IBM Campaign
Version 9 Release 0
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User's Guide

Note
Before using this information and the product it supports, read the information in "Notices" on page 223.

This edition applies to version 9, release 0, modification 0 of IBM Campaign and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Chapter 1. Introduction to IBM Campaign

Campaign is a Web-based Enterprise Marketing Management (EMM) solution that consists of a back-end server, a web server, and Marketing Platform security. Campaign enables users to design, run, and analyze direct marketing campaigns.

Campaign provides an easy-to-use graphical user interface that supports the direct marketing processes of selecting, suppressing, segmenting, sampling, and creating output lists of customer IDs. Campaign allows you to seamlessly access and manipulate data from all of your data sources, including relational databases (regardless of database type) or flat files.

Campaign treats a marketing campaign as a discrete entity made up of one or more flowcharts. Each flowchart consists of one or more processes. The processes, which are the building blocks for campaign flowcharts, are the heart of Campaign. Processes perform the actual data manipulation, scheduling, offer matching, list generation, and optimization. You define and implement a campaign by configuring a series of processes within a flowchart.

Processes populate contact history and response history, and they support response attribution and reporting. Each campaign can be associated with one or more strategic segments, offers, and reports, and can consist of multiple flowcharts.

Campaign supports raw SQL, macros, and functions. However, users do not need to know SQL to design campaigns. Mapped database tables can easily be selected, merged, sampled, and segmented and the resulting customers can be associated with a variety of offers. The results of a campaign can be recorded, responses tracked, and the return on investment (ROI) calculated. Campaigns can be scheduled to run at a particular time or triggered by a particular event, all without knowledge of SQL.

Who uses Campaign?

Campaign is designed to be used by marketing experts, as well as by experts in data-mining, On-Line Analytical Processing (OLAP), and SQL.

Campaign *users* design, execute, and analyze direct marketing campaigns. Campaign *administrators* lay the groundwork for their colleagues by performing initial and ongoing tasks such as mapping database tables, adjusting configuration settings, and defining custom attributes and offer templates for users.

For more information about tasks performed by Campaign administrators, see the *Campaign Administrator's Guide*.

Integration with other IBM products

Campaign optionally integrates with the following IBM® products:

- **Distributed Marketing** to support distributed, custom execution of centrally managed campaigns.
- **eMessage** for constructing targeted, measurable email marketing campaigns.
- **Interact** to retrieve personalized offers and customer profile information in real-time to enrich the interactive experience. For information on using Interact

features in Campaign, including the use of interactive flowcharts and Interact processes on batch flowcharts, see the IBM Interact documentation.

- **Marketing Operations** to integrate the marketing resource management features of Marketing Operations with the campaign development features of Campaign. For more information, see "About integration with IBM Marketing Operations."
- **CustomerInsight** to provide access to CustomerInsight group selections when designing direct marketing campaigns.
- **Digital Analytics for On Premises** to provide access to Digital Analytics for On Premises visitor segments when designing direct marketing campaigns.
- **Contact Optimization** to optimize contacts from a customer-centric perspective while considering business rules and constraints.
- **PredictiveInsight** to leverage scoring of predictive models for response modeling, cross-selling, customer valuation, and segmentation.

For more information on the use of other IBM products integrated with Campaign, see the documentation included with those products.

About integration with IBM Marketing Operations

Campaign can be integrated with Marketing Operations to use its marketing resource management features to create, plan, and approve campaigns.

When Campaign is integrated with Marketing Operations, many of the tasks previously performed in a stand-alone Campaign environment are performed in Marketing Operations. These tasks include:

- Working with campaigns:
  - Creating campaigns
  - Viewing, moving, and deleting campaigns
  - Working with campaign summary details
- Working with Target Cell Spreadsheets
- Assigning offers to cells
- Specifying control cells
- Creating and populating custom campaign attributes
- Creating and populating custom cell attributes

These tasks are explained in the *Marketing Operations and Campaign Integration Guide*.

The following tasks are performed in Campaign in both stand-alone and integrated environments:

- Creating flowcharts
- Running flowcharts
- Detailed analysis of campaigns/offers/cells
- Reporting on Campaign performance (depending on the reporting pack installed)

If offer integration is also enabled, you perform the following tasks in Marketing Operations:

- Designing offers
  - Defining offer attributes

  - Creating offer templates
- Creating, approving, publishing, editing, and retiring offers
- Organizing offers using offer lists and offer folders

About legacy campaigns

Legacy campaigns are campaigns that were created in Campaign (or Affinium Campaign 7.x) before enabling integration between Marketing Operations and Campaign. In an integrated environment, Campaign can be configured to access the following types of legacy campaigns:

- Campaigns that were created in stand-alone Campaign (whether in the current or a previous version of Campaign) before integration was enabled. These campaigns cannot be linked to Marketing Operations projects.
- Campaigns that were created in Affinium Campaign 7.x and linked to Affinium Plan 7.x projects. Functionality of these campaigns remains unchanged from version 7.x of these products, based on the data mapping between attributes in both products.

You can use Campaign to access and work with both types of legacy campaigns, even after integration is enabled.

Campaign concepts

The basic concepts that you should understand before using Campaign include:

- "Campaigns"
- "Flowcharts"
- "Sessions" on page 4
- "Processes" on page 4
- "Offers" on page 4
- "Cells" on page 5

Campaigns

You create campaigns in Campaign to manage and reflect a direct marketing campaign. Each campaign is defined by the following elements:

- name
- security policy
- description
- objective
- campaign code
- effective and expiration dates
- initiatives
- owner
- any customized attributes

Campaigns include one or more *flowcharts* that you design to perform a sequence of actions on your data for executing your campaigns.

Flowcharts

In Campaign, flowcharts represent a sequence of actions that you perform on your data. Every action is defined by a building block, called a *process.* By configuring

and joining processes, you can manipulate the underlying data to achieve your goals. Flowcharts can be run manually, by a scheduler, or in response to some defined trigger.

You use flowcharts to accomplish particular marketing goals, such as determining qualified recipients for a direct mail campaign, generating a mailing list for this group of recipients, and associating each recipient with a particular offer. You can also use flowcharts to track and process respondents to your campaign, and to calculate your return on investment for the campaign.

For each campaign, you design one or more flowcharts to implement the campaign, configuring the processes that make up the flowchart(s) to perform the required data manipulation or action.

Each flowchart has the following elements:

- name
- description
- processes that are configured and connected
- one or more data sources

Licensed users of Interact can also use Campaign to run real-time *interactive flowcharts* that depend on the occurrence of an event. For more information on interactive flowcharts, see the *Interact User's Guide*.

Sessions

A session is a special place in the application where fundamental, persistent, global data constructs (such as strategic segments and cubes) are created by Campaign administrators and then made available to all campaigns. Like campaigns, sessions are also comprised of individual flowcharts.

Processes

Flowcharts are comprised of individual processes that are configured to perform a particular task in a campaign or session, such as selecting data, merging two distinct audience groups, or writing out the results of the campaign.

Offers

An offer represents a single marketing message, which can be delivered in a variety of ways.

In Campaign, you create offers that can be used in one or more campaigns.

Offers are re-usable:

- in different campaigns;
- at different points in time;
- for different groups of people (cells);
- as different "versions" by varying the offer's parameterized fields.

You assign offers to target cells in flowcharts using one of the contact processes, and track your campaign results by capturing data about customers who received the offer, and customers who responded.

Cells

A cell is simply a list of identifiers (such as customer or prospect IDs) from your database. In Campaign, you create cells by configuring and running data manipulation processes in flowcharts. These output cells can also be used as input for other processes in the same flowchart (downstream from the process which created them). There is no limit to the number of cells you can create.

Cells to which you assign one or more offers in Campaign are called target cells. A target cell is a distinct group of homogeneous individuals (or whatever the entity is for which the audience level is defined, such as individual customers, or household accounts). For example, cells can be created for high-value customers, customers who prefer to shop on the web, accounts with on-time payments, customers who have opted to receive email communications, or loyal repeat buyers. Each cell or segment you create can be treated differently, receiving different offers or communications via different channels.

Cells containing IDs qualified to receive an offer but that are excluded from receiving the offer for analysis purposes are called control cells. In Campaign, controls are always hold-out controls.

The term "cell" is sometimes used interchangeably with "segment." Strategic segments are cells that are created in a session rather than in a campaign flowchart. A strategic segment is no different from other cells (such as those created by a Segment process in a flowchart) except that it is available globally, for use in any campaign. A strategic segment is a static list of IDs until the flowchart that created it originally is re-run.

Chapter 2. Getting started with Campaign

Before meaningful work can be done in Campaign, database tables must be mapped, data objects such as segments, dimensions, or cubes might need to be created, and individual campaigns must be planned and designed. These tasks are initially performed with the help of a IBM consultant with the expectation that the initial campaign and this guide allow you to design and run additional campaigns yourself – or refine, expand, and build upon an initial campaign with varying degrees of assistance.

For more information about configuration and other administrative tasks, see the *Campaign Installation Guide* and the *Campaign Administrator's Guide*.

Your username and password

To access Campaign, you must have a username and password combination that has been created for you in Marketing Platform, and also be authorized to access Campaign.

If you do not have a valid username and password, contact your system administrator.

To log in to IBM EMM

This procedure assumes that you know the website address (or URL) to your server and you have an assigned user name and password. If you need help, contact your IBM EMM administrator.

1. Open a supported browser and enter the URL to the IBM EMM server. The prompts that display vary based on the security settings defined for your installation.
2. If prompted, accept the digital security certificate.
3. On the login page, enter your user name and password, then click **Sign In**.
4. If prompted to change your password, enter a new password, confirm it by entering it again, and click **Change Password**.

The dashboard or the default start page displays. The options that are available to you depend on the permissions assigned to you by your IBM EMM administrator.

Note: For a list of supported browsers, see the *IBM EMM Enterprise Products Recommended Software Environments and Minimum System Requirements* guide.

Your role and permissions

Your user name in Campaign is associated with one or more roles, such as Reviewer, Designer, and Manager. Your administrators define roles specific to your organization. Your roles determine the functions that you can perform in Campaign. The object-level security implemented by your organization determines whether you can perform those functions on specific objects. If you need to access objects or perform tasks that your permissions do not allow, contact your system administrator.

Security levels in Campaign

Security in Campaign works on two levels:

- **Functional -** Determines the actions that you can perform on types of objects, based on the role(s) that you belong to. Your organization defines these roles at implementation, and each role has a set of permissions associated with it, that determine what actions a user belonging to a role can perform. For example, if you are a user assigned a role called "Administrator", you might have permissions to map and delete system tables, while if you are a user assigned the role called "Reviewer" you might be denied permissions to map and delete system tables.
- **Object -** Defines the of object types on which you can perform your allowed actions. In other words, even if you belong to a role that has general permissions granted to edit campaigns, object-level security for Campaign can be set up so that you cannot access campaigns residing in particular folders. For example, if you belong to Division A, regardless of your functional roles, you can be disallowed from accessing the contents of folders belonging to Division B.

Setting your start page

If you do not want a dashboard page to appear when you first log in to IBM EMM, you can select a page from one of the installed IBM products as your start page.

To set a page you are viewing as your start page, select **Settings > Set current page as home**. Pages available for selection as a start page are determined by each IBM EMM product and by your permissions in IBM EMM.

On any page you are viewing, if the **Set current page as home** option is enabled, you can set the page as your start page.

Chapter 3. Campaigns

Campaigns are made up of one or more flowcharts that you design to perform a sequence of actions on your data for executing your campaigns. Flowcharts are made up of processes, which you configure to perform the actual data manipulation, contacts, scheduling, and response tracking required for your campaign. In effect, the processes are how you define and implement a campaign.

For an example of flowcharts designed for a retention campaign using multiple channels to deliver an offer, see "Example: Multi-channel retention campaign."

Preparing the data for campaigns

To prepare the data for a campaign, you first need to tell Campaign which tables or files in your data source contain information about your customers and products. Mapping your data into Campaign makes this data available to processes for manipulation. For details, see the sections on database table administration in the *Campaign Administrator's Guide*.

You might also need to create offers, strategic segments, and other data objects for use in your campaigns. For information on creating objects for use in campaigns, see Chapter 10, "Stored objects," on page 171.

Using IBM Digital Analytics segments in Campaign

The IBM Digital Analytics Web Analytics products allow users to define segments based on visit and view level criteria. If these segments are made available to Campaign, they can be used in flowcharts, so they can be targeted in marketing campaigns. This "online segmentation" functionality provides an automated way to incorporate IBM Digital Analytics data into your campaigns.

- To configure the integration, see the *Campaign Administrator's Guide*.
- To use IBM Digital Analytics-defined segments in Campaign, see "To use IBM Digital Analytics segments in a Select process" on page 63.

Designing campaigns

Before creating a campaign, you should have already designed it on paper and determined the goals for the campaign. Once you have designed a campaign on paper, you will implement it in Campaign by creating a campaign and creating one or more flowcharts to accomplish the objectives of your campaign.

Campaigns are comprised of one or more flowcharts. Flowcharts are comprised of interconnected processes. The processes combined in a flowchart are the heart of Campaign, since they perform the actual data manipulation, contacts, scheduling, and response tracking; in effect, the processes are how you define and implement a campaign.

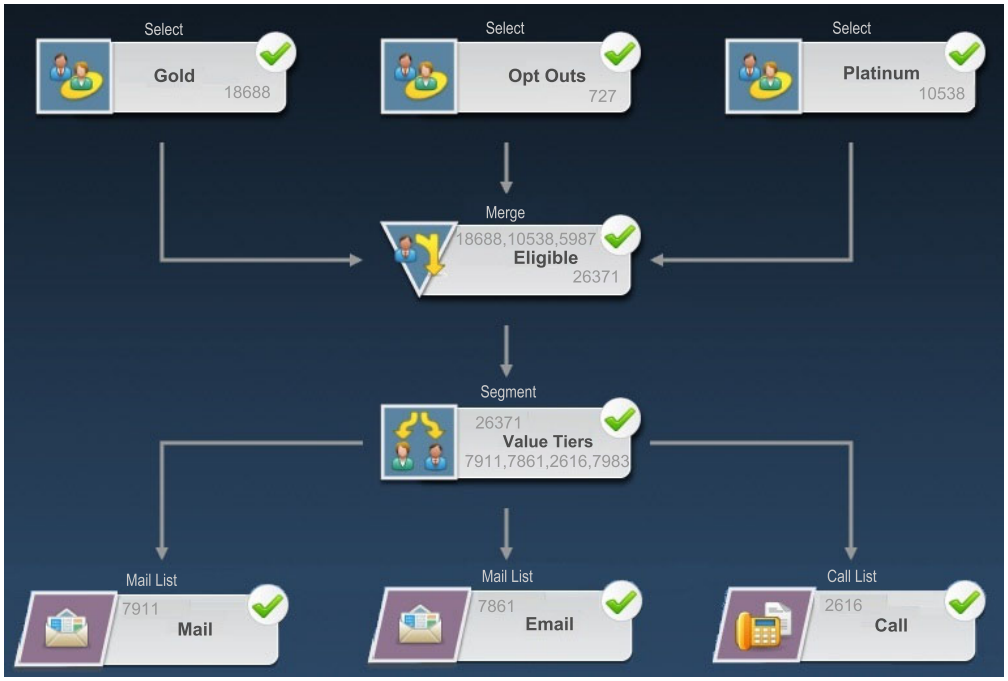
Example: Multi-channel retention campaign

This example shows a retention campaign that uses multiple channels to deliver an offer to customers that might be lost through attrition. Two flowcharts are required:

- A contact flowchart to generate lists of customers to which the offer will be sent (via a different channel for each segment)
- A response flowchart to track responses to the offer and write the response data out for reporting and analysis

Contact flowchart

The following example shows a sample retention campaign contact flowchart. This flowchart selects the eligible customers in each value segment and outputs contact lists for a different channel for each segment.



In the first level of the flowchart, Select processes are used to select customers in the Gold and Platinum segments, as well as customers who opted out of marketing communications.

In the second level, a Merge process combines the Gold and Platinum customers and excludes customers who opted out.

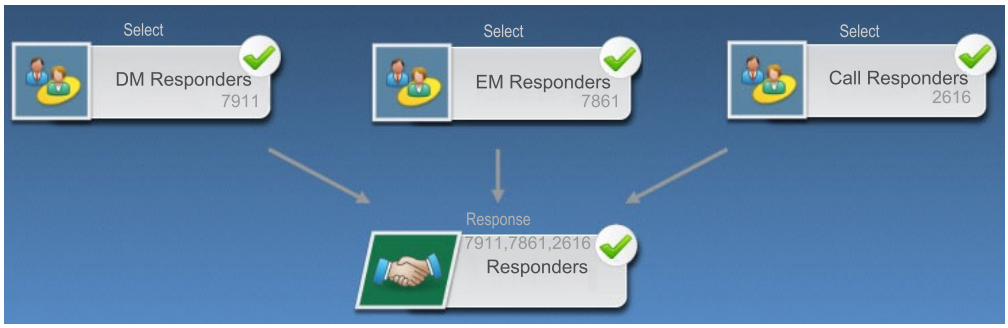
Next, a Segment process divides all of the eligible customers into value tiers based on their scores.

Finally, each customer is assigned to a list. The high-value customers are output to a call list, so they can be contacted with the offer by phone. The medium-value customers are output to a mail list ; they will receive a direct mail offer. The lowest value customers will receive the offer by email.

Response flowchart

A second flowchart in this same campaign tracks responses to the direct mail, email, and telephone offers captured by the call center and response capture

systems. Response information is then available through the various performance reports in Campaign. The following example shows the retention campaign's response tracking flowchart.



About accessing campaigns

You access campaigns from the All Campaigns page, available from the **Campaign > Campaigns** link in the menu.

The information displayed on the All Campaigns page depends upon how your Campaign environment is configured.

- **Stand-alone Campaign environment**—The All Campaigns page displays all campaigns and campaign folders for which you have at least read access.
- **Integrated Marketing Operations–Campaign environment**—If access to legacy campaigns has been enabled, the All Campaigns page displays only legacy campaigns. Otherwise, no campaigns are listed on this page. Campaigns created through Marketing Operations are accessed through campaign projects.

  For more information about legacy campaigns, see "About legacy campaigns" on page 3. For information on configuring Campaign to enable access to legacy campaigns, see the installation documentation.

  If you want to access campaign projects created in Marketing Operations from the All Campaigns page, click the link for the **Campaign Projects** folder. This folder provides access to the projects view in Marketing Operations. The projects that display depend upon the default project view that you have set in Marketing Operations. You can configure this to display all campaign projects if desired.

  For more information about campaign projects, see the *Marketing Operations and Campaign Integration Guide*. For more information about project views, see the *Marketing Operations User's Guide*.

  Note: The **Campaign Projects** folder cannot be deleted, moved, or copied.

Working with campaigns

This section describes the tasks you can perform with campaigns in Campaign.

Note: If your Campaign environment is integrated with Marketing Operations, you must use the campaign projects in Marketing Operations to work with campaigns. If your Campaign environment has pre-existing campaigns created before the integration was enabled and Campaign is configured to access legacy

campaigns, use the instructions in this guide to work with these campaigns. For more information, see "About integration with IBM Marketing Operations" on page 2.

Note: Working with campaigns requires the appropriate permissions. For information on permissions, see the *Campaign Administrator's Guide*.

To create a campaign

1. Select **Campaign > Campaigns**.

   The All Campaigns page appears, displaying the folders or campaigns in the current partition.
2. Navigate through the folder structure until you have opened the folder to which you want to add your campaign.
3. Click the **Add a Campaign** icon.

   The New Campaign page appears.
4. Complete the fields in the Campaign Summary.
5. When you have finished entering your campaign summary details, click **Save and Finish**.

   The Campaigns page lists the new campaign.

   Note: You can also click **Save and Add a Flowchart** to immediately start creating your campaign's flowcharts. However, it may be better to associate the appropriate segments and offers to your campaign before creating flowcharts, which makes selecting customers and creating contact lists in your flowcharts easier.

Associating strategic segments with a campaign

A strategic segment is a list of IDs created by your system administrator (or an advanced user) in a session and made available to all campaigns. A strategic segment is no different from other segments (such as those created by the Segment process) except that it is available globally, for use in any campaign.

Associating a strategic segment with your campaign makes it easier to select that segment when you are creating your flowcharts. Associating the relevant strategic segments with your campaign also provides greater reporting capabilities within Campaign.

To associate a segment with a campaign

1. On the Campaign Summary tab, click the **Add/Remove Segments** icon.

   The Add/Remove Segments window appears.
2. Select the segment you want to add:
   - Click the folders to navigate through them until you locate the segment you want to add;
   - Click **Tree View/List View** to change the segment list view, then navigating to the segment you want to add;
   - Click **Search** to access the Search tab, where you can enter a name or description to find the segment you want to add.
3. Select the segment(s) you want to add, and click **>>** to move them to the **Included Segments** list. You can select multiple segments using **Shift+Click** or **Ctrl+Click**.

4. Click **Save Changes** when you have finished selecting segments to associate with this campaign.

The segments you added are listed on the Campaign Summary page under **Relevant Segments**.

Note: When you use the Select process to select customers in your campaign flowcharts, segments associated with your campaign will appear at the top of the list, making them easy to locate.

Associating offers with a campaign

Associating offers with your campaign when you define the campaign makes it easier to select that offer when you are assigning offers to cells in contact processes. Defining the relevant offers for a campaign from the Campaign Summary tab is referred to as “top down” association; when an offer is simply used in a flowchart without first associating it with a campaign, it is referred to as “bottom up” association.

To associate an offer "top down" from the Campaign Summary tab

1. On the Campaign Summary tab, click the **Add/Remove Offers** icon.

   The Add/Remove Offers window appears.
2. Select the offer you want to add:
   - Click the folders to navigate through them until you locate the offer you want to add;
   - Click **Search** to access the Search tab, where you can enter a name, description or code to find the offer you want to add.
3. Select the offer(s) you want to add, and click **>>** to move them to the **Included Offers** list. You can select multiple segments using **Shift+Click** or **Ctrl+Click**.
4. Click **Save Changes** when you have finished selecting offers to associate with this campaign.

The offers you added are listed on the Campaign Summary tab under **Relevant Offers**. They appear grayed out until you use them in a flowchart in this campaign.

The Campaign Summary tab Relevant Offers section lists all of the offers associated with a campaign. Offers associated “top down” are visually distinguished from those associated from “bottom up”: an asterisk next to the name of an offer indicates that that offer was associated with the campaign using the “top down” method. Offers that were used directly in a flowchart without first being defined top down appear without an asterisk. Offers that were defined top down and are not yet used in a flowchart appear grayed out until they have been used in a flowchart.

When you use a contact process to create contact lists in your campaign flowcharts, any offers defined top down will appear at the top of the list, making them easy to locate and select for assignment to one or more target cells.

To view a campaign

1. Select **Campaign > Campaigns**.

   The All Campaigns page appears, displaying the folders or campaigns in the current partition.

2. Navigate to the folder containing the campaign you want to view.
3. Click the name of the campaign you want to view to open the campaign to its Summary tab.

   OR

4. Click the **View a tab** icon next to the name of the campaign you want to view.

   Choices for the **Summary**, **Target Cells**, and **Analysis** tabs appear (across the top of the Campaign display, or on a pop-up menu), and a choice for viewing each flowchart in the campaign (if any) also appears.
5. Click the campaign tab you want to view.

   The campaign opens to the tab you selected.

To navigate from a linked legacy campaign to a Marketing Operations project

1. Select **Campaign > Campaigns**.

   The All Campaigns page appears, displaying the folders or campaigns in the current partition. Only legacy campaigns are listed.

   To view campaigns created with Marketing Operations–Campaign integration enabled, click the **Campaign projects** folder. If there are no legacy campaigns or legacy campaigns have not been enabled in the configuration, this page will always be empty.
2. Click the name of the campaign you previously linked to a project in Affinium Plan.

   The campaign opens to its **Summary** tab.
3. Click the name of the project displayed in the **Related Project** field.

   Marketing Operations opens, displaying the **Summary** tab of the linked project.
4. To return to Campaign, click the name of the project in the (**Related Campaign (Code))** field in Marketing Operations.

To edit a campaign's Summary details

1. On the Campaigns page, click the name of the campaign whose summary details you want to edit.

   You can also click the **Edit a tab** icon and select Summary from the context menu to access the campaign Summary directly in Edit mode.

   The campaign opens to its **Summary** tab.
2. Click the **Edit Summary** icon.
3. Make your desired edits on the **Summary** tab.

   Note: Campaign names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
4. When you have finished making your changes, click **Save and Finish**.

   Your changes are saved and the campaign closes.

About running campaigns

You run a campaign by running one or more of the flowcharts in the campaign. Before you can run a flowchart, all of the processes in that flowchart must be correctly configured. Unconfigured flowchart processes appear in gray; successfully configured flowchart processes appear in color.

You can test run a flowchart to run it without writing output to system tables.

To print a campaign

You can print any page in a campaign using the **Print this Item** icon.

1. Select the campaign tab you want to print.

   The selected tab opens.
2. Click the **Print this Item** icon.

   A new window opens displaying a printer-friendly version of the current page.
3. Click **Print**.

   The Print window appears, where you can set your printer options.
4. Click **Print** in the Print window.

   The page prints.

To move a campaign

You can organize campaigns by moving them from folder to folder.

