Genesys Agent Scripting 8.1

Deployment Guide

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Preface

Welcome to the *Genesys Agent Scripting 8.1 Deployment Guide*. This guide describes system requirements, installation of the Genesys Agent Scripting application, installation of supporting applications, and Genesys Agent Scripting Collaboration mode.

This document is valid for the 8.1 release(s) of this product.

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

This preface contains the following sections:

For information about related resources and about the conventions that are used in this document, see the supplementary material starting on page 105.

About Genesys Agent Scripting

Genesys Agent Scripting is a customization solution available with Genesys Inbound Voice and Genesys Outbound Voice, a development tool that enables you to create and maintain browser-based web applications called “business process scripts.” A business process script guides agents through an effective customer interaction flow and helps them complete a structured business process.

The Genesys Agent Scripting web application provides many benefits. It ensures the quality of the interaction, adds structure and clarity to the definition of the process, integrates data access and data entry capabilities, maximizes the probability of success, and minimizes the training required by

the agent. Genesys Agent Scripting assists in constructing the interfaces to other back office systems.

Intended Audience

This guide is primarily intended for system administrators or Genesys Agent Scripting web application developers. It is also intended for contact center agents who will install and use Genesys Agent Scripting. The guide assumes that you have a basic understanding of:

- CTI concepts, processes, terminology, and applications.
- Network design and operation.
- Your own network configurations.
- You should also be familiar with:
  - Scripting using Active Server Pages (ASPs) or Java Server Pages (JSPs).
  - Apache Tomcat 5.0 or 6.0; or Microsoft IIS 6.0, 7.0 or 7.5 web servers.
  - HTML editing.

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Document Change History

This section lists topics that are new or that have changed significantly since the first release of this document.

Changes to GAS 8.1.2

- Added Chapter 7, “Load Balancing and Failover,” on page 89.

Changes to GAS 8.1.1

- “Agent Scripts” were renamed “Business Process Scripts” and the “Editor” was renamed the “Genesys Agent Scripting development environment” throughout the documentation.
- Added 4 bullet points to explain Figure 1, “Structure of typical Genesys Agent Scripting setup,” on page 14.
- Updated and revised the section “Requirements and Supported Software” on page 19 in Chapter 2.
- Added the section “Database Drivers” on page 31 in Chapter 4.
- Added the procedure “Enable the Role Privilege” on page 45 in Chapter 5.

Changes to GAS 8.1.0

- Product was updated from version 7.2 to 8.1.0; a process that involved screen shot and textual changes throughout.
- Chapter 2, System Requirements
  - Numerous changes to software both supported and required, as third-party versions were upgraded.
- Chapter 5, Installing Genesys Agent Scripting for Use with Genesys Agent Interaction Layer
  - Added the new section “Agent Desktop Integration with Genesys Agent Scripting” on page 41, which includes these procedures:
    - “Integrate Genesys Agent Desktop (v7.6 or higher) with Genesys Agent Scripting using Genesys Agent Interaction Layer” on page 42.
    - “Installing the Interaction Workspace Plug-in for Genesys Agent Scripting” on page 44.
    - “Deploying Assignment Rules to Interaction Workspace” on page 46.
    - “Installing the Interaction Workspace plug-in for Genesys Agent Scripting, Simple Install Method” on page 46.
    - “Installing the Interaction Workspace plug-in for Genesys Agent Scripting, Click-Once Method” on page 47.

- “Localizing the Interaction Workspace plug-in for Genesys Agent Scripting” on page 48.

Chapter

1 Overview of Genesys Agent Scripting

Genesys Agent Scripting is a development tool that enables you to create and maintain browser-based web applications called “Business process scripts.” This chapter contains the following sections:

What are Business Process Scripts?

An Business process *script guides* contact center agents through an interaction with a contact and helps them complete a structured business process. Typical business processes include filling out an application, identifying the right type of expert contact to handle an inquiry, troubleshooting a system, and so on.

The Business process script enables a contact center agent to work with the contact to complete a task. The script provides text (such as well-pointed questions) and data that help the agent deliver a consistently high level of service to the contact.

In addition to providing a simple linear flow of script text and related controls, a Genesys agent script can react dynamically to information from a customer. This means that, using Genesys Agent Scripting, you can design a script to handle normal variations in a structured business process. As necessary, the script can respond dynamically to the answers to scripted questions. Depending on the feedback, the flow of the script may change from one course to another. If the default flow is not correct for the contact's circumstances, the script may adjust by displaying a different page of text to the agent.

Business process scripts provide many benefits. A script ensures the quality of the interaction, adds structure and clarity to the definition of the process, integrates data access and data entry capabilities, maximizes the probability of success, and minimizes the training required by the agent. Genesys Agent Scripting assists in constructing the interfaces to other back office systems.

Genesys Agent Scripting Architecture

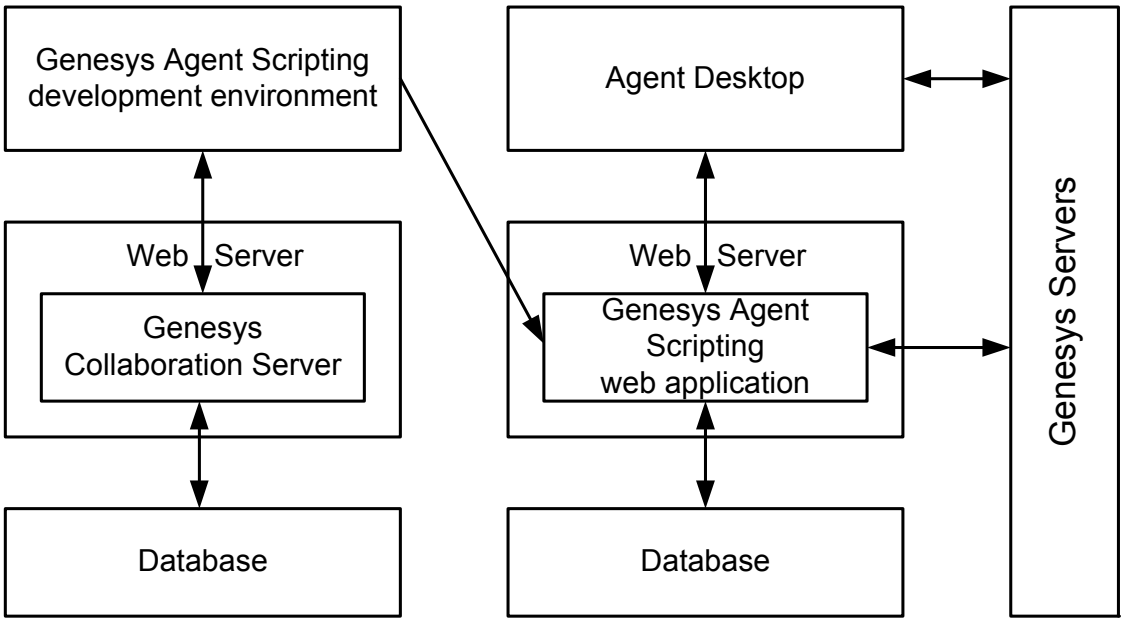

Figure 1: Structure of typical Genesys Agent Scripting setup

Figure 1 illustrates the typical structure of a Genesys Agent Scripting installation.

- Business Process Scripts (Genesys Agent Scripting web applications) are created in Genesys Agent Scripting development environment and then deployed to a web server such as Apache Tomcat, Microsoft IS, or IBM Application WebSphere.
- Genesys Agent Scripting web applications are accessible to the Agent Desktops via a web browser for stand-alone applications, or they can be integrated into Genesys Agent Desktop or Interaction Workspace.
- Business Process Scripts can benefit from the integration of Genesys Servers; they also open interfaces with other services to create custom solutions.
- Genesys Collaboration Server can be used to secure development process by multiple users and development groups.

For details on supported environment software, see “Requirements and Supported Software” on page 19.

Genesys Agent Scripting Components

This section describes the components that make up the Genesys Agent Scripting application.

The Genesys Agent Scripting Development Environment

The Genesys Agent Scripting Development Environment is a Windows-based, call-flow designer that developers use to write and edit complex business process scripts.

It provides two design modes:

- `Graphical` requires the installation of Microsoft Visio (2003, 2007, or 2010) software. This design mode employs customized flowchart elements to create, edit, or display the individual components of a call flow.
- `Tree-Structured` is the default design mode if you do not install Microsoft Visio 2003 Professional. This design mode employs a standard tree structure to create, edit, or display pages, streams, process flows, and projects.

Genesys Agent Scripting contains a *compiler* that developers use to compile their newly created business process scripts and generate source files. The source files are one of the following types:

- Active Server Page (ASP) or ASP.NET (ASPX) based on .Net Framework 1.1 & 2.0 that run on a Microsoft IIS 5.0, 6.0, 7.0 & 7.5 server.
- Java Server Page (JSP) source files that run on an Apache Tomcat 5.0 or 6.0 server, or on the IBM WebSphere Application Server, version 5.1 or 6.0.

The Genesys Agent Scripting Development Environment provides two code-generation modes:

- `Incremental` (generates only what has changed since the last compile)
- `Full` (compiles all elements)

Developers can use the `Simulate` action in the Genesys Agent Scripting Development Environment to start an Internet Explorer browser, and test scripts before actual deployment.

The Runtime Engine

The *runtime engine* provides agents access to the developed business process scripts, which reside on a web server and which the agent accesses and uses through a web browser.

The agent carries out an interaction with a customer. The runtime engine provides:

- An intuitive display within the web browser.
- Automatic and transparent business process script updates.
- Data-entry validation.
- Navigation capabilities for the agent.

These features facilitate the agent's use of the designed business process script and guide the agent to a smooth interaction with the customer.

Collaboration Mode

Collaboration mode allows you to: convert Project Books to a multi-user format; check in and check out files; lock and unlock Project Books; and access the administration function to manage users and servers (for system administrators only).

The following functions are available in Collaboration mode:

- Conversion of Project Books for multiple users
- A Collaboration Check In / Check Out feature to manage multiple-user Project Books
- Login with password protection for system-administrator access to Collaboration Administration
- The ability to add, delete, activate, or deactivate user accounts and to update user information
- The ability to lock and unlock multiple-user Project Books and to change the `Lock` mode

In many cases, it may be necessary for several developers to combine their efforts, or *collaborate,* on a large design/development project. After conversion to Collaboration mode, the Project Book remains in this mode. It cannot be restored to a single user mode.

New in This Release

Release 8.1.2 This section describes the new features in Genesys Agent Scripting release 8.1.2:

- Support for Load Balancing.
- Support for Failover.

Release 8.1.1 8.1.1 is a Maintenance Release of Genesys Agent Scripting that improves existing software functionality and documentation, including:

- Support for the Role privilege.
- Support for Microsoft Visio 2007 and 2010.

- Branding to reflect Genesys's 2012 status as an independent company.

Release 8.1.0 This section describes the new features in Genesys Agent Scripting release 8.1.0.

- Genesys Agent Scripting now integrates with Interaction Workspace, using the Interaction Workspace Plug-in for Genesys Agent Scripting.
- Genesys Agent Scripting has a compliant look and feel with the Genesys 8.x software suite.
- You can deploy for Interaction Workspace or Genesys Agent Desktop, on the Deployment Settings Tab of the Process Flow Assignment Rules dialog box. Press F1 to view the corresponding help topic, for details.
- When a business process script that supports the Mark Done feature is running under Interaction Workspace, the Mark Done button is hidden in the Interaction Window of Interaction Workspace.
- Opening a GAS 7.2 script with the 8.1 Genesys Agent Scripting Development Environment automatically migrates it to Genesys Agent Scripting 8.1.
- The new default Stylesheet for business process scripts that you create in Genesys Agent Scripting 8.1 can also be applied to imported business process scripts.

Chapter

2 System Requirements

This chapter outlines the software requirements for the Genesys Agent Scripting 8.1 application.

This chapter contains the following sections:

Requirements and Supported Software

Review the operating system and software requirements for running the Genesys Agent Scripting in this section before installing Genesys Agent Scripting.

Requirements Overview

This section describes deployment types and options of Genesys Agent Scripting.

Business Process Scripts visualization

The Genesys Agent Scripting development environment supports graphical visualization of Process Flows and Stream Flows of Business Process Scripts. To use this feature, you must install Microsoft Visio on the same machine as Genesys Agent Scripting.

Standalone Application

To deploy and run any standalone Genesys Agent Scripting web application developed in the Genesys Agent Scripting development environment requires:

- Genesys Agent Scripting Server
- A web browser

Integration with Genesys Environment

Genesys Agent Scripting web application integration with Genesys environment requires integration layer to communicate with Genesys servers.

- The Genesys Agent Scripting web application requires Genesys Agent Scripting Server and a web browser.
- Genesys environment integration in your project requires the Genesys Agent Interaction Toolkit enables.
- The Java-based server platform requires additional libraries, which are included in Genesys Agent Scripting.
- For the Microsoft IIS platform, use Genesys Integration Server and Agent Interaction

> **Note:** Genesys Environment integration based on Microsoft IIS is supported only for the ASPX platform.

Agent Desktop customization for Genesys environment integration is available for Genesys Agent Desktop and Interaction Workspace. Genesys Agent Desktop is customized with a customization servlet included with Genesys Agent Scripting. Interaction Workspace is customized by the Interaction Workspace Plug-in For Genesys Agent Scripting. As with most Genesys products, Genesys Agent Scripting web application requires Application configuration on Genesys Configuration Server. To complete integration of your Business Process Scripts, you must set Assignment Rules for your Agent Desktop.

Genesys Collaboration Server

Collaboration Mode supports multiple users and development groups on the Genesys Agent Scripting development environment. This feature requires Genesys Collaboration Server and database server.

Load Balancing and Failover

The load balancing and failover feature requires Apache HTTP server 2.x with the `mod_proxy` or the `mod_jk` modules configured.

> **Note:** Load balancing and failover is supported for Tomcat deployment only.

Supported Software

Genesys Agent Scripting Development Environment OS Support

- Windows x86 (32-bit): 2003, 2008, Vista, Windows 7, 8, 8.1
- Windows x64 (32-bit): 2003, 2008, 2012, Vista, Windows 7, 8, 8.1

Graphical Design Software

- Microsoft Visio 2003, 2007 and 2010. Visio is required only for graphical design mode, showing Process and Stream Flow diagrams within the Genesys Agent Scripting Development Environment.

Version Control Server Databases Support

- 10g Release 1, 10g Release 2, 11g, 11g RAC.
- Microsoft SQL Server 2005, 2008.
- MySQL 4 or higher
- DB2 8.1, 8.2

Genesys Agent Scripting Server OS Support

- Red Hat Enterprise Linux (32 & 64-bit): 4.0, 5.0, 6.0, 7.0
- Windows x86 (32-bit): 2003, 2008, Vista, Windows 7, 8, 8.1
- Windows x64 (32-bit): 2003, 2008, 2012, Vista, Windows 7, 8, 8.1
- Windows x64 (64-bit): 2003, 2008, 2012, Windows 7, 8, 8.1

Genesys Agent Scripting Web Server Support

- Tomcat 5.0, 6.0, 7.0
- IIS 6.0, 7.0, 7.5, 8.0, 8.5
- IBM WebSphere Application Server 5.1, 6.0
- Apache HTTP 2.x

Genesys Agent Scripting Server Databases Support

- 10g Release 1, 10g Release 2, 11g, 11g RAC.
- Microsoft SQL Server 2005, 2008
- DB2 8.1, 8.2

Java SDK Frameworks Support

- Java SDK 1.4.2, 1.5, 1.6

Genesys Agent Scripting Client Browsers Support

- Microsoft Internet Explorer 6, 7, 8, 9, 10, 11
- Citrix, XenApp 4.0, 4.5, 5.0, 6.0

Genesys Agent Desktop Client OS Support

- Windows x86: Vista, Windows 7, 8, 8.1
- Windows x64: Vista, Windows 7, 8, 8.1

Interaction Workspace Plug-in for Genesys Agent Scripting OS Support

- Windows x86 (32-bit): 2003, 2008, Vista, Windows 7, 8, 8.1
- Windows x64 (32-bit): 2003, 2008, 2012, Vista, Windows 7, 8, 8.1

Migration of Database Interfaces that Use Stored Procedures

Note: The information in this section applies only to Project Books containing Database Interfaces that use Stored Procedures from Releases 7.0 and 7.0.1. It also assumes that you are upgrading to 7.2 or higher.

After migrating a project book to the new version of Genesys Agent Scripting, some special considerations exist.

If the project book contains the Database Interface for Stored Procedures, you will need to perform some manual changes, using the Genesys Agent Scripting Development Environment. This section explains how to make these changes.

Genesys Agent Scripting 7.2 and higher supports output parameters and return values for Stored Procedures.

Defining Specific Parameters

To support this feature, you must define the Stored Procedures parameters that have the following directions and SQL Types.

Directions:

- `Input`
- `Output`
- `Input/Output`
- `Return Value`

SQL Types:

- INTEGER
- FLOAT
- VARCHAR
- DATE
- TIMESTAMP
- CURSOR
- REAL
- SMALLINT
- BIGINT
- DOUBLE
- DECIMAL
- TIME

For existing project books that contain Stored Procedures parameters, Genesys Agent Scripting automatically migrates the parameter definitions. It defines them with a direction of Input and a SQL Type of VARCHAR. This automatic migration might cause a discrepancy of types during runtime if the input parameter is not supposed to be of the type VARCHAR. Therefore, we recommend that you check all of the parameter definitions for all of the Database Interfaces.

Special Considerations for Oracle Databases

Genesys Agent Scripting 7.2 and higher performs additional migration of all parameter definitions for the Oracle Database. In previous versions of Genesys Agent Scripting, a Stored Procedure Database Interface could only call Stored Procedures that contained output parameters that matched the columns defined in the Database Interface. The call to the Stored Procedure would result in data being returned in these columns. The columns are mapped to the Table Field defined in the Database Interface. The result was the return of one table row. This restricted the stored procedure from returning multiple rows for a table. This restriction was the result of the Oracle Database forcing all outputs from a stored procedure to be returned as output parameters, including SQL query results.

Now, with the support of CURSOR output parameters, Genesys Agent Scripting is no longer forced to treat the defined columns as output parameters. The migration of Database Interfaces now results in defining new Output parameters of the type VARCHAR. This parameter applies to each of the defined columns whose output values are mapped to the Table Fields previously associated with the columns.

The execution of the migrated Database Interface results in the associated fields being updated with the values from each output parameter. However, it does not force the defined Table Field associated with these fields to be updated. So, you must perform manual changes to force the Table Field to be reloaded. Or, you can change the Stored Procedure to remove the output parameter for each column, and to define an output parameter of the SQL Type

`CURSOR`. This will save the results of a SQL query into the Table Field defined for the Database Interface.

Chapter

3 Installing Genesys Agent Scripting

This chapter describes how to install the Genesys Agent Scripting application.

This chapter contains the following sections:

Installing Genesys Agent Scripting

The Genesys Agent Scripting installation process uses an InstallShield Wizard. If you have a previously installed version of Genesys Agent Scripting on your computer, this version must be uninstalled before proceeding with the installation of the current version.

Your Existing Scripts Are Safe

You can relax: uninstalling Genesys Agent Scripting 7.2 will not destroy your business process scripts. They are preserved. As an added measure of safety, you may wish to copy some or all of those scripts to a different directory. Do your scripts have unique names? Backing up crucial data before a reconfiguration is always a good idea.

Genesys Agent Scripting also preserves the paths to your projects during the installation.

If you use Collaboration mode, refer to Chapter 6, “Using Genesys Agent Scripting in Collaboration Mode,” on page 53 for information about handling and converting project books.

Procedure:
Install Genesys Agent Scripting

Start of procedure

1. Insert the CD into the CD drive.

   The CD should begin the installation automatically. If it doesn't start, go to the CD drive from Windows Explorer and double-click `setup.exe`.

   The Checking Operating System Version screen displays a progress bar appears while the system prepares for installation.

2. At the Welcome to the Installation of Genesys Agent Scripting screen, click `Next` to continue.

   Note: At any point in the install, you may quit by clicking `Cancel` or the **X** in the upper-right corner of any screen. At the `Confirm Quit` screen that appears, click `Yes` to confirm cancellation, or click `No` and then click `Next` to continue the installation.

3. At the `Choose Destination Location` screen, click the `Default` button to approve the default installation directory `C:\Program Files\GCTI\Genesys Agent Scripting\` or click the `Browse...` button to select or create a new directory.

   Note: Genesys recommends using the default directory. Instructions later in the guide assume that Genesys Agent Scripting is installed in the default directory.

4. Click `Next` to continue with the installation.

   The Ready to Install screen appears. The Wizard is ready to install the Genesys Agent Scripting application.

