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# Dial Plan

## Technical Reference

### Abstract

In Customer Interaction Center (CIC), two styles of dial plan configuration are available: the original Generation 1 Dial Plan and the Generation 2 Regional Dial Plan. This document focuses on the original two-table dial plan. It reflects the interface changes required to add support for the regional dial plan, which is discussed in the *CIC Regionalization and Dial Plan Technical Reference* document in the **Technical Reference Documents** section of the [CIC Documentation Library](#). The PureConnect platform includes a flexible scheme for processing all types of phone numbers by editing a pattern-matching table and defining a dial plan in Interaction Administrator. This document presents a high-level view and describes a practical implementation of phone number processing for outbound dialing.

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# Introduction to Dial Plan

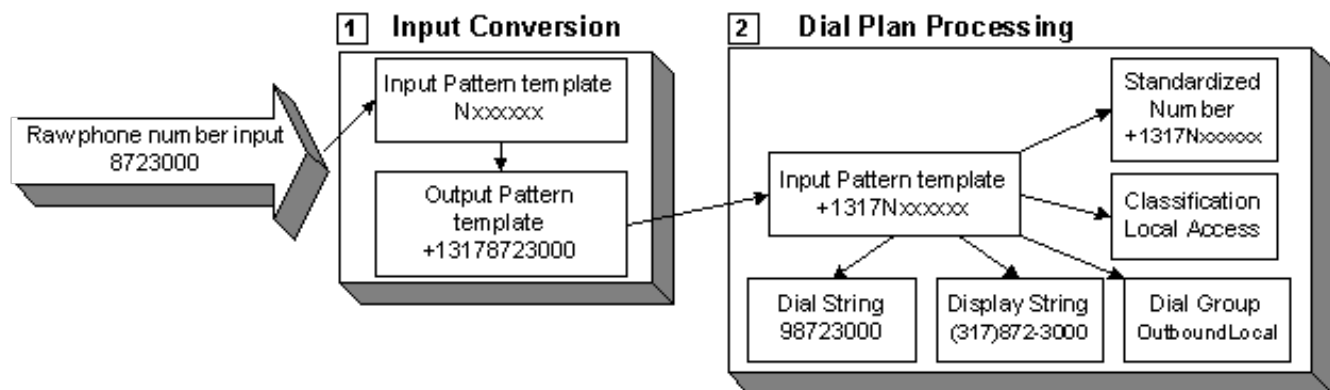
Outgoing calls placed through Customer Interaction Center can originate from a number of places. Because phone numbers can look different – some with area codes, some with letters, some with country codes, and so on – Customer Interaction Center uses a pattern matching process to format and dial phone numbers in a consistent manner, regardless of how a user dialed them.

The dial plan defines the input patterns that Customer Interaction Center uses to change phone numbers into a standardized format. It also defines the dialing actions to take for each pattern, as well as the locations and classification for each pattern.

Customer Interaction Center uses the information in the dial plan to perform the following tasks:

- Format the phone number into a standard package.
- Determine the call classification (local, long distance, toll, etc.).
- Determine if the user is allowed to make that type of call.
- Send the appropriate numbers (7, 10, or 11 digits).
- Determine which line or lines to use for the call.
- Determine what to display on the CIC client.
- Parse and store segments of the telephone number for statistical reports.

The following diagram illustrates the process of matching dialed number, converting the number, and processing in Dial Plan.

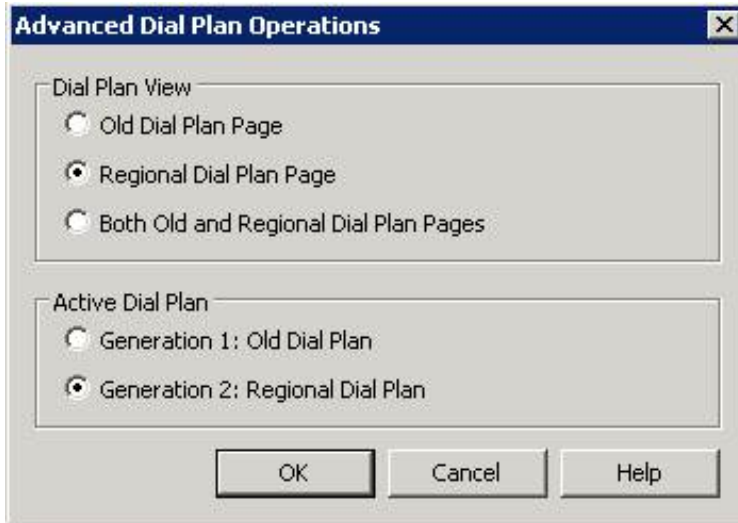


The first-generation dial plan comes with two basic phone number pattern tables: **Input Conversion**, which maps user input into standard phone number formats, and **Dial Plan**, which uses a predefined dial object. Dial Plan determines how to dial the number, what to display for the user, what the dialing permissions are and which outbound line to use to dial the number.

# Switch to the Old Dial Plan view

Before you can define phone number input conversion, you must set up Interaction Administrator to display the Old Dial Plan view.

1. In the **Phone Numbers** configuration container in **Interaction Administrator**, double-click **Configuration**.  
The Phone Number Configuration dialog opens.
2. On the **Regional Dial Plan** tab, click the **Advanced** button.  
The **Advanced Dial Plan Operations** window opens.



3. Under the Dial Plan View, click **Old Dial Plan Page** and click **OK**.  
A message appears, informing you that you will see the old dial plan view after you close and reopen the **Phone Number Configuration** dialog.

**Note:**

Do not change the active dial plan now. You can activate it later.

4. Click **OK** to return to the **Phone Number Configuration** dialog.
5. Click **OK** to close the **Phone Number Configuration** dialog.
6. In the **Phone Numbers** configuration container, double-click **Configuration**.  
The **Phone Number Configuration** dialog opens to the **Old Dial Plan** tab.
7. Use the **Dial Plan** and the **Manage Classifications** buttons to configure your Dial Plan.

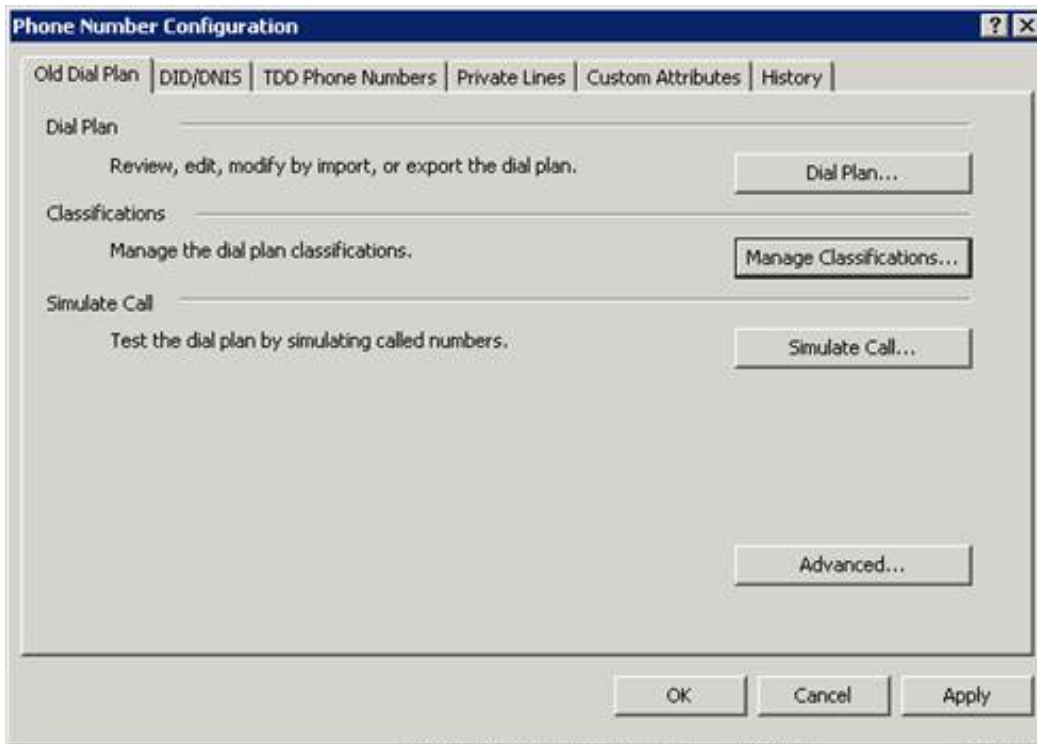
# Display the Input Conversion and Dial Plan configuration tabs

You can customize the default dial plan entries to handle your unique dialing patterns for local exchange lists, long long-distance dialing, local emergency numbers, toll-free numbers, etc. Use the **Simulate Call** page to test each entry to see the actual dialed number, and how it will look.

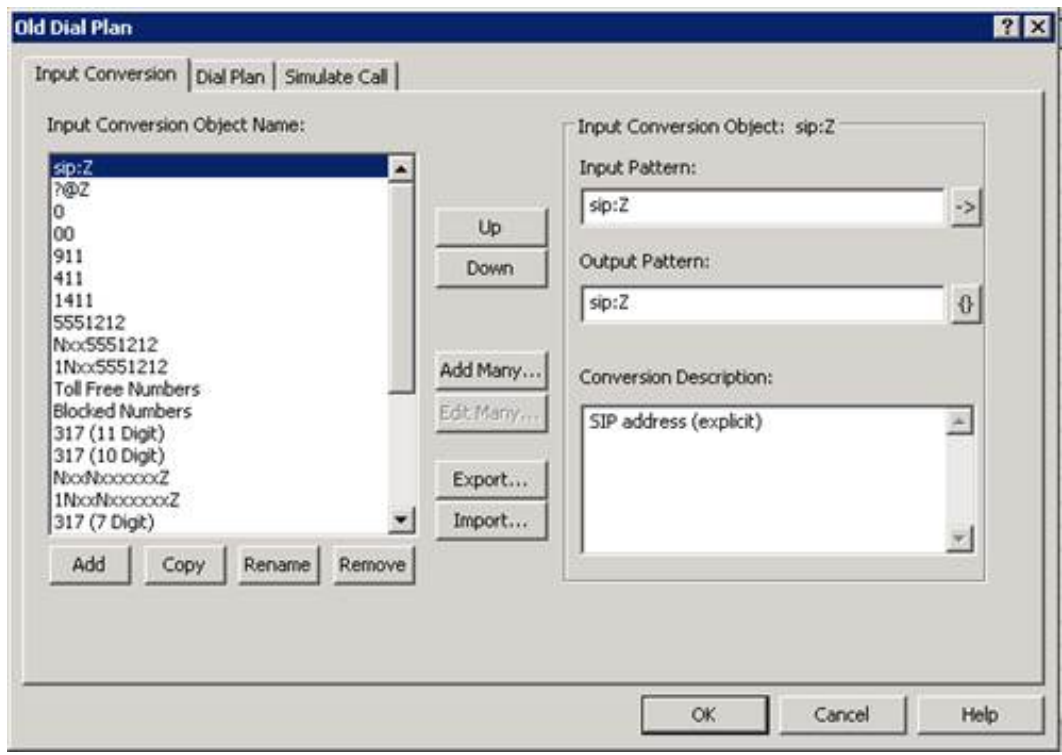
Using the pages launched from these buttons, you can also:

- Create new phone number classifications, such as "toll-free" or "emergency"
- Specify dial groups, for cost-effective use of lines
- Customize the display string formats that show the end user what number has been dialed.
- Import and export dial plan files

To begin, open the **Phone Numbers** container, double-click **Configuration**, and click the **Old Dial Plan** tab.



Select the **Dial Plan** button to display the **Input Conversion** and **Dial Plan** configuration tabs. The **Simulate Call** tab on that page is the same as the page launched by the **Simulate Call** button.



# Defining phone number input conversion

Rather than hard-code a list of phone numbers to look up in a table, you can generalize different types of phone numbers by matching the dialed input with number patterns, which consist of combinations of variables and dialable digits. These variables are often referred to as wildcard characters because each kind of wildcard character can represent a different range of numbers. Consider the following simple examples:

- A common way to represent a three-digit internal phone number (for example, 113) is `XXX`, where `X` represents a single digit in the range of 0 through 9. In this case, `XXX` could represent any number in the range of 000 through 999.
- To represent any local seven-digit phone number in the North American Numbering Plan (NANP), you could use `Nxxxxxx`, where `N` represents a single digit in the range of 2 through 9 (since local phone numbers do not start with 1 or 0). The number 8723000 would match this pattern.
- To represent a 10-digit long distance phone number including a three-digit area code, you could use `NxxNxxxxxx`. For now, area codes in the NANP do not begin with 1 or 0, so `N` is appropriate for the first character for the area code. The number 3178723000 would match this number.