Important: If someone is editing a flowchart in the campaign you plan to move, that entire flowchart might be lost when you move the campaign. Make sure none of the flowcharts in the campaign are open for editing when you move the campaign.

1. On the Campaigns page, select the checkbox next to the campaign you want to move. You can select multiple campaigns to move to the same location at one time.
2. Click the **Move** icon.

   The Move Items To window appears.
3. Click the folder where you want to move the campaign.

   Navigate through the list by clicking the + sign next to a folder to open it.
4. Click **Accept this Location**.

   Note: You can also double-click a folder to select and accept the location in one step.

The campaign is moved into the destination folder.

About deleting campaigns

When you delete a campaign, the campaign and all flowchart files are deleted. If there are portions of your campaign you want to store for reuse, you can save them as a stored object. For more information, see Chapter 10, “Stored objects,” on page 171.

Important: If you delete a campaign that has associated contact or response history records, all corresponding contact and response history records will be deleted. Do not delete the campaign if you need to retain the associated contact and response history.

To delete a campaign

1. On the Campaigns page, navigate to the campaign you want to delete.
2. Select the checkbox next to the campaign you want to delete. You can select multiple campaigns to delete at one time.
3. Click the **Delete Selected** icon.

Important: If you attempt to delete a campaign that has associated contact or response history records, a warning message indicates that all corresponding contact and response history records will be deleted. If you need to retain the corresponding contact and response history, click **Cancel**.

4. Click **OK** on the confirmation window.

The selected campaign is deleted.

Note: You can also delete a campaign while viewing the campaign by clicking the **Delete** icon.

Analyzing campaign results

After running your campaign, you can measure the results and use these results to fine-tune your strategy. Campaign analyzes a variety of information about your campaigns, including actual response rates, revenue, and profit per responder. Based on this information, Campaign can calculate your total and incremental revenue and profit, as well as your overall ROI.

Campaign offers several types of reports to help you gather and analyze information about your campaigns. For information on working with reports, see Chapter 12, "Reports," on page 203.

Organizing campaigns

You can organize your campaigns by creating a folder or series of folders. You can then move campaigns from one folder to another within the folder structure you have created. You can add, move, and delete folders to organize your campaigns. You can also edit a folder's name and description.

To add a campaign folder

1. Select **Campaign > Campaigns**.

   The All Campaigns page appears, displaying the folders or campaigns in the current partition.
2. Navigate to the folder where you want to add a subfolder and click **Add a Subfolder**, or simply click **Add a Subfolder** to add a folder at the top level.

   The Add a Subfolder page appears.
3. Enter a name, the security policy, and description for the folder.

   Note: Folder names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219
4. Click **Save Changes**.

You are returned to the All Campaigns page. The new folder or subfolder you created is displayed.

To edit a campaign folder's name and description

1. Select **Campaign > Campaigns**.

   The All Campaigns page appears, displaying the folders or campaigns in the current partition.
2. Click the folder you want to rename.
3. Click **Rename**.

   The Rename a Subfolder page appears.

4. Edit the name and description of the folder.

   Note: Folder names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219
5. Click **Save Changes**.

You are returned to the All Campaigns page. The folder or subfolder is renamed.

To move a campaign folder

1. Select **Campaign > Campaigns**.

   The All Campaigns page appears, displaying the folders or campaigns in the current partition.
2. Navigate to the folder containing the subfolder you want to move.
3. Select the checkbox next to the folder you want to move. You can select multiple folders to move to the same location at one time.
4. Click the **Move** icon.

   The Move Items To window appears.
5. Click the folder where you want to move the subfolder.

   Navigate through the list by clicking the **+** sign next to a folder to open it.
6. Click **Accept this Location**.

   Note: You can also double-click a folder to select and accept the location in one step.

The subfolder and all its contents are moved into the destination folder.

To delete a campaign folder

You must move or delete the contents of a folder before you can delete it.

Note: If you have the permissions required to delete a folder, Campaign also allows you to delete any of the subfolders in that folder.

1. Select **Campaign > Campaigns**.

   The All Campaigns page appears, displaying the folders or campaigns in the current partition.
2. Navigate to the folder that contains the subfolder you want to delete.
3. Select the checkbox next to the folder you want to delete. You can select multiple folders to delete at one time.
4. Click **Delete Selected**.
5. Click **OK** on the confirmation window.

The folder and all its empty subfolders are deleted.

Campaigns reference

This section describes the fields and icons in the Campaign interface for working with campaigns.

All Campaigns page icons

The All Campaigns page uses the following icons.

The icons, left to right, are described in the following table.

Note: Many of the icons in the Campaign interface are associated with features that require permissions. For more information, see the *Marketing Platform Administrator's Guide*.

Table 1. Icons used on the All Campaigns page

Icon Name	Description
Add a Campaign	Click to add a new campaign. **Note:** This icon does not appear if the user does not have the appropriate permissions, or if Marketing Operations and Campaign integration is enabled. For information about creating campaign projects in Marketing Operations, see the *Marketing Operations andCampaign Integration Guide*.
Add a Subfolder	Click to add a new campaign subfolder.
Print this Item	Prints the page.
Move	Select one or more campaigns or campaign subfolders by clicking the checkbox next to each item, then click this icon to specify a new location to move the selected items.
Delete Selected	Select one or more campaigns or campaign subfolders by clicking the checkbox next to each item, then click this icon to delete the selected items.
Reload campaigns	Click this icon to refresh the list of campaigns on the page.

Campaign Summary tab icons

The Campaign Summary tab uses the following icons.

The icons, left to right, are described in the following table.

Note: Many of the icons in the interface are associated with features that require permissions. For more information, see the *Marketing Platform Administrator's Guide*. The following icons do not appear without the appropriate permissions: **Edit Summary**, **Add/Remove Segments**, **Add/Remove Offers**, **Add a Flowchart**, **Move this Campaign**, and **Delete this Campaign**.

Table 2. Campaign Summary tab icons

Icon Name	Description
Edit Summary	Click this icon to edit the campaign summary.

Table 2. Campaign Summary tab icons (continued)

Icon Name	Description
Add/Remove Segments	Click this icon to change the strategic segments associated with this campaign.
Add/Remove Offers	Click this icon to change the offers associated with this campaign.
Run	Click this icon to access the **Run** menu, where you can select **Run All** to run all flowcharts in this campaign.
Add a Flowchart	Click this icon to add a flowchart to this campaign.
Print this Item	Click this icon to print the campaign summary.
Move this Campaign	Click this icon to specify a new location to move the campaign.
Delete this Campaign	Click this icon to delete the campaign.

Campaign Summary tab reference

The following table describes the fields on the Campaign Summary tab:

Table 3. Campaign Summary tab fields

Field	Description
Security Policy	Security policy that applies to the campaign.
Description	Description of this campaign, displayed under the campaign name on the All Campaign pages.
Objective	Objective for this campaign.
Campaign Code	A unique identifier for the campaign, which follows a specified format. Campaign automatically generates a unique campaign code for each new campaign, following the default format or your organization's custom format. You can edit this code or click **Regenerate Code** to generate a new code. **Note:** If you edit the code, Campaign can no longer ensure the global uniqueness of campaign codes. If you are performing response tracking, try to avoid using editable codes (such as campaign codes) as tracking codes. Instead, use Campaign-generated treatment codes, which cannot be manually edited and are guaranteed to be unique.
Effective/Expiration Dates	Date range during which the campaign is effective. You can manually enter the date or click the calendar icon or the forward and back arrows to choose the date.
Initiative(s)	Initiative under which the campaign falls. The list of available initiatives is created by your system administrator.
Owner	This non-editable field displays the user name of the person who created this campaign.

Any custom attributes that were created by your system administrator appear at the bottom of the page.

Chapter 4. Flowcharts

You use flowcharts to perform a sequence of actions on your data for executing your campaign logic. Campaigns are made up of one or more flowcharts. Flowcharts are made up of processes, which you configure to perform the data manipulation, contact list creation, or contact and response tracking required for your campaign. In effect, the processes are how you define and implement a campaign.

Note: Working with flowcharts requires the appropriate permissions. For information about permissions, see the *IBM Campaign Administrator's Guide*.

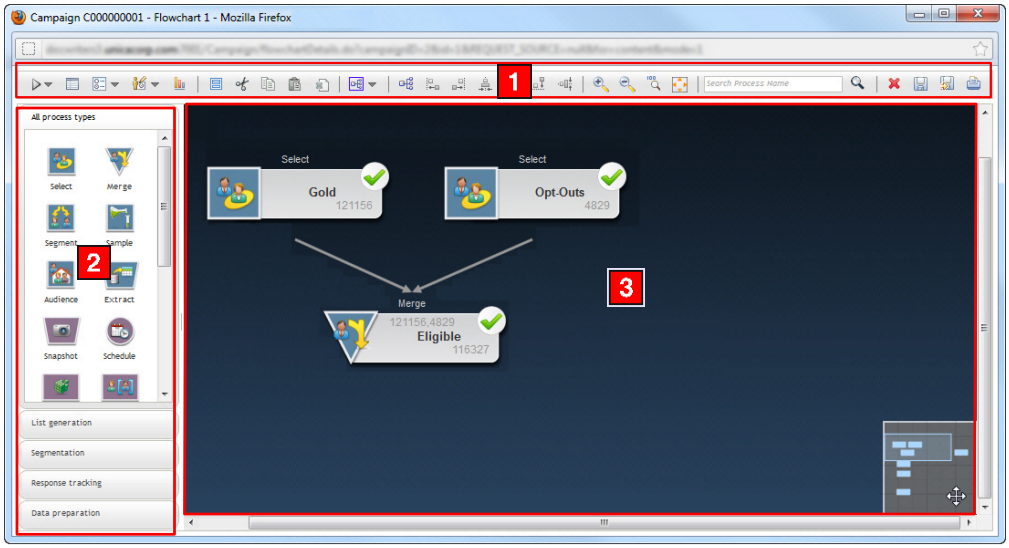
Flowchart workspace overview

The flowchart workspace provides the tools and space to design your flowcharts.

When you create or edit a flowchart, a separate flowchart window opens. You can move or resize the flowchart window as you work. You can open just one flowchart at a time. If you attempt to open another flowchart while one is already open, you are prompted to save your changes.

Note: Pop-up blockers prevent the flowchart window from opening. Be sure to turn off any pop-up blockers in your browser or browser add-ons.

The following figure shows a flowchart open for editing in the flowchart window.



The flowchart window consists of the following elements.

Table 4. Flowchart window elements

	Element	Description
1	Toolbar	The toolbar, at the top of the window, provides options for working with your flowchart. To see what each option does, rest your cursor over it. Be sure to save your flowchart frequently, by clicking the **Save Changes and Continue to Edit** icon. When you are done, click **Save and Exit**.

Table 4. Flowchart window elements (continued)

	Element	Description
2	Palette	The palette, at the left side of the window, contains processes that you can drag into the workspace to build your flowchart. By default, all process types are displayed. Use the category buttons to view a subset of processes by category (**List generation**, **Segmentation**, **Response tracking**, **Data preparation**).
3	Workspace	The workspace is where you configure and connect process boxes to build your flowchart. Drag a process box from the palette to the workspace, then double-click a process box to configure it. To connect boxes, rest the cursor over a process box until four arrows display, then drag a connection arrow from one process box to another. Right-click any process box to open a menu of options. Use the small gray box in the lower right corner to pan across the flowchart and highlight the portion that you want to see.

When you work with large or complex flowcharts, you can:

- Search for a process box by entering the process name in the **Search Process Name** field in the toolbar.
- Move the small gray box in the lower right corner of the workspace to pan across the flowchart. This visual representation of the workspace is useful when not all of the process boxes fit on the screen at the same time.
- Resize the flowchart to fit in the workspace by clicking the **Fit Contents** icon in the toolbar. You can then use the Zoom options or the small gray navigation box, if needed.

For information about changing the appearance of your flowchart, see "Changing flowchart appearance" on page 43.

Flowchart design considerations

You should be aware of the following considerations when creating flowcharts.

- **Avoid cyclical dependencies.** Be careful not to create cyclical dependencies among your processes. For example, your flowchart has a Select process that provides input to a Create Seg process. If you choose as input in your Select process a segment that will be created by the same Create Seg process that the Select process provides output to, you will have created a cyclical dependency. This situation will result in an error when you try to run the process.
- **Applying global suppressions.** If your organization uses the global suppression feature, be aware that a particular set of IDs might be automatically excluded from use in target cells and campaigns.

Creating flowcharts

You can add a new flowchart to your campaign either by creating a new one, or copying an existing one.

Copying an existing flowchart may save time because you can start with a completed flowchart and modify it to meet your needs.

To facilitate constructing flowcharts, you can use pre-configured flowchart templates to quickly create common campaign logic or process box sequences. You can also save and reuse other objects such as queries, table catalogs, triggers, custom macros, user variables, and definitions of derived fields.

To create a flowchart

Note: If you are creating an interactive flowchart, see the IBM Interact documentation for information.

1. In the campaign or session to which you want to add a flowchart, click the **Add a Flowchart** icon.

   The Flowchart Properties page appears.
2. Enter a name and description for the flowchart.

   Note: Flowchart names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.

   Note: Under **Flowchart Type**, **Standard Batch Flowchart** is the only option unless you are a licensed user of Interact. If you have installed a licensed version of Interact, you can also select Interactive Flowchart.
3. Click **Save and Edit Flowchart**.

   The flowchart opens in a new window, which includes the process palette on the left, a toolbar at the top, and a blank flowchart workspace. For an overview of the flowchart workspace, see "Flowchart workspace overview" on page 21.
4. Add a process to your flowchart by dragging a process box from the palette to the workspace.

   A flowchart typically begins with one or more Select or Audience processes to define the customers or other marketable entities with which to work.
5. Double-click a process in the workspace to configure it.

   For more information, see Chapter 5, "Introduction to Campaign processes," on page 37.

   Important: Click **Save Changes and Continue to Edit** frequently while adding and configuring processes.
6. Connect the configured processes to determine the workflow of your campaign.
7. Click **Save and Exit** to close the flowchart window.

Copying flowcharts

Copying an existing flowchart to add to a campaign saves time because you can start with a completed flowchart and modify it to meet your needs.

If the copied flowchart includes contact processes (Mail List or Call List) with target cells linked to target cells defined in the target cell spreadsheet, new cell codes will be generated for cells in the new copy of the flowchart so that duplicate cell codes do not occur. If the target cells were defined in the flowchart, and if the **Auto-generate cell code** option in the contact process is off, new cell codes are NOT generated when you paste the copied flowchart.

Note: When you copy a flowchart, if the flowchart logic uses derived fields that reference cell codes from the old flowchart, the logic will be broken in the new flowchart.

Process configuration settings are copied to the new flowchart. However, any temp files or temp tables that were created as a result of running the original flowchart are not copied to the new flowchart.

To copy a flowchart

1. View the flowchart you want to copy.
   For example, you can click the flowchart's tab while viewing its campaign.
2. Click the **Copy** icon.
   The Duplicate Flowchart window appears.
3. Select the campaign into which you want to copy the flowchart.
   Navigate through the list by clicking the **+** sign next to a folder to expand it.
4. Click **Accept this Location**.

   Note: You can also double-click a folder to select and accept the location in one step.

The flowchart is moved to the campaign you selected.

Viewing flowcharts

If you have View permissions for a flowchart, you can open it in Read-Only mode for viewing, which allows you to view the flowchart structure, but not to open process configuration dialogs or make any changes. In Read-Only mode, you can view the processes and connections between processes to quickly see the purpose of the flowchart.

When the flowchart is open for viewing, you can also zoom out to see more processes at once or zoom in to magnify a portion of the flowchart more closely.

To see more details of the flowchart, such as how the processes in the flowchart are configured, you must open the flowchart for reviewing or editing.

To view a flowchart

You can view a flowchart in three ways:

- On the Campaigns page, click the **View a tab** icon next to the campaign and select the flowchart you want to view from the menu.
- Open the flowchart tab directly from the campaign.
- Open the campaign's Analysis tab, then click the flowchart name from the list of flowcharts.

To zoom in and out

Click the **Zoom In** and **Zoom Out** icons.

Reviewing flowcharts

If you have Review permissions (and not Edit permissions) for flowcharts, you can open them only in Review mode, which allows you to view process configurations and modify the flowchart, but you cannot save any changes or perform production runs of flowcharts or any of their processes. This allows you to safely verify a flowchart's contents, or copy and reuse processes within a flowchart without fear of inadvertently changing the flowchart.

Important: Be aware that test runs can write output, and that test runs can execute triggers. In addition, even in Review mode, if you have the appropriate permissions, you can edit custom macros and triggers in the flowchart, and thus might change the flowchart.

Other actions you can perform in Review mode are:

- Test runs if you have the appropriate permissions.
- Save processes or the flowchart you are reviewing as a template.

Important: In Review mode, the flowchart auto-save option is disabled and cannot be enabled. To save changes to a flowchart, you must have Edit permissions.

To review the processes in a flowchart

Note: You open a flowchart in Review mode in the same way as you open a flowchart in Edit mode. Your permissions settings automatically ensure that you can only access flowcharts in Review mode if you do not also have Edit permissions.

You can open a flowchart for reviewing in several ways:

- On the Campaigns page, click the **Edit a tab** icon next to the campaign and select the flowchart you want to review from the menu.
- Open the campaign, then click the flowchart tab. On the flowchart page, click the **Edit** icon.

  You can also press **Ctrl** and click the flowchart tab to open the flowchart directly in Review mode.
- Open the campaign's **Analysis** tab, click the link to the flowchart you want to review, then click the **Edit** icon.

  On the Analysis tab, you can also press **Ctrl** and click the flowchart link to open the flowchart directly in Review mode.

When you enter a flowchart in Review mode, you see a message indicating that the flowchart is in review mode and that any changes you make cannot be saved. The page header indicates "Reviewing", and only the **Cancel** option is visible.

Editing flowcharts

You edit a flowchart to add or remove processes or to configure the processes. You can also edit the flowchart's name and description.

Important: If you try to edit a flowchart that is already being edited by someone else, Campaign warns you that the flowchart is open by another user. If you continue opening the flowchart, the other user's changes are immediately and permanently lost. To prevent the loss of work, do not continue opening the flowchart without first checking with the other user.

To open a flowchart for editing

You can open a flowchart for editing in several ways:

- On the Campaigns page, click the **Edit a tab** icon next to the campaign, and select the flowchart from the menu.
- Open the campaign, then click the flowchart tab. On the flowchart page, click the **Edit** icon.

You can also press **Ctrl** and click the flowchart tab to open the flowchart directly in **Edit** mode.

- Open the campaign's **Analysis** tab, click the link to the flowchart you want to edit, then click the **Edit** icon.

  You can also press **Ctrl** and click the flowchart name to open the flowchart directly in **Edit** mode.

To edit a flowchart's properties

1. Open the flowchart for editing.
2. Click the **Properties** icon in the Flowchart toolbar.

   The Edit Flowchart Properties page appears.
3. Modify the flowchart name or description.

   Note: Flowchart names have specific character restrictions. See "Special characters in IBM Campaign object names," on page 219.
4. Click **Save Changes**.

   The modified flowchart details are saved.

Validating flowcharts

You can check the validity of a flowchart at any time (except when the flowchart is running) using the **Validate Flowchart** feature. You do not need to have saved a flowchart to run validation on it.

Validation performs the following checks for a flowchart:

- that the processes within the flowchart are configured.
- that cell codes are unique within the flowchart, only if the AllowDuplicateCellCodes configuration parameter is set to **No**. If this parameter is set to **Yes**, duplicate cell codes within flowcharts are allowed.
- that cell names are unique within the flowchart.
- that offers and offer lists referenced by contact processes are valid (that is, that they have not been retired or deleted). Offer lists that are referenced but are empty will not generate an error, only a warning.
- that any cells linked to a top-down entry from the target cell spreadsheet are still connected.

The validation tool reports the first error found in the flowchart. You might need to run the validation tool several times in succession (after correcting each displayed error) to ensure that you have fixed all found errors.

Note: A best practice is to run validation on flowcharts before executing production runs, particularly if you will be running flowcharts by batch mode or will not be actively monitoring the run.

To validate a flowchart

1. On a flowchart page in **Edit** mode, click the **Run** icon and select **Validate Flowchart**.

   Campaign checks your flowchart.
2. If errors exist in the flowchart, a message box appears, displaying the first error found. As you correct each error and rerun the validation.tool, the remaining errors are displayed successively.

Testing flowcharts

You can conduct a test run on a flowchart or branch if you do not want to output data or update any tables or files. However, note that triggers execute on completion of both test and production runs.

When testing processes, branches, or flowcharts, note that global suppression is applied.

Note: A best practice is to conduct test runs on processes and branches as you are building flowcharts, so that you can troubleshoot errors as they occur. Also, remember to save each flowchart before you run or test it.

To test run a flowchart

1. Open a flowchart in **Edit** mode. Note that it is best practice to save a flowchart before running it.
2. Click the **Run** icon and select **Test Run Flowchart**.

   The flowchart runs in test mode, so data is not written to any tables.

   Each process displays a check mark if it runs successfully. If there are errors, the process displays a red "X".
3. Use one of the **Save** options in the toolbar.

   If you click **Save and Exit** before the flowchart has finished running, the flowchart will continue running and save when it finishes. If anyone reopens the flowchart while it is still running, any changes made to the flowchart are lost. For this reason, always save a flowchart before running it.

   To pause the run, right click the process box and select **Run > Pause This**. To stop the run, right click the process box and select **Run > Stop This**.
4. To determine if there were any errors in the flowchart run, click the **Analysis** tab on the Campaign toolbar and view the **Campaign Flowchart Status Summary** report.

To test run a flowchart branch

1. On a flowchart page in **Edit** mode, click a process on the branch you want to test.
2. Click the **Run** icon and select **Test Run Selected Branch**.

The flowchart runs in test mode. Data is not written to any tables.

Each process displays a check mark when it has run successfully. If there are errors, the process displays a red "X".

Running flowcharts

You can choose to run an entire flowchart, a branch, or an individual process in the flowchart. For best results, conduct test runs as you are building flowcharts, so that you can troubleshoot errors as they occur, and be sure to save each flowchart before you test or run it.

Important: For flowcharts containing contact processes, note that each production run of a flowchart can generate contact history only once. To generate multiple contacts from the same list of IDs, snapshot out the list of IDs and read from the list for each flowchart run.

Note: Users with Administrative privileges can access the Monitoring page, which displays all running flowcharts and their statuses, and provides controls to suspend, resume, or stop flowchart runs.

To run a flowchart

1. If you are viewing a flowchart, you can run it by clicking the **Run** icon and selecting **Run This**.

   If you are editing a flowchart, click the **Run** icon and select **Save and Run Flowchart**.
2. If the flowchart has already been run, click **OK** on the confirmation window.

   Data from the run is saved to the appropriate system tables. Each process displays a check mark after it runs successfully. If there are errors, the process displays a red "X".
3. Click **Save and Exit** to save the flowchart.

   You can also click **Save** to save the flowchart and leave it open for editing.

   You must save the flowchart once after running to view the results of the run in any reports. After you save the flowchart, results of repeated runs are immediately available.

   Note: If you click **Save and Exit** before the flowchart finishes running, the flowchart will continue running and save when it finishes.
4. Click the **Analysis** tab on the Campaign toolbar and view the **Campaign Flowchart Status Summary** report to determine whether there were any errors in the flowchart run.

To run a flowchart branch

1. On a flowchart page in **Edit** mode, click a process on the branch you want to run.
2. Click the **Run** icon and select **Save and Run Selected Branch**.

   Note: Running only a process or a branch of a flowchart does not increment the Run ID of a flowchart. When you run only a process or a branch, if contact history records exist, you are prompted to choose run history options before you can proceed. For details, see “About run history options” on page 29.

   Each process displays a check mark after it runs successfully. If there are errors, the process displays a red **X**.

To run or test run a process

To make sure that your configuration is successful and the results are what you expect, test run each process as soon as you configure and connect.

Note: When you run a process, any results from a previous run are lost.

1. Within a campaign, open a flowchart for editing.
2. Click the process that you want to run.

   If the process requires data from a source process, be sure that the source process has already run successfully so that its data is available.
3. Click the **Run** icon in the toolbar or right-click a process box, then select one of the following options:

- **Test Run Selected Process**: Use this option when building your flowchart, so you can troubleshoot errors as they occur. Test runs do not output data or update any tables or files. (However, triggers run on completion of test runs, and global suppression is applied.)
- **Save and Run Selected Process**: Do a production run. The contact processes, Mail List and Call List, will write entries into Contact History. Each production run can generate contact history only once. Contact processes that have already executed for that production run can be rerun only if the contact history from the current run is first deleted. Triggers run on completion of the production run.

Note: Running only a process or a branch of a flowchart does not increment the Run ID of a flowchart. When you run only a process or a branch, if contact history records exist, you are prompted to choose run history options before you can proceed. For details, see “About run history options.”

4. When the process finishes running, click **OK** on the confirmation window.

The process displays a check mark after it runs successfully. If there are errors, the process displays a red "X."

About run history options

Note: You see the Run History Options window only when you run a branch or process that has already generated contact history for the current Run ID. If a new run instance does not exist for a particular re-run branch or process, the Run History Options window does not appear.

Use the Run History Options window to choose how the new contact history you generate is written to the contact history table.