5. Click the `Install` button to start the installation process and to open the Installation Status screen.

   This screen displays installation status. When the application has finished installing, the Installation Complete screen appears.

6. Click `Finish` to close the wizard.

Genesys Agent Scripting is installed.

End of procedure.

Next Steps

- To run Genesys Agent Scripting, select `Start` > `Programs` > `Genesys Solutions` > `Genesys Agent Scripting` > `Start Agent Scripting` from the main taskbar.
- Genesys Agent Scripting contains a Help system that provides reference information on all the elements of the graphical user interface (GUI). Once you have started the Genesys Agent Scripting application, access the Help system in one of the following ways:
  - Press `F1`.
  - Select `Help` > `Genesys Agent Scripting Help`.

  Help information is organized in a structure similar to the menu structure within Genesys Agent Scripting.

Deploying Genesys Agent Scripting with HTTPS Connection Support

Genesys Agent Scripting supports HTTPS for the connection between the Agent Desktop and the Genesys Agent Scripting web server. HTTPS is the communication protocol for secure encrypted communication. Security certificates are used to encrypt and ensure authenticity of communication during HTTPS connection. The client must trust the security certificated to allow secure communication with the website.

Configuring the HTTPS Connection for a Standalone Tomcat Setup (JSSE Implementation)

To generate a self-signed certificate with the Java tool, execute the following command and instructions:

```
<JAVA_HOME>\bin\keytool -genkey -alias tomcat -keyalg RSA  -keystore
<KEYSTORE_LOCATION>\keystore
```

Note: Use the Genesys Agent Scripting server fully qualified domain name as the Common Name when creating the certificate.

Procedure:
Configure Tomcat for HTTPS Connection

Start of procedure

1. Configure Tomcat's connector in the `<TOMCAT>/conf/server.xml` file:

```
<Connector port="443"
protocol="org.apache.coyote.http11.Http11Protocol"
   keystoreFile="<KEYSTORE_LOCATION>\keystore"
keystorePass="<KEYSTORE_PASSWORD>"
   maxThreads="150" SSLEnabled="true" scheme="https" secure="true"
   clientAuth="false" sslProtocol="TLS" />
```

2. Configure the path to truststore in Java option (add the following line to top of `<TOMCAT>\bin\catalina.bat` file):

```
set JAVA_OPTS=%JAVA_OPTS%
-Djavax.net.ssl.trustStore="<KEYSTORE_LOCATION>\keystore"
-Djavax.net.ssl.trustStorePassword="<KEYSTORE_PASSWORD>"
```

End of procedure

Configuring the HTTPS Connection for Apache with Tomcat Setup (OpenSSL Implementation)

The following example shows a self-signed certificate generated with the Apache openssl tool:

```
<APACHE>/bin/openssl req -x509 -nodes -days 365 -newkey rsa:2048
-keyout "<APACHE>/conf/server.key" -out "<APACHE>/conf/server.crt"
-config "<APACHE>/conf/openssl.cnf"
```

Note: Use the Genesys Agent Scripting server fully qualified domain name as the Common Name when creating the certificate.

Procedure:
Configure Apache HTTPD for HTTPS Connection

Start of procedure

1. Uncomment the `include conf/httpd-ssl.conf` line in the `<APACHE>/conf/httpd.conf` file.
2. Modify the `httpd-ssl.conf` file:
   a. Set the path to the certificate: `SSLCertificateFile "<APACHE>/conf/server.crt"`

b. Set the path to the key: `SSLCertificateKeyFile "<APACHE>/conf/server.key"`

3. Import the Apache HTTPD's certificate to JVM execute and follow the instruction:

```
"<JAVA_HOME>\bin\keytool" -import -alias apache_httpd -file
"<APACHE>\conf\server.crt" -keystore
"<JAVA_HOME>\jre\lib\security\cacerts"
```

End of procedure

Note: When using the Tomcat node in a setup with Apache HTTPD , set the Target URL and the XMLServerURL to point into the Apache HTTPD HTTPS resource.

Chapter

4 Installing Supporting Applications

This chapter describes how to install the supporting applications that Genesys Agent Scripting needs to run properly.

This chapter contains the following sections:

Preparing to Install

Genesys Agent Scripting requires the presence of certain supporting applications to ensure smooth operation of all of its features and functions. The type of environment you will be using and the level of functionality you require from Genesys Agent Scripting determine which supporting applications you must install, as well as other configuration changes that may be required.

For system administrators wishing to use a Genesys Agent Scripting JSP Collaboration Server, additional software installations are required. See “Apache Tomcat or WebSphere Collaboration Server” on page 35 for details.

Database Drivers

You must install the corresponding database driver for your database platform.

MS SQL 32 and 64 bit Databases

- Obtain the Java platform driver from this web page:
  `http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=11774`
- Obtain the .NET platform driver by installing .NET framework 2.0, 3.0, 3.5 or 4.0.

Oracle Databases

- Obtain the Java platforms 32 and 64 bit drivers from this web page:
  `http://www.oracle.com/technetwork/database/features/jdbc/index-091264.html`
  or find the driver in your database installation path, for example:
  `path_to_oracle_DB\product\version_of_oracle\dbhome_1\jdbc\lib folder`
- Obtain the .NET platform 32 bit driver from this web page:
  `http://www.oracle.com/technetwork/topics/dotnet/utilsoft-086879.html`
- Obtain the .NET platform 64 bit driver from this web page:
  `http://www.oracle.com/technetwork/database/windows/downloads/index-090165.html`

MySQL Databases

- Obtain the MySQL on Java and .NET platforms drivers from this web page:
  `http://www.mysql.com/products/connector/`

IBM DB2 Databases

- Obtain the Java platform driver from this web page:
  `http://www-01.ibm.com/support/docview.wss?uid=swg21363866`
- Obtain the .NET platform driver from this web page:
  `http://www-01.ibm.com/support/docview.wss?uid=swg21418043`

JDBC Databases

- For the JDBC drivers, be certain that the corresponding `*.jar` file is in the `TOMCAT_HOME/lib folder` (the exact location depends on the installed Tomcat version), or any location that is accessible to the Java Web Server that is running the generated Agent Scripting Web application.

Installing Microsoft Visio 2003 Professional

Process flows and streams are two of the building blocks used to build business process scripts (Genesys Agent Scripting web applications) for end users. If agents intend to use process flow or stream diagrams to conceptualize and/or build process flows or streams, you must install Microsoft Visio 2003 Professional on any system running Genesys Agent Scripting.

Genesys Agent Scripting looks for the presence of Microsoft Visio 2003 Professional. If found, process flow and stream diagrams, as well as diagram-creation features, become available.

If Genesys Agent Scripting does not find Microsoft Visio 2003 Professional, the application functions normally, but without process flow and stream diagramming.

Obtain Microsoft Visio 2003 Professional from any software retailer/vendor.

Preparing to Compile and Run Scripts: ASP

If you intend to build Genesys Agent Scripting web applications with Active Server Pages (ASPs), you will need access to a Microsoft IIS 6.0, 7.0 or 7.5 web server to successfully compile, simulate, and run the script pages.

- For Active Server Pages, you must have a Microsoft IIS 6.0, 7.0 or 7.5 web server on your system, or have network access to a server that is running Microsoft IIS 6.0, 7.0 or 7.5.
- To deploy scripts, you will need remote access to the Microsoft IIS server that will host the scripts.

Notes:
- Upon installation of (or upgrade to) the Microsoft Windows 2000 Server operating system, Microsoft IIS 5.0 web server is installed automatically.
- Upon installation of (or upgrade to) the Microsoft Windows 2003 Server operating system, Microsoft IIS 6.0 web server is installed automatically.

Building Business Process Scripts with Active Server Pages.NET (ASPXs)

If you intend to build Genesys Agent Scripting web applications with Active Server Pages.NET (ASPXs), you must have Microsoft.NET Framework Version 1.1 and the latest available Service Packs installed on your IIS server.

- IIS 6.0—comes with Microsoft.NET Framework version 1.1 already installed.

When running Genesys Agent Scripting web applications as ASPs, the Microsoft XML Parser Version 3.0 or higher must be installed on the Server system for either of the following:

- IIS 6.0 - the appropriate version is already installed with the operating system.

Preparing to Compile and Run Scripts: JSP

If you intend to build Genesys Agent Scripting web applications with Java Server Pages (JSPs), you must install or have access to:

- The Java 2 Enterprise Edition (J2EE) SDK.

To successfully compile and run script pages, you need:

- An Apache Tomcat 5.0 or 6.0 web server, or WebSphere Application Server, Version 5.1 or 6.0.

J2EE SDK

The Java 2 Enterprise Edition SDK is required to enable Apache Tomcat 5.0 or 6.0 to compile Java Server Pages (JSPs).

Obtain this SDK at no cost from Oracle's Java website at `http://www.oracle.com/technetwork/java/javaee/downloads/index.html`.

Tomcat

The Java 2 Enterprise Edition v1.4.2 SDK or higher is required to enable Apache Tomcat 5.0 or 6.0 to compile Java Server Pages (JSPs). For Apache Tomcat 6.0, the Java 2 Enterprise Edition v5 SDK or higher is required.

Obtain this SDK at no cost from Oracle Java website at

`http://www.oracle.com/technetwork/java/javaee/`.

You will obtain a self-extracting archive with a name such as `java_ee_sdk-6u3-windows.exe` (the name of the file that you obtain may differ).

Microsoft IIS Collaboration Server

You do not need to install any additional software on your Microsoft Windows 2000 or 2003 Server to build and use a Microsoft IIS Collaboration Server (ASP environment).

When running on Microsoft IIS, the Microsoft IIS 5.0 or 6.0 Collaboration Server database is set up automatically.

When running business process scripts as ASPs, the Microsoft XML Parser Version 3.0 or higher must be installed on the Server system.

- IIS 5.0: available to download from Microsoft's website.
- IIS 6.0: the appropriate version is already installed with the operating system.

Apache Tomcat or WebSphere Collaboration Server

There are special requirements to build and use an Apache Tomcat or WebSphere web server as the Collaboration Server (JSP environment).

A MySQL database is required to run in Collaboration mode on a Tomcat server. This database server must be installed and started. Genesys Agent Scripting provides a SQL file to create the tables and fields that the Collaboration Server requires.

These steps must precede the conversion of a Project Book to Collaboration mode within Genesys Agent Scripting.

See “Installing MySQL for JSP Collaboration Mode” on page 37 for more details.

Installing Supporting Applications for JSP

For Java Server Pages, you will need to install either the Java 2 Enterprise Edition 1.4 SDK or 1.3.1. In addition, you must install the Apache Tomcat web server or the WebSphere 5.1 or 6.0 application server on your system or have network access to a server running an Apache Tomcat web server or a WebSphere 5.1 or 6.0 application web server.

Note: To correctly set up with Tomcat in Collaboration mode under JSP, it is necessary to download the `activation.jar` and `mail.jar` files needed by Tomcat. They are not deployed by default. You can download these from `http://java.sun.com/products/javamail/`. Put them in `...\common\lib` directory under Tomcat.

Finally, if you will be using Collaboration mode for JSP, you must have a MySQL database available and you must install the open source MySQL Database Server on the computer running Genesys Agent Scripting.

Installing the Java 2 Enterprise Edition SDK

Download the Java 2 Enterprise Edition SDK from Sun’s Java website at `http://www.oracle.com/technetwork/java/javaee/`. You will obtain a self-extracting archive such as `java_ee_sdk-6u3-windows.exe` (the name of the file that you obtain may differ).

Double-click the self-extracting archive file and follow the instructions to install the SDK.

Installing Apache Tomcat

Download the Apache Tomcat 5.0 or 6.0 binary files at no cost from the Apache website at `http://jakarta.apache.org/tomcat/`. You will obtain a self-extracting archive such as `jakarta-tomcat-5.5.29.exe` (the name of the file you obtain may differ).

Note: Install the Java 2 Enterprise Edition 1.4.2, 1.5, or v6 SDK *before* installing Tomcat. The Apache Tomcat installation looks for an installed Java Development Kit.

Double-click the self-extracting archive file and follow the instructions to install Apache Tomcat.

Procedure: Deploy Applications Under Tomcat

Purpose: When using an Apache Tomcat web server, the generated Genesys Agent Scripting web application created by the Genesys Agent Scripting Development Environment is deployed as a separate application. During deployment, context information (folder WEB-INF) is automatically included, enabling Tomcat to recognize the application. If the generated Genesys Agent Scripting web application is deployed in the webapps folder of Tomcat, then Tomcat must be restarted to make the application available.

If you are using Tomcat and you are not deploying the generated Genesys Agent Scripting web application in the Tomcat's webapps folder, then you need to use Tomcat Web Application Manager to tell Tomcat where the application is deployed.

Start of procedure

1. Open a Web browser.
2. Go to `http://<machine_name>:8080/manager/html` (`<machine_name>` is the name of the machine on which Tomcat is installed).
3. In the Tomcat Web Application Manager, specify the sub-directory folder of the generated Web application you wish to deploy.

End of procedure

Procedure: Improving Genesys Agent Scripting Web Application Performance

Purpose: To improve the performance of Genesys Agent Scripting web applications, set Tomcat's Maximum Memory Pool value to 1024 MB.

Start of procedure

1. Run: <*Tomcat Installation Directory*>/bin/TomcatW.exe.
2. Click the Java Properties tab.
3. Set Maximum Memory Pool to 1024 MB.

End of procedure

Installing IBM WebSphere 5.1 or 6.0 Application Server

Install WebSphere Application Server as you would any other Windows-based application. Follow the instructions throughout the installation process.

Install Java 2 EE 1.4.2 or 1.5 or v6 SDK following Oracle's installation process.

Installing MySQL for JSP Collaboration Mode

Genesys Agent Scripting requires the presence of a MySQL database to convert a Project Book from single-user to multiple-user (Collaboration) mode within a JSP environment.

To use Collaboration mode for JSP, you must have a MySQL database available and you must install the open source MySQL Database Server on the computer that is running Genesys Agent Scripting.

For instructions on setting up a MySQL database, see "Creating and Setting Up a MySQL Database" on page 38.

Installing MySQL Database Server

Download the open source MySQL Database Server at no cost from http://www.mysql.com/downloads/index.html. You will obtain a ZIP file such as mysql-4.0.18-win.zip (the name of the file you obtain may differ).

Extract the installation files from the ZIP file, double-click setup.exe, and follow the instructions to install MySQL Database Server.

You now need to create a MySQL database if you intend to use the Genesys Agent Scripting Collaboration Module with JSP. See the next section for more details.

Creating and Setting Up a MySQL Database

Procedure: Create and Set up a MySQL Database

Prerequisites

- Install MySQL Database Server in the default directory: `c:\mysql`.

Start of procedure

1. Run MySQL Database Server from a command line.
2. Copy the SQL command file `SQL_WWC_NEW_7-0-1.sql` from the Genesys Agent Scripting JSP Collaboration folder (by default `c:\Program Files\GCTI\Genesys Agent Scripting\Collaborate jsp Web Folder\`) to the `mysql\bin` directory.
3. Access a command prompt in Windows:
   a. Click the **Start** button.
   b. Select **Run**.
   c. Select or type `cmd` and click **OK**.
4. Change to the MySQL server directory: `\mysql\bin`.
5. Start the MySQL Database Server administrator tool if it is not already running:
   ```
   winmysqladmin
   ```
6. Log in as administrator:
   ```
   mysql --user=root mysql
   ```
7. Create a user called `wwc` for Genesys Agent Scripting Collaboration:
   ```
   GRANT ALL PRIVILEGES ON *.* TO 'wwc'@'hostname' IDENTIFIED BY 'wwc'
   WITH GRANT OPTION;
   ```

   Note: You may substitute other values for the user (`'wwc'`) and the password (`'wwc'`). If you do, however, you will need to change the default values in the connection string file. See “Apache Tomcat or WebSphere Collaboration Server” on page 35.

   `hostname`: This is the hostname from which the user 'wwc' will access the MySQL database. The hostname must be a fully qualified name, or can be set to `%` to indicate that the user can access this database from any host.
8. Create a database called `WWC` to use for Genesys Agent Scripting Collaboration:
   ```
   mysql> CREATE DATABASE WWC;
   ```

You may substitute another value for the database name (`WWC`). If you do, however, you will need to change the default value in the connection string file. See "Copy the Connection String File for the JSP Collaboration Server" on page 54.

9. Select this database (make it active):
   ```
   mysql> USE WWC;
   ```
10. Invoke the SQL command file (`SQL_WWC_NEW_7-0-1.sql`) to create the tables needed for Genesys Agent Scripting Collaboration:
    ```
    mysql > SOURCE SQL_WWC_NEW_7-0-1.sql
    ```
11. Exit MySQL Administration:
    ```
    mysql> EXIT
    ```
12. Close the Command Prompt window.

The database is now set up properly.

End of procedure

Next Steps

- Install the MySQL Connector/J Driver (see below)

Procedure: Install the MySQL Connector/J Driver

Prerequisites

- Apache Tomcat 5.0 or 6.0 must be installed in its default directory.

Start of procedure

1. Download the MySQL Connector/J Driver from `http://www.mysql.com/downloads/index.html`. (This is open-source software, available at no cost.) You will obtain a ZIP file whose name has the following form:
   ```
   mysql-connector-java-3.0.11-stable.zip
   ```
   The name of the file you obtain may differ. Now install the downloaded file:
2. Extract the installation files from the ZIP file.
3. Locate the file `mysql-connector-java-3.0.11-stable-bin.jar` (the name of the `.jar` may differ), and copy it to the following location:

   For Tomcat: *<TOMCAT>*`\shared\lib`

...where *<TOMCAT>* is the path to the Tomcat directory.

Note: No action is necessary when running on WebSphere Application Server version 5.1 or 6.0.

End of procedure

You have now installed all the supporting applications and drivers you need to run in Genesys Agent Scripting JSP Collaboration mode.

See Chapter 6, "Using Genesys Agent Scripting in Collaboration Mode," on page 53 to continue the steps required to use Collaboration mode for JSP.

Upgrading a MySQL Database from Genesys Agent Scripting Version 7.0.0

If you are upgrading from Genesys Agent Scripting version 7.0.0 to version 7.0.1 or higher, the MySQL Collaboration database must be upgraded. To do this,

- Run the SQL command file `SQL_WWC_UPDATE_7-0-1.sql` against your current Genesys Agent Scripting 7.0.0 Collaboration database.

Chapter

5 Installing Genesys Agent Scripting for Use with Genesys Agent Interaction Layer

This chapter is intended for Genesys software administrators. It describes how to install Genesys Agent Scripting for use with the Genesys Agent Interaction layer, which is implemented in Java®.

Genesys Agent Scripting provides a Java Servlet that can be integrated with the Agent Desktop's software to provide access to Genesys Agent Interaction Layer. Data from an interaction can be used to determine the server location and the starting point of the business process script to be used to process the interaction.

This chapter contains the following sections:

Agent Desktop Integration with Genesys Agent Scripting

Procedures in this section:

- Deploying Assignment Rules to Interaction Workspace, page 46
- Installing the Interaction Workspace plug-in for Genesys Agent Scripting, Simple Install Method, page 46
- Installing the Interaction Workspace plug-in for Genesys Agent Scripting, Click-Once Method, page 47

Note: If you are using the Genesys Agent Desktop (version 7.6 or higher), skip this section and proceed to the section entitled "Integrate Genesys Agent Desktop (v7.6 or higher) with Genesys Agent Scripting using Genesys Agent Interaction Layer" on page 42.

Procedure: Integrate Genesys Agent Desktop (v7.6 or higher) with Genesys Agent Scripting using Genesys Agent Interaction Layer

Prerequisites

- These instructions assume that you have a basic Genesys Agent Desktop (GAD) installation. If the GAD has already been customized, these instructions must be modified accordingly.
- Genesys requires you to run the Genesys Agent Desktop on its own dedicated Java web server. Therefore the business process scripts should be deployed to a separate Java web server.
- For detailed information about the Genesys Agent Desktop application, refer to the *Genesys Desktop 7.6 Deployment Guide* and the *Genesys Desktop 7.6 Developer's Guide*.

Start of procedure

1. If Genesys Agent Desktop has NOT been previously customized:
   a. Copy the entire directory from the GAS Install path ...\GenesysIntegration\gdesktop\custom directly to the GAD Java Server's Web Application path ...\gdesktop\custom.
   b. Copy the file custom.properties from the GAS Install path ...\GenesysIntegration\gdesktop to the GAD Java Server's Web Application path ...\gdesktop\WEB-INF\classes. The string "Agent Scripting" may be changed to any value that you want to use as a label on the AgentScripting tab.

