Cisco Unity Express 3.2 Guide to Writing and Editing Scripts

Auto Attendant and Interactive Voice Response Scripts

July 24, 2008

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

CONTENTS

Script Editor Overview

Last Updated: July 24, 2008

This guide provides an overview using the Cisco Unity Express 3.2 Script Editor for writing Auto Attendant (AA) scripts. The guide also includes a line-by-line description of the AA sample script and a script step reference.

The Interactive Voice Response option is a separately licensed option that integrates with Cisco Unity Express. The functionality described for IVR is available only if you have purchased a separate IVR software license.

Scripts enable you to customize the Cisco Unity Express AA and IVR features. Scripts work to receive input, make decisions, and perform tasks. By using the Cisco Unity Express Script Editor, you identify variables to receive user input, create conditions that require decisions (or branches), and determine which tasks to perform, based on those decisions.

A script stored on the router module runs in response to a request from a user or a predetermined condition. The scripts allow callers to receive recorded audio messages and prompts for further action. For example, if a caller calls a business during nonbusiness hours, the caller can hear either a recorded message stating the business's hours of operation or hear a prompt to leave a message. The message and prompt are the result of the Cisco Unity Express software running a script.

A more advanced use of scripts could involve checking an account balance at a bank. For example, a caller is prompted to enter an account number by using a telephone keypad, and the caller then receives an audio message stating the account balance.

This chapter contains the following sections:

Concepts for Writing Scripts

This section provides information on the main concepts that are used in writing scripts.

Variables

Use variables in your program to hold data. You must provide a name and a type for each variable that you want to use in your script. Use the variable name to refer to the data that the variable contains. The type of variable determines what types of data (text, integers, and so on) it can hold and what operations can be performed on it.

Parameters

A parameter is a property of a variable that allows the variable to be visible to the administrator through the Cisco Unity Express web interface. The administrator can then change the variable without having to edit the script and then upload it to the Cisco Unity Express module again.

Operators

In addition to performing an operation, an operator returns a value. The return value and its type depend on the operator and the types of data the operator is operating on. For example, the increment operator (increment step) adds 1 to a value.

Expressions

Variables and operators are the basic building blocks of scripts. You can combine variables and operators to form expressions that compute, return values, and control the flow of a script.

Flow Control Steps

A flow control step directs the order in which the script is run. The If, Switch, and Goto steps are examples of flow control steps.

Without flow control steps, the script runs these steps in the sequential order in which they appear in the Design pane from top to bottom. You can use flow control in your scripts to conditionally run steps, to repeatedly run a block of steps, and to otherwise change the normal, sequential flow of the script.

Control steps direct the script to proceed in a specific way. For example, you might want a set of steps to run only if certain conditions are met.

Flow control is accomplished by following these steps:

- If: If the following condition x is met, perform the following task, y.
- Switch: Matches a condition to one of several tasks.
- Goto: When a script reaches a Goto step, the script stops running and continues at the indicated next point in the script.

Error Handling for Scripts

Error handling provides a way for a script to stop running in a predetermined sequence, or to continue running when it receives unexpected results or when a task does not complete successfully.

Prompts

Prompts exist as audio files on the router and have the file extension .wav, as in *greeting.wav*. The Cisco Unity Express Script Editor uses the following two types of prompts:

- System prompts: Used internally by Cisco modules and Cisco sample scripts.
- User prompts: Defined by the user, and managed by the administrator through **Voice Mail > Prompts** on the Cisco Unity Express GUI administrator interface or by calling in to Administration via Telephone (AvT).

Trigger

A trigger is a specific event or condition that causes an application to run. There can be several triggers for a single application. A number of triggers are created automatically in Cisco Unity Express.

For example, a call to extension 1000 causes Cisco Unified Communications Manager Express (formerly known as Cisco Unified CallManager Express) to route the call to Cisco Unity Express, which then looks for a trigger for the call and starts the associated application.

AA Sample Script

The auto attendant (AA) sample script uses the sample script aa_sample1.aef, which is included with the Cisco Unity Express Script Editor, to illustrate basic procedures for configuring auto attendant scripts. For details on the auto attendant script, see the Auto Attendant Script Example chapter.

Selecting the IVR Option

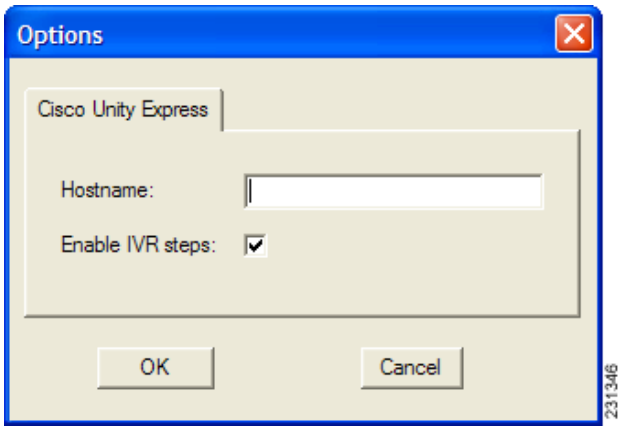
The functionality described for the Cisco Unity Express IVR software is available only if you have purchased a separate IVR software add-on package.

The Cisco Unity Express IVR software allows a telephone caller to select options from a voice menu and to otherwise interact with the Cisco Unity Express system. After the system plays a pre-recorded voice prompt, the caller presses a number on a telephone keypad to select an option.

To select the IVR option, complete the following steps:

Step 1 Choose **Tools > Options** from the Cisco Unity Express toolbar. The Cisco Unity Express Options window, shown in Figure 1, appears.

Figure 1 Cisco Unity Express Options Window



Step 2 In the **Hostname** field, enter the DNS hostname or IP address of your host.

Step 3 Check the **Enable IVR steps** check box.

Step 4 Click **OK**.

The Palette pane includes the additional IVR steps you need to create your script.

Script Design

Designing a script involves describing the call flow, mapping script steps to the call flow, validating the script, and testing the script in the system.

The following simple scenario illustrates scripting techniques. Table 1lists and describes the call flow script steps of this scenario. In this case, the script:

1. Answers a call.
2. Checks for an emergency alternate greeting.
3. Checks if this time is during regular business hours.
4. Checks for unexpected user or script actions.
5. Plays a custom greeting and transfers the caller to the operator if the current time is not during regular business hours.
6. Plays a menu prompt that allows the caller to dial 1 for dial-by-name, 2 for dial-by-extension, or 0 for an operator if the current time is during regular business hours.

   Use the dial-by-extension option to transfer a caller to a number in a specified range, not to transfer the caller to any number dialed.
7. Checks for the number of times the caller has been rerouted to the Main Menu.
8. Add to the Menu step if necessary.
9. Handles error conditions.

A call flow is a description of events that occur during a call. Describing a call flow in detail allows you to recognize the script editor steps to use and avoid logic flaws in your script. In the call flow for this scenario, extensions are in the range of 200 to 299. You can add additional error handling branches. For example, if the caller tries multiple unsuccessful transfers, the script plays a "Try again later" prompt and disconnects the call.

Table 1 Mapping Call Flow to Script Steps

	Call Flow	Script Step
Step 1	Answer the call.	Use the Accept step in the Contact group to answer the call.
Step 2	Check whether there is an alternate greeting prompt. If there is an alternate greeting prompt, play it.	Play a Delay Prompt for half a second (DP[500]) to avoid any perceived clipping of the audio prompt. If audio cut-through to the PSTN does not happen fast enough, the caller may not hear the beginning of the prompt.
Step 3	Check whether today is a holiday.	If today is a holiday, play a holiday prompt and go to the Main menu.
Step 4	Look for prompt exceptions.	Exceptions are unexpected user or script actions. A prompt exception indicates that the script is trying to play a prompt that does not exist. Use an UndefinedPromptException step to check for this condition. This exception occurs only if the step that plays the prompt has its Continue On Prompt Errors property set to No. If this property is set to Yes, the prompt is not played and no exception is generated.
Step 5	Check whether the current time is during business hours and play the appropriate (open or closed) prompt. Proceed to the Main menu.	Play initial prompt. Use the holiday step to check whether today is a holiday and to determine what to do next. Use a business hours step to check whether the call is received during business hours. If the call is received during business hours, play the initial greeting prompt. Otherwise, play the closed greeting. Business hours can be configured through the Cisco Unity Express web administrator.
Step 6	The Main Menu plays a prompt to allow callers to enter an extension at any time. The caller can press 1 to find the party in the directory, or press 0 to reach the operator. Because all valid extensions start with 2, pressing 2 branches to the dial-by-extension step.	Use a label step to create a Main Menu section.
Step 7	Check how many times the caller has been to the Main Menu. Tracking the number of times the caller has been to the Main Menu helps to prevent the caller from getting stuck in a loop and provides more useful options to the caller.	Use an If step to create a counter. The counter keeps track of how many times the caller has been to the Main Menu section (three times in our example). The counter works by comparing two variables: Attempts and MaxRetries. Use the Variables pane to set up your variables. Attempts is created as an integer variable with an initial value of 0. MaxRetries is set up as an integer whose initial value is 3. Use the Increment step at the end of the Main Menu to add 1 to the Attempts current value. Each time the caller goes to the Main Menu, the Attempts variable is incremented by 1. If Attempts is incremented to a value of 3, the If step executes its True branch.

Table 1 Mapping Call Flow to Script Steps (continued)

	Call Flow	Script Step
Step 8	Play the Main Menu prompt.	Use the Menu step to add a basic menu prompt. For example, "If you know your party's extension, please dial it now. For spell-by-name, press 1, for an operator press 0, to repeat these options, press 9." Change the Maximum Retries for the Menu step to 0. Otherwise, the caller hears the system prompt "Are you still there?" each time this step times out. The Unsuccessful branch is reached when the caller presses something other than 1, 2, 9, or 0. Play the "The extension entered is invalid" prompt. The script continues to the Increment step and then to the GoTo step, where script execution returns to the Main Menu label step. To ensure that the audio prompt stops when the caller enters a digit on Media steps, such as Menu or Play, check the Barge In field in the Prompt properties of the step. The Interruptible field in the General properties is not applicable in Cisco Unity Express.
Step 9	Handle error conditions by adding error branches.	If the call cannot be successfully completed, the script continues to the error handling section labeled Sorry. It plays a prompt: "Sorry, we are unable to complete your call at this time. Please try again later." The Terminate step then disconnects the call. You can add more error handling branches. For example, if the caller tries multiple unsuccessful transfers, the script plays a "Try again later" prompt and disconnects the call.

Validating and Testing a Script

To debug your script, verify its operation in various scenarios, such as regular user input, timeout, and anticipated error conditions.

Before uploading a script, use the Cisco Unity Express Script Editor Validate tool and check that the Validation Succeeded message appears. Any errors appear in the Debug pane. Double-click them to find the error condition in the script.

After uploading the script to the Cisco Unity Express system, use the default traces to troubleshoot problems. Use the EXECUTING_STEP filter to display only the script steps, as they are run, in the trace. Use the **clear trace** command to clear previous trace messages before using the **show trace** command. For example:

```
clear trace
Make a test call.
show trace buffer long | include EXECUTING_STEP
```

Scripting Techniques

When Maximum Retries on the NameToUser step is set to 0 or 1, you must use a Terminating Key character. Without the Terminating Key character, the step does not go to the Successful branch of this step. Instead, the step always goes to the Timeout branch, even if there is a match.

You must create all variables in a script before you can use them. If you create a variable and you later delete it, use the Validate tool to find it.

Set the Parameter of a variable property to make the variable available to the Cisco Unity Express administrator through the web page.

Alternately, do not set the Parameter of a variable property to prevent it from being accidentally changed through the web page.

Note You cannot assign a system prompt to a prompt variable when you define it. You must use the Set step or the Create Prompt step to assign a system prompt to a variable.

Terms

Table 2 contains the most commonly used terms in initially writing scripts, see the Glossary page for more definitions.

Table 2 Common Script Terms

Term	Description
Application	A completed script.
auto attendant	The Cisco Unity Express feature that allows automatic handling of calls through the use of scripted applications.
Contact	A call that reaches the auto attendant.
Interactive Voice Response	The Cisco Unity Express data processing technology that allows a caller to use a phone line to interact with information stored on a Cisco module.
Parameter	A property of a variable that allows the variable to be modified outside the script editor.
Prompt	Audio file with a ,wav extension. These are the system prompts, greetings, and so on.
Script	One or more steps run in a sequence. A script file has an .aef extension.
Step	Basic building block in a script. Each step is the most basic unit in a script.
Subflow	Equivalent to a procedure or subroutine. Independent scripts that can be reused within a script or by other scripts.
Trigger	Event that causes a script to run.
Variable	Variables store user-defined data or the data resulting from the completion of a step.

Additional References

The following sections provide references related to Cisco Unity Express.

Documents Related to Cisco Unity Express

Related Topic	Document Title
Cisco Unity Express administration	• *Cisco Unity Express 3.2 GUI Administrator Guide* • *Cisco Unity Express 3.2 Command Reference* • *Cisco Unity Express 3.2 Installation and Upgrade Guide* • *Release Notes for Cisco Unity Express 3.2*
Cisco Unity Express voice-mail subscriber information	*Cisco Unity Express User Guides*
Cisco modules hardware installation	• *Cisco Network Modules Hardware Installation Guide* • *AIM Installation Quick Start Guide: Cisco 2600, 3600, and 3700 Series* • *Replacing Compact Flash Memory on Cisco AIM-CUE Advanced Integration Modules* • *AIM-CUE Slot Restriction on Cisco 3745 Routers*
Cisco Unity Express software copyrights and licenses	*Cisco Unity Express Software Copyrights and Licenses*
Technical support documentation for Cisco Unity Express	*Cisco Unity Express Troubleshoot and Alerts*
Cisco Unified Communications Manager **Note** See the *Cisco Unity Express Compatibility Matrix* for the Cisco Unified Communications Manager versions compatible with Cisco Unity Express 3.2.	• *Cisco Unified Communications Manager Maintenance and Operations Guides*
Cisco Unified Communications Manager Express **Note** See the *Cisco Unity Express Compatibility Matrix* for the Cisco Unified CME versions compatible with Cisco Unity Express 3.2.	• *Cisco Unified Communications Manager Express System Administrator Guide* • *Cisco Unified Communications Manager Express Command Reference*
Cisco Unity	• *Networking in Cisco Unity Guide*
Cisco hardware platforms	• *Cisco 2800 Series Hardware Installation* • *Cisco 3800 Series Hardware Installation*

Related Cisco IOS Documents

Related Topic	Document Title
Cisco IOS configuration	• *Cisco IOS Debug Command Reference, Release 12.4T* • *Cisco IOS Voice Command Reference* **Note** For general voice configuration topics, see the *Cisco IOS Voice Configuration Library, Release 12.4*.
Cisco IOS voice troubleshooting information	*Cisco IOS Voice Troubleshooting and Monitoring Guide*

Technical Assistance

Description	Link
The Cisco Technical Support & Documentation website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Using the Script Editor

Last Updated: July 24, 2008

This chapter describes how to use the Cisco Unity Express Script Editor in the following sections:

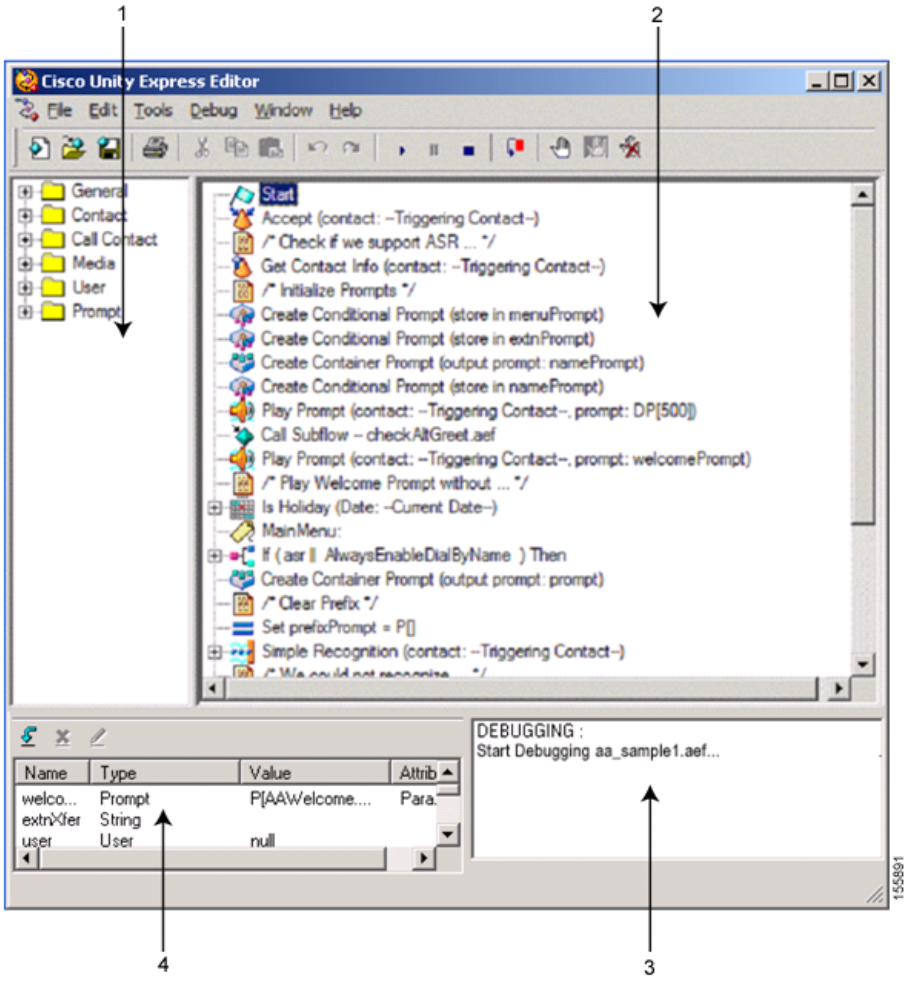
Overview of the Cisco Unity Express Script Editor

The Cisco Unity Express Script Editor is a visual programming environment for creating auto attendant application scripts.

Figure 2 shows the Cisco Unity Express Script Editor window, which is divided into four panes:

1. Palette
2. Design
3. Debug
4. Variable

Figure 2 Cisco Unity Express Script Editor Window



Palette Pane

Use the **Palette** pane to choose the steps you need for creating your script. To expand the contents of a Palette tree, click the plus sign (+) to the left of the Palette folder icon in the **Palette** pane.

Note If you try to drag a step to the **Design** pane when a customizer window is open, the **Design** pane will not accept the step. Before you drag a step to the **Design** pane, close any open customizer window(s), one or more of which may be hidden behind the Cisco Unity Express Script Editor window.

Design Pane

To create your script, click a step in the **Palette** pane and drag it on top of the step that it should follow in the **Design** pane. Each step performs a specific function and creates a portion of the underlying programming. You can customize most of the steps after you have placed them in the **Design** pane.

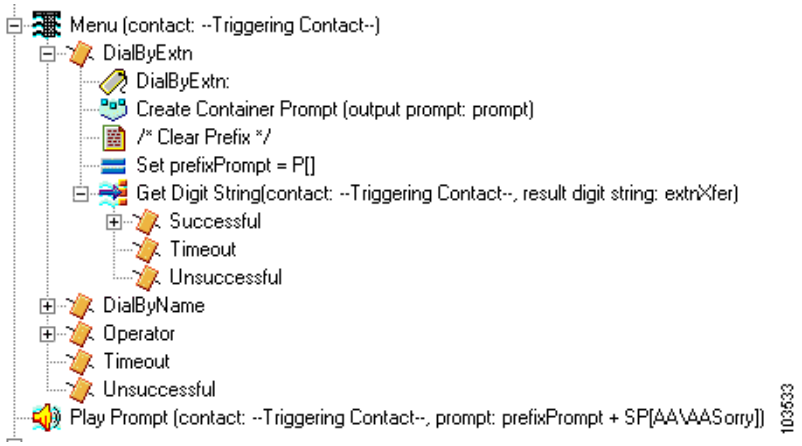
To add a step to your script, drag the step icon from the **Palette** pane and drop it onto the step that it will follow in the **Design** pane. Place the steps in logical order for the script that you are building.

To change the order of a step in the script, drag the individual step icon from its existing location to its new location. To delete a step, select the step icon and press the **Delete** key.

To end the script, click the **General** palette and drag **End** to your script. The **End** step appears.

Many steps have output branches under which you can add steps to provide the desired script logic based on the **End** condition of the step.

Figure 3 Script Example: Design Pane



As shown in the expanded **Menu** step in Figure 3, the **Menu** step has five output branches:

- DialByExtn
- DialByName
- Operator
- Timeout
- Unsuccessful

Output branches often contain steps and other output branches. The **DialByExtn** output branch in Figure 3 contains five steps below it, one of which (the **Get Digit String** step) contains three output branches.

To expand the script under a step, click the plus sign (+) to the left of the step icon. To hide the script under a step, click the minus sign (–) to the left of the step icon.

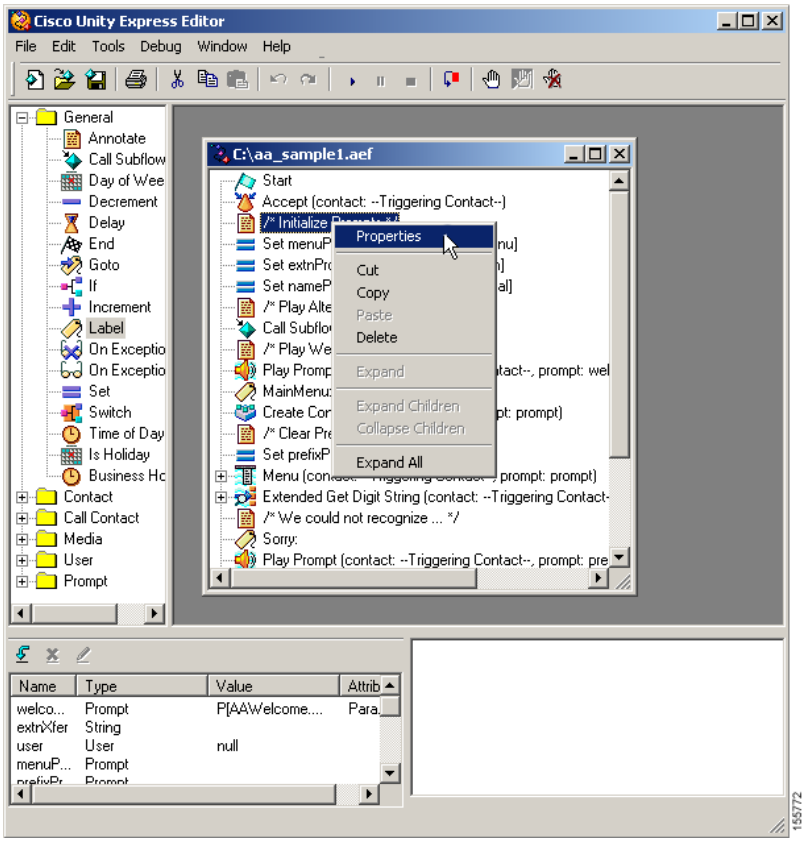
At run time, each script follows a hierarchical sequence, as indicated by the vertical lines connecting steps. In Figure 3, for example, if the script reaches the **Timeout** output branch of the **Get Digit String** step, the script moves to the next step at the level of the **Menu** step that, in this example, is the **Play Prompt** step.

Use the **Design** pane to create your script. Drag script steps from the **Palette** pane to the **Design** pane.

Step Properties

Most steps have properties that can be modified according to the needs of the script. Depending on the step, the properties can be grouped under multiple tabs. To display the properties window for a step, right-click the step in the **Design** pane and click **Properties** in the popup menu, as shown in the **Label** step **Properties** dialog box example in Figure 4.

Figure 4 Properties Popup Menu: Label Step



Variable Pane

In the **Variable** pane add and modify the script variables. In the **Variable** pane *Variables* store data that a script uses when it executes the steps. Any step in your script can use variables after you define them in the **Variable** pane of the Cisco Unity Express Script Editor window.

You can also map variables you define for your script to variables you define in a *subflow*. A subflow is a set of steps that function as part of another script, called the *primary script*. A subflow can use and manipulate a variable, and then return the data that is stored in the variable to the primary script. Scripts cannot share variables with other scripts, except in the case of default scripts, where the primary script automatically transfers the values of its variables to a default script.

The value of a variable can change during execution.

Variables

Variables store user-defined data or data resulting from the completion of a step or expression. Any step in your script can use a variable after it has been defined. Because data comes in different forms, you must also define the variable type before you can use it. Variables are grouped into the following basic built-in variable types (see the "Basic Built-in Variable Types" section on page 17):

- Boolean
- Character
- Float
- Integer
- String
- Date
- Time
- BigDecimal
- BigInteger
- Double
- Long

Defining Variables

Because data comes in different forms, you must also define the variable before you can use it. Click the:

1. **New Variable** icon at the top left corner of the **Variable** pane to define a new variable.

   The **Edit Variable** window appears. After you use the **Edit Variable** window to define your variables, the variables appear in the **Variable** pane.
2. **Delete Variable** to delete the selected variable.
3. **Modify Variable** to change the variable to the selected variable.

Figure 5 Variable Pane and Edit Variable Window

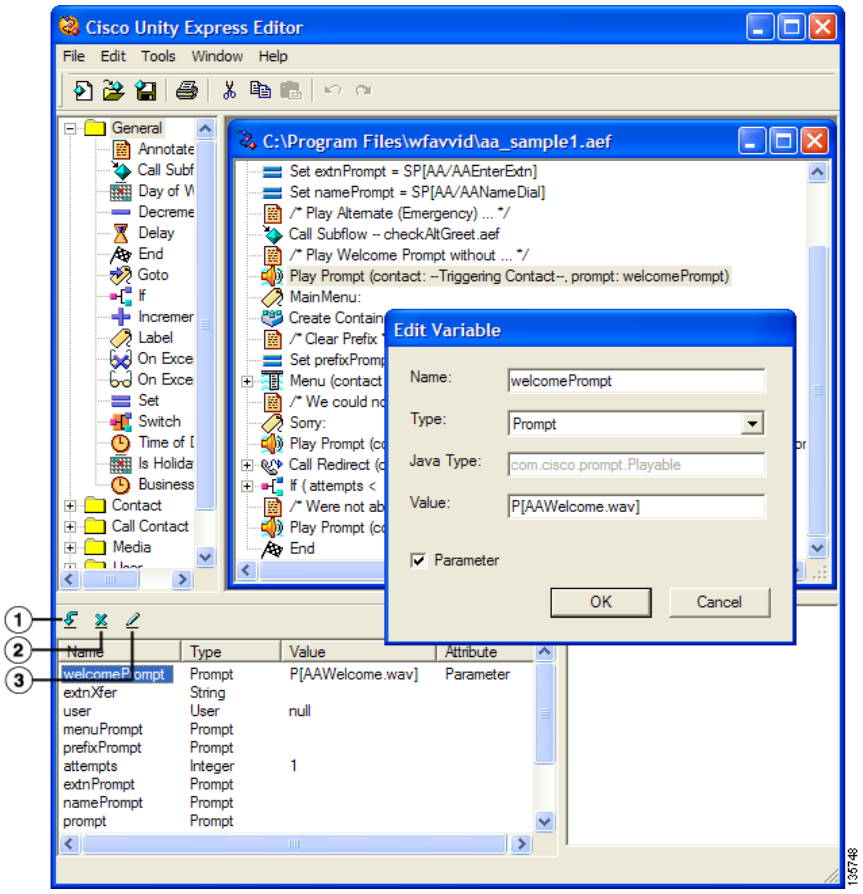


Table 3 describes the fields in the **Edit Variable** window.

Table 3 Edit Variable Properties

Property	Description
Name	Name of the variable you want to define.
Type	Type of variable that you want to declare. See the "Basic Built-in Variable Types" section on page 17 for the available variable types.
Java Type	Fully qualified class name located by using the CLASSPATH environment variable on your computer. **Note** The field displays the actual Java type for the built-in data type chosen in the **Type** drop-down menu.
Value	Data you initially assign to a variable. The type of data you enter must match the data type you declared in the **Type** field.
Parameter	If the parameter variable is checked, it sets the value for this parameter in the auto attendant web interface when you use the Cisco Unity Express Script Editor.

Basic Built-in Variable Types

You must set the type for each variable you define. A variable type indicates the kind of information that a variable contains and allows the Cisco Unity Express Script Editor to process that information accordingly. For instance, the script uses a variable containing the string “Tuesday” differently than it uses a variable containing the number 25.

Table 4 describes the basic built-in variable types.

Table 4 Variable Types

Variable Type	Description
Boolean	Variable that is either true or false, and is used primarily by the **If** step in the **General** palette of the Cisco Unity Express Script Editor: • t, f • true, false
Character	Consists of alphanumeric characters: • Lowercase letters a to z • Uppercase letters A to Z • Digits 0 to 9 • Any escape sequence: “\t”, “\r”, “\0”, “\n”, “\f”, “\\”, “\” • “\uXXXX” can be used to represent any character using the character hexadecimal Unicode number XXXX
Float	floating point variable that includes decimal numbers. All floating point values are stored as Double values. This feature prevents any loss in precision by how Java stores Float values. If a value cannot be stored as a Float, the value is automatically stored as a BigDecimal value, with some loss in precision.
Integer	Consists of whole numbers from –2147483648 to and including 2147483647. The script first parses the value as an integer. If this attempt is unsuccessful, the script parses the value as a long variable. If this attempt fails, the script parses the value as a BigInteger variable. If the script cannot represent the value as an Integer, the result may be unknown.
String	Consists of a set of Unicode characters from “\u0000” to and including “\uffff”: • “Hello”, “C:\WINNT\win.ini”. This format does not support any escape characters or Unicode characters. • u“\”This is a quoted string\””, u“\tHello”, u“\u2222\u0065”, u“C:\\WINNT\\win.ini”, and so on. This format supports the same escape sequences or Unicode characters described for the Character type.

Table 4 Variable Types (continued)

Variable Type	Description
Date	Contains date information as follows: • D[12/13/03] • D[Dec 13, 2003] • D[January 20, 2003] • D[Tuesday, April 12, 2003] • D[12/13/03] • D[12/13/03 5:50 PM] • D[April 1, 2003 12:00:00 AM PST] The parameter that you specify within the D brackets is parsed based on any combination of the following two formats: • “<date>” • “<date> <time>” The Cisco Unity Express Script Editor supports four <date> specification formats: • SHORT (12/13/03) • MEDIUM (Jan 12, 2003) • LONG (January 12, 2003) • FULL (Tuesday, April 12, 2003)
Time	Contains time information: • T[3:39 AM] • T[11:59:58 PM EST] The parameter specified inside the T brackets is parsed based on the format “<time>”. The Cisco Unity Express Script Editor supports three <time> specification formats: • SHORT, such as “3:30 PM”. • MEDIUM, such as “3:30:32 PM”. • LONG and FULL (which are identical), such as “3:30:42 PM PST”.
BigDecimal	Consists of an arbitrary-precision integer with a scale, where the scale is the number of digits to the right of the decimal point: • 3.14159 • 2E-12 • –100
BigInteger	Represents arbitrary-precision integers: • 234556789 • 0 • –23

Table 4 Variable Types (continued)

Variable Type	Description
Double	Represents an expanded Float variable. If the script cannot hold the value as a Double, the script automatically stores it as a BigDecimal: • 3.14159 • 2E–12 • –100
Long	An expanded Integer variable. The script first parses the value as a long variable. If it fails, the script parses the value as a BigInteger. If the script cannot represent the value as a long variable, the result may be unknown: • 234556789 • 0 • –23

Exporting Variables by Using Parameters

To declare variables as parameters, click **Parameter** in the Edit Variables dialog box. The set parameter feature allows you to set the value for a parameter in the auto attendant (AA) web interface. Because the value is initialized at configuration time for the script that uses it, you can change the value without editing the script in the Cisco Unity Express Script Editor. Such a variable is called an *exported variable* or *parameter.*

For example, when you add a new automated attendant by using the AA Wizard, the second window of the AA wizard (the Script Parameters window) provides a list of the parameters with their default or current values. You can modify the values in this list.

The variable types that Cisco Unity Express supports for parameters include Number, Character, String, Boolean, and Prompt.

Contact Variable

A Contact variable consists of a contact that represents a telephone call. You can pass a Contact variable as a parameter to a subflow.

Prompt Variable

A Prompt variable contains the information that the script uses to create prompts for callers. A Prompt variable can be as simple as a single prompt or as complex as a concatenation of multiple prompts.

User Variable

A User variable contains useful information for user authentication. You cannot manually enter a User variable as a value. User variables can be returned only from the **Name To User** step of the **Media** palette. You can pass a User variable as a parameter to a subflow.

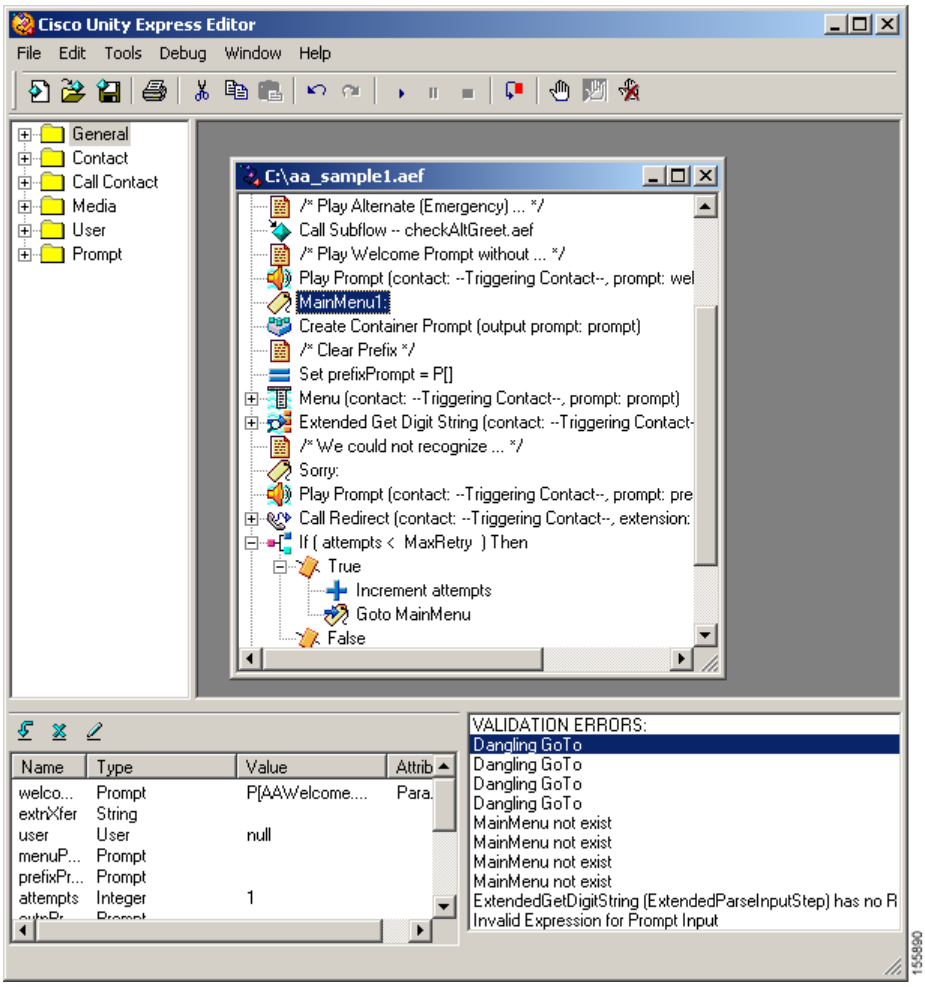
Debug Pane

The Debug pane displays the error messages output by the Validate and Debug tools, or if these tools run error free, the Cisco Unity Express Script Editor displays success messages.

Validate

Script validation, accessed through the Tools menu, provides an initial and rudimentary check of your script. Figure 6 includes the error messages resulting from a misnamed Label step. Label step MainMenu1 should be named MainMenu. The error message “Dangling GoTo” indicates that there is no MainMenu label to go to. The error message “MainMenu not exist” also indicates this. The four “Dangling GoTo” error messages indicate that the Goto step refers to a misnamed or nonexistent label four different times in the script. Double-clicking the error message highlights the line in the script that the error message refers to, in this case, each dangling Goto step.

Figure 6 Debug Pane: Validation Error Messages



Script Debugging

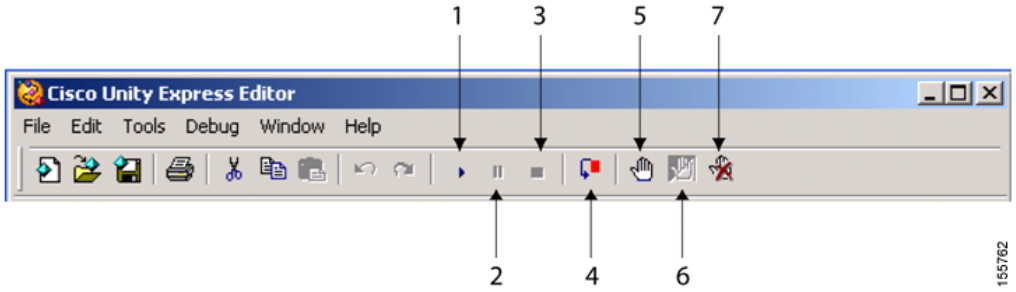
Debugging features, available through the Debug menu, enable you to debug your script using the Cisco Unity Express Script Editor. You can select the script to:

- Debug
- Use breakpoints
- Proceed step by step through the script
- See the values of variables change as the script runs

Debugging Features

You can access debugging features through the Debug menu or the toolbar. The toolbar is shown in Figure 7. The callouts are described in Table 5.

Figure 7 Debug Toolbar



The debugging features are described in Table 5.

Table 5 Debug Menu Options

Callout	Option	Description
1	Start/Continue	Runs the current script in debug mode.
2	Break	Stops the script and allows you to view or change the current values of variables and step properties before resuming execution.
3	End	Ends the current script.
4	Step Over	Skips the currently executing step.
5	Insert/Remove Breakpoint	Inserts a breakpoint at the currently executing step. This insertion causes the script to halt whenever it runs in debug mode but does not affect the runtime version of the script.
6	Enable/Disable Breakpoint	Toggles the selected breakpoint on or off.
7	Clear All Breakpoints	Removes all breakpoints from the script.
N/A	Reactive Scripts	Prompts for the name and timeout setting of the event-triggered script to be debugged.

Note System scripts contain steps that are not shown by the Cisco Unity Express Editor and cannot be debugged.

Debugging Modes

There are two types of debugging modes available: Reactive Debugging and Nonreactive Debugging. In both these modes, you can insert a breakpoint at a step to let the script execute up to that point, and then debug it starting with that step. During a debugging session, the Editor communicates with the Cisco Unity Express module continuously, as the actual script execution occurs on the module, not on the local PC where the Editor is running. This communication occurs through Java remote method invocation (RMI) connection on port 1099. For successful debugging, there must be network connectivity between the Editor PC and the Cisco Unity Express module. Also, port 1099 cannot be blocked by an ACL or some other means.

Note Ports in the TCP 32xxx range can be used in addition to port 1099. These port numbers are determined dynamically at run time.

To enable the Editor to communicate with the Cisco Unity Express module, configure the Cisco Unity Express hostname or IP address through the Editor by selecting **Tools > Options** menu as shown in Figure 8 and Figure 9. Network connectivity is not be verified at this time, it is verified when a debugging session is initiated.

Figure 8 Tools Menu

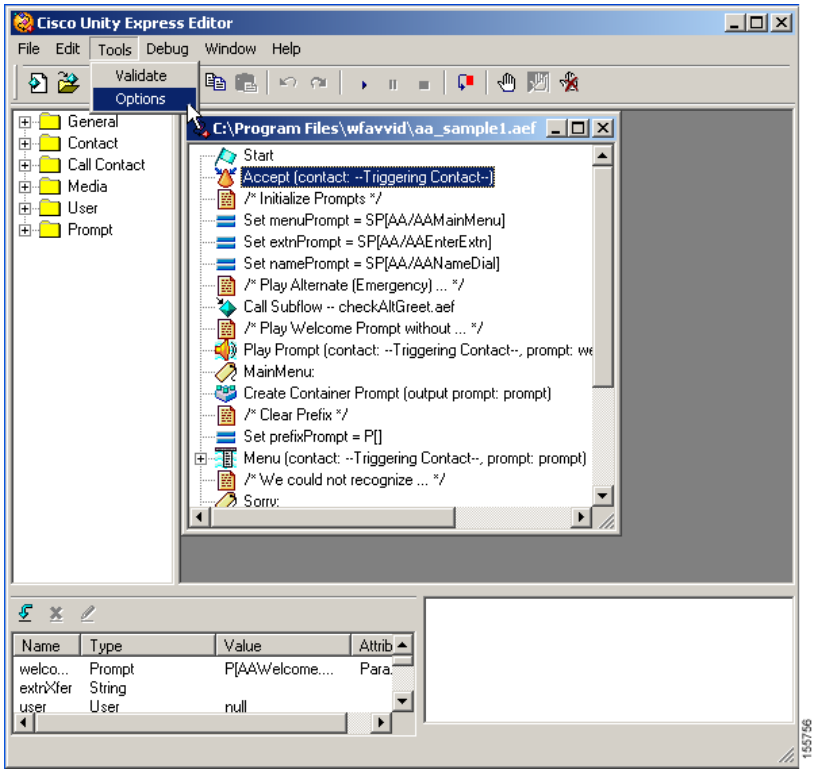
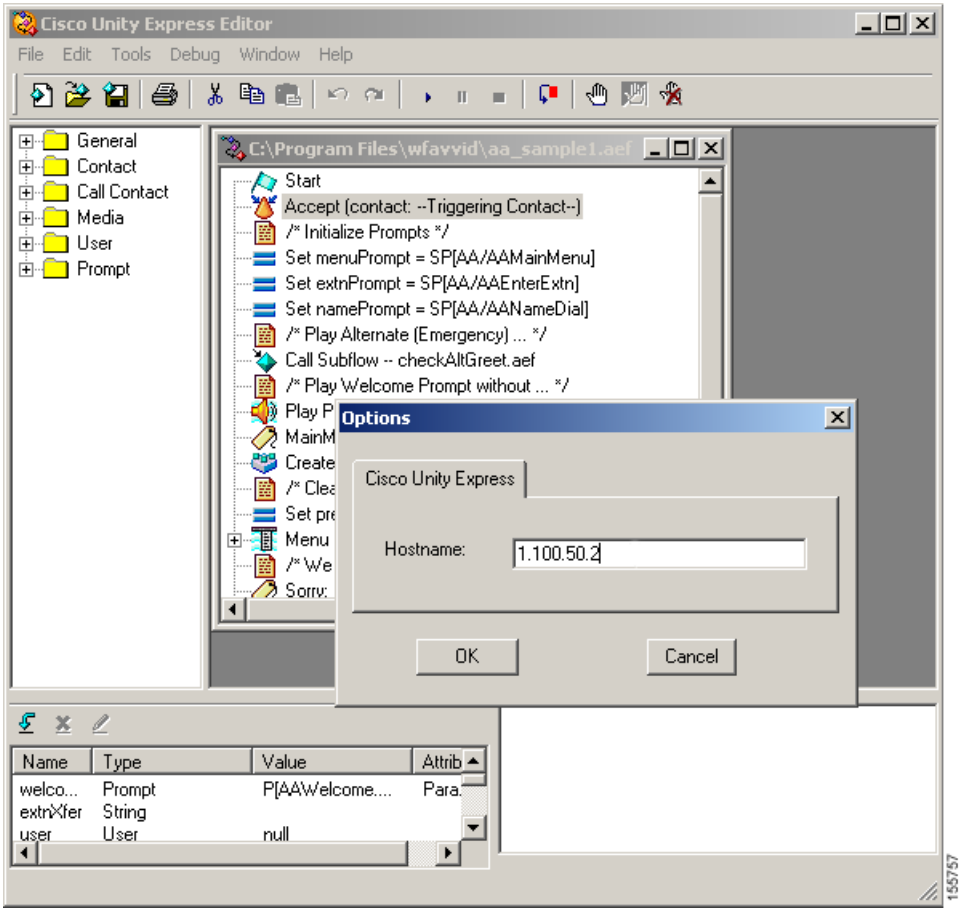
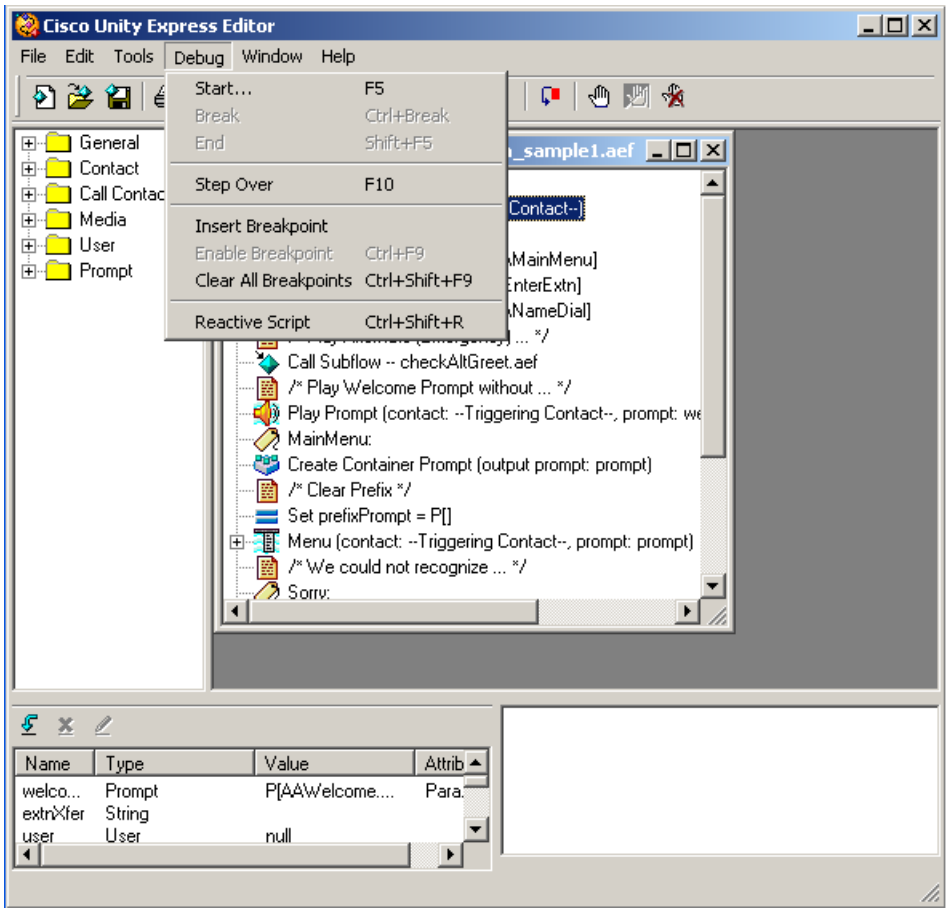


Figure 9 Cisco Unity Express Host



The Debug menu is shown in Figure 10.