Run history options scenario

You have a flowchart with two branches and two contact processes, A and B, both configured to log to contact history.

You run the entire flowchart (from the top, using the Run Flowchart command) once. This creates a new Run ID (for example, Run ID = 1) and generates contact history for this Run ID.

After this first successful run of the entire flowchart, you edit contact process A to give a follow-up offer to the same individuals who received the first offer. Therefore, you want to rerun contact process A. The current Run ID is "1" and contact history already exists for process A and Run ID=1.

When you select contact process A and click "Run Process," you see the Run History Options window. You can choose to leave the Run ID unchanged (Run ID=1) and replace the existing contact history associated with this Run ID, or you can create a new run instance (that is, increment the Run ID to 2), leave the contact history associated with Run ID=1 untouched and append new contact history associated with Run ID=2.

You are sending a follow-up offer and do not want to lose the contact history associated with the first offer, so you choose **Create a new run instance**. This changes the Run ID to "2" and appends contact history records for the same IDs who received the first offer to the contact history table.

If you now edit and run contact process B, you will not see a Run History Options window, because the current Run ID = 2 and contact history associated with Run ID =2 does not exist for contact process B. Running only contact process B will simply generate additional contact history records for Run ID = 2.

Run History Options window reference

The Run History Options window contains the following options.

Table 5. Run History Options window options

Option	Description
Create a new run instance	Rerun a specific branch or process of the flowchart using a new Run ID. Append the results, associated with the new Run ID, to the contact history table. Existing contact history remains intact.
Replace the contact history of the previous run	Reuse the previous Run ID and replace the contact history previously generated for that Run ID (only for the process or branch that is being run). Contact history records that were previously generated for other branches or processes of the flowchart remain intact.
Cancel	Cancel the branch or process run and do nothing to existing contact history. The flowchart remains open in Edit mode.

You cannot replace contact history if associated response history exists. Therefore, if you selected **Replace the contact history of the previous run** and associated response history records exist, you can choose one of two options:

- Click **OK** to clear the associated response history records as well as the contact history records. This is your only option if response history exists and you want to replace the contact history from the previous run.
- Click **Cancel** to cancel clearing the contact history records. You can choose **Create a new run instance** instead, to create a new run instance to run the current contact process.

To pause a flowchart run

When you pause a running flowchart, branch, or process, the server stops running, but saves all the data already processed. You might want to pause a run to free up computing resources on the server.

After pausing a run, you can continue the run or stop it.

On a flowchart page, click the **Run** icon and select **Pause This**.

Note: If you have the appropriate permissions, you can also control flowcharts from the Monitoring page.

To continue a paused flowchart run

When you continue running a paused run, the run resumes at the exact point at which it stopped. For example, if a Select process were paused after processing 10 records, it would resume running by processing the 11th record.

On a flowchart page, click the **Run** icon and select **Continue This**.

Note: If you have the appropriate permissions, you can also control flowcharts from the Monitoring page. For details, see the *Campaign Administrator's Guide*.

To stop a flowchart run

On a flowchart page, click the **Run icon** and select **Stop This**.

The results of any currently running processes are lost and a red **X** appears on those processes.

Note: If you have the appropriate permissions, you can also control flowcharts from the Monitoring page.

To continue a stopped flowchart run

You can continue running a stopped flowchart by running the flowchart branch that begins with the process where the flowchart stopped. That process will be rerun along with all downstream processes.

1. On a flowchart page in **Edit** mode, click the process that displays a red **X**.
2. Click the **Run** icon and select **Save and Run Selected Branch**.

   Note: If you have the appropriate permissions, you can also control flowcharts from the Monitoring page. For details, see the *Campaign Administrator's Guide*.

Troubleshooting runtime errors

Correctly configured processes are displayed in color (the specific color reflects the type of process). A gray process with its name in italics has a configuration error. To find out more information about the error, hold your mouse over the process to display a descriptive error message.

If a flowchart stops running due to an error, the processes that were running display a red **X.** Hold your mouse over the process to see an error message.

Note: If Campaign is configured so that system tables are stored in a database, you are not viewing the flowchart, and the run stops due to a database connection failure, the processes will not display a red **X**. Instead, the flowchart appears as it did when it was last saved.

You should also consult the log file for system error information and review the Analysis and Performance/Profitability reports for the campaign to see that the results are what you expected.

Deleting flowcharts

Deleting a flowchart permanently removes a flowchart and all of its associated files, including the log file. If there are portions of your flowchart that you want to store for reuse, you can save them as a stored object.

Output files (such as those written by a Snapshot, Optimize, or a contact process) are not deleted, and contact and response history information is retained.

Important: If you try to delete a flowchart that is being edited by someone else, Campaign warns you that the flowchart is open by another user. If you continue deleting the flowchart, the other user's changes will be permanently lost. To prevent the loss of work, do not continue deleting the flowchart without first checking with the other user.

To delete a flowchart

1. Open the flowchart you want to delete in **View** mode.
   The flowchart tab appears.
2. Click the **Delete Flowchart** icon.
3. Click **OK** on the confirmation window.
   The flowchart and all its associated files are removed.

To print a flowchart

You can print hardcopies of flowcharts from Campaign.

Note: Do not use your Web browser's **File > Print** command, as flowcharts might not print correctly.

1. Open the flowchart that you want to print, in either **View** or **Edit** mode.
2. Click the **Print** icon.
   You see the Page Setup window.
3. Click **OK**.
   You see the Print window.
4. Click **OK** to print the current flowchart.
   You see a Campaign window indicating that the flowchart is printing.

Improving flowchart performance using in-database optimization

You can improve flowchart performance by turning in-database optimization on globally or for an individual flowchart. Best practice is to turn off the global setting, and set the option at the flowchart level. The flowchart-level option overrides the global setting.

Note: In-database optimization is not supported for all databases. Your Campaign administrator can confirm whether this option is available for your data sources.

The in-database optimization option determines:

- what operations are done at the database level or the local Campaign server level; and
- what happens to the results of operations.

When In-DB optimization is on:

- In-database optimization prevents IDs from your database from being unnecessarily copied to the Campaign server for processing.
- Processing tasks such as sorting, joining, and merging of data are done on the database server whenever possible.
- Output cells of processes are stored in temporary tables on the database server.
- Some functions are still performed on the Campaign server, when necessary. For example, to calculate a derived field, Campaign first evaluates the derived field formula to see if any part of the calculation can be performed using SQL. If simple SQL statements can be used to perform the calculation, then the calculation is done "in-database". If not, then temporary tables are created on the Campaign server to handle the calculations and persist the results from process to process within a flowchart.

Important: In-database processing cannot be done if you specify any limitations on the output cell size or if temporary tables are disabled for the process.

Custom macros consisting of raw SQL statements can be processed in-database, with the following limitations:

- All raw SQL custom macros must begin with `select` and contain exactly one `from` in the rest of the text.
- For databases that support only insert into `<TempTable>` syntax, you must map at least one base table to the same data source at the same audience level as the raw SQL custom macro. If the fields selected by the raw SQL custom macro are too large for the fields of the temp table, a runtime error will occur.

Important: If you use raw SQL with in-database optimization, you must code the raw SQL to join with the temp table from the upstream process. Otherwise, the results will not be scoped by the results from the upstream process.

To improve flowchart performance using in-database optimization

To improve flowchart performance, you can adjust the in-database optimization setting:

- globally, for the entire system
- individually, for each flowchart

Best practice is to turn off the global setting, and set the option at the flowchart level. The flowchart-level option overrides the global setting.

1. To adjust the option globally:
   a. Choose `Settings > Configuration`.
   b. Choose `Campaign > partitions > partition[n] > server > optimization` and set `useInDbOptimization` to `TRUE` (on) or `FALSE` (off).

   For information about using the Configuration page, see the *IBM Marketing Platform Administrator's Guide*.
2. To turn the option on or off for an individual flowchart:
   a. From a flowchart page in **Edit** mode, click the **Admin** icon and select **Advanced Settings**.
   b. Select **Use In-DB Optimization during Flowchart Run**.
   c. Click **OK**.

   When you save and run the flowchart, in-database processing will be used whenever possible.

Packaging flowchart files for troubleshooting

If you need help from IBM to troubleshoot a flowchart, you can automatically collect relevant data to send to IBM Technical Support. You can select from a list of items to include, and specify date ranges by which to limit data. The data is written to the folder you choose, and the contents can be compressed and sent to IBM Technical Support.

In addition to the data items you select, Campaign also creates a summary file that identifies:

- Current date and time
- Version and build numbers of the software

- Your user name
- The selections you included in the package

To package flowchart files for troubleshooting

Only a user with permissions to edit or run a flowchart (either test or production run) can perform this procedure. If you do not have "View logs" permission, you cannot select the log-related entries in the selection window.

Use this task to automatically package flowchart data files so you can send them to IBM Technical Support if you need help troubleshooting a flowchart.

1. From a flowchart page in **Edit** mode, select **Admin** > **Collect Flowchart Data**. You see the Create Data Package for Troubleshooting window.
2. Type a name for the package, or leave the default name. The package name will be used to create a subfolder in which the selected data items will be written.
3. Click **Browse** and select the folder under which the data package will be saved.
4. Select the check box for each item you want to include in the package. Some items, when selected, may allow additional information to be entered with which to filter the extracted data.

   Alternatively, you can check the **Select default items** check box. This check box automatically selects all data commonly required for troubleshooting flowcharts; this includes all of the listed items except the log files and the contents of the user table, contact and response history tables, strategic segments, and stack trace files.
5. Click **OK** to create the package.

Transmitting the flowchart data package to IBM Technical Support

You can send the data package to IBM Technical Support by email or using a method recommended by your support representative. IBM Technical Support will accept uncompressed data (the entire package subdirectory), but you may optionally compress, encrypt, and package the files into a single file before sending them to IBM.

Options for packaging flowchart data

Table 6. Options for packaging flowchart data

Item	Description of what is included	Additional specifications you may set
Select Default Items check box	All data commonly required for troubleshooting flowcharts. This includes all of the listed items except the log files and the contents of the user table and contact history table.	
Flowchart	The flowchart `.ses` file.	**Include run results?** Optionally include or exclude the runtime data files, also called the "underscore" files.
Flowchart Log	The flowchart `.log` file.	Optionally set start and end time stamps. If you do not set them, the default is the entire log file.
Listener Log	The `unica_aclsnr.log` file.	Optionally set start and end time stamps. If you do not set them, the default is the entire log file.

Table 6. Options for packaging flowchart data (continued)

Item	Description of what is included	Additional specifications you may set
Startup Log	The `AC_sess.log` file.	Optionally set start and end time stamps. If you do not set them, the default is the entire log file.
Web Message Log	The `AC_web.log` file.	Optionally set start and end time stamps. If you do not set them, the default is the entire log file.
Campaign Configuration	The `.config` file, which lists configuration properties and settings from your Campaign environment to assist in troubleshooting the flowchart.	
Campaign Custom Attributes	The `customcampaignattributes.dat` file, which lists attribute name and value pairs for Campaign custom attributes. Only entries related to the current campaign are included.	
Cell Custom Attributes	The `customcellattributes.dat` file, which lists attribute name and value pairs for Campaign cell custom attributes. Only entries related to the current campaign are included.	
Offer Definitions	All rows are included for each of the following offer-related system tables:`UA_AttributeDef.dat`, `UA_Folder.dat`, `UA_Offer.dat`, `UA_OfferAttribute.dat`, `UA_OfferList.dat`, `UA_OfferListMember.dat`, `UA_OfferTemplate.dat`, `UA_OfferTemplAttr.dat`, `UA_OfferToProduct.dat`, `UA_Product.dat`, `UA_ProductIndex.dat`	
Target Cell Spreadsheet Data	The `targetcellspreadsheet.dat` file, which includes data from `UA_TargetCells` for the entire Target Cell Spreadsheet. Includes data for the current campaign, in column/row-delimited text format.	
Custom Macro Definitions	The custommacros.dat file, which includes the following fields from `UA_CustomMacros`, in column/row format: `Name`, `FolderID`, `Description`, `Expression`, `ExpressionType`, `DataScrName`, `DataVarType`, `DataVarNBytes`, `CreateDate`, `CreatedBy`, `UpdateDate`, `UPdateBy`, `PolicyIS`, `ACLID`	
System Table Mapping	The `systablemapping.xml` file. Includes all system table mappings, including the data source.	
+ Include System Table Contents	When you select this option, it expands to list all system tables.	Select each system table to include. The entire table will be included (all rows and all columns). If you do not select any sub-options, the package will not include any system tables.

Table 6. Options for packaging flowchart data (continued)

Item	Description of what is included	Additional specifications you may set
+ Include Contact History Tables	When you select this option, it expands to show the contact history and detailed contact history tables for each audience level.	For each set you select, the package will include the contact history and detailed contact history records for that audience level. You can optionally set start and end time stamps. If you do not set them, the default is all records. If you do not select a suboption, the package will not contain any contact history table information.
+ Include Response History Tables	When you select this option, it expands to show response history tables for all audience levels.	For each table you select, the package will include the response history records for that audience level. For each table you select, you can optionally set start and end time stamps. If you do not set them, the default is all records. If you do not select a table, the package will not contain any response history table information.
+ Include User Table Contents	When you select this option, it expands to show the user table contents that you can select for the package.	Select the user tables from the flow chart to include. If you do not select any, the package will not include any user table contents. For each user table that you select, you can optionally set maximum number of rows to include. If you do not set a maximum number of rows, the package will include the entire table.
+ Include Strategic Segments	When you select this option, it expands to show all the strategic segments that you can select for the package.	
+ Include Stack Trace Files	Option available for Unix versions only. When you select this option, it expands to show the list of stack trace files (`*.stack`) in the same directory as `unica_aclsnr.log`.	Select the stack trace files that you want to include in the package. If you do not select any suboptions, the package will not include any stack trace files.

Chapter 5. Introduction to Campaign processes

This chapter provides concepts about processes and explains common procedures for working with Campaign processes.

To configure processes in a flowchart, see Chapter 6, "Configuring Campaign processes," on page 61.

About processes

Processes are the building blocks of flowcharts. You configure processes to perform specific tasks and connect the configured processes to build your flowchart. For example, you can use the Select process to select a set of prospects (IDs). You can use the Merge process to merge two distinct audience groups. And you can use the contact processes (Call List or Mail List) to write out the results of an entire campaign.

Typically, each process in a flowchart takes one or more cells as input, transforms the data, and produces one or more cells as output. A *cell* is a list of identifiers of marketing message recipients, such as customer or prospect IDs.

The Campaign processes are visible on the flowchart process palette. To create a flowchart, you move processes from the palette to the flowchart workspace. In the workspace, you configure and connect the processes to build your flowchart.

Types of processes

Campaign processes are divided into three types by function, which are distinguished by color in the flowchart process palette:

- Data manipulation processes - blue
- Run processes - purple
- Optimization processes - green

Note: In addition to the Campaign processes, Interact, Contact Optimization, and eMessage provide additional processes for use in campaign flowcharts. For information about those processes, see the separate documentation for those products.

Data manipulation processes

You use data manipulation processes to select customer IDs from your data source and work with those IDs in various ways to create meaningful groups or target audiences.

Data manipulation processes allow you to perform tasks such as selecting customers based on a set of criteria, merging lists of customers together for inclusion or exclusion, segmenting customers into meaningful groups, sampling for test or control groups, or specifying target audiences for your campaign.

The data manipulation processes are:

- "Select" on page 62
- "Merge" on page 66

- "Segment" on page 67
- "Sample" on page 73
- "Audience" on page 76
- "Extract" on page 85

Run processes

Once you have built your campaign to select the audience you want, you need to output the results in a usable way using the run processes. Run processes control the running of the flowchart and trigger actual customer contact.

Run processes control the actual execution of completed campaigns, which includes the management and output of contact lists, the treatment of target audiences, the tracking of responses and contacts, the logging of data, and the scheduling of campaign or session runs.

The run processes are:

- "Snapshot" on page 90
- "Schedule" on page 92
- "Cube" on page 96
- "Create Seg" on page 97
- "Mail List" on page 98
- "Call List" on page 103

Note: The Mail List and Call List processes are also referred to as contact processes.

Optimization processes

Optimization processes let you fine-tune your campaign to maximize effectiveness. You use optimization processes to generate scores to refine audience selection. They allow you to track contacts and responses, and use the results of predictive modeling from Campaign or from data mining products like PredictiveInsight to refine audience selection and maximize ROI. Optimization processes can also provide the ability to determine the most effective campaign, offer, and channel across your entire organization to use for contacting each individual prospect.

The optimization processes are:

- "Track" on page 103
- "Response" on page 106
- "Model" on page 108
- "Score" on page 110

Working with process boxes

To create campaign flowcharts, you add process boxes from the palette by dragging them into the workspace. You configure each process box to perform a specific operation, such as selecting customers to target for a mailing. You connect process boxes in the workspace by dragging connector lines from one box to another. By connecting process boxes in a logical flow, you determine the order of events. For example, you might start with a Select process that chooses a certain set of customers, and end with a Call List process, which results in contacting customers by phone. You can move and delete process boxes as you experiment

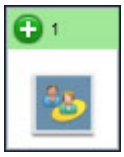
with different flowchart scenarios. To confirm that your flowchart is progressing successfully, you can test run each process as you build your flowchart. Save your flowchart frequently as you work.

To add a process to a flowchart

You add a process to a flowchart by dragging a process box from the palette to the workspace.

You can also copy an existing process, or paste a template from the template library. Templates contain one or more configured processes and connections.

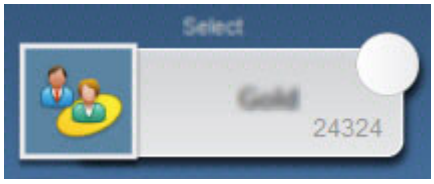
1. Within a campaign, open a flowchart for editing.
2. Drag a process box from the palette to the flowchart. You can drop the process box into the workspace as soon as the box turns green and displays a plus sign.



Place each process box in a logical order in the flowchart, based on the campaign flow. Avoid placing process boxes on top of each other in the workspace. To fix overlapping boxes, click the top process box and drag it to a new position.

Newly added process box es are transparent until they are configured.

Configured process boxes have a solid background and border. Until you run a process, its round status icon is blank.



3. Right-click a process box in the workspace to see a list of available actions.

Typically, the next step is to configure the process, by double-clicking it in the workspace to open the configuration dialog. You must connect process boxes to determine the workflow. (Some processes must be connected before they are configured because they require input from a source process.) For example, configure a Select process to select households in a specific earning bracket, then connect it to an Audience or Merge process. Finally, you test run the process or branch. Save your flowchart frequently as you work.

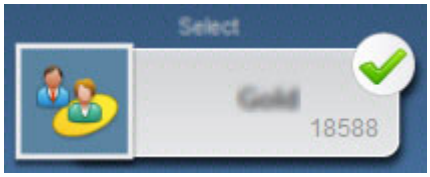
See the other available topics for information about configuring, connecting, and running processes.

Determining the status of a process

Each process box in a flowchart displays an icon to indicate its status.

	Process not started (has not been run)
	Process running
	Process run complete
	Warning
	Error
	Schedule process is ready to initiate any subsequent processes. (This icon appears only on a Schedule process, after the flowchart has run.)

A process box with the process run complete icon is shown below.



To connect two processes

Connect the processes in your flowchart to specify the direction of data flow and the order in which processes are run. If you move processes within the workspace, existing connections remain and visually adjust to the new location. This visual adjustment does not affect data flow. You affect data flow only by adding or deleting connections from one process to another.

1. Within a campaign, open a flowchart for editing.
2. Rest your cursor over the process box that you want to connect to another box.

   Four arrows appear around the box.
3. Drag one of the arrows to the destination process box.

   A connecting line is drawn from the source to the target, indicating that the processes are now connected. The arrow indicates the direction of data flow.

The source and destination processes are connected with an arrow that shows the direction of data flow. The source process will run before the destination process. Data that is output from the source process is then available as input to the destination process. For example, two Select processes can both provide input to a Merge process.

Appearance of connection lines

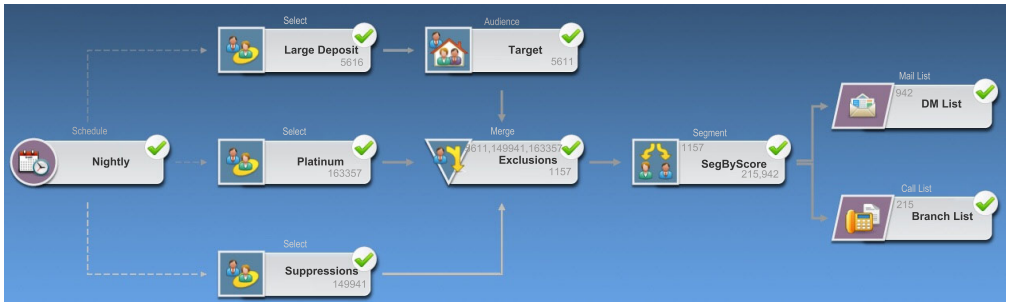
If a destination process receives data from a source process, the connection is shown as a solid line.

If a destination process depends on a source process but does not receive data from it, the connection is shown as a dotted line. A dotted line indicates that the destination process cannot run successfully until the source process completes.

Connection lines can be angled (slanted) or straight (right angles only). To change line appearance, right-click in the flowchart workspace, choose **View**, and turn **Angled Connections** on or off.

Example: Process Connections

The following flowchart is scheduled to run automatically each night. The dotted line connections between the Schedule process and three Select processes indicate that the Select processes will not run until the Schedule process finishes running, but that no data is passed from the Schedule process to the Select processes.



To copy and paste a process

Copying a configured process can save time when you build flowcharts. You can paste the process elsewhere in the workspace or in another flowchart.

1. Within a campaign, open a flowchart for editing.
2. In the workspace, click the process that you want to copy.

   Note: To select multiple processes, you can **Ctrl+Click** the processes, drag a selection box around them, or use **Ctrl+A** to select all the processes in the flowchart.
3. Click the **Copy** icon.

   You can also select **Copy** from the menu or press **Ctrl+C.**
4. Click the **Paste** icon.

   You can also select **Paste** from the menu or press **Ctrl+V**.

   A copy of the process appears in the workspace.
5. Click and drag the copied process to the desired location.

To cut a process

1. Within a campaign, open a flowchart for editing.

   You see the process palette and workspace.
2. From the processes that are already in the workspace, click the process that you want to cut.

   Note: To select multiple processes, you can **Ctrl+Click** the processes, drag a selection box around them, or use **Ctrl+A** to select all the processes in the flowchart.
3. Click the **Cut** icon on the Flowchart toolbar.

   You can also click **Cut** from the menu, or press **Ctrl+X**.

The process is removed from the flowchart and saved on the clipboard. You can then paste this process back into the current flowchart or into another flowchart.

To paste processes from the template library

Using templates from the template library can save time when you build flowcharts. Templates contain one or more configured processes and connections.

1. Within a campaign, open a flowchart for editing.

   You see the process palette and workspace.
2. Click the **Options** icon and select **Stored Templates**.

   You see the Stored Templates window, listing the available templates.
3. Select the template you want to paste into your flowchart from the **Items List**.
4. Click **Paste Template**.

   The process or processes in the template you selected are pasted into the flowchart.

   If one or more process boxes are pasted on top of another process box in the flowchart workspace, they will appear stacked. Click the top process box and move it if you want to see the next process box in the stack.

To move a process

You can move any process in a flowchart you are editing by dragging it to a different location on the workspace.

Campaign allows you to position processes on top of each another; however, if you have a large flowchart with many processes, it may be easier to use the zoom functionality so that you can see all processes, instead of overlapping them.

1. Within a campaign, open a flowchart for editing.

   You see the process palette and workspace.
2. In the workspace, click and drag the process that you want to move to its new location.

   When you release the mouse, the process is moved to the new position. Existing connections to and from the process you are moving remain, and are redrawn for the new location.

To delete a process

As you design and build flowcharts you might need to remove processes that you have added.

1. Within a campaign, open a flowchart for editing.

   You see the process palette and workspace.
2. In the workspace, right-click the process that you want to delete, and select **Delete** from the menu.

   Note: You can select more than one process at the same time by holding down the **Ctrl** key.

   You see a confirmation message asking if you want to remove the selected items.
3. Click **OK**.
4. The selected processes are removed from the workspace. Any connections to and from the processes are also deleted from the flowchart.

To delete a connection between two processes

1. Within a campaign, open a flowchart for editing.
   You see the process palette and workspace.
2. Click the connection that you want to delete.
3. Do one of the following:
   - Right-click the connection, and select **Delete** from the menu.
   - Press the **Delete** key.
   - Click the **Cut** icon on the Flowchart toolbar.
   - Press **Ctrl+X**.

The connection is deleted.

Changing flowchart appearance

You can adjust the position and alignment of process boxes to improve the appearance of the flowchart.

Adjusting the flowchart layout

As you add and connect process boxes, you can reposition the boxes by dragging them to a new location.

To automatically reposition boxes, use the **Change Layout** options from the toolbar:

- Tree: Organizes process boxes in a tree format. Useful when each process box has a single input.
- Organization Chart: Organizes simple flowcharts and is effective for flowcharts with a single input from the top.
- Circular: Displays process boxes in a radial fashion. Useful for single connection-based flowcharts that lead to one output.
- Hierarchical: Organizes process boxes in horizontal or vertical levels so that most links flow uniformly in the same direction. This layout often provides the most simple and visually straightforward choice.

