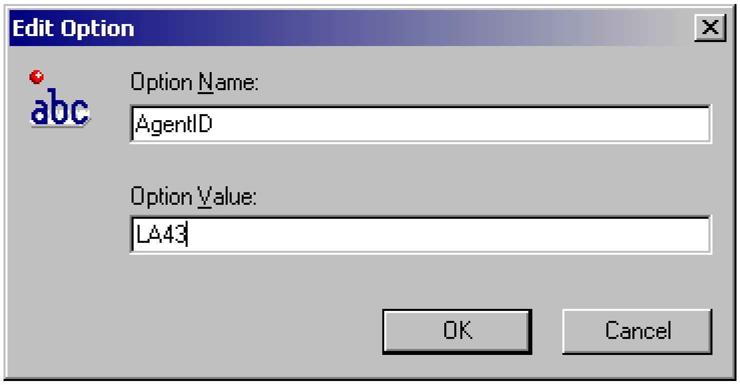
Section Name: AutoLogin

Figure 60: Add Section Dialog Box

Note: You must enter the AutoLogin name exactly as shown in Figure 60, because the Section Name box is case-sensitive.

4. Click OK. You are returned to the Port Properties dialog box, which now displays the new AutoLogin section on the Annex tab.

5. Double-click AutoLogin to open the AutoLogin section.
6. To define an AutoLogin option—for example, AgentID—right-click in an empty area at the bottom of the AutoLogin section, and then select New. The Edit Option dialog box appears (see Figure 61).

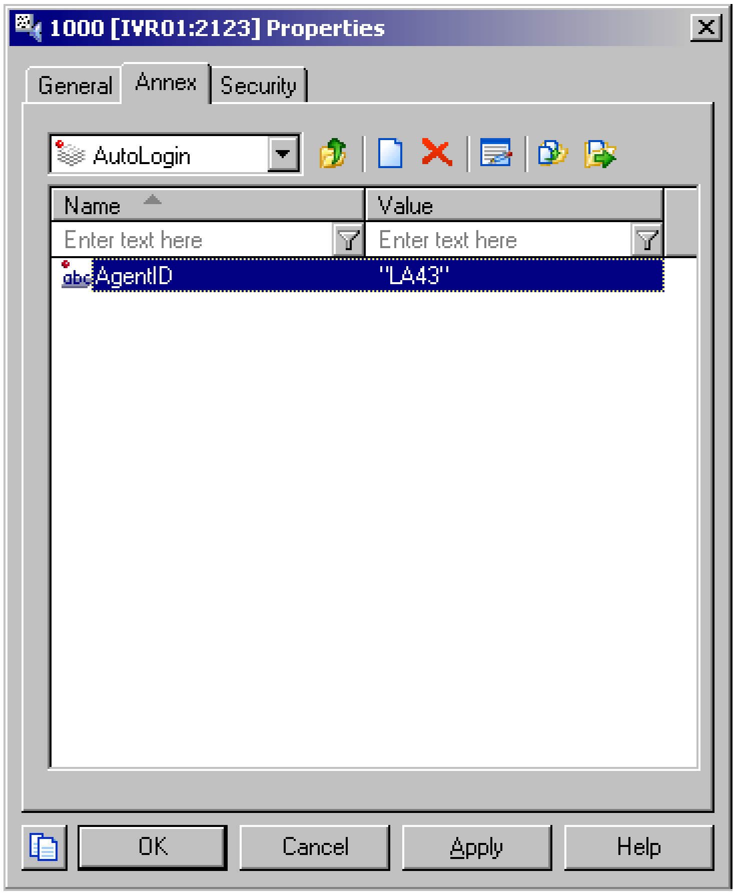


Option Name: AgentID

Option Value: LA43

Figure 61: Edit Option Dialog Box

7. In the Option Name and Option Value boxes, enter a name and value (respectively) for the new option.
8. Click OK. You are returned to the Port Properties dialog box, which now displays the new option in the AutoLogin section (see Figure 62).



AgentID "LA43"

Figure 62: Port Properties Dialog Box—Annex Tab

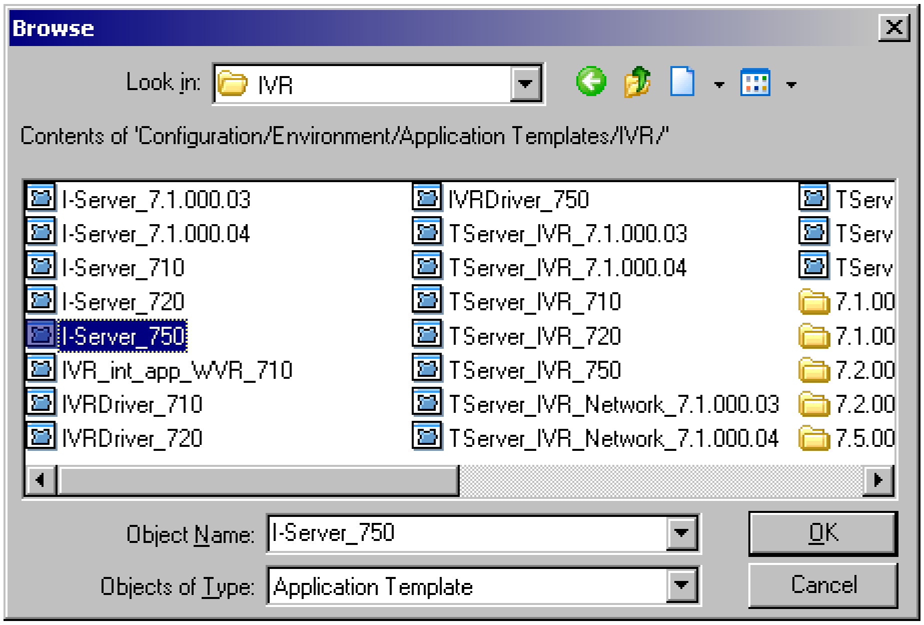
9. Repeat Steps 5 and 6 to add more options.
10. When you have finished, click `OK` to close the `Port Properties` dialog box.

Configuring the I-Server Application

Note: The `I-Server` application is required only for the IVR-In-Front and IVR-Behind-Switch configurations. It is not used for the IVR Network T-Server configuration.

To configure the `I-Server` application in Configuration Manager:

1. Expand `Environment`, right-click `Applications`, and select `New >` `Application`. The `Browse` dialog box appears (see Figure 63).



Look in: IVR

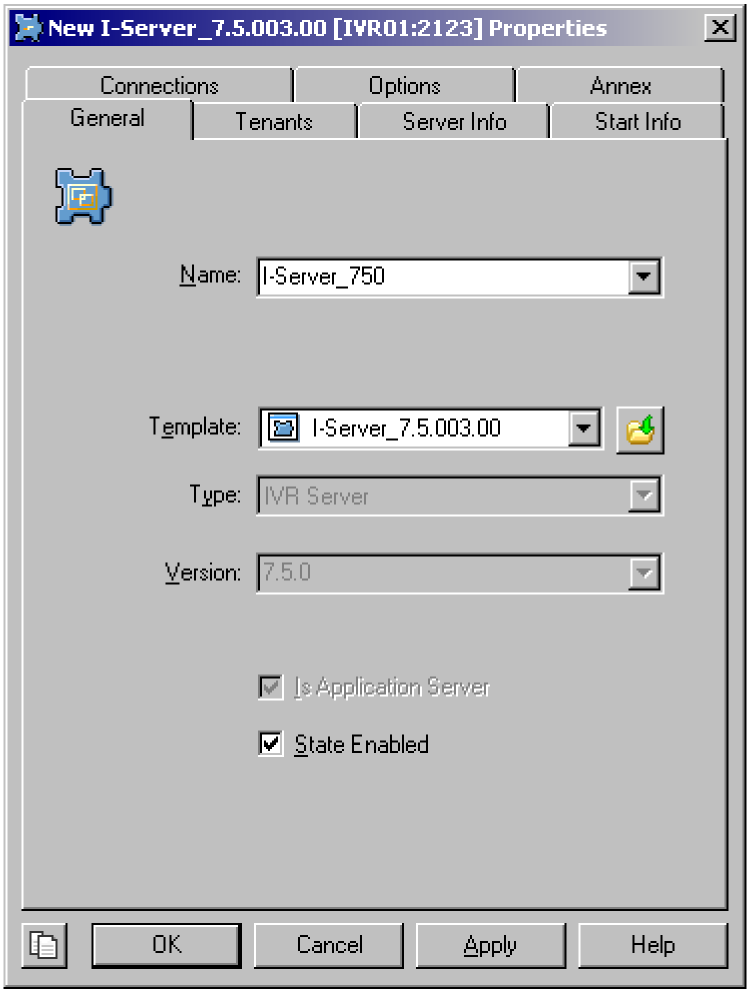
Contents of 'Configuration/Environment/Application Templates/IVR/'

Object Name: I-Server_750

Objects of Type: Application Template

Figure 63: Browse Dialog Box

2. Select `I-Server_750`, and then click `OK`. The `New I-Server_750 Properties` dialog box appears, with the `General` tab displayed (see Figure 64).



Name: I-Server_750

Template: I-Server_7.5.003.00

Type: IVR Server

Version: 7.5.0

☑ Is Application Server

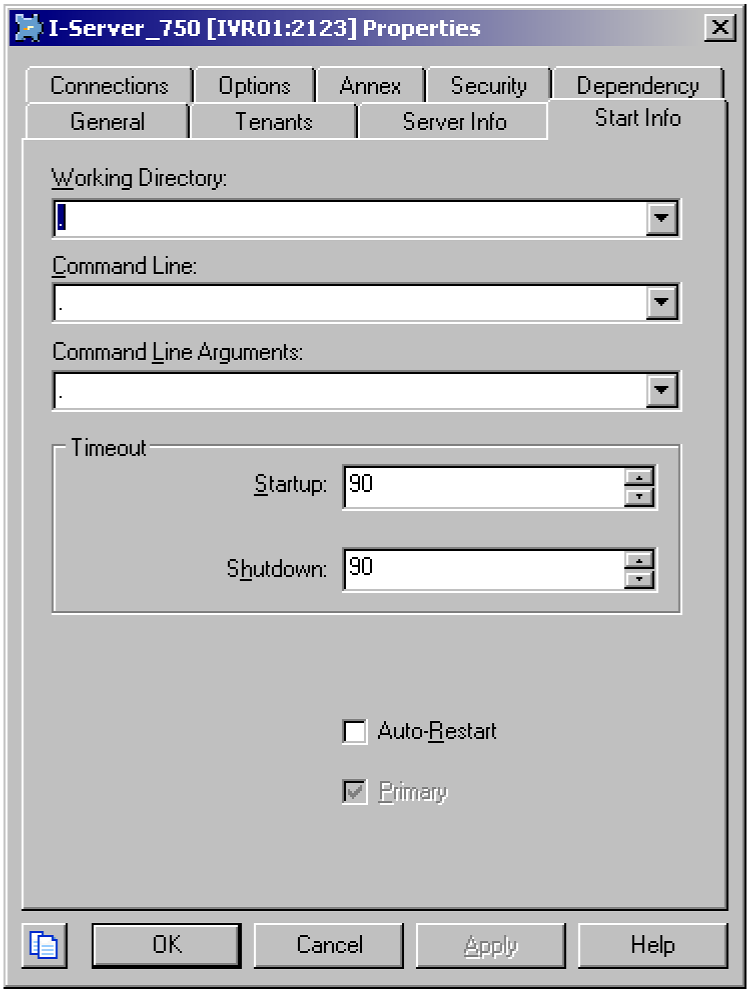
☑ State Enabled

Figure 64: New I-Server_750 Properties Dialog Box—General Tab

3. In the `Name` box, enter a unique name for the `I-Server` application.

Note: The name must not contain spaces.

4. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.
5. Click `Apply` to save your changes on this tab.
6. Click the `Start Info` tab (see Figure 65).



Working Directory: .

Command Line: .

Command Line Arguments: .

Timeout

Startup: 90

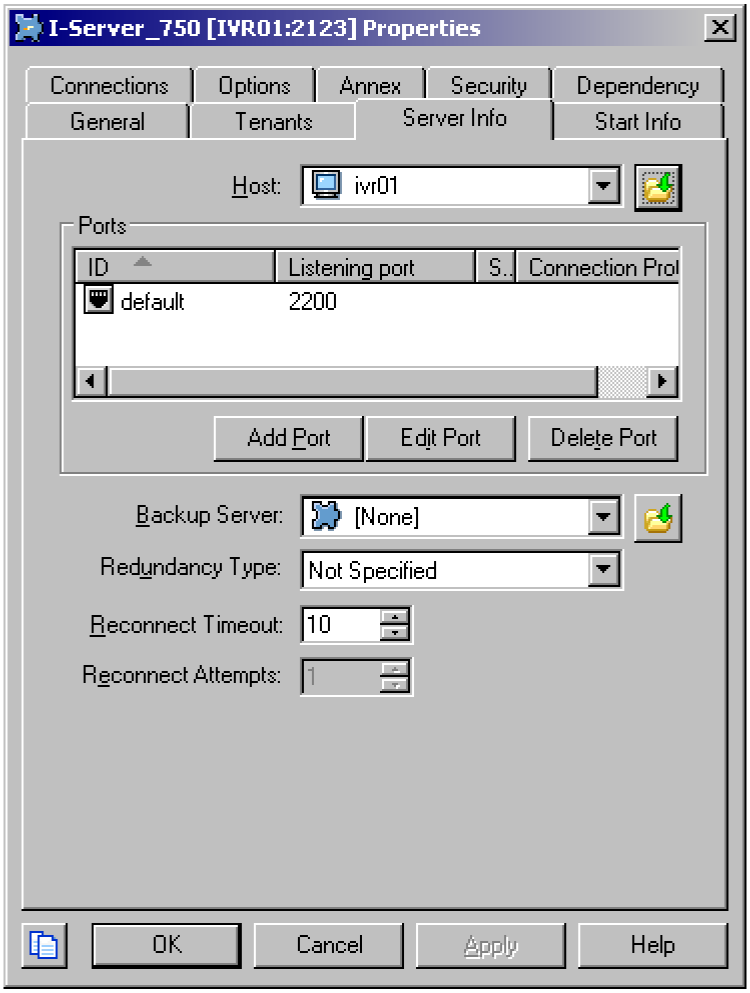
Shutdown: 90

□ Auto-Restart

☑ Primary

Figure 65: I-Server_750 Properties Dialog Box—Start Info Tab

7. Enter a single period (.) in the following boxes:
   - `Working Directory`
   - `Command Line`
   - `Command Line Arguments`
8. In the `Startup` and `Shutdown` boxes, accept the default values.
9. Make sure that the `Auto-Restart` check box is not selected.
10. Click `Apply` to save your changes on this tab.
11. Click the `Server Info` tab (see Figure 66).



I-Server_750 [IVR01:2123] Properties

Host: ivr01

ID	Listening port	S..	Connection Prot
default	2200		

Backup Server: [None]

Redundancy Type: Not Specified

Reconnect Timeout: 10

Reconnect Attempts: 1

Figure 66: I-Server_750 Properties Dialog Box—Server Info Tab

12. In the `Host` box, select the host on which the `I-Server` application is running.
13. In the `Ports` box, enter a number for the port. The port number should be set as “`0`” or “.”.
14. In the `Backup Server` box, select the server that should be contacted if the connection to the primary server fails. Currently, `None` is the only supported value.
15. In the `Redundancy Type` box, select the type of redundancy mode. The only supported value for the `I-Server` application is `Not Specified`.
16. In the `Reconnect Timeout` box, enter the amount of time (in seconds) that the client application waits between reconnection attempts after its connection with the server fails.
17. In the `Reconnect Attempts` box, enter the number of times that the client application attempts to connect to the primary server before it tries to connect to the backup server.

Note: This option is available only if a backup server is specified.

18. Click Apply to save your changes on this tab.
19. Click the Connections tab.
20. Define a connection from the I-Server application to the TServer_IVR application, and, optionally, to the T-Server (for IVR-Behind-Switch mode only), Message Server (for centralized logging), and Stat Server.

Note: For information about defining connections, see "Adding Connections for the I-Server Application" on page 107.

21. Click Apply to save your changes on this tab.
22. Click the Options tab (see Figure 67).

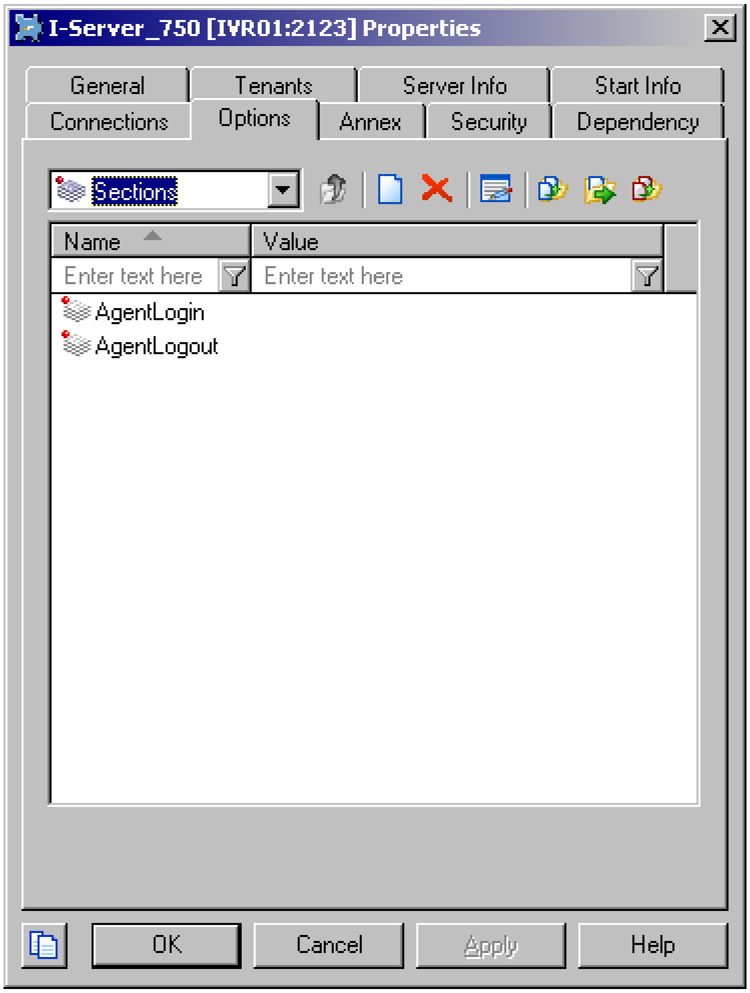


Figure 67: I-Server_750 Properties Dialog Box—Options Tab

23. If you want to use Load Balancing, configure a LoadBalance section.

24. If you want to gather statistics, configure a `stat:<stat name>` section.
25. If you want to use routing, configure a `VirtualRoutePoints` section.

> **Note:** For information about the options on the `Options` tab, see “I-Server Options” on page 252.

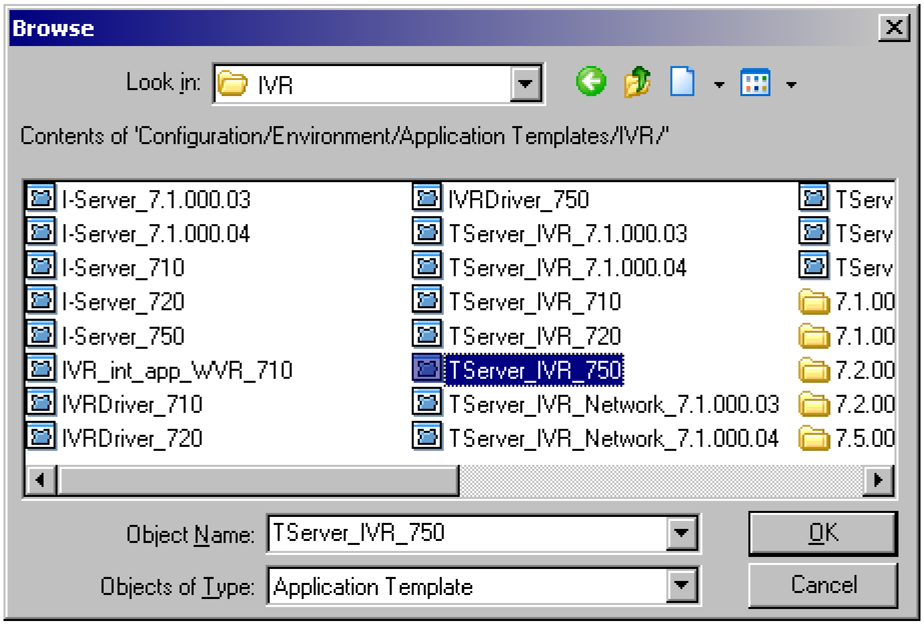
26. Click `Apply` to save your changes on this tab.
27. Click `OK` to complete the configuration of the `I-Server` application.

Configuring the TServer_IVR Application

> **Note:** The `TServer_IVR` application is required only for the IVR-In-Front and IVR-Behind-Switch configurations. It is not used for the IVR Network T-Server configuration.

To configure the `TServer_IVR` application in Configuration Manager:

1. Expand `Environment`, right-click `Applications`, and select `New > Application`. The `Browse` dialog box appears (see Figure 68).



Browse

Look in: IVR

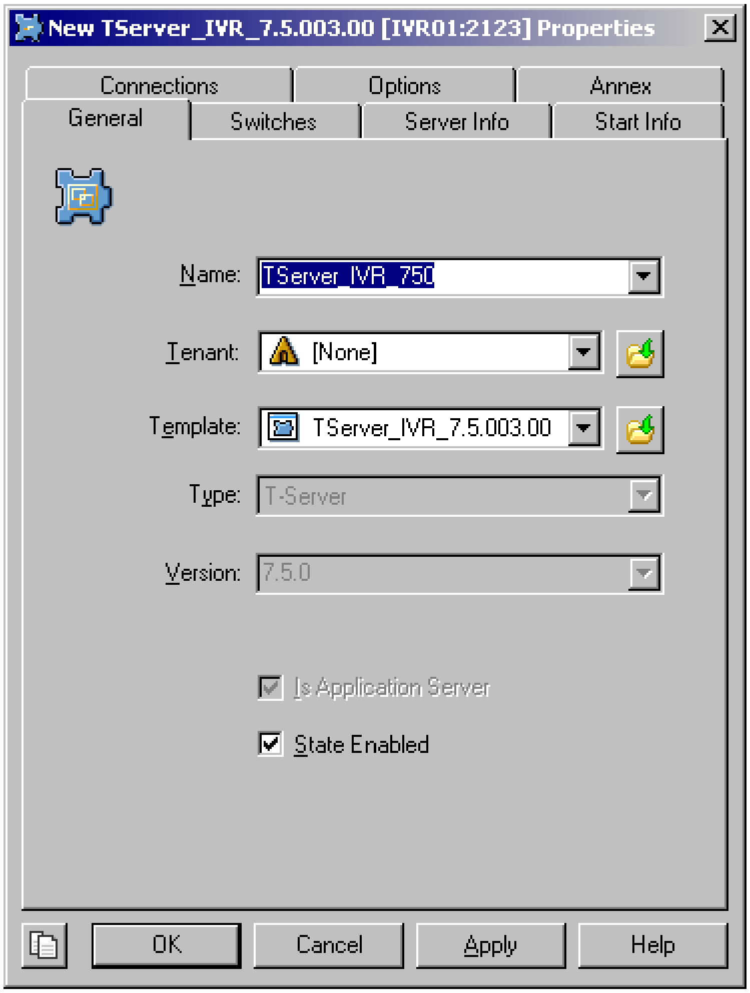
Contents of 'Configuration/Environment/Application Templates/IVR/'

Object Name: TServer_IVR_750

Objects of Type: Application Template

Figure 68: Browse Dialog Box

2. Select `TServer_IVR_750`, and then click `OK`. The `New TServer_IVR_750 Properties` dialog box appears, with the `General` tab displayed (see Figure 69).



Name: TServer_IVR_750

Tenant: [None]

Template: TServer_IVR_7.5.003.00

Type: T-Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 69: New TServer_IVR_750 Properties Dialog Box—General Tab

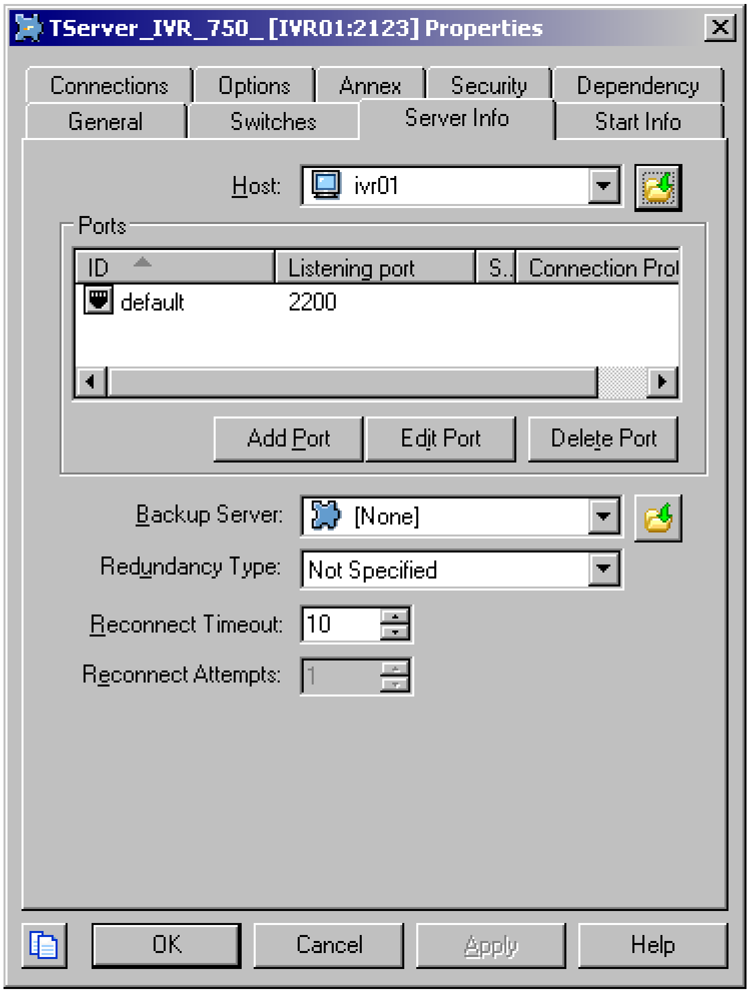
3. In the `Name` box, enter a unique name for the `TServer_IVR` application.

> **Note:** The name must not contain spaces.

4. In the `Tenant` box, select the applicable tenant.

> **Note:** The `Tenant` box is available only if you are in a multi-tenant environment.

5. In the `Template` box, select the applicable template.
6. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.
7. Click `Apply` to save your changes on this tab.
8. Click the `Server Info` tab (see Figure 70).



Host: ivr01

ID	Listening port	S.	Connection Prot
default	2200		

Backup Server: [None]

Redundancy Type: Not Specified

Reconnect Timeout: 10

Reconnect Attempts: 1

Figure 70: TServer_IVR_750 Properties Dialog Box—Server Info Tab

9. In the Host box, select the host on which the TServer_IVR application is running.

10. In the Ports box, add the unique number of the port to which T-Library clients and IVR ports connect.

11. In the Backup Server box, select the server that should be contacted if the connection to the primary server fails. Currently, None is the only supported value.

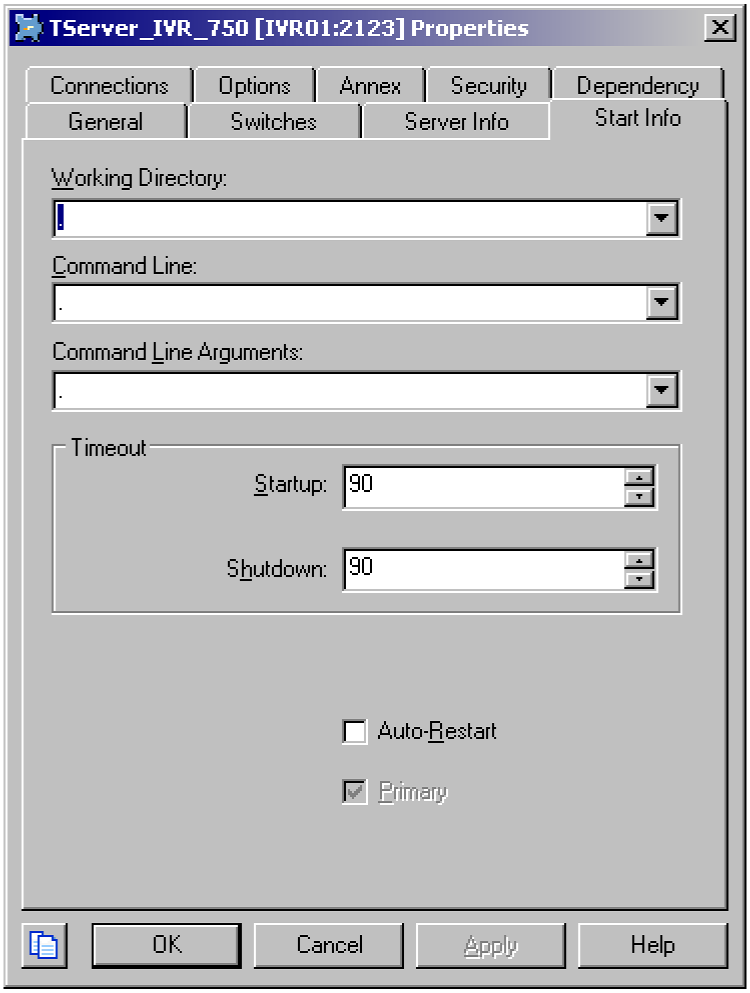
12. In the Redundancy Type box, select the type of redundancy mode. The only supported value for TServer_IVR applicaiton is Not Specified.

13. In the Reconnect Timeout box, enter the amount of time (in seconds) that the client application waits between reconnection attempts after its connection with the server fails.

14. In the Reconnect Attempts box, enter the number of times that the client application attempts to connect to the primary server before it tries to connect to the backup server.

Note: This option is available only if a backup server is specified.

15. Click Apply to save your changes on this tab.
16. Click the Start Info tab (see Figure 71).



TServer_IVR_750 [IVR01:2123] Properties

Working Directory:

Command Line:

Command Line Arguments:

Timeout

Startup: 90

Shutdown: 90

☐ Auto-Restart

☑ Primary

Figure 71: TServer_IVR_750 Properties Dialog Box—Start Info Tab

17. In the Working Directory box, enter the full path to the directory in which this application is installed. The recommended installation directory path is:
    - For UNIX: /home/gcti/TServer_IVR_750
    - For Windows: c:\gcti\TServer_IVR_750
18. In the Command Line box, enter the command that is used to start this application:
    - For UNIX: nts_server
    - For Windows: nts_server.exe

19. In the `Command Line Arguments` box, enter values for the following command-line parameters:
    - `-host`: The host name of the Configuration Server.
    - `-port`: The port assigned to the Configuration Server.
    - `-app`: The name of the `TServer_IVR` application, as specified in Step 3. If the name contains blank spaces, you must enclose it in double quotation marks.
20. In the `Startup` and `Shutdown` boxes, enter the time intervals (in seconds) during which this application is expected to start and shut down.
21. Make sure that the `Auto-Restart` check box is not selected.
22. Click `Apply` to save your changes on this tab.
23. Click the `Connections` tab.

Note: Connections to other T-Servers are required only if you have multi-site routing. For more information, see Chapter 3 on page 43.

24. To add a server, see “Adding Servers” on page 196.
25. Click `Apply` to save your changes on this tab.
26. Click the `Options` tab (see Figure 72).

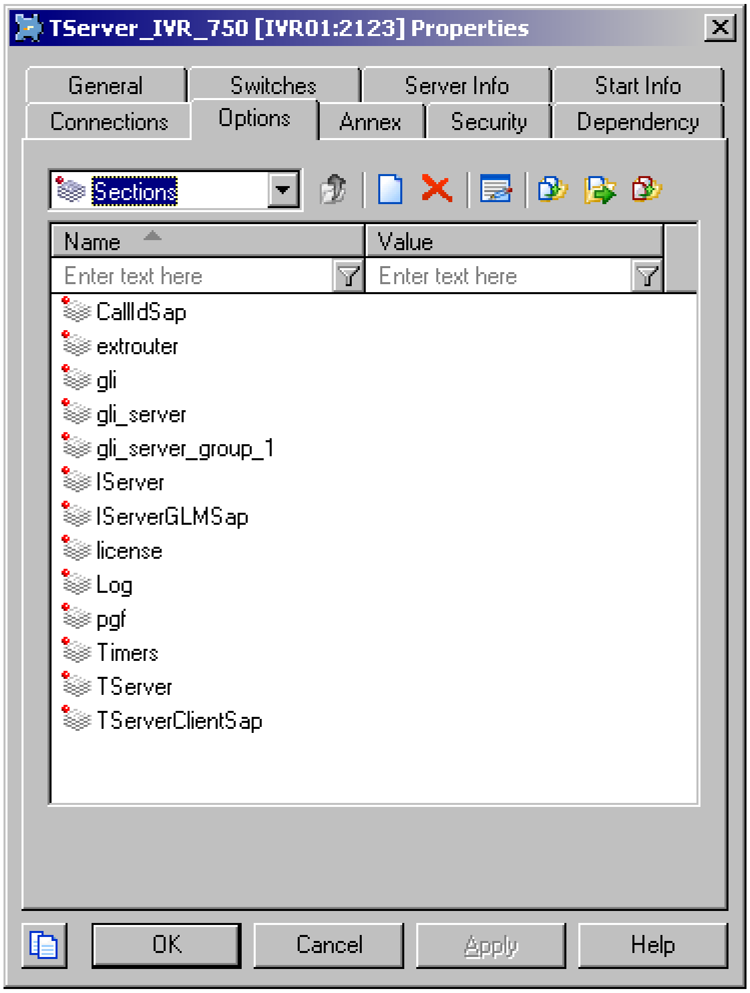


Figure 72: TServer_IVR_750 Properties Dialog Box—Options Tab

27. You must configure the following options:

- `gli_server_address` in the `gli_server_group_1` section
- `app_name` in the `IServer` section
- `license-file` in the `license` section
- `operation-mode` in the `IServerGLMSap` section

Note: In most cases, you can use the default values for the other options. For option descriptions, see "TServer_IVR Options" on page 241.