Figure 10 Debug Menu



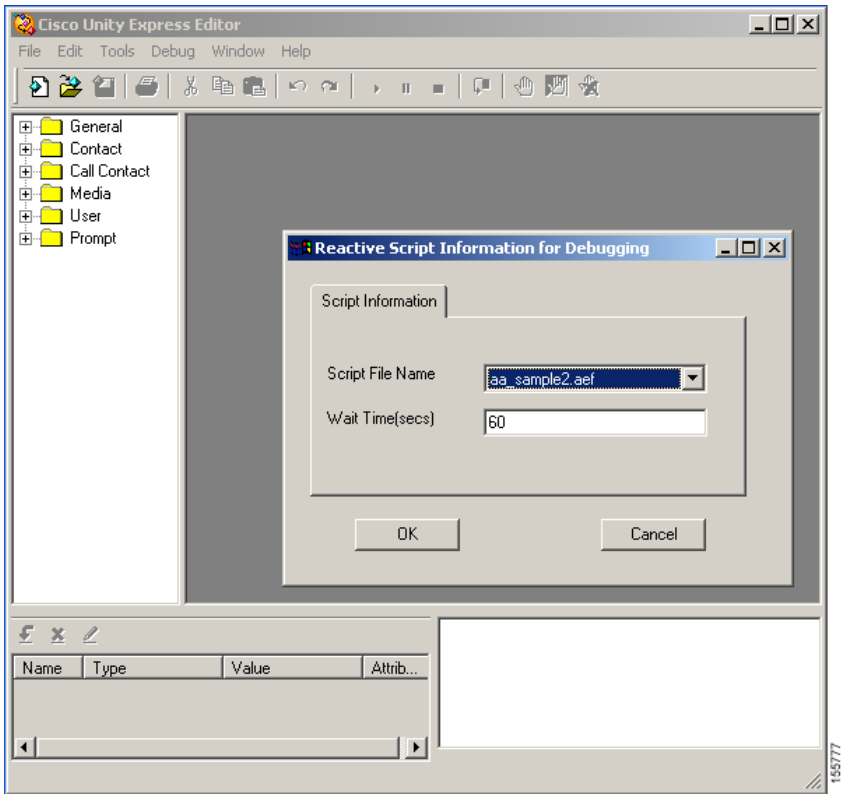
Reactive Debugging

Reactive debugging mode allows you to debug a script while it is running on the Cisco Unity Express system. This debugging mode allows you to debug scripts that are triggered by an external event. The only external event that can trigger a script on Cisco Unity Express is an incoming call. The script must be loaded into the Cisco Unity Express script repository, and be triggered by an incoming call. The script can be changed and saved on the local PC while debugging, but it must be uploaded to the Cisco Unity Express system again to debug those changes.

To start a reactive debugging session, select the script to debug through the **Debug > Reactive Script** menu in the Editor. The Editor contacts Cisco Unity Express for a list of all the custom scripts on Cisco Unity Express. If the Editor is not able to establish connectivity with Cisco Unity Express (either because of network problems or the blocking of port 1099), the editor displays an error message.

If the Editor is able to successfully fetch this list, then it will be presented to you in a dialog box. You can select the script name to be debugged from the drop-down list in this dialog box, as shown in the Reactive Script Information for Debugging window of Figure 11.

Figure 11 Select Script and Wait Time



The Wait Time is the duration for which the Script Editor waits for an incoming call to trigger the execution of the selected script on Cisco Unity Express. An incoming call must trigger this script within this interval after you click **OK**. If the script is not triggered within this interval, an error message appears.

After you click **OK**, the Editor registers with Cisco Unity Express to receive events for the selected script. When a call comes in, the script automatically displays in the Design pane of the Editor window as shown in Figure 12 and Figure 13.

Figure 12 Selecting a Script for Reactive Debugging

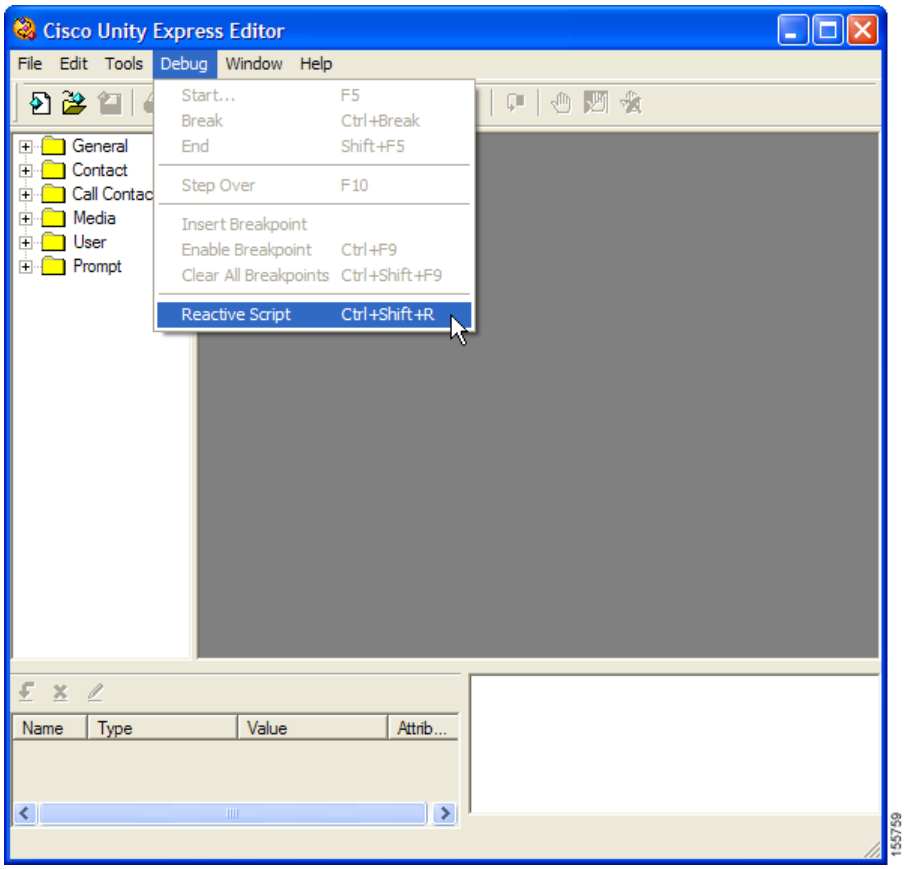
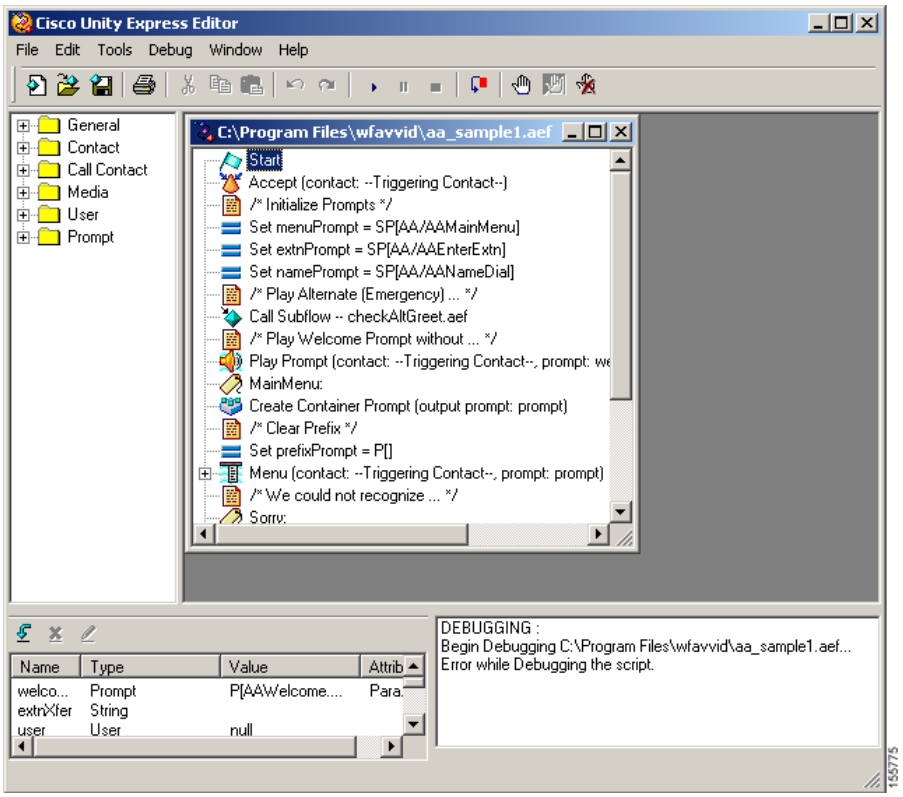


Figure 13 Reactive Debugging in Progress

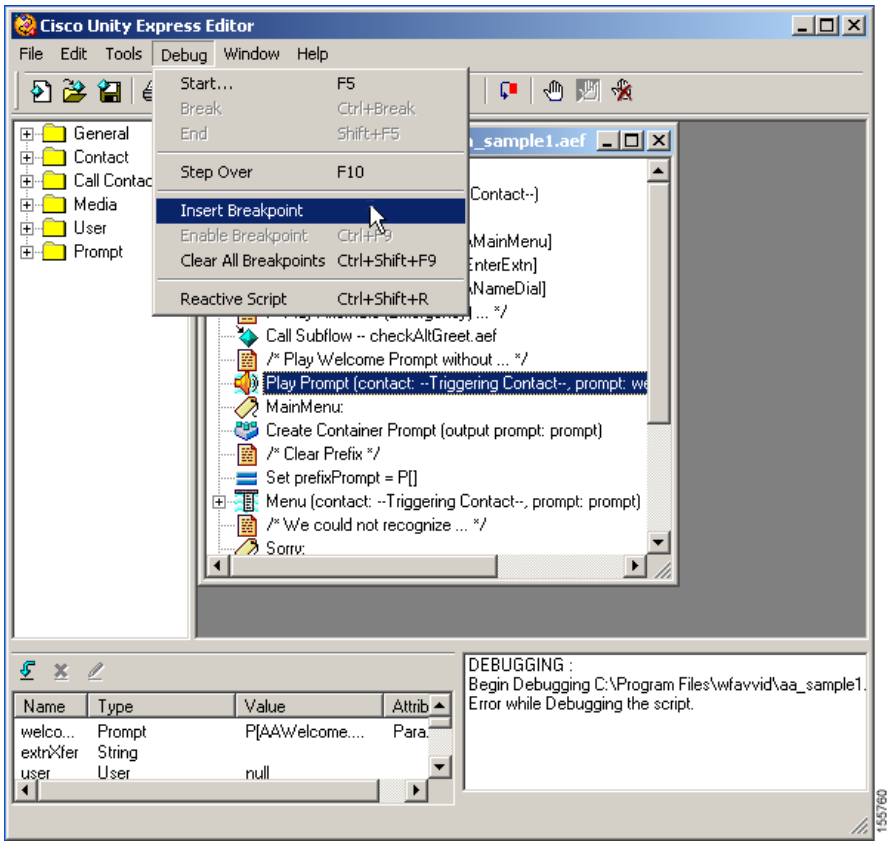


The Editor controls the script execution. The script does not start execution until you click **Play** (F5) or **Step** (F10) on the toolbar. The caller hears the ringback tone until the script execution is started and the call is answered.

Clicking **Play** causes the script to run until it reaches a breakpoint, needs some input from the caller, or reaches the end of the script. Each time you click **Step**, the next step in the script is executed and execution halts.

You can click any step in the script and insert a breakpoint at that step by clicking the Breakpoint button on the toolbar. A breakpoint can also be inserted through the **Debug > Insert Breakpoint** menu item. An example of a breakpoint is shown in Figure 14 and Figure 15.

Figure 14 Inserting a Breakpoint

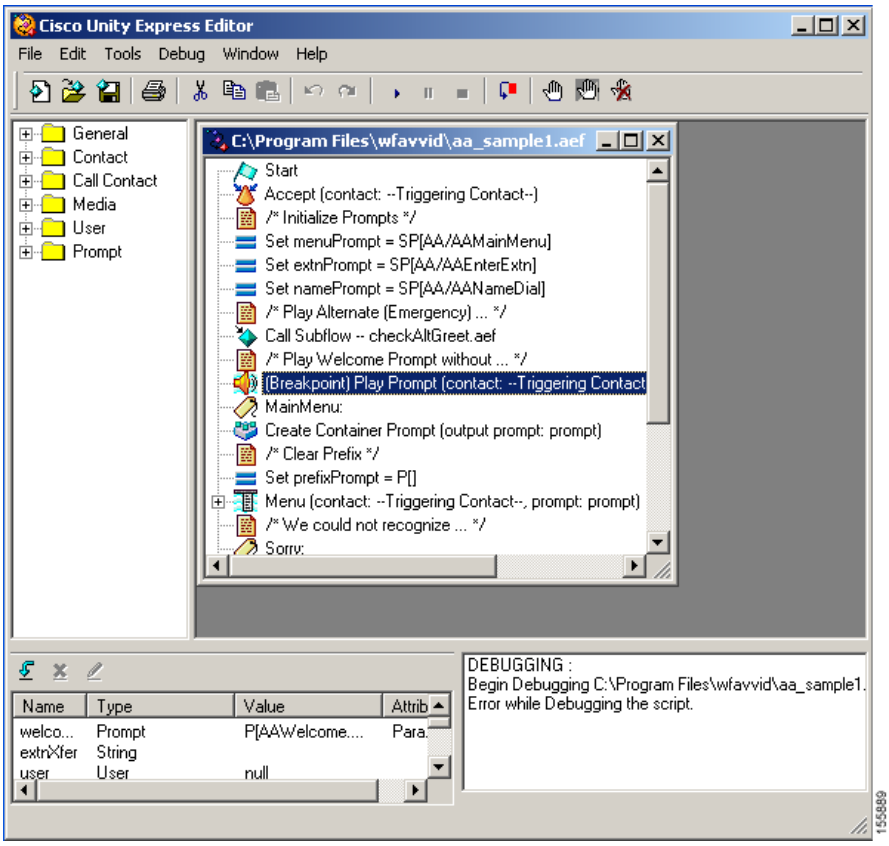


When the script execution proceeds, the step being currently executed is highlighted. The Variable pane always displays the current runtime values of the variables as the script executes.

If a call is aborted while the debugging session is in progress, you see error messages.

The script being debugged using the Script Editor can also be saved to disk on the local Editor PC (**File > Save** menu). This is a way of downloading a script from Cisco Unity Express.

Figure 15 Script with Breakpoint Inserted



Nonreactive Debugging

This mode of debugging is only for those scripts that do not require external events to trigger their execution—they do not have any steps that use a step with a triggering contact. Nonreactive debugging is useful for debugging script segments or subflows. Because there is no incoming call associated with the script in this debugging mode, media streams cannot be established. Any steps that make use of media stream, for example PlayPrompt, GetDigitString, and so on, cannot be effectively debugged.

Although scripts and subflows using the Media and Call Control steps can be debugged using nonreactive debugging, it is useful for debugging scripts that perform some computation. After a script segment has been debugged, it can be incorporated into a larger script.

To begin a nonreactive debugging session, open a script using the **File > Open** menu.

After the script has been opened, start the debug process by clicking **Play** (F5) or **Step** (F10) on the toolbar. The rest of the debugging options and functions are the same as those described for reactive debugging in the "Reactive Debugging" section on page 24.

Even in this mode, the script execution takes place on the Cisco Unity Express system, not on the Script Editor PC. However, in this case, the script is sent from the Script Editor to Cisco Unity Express over an RMI connection when the debugging session is initiated. So, this mode also requires the Script Editor to connect to Cisco Unity Express on port 1099. If the Editor is unable to establish connectivity with Cisco Unity Express, an error message appears when **Play** or **Step** is clicked.

Limitations

There are limitations to consider when debugging a script:

- In reactive and nonreactive debugging mode, stepping into a subflow from a main script is not possible. Cisco Unity Express executes the subflow without providing debug controls. This is like stepping over the CallSubflow step.
- Scripts with syntax errors are uploaded successfully (with a warning) in some situations, although they cannot be debugged because calls to such scripts fail and the script never gets triggered.
- Only one script can be debugged at a time. An error message appears to another user trying to start a debugging session.

Using Prompts

The Cisco Unity Express Script Editor uses the following two types of prompts:

- System prompts: Used internally by Cisco modules and Cisco sample scripts. System prompts are used internally by the system.

  Note There is no guarantee of the continued availability of any system prompt in future releases.

- User prompts: Defined by the user and managed by the administrator using the **Voice Mail > Prompts** web page of the Cisco Unity Express GUI administrator interface or by calling in to the Greeting Management System. The script retrieves both user and system prompts from the Prompt Repository.

All **Media** and **Prompt** steps support prompts specified in the following ways:

- String expression: User-defined prompts that are located in the User Prompts directory.
- Prompt expression: Dynamically created at run time.

Note You must define all prompts played back and recorded with a RIFF header of type WAVE and G711 u-law format.

For more information on managing the prompts, see see the *Cisco Unity Express GUI Administrator Guide* or the *Cisco Unity Express Voice-Mail and Auto-Attendant CLI Administrator Guide for 3.0 and Later Versions*.

Using Expressions

Expressions are useful if you do not know the exact prompt value at design time and instead would rather enter a formula that can be evaluated later at run time. The resulting type of the expression must match the expected input type or types (which you check at design time).

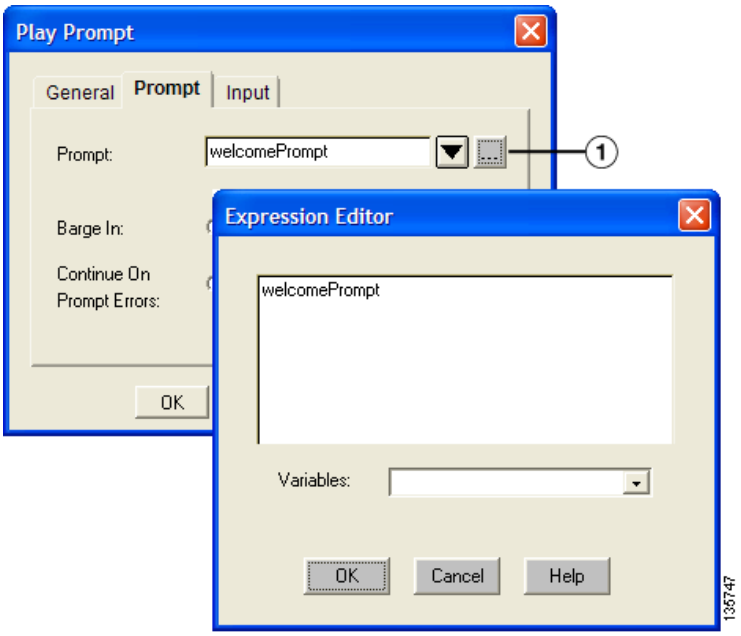
Many steps include an Expression Editor (...) button (1 in Figure 16) in the customizer window, which you can use to enter an expression.

You can enter an expression directly in the input text field, or click Expression Editor (...) to open the Expression Editor.

You can enter the expression in the text field, or choose from the Variable drop-down menu to get quick access to variables you have previously defined in the script. After you choose a variable from the **Variable** drop-down menu, the variable name appears in the input text field.

After you enter the expression, click OK. The Expression Editor closes.

Figure 16 Expression Editor Button and Expression Editor



Using Operators

To create expressions, use operators to combine variables and other values (also known as operands) to produce a result that is not known until the script is run. Operator priority refers to the order in which the operators are evaluated if there is more than one operator in an expression. The following operators are listed in order of priority:

1. Parentheses (...): Works with any expression and allows you to give priority to the expression contained in the parentheses.
2. Multiplication (*), Division (/): Works with any number expression (integer, long, float, decimal, BigInteger, BigDecimal).

   Number operands are properly promoted to a valid type before testing.
3. Addition (+), Subtraction (–): Works with any number expression (integer, long, float, decimal, BigInteger, BigDecimal).

   Number operands are properly promoted to a valid type before testing.
4. Less Than (<), Greater Than (>), Less Than or Equal (<=), Greater Than or Equal (>=)

   Comparison operands work only on String, Character, and Number operands.
5. Equal to (==), Not Equal to (!=)

   Testing for the <null> constant is supported by the two equality operators.
6. And (&&): Works only with Boolean expressions.

7. Or (||): Works only with Boolean expressions.
8. Concatenation (+).

   If at least one of the operands is a String, then the other one if it is not a prompt, one is converted to a String by using the String.value() method. The result is a new String corresponding to the concatenation of the String representation of both operands. Typically, the String.valueOf() method simply calls the toString() method of the object being concatenated, or returns the string "null" if the object is null.

   If the operands are Characters, then they are concatenated together, resulting in a new String.

Handling Exceptions

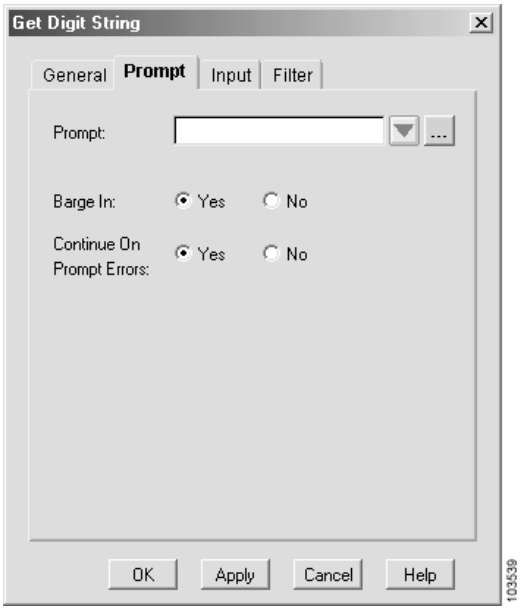
The Cisco Unity Express Script Editor provides a variety of ways to handle exceptions. Exceptions are errors in scripts from an unexpected user input or an unexpected result in scripts.

Continue on Prompt Errors Step

The **Continue on Prompt Errors** option allows the script to continue to run when the script receives invalid input (for example, Invalid Audio Format or File Not Found).

The Cisco Unity Express Script Editor provides the **Continue on Prompt Errors** option in the customizer windows of steps in the Media palette. (See the "Media Steps" section on page 131.) For example, Figure 17 shows the **Prompt** tab of the **Get Digit String** customizer window.

Figure 17 Continue on Prompt Errors Option: Prompt Tab of the Get Digit String Customizer Window



When enabled, the step continues with the next prompt in the list of prompts to be played back. If the prompt is last in the list, the script waits for caller input.

When you enable **Continue on Prompt Errors**, you instruct the script to ignore prompt errors and continue as if the playback of a particular prompt was successful. For example, in a sequence of prompts "1 + 2 + 3", if prompt #1 fails, the step will continue with prompt #2. If prompt #3 fails, the step continues to wait for caller input as if prompt #3 had been properly played back.

When you disable **Continue on Prompt Errors**, the media steps generate an exception, which can then be handled in the script.

Available prompt exceptions are the following:

- InvalidPromptArgumentException
- PromptException
- UndefinedPromptException
- UndefinedPromptGenerator
- UnsupportedPromptExpression

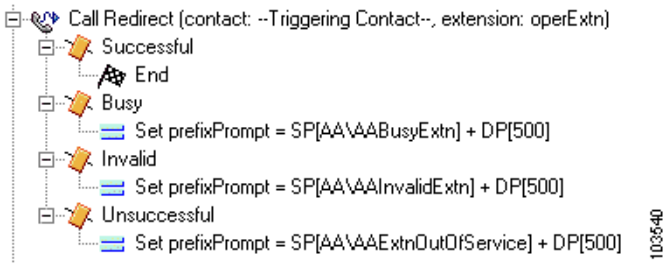
Error Output Branches

Error output branches are parts of a script that provide instructions on what to do when typical errors occur.

Figure 18 shows error output branches under a **Call Redirect** step in a script.

Note The script provides error branches only for expected error conditions, not for system errors.

Figure 18 Error Output Branches: Call Redirect Step



In this figure, the **Call Redirect** step includes logic for both an invalid extension and an out-of-service extension.

On Exception Goto Step

The **On Exception Goto** step of the **General** palette (see the "On Exception Goto" section on page 116) causes the script to continue running at a specified place in the script when an exception is generated.

By using the **On Exception Goto** step for a specific exception in a script, you can register a new handler for a specific exception or override a previously existing one.

The registration process affects the complete script. The assigned handler activates the script regardless of whether the exception occurs (before, during, or after the given step). After the step runs, the handler is registered until either a new handler is reregistered or the exception is cleared with the **On Exception Clear** step.

If an exception results in a subflow, the script first consults the exception handlers of the subflows. If none are defined for the given exception, the exception aborts the subflow, and the Cisco Unity Express application looks for exception handlers in the parent script. This process continues until the script finds an exception handler or the top level of the script is reached.

If no exception handlers are registered, the script aborts and error handling falls back to the last level of error handling, which is the default script.

Using Default Scripts

The default script is the last level of user-defined error handling before the Cisco Unity Express Script Editor applies a default system treatment to all active contacts.

The Cisco Unity Express Script Editor invokes this default script under the following conditions:

- The main script aborts, which happens for either of the following reasons:
  - An uncaught exception occurs.
  - The Cisco Unity Express application software is unable to invoke the primary script because it has not been properly validated.
- An incoming call must be aborted because the Cisco Unity Express application software has reached its limit for the number of simultaneous sessions for the application.

In each of these scenarios, the Cisco Unity Express Script Editor marks all active contacts as aborting before the default script is run. The final state of these contacts is Aborted, even if the contacts are transferred or redirected as a result of the default script running.

Caution The purpose of the default script is to gracefully terminate the call when the main script fails, not to have a fallback to provide the original services intended by the primary script. This distinction is important because using system resources to run this default script may impair system performance. If the primary script fails too often, fix the primary script instead of providing another script to attempt the same task.

The default script does not run if the primary script ends normally. If contacts are still active when the primary script ends, all active contacts not marked as handled will abort, and all active contacts marked as handled are simply terminated. In this case, check the primary script for any design problems.

Note The default script provides only a final feedback to the contact regarding the system problem and does not continue the service or restart the service.

The system applies the CallContact script if the contact is still active after the system executes the default script (if any). The CallContact script plays back the prompt, “We are currently experiencing system problems, please call back later” as an announcement, followed by a fast busy signal.

Script Interruption

Script interruption is a feature that allows external events to interrupt the current processing of a script in order to return to another part of the script or stop the execution of the script.

Use script interruption typically when the script needs to be notified that one of its contacts has been remotely terminated, such as when the caller hangs up.

Note In every case, any event that triggers the need to interrupt the script can occur at any time while the script executes other steps.

By default, scripts are automatically interruptible before any step is executed. If any external event (such as that described in the preceding text) interrupts the script, the script continues running based on the proper handling for the specific event before the script continues with the next step.

If you want two consecutive steps to run without the possibility of interruption, you must move these two steps to a subflow where you can disable interruptions completely while the script processes that subflow.

Cisco Unity Express Script Editor has an "interruptible" option for some steps that allows you to indicate whether or not the script can interrupt the step from within if an external event occurs.

When a contact terminates remotely, the script performs one of the following actions:

- When a caller hangs up, the script is interrupted (if possible) and a ContactInactiveException is generated. This exception can then be handled with the **OnExceptionGoto** step of the **General** palette.
- When a caller hangs up and no exception handling logic is available, the script immediately aborts.
- When managing multiple contacts, the **OnExceptionGoto** step cannot differentiate which contact was remotely terminated. Instead, it must specify a Label to which it can loop through all known contact variables and use the **Get Contact Info** step of the **General** palette to search for an Active flag.

If an interrupting event occurs when the script is not currently interruptible, the script is automatically interrupted whenever it becomes interruptible again. For example, although a script is not interruptible when it is running a subflow that is marked to disable interruptions, the script processes the interruption as soon as the subflow terminates, and control is returned to the parent (if that primary script is interruptible).

Installing the Cisco Unity Express Script Editor

This section describes how to install the Cisco Unity Express Script Editor application.

Note Do not install the Cisco Unity Express Script Editor application on hardware on which the Cisco Customer Response Solutions (Cisco CRS) Editor application is currently installed. These applications share registry files and will not work if installed on the same hardware.

The Cisco Unity Express Script Editor is a Microsoft Windows application. The computer you install it on must be running one of the following operating systems:

- Windows NT (Workstation or Server) with Service Pack 4 or later
- Windows 2000 (Professional or Server)

- Windows XP Professional

Download the Cisco Unity Express Script Editor installation program from Cisco.com or install it from the Cisco Unity Express Application Software CD. The filename is Cisco Unity Express Editorx.x.x.exe, where x.x.x is the version that you are installing.

Follow these steps to install the Cisco Unity Express Script Editor:

Step 1 Double-click the installation program file.

The InstallShield Wizard appears and begins extracting files for the installation. (This process may take a few minutes.)

Step 2 Follow the prompts to install the application. A default installation is acceptable for most users: click Yes and Next buttons when prompted.

The prompts also allow you to move back to an earlier step in the installation process or cancel the installation completely.

Step 3 To verify that the application is installed correctly, start the application: on the task bar click **Start**, All Programs, Cisco Unity Express Developer, Cisco Unity Express Script Editor.

The default installation path on your hard drive is `C:\Program Files\wfavvid\WFCCNEditor.exe`.

Auto Attendant Script Example

Last Updated: July 24, 2008

This chapter describes how to configure an auto attendant (AA) script. It uses the sample script aa_sample1.aef, which is included with the Cisco Unity Express Script Editor, to illustrate basic procedures for configuring auto attendant scripts.

This chapter contains the following sections:

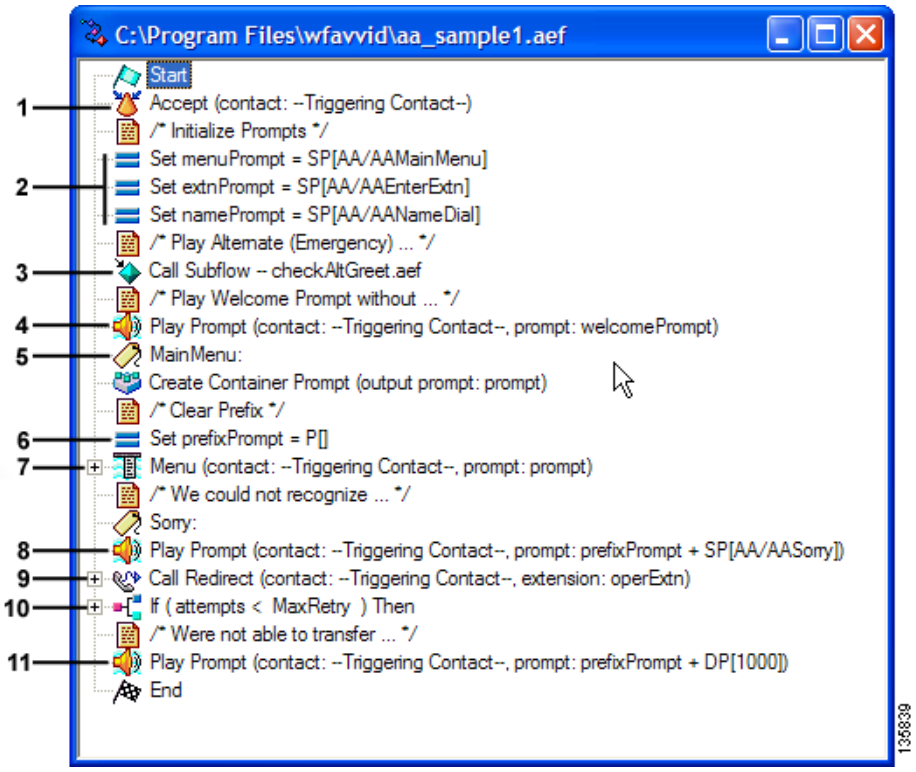
Sample Script Overview

The aa_sample1.aef file is a script that answers a call, asks for the name or extension of the person to whom the caller would like to be connected, and transfers the call.

Note You can modify the aa_sample1.aef file to create your own AA script. Make a backup copy of the aa_sample1.aef file before modifying it, so that you always have access to the original file.

Figure 19 shows the aa_sample1.aef script as it appears in the Design pane of the Cisco Unity Express Script Editor window.

Figure 19 aa_sample1.aef Script



The aa_sample1.aef script performs the following tasks:

1	The **Accept** step accepts the call.
2	The next three **Set** steps initialize, or clear, several variables: the main menu to play for the caller, the extension that will receive the call, and the name of the called person.
3	The **Call Subflow** step looks for an alternate emergency prompt and plays the prompt if required.
4	The **Play Prompt** step plays a welcome prompt, asking the caller to perform one of three actions: • Press "1" to enter an extension number. • Press "2" to enter the name of a person. If the caller chooses to spell a name, the script maps the letters entered against the available users defined in a specified directory and transfers the call to the primary extension of the user. If more than one match occurs, the script prompts the caller to choose the correct extension. If too many matches occur, the script prompts the caller to enter more characters. If no match occurs, the script prompts the caller to enter another name. • Press "0" to speak to an operator. **Note** The **Welcome** prompt is a parameter, which means that the administrator can configure this prompt when provisioning an application with this script. (For more information on provisioning applications, see the *Cisco Unity Express 3.2 GUI Administrator Guide* or the *Cisco Unity Express Voice-Mail and Auto-Attendant CLI Administrator Guide for 3.0 and Later Versions*.
5	The **Main Menu** step is the beginning of a process that checks the caller's extension choice.

6	The **Set prefixPrompt** step initializes the beginning section of the prompt that the caller hears.
7	The **Menu** step contains a subprocess that checks the extension's status.
8	The **Play Prompt** step plays a message to the caller regarding the status of the extension. If the script receives a valid extension, it transfers the call. • If the destination is busy, the caller hears the system prompt, "The phone number you are trying to reach is currently busy." • If the destination is out of service, the caller hears the system prompt, "The phone number you are trying to reach is currently out of service."
9	The **Call Redirect** step sends the caller to the operator if the extension is not available.
10	The **If** step determines if the caller has reached the maximum number of tries to connect to a valid extension.
11	The **Play Prompt** step plays a message if the maximum number of tries has been reached without reaching a valid extension.

System Prompts

The aa_sample1.aef script uses system prompts stored as .WAV files, which are installed automatically with the Cisco Unity Express software. These audio prompts include the following:

- AAMainMenu.wav: Provides a menu of choices: press 1 to enter an extension, press 2 to enter the first few characters of a user name, or press 0 to speak to an operator.
- AASorry.wav: States that the transfer was not successful.
- AABusyExtn.wav: States that the dialed extension is busy.
- AAInvalidExtn.wav: States that the entered extension is not a valid choice.
- AAExntOutofService.wav: States that the entered extension is no longer in service.
- AAWelcome.wav: Greets the caller.

  In the auto attendant application, you can configure the filename for the AAWelcome.wav prompt by selecting the **Voice Mail > Auto Attendant** menu option on the Cisco Unity Express GUI administration web interface. You can change the default welcome prompt to reference a custom prompt.

Note For custom scripts, you need to record your own prompts. You can either have them recorded professionally or you can use the AvT to record them in your own voice. For more information about the AvT, see the *Cisco Unity Express 3.2 GUI Administrator Guide* or the *Cisco Unity Express Voice-Mail and Auto-Attendant CLI Administrator Guide for 3.0 and Later Versions*.

Configuring the Auto Attendant Sample Script

This section describes the steps necessary to configure the sample auto attendant script.

Configuring the Script Variables

Using the **Variable** pane of the Cisco Unity Express Script Editor, define the script variables as shown in Figure 20.

Figure 20 Variables Pane of the aa_sample1.aef Script

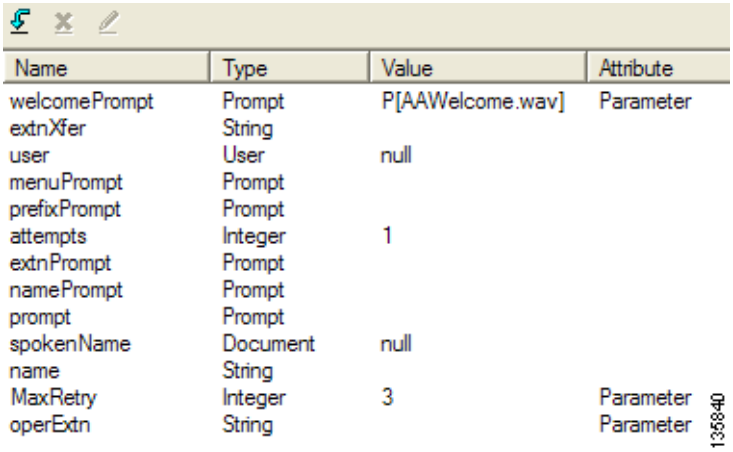


Table 6 describes the variables used in the aa_sample1.aef script.

Table 6 Variables in the aa_sample1.aef Script

Variable Name	Variable Type	Value	Function
welcomePrompt	Prompt	P[AA\Welcome.wav]	Greets the caller. Parameter. See the "Configuring Steps in the Design Pane" section on page 41.
extnXfer	String	—	Stores the extension to which the caller is transferred. See Step 1 of the "Configuring the Menu Step DialByExtn Output Branches" section on page 48.
user	User	null	Identifies the user that the caller chooses with the Name To User step. See the "Configuring the Menu Step DialByName Output Branches" section on page 55.
menuPrompt	Prompt	—	This prompt presents the initial menu of options for calling by name or by extension. See Step 3 of the "Configuring Steps in the Design Pane" section on page 41.
prefixPrompt	Prompt	—	Informs the caller of the status of the call. This value is dependent on many steps. See Step 1 of the "Configuring the Main Menu Step" section on page 45.
attempts	Integer	1	Stores the number of times the script has attempted confirmation. See the "Configuring the Implicit Confirmation Step" section on page 53.
extnPrompt	Prompt	—	Prompts the caller to enter the extension number. See Step 4 of the "Configuring the Menu Step DialByExtn Output Branches" section on page 48.

Table 6 Variables in the aa_sample1.aef Script (continued)

Variable Name	Variable Type	Value	Function
namePrompt	Prompt	—	Asks the caller to enter the name of the person the caller wants to reach. See Step 5 in the "Configuring Steps in the Design Pane" section on page 41.
prompt	Prompt	—	Used for a variety of purposes throughout the script, such as playing a recorded status message, asking the caller for input, playing a menu of options, and so on. See the "Configuring Steps in the Design Pane" section on page 41.
spokenName	Document	null	Stores the audio document of the spoken name of the person the caller is trying to reach. See Step 3 the "Configuring the Menu Step DialByName Output Branches" section on page 55.
name	String	—	Stores the written name of the person the caller is trying to reach. See the "Configuring the Name to User Step Operator Output Branch" section on page 62.
MaxRetry	Integer	3	Stores the maximum retries a caller can make in this script before the script terminates the call. See the "Configuring the Implicit Confirmation Step" section on page 53.
operExtn	String	—	Stores the Operator extension the Call Redirect step uses to transfer the call to the operator. See the "Configuring the Call Redirect Step" section on page 65.

Configuring Steps in the Design Pane

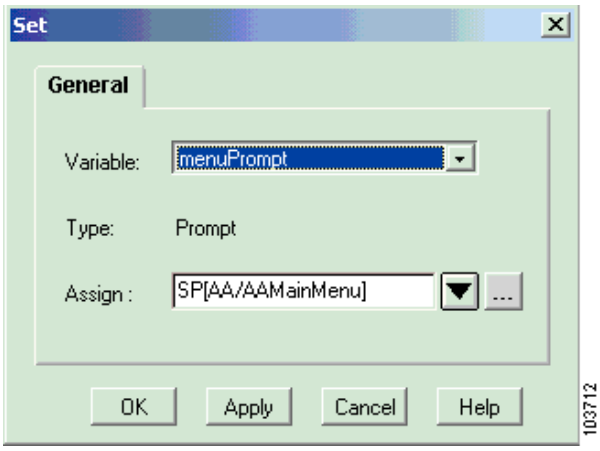
In the **Design** pane, perform the following tasks:

Step 1 Insert the **Start** step. Every script built in the **Design** pane of the Cisco Unity Express Script Editor window begins with a **Start** step that needs no configuration and has no customizer window.

Step 2 Insert the **Accept** step. This step accepts the default contact; no configuration is necessary for this step.

Step 3 Insert the **Menu Prompt** step. This step sets the value of **menuPrompt** to SP[AA/AAMainMenu], which is the system prompt for playing the main menu, as shown in Figure 21.

Figure 21 Set Customizer Window: Configured General Tab



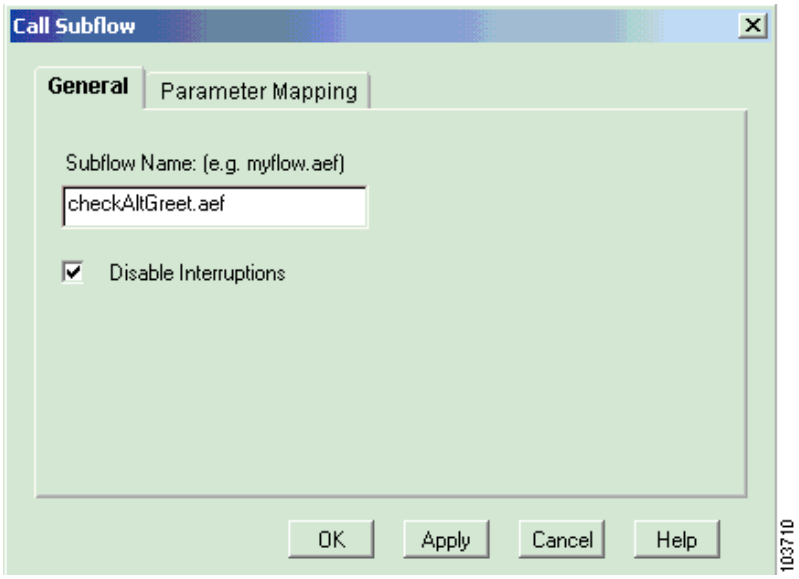
Step 4 Insert the **Extension Prompt** step. This step sets the value of **extnPrompt** to SP[AA/AAEnterExtn], which is the system prompt that asks the caller to enter the extension number.

Step 5 Insert the **Name Prompt** step. This step sets the value of **namePrompt** to SP[AA/AANameDial], which is the system prompt that asks the caller to enter the name of the called person.

Step 6 Insert the **Call Subflow** step. The **General** tab of the **Call Subflow** step sets the subflow name to **checkAltGreet.aef**, as shown in Figure 22.

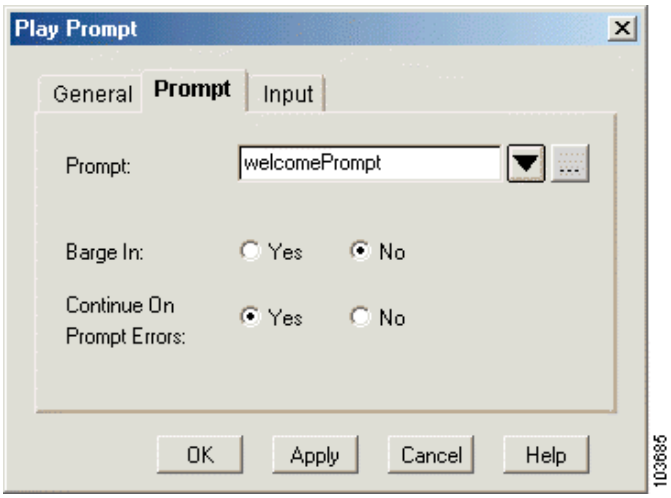
The **Subflow Name, checkAltGreet.aef**, checks if an alternate greeting is enabled. If it is, then the subflow plays the alternate greeting and returns to the aa_sample1.aef script. Check **Disable interruptions** so that other script steps cannot interrupt the **Call Subflow** process.

Figure 22 Call Subflow Customizer Window: Configured General Tab



Step 7 Insert the play prompt step. This step plays the **Welcome** prompt, as shown in Figure 23.

Figure 23 Play Prompt Customizer Window: Configured Prompt Tab

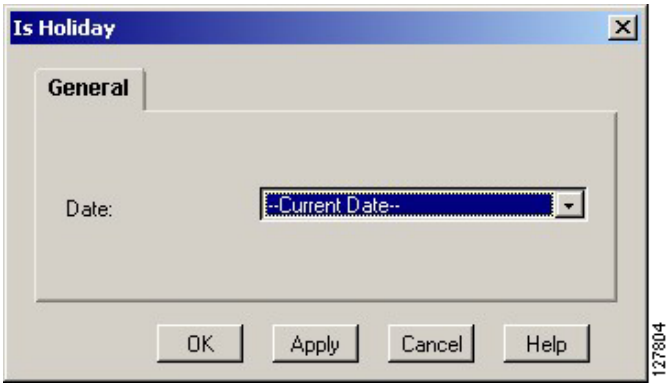


Step 8 Configure the fields in the tabs of the Play Prompt customizer window as follows:

- **General** tab
  - **Contact**: Triggering contact: The contact that triggered the script remains the contact for this step.
  - **Interruptible**: No: No external events can interrupt the playback of the prompt.
- **Prompt** tab
  - **Prompt**: welcomePrompt: This prompt plays back to greet the caller.
  - **Barge In**: No: The caller must listen to the whole prompt before responding.
  - **Continue on Prompt Errors**: Yes: If a prompt error occurs, the script continues to play the next prompt, or, if this is the last prompt in the sequence, the script waits for caller input.
- **Input** tab
  - **Flush Input Buffer**: Yes: This step erases previous input.

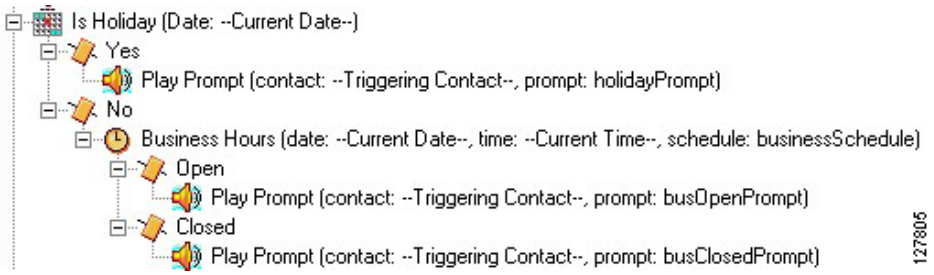
Step 9 Insert the **Is Holiday** step. By default, this step checks if the current day is a holiday, as shown in Figure 24, so no configuration is necessary for this step.

Figure 24 Is Holiday Customizer Window: Configured General Tab



The **Is Holiday** step contains two output branches: **Yes** and **No**, as shown in Figure 25.