To reposition all process boxes in a horizontal or vertical layout:

1. Right-click the flowchart workspace.
2. Choose **View > Horizontal / Vertical.**.

If this option causes connection lines to overlap, choose **View >Angled Connections** twice to redraw the connection lines properly.

If this option causes process boxes to overlap, choose **Horizontal / Vertical.** again to return to the previous orientation, or manually move the boxes so they no longer overlap.

Aligning process boxes

To align multiple process boxes:

1. Select at least two process boxes by dragging a selection box around them.
2. Use the alignment icons in the flowchart toolbar:

- Use **Align Top**, **Align Bottom**, or **Align Center (Vertical)** to align boxes in a row.
- Use **Align Left**, **Align Right**, or **Align Center (Horizontal)** to align boxes in a column.

If you choose an incorrect alignment, select an option from the **Change Layout** menu to restore the layout. In many cases, the Hierarchical layout successfully fixes any process boxes that are overlapping. You can also select an individual process box and drag it to a new location.

To run or test run a process

To make sure that your configuration is successful and the results are what you expect, test run each process as soon as you configure and connect.

Note: When you run a process, any results from a previous run are lost.

1. Within a campaign, open a flowchart for editing.
2. Click the process that you want to run.

   If the process requires data from a source process, be sure that the source process has already run successfully so that its data is available.
3. Click the **Run** icon in the toolbar or right-click a process box, then select one of the following options:
   - **Test Run Selected Process**: Use this option when building your flowchart, so you can troubleshoot errors as they occur. Test runs do not output data or update any tables or files. (However, triggers run on completion of test runs, and global suppression is applied.)
   - **Save and Run Selected Process**: Do a production run. The contact processes, Mail List and Call List, will write entries into Contact History. Each production run can generate contact history only once. Contact processes that have already executed for that production run can be rerun only if the contact history from the current run is first deleted. Triggers run on completion of the production run.

   Note: Running only a process or a branch of a flowchart does not increment the Run ID of a flowchart. When you run only a process or a branch, if contact history records exist, you are prompted to choose run history options before you can proceed. For details, see “About run history options” on page 29.
4. When the process finishes running, click **OK** on the confirmation window.

The process displays a check mark after it runs successfully. If there are errors, the process displays a red "X."

About run history options

Note: You see the Run History Options window only when you run a branch or process that has already generated contact history for the current Run ID. If a new run instance does not exist for a particular re-run branch or process, the Run History Options window does not appear.

Use the Run History Options window to choose how the new contact history you generate is written to the contact history table.

Run history options scenario

You have a flowchart with two branches and two contact processes, A and B, both configured to log to contact history.

You run the entire flowchart (from the top, using the Run Flowchart command) once. This creates a new Run ID (for example, Run ID = 1) and generates contact history for this Run ID.

After this first successful run of the entire flowchart, you edit contact process A to give a follow-up offer to the same individuals who received the first offer. Therefore, you want to rerun contact process A. The current Run ID is "1" and contact history already exists for process A and Run ID=1.

When you select contact process A and click "Run Process," you see the Run History Options window. You can choose to leave the Run ID unchanged (Run ID=1) and replace the existing contact history associated with this Run ID, or you can create a new run instance (that is, increment the Run ID to 2), leave the contact history associated with Run ID=1 untouched and append new contact history associated with Run ID=2.

You are sending a follow-up offer and do not want to lose the contact history associated with the first offer, so you choose **Create a new run instance**. This changes the Run ID to "2" and appends contact history records for the same IDs who received the first offer to the contact history table.

If you now edit and run contact process B, you will not see a Run History Options window, because the current Run ID = 2 and contact history associated with Run ID =2 does not exist for contact process B. Running only contact process B will simply generate additional contact history records for Run ID = 2.

Run History Options window reference

The Run History Options window contains the following options.

Table 7. Run History Options window options

Option	Description
Create a new run instance	Rerun a specific branch or process of the flowchart using a new Run ID. Append the results, associated with the new Run ID, to the contact history table. Existing contact history remains intact.
Replace the contact history of the previous run	Reuse the previous Run ID and replace the contact history previously generated for that Run ID (only for the process or branch that is being run). Contact history records that were previously generated for other branches or processes of the flowchart remain intact.
Cancel	Cancel the branch or process run and do nothing to existing contact history. The flowchart remains open in Edit mode.

You cannot replace contact history if associated response history exists. Therefore, if you selected **Replace the contact history of the previous run** and associated response history records exist, you can choose one of two options:

- Click **OK** to clear the associated response history records as well as the contact history records. This is your only option if response history exists and you want to replace the contact history from the previous run.

- Click **Cancel** to cancel clearing the contact history records. You can choose **Create a new run instance** instead, to create a new run instance to run the current contact process.

Choosing data sources for processes

In many processes, including Audience, Create Seg, Cube, Extract, Model, Response, Segment, and Select, you must specify a source of the data that the process will act on. The data source for a process might be an incoming cell, segment, table, or multiple tables.

In most cases, you specify the data source for a process in the **Input** field on the first tab of the configuration window, using the **Input** drop-down list. For instructions, see the instructions for configuring each process. For example, see "To configure a Select process" on page 62.

To select an incoming cell, segment, or table as the input to a process

On the first tab of the process configuration dialog, select the incoming cell, segment, or table from the Input drop-down list. The Input drop-down list displays all the base tables currently mapped in the table catalog, along with their audience levels. If there is an incoming cell, then only those tables with the same audience level as the cell are displayed.

To select multiple tables as the input to a process

You can select more than one table as input to a process.

1. In the process configuration dialog, select **Tables > Multiple Tables** from the **Input** drop-down list.

   Note: If you select multiple tables, the tables must have the same audience level.

   You can also click the ellipsis button. The Select Tables to Use window displays all the base tables in the campaign's table catalog.
2. Check the box next to each table that you want to select.
3. Click **OK** to return to the process configuration dialog. The **Input** field displays "Multiple Tables", which you can view by clicking the ellipsis button.

To map a new table for selecting as a source

In the process configuration dialog, select **Tables > New Table** from the Input drop-down list.

The New Table Definition window preselects the Base Record Table type. You map a new base table in a process configuration dialog in the same way that you map a table from the Table Mappings dialog.

Note: You must have the appropriate permissions to be able to map tables. For details about mapping tables, see the *Campaign Administrator's Guide*.

Profiling fields

The **Profile** feature lets you preview a list of distinct values and their frequency of occurrence for a selected field. You can profile any field that is available in any process where the **Profile** button appears, such as the **Segment by Field** drop-down list in the Segment process, or **Available Fields** or **Candidate Fields** lists in other process configuration dialogs. Only records in the current cell are included in the count, unless the counts have been pre-computed.

Note: You must have the appropriate permissions to profile fields. Ask your system administrator if you have questions about your access to this feature.

To profile a field

Campaign profiles a field when you select it in a list then click the **Profile** button. You can profile any field in any mapped data source. You can also profile derived fields.

1. In the configuration window of a process that includes the **Profile** button, select the field that you want to profile.
2. Click **Profile**.

   The Profile Selected Field window opens.

Campaign profiles the data in the selected field. The categories and frequency counts update as profiling progresses.

Note: Wait until profiling is complete before using the results, to ensure that all categories are processed and counts are complete.

When profiling is complete, the Profile Selected Field window shows the following information:

- The list of values in the selected field, shown in the **Category** column, and the corresponding **Count** of IDs with that value.

  Note: Campaign organizes values by category, grouping them to create approximately equal-sized segments. The default maximum number of categories (distinct bins of values) for display is 25. You can change the maximum number of categories.
- The **Statistics** pane on the right shows the total count of IDs and other details about the data for that field, including:
  - The number of NULL values found
  - The total number of categories, or values, for that field
  - Statistical values for the data including the mean, standard deviation, minimum, and maximum values.

    Note: Mean, **Stdev.**, **Min.**, and **Max.** are not available for ASCII fields. When you profile text fields, these values appear as all zeros.

Restricting input for profiling

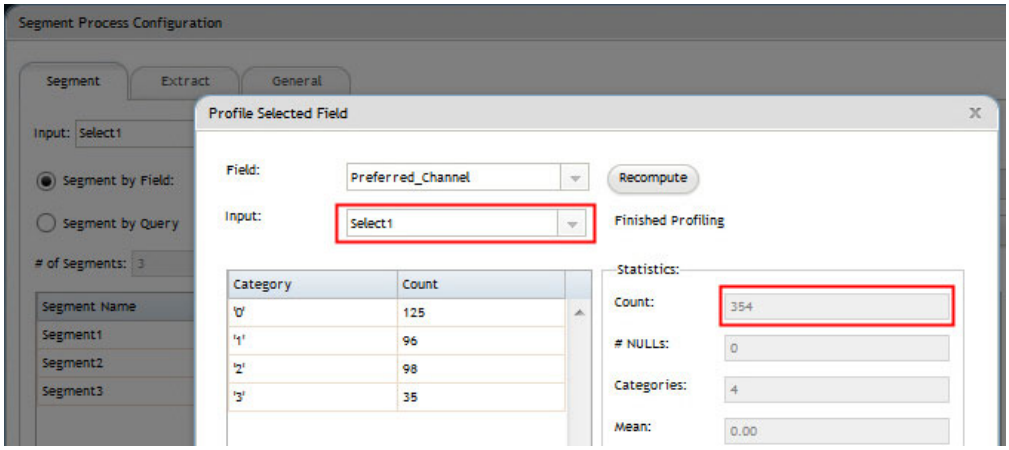
When Campaign profiles a field, it creates only those segments that are available in the input to the process where you are performing profiling.

In other words, if you restrict input to the Segment process, and you profile a field based on the restricted input, the Profile only displays segments that were available in the restricted input.

Consider this example:

1. You configure a Select process that does a query that returns only 354 records.
2. You use that Select process as input to a Segment process.
3. In the Segment process configuration dialog, you use the **Profile** feature to see which values are available in various fields.
4. The selection that you make in the **Input** list of the **Profile Selected Field** dialog determines how many records are profiled. If you choose **None**, Campaign profiles all of the records. If you choose the incoming Select box as the **Input**, Campaign profiles only the records that were selected by that process. If the Select process query resulted in only 354 records, Campaign profiles only those records.

The following example shows a restricted profile, where the **Input** is set to Select1.



Disallowing profiling

Real-time profiling allows you to view and use characteristics of a selected field. It can affect performance, however, when working with large databases. For this reason, Campaign allows this option to be disabled.

When real-time profiling is disabled, and you click **Profile**, a messageat the bottom of the Profile Selected Field window indicates that real-time profiling is disallowed.

If profiling is disallowed and the field is not configured to be pre-computed, the Profile Selected Field window indicates that no data is available, no counts or categories are displayed, and all **Statistics** counts are zero.

If pre-computed values are available for a field, the pre-computed values are displayed instead of live values when profiling is performed. The Profile Selected Field window indicates that the data source is "Imported," and shows the date and time that the values were last computed.

For more information about disallowing real-time profiling, see the *IBM Campaign Administrator's Guide*.

Setting profiling options

You can affect how the Profile feature performs by:

- "Restricting input for profiling" on page 47

• “Disallowing profiling” on page 48

In addition, you can set these options in the Profiling Options window:

- “Specifying the maximum number of profile segments”
- “Profiling by meta type”

To access the Profiling Options window

1. From any process configuration dialog in which the Profile option is available, select a field for profiling, or click **Profile**.

   The Profile Selected Field window appears.
2. From the Profile Selected Field window, click Options.

   The Profiling Options window appears.

Specifying the maximum number of profile segments

When you **Profile** a field, Campaign automatically creates up to the maximum number of segments set in the Profiling Options window. By default, a maximum of 25 segments are allowed.

You can change the maximum number of segments to be used for profiling. After this setting is changed, the new setting is used for all subsequent profiles until it is reset.

Note: If the number of distinct values in the field you are profiling exceeds the maximum allowed number of segments, Profile will group values together into approximately equal sized segments to prevent exceeding the maximum number of segments.

To set the maximum number of segments for profiling

1. On the Profile Selected Field window, click **Options**.

   The Profiling Options window appears.
2. In the **Number of Segments** field, enter an integer to indicate the maximum number of segments into which you want the field values grouped. The default value is 25.
3. Click **OK**.

The profile is recomputed using the new maximum number of segments setting.

Profiling by meta type

You can specify whether metadata type information should be used when profiling by enabling or disabling the **Profile By Meta Type** check box on the Profiling Options window.

Profile By Meta Type enabled is usually the desired behavior. Data types associated with fields containing dates, money, telephone numbers, and other numeric information are correctly sorted and binned using the metadata information, rather than sorting purely based on ASCII text.

For example, the following table shows a date field sorted using meta type information and without. Profiling done without using meta type produces results sorted purely numerically, while profiling done using meta type recognizes that the data are formatted as dates, and sorts them accordingly.

Profiled by Meta Type	Profiled Without using Meta Type
25-DEC-2006	20-FEB-2007

Profiled by Meta Type	Profiled Without using Meta Type
20-FEB-2007	20-MAR-2007
20-MAR-2007	25-DEC-2006

Refreshing a profile count

You might want to refresh the profile count when something occurs that might change the results (for example, when new values are added to a field), or whenever the database table might have been updated.

To refresh the profile results for a field from the Profile Selected Field window, click **Recompute**.

Note: When you first profile a field from a dimension table, Campaign returns counts that match the field in the dimension table. When you click **Recompute** to refresh the profile results, Campaign returns counts from the resulting join with the base table that is linked to the dimension table. If you want to profile a dimension table field without joining to a base table, map the dimension table as a base table.

To insert a profile category into a query

While building a query expression in a process configuration dialog, you can insert a field value into your query expression.

1. Perform profiling on the selected field.
2. When profiling is finished, from the Profile Selected Field window, double-click a category to insert that value at the current cursor location in the query text box.

   Note: If you do not see the value you want, this might be due to multiple values being grouped together into a profile segment. If you set the maximum number of profile segments to a number greater than the number of categories (reported in the Profile Selected Field window), each field value will be listed as a separate category. This makes it possible to access all of the existing categories.

To print the results of a profile

1. Click **Print** from the Profile Selected Field window.

   The Page Setup page appears, from which you can specify the printer and printing options.
2. Click **OK** to confirm sending the print job to the printer.

To export profile data

After you profile a field, you can export the profile data to a comma-separated values (CSV) text file. You can open the CSV file in any text editor. If you open the file in Microsoft Excel, your Excel settings determine how the data is displayed. For example, Excel might interpret a range value, such as "1-5", as a date (January 5).

1. In the Profile Selected Field dialog, click **Export**.

   Note: The **Export** button is available only when profiling is finished.
   The Export Report Data dialog opens. Enter a file name in the **File name** field, or accept the default value. Do not specify a path or extension. The extension .csv will be used when the file is created.

2. (Optional) Select **Include Column Labels** if you want to include column headers in the file to identify each field.
3. Click **Export**. (If this button is disabled, you must enter a file name first.)
4. Use the resulting dialog box to open or save the .csv file.
5. If you save the file, you are prompted for a location. You can also change the file name at that time.

Creating queries in processes

When you configure particular processes, you can use queries to return specific data from your data sources. Campaign makes it easy for you to create queries using any of the following methods:

- "To create a query with Point & Click"
- "To create a query with Text Builder" on page 52
- "To create a query with Formula Helper" on page 53
- "Creating queries using SQL" on page 54

To create a query with Point & Click

These instructions explain how to create a query using the default **Point & Click** method in a process configuration dialog. You can also follow these instructions to edit a query. Selecting a new item from the **Select Based On** drop-down list removes the existing query.

1. Begin configuring a process that uses queries, such as Segment, Select, or Extract.
2. Access the query option for the process:
   - For a Select process, choose **Select <audience> IDs With**.
   - For a Segment process, use **Segment by Query**, double-click a segment to edit it, then use **Select IDs With**.
   - For an Extract process, use **Select records With**.

   The Point & Click query builder is displayed.
3. Construct your query by creating an expression:
   a. To specify which field to query, click in the **Field Name** cell. The **Available Fields** list should appear. If the list does not appear, click in the **Field Name** cell again. Select an available field by double-clicking it or highlighting it and clicking **Use**. When deciding which available field to use, you can highlight a field and click **Profile** to see a list of field values.
   b. You can use the **Derived Fields** button if you want to create or select an existing variable for querying.
   c. Click in the **Oper** cell, then double-click a comparison operator in the **Operators** list (such as =, <, >, Between).
   d. Click in the **Value** cell, then double-click a value. If no values appear, click **Profile** to see a list of field values. You can also double-click in the **Value** cell to edit the value directly.

      Note: If you do not see the expected list (**Available Fields**, **Operators**, **Values**, **For Selected Expresssion**), try either single clicking or double clicking on a cell in the **Expressions** area.

   You now have an expression that consists of a field name, operator, and value, such as **Status=Active**.
4. To add and combine multiple expressions, follow the guidelines below:

a. To add another expression, click the **And/Or** cell, then double-click **AND** or **OR** in the **Values** list to indicate how to combine the expressions.
b. Build your next expression, consisting of a field name, operator, and value.
c. To add parentheses to control evaluation order, double-click the Field Name in any row to display the **For Selected Expression** list. In the list of expressions, double-click **Add (...)** to add a set of parentheses, **Remove (...)** to remove a single set of parentheses, or **Clear all (...)** to remove all of the parentheses in the selected expression. Parentheses allow you to group expressions when defining complex queries. For example, (AcctType = 'Gold' AND Rank = 'A') OR NewCust = 'Yes' is different from AcctType = 'Gold' AND (Rank = 'A' OR NewCust = 'Yes').
d. To reorder the selected expression, double-click **Move Up** or **Move Down**.
e. To add a blank row below the selected expressions, double-click **Insert**.
f. To delete the selected expression, double-click **Delete**.

5. Click **Check Syntax** to confirm whether your query syntax is valid. Checking the syntax does not put any load on the database server.

   Campaign indicates whether the syntax contains any errors.
6. (Optional) Use **Test Query** to see how many IDs the query returns.

   A progress bar is displayed while the query is being tested. Close the progress window if you want to cancel the test. When testing is complete, Campaign indicates the number of rows the query returned.

   Important: Global suppressions and cell size limits are not applied in Test Query counts. Test queries might also return non-normalized data. To obtain an accurate result count, test run the process.
7. Click **OK**.

To create a query with Text Builder

These instructions describe how to create a query using the Text Builder feature in a process configuration dialog.

To edit an existing query, edit the text of the query directly in the query text box, after clicking the **Text Builder** button.

1. Begin configuring a process that uses queries, such as Segment, Select, or Extract.
2. Access the query option for the process:
   - For a Select process, choose **Select <audience> IDs With**.
   - For a Segment process, use **Segment by Query**, double-click a segment to edit it, then use **Select IDs With**.
   - For an Extract process, use **Select records With**.
3. Click **Text Builder** to change from the default Point & Click query method.

   The Point & Click query columns are replaced by a query text box. Any existing queries are displayed in the text box.
4. Choose an **Input** data source, and a data source to query from the **Select Based On** list. Your selections determine which fields can be used to build your query:
5. Create your query by:
   - Selecting the field or table name(s) from the **Available Fields** list and double-clicking to enter them in the query text box. You can also click once then click **<-Use** to move it to the query text box.

- Entering the required operators and values. To see the values of a selected field, you can click **Profile**.

Note: Although you can enter field and table names directly in the query text box, selecting them from the list helps to avoid syntax errors.

6. To check the syntax of the query, click **Check Syntax**. Checking the syntax does not put any load on the database server.
7. (Optional) Use **Test Query** to see how many IDs the query returns.

   A progress bar is displayed while the query is being tested. Close the progress window if you want to cancel the test. When testing is complete, Campaign indicates the number of rows the query returned.

   Important: Global suppressions and cell size limits are not applied in Test Query counts. Test queries might also return non-normalized data. To obtain an accurate result count, test run the process.
8. When you finish creating your query, click **OK**.

   The process configuration box closes and you are returned to the flowchart page in **Edit** mode.

To create a query with Formula Helper

Use the Formula Helper to build a query by selecting macros and functions from pre-defined lists. Use the supplied buttons to insert operators and punctuation.

1. Begin configuring a process that uses queries, such as Segment, Select, or Extract.
2. Access the query option for the process:
   - For a Select process, choose **Select <audience> IDs With**.
   - For a Segment process, use **Segment by Query**, double-click a segment to edit it, then use **Select IDs With**.
   - For an Extract process, use **Select records With**.
3. Click **Text Builder** to change from the default Point & Click query method.
4. Click **Formula Helper**.

   The Formula Helper window opens. It contains a set of buttons for inserting commonly used operators, and a list of macros and functions.
5. (Optional) To work only with SQL operators and functions, check **SQL**.
6. Build your query by selecting fields from the **Available Fields** list as you normally would. Additionally, use the **Formula Helper** window:
   a. Expand the list of macros or functions to locate the item you want to use. Select an item to see a description and syntax example. Double-click an item to add it to the query text box.

      Note: If you select a custom macro, the description and syntax were created by the person who wrote the macro.
   b. Use the Formula Helper buttons to add operators and punctuation. The **Clear** button acts as a backspace (erase) key.
   c. You can also edit the query directly. However, you can avoid syntax errors by selecting items, such as field and table names, from the lists provided.
   d. Click **Close**.
7. Use **Check Syntax** to detect any errors. Checking the syntax does not put any load on the database server.
8. (Optional) Use **Test Query** to see how many IDs the query returns.

A progress bar is displayed while the query is being tested. Close the progress window if you want to cancel the test. When testing is complete, Campaign indicates the number of rows the query returned.

Important: Global suppressions and cell size limits are not applied in Test Query counts. Test queries might also return non-normalized data. To obtain an accurate result count, test run the process.

Creating queries using SQL

Experienced SQL users can write their own SQL queries or copy and paste SQL queries from other applications. Writing raw SQL is an advanced operation; users are responsible for correct syntax and query results.

Follow these guidelines when using raw SQL:

- A SQL query must return a list of *only* the unique IDs as defined by the key on a base table.
- A SQL query should use the following syntax:

  `SELECT DISTINCT(<key1> [<key2>,...]) FROM <table> WHERE <condition> ORDERBY <unique_id>`

  This query instructs the database to perform sorting and data deduplication. If you omit the `DISTINCT` or `ORDERBY` clause, Campaign sorts and deduplicates the data on the application server, so you still receive the correct results, but performance will be slower.
- If in-database optimization is enabled and there is an input cell to the Select process, you must use the `<TempTable>` token to obtain the correct list of audience IDs. See "Using the TempTable and OutputTempTable tokens in raw SQL queries" on page 55.
- To significantly improve performance with large tables, use the `<TempTable>` token even when not using in-database optimization.
- If your database allows multiple commands to be passed, enter as many valid SQL commands as you need, with the following rules:
  - Separate commands with the appropriate delimiter
  - The last command must be a `select` command.
  - This `select` command must select all the relevant fields required in defining your audience level in the same order the audience level is defined.
  - No other `select` statements are used

To create a raw SQL query

1. Begin configuring a Select or Segment process.
2. For a Select process, you must switch to the Text Builder in order to write a SQL query:
   a. Choose **Select <audience> IDs With**.
   b. Change to the **Text Builder** (instead of the default Point & Click method).
   c. Click **Advanced**.
   d. In the Advanced Settings dialog, check **Use Raw SQL for Record Selection**. This option enables the use of raw SQL in the Text Builder when you specify your selection criteria. If you do not select this option, you can only use IBM EMM expressions and Custom Macros.
   e. Select a data source to query from the **Database** list. Select the target audience from the **Audience Level** list.

f. If you want to run SQL commands before or after the **Select** process, you can specify raw SQL in the **Pre-Processing** or **Post-Processing** area. See "To specify pre- or post-processing SQL statements" on page 57

g. Click **OK** to close the Advanced Settings dialog.

h. Enter raw SQL in the text entry area. You can use the **Formula Helper** to help construct the SQL. Check **SQL** in the Formula Helper to restrict the list of operators and functions to SQL-specific options.

3. For a Segment process:

   a. Choose **Segment by Query**, then create or edit a segment.

   b. Choose **Select IDs With**, click **Text Builder**, then click **Advanced**.

   c. In the Advanced Settings dialog, check **Use Raw SQL**, select a data source, and click **OK**.

   d. Enter raw SQL in the text entry area. Optionally, use the **Formula Helper** to help construct the SQL. Check **SQL** in the Formula Helper to restrict the list of operators and functions to SQL-specific options.

Using the TempTable and OutputTempTable tokens in raw SQL queries

- For best performance, use the `<TempTable>` token in raw SQL queries, especially when querying large tables.
- If you are using in-database optimization and you specify a raw SQL query in a Select process with an input cell, the `<TempTable>` token is required to ensure correct behavior. See below for a full explanation.
- If you are using in-database optimization, also use the `<OutputTempTable>` token to maintain in-database optimization and prevent audience IDs from being retrieved from the database back to the Campaign server.