To configure or edit the value for an option:

a. Do one of the following:

- Double-click either the section name or option name.
- Click the `Create New Section/Option` button.

b. Enter the option name and option value.

c. Click `OK`.

If you want to create a new section, click the Create New Section/Option button, enter the section name, and click OK.

28. Click Apply to save your changes on this tab.

29. Click the Switches tab (see Figure 73).

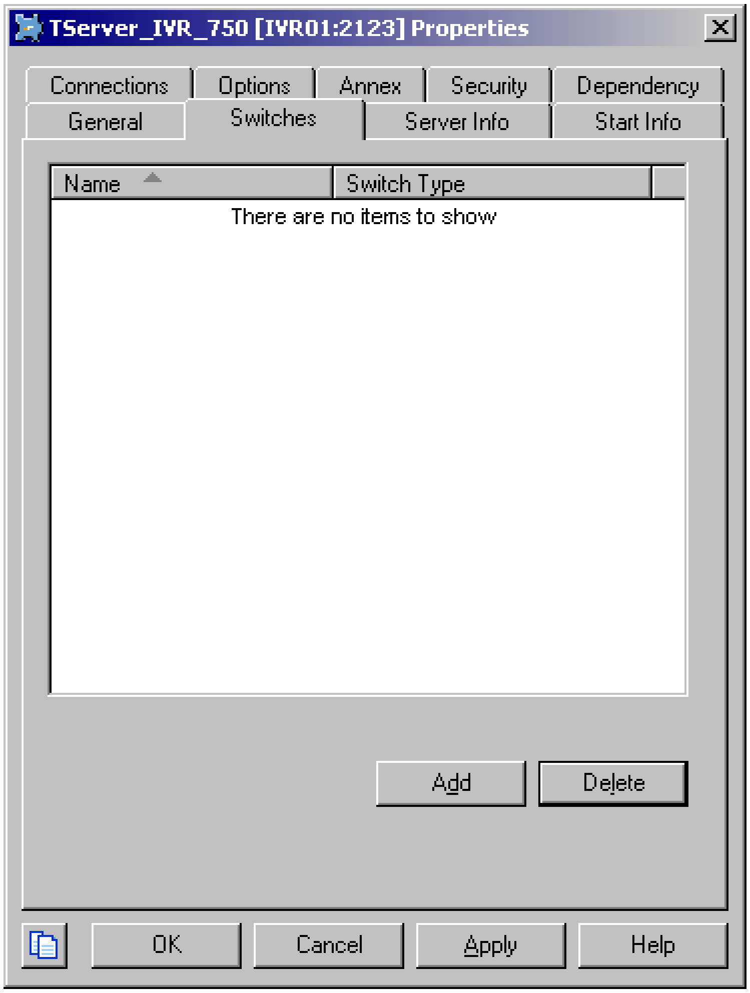
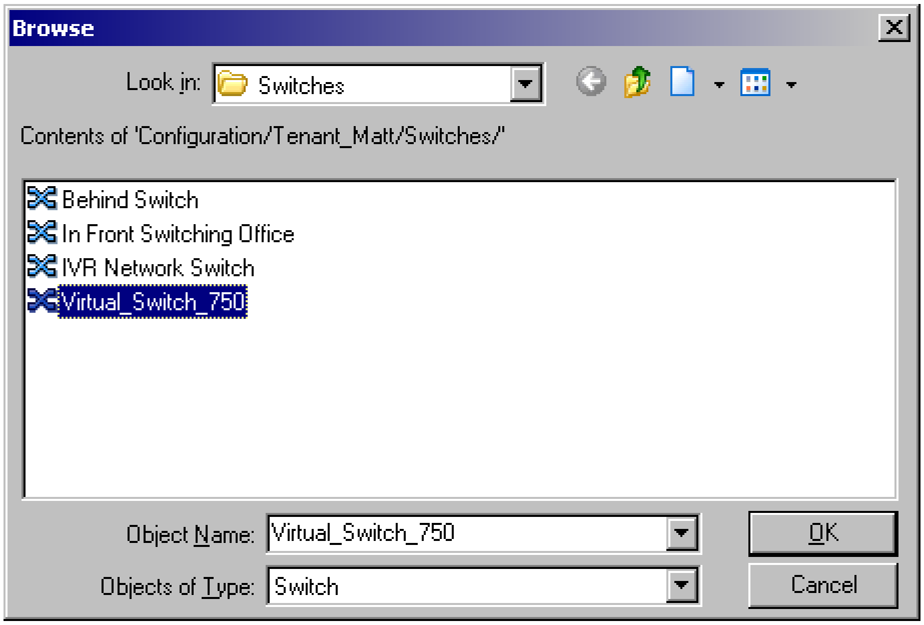


Figure 73: TServer_IVR_750 Properties Dialog Box—Switches Tab

30. To add a virtual switch for the TServer_IVR application, click Add. The Browse dialog box appears (see Figure 74).



Browse

Look in: Switches

Contents of 'Configuration/Tenant_Matt/Switches/'

- Behind Switch
- In Front Switching Office
- IVR Network Switch
- Virtual_Switch_750

Object Name: Virtual_Switch_750

Objects of Type: Switch

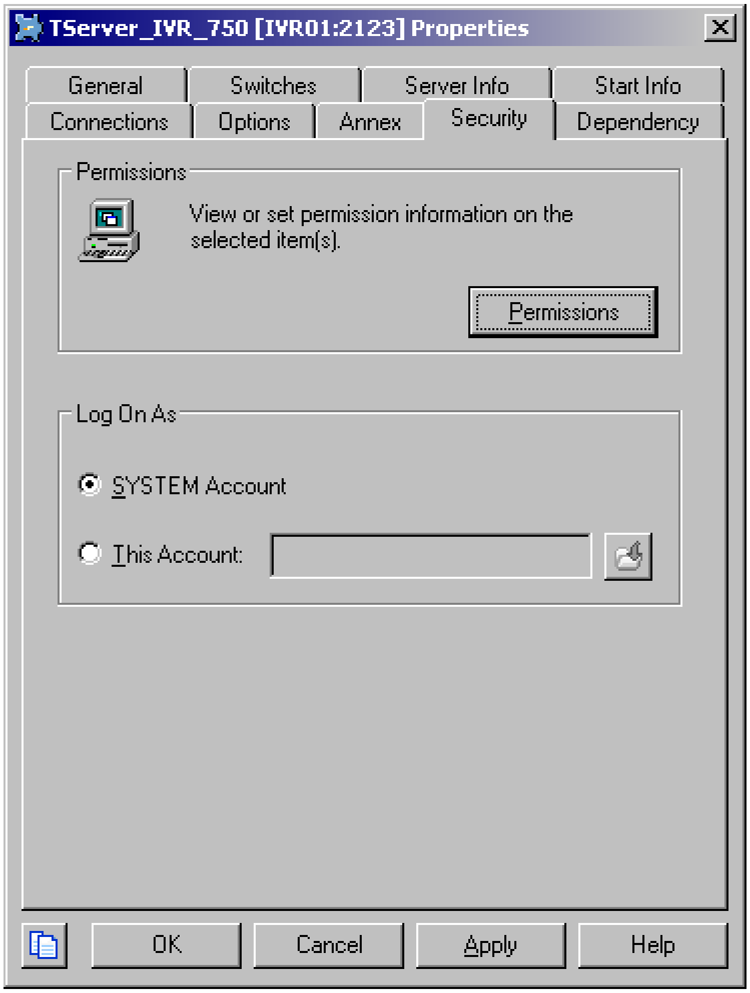
Figure 74: Browse Dialog Box—Virtual Switch

31. Select a virtual switch, and then click OK. You are returned to the TServer_IVR_750 Properties dialog box, which now displays the virtual switch that you selected.
32. Click Apply to save your changes on this tab.
33. Click OK to complete the configuration of the TServer_IVR application.

Setting TServer_IVR Application Account Permissions

To set account permissions for the TServer_IVR application in Configuration Manager:

1. Double-click the TServer_IVR icon. The TServer_IVR_750 Properties dialog box appears.
2. Click the Security tab (see Figure 75).



Permissions

View or set permission information on the selected item(s).

Log On As

● SYSTEM Account

○ This Account:

Figure 75: TServer_IVR_750 Properties Dialog Box—Security Tab

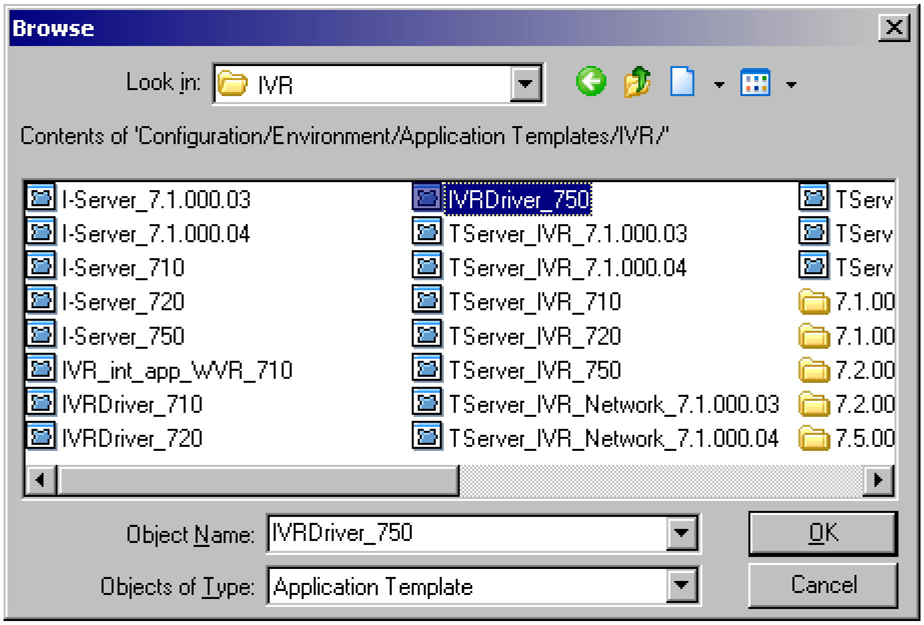
3. Click Permissions to set permissions for the TServer_IVR application.
4. Select This Account, and then enter the login information.
5. Click OK.

Configuring the IVR_Driver Application

Note: The IVR_Driver application is required only for the IVR-In-Front and IVR-Behind-Switch configurations. However, it cannot be used with the IVR Drivers for Aspect and CONVERSANT. For information about how to configure these IVR Drivers, see the *IVR Interface Option 7.5 System Administrator's Guide* for each one.

To configure the IVR_Driver application in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. The Browse dialog box appears (see Figure 76).



Browse

Look in: IVR

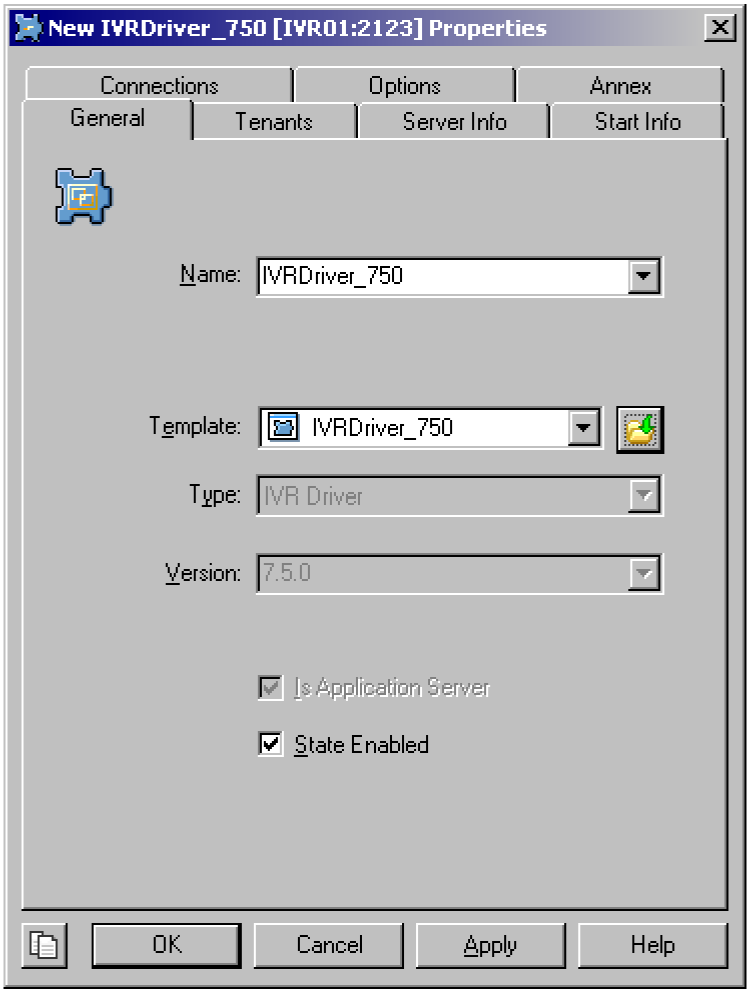
Contents of 'Configuration/Environment/Application Templates/IVR/'

Object Name: IVRDriver_750

Objects of Type: Application Template

Figure 76: Browse Dialog Box

2. Select IVR_Driver_750, and then click OK. The New IVR_Driver_750 Properties dialog box appears, with the General tab displayed (see Figure 77).



New IVRDriver_750 [IVR01:2123] Properties

Name: IVRDriver_750

Template: IVRDriver_750

Type: IVR Driver

Version: 7.5.0

☑ Is Application Server

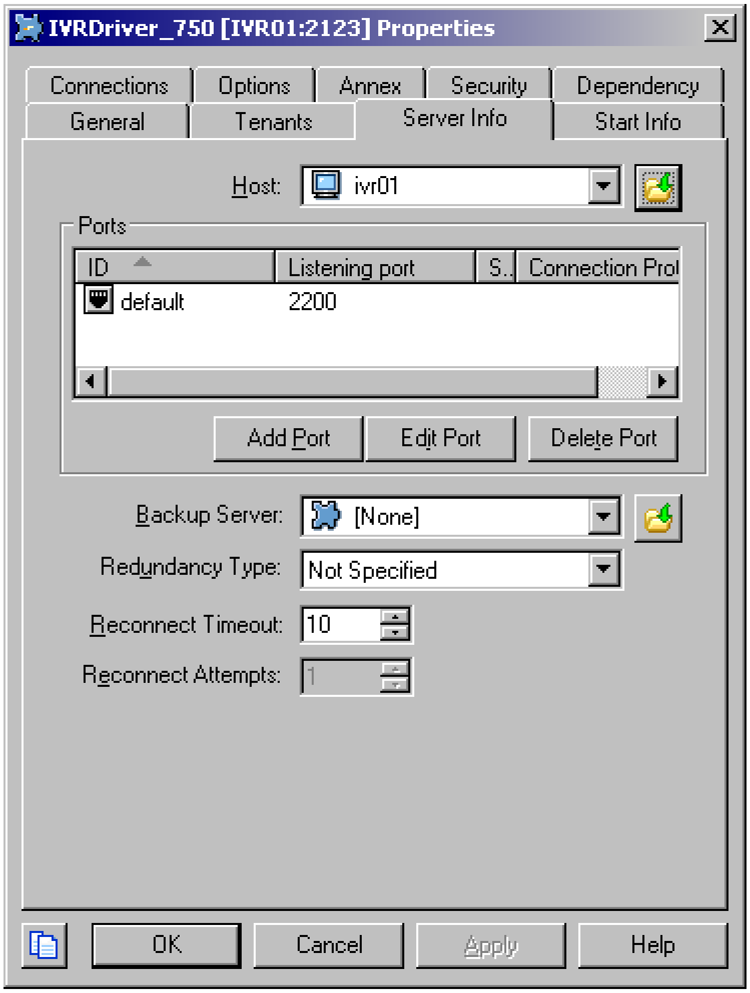
☑ State Enabled

Figure 77: New IVR_Driver_750 Properties Dialog Box—General Tab

3. In the `Name` box, enter a unique name for the `IVR_Driver` application.

Note: The name must not contain spaces.

4. In the `Template` box, select the applicable template.
5. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.
6. Click `Apply` to save your changes on this tab.
7. Click the `Server Info` tab (see Figure 78).



IVRDriver_750 [IVR01:2123] Properties

Host: ivr01

Ports

ID	Listening port	S..	Connection Prot
default	2200		

Backup Server: [None]

Redundancy Type: Not Specified

Reconnect Timeout: 10

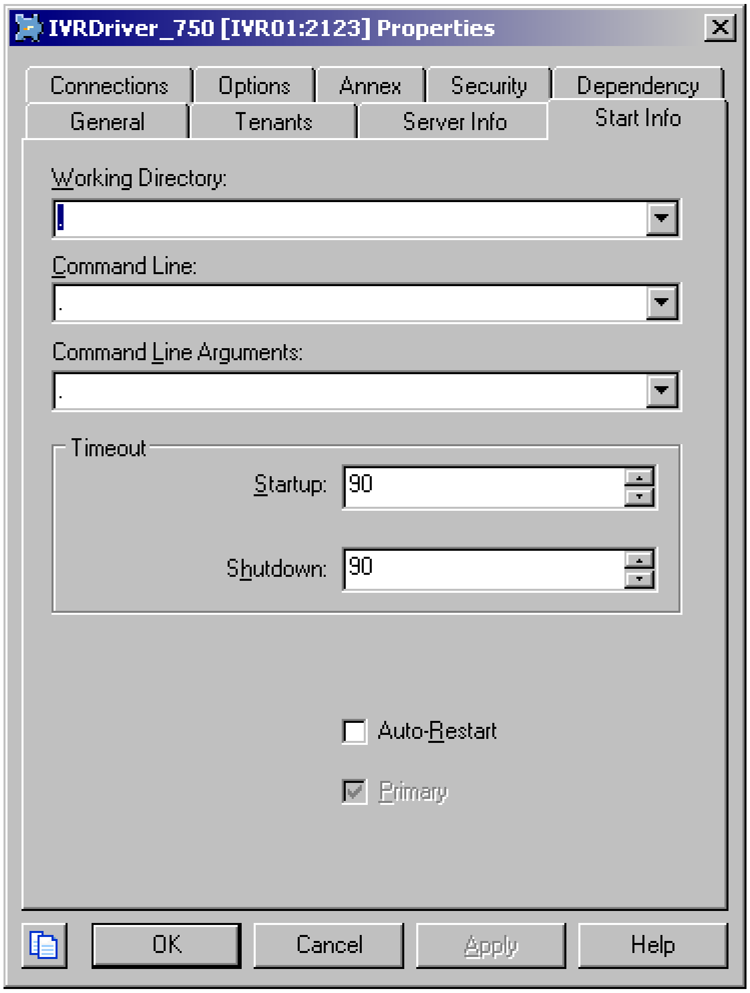
Reconnect Attempts: 1

Figure 78: IVR_Driver_750 Properties Dialog Box—Server Info Tab

8. In the `Host` box, select the host on which the `IVR_Driver` application is running.
9. In the `Ports` box, add the unique number of the port to which T-Library clients connect.
10. In the `Backup Server` box, select the server that should be contacted if the connection to the primary server fails. Currently, `None` is the only supported value.
11. In the `Redundancy Type` box, select the type of redundancy mode. The only supported value for the `IVR_Driver` application is `Not Specified`.
12. In the `Reconnect Timeout` box, enter the amount of time (in seconds) that the client application waits between reconnection attempts after its connection with the server fails.
13. In the `Reconnect Attempts` box, enter the number of times that the client application attempts to connect to the primary server before it tries to connect to the backup server.

Note: This option is available only if a backup server is specified.

14. Click Apply to save your changes on this tab.
15. Click the Start Info tab (see Figure 79).



IVRDriver_750 [IVR01:2123] Properties

Working Directory: .

Command Line: .

Command Line Arguments: .

Timeout

Startup: 90

Shutdown: 90

□ Auto-Restart

☑ Primary

Figure 79: IVR_Driver_750 Properties Dialog Box—Start Info Tab

16. Enter a single period (.) in the following boxes:
    - Working Directory
    - Command Line
    - Command Line Arguments
17. In the Startup and Shutdown boxes, enter time intervals (in seconds) during which this application is expected to start and shut down.
18. Make sure that the Auto-Restart check box is not selected.
19. Click Apply to save your changes on this tab.
20. Click the Connections tab.

Note: Only a connection to the Message Server is required for the `IVR_Driver` application.

21. To add a server, see “Adding Servers” on page 196.
22. Click `Apply` to save your changes on this tab.
23. Click the `Options` tab (see Figure 80).

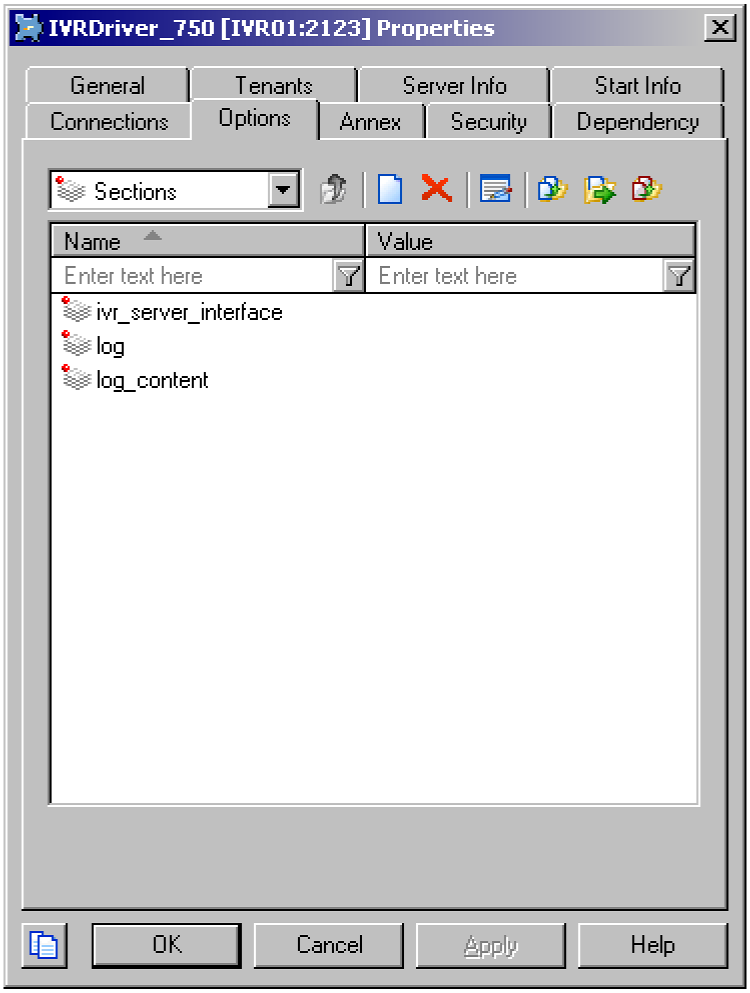


Figure 80: IVR_Driver_750 Properties Dialog Box—Options Tab

24. Configure the `load_sharing_iservers` options in the `ivr_server_interface` section.

Note: In most cases, you can use the default values for the other options. For option descriptions, see “IVR_Driver Options” on page 257, and “Common Log Options” on page 227.

To configure or edit the value for an option:

a. Do one of the following:

- Double-click either the section name or option name.
- Click the `Create New Section/Option` button.

b. Enter the option name and option value.

c. Click `OK`.

If you want to create a new section, click the `Create New Section/Option` button, enter the section name, and click `OK`.

25. Click `Apply` to save your changes on this tab.

26. Click `OK` to complete the configuration of the `IVR_Driver` application.

Setting IVR_Driver Application Account Permissions

To set account permissions for the `IVR_Driver` application in Configuration Manager:

1. Double-click the `IVR_Driver` icon. The `IVRDriver_750 Properties` dialog box appears.

2. Click the `Security` tab (see Figure 81).

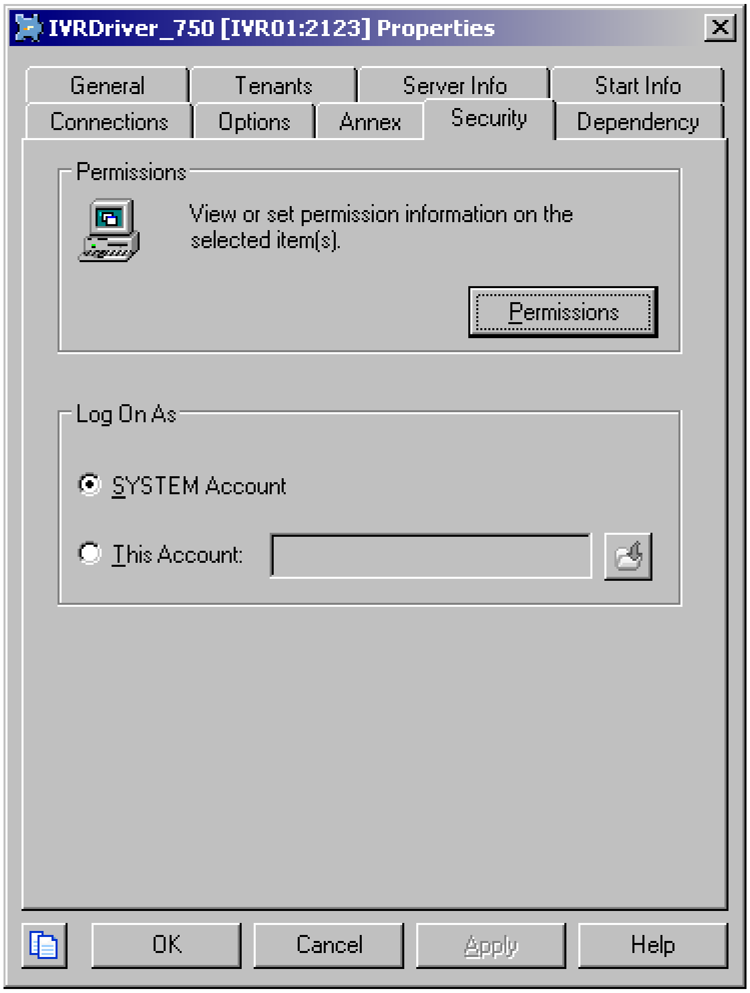


Figure 81: IVRDriver_750 Properties Dialog Box—Security Tab

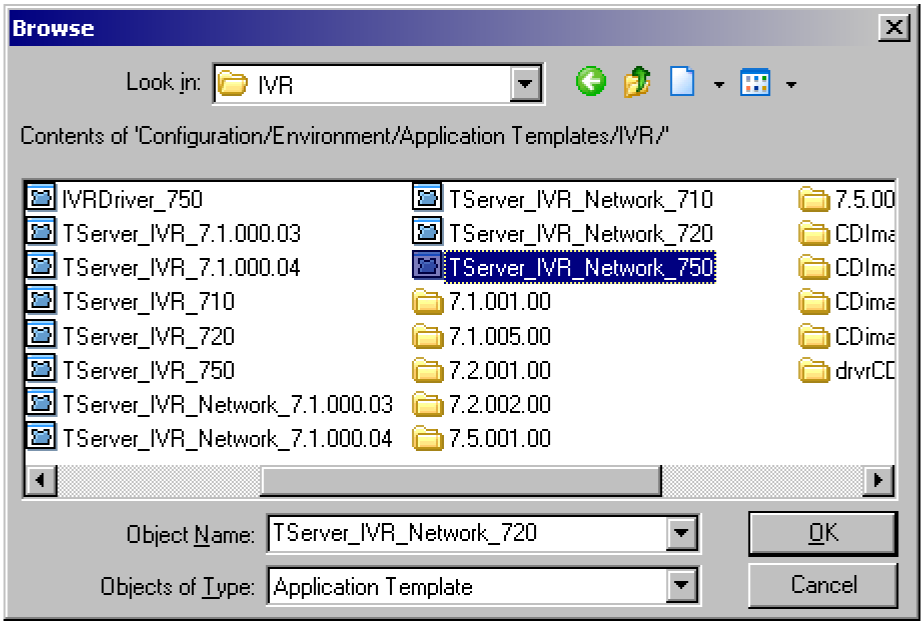
3. Click Permissions to set permissions for the IVR_Driver application.
4. Select This Account, and then enter the login information.
5. Click OK.

Configuring the TServer_IVR_Network Application

Note: The TServer_IVR_Network application is required only for the IVR Network T-Server configuration.

To configure the TServer_IVR_Network application in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. The Browse dialog box appears (see Figure 82).



Look in: IVR

Contents of 'Configuration/Environment/Application Templates/IVR/'

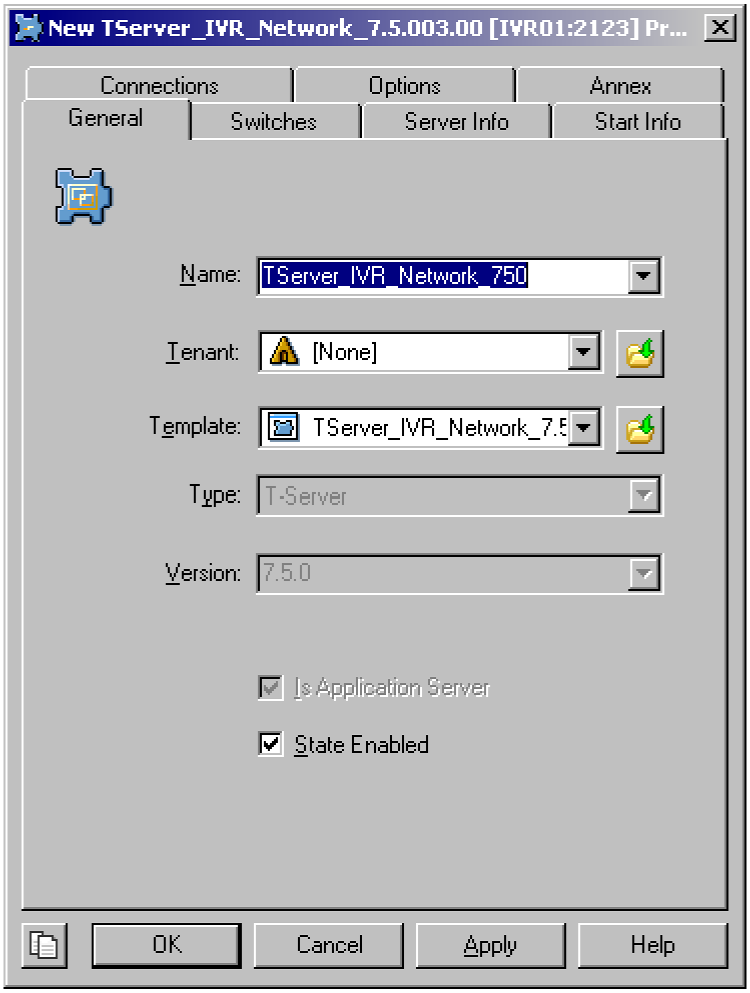
IVRDriver_750
TServer_IVR_7.1.000.03
TServer_IVR_7.1.000.04
TServer_IVR_710
TServer_IVR_720
TServer_IVR_750
TServer_IVR_Network_7.1.000.03
TServer_IVR_Network_7.1.000.04
TServer_IVR_Network_710
TServer_IVR_Network_720
TServer_IVR_Network_750
7.1.001.00
7.1.005.00
7.2.001.00
7.2.002.00
7.5.001.00
7.5.00
CDIma
CDIma
CDima
CDima
drvrCD

Object Name: TServer_IVR_Network_720

Objects of Type: Application Template

Figure 82: Browse Dialog Box

2. Select `TServer_IVR_Network_750`, and then click `OK`. The `New TServer_IVR_Network_750 Properties` dialog box appears, with the `General` tab displayed (see Figure 83).