Figure 25 Is Holiday Step Output Branches

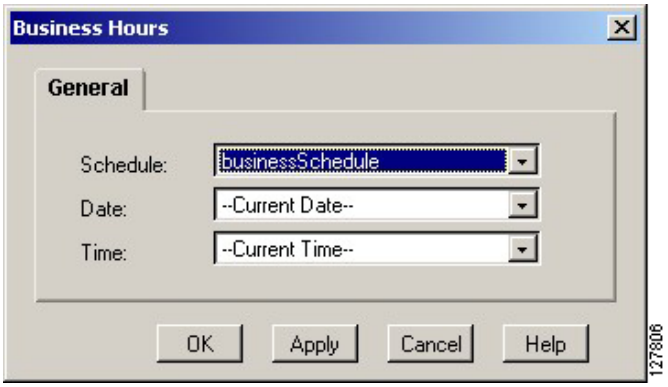


If the current day is a holiday, the script executes the **Yes** output branch. The script plays the holiday prompt and does not check the business hours. The script skips the **No** output branch and executes the MainMenu **Label** step.

If the current day is not a holiday, the script executes the **No** output branch. The script determines if the business is currently open or not, using the **Business Hours** step.

Step 10 Insert the **Business Hours** step under the **No** output branch of the **Is Holiday** step. This step determines if the business is currently open or not, as specified by the Business Hours Schedule configured for this step, as shown in Figure 26.

Figure 26 Business Hours Customizer Window: Configured General Tab

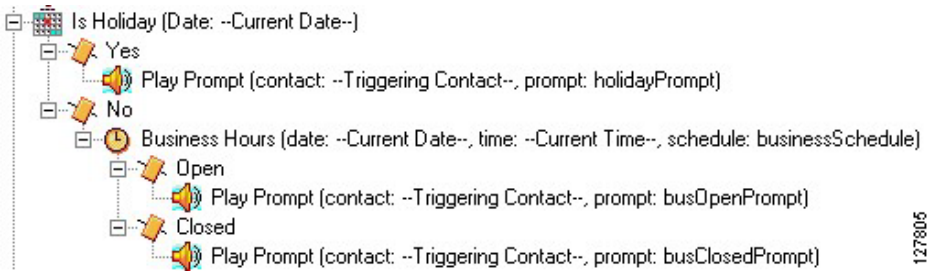


Configure the fields in the customizer window as follows:

- **Schedule**—Name of the Business Hours Schedule file. Use one of the schedules you created or customized using the Cisco Unity Express GUI options or CLI commands.
- **Date**—No configuration is necessary. By default, the script uses the current date.
- **Time**—No configuration is necessary. By default, the script uses the current time

The **Business Hours** step contains two output branches: **Open** and **Closed**, as shown in Figure 27.

Figure 27 Business Hours Step Output Branches



If the business is currently open, the script executes the **Open** output branch and plays the business open prompt. By default, the prompt AABusinessOpen.wav is empty. If the business is currently closed, the script executes the **Closed** output branch and plays the business closed prompt.

After executing either step, the script executes the MainMenu **Label** step.

Step 11 Insert the **Label** step. This step creates a target for the script. This target is used later in the script when an output branch reaches a timeout, unsuccessful, or otherwise dead-end position and the script returns the caller to the **Label** step to try again.The **Label** step is named **MainMenu**.

Configuring the Main Menu Step

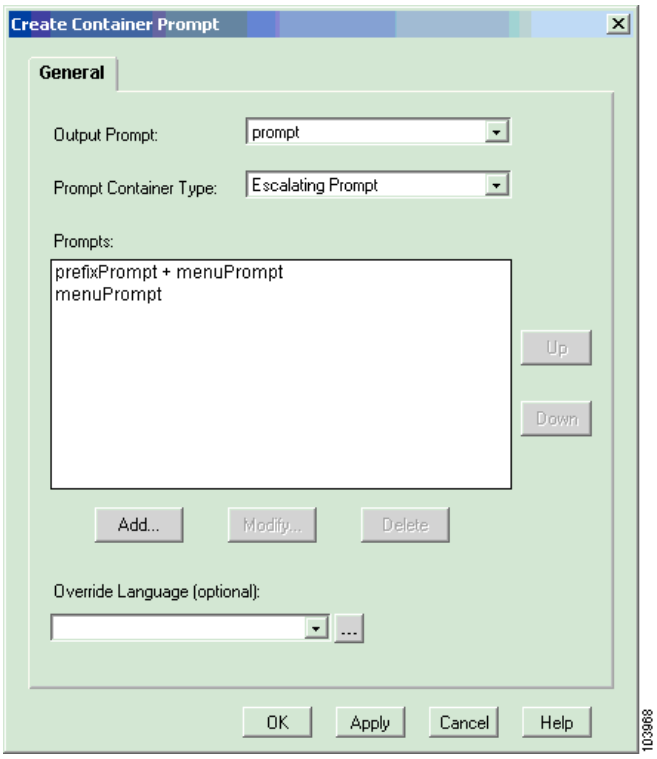
This following sections describe how to configure the Main Menu step:

- Configuring the Menu Step DialByExtn Output Branches, page 48
- Configuring the Implicit Confirmation Step, page 53
- Configuring the Menu Step DialByName Output Branches, page 55
- Configuring Name to User Output Branches, page 57
- Configuring Implicit Confirmation No Output Branches, page 58
- Configuring Implicit Confirmation Step First If Yes Output Branches, page 61
- Configuring the Call Redirect Step, page 61
- Configuring Implicit Confirmation Step Second If Yes Output Branches, page 62
- Configuring the Name to User Step Operator Output Branch, page 62

Perform the following tasks to configure the **Main Menu Label** step that you just created:

Step 1 Create the **Container Prompt** step. This step, as shown in Figure 28, creates an escalating prompt called **prompt**, which combines **menuPrompt** (the first prompt created in the scriptStep 3) with a new prompt called **prefixPrompt**. The **prefixPrompt** variable initializes with no value, but as the caller loops through the application and fails to be connected to a destination, this variable holds an error message to be played back to the caller. The prompt is an escalating prompt so that the error message plays only on the first attempt of the subsequent **Menu** step, which uses the prompt created by this step.

Figure 28 Create Container Prompt: Configured General Tab



Step 2 Configure the fields in the tabs of the **Create Container Prompt** window as follows:

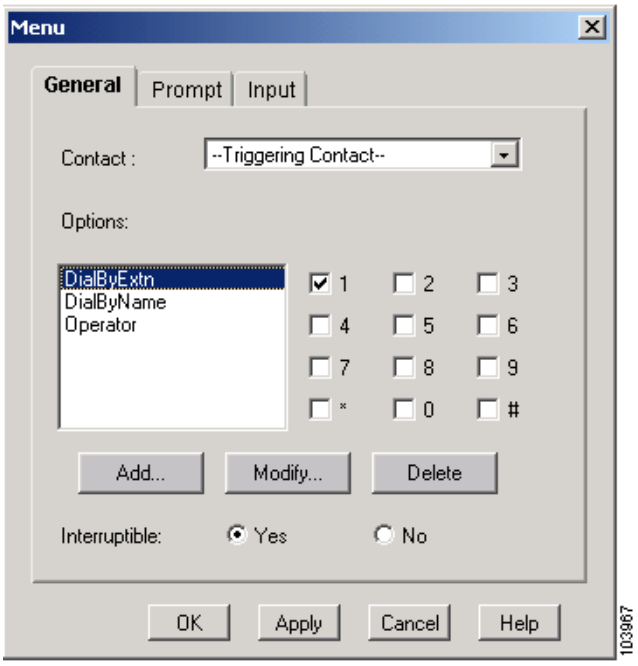
- **Output Prompt**—prompt: This prompt results from this **Create Container Prompt** step.
- **Prompt Container Type**—escalating: This step creates an escalating prompt.
- **Prompts List Box**
  - **prefixPrompt + menuPrompt**
  - menuPrompt

  This specifies the prompt phrases that are played if the **Media** step uses more than one attempt at eliciting a valid response from the caller.

Step 3 Insert the **Prefix Prompt Set** step. This step sets the value of **prefixPrompt** to P[], which means it is empty. When callers are returned to the **MainMenu** Label step to listen to menu options again, this **Set** step clears **prefixPrompt** of values that the script may have previously assigned to it.The **Call Redirect** steps often return callers to the **MainMenu** Label. See Figure 38 on page 54 for an example.

Step 4 Insert the **Menu** step. The **Menu** step receives either speech or digits in response to prompts, as shown in Figure 29. The script procedures configured under the **Menu** step transfer the call to the proper extension if the script receives valid input from the caller.

Figure 29 Menu Customizer Window: Configured General Tab



The **Menu** customizer window contains the following values:

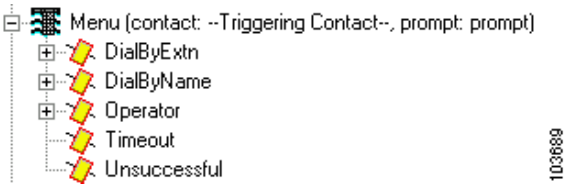
- **General** tab
  - **Contact**—Triggering Contact: The contact that triggered this script remains the contact for this step.
  - **Options**—DialByExtn, DialByName, Operator: The list of options the menu offers to the caller. The tags map to the output points to determine the execution of branching output paths. **DialByExtn** is mapped to dial keypad 1. **DialByName** is mapped to dial keypad 2. **Operator** is mapped to dial keypad 0.
  - **Interruptible**—Yes: External events can interrupt the execution of this step.
- **Prompt** tab
  - **Prompt**—Prompt: The step plays this prompt back to the caller.
  - **Barge In**—Yes: The caller can respond without first having to listen to the playback of the entire prompt.
  - **Continue on Prompt Errors**—Yes: If a prompt error occurs, the script continues to play the next prompt, or, if this is the last prompt in the sequence, the script waits for caller input.
- **Input** tab
  - **Timeout** (in sec)—5: After playing all prompts, the script waits 5 seconds for initial input from the caller before re-attempting with a timeout error, or, if this was the last attempt, the script executes the Timeout output branch.
  - **Maximum Retries**—5: The script will retry to receive input 5 times before sending the script to the Unsuccessful output branch.
  - **Flush Input Buffer**—No: The script saves previous input.

Configuring the Menu Step DialByExtn Output Branches

The **Menu** step contains two built-in output branches: **Timeout** and **Unsuccessful**. The **Timeout** and **Unsuccessful** output branches need no scripting. If the script reaches either of these branches, it proceeds to the next step on the same level as the **Menu** step, the second **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 64).

You must configure three output branches, as shown in Figure 30. These branches correspond to the three choices **menuPrompt** gives the caller: dial by extension, dial by name, or dial the operator.

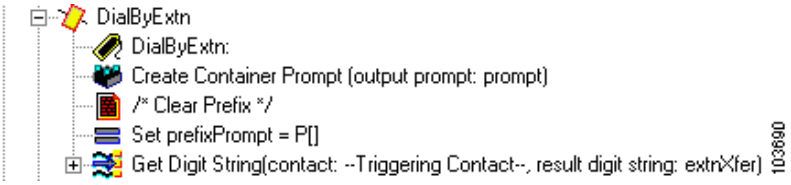
Figure 30 Menu Step Output Branches



Perform the following tasks to configure the **Menu** step output branches:

Step 1 Configure the **DialByExtn Output Branch**. If the caller chooses menu option "1" (presses an extension number) when given the option by the **Menu** step, the script executes the **DialByExtn** output branch. The **DialByExtn** output branch of the **Menu** step receives the extension number provided by the caller, as shown in Figure 31

Figure 31 DialByExtn Scripting



The **DialByExtn** output branch contains the following steps:

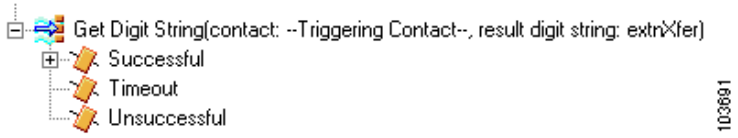
- **Label** step (DialByExtn): Creates a target **DialByExtn**.
- **Create Container Prompt** step: Creates a concatenated container prompt, consisting of **prefixPrompt** and **extnPrompt**, a preset prompt that prompts the caller to enter the extension number (with a possible error message when looping back if there is an error connecting to the destination).
- **Set** step: Sets the value of **prefixPrompt** to P[], which clears **prefixPrompt** of any values that the script may have previously assigned.
- **Get Digit String** step: Receives the digits entered by the caller in response to **prompt**, stores them in a result digit string variable named **extnXfer**, and then attempts to transfer the call.

The **Get Digit String** has three output branches: **Successful**, **Timeout**, and **Unsuccessful**, as shown in Figure 32.

The following are the three output branches of the **Get Digit String** step:

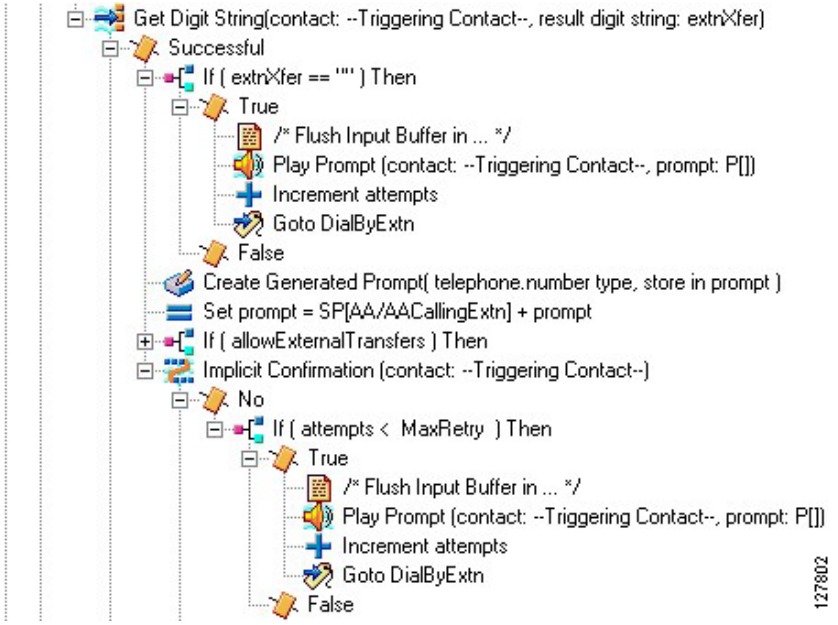
- **Timeout Output** branch: If the **Get Digit String** step does not receive input before reaching the timeout limit, the script executes the **Timeout** output branch, and the script skips the rest of the output branches of the **Menu** step and proceeds to the second **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 64).
- **Unsuccessful Output** branch: If the **Get Digit String** step is unsuccessful in receiving valid input, the script executes the **Unsuccessful** output branch, and the script skips the rest of the output branches of the **Menu** step and proceeds to the second **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 64).

Figure 32 Get Digit String Output Branches



- **Successful Output** branch: If the **Get Digit String** step successfully receives caller input, the script executes the **Successful** output branch. The **Successful** output branch transfers the call, as shown in Figure 33.

Figure 33 Get Digit String—Successful Branch Scripting



Note See Figure 45 on page 61 for the diagram of the **Implicit Confirmation Yes** branch steps.

Step 2 Configure the **If** step for the get digit string successful branch. The **If** step checks if the extension entered (**extnXfer**) is empty or not by evaluating the expression (**extnXfer == ""**). The If step has two output branches:

- **True** output branch: If the **If** step determines that the extension entered is empty, the script executes the **True** output branch. The **True** output branch increments the number of attempts by one and gives the caller another try. The **True** output branch of the **If** step contains three functional steps:

  - **Play Prompt** Step: The **Play Prompt s**tep plays an empty prompt, P[]**,** to flush the DTMF buffer of any digits that the script may have accumulated as part of the previous **Get Digit String** step.

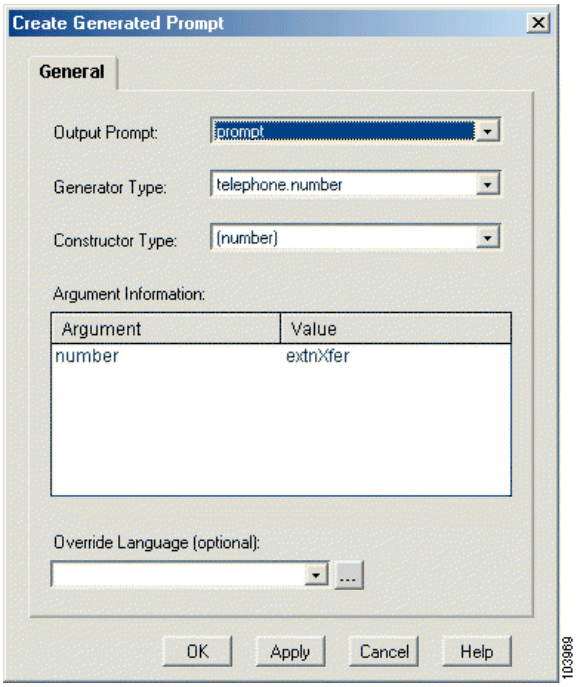
Note The **Play Prompt** step has an empty prompt to enable the script to return immediately from this step after flushing out the buffer.

  - **Increment** step: The **Increment** step increases the number of attempts until the maximum number of retries is reached.
  - **Goto** step: The **Goto** step returns the caller to the beginning of the **DialByExtn** Label step at the beginning of the **DialByExtn** output branch to give the caller more attempts to input the proper extension.

- **False** output branch: If the **If** step determines that the caller has entered an extension, the script executes the **False** output branch. The **False** output branch of the **If** step proceeds to the next step (**Create Generated Prompt** step).

Step 3 **Create Generated Prompt** step for the get digit string successful branch. This step, as shown in Figure 34, creates a prompt to play back to the caller the digits received, in order to confirm the caller input before transferring the call.

Figure 34 Configured Create Generated Prompt Customizer Window



The Create Generated Prompt customizer window contains the following values:

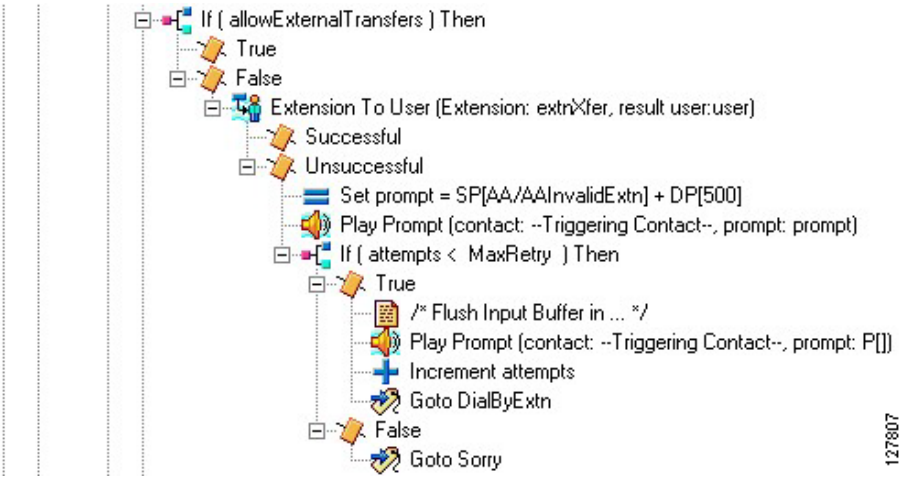
- **Output Prompt**—prompt: Stores the value that results from this step.
- **Generator Type**— telephone.number: Generator type. (See the "Generator Types" section on page 175.)
- **Constructor Type**—number: Constructor type. (See the "Generator Types" section on page 175.)
- **extnXfer**: The **extnXfer** variable stores the results of the number constructor.

Step 4 Configure the **If** step to check if transfer to external numbers (**allowExternalTransfers**) is allowed.

The **If** step has two output branches: **True** and **False**, as shown in Figure 35.

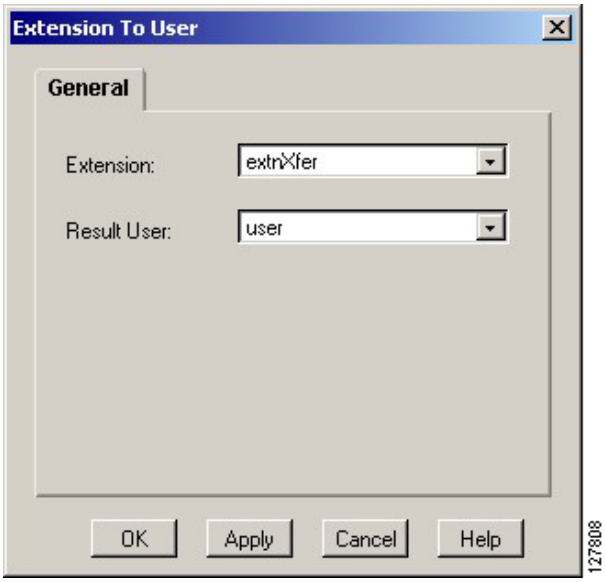
- If transfer to external numbers is allowed, the script executes the **True** output branch. No configuration is required under this branch, and the script continues to the **Implicit Confirmation** step.
- If transfer to external numbers is not allowed, the script executes the **False** output branch. This branch uses the **Extension To User** step to determine if the number entered by the caller is a valid extension of a local user.

Figure 35 If Step Output Branches



Step 5 Configure the **Extension To User** step under the **False** output branch of the **If** step, as shown in Figure 36. The **Extension To User** step allows the script to find a user based on the extension entered by the caller.

Figure 36 Extension To User Window: Configured General Tab



Step 6 Configure the fields in the customizer window as follows:

- **Extension**—The extension entered by the caller. Use the variable **extnXfer** returned by the **Get Digit String** step.
- **Result User**—The user variable that stores the User object that maps to the extension entered by the caller.

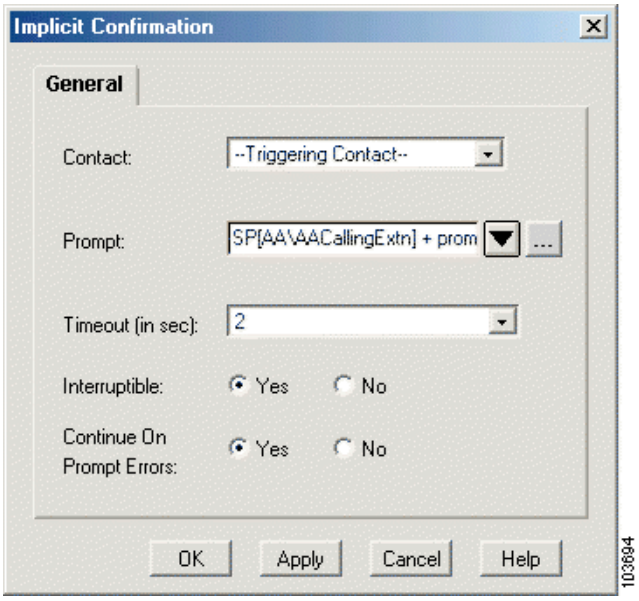
The **Extension To User** step contains two output branches: **Successful** and **Unsuccessful**, as shown in Figure 35.

- If the **Extension To User** step finds a user with the matching extension in the local directory, the script executes the **Successful** output branch. The script continues to the **Implicit Confirmation** step.
- If the **Extension To User** step does not find a matching extension, the script executes the **Unsuccessful** output branch. The script plays a prompt indicating that an invalid extension was entered.

  The script then uses an **If** step to try again until the maximum number of retries is reached. If the maximum number of retries is not reached, the script uses the **Goto** step to return the caller to the beginning of the **DialByExtn** output branch to give the caller more attempts to input the correct extension. If the maximum number of retries is reached, the script uses the **Goto** step to take the caller to the **Sorry Label** step at the end of the script.

Step 7 Create the **Implicit Confirmation** step for the **Get Digit String Successful** branch. This step confirms the extension entered without requiring more input from the caller, as shown in Figure 37.

Figure 37 Configured Implicit Confirmation Customizer Window



The Implicit Confirmation customizer window contains the following values:

- **Contact**—Triggering Contact: The contact that triggered the script remains the contact for this step.
- **Prompt**—SP[AA/AACallingExtn] + prompt: The system prompt and the generated prompt indicate the specified extension the script plays back to the caller.
- **Timeout** (in sec)— 2: The caller has 2 seconds to stop the transfer before the script accepts the confirmation and transfers the call.

- **Interruptible**—Yes: External events are allowed to interrupt the execution of this step.
- **Continue on Prompt Errors**—Yes: In the event of a prompt error, the script will play the next prompt in the sequence, or if this is the last prompt, will wait for caller input.

Configuring the Implicit Confirmation Step

The **Implicit Confirmation** step has two output branches:

- **No** output branch: If the caller interrupts the **Implicit Confirmation** step and does not give confirmation, the script executes the **No** output branch. The **No** output branch of the **Implicit Confirmation** step uses an **If** step to try again, until the maximum number of retries is reached. The **If** step determines whether or not the maximum number of retries has been reached by evaluating the expression **attempts < MaxRetry**. The expression determines if the number of attempts, as stored in the **Attempts** variable, is less than the maximum number of retries, as stored in the **MaxRetry** variable.

  The **If** step has two output branches:

  – **True** output branch: If the **If** step determines that the maximum number of retries has not been reached, the script executes the **True** output branch. The **True** output branch increments the number of retries by one and gives the caller another try. The **True** output branch of the **If** step contains three functional steps:

  1. **Play Prompt** step: The **Play Prompt** step plays an empty prompt, P[] to flush the DTMF buffer of any digits that the script may have accumulated as part of the previous Implicit Confirmation step.

  Note The **Play Prompt** step has an empty prompt to enable the script to return immediately from this step after flushing out the buffer.

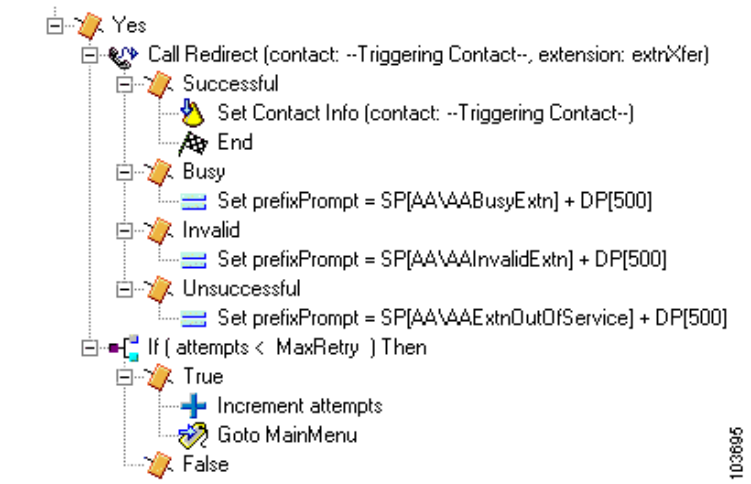
  2. **Increment** step: The **Increment** step increases the number of attempts until the maximum number of retries is reached.
  3. **Goto** step: The **Goto** step returns the caller to the beginning of the **DialByExtn Label** step at the beginning of the **DialByExtn** output branch in order to give the caller more attempts to input the proper extension.

  – **False** output branch: If the **If** step determines that the maximum number or retries has been reached, the script executes the **False** output branch.The **False** output branch of the **If** step skips the rest of the steps under the **Menu** step and proceeds to the second **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 64).

- **Yes** output branch: If the **Implicit Confirmation** step successfully confirms the extension, the script executes the **Yes** output branch. The **Yes** output branch of the **Implicit Confirmation** step transfers the call.The **Yes** output branch contains the following steps:

  – **Call Redirect** step for the **Yes** output branch: As in the other two main output branches of the **Menu** step (**DialByName** and **Operator**), the **DialByExtn** output branch contains the **Call Redirect** step, which attempts to transfer the call, in this case to the desired extension number. The **Call Redirect** step has four output branches, as shown in Figure 38:

Figure 38 Call Redirect Output Branch Scripting



1. **Successful** output branch for the call redirect step: If the **Call Redirect** step successfully transfers the call, the script executes the **Successful** output branch. The **Successful** output branch of the **Call Redirect** step marks the contact as **Handled** and ends the script. The **Successful** output branch of the **Call Redirect** step contains two steps. The **Set Contact Info** step marks the call as **Handled**. The **End** step ends this branch of the script.
2. **Busy** output branch for the **Call Redirect** step: If the **Call Redirect** step registers the destination extension as busy, the script executes the **Busy** output branch. The **Busy** output branch of the **Call Redirect** step sets the value of the **prefixPrompt** variable to inform the caller that the extension was busy. The **Busy** output branch of the **Call Redirect** step contains the **Set** step. The **Set** step, as shown in Figure 38, sets the value of **prefixPrompt** to contain a system prompt that plays back a message to the caller that the extension is busy.
3. **Invalid** output branch for the call redirect step: If the **Call Redirect** step registers the destination extension as invalid, the script executes the **Invalid** output branch. The **Invalid** output branch of the **Call Redirect** step sets the value of the **prefixPrompt** variable to inform the caller that the extension was invalid.The **Invalid** output branch of the **Call Redirect** step contains the **Set** step. The **Set** step, as shown in Figure 38, sets the value of **prefixPrompt** to contain a system prompt that plays back a message to the caller that the extension is busy.
4. **Unsuccessful** output branch for the call redirect step: If the **Call Redirect** step registers the destination extension as out of service, the script executes the **Unsuccessful** output branch. The **Unsuccessful** output branch of the **Call Redirect** step sets the value of the **prefixPrompt** variable to inform the caller that the extension was out of service. The **Unsuccessful** output branch of the **Call Redirect** step contains the **Set** step. The **Set** step, as shown in Figure 38, sets the value of **prefixPrompt** to contain a system prompt that plays back a message to the caller that the extension is busy.

– **If** step for the **Yes** output branch: The **If** step allows the script to determine whether or not the maximum number of retries has been reached by evaluating the expression **attempts < MaxRetry**. This expression determines if the number of attempts, as stored in the attempts variable, is less than the maximum number of retries, as stored in the MaxRetry variable. The If step has two output branches, **True** and **False**:

- **True**: If the **If** step determines that the maximum number of retries has not been reached, the script executes the **True** output branch. The **True** output branch of the **If** step allows the caller to keep returning to the **MainMenu** label until it reaches the maximum number of retries.

  The **True** output branch contains two steps. The Increment step increases the numbers or retries by 1. The **Goto** step sends the caller back to the **MainMenu** label step to provide the caller another opportunity to enter an extension.

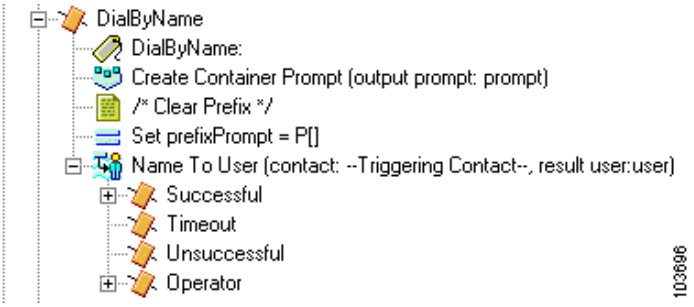
- **False**: If the **If** step determines that the maximum number of retries has been reached, the script executes the **False** output branch.The **False** output branch of the **If** step proceeds to the second **Play Prompt** step (see page 64).

Configuring the Menu Step DialByName Output Branches

Perform the following tasks to continue configuration of the **Menu** step output branches:

Step 1 Configure the **DialByName** output branch. If the caller chooses menu option "2" (presses to enter the name of a person) when given the option by the **Menu** step, the script executes the **DialByName** output branch. The **DialByName** output branch, as shown in Figure 39, receives the name of the person the caller desires to reach.

Figure 39 DialByName Output Branch Scripting



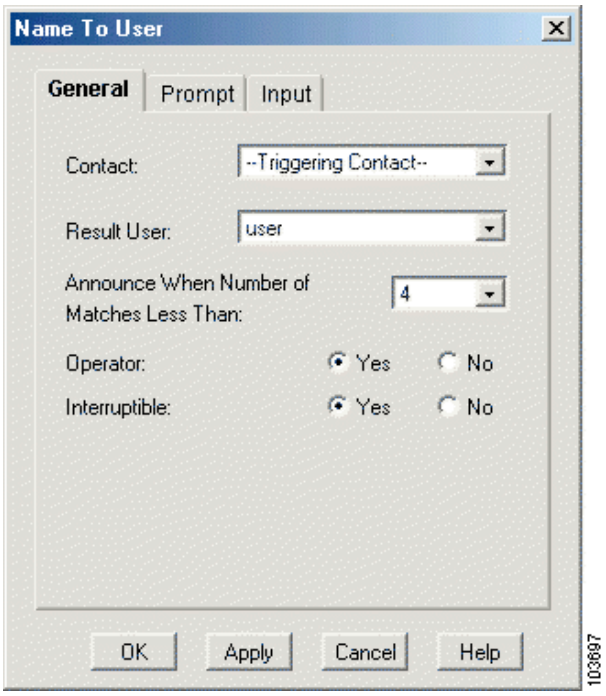
Step 2 Configure the **Label** step (**DialByName**). The **Label** step is named **DialByName** to provide a target for the script so that the caller has more opportunities, if necessary, to enter a name successfully.

Step 3 Configure the create **Container Prompt** step. The **Create Container Prompt** step creates a prompt that asks the caller to enter the name of the desired person.

Step 4 Configure the **Set** Step. Configure the **Set** step to clear the value of the **prefixPrompt** variable so that it can be assigned by subsequent steps.

Step 5 Configure the **Name To User** step. The **Name To User** step, as shown in Figure 40, allows the caller to find a user based on DTMF digits input from the caller.

Figure 40 Name To User Customizer Window: Configured General Tab



The **Name To User** customizer window contains the following values:

- **General** tab
  - **Contact**—Triggering Contact: The contact that triggered the script remains the contact for this step.
  - **Result User**—user: The user variable stores the user object that maps to the selection of the caller.
  - **Announce When Number of Matches Less Than**—4: If the number of matches is less than 4, the script prompts the caller to choose the correct entry from the list of matches. If the number of matches is greater than or equal to 4, the script prompts the caller to enter additional letters to reduce the number of matches.
  - **Operator**—Yes: The script gives the caller the option to connect to an operator by pressing "0".
  - **Interruptible**—Yes: External events can interrupt the playback of the prompt.
- Prompt tab
  - **Prompt**—Customize Prompt: The script uses a customized prompt.
  - **Prompt**—prompt: The prompt variable stores the custom prompt the script plays back to the caller.
  - **Barge In**—Yes: The caller can respond without first having to listen to the playback of the entire prompt.
  - **Continue On Prompt Errors**—Yes: If a prompt error occurs, the script continues to play the next prompt, or, if this prompt is the last in the sequence, the script waits for caller input.
- **Input** tab
  - **Input Length**—30: Specifies that the script automatically triggers a lookup when the caller enters 30 digits.

- **Terminating Key**—#: The terminating key is "#".
- **Cancel Key**—*: The cancel key is "*".
- **Maximum Retries**—5: The maximum number of retries is 5.
- **Initial Timeout** (in sec)—5: The step times out if the script receives no input within 5 seconds after playing back the prompt.
- **Interdigit Timeout** (in sec)—3: The step times out if the script receives no input between digits for 3 seconds.
- **Flush Input Buffer**—No: The script saves input previously entered by the caller.

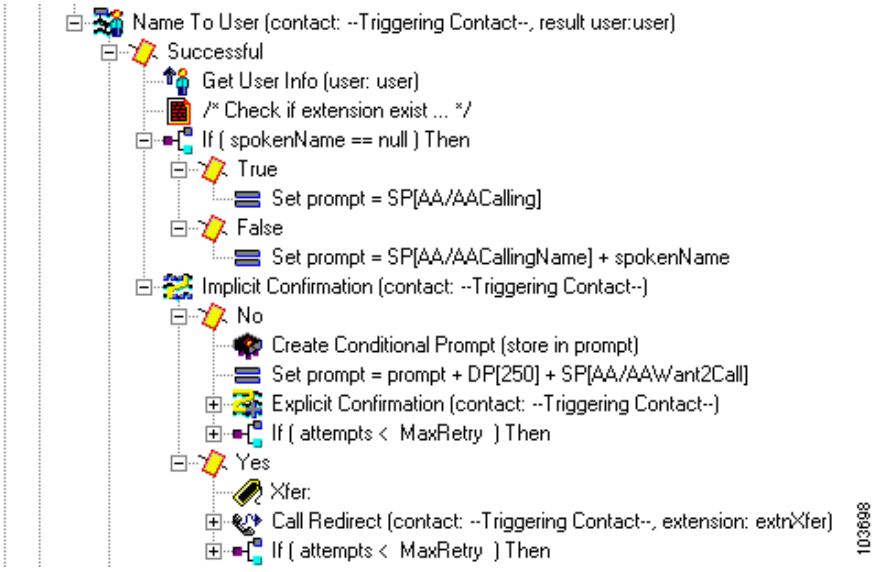
Configuring Name to User Output Branches

The **Name To User** step has four output branches: **Successful**, **Timeout**, **Unsuccessful**, and **Operator**. The **Timeout** and **Unsuccessful** output branches need no scripting. If the step times out, the script proceeds to the second **Play Prompt** step (see page 64). If an invalid entry is made after 5 attempts, the script also proceeds to the second **Play Prompt** step (see page 64).

Perform the following tasks to configure the output branches for the **Name to User** step:

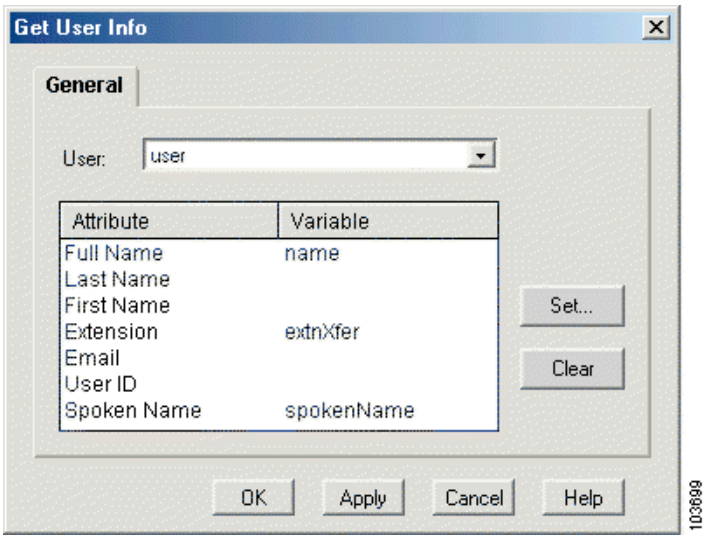
Step 1 Configure the **Successful** output branch for the **Name to User** step. The **Successful** output branch of the **Name To User** step, as shown in Figure 41, receives confirmation of the name from the caller and to transfer the call. The steps under this branch are similar to the steps under the **Successful** output branch of the **Get Digit String** step above (See page 48): the script requests confirmation and redirects the call to the desired extension.

Figure 41 Name To User: Successful Output Branch Scripting



Step 2 Configure the **Get User Info** step for the **Name to User** successful output branch. The **Get User Info** step, as shown in Figure 42, makes user attributes available to the script.

Figure 42 Configured Get User Info Customizer Window



The **Get User Info** customizer window contains the following values:

- **User**—user: Specifies user as the variable that holds a handle to the user information selected by the Name To User step.
- **Attribute/Variable** text box
  - **Full Name**—name
  - **Extension**—extnXfer
  - **Spoken Name**—spokenName

Step 3 Configure the **if** step for the **Name to User** successful output branch. The **If** step creates a prompt based on whether or not a recording of the spoken name of the person whose extension is being called is available. The **If** step evaluates the Boolean expression **spokenName==null**. This expression determines if the value of the **Document** variable **spokenName** is equal to null.

Step 4 Configure the **True** output branch for the **Name to User Successful If** step. If the **If** step determines that a recording of the spoken name of the person whose extension is being called is not available, the script executes the **True** output branch. The **True** output branch of the **If** step instructs the prompt to play the system prompt **SP[AA/AACalling]**, which does not play the name of the person being called.

Step 5 Configure the **False** output branch for the **Name to User Successful If** step. If the **If** step determines that a recording of the spoken name of the person whose extension is being called is available, the script executes the **False** output branch. The **False** output branch of the **If** step instructs the prompt to play the system prompt **SP[AA/AACallingName],** which is then followed by the spoken name.

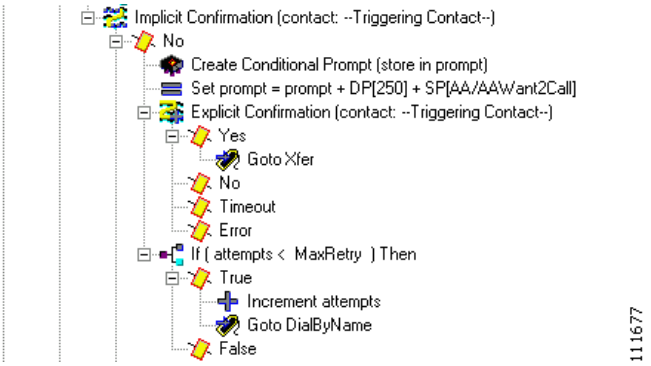
Step 6 Configure the **Implicit Confirmation** step for the **Name to User** successful output branch. The **Implicit Confirmation** step confirms the name entered without demanding more input from the caller. The **Implicit Confirmation** step performs in a similar way to the **DialByExtn** section above. (See Step 7 of "Configuring the Menu Step DialByName Output Branches" section on page 55.)

Configuring Implicit Confirmation No Output Branches

The **Implicit Confirmation** step has two output branches (see Figure 41.). To configure the output branches for the **Implicit Confirmation** step:

Step 1 Configure the **No** output branch for the **Implicit Confirmation** step. If the **Implicit Confirmation** step does not successfully confirm the choice of the caller, the script executes the **No** output branch. The **No** output branch of the **If** step, as shown in Figure 43, creates a prompt that provides the caller an opportunity to explicitly confirm the choice.

Figure 43 Name To User: No Output Branch of Implicit Confirmation Step

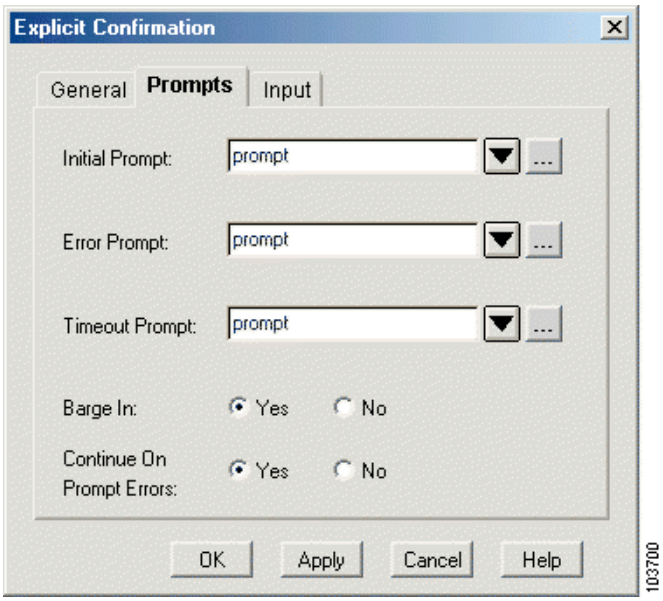


Step 2 Create the **Conditional Prompt** step for the **No** branch. The **Create Conditional Prompt** step creates a prompt based on whether or not the variable **spokenName** is null. The **spokenName** variable is not null if a spoken name exists for the selected user in the directory.

Step 3 Create the **Set** step for the **No** branch. The **Set** step appends the prompt created by the **Create Conditional Prompt** step with the system prompt **SP[AA/AAWantToCall]**.

Step 4 Create the **Explicit Confirmation** step for the **No** branch. The **Explicit Confirmation** step makes an explicit confirmation of the name of the desired person, as shown in Figure 44.

Figure 44 Explicit Confirmation Customizer Window: Configured Prompt Tab



The **Explicit Confirmation** customizer window contains the following values:

- **General** tab
  - **Contact**—Triggering Contact: The contact that triggered the script remains the contact for this step.
  - **Interruptible**—Yes: External events can interrupt the playback of the prompt.
- **Prompt** tab
  - **Initial Prompt**—prompt: The prompt variable stores the first prompt.
  - **Error Prompt**—prompt: The prompt variable plays if an input error occurs.
  - **Timeout Prompt**—prompt: The prompt variable plays if the timeout limit is reached.
  - **Barge In**—Yes: The caller can respond without first having to listen to the playback of the entire prompt.
  - **Continue on Prompt Errors**—Yes: If a prompt error occurs, the script continues to play the next prompt, or, if this is the last prompt in the sequence, the script waits for caller input.
- **Input** tab
  - **Timeout (in sec)**—5: After playing all prompts, the script waits 5 seconds for initial input from the caller before reattempting with a timeout error, or, if this was the last attempt, the script executes the Timeout output branch.
  - **Maximum Retries**—3: The script will attempt a maximum of 3 retries to receive confirmation before executing the Unsuccessful output branch.
  - **Flush Input Buffer**—Yes: The step erases previous input.
  - **Grammar**—grammar: Leave blank.

The **Explicit Confirmation** step has four output branches: **Yes**, **No**, **Timeout**, and **Error**.

Step 5 Configure the **Yes** output branch for the **Explicit Confirmation** step. If the **Explicit Confirmation** step successfully receives confirmation from the caller, the script executes the **Yes** output branch. The **Yes** output branch of the **Explicit Confirmation** step directs the script to the **Xfer Label** step under the **Yes** output branch of the **Implicit Confirmation** step (see Step 1), which contains the steps necessary to redirect the call to the desired extension.

Step 6 Configure the **No** output branch for the **Explicit Confirmation** step. The **No** output branch contains the **If** Step. The **If** step determines whether or not the maximum number of retries has been reached by evaluating the expression **attempts < MaxRetry**. This expression determines if the number of attempts (as stored by the attempts variable) is less than the maximum retries value stored in the **MaxRetry** variable. If the **If** step determines that the maximum number of retries has not been reached, the script executes the **True** output branch. The **True** output branch of the **If** step provides the caller with another opportunity to enter the name of the desired person.

Step 7 Configure the **Increment** step of the **True** output branch. The **Increment** step increases the value of the attempts variable by 1.

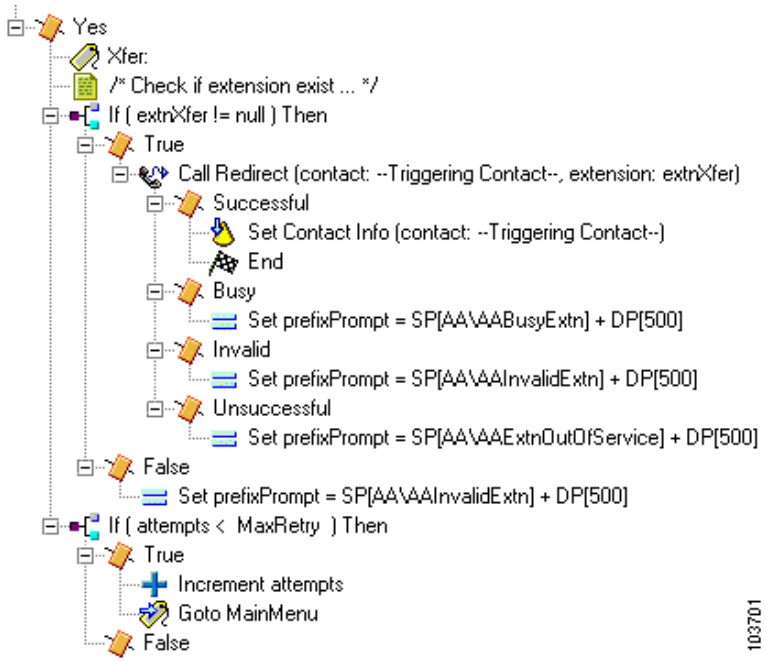
Step 8 Configure the **Goto** step of the True output branch. The **Goto** step returns the caller to the beginning of the **DialByName Label** step at the beginning of the **DialByName** output branch in order to give the caller more attempts to input the proper name.