2. If Genesys Agent Desktop HAS been customized, you must update the customization files to include the Genesys Agent Scripting customization, as follows:
   a. Modify ...\gdesktop\custom\custom.xml, which is located in the GAD Java Server's Web Application directory, to include the AgentScripting Tab information from the supplied sample AgentScripting.xml file from the ...\GenesysIntegration\gdesktop\custom directory.
   b. Include the javascript-onload section for the GAD window in the custom.xml file.
   c. Put AgentScripting.jsp in the GAD Java Server's Web Application directory ...\gdesktop\custom. AgentScripting.jsp is located in the Genesys Agent Scripting Install directory ...\GenesysIntegration\gdesktop\custom.
   d. Add the following line

      AgentScripting=<Agent Scripting>

      to this file

      ...\WEBINF\classes\custom.properties

      where <Agent Scripting> is the name displayed on the AgentScripting tab.
3. Put the WWG.jar file in the ...\WEB-INF\lib directory.

   This file is in the Agent Scripting install directory: ...\GenesysIntegration\lib\WWG.jar.
4. Update the web.xml file in the Java Server's Web Application directory ...\gdesktop\WEB-INF to identify the Genesys Agent Scripting integration components. Code snippets are provided in web.xml.Sample in the Genesys Agent Scripting application Install directory ...\GenesysIntegration\.
   a. Add the GASAssignerServlet definition.
   b. Add the GASAssignerServlet mapping section.
   c. Add the <init-param> for AgentScripting.xml to the <initUAD> servlet definition.

Note: Be aware of existing customFile<n> entries.

End of procedure

Procedure: Installing the Interaction Workspace Plug-in for Genesys Agent Scripting

Purpose: To install the Interaction Workspace Plug-in for Genesys Agent Scripting on your web server, an agent workstation, or a development workstation.

Prerequisites

- .NET Framework 3.5, SP 1 installed.
- Interaction Workspace 8.1.x installed, as described in the "Prerequisites" section in this procedure: Installing plug-ins for Interaction Workspace.

Start of procedure

1. On your desktop, open the disc that contains the plug-in Installation Package (IP) and double-click the `Setup.exe` file.

   The Genesys Installation Wizard launches and the Welcome panel is displayed.

2. On the Welcome panel, do one of the following:
   - Click **Next** to begin the installation procedure.
   - Click **Cancel** to exit the Genesys Installation Wizard.
   - Click **About** to open the plug-in ReadMe in your default browser.

   If you click **Next**, the wizard displays the Select Installed Application panel, which enables you to select the Interaction Workspace application instance to which you want to add the plug-in.

   The Genesys Installation Wizard searches the target computer for an installed version of Interaction Workspace. Select the version of Interaction Workspace in the location in which you want plug-in to be installed.

   The Application Properties pane displays the name, version, and location of the selected Interaction Workspace application.

3. After you have selected the version of Interaction Workspace that you want to use with the plug-in, do one of the following:
   - Click **Next** to proceed to the next panel.
   - Click **Cancel** to exit the Genesys Installation Wizard.
   - Click **Back** to return to the previous panel.

   If you click **Next**, the Ready to Install panel is displayed.

4. On the Ready to Install panel do one of the following:
   - Click **Install** to install the plug-in on your web server, development workstation, or agent workstation.
   - Click **Back** to return to the Select Installed Application panel.

- Click **Cancel** to exit the Genesys Installation Wizard.

If you click **Next**, the plug-in is installed in the location that you specified. When installation is complete, the Installation Complete panel is displayed.

5. Click **Finish** to exit the Genesys Installation Wizard.

   Plug-in files are copied into the target installation directory of the original Interaction Workspace deployment.

   After the plug-in application is installed on the agent or developer workstation, or after it is downloaded by the ClickOnce application (see Deploying the ClickOnce Application on Your Web Server), and after the agent is granted permission to use the application, agents must login (to) Interaction Workspace on a Place that is associated with a SIP DN to use the plugin with Interaction Workspace. The plug-in process is started automatically when Interaction Workspace application is being initialized.

End of procedure

Next Steps

- Installation is complete. You can now provision the plugin functionality.
- Follow the steps in "Enable the Role Privilege".

Procedure: Enable the Role Privilege

Purpose: Make the `Interaction Workspace -- Can Use Plugin for Agent Scripting` role privilege available.

Prerequisites

- The Interaction Workspace application must be installed.

Start of procedure

1. Start Genesys Administrator.
2. Upload the Interaction Workspace plug-in for Genesys Agent Scripting:
   a. Click the `Upload Template` button and browse to the `/templates` folder on the Genesys Agent Scripting installation CD.
   b. Select the template named `Interaction_Workspace_Plugin_For_Genesys_Agent_Scripting_810.apd`
3. Under `Environment > Application Templates`, select Interaction Workspace.

4. Click the Import Metadata button and select the file:
   `Interaction_Workspace_Plugin_For_Genesys_Agent_Scripting_810.xml`.

The `Interaction Workspace - Can Use Plugin for Agent Scripting Role Privilege` is now available. See Procedure: Creating a Role, allowing an Interaction Workspace privilege, and assigning a Role to an agent or agent group for information about managing the role privilege with Genesys Administrator

End of procedure

Note: To use Role-driven privileges, ensure that the `security.disable-rbac` option of your Interaction Workspace application is set to `false`. For more details about Roles usage, see Interaction Workspace Roles.

Procedure: Deploying Assignment Rules to Interaction Workspace

Prerequisites

- Install and run Genesys Agent Scripting 8.1.
- Enable Mark Done support:
  Select the checkbox at the `File > Settings / Advanced` tab.

Start of procedure

1. Open the Process Flow Assignment Rules dialog box, and select the Deployment Settings tab.
2. Select the checkbox `Deploy Rules for an Interaction Workspace`.
3. Click the **Deploy Rules** button.

The deployment is completed. Interaction Workspace is ready to use the newly deployed Assignment Rules to assign the proper business process script.

End of procedure

Procedure: Installing the Interaction Workspace plug-in for Genesys Agent Scripting, Simple Install Method

Prerequisites

- Install Interaction Workspace.

Start of procedure

1. Install the Interaction Workspace plug-in for Genesys Agent Scripting 8.1 into the same folder where you installed the Interaction Workspace application (InteractionWorkspace.exe).

   See the generic procedure Installing Plug-ins for Interaction Workspace.

Note: The default installation directory is `<Program Files>\GCTI\Interaction Workspace\`, but please note that you can choose an option during the Interaction Workspace installation that puts InteractionWorkspace.exe into the similarly—*but not identically*—named folder `<Program Files>\GCTI\Interaction Workspace\InteractionWorkspace`.

In this case, you have to manually copy the Interaction Workspace Plug-In for Agent Scripting files (`Genesyslab.Desktop.Modules.GASAssigner.deployment-config`, `Genesyslab.Desktop.Modules.GASAssigner.dll` and `Genesyslab.Desktop.Modules.GASAssigner.module-config`) to the `<Program Files>\GCTI\Interaction Workspace\InteractionWorkspace` folder.

End of procedure

Next Steps

- The installation is completed. Run Interaction Workspace.

Procedure: Installing the Interaction Workspace plug-in for Genesys Agent Scripting, Click-Once Method

Prerequisites

- Install Interaction Workspace, selecting the `Prepare a ClickOnce package` option.
- Perform the procedure "Installing the Interaction Workspace plug-in for Genesys Agent Scripting, Simple Install Method" on page 46.

Start of procedure

1. Run the Interaction Workspace Deployment Manager.
2. Complete each of the following dialogs as they appear (see the Interaction Workspace Deployment Guide - Deployment Manager), then click **Next**.

3. At the Deployment Finished dialog, select the Show the Published Page checkbox and click **Finish**.
4. Install Interaction Workspace to the Agent workstation(s) from the web location (by default `http://<click-once-server-name>/InteractionWorkspace/publish.htm`)

End of procedure

Next Steps

- Localize the plug-in. See "Localizing the Interaction Workspace plug-in for Genesys Agent Scripting" on page 48.
- The installation is completed. Run Interaction Workspace at the Agent workstation:
  Click or select: `Start` > `All Programs` > `Genesys Telecommunications Laboratories` > `Interaction Workspace shortcut`.

Localizing the Interaction Workspace plug-in for Genesys Agent Scripting

You can localize the plug-in that you just installed. In this case, localization means modifying the language of the label for the Agent Scripting view, and the language of the warning message concerning the Support Mark Done feature, which is described in Chapter 15: "Integrating with Genesys Software" in the *Genesys Agent Scripting 8.1 User Guide*.

To localize, you create a new file that is specific to a language and country, found in the directory `Program Files\GCTI\Interaction Workspace\Languages\`, and named in the following format:

`module_name``.`*`language_code-country_code`*`.xml` (for example: `Genesyslab.Desktop.Modules.GASAssigner.en-US.xml` for English as spoken in the United States).

The content of this file should have the same format and structure as the `Genesyslab.Desktop.Modules.GASAssigner.en-US.xml` file (in the same directory), with translated strings in the expected language.

The localization process is described fully in the Interaction Workspace wiki `Custom Localization of Interaction Workspace`, which offers specific instructions for localizing Interaction Workspace that apply equally to Genesys Agent Scripting.

Note: This procedure localizes the plug-in only. You can of course create a business process script in any language that you can type.

Procedure:
Creating the Genesys Application for Genesys Agent Scripting

Purpose: In order for Genesys Agent Scripting to access other Genesys components, you must set up an application for Genesys Agent Scripting in Genesys Configuration Manager. To do this, complete the following steps:

Start of procedure

1. In Configuration Manager, open the Environment folder, then the Application Templates folder. If `Genesys_Agent_Scripting` templates are absent, import them from the Template folder on the Genesys Agent Scripting CD at: `//templates/Genesys_Agent_Scripting_810.apd`
2. Create a new application from Configuration Manager using the `Genesys_Agent_Scripting_810.apd` template.
3. On the General tab, enter an Application Name. This name will be used by the GAS Server and should be supplied to the parameter `G_Config_ApplName` located in the Target Environment Properties dialog box, Configuration File tab.
4. In a multi-tenant environment, select the tenant tab and add the tenant with which this application will interact. Choose only one tenant.
5. On the Start Info tab enter a period "." for the Working Directory and the Command line sections. This Start Info tab is not used.
6. On the Connections tab add a connection to the Premise T-Servers that your Agent Desktop application uses. Also, if your Agent Desktop application uses Contact Server, add this Contact Server.
7. On the Options tab fill in the license section with your appropriate information.

For more detailed information, refer to the *Interaction SDK (Java) Deployment Guide.*

End of procedure

Procedure:
Configuring Genesys Configuration Server for Outbound Operations

Purpose: If you are using Outbound Contact Solution (requires version 7.0.100.08 or higher) with Genesys Agent Scripting, then an additional section must be added to your Configuration Server's config file.

Start of procedure

1. Create a new section name: `[soap]`.
2. In the newly-created section, create the following three options:

   ```
   port =
   debug =
   client_lifespan =
   ```

3. Configure these options as appropriate for your environment.

For more information on these options, please refer to the *Framework 8 Configuration Options Reference Manual*, Chapter 4, and particularly the section on SOAP.

Note: Restarting any web server—GAD or GAS Tomcats, GAS IIS, or Genesys Integration Server—requires that you also restart all Outbound campaigns.

End of procedure

Genesys Agent Scripting Server

When using deployed Agent Scripts integrated with Genesys Agent Interaction software, the Genesys Agent Interaction software Java files must be installed in a directory that is accessible by the Java Web Server. These files are shipped with Genesys Agent Scripting and are located in its installed path `...\GenesysIntegration\lib`.

For example, in Tomcat, you might put them in the `...\shared\lib` directory.

Genesys Agent Scripting Project Book

Procedure:
Creating Agent Scripts that operate in the “Genesys Integrated” mode.

Purpose: Genesys Agent Scripting provides built-in Agent Scripting objects that can be used by business process scripts to display Genesys information and perform actions on Genesys Interactions.

Start of procedure

1. When creating a new Project Book, select the base toolkit "Genesys Agent Interaction toolkit" from the Project Book Properties panel.
2. In Compile->Assignment Rules, on the Deployment Settings tab, set the "Genesys Agent Scripting Assigner Servlet URL" to the URL used to access the application hosting this servlet.

   This URL must end in the name of the servlet and match the appropriate mapping, which is specified in either "Agent Desktop Integration with Genesys Agent Scripting" in Step 3b, or "Integrate Genesys Agent Desktop (v7.6 or higher) with Genesys Agent Scripting using Genesys Agent Interaction Layer" in Step 4b. The default is GASAssigner.
3. In Compile->Assignment Rules, set the Default URL to the deployed location of this Project Book.
4. Deploy the Assignment rules (even if empty, the Default URL must be set). Please note, the Agent Desktop Web Server needs to be running since the GAS Assigner Servlet from Step 2 will actually be invoked.
5. For each Target environment, the Configuration file parameters must be set (including the Configuration ManagerApplication name created from the procedure in the topic "Creating the Genesys Application for Genesys Agent Scripting" on page 49).

End of procedure

T-Server Configuration

Procedure: Verifying the correct T-Server configuration for interaction data transfer

Purpose: GAS will attach interaction data to the call when a transfer with data is issued. In order for this data to be properly propagated to the new interaction an option in T-Server must be checked.

Start of procedure

1. Open the T-Server application and go to the `Options` tab.
2. Select the `T-Server` section and check the value of `consult-user-data`.
3. This value must be inherited or joint for the GAS transfer to work properly.

For more information on these options please consult your T-Server *Deployment Guide*.

End of procedure

Chapter

6 Using Genesys Agent Scripting in Collaboration Mode

This chapter is intended for system administrators or business process script developers. It describes how to convert Genesys Agent Scripting Project Books for use in a multiple-user environment, and how to set up and manage users and Project Books in Collaboration mode.

This chapter contains the following sections:

Preparing for the Conversion

To use Genesys Agent Scripting in a multiple-user environment, databases - (called Project Books), must be converted to a format that allows for multiple users. Genesys refers to these converted Project Books as multiple-user or Collaboration mode Project Books.

You should have already completed the following:

1. Installed the Genesys Agent Scripting application.
2. Installed the appropriate supporting applications.

Note: Genesys Agent Scripting first opens with a Project Book called `WWGDemo` (file name `WWGDemo.mdb`), which is used throughout this chapter as an example to show how to back up a Project Book.

Prerequisites

- Backing Up Your Project Book—Before attempting to convert a Project Book to Collaboration mode, Genesys strongly recommends that you create a backup copy of the Project Book and store it in a safe location.

This is recommended for two reasons:

- Converted Project Book files cannot be restored to Single-User mode.
- Should a Project Book file be damaged during or subsequent to conversion, your backup assures that the original file is intact.

Procedure: Back Up a Project Book

Start of procedure

1. Locate the `WWGDemo.mdb` file in `C:\Program Files\GCTI\Genesys Agent Scripting` (assuming the default installation path).
2. Make a copy of this file and store it in the same folder.

End of procedure

Procedure: Copy the Connection String File for the JSP Collaboration Server

Purpose: The steps in this section apply only when you are setting up a JSP Collaboration Server.

Note: If you plan to convert additional Project Books to Collaboration mode: If the additional Project Books do *not* use the same Collaboration Server as your initial converted Project Book, *do not* carry out this procedure at this time!
Instead, carry out this procedure before performing Step 8 in the section "Converting the Project Book" on page 57.

Start of procedure

1. Navigate the following path:

   `C:\Program Files\GCTI\Genesys Agent Scripting\Collaborate jsp Web Folder`
2. Select the file `WWCConfigExample.inc.jsp` and copy it.
3. Rename the copy to `WWCConfig.inc.jsp`.

4. Double-click `WWCConfig.inc.jsp` to open it.

   Notepad opens with the file information shown in Figure 2 on page 55.

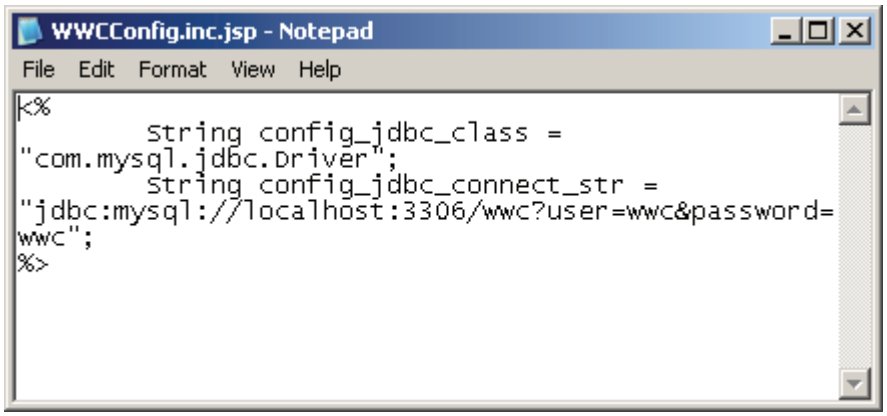

Figure 2: WWCConfig.inc.jsp file

5. If you set up the MySQL database and user information as described earlier, the information in this connection string should be correct (hostname = `localhost`, database = `wwc`, user = `wwc`, password = `wwc`).
6. If you created a different database, user, or password, then update the connection string with your values:
   - `/wwc?` is replaced with `/<`*your database name*`>?`
   - `user=<`*your user name*`>`
   - `password=<`*your password*`>`
7. If you installed MySQL on a different machine, you need to change `localhost` to the machine name where the MySQL database resides.
8. If you make any changes to this file, select `File` > `Save`.
9. Exit from Notepad.

End of procedure

Converting a Project Book to Collaboration Mode

You are now ready to convert Project Books to Collaboration mode in the Genesys Agent Scripting Development Environment.

Creating a Folder for the Collaboration Server

You must create a folder for the Collaboration Server:

- For a Microsoft IIS server (serving ASPs), create a `WWC` folder inside `C:\Inetpub\wwwroot\`.
- For an Apache Tomcat 5.0 or 6.0 server (serving JSPs), create a `WWC` folder inside:

  For Tomcat: `<TOMCAT>`\webapps

  ...where `<TOMCAT>` is the path to the Tomcat directory.

The procedure above assumes that Apache Tomcat 5.0 or 6.0 was installed in its default directory.

The Collaboration Server folder is populated automatically during the Project Book conversion when you click the Test button on Step 8, page 60. Also, the WEB-INF folder will be deployed telling Tomcat that this is a runnable application. After the Collaboration Server folder has been populated, you must restart Tomcat to enable Tomcat to detect the application.

Starting the Web Server

Before running Genesys Agent Scripting to convert Project Books to Collaboration mode, you should start the web server you will be using for collaboration as follows:

- For ASP, start the Microsoft IIS 5.0 or 6.0 web server.
- For JSP, start the Apache Tomcat 6.0, 7.0 or 7.5 web server, or WebSphere 5.1 or 6.0.
- For JSP, when you are using WebSphere as a collaboration server. See “Using a WebSphere Application Server for the Collaboration Server” on page 64.

Starting Genesys Agent Scripting

Procedure:
Start Genesys Agent Scripting

Prerequisites

- Installed the supporting applications.
- Installed the Genesys Agent Scripting application.
- Created the Collaboration Server folder.
- For JSP, after you have created and set up a MySQL Database for running a JSP Collaboration Server.

Start of procedure

1. Start Genesys Agent Scripting from the main taskbar by selecting `Start` > `Programs` > `Genesys Solutions` > `Genesys Agent Scripting` > `Start Agent Scripting`.
2. You may see a message to set up a path called `C:\Inetpub\wwwroot\WWGDemo`. This is for Microsoft IIS web servers and ASP.
   - If you will be using ASP, click `Yes`.
   - If you will be using JSP, click `No`.
3. You may see an information box for Genesys Agent Scripting. Click `Close` (or wait for the box to close on its own).

When starting Genesys Agent Scripting for the first time, the `WWGDemo` Project Book opens by default and is displayed in the main window.

The `WWGDemo` Project Book (file name `WWGDemo.mdb`) is the file to use as an example for conversion.

Note: If you have not backed up the `WWGDemo.mdb` file, see "Prerequisites" on page 54 and follow the instructions. Genesys strongly recommends that you back up any Project Book file that you intend to convert to Collaboration mode.

End of procedure

Converting the Project Book

Procedure: Convert a Project Book to Collaboration mode.

Again, the `WWGDemo.mdb` file is the example.

Note: You must convert a Project Book to Collaboration mode before any of the multiple-user options (such as `Administrate` or `Lock/Unlock Database`) become available.

Start of procedure

1. From the Genesys Agent Scripting main menu, select `File` > `Convert to Collaborate Mode`.

   This opens the first screen of the conversion wizard as shown in Figure 3. This first screen warns you to back up your Project Book file before carrying out the conversion.