When you use a raw SQL query in a Select process with an input cell, the processing behavior depends on whether in-database optimization is in use:

- When **Use In-DB Optimization** is off: The list of IDs from the raw SQL query is automatically matched against the ID list from the incoming cell. The resulting list of IDs is a subset of the cell, as expected.
- When **Use In-DB Optimization** is on: Campaign assumes that the ID list generated from the Select process is the final list. Campaign does not match this list against the ID list of any incoming cell. Therefore, the raw SQL query written for an intermediate Select process (a Select process with an input cell) must use the `<TempTable>` token to properly join against the incoming cell. Joining against the input cell ensures correct results and improves performance by preventing extraneous processing for audience IDs that are not in the input cell.

For important information about using raw SQL with in-database optimization, see "Improving flowchart performance using in-database optimization" on page 32.

Example: Using the TempTable and OutputTempTable tokens: Assume that you have a Select1 process that selects 10,000 customers who are "Gold" customers (for example, Indiv.AcctType = 'Gold'). You then connect Select1 to a second Select process ("Select2") using a raw SQL query:

```
Select p.CustID from Indiv p, <TempTable> where p.CustID =
<TempTable>.CustID group by p.CustID having sum(p.PurchAmt) > 500
```

This example selects customers the sum of whose purchases exceeds $500 and who are in the input cell (in other words, customers who have a “Gold” account type).

In contrast, a raw SQL query omitting the <TempTable> token and join:

```
Select p.CustID from Purchases p group by p.CustID having sum(p.PurchAmt) >
500
```

first calculates the sum of purchases for all customers in the Purchases table (which could be millions of customers) and then selects all customers the sum of whose purchases exceed $500, regardless of whether they are “Gold” customers or not.

Therefore, for best performance, even if in-DB optimization is disabled, write your raw SQL queries using the <TempTable> token when there is an input cell.

For simplicity, this example does not use the <OutputTempTable> token, but to maintain in-DB optimization and prevent the audience IDs from being retrieved from the database back to the Campaign server, you must include the <OutputTempTable> token in your raw SQL query. For example:

```
Create table <OutputTempTable> as Select p.CustID from Purchases p,
<TempTable> where p.CustID = <TempTable>.CustID group by p.CustID having
sum(p.PurchAmt) > 500
```

Referencing Extract tables in raw SQL queries

You can reference an Extract table in downstream processes via raw SQL using the <Extract> token. Use this token to specify subsets of data for subsequent processing, which can improve performance when working with large tables.

The following example queries an Extract table to select the customer IDs of all customers whose account balance exceeds $1,000.

```
Select p.CUSTOMERID from USER_TABLE p, <Extract> where p.CUSTOMERID =
<Extract>.CUSTOMERID group by p.CUSTOMERID having sum(p.BALANCE) > 1000
```

For flowcharts containing multiple Extract processes, the <Extract> token always refers to the latest available Extract table.

Note: After a Merge, the <Extract> token may or may not be valid. Test run the flowchart to determine if the token works as expected.

Specifying pre- or post-processing SQL statements

If you are using a Select or Extract process, you can optionally include raw SQL statements to run before or after the process:

- **Pre-processing**: Enter raw SQL to be processed before the query runs
- **Post-processing**: Enter raw SQL to be processed after the query runs

Use this feature to include SQL procedures as part of the process run, which can be useful for ETL, routine data mart updates, performance tuning, and security. For example, you can use pre- and post-processing SQL statements to:

- Run stored procedures in the database
- Create, drop, and re-create tables and indexes
- Grant or change privileges to other users or groups
- Organize multi-step database commands

- Run complex database routines without having to use external scripts to connect to the database

Note: For important information, see "Creating queries using SQL" on page 54. If you are using in-database optimization, see "Improving flowchart performance using in-database optimization" on page 32

To specify pre- or post-processing SQL statements:

1. Begin configuring a Select or Extract process.

   You can select all records or use a query to select specific IDs. For the Select process, you can apply pre or post processing regardless of the query type (standard query or **Use Raw SQL for Record Selection**).
2. Click the **Advanced** button.

   The Advanced Settings window appears.
3. Double-click in the **Pre-Processing** area and enter a raw SQL statement to run before the process.
4. Click in the **Database** cell, and select the database on which you want to run this statement.

   The **Database** list shows all available databases (those for which a data source category was configured on the Configuration page in Marketing Platform). If your database does not appear in the list, contact your Campaign system administrator. You must enter a SQL statement before you can select a database.

   The SQL statements are processed in the order in which they appear.
5. Follow the same procedure to enter any **Post-Processing** SQL statements to run after the process.

   The SQL statements are processed in the order in which they appear.

   Note: For information about the **Use Raw SQL for record selection** option in the Advanced Settings dialog, see "To create a raw SQL query" on page 54.

How queries are evaluated in Campaign processes

Queries in Campaign processes are evaluated left to right using mathematical rules.

For example, the following statement:

```
[UserVar.1] < PDF < [UserVar.2]
```

is evaluated as:

```
([UserVar.1] < PDF) < [UserVar.2]
```

That is, the first part of the statement **([UserVar.1] < PDF)** is evaluated as true or false (1 or 0), and the result is passed to the second statement:

```
[1 | 0 ] < [UserVar.2]
```

For the example to be evaluated as PDF greater than [UserVar.1] and less than [UserVar.2], you would need to construct the following query:

```
[UserVar.1] < PDF AND PDF < [UserVar.2]
```

This statement is equivalent to the following:

```
([UserVar.1] < PDF) AND (PDF < [UserVar.2])
```

Specifying an output file or table for contact logging

Contact processes such as Mail List or Call List can write results to:

- system tables
- a new or existing external file that you specify
- an unmapped database table

To specify an output file for contact logging

1. In a flowchart in **Edit** mode, from the process configuration dialog, select **File** from the **Export To** or **Log To** drop-down list. The **File** option usually appears at the bottom of the list, following the list of mapped tables.

   The Specify Output File window appears.
2. Select the type of file to which you want to write:
   - **Flat file with data dictionary** to create a new fixed-width file and new data dictionary file.
   - **Flat file based on existing data dictionary** to create a new fixed-width file and select an existing data dictionary file.
   - **Delimited file** to create a new file in which field values are delimited by a tab, comma, or other character.
3. If you selected **Delimited file**:
   - Select the **Tab**, **Comma**, or **Other** option. If you selected **Other**, enter the character to use as the delimiter in the **Other** field.
   - Check **Include Labels in Top Row** if you want the first row of the file to contain labels for each column of data.
4. Enter the complete path and name of the file in the **File Name** field. You can also click **Browse** to navigate to a directory and select an existing file.

   Note: You can use user variables in the output file name. For example, if you specify MyFile<UserVar.*a*>.txt as the file name, and the value of the user variable "*a*" is "ABC" at the time that the process is run, the output is written to a file named MyFileABC.txt. Be aware that you must set the Initial Value and the Current Value of the user variable before executing the flowchart.
5. Campaign automatically fills in the **Data Dictionary** field with a .dct file with the same name and in the same location as the file you entered.
6. If you want to use a different data dictionary, or to rename the data dictionary, enter the complete path and name of the data dictionary file in the **Data Dictionary** field.
7. Click **OK**.

   The Specify Output File window closes. You are returned to the process configuration dialog, and the **Export/Log to** field displays the path and file name you entered.

To specify a database table for contact logging

1. In the process configuration dialog, select **New Table** or **Database Table** from the **Export To** or **Log To** drop-down list. This option usually appears at the bottom of the list, following the list of mapped tables.

The Specify Database Table window appears.

2. Specify the table name.

   Note: You can use user variables in the table name. For example, if you specify MyTable<UserVar.*a*> as the table name, and the value of the user variable "*a*" is "ABC" at the time that the process is run, the output is written to a table named MyTableABC. You must set the Initial Value and the Current Value of the user variable before executing the flowchart.

3. Select the database name from the drop-down list.
4. Click **OK**.

   The Specify Database Table window closes. You are returned to the process configuration dialog, and the **Export/Log to** field displays the name of the database table you entered.

5. If a table of the name you specified exists, choose an option for writing the output data:
   - Append to Existing Data — if you choose this option, the existing table must have a schema compatible with the output data. In other words, field names and field types must match, and field sizes must allow for the output data to be written.
   - Replace All Records — if you choose this option, existing rows in the table are replaced with the new output rows.

Changing the seed for random selection

The random seed represents the starting point that Campaign uses to select records randomly. If you are selecting records randomly, you might want to change the random seed in situations such as the following:

- You have the same number of records in the same sequence, and using the same seed value each time you run this process results in records being created into the same samples.
- Your current random sample produces highly skewed results (for example, if all males in your data fall into one group and all females into another).

To change the random seed for selecting records

On the **Cell Size Limit** tab of the process configuration dialog, change the starting point for the random selection in one of these ways:

- Enter a numeric value in the **Random Seed** text box; or
- Click **Pick** to have Campaign randomly select a new seed value for you.

Skipping duplicate IDs in process output

The Extract, Call List, Mail List, and Snapshot processes allow you to specify how to treat duplicate IDs in the process output. The default is to allow duplicate IDs in the output. Follow these steps to exclude records with duplicate IDs from the output.

1. From the configuration window of the process, click **More**.

   You see the **Advanced Settings** window.

   a. Select **Skip records with duplicate IDs**, and specify the criteria to determine which record to retain if duplicate IDs are returned. For example, select MaxOf and Household_Income to export only the ID with the highest household income.

Note: This option only removes duplicates within the same input field. Your data can still contain duplicate IDs if the same ID appears in multiple fields. To remove all duplicate IDs, you must use a Merge or Segment process upstream of the Extract process to purge duplicate IDs or create mutually exclusive segments.

2. Click **OK** to close the Advanced Settings window.

   Your duplicate ID settings are displayed on the configuration window.

   Note: In the Mail List or Call List process box, the **Skip records with duplicate IDs** option pertains only to the fulfillment table created by the process and not to records that are written to contact history. The contact history tables only handle unique IDs. The flowchart designer must ensure that the result set obtains the correct records before reaching the contact history tables. Use the Extract process to de-dupe the result set before the Mail List or Call List process box to ensure that the correct records are written to both the fulfillment table and contact history.

Chapter 6. Configuring Campaign processes

This chapter explains how to configure and use each Campaign process.

For general concepts and procedures relating to processes, see Chapter 5, "Introduction to Campaign processes," on page 37.

List of processes

Campaign provides the following processes for use in flowcharts. You can configure and connect a series of processes to accomplish your marketing campaign goals.

Note: Interact, Contact Optimization, and eMessage provide additional processes for use in campaign flowcharts. For information about those processes, see the separate documentation for those products.

Table 8. List of Campaign processes

Process	Purpose
"Select" on page 62	Select a list of contacts from your data mart.
"Merge" on page 66	Merge or suppress contacts.
"Segment" on page 67	Segment data into distinct groups.
"Sample" on page 73	Create samples from your data for use in control and test scenarios.
"Audience" on page 76*	Switch audience levels and filter data based on similar audiences.
"Extract" on page 85	Extract subsets of data for further downstream processing and manipulation.
"Snapshot" on page 90	Capture a list of IDs and associated data for export to a table or a file.
"Schedule" on page 92	Initiate one or more processes in a running flowchart.
"Cube" on page 96	Administrators can define multi-dimensional cubes of attributes so users can drill into data from multiple sources. For more information, see • "About cubes" on page 200 • "About dimension hierarchies" on page 197
"Create Seg" on page 97	Administrators can create segments for global use. For more information, see • "Associating strategic segments with a campaign" on page 12 • "About strategic segments" on page 190.
"Mail List" on page 98*	Generate a contact list for a direct mail campaign, assign offers, and log contact history.
"Call List" on page 103*	Generate a contact list for a telemarketing campaign, assign offers, and log contact history.
"Track" on page 103*	Update contact history.
"Response" on page 106*	Evaluate contact response and and log information to the response history system tables.
"Model" on page 108*	Model responders and non-responders. Use the resulting runtime model file with the Score process to determine the most likely responders.
"Score" on page 110	Score contacts against a data model.
*For more information, see Chapter 9, "Contact history and response tracking," on page 155.	

Select

Use the Select process to define the criteria to build lists of contacts, such as customers, accounts, or households, from your marketing data. Select is the most frequently used process in Campaign. Most flowcharts begin with one or more Select processes. The Select process outputs a cell containing a list of IDs, such as customer IDs, which can be modified and refined by other processes.

To configure a Select process

Define a Select process to build a list of contacts from your marketing data. You can specify all IDs in a segment or table, or you can use a query to select specific IDs. One or more Select processes can then be used as input into another process. For example, you could select all Loyal Customers, then create another selection of all Opt-Outs and merge them into a single list.

1. Within a campaign, open a flowchart for editing.
2. Drag the Select process from the palette to your flowchart.
3. Double-click the Select process box in the flowchart.

   The process configuration dialog opens.
4. On the Source tab, open the **Input** list and select a Segment or Table to provide the data source for the process. To select multiple tables, use the ellipsis button next to the field.

   Note: If IBM Digital Analytics is integrated with Campaign, you can select **IBM Digital Analytics** as the input. For instructions, see "To use IBM Digital Analytics segments in a Select process" on page 63.
5. Choose one of the **Select** options. The option names vary, depending on the audience level that is specified in the input data source (for example, Customer).
   - **Select <audience> IDs**: Include all rows from the segment or table that you selected in the previous step.
   - **Select <audience> IDs with**: Select IDs based on a query that you will define.
6. If you chose **Select <audience> IDs with**, create a query by using one of the following methods:

   Note: For complete instructions on how to build queries, see "Creating queries in processes" on page 51.
   - **Point & Click**: Click in the **Field Name**, **Oper.**, and **Value** cells to select values to build an expression. Use **And/Or** to combine expressions. This method provides the easiest way to create a query and helps to avoid syntax errors.
   - **Text Builder**: Use this tool to write raw SQL or use the provided macros. You can use the **Formula Helper** within Text Builder to select supplied macros, including logical operators and string functions.

   With either method, you can select fields from the Available Fields list, including IBM Campaign Generated Fields and Derived Fields.

   Note: If your query includes a table field that has the same name as a Campaign Generated Field, you must qualify the field name. Use the following syntax: `<table_name>.<field_name>`
7. If you want to limit the number of IDs generated by the process, use the **Cell Size Limit** tab. See "Limiting the size of output cells" on page 137.

8. Use the **General** tab as follows.
   a. **Process Name**: Assign a descriptive name, such as Select_Gold_Customers. The process name is used as the box label on the flowchart. It is also used in various dialogs and reports to identify the process.
   b. **Output Cell Name**: This name matches the Process Name by default. It is used in various dialogs and reports to identify the output cell (the set of IDs that the process retrieves).
   c. (Optional) If you click **Link to Target Cell** and you see a list of target cells (defined in the Target Cell Spreadsheet for the current campaign), you can select one. The cell name from the TCS now displays in the Output Cell Name field. See "About the target cell spreadsheet" on page 146. Also see "To link flowchart cells to target cells using the process configuration dialog" on page 144.
   d. **Cell Code**: The cell code has a standard format that is determined by your system administrator and is unique when generated See "Changing the cell code" on page 142.
   e. **Note**: Explain the purpose of the Select process. Common practice is to reference the selection criteria.
9. Click **OK**.

   The process is now configured. You can test run the process to verify that it returns the results you expect.

To use IBM Digital Analytics segments in a Select process

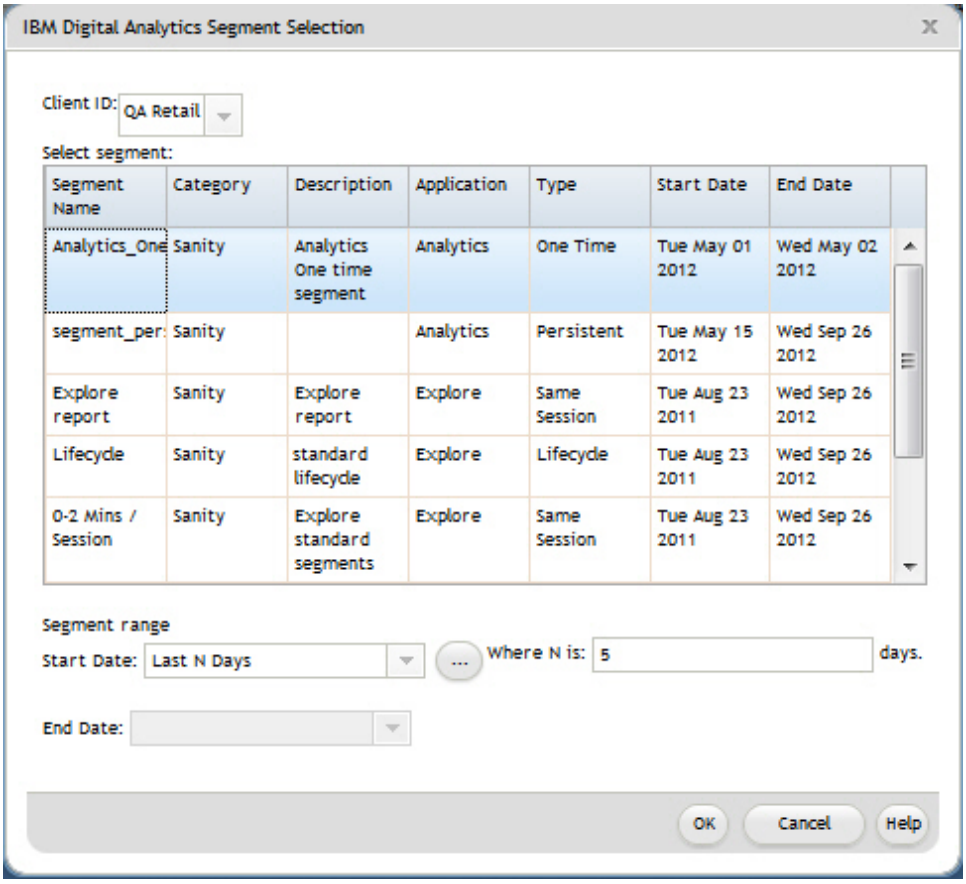
When you configure a Select process, you can choose **IBM Digital Analytics Segments** as the data source, to use segments exported from IBM Digital Analytics products in your campaign.

Note: The **IBM Digital Analytics Segments** option is available only if IBM Digital Analytics and Campaign are integrated. Configuring the integration is explained in the *IBM Campaign Administrator's Guide*.

1. Double-click a Select box in a Campaign flowchart to open the Select Process Configuration dialog.

   If you are modifying a Select box that contains a previously defined IBM Digital Analytics Segment, the **Input** box on the **Source** tab shows the existing segment name.
2. Open the **Input** list and click **IBM Digital Analytics Segments**.

   The IBM Digital Analytics Segment Selection dialog opens.



3. In the IBM Digital Analytics Segment Selection dialog:
   - Select a **Client ID** from the list to display a list of all published segments associated with that particular IBM Digital Analytics client.
   - The **Select segment** list shows the segments defined in IBM Digital Analytics, including the Application where the segment was created, its Type, and its Start and End Dates.
   - The **Description** should help you determine the purpose of the segment. If you need more information about a segment, double-click it to see the segment expression and other information defined in IBM Digital Analytics.
   - The **Start Date** and **End Date** next to each segment indicate the IBM Digital Analytics-defined date range for finding visitors who match the segment criteria. For example, one segment might find everyone who visited a particular site at least 3 times between January 12, 2012 and April 12, 2012, and another segment might find visitors from a different range of dates. The IBM Digital Analytics-defined date range cannot be changed here. However, you can use the **Segment range** date controls at the bottom of the dialog to define a date range that falls within the range defined in IBM Digital Analytics.
4. Select a segment in the list. If you are modifying (as opposed to creating) a Select process, the existing segment range is displayed.
5. Use the **Segment range** date and calendar controls at the bottom of the dialog to specify the date range from which you want to obtain data for the selected segment.

- The range that you specify must fall within the Start Date and End Date defined for the segment in IBM Digital Analytics (shown next to each segment in the list).
- In addition to taking the Start and End Date into account, Campaign also considers the **date constraint** (if any). The date constraint is defined in IBM Digital Analytics but does not appear in the Segment Selection dialog. The date constraint limits the number of days' worth of data to pull for a segment, to ensure that IBM Digital Analytics is not overloaded with exporting a large data set.

  For example, say there is a segment defined in IBM Digital Analytics with a 3-month span (Start and End Date) and a date constraint of 7 days. The date range that you define in Campaign takes both constraints into account. If you specify a date range outside of the 3-month span, your segment definition cannot be saved. Likewise, if you specify a date range that exceeds 7 days, your segment definition cannot be saved.
- You can specify absolute or relative dates, as long as they fall within the IBM Digital Analytics-defined range and date constraint.
- If you specify an absolute Start Date, you must also supply an End Date. For example, if the IBM Digital Analytics-defined segment defines a 3-month span, your campaign can target visitors whose information was gathered on a single day, month, or week within that span.
- Examples of relative dates:
  - If the IBM Digital Analytics-defined segment is for a 3-month span, you can specify a relative date, such as **Yesterday** or **Last 7 Days**, to continually find recent visitors. The campaign will run successfully until the IBM Digital Analytics-defined End Date occurs.
  - If you specify **THIS MONTH**, the full month of data must be available up until the day before this relative date is used. For example, if today is March 28, data from March 1 - March 27 must be available for the selected segment.
  - If you specify **LAST MONTH**; the full previous month of data must be available. Example #1: If the IBM Digital Analytics-defined segment has a start date of March 1 and an end date of March 31, LAST MONTH can be used starting on April 1, up to and including April 30 (to get data for the month of March). Example #2: If the IBM Digital Analytics-defined segment has a start date of March 1 and an end date of March 30, LAST MONTH cannot be used, because there is not a full month of data. Example #3: If the IBM Digital Analytics-defined segment has a start date of March 2 and an end date of March 31, LAST MONTH cannot be used, because there is not a full month of data. In these cases, a message indicates that LAST MONTH does not fall within the segment dates. Instead, you must use absolute dates.

6. Click **OK** to return to the Select Process Configuration dialog.

   When the Select process runs, it pulls data from IBM Digital Analytics for the segments within the specified date range and date constraint. The mapping table used for the flowchart tells Campaign how to convert IBM Digital Analytics IDs to Campaign Audience IDs. The Audience IDs are then available for use in downstream processes. For technical information about how this works, see the *Campaign Administrator's Guide.*

   In rare situations, when you run a flowchart, the number of IBM Digital Analytics IDs for a selected segment might not match the number of Audience IDs found in Campaign. For example, there might be 100 IBM Digital Analytics keys but only 95 matching IDs in Campaign. Campaign warns about this

situation but continues running the flowchart. A message is written to the log file for that flowchart, asking you to verify that your mapped translation table contains updated records. An administrator can resolve this situation by (re)matching the online and offline keys according to your corporate policy and repopulating the translation table with up-to-date data. You must re-run the flowchart after the mapped translation table is updated.

Merge

Use the Merge process to specify which input cells are included and combined, and which are excluded (suppressed). This allows you to include or exclude cells from subsequent processes in your flowchart. For example, use the Merge process to suppress "opt-out" customers who have requested that they not receive any marketing materials.

To configure a Merge process

The Merge process accepts one or more input cells and produces one output cell. You specify which input cells are included and combined or excluded from the output.

1. Within a campaign, open a flowchart for editing.
2. Drag the Merge process from the palette to your flowchart.
3. Connect one or more configured processes as input into the Merge process.

   Note: All input cells must have the same audience level.
4. Double-click the Merge process in the flowchart.

   The process configuration dialog opens. Cells from processes that are connected to the Merge process are listed in the **Input** list.
5. Use the **Method** tab to specify whether to include or exclude input cells during the merge. Select a cell in the **Input** list, and add it to one of the following lists:
   - **Records to Include**: The IDs in the cells that you add to this list are combined into one list of unique IDs.
   - **Records to Exclude**: The IDs in the cells that you add to this list are not included in the merged output. For example, use this option to exclude Opt Outs.
6. Specify how to merge the lists from the input cells that are in the **Records to Include** list:
   - **Merge/Purge on Include**: This option produces a list of unique IDs that exist in at least one input cell. Duplicate IDs are included only once. This method uses a logical "OR" or "ANY." For example: Include customer A if that customer is in *either* the **Gold.out** cell OR the **Platinum.out** cell.
   - **Match (AND) on Include**: Include only those IDs that exist across all input cells. This method uses a logical "AND" or "ALL." For example: Include customer A only if that ID exists in *both* the **Gold.out** cell AND the **LoyaltyProgram.out** cell. This option is useful when you want to include customers that meet multiple criteria. If an ID does not exist in all of the Merge process input cells, the ID is not included.
7. Click the **Cell Size Limit** tab if you want to limit the number of IDs generated by the process.
8. Use the **General** tab as follows.
   a. **Process Name**: Assign a descriptive name. The process name is used as the box label on the flowchart. It is also used in various dialogs and reports to identify the process.

b. **Output Cell Name**: This name matches the Process Name by default. It is used in various dialogs and reports to identify the output cell (the set of IDs that the process produces).
c. (Optional) If you click **Link to Target Cell** and you see a list of target cells (defined in the Target Cell Spreadsheet for the current campaign), you can select one. The cell name from the TCS now displays in the Output Cell Name field. See "About the target cell spreadsheet" on page 146. Also see "To link flowchart cells to target cells using the process configuration dialog" on page 144.
d. **Cell Code**: The cell code has a standard format that is determined by your system administrator and is unique when generated See "Changing the cell code" on page 142.
e. **Note**: Describe the purpose or result of the process. For example, indicate which records you are including or excluding.