Name: TServer_IVR_Network_750

Tenant: [None]

Template: TServer_IVR_Network_7.5

Type: T-Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 83: New TServer_IVR_Network_750 Properties Dialog Box—General Tab

3. In the `Name` box, enter a unique name for the `TServer_IVR_Network` application.

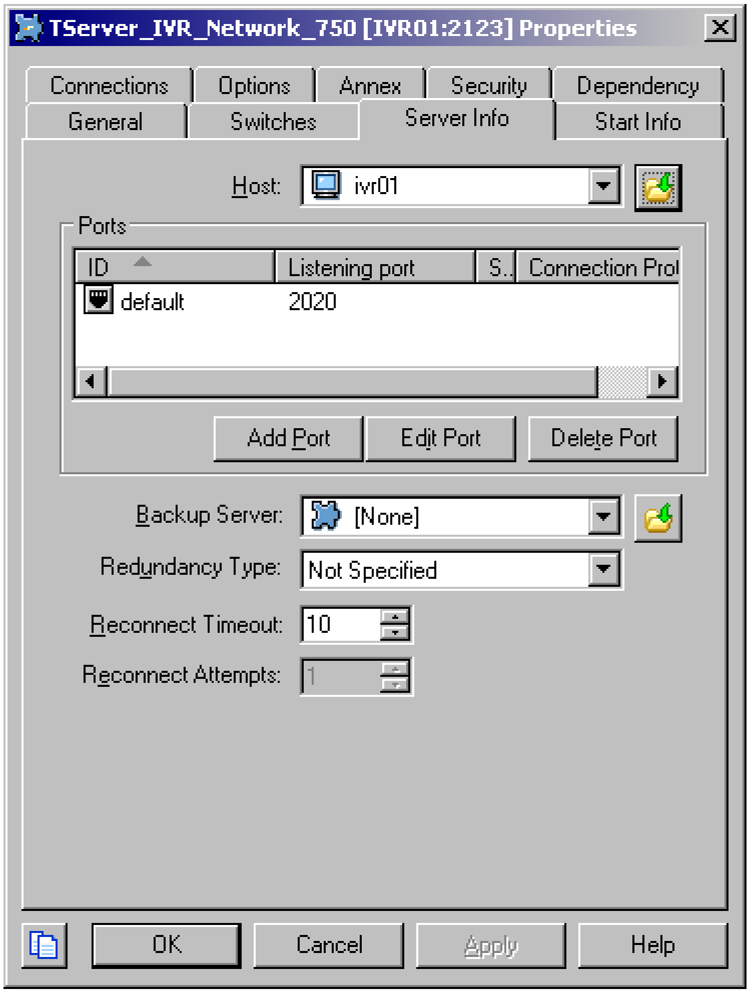
Note: The name must not contain spaces.

4. In the `Tenant` box, select the applicable tenant.

Note: The `Tenant` box is available only if you are in a multi-tenant environment.

5. In the `Template` box, select the applicable template.
6. Select the `State Enabled` check box to indicate that the object is in regular operating condition and can be used without restriction.
7. Click `Apply` to save your changes on this tab.

8. Click the `Server Info` tab (see Figure 84).



Host: ivr01

Ports

ID	Listening port	S..	Connection Prot
default	2020		

Backup Server: [None]

Redundancy Type: Not Specified

Reconnect Timeout: 10

Reconnect Attempts: 1

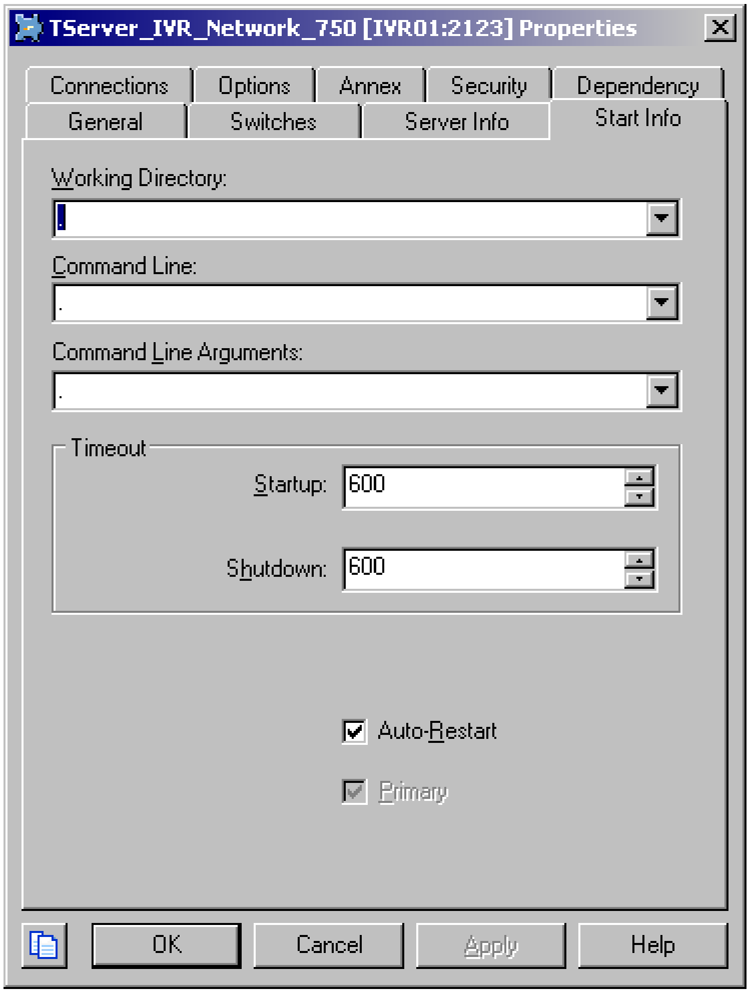
Figure 84: TServer_IVR_Network_750 Properties Dialog Box—Server Info Tab

9. In the `Host` box, select the host on which the `TServer_IVR_Network` application is running.
10. In the `Ports` box, add the unique port number of the port to which T-Library clients connect.
11. In the `Backup Server` box, select the server that should be contacted if the connection to the primary server fails. Currently, `None` is the only supported value.
12. In the `Redundancy Type` box, select the type of redundancy mode. The only supported value for the `TServer_IVR_Network` application is `Not Specified`.
13. In the `Reconnect Timeout` box, enter the amount of time (in seconds) that the client application waits between reconnection attempts after its connection with the server fails.

14. In the `Reconnect Attempts` box, enter the number of times that the client application attempts to connect to the primary server before it tries to connect to the backup server.

> **Note:** This option is available only if a backup server is specified.

15. Click `Apply` to save your changes on this tab.
16. Click the `Start Info` tab (see Figure 85).



Working Directory: .

Command Line: .

Command Line Arguments: .

Startup: 600

Shutdown: 600

☑ Auto-Restart

☑ Primary

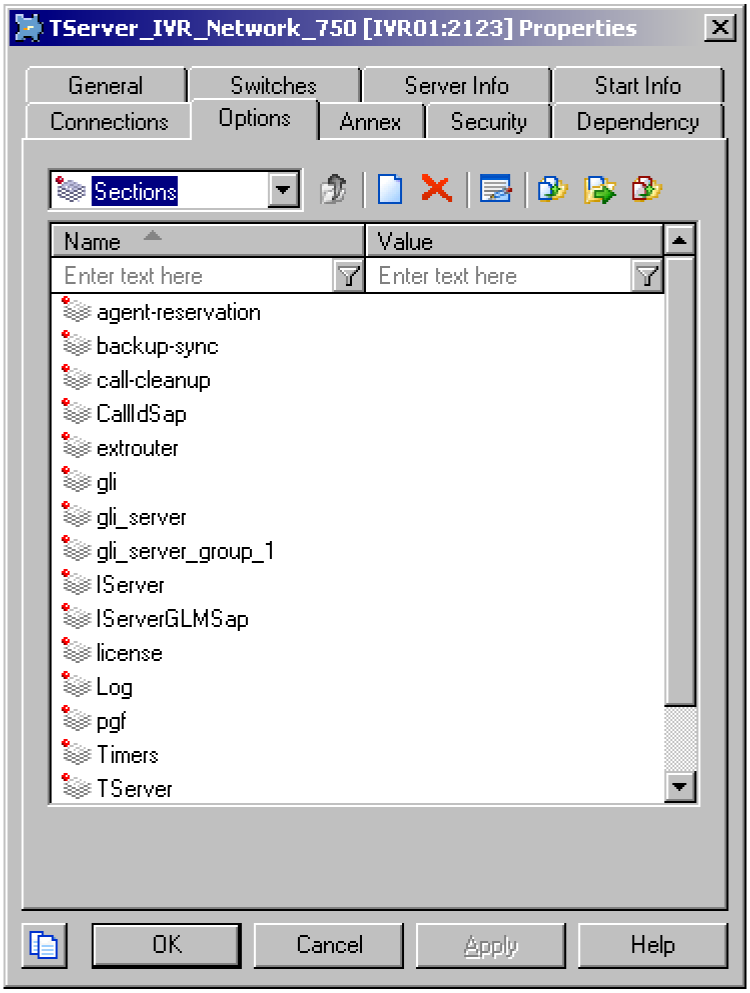
Figure 85: TServer_IVR_Network_750 Properties Dialog Box—Start Info Tab

17. In the `Working Directory` box, enter the full path to the directory in which this application is installed. The recommended installation directory path is:
    - For UNIX: `/home/gcti/TServer_IVR_750`
    - For Windows: `c:\gcti\TServer_IVR_750`

18. In the Command Line box, enter the command that is used to start this application:
    - For UNIX: nts_server
    - For Windows: nts_server.exe
19. In the Command Line Arguments box, enter values for the following command-line parameters:
    - -host: The host name of the Configuration Server.
    - -port: The port assigned to the Configuration Server.
    - -app: The name of the TServer_IVR_Network application, as specified in Step 3. If the name contains blank spaces, you must enclose it in double quotation marks.
20. In the Startup and Shutdown boxes, enter the time intervals (in seconds) during which this application is expected to start and shut down.
21. Make sure that the Auto-Restart check box is not selected.
22. Click Apply to save your changes on this tab.
23. Click the Connections tab.

Note: You must configure a connection to the Network T-Server application. Connections to the Message Server and a Premise T-Server are optional.

24. To add a server, see “Adding Servers” on page 196.
25. Click Apply to save your changes on this tab.
26. Click the Options tab (see Figure 86).



agent-reservation
backup-sync
call-cleanup
CallIdSap
extrouter
gli
gli_server
gli_server_group_1
IServer
IServerGLMSap
license
Log
pgf
Timers
TServer

Figure 86: TServer_IVR_Network_750 Properties Dialog Box—Options Tab

27. You must configure the following options:
    - `gli_server_address` in the `gli_server_group_1` section
    - `license-file` in the `license` section
    - `operation-mode` in the `IServerGLMSap` section

Note: In most cases, you can use the defaults for the other options. For option descriptions, see "TServer_IVR Options" on page 241, and "Common Log Options" on page 227.

To configure or edit the value for an option:

a. Do one of the following:
   - Double-click either the section name or option name.
   - Click the `Create New Section/Option` button.

b. Enter the option name and option value.

c. Click `OK`.

If you want to create a new section, click the `Create New Section/Option` button, enter the section name, and click `OK`.

28. Click `Apply` to save your changes on this tab.
29. Click the `Switches` tab (see Figure 87).

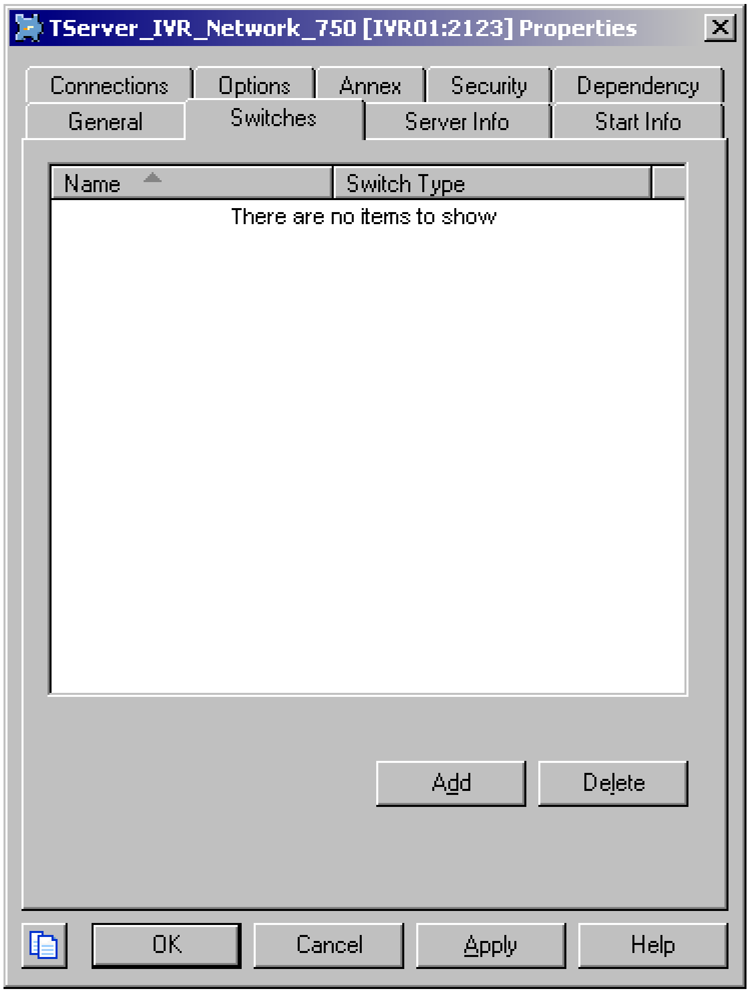


Figure 87: TServer_IVR_Network_750 Properties Dialog Box—Switches Tab

30. To add a network switch for the `TServer_IVR_Network` application, click `Add`. The `Browse` dialog box appears (see Figure 88).

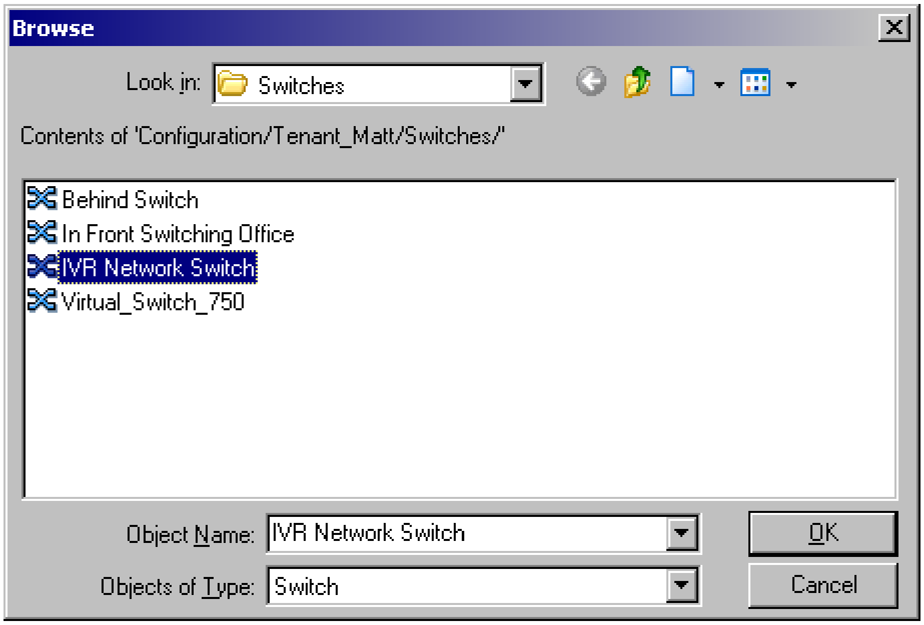


Figure 88: Browse Dialog Box—Network Switch

31. Select a network switch, and then click OK. You are returned to the TServer_IVR_Network Properties dialog box, which now displays the network switch that you selected.
32. Click Apply to save your changes on this tab.
33. Click OK to complete the configuration of the TServer_IVR_Network application.

Setting TServer_IVR_Network Application Account Permissions

To set account permissions for the TServer_IVR_Network application in Configuration Manager:

1. Double-click the TServer_IVR_Network icon. The TServer_IVR_Network_750 Properties dialog box appears.
2. Click the Security tab (see Figure 89).

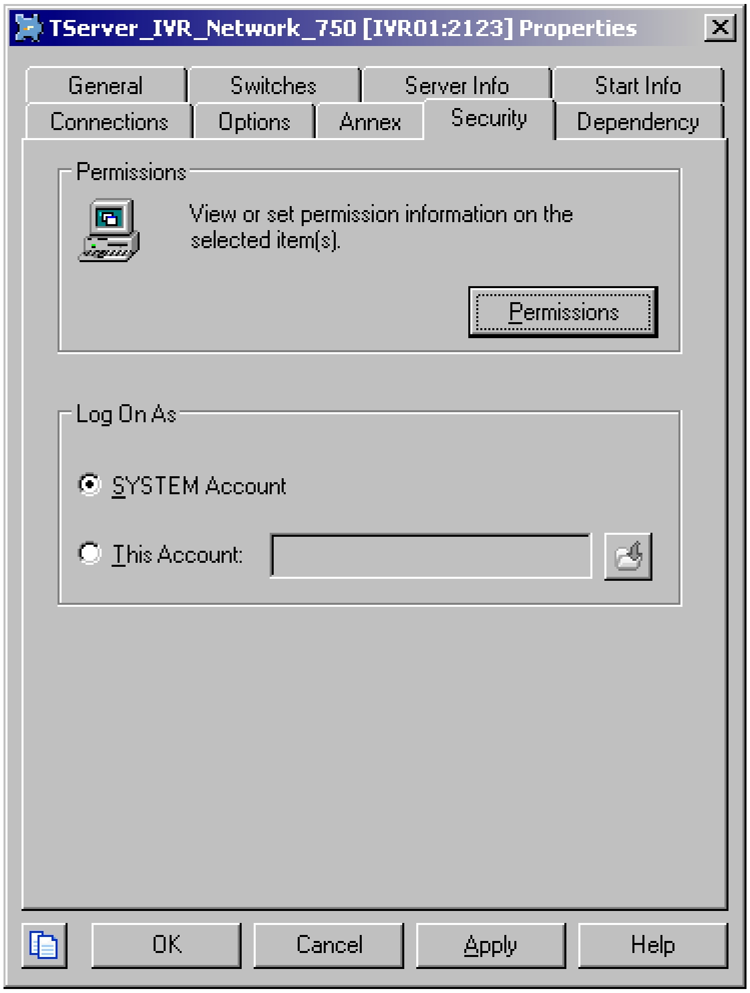


Figure 89: TServer_IVR_Network_750 Properties Dialog Box—Security Tab

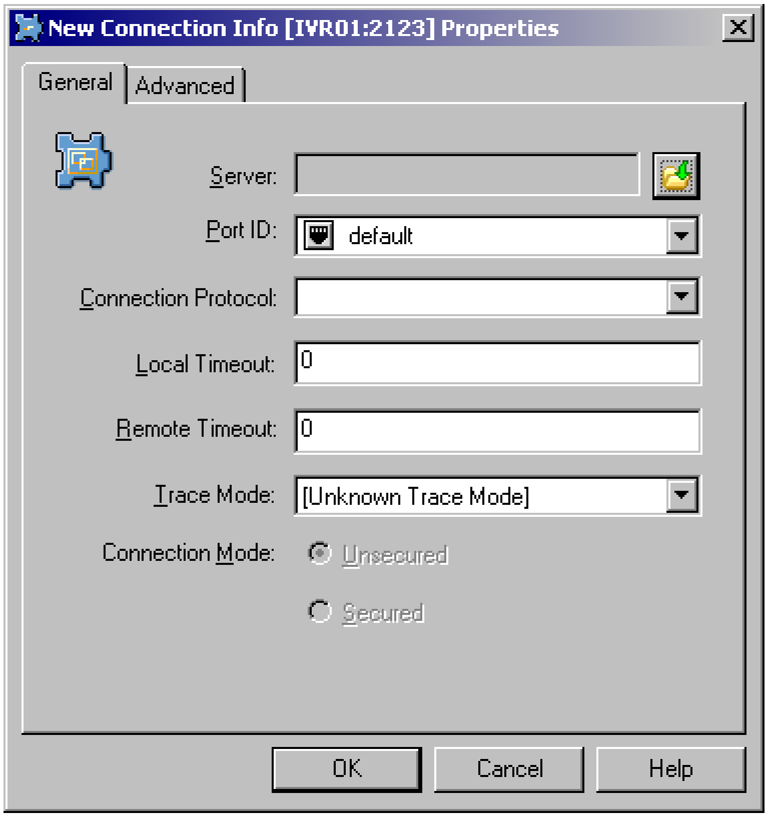
3. Click `Permissions` to set permissions for the `TServer_IVR_Network` application.
4. Select `This Account`, and then enter the login information.
5. Click `OK`.

Adding Servers

You can add servers on the `Connections` tab of the `New Application Properties` dialog box.

To add a server:

1. Click `Add`. The `New Connection Info Properties` dialog box appears (see Figure 90).



New Connection Info [IVR01:2123] Properties

Server:

Port ID: default

Connection Protocol:

Local Timeout: 0

Remote Timeout: 0

Trace Mode: [Unknown Trace Mode]

Connection Mode: ● Unsecured ○ Secured

Figure 90: New Connection Info Properties Dialog Box

2. Click the `Folder` icon next to the `Server` box to display a list of server applications.
3. Select the applicable server, and then click `OK`.
4. In the `Connection Protocol` box, enter the connection control protocol.
5. In the `Local Timeout` box, enter the heartbeat polling interval on the client side; in the `Remote Timeout` box, enter the heartbeat polling interval on the server side.
6. In the `Trace Mode` box, select the trace mode.
7. Click `OK` to add the server.

Chapter

8 Starting and Stopping IVR Server

This chapter describes how to start and stop IVR Server, which you can can do only after you have properly installed and configured all the IVR Interface Option 7.5 components—for example, IVR Server and IVR Driver.

For information about installing and configuring IVR Server, see Chapter 5 on page 133 and Chapter 7 on page 143. For information about installing and configuring an IVR Driver, see the *IVR Interface Option 7.5 System Administrator's Guide* for your particular driver, or the documentation from the IVR Driver vendor.

This chapter contains the following sections:

Prestart Information

Genesys recommends the following:

- Use the Management Layer (the Solution Control Interface [SCI]) to start and stop IVR Server.
- If you are using network logging, start the Message Server before IVR Server.
- Start IVR Server before IVR Driver.

Starting IVR Server

After you install and configure the IVR Interface Option 7.5 components, you can start IVR Server on either UNIX or Windows operating systems.

Note: Although you must configure two applications for IVR Server: I-Server and TServer_IVR, you need to start and stop only TServer_IVR, not I-Server.

UNIX

To start IVR Server on UNIX, enter one of the following commands at the command line:

```
run.sh
nts_server -host host_name -port port_number -app app_name -nco X/Y
```

In the second command, the command-line parameters are used as follows:

-host	The value following this key is the actual host name.
-port	The value following this key is the actual port name.
-app	The value following this key is the actual application name.
-nco X/Y	Enables the Nonstop Operation feature: X exceptions occurring within Y seconds do not cause an application to close. If the specified number of exceptions is exceeded within the specified number of seconds, the application closes or, if it is configured to do so, the Management Layer restarts the application. If the -nco parameter is not specified, the default value of 6 exceptions handled in 10 seconds is used. To disable the Nonstop Operation feature, specify -nco 0 in the start command.

Note: You can also add the license file name to the startup command, by using the -l parameter. However, Genesys recommends that you enter license information on the Options tab of the TServer_IVR application's Properties dialog box.

Windows

To start IVR Server on Windows, enter the following command at the command line:

```
nts_server -host host_name -port port_number -app app_name
```

The command-line parameters are used as follows:

-host	The value following this key is the actual host name.

`-port` The value following this key is the actual port name.

`-app` The value following this key is the actual application name.

Note: You can also add the license file name to the startup command, by using the `-l` parameter. However, Genesys recommends that you enter license information on the `Options` tab of the `TServer_IVR` application's `Properties` dialog box.

Stopping IVR Server

After you start the IVR Interface Option 7.5 components, you can stop IVR Server on either UNIX or Windows operating systems.

UNIX

To stop IVR Server on UNIX, enter the following command at the command line:

```
ps -ef | grep nts_server
kill -9 <process_id>
```

Windows

To stop IVR Server on Windows:

1. Open the Task Manager.
2. Select the `nts_server.exe` process.
3. Click `End Task`.

Starting and Stopping with Windows Services Manager

When you start an application that is installed as a Windows Service, make sure that you correctly specify the startup parameters of the application in the `ImagePath`, in the `Application` folder in the `Registry Editor`. The `ImagePath` must have the following value data:

```
<full path>\<executable file name> -service <Application Name as
Service> -host <Configuration Server host>
-port <Configuration Server port> -app <Application Name>
-l <license address>
```

For the command-line parameters that are common to Framework server components, see page 200 and the following:

`-service` The value following this key is the name of the application that is running as a Windows Service; typically, it matches the application name that is specified in the `-app` command-line parameter.

Framework components that are installed as Windows Services with the autostart capability are automatically started each time the computer on which they are installed is restarted.

To start Framework components that are installed as Windows Services with the manual start capability, click `Start` in `Services Manager`.

Regardless of a component's start mode, you can stop Framework components that are installed as Windows Services by clicking `Stop` in `Services Manager`.

Note: Use the `Windows Services` dialog box to change the startup mode from `Automatic` to `Manual`, and vice versa.

Chapter

9

T-Server Common Configuration Options

This chapter describes the configuration options that are common to all T-Server types. It contains the following sections:

T-Server also supports common log options described in Chapter 10, “Common Log Options,” on page 227.

You set configuration options in Configuration Manager in the corresponding sections on the `Options` tab for the T-Server Application object.

Mandatory Options

Except as noted for certain environments, the configuration of common options is not required for basic T-Server operation.

T-Server Section

The T-Server section contains the configuration options that are used to support the core features common to all T-Servers.

This section must be called `TServer`.

user-data-limit

Default Value: `16000`
Valid Values: `0–65535`
Changes Take Effect: Immediately

Specifies the maximum size (in bytes) of user data in a packed format.

Note: When T-Server works in mixed 7.x/6.x environment, the value of this option must not exceed the default value of `16000` bytes; otherwise, 6.x T-Server clients might fail.

server-id

Default Value: An integer equal to the `ApplicationDBID` as reported by Configuration Server
Valid Values: Any integer from `0–16383`
Changes Take Effect: Immediately

Specifies the Server ID that T-Server uses to generate Connection IDs and other unique identifiers. In a multi-site environment, you must assign each T-Server a unique Server ID, in order to avoid confusion in reporting applications and T-Server behavior.

Configuration of this option is necessary for Framework environments in which there are two or more instances of the Configuration Database.

Note: If you do not specify a value for this option, T-Server populates it with the `ApplicationDBID` as reported by Configuration Server. Each data object in the Configuration Database is assigned a separate DBID that maintains a unique Server ID for each T-Server configured in the database.

Warning! Genesys does not recommend using multiple instances of the Configuration Database.

compatibility-port

Default Value: `0`
Valid Values: `0` or any valid TCP/IP port
Changes Take Effect: After T-Server has reconnected to the link

Specifies the TCP/IP port that 3.x clients use to establish connections with T-Server. Connections to this port are accepted only if T-Server has a connection with the switch. If set to `0` (zero), this port is not used.

management-port

Default Value: `0`
Valid Values: `0` or any valid TCP/IP port
Changes Take Effect: After T-Server is restarted

Specifies the TCP/IP port that management agents use to communicate with T-Server. If set to `0` (zero), this port is not used.

check-tenant-profile

Default Value: `false`
Valid Values: `true`, `false`
Changes Take Effect: For the next connected client

When set to `true`, T-Server checks whether a client provides the correct name and password of a tenant. If it does, T-Server allows that client to register DNs that are included in the switch configuration in the Configuration Database, but it does not allow the client to register DNs that are *not* included in the switch configuration.

Note: To make T-Server compatible with 3.x and 5.x clients, set the `check-tenant-profile` option to `false`.

customer-id

Default Value: No default value. (A value must be specified for a multi-tenant environment.)
Valid Values: Any character string
Changes Take Effect: Immediately

Identifies the T-Server customer. You must set this option to the name of the tenant that is using this T-Server. You must specify a value for this option if you are working in a multi-tenant environment.

Note: Do not configure the `customer-id option` for single-tenant environments.

background-timeout

Default Value: `60 msec`
Valid Values: See “Timeout Value Format” on page 224.
Changes Take Effect: Immediately

Specifies the time interval that T-Server waits before processing client requests in background mode. You must set the `background-processing` option to `true` in order for this option to take effect.

background-processing

Default Value: `false`
Valid Values: `true`, `false`
Changes Take Effect: Immediately

When set to `true`, T-Server processes all client requests in the background, giving higher priority to the rest of the messages. This ensures that it processes these messages without any significant delay.

With Background Processing functionality enabled, T-Server processes all switch messages immediately and wait until there are no switch messages before processing the message queue associated with T-Server client requests. T-Server reads all connection sockets immediately and places client requests in the input buffer, which prevents T-Server clients from disconnecting because of configured timeouts.

When T-Server processes client requests from the message queue, requests are processed in the order in which T-Server received them.

When set to `false`, T-Server processes multiple requests from one T-Server client before proceeding to the requests from another T-Server client, and so on.

Note: Use of this option can negatively impact T-Server processing speed.

log-trace-flags

Default Value: `+iscc, +cfg$dn, -cfgserv, +passwd, +udata, -devlink, -sw, -req, -callops, -conn, -client`

Valid Values (in any combination):

`+/-iscc` Turns on/off the writing of information about Inter Server Call Control (ISCC) transactions.

`+/-cfg$dn` Turns on/off the writing of information about DN configuration.

`+/-cfgserv` Turns on/off the writing of messages from Configuration Server.

`+/-passwd` Turns on/off the writing of information about passwords.

`+/-udata` Turns on/off the writing of attached data.

`+/-devlink` Turns on/off the writing of information about the link used to send CTI messages to the switch (for multilink environments).

`+/-sw` Reserved by Genesys Engineering.

`+/-req` Reserved by Genesys Engineering.

`+/-callops` Reserved by Genesys Engineering.

`+/-conn` Reserved by Genesys Engineering.

`+/-client` Turns on/off the writing of additional information about the client’s connection.

Changes Take Effect: Immediately

Specifies—using a space-, comma- or semicolon-separated list—the types of information that are written to the log files.

consult-user-data

Default Value: `separate`
Valid Values:

`separate`	Stores user data for original and consultation calls in separate structures. The data attached to the original call is available for review or changes only to the parties of that call. The data attached to the consultation call is available only to the parties of the consultation call.
`inherited`	Copies user data from an original call to a consultation call when the consultation call is created; thereafter, stores user data separately for the original and the consultation call. Changes to the original call's user data are not available to the parties of the consultation call, and vice versa.
`joint`	Stores user data for an original call and a consultation call in one structure. The user data structure is associated with the original call, but the parties of both the original and consultation calls can see and make changes to the common user data.

Changes Take Effect: For the next consultation call created

Specifies the method for handling user data in a consultation call.

Note: A T-Server client can also specify the `consult-user-data` mode in the `Extensions` attribute `ConsultUserData` key for a conference or transfer request. If it is specified, the method of handling user data is based on the value of the `ConsultUserData` key-value pair of the request and takes precedence over the T-Server `consult-user-data` option. If it is not specified in the client request, the value specified in the `consult-user-data` option applies.

merged-user-data

Default Value: `main-only`
Valid Values:

`main-only`	T-Server attaches user data from the remaining call only.
`merged-only`	T-Server attaches user data from the merging call.
`merged-over-main`	T-Server attaches user data from the remaining and the merging call. In the event of equal keys, T-Server uses data from the merging call.
`main-over-merged`	T-Server attaches data from the remaining and the merging call. In the event of equal keys, T-Server uses data from the remaining call.

Changes Take Effect: Immediately

Specifies the data that is attached to the resulting call after a call transfer, conference, or merge completion.

Note: The option setting does not affect the resulting data for merging calls if the `consult-user-data` option is set to `joint`. (See “consult-user-data” on page 207.)

License Section

The License section contains the configuration options that are used to configure T-Server licenses. They set the upper limit of the seat-related DN licenses (`tserver_sdn`) that T-Server tries to check out from a license file. See “License Checkout” on page 209.

This section must be called `license`.

Notes:

- T-Server also supports the `license-file` option described in the *Genesys 7 Licensing Guide.*
- The License section is not applicable to Network T-Server for DTAG.

If you use two or more T-Servers, and they share licenses, you must configure the following options in the `license` section of the T-Servers.

num-of-licenses

Default Value: `0` or `max` (all available licenses)
Valid Values: `0` or string `max`
Changes Take Effect: Immediately

Specifies how many DN licenses T-Server checks out. T-Server treats a value of `0` (zero) the same as it treats `max`—that is, it checks out all available licenses.

The sum of all `num-of-licenses` values for all concurrently deployed T-Servers must not exceed the number of seat-related DN licenses (`tserver_sdn`) in the corresponding license file. The primary and backup T-Servers share the same licenses, and therefore they need to be counted only once. T-Server checks out the number of licenses indicated by the value for this option, regardless of the number actually in use.

num-sdn-licenses

Default Value: `0` or `max` (all DN licenses are seat-related)
Valid Values: String `max` (equal to the value of `num-of-licenses`), or any integer from `0`–`9999`
Changes Take Effect: Immediately

Specifies how many seat-related licenses T-Server checks out. A value of `0` (zero) means that T-Server does not grant control of seat-related DNs to any client, and it does not look for seat-related DN licenses at all.