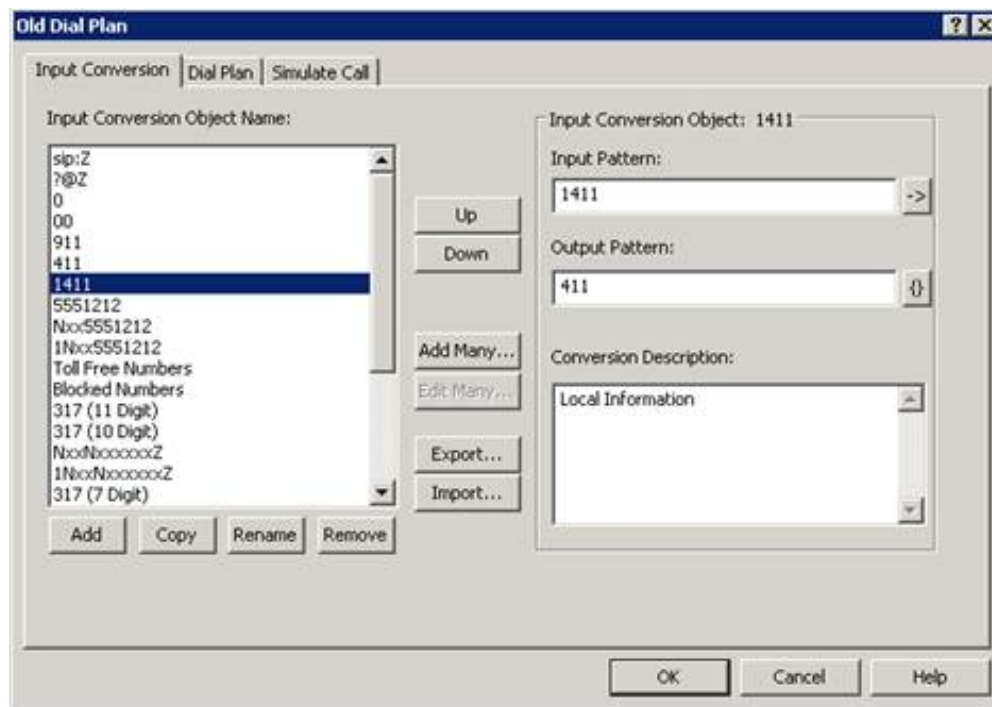
Using a pattern table, you can essentially define a set of rules for recognizing different kinds of phone numbers as they are dialed.

Before CIC attempts to match the input with a pattern, it strips the input of any formatting characters such as spaces, dashes, and parentheses. CIC then starts at the top of the list and attempts to match a stripped down version of the dialed number with the input patterns in the table.

When CIC matches the dialed phone number with a pattern (**Input Pattern**), it defines an **Output Pattern**, as seen on the **Input Conversion Page**. The **Output Pattern** is then used by the **Input Pattern** of the **Dial Plan Object**.

If a number is dialed that doesn't match any of the predefined patterns, that number is passed straight through and dialed exactly as it was entered. Normally, this should not happen since the phone number patterns in the **Input Conversion** table can easily accommodate any kind of phone number.

The Input Conversion table matches dialed input with a pattern and converts it to an Output Pattern.



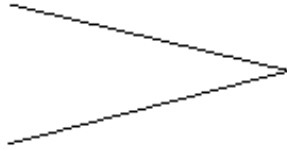
## Note:

We refer to the first `Nxx` in a long distance number as the *area code*, the `Nxx` in a local number as the *exchange*, and the last four primary digits of a phone number (`xxxx`) as the *local number*. In telephony circles, these terms are synonymous with *Numbering Plan Area (NPA)*, *Exchange*, and *Station ID*, respectively.

CIC's input conversion to an Output Pattern improves efficiency in handling phone numbers. The main reason for converting dialed input into an Output Pattern is to simplify Dial Plan processing. The Output Pattern of the phone number serves as the starting point—or Input Pattern—for Dial Plan processing.

For example, in the NANP, there are several ways to dial directory assistance, and all of them can end up dialing the same number.

411  
 1411  
 5551212  
 15551212  
 13175551212



All of these ways to dial directory assistance can be standardized to an Output Pattern of 1411.

In the above case, the Dial Plan output ends up being 1411 for all five types of user input on the left. Since the Dial Plan only has to process 1411 instead of five variations of this number, using a standard Output Pattern greatly simplifies the Dial Plan processing.

In another example, the local phone number 8723000, in area code 317, could be dialed in at least three different ways; each type of input would match a different input pattern:

Dialed Number Input	Matching Input Pattern
8723000	Nxxxxxxx
3178723000	317Nxxxxxxx (instead of NxxNxxxxxxx, which would be a long distance number)
13178723000	1317Nxxxxxxx

Since the Dial Plan handles all local phone numbers the same way, all three kinds of input are standardized to the same Output Pattern, as shown below (Note: The + prefix and the Z variable are explained later):

Input Pattern (for local numbers)	Output Pattern (for local numbers)
NxxxxxxxZ	+1317NxxxxxxxZ
317NxxxxxxxZ	+1317NxxxxxxxZ
1317NxxxxxxxZ	+1317NxxxxxxxZ

But what if the number dialed as 1317Nxxxxxxx is a long distance number within the area code? That case, and many others, is controlled on the **Dial Plan** page, which is discussed in [Creating dial plans](#).

Some special case phone numbers are unique and don't need to be matched with a variable pattern or converted into a different format, such as the 1411 directory assistance example discussed earlier. Some phone numbers have a higher priority than other phone numbers. For example, emergency phone numbers, like 911 in North America, should be passed to the emergency center immediately. Other phone numbers, such as 0 (zero) for the internal Operator, or 00 for a CO Operator, may deserve lower priority, and some numbers may be passed through CIC to the CO after a quick match is found in the pattern table. The order in which you list input pattern names on the **Input Conversion Object Names** list box determines the priority in which CIC evaluates a dialed number. The first pattern that matches the input is used for the standard conversion format.

## Output pattern number characteristics

CIC takes the dialed input, matches it with an Input Pattern, and then creates an Output Pattern formatted number. An Output Pattern format has the following characteristics:

- All formatting characters (such as dashes and parentheses) and white spaces are stripped. The special dialing characters /, #, ,, and \* are preserved. In addition, the optional + character that may precede a country code, and the optional ^ that may precede an extension are preserved.
- All alphabetic characters are mapped to digit characters. (For example, 1800777HELP becomes 18007774357). For old keypads that don't show Q and Z, Q=7 and Z=9.
- It is completely specified. In other words, it should contain a country code (preceded by a plus sign +), area/city code (if applicable), local number, and optional extension. The exceptions are:
  1. If the number is purely an extension, like /131.
  2. If it is a specially recognized number in a country, such as 911.

The input patterns and Dial Plan configuration packaged with CIC illustrate the preferred way to implement standardized number formats. If you want the phone numbers to be completely international and portable to any location in the world, keep all of the above characteristics in your standardized number format.



# Input pattern and output pattern syntax

Both the Input Pattern template and the Output Pattern format are composed of digits (0 – 9) that can be dialed, plus combinations of the following digits and letters.

These digits and characters...	Are represented by...
0 – 9	X (or x), a single digit character in that range
1 – 9	Y (or y), a single digit character in that range
2 – 9	N (or n), a single digit character in that range
0 – 9, #, *, ,	?, indicating zero or more of these characters.  <div style="border: 1px solid black; padding: 5px; background-color: #f0f0f0;"> <b>Note:</b>                      /, ^, and + are not included.                 </div>
Any characters after the required digits	Z (or z), indicating zero or more trailing characters of any value. Using Z allows the dialer to enter extra characters after the required digits without interfering with the dial string. This wildcard character must be the last character of the pattern. It is an error for it to appear anywhere else, which means there can be only one occurrence of this character in each number.

**Note:**  
 Output Pattern formats are visually represented in two different ways; both are described in [Options for representing an output pattern](#).

Phone number templates can consist of all digits, all wildcard characters, some non-dialing characters such as +, ^, and /, or any combination of these characters. The + is used as a prefix to introduce a country code. The ^ character is used as a prefix before an extension, but that extension is not automatically dialed, it is stored as informational data with the number. The / character is generally used as a prefix to introduce an extension for direct extension dialing. These three characters are not actually dialed, but they are preserved as part of the stored phone number. The spaces these characters hold within the number are counted when determining ordinal positions in the formatted number (that is, which number is in the first position, second position, and so forth).

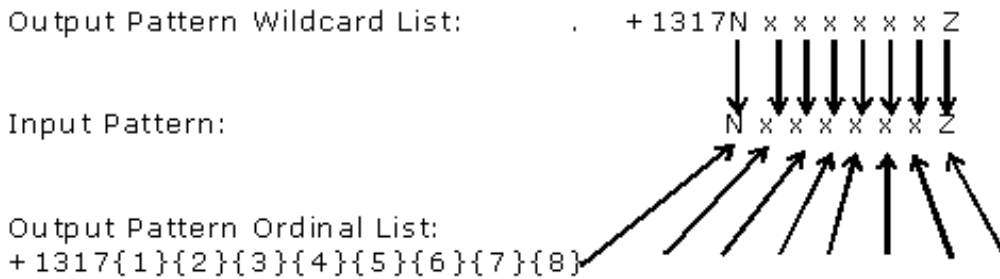
## Options for representing an output pattern

Output patterns can represent the unknown dialed digits in two different ways: using wildcard characters, or using the ordinal positions of any characters in the number. You might find it easier to use the wild card format.

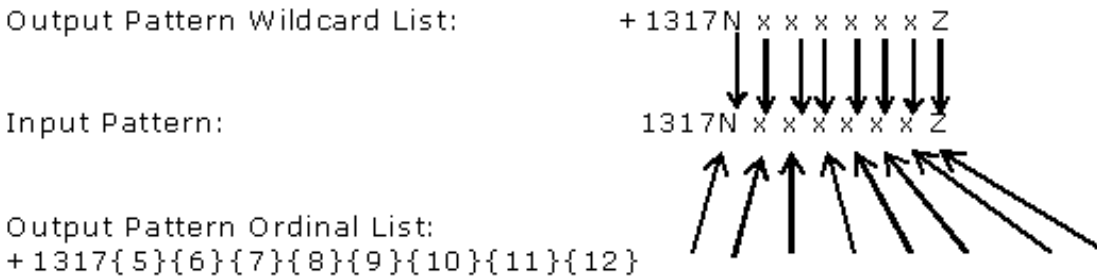
Ordinal positions of characters in the output pattern are represented by {1}, {2}, {3}, and so forth. To illustrate this, consider a pair of Input Pattern and Output Pattern templates for local phone numbers based on our earlier example.

Local Number Input Pattern	Output Pattern Format (Wildcard List)	Output Pattern (Ordinal List)
NxxxxxxZ	+1317NxxxxxxZ	+1317{1}{2}{3}{4}{5}{6}{7}{8}
317NxxxxxxZ	+1317NxxxxxxZ	+1317{4}{5}{6}{7}{8}{9}{10}{11}
1317NxxxxxxZ	+1317NxxxxxxZ	+1317{5}{6}{7}{8}{9}{10}{11}{12}

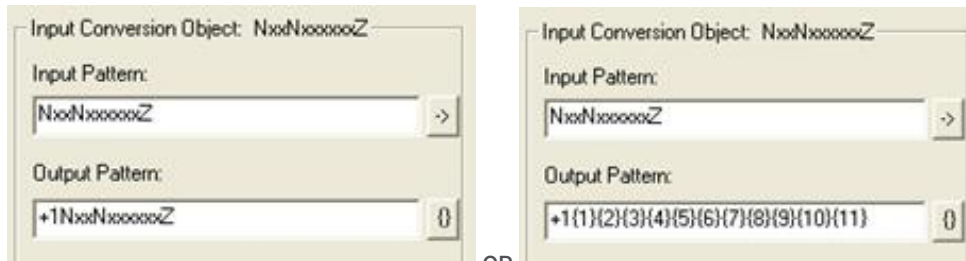
Both the Wildcard List style (middle column) and the Ordinal List style (right column) of the output pattern represent the dialed local number in the same way. To CIC, the numbers are interchangeable. To be clear, let's look at a vertical layout of the first row in the table to see how the positions line up with the wildcard characters in the input pattern. The wildcard character N is in the first position of the input pattern.