9. Click **OK**.

The process is now configured. You can test run the process to verify that it returns the results you expect.

Segment

Use the Segment process to divide data into distinct groups (segments) to receive different treatments or offers. After the segments have been created, you connect the Segment process to a contact process (such as CallList or MailList) to assign treatments or offers to the segments. There is no limit to the number of segments you can create.

For example, you might want to divide your customers into high-value, medium-value, and low-value segments based on their prior purchase history. Each of these segments can then receive a different offer when connected to a contact process.

You can segment data in two ways: by using the distinct values in a field, or by filtering the data in a field using a query. In addition to database table fields, you can use derived fields to segment data. This allows you to perform custom binning.

Important: The segments created by the Segment process are not the same as the globally persistent strategic segments created by the Create Seg process, which can be used in any session or campaign.

Segmenting by field

When you segment data by a field in a database table, each distinct value in the field creates a separate segment. This option is most useful when the values in the field correspond to the segments you want to create.

For example, assume that you want to assign a different offer to customers in each of 10 regions. Your customer database contains a field called `regionID`, which indicates the region to which each customer belongs. Segment by the `regionID` field to create the 10 regional segments.

Segmenting by query

The segment by query option segments your data based on the results of a query that you create. This option is most useful when it is necessary to filter the data in a field to create the required segments.

For example, assume that you want to divide your customers into high-value (more than $500), medium-value ($250-$500), and low-value (under $250) segments based on their purchase history over the last year. The `PurchaseHistory` field in your customer database stores the total dollar amount of each customer's purchases. Use a separate query to create each segment, selecting records with values in the `PurchaseHistory` field that meet the criteria of the segment.

Note: You can also segment data using raw SQL.

Using segments as input to another Segment process

Segments can also be used as input cells to another Segment process. For example, assume that you want to segment your customers into six age ranges. Your database contains a field called `AgeRange` that assigns one of six age ranges to each customer. Segment by the `AgeRange` field to create the six segments.

You could then use these six segments as input to another Segment process that further divides customers by another field or query. For example, assume that your database contains a field called `PreferredChannel`, which specifies each customer's preferred contact channel — direct mail, telemarketing, fax, or email. Using the six age range segments as input, you could then create a second Segment process to segment by the `PreferredChannel` field. Each of the six age range segments is further segmented into four preferred channel segments, to produce a total of 24 output segments.

Segmenting considerations

Consider the following options and guidelines when segmenting data:

- "Choosing a segmenting method"
- "Making segments mutually exclusive"
- "Restricting segment size" on page 69
- "Selecting source cells" on page 69

Choosing a segmenting method

In some cases, the same results can be achieved when segmenting either by field or by query. For example, assume that the `AcctType` field in your database divides your customer accounts into Standard, Preferred and Premier levels. Segmenting by the `AcctType` field will create three segments for these account types. You could achieve the same results using queries, but creating the segments would require writing three separate queries. Determine the most efficient method based upon the data you are segmenting.

Making segments mutually exclusive

You can specify segments to be mutually exclusive, meaning that each qualifying record is guaranteed to be placed into no more than one segment. When the segments are assigned to offers, this will ensure that each customer receives only one offer.

Records are placed in the first segment whose criteria they satisfy, based on a priority order that you define. For example, if a customer qualifies for segments 1 and 3, and segment 1 is before segment 3 in the priority order, that customer will appear only in segment 1.

Restricting segment size

The default size for the number of records per segment is Unlimited. You may want to restrict the size of the created segment if, for example, you are performing test runs of the flowchart or process.

You can limit the segment size to any positive integer. If the segment size you specify is less than the total number of records generated, the segment will consist of randomly selected qualifying records.

Selecting source cells

All selected cells must be defined at the same audience level. If more than one source cell is selected, the same segmentation is performed on each source cell.

To configure a Segment process by field

1. Within a campaign, open a flowchart for editing.
2. Drag the Segment process from the palette to your flowchart.
3. Connect one or more configured processes as input into the Segment process.
4. Double-click the Segment process in the flowchart.

   The Segment Process Configuration dialog appears. Cells from processes connected to the Segment process appear in the **Input** list.
5. On the **Segment** tab, open the **Input** drop-down list and select the input to the Segment process. To select multiple cells, use the ellipsis button next to the **Input** list.
6. Select **Segment by Field** and use the drop-down list to select the field you want to use to create the segments.

   The **Profile Selected Field** window opens, and profiling of the selected field automatically starts.
7. Wait for profiling to finish, to ensure that all segments are properly created. Then click **OK**.

   The list of segments and the **# of Segments** field are updated based on the profiling results of the selected field. To reprofile the field at any time after initially selecting it, click **Profile**.
8. Set the remaining configuration options:
   - "Segment Process Configuration: Segment tab" on page 70
   - "Segment Process Configuration: Extract tab" on page 71
   - "Segment Process Configuration: General tab" on page 72
9. Click **OK**.

   The process is now configured. You can test the process to verify that it returns the results you expect.

To configure a Segment process by query

1. Within a campaign, open a flowchart for editing.
2. Drag the Segment process from the palette to your flowchart.
3. Connect one or more configured processes as input into the Segment process.
4. Double-click the Segment process in the flowchart.

The Segment Process Configuration dialog appears. Cells from processes connected to the Segment process appear in the **Input** list.

5. On the **Segment** tab, open the **Input** drop-down list and select the input to the Segment process. To select multiple cells, use the ellipsis button next to the **Input** list.
6. Select **Segment by Query**.
7. Determine the number of segments that you want to create, and enter that number in the **# of Segments** field.
8. To construct a query for each segment, select the segment and click **Edit** to access the Edit Segment window. For details, see "New Segment and Edit Segment dialogs" on page 72.
9. Set the remaining configuration options:
   - "Segment Process Configuration: Segment tab"
   - "Segment Process Configuration: Extract tab" on page 71
   - "Segment Process Configuration: General tab" on page 72
10. Click **OK**.

    The process is now configured. You can test run the process to verify that it returns the results you expect.

Segment Process Configuration: Segment tab

The following table describes the controls on the Segment tab of the **Segment Process Configuration** window.

Table 9. Segment tab

Control	Description
Input	Specifies the input to the Segment process. The drop-down list contains all output cells from any process connected to the Segment process. Select **Multiple Cells** if you want to select more than one input.
Segment by field	Specifies a field to use for segmenting data. The data is segmented using the distinct values that exist for the selected field. Each distinct value in the field will create a separate segment.
Profile button	Opens the **Profile Selected Field** window, which calculates the values and distributions of records in the selected field. Active only when segmenting by field.
Derived Fields button	Opens the **Create Derived Field** window. Active only when segmenting by field.
Segment by Query	Segments data based on a query that you create.
# of Segments	Specifies the number of segments to create. Active only when segmenting by query. By default, three segments are created, with default names "Segment1," "Segment2," and "Segment3." When segmenting by field: The **# of Segments** field is updated based on the profiling results of the selected field.
Mutually Exclusive Segments	Specifies whether the segment is to be mutually exclusive (that is, each qualifying record is guaranteed to fall into no more than one segment).

Table 9. Segment tab (continued)

Control	Description
Create Extract tables	Indicates whether the segment should create Extract tables for each output cell. Selecting this option ensures that Campaign can provide a later process with the information necessary to keep track of duplicate target audiences across segments. Selecting this check box enables the options on the Extract tab. This check box is disabled if **Mutually Exclusive Segments** is selected.
Segment Name	Lists all segments by name. By default, three segments are created, with default names "Segment1," "Segment2," and "Segment3." When segmenting by field: Segment names are updated based on the profiling results of the selected field. For example, if you are segmenting on a field called "Acct_Status" which has two distinct values "A" and "B", two segments are created, named "Acct_Status_A" and "Acct_Status_B."
Max. Size	Maximum number of records allowed in each segment.
Size	Number of records that meet the criteria for the segment. Before the process is run, this number defaults to the total number of records in the output cell.
Query	Query that defines the criteria for this segment. Appears only when segmenting by query.
Up 1, Down 1	Reorder the selected segment. Segments are processed in the order listed in the table.
New Segment button	Opens the **New Segment** window. Active only when segmenting by query.
Edit button	Opens the **Edit Segment** window for editing the selected segment.
Remove	Removes the selected segment. When a segment is removed, the **# of Segments** field updates automatically.
Do Not Run Subsequent Processes For Empty Segments	Prevents processes downstream from this process from running for empty segments.

Segment Process Configuration: Extract tab

Use the Extract tab of the Segment Process Configuration window to allow the output you specify from the Segment process to be accessible as input to Mail List or Call List processes in the flowchart. The following table describes the fields, buttons, and controls on the Extract tab.

Table 10. Extract tab

Field	Description
Target Data Source	Location to which the output from this process will be written. The Campaign Server and any other data sources to which you are connected are available from the **Target Data Source** drop-down list.
Candidate Fields	List of fields available to extract, including field name and data type, based on your input data source. If your input source is a landing page in eMessage, each field name is an attribute of the landing page. If the attribute contains special characters or spaces, it is converted to a valid field name. Data types of all landing page attributes are listed as text. **Note:** Schema object names are limited to 30 characters. Restrict your attribute names to 30 characters or less to produce valid column names for extracted output.
Fields to Extract	Fields you selected to extract from the Candidate Fields list. The Output Name defaults to the field name in the Fields to Extract column.
Profile button	Opens the Profile Selected Field window, which calculates the values and distributions of records in the selected field. Active only when a field name is selected in the **Candidate Fields** list.
Derived Fields button	Opens the Create Derived Field window.
More button	Opens the Advanced Settings window, which includes the option to skip duplicate records and to specify howCampaign identifies duplicates.

Segment Process Configuration: General tab

The Segment Process Configuration General tab allows you to modify the **Process Name**, **Output Cell** names, or **Cell Codes**, or enter a **Note** about the process. For details about these options, see these topics:

- "Changing the cell name" on page 140
- "Resetting the cell name" on page 141
- "To copy and paste all cells in the grid" on page 141
- "Changing the cell code" on page 142

New Segment and Edit Segment dialogs

The following table describes the controls on the **New Segment** and **Edit Segment** dialogs. These dialogs can be accessed from the Segment Configuration dialog.

Note: The **New Segment** dialog can be accessed only when you are segmenting by query. When you segment by field, only the **Name** and **Max. Size** fields can be accessed on the **Edit Segment** dialog.

Table 11. New Segment and Edit Segment dialog controls

Control	Description
Name	Name of the segment.

Table 11. New Segment and Edit Segment dialog controls (continued)

Control	Description
Max. Size	Maximum number of records allowed in the segment.
Select Based On	Specifies a data source on which to base your query.
Select all records	Includes all the IDs from the data source in the Input drop-down list.
Select all records with	Provides access to the functions for creating a query to select only certain IDs based on criteria you define.
Advanced button	Opens the Advanced tab, which provides the following options: • Use Raw SQL: Use a raw SQL query to segment data. • Use Query Scope from Input Cell: Available only if a source cell to this Segment process uses a query. Select the check box to have the source cell's query combined (using "AND") with the current selection criteria.
Derived Fields button	Opens the Create Derived Field window.
Query text box and buttons	For information about using the query text box and related fields and buttons, see "Creating queries in processes" on page 51.

Sample

Use the Sample process to create one or more cells for different treatments, control groups, or a subset of data for modeling. A wide variety of configurations is available for sampling.

To configure a Sample process

1. In a flowchart in **Edit** mode, connect at least one configured process (such as a Select process) to the Sample process box.
2. Double-click the Sample process in the flowchart.

   The process configuration dialog appears.
3. Use the **Input** drop-down list to select the cells that you want to sample. The list includes all output cells from any process connected to the Sample process. To use more than one source cell, select the **Multiple Cells** option. If more than one source cell is selected, the *same* sampling is performed on *each* source cell.

   Note: All selected cells must be defined at the same audience level.
4. Use the **# of Samples/Output Cells** field to specify how many samples to create for each input cell. By default, three samples are created for each input cell, with default names Sample1, Sample2 and Sample3.
5. To change the default sample names, double-click a sample in the **Output Name** column, then type a new name. You can use any combination of letters, numbers, and spaces. Do not use periods (.) or slashes (/ or \).

   Important: If you change the name of a sample, you must update all subsequent processes that use this sample as an input cell. Changing a sample name might unconfigure subsequent connected processes. In general, you should edit the names of samples before connecting subsequent processes.

6. Define the sample size using one of the following methods. You can define the sample size either by percentage or number of records:
   - To define the sample size by percentages: Select **Specify Size By %**, then double-click the **Size** field to indicate the percentage of records to use for each sample. Use the **Max Size** field if you want to limit the size of the sample. The default is **Unlimited**. Repeat for each sample listed in the Output Name column, or use the **All Remaining** check box to assign all remaining records to that sample. You can select **All Remaining** for only one output cell.
   - To specify the number of records for each sample size: Select **Specify Size By # Records**, then double-click the **Max Size** field to specify the maximum number of records to allocate to the first sample group. Specify the **Max Size** for the next sample in the Output Name column or use the **All Remaining** check box to assign all remaining records to that sample. You can select **All Remaining** for only one output cell.
7. Ensure that each sample in the **Output Name** list has a Size defined or has **All Remaining** checked.
8. (Optional) Click **Sample Size Calculator** to use the calculator to help you understand the statistical significance of sample sizes in evaluating campaign results. You can specify a level of accuracy by entering an error bound and computing the sample size needed, or you can enter a sample size and compute the error bound that will result. Results are reported at the 95% confidence level.
9. In the **Sampling Method** section, specify how to build the samples:
   - **Random Sample**: Use this option to create statistically valid control groups or test sets. This option randomly assigns records to sample groups using a random number generator based on the specified seed. Seeds are explained later in these steps.
   - **Every Other X**: This option puts the first record into the first sample, the second record into the second sample, up to the number of samples specified. This process repeats, until all records have been allocated to a sample group. To use this option, you must specify the **Ordered By** options to determine how records are sorted into groups. The **Ordered By** options are explained later in these steps.
   - **Sequential Portions**: This option allocates the first *N* records into the first sample, the next set of records in the second sample, and so on. This option is useful for creating groups based on the top decile (or some other size) based on some sorted field (for example, cumulative purchases or model scores). To use this option, you must specify the **Ordered By** options to determine how records are sorted into groups. The **Ordered By** options are explained later in these steps.
10. If you selected **Random Sample**, in most cases you can simply accept the default seed.

    In rare cases, you may want to click **Pick** to randomly generate a new seed value, or enter a numeric value in the **Seed** field. Examples of when you might need to use a new seed value are:
    - You have exactly the same number of records in the same sequence and if you use the same seed value, records are created into the same samples each time.
    - You find that the random sample produces undesired results (for example, all males are being allocated to one group and all females to another).

11. If you selected **Every Other X** or **Sequential Portions**, you must specify how records will be sorted. The sort order determines how records will be allocated to sample groups:
    a. Select an **Ordered By** field from the drop-down list or use a derived field by clicking **Derived Fields**.
    b. Select **Ascending** to sort numeric fields in increasing order (low to high) and sort alphabetic fields in alphabetical order. If you choose **Descending**, the sort order is reversed.
12. Click the **General** tab if you want to modify the default **Process Name** and **Output Cell Names**. By default, output cell names consist of the process name followed by the sample name and a digit. You can accept the default**Cell Codes** or uncheck the **Auto Generate Cell Code** box and assign codes manually. Enter a **Note** to clearly describe the purpose of the Sample process.
13. Click **OK**.

The process is configured and enabled in the flowchart. You can test run the process to verify that it returns the results you expect.

About the sample size calculator

Campaign provides a sample size calculator to help you understand the statistical significance of sample sizes in evaluating campaign results. You can specify the level of accuracy you want by entering an error bound and computing the sample size needed, or you can enter a sample size and compute the error bound that will result. Results are reported at the 95% confidence level.

To use the sample size calculator

1. On the **Sample** tab of the Sample process configuration dialog, click **Sample Size Calculator**.

   The Sample Size Calculator window appears.
2. Under **Response Rate Estimate**, enter your estimates of the minimum and maximum response rates expected from your marketing campaign.

   These two values must be percentages between 0–100. The lower the expected response rate, the larger the sample size must be to achieve the same level of accuracy.
3. Under **Modeling Estimate**, provide modeling estimate information.
   - If you are not using a model, select **No Model**.
   - If you are using a model, select **Model Performance**, then enter the appropriate model performance percentage. This represents the area under the lift curve and is reported in the **Model Performance** report.
4. To compute the required sample size for a specific error bound:
   a. In the **Error Bound (+ or -)** field, enter a value 0 - 100 for the acceptable error bound.
   b. Click **Compute Sample Size**. The minimum sample size required to achieve the specified error bound is displayed in the Min. Sample Size text box.
5. To compute the error bound expected with a particular sample size:
   a. Enter the sample size in the **Min. Sample Size** text box.
   b. Click **Compute Error Bound**.

      The error bound is displayed in the **Error Bound (+ or -)** text box.
6. When you are finished, click Done.

   The Sample Size Calculator window closes.

Note: You can copy and paste the calculated sample size to use in the Sample process configuration dialog.

Audience

Audience levels define the target entity with which you want to work, such as account, customer, household, product, or business division, and are defined during the table mapping process by your system administrators.

Use the Audience process in a flowchart to switch between audience levels, or to filter out IDs by audience level. Using this process, you can select all, some, or a single entity at one level in relation to another level.

For example, you can use the Audience process to:

- Select one customer per household based on some business rule (for example, oldest male or the person with the highest account balance);
- Select all accounts belonging to a particular set of customers;
- Select all accounts with a negative balance belonging to a particular set of customers;
- Select all households with individuals holding checking accounts;
- Select customers with three or more purchases within a specified time-frame.

Note: The Audience process can select from any defined table(s), so you can also use it as a top-level process in your flowchart to initially select data.

Audience levels

Audience levels are defined by Campaign administrators to represent different potential targets of campaigns, such as account, customer, household, product, or business division. Audience levels are often, but not always, organized hierarchically. Here are some examples of hierarchical audience levels that are commonly found in customer marketing databases:

- Household > Customer > Account
- Company > Division > Customer > Product

Your organization can define and use an unlimited number of audience levels. If you are using multiple audience levels (for example, customer and household), it is important to understand how to use the Audience process to best accomplish your business objectives.

Audience levels are created and maintained by a Campaign administrator. Moving from one audience level to another requires that all of the audience levels that you use have keys defined within the same table. This provides a “look up” mechanism to switch from one level to another.

Audience levels are global, and are attached to each mapped base table. Thus, when a flowchart is loaded, the audience levels are loaded along with the table mappings within that flowchart.

If you have permissions to map tables in Campaign, you can map a new table to one or more existing audience levels, but you cannot create new audience levels. Only users with the appropriate permissions, usually system administrators, can create audience levels.

In the Audience process, you specify an input audience level and an output audience level. The input and output audience levels can be the same (for example, Customer) or different (for example, Customer and Household). Use the Audience process to stay within the same audience level, or to switch audience levels.

Householding

"Householding" is as a general term to describe reducing the number of members in the current audience level by scoping using another audience level. One of the most common examples of householding is to identify a single individual to target within each household. You might select one individual per household according to a marketing business rule such as:

- The individual with the greatest dollar value across all accounts;
- The individual with the most purchases in a particular product category;
- The individual with the greatest tenure; or
- The youngest male over 18 within the household.

You can use the Audience process to change audience levels and filter IDs according to user-specified criteria.

Switching levels

Some complex campaigns require processing at different audience levels to arrive at the list of final target entities. This can involve starting at one audience level, performing some computations and taking this output, then moving to another audience level, and performing other computations.

For example, you might want to support complex suppressions at different levels. As a result, in a data model where there is a one-to-many or many-to-many relationship between customers and accounts, a marketing analyst might want to build a campaign that does the following:

- Eliminates all accounts of customers that satisfy certain criteria (for example, eliminate any account that is in default);
- Eliminates particular accounts that satisfy certain criteria (for example, eliminate all the low-profitability accounts).

In this example, the campaign might start at the customer level, perform customer-level suppressions (suppress accounts in default), switch to the account level, apply account-level suppressions (suppress low-profitability accounts), and then switch back to the customer level to obtain the final contact information.

Configuring the audience process

To use the Audience process, you must work with tables for which multiple audience levels are defined. These levels, defined within a single table, provide a relationship to "translate" from one level to another.

- One key is defined as the "primary" or "default" key for the table. (This default key represents the audience used most frequently for this data source.)
- The other keys are "alternate" keys that are available for switching audience levels.

Once you switch audience levels, Campaign displays only those tables whose default key is defined at the same audience level. If you work at different audience levels on a regular basis, you might need to map the same table more than once within Campaign, each time with a different primary/default key. The default level

associated with a table is specified during the table mapping process. For more information about mapping tables, see the Campaign Administrator's Guide .

The options available in the Audience process configuration dialog depend on various choices that you can make:

- Whether the input and output audience levels are the same or different;
- Whether the audience level values are normalized in these tables;
- Whether there are multiple audience levels defined for the selected tables.

For this reason, not all of the options described in the following sections are available for all pairs of input and output table selections.

To configure an Audience process

1. Within a campaign, open a flowchart for editing.
2. Drag the Audience process from the palette to your flowchart.

   The Audience process can select from any defined tables, so you can use it as a top-level process in your flowchart to initially select data. You can also connect one or more configured processes (such as a Select or Merge process) as input to the Audience process.
3. Double-click the Audience process in the flowchart.
4. On the Source tab, open the **Input** list and specify the data source for the process. If processes are connected to the Audience process, their output cells are listed, so you can select them as input. You can also select a Segment or Table.

   The audience level corresponding to the selected input is now displayed next to the **Input** field. If there is no input, the audience level is shown as "not selected."

   Notice that the **Select** options also indicate the input audience level. For example, if the audience level is customer, you can select **One Entry per Customer**.
5. Select the output audience from the **Choose Audience** list. The list displays audience levels defined for tables that contain keys which are defined at the same audience level as the input data source. If a table has more than one audience level, each level is available as an entry in the **Choose Audience** list.

   Note: If you do not see the expected audience level, you can try remapping a table.

   The **Select** options now reflect both the input and the output audience levels.

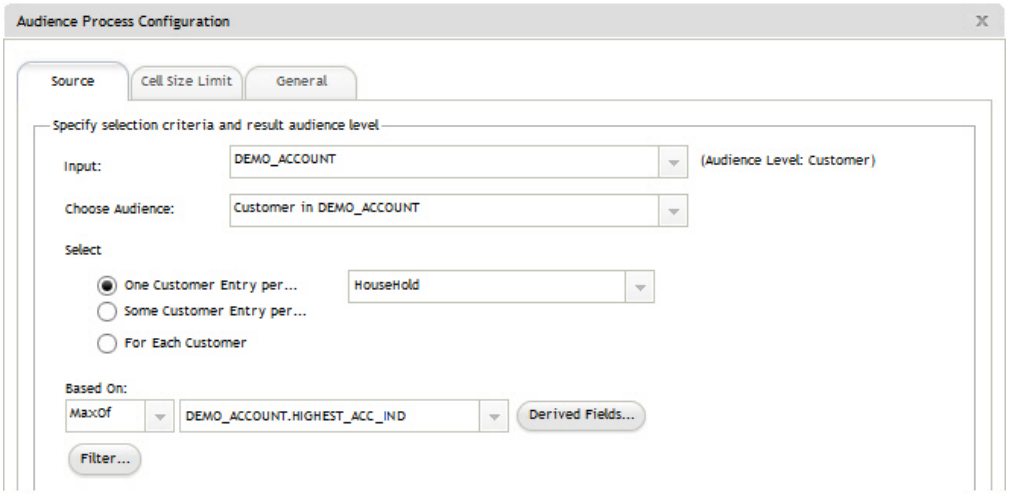
   For example, if your input has an audience level of Household and you choose an output audience level of Individual, the **Select** options are labeled: **All Individual ID Entries**, **Some Individual ID Entries**, **One Individual ID Entry per Household ID**. You can now specify how IDs are selected while you switch from one audience level to another.
6. Use the **Select** and **Filter** options to specify how you want the records to be selected. The available options depend on whether you are selecting All IDs (in which case filtering is not allowed), switching levels, or staying at the same level. For details on how to select and filter based on whether you are switching audience levels, see:
   - Using the same input and output audience levels
   - Using different input and output audience levels
7. Use the **Cell Size Limit** tab if you want to limit the number of IDs generated by the process.

8. Use the **General** tab as follows.
   a. **Process Name**: Assign a descriptive name. The process name is used as the box label on the flowchart. It is also used in various dialogs and reports to identify the process.
   b. **Output Cell Name**: This name matches the Process Name by default. It is used in various dialogs and reports to identify the output cell (the set of IDs that the process produces).
   c. (Optional) If you click **Link to Target Cell** and you see a list of target cells (defined in the Target Cell Spreadsheet for the current campaign), you can select one. The cell name from the TCS now displays in the Output Cell Name field. See "About the target cell spreadsheet" on page 146. Also see "To link flowchart cells to target cells using the process configuration dialog" on page 144.
   d. **Cell Code**: The cell code has a standard format that is determined by your system administrator and is unique when generated See "Changing the cell code" on page 142.
   e. **Note**: Describe the purpose or result of the process (for example, "This box contacts one individual per household").
9. Click **OK**.