The sum of all `num-sdn-licenses` values for all concurrently deployed T-Servers must not exceed the number of seat-related DN licenses (`tserver_sdn`) in the corresponding license file. The primary and backup T-Servers share the same licenses, and therefore they need to be counted only once. T-Server checks out the number of licenses indicated by the value for this option, regardless of the number actually in use.

Notes: For Network T-Servers, Genesys recommends setting this option to `0`.

Be sure to configure in the Configuration Database all the DNs that agents use (Extensions and ACD Positions) and that T-Server should control.

License Checkout

Table 10 shows how to determine the number of seat-related DN licenses that T-Server attempts to check out. See the examples on page 210.

Table 10: License Checkout Rules

Options Settings[a]		License Checkout[b]
num-of-licenses	**num-sdn-licenses**	**Seat-related DN licenses**
max (or 0)	max	all available
max (or 0)	x	x
max (or 0)	0	0
x	max	x
x	y	min (y, x)
x	0	0

a. In this table, the following conventions are used: `x` and `y` - are positive integers; `max` is the maximum number of licenses that T-Server can check out; `min (y, x)` is the lesser of the two values defined by `y` and `x`, respectively.

b. The License Checkout column shows the number of licenses that T-Server attempts to check out. The actual number of licenses will depend on the licenses’ availability at the time of checkout, and it is limited to 9999.

Example 1

If...		Then...
Options Settings	**License File Settings**	**License Checkout**
num-of-licences = max	tserver_sdn = 500	500 seat-related DNs
num-sdn-licences = max		

Example 2

If...		Then...
Options Settings	**License File Settings**	**License Checkout**
num-of-licences = 1000	tserver_sdn = 500	500 seat-related DNs
num-sdn-licences = max		

Example 3

If...		Then...
Options Settings	**License File Settings**	**License Checkout**
num-of-licences = 1000	tserver_sdn = 600	400 seat-related DNs
num-sdn-licences = 400		

Example 4

If...		Then...
Options Settings	**License File Settings**	**License Checkout**
num-of-licences = max	tserver_sdn = 5000	1000 seat-related DNs
num-sdn-licences = 1000		

Agent-Reservation Section

The Agent-Reservation section contains the configuration options that are used to customize the T-Server Agent Reservation feature.

This section must be called `agent-reservation`.

Note: The Agent Reservation functionality is currently a software-only feature that is used to coordinate multiple client applications. This feature does not apply to multiple direct or ACD-distributed calls.

request-collection-time

Default Value: `100 msec`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: Immediately

Specifies the interval that agent reservation requests are collected before a reservation is granted. During this interval, agent reservation requests are delayed, in order to balance successful reservations between client applications (for example, Universal Routing Servers).

reservation-time

Default Value: `10000 msec`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: Immediately

Specifies the default interval that an AgentDN is reserved to receive a routed call from a remote T-Server. During this interval, the agent cannot be reserved again.

reject-subsequent-request

Default Value: `true`
Valid Values:

`true`	T-Server rejects subsequent requests.
`false`	A subsequent request prolongs the current reservation made by the same client application for the same agent.

Changes Take Effect: Immediately

Specifies whether T-Server rejects subsequent requests from the same client application, for an agent reservation for the same `Agent` object that is currently reserved.

Note: Genesys does not recommend setting this option to `false` in a multi-site environment in which remote locations use the Agent-Reservation feature.

Multi-Site Support Section

The Multi-Site Support section contains the configuration options that are used to support multi-site environments with the Inter Server Call Control (ISCC) feature. The configuration options in this section are grouped with related options that support the same functionality (such as those for Transfer Connect Service or the ISCC/Call Overflow feature).

This section must be called `extrouter`.

For a description of the ways in which T-Server supports multi-site configurations and for an explanation of the configuration possibilities for a multi-site operation, see the "Multi-Site Support" chapter.

Note: In a multi-site environment, you must configure the `timeout`, `cast-type`, and `default-dn` options with the same value for both the primary and backup T-Servers. If you do not do this, the value specified for the backup T-Server overrides the value specified for the primary T-Server.

reconnect-tout

Default Value: `5 sec`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: At the next reconnection attempt

Specifies the time interval after which a remote T-Server attempts to connect to this T-Server after an unsuccessful attempt or a lost connection. The number of attempts is unlimited. At startup, T-Server immediately attempts the first connection, without this timeout.

use-data-from

Default Value: `active`
Valid Values:

`active`	The `UserData` and `ConnID` attributes are taken from the consultation call.
`original`	The `UserData` and `ConnID` attributes are taken from the original call.
`consult-user-data`	If the value of `consult-user-data` is specified, the following occurs: • Before the transfer or conference is completed, the `UserData` and `ConnID` attributes are taken from the consultation call. • After the transfer or conference is completed, `EventPartyChanged` is generated, and the `UserData` and `ConnID` are taken from the original call.

Changes Take Effect: Immediately

Specifies the call from which the values for the `UserData` and `ConnID` attributes should be taken for a consultation call that is routed or transferred to a remote location.

Note: For compatibility with the previous T-Server releases, you can use the values `consult`, `main`, and `current` for this option. These are aliases for `active`, `original`, and `consult-user-data`, respectively.

report-connid-changes

Default Value: `false`
Valid Values:

`true`	`EventPartyChanged` is generated.
`false`	`EventPartyChanged` is not generated.

Changes Take Effect: Immediately

Specifies whether the destination T-Server generates `EventPartyChanged` for the incoming call when the resulting `ConnID` attribute is different from the `ConnID` attribute of an instance of the same call at the origination location.

match-call-once

Default Value: `true`
Valid Values:

`true`	ISCC does not process (match) an inbound call that has already been processed (matched).
`false`	ISCC processes (matches) a call as many times as it arrives at an ISCC resource or multi-site-transfer target.

Changes Take Effect: Immediately

Specifies how ISCC processes an inbound call that has already been processed.

ISCC Transaction Options

request-tout

Default Value: `20 sec`
Valid Values: See “Timeout Value Format” on page 224.
Changes Take Effect: For the next request for remote service

Specifies the time interval that a T-Server at the origination location waits for a notification of routing service availability from the destination location. Counting starts when the T-Server sends a request for remote service to the destination site.

network-request-timeout

Default Value: `20 sec`
Valid Values: See “Timeout Value Format” on page 224.
Changes Take Effect: For the next network request

For a premise T-Server, this option specifies the time interval that the premise T-Server waits for a response, after relaying a `TNetwork<...>` request to the Network T-Server. For a Network T-Server, this option specifies the time interval that the Network T-Server waits for a response from an SCP (Service Control Point), after initiating the processing of the request by the SCP.

When the allowed time expires, the T-Server cancels further processing of the request and generates `EventError`.

timeout

Default Value: `60 sec`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: For the next request for remote service

Specifies the time interval that the destination T-Server waits for a call routed from the origination location. Counting starts when this T-Server notifies the requesting T-Server about routing service availability. The timeout must be long enough to account for possible network delays in call arrival.

cast-type

Default Value: `route, route-uui, reroute, direct-callid, direct-uui, direct-network-callid, direct-notoken, direct-digits, direct-ani, dnis-pool, pullback`
Valid Values: `route, route-uui, reroute, direct-callid, direct-uui, direct-network-callid, direct-notoken, direct-digits, direct-ani, dnis-pool, pullback`
Changes Take Effect: For the next request for the remote service

Specifies—using a space-, comma- or semicolon-separated list—the routing types that can be performed for this T-Server.

The valid values provide for a range of mechanisms that the ISCC feature can support with various T-Servers, in order to pass call data along with calls between locations.

Because switches of different types provide calls with different sets of information parameters, some values might not work with your T-Server. See Table 3 on page 59 for information about supported transaction types by a specific T-Server. The "Multi-Site Support" chapter also provides detailed descriptions of all transaction types.

Notes: For compatibility with the previous T-Server releases, you can use the `direct` value for this option. This is an alias for `direct-callid`.

An alias, `route-notoken`, has been added to the route value.

direct-digits-key

Default Value: `CDT_Track_Num`
Valid Values: Any valid key name of a key-value pair from the `UserData` attribute
Changes Take Effect: For the next request for the remote service

Specifies the name of a key from the `UserData` attribute that contains a string of digits that are used as matching criteria for remote service requests with the `direct-digits` routing type.

Note: For compatibility with the previous T-Server releases, this configuration option has an alias value of `cdt-udata-key`.

default-dn

Default Value: No default value
Valid Values: Any DN
Changes Take Effect: For the next request for the remote service

Specifies the DN to which a call is routed when a Destination DN (`AttributeOtherDN`) is not specified in the client's request for routing. If neither this option nor the client's request contains the destination DN, the client receives `EventError`.

Note: This option is used only for requests with route types `route`, `route-uui`, `direct-callid`, `direct-network-callid`, `direct-uui`, `direct-notoken`, `direct-digits`, and `direct-ani`.

register-tout

Default Value: `2 sec`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: For the next registration

Specifies the time interval after which T-Server attempts to register a dedicated External Routing Point. Counting starts when the attempt to register a Routing Point fails.

register-attempts

Default Value: `5`
Valid Values: Any positive integer
Changes Take Effect: For the next registration

Specifies the number of attempts that T-Server makes to register a dedicated External Routing Point.

route-dn

Default Value: No default value
Valid Values: Any DN
Changes Take Effect: Immediately

Specifies the DN that serves as a Routing Point for the `route` transaction type in the multiple-to-one access mode.

dn-for-unexpected-calls

Default Value: No default value
Valid Values: Any DN
Changes Take Effect: Immediately

Specifies a default DN for unexpected calls arriving on an External Routing Point.

resource-allocation-mode

Default Value: `circular`
Valid Values:

`home`	T-Server takes an alphabetized (or numerically sequential) list of configured DNs and reserves the first available DN from the top of the list for each new request. For example, if the first DN is not available, the second DN is allocated for a new request. If the first DN is freed by the time the next request comes, the first DN is allocated for this next request.
`circular`	T-Server takes the same list of configured DNs, but reserves a subsequent DN for each subsequent request. For example, when the first request comes, T-Server allocates the first DN; when the second request comes, T-Server allocates the second DN; and so on. T-Server does not reuse the first DN until reaching the end of the DN list.

Changes Take Effect: Immediately

Specifies the manner in which T-Server allocates resources (that is, DNs of the `External Routing Point` type and Access Resources with `Resource Type dnis`) for multi-site transaction requests.

resource-load-maximum

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

Specifies the maximum number of ISCC routing transactions that can be concurrently processed at a single DN of the `External Routing Point` route type. After a number of outstanding transactions at a particular DN of the `External Routing Point` type reaches the specified number, T-Server considers the DN not available. Any subsequent request for this DN is queued until the number of outstanding transactions decreases. A value of `0` (zero) means that no limitation is set to the number of concurrent transactions at a single External Routing Point. In addition, the `0` value enables T-Server to perform load balancing of all incoming requests among all available External Routing Points, in order to minimize the load on each DN.

use-implicit-access-numbers

Default Value: `false`
Valid Values: `true`, `false`
Changes Take Effect: Immediately

Determines whether an External Routing Point in which at least one access number is specified is eligible for use as a resource for calls coming from switches for which an access number is not specified in the External Routing Point. If this option is set to `false`, the External Routing Point is not eligible for use as a resource for calls coming from such switches. If this option is set to `true`, an implicit access number for the External Routing Point, composed of the switch access code and the DN number of the External Routing Point, will be used.

Note: If an External Routing Point does not have an access number specified, this option will not affect its use.

Transfer Connect Service Options

tcs-use

Default Value: `never`
Valid Values:

`never`	The TCS feature is not used.
`always`	The TCS feature is used for every call.
`app-defined`	In order to use the TCS feature for a multi-site call transfer request, a client application must add a key-value pair with a `TC-type` key and a nonempty string value to the `UserData` attribute of the request.

Changes Take Effect: Immediately

Specifies whether the Transfer Connect Service (TCS) feature is used.

Note: For compatibility with the previous T-Server releases, you can use the value `up-app-depended` for this option. This is an alias for `app-defined`.

tcs-queue

Default Value: No default value
Valid Values: Any valid DN number
Changes Take Effect: For the next request for the remote service

Specifies the TCS DN number to which a call, processed by the TCS feature, is dialed after the originating external router obtains an access number.

ISCC/COF Options

cof-feature

Default Value: `false`
Valid Values: `true`, `false`
Changes Take Effect: Immediately

Enables or disables the Inter Server Call Control/Call Overflow (ISCC/COF) feature.

cof-ci-req-tout

Default Value: `500 msec`
Valid Values: See “Timeout Value Format” on page 224.
Changes Take Effect: For the next COF operation

Specifies the time interval during which T-Server will wait for call data requested with respect to a call originated at another site. After T-Server sends the call data request to remote T-Servers, all events related to this call will be suspended until either the requested call data is received or the specified timeout expires.

cof-rci-tout

Default Value: `10 sec`
Valid Values: See “Timeout Value Format” on page 224.
Changes Take Effect: For the next COF operation

Specifies the time interval that T-Server waits for call data from other T-Servers’ transactions. Counting starts when `cof-ci-req-tout` expires.

cof-ci-wait-all

Default Value: `false`
Valid Values:

`true`	T-Server waits for responses from all T-Servers that might have the requested call data before updating the call data with the latest information.
`false`	T-Server updates the call data with the information received from the first positive response.

Changes Take Effect: Immediately

Specifies whether T-Server, after sending a request for matching call data, waits for responses from other T-Servers before updating the call data (such as `CallHistory`, `ConnID`, and `UserData`) for a potentially overflowed call. The waiting period is specified by the `cof-ci-req-tout` and `cof-rci-tout` options.

cof-ci-defer-delete

Default Value: `0`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: Immediately

Specifies the time interval that T-Server waits before deleting call data that might be overflowed. If set to `0`, deletion deferring is disabled.

cof-ci-defer-create

Default Value: `0`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: Immediately

Specifies the time interval that T-Server waits for call data from the switch before generating a negative response for a call data request from a remote T-Server. If T-Server detects the matching call before this timeout expires, it sends the requested data.

local-node-id

Default Value: `0`
Valid Values: `0` or any positive integer
Changes Take Effect: Immediately

This option, if enabled, checks all networked calls against the specified `NetworkNodeID` (the identity of the switch to which the call initially arrived). If the `NetworkNodeID` is the same as the value of this option, the request for call information is *not* sent. The default value of `0` disables the functionality of this option. To establish an appropriate `NetworkNodeID,` specify a value other than the default.

Note: This option applies only to T-Server for Nortel Communication Server 2000/2100 (formerly DMS-100).

Event Propagation Option

event-propagation

Default Value: `list`
Valid Values:

`list`	Changes in user data and party events are propagated to remote locations through call distribution topology.
`off`	The feature is disabled. Changes in user data and party events are not propagated to remote locations.

Changes Take Effect: Immediately

Specifies whether the Event Propagation feature is enabled.

Number Translation Option

inbound-translator-<*n*>

Default Value: No default value.
Valid Value: Any valid name
Changes Take Effect: Immediately

Specifies the name of another configuration section as the value for the `inbound-translator` option. For example,
`inbound-translator-1 = ani-translator`

where `ani-translator` is the name of the configuration that describes the translation rules for inbound numbers.

Translation Rules Section

The section name is specified by the `inbound-translator-<n>` option. It contains options that define translation rules for inbound numbers.

You can choose any name for this section, provided that it matches the value of the section. Every option in this section corresponds to a rule and must conform to the format described below. You can configure as many rules as necessary to accommodate your business needs.

rule-<*n*>

Default Value: No default value
Valid Value: Any valid string in the following format:
`in-pattern=<input pattern value>;out-pattern=<output pattern value>`
Changes Take Effect: Immediately

Defines a rule to be applied to an inbound number. The two parts of the option value describe the input and output patterns in the rule. When configuring the pattern values, follow the syntax defined in “Using ABNF for Rules” on page 68. See “Configuration Procedure” on page 74 for examples of these rules as well as detailed instructions for creating rules for your installation. For example, a value for this configuration option might look like this:

```
rule-01 = in-pattern=0111#CABBB*ccD;out-pattern=ABD
```

Backup-Synchronization Section

The Backup-Synchronization section contains the configuration options that are used to support a high-availability (`hot standby` redundancy type) configuration.

This section must be called `backup-sync`.

Note: These options apply only to T-Servers that support the `hot standby` redundancy type.

sync-reconnect-tout

Default Value: `20 sec`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: Immediately

Specifies the time interval after which the backup T-Server attempts to reconnect to the primary server (for a synchronized link).

protocol

Default Value: `default`
Valid Values:

`default`	The feature is not active.
`addp`	Activates the Advanced Disconnect Detection Protocol.

Changes Take Effect: When the next connection is established

Specifies the name of the method used to detect connection failures. If you specify the `addp` value, you must also specify a value for the `addp-timeout`, `addp-remote-timeout`, and `addp-trace` options.

addp-timeout

Default Value: `0`
Valid Values: Any integer from `0–3600`
Changes Take Effect: Immediately

Specifies the time interval that this T-Server waits for a response from another T-Server after sending a polling signal. The default value of `0` (zero) disables the functionality of this option. To establish an appropriate timeout, specify a value other than the default. This option applies only if the `protocol` option is set to `addp`.

addp-remote-timeout

Default Value: `0`
Valid Values: Any integer from `0–3600`
Changes Take Effect: Immediately

Specifies the time interval that the redundant T-Server waits for a response from this T-Server after sending a polling signal. The default value of `0` (zero) disables the functionality of this option. To establish an appropriate timeout, specify a value other than the default. This option applies only if the `protocol` option is set to `addp`.

addp-trace

Default Value: `off`
Valid Values:

`off`, `false`, `no`	No trace (default).
`local`, `on`, `true`, `yes`	Trace on this T-Server side only.
`remote`	Trace on the redundant T-Server side only.
`full`, `both`	Full trace (on both sides).

Changes Take Effect: Immediately

Specifies whether the option is active, and to what level the trace is performed. This option applies only if the `protocol` option is set to `addp`.

network-provided-address

Default Value: `false`
Valid Values:

`false`	T-Server reports the backup host information as configured in the Configuration Layer.
`true`	T-Server reports the backup host information as supplied by the network.

Changes Take Effect: Immediately

Specifies how T-Server reports to its clients the host information about its backup T-Server.

Call-Cleanup Section

The Call-Cleanup section contains the configuration options that are used to control detection and cleanup of stuck calls in T-Server. For more information on stuck call handling, refer to the “Stuck Call Management” chapter in the *Framework 7.5 Management Layer User’s Guide*.

This section must be called `call-cleanup`.

notify-idle-tout

Default Value: `0`
Valid Values: See “Timeout Value Format” on page 224.
Changes Take Effect: Immediately

Specifies the time interval that T-Server waits for a call to be updated from its last update. After this time elapses, if no new events about the call are received, T-Server reports this call as a stuck call. The default value of `0` disables the stuck calls notification.

cleanup-idle-tout

Default Value: `0`
Valid Values: See “Timeout Value Format” on page 224.

Changes Take Effect: Immediately

Specifies the time interval that T-Server waits for a call to be updated from its last update. After this time elapses, if no new events about the call are received, T-Server clears this call as a stuck call, either by querying the switch (if a CTI link provides such capabilities) or by deleting the call information from memory unconditionally. The default value of `0` disables the stuck calls cleanup.

periodic-check-tout

Default Value: `10 min`
Valid Values: See "Timeout Value Format" on page 224.
Changes Take Effect: Immediately

Specifies the time interval for periodic checks for stuck calls. These checks affect both notification and cleanup functionality, and are made by checking the T-Server's own call information with call information available in the switch. For performance reasons, T-Server does not verify whether the `notify-idle-tout` or `cleanup-idle-tout` option has expired before performing this checking.

Note: Setting this option to a value of less than a few seconds can affect T-Server performance.

Example 1

```
notify-idle-tout = 0
cleanup-idle-tout = 0
periodic-check-tout = 10
```

With these settings, T-Server will not perform any checks for stuck calls.

Example 2

```
notify-idle-tout = 5 min
cleanup-idle-tout = 0
periodic-check-tout = 10 min
```

With these settings, T-Server performs checks every 10 minutes and sends notifications about all calls that have been idle for at least 5 minutes.

Example 3

```
notify-idle-tout = 5 min
cleanup-idle-tout = 20 min
periodic-check-tout = 10 min
```

With these settings, T-Server performs checks every 10 minutes, sends notifications about all calls that have been idle for at least 5 minutes, and attempts to clean up all calls that have been idle for more than 20 minutes.

Security Section

The Security section contains the configuration options that are used to configure secure data exchange between T-Servers and other Genesys components. Refer to the *Genesys 7.5 Transport Layer Security Deployment Guide* for complete information on the security configuration.

Timeout Value Format

This section of the document describes the values to use for those T-Server common options that set various timeouts. The current format allows you to use fractional values and various time units for timeout settings.

For timeout-related options, you can specify any value that represents a time interval, provided that it is specified in one of the following formats:

`[[[`*`hours`*`:]`*`minutes`*`:]`*`seconds`*`][`*`milliseconds`*`]`

or

`[`*`hours`*` hr][`*`minutes`*` min][`*`seconds`*` sec][`*`milliseconds`*` msec]`

Where a time unit name in italic (such as *hours*) is to be replaced by an integer value for this time unit.

Integer values with no measuring units are still supported, for compatibility with previous releases of T-Server. When you do not specify any measuring units, the units of the default value apply. For example, if the default value equals `60 sec`, specifying the value of `30` sets the option to 30 seconds.

Example 1

The following settings result in a value of 1 second, 250 milliseconds:

```
sync-reconnect-tout = 1.25
sync-reconnect-tout = 1 sec 250 msec
```

Example 2

The following settings result in a value of 1 minute, 30 seconds:

```
timeout = 1:30
timeout = 1 min 30 sec
```

Changes from Release 7.2 to 7.5

Table 11 lists the configuration options that:

- Are new or changed in the 7.5 release of T-Server
- Have been added or changed since the most recent 7.2 release of this document

If a configuration option has been replaced with another that enables the same functionality, the new option name and its location in this chapter are noted.

Table 11: Option Changes from Release 7.2 to 7.5

Option Name	Option Values	Type of Change	Details
Security Section (New in 7.5)			
certificate	Specifies the platform-dependent certificate parameters related to the TLS configuration	New	See the *Genesys 7.5 Transport Layer Security Deployment Guide* for complete information on the security configuration
certificate-key			
trusted-ca			

Chapter

10 Common Log Options

Unless otherwise noted, the log configuration options that this chapter describes are common to all Genesys server applications and applicable to any Framework server component. This chapter includes the following sections:

Note: Some server applications also support log options that are unique to them. For descriptions of a particular application's unique log options, refer to the chapter/document about that application.

Mandatory Options

You do not have to configure any common log options in order to start Server applications.

Log Section

This section must be called `log`.

verbose

Default Value: `all`

Valid Values:

`all`	All log events (that is, log events of the Standard, Trace, Interaction, and Debug levels) are generated.
`debug`	The same as `all`.
`trace`	Log events of the Trace level and higher (that is, log events of the Standard, Interaction, and Trace levels) are generated, but log events of the Debug level are not generated.
`interaction`	Log events of the Interaction level and higher (that is, log events of the Standard and Interaction levels) are generated, but log events of the Trace and Debug levels are not generated.
`standard`	Log events of the Standard level are generated, but log events of the Interaction, Trace, and Debug levels are not generated.
`none`	No output is produced.

Changes Take Effect: Immediately

Determines whether a log output is created. If it is, specifies the minimum level of log events generated. The log events levels, starting with the highest priority level, are Standard, Interaction, Trace, and Debug. See also “Log Output Options” on page 232.

Note: For definitions of the Standard, Interaction, Trace, and Debug log levels, refer to the *Framework 7.5 Deployment Guide* or to *Framework 7.5 Solution Control Interface Help.*

buffering

Default Value: `true`
Valid Values:

`true`	Enables buffering.
`false`	Disables buffering.

Changes Take Effect: Immediately

Turns on/off operating system file buffering. The option is applicable only to the `stderr` and `stdout` output (see page 232). Setting this option to `true` increases the output performance.

Note: When buffering is enabled, there might be a delay before log messages appear at the console.

segment

Default Value: `false`
Valid Values:

`false`	No segmentation is allowed.
`<number> KB` or `<number>`	Sets the maximum segment size, in kilobytes. The minimum segment size is `100 KB`.
`<number> MB`	Sets the maximum segment size, in megabytes.
`<number> hr`	Sets the number of hours for the segment to stay open. The minimum number is `1` hour.

Changes Take Effect: Immediately

Specifies whether there is a segmentation limit for a log file. If there is, sets the mode of measurement, along with the maximum size. If the current log segment exceeds the size set by this option, the file is closed and a new one is created.

expire

Default Value: `false`
Valid Values:

`false`	No expiration; all generated segments are stored.
`<number> file` or `<number>`	Sets the maximum number of log files to store. Specify a number from `1–100`.
`<number> day`	Sets the maximum number of days before log files are deleted. Specify a number from `1–100`.

Changes Take Effect: Immediately

Determines whether log files expire. If they do, sets the measurement for determining when they expire, along with the maximum number of files (segments) or days before the files are removed.

Note: If an option's value is set incorrectly—out of the range of valid values— it will be automatically reset to `10`.

messagefile

Default Value: As specified by a particular application
Valid Values: `<string>.lms` (message file name)
Changes Take Effect: Immediately, if an application cannot find its `*.lms` file at startup

Specifies the file name for application-specific log events. The name must be valid for the operating system on which the application is running. The option value can also contain the absolute path to the application-specific `*.lms` file. Otherwise, an application looks for the file in its working directory.

Warning! An application that does not find its `*.lms` file at startup cannot generate application-specific log events and send them to Message Server.

message_format

Default Value: `short`
Valid Values:

`short`	An application uses compressed headers when writing log records in its log file.
`full`	An application uses complete headers when writing log records in its log file.

Changes Take Effect: Immediately

Specifies the format of log record headers that an application uses when writing logs in the log file. Using compressed log record headers improves application performance and reduces the log file's size.

With the value set to `short`:

- A header of the log file or the log file segment contains information about the application (such as the application name, application type, host type, and time zone), whereas single log records within the file or segment omit this information.
- A log message priority is abbreviated to `Std`, `Int`, `Trc`, or `Dbg`, for Standard, Interaction, Trace, or Debug messages, respectively.
- The message ID does not contain the prefix `GCTI` or the application type `ID`.

A log record in the full format looks like this:

```
2002-05-07T18:11:38.196 Standard localhost cfg_dbserver GCTI-00-05060
Application started
```

A log record in the short format looks like this:

```
2002-05-07T18:15:33.952 Std 05060 Application started
```

Note: Whether the full or short format is used, time is printed in the format specified by the `time_format` option.

time_convert

Default Value: `Local`
Valid Values:

`local`	The time of log record generation is expressed as a local time, based on the time zone and any seasonal adjustments. Time zone information of the application's host computer is used.
`utc`	The time of log record generation is expressed as Coordinated Universal Time (UTC).

Changes Take Effect: Immediately

Specifies the system in which an application calculates the log record time when generating a log file. The time is converted from the time in seconds since the Epoch (00:00:00 UTC, January 1, 1970).

time_format

Default Value: `time`
Valid Values:

`time`	The time string is formatted according to the `HH:MM:SS.sss` (hours, minutes, seconds, and milliseconds) format.
`locale`	The time string is formatted according to the system's locale.
`ISO8601`	The date in the time string is formatted according to the ISO 8601 format. Fractional seconds are given in milliseconds.

Changes Take Effect: Immediately

Specifies how to represent, in a log file, the time when an application generates log records.

A log record's time field in the ISO 8601 format looks like this:

```
2001-07-24T04:58:10.123
```

print-attributes

Default Value: `false`
Valid Values:

`true`	Attaches extended attributes, if any exist, to a log event sent to log output.
`false`	Does not attach extended attributes to a log event sent to log output.

Changes Take Effect: Immediately

Specifies whether the application attaches extended attributes, if any exist, to a log event that it sends to log output. Typically, log events of the Interaction log level and Audit-related log events contain extended attributes. Setting this option to `true` enables audit capabilities, but negatively affects performance. Genesys recommends enabling this option for Solution Control Server and Configuration Server when using audit tracking. For other applications, refer to *Genesys 7.5 Combined Log Events Help* to find out whether an application generates Interaction-level and Audit-related log events; if it does, enable the option only when testing new interaction scenarios.

check-point

Default Value: `1`
Valid Values: `0–24`
Changes Take Effect: Immediately

Specifies, in hours, how often the application generates a `check point` log event, to divide the log into sections of equal time. By default, the application generates this log event every hour. Setting the option to `0` prevents the generation of `check-point` events.

memory

Default Value: No default value
Valid Values: `<string>` (memory file name)
Changes Take Effect: Immediately

Specifies the name of the file to which the application regularly prints a snapshot of the memory output, if it is configured to do this (see "Log Output Options"). The new snapshot overwrites the previously written data. If the application terminates abnormally, this file will contain the latest log messages. Memory output is not recommended for processors with a CPU frequency lower than 600 MHz.

Note: If the file specified as the `memory` file is located on a network drive, an application does not create a snapshot file (with the extension `*.memory.log`).

memory-storage-size

Default Value: `2 MB`
Valid Values:

`<number>` KB or `<number>`	The size of the memory output, in kilobytes. The minimum value is `128 KB`.
`<number> MB`	The size of the memory output, in megabytes. The maximum value is `64 MB`.

Changes Take Effect: When memory output is created

Specifies the buffer size for log output to the memory, if configured. See also "Log Output Options" on page 232.

spool

Default Value: The application's working directory
Valid Values: `<path>` (the folder, with the full path to it)
Changes Take Effect: Immediately

Specifies the folder, including full path to it, in which an application creates temporary files related to network log output. If you change the option value while the application is running, the change does not affect the currently open network output.

Log Output Options

To configure log outputs, set log level options (`all`, `standard`, `interaction`, `trace`, and/or `debug`) to the desired types of log output (`stdout`, `stderr`, `network`, `memory`, and/or `[filename]`, for log file output).

You can use:

- One log level option to specify different log outputs.
- One log output type for different log levels.

- Several log output types simultaneously, to log events of the same or different log levels.

You must separate the log output types by a comma when you are configuring more than one output for the same log level. See “Examples” on page 236.

Note: The log output options are activated according to the setting of the `verbose` configuration option.

Warnings! If you direct log output to a file on the network drive, an application does not create a snapshot log file (with the extension `*.snapshot.log`) in case it terminates abnormally.

Directing log output to the console (by using the `stdout` or `stderr` settings) can affect application performance. Avoid using these log output settings in a production environment.

all

Default Value: No default value
Valid Values (log output types):

`stdout` Log events are sent to the Standard output (`stdout`).

`stderr` Log events are sent to the Standard error output (`stderr`).

`network` Log events are sent to Message Server, which can reside anywhere on the network. Message Server stores the log events in the Log Database.

Setting the `all` log level option to the network output enables an application to send log events of the `Standard`, `Interaction`, and `Trace` levels to Message Server. `Debug`-level log events are neither sent to Message Server nor stored in the Log Database.

`memory` Log events are sent to the memory output on the local disk. This is the safest output in terms of the application performance.

`[filename]` Log events are stored in a file with the specified name. If a path is not specified, the file is created in the application’s working directory.

Changes Take Effect: Immediately

Specifies the outputs to which an application sends all log events. The log output types must be separated by a comma when more than one output is configured. For example:

```
all = stdout, logfile
```

Note: To ease the troubleshooting process, consider using unique names for log files that different applications generate.

standard

Default Value: No default value

Valid Values (log output types):

`stdout` Log events are sent to the Standard output (`stdout`).

`stderr` Log events are sent to the Standard error output (`stderr`).

`network` Log events are sent to Message Server, which can reside anywhere on the network. Message Server stores the log events in the Log Database.

`memory` Log events are sent to the memory output on the local disk. This is the safest output in terms of the application performance.

`[filename]` Log events are stored in a file with the specified name. If a path is not specified, the file is created in the application's working directory.

Changes Take Effect: Immediately

Specifies the outputs to which an application sends the log events of the `Standard` level. The log output types must be separated by a comma when more than one output is configured. For example:

```
standard = stderr, network
```

interaction

Default Value: No default value

Valid Values (log output types):

`stdout` Log events are sent to the Standard output (`stdout`).

`stderr` Log events are sent to the Standard error output (`stderr`).

`network` Log events are sent to Message Server, which can reside anywhere on the network. Message Server stores the log events in the Log Database.

`memory` Log events are sent to the memory output on the local disk. This is the safest output in terms of the application performance.

`[filename]` Log events are stored in a file with the specified name. If a path is not specified, the file is created in the application's working directory.

Changes Take Effect: Immediately

Specifies the outputs to which an application sends the log events of the `Interaction` level and higher (that is, log events of the `Standard` and `Interaction` levels). The log outputs must be separated by a comma when more than one output is configured. For example:

```
interaction = stderr, network
```

trace

Default Value: No default value
Valid Values (log output types):

`stdout`	Log events are sent to the Standard output (`stdout`).
`stderr`	Log events are sent to the Standard error output (`stderr`).
`network`	Log events are sent to Message Server, which can reside anywhere on the network. Message Server stores the log events in the Log Database.
`memory`	Log events are sent to the memory output on the local disk. This is the safest output in terms of the application performance.
`[filename]`	Log events are stored in a file with the specified name. If a path is not specified, the file is created in the application's working directory.