In the next example, the input pattern is from the third row of the previous table. This input pattern includes the 1317, which means that the ordinal position of the wildcard characters has changed. The first wildcard character in the input pattern ( N ) is the fifth character in the pattern. This makes the ordinal position of that character { 5 } in the standardized format.



On the **Input Conversion** page, in the **Input Conversion Object** group, you can use either of the above template styles in the **Output Pattern** field. The Output Pattern field can use either a wild card template (left), or an ordinal list template (right) to represent a standardized number format.



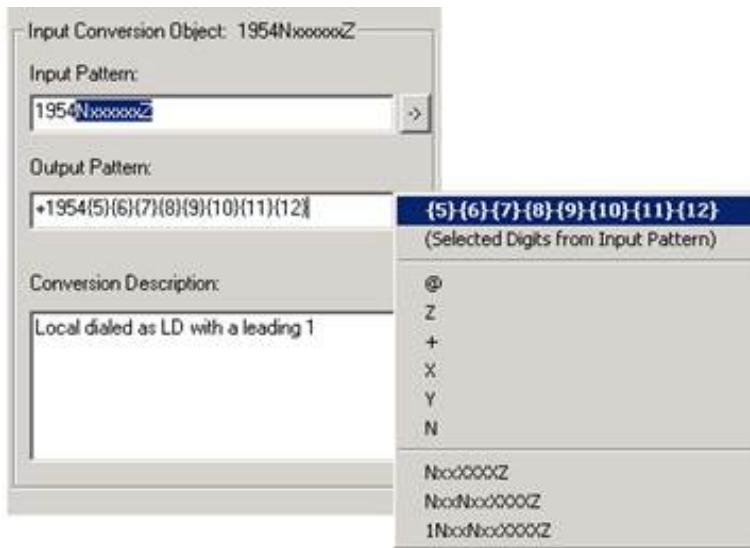
OR

Interaction Administrator makes the job of entering Input Pattern and Output Pattern numbers easier by providing drop-down lists

with the and buttons. On the **Input Pattern** field, the following list appears with some of the most common patterns you will use. You can select from this list and then customize the pattern if necessary.

- /
- @
- Z
- +
- X
- Y
- N
- NxxXXXXZ
- NxxNxxXXXXZ
- 1NxxNxxXXXXZ
- 011+Z
- 011Z

The **Output Pattern** list enables you to create a list of ordinal numbers based on the characters you have selected in the **Input Pattern** field. For example, if your input pattern is 1317NxxXXXXZ, and you select the NxxXXXXZ part of the number, the menu can automatically create an output pattern number with ordinal numbers for the text you selected in the **Input Pattern** field.



## Conditions for using wildcard characters

While it is much easier to type and read the wildcard character style rather than an ordinal list for the standardized phone number template, there are two constraints on using this style in other formatted phone number fields in the **Dial Plan** property sheet. Both the **Dial String** and the **Display String** fields substitute a different format of the phone number input that was converted via the input pattern. In both of these substitution strings, the number formatted with the wildcard characters (like the input pattern) must meet the following conditions:

1. The phone number template cannot contain any characters as part of the actual display string or dial string. For example, you could not display the letter **X** as the extension separator in a phone number because **X** is a reserved formatting character. The following phone number template would be invalid in the **Display String** field on the **Dial Plan** page; you would have to use an ordinal list to display that last **x** character:

+33 0X XX XX XX XX xZ

2. The number and *order* of the characters must match between the input pattern and the substitution string. For example, if the input pattern contains 11 wildcard characters, the display string or dial string must also contain 11 wildcard characters. In addition, if the first wildcard character in the input pattern is **N**, then the first wildcard character in the substitution string must also be **N**. If the second wildcard character in the input pattern is **X**, then the second character in the substitution string must be **X**, and so forth.

In the following invalid example, the input pattern has 11 wildcard characters, but the display string has only eight since it does not include the area code.

Input Format	Invalid Display String
+1NXXNXXXXXXXX/Z	NXX-NXXXX / {Z}

Fortunately, the above conditions are met more often than not, and it is usually safe to use the wildcard style of phone number template.

The following table shows several illustrations of how the wildcard style and ordinal list style of phone numbers can be used interchangeably in the template format.

## Phone number input conversion examples

CIC includes a list of commonly used input conversion patterns, as well as a simple Dial Plan. The standardized form of each input is used in the Dial Plan table. The following table illustrates how many of these common input conversion table entries were created.

**Note:**

The top to bottom order of these numbers is significant in the Input Pattern table.

Dialed Input (examples)	Input Pattern	Output Pattern	Explanation
-------------------------	---------------	----------------	-------------

911	911	911	This special emergency number is not converted and passes straight through CIC.
0	0	0	This special number, used to dial the Operator, is not converted and passes straight through CIC. The Dial Plan table determines if this dials the internal company operator or an external CO operator. By default, this calls the company operator.
00	00	00	This special number, used to dial the Operator, is not converted and passes straight through CIC. The Dial Plan table determines if this dials the internal company operator or an external CO operator. By default, this calls the CO operator.
411	411	1411	This variation of a directory assistance number is standardized to the number the local CO requires.
1411	1411	1411	This directory assistance number is not converted and passes straight through CIC in the form expected by the CO. All other variations of directory assistance are standardized to this number.
5551212	5551212	1411	This variation of a directory assistance number is standardized to the number the local CO requires.
13175551212	13175551212	1411	This variation of a directory assistance number is standardized to the number the local CO requires.
13178723006 = local, or 13172198987 = long distance	1317NxxxxxZ	1317Nxxx xxxxZ or +1317{5 }{6}{7} {8}{9} {10} {11} {12}	This could be a local call or a long distance call within the area code. Dial Plan will have to further refine the match to determine how to dial this.
19194433876	1NxxNxxxxxxZ	1NxxNxxx xxxxZ or +1{2} {3}{4} {5}{6} {7}{8} {9}{10} {11} {12}	Matches any long distance number starting with 1 plus area code. It would not match numbers dialed starting with 1317 because the case above would match first.
3175551212	3175551212	1411	This variation of a directory assistance number is standardized to the number the local CO requires.
3178723006 = local, or 3172198987 = long distance	317NxxxxxxZ	317Nxxx xxxZ or +1317{4 }{5}{6} {7}{8} {9}{10} {11}	Similar to the case above dialed with a country code (1) prefix, this could be a local or a long distance call within the area code. Dial Plan will have to further refine the match to determine how to dial this.

9194433876	NxxNxxxxxxxxZ	NxxNxxx xxxZ or +1{1} {2}{3} {4}{5} {6}{7} {8}{9} {10} {11}	Matches any long distance number dialed without the country code (1) prefix. Dial Plan controls how the number is actually dialed, with or without the country code.
8723000	NxxxxxxZ	Nxxxxxx Z or +1317{1} {2}{3} {4}{5} {6}{7} {8}	Any seven-digit local number. The Z on the end handles any extraneous characters that may be dialed.
3	X	X or /{1}	Matches any single digit dial (except 0), such as a workgroup queue extension.
13	XX	XX or /{1}{2}	Matches any two-digit extension.
113	XXX	XXX or /{1}{2} {3}	Matches any three-digit extension, such as a CIC user extension.
8201	XXXX	XXXX or /{1}{2} {3}{4}	Matches any four-digit extension, such as a CIC user extension.
82019	XXXXX	XXXXX or /{1}{2} {3}{4} {5}	Matches any five-digit extension, such as a CIC user or workgroup extension.
820199	XXXXXX	XXXXXX or /{1}{2} {3}{4} {5}{6}	Matches any six-digit extension.
011+028879657 (the + implies this input could only be dialed as a selection from a contact directory or some other form of automated input)	011+Z	+Z or +{5}	Matches any international call dialed from North America beginning with the digits 011 including a + before the country code. The ordinal list uses {5} because the fifth character in the input pattern (Z) is the first unique number being dialed, and the total number of digits is unknown.
011028879657	011Z	+Z or +{4}	Matches any international call dialed from North America beginning with the digits 011, but no + symbol.
Z	Z	Z or {1}	Matches any input. "Catch all" case when no other match is found.

# Creating dial plans

There are two basic ways to create a dial plan for Customer Interaction Center: by importing an existing dial plan via the user-friendly wizard in Setup Assistant or manually in Interaction Administrator. The Setup Assistant wizard can create a new default dial plan for you, but only if you are using the Regional Dial Plan; it no longer creates the "Old Dial Plan" format by default. Once a dial plan is created, you can use Interaction Administrator to output the dial plan data to a (.i3pnum) file and import it later via Setup Assistant or Interaction Administrator at another site.

**Note:**

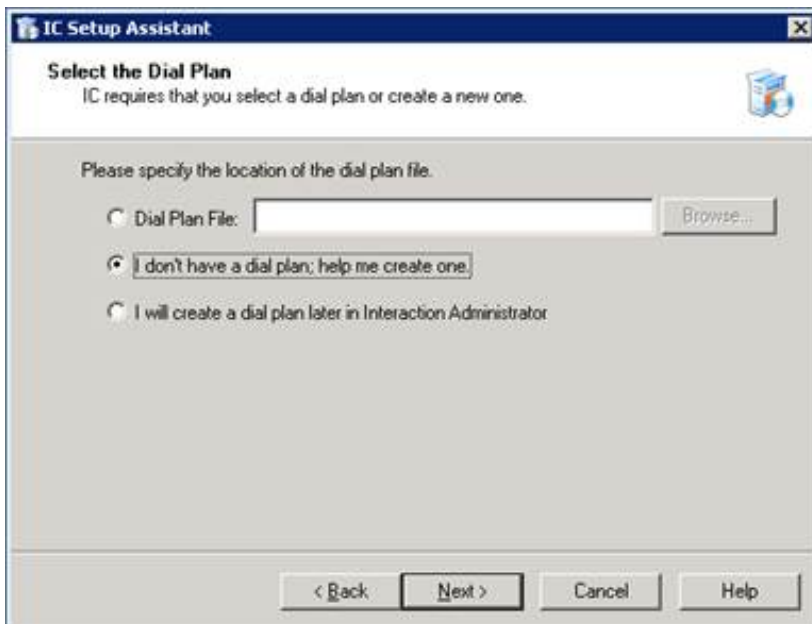
See the *CIC Regionalization and Dial Plan* document in the [PureConnect Documentation Library](#) for a list of differences between the "Old Dial Plan" ([Switch to the Old Dial Plan view](#)) and the newer Regional Dial Plan.

The dial plan generated in Setup Assistant currently only supports the North American Numbering Plan (NANP) in the single-table Regional Dial Plan format. However, using Setup Assistant to create or import a dial plan is much easier and faster than trying to manually create one from a blank page in Interaction Administrator. Also, a dial plan generated by Setup Assistant provides an excellent starting point for further customizations in Interaction Administrator. For these reasons, we recommend using Setup Assistant to create or import a dial plan for Customer Interaction Center.

## Using Setup Assistant to create a dial plan

Setup Assistant provides two options for handling dial plans, as shown in the following wizard screen.

- Import a dial plan from an existing file (perhaps created with an IC 2.3x or 2.4 system)
- Allow Setup Assistant to help you create a (NANP) dial plan from scratch (if you use the newer Regional Dial Plan).



For more information, see the following:

- [Import an existing dial plan](#)
- [Create a new dial plan](#)

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## Import an existing dial plan

For international sites that do not use the NANP, or NANP sites with an existing dial plan to use, we recommend importing a (.i3pnum) dial plan file provided by your reseller or exported from another local CIC installation. If the reseller provides a dial plan file with embedded macros, a subsequent dialog will appear that enables the person running Setup Assistant to specify substitutions to make for your site, as described below. Once imported, you can further customize all aspects of the dial plan in Interaction Administrator. For more information about customizing the dial plan, see the [Interaction Administrator Help](#).

### Create macro entries in a dial plan file

Resellers or others who want to provide a predefined dial plan for a site, but still allow that site to easily customize the dial plan in Setup Assistant, can create macro entries in the dial plan file. Then, when someone runs Setup Assistant and imports a dial plan file containing macros, that person will see a dialog that lists the macro names along with a place to enter substitution data.