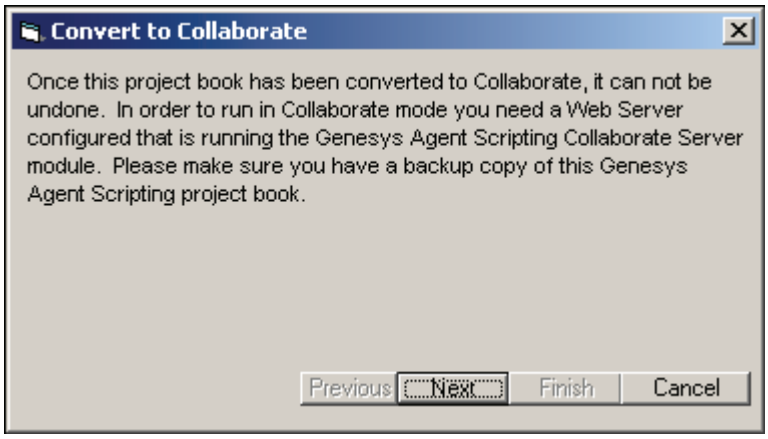

Figure 3: Convert to Collaborate Wizard, Backup Warning

2. Click `Next` to proceed to the next screen of the wizard shown in Figure 4.

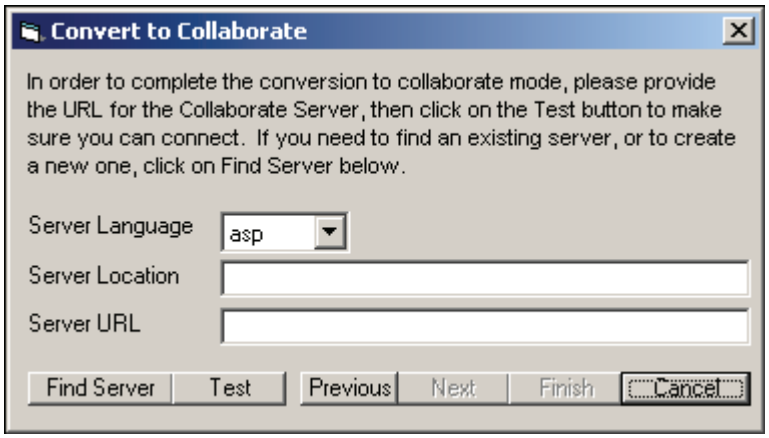

Figure 4: Convert to Collaborate Wizard, Find Server

3. Select `asp` or `jsp` as desired in the `Server Language` field.
4. Click `Find Server` to locate the server that will populate the `Server Location` field.

The `Select Target Directory for Collaborate Server` dialog box opens as shown in Figure 5.

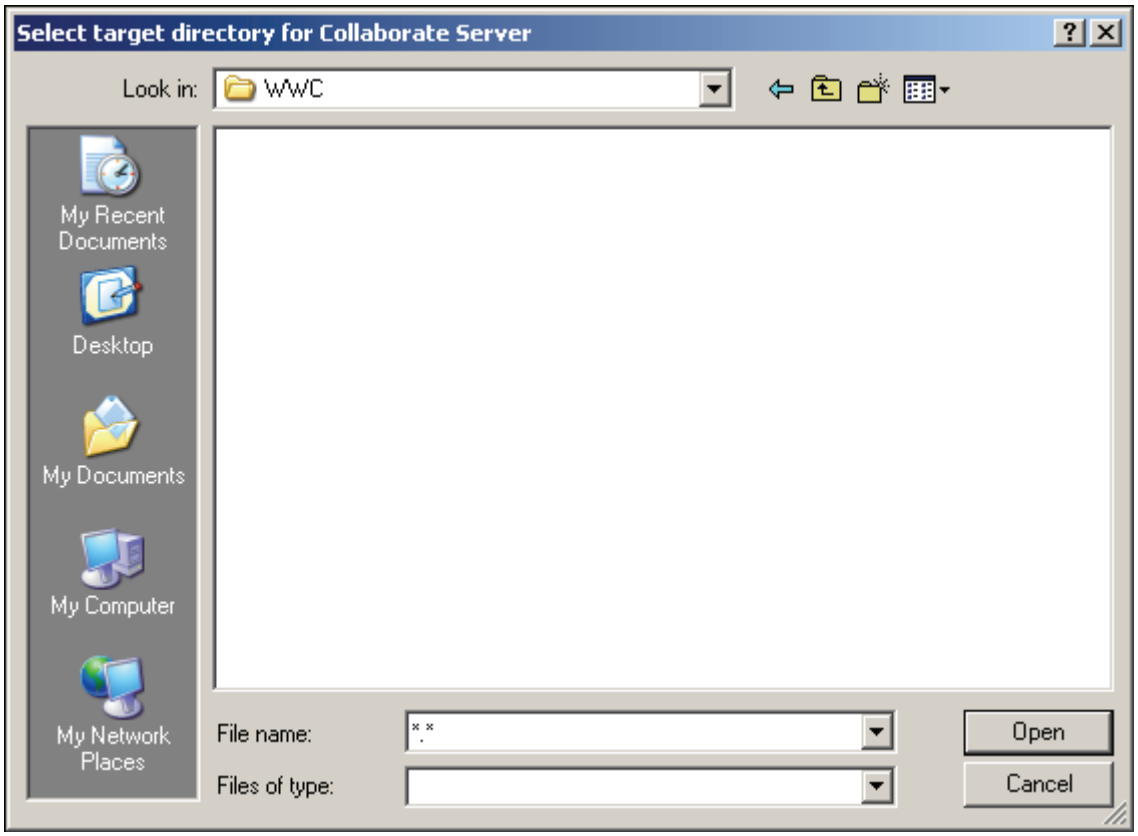

Figure 5: Convert to Collaborate Wizard, Navigate to WWC

5. In this dialog box, navigate to the folder you set up in "Creating a Folder for the Collaboration Server" on page 55 and click `Open`.
6. Click `OK` if you see a JSP Environment message.

   The `Server Location` and `Server URL` fields are now populated in the conversion wizard as shown in Figure 6 on page 60.

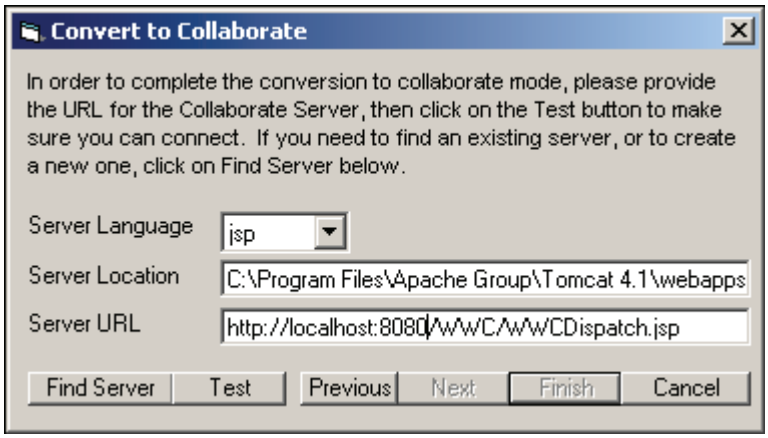

Figure 6: Convert to Collaborate Wizard, Fields Populated

7. Replace the host string in the `Server URL` field with the fully qualified host name and port used to access the Collaboration Server. This is the URL string that designers of this Project Book will use to address this Collaboration Server.

   The default port for Apache Tomcat is `8080`. The modified `Server URL` string is shown in Figure 6.

   Note: Before proceeding to the next step, be sure to carry out the instructions detailed in "Copy the Connection String File for the JSP Collaboration Server" on page 54, if you have not already done so. The Test step will not work correctly unless you have copied (and updated) this connection string file.

8. Click `Test` to test the connection to the Collaboration Server.

   If successful, the screen shown in Figure 7 appears.

   Note: Clicking `Test` deploys the Collaboration Server, populating the `WWC` folder. For JSP, this includes the creation of a `WEB-INF` subfolder, which tells Tomcat that you have a runnable server. You must restart Tomcat to pick up this change.

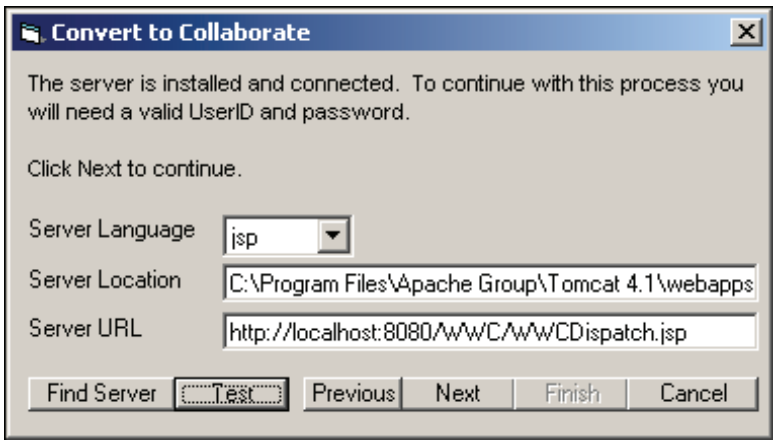

Figure 7: Convert to Collaborate Wizard, Server Installed/Connected

9. Click **Next** to proceed to the screen shown in Figure 8.

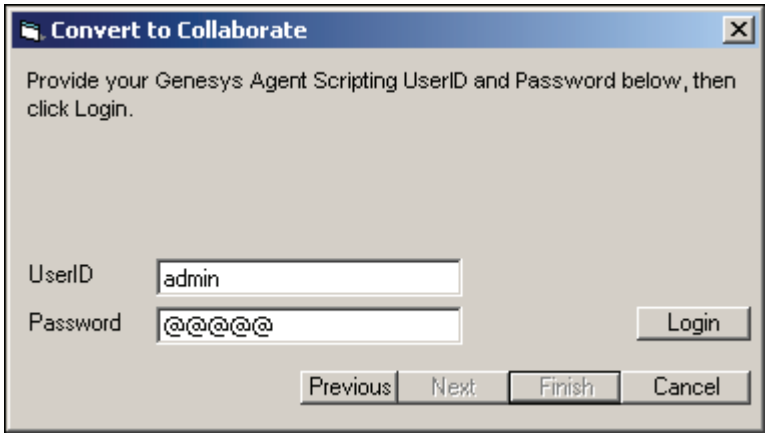

Figure 8: Convert to Collaborate Wizard, Provide Login Information

10. Enter `admin` in the `UserID` field.
11. Enter `admin` in the `Password` field.
12. Click `Login`.

You are now logged in as shown in Figure 9.

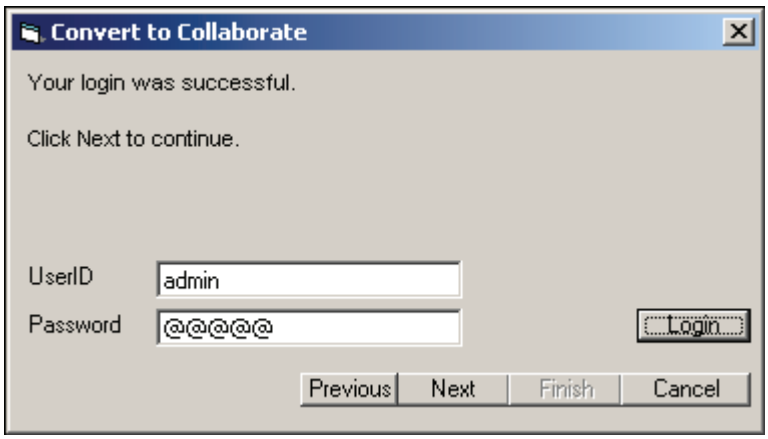

Figure 9: Convert to Collaborate Wizard, Login Successful

13. Click `Next` to open the dialog box shown in Figure 10.

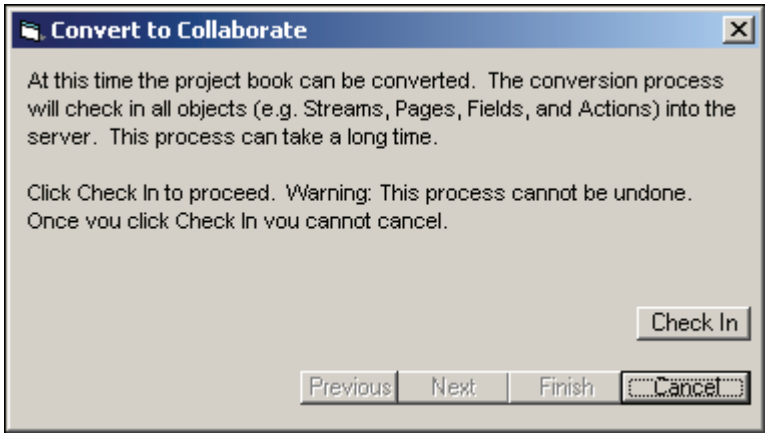

Figure 10: Convert to Collaborate Wizard, Start Conversion

14. Start the conversion of your Project Book to Collaboration mode by clicking `Check In`.

Warning! Depending on the size of the Project Book, this conversion process may require a lot of time. Once you start it, you cannot stop it without destroying the Project Book file.

The conversion process proceeds as shown in Figure 11. Allow the conversion process to complete.

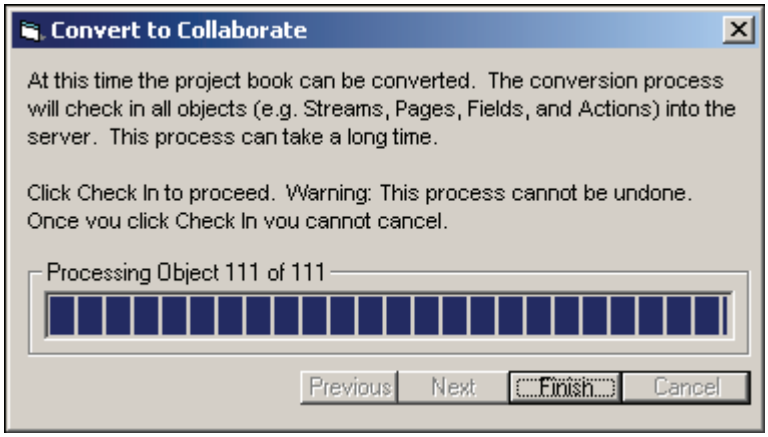

Figure 11: Convert to Collaborate Wizard, Converting Project Book

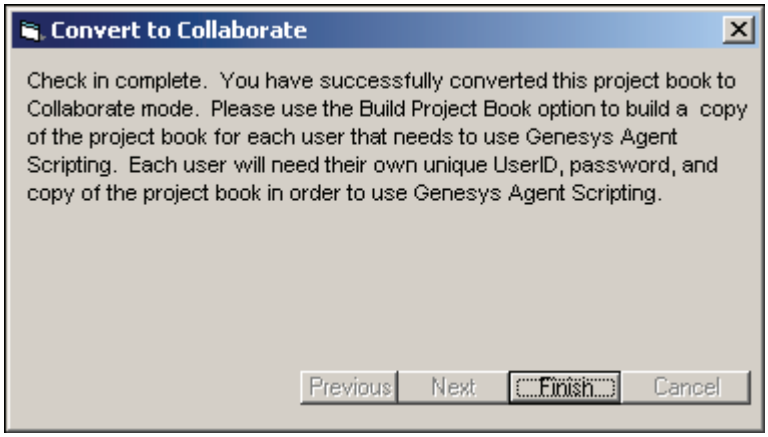

Figure 12: Convert to Collaborate Wizard - Conversion Complete

15. Click `Finish` when you see the screen shown in Figure 12.

End of procedure

Using a WebSphere Application Server for the Collaboration Server

Procedure: Use a WebSphere Application Server for the Collaboration Server

Purpose: The Genesys Agent Scripting install directory contains a file called `WWC.war`. This file is suitable for deployment on the WebSphere Application Server. To use a WebSphere Application Server, follow these steps:

Start of procedure

1. After `WWC.war` has been installed as a Web Application on the WebSphere Application Server, update the `WWCConfig.inc.jsp` file to use the appropriate configuration string for accessing the mySQL database (see Figure 2).
2. Update the `XMLServer` tag in the `WWGConfig.xml` file to contain the correct URL specification for the WebSphere Server (the default port number for WebSphere is `9080`).
3. Once these changes are complete, start the Web Application using the WebSphere Administration utility.

End of procedure

Procedure: Converting a Project Book to Collaboration Mode using WebSphere for the Collaboration Server

Purpose: Carry out the following steps to convert a Project Book to Collaboration mode for WebSphere as the Collaboration Server. Again, the `WWGDemo.mdb` file is the example.

Note: You must convert a Project Book to Collaboration mode before any of the multiple-user options (such as `Administrate` or `Lock/Unlock Database`) become available.

Start of procedure

1. From the Genesys Agent Scripting main menu, select `File` > `Convert to Collaborate Mode`.

   This opens the first screen of the conversion wizard as shown in Figure 13. This first screen warns you to back up your Project Book file before carrying out the conversion.

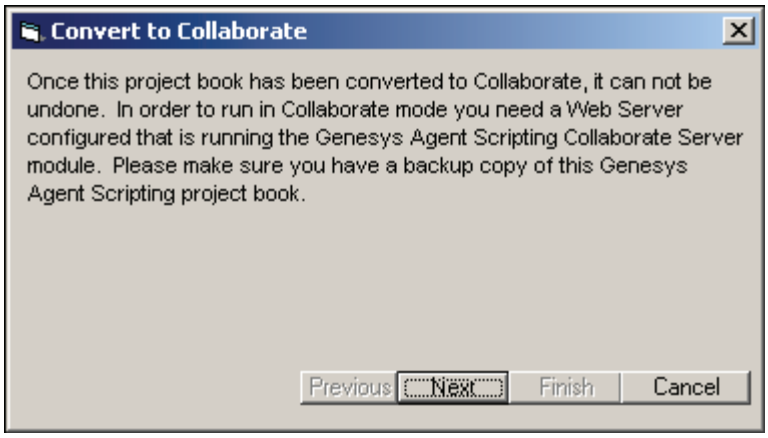

Figure 13: Convert to Collaborate Wizard, Backup Warning

2. Click `Next` to proceed to the next screen of the wizard shown in Figure 14.

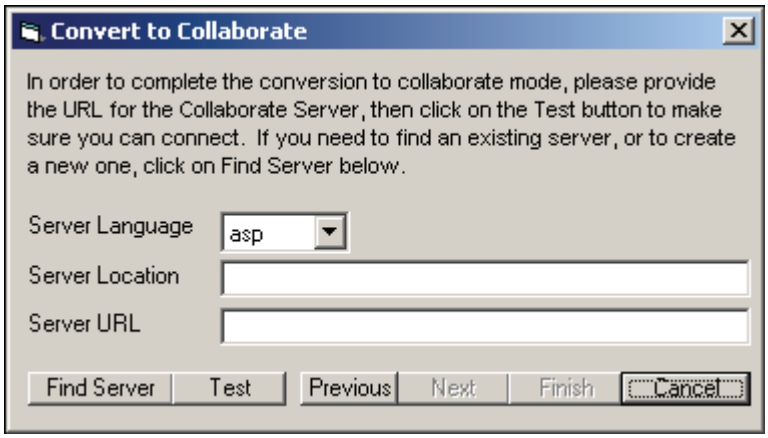

Figure 14: Convert to Collaborate Wizard, Find Server

3. Select `jsp` in the `Server Language` field.

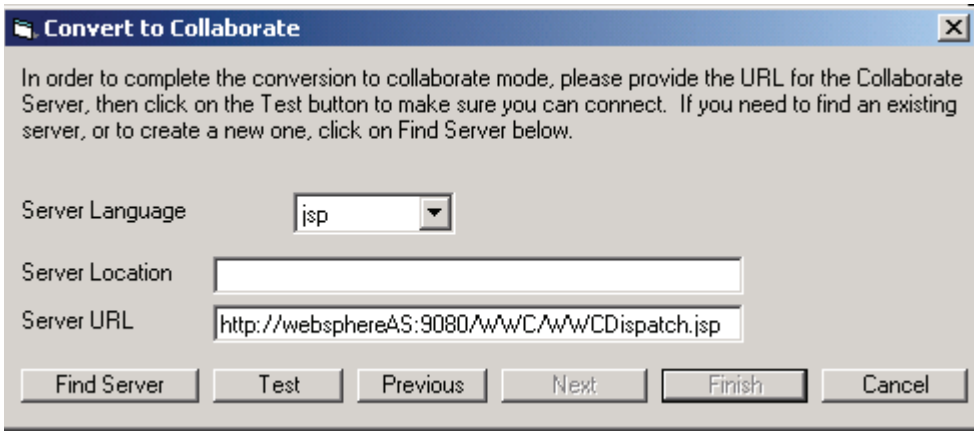

Figure 15: Convert to Collaborate Wizard, Fields Populated: WebSphere

4. Replace the host string in the `Server URL` field with the fully qualified host name and port used to access the Collaboration Server. This is the URL string that designers of this Project Book will use to address this Collaboration Server.