   The process is now configured. You can test run the process to verify that it returns the results you expect.

Example: Audience process

The following figure shows a configured Audience process.



- The selected input audience level is **Customer**; it is the default audience level of the `DEMO_ACCOUNT` table (this audience level is displayed to the right of the **Input** field).
- The output audience level is the same: **Customer** as defined in the `DEMO_ACCOUNT` table. The `DEMO_ACCOUNT` table has two other audience levels defined: `Branch` and `HouseHold` .
- The process is configured to choose one **Customer Entry per HouseHold** based on the maximum of the field `HIGHEST_ACC_IND`.

Example: Filtering records

When you configure an Audience process to select IDs based on a count, or a statistical function (**MaxOf** , **MedianOf** , **MinOf**) or **Any One** , the **Filter** button becomes available. When you click **Filter** , the Specify Selection Criteria window appears, which allows you to enter a query expression to specify which records will be used in the **Based On** calculation.

Note: The filtering criteria is applied before the Based On calculation is performed, allowing you to remove records from consideration.

For example, you might want to constrain the date range over which an operation is performed. To use only purchase transactions over the last year, you can enter a filter query expression such as:

```
CURRENT_JULIAN() - DATE(PURCH_DATE) <= 365
```

Then, if you are computing a **Based On** calculation that chooses the sum of the **Amount** field, only the amounts from transactions within the last year are summed together.

Using the same input and output audience levels

When the same audience level is selected in the **Choose Audience** list and the **Input** list, you can use the **Select** options to perform the following operations:

- "To select one <Input/Output Audience> entry per <Different Audience>" on page 81
- "To select some <Audience> records per <Different Audience>" on page 82
- "To select entries for each entry at that audience level" on page 82

The **Select** options vary depending on the relationship of the selected input and output audience levels. Options that are not meaningful are disabled.

Note: Campaign includes the name of the selected audience level in the **Select** option labels. For example, if the input audience level is Customer, the **One Entry per** option appears as **One Customer Entry per**. In the following sections, this dynamically changing portion of the option text is indicated with <Input/Output Audience> where appropriate.

The **Select** options include:

Table 12. The Select options for Audience process configuration

Method	Description	Example
One Per	One member of the input/output audience level, scoped by another audience level	One customer per household
Some Per	Some members of the input/output audience level, scoped by another audience level	All customers with above average purchases within the household
For Each	Select members if the number of members at the selected audience level satisfies some condition	Number of accounts > 1, or number of purchases > 3

To select one <Input/Output Audience> entry per <Different Audience>

Choose this option if the input and output audience levels are the same, but a different audience level is used to scope the output. For example, you can select the one customer within each household who has the oldest account. (Input audience level is customer, output audience level is customer, scoping by Household level, using `MinOf(BaseInfo.AcctStartDt)` to select.)

Specify a business rule to indicate how the single entity is selected (for example, the minimum, maximum, or median of some field), or else choose **Any One** (in this case, no field choices are available).

1. Select an input source for **Input** and the same audience level for the output audience in the Audience process.

   The relevant **Select** options become available.

2. Select the **One Entry per** option.

   A drop-down list appears next to the selected option.

3. Select an audience level from the drop-down list.

   All alternate defined audience levels (other than the input audience) appear in the list.

4. Choose a value to use from the **Based On** drop-down list:
   - **Any One** eliminates the need to pick a **Based On** value
   - **MaxOf** returns the maximum value of the selected field
   - **MedianOf** returns the median value of the selected field
   - **MinOf** returns the minimum value of the selected field

   Each of these functions will return exactly one member from the input audience level. If more than one entry is tied at the maximum, minimum, or median value, the first encountered entry is returned.

5. If you selected a **Based On** criterion other than **Any One,** select a field on which the function operates. This drop-down list includes all the fields from the table selected in the **Choose Audience** field, and any mapped dimension tables. Expand a table by clicking the " **+** " sign. Created derived fields are listed at the bottom.

   For example, to select the account holder from each household with the highest account balance, you would select "**MaxOf**" for the **Based On** criteria and `Acct_Balance` from the list of table fields.

   You can also create or select derived fields by clicking **Derived Fields**.

6. (Optional) If you selected a count to be based on, the **Filter** button becomes available.

   Use the **Filter** function to reduce the number the IDs that will be available to the **Based On** calculation. For example, you might want to select customers based on their average account balance in the last 6 months, but prior to doing that, you would want to filter out all customers whose accounts are inactive.

   To filter records before performing the **Based On** computation, click **Filter** . The Specify Selection Criteria window appears. You can enter a query expression to specify which records will be used in the **Based On** calculation. The filtering criteria is applied before performing the **Based On** calculation, thereby allowing you to remove records from consideration.

7. Click **OK** to save your query and close the Specify Selection Criteria window.
8. Continue configuring the process by completing the fields on the remaining tabs.

To select some <Audience> records per <Different Audience>

This selection indicates that there are multiple entries per audience. In this situation, the input and output audience levels are the same, but a different audience level is used to scope the output. You might select this option, for example, to select all customers within each household who have made purchases over $100 (Input audience level is customer, output audience level is customer, scoping by Household level, using `Maximum Purchase Value>$100`.

In addition to creating a query, the Based On criterion also supports keywords allowing the functional equivalent of a GROUPBY macro function to be performed.

1. Select an input source for Input and the same audience level for the output audience in the Audience process. The relevant Select options become available.
2. Select the Some Entries per... option. A drop-down list appears next to the selected option.
3. Select an audience level from the drop-down list. All alternate defined audience levels (other than the input audience) appear in the list.
4. Click in the Based On field to enter a query. The Specify Selection Criteria window opens.
5. Enter or build a valid query expression, then click OK to save it and close the Specify Selection Criteria window.
6. Continue configuring the process by completing the fields on the remaining tabs.

To select entries for each entry at that audience level

This selection indicates that there are multiple selections from multiple audience levels. Select this option if the number of members at the selected audience levels satisfies some condition (for example, `Number of Accounts > 1` or `Number of Purchases > 3`).

Note: This option is available only if the input audience level is not normalized (that is, the record ID is not unique in the selected Choose Level table), and the input and output levels are the same. It is the only option available if no alternate keys have been defined for your output audience table.

1. Select an input source for **Input**and the same audience level for the output audience in the Audience process.

   The relevant **Select** options become available.
2. Select the **For Each** option.

   Note: This option is available only if the input audience level is not normalized (that is, the record ID is not unique in the selected Choose Level table).

   A drop-down list appears next to the selected option.
3. Choose a **Based On** selection.

   If the table you select under **Choose Audience** (that is, the output audience) is not normalized, there might be duplication in your results. You can use a **Based On** method for Campaign to use when selecting records, to avoid duplication. (For example, if your results might include more than one individual in the same household, you can use **Based On** to select only one individual from that household, based on the criterion you configure in this feature.)

   You must select one of the **Based On** methods, either **Count** or **Condition**:

   - Specify a **Count** to use in **Based On**:

This option lets you select the <Input Audience Level> ID, where the number of occurrences of the <Input Audience Level> ID satisfies the specified condition.

To toggle between different relationships (<,<=,>,>=,=), click the operator button repeatedly until the desired relation is displayed.

-- OR --

- Specify a **Condition** to use in **Based On**:

Click in the text box to the right of **Condition**.

The Specify Selection Criteria window appears.

Enter or build a valid query expression, then click **OK** to save your entry and close the Specify Selection Criteria window.

4. (Optional) If you selected a count to be based on, **Filter** becomes available.

   Use the **Filter** function to reduce the number the IDs that will be available to the **Based On** calculation. For example, you might want to select customer IDs based on their average account balance in the last six months, but before doing that, you would want to filter out all customers whose accounts are inactive.

   To filter records before performing the **Based On** computation, click **Filter**. The Specify Selection Criteria window appears. You can enter a query expression to specify which records will be used in the **Based On** calculation. The filtering criteria is applied before performing the **Based On** calculation, allowing you to remove records from consideration.

5. Click **OK** to save your query and close the Specify Selection Criteria window.
6. Continue configuring the process by completing the fields on the remaining tabs.

Using different input and output audience levels

If you selected different input and output audiences for the **Choose Audience** list and the **Input** list, you can use the **Select** options to perform the following operations:

- "To select all <Output Audience Level> entries" on page 84
- "To select some <Different Output Audience Level> entries" on page 84
- "To select one <Output Audience> per <Different Input Audience>" on page 84

Note: Campaign includes the name of the selected audience level in the **Select** option labels. For example, if the input audience level is Customer, the **One Entry per** option appears as **One Customer Entry per**. In the following sections, this dynamically changing portion of the option text is indicated with <Input/Output Audience> where appropriate.

The **Select** options include:

Table 13. The Select options for Audience process configuration (different input and output)

Method	Description	Example
All	Select all members of the input audience level, scoped by another audience level	All customers per household
Some	Select some members of the output audience level, keeping only those IDs that satisfy a specified condition	All customers aged 18 or over within a household
One Per	Select exactly one output audience record for each input audience record	One customer per household

To select all <Output Audience Level> entries

Select this option to switch to the output audience level without performing any filtering (for example, to select all customers in a household or all accounts belonging to a customer). This creates an output cell with all output audience level entries associated with the input IDs. It switches audience levels without applying any selection or filtering criteria.

If you change from a primary audience level to another audience level, you will no longer be able to use derived fields in the following processes.

1. Select an input source for **Input** and a different output audience for **Choose Audience**.

   The **Select** options become available.
2. Select **All <Output Audience Level> Entries**.
3. Click **OK** to close the Audience process configuration dialog and save the configuration.

To select some <Different Output Audience Level> entries

Select this option to switch from the input audience level to a different output audience level, keeping only those IDs that satisfy a specified condition. For example, you could select all customers aged 18 or over within a household, or select all accounts of a customer with positive balances.

The **Based On** criteria allows you to enter a query expression to limit the output audience level entries selected.

1. Select an input source for **Input** and a different output audience for **Choose Audience**.

   The **Select** options become available.
2. Click to select **Some <Output Audience Level> Entries**.

   The **Based On** field becomes available.
3. Click in the **Based On** field to enter a query.

   The Specify Selection Criteria window appears.
4. Enter or build a valid query expression, then click **OK** to save the query and close the Specify Selection Criteria window.
5. Click **OK** to close the Audience process configuration dialog, saving your entries.

To select one <Output Audience> per <Different Input Audience>

Select this option to choose exactly one output audience record for each input audience record (for example, to choose one email address per customer). You must specify a business rule to indicate how the single entity should be selected (min/max/median of some field) or choose **Any One** (in this case, no field choices are available).

This option is available only if the input audience level is not normalized (that is, the record ID is not unique in the selected **Choose Level** table).

In addition to creating a query, the **Based On**criterion also supports keywords allowing the functional equivalent of a `GROUPBY` macro function to be performed.

1. Select an input source for **Input** and an output audience for the Audience process.

   The **Select** options become available.
2. Select **One <Output Audience Level> per <Input Audience Level>**.

3. Select a value from the **Based On** drop-down list.

   (Field selection, using the drop-down list to the right, becomes inactive when you select **Any One**. If this is your selection, skip to step 5.)

4. Select a field in the next drop-down list to which the **Based On** function relates:

   a. Click in the **Based On** text box.

      The Select Field window appears. All fields from the table selected in the **Choose Audience** drop-down list appear, including any mapped dimension tables.

      You can expand a table by clicking the "+" sign. Created derived fields are listed at the bottom.

   b. Select a field and click **OK**.

   c. (Optional) Create derived fields by clicking **Derived Fields**.

5. (Optional) To filter records before performing the **Based On** computation, use **Filter**.

6. Click **OK** to close the Audience process configuration dialog, saving your entries.

Extract

The Extract process allows you to select fields from one table and write them out to another table for subsequent processing. It is designed to pare down a large amount of data to a manageable size for subsequent operations, resulting in vast improvements in performance.

The Extract process can take input from a cell (if it is connected to a **Select** process, for example), single table, strategic segment, optimized list (Contact Optimization only), or eMessage landing page (eMessage only). If you select a strategic segment as input, you must join it to a table before you can extract fields.

If you use several Extract processes in a series, only the fields in the final Extract process are written out.

If you use several Extract processes in parallel (that is, in different branches in the same flowchart), they behave in the same way as persistent derived fields:

- The extracted fields attach to the inbound cell
- The extracted fields are calculated before query execution in that process
- Multiple extracted fields are available in subsequent processes
- When extracted fields are sent to a contact process:
  - If an extracted field is not defined for a cell, its value = NULL
  - If a single ID is in more than one cell, one row is output for each cell
- When extracted fields are sent to a Segment or Decision process, an extracted field must exist in all selected input cells for it to be used in segmenting by query.

Extracted tables

Data is extracted as either a binary file on the Campaign server or as a table in a data mart with a **UAC_EX** prefix.

Unlike a temp table, an extracted table is *not* deleted at the end of a flowchart run. It needs to persist so that users can continue to access it in order to perform operations on it, like profiling its fields, for example.

An extracted table is only deleted when you delete its associated Extract process, flowchart, campaign, or session.

Note: In order to conserve space in the data mart, your system administrator can periodically delete tables with a **UAC_EX** prefix. Note, however, that if these tables are removed, before rerunning their flowcharts or attempting to profile fields in the now-missing tables, users must first rerun their affected Extract processes. Otherwise, Campaign generates "Table Not Found" errors.

Example: Extracting transaction data

Assume that you have designed a campaign to perform selections or calculations based on the last three months of purchase transactions for all non-delinquent customers (approximately 90% of your customer base), resulting in 4 Gb of data.

Even if Campaign created a temporary table for these customers, joining it back to the purchase transaction table would entail pulling over approximately 90% of the 4 Gb rows (and discarding all transactions except for the last three months) to execute a `GROUPBY` macro, for example.

Instead, you can configure an Extract process (placed at the purchase transaction level) to pull out all transactions within the last three months, put them into a table in the database, and then subsequently run multiple `GROUPBY` macros and other calculations against it (for example, min/max and average).

Prerequisites for extracting data from eMessage landing pages

The following prerequisites must be met before you can configure an Extract process to accept input from eMessage landing pages:

- eMessage must be installed, running, and enabled.
- eMessage landing pages must be appropriately configured.
- The mailing must be executed and responses from mailing recipients must be received.

For more information about eMessage landing pages, see the *eMessage User's Guide*.

Configuring an Extract process

The procedure for configuring the Extract process differs depending upon which of the following input sources you choose:

- "To extract data from a cell, single table, or strategic segment"
- "To extract data from an eMessage landing page" on page 88
- Optimized list (see the *Contact Optimization User's Guide*)

To extract data from a cell, single table, or strategic segment

1. Within a campaign, open a flowchart for editing.
2. Drag the Extract process from the palette to your flowchart.
3. Double-click the Extract process box in the flowchart.

   The process configuration dialog opens.

4. On the **Source** tab, select an input cell, a single table, or a strategic segment from the **Input** list. If you select a strategic segment, associate it with a table by selecting a table from the **Select Based On** list.
5. Specify the records to use as input:
   - Choose **Select All Records** to include all records from the input data source.
   - Choose **Select Records With** to select records by doing a query.
6. If you chose **Select Records With**, create a query by using one of the following methods.

   Note: For complete instructions, see "Creating queries in processes" on page 51.
   - **Point & Click**: Click in the **Field Name**, **Oper.**, and **Value** cells to select values to build an expression. Use **And/Or** to combine expressions. This method provides the easiest way to create a query and helps to avoid syntax errors.
   - **Text Builder**: Use this tool to write raw SQL or use the provided macros. You can use the **Formula Helper** within Text Builder to select supplied macros, including logical operators and string functions.

   With either method, you can select fields from the Available Fields list, which includes IBM Campaign Generated Fields and Derived Fields.

   Note: If your query includes a table field that has the same name as a Campaign Generated Field, you must qualify the field name. Use the following syntax: `<table_name>.<field_name>`
7. On the **Extract** tab, use the **Target Data Source** field to select an output location:
   - To store the data in binary format, select **IBM Campaign Server**.
   - To store the data in a uniquely named table with a `UAC_EX` prefix, select an available database.
8. On the **Extract** tab, select fields from the list of **Candidate Fields**and add them to the **Fields to Extract** list. Use the controls to remove or reorder fields. For information about using the Extract tab, see "Extract tab reference" on page 89.
9. Optionally, use the **Cell Size Limit** tab to limit the number of IDs generated by the process. See "Limiting the size of output cells" on page 137.
10. Optionally, use the **Dimension** tab to add existing dimension tables to the extract table and specify the key fields to join on. The extract table becomes a base table for the selected dimension tables and can be used in downstream processes.
11. Use the **General** tab as follows.
    a. **Process Name**: Assign a descriptive name. The process name is used as the box label on the flowchart. It is also used in various dialogs and reports to identify the process.
    b. **Output Cell Name**: This name matches the Process Name by default. It is used in various dialogs and reports to identify the output cell (the set of IDs that the process retrieves).

       (Optional) If you click **Link to Target Cell** and you see a list of target cells (defined in the Target Cell Spreadsheet for the current campaign), you can select one. The cell name from the TCS now displays in the Output Cell Name field.

See “About the target cell spreadsheet” on page 146. Also see “To link flowchart cells to target cells using the process configuration dialog” on page 144.

c. **Cell Code**: The cell code has a standard format that is determined by your system administrator and is unique when generated See “Changing the cell code” on page 142.

d. **Note**: Describe the purpose or result of the process. Common practice is to reference the selection criteria.

12. Click **OK**.

The process is now configured. You can test run the process to verify that it returns the results you expect.

To extract data from an eMessage landing page

Ensure that your IBM environment meets the requirements before attempting to extract eMessage landing page data. For more information, see “Prerequisites for extracting data from eMessage landing pages” on page 86.

1. In a flowchart in **Edit** mode, double-click the Extract process in the flowchart workspace.

   The process configuration dialog appears.

2. On the **Source** tab, select **eMessage Landing Pages**.
3. In the popup window, select an eMessage landing page as input.

   Note: You can select only one eMessage landing page as input to an Extract process. To extract data from more than one landing page, configure multiple Extract processes.

4. If there is more than one audience level available for the landing page, select the appropriate audience level from the drop-down list. If there is only one audience level available, it is automatically selected.
5. Click **OK**.
6. On the **Extract** tab, select an output location.
   - To store the data in binary format, select **IBM Campaign Server**.
   - To store the data in a uniquely named table with a `UAC_EX` prefix, select an available database.
7. Select fields to extract from the list of **Candidate Fields**.
   - Click **Add** to add selected fields to the list of **Fields to Extract**.
   - To remove fields from the list of **Fields to Extract**, select them and click **Remove**.
   - Use the **Up 1** and **Down 1** buttons to change the order of fields in the **Fields to Extract** list.
   - To change the default output name of a field to extract, select the field in the **Fields to Extract** list, click the name in the **Output Name** column, then enter the new name.

   For information about the fields on the Extract tab, see “Extract tab reference” on page 89.

8. Perform any of the following optional tasks:
   - Add a derived field to the list of candidate fields. See “About derived fields” on page 171
   - Specify that duplicate IDs are excluded from the output. See “Skipping duplicate IDs in process output” on page 59.

- Limit the size of the output cell (that is, limit the number of IDs generated by the process). See "Limiting the size of output cells" on page 137.
- Click the **General** tab to modify the **Process Name**, **Output Cell** names, or **Cell Codes**, link to a target cell, or enter a **Note** about the process.

  For information about linking to target cells, see "To link flowchart cells to target cells using the process configuration dialog" on page 144.

Note: Profiling is not available for eMessage landing page attributes.

9. Click **OK**.

The process is configured. You can test the process to verify that it returns the results you expect.

Note: During the extraction process, Campaign creates an intermediate view in the system tables database with a `UCC_LPV` prefix. This internal view remains in the database until the process box is deleted. If you remove the view, you must reconfigure its corresponding Extract process before rerunning the process or flowchart; otherwise, Campaign generates a missing table error.

Extract tab reference

The following table describes the fields on the Extract tab of the Extract Process Configuration dialog.

Table 14. Fields on the Extract tab

Field	Description
Target Data Source	Location to which the output from this process will be written. The Campaign Server and any other data sources to which you are connected are available from the Target Data Source drop-down list.
Candidate Fields	List of fields available to extract, including field name and data type, based on your input data source. To see the list of fields, you may need to click the arrow next to an item to expand the item. If your input source is a landing page in eMessage, each field name is an attribute of the landing page. If the attribute contains special characters or spaces, it is converted to a valid field name. Data types of all landing page attributes are listed as text. **Note:** Schema object names are limited to 30 characters. Restrict your attribute names to 30 characters or less to produce valid column names for extracted output.
Fields to Output	Fields that you chose to extract from the Candidate Fields list. The Output Name defaults to the field name in the Fields to Extract column.
Profile button	Click **Profile** to preview a list of values in the selected candidate field. See "Profiling fields" on page 47.
Derived Fields button	Click **Derived Fields** to create a variable in the list of candidate fields. See "About derived fields" on page 171.
More button	Click **More** to open the Advanced Settings dialog. This dialog includes the option to exclude duplicate IDs from the output and specify how Campaign identifies duplicates. See "Skipping duplicate IDs in process output" on page 59.

Snapshot

Use the Snapshot process to capture a list of IDs and associated data, and export them to a table or a file.

To associate or track offers with the list, use a Mail List or Call List process. To make sure that duplicate rows are not exported, use an Extract process, then snapshot the results.

To configure a Snapshot process

1. Open a flowchart for editing.
2. Drag a Snapshot process box from the palette to the flowchart workspace.
3. Connect one or more processes to provide input to the Snapshot process.

   Note: All the cells that you select as input must have the same audience level.
4. Double-click the Snapshot process in the flowchart workspace.

   The process configuration dialog appears.
5. Click the Snapshot tab.
   a. Use the **Input** list to specify which cells to use as the data source for the snapshot.

      Note: If the Snapshot process is not connected to a process that provides output cells, there are no cells to select from in the **Input** list. The **Multiple Cells** option is only available if the input process generates multiple cells.
   b. Use the **Export To** list to specify a table or file to which the Snapshot output will be written.

      Note: You can test the Snapshot process by running the process with output exported to a temporary file that you can review.
      - If the table that you want to use does not appear in the list, or if you want to output to an unmapped table, select **Database Table**. Use the Specify Database table dialog to specify the table and database names. User variables are supported in the table name you specify here.
      - If you select **File** from the **Export To** list, you can specify the type of file you want to write the output to, the file name, and corresponding data dictionary.
      - If you want to create a new user table, select **New Mapped Table** from the **Export To** list. For instructions, see the *Campaign Administrator's Guide*.

   c. Select an option to specify how updates to the output file or table are handled:
      - **Append to Existing Data**. Add the new information to the end of the table or file. If you select this option for a delimited file, labels will not be exported as the first row. This is a best practice for database tables.
      - **Replace All Records**. Remove any existing data from the table or file, and replace it with the new information.
      - **Update Records**. Available only if you are exporting to a table. All fields specified for the snapshot are updated with the values from the current run of the process.

- **Create New File**. Available only if you are exporting to a file. This option is selected by default if you are exporting to a file. Each time you run the process, a new file is created with "_1," "_2" and so on, appended to the file name.

6. Specify which fields to snapshot.
   a. Use the **Candidate Fields** list to select the fields that you want to include in your output.

      You can use Campaign Generated Fields by expanding the list of Campaign Generated Fields, or use derived fields by clicking the **Derived Fields** button. Select multiple fields using **Ctrl+Click** or select a contiguous range of fields using **Shift+Click**.
   b. Move the selected fields to the **Fields to Snapshot** list by clicking **Add**.
   c. If you selected a table as the snapshot destination, the fields in that table appear in the **Export Fields** list under the **Table Field** column. You can automatically find matching fields by clicking **Match**. Fields with exact matches for the table field names are automatically added to the **Export Fields** list. If there are multiple matching fields, the first match is taken. You can manually modify the pairings by clicking **Remove** or **Add**.
   d. If desired, reorder the fields in the **Fields to Snapshot** list by selecting a field and clicking **Up1** or **Down1** to move it up or down in the list.

      Note: To view the values in a field, select the field and click **Profile**.
7. To specify that records with duplicate IDs are skipped or specify the order in which records are output, click **More**.

   You see the Advanced Settings window.
   a. To remove duplicate IDs within the same input cell, select **Skip Records with Duplicate IDs**. Then choose the criteria to determine which record to retain if duplicate IDs are found. For example, you can select MaxOf and Household_Income to specify that when duplicate IDs are found, Campaign exports only the ID with the highest household income.

      Note: This option only removes duplicates within the same input cell. Your snapshot data can still contain duplicate IDs if the same ID appears in multiple input cells. To remove all duplicate IDs, use a Merge or Segment process upstream of the Snapshot process to purge duplicate IDs or create mutually exclusive segments.
   b. To sort the snapshot output, select the **Order By** check box, then select the field to sort by and the sort order. For example, you can select **Last_Name** and **Ascending** to sort IDs by family name in ascending order.
8. Click **OK**.
9. (Optional) Click the **General** tab to assign a name and descriptive note to the process.

   The name appears on the process box in the flowchart. The note appears when you hover the mouse over the process box in the flowchart.
10. Click **OK**.

The process is now configured. You can test run the process to verify that it returns the results you expect.