As stated in Step 6, the **If** step for the **No** output branch determines if the maximum number of retries has not been reached. If the number has been reached, the script executes the **False** output branch. The script proceeds to the second **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 64).

Configuring Implicit Confirmation Step First If Yes Output Branches

After completing configuration for the **No** output branch of the **Implicit Confirmation** step, you must configure the **Yes** output branch. The **Yes** output branch of the **Implicit Confirmation** step redirects the call to the desired extension, as shown in Figure 45.

Figure 45 Name To User: Yes Output Branch of Implicit Confirmation Step



To configure the **Yes** output branch of the **Implicit Confirmation** step, perform the following tasks:

Step 1 Create a **Label** step for the **Implicit Confirmation Yes** branch. The **Label** step has the value **Xfer** that provides a target for the **Yes** output branch of the **Explicit Confirmation** Step 5.

Step 2 Create the first **If** step for the **Implicit Confirmation Yes** branch. The first **If** step directs the script based on whether or not the desired extension exists by evaluating the expression **extnXfer!= null**. The expression determines if the value of the **extnXfer** variable (which stores the extension number) is not null.

Step 3 Configure the **False** output branch for the first **If** step. If the **If** step finds no extension for the selected user, the script executes the **False** output branch, which has one step, the **Set** step. The **Set** step sets the value of a prompt that will be played back to inform the caller that the extension was invalid.

Step 4 Configure the **True** output branch for the first **If** step. If the **If** step evaluates the desired extension as valid, the script executes the **True** output branch. The **True** output branch of the **If** step transfers the call using the **Call Redirect** step.

Configuring the Call Redirect Step

As in the other two main output branches of the **Menu** step (**DialByExtn** and **Operator**), the **DialByName** output branch contains the **Call Redirect** step, which attempts to transfer the call, in this case to the desired extension number. To configure the **Call Redirect** step, perform the following tasks:

Step 1 Configure the **Successful** output branch for the **Call Redirect** step. The **Successful** output branch of the **Call Redirect** step uses the **Set Contact Info** step to mark the contact as **Handled** and the **End** step to end the script.

Step 2 Configure the **Busy** output branch for the **Call Redirect** step. The **Busy** output branch of the **Call Redirect** step uses the **Set** step to set the value of the **prefixPrompt** variable to contain a system prompt that will play back a message to the caller that the extension is busy when the script proceeds to the final **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 65).

Step 3 Configure the **Invalid** output branch for the **Call Redirect** step. If the **Call Redirect** step registers the destination extension as invalid, the script executes the **Invalid** output branch. The **Invalid** output branch of the **Call Redirect** step uses the **Set** step to set the value of the **prefixPrompt** variable to contain a system prompt that will play back a message to the caller that the extension is invalid when the script proceeds to the final **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 65).

Step 4 Configure the **Unsuccessful** output branch for the **Call Redirect** step. If the **Call Redirect** step registers the destination extension as out of service, the script executes the **Unsuccessful** output branch. The **Unsuccessful** output branch of the **Call Redirect** step uses the **Set** step to set the value of the **prefixPrompt** variable to contain a system prompt that will play back a message to the caller that the extension is out of service when the script proceeds to the final **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 65).

Configuring Implicit Confirmation Step Second If Yes Output Branches

After configuring the first **If** Step for the **Yes** output branch of the **Implicit Confirmation** step, you need to configure the second **If** step. Perform the following tasks:

Step 1 Create the second **If** step for the **Implicit Confirmation Yes** branch. The second **If** step directs the script based on whether or not the maximum number of retries has been reached by evaluating the expression **attempts < MaxRetry**. The expression determines if the number of attempts, as stored in the attempts variable, is less than the maximum number of retries allowed, as stored in the **MaxRetry** variable.

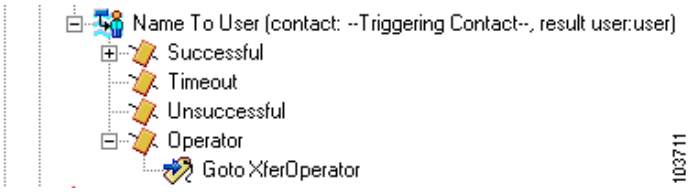
Step 2 Configure the **False** output branch for the **If** step. If the second **If** step finds that the maximum number of retries has been reached, the script executes the **False** output branch, and the script proceeds to the final **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 65).

Step 3 Configure the **True** output branch for the **If** step. If the **If** step finds that the maximum number of retries has not been reached, the script executes the **True** output branch. The **True** output branch of the **If** step provides more opportunities for the caller to successfully enter a name. The **Increment** step increases the value of the attempts variable by 1. The **Goto** step returns the caller to the beginning of the **DialByName Label** step at the beginning of the **DialByName** output branch of the **Get Digit String** step to give the caller more attempts to input the proper extension.

Configuring the Name to User Step Operator Output Branch

To complete configuration of the output branches for the **Name to User** step, configure the Operator Output Branch for the Name to User Step. If the **Name to User** step receives caller input for transfer to the operator, the script executes the **Operator** output branch.The output branch transfers the call to an operator, as shown in Figure 46.

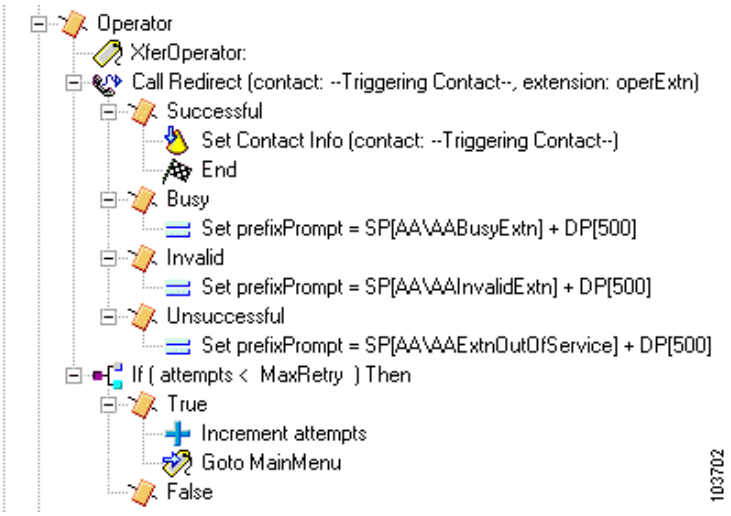
Figure 46 Name to User: Operator Output Branch



The **Operator** output branch uses the **Goto** step. to send the caller to the **Operator** output branch of the **Menu** step. If the caller chooses menu option "3" to speak to an operator when given the option by the **Menu** step, the script executes the **Operator** output branch.

The **Operator** output branch transfers the call to an operator, as shown in Figure 47.

Figure 47 Menu: Operator Output Branch



To configure the **Operator** output branch, perform the following tasks:

Step 1 Create the **Label** step (**Xfer Operator**) for the **Operator** branch. The **Label** step has the value **Xfer Operator** that provides a target for the **Goto** step.

Step 2 Create the **Call Redirect** step for the **Operator** branch. As in the other two main output branches of the **Menu** step (**DialByExtn** and **DialByName**), the **Operator** output branch contains the **Call Redirect** step, which attempts to transfer the call, in this case to the operator.

Step 3 Configure the **Successful** output branch for the **Call Redirect** step. The **Successful** output branch of the **Call Redirect** step uses the **Set Contact Info** step to mark the contact as **Handled** and the **End** step to end the script.

Step 4 Configure the **Busy** output branch for the **Call Redirect** step. The **Busy** output branch of the **Call Redirect** step uses the **Set** step to set the value of the **prefixPrompt** variable to contain a system prompt that will play back a message to the caller that the extension is busy when the script proceeds to the final **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 65).

Step 5 Configure the **Invalid Output** branch for the **Call Redirect s**tep. If the **Call Redirect** step registers the destination extension as invalid, the script executes the **Invalid** output branch. The **Invalid** output branch of the **Call Redirect** step uses the **Set** step to set the value of the **prefixPrompt** variable. This variable

contains a system prompt that plays back a message to the caller that the extension is invalid when the script proceeds to the final **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 65).

Step 6 Configure the **Unsuccessful** output branch for the **Call Redirect** step. If the **Call Redirect** step registers the destination extension as out of service, the script executes the **Unsuccessful** output branch. The **Unsuccessful** output branch of the **Call Redirect** step uses the **Set** step to set the value of the **prefixPrompt** variable to contain a system prompt that will play back a message to the caller that the extension is out of service when the script proceeds to the final **Play Prompt** step (see the "Configuring the Play Prompt Step" section on page 65).

Step 7 Configure the **If** step for the operator branch. The **If** step allows the script to determine whether or not the maximum number of retries has been reached by evaluating the expression **attempts < MaxRetry**. The expression determines if the number of attempts, as stored in the attempts variable, is less than the maximum number of retries, as stored in the **MaxRetry** variable.

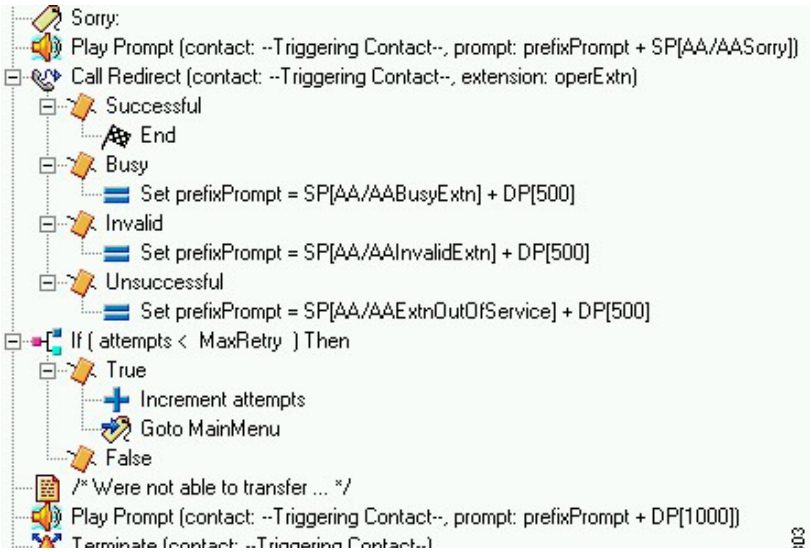
Step 8 Configure the **True** output branch for the **Operator** branch **If** step. If the **If** step determines that the maximum number of retries has not been reached, the script executes the **True** output branch. The **True** output branch of the **If** step allows the caller to keep returning to the **MainMenu** label until the system reaches the maximum number of retries.The **Increment** step increases the value of the attempts variable by 1. The **Goto** step sends the script back to the **MainMenu** label.

Step 9 Configure the **False** output branch for the **Operator** branch **If** step. If the **If** step determines that the maximum number of retries has been reached, the script executes the **False** output branch. The **False** output branch of the **If** step proceeds to the next step at the same level in the script as the **Menu** step, which is the **Play Prompt** step. (See Figure 19 on page 38.)

Configuring the Play Prompt Step

If none of the steps and branches under the **Menu** step succeed in transferring the call, the script proceeds to the **Play Prompt** step. The **Play Prompt** step, as shown in Figure 48, plays (as a last resort) a prompt informing the caller of the inability to transfer the call. The **Play Prompt** step plays **prefixPrompt + SP[AA/AASorry]**, which informs the caller of the reason that the attempted transfer was unsuccessful.

Figure 48 End of Script



Configuring the Call Redirect Step

After the **Play Prompt** step informs the caller of the unsuccessful call transfer, the **Call Redirect** step attempts to redirect the call to an operator, using the extension number stored in the **operExtn** variable.

Configuring the If Step

The **If** step determines whether or not the maximum number of retries has been reached. As in the previous examples, the **If** step and **Increment** step allow the caller the maximum number of retries. If the transfer is successful, the script ends.

Configuring the Play Prompt Step

After the maximum number of retries is reached without successfully transferring the call to an operator, the **Play Prompt** step plays **prefixPrompt**, which explains why the transfer was unsuccessful.

Configuring the Terminate Step

After playing the **prefixPrompt**, the **Terminate** step disconnects the call. This step accepts the default contact; no configuration is necessary for this step.

Inserting the End Step

The **End** step ends the script and releases all system resources. The **End** step requires no configuration.

Script Editor Step Reference

Last Updated: July 24, 2008

This chapter lists all the steps available for use in creating auto attendant (AA) scripts and Interactive Voice Response (IVR) scripts. As indicated, some of the steps are for IVR scripts only. All of the steps are accessed using the Palette pane (see the "Palette Pane" section on page 12). This chapter includes the following sections:

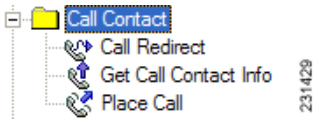
Call Contact Steps

The steps in the **Call Contact** palette provide script designers with a way to manage calls.

The **Call Contact** palette contains the following steps:

Figure 49 shows the steps in the **Call Contact** palette as they appear in the **Palette** pane of the Cisco Unity Express Script Editor.

Figure 49 Call Contact Palette Steps



Call Redirect

Use the **Call Redirect** step to redirect a call to another extension.

The **Call Redirect** step is often used in applications to transfer a call after a desired extension has been specified.

The **Call Redirect** step produces four output branches:

- **Successful**: The call is ringing at the specified extension.
- **Busy**: The specified extension is busy and the call cannot be transferred.
- **Invalid**: The specified extension does not exist.
- **Unsuccessful**: The redirect step fails internally.

Configure script steps after each of the four branches to handle the possible outcomes of a redirected call.

Figure 50 shows the customizer window for the **Call Redirect** step.

Figure 50 Call Redirect Customizer Window

Table 7 describes the fields of the **Call Redirect** customizer window.

Table 7 Call Redirect Customizer Window Fields

Field	Description
Call Contact	Contact that you want to redirect. Default is Triggering Contact, unless another contact is defined. The names of the selected **Call Contact** and extension variables appear next to the **Call Redirect** step icon in the Design pane.

Table 7 Call Redirect Customizer Window Fields (continued)

Field	Description
Extension	Variable that holds the extension where the call is to be redirected. (See Table 8 for supported extensions.)
Reset CTI Called Address	If **Yes**, the script resets the original destination of the call to the redirected destination. If **No**, the script preserves the original call destination even after the **Call Redirect** step executes. The information associated with the call gives no indication that the Route point or CTI port was ever involved with the call. Default is **Yes**. Set this field according to the requirements of the redirected destination.

Table 8 describes the extensions supported by the **Call Redirect** step.

Table 8 Call Redirect: Supported Extensions

Extension	Description
Extensions starting with "#" or "*"	Extensions that trigger a network take-back and transfer where the specified string is outpulsed as is. The redirect is successful if a hang-up event occurs within a maximum of 5 seconds. **Note** You can use a comma (,) in the string to insert a pause of 1 second before the next digit is outpulsed.
Extensions ending with ".wav"	Extensions that trigger a network announcement type of redirect. The system simulates a ring-back tone, plays back the specified .wav file 4 times, and finally simulates a fastbusy tone. The redirect is successful if at any time the caller hangs up or the end of the fastbusy tone is reached, at which point the call is disconnected.
Extensions equal to "PROBLEMS"	Extensions that trigger a network announcement type of redirect with a system problem announcement. The redirect is successful if at any time the caller hangs up or the end of the audio is reached. The call will be reported as disconnected, not redirected.
Extensions equal to "BUSY", "RNA[1]", "FASTBUSY" or "DIALTONE"	The specified audio treatment is generated before the call is disconnected. The redirect is successful if at any time the caller hangs up or the end of the audio is reached. The call will be reported as disconnected, not redirected.

1. RNA = Ring No Answer

Get Call Contact Info

Use the **Get Call Contact Info** step to access call-specific information and to store values in specified variables.

You can use this step to handle a call in a variety of ways depending on the source of the call and other properties associated with the session. For example, use this step with a **Call Redirect** step to transfer a call to another extension, or with a **Play Prompt** step to play a voice prompt.

Figure 51 shows the customizer window for the **Get Call Contact Info** step.

Figure 51 Get Call Contact Info Customizer Window

Table 9 describes the fields of the **Get Call Contact Info** customizer window.

Table 9 Get Call Contact Info Customizer Window Fields

Field	Description
Call Contact	Contact for which you want to get information. Default is Triggering Contact, unless another contact is defined. The name of the selected **Call Contact** variable appears next to the **Get Call Contact Info** step icon in the Design pane.
Calling Number	Variable that stores the number of the originator of the call.
Called Number	Variable that stores the number called by the calling party.
Arrival Type	Variable that holds the arrival type of the call. (See Table 10 for supported arrival types.)
Last Redirected Number	The number from which the last call redirect or transfer was invoked. This is the number at which the call was placed immediately before the current number.
Original Called Number	Number called from the perspective of the called party.

Table 10 describes the arrival types of the **Get Call Contact Info** step.

Table 10 Get Call Contact Info: Arrival Types

(Event) Arrival Type	Description
UNKNOWN	The system is unable to determine how the call arrived.
DIRECT	Incoming call that came directly from the originator.

Table 10 Get Call Contact Info: Arrival Types (continued)

(Event) Arrival Type	Description
REDIRECT	Incoming call that was redirected to this application.
FORWARD_ALL	Incoming call that was forwarded from its original destination.
FORWARD_BUSY	Call that was forwarded to the current application because the original extension was busy.
FORWARD_NO_ANSWER	Call that was forwarded to the current application because the original extension exceeded the maximum number of rings.
TRANSFER	Incoming call that originated locally as part of the Transfer feature.
OUTBOUND	Call that was the result of an outgoing call created by an application.
TIME_OF_DAY	Call that was the result of a time-of-day forwarding.
DO_NOT_DISTURB	Call that was the result of a do-not-disturb forwarding.
FOLLOW_ME	Call that was the result of a follow-me forwarding.
OUT_OF_SERVICE	Call that was received because the originally called party was out of service.
AWAY	Call that was received because the originally called party was away.

Place Call (IVR Only)

Use the **Place Call** step to place outbound calls.

This step, for example, can be used to place calls to patients at preconfigured times to inform them of the current status of their interaction. The notification calls are considered successful if they are answered by a person, voice mail system, answering machine, or fax machine.

The **Place Call** step produces six output branches:

- **Successful**: The call is successful.
- **NoAnswer**: The call was attempted, and the Ring No Answer (RNA) time-out limit was reached.
- **Busy**: The call was attempted, and the line was busy.
- **Invalid**: The call was attempted, and the extension was not a valid extension.
- **NoResource**: The call was not attempted because a resource was not available to make the call.
- **Unsuccessful**: The call was attempted and failed because of an internal system error.

Figure 52 shows the customizer window for the **Place Call** step.

Figure 52 Place Call Customizer Window

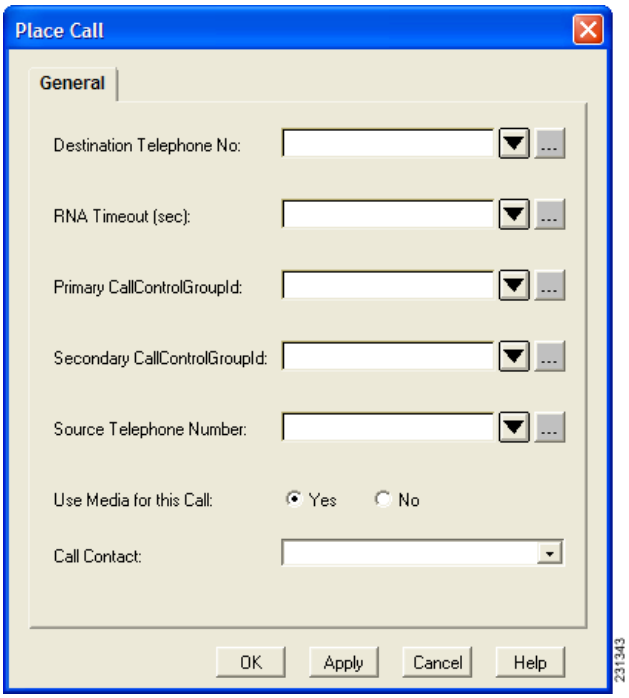


Table 11 describes the fields of the **Place Call** customizer window.

Note If the values of primary and secondary CallControlGroupIds are not set correctly, as described in Table 11, the outbound call might not be successfully established.

Table 11 Accept Customizer Window Field

Field	Description
Destination Telephone No	Variable that stores the destination number of the outbound call.
RNA Timeout (sec)	Length of time, in seconds, before a Ring No Answer (RNA) condition stops the script from waiting for the remote side to answer, and then returning "NoAnswer" through the output branch.
Primary CallControlGroupId	The identification of the primary call control group that is to be used for the outbound call. This value must be set to 0 for the Cisco Unified Communications Manager Express (formerly known as Cisco Unified CallManager Express) integrations and to 1 for the Cisco Unified Communications Manager (formerly known as Cisco Unified CallManager) integrations.
Secondary CallControlGroupId	The identification of the secondary call control group that is to be used for this outbound call. This field is not used for the Cisco Unified Communications Manager Express integrations. The value must be set to 0 for the Cisco Unified Communications Manager integrations.

Table 11 Accept Customizer Window Field (continued)

Field	Description
Source Telephone Number	(For Future Use) Variable that stores the source number of the inbound call.
Use Media for this Call	If **Yes**, the media channels are also established as part of the call. If **No**, no prompts are played for this call.
Call Contact	Variable that stores the call contact that is created when the step succeeds.

Contact Steps (IVR Only)

The steps in the **Contact** palette provide designers with a way to control contacts. For more information about contact steps, see the *Cisco Unity Express 3.2 IVR CLI Administrator Guide*.

A *contact* represents one form of connection, such as a telephone call, with a remote user. Scripts use contacts to track connections through the system. The contact is established when the connection is made. The contact lasts until the connection is terminated, for example, when the script transfers or disconnects a telephone call.

Configure each step that acts on contacts to accept the implicit contact (by choosing the "-- Triggering Contact --" default) or to use a variable that can hold the identifier for this contact. Use the **Set Contact Info** step of the **Contact** palette to mark the contact as Handled, which is important for reporting purposes.

The **Contact** palette contains the following steps:

- Accept, page 73
- Get Contact Info, page 74
- Set Contact Info, page 76
- Terminate, page 77

Figure 53 shows the steps in the **Contact** palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

Figure 53 Contact Palette Steps

Accept

Use the **Accept** step to accept a particular contact.

After the **Start** step, the **Accept** step is normally the first step in a Cisco Unity Express script, triggered by an incoming contact.

The caller hears ringing until the script reaches this step.

Figure 54 shows the customizer window for the **Accept** step.

Figure 54 Accept Customizer Window

Table 12 describes the field of the **Accept** customizer window.

Table 12 Accept Customizer Window Field

Field	Description
Contact	Contact variable. Default is Triggering Contact, unless another contact is defined. The name of the **Contact** variable appears next to the **Accept** step icon in the Design pane.

Get Contact Info

Use the **Get Contact Info** step to extract information from a contact and store it in script variables so that this contact information is available to subsequent steps in the script.

Figure 55 shows the customizer window for the **Get Contact Info** step.

Figure 55 Get Contact Info Customizer Window

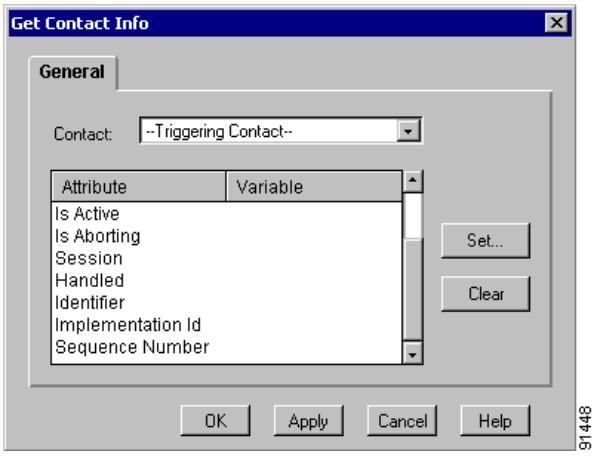


Table 13 describes the fields of the **Get Contact Info** customizer window.

Table 13 Get Contact Info Customizer Window Fields

Field	Description
Contact	Contact variable for which you want to get information. Default is Triggering Contact, unless another contact is defined. The name of the selected Contact variable appears next to the **Get Contact Info** step icon in the Design pane.
Attribute/Variable	Attributes and variables of contact information types.
Set...	Displays Get Contact Type dialog box. The name of the selected variable appears in the **Variable** column next to the selected attribute in the **Get Contact Info** customizer window.
Clear	Clears the variable from the selected Attribute.

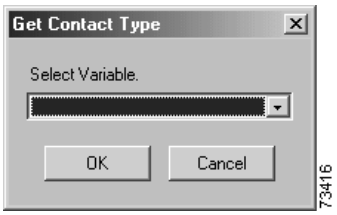
Table 14 describes the information that the **Get Contact Info** step makes available to other steps in the script.

Table 14 Get Contact Info Attributes

Attribute	Description
Type	String representing the type of contact. For Cisco Unity Express, the type is a call.
Language	This option is for future use.
ASR Supported	This option is for future use.
Is Active	Boolean value indicating whether the call is still active.
Is Aborting	Boolean value indicating whether the call is being aborted.
Session Handled	Boolean value indicating whether the contact was previously marked as handled.
Identifer	Integer value containing the contact identifier assigned by the system guaranteed to be unique among all contacts.
Implementation ID	String value containing the implementation-specific identifier for the contact. This value is unique for a given contact type. For a Cisco JTAPI call contact, this value is equivalent to the global call identifier obtained by the Cisco Unified Communications Manager software.
Sequence Number	Integer value containing the sequence number of the contact assigned by the system if the contact is associated with a session. The value is -1 if the contact is not associated with a session. For every new contact associated with a session, the system increments the value by one.
Session	Session object associated with the contact. Null if none is found.

The **Get Contact Type** dialog box is shown in Figure 56.

Figure 56 Get Contact Type Dialog Box



Set Contact Info

Use the **Set Contact Info** step to modify the context information associated with a contact.

The **Set Contact Info** step often follows a **Redirect** step in the script to mark the contact as Handled.

A contact can be marked Handled only while it is active. After a contact becomes inactive (for example, after a successful transfer), the script has a maximum of 5 seconds to mark the contact as Handled; otherwise the mark has no effect in reporting.

Note You cannot mark a contact as *unhandled*. After a contact is reported as Handled, it is always reported with that status.

Figure 57 shows the customizer window for the **Set Contact Info** step.

Figure 57 Set Contact Info Customizer Window

Table 15 describes the fields of the **Set Contact Info** customizer window.

Table 15 Set Contact Info Customizer Window Fields

Field	Description
Contact	Contact variable for which you want to set information. Default is Triggering Contact, unless another contact is defined. The name of the selected **Contact** variable appears next to the **Set Contact Info** step icon in the Design pane.
Attribute/Value	Attributes and values of contact information types.

Table 15 Set Contact Info Customizer Window Fields (continued)

Field	Description
Set...	Sets the Handled attribute for a contact variable. An X appears as the value.
Clear	Clears the Handled attribute for a contact variable.

Table 16 describes the attribute information provided in the customizer window of the **Set Contact Info** step.

Table 16 Set Contact Info Attributes

Attribute	Description
Language	This option is for future use.
Handled	Final result of contact; this is important for reporting purposes.
Session	This option is for future use.

Terminate

Use the **Terminate** step to disconnect the call.

Figure 58 shows the customizer window for the **Terminate** step.

Figure 58 Terminate Customizer Window

Table 17 describes the field of the **Terminate** customizer window.

Table 17 Terminate Customizer Window Field

Field	Description
Contact	Contact variable that you want terminated. Default is Triggering Contact, unless another contact is defined. The name of the selected **Contact** variable appears next to the **Terminate** step icon in the Design pane.

Database Steps (IVR Only)

The steps in the **Database** palette provide designers with the steps to read and write data from database tables and views. For more information about setting up the database, see the *Cisco Unity Express 3.2 IVR CLI Administrator Guide*.

The following prerequisites must be met before a script is created using **Database** steps:

- When the Script Editor software cannot connect to the Cisco Unity Express router, you can still create a script by manually entering the schema information in the database steps field.

  For example, a table name or field name is only refreshed if there is connectivity between the Script Editor software and the Cisco Unity Express router, and the Cisco Unity Express router can connect to the external database using a defined database profile configuration.

- The Cisco Unity Express router must be reachable over the network from the Cisco Unity Express Script Editor over Java RMI protocol.
- The IP address or Domain Name Server (DNS) hostname of the Cisco Unity Express router must be defined. The network information of the module can be specified by clicking **Editor Tools** and Options from the Cisco Unity Express Script Editor.
- Database profiles must be created using either the Cisco Unity Express graphical user interface (GUI) or command-line interface (CLI). **Database** steps are not usable for script writing without database profiles, and an error message appears if database profiles have not been created.

Database steps have a *resource name* associated with them that are used to link multiple steps. For example, if the **DB Read** step is issued with the resource name *myquery* to execute a query, *myquery* will be specified in the **DB Get** step to retrieve results from that query. The *myquery* resource name is also required before the **DB Release** step can release database resources when it is prompted by a query.

If a resource name is used for a query, and another **DB Read** step is configured to use the same resource name, the results of the previous query are overwritten by the second **DB Read** step.

A resource name is entered in text fields associated with the **DB Read** and **DB Write** steps. Each resource name uses one database connection, and each profile is allowed a finite number of connections. If this number of allowed connections is exceeded during step execution, a Structured Query Language (SQL) Exception will be issued. To ensure that the number of connections do not go over profile maximums, you must use the **DB Release** step, which releases connection resources after a **DB Read** or **DB Write** step is executed. Terminating the script execution also releases database resources.

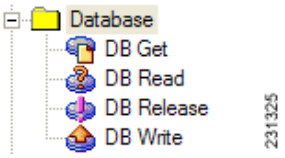
The **DB Read** and **DB Get** steps are executed in sequence by the **Database** script. The **DB Read** step performs a database query and stores the returned data internally in the Enterprise Database Subsystem (EDBS). The **DB Get** step uses data retrieved by the **DB Read** step. If the actual database contents are changed after executing the **DB Read** step, to the **DB Get** step will not reflect those changes and you must issue another **DB Read** to get updated data from the database.

The **Database** palette contains the following steps:

- DB Read, page 79
- DB Get, page 82
- DB Write, page 85
- DB Release, page 89

Figure 59 shows the steps in the **Database** palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

Figure 59 Database Palette Steps



DB Read

Use the **DB Read** step to issue a database selection query. The **DB Read** step allows you to specify which columns to return in the select query and to specify the variables to put the resulting data into through the **DB Get** step (see the "DB Get" section on page 82). The **DB Read** step allows you to specify more than one database table or view name from which to query.

The **DB Read** step has the following restrictions:

- The **DB Read** step will not support the **count(*)** or **min(*)** form of the SQL statement variant, such as **select count(*)** and **select min(*)**. The **DB Read** step supports database views, so you can create a view in a database that uses these SQL queries.
- The **DB Read** step does not support semantic checking on the *where* clause of an SQL statement.
- The **DB Read** step does not support *join* queries that retrieve columns with the same name from different tables.
- The **DB Read** step does not support the use of aliases of column names. For example, you cannot create **select a.x, b.x from a,b** and **select a.x as y from a**. No checks will be made to ensure such queries are not entered. The **DB Read** step only allows **select** SQL statements to be entered.
- **Update** or **insert** SQL statements are not supported.

When those results returned from **DB Read** step are no longer needed, use the **DB Release** step to clear the results and release database resources.

The **DB Read** step produces three output branches:

- **Successful**: Indicates that no errors occurred. Zero or more rows of data were found.
- **Connection Not Available**: Indicates that no database connection was available to execute the query.
- **SQL Error**: Indicates that errors occurred that were related to SQL, timeout, or any other exception encountered.

The **DB Read** customizer window contains three tabs:

- General Tab, page 79
- SQL Tab, page 80
- Comments Tab, page 82

General Tab

Use the **General** tab of the **DB Read** customizer window, as shown in Figure 60, to configure the database resource name, database profile name, and time out value (in seconds).

Figure 60 DB Read Customizer Window: General Tab

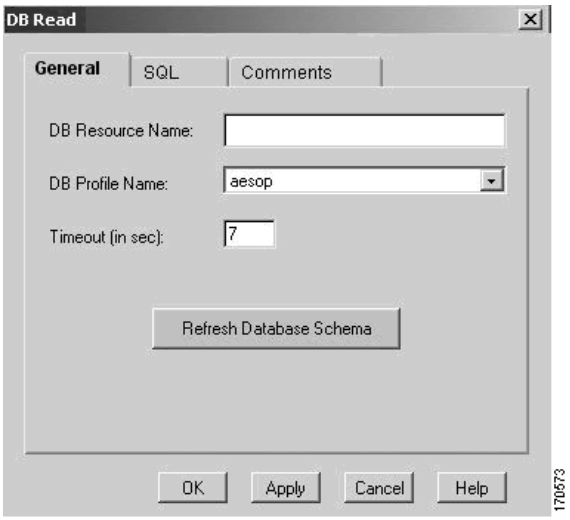


Table 18 describes the fields of the **General** tab.

Table 18 DB Read Customizer Window Fields: General Tab

Property	Description
DB Resource Name	Name that identifies this database query. Each DB Read step must have a unique DB Resource Name. The DB Read step Resource Name must not be used in any DB Write step. The same DB Resource Name is used in the accompanying **DB Get** and **DB Release** steps.
DB Profile Name	The name of the database profile that you want to access. This list contains the database profiles configured on the Cisco Unity Express module.
Timeout (in sec)	Interval that prevents the script from waiting indefinitely if the database is unavailable. If the value for the timeout interval is 0, an indefinite wait occurs. Note that an indefinite wait may block the script from responding to events such as a remote disconnection.
Refresh Database Schema	Updates the Editor with the fields defined in the selected Cisco Unity Express database.

SQL Tab

Use the **SQL** tab of the **DB Read** customizer window, as shown in Figure 61, to configure SQL commands.

Figure 61 DB Read Customizer Window: SQL Tab

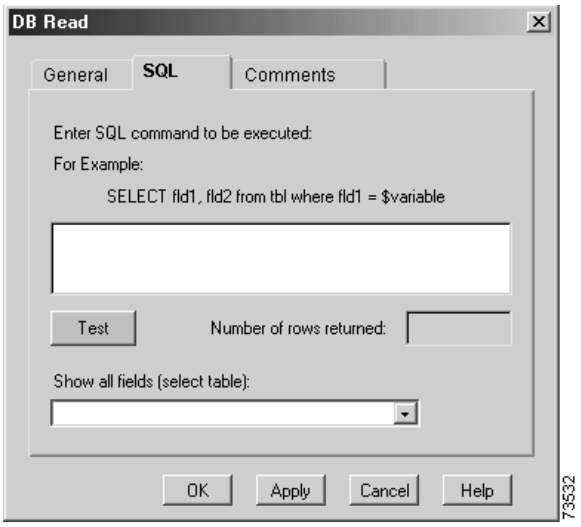


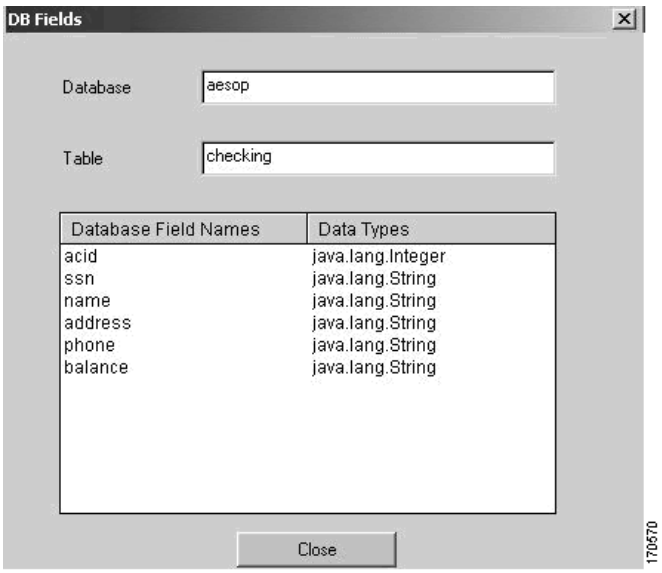
Table 19 describes the fields of the **SQL** tab.

Table 19 DB Read Customizer Window Fields: SQL Tab

Property	Description
Enter SQL Command to be Executed	SQL command that you want to be executed.
Number of Rows Returned	Rows returned when the **Test** button is clicked.
Show All Fields (Select Table)	Fields defined in a particular table in this database. This will list all the tables for a given profile. When a table name is selected, the DB Field dialog box opens, as shown in Figure 62, displaying the fields for this table and their data types.

After a particular table is selected in the **Show All Fields** drop-down list, the **DB Field** dialog box opens as shown in Figure 62.

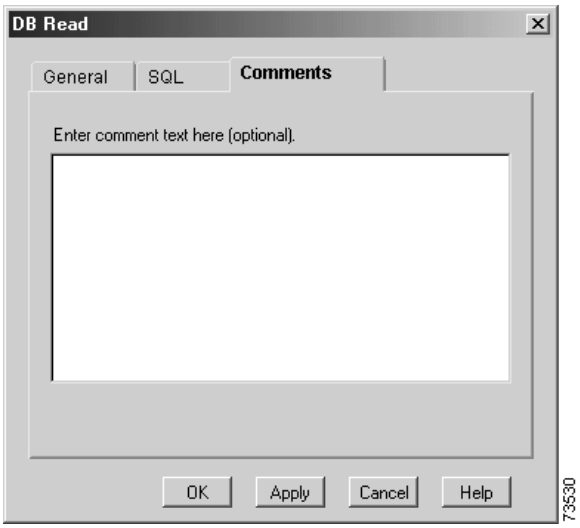
Figure 62 DB Field Dialog Box



Comments Tab

Use the **Comments** tab of the **DB Read** customizer window, as shown in Figure 63, to enter text comments.

Figure 63 DB Read Customizer Window: Comments Tab



DB Get

Use the **DB Get** step to retrieve the results from the **DB Read** step.

Inside (or script variables used while configuring) the **DB Get** step, variables are mapped to the table or view fields selected. Outside (or script variables that can be used anywhere in the script) the **DB Get** step, data can be accessed by using the script variable names. When finished with results, use the **DB Release** step to release query resources.

Each time a script executes the **DB Get** step, it retrieves one row of the results returned by the **DB Read** step and assigns variables to them. To move to the next row in the result set, you must execute the **DB Get** step again. When all of the rows of the result are read, **DB Get** goes into the **No Data** branch.

Note It is highly recommended that you place any DB Get steps under the Successful branch of its corresponding DB Read step. If the DB Read step is unsuccessful when its corresponding DB Get step is attempted, the script will abort.

The **DB Get** step produces three output branches:

- **Successful**: No errors occurred. Data was found.
- **No Data**: Query returned nothing in **DB Read** step. This will also be the case when all the rows of the result set have been read.
- **SQL Error**: This could include SQL, timeout, or any exceptions found.

The **DB Get** customizer window contains two tabs:

- General Tab, page 79
- Field Selection Tab, page 84

General Tab

Use the **General** tab of the **DB Get** customizer window, as shown in Figure 64, to select a database resource and database profile from **DB Read** step results.

Figure 64 DB Get Customizer Window: General Tab

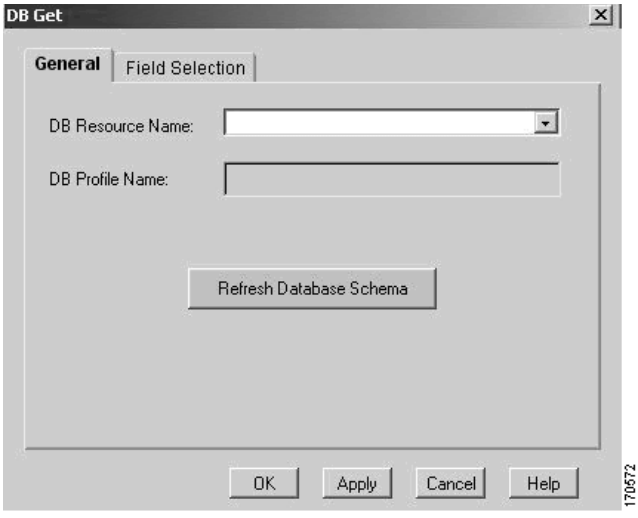


Table 18 describes the fields of the **General** tab.

Table 20 DB Get Customizer Window Fields: General Tab

Property	Description
DB Resource Name	Query defined by a **DB Read** step. You can choose a specific query when your script has multiple **DB Read** steps open at the same time.
DB Profile Name	Name of the database profile associated with this DB Resource Name. This field is populated automatically when DB Resource Name is selected.
Refresh Database Schema	Updates the Editor with the fields defined in the selected Cisco Unity Express database.

Field Selection Tab

Use the **Field Selection** tab of the **DB Get** customizer window, as shown in Figure 65, to select a table, fields, data type, and local variables from **DB Read** step results.

Figure 65 Field Selection Customizer Window: Field Selection Tab

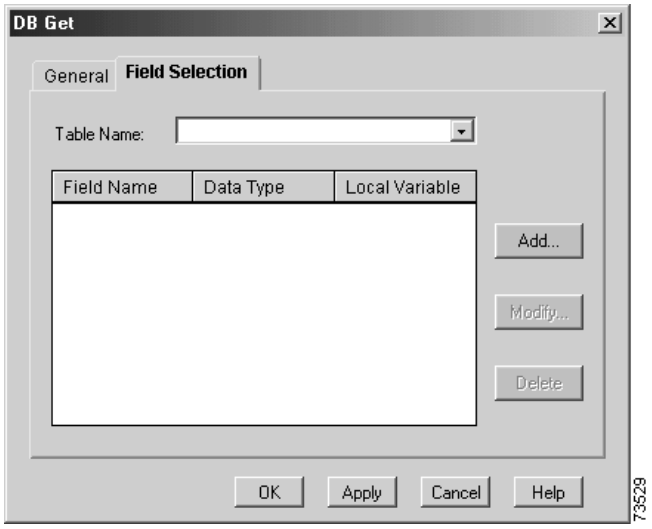


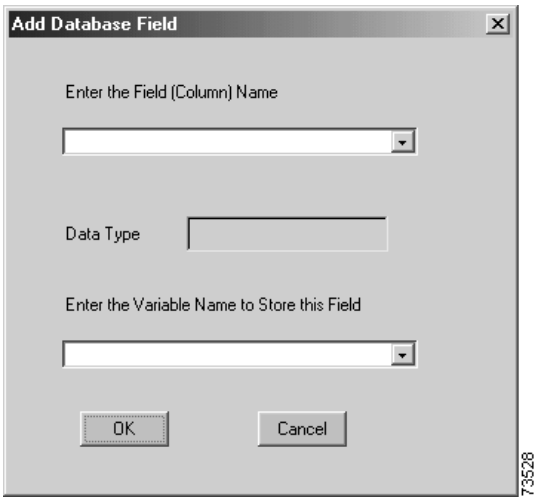
Table 21 describes the fields of the **Field Selection** tab.

Table 21 DB Get Customizer Window Fields: Field Selection Tab

Property	Description
Table Name	Name of the table from the selected database.
Field Name	Name of the field (column) in the selected table of the database.
Data Type	Data type of the variable.
Local Variable	Variables that store the values of the associated fields.

As shown in Figure 65, clicking **Add** opens the **Add Database Field** dialog box shown in Figure 66.

Figure 66 Add Database Field Dialog Box



DB Write

Use the **DB Write** step to enter SQL *update*, *insert*, and *delete* statements for refreshing the database records.

Note The **DB Write** step supports only these three SQL statements: *update*, *insert*, and *delete.*

After completing the **DB Write** step, use the **DB Release** step (see the "DB Release" section on page 89) to release database resources.

The **DB Write** step produces three output branches:

- **Successful**: No errors occurred. The step entered the specified SQL statements successfully.
- **Connection Not Available**: No database connection was available to execute this query.
- **SQL Error**: An error occurred. This could include SQL, timeout, or any exceptions found.

The **DB Write** customizer window contains four tabs:

- General Tab, page 85
- SQL Tab, page 86
- Test Tab, page 88
- Comments Tab, page 88

General Tab

Use the **General** tab of the **DB Write** customizer window, as shown in Figure 67, to select a database resource and database profile to which you can choose to apply the SQL **update**, **insert**, and **delete** statements.

Figure 67 DB Write Customizer Window: General Tab

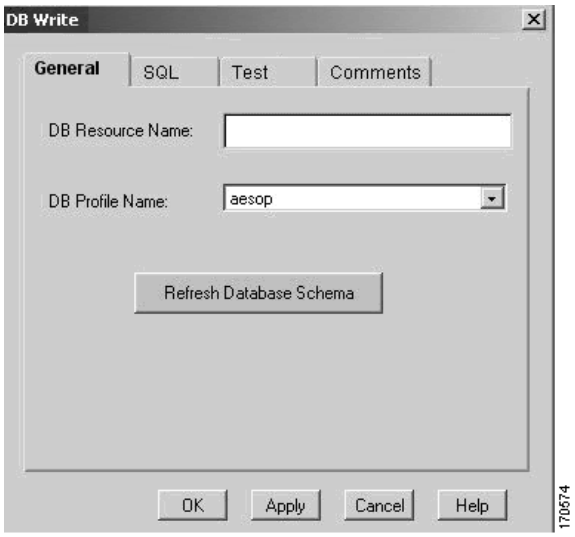


Table 22 describes the fields of the **General** tab.

Table 22 DB Write Customizer Window Fields: General Tab

Property	Description
DB Resource Name	Name assigned to identify this database query.
DB Profile Name	Name of the database profile on which you want to run your update query.
Refresh Database Schema	Updates the Editor with the fields defined in the selected Cisco Unity Express database.

SQL Tab

Use the **SQL** tab of the **DB Write** customizer window, as shown in Figure 68, to enter SQL commands.