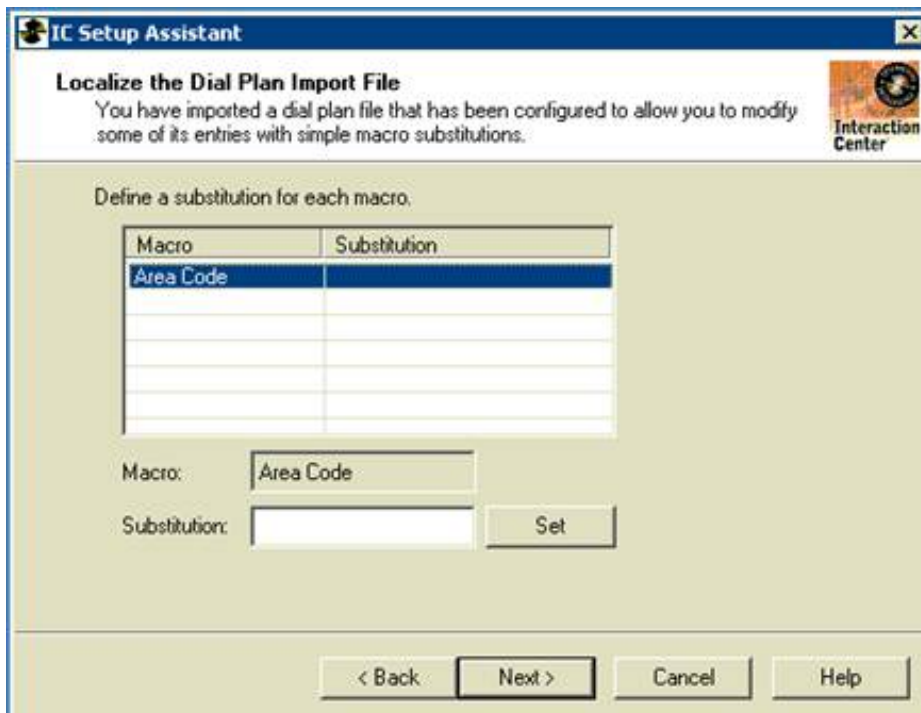
1. Open an existing dial plan (.i3pnum) file in a text editor, such as Notepad.
2. Select a line to add a macro. For example, a line that contains a predefined area code or directory assistance number that other site might substitute. In the following example, the area code 317 is fixed for Local Toll Calls.

```
2|1317NxxxxxxZ|16|1317NxxxxxxZ|+1317{5}{6}{7}{8}{9}{10}{11}{12}|Local Toll Call|
```

3. Replace each instance of the area code number (e.g., 317) with a macro name that will appear in Setup Assistant (e.g., Area Code) surrounded by double brackets on each side. The above line would look like this:

```
2|1[[Area Code]]NxxxxxxZ|16|1[[Area Code]]NxxxxxxZ|+1[[Area Code]]{5}{6}{7}{8}{9}{10}{11}{12}|Local Toll Call|
```

4. Save the .i3pnum file and provide this file to the site running Setup Assistant. The site can run Setup Assistant for the first time or multiple times, and this file can be imported on either occasion.
5. When a user runs Setup Assistant and chooses to import the modified dial plan file, Setup Assistant will detect the macro names in double brackets. It will then display the **Localize the Dial Plan Import File** dialog, like this. The user can then specify the area code in the **Substitution** field and that value will be inserted into the dial plan as the local area code.



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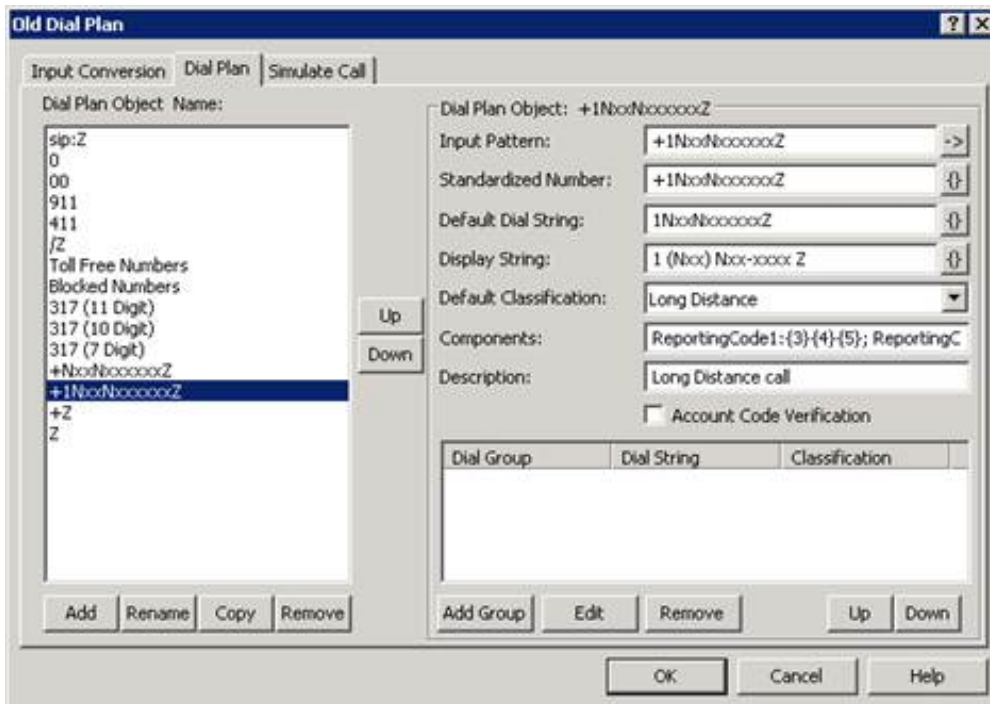
## Create a new dial plan

For all other sites that use the NANP, we recommend selecting the **I don't have a dial plan; help me create one.** option in Setup Assistant. This option directs you to two dialogs where you enter the local area code(s) and local exchanges for the site. At the end of the session, Setup Assistant produces a North American dial plan, with fields filled in the Phone Numbers Configuration, Regional Dial Plan configuration tabs in Interaction Administrator. This is much easier than creating the dial plan manually in Interaction Administrator. See the online help in Setup Assistant or "IC Setup Assistant" in *IC Installation and Configuration Guide* for more information.

## Manually creating a dial plan

Every phone number dialed via CIC should match an entry in the Dial Plan object table. If CIC does not find a match in the object table, CIC dials the number as it was entered. This table is created on the **Dial Plan** page of the **Phone Number Configuration** dialog. Access this dialog in the **Phone Numbers** container in Interaction Administrator.

The Dial Plan page defines how CIC dials, displays, directs, and enforces security on each dialed phone number.



The Dial Plan processing starts after the input conversion step has created a standard Output Pattern of the phone number input. If the conversion step did not match the input with a predefined input pattern, the dialed number is passed directly (unformatted) to the Dial Plan table for processing. In either case, Dial Plan attempts to match the standardized or unformatted input it receives with its own input pattern list to take the appropriate dialing action.

A Dial Plan object defines how a dialed phone number is handled. This includes:

### Input Pattern

The input pattern used to match the standard Output Pattern.

### Standardized Number

A standard format for all phone numbers. Its primary use is for applications using reverse white pages lookup.

### Default Dial String

The actual number dialed via the CO.

### Display String

The way the number appears on the CIC client interface when it is dialed.

### Default Classification

The phone number classification that identifies a dialing privilege for CIC users, workgroup members, roles, or stations.

### Description

The **Description** field, which simply provides a place to document each Dial Plan object for those who maintain it.

### Account Code Verification

Apply Account Code Verification for a Dial Plan object, to track outbound calls.

### Dial Group

Displays *which* trunk or group of analog lines is used to dial this kind of number.



## Dial plan object names

Each Dial Plan object has several attributes, which can be referred to collectively with a name. A Dial Plan object name should be a descriptive way to refer all the attributes of a particular Dial Plan object.

The **Dial Plan Object Name** list box allows you to add and remove Dial Plan objects from the table. It also allows you to easily duplicate similar entries with the **Copy** button, which copies and pastes all attributes of the selected Dial Plan object.

Finally, the **Dial Plan Object Name** list box controls the order in which CIC searches the input pattern list, from top to bottom. The **Up** and **Down** buttons allow you to arrange names vertically in the list box to establish the search order. *This order is critical to the Dial Plan processing stage of dialing.*

The Dial Plan objects that come with CIC are good examples of the kinds of names and the kind of order you might want to use in your own Dial Plan.

## Dial plan object input patterns

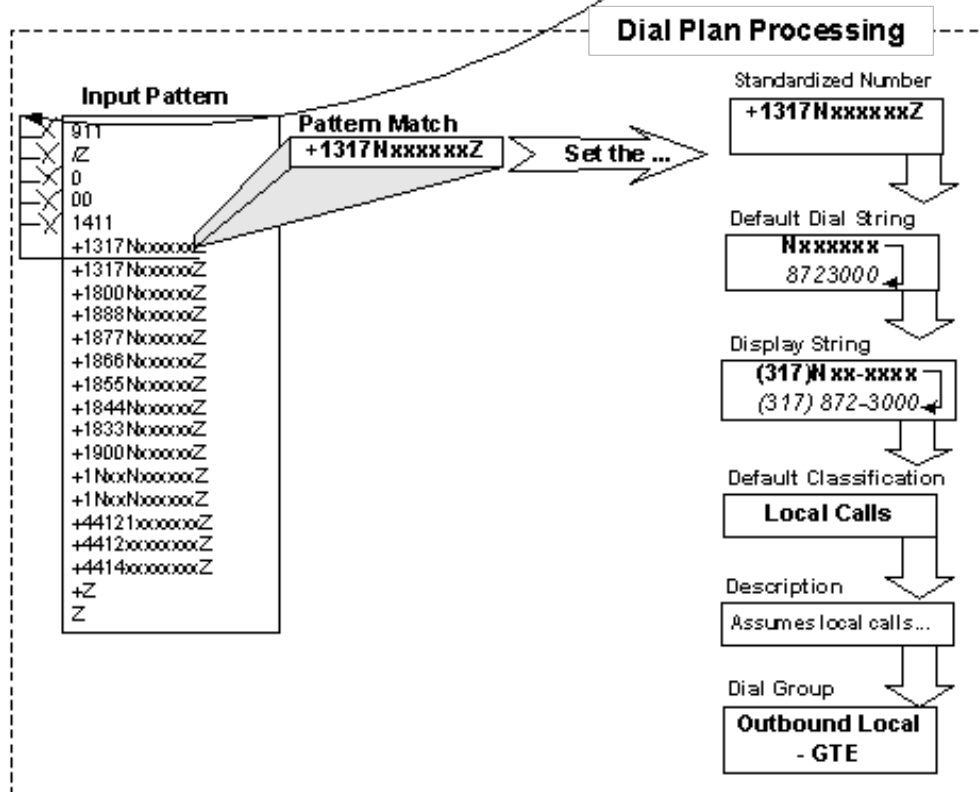
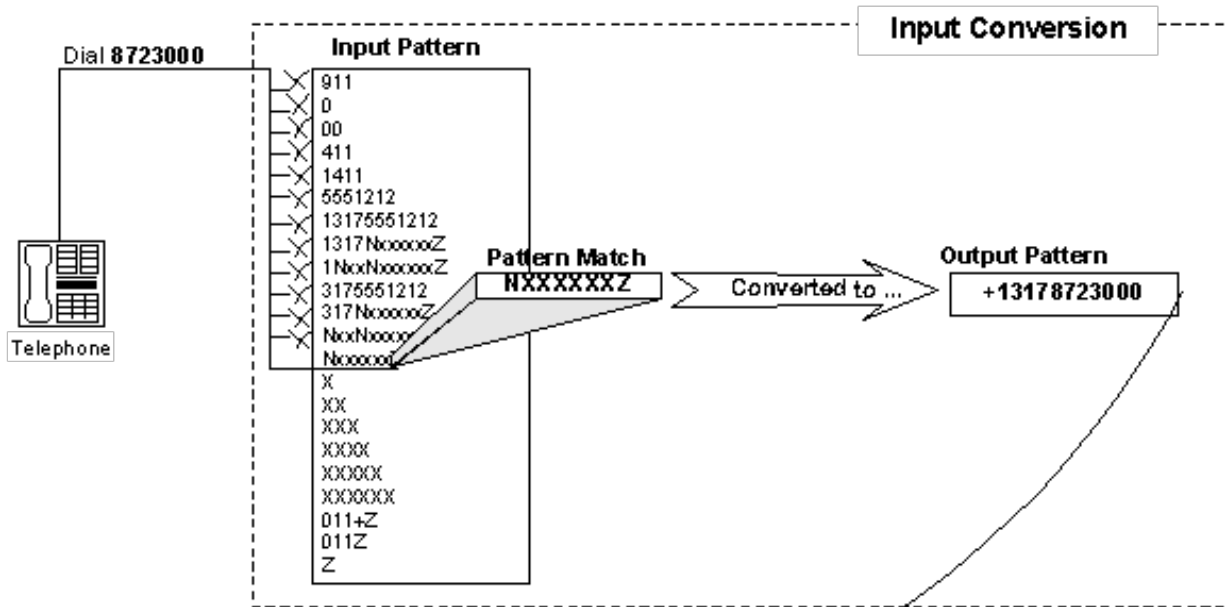
Phone numbers in the **Input Pattern** field on the **Dial Plan** page are formatted exactly like the numbers in the **Output Pattern** field on the **Input Conversion** page. This is because the phone number input for Dial Plan processing is already in that format, based on the results of the input conversion step. The input patterns used on the **Dial Plan** page are not limited to, nor are they necessarily the same as, the Output Pattern number used on the **Input Conversion** page, but they can be identical if necessary.