   The default port for WebSphere Application Server is `9080`. The modified `Server URL` string is shown in Figure 15.

5. Click `Test` to test the connection to the Collaboration Server.

   If successful, the screen shown in Figure 16 appears.

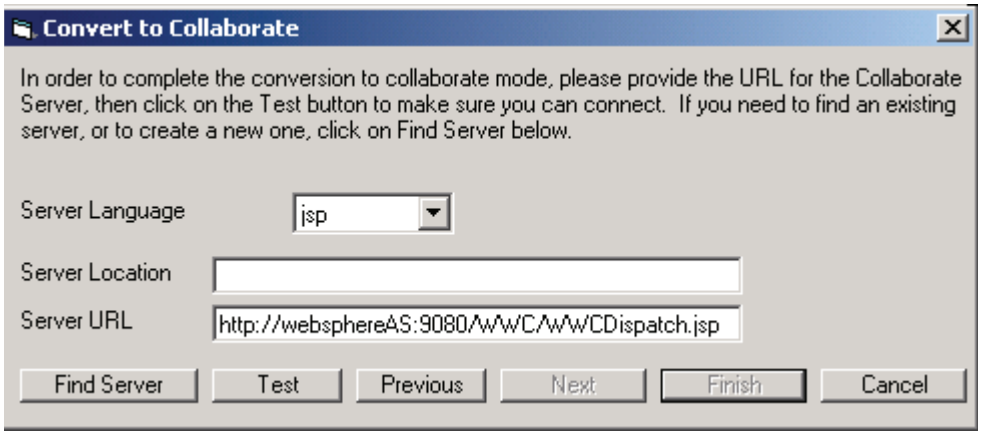

Figure 16: Convert to Collaborate Wizard, Server Installed/Connected

6. Click `Next` to proceed to the screen shown in Figure 17.

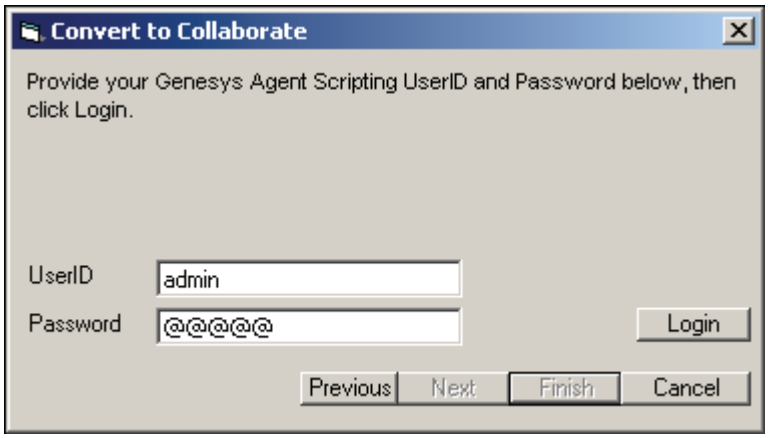

Figure 17: Convert to Collaborate Wizard, Provide Login Information

7. Enter `admin` in the `UserID` field.
8. Enter `admin` in the `Password` field.
9. Click `Login`.

   You are now logged in as shown in Figure 18.

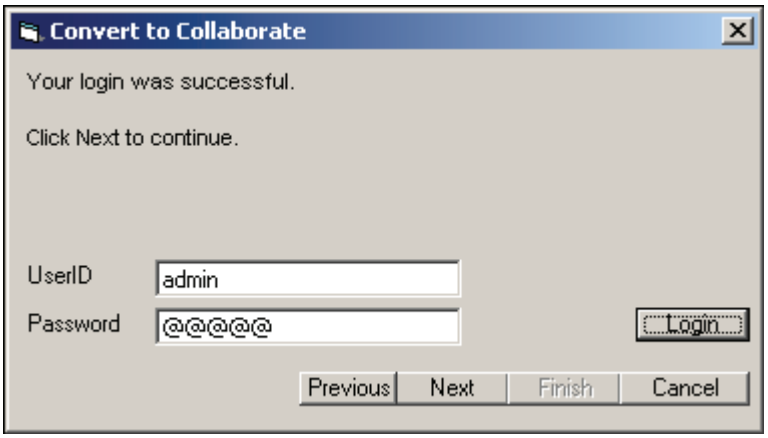

Figure 18: Convert to Collaborate Wizard, Login Successful

10. Click `Next` to open the dialog box shown in Figure 19.

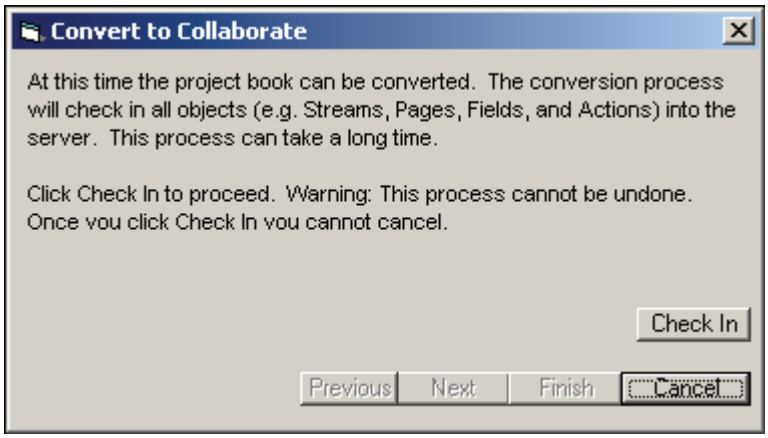

Figure 19: Convert to Collaborate Wizard, Start Conversion

11. Start the conversion of your Project Book to Collaboration mode by clicking `Check In`.

Warning! Depending on the size of the Project Book, this conversion process may require a lot of time. Once you start it, you cannot stop it without destroying the Project Book file.

The conversion process proceeds as shown in Figure 20. Allow the conversion process to complete.

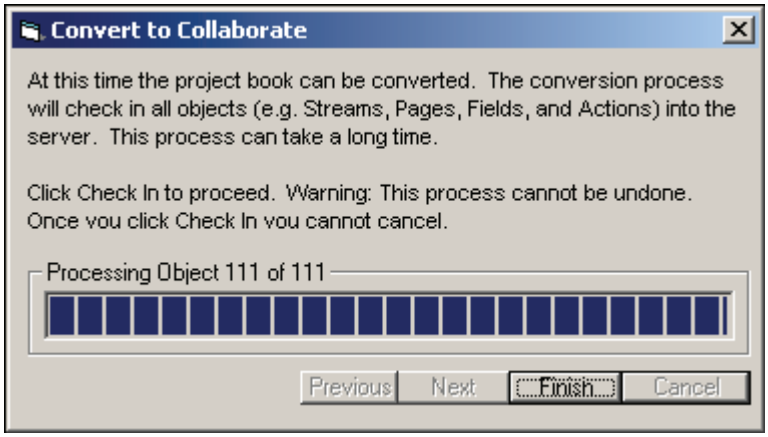

Figure 20: Convert to Collaborate Wizard, Converting Project Book

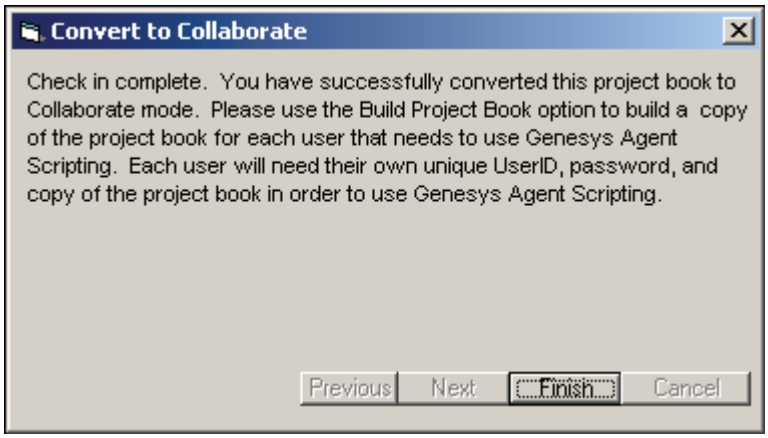

Figure 21: Convert to Collaborate Wizard - Conversion Complete

12. Click `Finish` when you see the screen shown in Figure 21.

End of procedure

Managing Users and Project Books

Once you have converted a Project Book to Collaboration mode, you can access the tools that enable you to manage users and Project Books.

For example, the `File` menu changes when you are in multiple-user (Collaboration) mode, as shown in Figure 22.

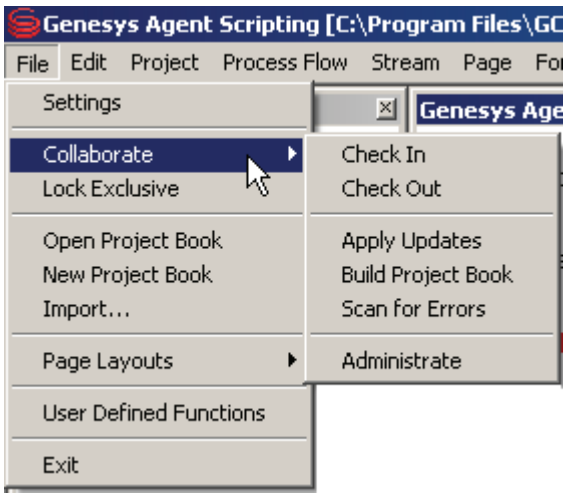

Figure 22: File Menu for Collaboration Mode

The `Collaborate` option on the `File` menu opens a submenu with several options. The following subsections provide descriptions of the options. Also,

note that the File menu items called Lock Exclusive and Unlock Exclusive are available only in a multiple-user environment.

Lock Exclusive/Unlock Exclusive

In Collaboration mode, you can lock the Project Book for your exclusive use, and release the lock after you have made changes and checked in all objects.

Lock Exclusive

The Lock Exclusive feature enables you to lock the Project Book for your exclusive use. Lock Exclusive appears in the File menu only when Genesys Agent Scripting is in Collaboration mode.

In this operational mode, you do not need to check out individual records to make changes. However, you must check in all changes prior to releasing the exclusive lock. If a Project Book is locked exclusively, another user cannot modify any objects until the exclusive lock is released.

When you select File > Lock Exclusive, the dialog box shown in Figure 23 opens (Database means Project Book).

Figure 23: Lock Exclusive

Click OK to confirm the message. The current Project Book is now locked for your exclusive use.

Unlock Exclusive

If you have been working with an exclusively locked Project Book, you can use the Unlock Exclusive option to release the exclusive lock.

- When a Project Book is locked, the Unlock Exclusive option appears in the File menu, replacing the Lock Exclusive option that appears when you are in Collaboration mode. You can use this option to release the exclusive lock.
- Before releasing the lock, you must check in all objects as described in “Check In” on page 72.

- When you select `File` > `Unlock Exclusive`, the dialog box shown in Figure 24 opens (database means Project Book).

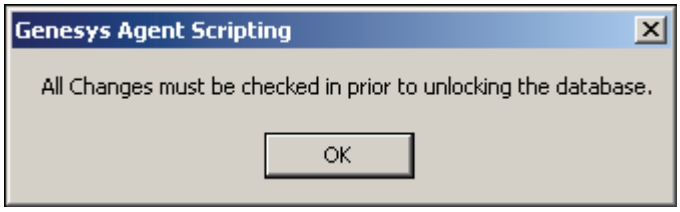

Figure 24: Unlock Exclusive

- Click `OK` to confirm the message. If you have checked in all objects, the current Project Book is now unlocked and available to other users.

Check In

The `Check In` option checks in changes that you or another user has made to objects, updating the collaboration database and making the objects available for other users to modify. When you select this option, the dialog box shown in Figure 25 opens.

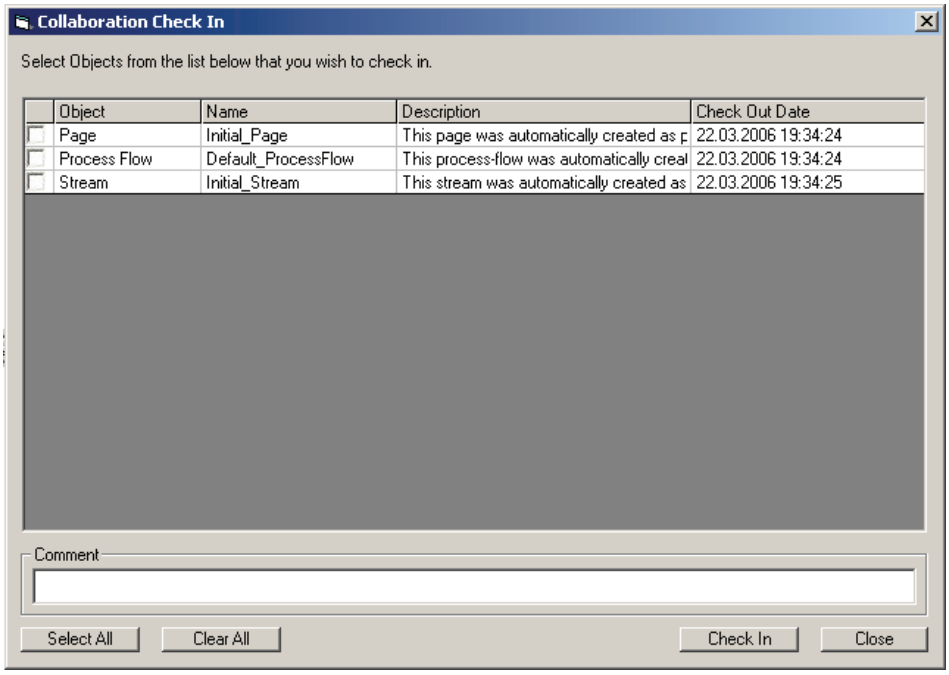

Figure 25: Collaboration Check In

The `Object` column in this dialog box lists all objects in the Project Book that are currently checked out. Other columns provide the name of each object that has been checked out, a description of the object, and the date the object was checked out.

- To select an object for check in, select the box to the left of the object under the `Object` column.
- Before checking in changes to the `Admin` database, you must provide a comment describing the changes that you have made.
- Click `Check In` to check in the selected objects. Once objects are checked in, other users can view the changes.

Check Out

Use the `Check Out` option to lock Project Book objects so they can be safely updated without affecting the work of other users. When you select this option, the dialog box shown in Figure 26 opens.

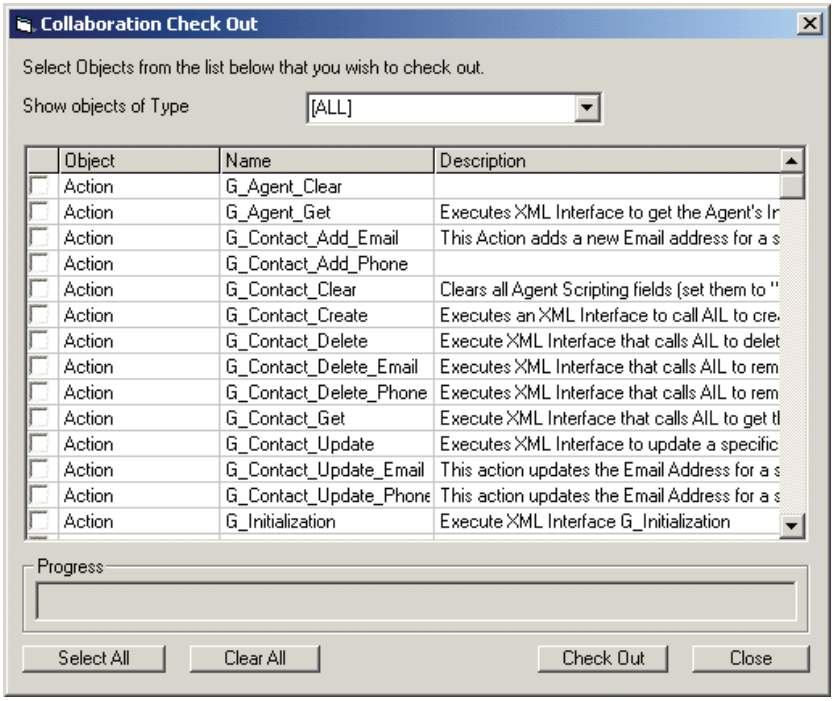

Figure 26: Collaboration Check Out

Note: By default, objects are automatically checked out when you edit them. However, you can turn off this automatic check out by going to `File` > `Settings` > `Collaborate` tab and deselecting the box labelled `Automatically Lock Pages When the User Clicks on the Page in the Script View`.

This is useful when you are simply looking at a Project Book and don't want to be required to check in all the Process Flows/Streams and pages just because you looked at them.

However, if you attempt to edit a page which is not checked out, you will get a warning dialog box, `This page cannot be edited at this time`. You will need to check out the page before editing it.

- Use the `Show Objects of Type` drop-down list to filter the `Object` list to only show objects of a certain type. Valid types are `[ALL]`, `Projects`, `Process Flows`, `Streams`, `Pages`, `Fields`, `Actions`, `Database Interfaces`, `XML Interfaces`, `Functions`, and `API Interface`.

- The `Object` column lists all objects in the Project Book that are currently not checked out. Objects are described under the `Description` column. To check out an object, select the check box next to it.

Note: Objects are automatically checked out when you edit them from any Genesys Agent Scripting dialog box.

- Click `Check Out` to check out the selected objects. Until an object is checked back in, other users cannot modify or delete it.
- The `Progress` pane at the bottom of the Collaboration `Check Out` dialog box shows the progress as each object is checked out.

Apply Updates

The `Apply Updates` option applies all changes checked in by other users to the local copy of the Project Book.

Note: Before checking out an object, Genesys Agent Scripting automatically updates the local copy.

- When you select `File` > `Collaborate` > `Apply Updates`, the dialog box shown in Figure 27 opens (Build database means Rebuild Project Book).

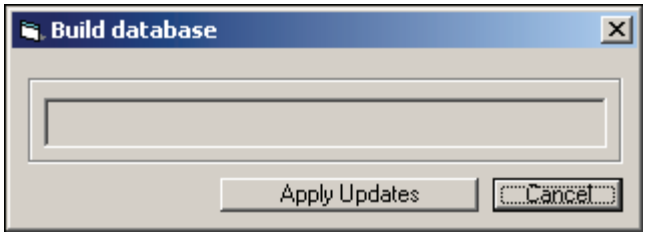

Figure 27: Apply Updates

- Click `Apply Updates` to rebuild the local Project Book with all changes that you have checked in.

Build Project Book

The option to build a Project Book builds a new copy of a Collaboration Server-controlled, Genesys Agent Scripting Project Book. You will need to build a copy of the Project Book for each user of the project and they will be required to log onto the server before doing any editing with that Project Book.

While users will have their own Project Books, all changes are stored in the common Collaboration Server.

Note: The assigned Admin user should not be a business process script editor. This Admin user is responsible for maintaining users and building Collaboration mode Project Books.

- When you select `File` > `Collaborate` > `Build Project Book`, the dialog box shown in Figure 28 opens. (Note that Build database means Build Project Book).

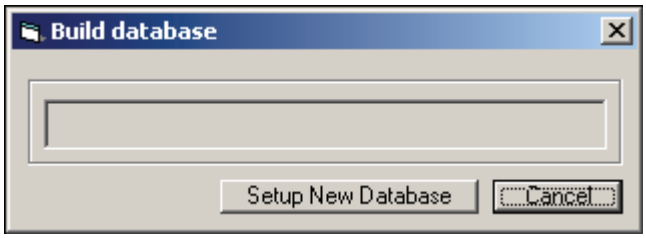

Figure 28: Build Project Book

- Click `Setup New Database` to create a new copy of the Project Book.

Warning! Make sure that you regularly back up your Project Book files to a secure location. If you do not make backup copies of your Project Book files, you will not be able to recover any lost information.

Scan for Errors

Genesys Agent Scripting Project Books can run in either of two modes:

- `Pessimistic` mode
- `Optimistic` mode

In *`Pessimistic` mode,* the Project Book assumes that users are going to do things that conflict with each other, so the Project Book prevents this from happening. For example, this mode prevents a user from adding a new reference to an object that a different user is currently attempting to delete.

In *`Optimistic` mode,* the Project Book assumes that users are not going to do things that conflict with each other. It operates as if these situations are very rare and not worth the cycle time.