Figure 68 DB Write Customizer Window: SQL Tab

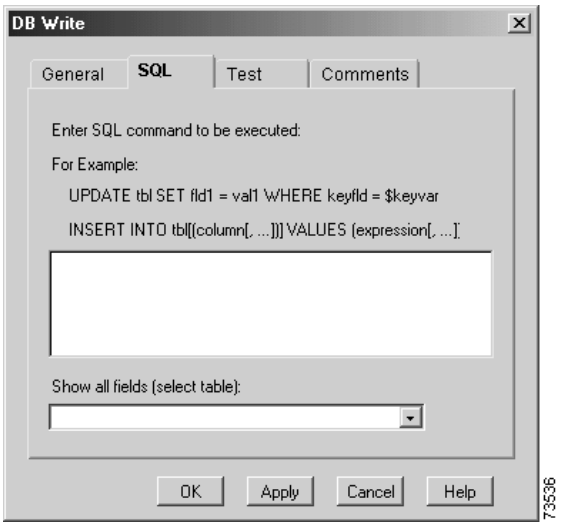
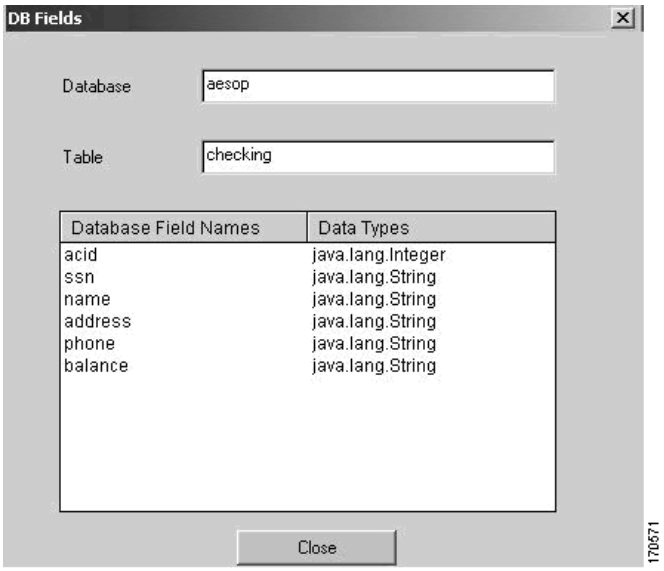


Table 23 describes the fields of the **SQL** tab.

Table 23 DB Write Customizer Window Fields: SQL Tab

Property	Description
Enter SQL Command to be Executed	SQL command that you want to be executed.
Show All Fields (Select Table)	Fields defined in a particular table in this database. Select a table from the drop-down list to display the DB Fields dialog box, as shown in Figure 69.

Figure 69 DB Fields Dialog Box



Test Tab

Use the **Test** tab of the **DB Write** customizer window, shown in Figure 70, to execute the SQL *update*, *insert*, or *delete* statement and view the results without changing a database.

Figure 70 DB Write Customizer Window: Test Tab

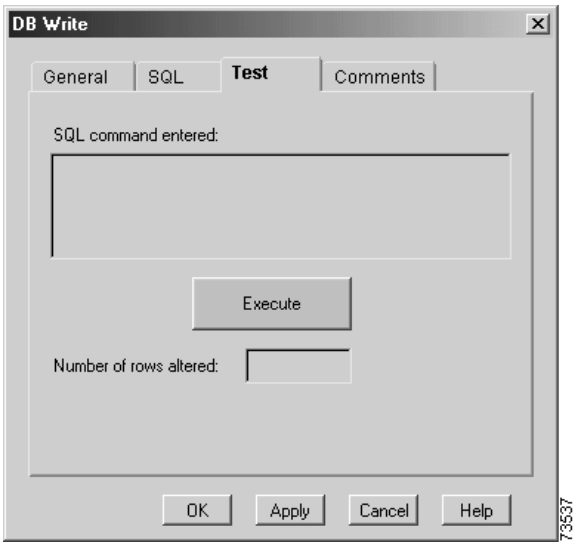


Table 24 describes the fields of the **Test** tab.

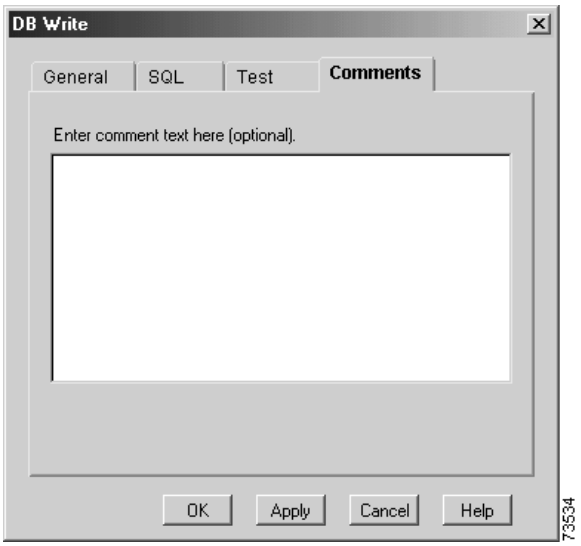
Table 24 DB Write Customizer Window Fields: Test Tab

Property	Description
SQL Command Entered	Enter the SQL *update*, *insert*, or *delete* statement to run a trial statement execution.
Number of Rows Altered	Displays the number of rows altered by the test.

Comments Tab

Use the **Comments** tab of the **DB Write** customizer window, as shown in Figure 71, to enter text comments regarding test results (see the "Test Tab" section on page 88).

Figure 71 DB Write Customizer Window: Comments Tab



DB Release

Use the **DB Release** step to release database resources associated with a resource name.

The **DB Read** and **DB Write** steps (see the "DB Read" section on page 79 and "DB Write" section on page 85) must use the **DB Release** step to release resources when results returned by them are no longer needed.

Figure 72 shows the customizer window for the **DB Release** step.

Figure 72 DB Release Customizer Window

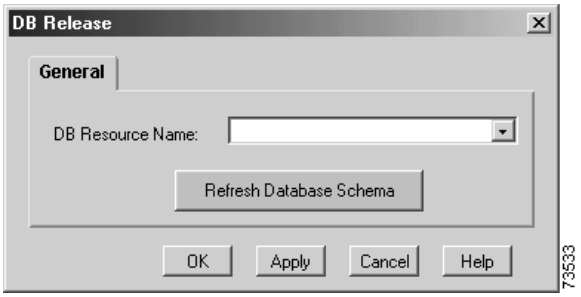


Table 19 describes the field of the **DB Release** customizer window.

Table 25 DB Release Customizer Window Field

Property	Description
DB Resource Name	Name of the database resource from which you want to release resources.

Document Steps (IVR Only)

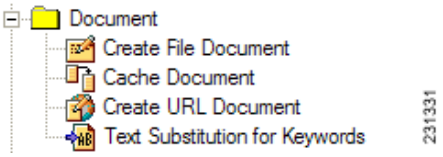
The steps in the **Document** palette provide designers with the steps to handle a variety of documents. For more information about document steps, see the *Cisco Unity Express 3.2 IVR CLI Administrator Guide*.

The **Document** palette contains the following steps:

- Cache Document, page 90
- Create File Document (IVR Only), page 91
- Create URL Document, page 92
- Text Substitution for Keywords, page 94

Figure 73 shows the steps in the **Document** palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

Figure 73 Document Palette Steps



Cache Document

Use the **Cache Document** step is to perform an input/output (I/O) operation, such as making a Hypertext Transfer Protocol (HTTP) request, and to cache the resulting document in the memory buffer.

Note The **Cache Document** step can use up to 512 KB of memory. If the size of the cache document exceeds 512 KB of memory, any data that exceeds 512 KB is truncated.

The I/O operation is specified by the document defined in the step that precedes this step, such as the **Create File Document** step (see the "Create File Document (IVR Only)" section on page 91) or the **Create URL Document** step (see the "Create URL Document" section on page 92) or by a document expression that contains a hard-coded document. When the **Create File Document** or **Create URL Document** step executes, it creates the document variable and does not send a URL request or access the file system.

I/O operation occurs when another step, such as the Send Response step (see the "Send Response" section on page 128), references the document and permits the I/O operation to be completed before any subsequent steps are executed. In the following example, the **Cache Document** step makes an HTTP request to mybank.money.com. Without the **Cache Document** step, the I/O would not occur until the Send eMail step (see the "Send eMail" section on page 99) step executes.

```
doc=Create URL Document("http://mybank.money.com/debit?amount=500")

doc=Cache Document(doc)

. . .

SendEmail(From, To, doc)
```

Figure 74 shows the customizer window for the **Cache Document** step.

Figure 74 Cache Document Customizer Window

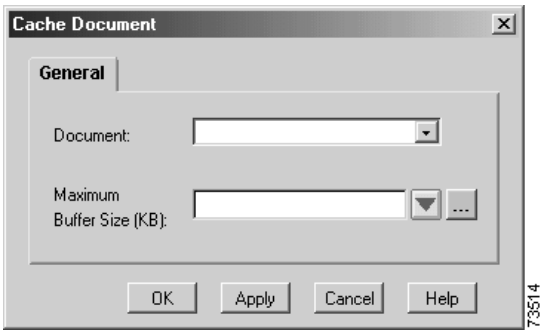


Table 26 describes the fields of the **Cache Document** customizer window.

Table 26 Cache Document Customizer Window Fields

Property	Description
Document	Permits the selection of a document to be cached from the drop-down list.
Maximum Buffer Size (KB)	Maximum buffer size for documents: • A large buffer can affect system performance. • Documents that are larger than the configured maximum buffer size are truncated. • Valid range is 1–512 KB.

Create File Document (IVR Only)

Use the **Create File Document** step to incorporate templates, Tagged Image File Format (TIFF) attachments, and other generic documents into a script.

Documents created by this step can be included in the body of an e-mail or as an attachment, or be used in the same way for sending faxes.

When using the **Create File Document** step, you must select the name of a file that has been uploaded onto a Cisco Unity Express module. Files can be loaded onto the module using the CLI or GUI. You must also select a file type, which will be assigned to the file when it is uploaded onto the module.

Figure 75 shows the customizer window for the **Create File Document** step.

Figure 75 Create File Document Customizer Window

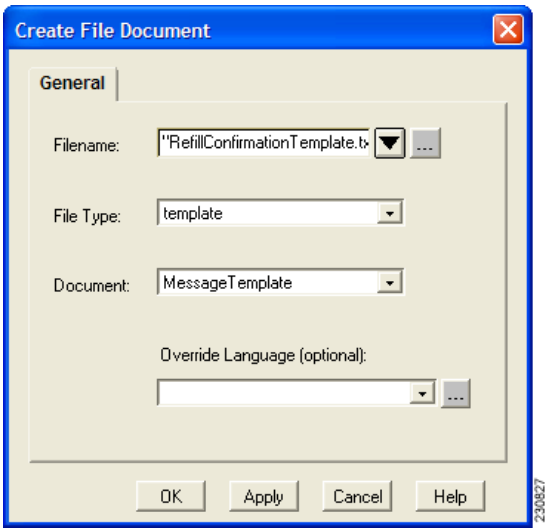


Table 27 describes the fields of the **Create File Document** customizer window.

Table 27 Create File Document Customizer Window Fields

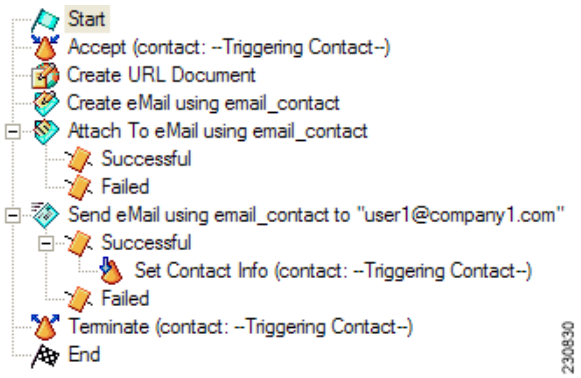
Property	Description
Filetype	File type is selected from a drop-down list. The list includes Template, TIFF, and document.
Filename	Filename of the document to be associated with the document variable. The filename may contain the name of the file in quotations or reference a string variable.
Document	Variable that represents the specified document. Select from the drop-down list.

Create URL Document

Use the **Create URL Document** step to define a document variable by entering an HTTP URL. For the **Create URL Document**, you can use FTP or HTTP.

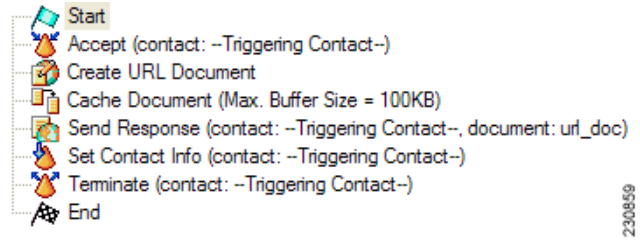
The **Create URL Document** step does not issue the HTTP request. The request occurs when the document is used by another step, such as the Send Response, Send eMail, Send Fax, or Cache Document step. In the example shown in Figure 78, when the **Send Email** step is started, the HTTP request is made and the resulting HTML document is sent as an e-mail to user1@company1.com.

Figure 76 Send Attached E-mail



In the example shown in Figure 77, if you want to use the **Create URL Document** step to make an HTTP request only and do not want to send an e-mail, fax, or HTTP response, use the **Cache Document** step to make the request.

Figure 77 Send Cache URL Response



As shown in Table 28, there are two HTTP request methods: GET and POST. Table 28 describes the fields of the **Create URL Document** customizer window.

Table 28 Create URL Document: Customizer Window Fields

Property	Description
URL	URL for the document. The URL can be a quoted string or a string variable. It must be a well-formed HTTP URL. The URL string is not validated to ensure that it is a well-formed HTTP URL.
Method	Method to use if the URL represents an HTTP request. • **GET**: Appends parameters to the URL. This step is equivalent to using the document expression form URL[url?name=value,name=value]. • **POST**: Includes the parameters as if they were entered in an HTML form.
Parameters	Name-value pairs that form a parameter string to send to the web server. The name-value pairs are converted into a URL-encoded parameter string.
Document	Variable name in which the resulting document object is stored.

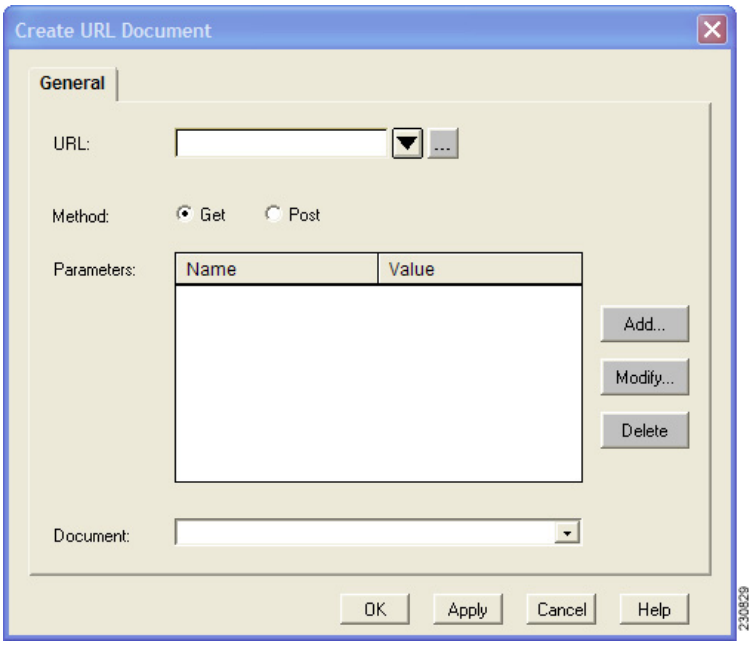
For GET HTTP, parameters are usually appended to a URL in an HTTP request to provide data required to execute the request. For example, the following HTTP request is made when the value of the total amount is set to 500:

```
http://mybank.money.com/debit?amount=500
```

For POST, the parameters are passed in the body of the HTTP request as if entered in an HTML form.

Figure 78 shows the customizer window for the **Create URL Document** step.

Figure 78 Create URL Document Customizer Window



Text Substitution for Keywords

Use the **Text Substitution for Keywords** step to create dynamic content for HTTP, e-mail, and fax by replacing keywords in a document with values contained in local variables.

Keywords are mapped to variables. The **Text Substitution for Keywords** step replaces keywords with the current values of local variables. Keywords are indicated by percent (%) characters in the document, such as %NAME%, which can be dynamically replaced with a string variable with a person's name.

Figure 79 shows the customizer window for the **Text Substitution for Keywords** step.

Figure 79 Text Substitution for Keywords Customizer Window

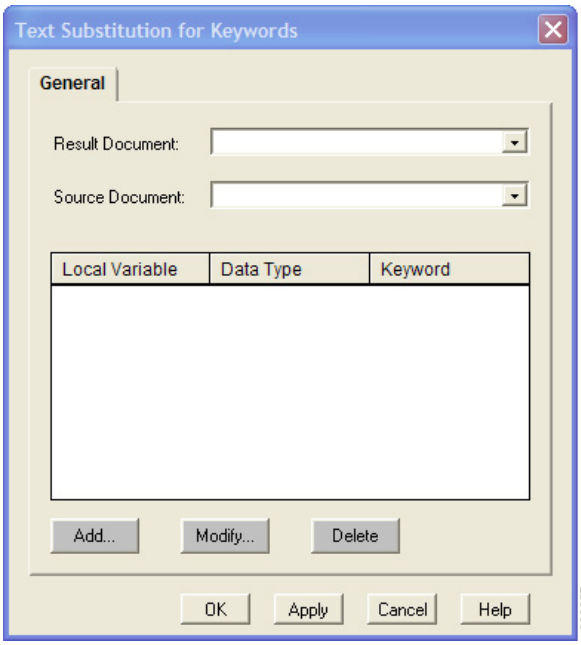


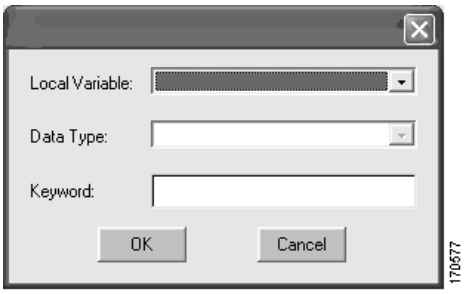
Table 29 describes the fields of the **Text Substitution for Keywords** customizer window.

Table 29 Text Substitution for Keywords Customizer Window Fields

Property	Description
Result Document	Variable that stores the document containing the text substitutions.
Source Document	Variable that identifies the source template document. The lower half of the window can be modified to configure the local variables that will replace the specific keywords in the document template. These can be added, modified, or deleted as desired.
Local Variable	Variable used to replace the keyword.
Data Type	Data type of the local variable, such as string and integer. This field is populated with the data type of the local variable selected automatically.
Keyword	Keyword in the source document indicated by a percent (%) character that is to be replaced. When entering a keyword, in this field do not use the % character. Keywords should contain only alphanumeric characters. Dash (–) and underscore (_) characters are permitted.
Add	Adds a new replacement entry. When **Add** is clicked, the **Keyword Mapping** dialog box appears, as shown in Figure 80.
Modify	Modifies an existing entry. When **Modify** is clicked, the **Keyword Mapping** dialog box appears, as shown in Figure 80.
Delete	Deletes an entry.

The **Keyword Mapping** dialog box, as seen in Figure 80 appears when **Add** or **Modify** is clicked in the **Text Substitution for Keywords** customizer window, as seen in Figure 79.

Figure 80 Keyword Mapping Dialog Box



eMail Contact Steps (IVR Only)

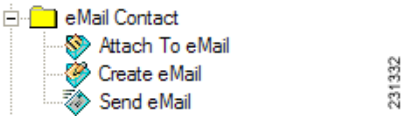
The steps in the eMail Contact palette provide the facility for creating, attaching, and sending e-mail. The e-mail steps are available in the e-mail palette in the Cisco Unity Express Script Editor. For more information about the e-mail contact steps, see the *Cisco Unity Express 3.2 IVR CLI Administrator Guide*.

The eMail Contact palette contains the following steps:

- Attach To eMail, page 96
- Create eMail, page 98
- Send eMail, page 99

Figure 81 shows the steps in the eMail Contact Palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

Figure 81 eMail Contact Palette Steps



Attach To eMail

Use the **Attach to eMail** step to attach an existing document to an e-mail to be sent at a later time.

Note that the e-mail must have been previously created with the **Create eMail** step (see the "Create eMail" section on page 98) and matched to the corresponding e-mail contact. The contents of the attachment will be specified by a document variable.

The **Attach To eMail** step produces two output branches:

- **Successful**: The document was attached to the e-mail object.
- **Failed**: The document could not be attached to the e-mail object.

To attach an e-mail, click **Add** in the **Attach to eMail** customizer window, as shown in Figure 82, and complete the **Add Attachment** customizer window as seen in Figure 83.

Figure 82 Attach to eMail Customizer Window

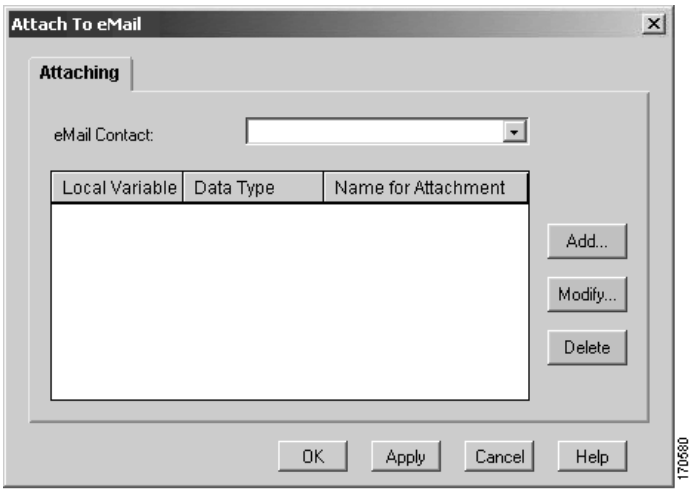


Figure 83 Add Attachment Customizer Window

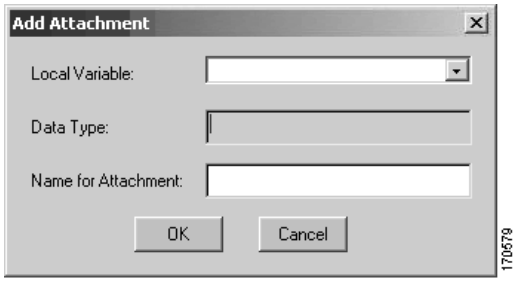


Table 30 describes the fields of the **Attach to eMail** and **Add Attachment** customizer windows.

Table 30 Attach to eMail and Add Attachment Customizer Window Fields

Field	Description
eMail Contact	Contact associated with the e-mail message that was configured in the **Create eMail** step (see the "Create eMail" section on page 98). The name can be entered directly as text in quotations or with a string variable.
Local Variable	Specifies the document to be sent as an e-mail attachment.
Data Type	Data type of the local variable. The default data type is Document. After a local variable is selected, Document appears in the Data Type field automatically.
Name for attachment	Text name of the e-mail attachment.
Add	Adds an attachment. A maximum of five attachments can be added.
Modify	Modifies an attachment.
Delete	Deletes an attachment.

Create eMail

Use the **Create eMail** step to compose an e-mail. Include the subject and the text body of the e-mail to be associated with the e-mail contact. To specify the body of the e-mail:

1. Choose the variable you want to use in the Body field for the body of the e-mail message.
2. Click "..." to the right of the Body field, and then enter a string expression into the popup Expression Editor window.
3. If you want to use a separate document for the body of the message, check the Use Document for Body check box, and then choose a document variable from the drop-down list to the right of the message field.

Figure 84 shows the customizer window for the **Create eMail** step.

Figure 84 Create eMail Customizer Window

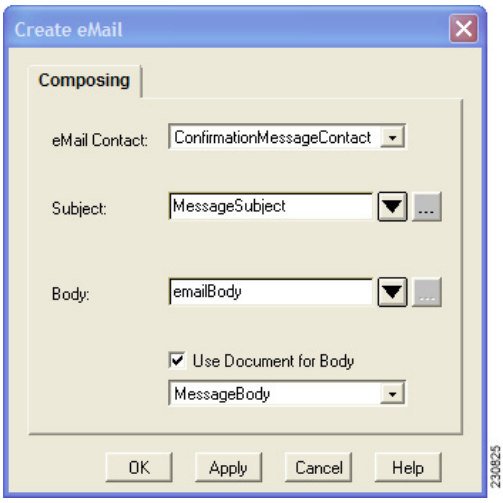


Table 31 describes the fields of the **Create eMail** customizer windows.

Table 31 Create eMail Customizer Window Fields

Field	Description
eMail Contact	Variable that describes the e-mail.
Subject	Description of the e-mail subject. This can be entered with a reference to a string variable or directly with text in quotations. The subject string must not exceed 256 characters. If a string larger that 256 characters is entered, it will be truncated following the 256th character.
Body	Text body of the e-mail message. This can reference a string variable, a document variable, or a direct entry of text in quotations. If a document variable is selected, the reference document should contain only text. If the referenced document contains binary data, such as .JPEG and .GIF file, the system attempts to determine the content type of the document, and the e-mail might not appear properly when it is received. Choose the Use Document for Body to use a separate document for the e-mail body. When the box is checked, you must select a document variable listed in the drop-down list.

Send eMail

Use the **Send eMail** step to send an e-mail.

Prior to sending an e-mail, the e-mail must have been created with the Create eMail step (see the "Create eMail" section on page 98).

The **Send eMail** step sets the To and From addresses and sends the e-mail to the configured Simple Mail Transfer Protocol (SMTP) server for delivery. The SMTP server can be configured using the Cisco Unity Express GUI or CLI. The From address can be set to any desirable address to which a reply can be sent. This address can also be advised of undeliverable messages received from the SMTP server.

E-mail can be sent immediately or queued to be sent later as a background process.

- **Immediate**: If the immediate option is selected, the e-mail will be sent to the SMTP server, and the client will be kept waiting until the message is accepted by the SMTP server. If the server is unavailable because of server or network problems, the client must wait until the transaction times out (30 seconds). It may be necessary to issue a prompt to alert the client that the e-mail is being sent, and to hold the line until the transmission of the e-mail message is complete.
- **Queued**: If the queued option is selected, the step will return immediately, but the script does not receive notification of whether e-mail was sent successfully or not.

The **Send eMail** step generates the following three branches:

- **Successful**: The e-mail was sent and its transmission completed.
- **Failed**: The e-mail could not be sent. The failure reasons can be that the SMTP server was not properly configured, SMTP authentication failed, or the SMTP server was not reachable and caused the transaction to time out.

Figure 85 shows the customizer window for the **Send eMail** step.

Figure 85 Send eMail Customizer Window

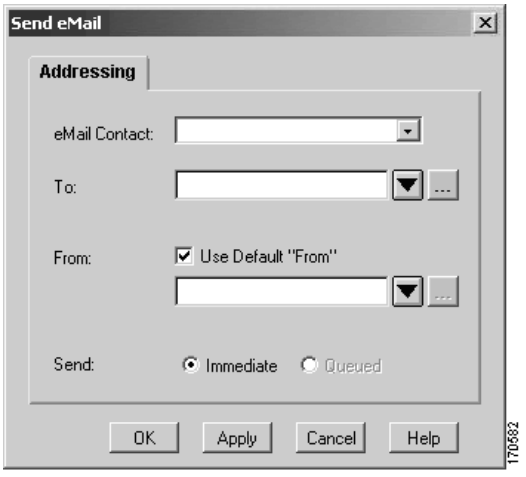


Table 32 describes the fields of the **Send eMail** customizer windows.

Table 32 Send eMail Customizer Window Fields

Field	Description
eMail Contact	Contact associated with the e-mail message that was configured in the **Create eMail** step (see the "Create eMail" section on page 98). May be entered directly as text in quotations or with a string variable.
To	Person to whom you are sending the e-mail. A variable or string expression can be used.
Use Default From Check Box	• **Checked box**: Causes Cisco Unity Express to use the default account for the e-mail subsystem that was configured through the Cisco Unity Express GUI or CLI. • **Unchecked box**: Requires the entry or selection of a From e-mail address.
From	Account from which you are sending the e-mail. This may be entered directly as text in quotations or with a string variable.
Send	Method of fax transport. • **Immediate**: Sends the fax immediately to the SMTP server and waits until the message is accepted by the SMTP server. • **Queued**: Sends fax in a separate background process.

Fax Contact Steps (IVR Only)

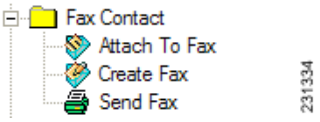
The steps in the **Fax Contact** palette of the Cisco Unity Express Script Editor provide fax programming functionality for scripting. For more information about the fax contact steps, see the *Cisco Unity Express 3.2 IVR CLI Administrator Guide*.

The **Fax Contact** palette contains the following steps:

- Create Fax, page 100
- Attach to Fax, page 101
- Send Fax, page 102

Figure 86 shows the steps in the **Fax** palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

Figure 86 Fax Contact Palette Steps



Create Fax

Use the **Create Fax** step to construct a fax message.

Creating a fax involves entering the subject and the body of the fax and associating an e-mail contact with the fax.

Figure 87 shows the customizer window for the **Create Fax** step.

Figure 87 Create Fax Customizer Window

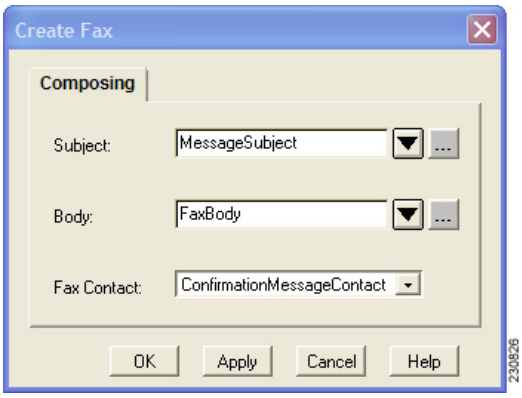


Table 33 describes the fields of the **Create Fax** customizer window.

Table 33 Create Fax Customizer Window Fields

Property	Description
Subject	Subject of the fax. A string variable or text in quotations can be entered.
Body	Body of the fax message. A string variable or text in quotations can be entered. The body of the fax is limited to 1 KB. If a document variable is selected, the referenced document should contain text only; otherwise, the fax transmission will fail. The **Create Fax** step does not check the bodies of faxes for binary data.
Fax Contact	Variable that identifies the fax.

Attach to Fax

Use the **Attach to Fax** step to send either a text document or a .TIFF image as an attachment to a fax.

Prior to attaching a fax, you must first create a fax using the **Create Fax** step (see the "Create Fax" section on page 100) and use the same fax contact. The contents of the attachment are identified with a document variable entered in the Local Variable field. The file referenced in the Local Variable field can contain either text or a .TIFF image. The .TIFF image must conform to Profile-F as defined in RFC2306. If the attachment is not a text or a .TIFF image, the fax is not sent. If the .TIFF image does not conform to the Profile-F requirements, the fax will be sent but the image might not be transmitted correctly.

Note The **Send Fax** step does not validate the formats of attached documents.

The **Attach to Fax** step generates the following two branches:

- **Successful**: The document was attached to the fax object.
- **Failed**: The document was not attached to the fax object.

Figure 88 shows the customizer window for the **Attach to Fax** step.

Figure 88 Attach to Fax Customizer Window

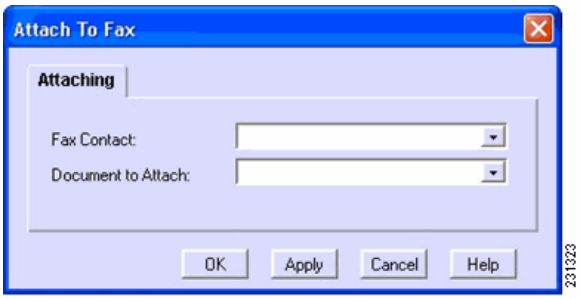


Table 34 describes the fields of the **Attach to Fax** customizer window.

Table 34 Attach to Fax Customizer Window Fields

Property	Description
Fax Contact	Contact associated with the fax message created in the **Create Fax** step (see the "Create Fax" section on page 100).
Document to Attach	Local variable referencing the document to be sent as a fax attachment. This is restricted to a document data type containing either ASCII text or a .TIFF image.

Send Fax

Use the **Send Fax** step to send a fax.

The Send Fax step returns to the steps immediately after queuing the fax request. Prior to attaching a fax, you must first create a fax using the Create Fax step (see the "Create Fax" section on page 100) and use the same fax contact. The fax may also have an attachment. See the "Attach to Fax" section on page 101.

The **Send Fax** step produces two output branches:

- **Successful**: The fax was successfully queued to be sent to the Fax SMTP server.
- **Failed**: The fax could not be queued for sending.

Figure 89 shows the customizer window for the **Send Fax** step.

Figure 89 Send Fax Customizer Window

Table 34 describes the addressing fields of the **Send Fax** customizer window.

Table 35 Send Fax Customizer Window Fields

Property	Description
Fax Contact	Contact associated with the fax message that was created in the **Create Fax** step (see the "Create Fax" section on page 100).
Fax Number	Variable or string expression to use for the phone number of the intended fax machine. This may be entered directly as text in quotations or with a string variable. This number must include any necessary digits used to make an outbound call.
***Default From* Check Box**	Enables or disables the use of the account configured for the fax subsystem through the Cisco Unity Express GUI or CLI. • **Checked Box**: Enables the use of the account configured for the Fax subsystem through the Cisco Unity Express GUI or CLI. If a *Default From* value has not been configured, the *From* field in the sent Fax e-mail will be set to localhost@<*localhostname*>. If the fax is sent successfully, then the localhost@<*localhostname*> address will be used as the sender e-mail address in the sent fax. If the fax is not sent successfully, then a failure notification will be sent to the default "From" address. • **Unchecked Box**: Disables the use of the account configured for the Fax subsystem through the Cisco Unity Express GUI or CLI.
From	Account from which the e-mail will be sent. Text in quotations, or a string variable can be used. The address entered into this field must be one that is capable of receiving e-mails.
Send Fax Successful Notification Radio Buttons	Does not send notification e-mails on successful fax transmission. • **Yes**: The notification e-mail is sent. • **No**: The notification e-mail is not sent.

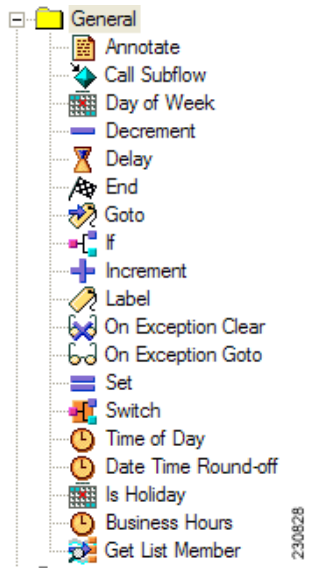
General Steps

The steps in the **General** palette of the Cisco Unity Express Script Editor provide basic programming functionality for scripting.

The **General** palette contains the following steps:

Figure 90 shows the steps in the **General** palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

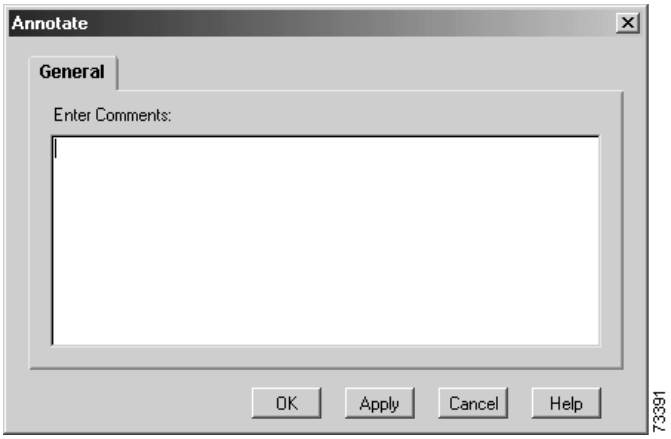
Figure 90 General Palette Steps



Annotate

Use the **Annotate** step to enter comments at any point in a script. This step has no impact on script logic. Figure 91 shows the customizer window for the **Annotate** step.

Figure 91 Annotate Customizer Window



To annotate a script, enter your comments in the **Enter Comments** field and click **OK**.

The **Annotate** customizer window closes and the first words of your annotation appear next to the **Annotate** icon in the Design pane of the Cisco Unity Express Script Editor.

Business Hours

Use the **Business Hours** step to determine if the business is open when the auto-attendant receives a call. This step can play a "Business is closed" prompt if the system receives a call during business- closed hours. When configured, the name of the **Schedule** variable appears next to the **Business Hours** step in the Design pane.

The **Business Hours** step automatically adds two output branches:

- **Open**: Steps following this branch execute if the business is open at the specified date and time.
- **Closed**: Steps following this branch execute if the business is closed at the specified date and time.

For more information about configuring business schedules, see the *Cisco Unity Express 3.2 GUI Administrator Guide* or the *Cisco Unity Express Voice-Mail and Auto-Attendant CLI Administrator Guide for 3.0 and Later Versions*.

Figure 92 shows the customizer window for the **Business Hours** step.

Figure 92 Business Hours Customizer Window

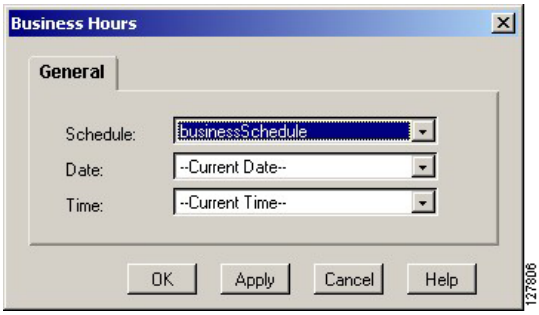


Table 36 describes the fields of the **Business Hours** customizer window.

Table 36 Business Hours Customizer Window Fields

Field	Description
Schedule	Name of the Business Hours Schedule. Select one of the schedules you created or customized using the Cisco Unity Express GUI options or CLI commands.
Date	Current date requires no configuration. You can also select a date variable for which you want to check the business hours.
Time	Current time requires no configuration. You can also select a time variable for which you want to check the business hours.

Call Subflow

Use the **Call Subflow** step to execute a subflow, also called a subroutine or module in structured programming.

Use the Cisco Unity Express Script Editor to create the subflow as an independent script that you can reuse in other scripts. Subflows can be nested; that is, you can call subflows from within scripts that are themselves used as subflows.

During run time, if an exception occurs within a subflow and you do not handle the exception within the subflow, the exception is available to the parent script for processing. For more information about exceptions, see the "On Exception Goto" section on page 116.

The **Call Subflow** customizer window contains two tabs:

- General Tab, page 107
- Parameter Mapping Tab, page 107

General Tab

Use the **General** tab of the **Call Subflow** customizer window, shown in Figure 93, to specify the filename of the subflow you want to call.

Figure 93 Call Subflow Customizer Window: General Tab

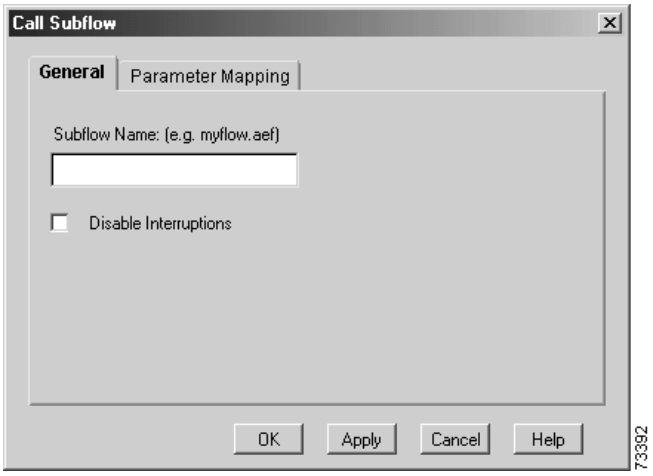


Table 37 describes the fields of the **General** tab.

Table 37 Call Subflow Customizer Window Fields: General Tab

Field	Description
Subflow Name	Filename of the subflow you want to call. This name appears next to the **Call Subflow** step icon in the Design pane.
Disable Interruptions	If the check box is checked, execution of the step cannot be interrupted by external events.

Parameter Mapping Tab

Use the **Parameter Mapping** tab of the **Call Subflow** customizer window, shown in Figure 94, to map variables or expressions from the main script to variables in the subflow you specified in the **General** tab of the **Call Subflow** customizer window.

Note You must define variables in the map script before you can map them.

You can map variables only to variables of the same type. For example, you can map a string variable in the main script only to a string variable in the subflow.

You can pass in any valid expression; for example, “4” or an expression such as “counter + 3”.

When the script calls a subflow, the subflow has access to the variables from the main script that you specify on the **Parameter Mapping** tab. If the subflow changes the value of a mapped variable, that change carries over to the main script when the subflow returns control to the main script.

Figure 94 Call Subflow Customizer Window: Parameter Mapping Tab

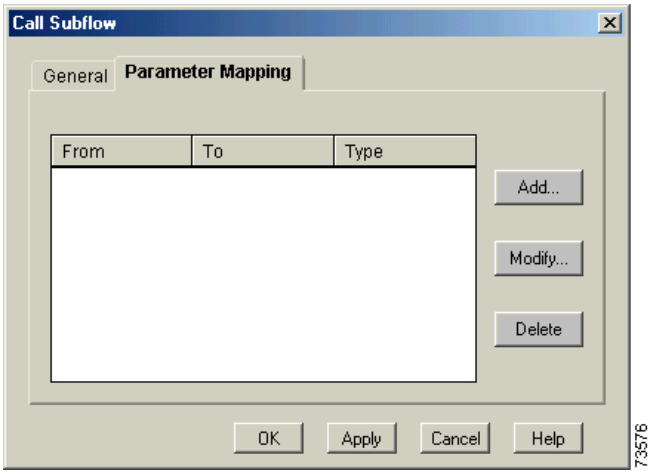


Table 38 describes the fields of the **Parameter Mapping** tab.

Table 38 Call Subflow Customizer Window Fields: Parameter Mapping Tab

Field	Description
From	Displays the name of the variable from the main script that receives the value of the variable from the subflow script.
To	Displays the name of the variable from the subflow script that is assigned to the variable in the main script.
Type	Displays the variable type.
Add	Click to add a variable from the main script and map it to map to a subflow. A separate dialog box appears.
Modify	Click to modify the selected variable.
Delete	Click to delete the selected variable.

The **Parameter Mapping** dialog box is shown in Figure 95.

Figure 95 Parameter Mapping Dialog Box

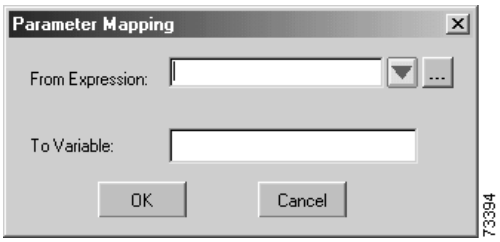


Table 39 Parameter Mapping Dialog Box

Field	Description
From Expression	Enter the variable name or expression from the main script.
To Variable	Enter the variable name from the subflow. This name appears in the list box of the **Call Subflow** window.
...	Click to display the Expression editor.

Date Time Round-off

Use the **Date Time Round-off** step utility to round up or round down the current date and time. When the Cisco Unity Express system clock matches the approximate time of day with a rounding value set, the time associated with a connection including the rounding value, the script executes any steps configured for that output branch.

In the following examples:

- Time 6:43 is rounded up to 6:45 if the rounding setting on this step is set to 15 minutes.
- Time 6:43 is rounded up to 7:25 if the rounding setting on this step is set to 25 minutes.
- Time 6:43 is rounded up to 8:00 if the rounding setting on this step is set to 2 hours.

Day of Week

Use the **Day of Week** step to direct the script to different connection output branches depending on the current day of the week.

When the Cisco Unity Express system clock matches one of the days associated with a connection, the script executes any steps that you configured for that day's connection branch.

Configure all days with output branches and assign each day its own connection(s). If a day is not assigned to at least one output branch, the Cisco Unity Express Script Editor displays a warning dialog box when you close the **Day of Week** customizer window.

Figure 96 shows the customizer window for the **Day of Week** step.

Figure 96 Day of Week Customizer Window

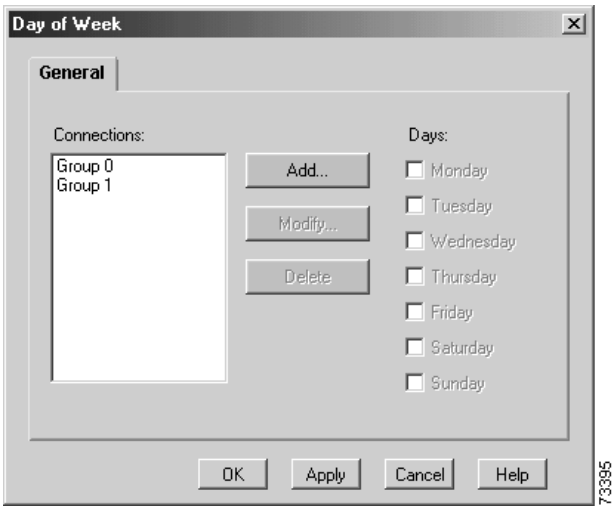


Table 40 describes the fields of the **Day of Week** customizer window.

Table 40 Day of Week Customizer Window Fields

Field	Description
Connections	Output branches that execute depending on a specified day of week. Select the connection in the **Connections** list box and check the check boxes for the days you want to associate with that branch.
Days	Days of the week for each connection branch.
Add	Click to add a connection name.
Modify	Click to modify the selected connection name. To modify the name of an already existing connection output branch to make it easier to understand your script, for example, select the connection in the **Connections** list box, and then click **Modify**. The **Modify Connection Name** dialog box contains the same field as the **Add Connection Name** dialog box and is configured in the same way.

The **Add Connection Name** dialog box is shown in Figure 97, and the field is described in Table 40.

Figure 97 Add Connection Name Dialog Box

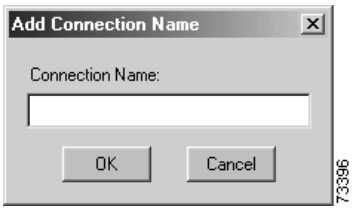


Table 41 Add Connection Name Dialog Box

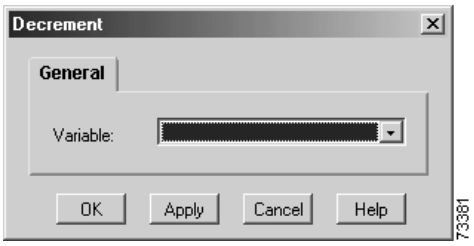
Field	Description
Connections Name	Enter a name for the connection branch. This name appears in the **Connections** list box of the **Day of Week** customizer window.

Decrement

Use the **Decrement** step to decrease the value of a chosen Integer variable by one. This step is a specialized version of the **Set** step of the **General** palette, which you use to assign any value to a variable.

Figure 98 shows the customizer window for the **Decrement** step.

Figure 98 Decrement Customizer Window



Select the desired variable from the **Variable** drop-down menu. The variable appears next to the **Decrement** step icon in the Design pane.

Delay

Use the **Delay** step to pause the processing of a script for a specified number of seconds.

Figure 99 shows the customizer window for the **Delay** step.

Figure 99 Delay Customizer Window

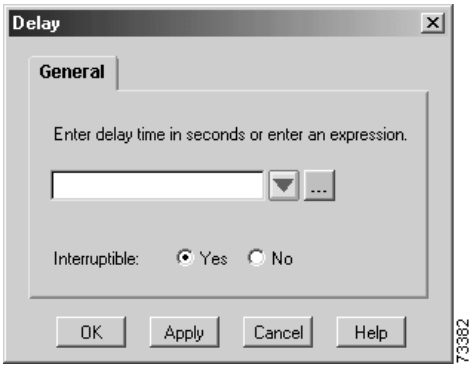


Table 42 describes the fields of the **Delay** customizer window.