The **Dial Plan** input pattern template works just like the one in the **Input Conversion** page, except the input being matched is not raw dialed numbers, but numbers already in a standardized format. Using this input pattern table efficiently is the key to successfully managing your Dial Plans.

## Could there be more to Dial Plan?

After you become familiar with the use of the Input Conversion object's Input Pattern and the Dial Plan object's Input Pattern, you can consider using another option that lets you combine the Input Conversion and Dial Plan on a single dialog. The **Add Many** button on the Input Conversion page displays a dialog that enables you to represent many Dial Plan objects with a single entry. See [Creating multiple input objects](#) for details.

The phone number for the Input Pattern field on Dial Plan page is from the Output Pattern field on the Input Conversion page.



For more information, see the following:

- [Default dial string](#)
- [Setting ISDN Called Party Number Type and Called Party Number Plan on a per call basis](#)
- [Display string](#)
- [Dialing classification](#)
- [Components](#)
- [Description](#)
- [Dial groups](#)
- [Testing dial plans](#)

## Default dial string

The dial string is the actual string of characters sent to the CO to place a call. Specify the dial string based on the dialing requirements the CO has on your lines. For example, some areas may require you to dial the area code for local calls. Using the **Default Dial String** field, you can add the local area code as a prefix to all local calls so CIC users do not need to dial the local area code. As another example, some trunks may require a 1 or a 9 prefix before certain numbers, or add a prefix to specify a long distance carrier (for example, 1010550). You can add any prefix (or suffix) to any type of phone number using the **Dial String** field. CIC client users do not have to dial the numbers you include as a prefix in the **Dial String** field.

The dial string variable uses the same standardized format syntax described in [Input pattern and output pattern syntax](#). You can use either the wildcard character syntax or the ordinal number syntax. However, if you use the wildcard characters, pay attention to the two conditions where you might have to use the ordinal number syntax in this field (see [Conditions for using wildcard characters](#) for details).

## Setting ISDN Called Party Number Type and Called Party Number Plan on a per call basis

CIC adds method to set ISDN Called Party Number Type and Called Party Number Plan on a per call basis.

To do this, open the Phone Number Configuration container in Interaction Administrator to the Dial Plan page, and create a new Dial Plan Object with the following character sequence at the beginning of the default dial string: !XY

!

Indicates that the next two characters are going to be used to set the Called Party Number Type and Plan

X (first char after !)

Called Party Number Type

Valid values:

- U - Unknown
- I - International
- N - National

Y (second char after !)

Call Party Numbering

Valid values:

- U - Unknown
- E - E.164 standard

### Example:

The Dial String !NE18005551111 would set the Called Party Number Type to National and the Called Party Numbering Plan to E.164

### Example:

National Called Party Number Type and E.164 Called Party Numbering Plan

For numbers using the National (N) called party number type the Default Dial String needs to use the ordinal syntax to avoid conflicts with N wildcard character.

Normal Default Dial String:

1800NxxxxxxZ

To use National Called Party Number Type and E.164 Called Party Numbering Plan:

!NE1800{6}{7}{8}{9}{10}{11}{12}

#### Note:

This is only needed for National (N) called party number type.

### Example:

Unknown Called Party Number Type and E.164 Called Party Numbering Plan

Normal Default Dial String:

## Non-dialable characters

Even though the +, /, and ^ symbols are not dialable characters, you can include them in a Dial String entry if you want to. CIC ignores the + character when dialing. The / precedes digits to dial (for example, an extension) after the main number connects. The ^ indicates numbers stored with the main number (for example, an extension), but are not dialed.

If you use / and ^ together (in either order), CIC knows to dial the extension. If you use ^ by itself as a prefix for an extension, CIC does not dial the extension. For example, the following table illustrates a few examples of the different behavior for each syntax option:

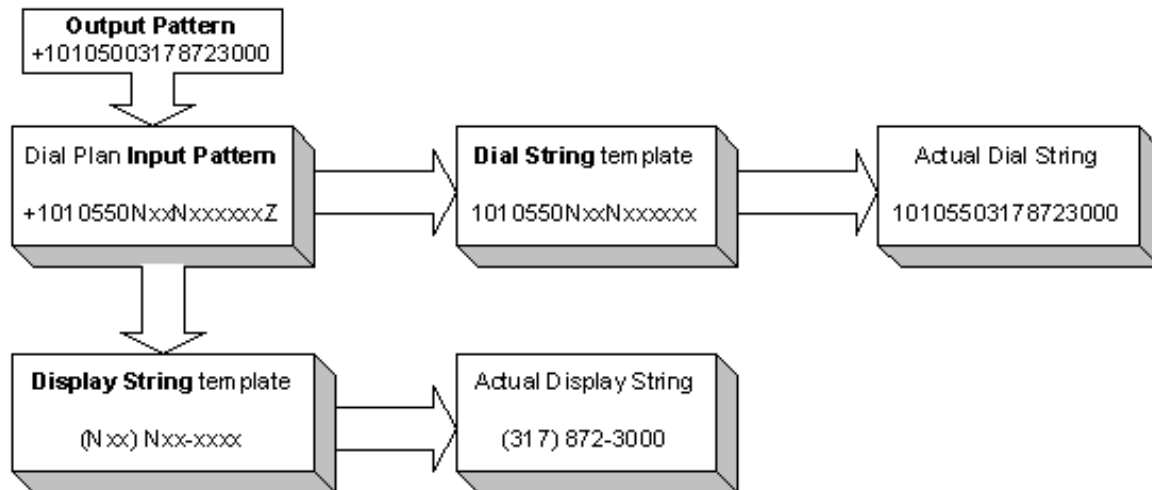
Dialed Input	Dial String	Behavior
8723000/113	+1317Nxxxxxx/Z	CIC dials 3178723000 and when the call connects, CIC dials 113.
3178723000^113	+1317Nxxxxxx^Z	CIC dials 3178723000 (the ^113 is ignored).
3178723000/^113	+1317Nxxxxxx/Z	CIC dials 3178723000 and when the call connects, CIC dials 113.

See "[Extension Dialing](#)" for more considerations on dialing digits after the main number.

## Display string

The display string is the formatted phone number that is displayed on the CIC client interface. You can control the numbers displayed to end-users by the template you use in the **Display String** field. For example, if the standard Output Pattern of the number includes a special long distance carrier prefix (for example, 1010550), you can drop that part from the phone number you display to CIC client users, as shown in the following diagram. The number you display to end-users can be different from the number CIC actually dials.

The number you display to end-users can be different from the number CIC actually dials.



The display string variable uses the same standardized format syntax described in [Input Pattern and Standardized Format Syntax](#). You can use either the wildcard character syntax or the ordinal number syntax. However, if you use the wildcard characters, pay attention to the two conditions where you might have to use the ordinal number syntax in this field (see [Conditions for using wildcard characters](#)).

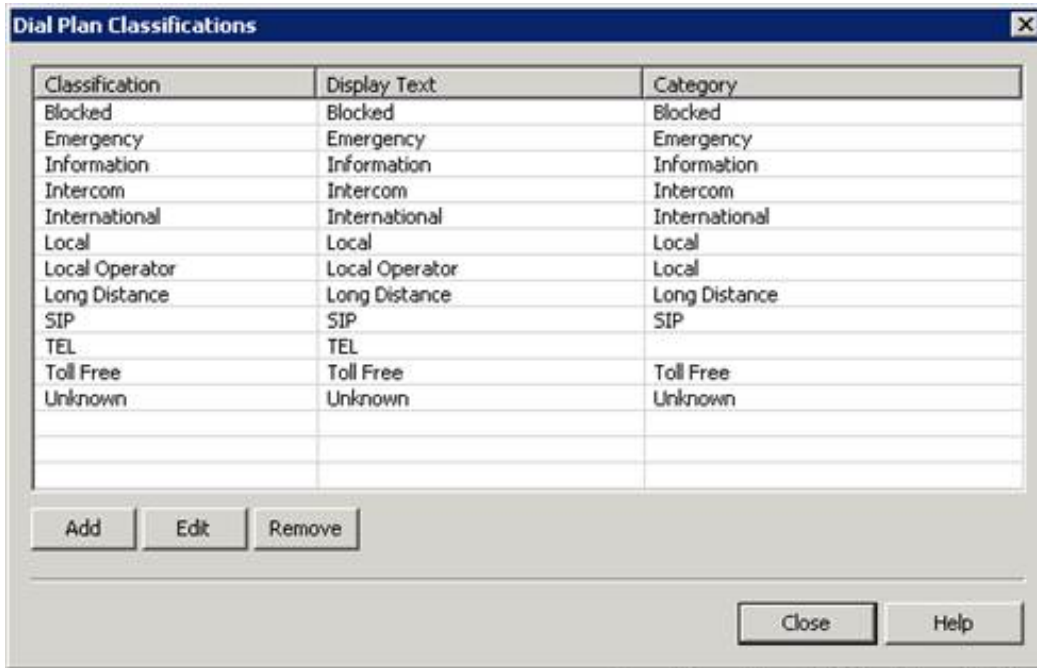
### Note:

In some cases, it might be more efficient to use the ordinal number syntax instead of the wildcard syntax in the **Dial String** and **Display String** fields. This is because CIC compresses the phone number table data (each unique entry in each field) and sends that data to each relevant subsystem and each CIC client workstation when they start. The smaller the compressed table data, the faster the affected systems start. For example, if you have many input patterns that differ only in the exchange (for example, +1317872xxxx, +1317879xxxx, and +1317845xxxx), you could reduce the number of unique Dial Strings stored by using the same dial string for all entries. For example, Dial String {6}{7}{8}xxxx instead of individual Dial String entries for each input pattern such as 872xxxx, 876xxxx, and 845xxxx.

## Dialing classification

The **Phone Number Classifications** list box is populated after CIC server installation. The CIC administrator defines the list of classification names on the **Classifications** page. Classifications are simply descriptive names that you can use to group types of phone numbers according the characteristics of the phone numbers defined on the **Dial Plan** page. Phone number classifications give you very granular control over the kinds of phone numbers each user, workgroup, role, or station is allowed to dial.

The **Classifications** page defines names that identify types of phone numbers on the **Dial Plan** page.



Classification	Display Text	Category
Blocked	Blocked	Blocked
Emergency	Emergency	Emergency
Information	Information	Information
Intercom	Intercom	Intercom
International	International	International
Local	Local	Local
Local Operator	Local Operator	Local
Long Distance	Long Distance	Long Distance
SIP	SIP	SIP
TEL	TEL	
Toll Free	Toll Free	Toll Free
Unknown	Unknown	Unknown

As an example, the following list contains some common phone number classification names:

- Local – for non-toll calls within the local area code.
- Emergency – for local emergency calls, like 911.
- Information – for calls to directory assistance numbers (for example, 1411 in the USA).
- Intercom – for internal calls to another extension on the CIC system.
- Long Distance – for long distance calls, except International calls.
- International – for long distance calls outside of the country.