Changes Take Effect: Immediately

Specifies the outputs to which an application sends the log events of the `Trace` level and higher (that is, log events of the `Standard`, `Interaction`, and `Trace` levels). The log outputs must be separated by a comma when more than one output is configured. For example:

```
trace = stderr, network
```

debug

Default Value: No default value
Valid Values (log output types):

`stdout`	Log events are sent to the Standard output (`stdout`).
`stderr`	Log events are sent to the Standard error output (`stderr`).
`memory`	Log events are sent to the memory output on the local disk. This is the safest output in terms of the application performance.
`[filename]`	Log events are stored in a file with the specified name. If a path is not specified, the file is created in the application's working directory.

Changes Take Effect: Immediately

Specifies the outputs to which an application sends the log events of the `Debug` level and higher (that is, log events of the `Standard`, `Interaction`, `Trace`, and `Debug` levels). The log output types must be separated by a comma when more than one output is configured. For example:

```
debug = stderr, /usr/local/genesys/logfile
```

Note: `Debug`-level log events are never sent to Message Server or stored in the Log Database.

Log File Extensions

You can use the following file extensions to identify log files that an application creates for various types of output:

- `*.log`—Assigned to log files when you configure output to a log file. For example, if you set `standard = confservlog` for Configuration Server, it prints log messages into a text file called `confservlog.<time_stamp>.log`.
- `*.qsp`—Assigned to temporary (spool) files when you configure output to the network but the network is temporarily unavailable. For example, if you set `standard = network` for Configuration Server, it prints log messages into a file called `confserv.<time_stamp>.qsp` during the time the network is not available.
- `*.snapshot.log`—Assigned to files that contain the output snapshot when you configure output to a log file. The file contains the last log messages that an application generates before it terminates abnormally. For example, if you set `standard = confservlog` for Configuration Server, it prints the last log message into a file called `confserv.<time_stamp>.snapshot.log` in case of failure.

Note: Provide `*.snapshot.log` files to Genesys Technical Support when reporting a problem.

- `*.memory.log`—Assigned to log files that contain the memory output snapshot when you configure output to memory and redirect the most recent memory output to a file. For example, if you set `standard = memory` and `memory = confserv` for Configuration Server, it prints the latest memory output to a file called `confserv.<time_stamp>.memory.log`.

Examples

This section presents examples of a `log` section that you might configure for an application when that application is operating in production mode and in two lab modes, debugging and troubleshooting.

Production Mode Log Section

```
[log]
verbose = standard
standard = network, logfile
```

With this configuration, an application only generates the log events of the `Standard` level and sends them to Message Server, and to a file named `logfile`, which the application creates in its working directory. Genesys recommends that you use this or a similar configuration in a production environment.

Warning! Directing log output to the console (by using the `stdout` or `stderr` settings) can affect application performance. Avoid using these log output settings in a production environment.

Lab Mode Log Section

```
[log]
verbose = all
all = stdout, /usr/local/genesys/logfile
trace = network
```

With this configuration, an application generates log events of the `Standard`, `Interaction`, `Trace`, and `Debug` levels, and sends them to the standard output and to a file named `logfile`, which the application creates in the `/usr/local/genesys/` directory. In addition, the application sends log events of the `Standard`, `Interaction`, and `Trace` levels to Message Server. Use this configuration to test new interaction scenarios in a lab environment.

Failure-Troubleshooting Log Section

```
[log]
verbose = all
standard = network
all = memory
memory = logfile
memory-storage-size = 32 MB
```

With this configuration, an application generates log events of the `Standard` level and sends them to Message Server. It also generates log events of the `Standard`, `Interaction`, `Trace`, and `Debug` levels, and sends them to the memory output. The most current log is stored to a file named `logfile,` which the application creates in its working directory. Increased memory storage allows an application to save more of the log information generated before a failure. Use this configuration when trying to reproduce an application's failure. The memory log file will contain a snapshot of the application's log at the moment of failure; this should help you and Genesys Technical Support identify the reason for the failure.

Log-Filter Section

This section must be called `log-filter`.

default-filter-type

Default Value: `copy`

Valid Values:

`copy` The keys and values of the KVList pairs are copied to the log.

`hide` The keys of the KVList pairs are copied to the log; the values are replaced with strings of asterisks.

`skip` The KVList pairs are not copied to the log.

Changes Take Effect: Immediately

Specifies the default way of presenting KVList information (including `UserData`, `Extensions`, and `Reasons`) in the log. The selected option will be applied to the attributes of all KVList pairs except the ones that are explicitly defined in the `log-filter-data` section.

Example

```
[log-filter]
default-filter-type=copy
```

Here is an example of a log using the default log filter settings:

```
message RequestSetCallInfo
   AttributeConsultType        3
   AttributeOriginalConnID     008b012ece62c8be
   AttributeUpdateRevision     2752651
   AttributeUserData           [111] 00 27 01 00
         'DNIS'                '8410'
         'PASSWORD'            '111111111'
         'RECORD_ID'           '8313427'
   AttributeConnID             008b012ece62c922
```

Log-Filter-Data Section

This section must be called `log-filter-data`.

<key name>

Default Value: `copy`
Valid Values:

`copy` The key and value of the given KVList pair are copied to the log.

`hide` The key of the given KVList pair is copied to the log; the value is replaced with a string of asterisks.

`skip` The KVList pair is not copied to the log.

Changes Take Effect: Immediately

Specifies the way of presenting the KVList pair defined by the key name in the log. Specification of this option supersedes the default way of KVList presentation as defined in the `log-filter` section for the given KVList pair.

Example

```
[log-filter-data]
PASSWORD=hide
```

Here is an example of the log with option `PASSWORD` set to `hide`:

```
message RequestSetCallInfo
   AttributeConsultType         3
   AttributeOriginalConnID      008b012ece62c8be
   AttributeUpdateRevision      2752651
   AttributeUserData            [111] 00 27 01 00
         'DNIS'                 '8410'
         'PASSWORD'             '****'
         'RECORD_ID'            '8313427'
   AttributeConnID              008b012ece62c922
```

Changes from Release 7.2 to 7.5

There are no changes in common log configuration options between release 7.2 and the latest release 7.5.

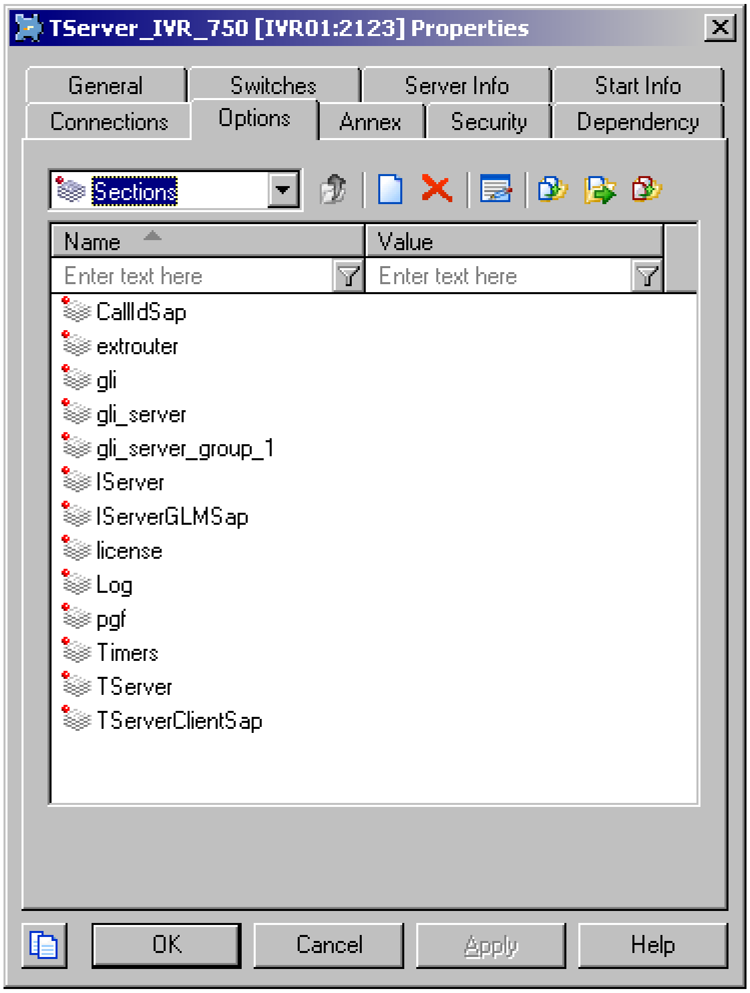
Chapter

11 IVR Configuration Options

This chapter describes the configuration options that are unique to the IVR Server for IVR Interface Option 7.5. It contains the following sections:

TServer_IVR Options

Figure 91 lists the option sections that you can for the `TServer_IVR` application.



CallIdSap
extrouter
gli
gli_server
gli_server_group_1
IServer
IServerGLMSap
license
Log
pgf
Timers
TServer
TServerClientSap

Figure 91: TServer_IVR Section Options

T-Server Common Options

Some of the options that can be configured for the `TServer_IVR` application are *common options*, which means that they are shared with other types of T-Server applications. For the release 7 versions of this *System Administrator's Guide*, these common options have been omitted from this chapter.

Table 12 provides information about the options that have been moved (grouped according to section), including links to their new locations and information about them that is specific to IVR Server.

Table 12: Common Options Information

Section Name	IVR Server Configuration Notes
extrouter	The options that were previously documented in this section are now documented in "Multi-Site Support Section" on page 211. In previous releases, this section was called `extrouter` for `TServer_IVR` applications, but it is now called `Multi-Site Support` for T-Server applications. You can use either section name to define these options. You should configure external routing on the `TServer_IVR` application only if you are using the IVR-In-Front or *dual* (IVR-In-Front and IVR-Behind-Switch) configuration mode. If you are using *only* the IVR-Behind-Switch configuration mode, you must configure external routing on the premise T-Server application.
license	The options that were previously documented in this section are now documented in "License Section" on page 208. You should specify the `num-sdn-licenses` option for the `TServer_IVR` application only in the following circumstances: • The DNs that IVR Server uses are configured as `Extensions` and not as `Voice Treatment Ports`. • IVR Server is configured in IVR Network T-Server mode and uses the XML GenSpec protocols.
log	The options that were previously documented in this section are now documented in "Common Log Options" on page 227.
TServer	The options that were previously documented in this section are now documented in "T-Server Section" on page 204.

CallIdSap

This section must be called `CallIdSap`.

input-network-call-id-key

Default Value: None
Valid Value: `XML.Message.GctiMsg.CallId.Val`
Changes Take Effect: After `TServer_IVR` is restarted

Specifies the property map element where the call ID for inbound messages is stored.

gli

This section must be called gli.

gli-mode

Default Value: None
Valid Values: server, client
Changes Take Effect: After TServer_IVR is restarted

Specifies whether the GDI Link Interface (GLI) layer acts as a client or a server. If set to server, the IVR Server uses the options in the gli_server section (see page 245). Because the IVR Server always acts in the server role, this option must be set to server, and the gli_server section must also be provided.

gli-keep-alive-interval

Default Value: -1
Valid Values: Any positive integer
Changes Take Effect: Immediately

Specifies the amount of time (in seconds) before a KeepAliveRequest is sent. A value of -1 disables the sending of KeepAliveRequests.

gli-keep-alive-tries

Default Value: 1
Valid Values: Any positive integer
Changes Take Effect: Immediately

Specifies the number of times that the interval specified by gli-keep-alive-interval can lapse without receiving either a message or a KeepAliveResponse. When this value is reached, the link is closed.

gli-reconnect-delay

Default Value: 5
Valid Values: Any positive integer
Changes Take Effect: Immediately

Specifies the amount of time (in seconds) before a reconnection is attempted. This option affects both server and client connections.

gli-link-proving-delay

Default Value: 0
Valid Values: Any positive integer
Changes Take Effect: Immediately

Specifies the delay (in seconds) before the first `KeepAliveRequest` is sent on a newly connected link.

gli_server

This section must be called `gli_server`.

gli-server-mode

Default Value: None
Valid Value: `circuit`
Changes Take Effect: Immediately

When set to `circuit`, the `gli-<n>-servers` option is used.

gli-<*n*>-servers

Default Value: None
Valid Values: `1–8`
Changes Take Effect: Immediately

Used in `Circuit` mode only. Specifies the number of server group sections to read. These server group sections are named `gli_server_group_1`, `gli_server_group_2`, and so on. Each server group section contains a `gli-server-address` and a `gli-client-list` option.

gli_server_group_<*n*>

This section must be called `gli_server_group_<n>`.

gli-circuit-failover

Default Value: `on`
Valid Values: `on`, `off`
Changes Take Effect: After T-Server is restarted

Can be set to `on` only if the T-Server clients (SCPs) share call context; otherwise, it must be set to `off`.

gli-server-address

Default Value: None
Valid Values: Comma separated list of addresses in the form `host:port`
Changes Take Effect: After `TServer_IVR` is restarted

Specifies the address to use when creating the server's listen socket. You can specify more than one address by entering a comma-separated list of addresses, where each address is composed of the host name or IP address, and the TCP/IP port number, in the following format:

```
<host name or IP_address>:<TCP/IP port #>
```

gli-client-list

Default Value: None
Valid Values: Comma separated list of addresses in the form `host:port`
Changes Take Effect: Immediately

Specifies the clients that are allowed to connect to the server. The value is in a comma-separated format, where each client consists of the host name and port number. If no value is present, any client may connect. Otherwise, an exact match (through DNS or BIND) is required. Using an asterisk matches any port.

gli-tls-cert

Default Value: None
Valid Values: N/A
Changes Take Effect: After T-Server is restarted

For Windows, contains the thumbprint that is obtained from a user certificate generated for the host. For UNIX, contains the path and file name to a `.pem` encoded file that contains the host certificate.

gli-tls-cert-key

Default Value: None
Valid Values: N/A
Changes Take Effect: After T-Server is restarted

For UNIX only, contains the path and file name to a `.pem` encoded file that contains the host private key.

gli-tls-trusted-ca

Default Value: None
Valid Values: N/A
Changes Take Effect: After T-Server is restarted

For UNIX only, contains the path and file name to a `.pem` encoded file that contains the Certificate Authority (CA) certificate.

IServer

app-name

Default Value: None
Valid Values: Any valid `I-Server` application object name
Changes Take Effect: After `TServer_IVR` is restarted

Specifies the name of the `I-Server` application object in Configuration Manager. This option is required for IVR-In-Front and IVR-Behind-Switch configurations, but is not used for IVR Network T-Server configurations.

called-num-subset

Default Value: 0
Valid Values: Any positive integer
Changes Take Effect: After TServer_IVR is restarted

For an IVR Network T-Server configuration, specifies the number of rightmost digits of callNum that are used as AttributeThisDN in T-Library messages. This option is provided for the purpose of compatibility with Network T-Server for XML-based GenSpec.

dtd-file

Default Value: IServer.dtd
Valid Values: Any relative or absolute path to a .dtd file
Changes Take Effect: After TServer_IVR is restarted

Specifies the name of the .dtd file to be included in XML messages that IVR Server sends.

flow-control

Default Value: off
Valid Values: on, off
Changes Take Effect: Immediately

Enables flow control for a related IVR Server. If set to on, no new calls can be started at that IVR Server; however, existing calls proceed normally.

report-dn-status

Default Value: false
Valid Values: true, false
Changes Take Effect: At startup

Specifies whether EventDNOutOfService/EventDNBackInService messages are generated.

IServerGLMSap

This section must be called IServerGLMSap.

checkout-interval

Default Value: 600
Valid Values: Any value from 600 to 3600
Changes Take Effect: Immediately

Specifies the interval (in seconds) at which the IVR Server attempts to request license updates from the FlexLM license server for the maximum call usage during that interval. IVR Server keeps track of the maximum number of concurrent calls during each interval, and at the end of the interval, it sends a message to FlexLM to update the licenses used by the IVR Server to the maximum concurrent value for that interval.

The minimum possible value is 600 seconds, and the maximum possible value is 3600 seconds. If you set a value that is outside this range, it is ignored, and the default is used instead.

operation-mode

Default Value: None
Valid Values: NTS, IVR
Changes Take Effect: After TServer_IVR is restarted

Specifies the IVR Server deployment mode. IVR Server cannot be started until you set this option.

Set the value to NTS for an IVR Network T-Server configuration. This enables the IVR Server to use the GenSpec XML protocols.

Set the value to IVR for an IVR-In-Front or IVR-Behind-Switch configuration.

pgf

This section must be called pgf.

ptc-file

Default Value: tserver.ptc
Valid Values: Any valid relative or absolute path to the I-Server.smx file
Changes Take Effect: After TServer_IVR is restarted

Specifies the file name for the .ptc or .smx file for this TServer_IVR.

Timers

This section must be called Timers.

Valid Units of Time

The default unit of time for all timers is milliseconds (ms). This means that if you do not supply a unit of time when you set an option value, ms is assumed.

The valid units of time are as follows:

- ms = milliseconds
- s = seconds
- h = hours
- d = days

Call Timeout

Default Value: 8 h

Valid Values: Any positive integer with a valid unit of time (see "Valid Units of Time")
Changes Take Effect: After TServer_IVR is restarted

Specifies the amount of time that a call can remain active before it is ended.

CME Update Timeout

Default Value: 2 s
Valid Values: Any positive integer with a valid unit of time (see "Valid Units of Time")
Changes Take Effect: After TServer_IVR is restarted

Specifies the length of the delay between when changes are made and when those changes are applied.

Registration Timeout

Default Value: 5 s
Valid Values: Any positive integer with a valid unit of time (see "Valid Units of Time")
Changes Take Effect: Immediately

Used only when IVR Server is configured to perform agent login on a connected T-Server. If the DN on which the agent login is to be performed is successfully registered with the T-Server, IVR Server waits the specified amount of time before it checks again to determine whether the DN is now registered. After the DN is registered, the agent login is requested.

Router Timeout

Default Value: 4 s
Valid Values: Any positive integer with a valid unit of time (see "Valid Units of Time")
Changes Take Effect: Immediately

Specifies the amount of time that IVR Server waits for routing or call treatment instructions before it performs default routing for the call.

Retry Timeout

Default Value: 30 s
Valid Values: Any positive integer with a valid unit of time (see "Valid Units of Time")
Changes Take Effect: Immediately

If an error occurs in response to attempts to register a DN or log in an agent, IVR Server reattempts the specified operation after the amount of time.

Stat Timeout

Default Value: 3 s

Valid Values: Any positive integer with a valid unit of time (see "Valid Units of Time")
Changes take Effect: Immediately

Specifies the amount of time that IVR Server waits for a reply from Stat Server for a noncached peek operation. After the timer expires, the last known good value is used.

Stop Waiting Timeout

Default Value: `30 s`

Valid Values: Any positive integer with a valid unit of time (see "Valid Units of Time")

Changes Take Effect: Immediately

Specifies the amount of time that IVR Server waits for the final stage of the two-stage release mechanism before it ends the call.

Unregister Timeout

Default Value: `3 s`
Valid Values: Any positive integer with a valid unit of time (see "Valid Units of Time")
Changes Take Effect: Immediately

Specifies the maximum amount of time that IVR Server waits for `EventUnregistered` from a connected T-Server when it attempts to unregister a DN. If this timer expires, IVR Server stops waiting for the reply and makes no further attempt to unregister the DN.

TServerClientSap

This section must be called `TServerClientSap`.

call-timer-timeout

Default Value: `28800`
Valid Values: Any valid integer
Changes Take Effect: Immediately

Specifies the amount of time (in seconds) that the `TServerClientSap` waits for the call to be released. After the timer expires, the `TServerClientSap` assumes that the call is over, and all call-related information is deleted.

defer-tlib-events

Default Value: `true`
Valid Values: `true`, `false`
Changes Take Effect: At `I-Server` startup

Specifies whether call-related events are processed before a new call notification for the call is received. If `false`, all call-related events are processed immediately. If `true`, all call-related events are buffered in the `TServerClientSap` until a new call notification is received for the call, at which time the events are processed.

Note: In order for `I-Server` to function properly, the `defer-tlib-events` option must be set to `true`.

waiting-for-newcall-timeout

Default Value: `30`
Valid Values: Any valid integer
Changes Take Effect: Immediately

Specifies the amount of time (in seconds) that the `TServerClientSap` waits for a new call notification for a call. After the timer expires, the `TServerClientSap` assumes that the new call notification will never arrive, and all events for the call are discarded.

XmlSap

This section must be called `XmlSap`.

validation-scheme

Default Value: `never`
Valid Values: `always`, `auto`, `never`
Changes Take Effect: Immediately

Specifies whether validation is performed on incoming XML messages. If set to `never`, no validation of the XML messages is performed. If set to `auto`, XML messages are validated if a `.dtd` file exists; otherwise, no validation is performed. If set to `always`, all XML messages are validated, and it is considered an error if no `.dtd` file exists.

Note: Enable the `validation-scheme` option when you are performing integration testing for new client applications. Otherwise, Genesys recommends that you disable this option, because doing so improves performance.

target-encoding

Default Value: `ISO-8859-1`
Valid Values: Any target encoding that is supported by the Genesys Framework components. For a complete list of supported transcoders, go to `http://www.ibm.com/software/globalization/icu/demo/converters`.
Changes Take Effect: At startup

Specifies the transcoder that is used to convert Unicode character data before user data is attached to a call. This transcoder is also used to convert user data back to Unicode when it is passed to the network.

I-Server Options

This section describes the options that are configured on the `Options` tab of the `I-Server` application `Properties` dialog box (see Figure 92).

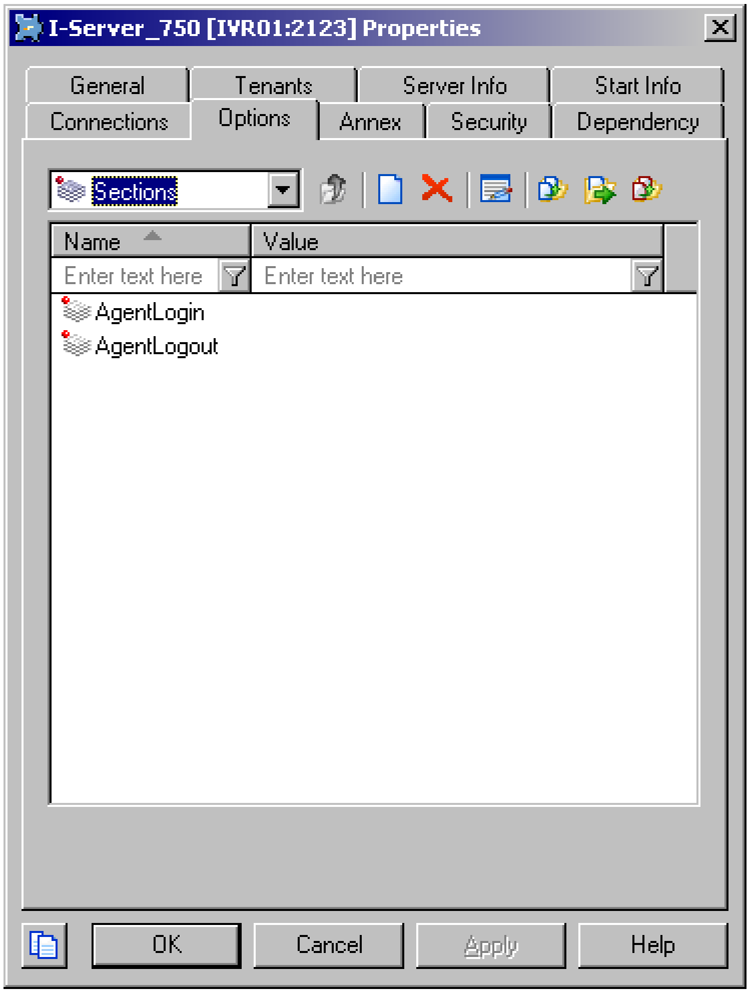


Figure 92: I-Server Properties Dialog Box—Options Tab

LoadBalance

This section must be called `LoadBalance`.

app-name

Default Value: None
Valid Values: Any valid `I-Server` name

Changes Take Effect: After TServer_IVR is restarted

Specifies the name of the primary I-Server in Configuration Manager.

VirtualRoutePoints

This section must be called VirtualRoutePoints.

<Premise T-Server application name in CME>

Default Value: None
Valid Values: See Table 13
Changes Take Effect: Immediately

Specifies the available Virtual Routing Points for route requests in an IVR-Behind-Switch configuration.

To set this option:

1. From within the VirtualRoutePoints section of an I-Server application, click Create New Section/Option. The Edit Option dialog box appears.
2. In the Option Name box, specify the exact name of a premise T-Server as it is configured in Configuration Manager.
3. In the Option Value box, specify one or more values, using the syntax shown in Table 13.
4. Click OK to create the option.

Note: If the number of configured Virtual Routing Points exceeds 255, you must segment the Virtual Routing Points that are defined for a given I-Server (on its Options tab), by using the ExtensionDelimiter option.

Table 13: Valid Values for <Premise T-Server Application Name in CME>

Configuration Conditions	Valid Values	Variable Definitions
Using Load Balancing	DN1[|aliasname]:DN2[|aliasname]	DN1–DN*n* are configured Virtual Routing Points on the premise T-Server's switch.
Not using Load Balancing	DN1:DN2:DNn	
Using more than 255 Virtual Routing Points	<premise T-Server name><ExtensionDelimiter> <ID> = VRP1[|aliasname]:VRP2[|aliasname]...	<ID> can be any string (such as 001, 002, and so on).

ExtensionDelimiter

Default Value: : (colon)
Valid Values: Any nonzero, single-character string
Changes Take Effect: Immediately

Used as a token to parse extended Virtual Routing Points definitions when the list exceeds 255 entries.

Stat:<stat name>

This section must be called Stat:<stat name>.

Note: In this section, <stat name> is the string that is passed in the XML messages when referencing this statistic.

obj_id

Default Value: None
Valid Values: Any valid object ID
Changes Take Effect: After I-Server is restarted

Specifies the object name, which is taken from Configuration Server (not database object identifier [DBID]).

For statistics of type SObjectGroupQueues, the format is GroupName@Tenant. For all other statistics, the format is DN@Switch. For the list of supported object types, see the description of the obj_type option.

obj_type

Default Value: None
Valid Values: SObjectRoutePoint, SObjectQueue, SObjectSwitch, SObjectRegDN, SObjectGroupQueues
Changes Take Effect: After I-Server is restarted

Specifies the object type of a statistic. You must configure these object types in Stat Server, not Configuration Manager, using the syntax shown in the description of the obj_id option.

server_name

Default Value: None
Valid Values: Any valid Stat Server name
Changes Take Effect: After I-Server is restarted

Specifies the name of the Stat Server for statistic retrieval.

stat_type

Default Value: None
Valid Values: Any valid Configuration Manager statistic type

Changes Take Effect: After I-Server is restarted

Specifies the type of statistic that is to be requested. These stat types must be configured in Stat Server, not Configuration Manager.

time_profile

Default Value: None
Valid Values: Any valid time profile that is defined in Stat Server
Changes Take Effect: After I-Server is restarted

Specifies the time profile to be used for the statistic.

update_frequency

Default Value: No default value
Valid Values: Any integer
Changes Take Effect: After I-Server is restarted

Specifies the update frequency for the statistic. If <= 0, no updates from Stat Server are requested, and each request to I-Server for statistic information causes I-Server to send a request to Stat Server. If > 0, Stat Server sends statistic updates to I-Server, based on the value (in seconds) that is set in the update_frequency option. A request to I-Server for statistic information causes I-Server to return the cached value.

AgentLogout

This section must be called AgentLogout.

LogoutOnShutdown

Default Value: true
Valid Values: true, false
Changes Take Effect: Immediately

Specifies whether IVR Server logs out agents when it shuts down. If set to true, agents will be logged out at shutdown.

Note: Do not use the LogoutOnShutdown option if you are using the app-name option (see page 252).

TimePerLogout

Default Value: 100ms
Valid Values: Any positive integer
Changes Take Effect: Immediately

Specifies the maximum amount of time (in milliseconds) to wait for each successful logout before completing a shutdown.

LogoutOnDisable

Default Value: `false`
Valid Values: `true`, `false`
Changes Take Effect: Immediately

If set to `true`, any change to the configuration that renders a port unusable triggers agent logout. This applies only if the relevant port has login information configured, and if the server is operating in legacy mode.

AgentLogin

This section must be called `AgentLogin`.

ReadyWorkMode

Default Value: `ManualIn`
Valid Values: `ManualIn`, `autoIn`, `Unknown`
Changes Take Effect: Immediately

Specifies the value that is used for `AttributeWorkMode` when IVR Server performs login operations. This value is used only in `TAgentReady`.

IgnoreReady

Default Value: `false`
Valid Values: `true`, `false`
Changes Take Effect: Immediately

Specifies whether `I-Server` attempts to change the agent's default ready state using `TAgentReady` or `TAgentNotReady` when it logs in that agent.

InFront

This section must be called `InFront`.

UseQueue

Default Value: None
Valid Values: Any valid ACD queue name
Changes Take Effect: Immediately

Specifies the name of an ACD queue that has been associated in Configuration Manager with the virtual switch specified for the IVR Server that is running in IVR-In-Front mode. All calls that the IVR Server receives are placed in this queue, which can be used with Inter Server Call Control (ISCC) `direct-ani` and `dnis-pool` external routing.

IVR_Driver Options

This section describes options that are configured on the `Options` tab of the `IVR_Driver` application's `Properties` dialog box.

Note: All options and values other than those that are described in this section are ignored.

ivr_server_interface

This section must be called `ivr_server_interface`.

load_sharing_iservers

Default Value: None
Valid Values: A comma-delimited list of (`host:port`) pairs for all IVR Servers to which the IVR Driver connects
Changes Take Effect: Immediately

Specifies a comma-delimited list of (`host:port`) pairs of Load Sharing `I-Server` applications.

socket_activity_timer

Default Value: `20000`
Valid Values: Any integer >= `1000`, or `0`
Changes Take Effect: Immediately

Specifies the amount of time (in milliseconds) before IVR Library suspects that the socket connection to IVR Server is disconnected.

If IVR Library does not receive any event messages from IVR Server within the amount of time specified by `socket_activity_timer`, IVR Library sends a `KeepAlive` message to IVR Server. If IVR Library does not receive any events from IVR Server within three times the `socket_activity_timer` value, it disconnects the socket and attempts to open a new one.

If set to `0`, `KeepAlive` processing is disabled.

time_recon_is

Default Value: `2000`
Valid Value: Any integer >= `1000`
Changes Take Effect: Immediately

Specifies the amount of time (in milliseconds) between reconnection attempts.

log_content

This section must be called log_content.

Note: The options in the log_content section apply only to debug-level messages. The other logging options that you can set for the IVR_Driver application are documented in Chapter 10 on page 227.

log_print_date

Default Value: Yes
Valid Values: Yes, No
Changes Take Effect: Immediately

Specifies whether to include the date stamp in output.

log_print_hb

Default Value: No
Valid Values: Yes, No
Changes Take Effect: Immediately

Specifies whether to log heartbeat requests in output.

log_print_level

Default Value: xml
Valid Values: flow, xml, debug, detail, none
Changes Take Effect: Immediately

Specifies the level of logging:

- flow—Logs the messages flowing from the application to IVR Library to IVR Server, and then back.
- xml—Logs all messages provided by flow, as well as the XML strings that flow from IVR Library to IVR Server, and then back.
- debug—Logs all messages provided by xml, as well as internal debug messages.
- detail—Logs all messages provided by debug, as well as internal debug flow messages.
- none—Logs all messages, as specified in the verbose option of the log section.

log_print_name

Default Value: Yes
Valid Values: Yes, No
Changes Take Effect: Immediately

Specifies whether to include the IVR Driver name in output.

log_print_recv

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: Immediately

Specifies whether to log messages that IVR Server sends to the IVR Driver.

log_print_send

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: Immediately

Specifies whether to log messages sent by the driver to IVR Server.

log_print_time

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: Immediately

Specifies whether to include the time (in `hrs:min:sec` format) in output.

log_print_time_ms

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: Immediately

Specifies whether to include the time (in `hrs:min:sec:ms` format) in output. If the `Log_print_time` option is set to `No`, this option is ignored.

log_print_timeouts

Default Value: `No`
Valid Values: `Yes`, `No`
Changes Take Effect: Immediately

Specifies whether to print IVR Driver (`GetReply`) timeouts to the log.

log_print_udata

Default Value: `No`
Valid Values: `Yes`, `No`
Changes Take Effect: Immediately

Specifies whether to include in output the contents of the value in key-value data pairs.

log_print_login_requests

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: Immediately in 7.x mode, or at startup in 6.5 mode

Specifies whether to log Login Request XML strings.

log_print_driver_selector

Default Value: 0
Valid Values: A string of zeros and ones
Changes Take Effect: Immediately in 7.x mode, or at startup in 6.5 mode

Specifies which driver messages are logged.

log_print_agent_login

Default Value: true
Valid Values: true, false
Changes Take Effect: Immediately

Specifies whether to print the agent login message which contains the agent password.

IVR Annex Tab

AgentControl

The option in this section is used to specify which AgentControl values IVR Library expects and what effect they have.

Note: All values other than those that are described in this section are ignored.