Table 42 Delay Customizer Window Fields

Field	Description
Enter delay time in seconds or enter an expression	Enter either the length of time, in seconds, for the delay, or an expression that specifies the length of the delay.
...	Displays the expression editor. Enter an expression that specifies the length of the delay.
Interruptible	Click **Yes** to interrupt the delay by external events.

End

Use the **End** step at the end of a script to complete processing and free all allocated resources.

You can also use the **End** step at the end of a branch of logic in a script. Any call still active by the time this step is executed will automatically be processed by the system default logic.

This step has no properties and does not require a customizer.

Get List Member (IVR Only)

The **Get List Member** step retrieves a member (token) from a specific position (index) out of a delimiter separated string list.

You can use this step to parse string data retrieved from the database and to extract a portion of it. The extracted member (token) can then be used by other steps. For example, a database query might retrieve all the active prescription numbers for a patient as a comma-separated list. This step can be used to extract individual prescription numbers out of that list, and then each of these prescription numbers can be played to the caller using the Play Prompt step, prompting them to select one of them for refill.

The **Get List Member** step produces two output branches:

- **Success**: The data was retrieved successfully and placed in the appropriate output string.
- **Invalid Position**: The specified position (index) from which to extract the data was invalid. If the members are being retrieved in a loop, this may signify the end of the loop.

Figure 100 shows the customizer window for the **Get List Member** step.

Figure 100 Get List Member Window

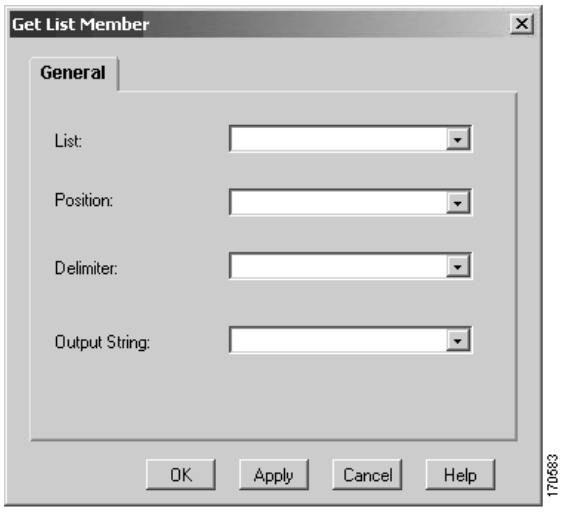


Table 43 describes the fields of the **Get List Member** customizer window.

Table 43 Get List Member Customizer Window Fields

Field	Description
List	Variable containing the string list.
Position	Variable containing the position (index) from which the string member is to be extracted.
Delimiter	Variable specifying the delimiter separating the members in the string list.
Output String	Variable that stores the extracted output string from the position (index) in the string list, if the step is successful.

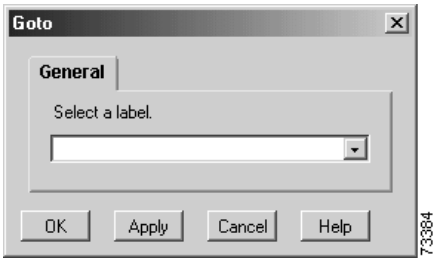
Goto

Use the **Goto** step to cause the script logic to branch to a specified **Label** step within the script.

Note Use a **Label** step to indicate where the **Goto** step should branch to.

Figure 101 shows the customizer window for the **Goto** step.

Figure 101 Goto Customizer Window



Select the Label step from the **Select a Label** drop-down menu. This name appears next to the **Goto** step icon in the Design pane.

If

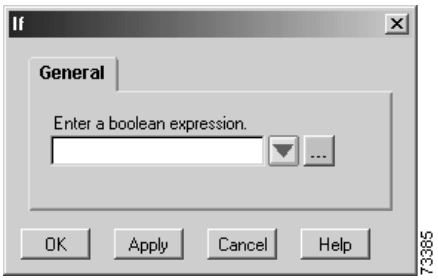
Use the **If** step to cause the script to choose one of two branches based on the evaluation of a specified Boolean expression.

The **If** step automatically adds two output branches, **True** and **False**:

- **True**: Steps following this output branch execute if the expression is true.
- **False**: Steps following this output branch execute if the expression is false.

Figure 102 shows the customizer window for the **If** step.

Figure 102 If Customizer Window



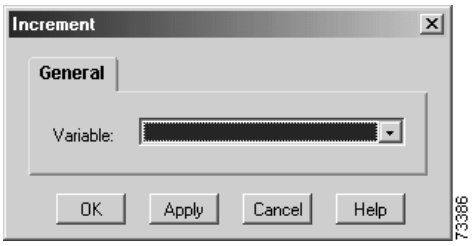
Enter an expression in the text field or click the **Expression Editor** (**...**) button to enter an expression. The expression appears next to the **If** step icon in the Design pane.

Increment

Use the **Increment** step to increase the value of a chosen Integer variable by one. This step is a specialized version of the **Set** step of the **General** palette, which you use to assign any value to a variable.

Figure 103 shows the customizer window for the **Increment** step.

Figure 103 Increment Customizer Window



Select the Integer type variable from the **Variable** drop-down menu. The variable appears next to the Increment step icon in the Design pane.

Is Holiday

The **Is Holiday** step is a conditional step which branches the flow according to the predefined holidays. This step can play a "Business closed for the holiday" prompt.

The **Is Holiday** step automatically adds two output branches:

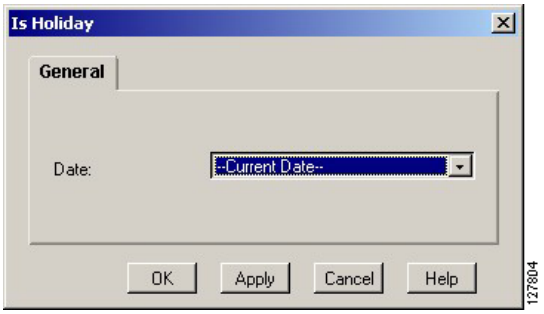
- **True**: Steps following this branch execute if the specified date is a holiday.
- **False**: Steps following this branch execute if the specified date is not a holiday.

When the step executes, the system compares the specified date with the list of holidays. If the specified date is a holiday, the **True** branch executes. If the specified date is not a holiday, the **False** branch executes.

For more information about configuring holiday schedules, see the *Cisco Unity Express 3.2 GUI Administrator Guide* or the *Cisco Unity Express 3.2 Voice-Mail and Auto-Attendant CLI Administrator Guide*.

Figure 104 shows the customizer window for the Is Holiday step.

Figure 104 Is Holiday Customizer Window



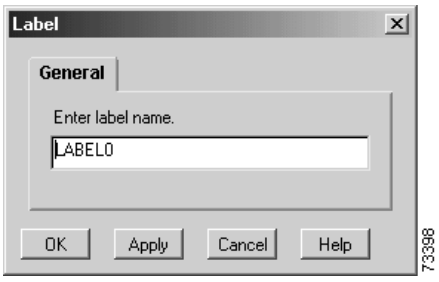
The **Date** field contains the date variable that the system uses to check for holidays. You can leave the **Current Date** variable or click the **Date** drop-down menu to select a date variable. The name of the **Date** variable appears next to the **Is Holiday** step icon in the Design pane.

Label

Use the **Label** step to serve as a target for a **Goto** step. The Label step indicates a section of the script that can be executed by more than one Goto step. The Label and Goto steps must be in the same script.

Figure 105 shows the customizer window for the **Label** step.

Figure 105 Label Customizer Window



Enter a name in the **Enter Label Name** text field. The Label name appears next to the **Label** step icon in the Design pane.

On Exception Clear

Use the **On Exception Clear** step to remove an exception set by a previous **On Exception Goto** step.

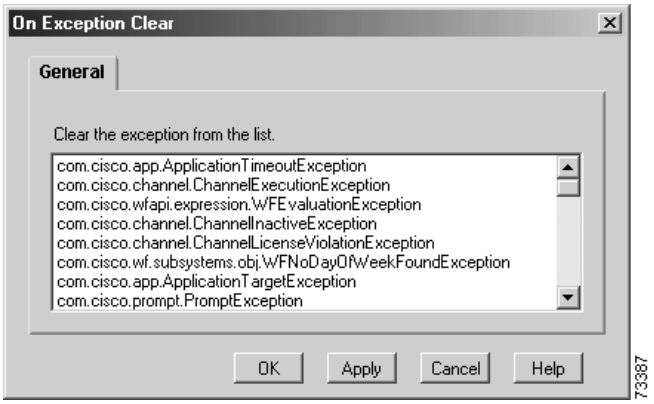
Typically, this step is used in the following sequence:

1. An **On Exception Goto** step directs the script to a **Label** step.
2. The **Label** step is configured with a script to handle the exception.
3. An **On Exception Clear** step clears the exception.

Also, use this step when you no longer need to handle the selected exception within the script.

Figure 106 shows the customizer window for the **On Exception Clear** step.

Figure 106 On Exception Clear Customizer Window



Select the specific exception from the list box. The exception being cleared appears next to the **On Exception Clear** step icon in the Design pane.

On Exception Goto

Use the **On Exception Goto** step to catch problems occurring during script execution and allow a graceful exit from the situation.

You can include any script steps in the Exception Flow branch that you want to use to respond to the exception.

If you are using subflows and the subflow does not handle an exception, the exception is returned to the script and the script can respond to it.

Figure 107 shows the customizer window for the **On Exception Goto** step.

Figure 107 On Exception Goto Customizer Window

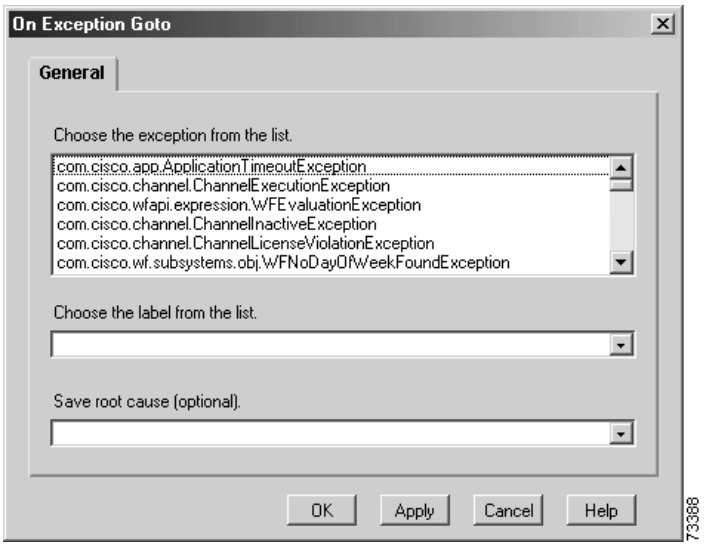


Table 44 describes the fields of the **On Exception Goto** customizer window.

Table 44 On Exception Goto Fields

Field	Description
Choose the exception from the list	Exception that triggers the execution of the step. This appears next to the **On Exception Goto** step icon in the Design pane.
Choose the label from the list	Label to which the script branches.
Save root cause (optional)	Cause of the exception, saved in an exception object using the "Save root cause" field. The object type must correspond to the type of exception being caught or to a base class of that exception. If it does not, no warning will be generated at design time, and an error will result at run time.

Set

Use the **Set** step to change the value of a variable.

The **Set** step supports type casting (with possible loss of precision) from any Number data type (Integer, Float, Long, Double, BigInteger, BigDecimal) to any other Number data type.

You can also use the **Set** step to convert a String variable to any Number data type. For String conversions, the system replaces all "*" characters with a decimal point (".") before performing the conversion.

Figure 108 shows the customizer window for the **Set** step.

Figure 108 Set Customizer Window

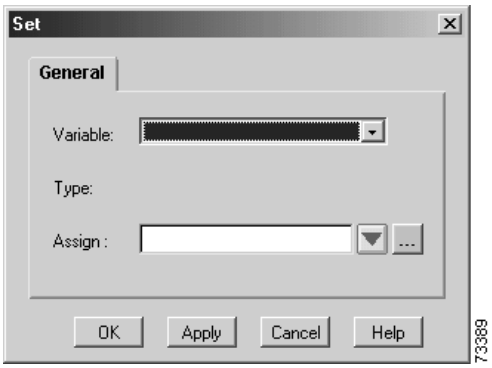


Table 45 describes the fields of the **Set** customizer window.

Table 45 Set Customizer Window Fields

Field	Description
Variable	Variable for which the value is set. This appears next to the **Set** step icon in the Design pane.
Type	Variable type. The application software assigns this value.
Assign	Value for the specified variable. Choose the value from the **Assign** drop-down menu, or click the **Expression Editor** (**...**) button to enter any valid expression.

Start

The Cisco Unity Express Script Editor automatically adds the **Start** step when you create a new script. This step has no properties and does not require a customizer. It is not shown in any palette.

Switch

Use the **Switch** step to cause the program logic to branch to one of a number of cases based on the evaluation of a specified expression.

A *case* provides script logic based on the value of a variable. A variable can have one of several values. You can assign one case for each value. The **Switch** step lets you define any number of case output branches. You can then create a separate script logic for each (case) branch.

The **Switch** step supports switching based on the following variables:

- Integer: Comparison of integers.
- String: Comparison of string variables (case insensitive).

The type of switching is automatically determined by the type of the specified expression.

If the integer or string expression you specify for a case is equal to the global expression defined in the **Switch Expression** field, the script executes the steps configured for that case output branch.

The **Default** branch of the step allows you to handle cases where none of the branches matches the expression.

Figure 109 shows the customizer window for the **Switch** step.

Figure 109 Switch Customizer Window

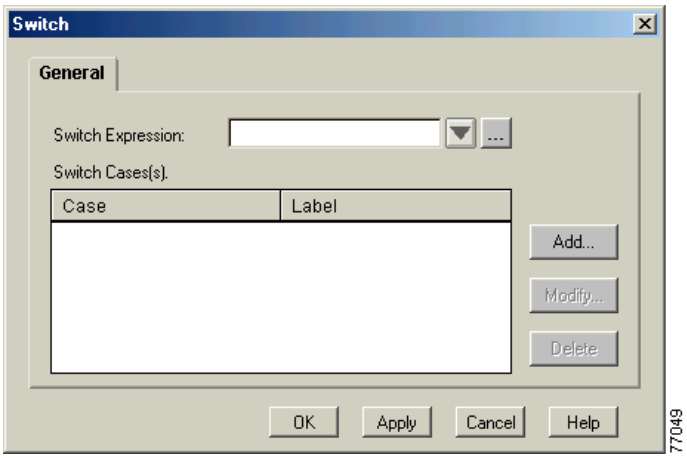


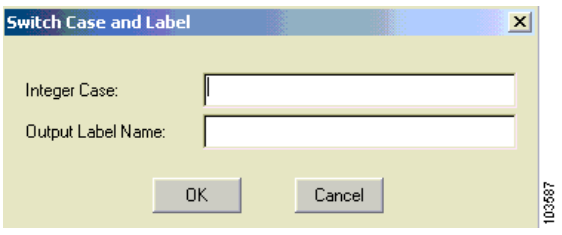
Table 46 describes the fields of the **Switch** customizer window.

Table 46 Switch Customizer Window Fields

Field	Description
Switch Expression	Expression to be executed. Select a variable or expression, or click the **Expression Editor** (**...**) button to enter any valid expression.
Switch Case(s)	• Case: Output branch containing script logic specific to one possible variable value. • Label: Target to which the script branches when the variable equals a specific value.
Add	Adds a case.
Modify	Modify a case.
Case	Integer or Case. Determined automatically by switch expression type.
Output Label Name	Enter an output label name. The script branches to this Label when the variable equals the value specified in the **Case** field.

The **Switch Case and Label** dialog box is shown in Figure 110.

Figure 110 Switch Case and Label Dialog Box



Time of Day

Use the **Time of Day** step to cause the script to branch to different connection branches depending on the current time of day.

When the Cisco Unity Express system clock indicates that the time of day matches the time associated with a connection, the script executes any steps configured for that output branch.

Associate each output branch with a specified range of time.

During run time, if the current time falls out of the configured time range, the script follows the **Rest** output branch of the **Time of Day** step.

Figure 111 shows the customizer window for the **Time of Day** step.

Figure 111 Time of Day Customizer Window

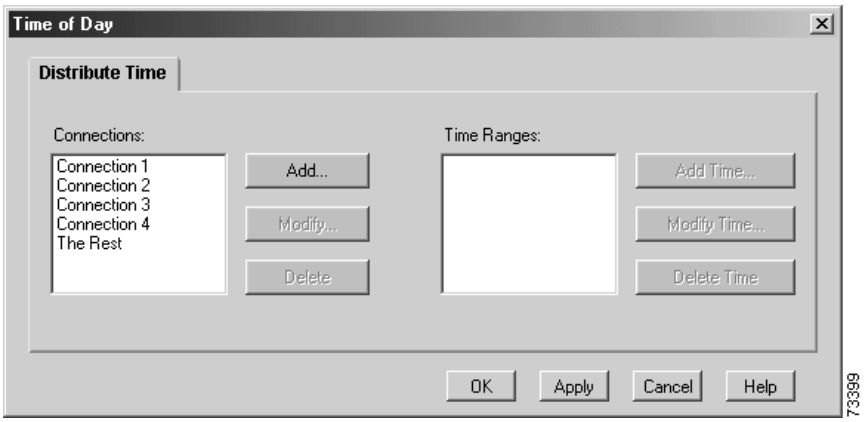


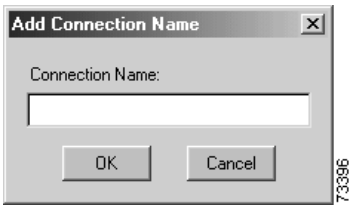
Table 47 describes the fields of the **Time of Day** customizer window.

Table 47 Time of Day Customer Window Fields

Field	Description
Connections	Output branches that execute depending on specified time of day.
Time Ranges	Time ranges for each connection branch.
Add	Click to add a connection. Enter a connection name in the dialog box.
Modify	Click to modify a connection.
Delete	Click to delete the selected connection.
Add Time	Click to add time to a connection. To specify a range of hours for the connection, select the **Start Time** and **End Time**.
Modify Time	Click to modify time for a connection.
Delete Time	Click to delete the selected time.

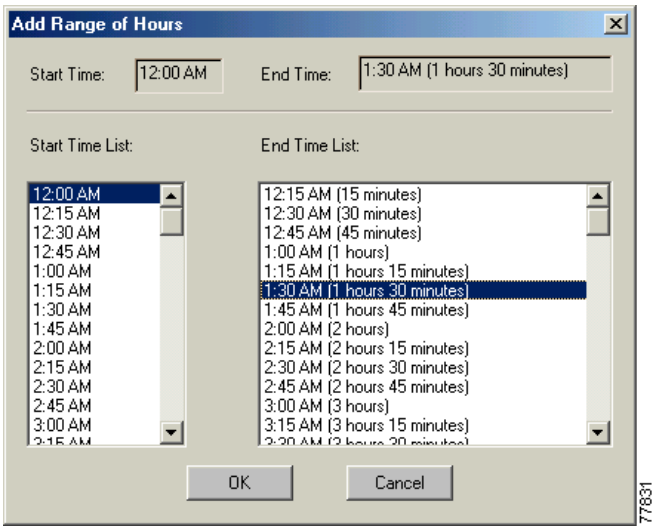
The **Add Connection Name** dialog box is shown in Figure 112.

Figure 112 Add Connection Name Dialog Box



The **Add Range of Hours** dialog box is shown in Figure 113.

Figure 113 Add Range of Hours Dialog Box



HTTP Contact Steps (IVR Only)

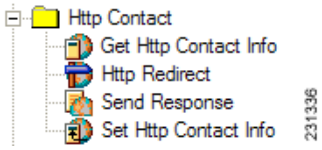
The steps in the **HTTP Contact** palette of the Cisco Unity Express Script Editor allow you to receive HTTP requests and send HTTP responses in web-enabled server applications. For more information about the HTTP contact steps, see the *Cisco Unity Express 3.2 IVR CLI Administrator Guide*.

The **HTTP Contact** palette contains the following steps:

- Get Http Contact Info, page 122
- Http Redirect, page 127
- Send Response, page 128
- Set Http Contact Info, page 129

Figure 114 shows the steps in the **HTTP Contact** palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

Figure 114 HTTP Contact Palette Steps



Get Http Contact Info

Use the **Get Http Contact Info** step to map parameters from an HTTP request to locally defined variables.

The **Get Http Contact Info** step obtains URL parameters, HTTP headers, cookies, or Common Gateway Interface (CGI) environment variables. URL parameters, header information, cookies, and CGI variables are mapped to locally defined variables.

The **GET Http Contact Info** customizer window contains five tabs:

- General Tab, page 122
- Headers Tab, page 123
- Parameters Tab, page 124
- Cookies Tab, page 125
- Environment Tab, page 126

General Tab

Use the **General** tab of the **Get Http Contact Info** customizer window, shown in Figure 115, to select the type of variable to trigger the execution of the **Get Http Contact Info** step.

Figure 115 Get Http Contact Customizer Window: General Tab

Table 48 describes the field of the **General** tab.

Table 48 Get Http Contact Info Customizer Window Field: General Tab

Field	Description
Http Contact	Contact variable that triggers the execution of the step. The default is Triggering Contact, unless another contact is specified.

Headers Tab

Use the **Headers** tab of the **Get Http Contact Info** customizer window to display the HTTP headers that are mapped to local variables.

HTTP headers contain general information such as the type of browser or HTTP version. Each header provides one value, which is identified by the header name. For example, information from HTTP headers can be used in more complex scripts to customize the behavior of the script for different HTTP versions or for different browser types.

HTTP provides four types of headers:

- **General**: Used by both servers and clients (browsers)
- **Server**: Used only by servers
- **Request**: Used only by clients (browsers)
- **Entity**: Used by servers and by clients using POST or PUT methods

The following are common HTTP Request headers:

- **Accept**: Preferred media type
- **Authorization**: Client username and password
- **From**: E-mail address of the client
- **Host**: Hostname and port number of the server receiving the original request
- **Referrer**: URL of the source document
- **User-Agent**: Browser type

Note For detailed information about these or other headers, see any HTTP reference guide.

Figure 116 shows the customizer window for the **Headers** tab.

Figure 116 Get HTTP Contact Info Customizer Window: Headers Tab

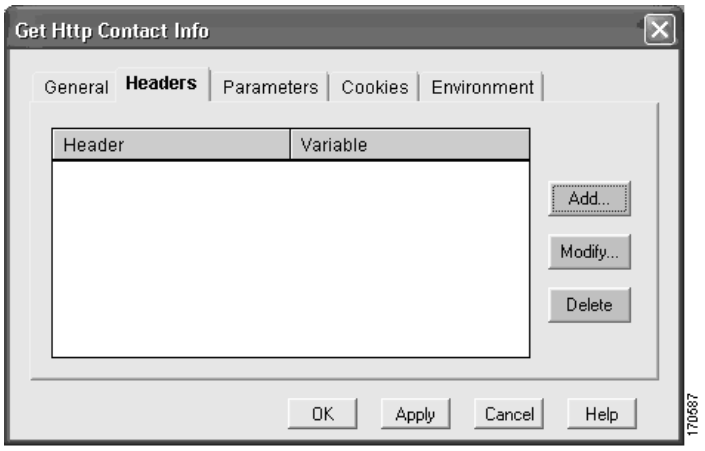


Table 49 describes the fields of the **Headers** tab.

Table 49 Get Http Contact Info Customizer Window Fields: Headers Tab

Field	Description
Header	Name of the header.
Variable	Variable that maps to the header.

Parameters Tab

Use the **Parameters** tab of the **Get Http Contact Info** customizer window, shown in Figure 117, to map scripts parameters to variables in the Cisco Unity Express Editor.

After an HTML form has been completed, the values are typically passed as parameters to the web server. The **Get Http Contact Info** step reads the values of these parameters from the HTTP request using both the GET and POST methods (see Table 28 on page 93) and updates the local variables in the script.

Figure 117 Get Http Contact Info Customizer Window: Parameters Tab

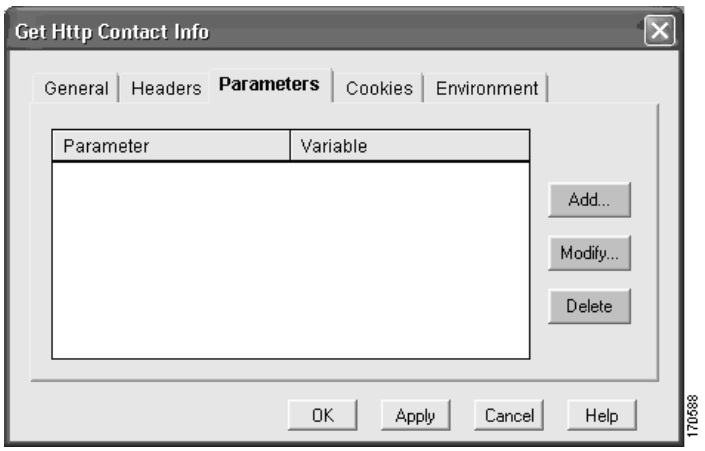


Table 50 describes the fields of the **Parameters** tab.

Table 50 Get Http Contact Info Customizer Window Fields: Parameters Tab

Field	Description
Parameter	Name of the parameter.
Variable	Name of the variable that maps to the parameter.

Cookies Tab

Use the **Cookies** tab of the **Get Http Contact Info** customizer window to map information from a local variable to a cookie.

A cookie is information maintained by the browser that is typically sent by an HTTP server. The information in cookies can improve access to webpages. Most cookies store authentication or identifying information. Once the server authenticates a browser, it can send authentication credentials or other user identifiers to the browser cookie. The webpage can then be accessed without further authentication or identification.

Cookies can also be used to store a mapping identifier to a session object so that on subsequent requests, the original Session object associated with the previous HTTP request can be retrieved and reassociated with the new HTTP contact.

Note The use of cookies for authentication may present a security risk if an authenticated browser is left unattended.

Figure 118 shows the customizer window for the **Cookies** tab and Table 51 describes the field. Figure 119 shows the Add Cookies window, in which you add the cookies name and variable name, and Table 52 describes the fields. Use the variable name to refer to the data that the variable contains.

Figure 118 Get Http Contact Info Customizer Window: Cookies Tab

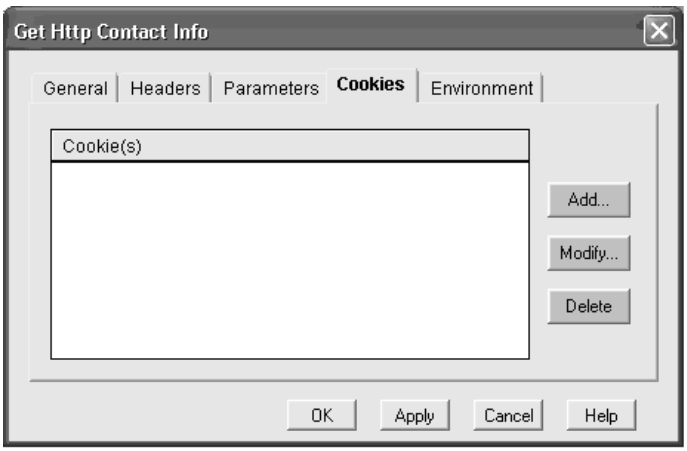


Table 51 Get Http Contact Info Customizer Window Fields: Cookies Tab

Field	Description
Cookie	Names of the cookies

Figure 119 Add Cookies Window

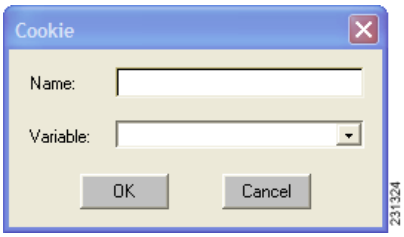


Table 52 Add Cookies Window Fields

Field	Description
Name	Names of the cookies
Variable	Name of variable

Environment Tab

Use the **Environment** tab of the **Get Http Contact Info** customizer window to map information from CGI environment variables to local variables.

The following is an alphabetical list of the environment variables:

- **AUTH_TYPE**: Protocol-specific authentication method used to validate the user when the server supports user authentication and the script requires authentication.
- **CONTENT_LENGTH**: Content length of the data as specified by the client.
- **CONTENT_TYPE**: Content type of the data for queries such as HTTP GET and HTTP POST that have attached information.
- **PATH_INFO**: Extra path information as given by the client. Scripts can be accessed by a virtual pathname, followed by extra information at the end of the path. The extra information is sent as PATH_INFO. The server decodes this information if it is from a URL before it is passed to the script.
- **PATH_TRANSLATED**: Translated version of PATH_INFO, with any associated virtual-to-physical mapping.
- **QUERY_STRING**: Information that follows the question mark (?) in the URL that references this script. This information is the query information. Do not decode it. Always set this variable when there is query information, regardless of command line decoding.
- **REMOTE_ADDR**: IP address of the remote host making the request.
- **REMOTE_HOST**: Hostname making the request. If the server does not have this information, it sets REMOTE_ADDR.
- **REMOTE_USER**: Authenticated username when the server supports user authentication and the script requires authentication.
- **REQUEST_METHOD**: Method of the request that was made, such as GET or POST (see Table 28 on page 93).
- **SCRIPT_NAME**: Virtual path to the script being executed, used for self-referencing URLs.
- **SERVER_NAME**: Server's hostname, DNS alias, or IP address as it would appear in a self-referencing URL.
- **SERVER_PORT**: TCP port number of the request.

- **SERVER_PROTOCOL**: Name and revision of the information protocol of the request, uses the protocol/revision format.

Figure 120 shows the customizer window for the **Environment** tab.

Figure 120 Get HTTP Contact Info Customizer Window: Environment Tab

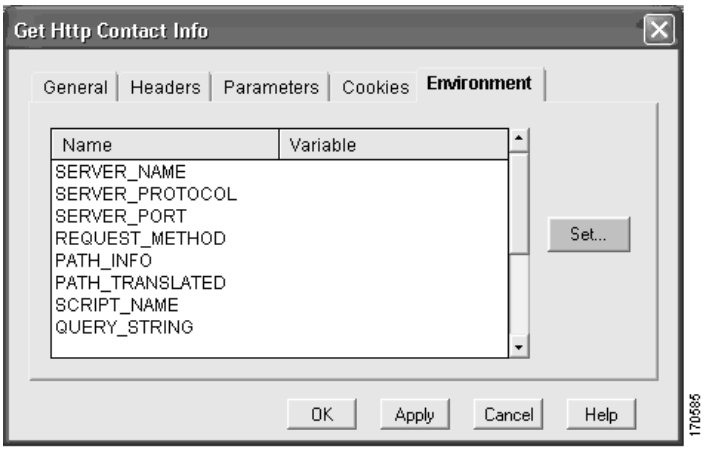


Table 53 describes the fields of the **Environment** tab.

Table 53 Call Subflow Customizer Window Fields: General Tab

Field	Description
Name	Name of the environmental variable.
Variable	Name of the variable that maps to the environment variable.

Http Redirect

Use the **Http Redirect** step to redirect the browser to a specified URL instead of respond to an HTTP request.

Either the **Http Direct** step or the **Send Response** step (see the "Send Response" section on page 128) can be used to respond to an HTTP request. Do not use both steps. If both steps are used, the HTTP Contact script will shift to a final state after a response is returned back to the browser and be unable send another response because one was already sent.

If a script uses conditional logic, the **Http Direct** step can be used with one condition and **Send Response** step can be used with the other.

The **Terminate** step from the **Contact** palette (see the "Terminate" section on page 77) can also be used as responses to an HTTP request.

Figure 121 shows the customizer window for the **Http Redirect** step.

Figure 121 HTTP Redirect Customizer Window

Table 54 describes the fields of the **Http Redirect** customizer window.

Table 54 Http Redirect Customizer Window Fields

Field	Description
Http Contact	Triggers the execution of the **Redirect** step. The default is Triggering Contact, unless another contact is specified.
URL	URL to which the browser is redirected.

Send Response

Use the **Send Response** step to send a document to a browser.

A document must be stored in a document variable before it is sent (see the "Document Steps (IVR Only)" section on page 90). To update a document with dynamic information before it is sent to a browser, place the **Text Substitution for Keywords** step (see the "Text Substitution for Keywords" section on page 94) before the **Send Response** step in the script.

Either the **Send Response** step or the **Http Direct** step (see the "Http Redirect" section on page 127) can be used to respond to an HTTP request. Do not use both steps. If both steps are used, the HTTP Contact script shifts to a final state after a response is returned to the browser and is unable to send another response because one was already sent.

If a script uses conditional logic, the **Http Direct** step can be used with one condition and **Send Response** step can be used with the other.

The **Terminate** step from the **Contact** palette (see the "Terminate" section on page 77) can also be used to respond to an HTTP request.

Figure 122 shows the customizer window for the **Send Response** step.

Figure 122 Send Response Customizer Window

Table 55 describes the fields of the **Send Response** customizer window.

Table 55 Send Response Window Fields

Field	Description
Http Contact	Contact variable that triggers the execution of the step. The default is Triggering Contact, unless another contact is specified.
Document	Variable that stores the document to be sent.

Set Http Contact Info

Use the **Set Http Contact Info** step to set the values of HTTP headers and cookies in an HTTP response.

Note To use his step for advanced scripts, specialized knowledge of HTTP is required.

The **Set Http Contact Info** customizer window contains three tabs:

- General Tab, page 129
- Headers Tab, page 130
- Cookies Tab, page 131

General Tab

Use the **General** tab of the **Set Http Contact Info** customizer window, shown in Figure 123, to specify the HTTP contact variable that triggers the execution of the step.

Figure 123 Set Http Contact Info Customizer Window: General Tab

Table 56 describes the field of the **General** tab.

Table 56 Set Http Contact Info Customizer Window Field: General Tab

Field	Description
Http Contact	Contact variable that triggers the execution of the step. Unless another contact is specified, the default is Triggering Contact.

Headers Tab

Use the **Headers** tab of the **Set Http Contact Info** customizer window, shown in Figure 124, to map each HTTP header to a local variable or to a valid expression from which the header value will be obtained when the step executes.

Figure 124 Set Http Contact Info Customizer Window: Headers Tab

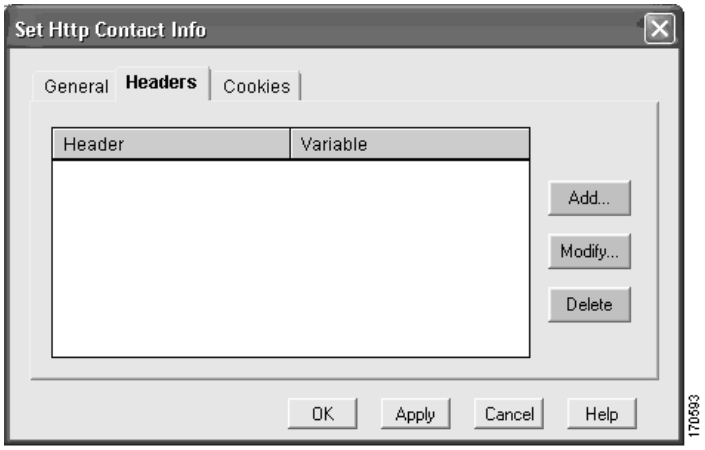


Table 57 describes the fields of the **Headers** tab.

Table 57 Set Http Contact Info Customizer Window Fields: Headers Tab

Field	Description
Header	Name of the header.
Variable	Variable that maps to the header.

Cookies Tab

Use the **Cookies** tab of the **Set Http Contact Info** customizer window, shown in Figure 125, to map each cookie to a local variable from which to obtain the cookie value when the step executes.

A cookie is information maintained by the browser that is sent by the HTTP server in response to an HTTP request. For more information about cookies, see the "Cookies Tab" section on page 125.

Figure 125 Set Http Contact Info Customizer Window: Cookies Tab

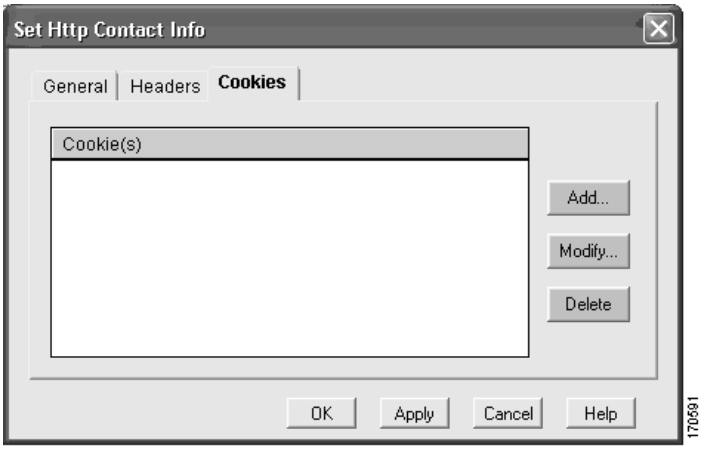


Table 58 describes the field of the **Cookies** tab.

Table 58 Set Http Contact Info Customizer Window Fields: Cookies Tab

Field	Description
Cookie	Name or names of the cookies mapped to variables.

Media Steps

The steps in the **Media** palette of the Cisco Unity Express Script Editor provide script designers with a way to process media interactions with callers.

Media interactions can include playing prompts and acquiring Dual Tone Multi-frequency (DTMF) input.

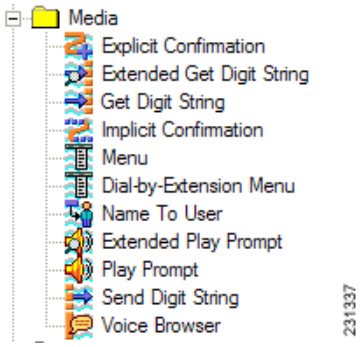
The **Media** palette contains the following steps:

- Explicit Confirmation, page 132
- Implicit Confirmation, page 144
- Get Digit String, page 139

- Menu, page 145
- Name To User, page 149
- Play Prompt, page 155
- Extended Play Prompt, page 158
- Send Digit String (IVR Only), page 160
- Dial-by-Extension Menu, page 160
- Voice Browser (IVR Only), page 165

Figure 53 shows the steps in the **Media** palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

Figure 126 Media Palette Steps



Note If you apply any of these **Media** steps to a contact that is not associated with a **Media** channel (also called a *dialog* channel), you receive a ChannelUnsupportedException error.

Explicit Confirmation

Use the **Explicit Confirmation** step to confirm an explicit response to a prompt. The **Explicit Confirmation** step accepts 1 for yes and 2 for no.

The customizer window of the **Explicit Confirmation** step contains three tabs:

- General Tab, page 132
- Prompts Tab, page 133
- Input Tab, page 134

General Tab

Use the **General** tab of the **Explicit Confirmation** customizer window, as shown in Figure 127, to select the contact on which to perform the confirmation and to set the Interruptible option.

Figure 127 Explicit Confirmation General Tab

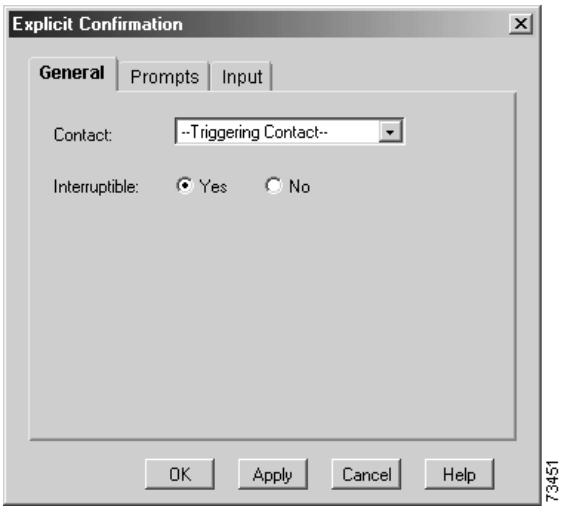


Table 59 describes the fields of the **General** tab.

Table 59 Explicit Confirmation Customizer Window Fields: General Tab

Property	Description
Contact	Contact that triggers the execution of the step. Unless another contact is specified, the default is Triggering Contact.
Interruptible	If **Yes,** an external event (such as a caller hanging up) can interrupt the step. If **No**, the step must complete before any other process can execute.

Prompts Tab

Use the **Prompts** tab of the **Explicit Confirmation** customizer window, as shown in Figure 128, to specify initial, error, and timeout prompts and to set Barge In and Continue On Prompt Errors options.

Figure 128 Explicit Confirmation Customizer Window: Prompts Tab

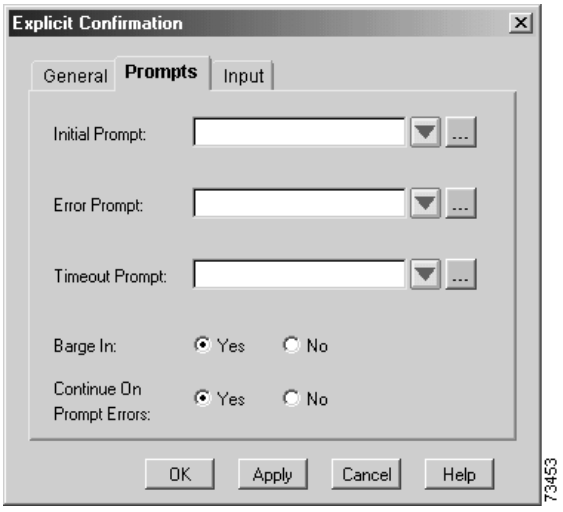


Table 60 describes the fields of the **Prompts** tab.

Table 60 Explicit Confirmation Customizer Window Fields: Prompts Tab

Field	Description
Initial Prompt	First prompt to be played back. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Error Prompt	Prompt to be played if an input error occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Timeout Prompt	Prompt to be played if a timeout occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Barge In	If **Yes**, the caller can interrupt the prompt. If **No**, the prompt must complete playback before the caller can respond.
Continue on Prompt Errors	If **Yes**, the step continues with the next prompt in the list if a prompt error occurs, or, if this prompt was the last in the list, the step waits for input from the caller. If **No**, an exception results, which can then be handled in the script.

Input Tab

Use the **Input** tab of the **Explicit Confirmation** customizer window, as shown in Figure 129, to set timeout duration, maximum number of retries, and Flush Input Buffer options.

Figure 129 Explicit Confirmation Customizer Window: Input Tab

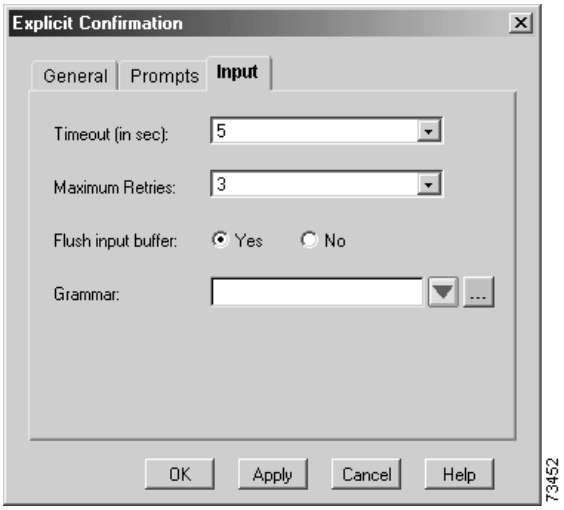


Table 61 describes the fields of the **Input** tab.

Table 61 Explicit Confirmation Customizer Window Fields: Input Tab

Field	Description
Timeout (in sec)	Number of seconds that the step waits for a response before timing out.
Maximum Retries	Number of times a new entry can be entered after a timeout or invalid key.
Flush input Buffer	If **Yes**, the system erases previously entered input before capturing caller input. If **No**, the system does not erase previously entered input before capturing caller input.
Grammar	Optional grammar expression to be used for recognizing **Yes** or **No**. If supplied, the grammar overrides the system default grammar. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a grammar expression.

Extended Get Digit String Step

Use the **Extended Get Digit String** step to capture DTMF entries in a script. This step waits for input until the timeout is reached or the caller does one of the following:

- Presses the terminating key
- Exhausts the maximum number of retries
- Enters the maximum number of keys

The **Extended Get Digit String** step acts exactly like the existing **Get Digit String** step except:

- The Get Digit String step provides a Boolean expression for the “Interruptible” and “Clear DTMF Buffer on Retry” fields.
- Although the same limits apply to both steps, you can define most of the Extended Get Digit String step properties using variables that you can change while the script is running.

The terminating key and the cancel key fields in the step customizer support Character objects and String objects. When strings are passed as the terminating or cancel keys, only the first character of the string is used. The special string *none* can specify that either no terminating key or no cancel key is required.

The **Extended Get Digit String** step has the following output branches:

- **Successful** - Input was valid.
- **Timeout** - After the retry limit was reached, the last try timed out.
- **Unsuccessful** - After the retry limit was reached, an invalid key was entered.

When the step returns an error (Timeout or Unsuccessful), all collected digits are returned and stored in the specified input variable.

The customizer window of the **Extended Get Digit String** step contains four tabs:

- General Tab, page 136
- Prompt Tab, page 136
- Input Tab, page 137
- DTMF Control Tab, page 138

General Tab

Use the **General** tab of the **Extendedly Digit String** step, as shown in Figure 134, to choose the contact, specify the variable that stores the digit string, and specify whether the step is interruptible by external events.

Figure 130 Extended Get Digit String Customizer Window: General Tab

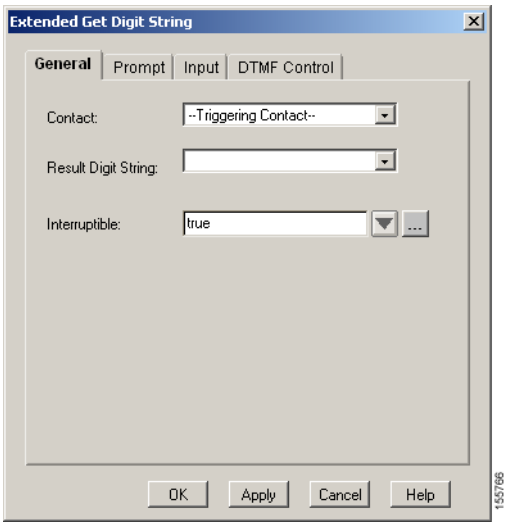


Table 62 describes the fields of the **General** tab.

Table 62 Extended Get Digit String Customizer Window: General Tab

Property	Description
Contact	Unless you specify another contact, the default is Triggering Contact.
Result Digit String	Variable that holds the resulting digit string.
Interruptible	If true, an external event, such as a call being remotely disconnected by the caller, can interrupt the step. If false, the step completes before any other process can execute.

Prompt Tab

Use the **Prompt** tab of the **Get Digit String** customizer window, as shown in Figure 135, to specify a prompt, and to set **Barge In** and **Continue on Prompt Errors** options.