Use the `Scan for Errors` option to scan the Project Book for any errors that may occur when the Project Book is running in `Optimistic` mode.

- When you select `File` > `Collaborate` > `Scan for Errors`, the dialog box shown in Figure 29 opens.

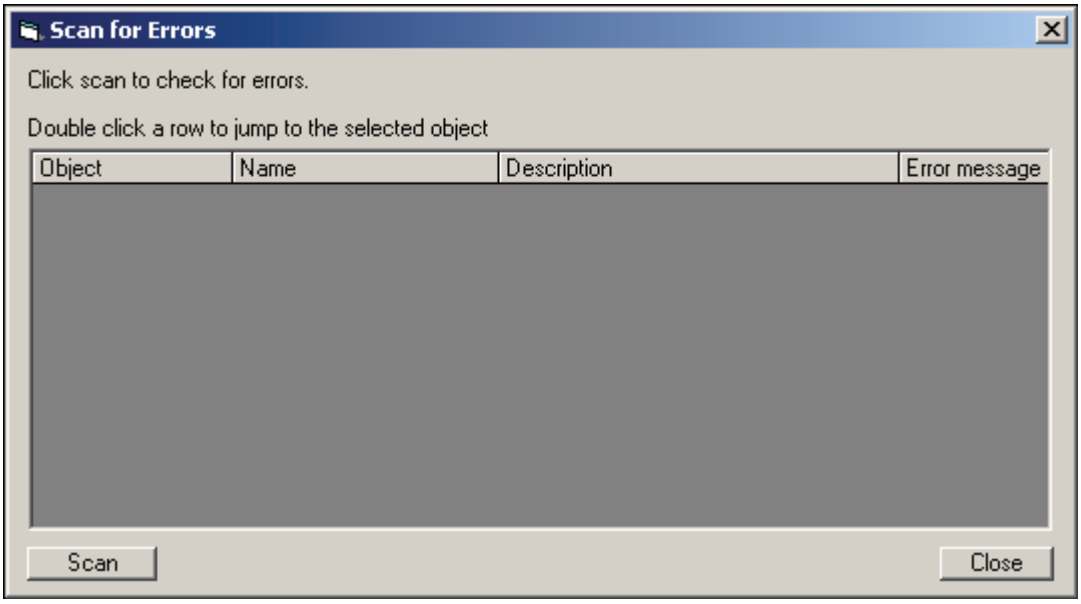

Figure 29: Scan for Errors

- Click `Scan` to check for errors in the Project Book.

Administrate

Use this option to launch Genesys Agent Scripting Collaboration Administration, which is described in detail in the next section.

Using Genesys Agent Scripting Collaboration Administration

As a system administrator or business process script developer in a multiple-user Genesys Agent Scripting environment, you can set up, update, and manage users and Project Books.

- Select `File` > `Collaborate` > `Administrate` to run Collaboration Administration.

Note: You must be running in Collaboration mode in order to access Collaboration Administration.

Login Screen

The `Login` screen as shown in Figure 30 opens in a web browser when you launch Collaboration Administration.

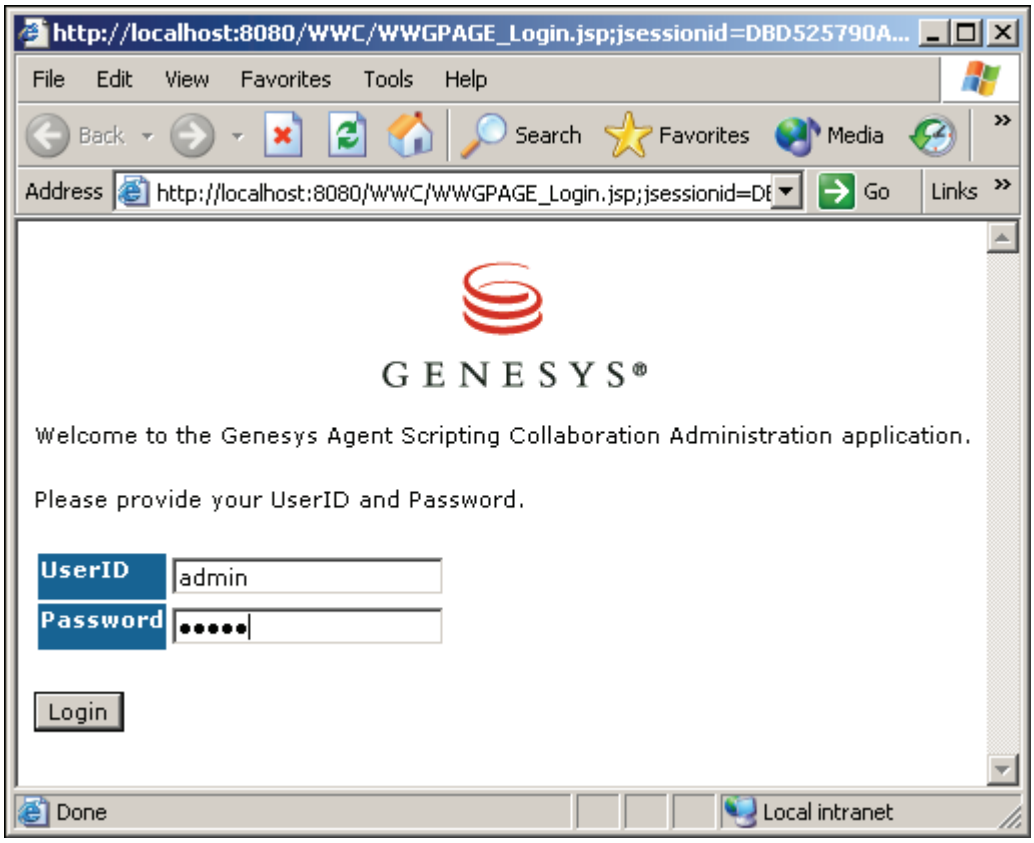

Figure 30: Collaboration Administration Login Screen

The first time you open Collaboration Administration, the `UserID` and `Password` are both set to `admin`. You can change these values later when you update user information. See “Updating Users” on page 82.

For now: Enter `admin` in the `UserID` field, enter `admin` in the `Password` field, and click `Login`.

The `Home` screen opens in the web browser as shown in Figure 31 on page 78.

Home Screen

Figure 31 on page 78 shows the Collaboration Administration Home Screen.

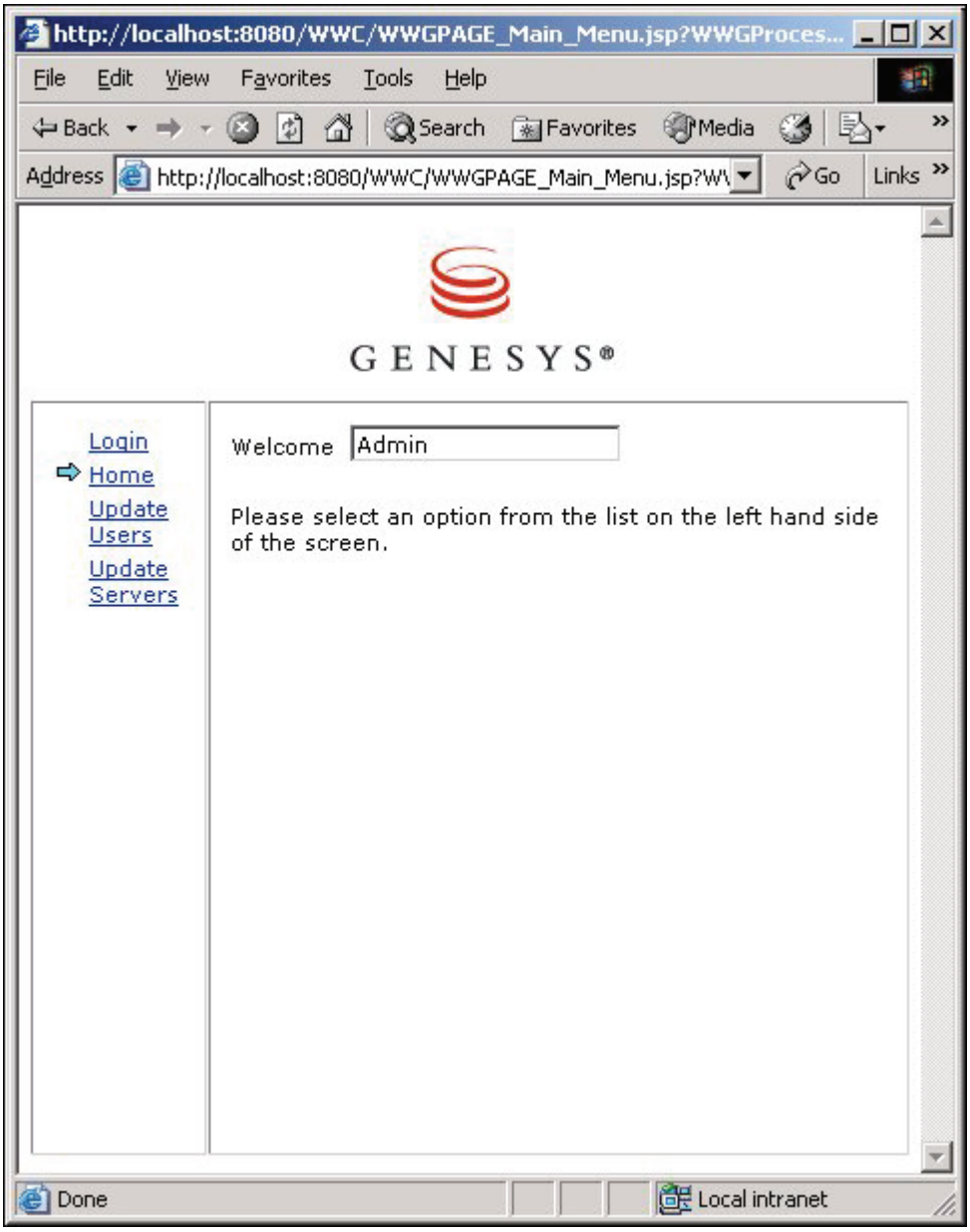

Figure 31: Collaboration Administration Home Screen

Genesys Agent Scripting 7 Collaboration Administration has two main functions:

- User maintenance
- Project Book maintenance

You will click `Update Users` or `Update Servers` (Update Servers means Update Project Books) from the `Home` screen's left panel depending on which type of maintenance function you wish to run.

Setting Up and Managing Users (Update Users)

This section describes how to set up and manage Genesys Agent Scripting users who will be sharing Project Books that are converted to Collaboration mode.

The user maintenance function enables you to add new users or to modify and deactivate existing ones.

Click `Update Users` on the left panel to open the screen shown in Figure 32 in a web browser.

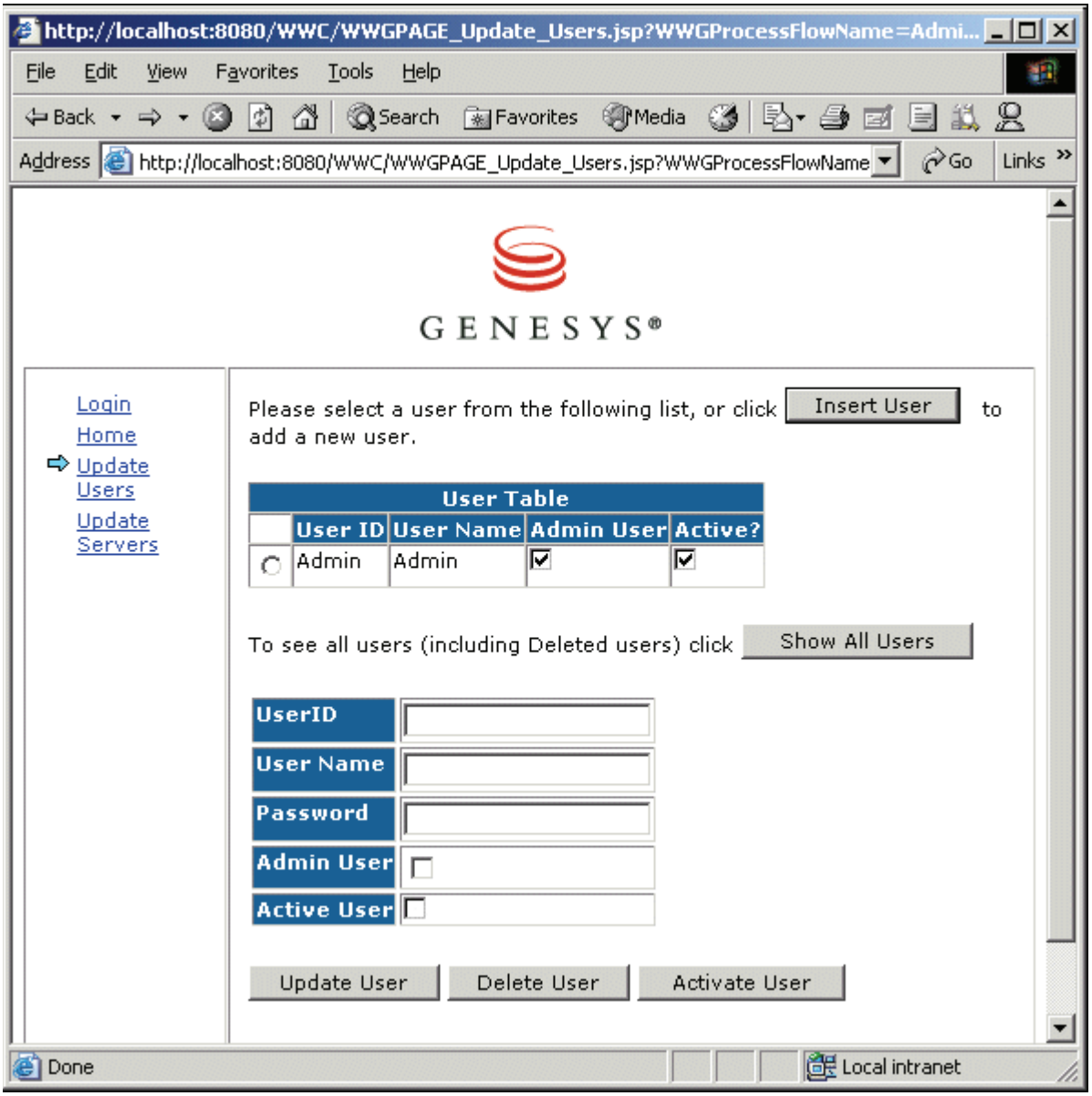

Figure 32: Update Users

Procedure:
Adding Users

Purpose: The `Insert User` function enables an Admin user to add new users to the `Admin` database.

Start of procedure

1. Click `Insert User` to open the screen shown in Figure 33 in the web browser:

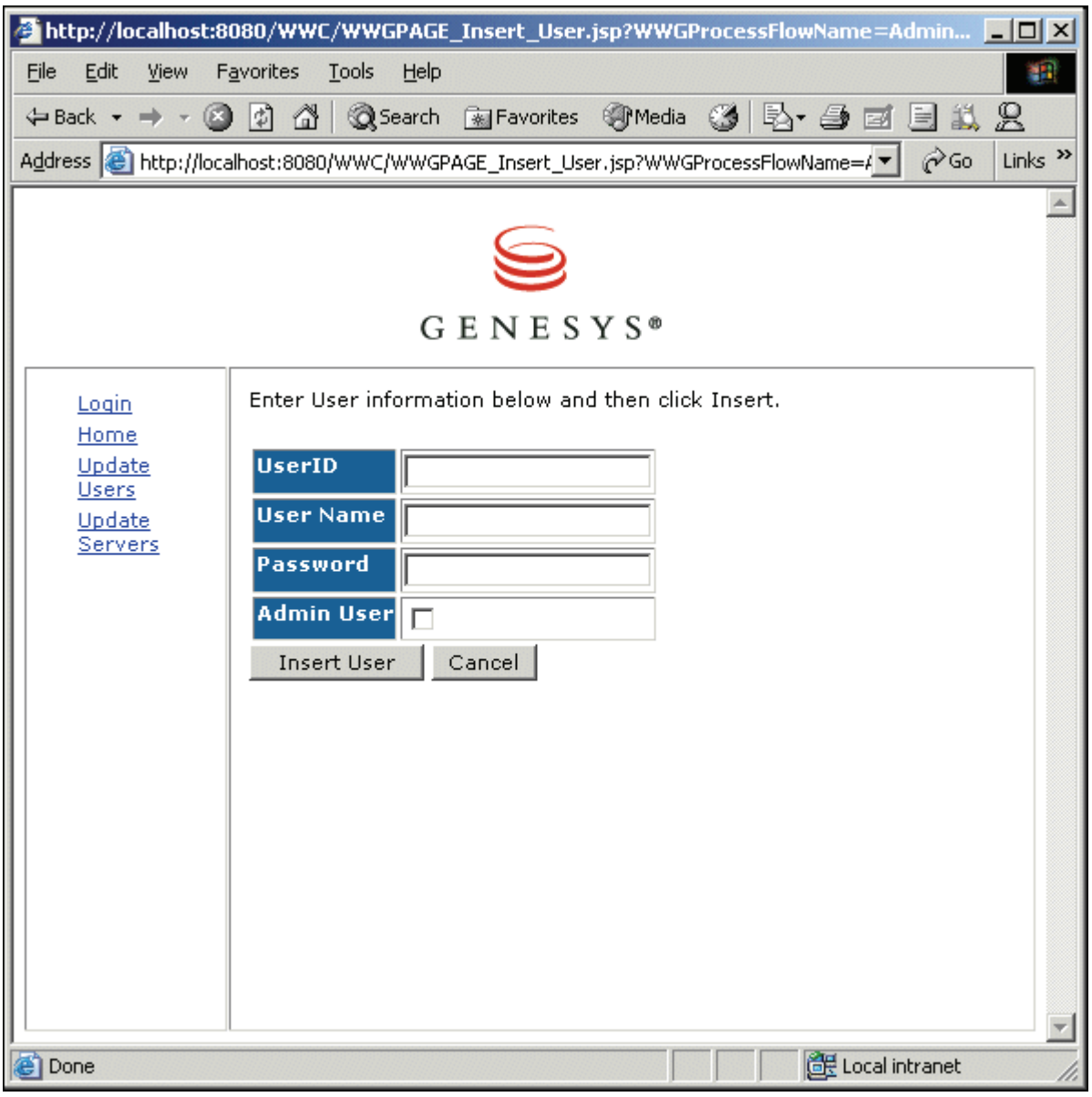

Figure 33: Insert User

2. Enter a value in the `UserID` field.

   This is the UserID to log into Genesys Agent Scripting in Collaboration mode, or into Genesys Agent Scripting Collaboration Administration. You can enter up to 100 characters in this field. The value you enter must be unique.

3. Enter the user's name in the `User Name` field.

   You can enter up to 200 characters in this field.

4. Enter a password for this user in the `Password` field.

   This is the password to log into Genesys Agent Scripting in Collaboration mode, or into Genesys Agent Scripting Collaboration Administration. You can enter up to 100 characters in this field. Any text you enter will be hidden.

5. If you want this user to have access to Genesys Agent Scripting Collaboration Administration, select the `Admin User` check box.

   If the check box is not selected, this user can run Genesys Agent Scripting in Collaboration mode, but will be unable to access Collaboration Administration.

6. Click `Insert User` to add the new user to the Genesys Agent Scripting `Admin` database.

   Your new user is added to the list of user records in the `User Table`. In the example shown in Figure 34 on page 82, `UserID` = `2004`, `User Name`= `Sal Thomas`, and the user is active but is not an Admin user.