LegacyMode

Default Value: true
Valid Values: true, false
Changes Take Effect: Immediately

Specifies whether IVR Server or IVR Driver controls agent state, in order to provide consistency with the values that are configured for the IVR ports in the IVR object (see “AgentLogin” on page 256). If set to true, the IVR Server controls the agent activity. If set to false, the IVR Driver or the IVR SDK controls the agent activity.

DataTransport

The options in this section are used to specify which DataTransport values IVR Library expects, and what effect they have.

Notes: All values other than those that are described in this section are ignored.

Starting with IVR Server 7, if you are using the IVR Drivers for Aspect and CONVERSANT, or the IVR SDK, you must configure these options on the `Annex` tab of the `IVR Properties` dialog box. For all other IVR Drivers, there are corresponding options that you configure on the Options tab of the `IVR Properties` dialog box. See “IVR_Driver Options” on page 257.

log_file_name

Default Value: `con`
Valid Values: Any valid file name
Changes Take Effect: After the IVR Driver is restarted

Specifies the name of the log file, including the path (if desired). The IVR Driver must have write access to the path, and all directories along the path must already be created.

log_file_size

Default Value: `0`
Valid Values: Any integer
Changes Take Effect: After the IVR Driver is restarted

Specifies the maximum size (in bytes) of log files. If empty or set to `0`, no limit is implied.

log_file_backup_amount

Default Value: `0`
Valid Values: Any integer
Changes Take Effect: After the IVR Driver is restarted

Specifies the number of backup log files.

time_recon_is

Default Value: `2000`
Valid Values: Any integer >= to `1000`
Changes Take Effect: After the IVR Driver is restarted

Specifies the amount of time (in milliseconds) between reconnection attempts.

log_print_timeouts

Default Value: `No`
Valid Values: `Yes`, `No`
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to print Driver(`GetReply`) timeouts to the log.

log_print_name

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to include the IVR Driver name in output.

log_print_date

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to include the date stamp in output.

log_print_time

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to include the time (in `hrs:min:sec` format) in output.

log_print_time_ms

Default Value: `Yes`
Valid Values: `Yes`, `No`
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to include the time (in `hrs:min:sec:ms` format) in output. If the `log_print_time` option is set to `No`, this option is ignored.

log_print_udata

Default Value: `No`
Valid Values: `Yes`, `No`
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to include in output the contents of the value in key-value data pairs.

log_print_level

Default Value: `xml`
Valid Values: `flow`, `xml`, `debug`, `detail`, `none`
Changes Take Effect: After the IVR Driver is restarted

Specifies the level of logging:

- `flow`—Logs the messages flowing from the application to IVR Library to IVR Server, and then back.
- `xml`—Logs all messages provided by `flow`, as well as the XML strings flowing from IVR Library to IVR Server, and then back.

- debug—Logs all messages provided by xml, as well as internal debug messages.
- detail—Logs all messages provided by debug, as well as internal debug flow messages.
- none—Logs all messages, as specified in the verbose option of the log section.

log_print_hb

Default Value: No
Valid Values: Yes, No
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to log heartbeat requests in output.

log_print_send

Default Value: Yes
Valid Values: Yes, No
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to log messages that the IVR Driver sends to IVR Server.

log_dbg

Default Value: No
Valid Values: Yes, No
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to print XML strings.

load_sharing_lservers

Default Value: None
Valid Values: A comma-delimited list of (host:port) pairs of Load Sharing I-Servers
Changes Take Effect: After the IVR Driver is restarted

Specifies a comma-delimited list of (host:port) pairs of Load Sharing I-Servers.

log_print_recv

Default Value: Yes
Valid Values: Yes, No
Changes Take Effect: After the IVR Driver is restarted

Specifies whether to log messages that IVR Server sends to the IVR Driver.

IVR Port Annex Tab

This section lists the options that are configured on the Annex tab of the IVR Port Properties dialog box.

AutoLogin

This section must be called AutoLogin.

AgentId

Default Value: None
Valid Values: Any valid AgentID
Changes Take Effect: Immediately

Specifies the AgentID that is related to the IVR port.

Queue

Default Value: None
Valid Values: Any valid queue
Changes Take Effect: Immediately

Specifies the queue to log in to.

Password

Default Value: ""
Valid Values: Any valid password
Changes Take Effect: Immediately

Specifies the password for the specified AgentID.

SetReady

Default Value: false
Valid Values: true, false
Changes Take Effect: Immediately

Specifies which message to send after the agent logs in. If set to true, a RequestSetAgentReady message is sent. If set to false, a RequestSetAgentNotReady message is sent.

SetLoggedIn

Default Value: true
Valid Values: true, false
Changes Take Effect: Immediately

Specifies whether an agent should be logged in.

Appendix

A Sample Configurations

This appendix provides examples of how to configure Interactive Voice Response devices (IVRs) in each of the three configuration modes (IVR-In-Front, IVR-Behind-Switch, and IVR Network T-Server). It contains the following sections:

Note: Before you configure IVR Server, make sure that the `Annex` tab is enabled on all applicable `Properties` dialog boxes. For instructions, see "Enabling the Annex Tab" on page 150.

IVR-In-Front Configuration

Figure 93 illustrates a sample IVR-In-Front configuration.

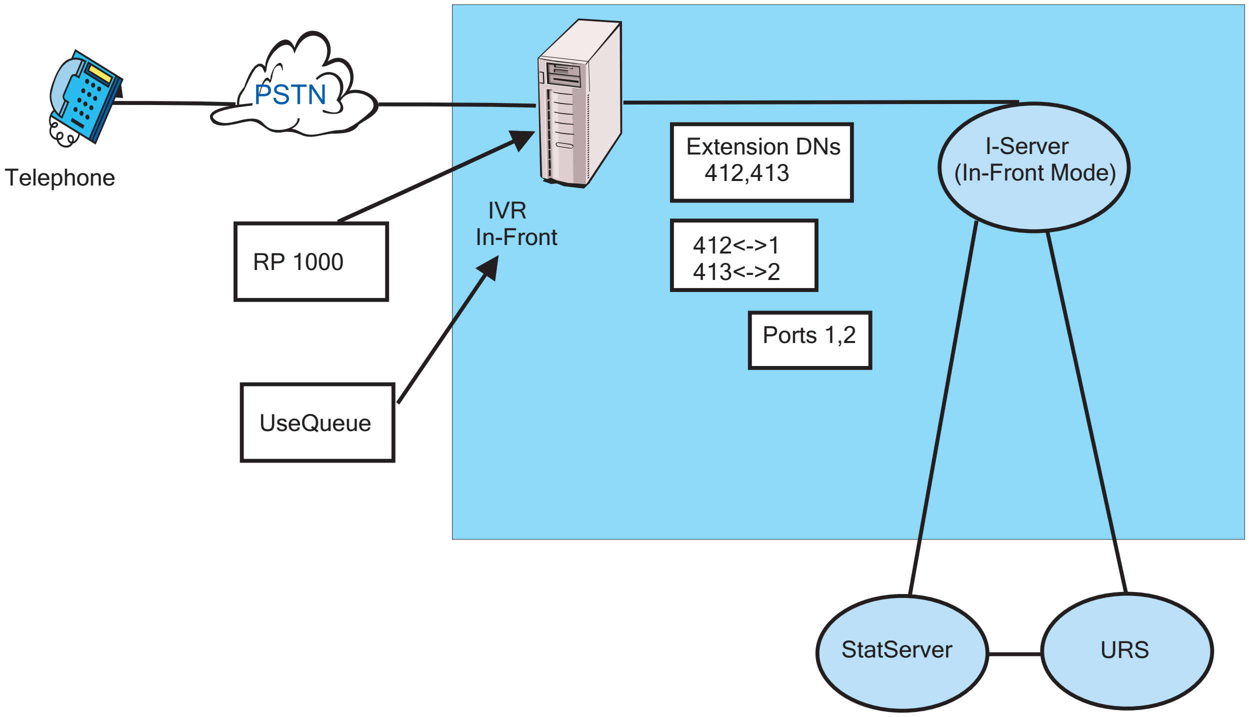


Figure 93: IVR-In-Front Sample Configuration

In this sample IVR-In-Front configuration, the IVR has two ports: 1 and 2. These ports are mapped to DNs 412 and 413 on the virtual switch. In addition, the virtual switch has defined Routing Point 1000 to be used for route requests. This example also shows statistics, routing services (through Universal Routing Server [URS]), and Load Sharing of IVR Server options are also shown.

The procedures in this section explain the following steps in detail:

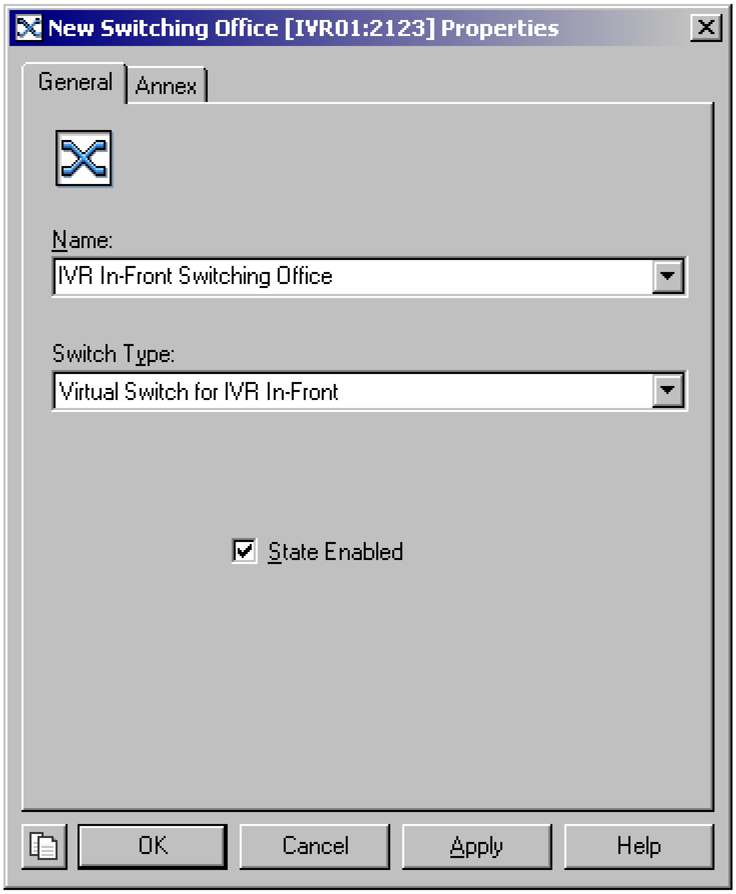
1. Configure the switching office.
2. Configure the switch.
   - Configure the DNs.
3. Configure the `IVR` object.
   - Configure the IVR ports.
   - Configure the agent login (optional).
4. Configure the `I-Server` application.
   - Configure the ACD queue for the virtual switch (optional).
5. Configure the `TServer_IVR` application.
6. Associate the `IVR` object with the `I-Server` application.
7. Connect the `TServer_IVR` and Stat Server applications to the `I-Server` application.

Note: If you want to create routing strategies, you must configure a connection from the URS application to the TServer_IVR application.

Configuring the Switching Office

To configure the IVR-In-Front switching office in Configuration Manager:

1. Expand Environment, right-click Switching Offices, and select New > Switching Office. The New Switching Office Properties dialog box appears (see Figure 94).



Name: IVR In-Front Switching Office

Switch Type: Virtual Switch for IVR In-Front

☑ State Enabled

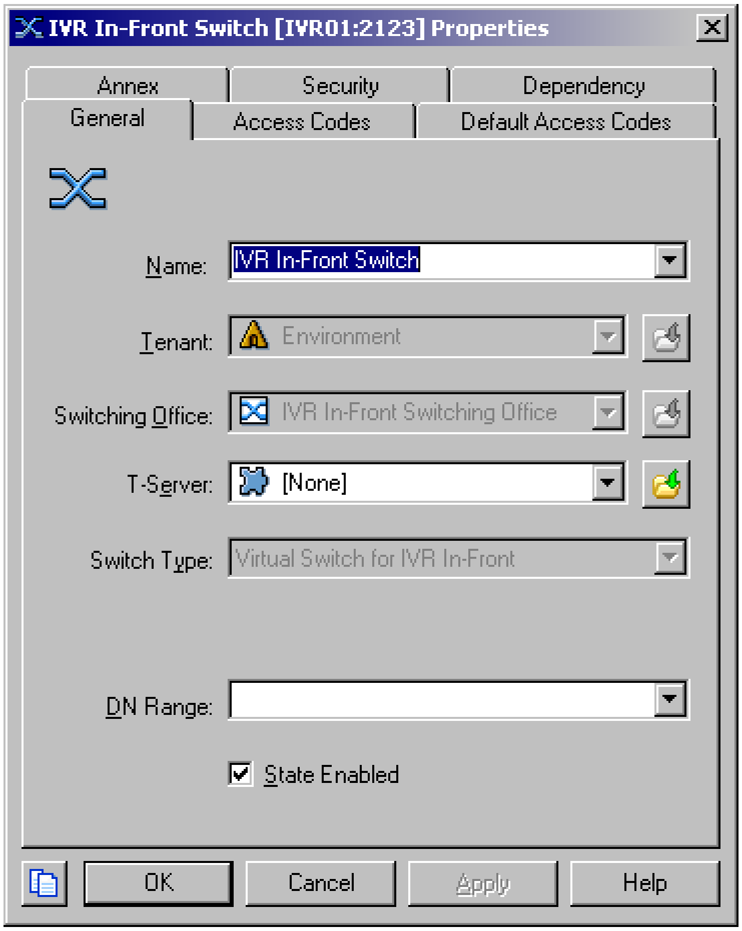
Figure 94: New Switching Office Properties Dialog Box

2. In the Name box, enter IVR In-Front Switching Office.
3. In the Switch Type box, select Virtual Switch for IVR In-Front.
4. Click OK to complete the configuration of the IVR-In-Front switching office.

Configuring the Switch

To configure the IVR-In-Front switch in Configuration Manager:

1. Expand `Resources` (or `Tenant Name`), right-click `Switches`, and select `New > Switch`. The `IVR In-Front Switch Properties` dialog box appears (see Figure 95).



Name: IVR In-Front Switch

Tenant: Environment

Switching Office: IVR In-Front Switching Office

T-Server: [None]

Switch Type: Virtual Switch for IVR In-Front

DN Range:

☑ State Enabled

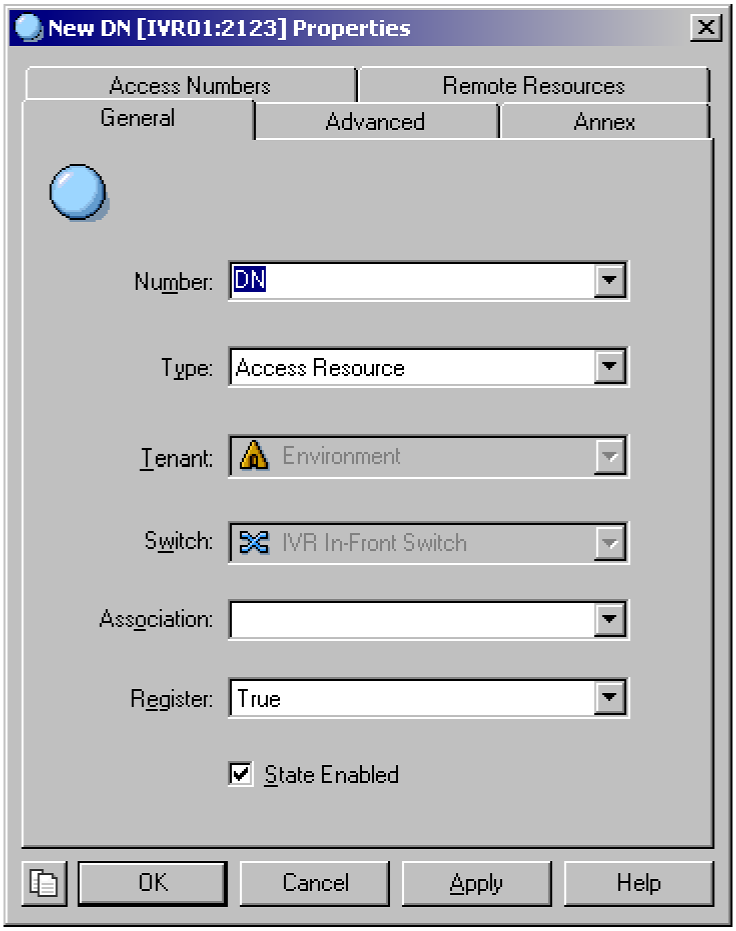
Figure 95: IVR In-Front Switch Properties Dialog Box

2. In the `Name` box, enter `IVR In-Front Switch`.
3. Click the `Folder` icon next to the `Switching Office` box, select `IVR In-Front Switching Office`, and click `OK`.
4. Click `OK` to complete the configuration of the IVR-In-Front switch.

Configuring the DNs

To configure DNs 412 and 413, and Routing Point 1000 in Configuration Manager:

1. Expand `Resources` (or `Tenant Name`) > `Switches` > `IVR In-Front Switch`, right-click `DNs`, and select `New` > `DN`. The `New DN Properties` dialog box appears (see Figure 96).



New DN [IVR01:2123] Properties

Number: DN

Type: Access Resource

Tenant: Environment

Switch: IVR In-Front Switch

Association:

Register: True

☑ State Enabled

Figure 96: New DN Properties Dialog Box

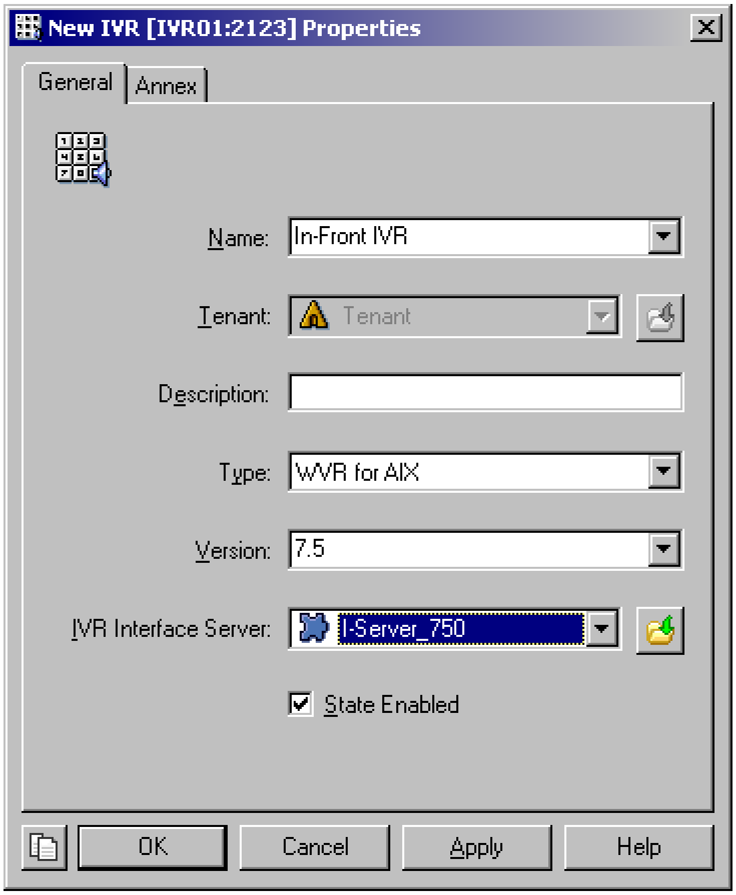
2. Configure DN 412:
   a. In the `Number` box, enter `412`.
   b. In the `Type` box, select `Extension`.
   c. Click `Apply`.
3. Configure DN 413:
   a. In the `Number` box, enter `413`.
   b. In the `Type` box, select `Extension`.
   c. Click `Apply`.

4. Configure Routing Point 1000:
   a. In the Number box, enter 1000.
   b. In the Type box, select Routing Point.
   c. Click OK.

Configuring the IVR

To configure the IVR in Configuration Manager:

1. Expand Resources (or Tenant Name), right-click IVRs, and select New > IVR. The New IVR Properties dialog box appears (see Figure 97).



New IVR [IVR01:2123] Properties

General | Annex

Name: In-Front IVR

Tenant: Tenant

Description:

Type: WVR for AIX

Version: 7.5

IVR Interface Server: I-Server_750

☑ State Enabled

Figure 97: New IVR Properties Dialog Box

2. In the Name box, enter In-Front IVR.
3. In the Type box, select the applicable IVR type.
4. In the Version box, enter the applicable IVR version.
5. Click the Folder icon next to the IVR Interface Server box, select I-Server_750, and click OK.

6. Click the Annex tab, and do the following:
   a. Create a new section named DataTransport.
   b. Enter the key-value pairs that are to be returned when users log in to IVR Server.

   You can accept the defaults for the other options on the Annex tab, unless you need specific option definitions.

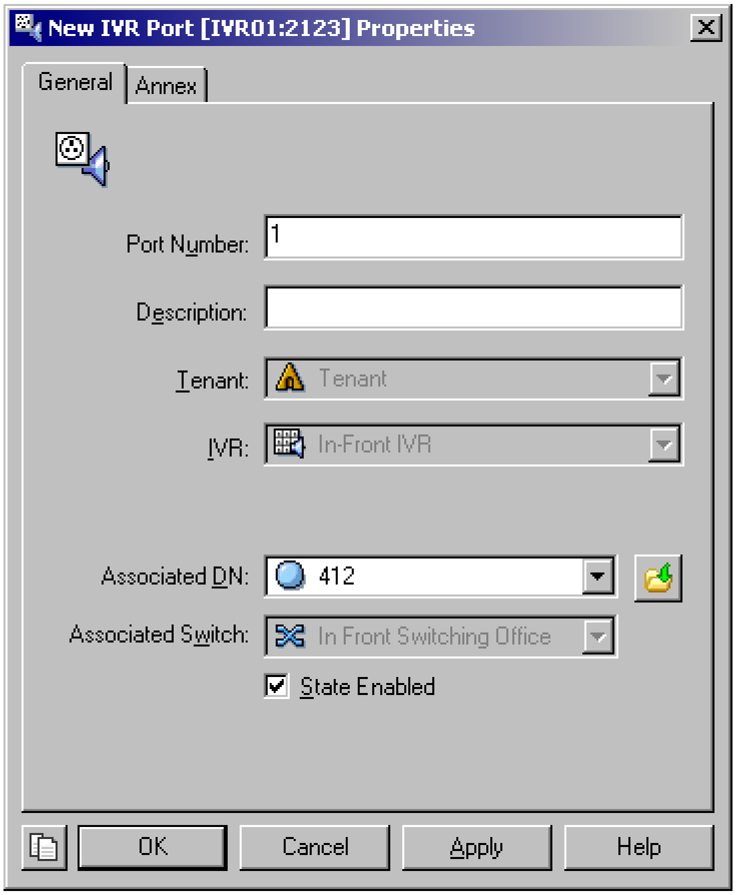
Note: Step 6 applies only to the IVR Drivers 7.5 for Aspect Unixware and CONVERSANT. For other IVR Drivers 7.5, skip this step.

7. Click OK to complete the configuration of the IVR.

Configuring the IVR Ports

To configure the IVR ports in Configuration Manager:

1. Expand Resources (or Tenant Name) > IVRs > In-Front IVR, right-click IVR Ports, and select New > IVR Port. The New IVR Port Properties dialog box appears (see Figure 98).



New IVR Port [IVR01:2123] Properties

Port Number: 1

Description:

Tenant: Tenant

IVR: In-Front IVR

Associated DN: 412

Associated Switch: In Front Switching Office

☑ State Enabled

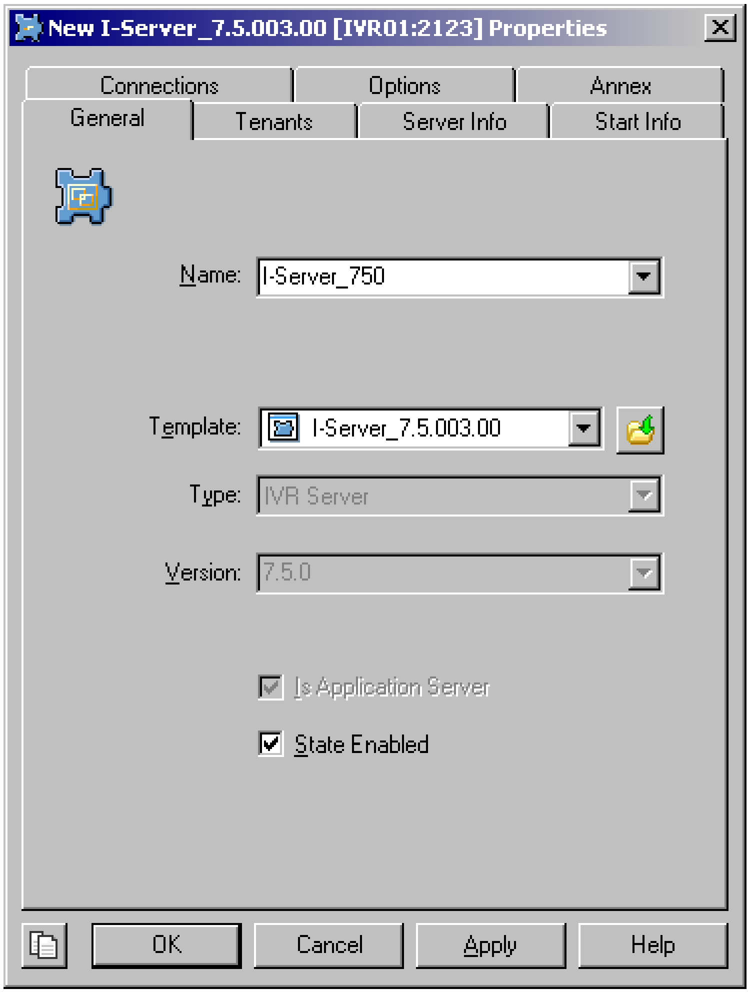
Figure 98: New IVR Port Properties Dialog Box

2. Configure Port 1:
   a. In the Port Number box, enter 1.
   b. Click the Folder icon next to the Associated DN box, select DN 412 for the associated switch (IVR In-Front Switch), and click OK.
   c. Click Apply.
3. Configure Port 2:
   a. In the Port Number box, enter 2.
   b. Click the Folder icon next to the Associated DN box, select DN 413 for the associated switch (IVR In-Front Switch), and click OK.
   c. If you are using the Auto-Login feature, click the Annex tab and do the following:
      - Create a new section named AutoLogin.
      - Add configuration options for the AutoLogin section, as described in "Configuring the Auto-Login Feature" on page 163, and "AgentLogin" on page 256.
   d. Click OK.

Creating and Configuring the I-Server Application

To create and configure an I-Server application named IVR Server, of type IVR Interface Server, in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. The Browse dialog box appears.
2. Select I-Server_750, and then click OK. The New I-Server_750 Properties dialog box appears (see Figure 99).



New I-Server_7.5.003.00 [IVR01:2123] Properties

Name: I-Server_750

Template: I-Server_7.5.003.00

Type: IVR Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 99: New I-Server_750 Properties Dialog Box

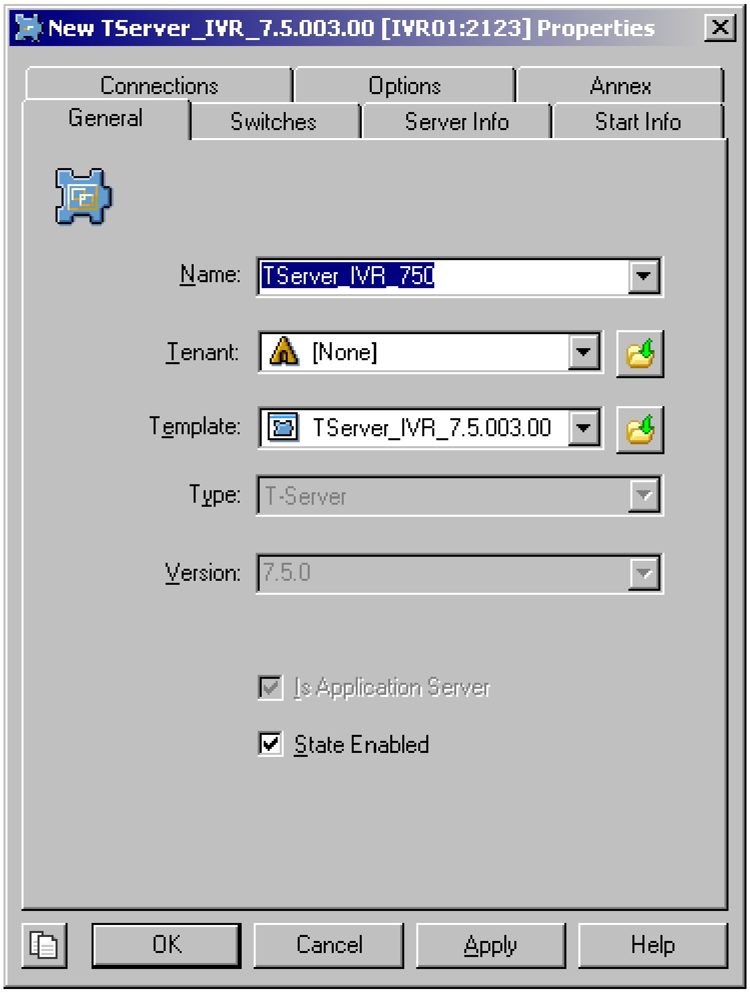
3. In the `Name` box, enter `IVR Server`.
4. Click `Apply` to save your changes on this tab.
5. Click the `Start Info` tab.
6. Enter a single period (`.`) in the following boxes:
   - `Working Directory`
   - `Command Line`
   - `Command Line Arguments`
7. Click `Apply` to save your changes on this tab.
8. Click the `Server Info` tab.
9. In the `Host` box, enter the host that the `I-Server` application will use.
10. In the `Ports` box, add a new port number that the `I-Server` application will use.
11. Click `Apply` to save your changes on this tab.

12. Click the Options tab.
13. If you want to use Load Balancing:
    a. Create a new section named LoadBalance.
    b. Add configuration options, as described in "LoadBalance" on page 252.
14. If you want to gather statistics:
    a. Create a new section named Stat:<stat name>.
    b. Add configuration options, as described in "Stat:<stat name>" on page 254.
15. If you are using external routing, and if the IVR Server is a target of Inter Server Call Control (ISCC) transport data from a Network T-Server, a T-Server, or another IVR Server, you must configure an ACD queue for the virtual switch:
    a. Create a new section called InFront.
    b. Create a new option called UseQueue, and specify the name of an ACD queue that has been associated in Configuration Manager with the virtual switch that is associated with this IVR Server.
    c. If you need multi-site configuration, see Chapter 3 on page 43.
16. Click Apply to save your changes on this tab.
17. Click OK to complete the configuration of the I-Server application.

Configuring the TServer_IVR Application

To configure the TServer_IVR application in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. The Browse dialog box appears.
2. Select TServer_IVR_750, and then click OK. The New TServer_IVR_750 Properties dialog box appears (see Figure 100).



New TServer_IVR_7.5.003.00 [IVR01:2123] Properties

Name: TServer_IVR_750

Tenant: [None]

Template: TServer_IVR_7.5.003.00

Type: T-Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 100: New TServer_IVR_750 Properties Dialog Box

3. In the `Name` box, enter `IVR T-Server`.
4. Click `Apply` to save your changes on this tab.
5. Click the `Switches` tab.
6. Select `IVR In-Front Switch`.
7. Click `Apply` to save your changes on this tab.
8. Click the `Start Info` tab.
9. In the `Working Directory` and `Command Line` boxes, enter the applicable information, as described in Steps 17–19 on page 191.
10. Click `Apply` to save your changes on this tab.
11. Click the `Server Info` tab.
12. In the `Host` box, enter the host that the `TServer_IVR` application will use.
13. In the `Ports` box, add a new port number that the `TServer_IVR` application will use.

14. Click Apply to save your changes on this tab.
15. Click the Options tab.
16. Create the following new sections (if they have not already been defined):
    - CallIdSap
    - extrouter
    - gli
    - gli_server
    - gli_server_group_1
    - IServer
    - IServerGLMSap
    - license
    - log
    - Timers
    - TServer
    - TServerClientSap
17. You must define (or add) the following options:
    - gli_server_address in the gli_server_group_1 section.
    - app_name in the IServer section.
    - operation-mode in the IServerGLMSap section.
    - license-file in the license section.