Figure 131 Extended Get Digit String Customizer Window: Prompt Tab

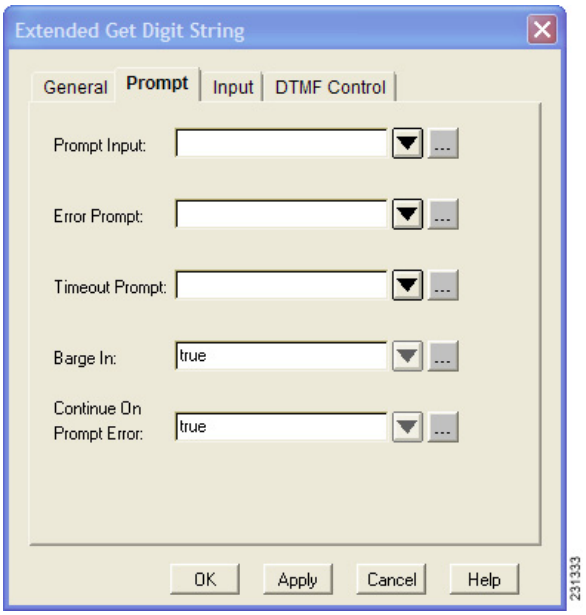


Table 63 describes the field of the **Prompt** tab.

Table 63 Extended Get Digit String: Prompt Tab

Property	Description
Prompt Input	Prompt that is played to callers asking them to input a digit string.
Error Prompt	Prompt to be played if an input error occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Timeout Prompt	Prompt to be played if a timeout occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Barge In	If true, the caller can interrupt the prompt; if false, the prompt must complete playing before the caller's input is accepted.
Continue On Prompt Error	If Yes, the step continues with the next prompt in the list, or if this was the last prompt, waits for input from the caller. If No, an exception is thrown, which can then be handled in the script.

Input Tab

Use the **Input** tab of the **Extended Get Digit String** customizer window, as shown in Figure 136, to set conditions for receiving caller input.

Figure 132 Extended Get Digit String Customizer Window: Input Tab

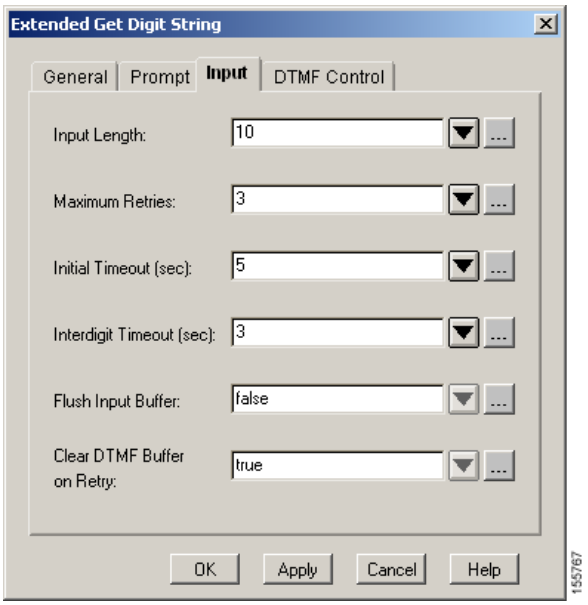


Table 64 describes the field of the **Filter** tab.

Table 64 Extended Get Digit String: Input Tab

Property	Description
Input Length	Maximum number of digits this step accepts. When this limit is reached, the step returns Successful.
Maximum Retries	Number of times the entry can be started over after a timeout or an invalid key. A 0 value means no retries and that the script must handle the retry scenario.
Initial Timeout	If Yes, the step continues with the next prompt in the list, or if this was the last prompt, awaits the input from the caller. If No, an exception is thrown, which can then be handled in the script.
Interdigit Timeout	Time (in seconds) that the system waits for the caller to enter the next digit after receiving the first digit from the caller.
Flush Input Buffer	If the expression evaluates to true, the system discards any previously entered digits before executing this step.
Clear DTMF Buffer on Retry	If the expression evaluates to true, the script clears the DTMF buffer before each retry.

DTMF Control Tab

Use the DTMF Control tab of the **Extended Get Digit String** customizer window, as shown in Figure 133, to set the Terminating Key, Cancel Key, and Input Filter.

Figure 133 Extended Get Digit String Customizer Window: DTMF Control Tab

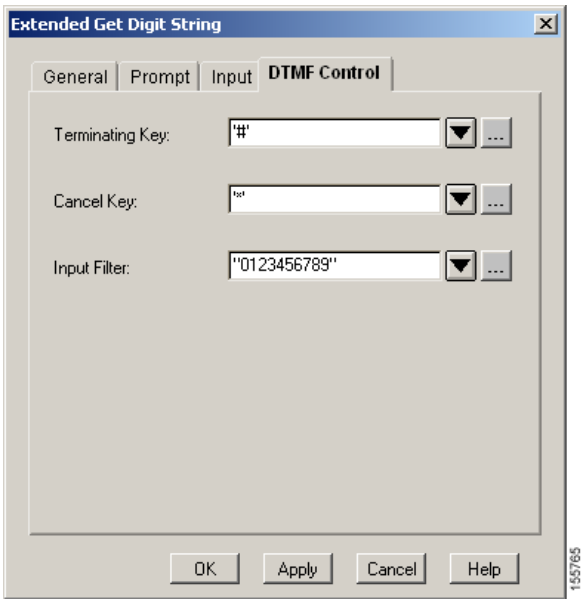


Table 65 describes the field of the **DTMF Control** tab.

Table 65 Extended Get Digit String Customizer Window: DTMF Control Tab

Property	Description
Terminating Key	Key used to indicate the end of caller input. The terminating key overrides the Maximum Input Length to terminate input. Leaving this field empty or setting it to *none* or *n* means that no terminating key exists.
Cancel Key	Key the caller can press to restart. Leaving this field empty or setting it to *none* or *n* means that no cancel key exists.
Input Filter	Expression that defines the valid DTMF keys that can be entered (excluding the terminating and cancel keys).

Get Digit String

Use the **Get Digit String** step to capture a DTMF digit string from the caller in response to a prompt.

The **Get Digit String** step waits for input until the caller does one of the following:

- Presses the terminating key (DTMF only).
- Exhausts the maximum number of retries.
- Enters the maximum number of keys (DTMF only).
- Does not respond before the timeout length is reached.

Note When any previous escalating prompt in the script enters the **Get Digit String** step, the previous escalating prompt is reset to the first prompt in its list.

The **Get Digit String** step provides three output branches:

- **Successful**: Input was valid.
- **Timeout**: After the retry limit was reached, the last try timed out.
- **Unsuccessful**: After the retry limit was reached, an invalid key was pressed.

Note If an error occurs, the accumulated digits are returned and saved in the specified variable before the script exits through the unsuccessful or timeout output branches.

The customizer window of the **Get Digit String** step contains four tabs:

- General Tab, page 140
- Prompt Tab, page 141
- Input Tab, page 142
- Filter Tab, page 143

General Tab

Use the **General** tab of the **Get Digit String** step, as shown in Figure 134, to choose the contact, specify the variable that will store the digit string, and specify whether or not the step is interruptible by external events.

Figure 134 Get Digit String Customizer Window: General Tab

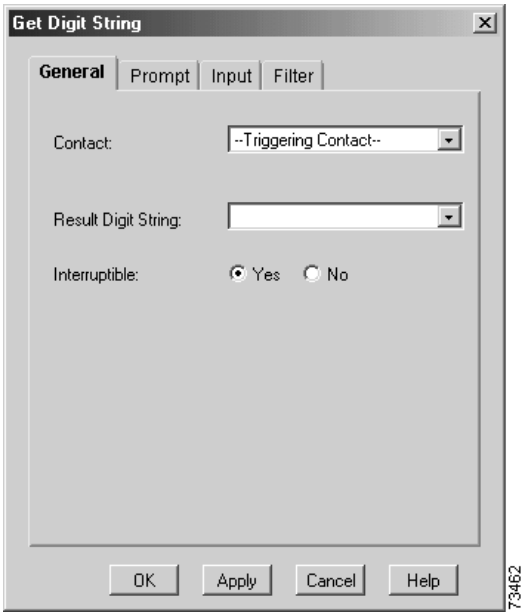


Table 66 describes the fields of the **General** tab.

Table 66 Get Digit String Customizer Window Fields: General Tab

Field	Description
Contact	Contact that triggers the execution of the step. Default is Triggering Contact, unless another contact is specified.
Result Digit String	Name of the variable that stores the digits that the caller enters.
Interruptible	If **Yes**, an external event (such as a caller hanging up) can interrupt the step. If **No**, the step must complete before any other process can execute.

Prompt Tab

Use the **Prompt** tab of the **Get Digit String** customizer window, as shown in Figure 135, to specify a prompt, and to set **Barge In** and **Continue on Prompt Errors** options.

Figure 135 Get Digit String Customizer Window: Prompt Tab

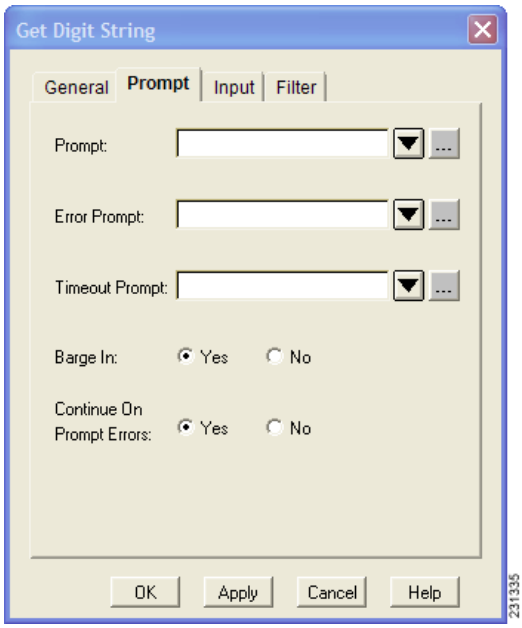


Table 67 describes the fields of the **Prompt** tab.

Table 67 Get Digit String Customizer Window Fields: Prompt Tab

Field	Description
Prompt	Prompt to be played back.
Error Prompt	Prompt to be played if an input error occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.

Table 67 Get Digit String Customizer Window Fields: Prompt Tab (continued)

Field	Description
Timeout Prompt	Prompt to be played if a timeout occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Barge In	If **Yes**, the caller can interrupt the prompt. If **No**, the prompt must complete playback before the caller can respond.
Continue on Prompt Errors	If **Yes**, the step continues with the next prompt in the list if a prompt error occurs, or, if this prompt was the last in the list, the step waits for input from the caller. If **No**, an exception results, which can then be handled in the script.

Input Tab

Use the **Input** tab of the **Get Digit String** customizer window, as shown in Figure 136, to set conditions for receiving caller input.

Figure 136 Get Digit String Customizer Window: Input Tab

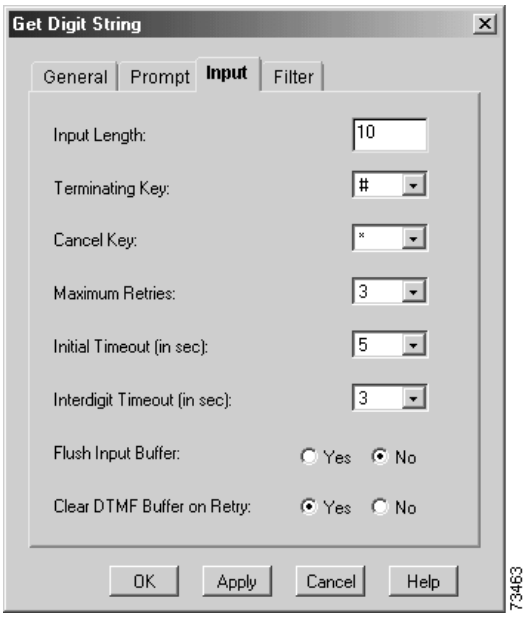


Table 68 describes the fields of the **Input** tab.

Table 68 Get Digit String Customizer Window Fields: Input Tab

Field	Description
Input Length	Maximum number of digits or characters. When this limit is reached, the step stops accumulating digits and returns.
Terminating Key	Key used to indicate the end of caller input (DTMF only). The terminating key overrides the **Input Length** to terminate input.
Cancel Key	Key the caller presses to start over.
Maximum Retries	Number of times a new entry can be entered after a timeout or invalid key. After the maximum number of retries is reached, the step continues on the **Timeout** or **Unsuccessful** output branch, depending on whether the last try timed out or an invalid key was entered. On a retry because of an invalid key, a system prompt plays. A "0" value means that no retry is allowed; in this case, the script must handle the retry scenario.
Initial timeout (in sec)	Number of seconds the system waits for initial input from the caller.
Interdigit timeout (in sec)	Number of seconds the system waits for the caller to enter the next digit after receiving initial input from the caller (DTMF).
Flush Input Buffer	If **Yes**, the system erases previously entered input before capturing caller input. If **No**, the system does not erase previously entered input before capturing caller input.
Clear DTMF Buffer on Retry	If **Yes**, the step clears the DTMF buffer before each retry. If **No**, the step does not clear the DTMF buffer before each retry.

Filter Tab

Use the **Filter** tab of the **Get Digit String** customizer window, as shown in Figure 137, to specify digits that can be accepted from the caller.

To specify the digits you want to accept from the caller, check the desired digit check boxes and click **OK**.

The **Get Digit String** customizer window closes. The name of the triggering contact and the result digit string variable appear next to the **Get Digit String** step icon in the Design pane.

Figure 137 Get Digit String Customizer Window: Filter Tab

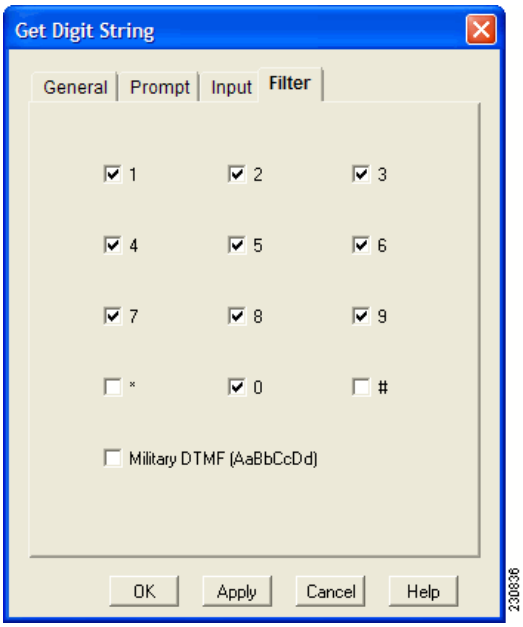


Table 69 describes the field of the **Filter** tab.

Table 69 Get Digit String Customizer Window Fields: Filter Tab

Field	Description
Digit selection box	Use the **Filter** tab to specify the digits that you want to accept from the caller (excluding the terminating and cancel keys). If the caller enters digits that you do not choose, the system plays an error prompt for the caller and retries the **Input** step until the maximum numbers of retries is reached. At that time, the **Unsuccessful** output branch executes.

Implicit Confirmation

Use the **Implicit Confirmation** step to confirm an action without asking a question.

A prompt explaining the action to be taken is played back and the system waits a configured number of seconds for input from the caller. If the caller presses any DTMF digits before the configured timeout, the confirmation is considered to have failed, and an **Explicit Confirmation** step must be used.

Note When any previous escalating prompt in the script enters the **Implicit Confirmation** step, the previous escalating prompt is reset to the first prompt in its list.

For example, when a valid string of digits is received, a prompt plays the extension that will be dialed, based on the caller's input. The **Implicit Confirmation** step is configured in this example to give the caller two seconds after hearing the prompt to decline confirmation before timeout.

Under the **No** output branch of the **Implicit Confirmation** step, an **If** step tracks the number of times the confirmation is attempted before the script moves to a subsequent step.

If the extension played back to the caller is accurate and the caller makes no effort to stop the operation, the **Yes** output branch executes and a **Call Redirect** step attempts to connect the caller to the desired extension.

Figure 138 shows the customizer window for the **Implicit Confirmation** step.

Figure 138 Implicit Confirmation Customizer Window

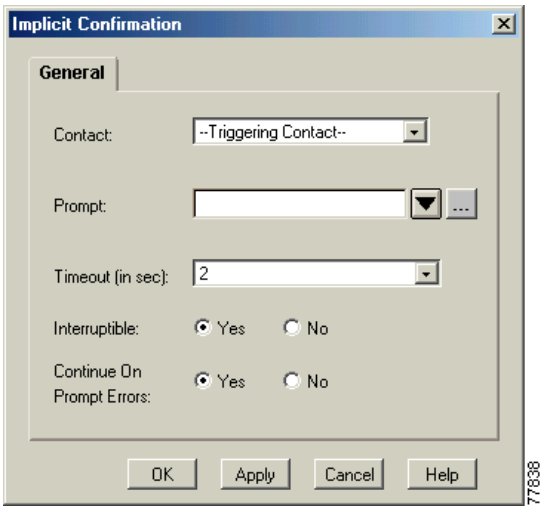


Table 70 describes the fields of the **Implicit Confirmation** customizer window.

Table 70 Implicit Confirmation Fields

Field	Description
Contact	Contact that triggers the execution of the step. Default is the Triggering Contact, unless another contact is specified. The name of the triggering contact appears next to the **Implicit Confirmation** step icon in the Design pane.
Prompt	Prompt played to the caller.
Timeout (in secs)	Number of seconds without a caller response before confirmation is considered successful. (Usual value is 2 seconds.)
Interruptible	If **Yes**, an external event (such as a caller hanging up) can interrupt the step. If **No**, the step must complete before any other process can execute.
Continue on Prompt Errors	If **Yes**, the step continues with the next prompt in the list if a prompt error occurs, or, if this prompt was the last in the list, the step waits for input from the caller. If **No**, an exception results, which can then be handled in the script.

Menu

Use the **Menu** step to provide a menu from which callers can choose a series of options. The **Menu** step receives a single digit entered by a caller and maps this entry to a series of option output branches. The system executes the steps that you add after each of these option output branches.

Note When any previous escalating prompt in the script enters the **Menu** step, the previous escalating prompt is reset to the first prompt in its list.

Although the **Menu** step combines the functionality of a **Get Digit String** step and a **Switch** step, it allows the caller to enter only one digit.

By default, the **Menu** step has the following output branches:

- **Output 1**
- **Output 2**
- **Output 3**
- **Timeout**
- **Unsuccessful**

You can add more output branches in the **General** tab of the **Menu** customizer window.

The **Menu** step retries for either a timeout or an invalid digit entry (a digit that is not associated with any connections). If the maximum number of retries is reached, the **Menu** step follows either the **Timeout** or **Unsuccessful** connection, depending on the reason for the latest failure.

The customizer window of the **Menu** step contains three tabs:

- General Tab, page 146
- Prompt Tab, page 148
- Input Tab, page 148

General Tab

Use the **General** tab of the **Menu** customizer window, shown in Figure 139, to associate digits (typically entered by the caller from a telephone keypad) with an output branch label.

You can associate multiple inputs with a single output branch label, and you can associate only one output branch label with a given input.

Figure 139 Menu Customizer Window: General Tab

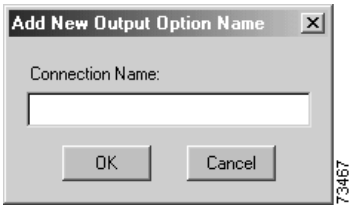
Table 71 describes the fields of the **General** tab.

Table 71 Menu Customizer Window Fields Customizer Window: General Tab

Field	Description
Contact	Contact that triggers the execution of the step. Unless another contact is specified, default is Triggering Contact.
Options	One label for each possible output value.
Add	Add a new option. The new option appears in the **Options** list box.
Modify	Modifies the selected option using the **Rename Output Option** dialog box, which contains the same field as the **Add New Output Option Name** dialog box and is configured in the same way.
Interruptible	If **Yes**, an external event (such as a caller hanging up) can interrupt the step. If **No**, the step must complete before any other process can execute.

The **Add New Output Option Name** dialog box is shown in Figure 140.

Figure 140 Add New Output Option Name Dialog Box



Prompt Tab

Use the **Prompt** tab of the **Menu** customizer window, as shown in Figure 141, to choose the prompt to be played back and to set the **Barge In** and **Continue on Prompt Errors** options.

Figure 141 Menu Customizer Window: Prompt Tab

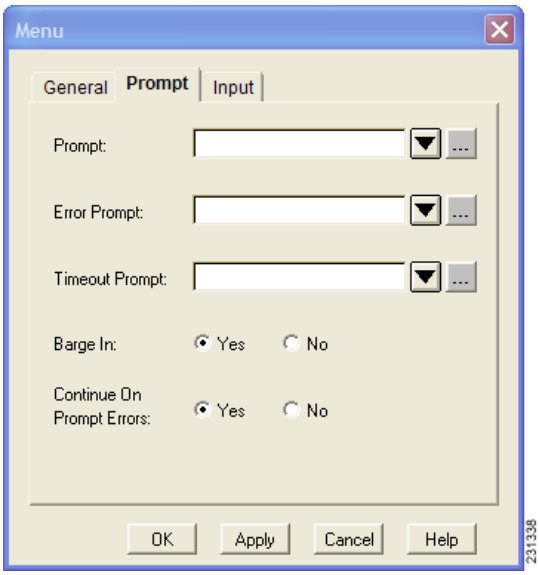


Table 72 describes the fields of the **Prompt** tab.

Table 72 Menu Customizer Window Fields: Prompt Tab

Field	Description
Prompt	Specifies prompt to be played back to caller.
Error Prompt	Prompt to be played if an input error occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Timeout Prompt	Prompt to be played if a timeout occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Barge In	If **Yes**, the caller can interrupt the prompt. If **No**, the prompt must complete playback before the caller can respond.
Continue on Prompt Errors	If **Yes,** the step continues with the next prompt in the list if a prompt error occurs, or, if this prompt was the last in the list, the step waits for input from the caller. If **No**, an exception results, which can then be handled in the script.

Input Tab

Use the **Input** tab of the **Menu** customizer window, as shown in Figure 142, to set the timeout setting, maximum number of retries, and **Flush Input Buffer** options.

Figure 142 Menu Customizer Window: Input Tab

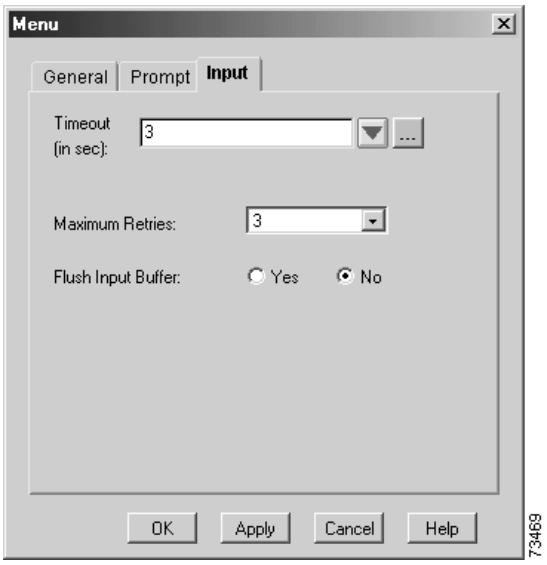


Table 73 describes the fields of the **Input** tab.

Table 73 Menu Customizer Window Fields: Input Tab

Property	Description
Timeout	Amount of time the system waits for input from the caller. When this timer expires, the system either replays the prompt or plays the system prompt that asks if the caller is still there. Enter a value, choose the variable that stores the timeout value from the **Timeout** drop-down menu, or click the **Expression Editor** (**...**) button and enter a number.
Maximum Retries	Number of times the entry can be restarted after a timeout or invalid input response. After the maximum number of retries is reached, the **Menu** step follows the **Timeout** or **Unsuccessful** output branches depending on whether the last try timed out or an invalid input response was entered. A "0" value means that no retry is allowed; in this case, the script must handle the retry scenario.
Flush Input Buffer	If **Yes,** the system erases previously entered input before capturing caller input. If **No**, the system does not erase previously entered input before capturing caller input.

Name To User

The **Name To User** step is typically used to prompt a caller for the name of the person being called (using DTMF), and then to compare the name entered by the caller with names stored in a directory. The **Name To User** step is often used in a script to automatically transfer a caller to the extension of the person being called.

Another useful function of the **Name To User** step is to assign a value to a variable that can later be queried using the **Get User Info** step to retrieve information such as the extension, e-mail address, and spoken name of the user selected by the caller.

Note When any previous escalating prompt in the script enters the **Name To User** step, the previous escalating prompt is reset to the first prompt in its list.

The **Name To User** step receives DTMF input from a caller, using the following numeric keypad mapping:

- 2 = ABC
- 3 = DEF
- 4 = GHI
- 5 = JKL
- 6 = MNO
- 7 = PQRS
- 8 = TUV
- 9 = WXYZ

Using the information from this step, the script creates a subsequent prompt that plays the prerecorded name of the user selected by the caller if it exists. If no recording exists, the script will spell the user's name.

Note The **Name To User** step is limited to spelling back names with ASCII-only characters, which may be a limitation under some international conditions.

The **Name To User** step produces the following output branches:

Note If the **Name To User** step matches the caller input with a single user in the Lightweight Access Directory Protocol (LDAP) directory, that result will be returned immediately without requiring the caller to confirm the selection.

- **Successful**: A successful match is made between the input from the caller and a name in the directory.
- **Timeout**: The step has reached the maximum number of retries (as configured in the customizer window) without receiving input from the caller.
- **Unsuccessful**: The input from the caller does not match a name in the directory.
- **Operator**: The operator's extension was entered.

  Note The **Operator** output branch appears under the **Name To User** step in the script only if **Yes** is selected for the **Operator** option in the **General** tab of the **Name To User** customizer window. (See Figure 143.)

The customizer window of the **Name To User** step contains three tabs:

- General Tab, page 151

General Tab

Use the **General** tab, as shown in Figure 143, to specify the **Result User** variable and to set other properties for the **Name To User** step.

Figure 143 Name To User Customizer Window: General Tab

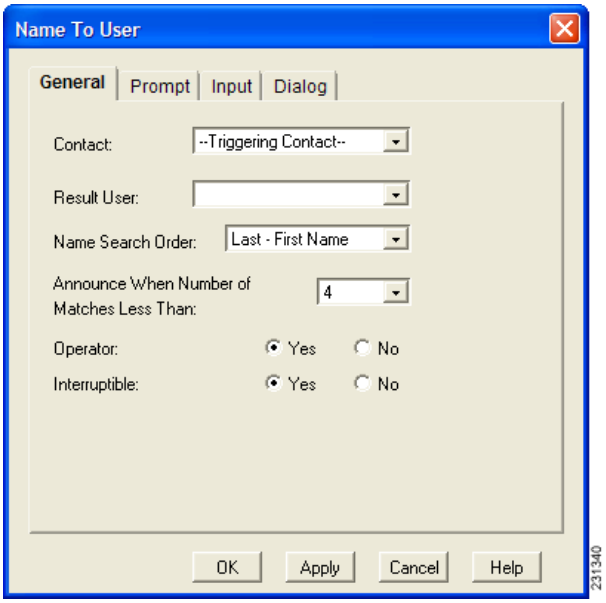


Table 74 describes the fields of the **General** tab.

Follow these steps to configure the **General** fields of the **Name To User** step:

Table 74 Name To User Customizer Window Fields: General Tab

Field	Description
Contact	Contact that triggers the execution of the step. Default is the Triggering Contact, unless another contact is specified. The name of the triggering contact and the name of the result user variable appear in the Design pane.
Result User	Variable that stores a user object representing the user selected by the caller.
Announce When Number of Matches Less Than	If the number of matches is less than this value, the step prompts the caller to choose the correct entry from the list of matches. If the number of matches is greater than or equal to this value, the step prompts the caller to enter additional letters to reduce the number of matches.
Name Search Order	Selects the search to use either the caller's first or last name.

Table 74 Name To User Customizer Window Fields: General Tab (continued)

Field	Description
Operator	If **Yes**, the caller has the option to connect to an operator by pressing "0". If **No**, the caller is not offered the option to connect to an operator.
Interruptible	If **Yes**, an external event (such as a caller hanging up) can interrupt the step. If **No**, the step must complete before any other process can execute.

Prompt Tab

Use the **Prompt** tab, as shown in Figure 144, to specify prompts to be played back by the **Name To User** step and to set the **Barge In** and **Continue on Prompt Errors** options.

Figure 144 Name To User Customizer Window: Prompt Tab

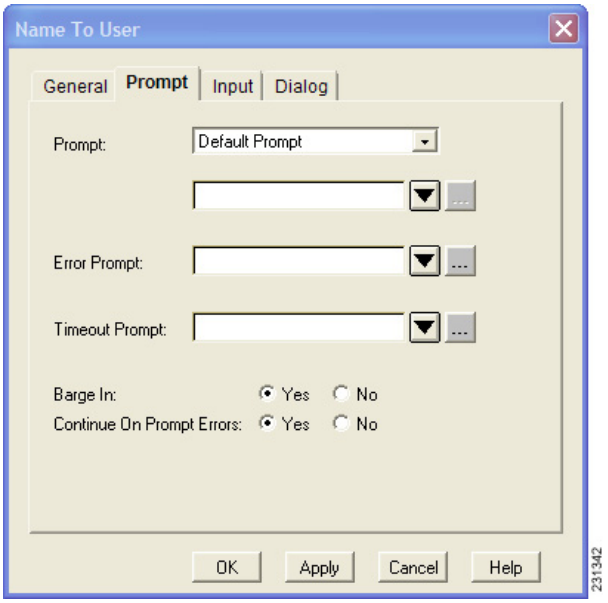


Table 75 describes the fields of the **Prompt** tab.

Table 75 Name To User Customizer Window Fields: Prompt Tab

Field	Description
Prompt	Specifies the prompt to be played back to the caller. Options from the drop-down menu: • **Default prompt**: System prompt bundled with the Cisco Unity Express software: "Spell the last name followed by the first name." • **Customized prompt**: Prompt created by the script designer. • **No prompt**: No prompt is played. Enter a value, choose a prompt to play from the **List of Prompts** drop-down menu, click the **Expression Editor** (**…**) button and enter an expression that specifies the prompt to play.
Error Prompt	Prompt to be played if an input error occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Timeout Prompt	Prompt to be played if a timeout occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Barge In	If **Yes**, the caller can interrupt the prompt. If **No**, the prompt must complete playback before the caller can respond.
Continue on Prompt Errors	If **Yes**, the step continues with the next prompt in the list if a prompt error occurs, or, if this prompt was the last in the list, the step waits for input from the caller. If **No**, an exception results, which can then be handled in the script.

Input Tab

Use the **Input** tab, as shown in Figure 145, to configure various input properties for the **Name To User** step.

Figure 145 Name To User Customizer Window: Input Tab

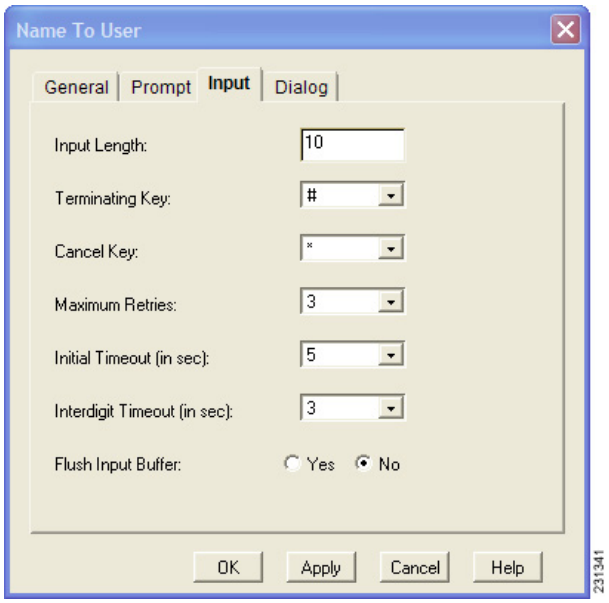


Table 76 describes the fields of the **Input** tab.

Table 76 Name To User Customizer Window Fields: Input Tab

Property	Description
Input Length	Minimum number of digits required before automatically checking for a caller match.
Terminating Key	Key used to indicate the end of caller input.
Cancel Key	Key the caller presses to restart. The **Cancel** key works only until the number of maximum retries is reached.
Maximum Retries	Number of times the step attempts to receive valid input. A "0" value means that no retry is allowed; in this case, the script must handle the retry scenario.
Initial Timeout (in sec)	Number of seconds that the system waits for initial input from the caller.
Interdigit Timeout (in sec)	Number of seconds that the system waits for the caller to enter the next digit, after receiving initial input from the caller.
Flush Input Buffer	If **Yes**, the system erases previously entered input before capturing caller input. If **No**, the system does not erase previously entered input before capturing caller input.

Dialog Tab

Use the **Dialog** tab, as shown in Figure 146, to configure various input properties for the **Name To User** step.

Figure 146 Name To User Customizer Window: Dialog Tab

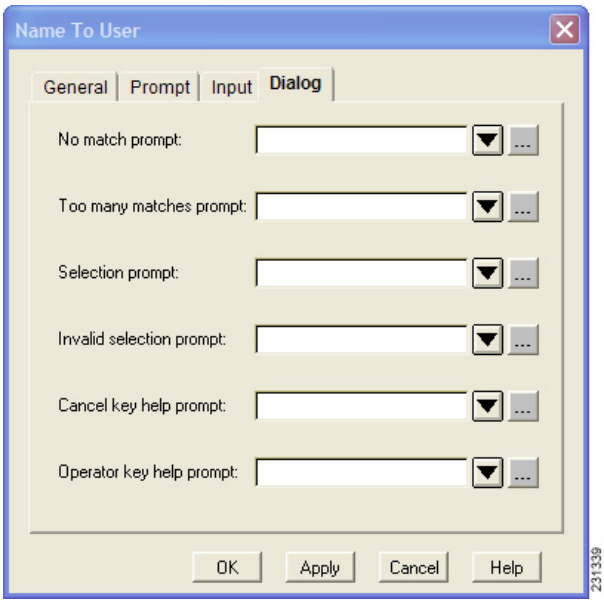


Table 76 describes the fields of the **Dialog** tab.

Table 77 Name To User Customizer Window Fields: Input Tab

Property	Description
No match prompt	Specifies the prompt to be played when no match is found after checking for a caller match.
Too many matches prompt	Specifies the prompt to be played when too many matches are found after checking for a caller match.
Selection prompt	Specifies the prompt to be played when a caller must make another selection.
Invalid selection prompt	Specifies the prompt to be played when an unrecognized selection is made by the caller.
Cancel key help prompt	Specifies the prompt to be played when the cancel help key is selected by the caller.
Operator key help prompt	Specifies the prompt to be played when the operator help key is selected by the caller.

Play Prompt

Use the **Play Prompt** step to play back specified prompts to the caller.

Note When any previous escalating prompt in the script enters the **Play Prompt** step, the previous escalating prompt is reset to the first prompt in its list.

The customizer window of the **Play Prompt** step contains three tabs:

- General Tab, page 156

General Tab

Use the **General** tab, as shown in Figure 147, to identify the contact and to set the **Interruptible** option.

Figure 147 Play Prompt Customizer Window: General Tab

Table 78 describes the fields of the **General** tab.

Table 78 Play Prompt Customizer Window Fields: General Tab

Field	Description
Contact	Contact that triggers the execution of the step. Default is Triggering Contact, unless another contact is specified. The name of the triggering contact and the name of the prompt variable appears in the Design pane.
Interruptible	If **Yes**, an external event (such as a caller hanging up) can interrupt the step. If **No**, the step must complete before any other process can execute.

Prompt Tab

Use the **Prompt** tab of the **Play Prompt** customizer window, as shown in Figure 148, to specify the prompt to be played back, and to set the **Barge In** and **Continue on Prompt Errors** options.

Figure 148 Play Prompt Customizer Window: Prompt Tab

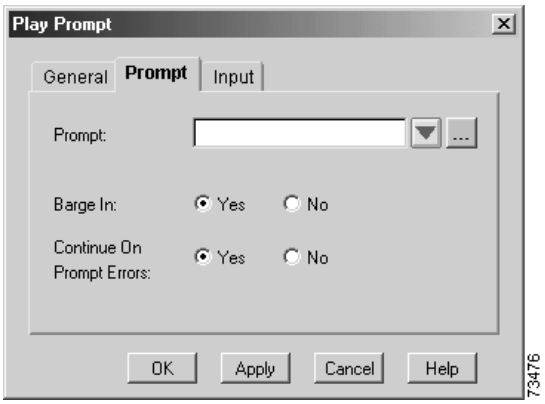


Table 79 describes the fields of the **Prompt** tab.

Table 79 Play Prompt Customizer Window Fields: Prompt Tab

Field	Description
Prompt	Specifies prompt to be played.
Barge In	If **Yes**, the caller can interrupt the prompt. If **No**, the prompt must complete playback before the caller can respond.
Continue on Prompt Errors	If **Yes**, the step continues with the next prompt in the list if a prompt error occurs, or, if this prompt was the last in the list, the step waits for input from the caller. If **No**, an exception results, which can then be handled in the script.

Input Tab

Use the **Input** tab of the **Play Prompt** step, as shown in Figure 149, to specify whether or not to erase previously entered input before capturing caller input.

Figure 149 Play Prompt Customizer Window: Input Tab

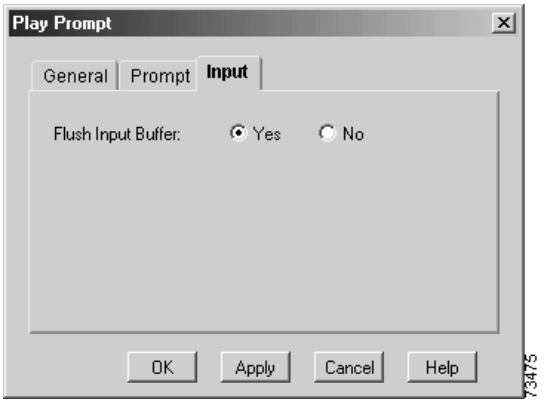


Table 80 describes the field of the **Input** tab

Table 80 Play Prompt Customer Window Field: Input Tab

Field	Description
Flush Input Buffer	If **Yes**, the system erases previously entered input before capturing caller input. If **No**, the system does not erase previously entered input before capturing caller input.

Extended Play Prompt

Use the **Extended Play Prompt** step to play prompts back to the caller. Use this step instead of the Play Prompt step, to include conditional testing using the Expression Editor.

The Extended Play Prompt Step does not have any output branches.

The customizer window of the **Extended Play Prompt** step contains three tabs:

- General Tab, page 158
- Prompt Tab, page 159
- Input Tab, page 159

General Tab

Use the **General** tab of the **Extended Play Prompt** customizer window, as shown in Figure 150, to select the contact on which to perform the confirmation and to set the Interruptible option.

Figure 150 Extended Play Prompt Customizer Window: General Tab

Table 81 describes the field of the **General** tab.

Table 81 Extended Play Prompt Customizer Window: General Tab

Property	Description
Contact	Unless another contact is specified, default is Triggering Contact.
Interruptible	If true, an external event, such as a call being remotely disconnected by the caller, can interrupt the step. If false, the step completes before any other process can execute.

Prompt Tab

Use the Prompt tab of the Extended Play Prompt customizer window, as shown in Figure 151, to set the Prompt Input, and to set the Barge in and Continue On Prompt Error conditions.

Figure 151 Extended Play Prompt Customizer Window: Prompt Tab

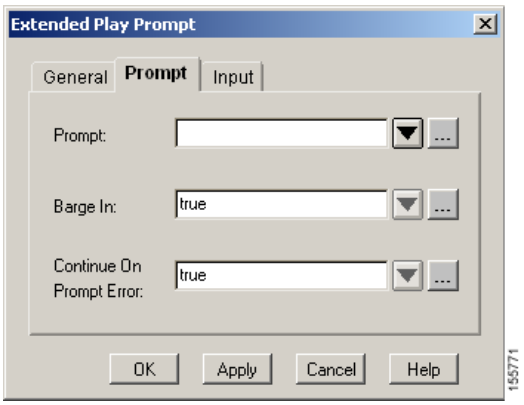


Table 82 describes the field of the **Prompt** tab.

Table 82 Extended Play Prompt Customizer Window: Prompt Tab

Property	Description
Prompt	Specifies which prompt is to be played.
Barge In	If true, the caller can interrupt the prompt. If false, the prompt must complete playing before the caller's input is accepted.
Continue On Prompt Error	If **Yes**, the step continues with the next prompt in the list. If **No**, an exception is thrown, which can then be handled in the script.

Input Tab

Use the Input tab of the **Extended Play Prompt** customizer window, as shown in Figure 152, to set the Flush Input Buffer condition.

Figure 152 Extended Play Prompt Customizer Window: Input Tab

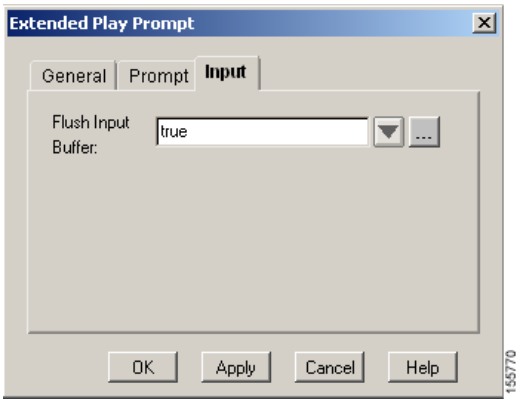


Table 83 describes the field of the **Prompt** tab.

Table 83 Extended Get Digit String Customizer Window: Prompt Tab

Property	Description
Flush Input Buffer	If the expression evaluates to true, the system discards any previously entered digits before running this step.

Send Digit String (IVR Only)

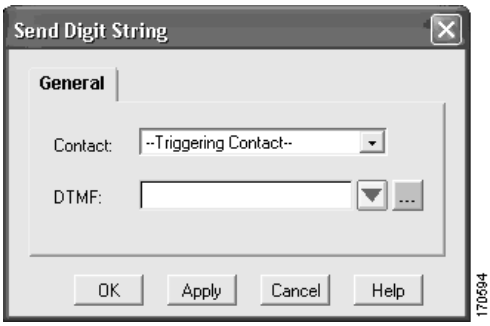
Use the **Send Digit String** step to out pulse or send back a specified set of DTMF digits to the caller.

The DTMF digits are sent out-of-band and out pulsed inband by the gateways.

Note You can insert a comma (,) in the sequence of DTMF digits to instruct the script to insert a 1-second pause before continuing to out pulse the remaining DTMF digits. You can use multiple commas to increase the length of the pause.

Figure 153 shows the **Send Digit String** customizer window.

Figure 153 Send Digit String Customizer Window



The Table 84 describes the fields of the **Send Digit String** customizer window.

Table 84 Send Digit String Customizer Window Fields

Field	Description
Contact	Variable indicating the contact that triggers the execution of the step. Default is Triggering Contact, unless another contact is specified.
DMTF	Variable or expression indicating the sequence of the DTMF digits to be sent.

Dial-by-Extension Menu

Use the **Dial-by-Extension Menu** stepto associate the digits entered by the caller with an output branch label.

Use the **General** tab of the **Dial-by-Extension Menu** customizer window, as shown in Figure 154, to associate digits (typically entered by the caller from a telephone keypad) with an output branch label.

You can associate multiple inputs with a single output branch label, and you can associate only one output branch label with a given input.

The **Dial-by-Extension Menu** step receives a single digit entered by a caller and maps this entry to a series of option output branches. The system executes the steps that you add after each of these option output branches.

The customizer window of the **Dial-by-Extension Menu** step contains four tabs:

- General Tab, page 161
- Prompt Tab, page 163
- Input Tab, page 163
- Dial-by-Extension Tab, page 165

General Tab

By default, the **Dial-by-Extension Menu** step has the following output branches:

- **Output 1**
- **Output 2**
- **Output 3**
- **Timeout**
- **Unsuccessful**
- **Digits Collected**

You can add more output branches in the **General** tab of the **Dial-by-Extension Menu** customizer window.

The **Dial-by-Extension Menu** step retries for either a timeout or an invalid digit entry (a digit that is not associated with any connections). If the maximum number of retries is reached, the **Dial-by-Extension Menu** step follows either the **Timeout, Unsuccessful**, or **Digits Collected** connection, depending on the reason for the latest failure.

Figure 154 Dial by Extension Menu Customizer Window: General Tab

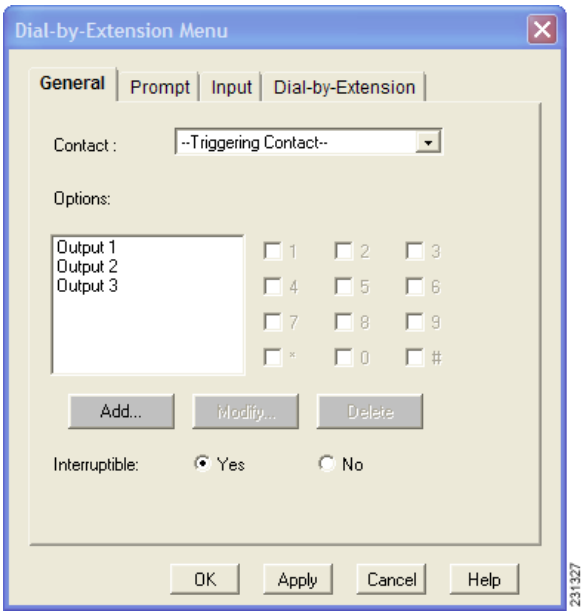


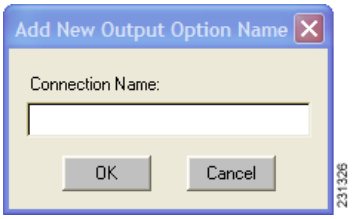
Table 85 describes the field of the **General** tab.

Table 85 Dial-by-Extension Menu Fields Customizer Window: General Tab

Field	Description
Contact	Contact that triggers execution of the step. Unless another contact is specified, default is Triggering Contact.
Options	One label for each possible output value.
Add	Add a new option. The new option appears in the **Options** list box.
Modify	Modifies the selected option using the **Rename Output Option** dialog box, which contains the same field as the **Add New Output Option Name** dialog box and is configured in the same way.
Interruptible	If **Yes**, an external event (such as a caller hanging up) can interrupt the step. If **No**, the step must complete before any other process can execute.

The **Add New Output Option Name** window is shown in Figure 155.

Figure 155 Add New Output Option Name Window



Prompt Tab

Use the **Prompt** tab of the **Dial-by-Extension Menu** customizer window, as shown in Figure 156, to set the Prompt Input, and to set the Barge in and Continue On Prompt Error conditions.