Of course you can create very specialized classifications by creating a name for each kind of phone number you want to identify. This gives you very granular control over the kinds of phone numbers each user, workgroup, role, or station is allowed to dial.

You must select a classification name for each Dial Plan object. If you create a Dial Plan object that does not fit in any of the predefined dialing classifications, go back to the **Classifications** page and create a new classification name to identify the new Dial Plan object type. Then select the new classification name for your newly created object on the **Dial Plan** page.

---

## How CIC uses dialing classifications

Classifications control user, workgroup, role, or station dialing privileges. These dialing privileges are assigned on their respective **Access Control** pages. See page [Controlling dialing privileges](#) for details.

The list of packaged classification names is an example of the kinds of names you might define. You can create as many unique dialing classifications as you need.

---

## Internal call classifications

In general, classification names can be anything you want. However, in order for CIC to route internal (that is, station-to-station) calls over SCbus channels on the CIC server rather than to outside lines, you must define the classification name "Intercom" or

"Internal" on the **Classifications** page, and use one or both of these names on the **Dial Plan** page. CIC's handlers rely on these names to identify and properly route internal calls.

To accommodate international translations of these terms, CIC includes a server parameter called **Internal Call Classifications** that defines the classification names used for internal calls. To change the classification names used to identify internal calls, follow these steps.

1. In Interaction Administrator, select the **Server Parameters** container and find **Internal Call Classifications** in the data view list.
2. Double-click on the **Internal Call Classifications** name to edit the values.
3. Type the new classification name or names separated by a comma.
4. In the **Phone Numbers** container, select the **Classifications** property.
5. Add the newly defined **Internal Call Classification** names to the classifications list.

The order in which you perform these steps does not matter. You can create the classification names first and then edit the **Internal Call Classifications** server parameter.

## Components

This is an advanced feature that allows a CIC administrator to specify the different parts of a phone number in each Dial Plan entry that need to be tracked in the report logs (for example, area code, long distance prefix, and country code). These components are used for tracking different parts of the phone number in the reporting databases.

If you create new Dial Plan objects for the **Local** and **Long Distance** categories, you must copy the content of the default Components field (that is, the **ReportingCode1** and **ReportingCode2** components) and paste them in to your components field. Failure to do this may result in incomplete call data in your reports.

The default Dial Plan objects in the **Local** and **Long Distance** classifications created during installation contain two components: **ReportingCode1** and **ReportingCode2**. These components represent the digits in the ordinal positions indicated by the ordinal number syntax in the field. For example, the syntax for the first entry is:

```
ReportingCode1:{3}{4}{5};
```

The part before the colon is the name or label for this component (**ReportingCode1**). The ordinal numbers after the component refer to the 3rd, 4th, and 5th digits in the current Dial Plan object. In the case of a **Local** or **Long Distance** classified number (the Dial Plan Input pattern number) in the NANP, these digits always refer to the area code. The semicolon at the end is simply a separator between components.

In another example, the syntax for the second component in the Components field is:

```
ReportingCode2:{6}{7}{8}
```

Again, the part before the colon is the component name (**ReportingCode2**). The ordinal numbers after the component refer to the 6th, 7th, and 8th digits in the current Dial Plan object. In the case of a **Local** or **Long Distance** classified number (the Dial Plan Input Pattern number) in the NANP, these digits always refer to the local exchange.

If these same digits refer to a different part of the phone number in another location (for example, city code and prefecture code), you can keep these components as they are and they will work for your location. If you need to track other parts of the phone number, you must:

- Create new components in the Components field
- Customize the **CallDisconnectMonitor** handler to add the new components to one of the extra columns in the Call Detail report log
- Modify or add a new column in a Crystal Report template that is based on the Call Detail report log

## Description

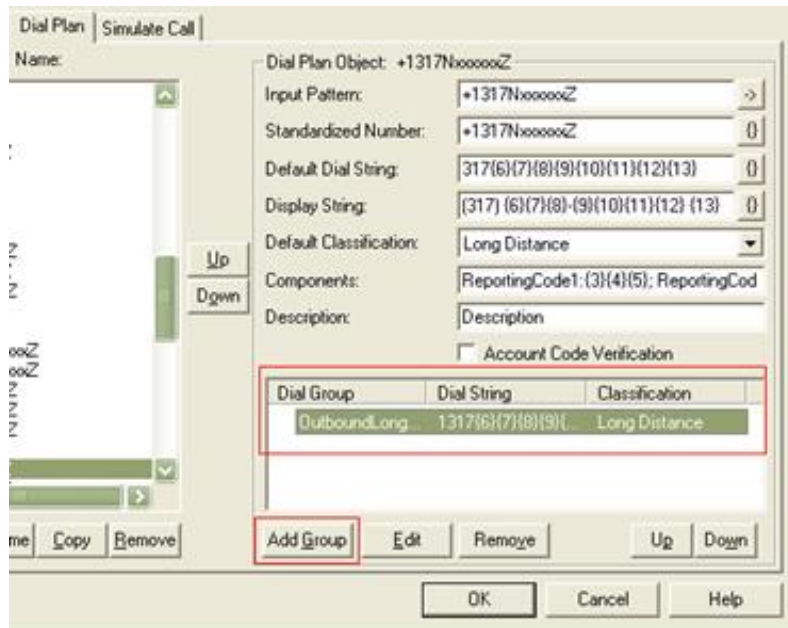
This text field enables the CIC administrator to document the purpose of each Dial Plan entry, along with any details. This information will be valuable to CIC administrators, especially if you have more than one administrator managing CIC or more than one person editing the Dial Plan configuration. There is no practical limit on the number of characters in this field.

## Dial groups

To specify a dial group, click **Add Group** on the Dial Plan page. Here, you can specify one or more dial groups to use to place the call, an alternate dial string (optional) and an alternate classification (optional). The list of available dial groups appears after the CIC administrator creates one or more **Line Groups** entries and selects the **Use as Dial Group** check box on the **Line Group Configuration** property page. A dial group is a group of lines or channels that CIC uses for outbound calls. The lines included in

this group should have a direction of **Outbound** rather than **Inbound** or **Both** to avoid line contention when dialing. For more information, see the "Line Configuration" topic in *Interaction Administrator Help*.

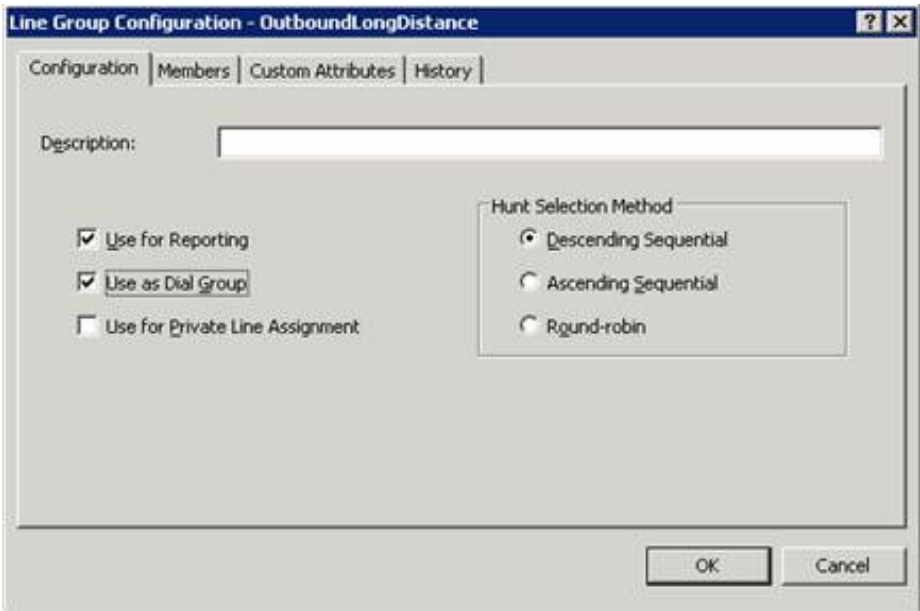
Click Add Group to specify one or more dial groups to use to dial the outbound call.



A Dial Plan object can include zero, one, or more dial groups. If you do not specify a dial group at all for a Dial Plan object, CIC uses its own default order for selecting available trunks and channels to dial outbound calls (see the "Line Selection Order" topic in *Interaction Administrator Help* for details). If you specify one dial group for a Dial Plan object, CIC attempts to use a line on that dial group to dial the call. If no lines are available on that dial group, it uses the default CIC line selection order. To help avoid using the default line selection order, you can specify two or more dial groups for CIC to use when dialing each number. CIC uses the dial group at the top of the list first. If no lines are available in that group, it uses the next dial group down the list until it finds an available line, or until it ends up using the default line selection order. Since different line groups may be trunks from different service providers, you may need to specify an alternate dial string (for example, one that requires a different prefix) for each dial group.



Line Group configuration controls which lines appear in the Dial Group – Add Entry dialog on the Dial Plan page.



Dial groups enable you to specify which outbound lines or channels to use for each type (classification) of phone number. For example, international calls may be directed to one dial group that uses lines with the best rate for international calls. Local calls may be directed to another dial group called "Local" over low-cost analog lines from the local CO. If you do not specify a dial group for a Dial Plan entry, calls placed via that Dial Plan object use the first available line with a direction of Outbound or Both.

**Note:**  
All of the lines or channels in a dial group must have identical dialing requirements. In other words, you cannot have some lines that require a 9 prefix and other lines that don't within the same dial group.

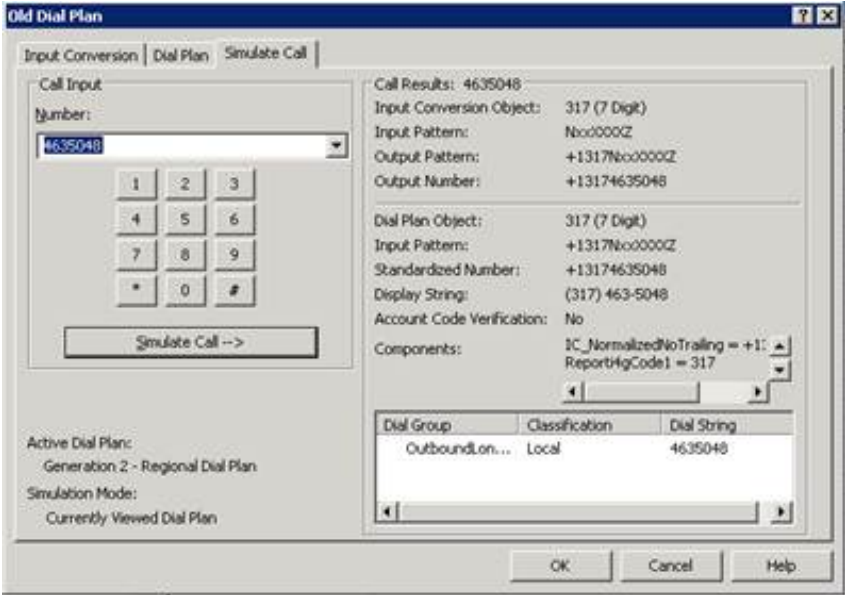
## Testing dial plans

Once you create the needed Input Conversion objects and Dial Plan objects, you can test your configuration on the Simulate Call page. Just click the dial pad, type, or select a phone number in the **Number** field and click the **Simulate Call** button.

The **Call Results** group then displays the resulting: **Input Conversion Object**, **Input Pattern**, **Output Pattern**, and **Output Number** matched with the number you input.

The **Dial Plan Object** group displays the resulting: **Input Pattern**, **Standardized Number**, **Display String**, **Dial Plan Object name**, **Dial Group**, **Classification**, and **Dial String** matched with the number you input.