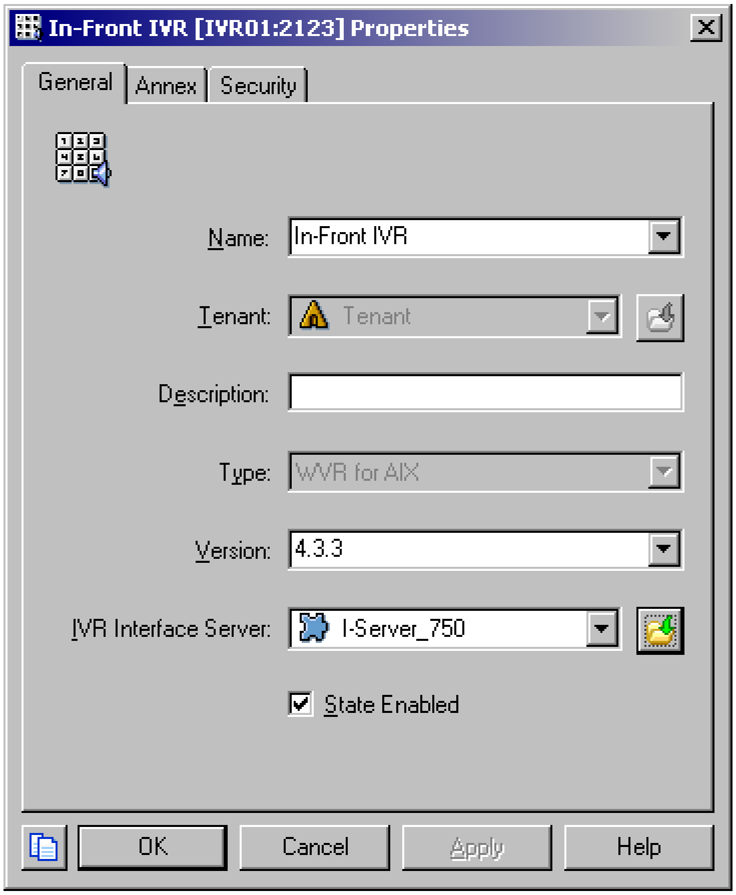
Notes: In most cases, you can use the default values for the other options. For option descriptions, see Chapter 11 on page 241.

18. Click Apply to save your changes on this tab.
19. Click OK to complete the configuration of the TServer_IVR application.

Associating the IVR with the I-Server Application

To connect the IVR to the I-Server application in Configuration Manager:

1. Expand Resources (or Tenant Name) > IVR, right-click In-Front IVR, and select Properties. The In-Front IVR Properties dialog box appears (see Figure 101).



Name: In-Front IVR

Tenant: Tenant

Description:

Type: WVR for AIX

Version: 4.3.3

IVR Interface Server: I-Server_750

☑ State Enabled

Figure 101: In-Front IVR Properties Dialog Box

2. Click the Folder icon next to the IVR Interface Server box, select I-Server_750, and click OK.
3. Click OK to associate the IVR with the I-Server application.

Connecting the TServer_IVR and Stat Server Applications to the I-Server Application

To connect the TServer_IVR and Stat Server applications to the I-Server application in Configuration Manager:

1. Expand Environment > Applications, right-click I-Server_750, and select Properties. The I-Server_750 Properties dialog box appears.
2. Click the Connections tab (see Figure 102).

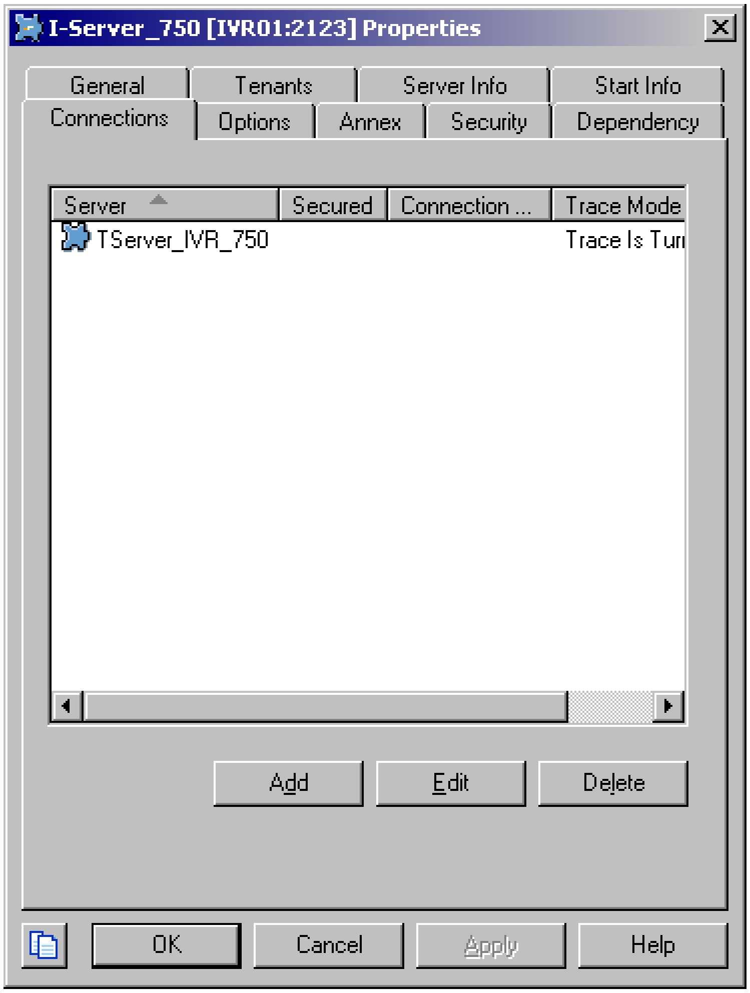


Figure 102: I-Server_750 Properties Dialog Box—Connections Tab

3. Click `Add` to add connections to the:
   - `TServer_IVR` application
   - Stat Server (if required)
   - Message Server
4. Click `OK` to save your connections.

IVR-Behind-Switch Configuration

Figure 103 illustrates a sample IVR-Behind-Switch configuration.

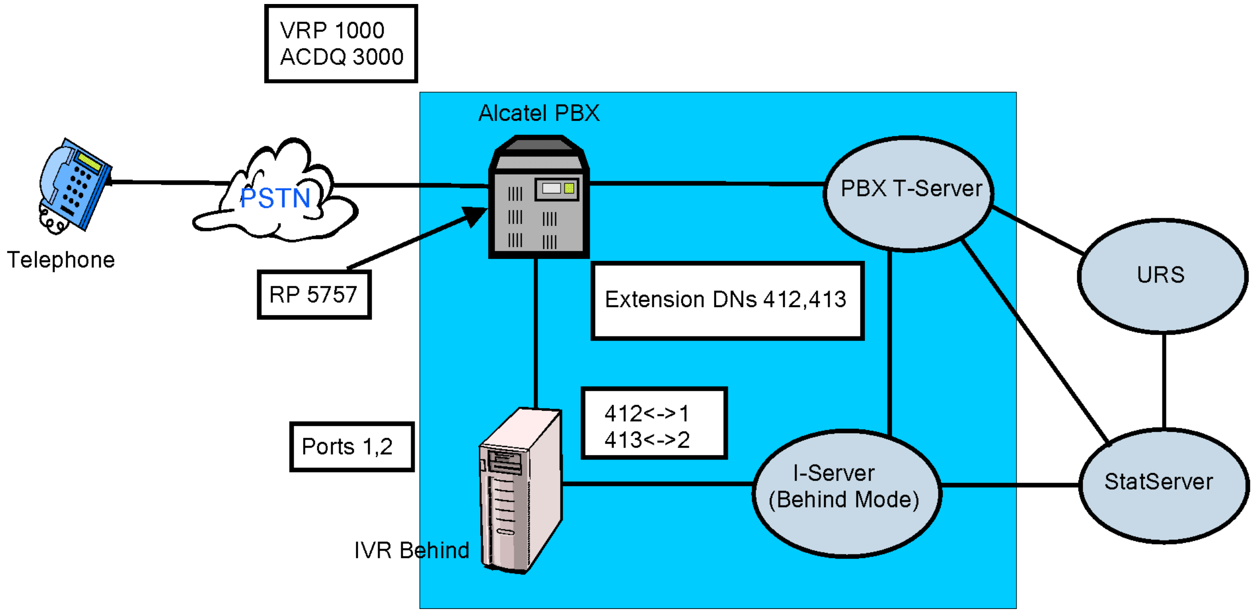


Figure 103: IVR-Behind-Switch Sample Configuration

Assume that premise T-Servers (PBX T-Server) have been configured, along with the required DNs (412 and 413), the Virtual Routing Point (1000), the switch (IVR-Behind-Switch switch), and the switching office (IVR-Behind-Switch switching office).

The procedures in this section explain the following steps in detail:

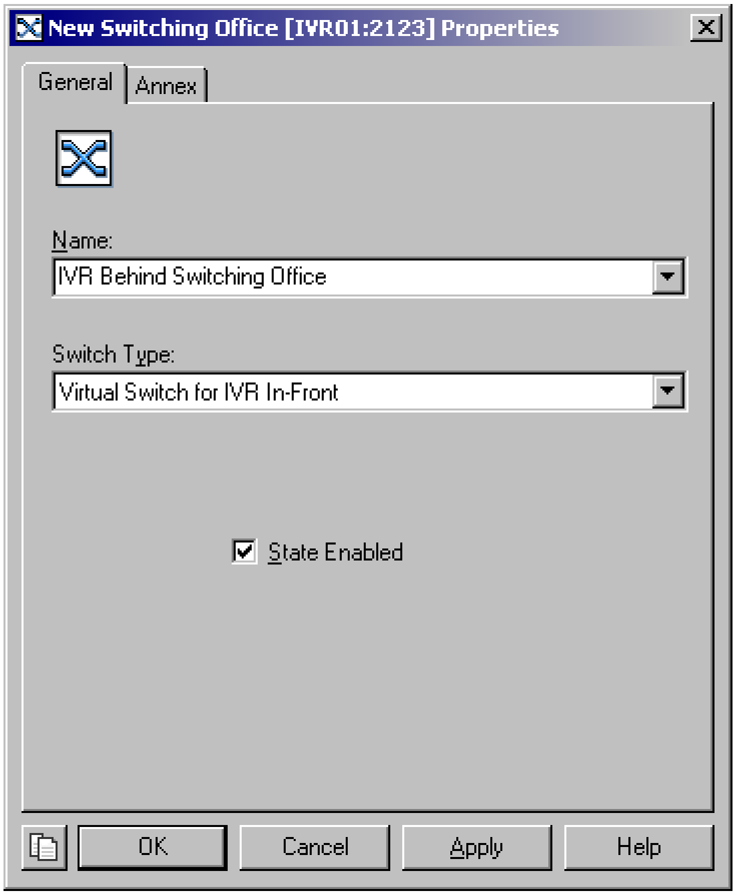
1. Configure the switching office.
2. Configure the switch.
3. Configure the `IVR` object.
4. Configure the IVR ports.
5. Define ACE Queue 3000.
6. Define the Routing Point DN.
7. Configure the `I-Server` application.
8. Configure the `TServer_IVR` application.
9. Associate the `IVR` object with the `I-Server` application.
10. Connect the `I-Server` application to other Genesys applications.

Note: The IVR-Behind-Switch configuration uses a virtual switch and a virtual switching office, in addition to the premise switch configuration described in the following sections. If you have not already configured a virtual switch and a virtual switching office, see "Creating a Virtual Switching Office" on page 113 and "Creating a Virtual Switch" on page 114 for information on how to configure them.

Configuring the Switching Office

To configure the IVR-Behind-Switch switching office in Configuration Manager:

1. Expand Environment, right-click Switching Offices, and select New > Switching Office. The New Switching Office Properties dialog box appears (see Figure 104).



New Switching Office [IVR01:2123] Properties

Name: IVR Behind Switching Office

Switch Type: Virtual Switch for IVR In-Front

☑ State Enabled

Figure 104: New Switching Office Properties Dialog Box

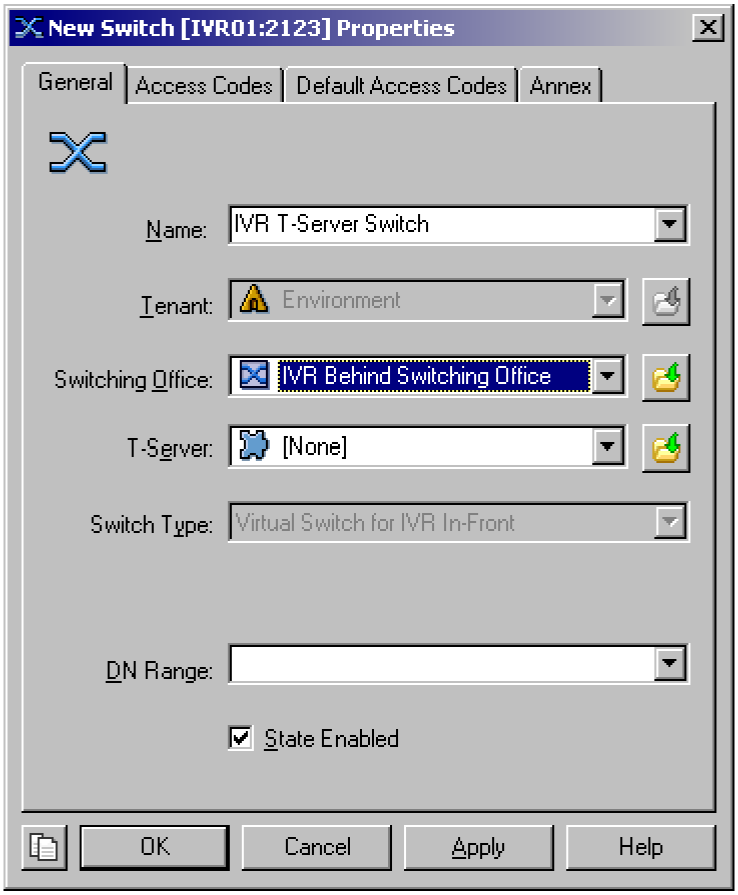
2. In the Name box, enter IVR Behind Switching Office.
3. In the Switch Type box, select Virtual Switch for IVR In-Front.
4. Click OK to complete the configuration of the IVR-Behind-Switch switching office.

Configuring the Switch

Note: Before you complete the following steps, you must configure a switching office, as described in “Configuring the Switching Office.”

To configure the IVR-Behind-Switch switch in Configuration Manager:

1. Expand `Resources` (or `Tenant Name`), right-click `Switches`, and select `New > Switch`. The `New Switch Properties` dialog box appears (see Figure 105).



New Switch [IVR01:2123] Properties

Name: IVR T-Server Switch

Tenant: Environment

Switching Office: IVR Behind Switching Office

T-Server: [None]

Switch Type: Virtual Switch for IVR In-Front

DN Range:

☑ State Enabled

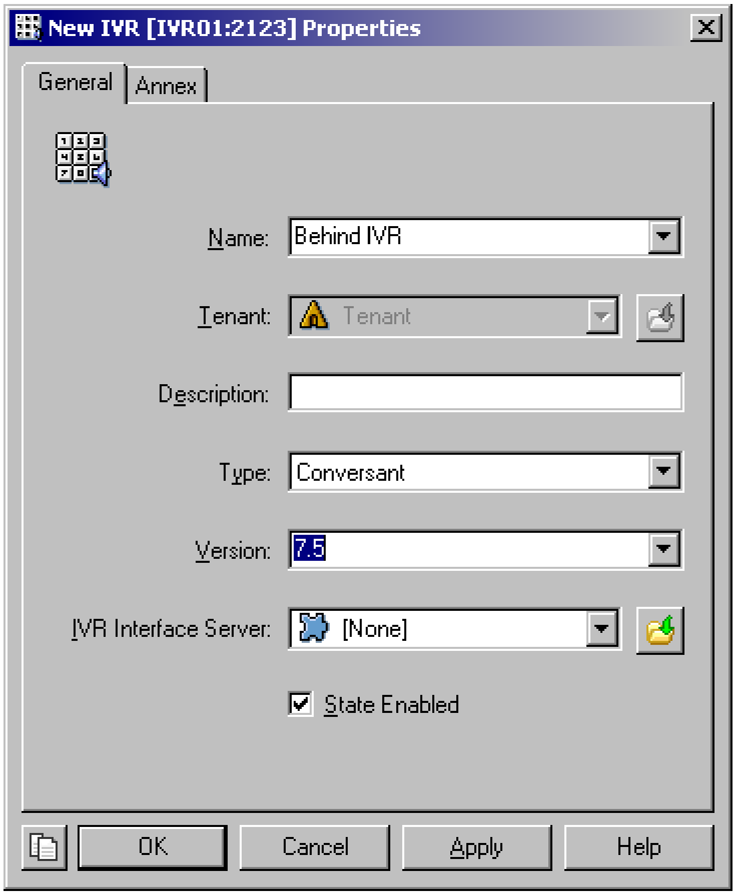
Figure 105: New Switch Properties Dialog Box

2. In the `Name` box, enter `IVR T-Server Switch`.
3. Click the `Folder` icon next to the `Switching Office` box, select `IVR Behind Switching Office`, and click `OK`.
4. Click `OK` to complete the configuration of the IVR-Behind-Switch switch.

Configuring the IVR

To configure the IVR in Configuration Manager:

1. Expand `Resources` (or `Tenant Name`), right-click `IVRs`, and select `New > IVR`. The `New IVR Properties` dialog box appears (see Figure 106).



Name: Behind IVR

Tenant: Tenant

Description:

Type: Conversant

Version: 7.5

IVR Interface Server: [None]

☑ State Enabled

Figure 106: New IVR Properties Dialog Box

2. In the `Name` box, enter `Behind IVR`.
3. In the `Type` box, select the applicable IVR type.
4. In the `Version` box, enter the applicable IVR version.
5. Click the `Annex` tab, and do the following:
   a. Create a new section named `DataTransport`.
   b. Enter the key-value pairs that are to be returned when users log in to IVR Server.

   You can accept the default values for the other options on the `Annex` tab, unless you need specific option definitions.

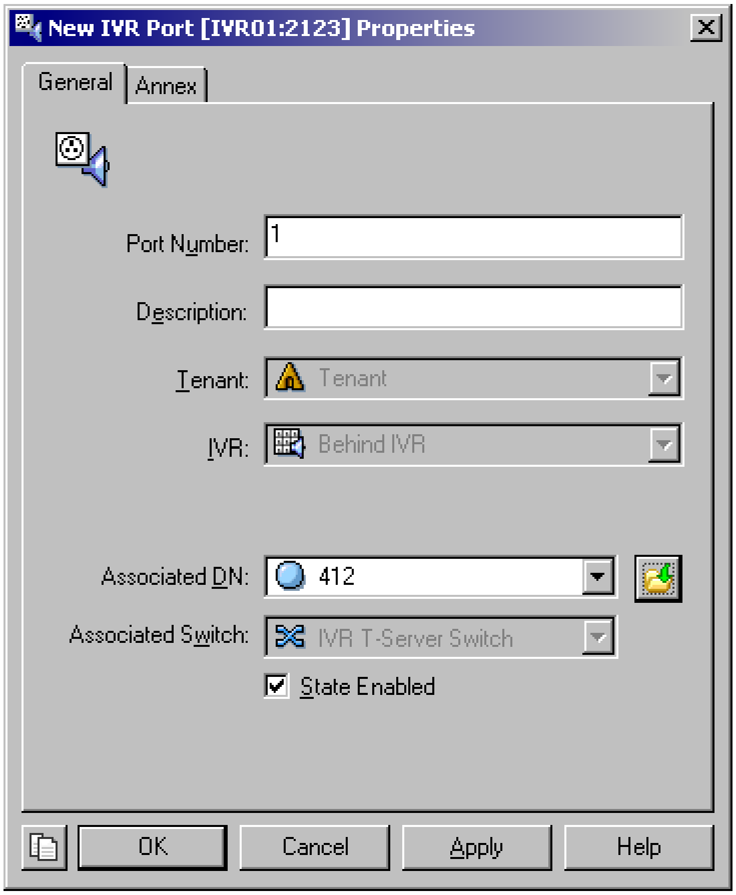
Note: Step 5 applies only to the IVR Drivers 7.5 for Aspect Unixware and CONVERSANT. For other IVR Drivers 7.5, skip this step.

6. Click `OK` to complete the configuration of the IVR.

Configuring the IVR Ports

To configure the IVR ports in Configuration Manager:

1. Expand Resources (or Tenant Name) > IVRs > Behind IVR, right-click IVR Ports, and select New > IVR Port. The New IVR Port Properties dialog box appears (see Figure 107).



New IVR Port [IVR01:2123] Properties

Port Number: 1

Description:

Tenant: Tenant

IVR: Behind IVR

Associated DN: 412

Associated Switch: IVR T-Server Switch

☑ State Enabled

Figure 107: New IVR Port Properties Dialog Box

2. Configure Port 1:
   a. In the Port Number box, enter 1.
   b. Click the Folder icon next to the Associated DN box, select DN 412 for the associated switch (IVR T-Server Switch), and click OK.
   c. Click Apply.
3. Configure Port 2:
   a. In the Port Number box, enter 2.
   b. Click the Folder icon next to the Associated DN box, select DN 413 for the associated switch (IVR T-Server Switch), and click OK.
   c. If you are using the Auto-Login feature, click the Annex tab and do the following:

- Create a new section named AutoLogin.
- Add configuration options for the AutoLogin section, as described in “Configuring the Auto-Login Feature” on page 163, and “AgentLogin” on page 256.

d. Click OK.

Defining ACD Queue 3000

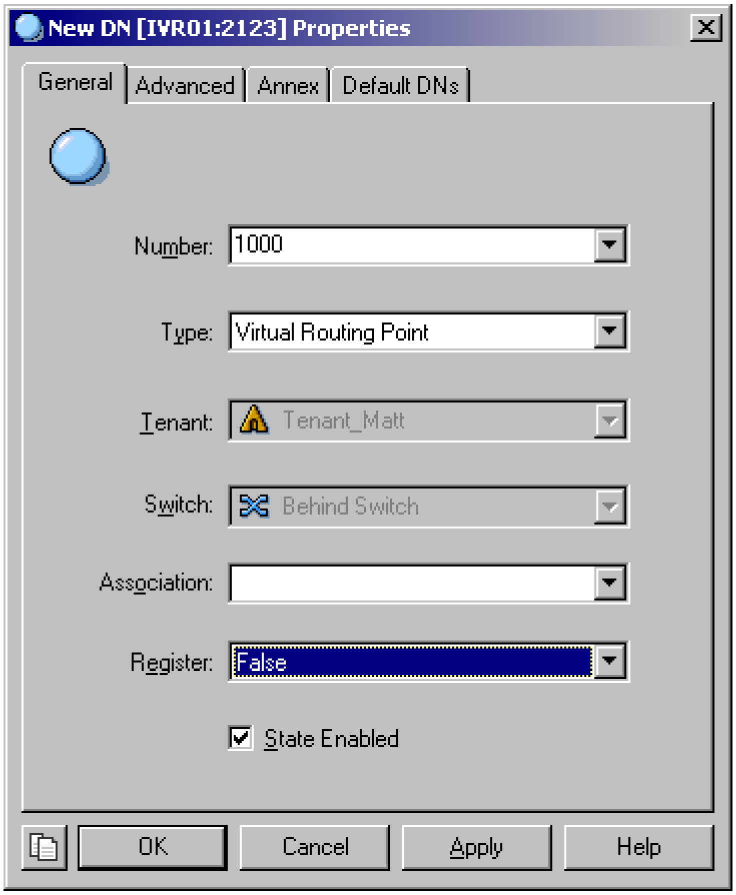
To define ACD Queue 3000 in Configuration Manager:

1. Select File > New > DN.
2. In the Number box, enter 3000.
3. In the Type box, select ACD Queue.
4. Click OK to complete the definition of ACD Queue 3000.

Defining the Virtual Routing Point DN

To define Routing Point 1000 in Configuration Manager:

1. Expand Resources (or Tenant Name) > Switches > [Premise T-Server Switch], right-click DNs, and select New > DN. The New DN Properties dialog box appears (see Figure 108).



Number: 1000

Type: Virtual Routing Point

Tenant: Tenant_Matt

Switch: Behind Switch

Association:

Register: False

☑ State Enabled

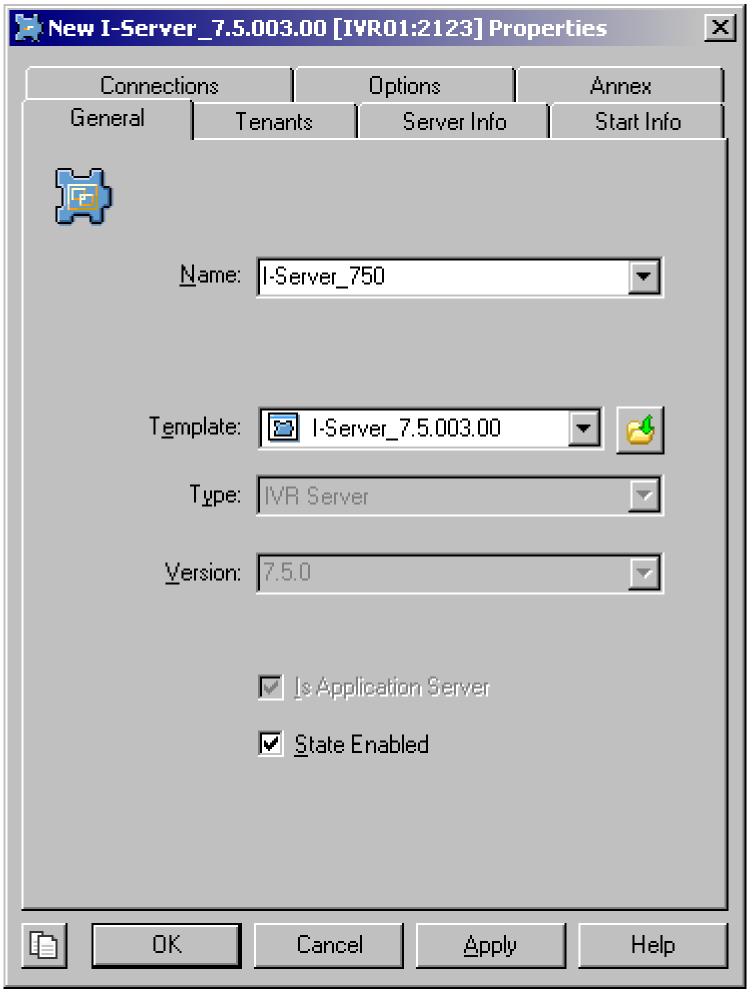
Figure 108: New DN Properties Dialog Box

2. In the `Number` box, enter `1000`.
3. In the `Type` box, select `Virtual Routing Point`.
4. In the `Register` box, select `False`.
5. Click `OK` to complete the definition of Routing Point 1000.

Configuring the I-Server Application

To configure the `I-Server` application in Configuration Manager:

1. Expand `Environment`, right-click `Applications`, and select `New > Application`. The `Browse` dialog box appears.
2. Select `I-Server_750`, and then click `OK`. The `New I-Server_750 Properties` dialog box appears (see Figure 109).



Name: I-Server_750

Template: I-Server_7.5.003.00

Type: IVR Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 109: New I-Server_750 Properties Dialog Box

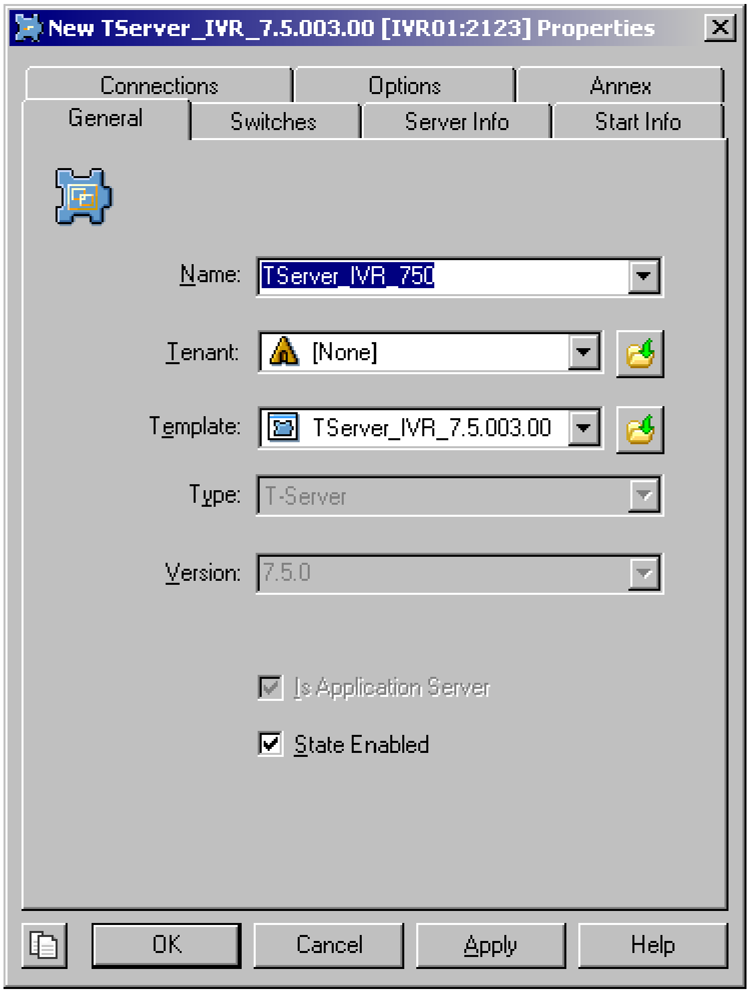
3. In the `Name` box, enter `IVR Server`.
4. Click `Apply` to save your changes on this tab.
5. Click the `Start Info` tab.
6. Enter a single period (`.`) in the following boxes:
   - `Working Directory`
   - `Command Line`
   - `Command Line Arguments`
7. Click `Apply` to save your changes on this tab.
8. Click the `Options` tab.
9. If you want to use Load Balancing:
   a. Create a new section named `LoadBalance`.
   b. Add configuration options, as described in “LoadBalance” on page 252.

10. If you want to gather statistics:
    a. Create a new section named `Stat:<stat name>`.
    b. Add configuration options, as described in “Stat:<stat name>” on page 254.
11. If you want to use routing:
    a. Create a new section named `VirtualRoutePoints`.
    b. Add the value `PBX T-Server=1000`.
12. If you want to use automatic agent logout:
    a. Create a new section named `AgentLogout`.
    b. Add configuration settings for the `LogoutOnShutdown` and `TimePerLogout` options, as described in “AgentLogout” on page 255.
13. Click `Apply` to save your changes on this tab.
14. Click `OK` to configure the `I-Server` application.

Configuring the TServer_IVR Application

To configure the `TServer_IVR` application in Configuration Manager:

1. Expand `Environment`, right-click `Applications`, and select `New > Application`. The `Browse` dialog box appears.
2. Select `TServer_IVR_750`, and then click `OK`. The `New TServer_IVR_750 Properties` dialog box appears (see Figure 110).



New TServer_IVR_7.5.003.00 [IVR01:2123] Properties

Name: TServer_IVR_750

Tenant: [None]

Template: TServer_IVR_7.5.003.00

Type: T-Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 110: New TServer_IVR_750 Properties Dialog Box

3. In the `Name` box, enter `IVR T-Server`.
4. Click `Apply` to save your changes on this tab.
5. Click the `Start Info` tab.
6. In the `Working Directory` and `Command Line` boxes, enter the applicable information, as described in Steps 17–19 on page 191.
7. Click `Apply` to save your changes on this tab.
8. Click the `Server Info` tab.
9. In the `Host` box, enter the host that the `TServer_IVR` application will use.
10. In the `Ports` box, add a new port number that the `TServer_IVR` application will use.
11. Click `Apply` to save your changes on this tab.
12. Click the `Options` tab.

Note: The following sections and configuration options are created in the template, but some must be modified.

13. Create the following new sections (if they have not already been defined):
    - `CallIdSap`
    - `extrouter`
    - `gli`
    - `gli_server`
    - `gli_server_group_1`
    - `IServer`
    - `IServerGLMSap`
    - `license`
    - `log`
    - `Timers`
    - `TServer`
    - `TServerClientSap`
14. You must define (or add) the following options:
    - `gli_server_address` in the `gli_server_group_1` section.
    - `app_name` in the `IServer` section.
    - `operation-mode` in the `IServerGLMSap` section.
    - `license-file` in the `license` section.

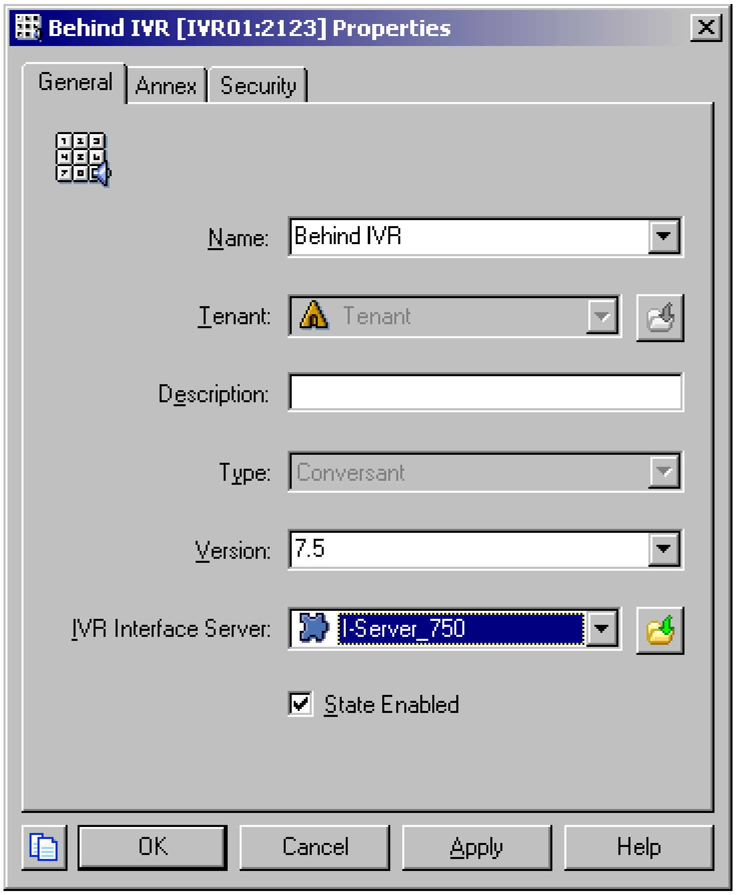
Note: In most cases, you can accept the default values for the other options. For option descriptions, see Chapter 11 on page 241.