Figure 156 Dial-by-Extension Menu Customizer Window: Prompt Tab

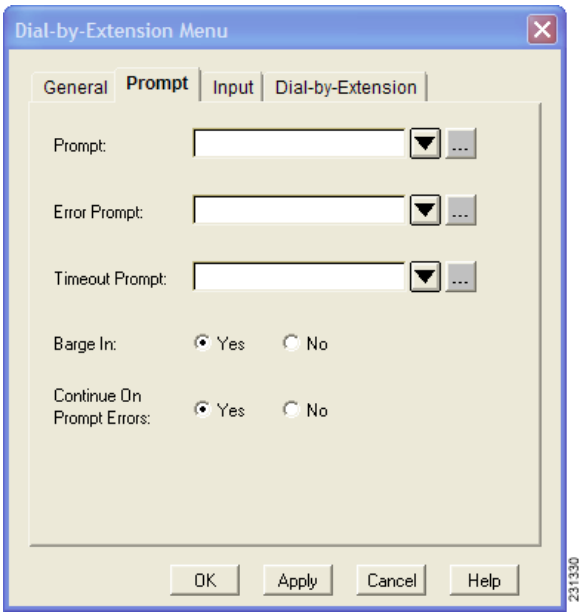


Table 86 describes the field of the **Prompt** tab.

Table 86 Dial-by-Extension Menu Customizer Window: Prompt Tab

Property	Description
Prompt	Specifies which prompt is to be played.
Error Prompt	Prompt to be played if an input error occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Timeout Prompt	Prompt to be played if a timeout occurs. Enter a value, select a variable from the drop-down menu, or use the expression editor to enter a prompt expression.
Barge In	If true, the caller can interrupt the prompt. If false, the prompt must complete playing before the caller's input is accepted.
Continue On Prompt Errors	If Yes, the step continues with the next prompt in the list. If No, an exception is thrown, which can then be handled in the script.

Input Tab

Use the **Input** tab of the **Dial-by-Extension Menu** customizer window, as shown in Figure 157, to set the timeout setting, maximum number of retries, and **Flush Input Buffer** options.

Figure 157 Dial-by-Extension Menu Customizer Window: Input Tab

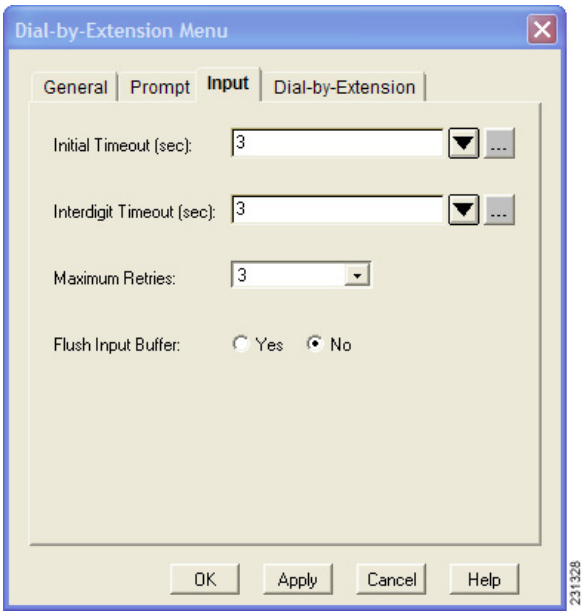


Table 87 describes the field of the **Prompt** tab.

Table 87 Dial-by-Extension Menu Window Fields: Input Tab

Property	Description
Initial Timeout (sec)	Amount of time the system waits for input from the caller. When this timer expires, the system either replays the prompt or plays the system prompt that asks if the caller is still there. Enter a value, choose the variable that stores the timeout value from the **Timeout** drop-down menu, or click the **Expression Editor** (**...**) button and enter a number.
Interdigit Timeout (sec)	Amount of time the system waits for input between digits that are pressed by the caller. When this timer expires, the system either replays the prompt or plays the system prompt that asks if the caller is still there. Enter a value, choose the variable that stores the timeout value from the **Timeout** drop-down menu, or click the **Expression Editor** (**...**) button and enter a number.
Maximum Retries	Number of times the entry can be restarted after a timeout or invalid input response. After the maximum number of retries is reached, the **Menu** step follows the **Timeout** or **Unsuccessful** output branches depending on whether the last try timed out or an invalid input response was entered. A "0" value means that no retry is allowed; in this case, the script must handle the retry scenario.
Flush Input Buffer	If **Yes,** the system erases previously entered input before capturing caller input. If **No**, the system does not erase previously entered input before capturing caller input.

Dial-by-Extension Tab

Use the **Prompt** tabof the **Dial-by-Extension Menu** customizer window, as shown in Figure 158, to set the dial-by-extension options.

Figure 158 Dial-by-Extension Menu Customizer Window: Dial by Extension Input Tab

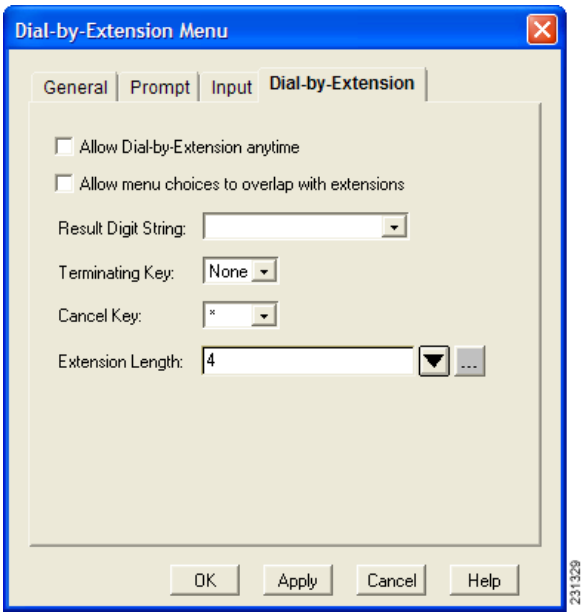


Table 88 lists and describes the field of the **Dial-by-Extension** tab.

Table 88 Dial-by-Extension Menu Window Fields: Dial-by-Extension Tab

Property	Description
Allow Dial-by-Extension anytime	• **Checked box**: Causes Cisco Unity Express to allow the dial-by-extension function all the time. • **Unchecked box**: Causes Cisco Unity Express to not allow the dial-by-extension function all the time.
Allow menu choices to overlap with extensions	• **Checked box**: Causes Cisco Unity Express to allow the dial-by-extension function to overlap with extensions. • **Unchecked box**: Causes Cisco Unity Express to not allow the dial-by-extension function to overlap with extensions.
Result Digit String	Variable that holds the resulting digit string.
Terminating Key	Key the caller presses to terminate entering the extension number.
Cancel Key	Key the caller presses to cancel entering the extension number.
Extension Length	Number of digits in the extension.

Voice Browser (IVR Only)

Use the **Voice Browser** step to invoke a VoiceXML application.

The **Voice Browser** step supports DTMF signaling only. A sample script (webapp.aef) is available on Cisco.com at the "Download Software" site for Cisco Unity Express.

The customizer window of the **Voice Browser** step contains three tabs:

- General Tab, page 166
- Request Parameters Tab, page 167
- Return Parameters Tab, page 167

General Tab

Use the **General** tab, as shown in Figure 159, to identify the contact and to choose a variable that points the browser toward a specific URL.

Figure 159 Voice Browser Customizer Window: General Tab

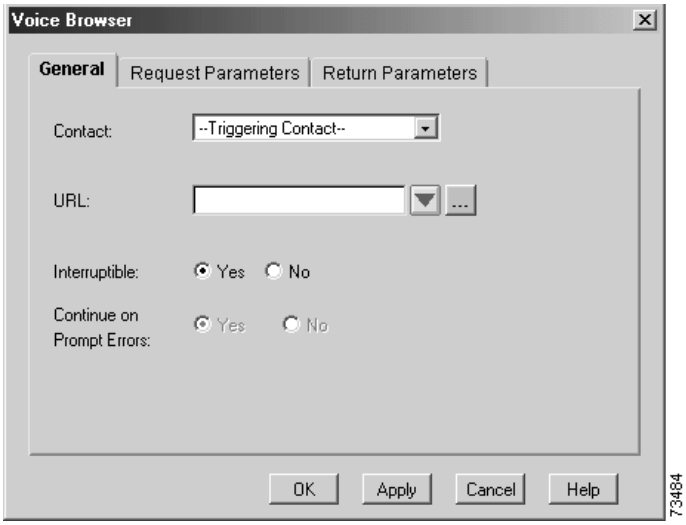


Table 89 describes the fields of the **General** tab.

Table 89 Voice Browser Customizer Window Fields: General Tab

Field	Description
Contact	The default is Triggering Contact, unless another contact is specified.
URL	A URL can be entered manually or a variable containing the URL can be selected from the drop-down list.
Interruptible	Enable or disable interruptions caused by external events. • Yes: The step can be interrupted by external events, • No: The step will terminate before any external events are considered.
Continue on Prompt Errors	Disabled for the **Voice Browser** step.

Request Parameters Tab

Use the **Request Parameters** tab, as shown in Figure 160, to define parameters that are to be passed with an HTTP request to retrieve the desired VoiceXML content.

Figure 160 Voice Browser Customizer Window: Request Parameters

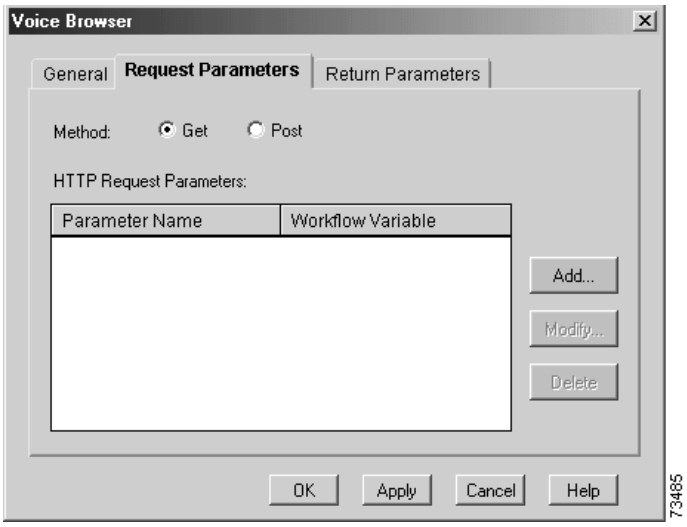


Table 90 describes the fields of the **Request Parameters** tab.

Table 90 Voice Browser Customizer Window: Request Parameter Tab

Field	Description
Method	Method to use if the URL represents an HTTP request. • **GET**: Appends parameters to the URL. This step is equivalent to using the document expression form URL[url?name=value,name=value]. • **POST**: Includes the parameters as if they were entered in an HTML form.
HTTP Request Parameters list box	HTTP Request parameter name and its corresponding workflow variable name.

Return Parameters Tab

Use the **Return Parameter** tab, as shown in Figure 161, to return parameter information back to the .aef script file from the VoiceXML application.

Figure 161 Voice Browser Customizer Window: Return Parameters Tab

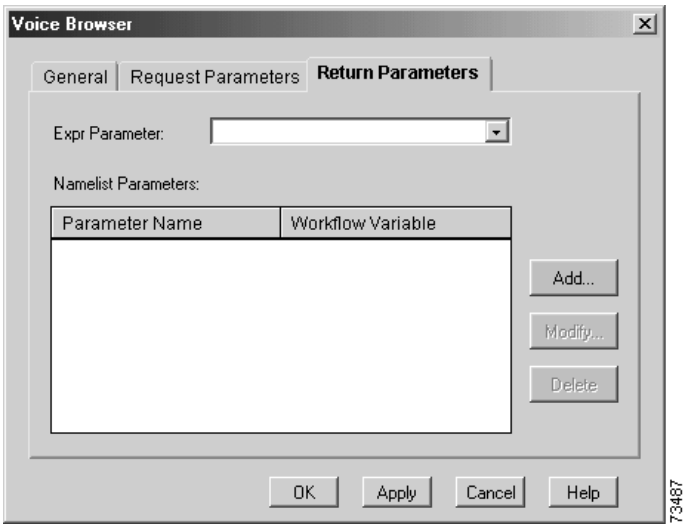


Table 91 describes the fields of the **Return Parameter** tab.

Table 91 Voice Browser Customizer Window: Return Parameters Tab

Field	Description
Expr Parameter	Variable that will store the return value if the VoiceXML application uses the following exit statement form: `<exit expr = "ECMAScript_Expression"/>`
Namelist Parameters	Name of the parameter returned by the VoiceXML application and the corresponding script variable in which its value is stored if the VoiceXML application uses the following exit statement form: `<exit namelist = "string"/>`

Prompt Steps

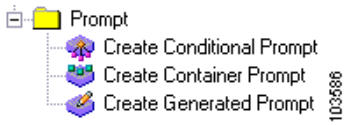
The steps in the **Prompt** palette of the Cisco Unity Express Script Editor provide script designers with a way to create intelligent prompts.

The **Prompt** palette contains the following steps:

- Create Conditional Prompt, page 169
- Create Container Prompt, page 170
- Create Generated Prompt, page 173

Figure 162 shows the steps in the **Prompt** palette as they appear in the Palette pane of the Cisco Unity Express Script Editor.

Figure 162 Prompt Palette Steps



Create Conditional Prompt

Use the **Create Conditional Prompt** step to create a prompt based on the result of evaluating a specified Boolean expression.

The prompts passed are evaluated immediately as prompt objects, and they are not resolved until the time of playback. This means that if the values of any variables entered as part of the expression change between the time this prompt was created and the time the prompt is played back, then the new value of the variable is used to evaluate the conditional expression.

Figure 163 shows the customizer window for the **Create Conditional Prompt** step.

Figure 163 Create Conditional Prompt Customizer Window

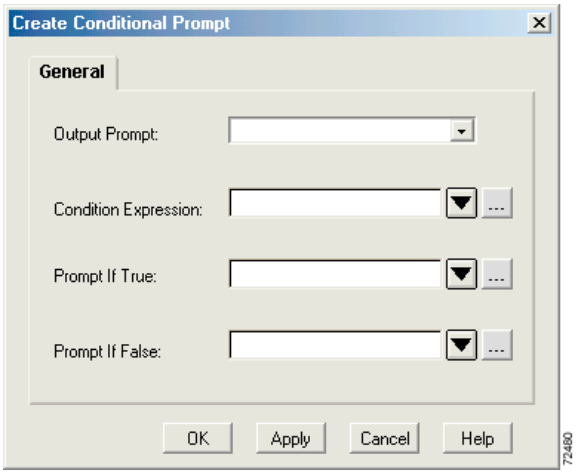


Table 92 describes the fields of the **Create Conditional Prompt** customizer window.

Table 92 Create Conditional Prompt Fields

Field	Description
Output Prompt	Variable that stores the prompt that results from the **Create Conditional Prompt** step. The name of the conditional prompt appears next to the **Create Conditional Prompt** step icon in the Design pane.
Condition Expression	Boolean expression the script uses to decide which one of the two prompts to play back. Enter a value, choose the variable that stores the expression to be used to evaluate the condition from the **Condition Expression** drop-down menu, or click the **Expression Editor (...)** button, and enter the expression for evaluating the condition.

Table 92 Create Conditional Prompt Fields (continued)

Field	Description
Prompt If True	Prompt to use if the expression is True. Enter a value, choose the variable that stores the prompt to use if the expression evaluates to True from the **Prompt If True** drop-down menu, or click the **Expression Editor** (**…**) button, and enter an expression that specifies the prompt to use if the expression evaluates to True.
Prompt If False	Prompt to use if the expression is False. Enter a value, choose the variable that stores the prompt to be used if the expression evaluates to False from the **Prompt If False** drop-down menu, click the **Expression Editor** (**…**) button, and enter an expression that specifies the prompt to use if the expression evaluates to False.

Create Container Prompt

Use the **Create Container Prompt** step to combine multiple prompts into one larger prompt. You can create three types of container prompts:

- **Concatenated Prompt**: Contains a list of prompt phrases that are played back in a specific sequence to create a single prompt.

  For example, for a prompt of "Your checking account balance is one hundred and sixty-eight dollars," you can create a concatenated prompt that (1) begins with a user prompt "Your"; (2) continues with a conditional prompt that specifies a condition such as <accountType == "check">, and plays "checking account" if the condition is True or "savings account" if the condition is False; and (3) ends with the balance amount.

- **Escalating Prompt**: Provides an initial question prompt with a minimal amount of information, and then adds additional prompt phrases if no response is given.

  For example, for a prompt that provides the caller with more information as needed, you can create an escalating prompt that, when passed to a media step such as the **Get Digit String** step, begins by playing the first concise prompt inside the escalating prompt, such as "What is your account number"?

  If the step fails to collect the account number because of the caller's failure to provide it, a second prompt plays, such as "Please provide your account number by entering the account number using your touch tone phone followed by the pound key."

- **Random Prompt**: Creates a prompt that plays back one phrase from the supplied list in a random order; for example, the system could play back a series of promotional or informational messages in a random order while a caller is waiting for an available agent.

Figure 164 shows the customizer window for the **Create Container Prompt** step.

Figure 164 Create Container Prompt Customizer Window

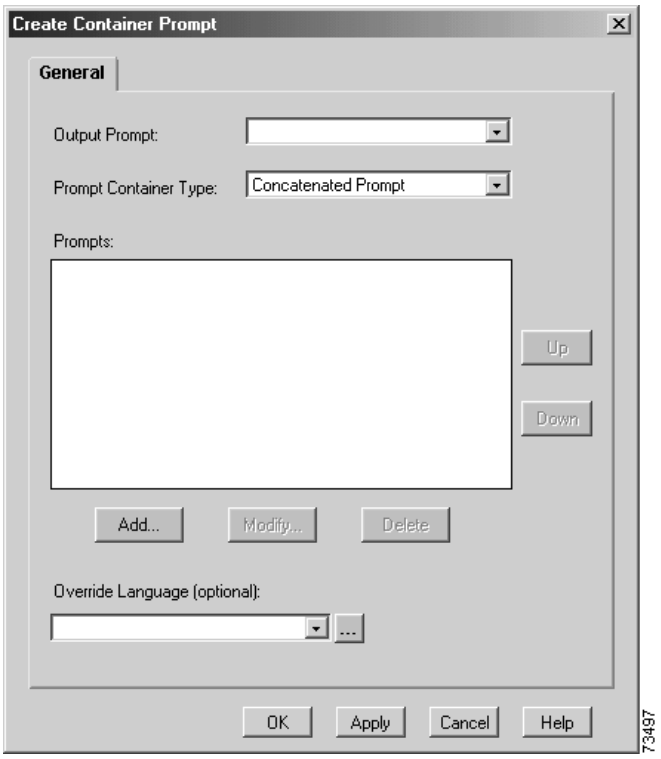


Table 93 describes the properties of the **Create Container Prompt** customizer window.

Table 93 Create Container Prompt Fields

Property	Description
Output Prompt	Script variable that holds the combined prompt generated by the Create Container Prompt step. The name of the concatenated prompt appears next to the **Create Container Prompt** step icon in the Design pane.
Prompt Container Type	Concatenated, escalating, or random prompt.
Prompts	List of prompts to be combined into the container prompt.
Add	Add a prompt. Enter a value, choose the variable that stores the prompt you want to add from the **Prompt** drop-down menu, or click the **Expression Editor** (**...**) button and enter an expression that specifies the prompt you want to add. For a random prompt, choose a number to represent the priority of the prompt in the sequence from the **Weight** drop-down menu. The name of the prompt variable appears in the **Prompts** list box in the **Create Container Prompt** customizer window.
Modify	Modify selected prompt using the **Modify Prompt** dialog box, which contains the same field as the **Add Prompt** dialog box and is configured in the same way.

Table 93 Create Container Prompt Fields (continued)

Property	Description
UP, **Down**	Determines the order of playback of the prompts. Select an individual prompt and click **Up** to move it up a level or click **Down** to move it down a level.
Override Language (optional)	This option is for future use.

The **Add Prompt** dialog box is shown in Figure 165 and the Random Prompt window is shown in Figure 166.

Figure 165 Add Prompt Dialog Box

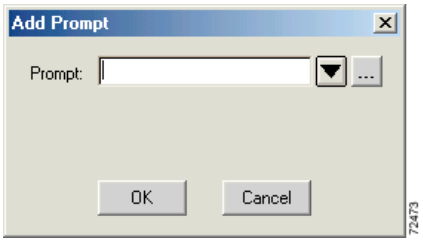
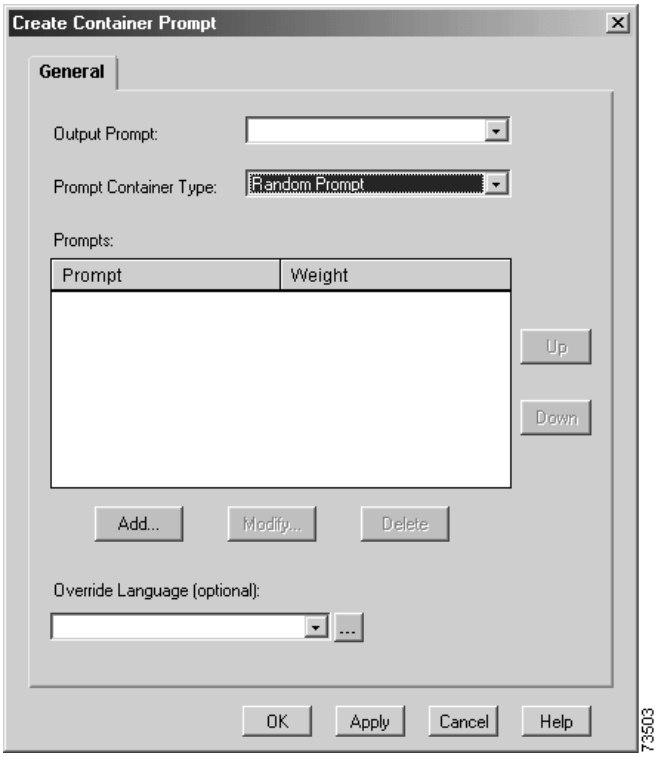
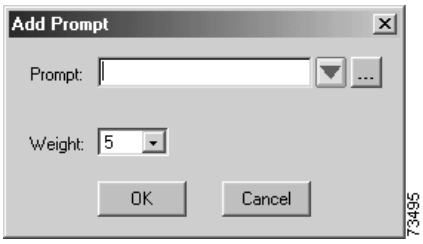


Figure 166 Create Container Prompt Customizer Window: Random Prompt



The **Add Prompt** dialog box is shown in Figure 167.

Figure 167 Add Prompt Dialog Box



Create Generated Prompt

Use the **Create Generated Prompt** step to create prompt phrases from intermediate variables whose values are dynamically determined based on run-time script information.

For example, you can create the prompt phrase of "account balance is one hundred and sixty-eight dollars" by querying the database of account balances at a particular point in the script and using a currency generator to generate the number.

Note You cannot use the Script Editor to query a database.

Note The **Create Generated Prompt** step accepts only the 4-digit year format. A 3-digit date format is not accepted.

Note If the **Create Generated Prompt** step encounters an invalid time, it outputs 4:00 P.M. Specify a valid time between 0000 and 2400.

Figure 168 shows the customizer window for the **Create Generated Prompt** step.

Figure 168 Create Generated Prompt Customizer Window

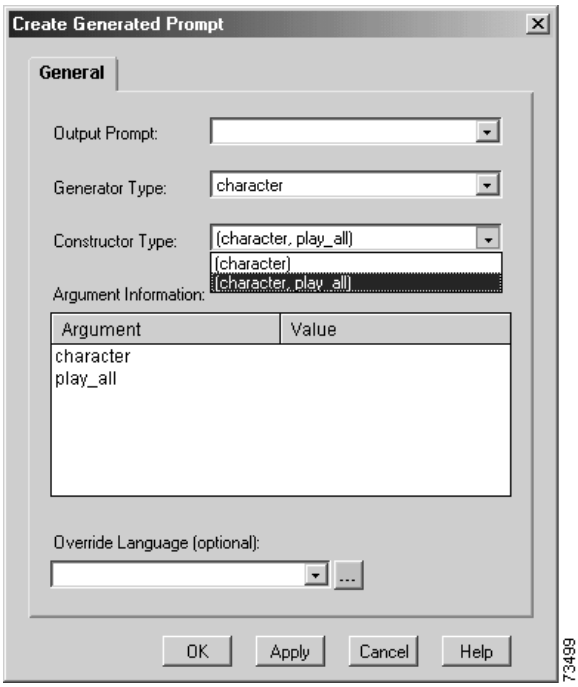


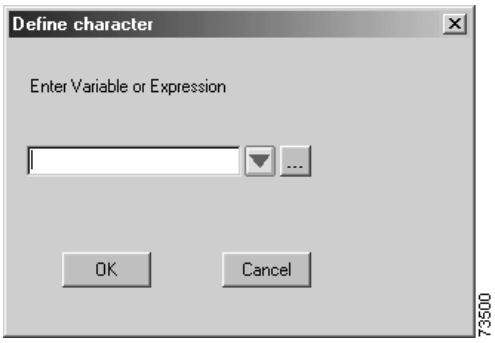
Table 94 describes the fields of the **Create Generated Prompt** customizer window.

Table 94 Create Generated Prompt Fields

Field	Description
Output Prompt	Prompt script variable in which the prompt object resulting from this step is stored. The name of the generated prompt appears next to the **Create Generated Prompt** step icon in the Design pane.
Generator Type	Type of information generated. See the following sections for descriptions of the 12 supported generator types.
Constructor Type	Constructor type that corresponds to the generator type.
Argument Information	Arguments and their values. Double-click to define a value for an item.
Enter Variable or Expression	Define a value for an argument. Enter a value, choose the variable that holds the value for the argument from the **Enter Variable Expression** drop-down menu, or click the **Expression Editor** (**...**) button and enter any valid expression. The name of the argument and its value appear in the **Argument Information** list box of the **Create Generated Prompt** customizer window.
Override Language (optional)	This option is for future use.

The **Define Character** dialog box is shown in Figure 169.

Figure 169 Define Character Dialog Box



Generator Types

The **Create Generated Prompt** step supports the following generator types:

- Number Generator, page 175
- Character Generator, page 176
- Spelling Generator, page 176
- Date Generator, page 176
- Time Generator, page 177
- Ordinal Generator, page 177
- Currency Generator, page 178
- Country Generator, page 178
- Language Generator, page 179
- Telephone Number Generator, page 179
- Credit Card Number Generator, page 179
- Credit Card Expiration Date Generator, page 179
- Fullname Generator, page 179

Number Generator

The **Number** generator type supports the following constructors:

- (Number number)
- (String number)
- (Number number, Number gender)
- (String number, Number gender)
- (Number number, Boolean play.full)
- (String number, Boolean play.full)
- (Number number, Boolean play.full, Number gender)
- (Number number, Boolean play.full, Number gender)

The three parameters are:

- Number: Any Number object (for example; Integer, Long, Float, Double, BigInteger, BigDecimal) or String object defining the number to be played back.
- Gender: When the number must be played back in a specific gender context, this parameter specifies the context. Valid values are 0 for neutral, 1 for male, and 2 for female.
- Play.full: Plays the number in full format if this optional Boolean argument is true or omitted. For example, "709" is played as "Seven Hundred and Nine." Otherwise, the number plays in brief format. For example, "709" is played as "Seven Oh Nine."

Note If the number is played in full format, the maximum number supported is ± 999,999,999,999.

Character Generator

The **Character** generator type supports the following constructors:

- (Character character)
- Character character, Boolean play_all)

The two parameters are:

- Character: The character object to be played back.
- Play_all: Optional Boolean flag indicating whether to play spaces, punctuation, and other special characters normally instead of playing them as silence (ranging from 250 to 500 ms).

Spelling Generator

The **Spelling** generator type supports the following constructors:

- (String string)
- (String string, Boolean punctuation)
- (Object object)
- (Object object, Boolean punctuation)

The three parameters are:

- String: String object to be played back.
- Object: Object for which the string representation returned by the `String.valueOf()` method should be spelled out.
- Punctuation: An optional Boolean flag indicating whether to play spaces, punctuations, and special characters normally or as silences.

Note Punctuation default behavior in the **Spelling** generator is different from the Play_all default behavior in the **Character** generator.

Date Generator

The **Date** generator type supports the following constructors:

- (Date date)
- (Date date, Boolean skip.current.year)

- (Number year)
- (Number year, Number month)
- (Number year, Number month, Boolean skip.current.year)
- (Number year, Number month, Number day)
- (Number year, Number month, Number day, Boolean skip.current.year)

The five parameters are:

- Date: Any Date object from which to extract the date to be played back.
- Skip.current.year: If set to true, the year does not play back if it is the same as the current year.
- Year: Year of the date to be played back. This year must be specified in full (for example, 2007).

Note The system plays any number given, so the caller is responsible for ensuring that the specified year is valid.

- Month: The month of the date to be played back. Valid values range from 1 to 12, where 1 represents January and 12 represents December.
- Day: The day of the date to be played back. Valid values range from 1 to 31 and are validated at run time based on the specified month and year.

Time Generator

The **Time** generator type supports the following constructors:

- (Time)
- (Hours, Minutes)

The three parameters are:

- Time: Any Date or Time object representing the time to be played back. Time can also be defined as a Number object (Integer, Float, Long, and so forth) that specifies the time to be played, from 0 to 2359. (For example, a number such as 12:34 is played as “12 34 PM.”) If the value specified is greater than 2359, then Time is considered to be the number of milliseconds starting from the standard base time known as “the epoch,” which is January 1, 1970, 00:00:00 GMT.
- Hours: Number object that specifies the hour to be played.
- Minutes: Number object that specifies the minutes to be played.

Ordinal Generator

The **Ordinal** generator type supports the following constructors:

- (Number number)
- (String number)
- (Number number, Number gender)
- (String number, Number gender)

The two parameters are:

- Number: Any Number or String object defining the ordinal number to be played back. The supported range is from 1 to 999999.

- Gender: When the ordinal number must be played back in a specific gender context, this parameter specifies this context. Valid values are 0 for neutral, 1 for male, and 2 for female.

Note If the language associated with the call does not behave differently based on gender, then this parameter is ignored.

Currency Generator

The **Currency** generator type supports the following constructors:

- (Currency designator)
- (Number amount)
- (Number amount, Currency currency)
- (Number dollar, Number cent)
- (Number dollar, Number cent, Currency currency)
- (Number amount, Boolean colloquial)
- (Number amount, Boolean colloquial, Currency currency)
- (Number dollar, Number cent, Boolean colloquial, Currency currency)

The six parameters are:

- Designator: The designator of a currency to play back. (For example, "USD" is played back as "U.S. Dollar.")
- Amount: The currency amount to be played back in the system configured default currency or in the specified currency.
- Dollar: Number object representing the amount of currency unit to be played. Only the integer part of the number is played. The fractional part, if any, is ignored.
- Cent: Number object representing the currency subdivision to be played. Only the integer part of the number is played. The fractional part, if any, is ignored.

Note If the number specified exceeds the maximum value allowed for the subdivisions, the excess is added properly to the number of the currency unit. For example, specifying "5 dollars and 233" cents results in "7 dollars and 33 cents."

- Colloquial: An optional Boolean flag, which specifies whether to use colloquial currencies' representations (for example, "Dollars" instead of "US Dollars"). If omitted, the currency amount is played in colloquial format.
- Currency: The currency in which the amount should be played back. If not specified, the system default configured currency is played back.

Country Generator

The **Country** generator type supports only one constructor: (Language language).

Language Generator

The **Language** generator type supports the language constructor. The parameter "language" is a Language object from which to get the language to be played back. (For example, en_US is played back as "United States English.")

Telephone Number Generator

The **Telephone Number** generator type supports only one constructor: (String number). The parameter "number" is a String object specifying the telephone number to be played out as a sequence of digits.

The character is replaced with 250 ms of silence if the string contains any of the following characters: " - ( ) . Otherwise, the string is automatically formatted.

Automatic formatting of the string inserts 250 ms of silence between sections of digits. These sections follow rule: "XXX-XXX-XXX-XXXX" unless there are exactly five digits in the string, in which case the string is considered to be a single section of five digits.

Dual-Tone Multifrequency (DMTF) digits include the following digits on a standard touchtone telephone keypad: `ABCD0123456789#*`. In DMTF, when you touch a button on the touchtone keypad, it creates a combination of two tones (one high-frequency and one low-frequency).

An "x" character is played back as "Extension." DTMF digits ("`ABCD0123456789#*`") are played back normally.

A string of the form "`*xx`" where `x` is a DTMF digit ("`0123456789`") is played back as "star `xx`" (for example,"`*53`" is played back as "star fifty-three").

Credit Card Number Generator

The **Credit Card Number** generator type supports only one constructor: (String number). The parameter "number" is a String object specifying the credit card number to be played out as a sequence of digits.

If the specified credit card number includes "-", then it is played as is, replacing the "-" character with 250 ms of silence; otherwise the number is automatically separated into sections of four digits and played back with 250 ms of silence inserted between sections.

Credit Card Expiration Date Generator

The **Credit Card Expiration Date** generator type supports the following constructors:

- (Number year, Number month, Number day)
- (Number year, Number month)

The parameters are identical to the following **Generated Date** constructors:

- If day is 0 or omitted: GeneratedDate (year, month, true)
- All other cases: GeneratedDate (year, month, day, true)

Fullname Generator

The **Fullname** generator type supports the following constructors:

- firstname: String object specifying the first name to be played out.
- lastname: String object specifying the last name to be played out.

Session Steps

The steps in the **Session** palette provide designers with a way to store custom variables in workflow scripts.

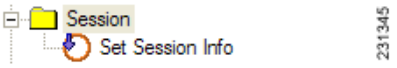
The custom variables can be assigned at run time during script execution and are stored in the historical reporting database on call completion.

The Session palette contains one step:

- Set Session Info, page 180

Figure 170 shows the step in the **Session** palette.

Figure 170 Set Session Steps



Set Session Info

The **Set Session Info** step supports the storage of custom data for use in the Call Contact Detail Record (CCDR) report.

The **Set Session Info** step contains the following two tabs:

- General Tab, page 180
- Context Tab, page 181

General Tab

Use the **General** tab of the **Set Session Info** step, as shown in Figure 171, to specify the session variable for which you want to add or modify context information.

To configure session information, use the **General** tab to choose the variable from the Session drop-down menu and click Apply and complete the **Context** tab as shown in Figure 172.

Figure 171 Set Session Info Customizer Window General Tab

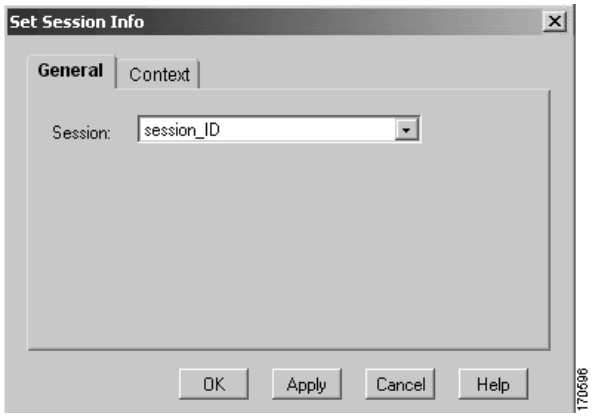


Table 95 describes the field of the **General** tab.

Table 95 Set Session Info Customizer Windows Field: General Tab

Field	Description
Session	The session for which you want to add or modify context information

Context Tab

Use the **Context** tab of the **Set Session Info** step to add or modify the value of attribute variables.

Some session context properties are included as part of the Call Contact Detail Record stored in the historical database for the call associated with this session. The attribute names for these properties are _ccdrVar1 to _ccdrVar10.

For example, the **Set Session Info** step could be used to assign the desired value(s) to one or more of the context variables named _ccdrVar1, _ccdrVar2, _ccdrVar3, _ccdrVar4, _ccdrVar5, _ccdrVar6, _ccdrVar7, _ccdrVar8, _ccdrVar9, and _ccdrVar10.

With the exception of the _ccdrVar10 field, each of the _ccdrVar fields can contain an alphanumeric value of up to 40 characters in length. The _ccdrVar10 field can contain an alphanumeric value of up to 256 characters in length.

Note The _ccdrVar names must begin with a single underscore (_) to successfully write data to the ccdr database.

Figure 172 shows the customizer window for the **Context** tab.

Figure 172 Set Session Info Customizer Window: Context Tab

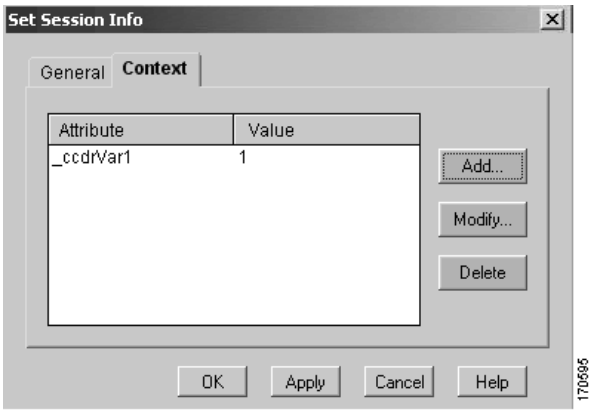


Table 96 describes the field of the **Context** tab.

Table 96 Set Session Info Customizer Window Fields: Context Tab

Field	Description
Attribute/Value	Attributes and associated values for the session identified in the **General** tab. You can assign values to ten Call Contact Detail record (CCDR) attributes to be stored in the historical database: _ccdrVar1 to _ccdrVar10. The attributes _ccdrVar1 to _ccdrVar9 allow a maximum of 40 characters. The _ccdrVar10 attribute allows a maximum of 255 characters.

User Steps

The steps in the **User** palette provide designers with a way to retrieve user attributes.

The User palette contains the following steps:

- Get User Info, page 182
- Extension To User, page 183

Figure 173 shows the steps in the **User Steps** palette.

Figure 173 User Palette Steps

Get User Info

Use the **Get User Info** step, as shown in Figure 174, to make user attributes available to the script.

Figure 174 Get User Info Customizer Window

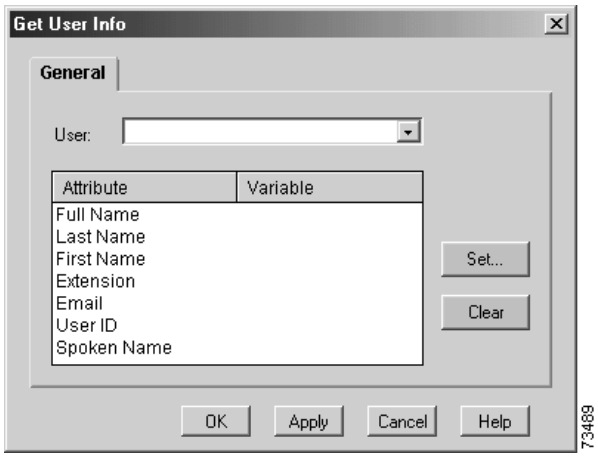


Table 97 describes the fields of the **Get User Info** customizer window.

Table 97 Get User Info Fields

Field	Description
User	User object stored in a script variable previously acquired (for example, by using a step such as the **Name To User** step). The name of the user variable appears next to the **Get User Info** step icon in the Design pane.
Attribute/Variable	Attributes and associated variables of user.
Set...	Displays the Get User Full Name dialog box. Select a variable for the user's full name.
Clear	Clears the variable set in the Get User Full Name dialog box.

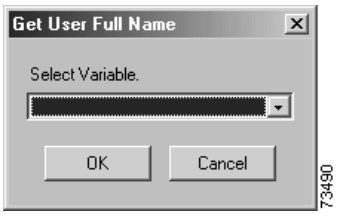
Table 98 describes the attributes that can be retrieved by using the **Get User Info** step.

Table 98 Get User Info Attributes

Attribute	Description
Full Name	String for the full name of the user as configured in the Cisco Unity Express GUI administration interface.
Last Name	String for the last name of the user.
First Name	String for the first name of the user.
Extension	String representing the primary extension selected in the Cisco Unity Express GUI administration web interface.
E-mail	String representing the e-mail ID for this user. The user ID field is currently returned.
User ID	String for the user ID configured for this user.
Spoken Name	Document object representing the recorded name of the user.

The **Get User** dialog box is shown in Figure 175.

Figure 175 Get User Dialog Box



Extension To User

Use the **Extension To User** step as shown in Figure 176 to find a user based on the extension entered by the caller. The **Extension To User** step compares the extension entered by the caller with the extensions stored in a directory. If the system finds a match, it returns the user with the matched extension. This information can be used in the **Get User Info** step to get more information about the user. The **Extension To User** step can be used in a script to prevent transfers to external numbers.

The **Extension To User** step automatically adds two output branches:

- **Successful**: Steps following this branch execute if the system finds a user with an extension that matches the specified extension.
- **Unsuccessful**: Steps following this branch execute if the system does not find a user with an extension that matches the specified extension.

Figure 176 Extension To User Customizer Window

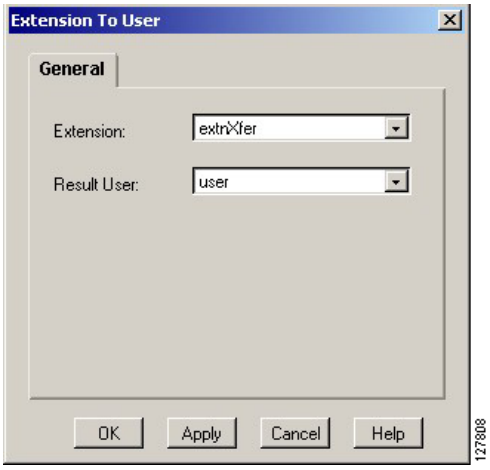


Table 99 describes the fields of the **Extension To User** window.

Table 99 Extension To User Customizer Window Fields

Field	Description
Extension	String representing the primary extension selected in the User pages of the Cisco Unity Express Administration pages. The name of the **Extension** variable appears next to the **Extension To User** step icon in the Design pane.
Result User	Variable that stores the User object that represents the user with the given extension.

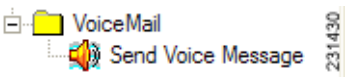
VoiceMail Step

The step in the **VoiceMail** palette provides designers with a way to configure voice-mail attributes.

The VoiceMail palette contains the Send Voice Message step.

Figure 177 shows the steps in the **VoiceMail Steps** palette.

Figure 177 VoiceMail Palette Steps

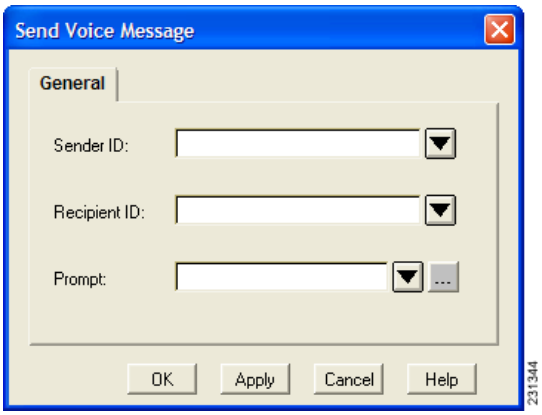


General Tab

Use the **General** tab of the **VoiceMail** step, as shown in Figure 178, to specify the Sender ID, Recipient ID, and Prompt variables for which you want to add or modify context information.

To configure the Send Voice Message information, use the **General** tab to choose the variable from the drop-down menu and click Apply.

Figure 178 Send Voice Message Customizer Window



GLOSSARY

A

AA — Automated Attendant—The Cisco Unity Express software application that provides messages and prompts that guide callers to appropriate extensions.

Application — A completed script.

AvT — Administration via Telephone—A telephony-based interface that allows Cisco Unity Express administrators to record new audio prompts or delete existing custom audio prompts without using a PC or sound-editing software.

C

CCM — Cisco Unified Communications Manager (formerly known as Cisco Unified CallManager)—Software extends enterprise telephony features and capabilities to packet telephony network devices such as IP phones, media processing devices, VoIP gateways, and multimedia applications.

CLI — Command line interface—A method of interacting with a computer by giving it lines of textual commands (that is, a sequence of characters) either from keyboard input or from a script.

Contact — A call that reaches the auto attendant.

CTI — Computer telephony integration—Technology that allows interactions on a telephone and a computer to be integrated or co-ordinated.

D

DNS — Domain Name System—A system that stores information about hostnames and domain names in a kind of distributed database on networks, such as the Internet. Most importantly, it provides a physical location (IP address) for each hostname, and lists the mail exchange servers accepting e-mail for each domain.

Dual-Tone Multi-Frequency (DMTF) digits — Dual-Tone Multi-Frequency (DMTF) digits include the following digits on a standard touchtone telephone keypad: `ABCD0123456789#*`. In DMTF, when you touch a button on the touchtone keypad, it creates a tone or combination of two tones (one high-frequency and one low-frequency).

F

FTP File Transfer Protocol—A software standard for transferring computer files between machines with widely different operating systems.

G

GUI Graphical user interface—A method of interacting with a computer through a metaphor of direct manipulation of graphical images and widgets in addition to text.

I

Init Wizard Initialization wizard—A web-based GUI software tool that runs automatically when the Cisco Unity Express software is loaded. The Init Wizard assists with configuring the Cisco Unity Express software applications.

IP Internet Protocol—A data-oriented protocol used by source and destination hosts for communicating data across a packet-switched internetwork.

ITS Cisco IOS Telephony Services—The earlier version of Cisco Unified Communications Manager Express.

IVR Interactive Voice Response—The Cisco Unity Express data processing technology that allows a person to interact with information stored on a Cisco module using a phone line. The Cisco Unity Express IVR system is also capable of sending outbound fax information.

J

JTAPI Java Telephony Application Programming Interface—Supports telephony call control. It is an extensible API designed to scale for use in a range of domains, from first-party call control in a consumer device to third-party call control in large distributed call centers.

JTAPI user A special type of user created on the Cisco Unified Communications Manager application. This user is a placeholder for pairings of CTI ports with route points.

M

MGCP Media Gateway Control Protocol—A protocol used within a Voice over IP system.

MWI Message Waiting Indicator—The light on a telephone that turns on when a new voice message is stored in the telephone user's voice mailbox.

N

NM Network module—The hardware component that stores the Cisco Unity Express application software.

NTP Network Time Protocol—A protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks.

P

Parameter A property of a variable that allows it to be modified outside of the script editor.

Prompt An audio file with a wav extension. These are the system prompts, greetings, and so on.

R

route point A telephone number or extension on the Cisco Unified Communications Manager application that is associated with a CTI port. When a call comes in to the route point, the call is routed through the CTI port to an appropriate endpoint. This is similar to a *trigger* on Cisco Unity Express.

S

Script One or more steps executed in sequence. A script file has an aef extension.

SIP Session Initiation Protocol—A protocol to provide a superset of the call processing functions and features present in the public switched telephone network.

Step The basic building block in a script. Each step is the most basic executable unit in a script.

Subflow These are independent scripts that can be reused within a script or by other scripts. Equivalent to a procedure or subroutine.

T

TAC Technical Assistance Center

trigger A telephone number or extension that is associated with a Cisco Unity Express application. When a call comes in on the trigger number, Cisco Unity Express activates the associated application.

TUI Telephone user interface—The set of prompts that guide the telephone user who has an assigned voice mailbox in sending, retrieving, and creating voice messages and greetings.

V

Variable Variables store user-defined data or the data resulting from the completion of a step or expression.

VM Voice Mail—The Cisco Unity Express software application that creates and maintains voice message mailboxes.

A

B

C

D

E

F

G

H

I

L

M

N

O

P

R

S

T

U

V

W