Simulate Call enables you to test your Dial Plan output without actually placing calls





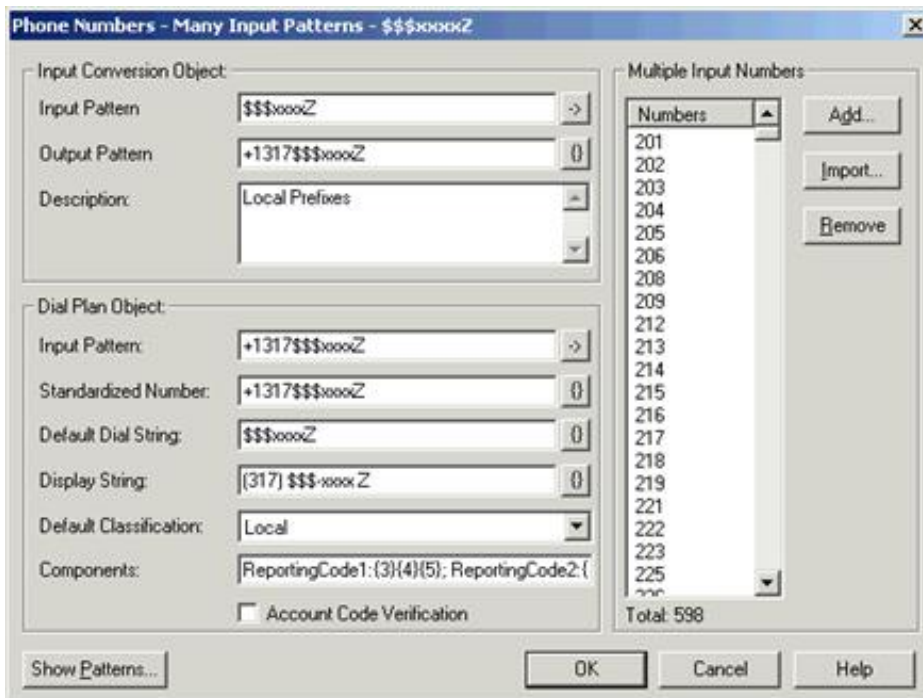
# Creating multiple input objects

To simplify the number of Dial Plan objects you need to create and maintain, CIC allows you to create a single combined input conversion / Dial Plan object that actually handles many similar kinds of phone number input.

The most common example of this is when you need to match hundreds of local exchanges to properly identify local phone calls. Rather than creating an individual Dial Plan object for each local exchange, you can create one combined Dial Plan object that uses a special substitution character in the input patterns and in the Dial Plan numbers.

The **Many Input Patterns** dialog can save you a great deal of time when you have to maintain a large list of local exchanges. It also reduces the number of entries in the **Dial Plan Objects** list on the **Dial Plan** configuration page.

The Many Input Patterns dialog combines the Input Conversion and Dial Plan pages, and it enables you to create a single Dial Plan object for multiple numbers.



The **Input Conversion Object** fields are identical to the fields on the **Input Conversion** property page. The only difference is the availability of the \$ character, which is used to expand the list of characters defined in the **Multiple Input Numbers** group box. Each \$ character represents one digit. So if the numbers in the **Multiple Numbers Input** group box are three digits (like a local exchange), you would use \$\$\$ in the place where those digits would appear in the Input Pattern.

Likewise, the **Dial Plan Object** fields are identical to the fields on the **Dial Plan Configuration** property page, with the only difference being the availability of the \$ character for substituting multiple numbers.

For example, the Input Pattern for a Dial Plan object that represents all of the local exchanges (for Indianapolis) listed in the **Multiple Numbers Input** group box would look like:

```
+1317$$$XXXXZ
```

When a local number is dialed, if the dialed exchange (represented by \$\$\$) matches one of the numbers listed in the **Multiple Numbers Input** group box, the \$\$\$ characters will be replaced by that exchange and dialed as a local call. This will also shorten the list of Dial Plan Objects listed on the **Dial Plan** property page; you would not need individual entries for each exchange.

The drop-down lists on the right side of the **Input Pattern**, **Default Dial String** and **Display String** fields include the common options that you would use in the **Many Input Patterns** dialog.

Select the options with \$\$\$ when you want to create a Dial Plan object where the positions represented by \$\$\$ are numbers listed in the **Multiple Input Numbers** group box.

To maintain the list of exchanges in the **Multiple Input Numbers** group box, you can manually add numbers to that list. Alternately, you can maintain the list in another application (for example, MS Access, or Excel) and export the exchange data to a comma-separated value (CSV) file, and then import that data file directly into this dialog whenever it changes.

Select **Account Code Verification** to apply this feature to the Dial Plan object. Use Account Code Verification to track outbound calls for such things as reporting and billing purposes.

**Note:**

Account codes are created in the Codes container, and enabled on the Account Codes configuration page. For information about Account Codes, see the white paper *Account Codes in CIC* in the [PureConnect Documentation Library](#).

# Extension dialing

Phone systems answered by an auto-attendant normally prompt the caller to manually dial an extension, enter a code, or provide some touch-tone input to direct the call. With CIC, you can optionally add these extra digits directly to the dialed phone number so CIC dials the digits for you after the auto-attendant answers your call. For example, if you know a company uses auto-attendant answering and the person you need to speak to is at extension 113, you could dial:

```
8723000/113
```

In this example, CIC would dial 8723000 and wait for the auto-attendant to answer. When the call is connected, it automatically sends the DTMF tones for 113 to dial that extension. Using this scheme, you can even dial multiple numbers separated by / and automatically dial your way through an entire IVR script (for example, 8723000/3/1/8235). CIC detects the auto-attendant response for each / in the number. Of course, if a person answered the phone instead of an auto-attendant, the person would hear these tones played in his or her ear.

CIC automatically sends the DTMF digits because the default setting of the **Extension Dialing Analysis Type** server parameter (in Interaction Administrator) is **Voice**. If you change the value of this server parameter from **Voice** to **Answering Machine**, CIC first attempts to detect an IVR or automated voice when the call is connected (it does this by sensing the length of the greeting). If it does not detect an automated voice, it assumes a human voice answered and does not send the DTMF extension digits. This kind of detection is less reliable than **voice** mode, but it attempts to be more *sensitive* to how each call is answered.

In some cases, you may want to store a user's extension with the company phone number but not use CIC's automatic extension dialing because the primary phone number uses a live operator instead of an auto-attendant. Instead of storing the number with a slash (/) in front of the extension, you can use a ^ before the extension to tell CIC to not dial the extension. For example,

```
8723000^113
```

If you use both the / and the ^, in either order, CIC sends the DTMF tones when the call is connected. For example:

```
8723000/^113
```

# Company speed dialing

Although CIC client users can easily create personal speed dial pages, and CIC administrators can provide corporate contact directories for all CIC client users, you can also create corporate speed dial entries that work from any stand-alone phone or workstation. This is as simple as creating an Input Conversion entry and a Dial Plan entry for each shortcut number. You can use existing classification names to control dialing privileges, or you can create a unique classification for each speed dial.

You can select a variety of schemes for speed dial numbers, but all speed dial numbers should observe the following guidelines:

1. Speed dial numbers can be any combination of up to six digits, but they should not begin with 0 (zero) or the number that begins internal user extensions (for example, 1 in the case of extensions 112, and 113).
2. Do not use the # or \* keys in speed dial numbers. (Manual dialing from a handset treats these keys in a special way.)

We recommend using an easy-to-remember scheme of three or four digits that all begin with the same one or two digits.

## Creating a speed dial entry

The following steps illustrate how to create a speed dial entry (for example, 211) to call the White House in Washington D.C. Open the **Phone Numbers** configuration container in Interaction Administrator to perform these steps.

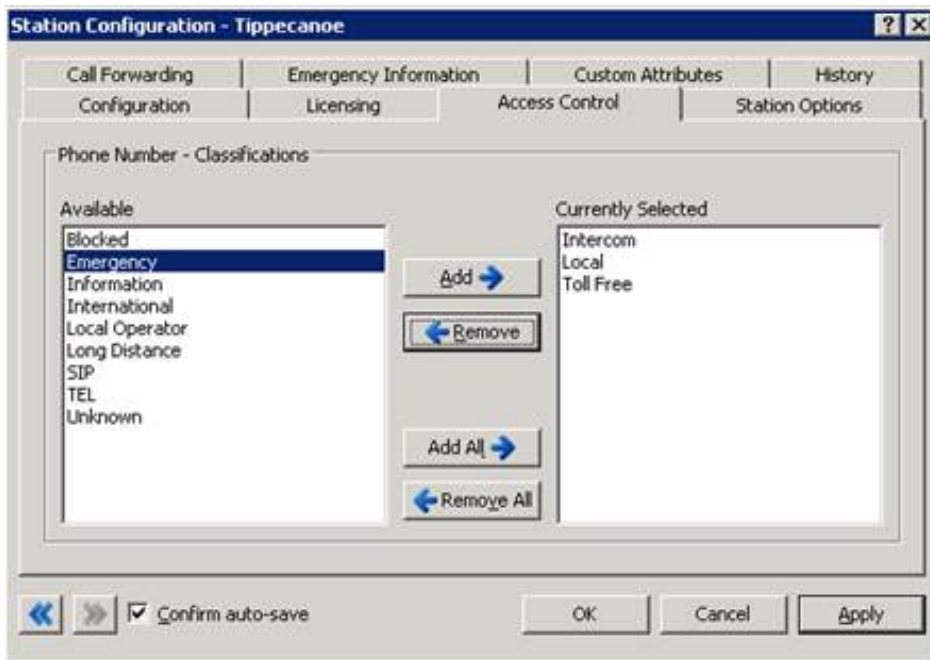
1. On the **Input Conversion** page, click the **Add** button to create an Input Conversion Object Name. On the **Entry** dialog, type `211 - White House` for the object name.
2. Select the new **211** entry at the bottom of the **Input Conversion Object Name** list and click the **Up** button until this entry is near the top of the list.
3. In the **Input Pattern** field, type `211`.
4. In the **Standardized Format** field, type `211`.
5. In the **Conversion Description** field, type `This is the speed dial number for the White House.`
6. On the **Dial Plan** page, click the **Add** button to create a Dial Plan object name. On the **Entry** dialog, type `211 - White House` for the object name.
7. Select the new **211** entry at the bottom of the **Dial Plan Object Name** list and click the **Up** button until this entry is near the top of the list.
8. In the **Input Pattern** field, type `211`.
9. In the **Dial String** field, type `12024561404`.
10. In the **Display String** field, type `The White House.`
11. In the **Dialing Classification** field, select **Long Distance**, or the appropriate classification name.
12. In the **Description** field, type `This is the speed dial entry for the White House.`
13. Click the **OK** button to save the entry.

Any CIC users and stations that have Long Distance dialing privileges can now pick up a telephone and dial `211` to call the White House.

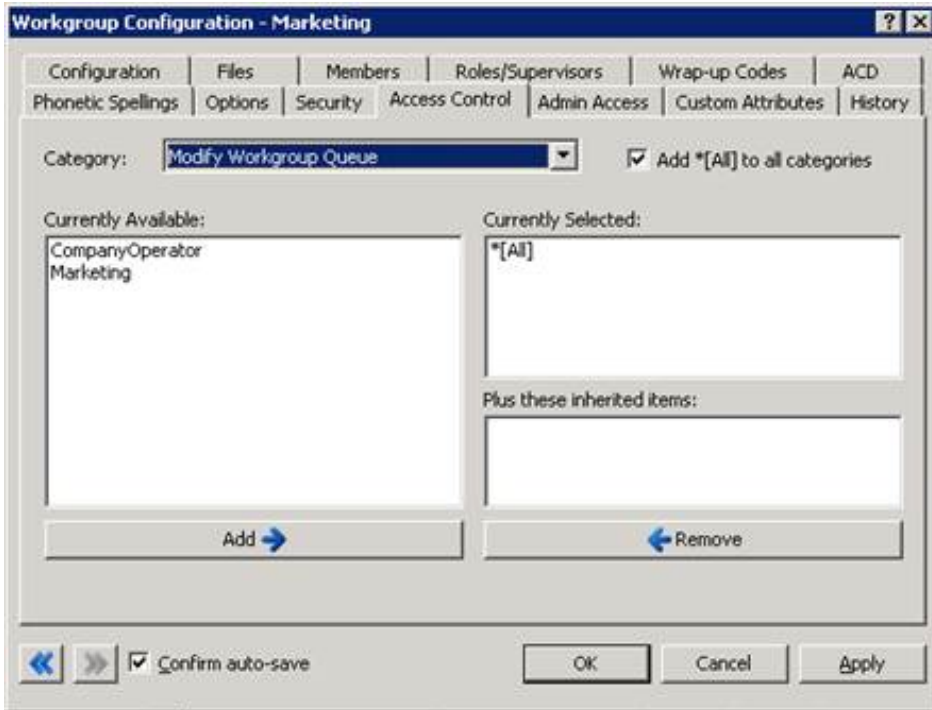
# Controlling dialing privileges

After you define dialing classification names and assign them to the different kinds of phone numbers on the **Dial Plan** page, you can assign dialing privileges to each CIC user, workgroup, role, and station defined in Interaction Administrator. Each of these groups, plus the Default User, has its own configuration container (for example, **Default User**, **Users**, **Workgroups**, **Roles**, and **Stations**), and each one has an **Access Control** page for that container. In the **Category** drop down list on the **Access Control** page, the list of **Phone Number Classifications** is populated based on the names defined on the **Classifications** page (in the **Phone Number Configuration** dialog). You select dialing classifications from this list to give each user, workgroup, role, or station the appropriate dialing privileges. All other CIC users automatically inherit dialing privileges assigned to CIC's Default User. You can then give additional dialing privileges to individual users, workgroups, and roles, in addition to these default privileges.