15. Click `Apply` to save your changes on this tab.
16. Click `OK` to complete the configuration of the `TServer_IVR` application.

Associating the IVR with the I-Server Application

To connect the IVR to the `I-Server` application in Configuration Manager:

1. Expand `Resources` (or `Tenant Name`) > `IVRs`, right-click `Behind IVR`, and select `Properties`. The `Behind IVR Properties` dialog box appears (see Figure 111).



Behind IVR [IVR01:2123] Properties

Name: Behind IVR

Tenant: Tenant

Description:

Type: Conversant

Version: 7.5

IVR Interface Server: I-Server_750

☑ State Enabled

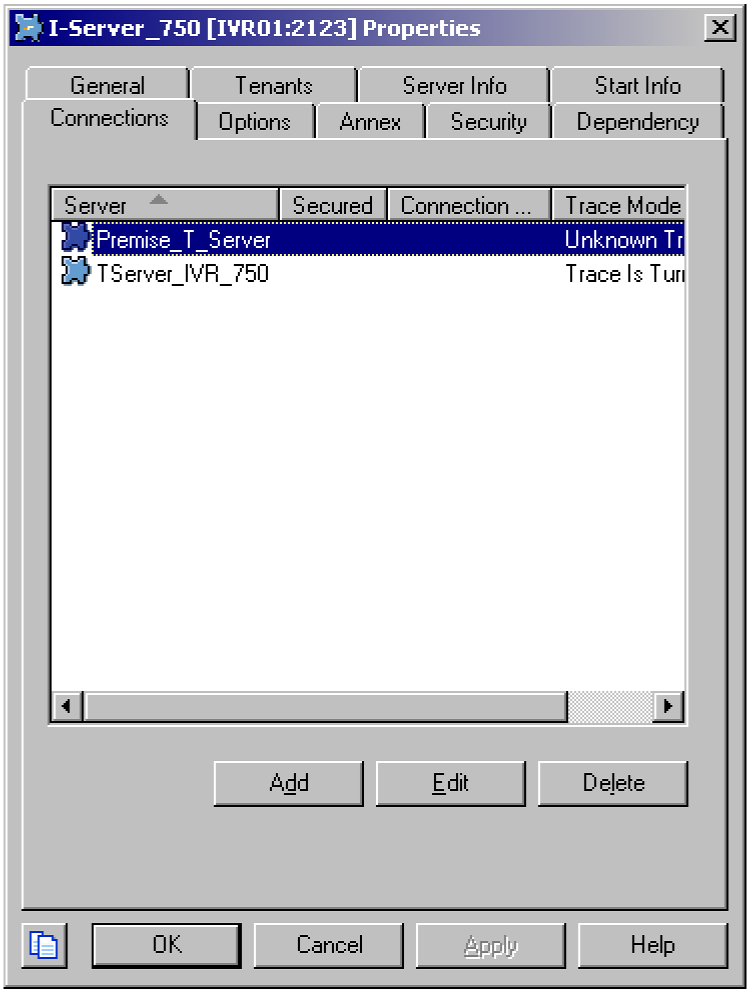
Figure 111: Behind IVR Properties Dialog Box

2. In the IVR Interface Server box, select IVR Server.
3. Click OK to connect the IVR to the I-Server application.

Connecting the I-Server Application to Other Applications

To connect the I-Server application to the TServer_IVR, premise T-Server, Message Server, and Stat Server applications in Configuration Manager:

1. Expand Environment > Applications, right-click I-Server, and select Properties. The I-Server_750 Properties dialog box appears.
2. Click the Connections tab (see Figure 112).



I-Server_750 [IVR01:2123] Properties

Server	Secured	Connection ...	Trace Mode
Premise_T_Server			Unknown Tr
TServer_IVR_750			Trace Is Tur

Figure 112: I-Server_750 Properties Dialog Box—Connections Tab

3. Click `Add` to add connections to the following:
   - `TServer_IVR` application
   - Premise T-Server application
   - Stat Server (if required)
   - Message Server (if required)
4. Click `OK` to save your connections.

IVR Network T-Server Configuration

Note: For information about how to configure the Network T-Server, see the *Deployment Guide* for your Network T-Server.

Figure 113 illustrates a sample IVR Network T-Server configuration.

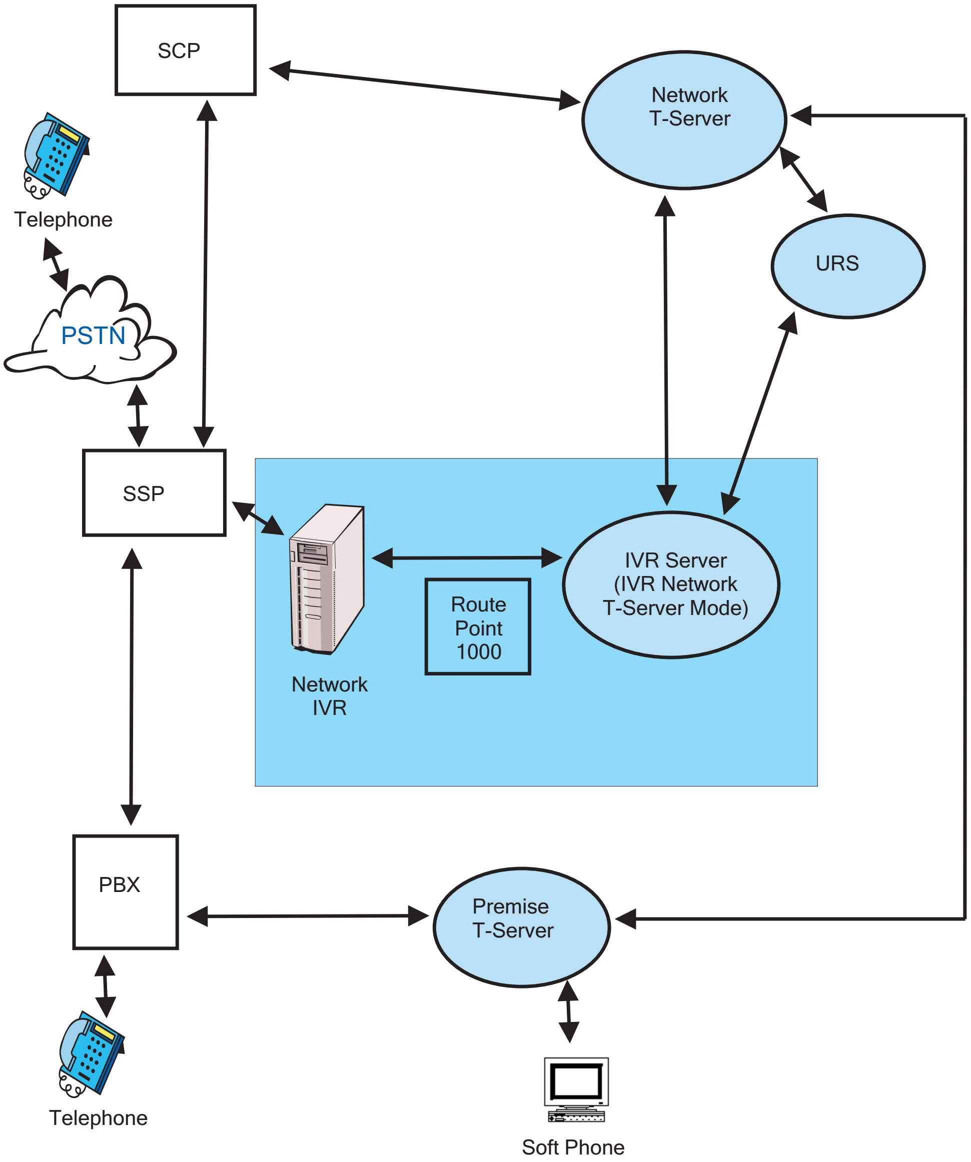


Figure 113: IVR Network T-Server Sample Configuration

This sample IVR Network T-Server configuration uses Routing Point 1000, statistics, a Network T-Server, and routing services (through Universal Routing Server [URS]).

The procedures in this section explain the following steps in detail:

1. Configure the switching office.
2. Configure the switch.
    a. Configure access codes.
    b. Configure the DNs.
3. Configure the `TServer_IVR_Network` application.

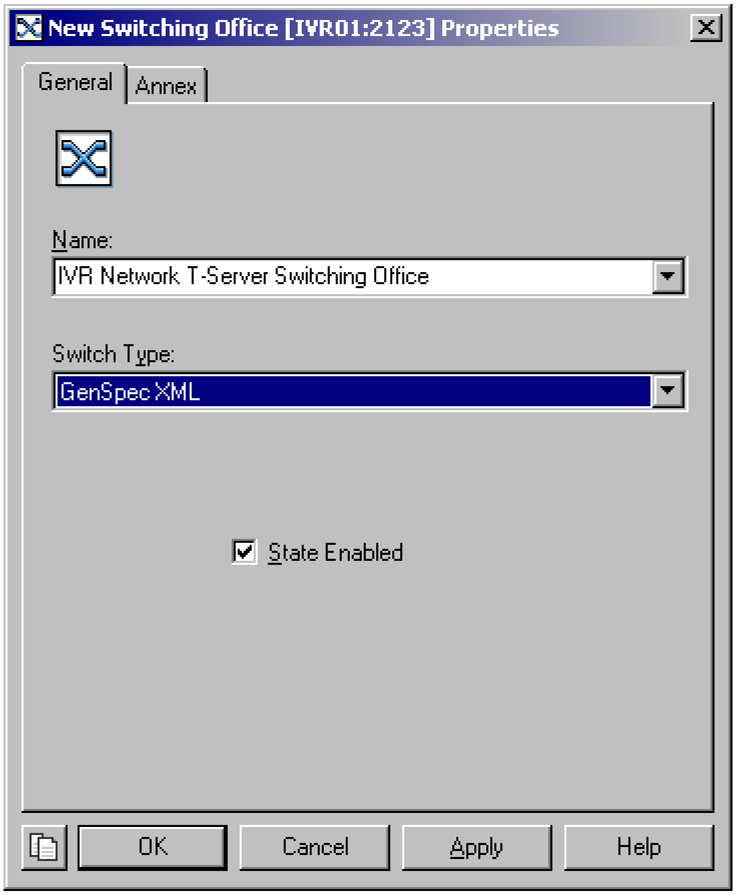
4. Connect the Network T-Server and Stat Server applications to the `TServer_IVR_Network` application.

Note: A connection from the URS application to the `TServer_IVR_Network` application is necessary if you want to create routing strategies.

Configuring the Switching Office

To configure the IVR Network T-Server switching office in Configuration Manager:

1. Expand `Environment`, right-click `Switching Offices`, and select `New > Switching Office`. The `New Switching Office Properties` dialog box appears (see Figure 114).



New Switching Office [IVR01:2123] Properties

Name: IVR Network T-Server Switching Office

Switch Type: GenSpec XML

☑ State Enabled

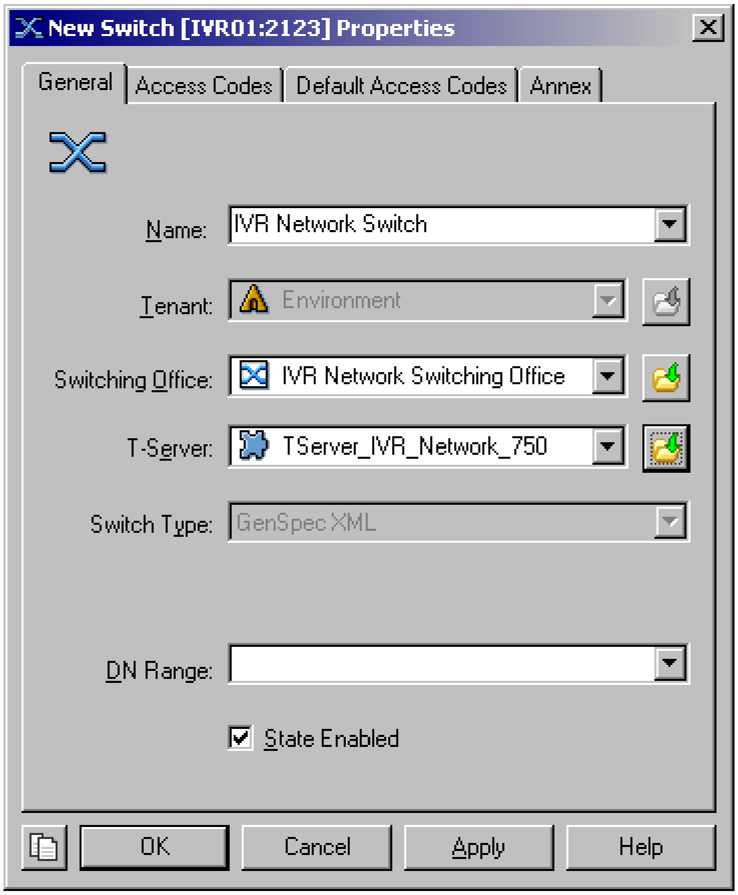
Figure 114: New Switching Office Properties Dialog Box

2. In the `Name` box, enter `IVR Network T-Server Switching Office`.
3. In the `Switch Type` box, select `GenSpec XML`.
4. Click `OK` to complete the configuration of the IVR Network T-Server switching office.

Configuring the Switch

To configure the IVR Network T-Server switch in Configuration Manager:

1. Expand `Resources` (or `Tenant Name`), right-click `Switches`, and select `New > Switch`. The `New Switch Properties` dialog box appears (see Figure 115).



New Switch [IVR01:2123] Properties

Name: IVR Network Switch

Tenant: Environment

Switching Office: IVR Network Switching Office

T-Server: TServer_IVR_Network_750

Switch Type: GenSpec XML

DN Range:

☑ State Enabled

Figure 115: New Switch Properties Dialog Box

2. Click the `Folder` icon next to the `Switching Office` box, select `IVR Network Switching Office`, and click `OK`.
3. Click the `Folder` icon next to the `T-Server` box, select `TServer_IVR_Network_750`, and click `OK`.
4. Click `OK` to complete the configuration of the IVR Network T-Server switch.

Configuring Access Codes

For information about how to configure access codes for the IVR Network T-Server switch, see “Configuring Access Codes” on page 82.

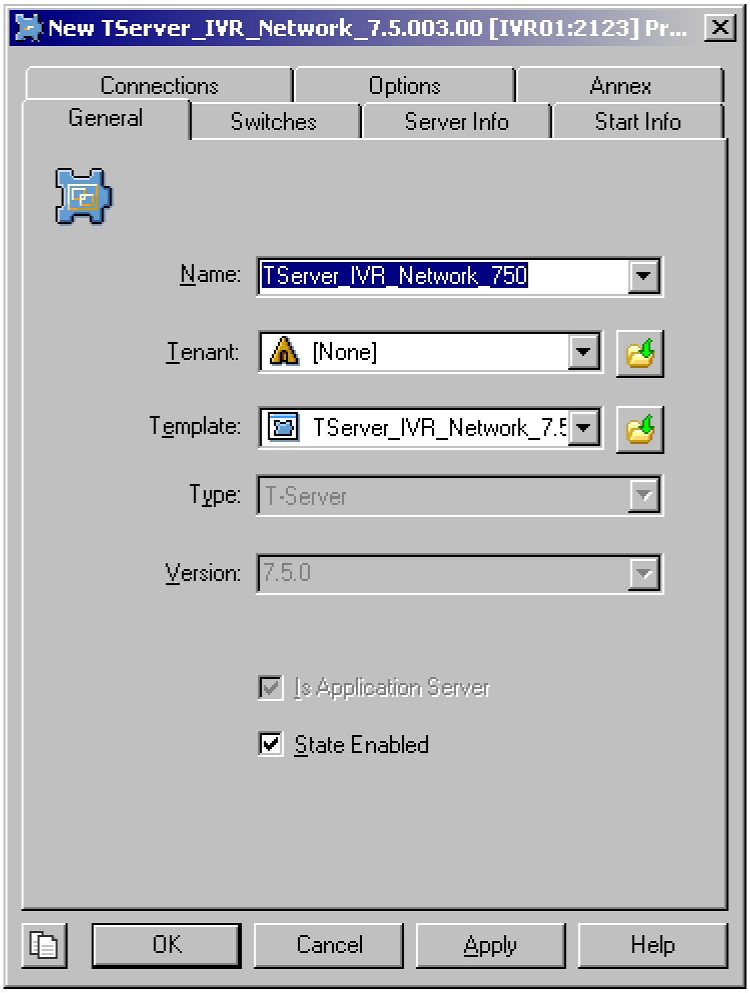
Configuring DNs

For information about how to configure DNs for the IVR Network T-Server switch, see “Configuring the DNs” on page 269.

Configuring the TServer_IVR_Network Application

To configure the TServer_IVR_Network application in Configuration Manager:

1. Expand Environment, right-click Applications, and select New > Application. The Browse dialog box appears.
2. Select TServer_IVR_Network_750, and then click OK. The New TServer_IVR_Network_750 Properties dialog box appears (see Figure 116).



New TServer_IVR_Network_7.5.003.00 [IVR01:2123] Pr...

Name: TServer_IVR_Network_750

Tenant: [None]

Template: TServer_IVR_Network_7.5

Type: T-Server

Version: 7.5.0

☑ Is Application Server

☑ State Enabled

Figure 116: New TServer_IVR_Network_750 Properties Dialog Box

3. In the Name box, enter TServer_IVR_Network.
4. Click Apply to save your changes on this tab.
5. Click the Switches tab.

6. Select IVR Network Switch.
7. Click Apply to save your changes on this tab.
8. Click the Server Info tab.
9. In the Working Directory and Command Line boxes, enter the applicable information, as described in Steps 17–19 on page 191.
10. Click Apply to save your changes on this tab.
11. Click the Server Info tab.
12. In the Host box, enter the host that the TServer_IVR_Network application will use.
13. In the Ports box, add a new port number that the TServer_IVR_Network application will use.
14. Click Apply to save your changes on this tab.
15. Click the Options tab.
16. Create the following new sections (if they have not already been defined):
    - CallIdSap
    - extrouter
    - gli
    - gli_server
    - gli_server_group_1
    - IServer
    - IServerGLMSap
    - license
    - log
    - Timers
    - TServer
    - TServerClientSap
17. Add configuration options for each of these sections, as described in Chapter 11 on page 241.

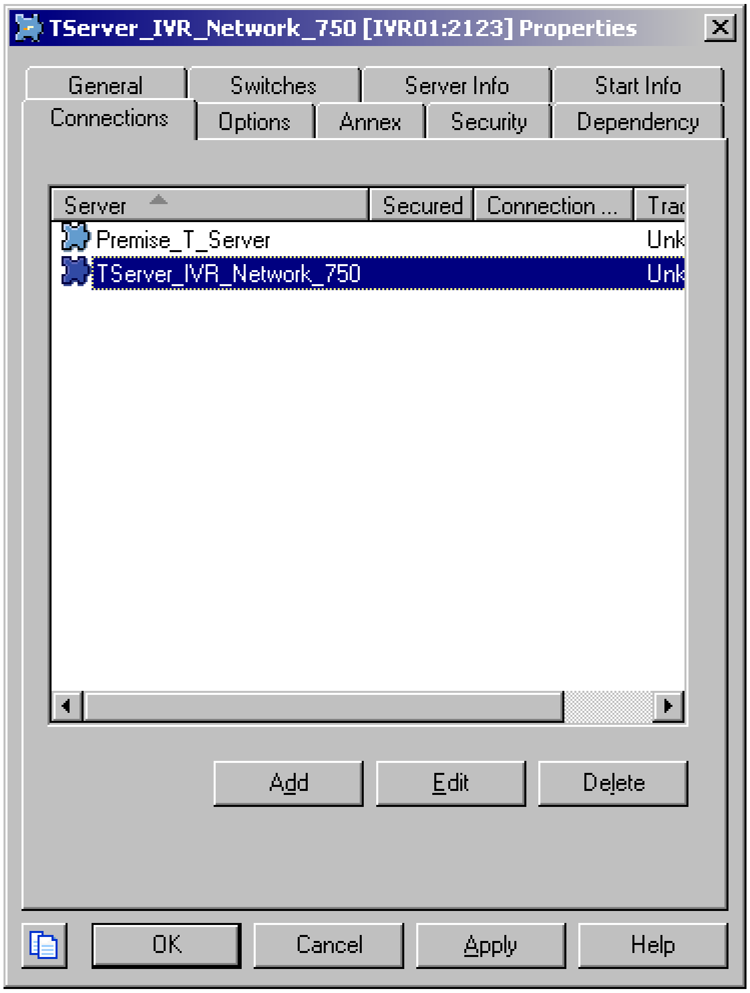
Note: You must set the operation-mode option in the IServerGLMSap section to NTS.

18. Click Apply to save your changes on this tab.
19. Click OK to complete the configuration of the TServer_IVR_Network application.

Connecting the TServer_IVR_Network Application to Other Applications

To connect the TServer_IVR_Network application to other applications in the Genesys network in Configuration Manager:

1. Expand Environment > Applications, right-click TServer_IVR_Network, and select Properties. The TServer_IVR_Network_750 Properties dialog box appears.
2. Click the Connections tab (see Figure 117).



Server	Secured	Connection ...	Trac
Premise_T_Server			Unk
TServer_IVR_Network_750			Unk

Figure 117: TServer_IVR_Network_750 Properties—Connections Tab

3. Click `Add` to add connections (if required) to the following:
   - Network T-Server application
   - Premise T-Server application
   - Message Server
4. Click `OK` to save your connections.

Appendix

B GLI Layer Configuration

This appendix provides GDI Link Interface (GLI) Layer configuration information. It contains the following sections:

Introduction

GLI is a subset of the Intelligence Service Control Point (ISCP) Generic Data Interface Specifications for TCP/IP, as defined in Chapter 2 of Telcordia's Special Report SR-3389. The full title of the document is *ISCP Generic Data Interface Specification for TCP/IP:Using GR-246-CORE ANSI TCAP Encoding*. You can obtain it directly from the Telcordia Store, at `www.telcordia.com`.

Concepts

This section discusses the following concepts as they relate to GLI layer configuration:

- TCP/IP connection
- GLI protocol
- Link/circuit behavior
- Circuit groups
- Circuit failover
- Security

TCP/IP Connection

The GLI layer provides a mechanism for forming TCP/IP connections between clients and servers through UNIX sockets. Essentially, a *socket* is a numbered port that is opened on a network interface for a particular application. The port number can be set either dynamically in a configuration file, or statically. Sockets can be opened in one of two modes: passive (server) or active (client).

Servers are responsible for providing one or more services to clients; however, clients must use the correct protocol to communicate to the server. In this way, after a server socket is opened, the server will listen for client requests on its port.

Clients that want to communicate with a server must open a connection to the correct server socket. This is done by opening an active socket (usually, any client port will suffice) and connecting it to the server socket. At this point, the server accepts the connection, and it can optionally check security constraints. If the check fails, the server can take appropriate action, including closing the connection. Otherwise, the client can now use the connection to make requests to the server. If a connection fails, it is the client's responsibility to reconnect to the server.

Note: In the scenario shown in Figure 118, IVR Server is the server, and IVR Driver is the client.

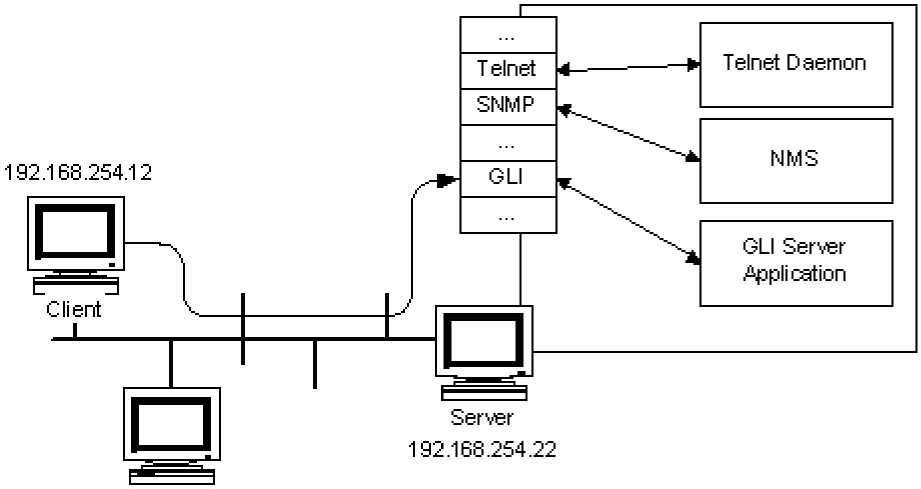


Figure 118: TCP/IP Connection

GLI Protocol

GLI uses a six-byte header on messages between the client and the server. This header identifies four different message types: `KeepAliveRequest`, `KeepAliveResponse`, `Error`, and `Data`. The next section describes these message types in more detail.

Link/Circuit Behavior

A GLI connection is also known as a link or circuit. After a GLI circuit is opened, the GLI client can send `Data` messages to the server. These GLI `Data` messages are used to encapsulate request and reply messages that were encoded using some other protocol.

The server sends GLI `Error` messages to the client to indicate certain severe error conditions. The client is responsible for closing the circuit.

Because TCP/IP timeouts are an unreliable mechanism for recognizing the failure of a circuit (for example, a half-open connection), `KeepAlive` messages (also known as heartbeat messages) can be used to determine the health of the circuit. Either side of a circuit can send a `KeepAliveRequest` message. The opposite side is responsible for replying with a `KeepAliveResponse` message. If a response is not received within a configured time period, and after a specified number of attempts, the requesting side can close the circuit.

Circuit Groups

Multiple circuits can be established between a client and server. The GLI Layer enables these circuits to be organized into logical groups. When multiple circuits are present in a group, Load Balancing on initial requests can be performed in a continuously repeating fashion. Replies are sent on the same circuit, unless a link failure occurs.

Circuit groups are particularly useful on servers that have multiple network interfaces. A server with link failover enabled can group circuits across different network interfaces. This provides redundant network links between the client and server (see Group 1 in Figure 119).

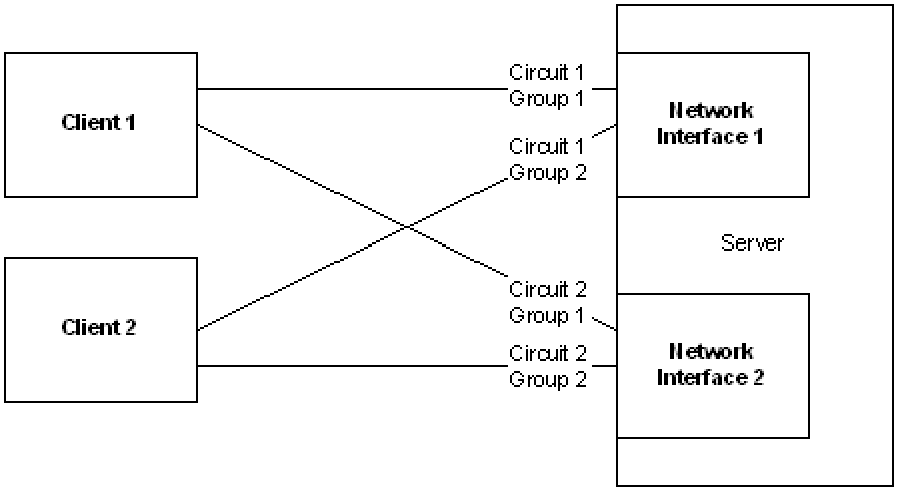


Figure 119: Circuit Groups

Circuit Failover

Circuit failover is a special flag for circuit groups that indicates whether the circuits in a group can be treated as equivalent in the event of a circuit failover. In other words, if a circuit fails while a server is replying to a client, the failover flag tells the server whether another circuit in the group can be used to send the reply.

Circuit failover requires that transaction information be shared across all the clients that are attached to the circuits in a circuit group.

Security

Security on the server side is based on a list of clients that are allowed to connect to the server. Specific IP addresses and port numbers can be included.

Configuration

Table 14 provides the GLI Layer configuration options, with values, defaults, and descriptions.

Table 14: GLI Layer Configuration Options

Option Name	Valid Values	Default Value	Description
Section: [gli]			
gli-mode	server, client	None	Specifies the type of socket to open.
gli-keep-alive-interval	1..*n*	-1	Specifies the amount of time (in seconds) to wait before sending `KeepAliveRequests`. A value of `-1` disables this feature.
gli-keep-alive-tries	1..*n*	1	Specifies the number of times to retry sending `KeepAliveRequests` before considering the circuit as failed.
gli-reconnect-delay	1..*n*	5	Specifies the amount of time (in seconds) to wait before attempting to reopen a failed socket.
gli-link-proving-delay	1..*n*	0	Specifies the amount of time (in seconds) to wait before sending `KeepAliveRequests` on a newly opened connection.
gli-flow-control-bound			Reserved for future use.

Table 14: GLI Layer Configuration Options (Continued)

Option Name	Valid Values	Default Value	Description
gli-queue-max-timeout			Reserved for future use.
Server Options			
Section: [gli_server]			
gli-server-mode	circuit	None	Specifies that the server can open multiple circuits.
gli-*n*-servers	1...8	None	Specifies the number of circuit groups that the server can open. There will be one configured section for each server group.
section: [gli_server_group_1-8]			
gli-server-address	host:port	None	Specifies, using a comma-separated list, the sockets that the server can use for this group. Any connection that is made to this socket forms a circuit that is part of this group. You can use either an IP address or a host name as an address, and you must supply a port number. To use the default interface, specify `0.0.0.0` as the IP address.
gli-client-list	host:port	None	Specifies, using a comma-separated list, the client sockets that are allowed to connect to the server. You can use either an IP address or a host name as an address, and you can use an asterisk (*) to indicate any port number. If this option is not supplied, or if it is empty, any client can connect to the server.

Table 14: GLI Layer Configuration Options (Continued)

Option Name	Valid Values	Default Value	Description
gli-circuit-failover	on | off	on	Specifies whether link failover is allowed for circuits in this group. When set to `on`, any attempt to send a message on a failed circuit causes the message to be sent on another active circuit in the group. When set to `off`, any attempt to send a message on a failed circuit causes the message not to be delivered. If all the applications that connect to this group can process messages from any circuit, you should set this option to `on`. If all the applications that connect to the group are independent of one another, you should set this option to `off`.
gli-tls-cert	None	N/A	For Windows, contains the thumbprint that is obtained from a user certificate generated for the host. For UNIX, contains the path and file name to a `.pem` encoded file that contains the host certificate.
gli-tls-cert-key	None	N/A	For UNIX only, contains the path and file name to a `.pem` encoded file that contains the host private key.
gli-tls-trusted-ca	None	N/A	For UNIX only, contains the path and file name to a `.pem` encoded file that contains the Certificate Authority (CA) certificate.

Appendix

C Configuring Application Connections

This appendix describes the connections that you must configure between applications for each of the three IVR Server configuration modes (IVR-In-Front, IVR-Behind-Switch, and IVR Network T-Server). You configure these connections in Configuration Manager, on the `Connections` tab of the `Properties` dialog box for each `Application` object.

This appendix contains the following sections:

IVR-In-Front Connections

Table 15 shows the application connections that are required for the IVR-In-Front configuration mode.

Note: The IVR-In-Front configuration does not include a premise T-Server.

Table 15: IVR-In-Front Application Connections

Add a Connection to This Application						
On This Application's Connections Tab	**TServer _IVR**	**I-Server**	**Premise T-Server**	**URS**	**Stat Server**	**Message Server**
TServer_IVR						X
I-Server	X				X	
IVR_Driver						X
URS	X				X	X
Stat Server	X					X

IVR-Behind-Switch Connections

Table 16 shows the application connections that are required for the IVR-Behind-Switch configuration mode.

Note: If you are using a dual configuration mode (IVR-Behind-Switch and IVR-In-Front), you must also create a connection from the `I-Server` application to the `TServer_IVR` application.

Table 16: IVR-Behind-Switch Application Connections

Add a Connection to This Application						
On This Application's Connections Tab	**TServer _IVR**	**I-Server**	**Premise T-Server**	**URS**	**Stat Server**	**Message Server**
TServer_IVR						X
I-Server	X		X		X	X
IVR_Driver						X
Premise T-Server						X
URS			X		X	X
Stat Server			X			X

IVR Network T-Server Connections

Table 17 shows the application connections that are required for the IVR Network T-Server configuration mode.

Note: The IVR Network T-Server configuration uses a Network T-Server instead of a Premise T-Server. It also uses the `TServer_IVR_Network` application instead of the `TServer_IVR` application. This configuration does not include an `I-Server` application or an `IVR_Driver` application.

Table 17: IVR Network T-Server Application Connections

	Add a Connection to This Application					
On This Application's Connections Tab	**TServer _IVR_ Network**	**I-Server**	**Network T-Server**	**URS**	**Stat Server**	**Message Server**
TServer_IVR _Network			X			X
URS	X		X		X	X
Stat Server	X		X			X
Network T-Server	X					

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