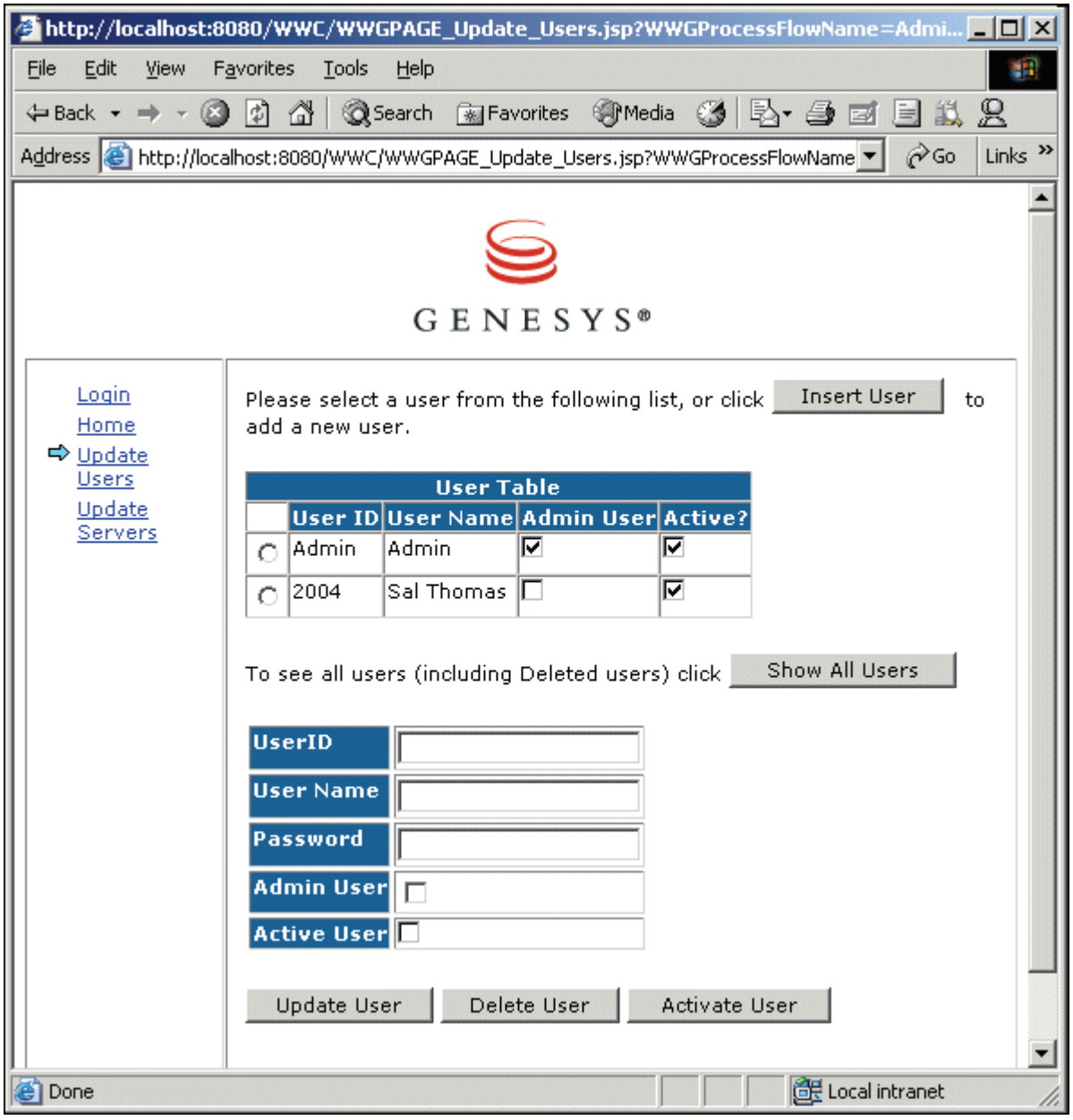

Figure 34: New User Added

End of procedure

Procedure: Updating Users

Purpose: The `User Table` shown in Figure 34 lists all user accounts. Use the radio button next to each user to select a specific user account to update, delete, or activate.

Start of procedure

1. Click `Show All Users` to display all active and inactive user accounts.

   Inactive user accounts are accounts that were deactivated or deleted. They are maintained in the `Admin` database, but the user is unable to log in. See Figure 35.

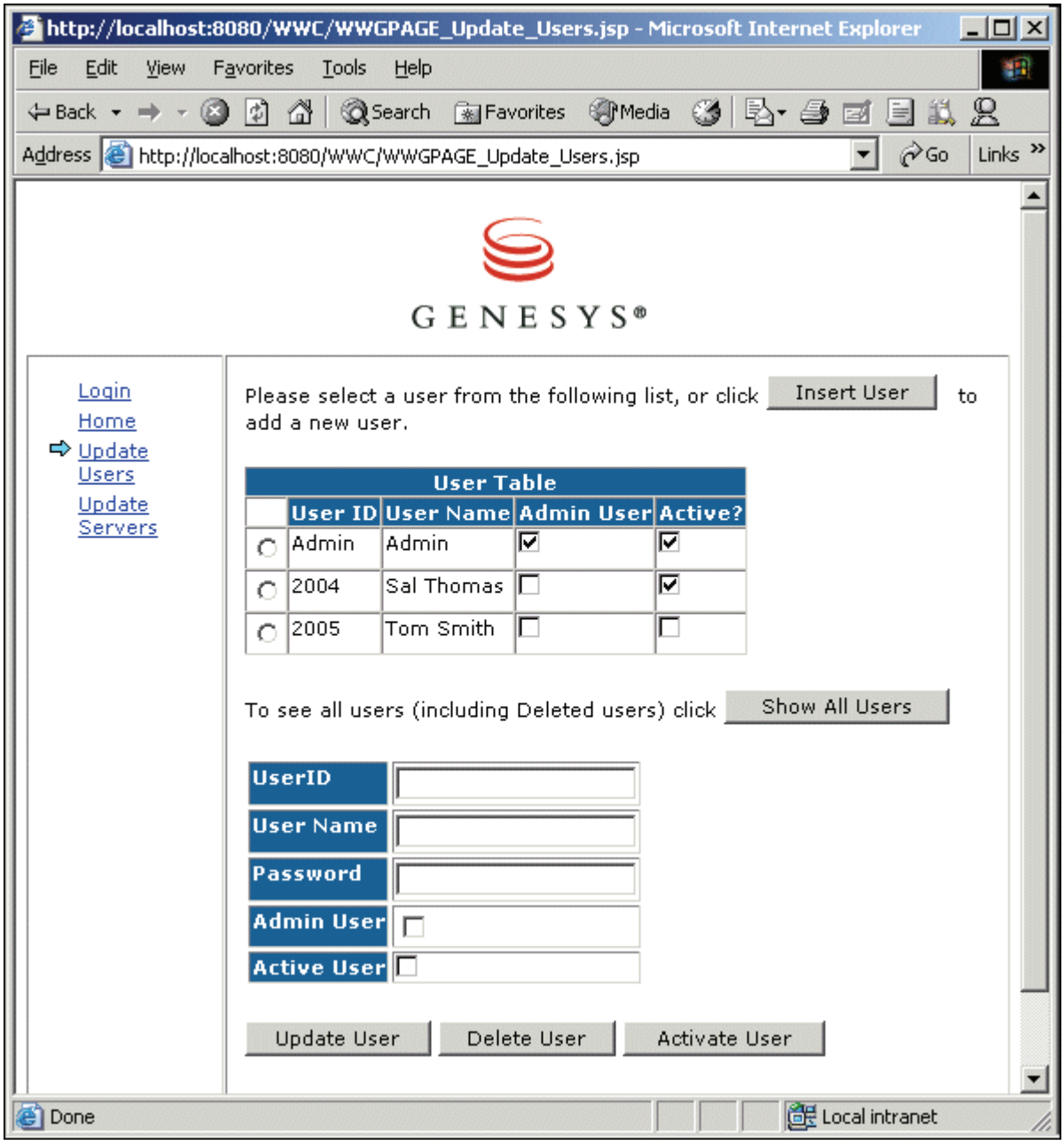

Figure 35: Show All Users

2. Select the radio button beside a user record in the `User Table` that you want to update.

When you do this, the user record fields on the screen are populated with the user's information, as shown in Figure 36 on page 84.

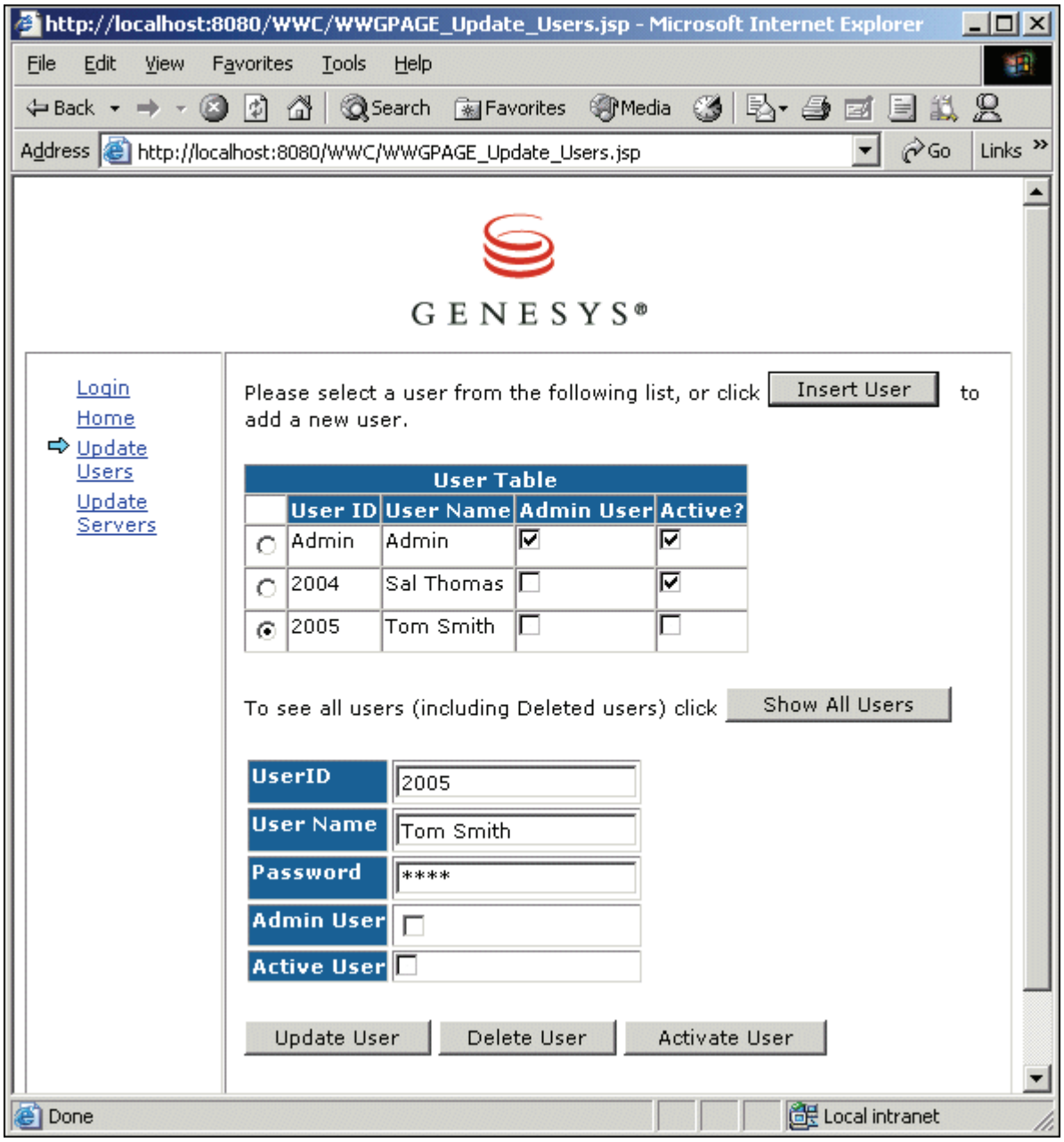

Figure 36: Update User Information

3. Change any information that you want to update about this user.
   - To change the `UserID`, `User Name`, or `Password`: edit the appropriate field.
   - To give this user administration rights: select the `Admin User` check box.

- To remove administration rights: clear the `Admin User` check box.

4. Complete your update by doing one of the following:
   - Click `Update User` to register the changes you made into the `Admin` database.
   - Click `Delete User` to deactivate this user account. The user record remains in the `Admin` database, but the user is unable to log in unless reactivated.
   - Click `Activate User` to activate or reactivate a user account that is currently inactive. In the example shown in Figure 36 on page 84, clicking `Activate User` adds a check mark to the `Active User` check box and allows this user to regain login rights.

End of procedure

Setting Up and Managing Project Books (Update Servers)

This section describes how to manage Genesys Agent Scripting Project Books that users will share.

Admin users can lock and unlock Project Books using the Project Book maintenance portion of Genesys Agent Scripting Collaboration Administration.

- Click `Update Servers` in the left panel to open the screen shown in Figure 37 on page 86 in a web browser.

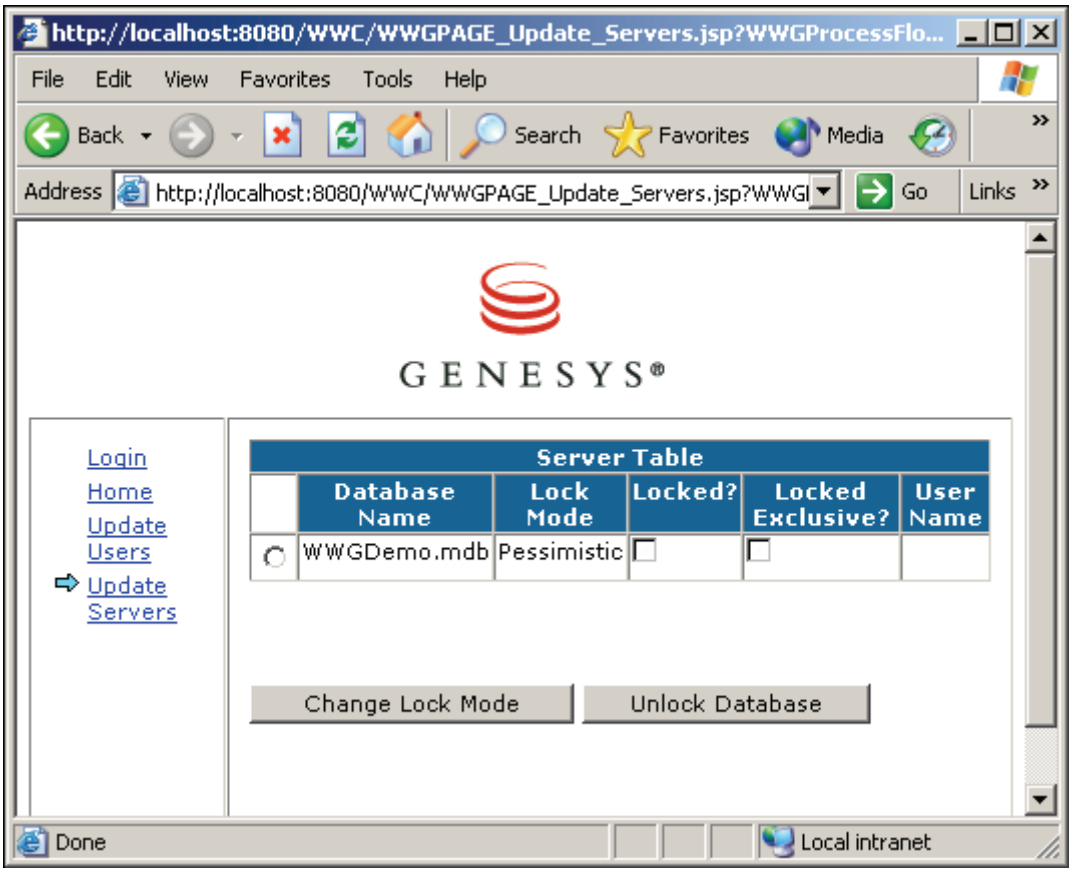

Figure 37: Update Servers (Project Books)

As you can see in Figure 37, the `Server Table` contains a list of Project Book files that have been converted to Collaboration mode; the column `Database Name` contains the list of Project Book files. The following characteristics of the Project Book are provided in the table:

- Project Book file name
- Lock mode (`Pessimistic` or `Optimistic`)
- Whether the Project Book is currently locked
- Whether the Project Book has an exclusive lock (achieved by selecting `File` > `Lock Exclusive` as described earlier)
- If locked, the user name of the user who has locked the Project Book

Procedure: Changing the Lock Mode

The Project Book can be locked in one of two ways:

In *`Pessimistic` mode,* the Project Book assumes that users are going to do things that conflict with each other, so the Project Book prevents this from happening.

For example, this mode prevents a user from adding a new reference to an object that a different user is currently attempting to delete.

In *Optimistic mode,* the Project Book assumes that conflict situations are very rare and not worth the cycle time.

Note: You cannot change the lock mode if the Project Book is currently locked or if it has an exclusive lock. You must unlock the Project Book or release the exclusive lock (select File > Unlock Exclusive) before you can change the lock mode.

Start of procedure

1. Select the radio button beside the Project Book file in the Server Table whose properties you want to modify.
2. Click Change Lock Mode.

   You must check in all objects before you can change the lock mode. If you have objects that are checked out, check them in as described in "Check In" on page 72. If other users have checked out objects, these users must also check in their items before you can change the lock mode.

Once all items have been checked in, Change Lock Mode will change the Project Book from Pessimistic mode to Optimistic mode, or vice versa.

End of procedure

Procedure: Unlocking the Project Book

Selecting the Locked? check box for a Project Book record in the Server Table places a database-wide lock on that Project Book.

As system administrator or business process script developer with Admin rights, you can clear this check box. If the Project Book also has an exclusive lock placed on it, you must release the exclusive lock before you can unlock the Project Book. Exclusive- lock maintenance is handled from within the Genesys Agent Scripting application.

Start of procedure

1. Select the radio button beside the Project Book file in the Server Table whose properties you want to modify.
2. Click Unlock Database to clear the database-wide lock on the currently selected Project Book.

End of procedure

Why Unlock a Project Book?

When Genesys Agent Scripting is in the process of checking in or checking out components, it places a lock on the entire Project Book so that no one else can make changes to the project book during its operation. Under normal conditions, this lock is acquired and released automatically. However, if a user's machine crashes or the network goes down during the course of a check in or check out, this global lock might not be released. In these instances, use Collaboration Administration to manually clear this lock.

Notes:
- You should only clear a lock manually if it is apparent that the last check in or check out failed and is no longer processing.
- Only Project Book-level locks are displayed in the `Server Table`. You must administer more specific locks, such as locks on individual Scripts, Pages, Fields, and so on, through the Genesys Agent Scripting application.

Exclusive Lock

Selecting the `Locked Exclusive?` check box for a Project Book record in the `Server Table` locks a Project Book for a user's exclusive use. In this mode, the user does not have to check out individual records to make changes. However, the user must check in all changes before releasing the exclusive lock.

Chapter

7 Load Balancing and Failover

This chapter describes the Genesys Agent Scripting load balancing and failover feature.

Genesys Agent Scripting is able to benefit from load balancing by efficient agent distribution among available service nodes. In a Load Balancing configuration, the Failover feature covers automatic switching to a working service node on node failure.

This chapter contains the following sections:

Load Balancing

The Genesys Agent Scripting load balancing feature is supported for Interaction Workspace client intergation for Tomcat deployments only. The Apache HTTP Server is configured to use the `mod_jk` or `mod_proxy` module for load balancing. These modules perform load balancing to distribute workload between Genesys Agent Scripting servers. Genesys Agent Scripting load balancing implies session affinity, also known as “sticky” sessions.

Session affinity means that as long as the load balancer started a session at a specific node, all requests are sent back to that same node until the session ends. On node failure, the session is reinitialized on the available node. Unsaved session data is lost during the failover switch.

Architecture

This section describes the architecture for single and multiple Apache server configurations.

Single Apache Server Load Balancing

The Interaction Workspace plug-in sends information to the Apache HTTP Server which in turn distributes the work load over `AJP13` protocol using the `mod_proxy` or the `mod_jk` Apache modules on several Genesys Agent Scripting Servers. Figure 38 illustrates this architecture.

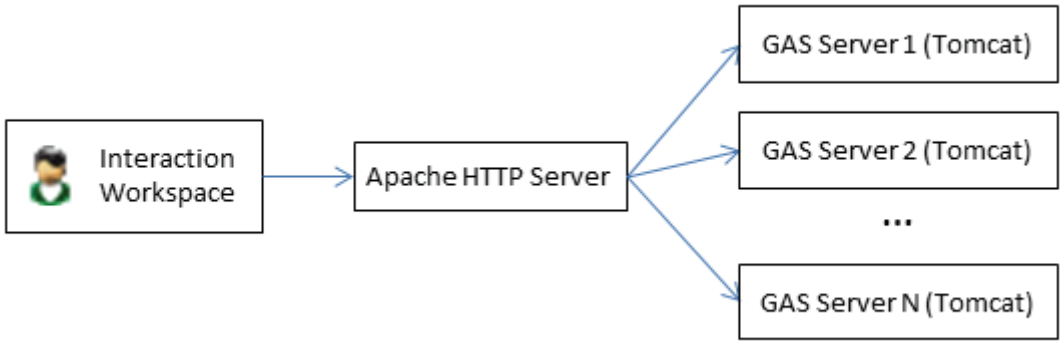

Figure 38: Single Apache Server Load Balancing Architecture

Multiple Apache Server Load Balancing

The Interaction Workspace plug-in sends information to the Apache HTTP TOP Server which in turn distributes the work load over `HTTP` protocol using the `mod_proxy` Apache module on several Genesys Agent Scripting Servers. Figure 39 illustrates this architecture.