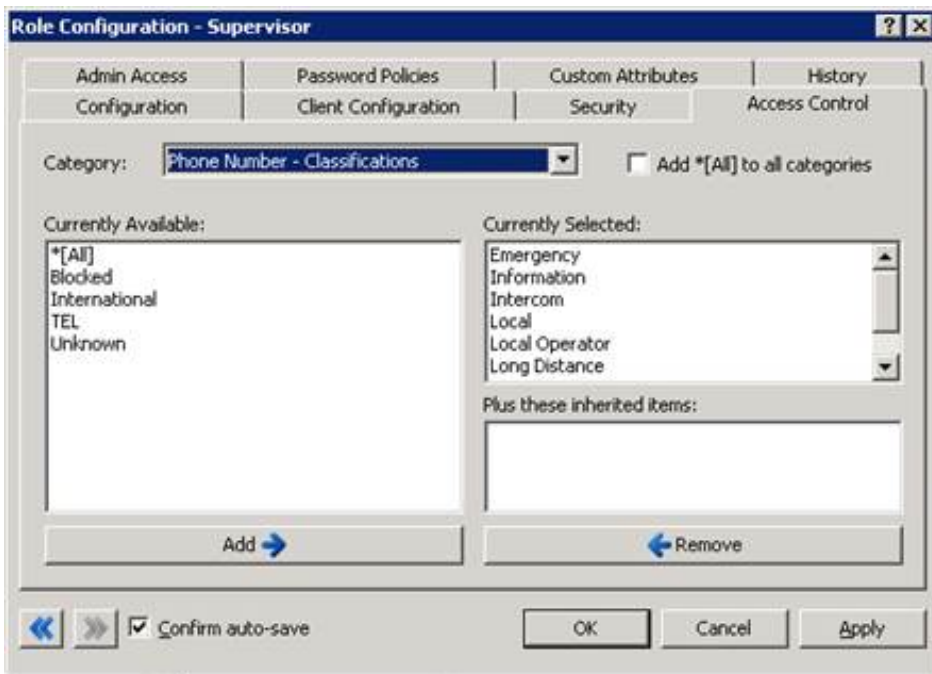
For example, you may decide that a stand-alone phone in the company lobby or kitchen should have only Intercom, Local, and Toll Free dialing privileges, and no access to long distance or local calls. On the workstation configuration dialog for that phone, you open the **Access Control** page, select the **Phone Number Classifications** category, and then select only the Intercom, Local, and Toll Free classification names.



Similarly, you can assign very specific dialing privileges for all members of a workgroup by selecting the desired **Phone Number Classifications** from the **Access Control** page for that workgroup. These workgroup privileges are combined with each workgroup member's user privileges.



You can also assign dialing privileges to specific roles on the **Role Configuration** dialog. Select the desired **Phone Number Classifications** from the **Access Control** page for that role.



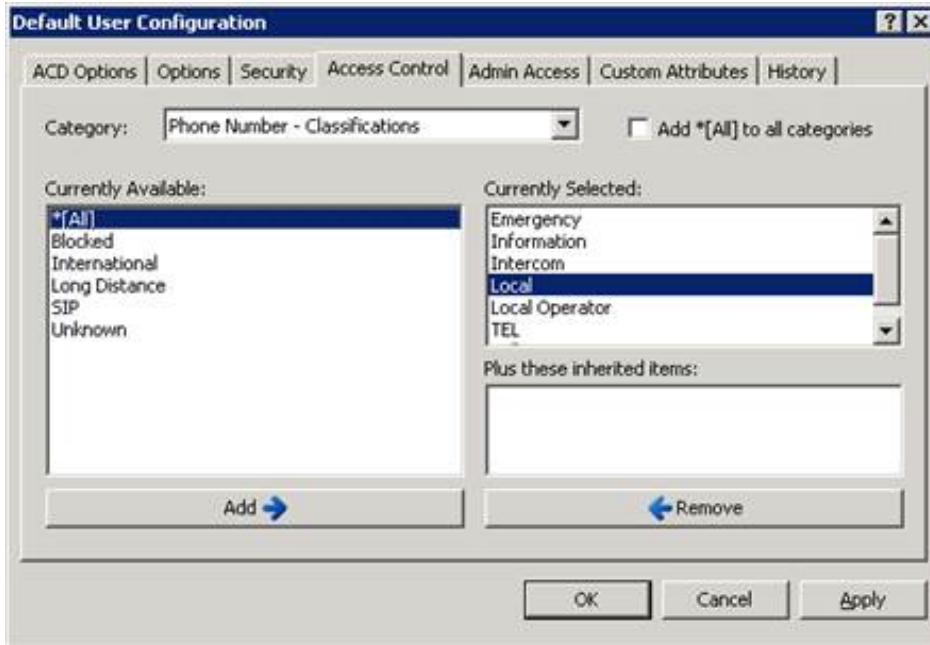
## Assigning dialing privileges for users

All CIC users configured in Interaction Administrator automatically inherit the properties defined for the generic **default user**, whose properties are configured in the **Default User Configuration** dialog. This is the best place to start when configuring user's dialing privileges.

1. While looking at the list of dialing classifications defined in your system, decide the minimum level of dialing privileges all CIC users need by default (for example, Emergency, Operator, Local). Each CIC user automatically inherits the dialing privileges you choose here. You cannot remove one of these privileges from an individual user later, so you must decide carefully what all users need.
2. Open the **Default User Configuration** dialog, select the **Access Control** page, and select the **Phone Number Classifications** category from the drop down list.

3. In the **Available** list box that displays the classification names, double-click on each classification you want to give the default user

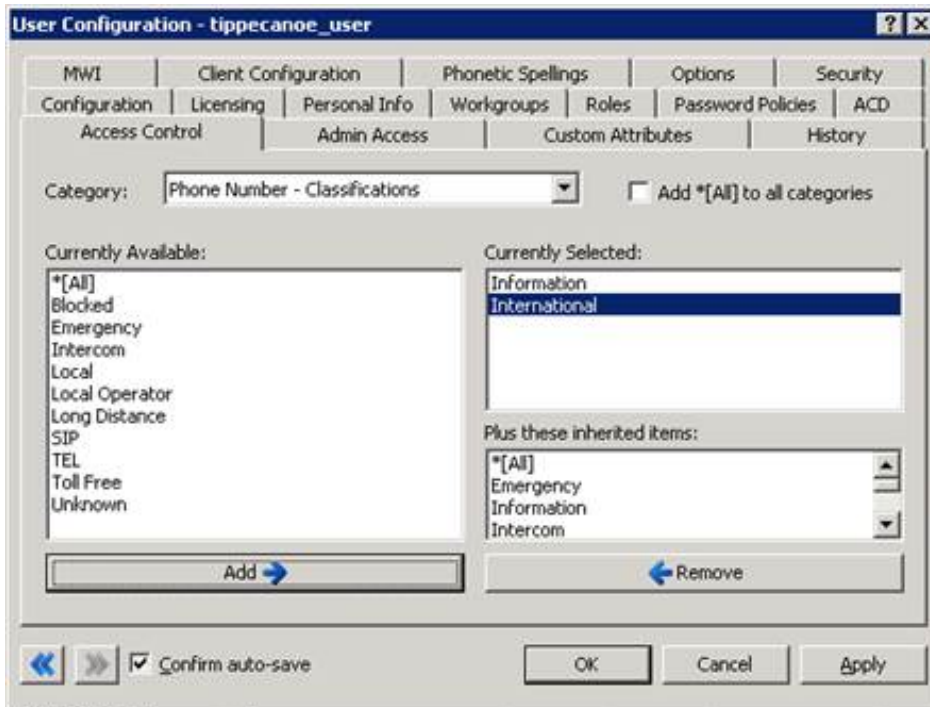
Or select the classification name and click the **Add** button to move the classification into the **Currently Selected** list box.



The Default User Configuration determines the minimum set of dialing privileges each CIC user has by default.

Later, you can add more dialing privileges to individual users or members of a workgroup or role by editing the **Phone Number Classifications** list on the **Access Control** page in each of the respective configuration containers.

The following figure shows how to apply additional dialing privileges to an individual user.



An individual user inherits the Default User's Phone Number Classifications; additional privileges can be added as needed.

## Blocking phone numbers

Administrators at some sites may want to prevent all phone users from dialing certain phone numbers or kinds of numbers under any circumstances, for example, a 900 number with a specific exchange. You can block undesirable phone numbers from all users by creating a classification named **Blocked Numbers**, for example, and assigning this classification name to all instances of blocked numbers in the Dial Plan. As long as no stations, users, roles, or workgroups are given access to the **Blocked Numbers** classification (on the **Access Control** pages), nobody will be able to dial a number in the **Blocked Numbers** classification. If a blocked number is dialed, caller will hear the prompt, "I'm sorry, but you do not have sufficient dialing privileges to dial that number".

To block one or more phone numbers in CIC:

1. On the **Classifications** page in the **Phone Number** container, create a phone number classification name `Blocked Numbers`. This is an example name; you can name it anything you like.
2. On the **Input Conversion** page, check to see if there is an input pattern that covers the kind of phone number you wish to block. For example, if you wish to block certain 900 numbers, create one or more input conversion objects that standardize the blocked numbers you wish to capture. In the case of 900 numbers with a 976 exchange, create Input Conversion Objects to capture the phone number `900976xxxxZ` and standardize it to `+1900976xxxx`.
3. On the **Dial Plan** property page, create a Dial Plan object that matches the standardized input captured by the **Input Conversion** property page. In the case of the 900976 example, the **Input Pattern** would be `+1900976xxxxZ`. Select the **Dialing Classification** for blocking numbers (for example, **Blocked Numbers**) on this object.
4. Do not assign, or let anyone else assign the **Blocked Numbers** classification to any user, workgroup, role or station on the **Access Control** page in any of these configurations.

You do not have to capture the dialed number with a *specific instance* of each number on the **Input Conversion** property page because the number is captured with a general pattern on that page. However, you may need to create multiple patterns on the **Input Conversion** page in order to capture the various ways the number may be dialed, such as with or without the leading 1 (for example, `900976xxxxZ` and `1900976xxxxZ`).



# Migrating SIP numbers

Here's how Customer Interaction Center migrates SIP numbers that are stored in a non-standardized form by third-party programs. Rather than mapping alpha characters to digits, and removing format and white spaces, the number will be considered a SIP number—and only white space will be removed—if:

- The input number has a sip: prefix
- The input number has an @ symbol immediately followed by an alpha character
- There are one or more periods ( . ), in any position, following the @ symbol

The following examples show which numbers are considered SIP numbers, and which numbers are not:

Input number	SIP number?
872-3000@131	No
872-3000/@131/2	No
872-3000@131ABC	No
@131	No
/@131	No
872-3000@172.16.1.11	Yes
872-3000@ININ.Com	Yes
872-3000@DEV.ININ.Com	Yes
872-3000@168.	Yes
872-3000@168ABC	No
TomH@ININ	Yes
@Foo.Bar	Yes
@Foo	Yes
/@A123	No
@1.23	Yes

# Change Log

The following table lists the changes to the *Dial Plan Technical Reference* since its initial release.

Date	Changes
30-August-2011	Updated with template changes for 4.0.
13-September-2014	Updated documentation to reflect changes required in the transition from version 4.0 SU# to CIC 2015 R1, such as updates to product version numbers, system requirements, installation procedures, references to Product Information site URLs, and copyright and trademark information.
01-April-2015	Updated to reflect addition of Interaction Desktop as the main CIC client application.
26-August-2015	Rebranded.
11-May-2018	Rebranded from Interactive Intelligence to Genesys.
12-June-2019	Reorganized the content only, which included combining some topics and deleting others that just had an introductory sentence such as, "In this section...".