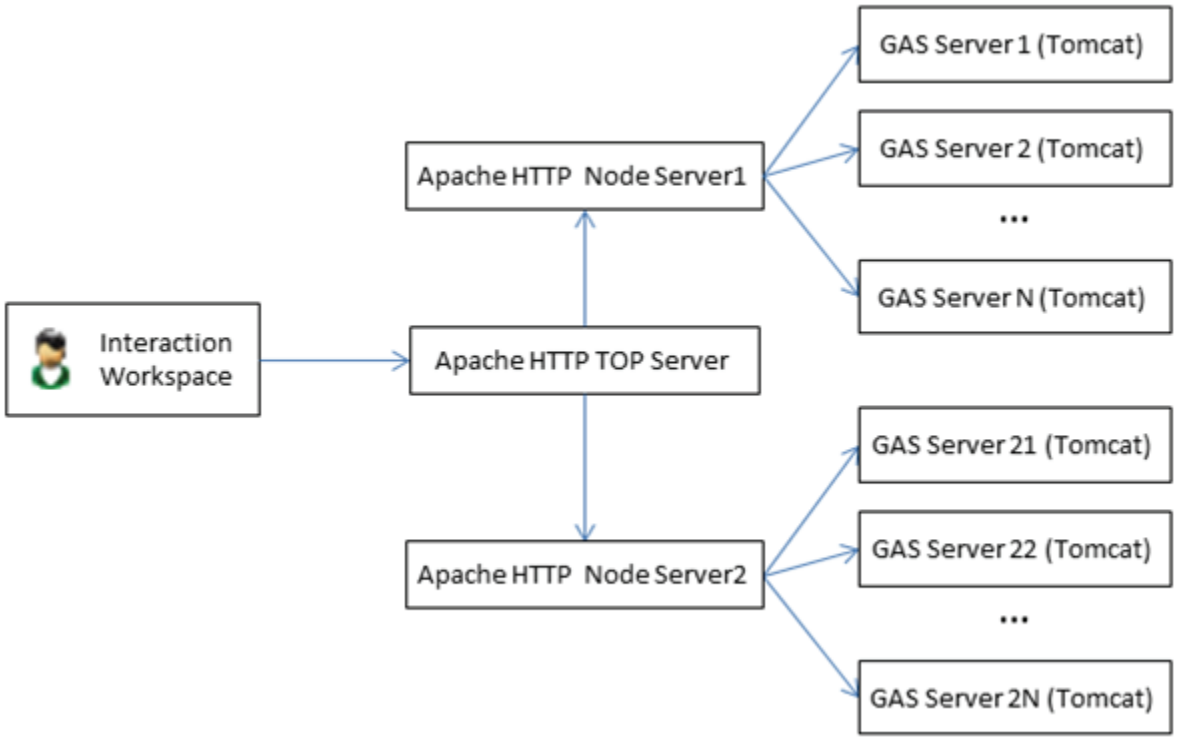

Figure 39: Multiple Apache Server Load Balancing Architecture

Configuration

This section describes how to configure the Apache HTTP Server for load balancing.

Configuring Load Balancing for a Single Apache HTTP Server

The following procedures describe how to configure load balancing on a single server.

Procedure: Prepare the Genesys Agent Scripting Tomcat Server

Purpose: To configure the Tomcat server for Apache load balancing.

Start of procedure

1. Edit the `<path to tomcat>\conf\server.xml` file, and add the `jvmRoute` attribute to the `Server/Service/service` node—for example, `<Engine name="Catalina" defaultHost="TomcatServer1" jvmRoute="jvmRouteValueN">`.

   Note: The value of the `jvmRoute` attribute must be the same value as the value in the `workers.properties` file (see Step 2 on page 94).

2. In the `<path to tomcat>\conf\server.xml` file, enable the AJP1.3 connector by uncommenting the following line:

   ```
   <Connector port="ajpPort1" protocol="AJP/1.3"
   redirectPort="xxxxx" />
   ```

End of procedure

Procedure: Configure the Apache HTTP Server using the mod_proxy module

Purpose: To configure a single Apache HTTP Server using the `mod_proxy` module for load balancing.

Start of procedure

1. n the `<path to Apache>\conf\httpd.conf` file, enable (uncomment) the

following lines:

```
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
```

2. In the `<path to Apache>\conf\mod_proxy.conf` file, add the the following definitions (according to your environment):

```
ProxyPass /gas balancer://gas-cluster
stickysession=JSESSIONID|jsessionid  nofailover=On
ProxyPassReverse /gas balancer://gas-cluster
stickysession=JSESSIONID|jsessionid

<Proxy /gas >
    Order deny,allow
    Allow from all
</Proxy>

<Proxy balancer://gas-cluster >
   BalancerMember ajp://tomcat1.host:28009/gas route=worker1
   BalancerMember ajp://tomcat2.host:38009/gas route=worker2
</Proxy>

#Failover
ErrorDocument 500  /error.node.html?script1=gas
ErrorDocument 501  /error.node.html?script1=gas
ErrorDocument 502  /error.node.html?script1=gas
ErrorDocument 503  /error.node.html?script1=gas
ErrorDocument 504  /error.node.html?script1=gas
ErrorDocument 505  /error.node.html?script1=gas
```

Note: Ports `28009` and `38009` are `ajp` ports. `Worker1` and `worker2` are the `jvmroute` values of the corresponding Tomcat nodes.

3. Copy the `<Genesys Agent Scripting Install Directory>\error.node.html` file to the `<path to Apache>\DocumentRoot\` directory.

Procedure: Configure the Apache HTTP Server using the mod_jk module

Purpose: To configure a single Apache HTTP Server using the `mod_jk` module to achieve maximum load balancing.

Start of procedure

1. In the <path to Apache>\conf\httpd.conf file, add the following definitions (according to your environment):

```
<IfModule !mod_jk.c>
   LoadModule jk_module modules/mod_jk.so
</IfModule>

JkWorkersFile conf/workers.properties

JkMount  /gas* router

#Failover
ErrorDocument 500  /error.node.html?script1=gas
ErrorDocument 501  /error.node.html?script1=gas
ErrorDocument 502  /error.node.html?script1=gas
ErrorDocument 503  /error.node.html?script1=gas
ErrorDocument 504  /error.node.html?script1=gas
ErrorDocument 505  /error.node.html?script1=gas
```

2. Create the <path to Apache>\conf\workers.properties file, and enter the following:

```
worker.list=router

worker.router.type=lb
worker.router.balance_workers=worker1, worker2, worker3
worker.router.sticky_session=True
worker.router.sticky_session_force=True

worker.worker1.type=ajp13
worker.worker1.host=tomcat1.host
worker.worker1.port=28009

worker.worker2.type=ajp13
worker.worker2.host=tomcat2.host
worker.worker2.port=38009

worker.worker3.type=ajp13
worker.worker3.host=tomcat3.host
worker.worker3.port=48009
```

Note: Ports 28009, 38009,and 48009 are ajp ports of the corresponding Tomcat nodes.

3. Copy the <Genesys Agent Scripting Install Directory>\error.node.html file to the <path to Apache>\DocumentRoot\ directory

End of procedure

Procedure:
Deploy multiple project books using the mod_proxy module

Purpose: To configure each proxy server for deployments with several project books.

Start of procedure

1. In the <path to Apache>\conf\httpd.conf file, enable (uncomment) the following lines:

```
LoadModule proxy_module modules/mod_jk.so
```

2. In the <path to Apache>\conf\mod_proxy file, enter the following for each project book:

```
# gas1
ProxyPass /gas1 balancer://gas1-cluster
stickysession=JSESSIONID|jsessionid  nofailover=On
ProxyPassReverse /gas1 balancer://gas1-cluster
stickysession=JSESSIONID|jsessionid

<Proxy /gas1 >
    Order deny,allow
    Allow from all
</Proxy>

<Proxy balancer://gas1-cluster >
   BalancerMember ajp://tomcat1.host:28009/gas1 route=worker1
   BalancerMember ajp://tomcat2.host:38009/gas1 route=worker2
</Proxy>

# gas2
ProxyPass /gas2 balancer://gas2-cluster
stickysession=JSESSIONID|jsessionid  nofailover=On
ProxyPassReverse /gas2 balancer://gas2-cluster
stickysession=JSESSIONID|jsessionid

<Proxy /gas2 >
    Order deny,allow
```

```
    Allow from all
</Proxy>

<Proxy balancer://gas2-cluster >
   BalancerMember ajp://tomcat1.host:28009/gas2 route=worker1
   BalancerMember ajp://tomcat2.host:38009/gas2 route=worker2
</Proxy>


#Failover
ErrorDocument 500  /error.node.html?script1=gas1&script2=gas2
ErrorDocument 501  /error.node.html?script1=gas1&script2=gas2
ErrorDocument 502  /error.node.html?script1=gas1&script2=gas2
ErrorDocument 503  /error.node.html?script1=gas1&script2=gas2
ErrorDocument 504  /error.node.html?script1=gas1&script2=gas2
ErrorDocument 505  /error.node.html?script1=gas1&script2=gas2
```

Note: Ports `28009`, and `38009` are `ajp` ports. `Worker1` and `worker2` are the `jvmroute` values of the corresponding Tomcat nodes.

3. Copy the `<Genesys Agent Scripting Install Directory>\error.node.html` file to the `<path to Apache>\DocumentRoot\` directory.

Note: Some options of the ProxyPass directive contradicts Genesys Agent Scripting load balancing which prevents proper functioning. For example, the `lbmethod` (not mentioned in this chapter) has a default value of `byrequests`. It is recommended not to change this default value.

End of procedure

Procedure: Compile and assign the Genesys Agent Scripting Script

Start of procedure

1. Create a separate Target Environment item for each Genesys Agent Scripting server. Use the Genesys Agent Scripting server URL as the Target URL, and as the value for the `XMLServerURL` attribute on the `Configuration File` tab.
2. Compile the script for each Genesys Agent Scripting server separately.

Note: Before using, Tomcat compiles the JSP pages into servlets automatically with the first page request. Because this task can take some time, Genesys recommends pre-compiling the JSP pages using the Genesys Agent Scripting Studio `Main Menu > Compile > Compile > Try to pre-compile jsp pages` option.

3. Create a Target Environment item for the Apache HTTP Server. Use the Apache Server URL as the Target URL. Use this target during the deployment of Assignment rules in the Genesys Studio `Main Menu > Compile > Assignment Rules > Deployment Settings > Environment` list box.

Note: Each Genesys Agent Scripting node must have a unique application name in Configuration Manager.

End of procedure

Configuring Load Balancing for Multiple Apache Servers

The following procedures describe how to configure load balancing on multiple Apache Servers.

Note: Multiple Apache configuration is supported with the `mod_proxy` module only.

Procedure: Configure the Apache server

Purpose: To configure load balancing for multiple Apache HTTP Servers.

Prerequisites

- Configure the Genesys Agent Scripting Tomcat servers (see Procedure: Prepare the Genesys Agent Scripting Tomcat Server, on page 92).

Start of procedure

1. Configure the Apache HTTP Servers, see "Configure the Apache HTTP Server using the mod_proxy module" on page 92, Steps 1 to 2.
2. Edit the `<path to Apache>\conf\httpd.conf` file, and specify additional port listeners that are used to configure the Apache HTTP TOP server:

   ```
   Listen portWorker1
   Listen portWorker2
   Listen portWorkerN
   ```

   Note: The total number of port listeners should not be less than the number of Tomcat servers.

End of procedure

Procedure: Configure the Apache HTTP TOP Server using the mod_proxy module

Purpose: To configure the Apache HTTP TOP server.

Start of procedure

1. Edit the `<path to Apache>\conf\httpd.conf` file and enable (uncomment) the following lines:

   ```
   LoadModule proxy_module modules/mod_proxy.so
   LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
   LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
   LoadModule proxy_http_module modules/mod_proxy_http.so
   ```

2. Edit the `<path to Apache>\conf\mod_proxy.conf` file, and add the following:

```
ProxyPass /gas balancer://gas-cluster
stickysession=JSESSIONID|jsessionid  nofailover=On
ProxyPassReverse /gas balancer://gas-cluster
stickysession=JSESSIONID|jsessionid

<Proxy /gas >
    Order deny,allow
    Allow from all
</Proxy>

<Proxy balancer://gas-cluster >
  BalancerMember http://apache.node1.host:8380/gas route=worker1
  BalancerMember http://apache.node1.host:8381/gas route=worker2
  BalancerMember http://apache.node2.host:8480/gas route=worker3
  BalancerMember http://apache.node2.host:8481/gas route=worker4
</Proxy>

#Failover
ErrorDocument 500  /error.node.html?script1=gas
ErrorDocument 501  /error.node.html?script1=gas
ErrorDocument 502  /error.node.html?script1=gas
ErrorDocument 503  /error.node.html?script1=gas
ErrorDocument 504  /error.node.html?script1=gas
ErrorDocument 505  /error.node.html?script1=gas
```

Note: Ports `8380`, `8381`, `8480`, and `8481` are the ports of corresponding the Apache HTTP server nodes. `worker1`, `worker2`, `worker3`, and `worker4` are the `jvmroute` values of the corresponding Tomcat nodes.

3. Copy the `<Genesys Agent Scripting Install Directory>\error.node.html` file to the `<path to Apache>\DocumentRoot\` directory

End of procedure

Procedure:
Compile and assign the Genesys Agent Scripting Script

Start of procedure

1. Compile the Genesys Agent Scripting script, see “Compile and assign the Genesys Agent Scripting Script” on page 96, Steps 1 and 2.
2. Create a Target Environment item for the Apache HTTP Server. Use the Apache HTTP TOP Server URL as the Target URL. Use this target during the deployment of Assignment rules in the Genesys Studio `Main Menu > Compile > Assignment Rules > Deployment Settings > Environment` list box.

> **Note:** Each Genesys Agent Scripting node must have a unique application name in Configuration Manager.

End of procedure

Configuring the Genesys Agent Scripting Studio

To increase the speed of Genesys Agent Scripting page delivery, early jsp file pre-complication is available.

Procedure:
Enable Faster Runtime Execution

1. Launch the Genesys Agent Scripting Studio.
2. Select `Compile`.
3. Under `Options`, select `Try to pre-compile jsp pages`.

End of procedure

Failover

Failover is supported by using multiple Apache configuration and Tomcat node failover. Failover configuration is covered by Load Balancing configuration as described in the “Configuration” on page 92 section.

The following options in the Apache module configuration are required for

failover support (which allows the client to re initiate session):

- `nofailover=On` (for the mod_proxy method)
- `worker.router.sticky_session_force=True` (for the `mod_jk` method)

Server error handling is done by by pathing through `error.node.html` according to following defenitions in the `httpd.conf` file:

```
#Failover
ErrorDocument 500  /error.node.html?script1=gas
ErrorDocument 501  /error.node.html?script1=gas
ErrorDocument 502  /error.node.html?script1=gas
ErrorDocument 503  /error.node.html?script1=gas
ErrorDocument 504  /error.node.html?script1=gas
ErrorDocument 505  /error.node.html?script1=gas
```

Advanced Tunning

This section provides advanced tuning examples.

Configuring Apache Capacity

Edit the Apache HTTP Server configuration file `httpd.conf`, which is located in the `<path to apache>/conf/` subdirectory.

Modify the following values:

For Windows:

```
<IfModule mpm_winnt.c>
ThreadLimit 5000 (can be set up to 15000)
ThreadsPerChild 5000 (can be set up to ThreadLimit)
MaxRequestsPerChild 0
</IfModule>
```

For Linux:

```
<IfModule prefork.c>
ServerLimit 5000 (can be set up to 20000)
MaxClients 5000 (can be set up to ServerLimit)
MaxRequestsPerChild 0
</IfModule>
```

Appendix

Genesys Integration with the ASPX Platform

Genesys Agent Scripting 8.1 supports Genesys integration with the ASPX platform. You can create an ASPX target environment for a Project Book with the Genesys Agent Interaction Toolkit.

Please note these requirements:

- To work within the Genesys environment, ASPX business process scripts created with the Genesys Agent Interaction Toolkit require Genesys Integration Server version 7.2 or later.
- For release 7.2, new configuration fields for ASPX target environments were added:
  - G_NETServer_PrimaryHost
  - G_NETServer_PrimaryPort
  - G_NETServer_BackupHost
  - G_NETServer_BackupPort

  To compile a Project Book for the ASPX target environment, you must populate these fields with the appropriate information about Genesys Integration Server, which is used by ASPX business process scripts.

  These fields appear on the Configuration File tab. To access them, choose Target Environment from the Compile menu, then select (or create) an ASPX target environment, and click on the Configuration File tab.

For detailed information about Genesys Integration Server, refer to the Genesys Integration Server Deployment Guide.

Genesys

Supplements

Related Documentation Resources

The following resources provide additional information that is relevant to this software. Consult these additional resources as necessary.

Genesys Agent Scripting

- *Genesys Agent Scripting 8.1 Help*, which explains how to use Genesys Agent Scripting and its associated components.
- *Genesys Agent Scripting 8.1 User Guide*, which explains how to use Genesys Agent Scripting and its associated components.
- Release Notes and Product Advisories for this product, which are available on the Genesys Technical Support website at http://genesys.com/customer-care.

Genesys Agent Desktop

- *Genesys Agent Desktop 7.6 Deployment Guide,* which explains how to install and configure Genesys Agent Desktop and its associated components.

Interaction Workspace

- *Interaction Workspace 8.1 Deployment Guide,* an online wiki that explains how to install and configure Interaction Workspace and its associated components.

Genesys

- *Genesys Glossary* provides a comprehensive list of the Genesys and computer-telephony integration (CTI) terminology and acronyms used in this document*Genesys Migration Guide*, which ships on the Genesys

Documentation Library DVD, provides documented migration strategies for Genesys product releases. Contact Genesys Technical Support for more information.

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

- *Genesys Supported Operating Environment Reference Guide*
- *Genesys Supported Media Interfaces Reference Manual*

Consult the following additional resources as necessary:

- *Genesys Hardware Sizing Guide,* which provides information about Genesys hardware sizing guidelines for the Genesys 8.x releases.
- *Genesys Interoperability Guide,* which provides information on the compatibility of Genesys products with various Configuration Layer Environments; Interoperability of Reporting Templates and Solutions; and Gplus Adapters Interoperability.
- *Genesys Licensing Guide,* which introduces you to the concepts, terminology, and procedures that are relevant to the Genesys licensing system.

For additional system-wide planning tools and information, see the release-specific listings of System Level Documents on the Genesys Documentation website.

Genesys product documentation is available on the:

- Genesys Technical Support website at http://genesys.com/customer-care.
- Genesys Documentation website at http://docs.genesys.com/.
- Genesys Documentation Library DVD which you can order by e-mail from Genesys Order Management at orderman@genesys.com.

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:

80fr_ref_06-2008_v8.0.001.00

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

Screen Captures Used in This Document

Screen captures from the product graphical user interface (GUI), as used in this document, may sometimes contain minor spelling, capitalization, or grammatical errors. 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.

Type Styles

Table 1 describes and illustrates the type conventions that are used in this document.

Table 1: Type Styles

Type Style	Used For	Examples
Italic	• Document titles • Emphasis • Definitions of (or first references to) unfamiliar terms • Mathematical variables Also used to indicate placeholder text within code samples or commands, in the special case where angle brackets are a required part of the syntax (see the note about angle brackets on page 108).	Please consult the *Genesys Migration Guide* for more information. Do *not* use this value for this option. A *customary and usual* practice is one that is widely accepted and used within a particular industry or profession. The formula, $x + 1 = 7$ where *x* stands for . . .
Monospace font (Looks like `teletype` or `typewriter text`)	All programming identifiers and GUI elements. This convention includes: • The *names* of directories, files, folders, configuration objects, paths, scripts, dialog boxes, options, fields, 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. • Code samples. Also used for any text that users must manually enter during a configuration or installation procedure, or on a command line.	Select the `Show variables on screen` check box. In the `Operand` text box, enter your formula. Click `OK` to exit the `Properties` dialog box. T-Server distributes the error messages 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. Enter `exit` on the command line.
Square brackets ([ ])	A particular parameter or value that is optional within a logical argument, a command, or some programming syntax. That is, the presence of the parameter or value is not required to resolve the argument, command, or block of code. The user decides whether to include this optional information.	`smcp_server -host [/flags]`
Angle brackets (< >)	A placeholder for a value that the user must specify. This might be a DN or a port number specific to your enterprise. **Note:** In some cases, angle brackets are required characters in code syntax (for example, in XML schemas). In these cases, italic text is used for placeholder values.	`smcp_server -host <confighost>`

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