Schedule

Note: Starting with the 8.0 release of IBM EMM, the IBM Scheduler is intended to replace the Campaign Schedule process for scheduling runs of an entire flowchart. The Scheduler starts a flowchart even if it is not running, while the Schedule process in a flowchart works only if the flowchart is running. Do not use the Scheduler to schedule a flowchart that uses the Schedule process as the top-level process that starts a flowchart run. Typically, only one or the other is necessary.

Use the Schedule process to initiate a process, series of processes, or an entire flowchart. A Schedule process is active for a defined period of time. During that time, specified events might occur that cause subsequent connected processes to begin running. The most common use of the Schedule process is to control timing of the entire flowchart.

You can configure a Schedule process to define the total scheduling period by setting up a time limit in days, hours, and minutes starting from when the process begins running.

Scheduling options are both fine-grained and flexible:

- You can schedule a process to run in a variety of ways, including repetitively, by trigger, by calendar, and so on.
- You can combine multiple scheduling options, such as scheduling the process to run every Monday at 9:00 a.m., but also to run whenever it is triggered by a specific event (such as a hit on the website).
- You can schedule a batch process, for example, to run late at night when it will not interfere with daytime jobs.

There are no predetermined limits on the number of options you can use simultaneously in scheduling a flowchart, providing that the selections do not conflict. (For example, you cannot schedule a flowchart to run both "Once Only" and "Every Monday.")

In general, a process runs only when all of its inputs have run successfully (that is, when all processes connected to the current process have run, even if the dependency is only temporal). However, when multiple schedule inputs exist within a branch, the process will run whenever any **one** of its inputs completes (an "OR" rather than an "AND" of its inputs).

A contact process with tracking enabled contains an inherent schedule. Using a Schedule process in the middle of a flowchart is an advanced feature. Make sure you are getting the desired behavior and correct results.

Note: If the Schedule process in your flowchart tells the flowchart to run before a previous run is complete, Campaign holds the request until the previous run is finished. Only one run can be held in this manner. In certain cases, this might mean that the flowchart does not run as many times as you expect.

For example, if your flowchart takes two hours to run, and you have a Schedule process that tries to trigger three runs that are only 10 minutes apart, Campaign will start the first run. When the Schedule process attempts to start the second run, Campaign will queue it. When the Schedule process attempts to start the third run, Campaign will ignore it. When the first run is finished, Campaign will start the second run. The third run will never start.

Difference between the Campaign Schedule process and IBM Scheduler

Starting with the 8.0 release of IBM EMM, the IBM Scheduler is intended to replace the Campaign Schedule process for scheduling runs of an entire flowchart. The IBM Scheduler is more efficient, as it does not consume any server system resources when the flowchart is not actually running. The IBM Scheduler starts a flowchart even if it is not running, while the Campaign Schedule process in a flowchart works only if the flowchart is running.

The Campaign Schedule process is preserved for full compatibility with earlier versions, and for other use cases not handled by the IBM Scheduler. For example, you might want to use the Campaign Schedule process to send Campaign triggers or to delay execution of dependent processes.

Do not use the IBM Scheduler to schedule a flowchart that uses the Campaign Schedule process as the top-level process that starts a flowchart run. Typically, only one or the other is necessary. However, if the Schedule process appears in a flowchart that is started by the IBM Scheduler, it functions as configured; conditions required by the IBM Scheduler and the Schedule process must be met before subsequent processes run.

Unlike the IBM Scheduler, the Campaign Schedule process can send external triggers to call command-line scripts. The IBM Scheduler can send triggers only to its own schedules.

To configure a Schedule process

1. In a flowchart in **Edit** mode, double-click the Schedule process in the flowchart workspace.

   The process configuration dialog appears.
2. On the Schedule tab, specify the scheduling conditions:
   a. Specify a value for **Total Schedule Period** by entering the appropriate values in the **Days**, **Hours**, and **Minutes** fields. The total schedule period is the total time over which the Schedule process is to be active. By default, the total schedule period is set to 30 days.
   b. Select a run frequency from the **Schedule to Run** drop-down list, to specify exactly when the Schedule process will activate subsequent connected processes.
      - If you select the **Once Only** option, the flowchart will run exactly once, regardless of what other schedule options have been added. If any other value is selected, then the scheduling options are connected as OR statements and the Schedule process kicks off any process to which it is connected when any option is satisfied.
      - The first option that is satisfied will begin the Schedule run. If **Schedule To Run** is the only option enabled and the setting is **Once Only**, the process runs immediately (unless a delay or user authorization has been enabled).
      - The **Hours** and **Minutes** fields enable you to specify the time at which you want the schedule to run. The time entry form is based on a 24 hour clock (also referred to as "military time"). In other words, 9 hours 30 minutes is 9:30 a.m., and 22 hours 45 minutes is 10:45 p.m. Because the time base is 24 hours, there is no need to designate a.m. or p.m.
3. If you select **Custom Run** from the **Schedule to Run** drop-down list, the **Custom Run** options become enabled. Specify whether the schedule runs at a

particular time or times, or based on inbound triggers, by selecting the **Run On Time** check box and/or the **Run On Trigger(s)** check box. For more details about triggers, see the *Campaign Administrator's Guide*.

Note: These choices are not mutually exclusive: you can choose to use triggers in conjunction with scheduled times.

- If you choose **Run On Time**, you must specify one or more dates and times. Multiple entries must be separated by commas. Click **Calendar** to access the Calendar feature for choosing dates and times.
- If you choose **Run On Trigger(s)** you must specify one or more triggers.

  The named trigger(s) must be defined using **Tools > Stored Triggers** for the Schedule process to be fully configured. Enter the name of each trigger that can activate this Schedule process. Separate multiple triggers with commas. The trigger name can contain any characters except commas. A trigger name does not have to be unique. You can use the same trigger in multiple campaigns or flowcharts and activate them all at the same time.

4. Specify any Delay and Authorization settings by selecting the **Wait for User Authorization Before Each Run** check box and/or the **Delay Period Before Each Run** check box.

   Note: These choices are not mutually exclusive: you can choose either or both.

   - If you choose **Wait for User Authorization Before Each Run**, a prompt for user authorization will appear each time any other schedule conditions are satisfied, and the Schedule process will not activate unless specific authorization is provided. If you specify this option, it takes precedence over any other schedule indicators; the process will not start unless authorization is given.

     Note: When a flowchart is running with a client attached, user authorization can only occur through the client. If no client is attached, any user with read/write privileges for the campaign can authorize it to continue.
   - If you choose **Delay Period Before Each Run,** you must specify the amount of time to wait after a schedule condition has been satisfied before the process runs, using the **Days**, **Hours**, and **Minutes** fields. This delay applies to all other specified schedule options. For example, if a Schedule process is configured to run at 9:00 a.m. on Monday morning with a delay of one hour, subsequent processes will begin to run at 10:00 a.m.
5. (Optional) Specify triggers to send after the Schedule run is completed by selecting the **Send Trigger(s) After Each Run** check box and specifying one or more triggers.

   If you select the **Send Trigger(s) After Each Run** check box, Campaign runs one or more triggers each time the Schedule process is activated. An outbound trigger executes a command line, which can be a batch file or a script file. The named trigger(s) must be defined using **Tools > Stored Triggers**. If you specify multiple trigger names, they must be separated by commas.
6. (Optional) Click the **General** tab to assign a name and/or notes to the process.

   The name appears on the process in the flowchart. The notes appear when you point to the process in the flowchart.
7. Click **OK**.

The process is configured and appears enabled in the flowchart. You can test the process to verify that it returns the results you expect.

Scheduling based on triggers

The Schedule process can work with triggers in the following ways:

- "Running on triggers"
- "Sending triggers after each run"
- "Using triggers with other scheduling options" on page 96

To configure a Schedule process to run on a trigger

1. On the Schedule tab of the Schedule process configuration dialog, select **Custom Run** from the **Schedule to Run** drop-down list.

   The **Custom Run** features become enabled.
2. In the **Run On Trigger(s)** field, enter the name of each trigger that can activate this Schedule process. Separate multiple triggers with commas.
   - The trigger name can contain any characters except commas.
   - A trigger name does not have to be unique. You can use the same trigger in multiple campaigns or flowcharts and activate them all at the same time.

Running on triggers

When you select **Custom Run** from the **Schedule to Run** drop-down list, the **Run On Trigger(s)** option is available. Enable this option to specify one or more inbound triggers that activate the Schedule process.

If you enable **Run on Trigger(s)**, you must specify one or more triggers. The named trigger(s) must be defined using **Tools > Stored Triggers** for the Schedule process to be fully configured.

An inbound trigger is an external event that will automatically set a flowchart or a campaign in motion. A trigger can be anything that you define; for example, clicking a website link, receiving an email message, a telemarketer's response indicator, completion of a database upload, or any other defined event.

The **Run On Trigger(s)** option uses the IBM application **unica_actrg** (included with your Campaign installation) to run. To understand how **Run On Trigger** works behind the scenes, it is helpful to look at an example.

Example: Run on Trigger

An online retailer has a cross-sell campaign that runs on a trigger, so that when a customer makes a purchase, it triggers cross-sell offers.

Specifically, when the customer makes a purchase:

- The website runs the unica_actrg executable, passing the campaign code and the trigger name (web_purchase).
- The Campaign listener checks that the campaign is active and the trigger name exists, then runs the Schedule process, and the campaign flowchart is triggered.

  For more details about triggers, see the *Campaign Administrator's Guide*.

Sending triggers after each run

An outbound trigger executes a command line, which can be a batch file or a script file. You can have Campaign run one or more triggers each time the Schedule process activates the trigger names in the **Send Trigger(s) After Each Run** field. If you specify multiple trigger names, they must be separated by commas.

This function allows you to send an outbound trigger to an executable file. The full path and the name of the file must be defined in the Stored Trigger Definitions window. Each time the Schedule process is activated, Campaign runs the specified executable file.

Using triggers with other scheduling options

Triggers can be used with any other scheduling options or alone. Used in combination, you can, for example, set up a flowchart to run every Monday at 9:00 a.m. as well as every time someone clicks on an internet banner advertisement.

If, for example, you have scheduled the flowchart to **Run On Trigger(s)** based on hits on a website, and you also specify a **Delay Period Before Each Run**, the flowchart will not begin until both the event (the Web "hit") occurs and the delay period has expired.

Cube

The Cube process supports the creation of data cubes from dimensions based on strategic segments that have been created from customer database tables.

Note: The Cube process is intended to be used by technical users or IBM consultants. A best practice is to create all global constructs (cubes and strategic segments, for example) in the **Sessions** area of the application.

Users can select one or more defined segments, create a cube, and then drill into the data to select a target audience which can then be converted into the appropriate processes (the Select process, for example) for inclusion in a flowchart.

To configure a Cube process

Any cubes created in the **Sessions** area will be available globally.

1. Before you can create a cube using a Cube process, you must create a strategic segment or dimension hierarchy.
2. In a session flowchart, select a Cube process and drag it onto the workspace.
3. Double-click the Cube process in the flowchart workspace.

   You see the process configuration dialog.
4. On the **Source** tab, use the **Input Segments** drop-down list to select one or more segments as input for the cube.

   Important: If you are selecting more than one source segment, ensure that they all have the same audience level.
5. Click the **Cube Definitions** tab to define your cube. The Cube Definitions window appears.

   From the Cube Definitions window you can:
   - Click **Add** to add a new cube
   - Select an existing cube and click **Edit** to modify it
   - Select an existing cube and click **Remove** to delete it
6. To add a cube:
   a. Click **Add**. The Edit Cube window appears.
   b. Enter a name and a description of the cube in the appropriate areas.
   c. Select up to three dimensions from the corresponding drop-down lists. The dimensions must be related to the strategic segments that the cube source is based on.

d. Click **OK** when you have finished entering information for the cube. The Edit Cube window closes and the new cube definition is displayed in the list of cubes on the **Cube Definitions** tab.

7. Click the **Select Additional Fields to Track** tab to specify additional fields for tracking.

   The Select Additional Fields window appears.

   From the Select Additional Fields window you can:

   - Select and move the fields you want to track from the **Available Fields** list to the **Selected Fields** list, using the **Add>>** button
   - Click **Derived Fields** to select or create derived fields to track.
   - Click **Profile** to profile a selected field.

8. (Optional) Click the **General** tab to assign a name and/or notes to the process.

   The name appears on the process in the flowchart. The notes appear when you mouse over the process in the flowchart.

9. Click **OK**.

   The process is configured and appears enabled in the flowchart. You can test the process to verify that it returns the results you expect.

Create Seg

Use the Create Seg process to create lists of audience IDs from customer database tables. The segments can then be used as input for Select processes and to create dimensions and cubes, or as the global suppression segment for an audience level.

The Create Seg process is designed to be used by Campaign administrators. The Create Seg process should be created in the **Sessions** area of Campaign so that the segments are strategic and are available globally for use in all campaigns.

Note: A best practice is to create all global constructs in the **Sessions** area of Campaign, for use in multiple campaigns. However, it is possible to use Create Seg within a campaign rather than in a session flowchart.

To work with strategic segments, you do the following:

- Create a segment in the **Sessions** area.
- Manage segments from the **Segments** area.
- Use these segments in campaigns from the **Campaign** section.

To configure a Create Seg process

Note: The Create Seg process is intended to be used by Campaign administrators to create strategic segments. Define a Create Seg process in the Sessions area of the application, so the segments are available globally for use in all campaigns.

1. In a session flowchart in **Edit** mode, drag a CreateSeg process from the palette to the flowchart workspace.
2. Connect one or more data manipulation processes (for example, a Select process) as input to the Create Seg process.
3. Double-click the Create Seg process.

   The CreateSeg Process Configuration dialog opens.

4. On the **Define Segments** tab:

   a. Select one or more source cells from the **Input** list. These source cells will be turned into segments.

b. Select **Create Mutually Exclusive Segments** if you want to ensure that each qualifying record belongs to no more than one segment.
c. In the **Result Segments** area, highlight an input cell and click **Edit** to configure the segment.

The Edit Segment dialog opens.

5. In the Edit Segment dialog:
   a. Give the segment a name that describes its purpose. Provide a brief description of the segment contents (for example, what input was used to create the segment).
   b. From the **Create Under** list, select a folder where the segment will be stored.
   c. From the **Temp Table Data Source** list, select a data source in which to cache the strategic segment. Use the **Ctrl** key if you want to select multiple data sources.

      If you prefer to store the temp tables in a binary file on the server, rather than in a user data source, do not select a data source. To deselect a temp table data source (for example, to revert to no data source selection), **Ctrl+click** the item again.

      Note: Selecting a data source is required only if the `doNotCreateServerBinFile` property on the `Campaign|partitions|partition[n]|Server|Optimization` Configuration page is set to `TRUE`. If this property is set to `TRUE`, at least one valid data source must be selected.
   d. From the **Security Policy** list, select a security policy, if applicable, to apply to the new segment.
   e. Click **OK** to return to the **Define Segments** tab.
6. (Optional) Use the **General** tab to assign a name and descriptive note.
7. Click **OK**.

The process is configured in the flowchart.

You can test run the Create Seg process, but test runs do not create strategic segments or update existing ones.

Note: To create or update strategic segments, run the Create Seg process in production mode.

Mail List

The Mail List process is one of the contact processes. It uses output cells from other processes in your flowchart to generate a contact list for a direct mail campaign, assign specific offers to that contact list, and log the contact history.

To configure a contact process (Mail List or Call List)

1. Within a campaign, open a flowchart for editing.
2. Drag a contact process (Mail List or Call List) from the palette to your flowchart.
3. Connect one or more configured processes as input to the contact process.

   Important: All of the cells that you select as input cells must have the same audience level.

4. Double-click the contact process in the flowchart workspace.

   The process configuration dialog opens.

5. Use the **Fulfillment** tab to specify what input is used to build the contact list and to specify whether output is generated to a list or table.

   a. From the **Input** list, specify the input cells to use as the data source for the contact list.

      Note: If the contact process is not connected to a process that provides output cells, there are no cells to select from in the **Input** list. The **Multiple Cells** option is available only if the input process generates multiple cells or if there are more processes that are feeding into the contact process.

   b. The **Enable Export To** check box is selected by default. To export your list data to a table or file, leave **Enable Export To** checked, then use the appropriate options:

      - To write the output to a database table, select its name from the **Enable Export To** list.
      - If the database table that you want to use is not in the list, or if you want to write the output to an unmapped table, select **Database Table**. Use the Specify Database table dialog to indicate the table and database name. User variables are supported in the table name you specify here.
      - To write the output to a file, select **File** from the **Enable Export To** list, then use the Specify Output File dialog to provide a file name and other details. You can write to a file to test the output of the contact process. After you run the process, review the file to confirm that the results are what you expect.
      - To create a user table, select **New Mapped Table** from the **Enable Export To** list. For instructions, see the *Campaign Administrator's Guide*.
      - Specify how to handle updates to the output file or table:
        - **Append to Existing Data**. Add the new information to the end of the table or file. This option is the best practice for database tables. If you select this option for a delimited file, labels are not exported as the first row.
        - **Replace All Records**. Remove any existing data from the table or file and replace it with the new information.
        - **Create New File**. This option is available if you specify a new file in the **Enable Export To** field.

   c. If you only want to write to contact history, and you do not want to generate output to a table or file, clear the **Enable Export To** check box. (Use the Log tab, explained later in these steps, to specify how to log to the Contact History tables.)

   d. (Optional) **Summary File**: Enter a path and file name in the **Summary File** field, or navigate to a location by clicking the ellipsis button. A summary file is a text file with the extension .sum. This file contains information about the contents of the list. Typically, you include this file with the list when you send it to the fulfillment center.

   e. (Optional) To send a trigger when the process finishes running, select the **Send Trigger(s)** check box, and choose the trigger that you want to send. To send multiple triggers, use **Ctrl+Click** to select more than one trigger. The selected triggers are listed in the **Send Trigger(s)** field, and they are separated by commas.

6. Use the **Treatment** tab to assign one or more offers or offer lists to each listed target cell:

a. To assign an offer to a target cell, click the **Offer** field next to the cell, then select from the list of available offers. To assign one or more offers to multiple cells, select all rows to which you want to assign offers, and use the **Assign Offers** button.

   Note: If the input cells are linked to a top-down cell defined in the Target Cell Spreadsheet (TCS), and offers are already assigned in the TCS, they are displayed here. You can override these assignments. Any changes that you make in the contact process are reflected in the TCS after you save the flowchart.

b. To use control groups, which are excluded from the contact list, select **Use Holdout Control Groups**. Columns that are relevant for control groups appear in the grid.

c. For each cell that you want to use as a control, change the **Control?** field from **N** (the default) to **Y**. Cells that are designated as controls cannot be assigned offers.

d. For each non-control cell, you can specify a control cell and an offer. Optionally select a control cell from the **Control Cell** list. This list is populated with the names of cells for which you indicated **Control? = Y**.

e. To change the offer assigned to a non-control cell, click in the **Offer** field and select an available offer.

7. Use the **Parameters** tab to refine your offer for each cell. This tab shows the parameter names and values for each parameterized offer that was assigned on the Treatment tab. Follow the steps below if you want to change the parameter values. If there are no parameterized offers, you can skip this tab.

   a. Use the **For Cell(s)** list to select the cell that you want to affect.

      If you select an individual cell, the table displays only the offers assigned to the cell you selected. Values that you enter in the **Assigned Value** field apply only to that cell.

      If you select **[All Cells]**, you see one row per offer per parameter. Values that you enter in the **Assigned Value** field apply to every cell that gets that offer.

      You can assign the same offer to multiple cells on the Treatment tab, but set different parameter values for each cell. In this case, the **[All Cells]** view displays the text **[Multiple Values]** in the **Assigned Value** column. Use the **For Cell(s)** list to see which value is assigned to each cell.

      Note: To save data entry time, use **[All Cells]** to assign values that apply to most of the cells, then select individual cells to override their values.

   b. Click in the **Assigned Value** field (or select a row in the table and click **Assign Value**), then select or type a value to assign to the parameter. You can use constants, derived fields, or table fields as values.

8. Use the **Personalization** tab to specify which fields to write out to the contact list. For example, if you are building a mailing list, include contact names and addresses.

   - The Export Field list indicates which fields to write to the output list.
   - If you selected a table on the Fulfillment tab, the Export Field list includes all of the fields from that table. You must map each data field to a corresponding table column. To automatically find matching fields, click **Match**. Fields with exact matches for the table field names are automatically added to the list. If there are multiple matching fields, the first match is taken.

- If you selected a file on the Fulfillment tab, the Export Field list is empty and you must specify which fields to output.
- When you select Candidate Fields, you can click the arrow next to an item to expand it. For example, you can expand the **IBM Campaign Generated Fields** list, then select **Treatment Code**. By including the **Treatment Code** in your output, you can use it to track responses. Direct Response tracking requires customers to provide the same code when they respond to the offer (for example, by using a coupon). Use **Ctrl+Click** or **Shift+Click** to select multiple fields.
- To view the values in a field, select the field and click **Profile**.
- Use the **Add** and **Remove** controls to adjust the contents of the list.
- The order of the fields in the Export Fields list determines the order that the data is written out.

9. To sort the output and specify how to handle duplicate IDs in the list, click **More** on the **Personalization** tab.

   You see the Advanced Settings dialog.

   a. Decide whether your list will include or omit duplicate IDs. For example, if your Audience ID is Household, there might be duplicate Audience IDs for each person in that household. You may or may not want each person included in the list. To omit duplicate IDs, choose **Skip Records with Duplicate IDs**, and specify which record to retain if duplicate IDs are returned. For example, to keep only the family member with the highest household income, select **MaxOf** and **Household_Income**.

      Note: This option removes duplicates that occur in the same input cell. If the same ID exists in multiple input cells, your contact list can still contain duplicates. If your goal is to remove all duplicates from the list, use a Merge or Segment process upstream of the contact process to purge duplicate IDs or create mutually exclusive segments.

      Note: This option pertains only to the fulfillment table (the list) and not to contact history. The contact history tables always contain unique IDs only. For example, say that your output list includes multiple family members (duplicate IDs for Households). The contact history will contain only one record for Household, using the first CustomerID found. The flowchart designer must ensure that the result set obtains the correct records before the records reach the contact history tables. Use the Extract process to de-dupe the results before the contact process box to ensure that the correct records are written to both the fulfillment table and contact history.

   b. To sort the output, use the **Order By** options. For example, to sort by surname in reverse order, select the **Last_Name** field and **Descending**.

   c. Click **OK** to close the Advanced Settings window.

10. Use the **Log** tab to control what is written to contact history.

    You must have the appropriate permissions to enable or disable the contact history log options.

    a. To log contact history to the system tables, check **Log to Contact History Tables**. This option makes contact information available for tracking and reporting throughout Campaign.

       Note: When you configure a mailing list, do not log to contact history if you plan to send the list to a mailing house for processing (such as validating addresses or householding). Instead, consider using a Track process to log the information that is returned from the mailing house. In

this way, you capture only the list of customers who were mailed an offer. Another approach is to allow the Mail List to update contact history, then use the Track process to update the contact history records that were created by the Mail List process.

b. (Optional) To store contact information in another location, in addition to or instead of the contact history tables, check **Log into Other Destination**. This option is useful if your organization requires further processing of the information in another format, or if you want to examine the output before you update contact history.

11. If you selected **Log into Other Destination** on the Log tab:
    a. Use **Select cells** to specify which input to use (if there are multiple inputs).
    b. Use **Log to** to select a destination table or file. If you select **File**, use the Specify Output File dialog to define the output file name and parameters.

       Indicate which field data to include by moving candidate fields to the **Fields to Output** list. You can automatically find matching fields by clicking **Match**. Fields with exact matches for the **Table Field** names are automatically added to the **Field to Log** list. If there are multiple matching fields, the first match is taken. The order of fields in the list determines the order of data in the file.
    c. Use the following options to specify how updates to the destination file or table are handled:
       - **Append to Existing Data**: Add the new contact information to the end of the table or file. Appending data is a safe choice for database tables because it preserves existing data. If you select this option for a delimited file, labels are not exported as the first row.
       - **Replace All Records**: Remove any existing data from the table or file, and replace it with the new contact information.

       An informational field indicates whether **Skip records with duplicate IDs** is set to Yes or No. You set this option on the **Personalization** tab but it also applies to the table or file that you specified for **Log into Other Destination**, where you are additionally logging contact history.
12. To customize the information that gets written to contact history, click **More Options** on the Log tab.

    The Contact History Logging Options dialog opens.
    a. To avoid updating contact history when this process runs, select **Create Treatments Only**.

       This option generates new treatments in the Treatments table *without* updating the contact history, allowing for a delayed update to the history tables. For example, use this option if you plan to remove invalid and duplicate addresses through post-processing. By waiting to update contact history with the final list of IDs to which offers are sent, the resulting contact history will be smaller and more accurate.

       If you select this option, the other options in this dialog that no longer apply are disabled.

       By default, this option is *not* selected, so contact history is updated when the process runs.

       For more information about logging contact history, see Chapter 9, "Contact history and response tracking," on page 155.
    b. To generate new treatments with the same package ID as in the most recent process run, select **Use Last Package ID**.

All offers given to an individual in the same contact process are considered to be a single "package". By default, **Use Last Package ID** is not selected. Not selecting this option ensures that each package is assigned a unique ID for each production run of the contact process.

If you selected **Create Treatments Only** to prevent customer history from being updated, you can also select **Use Last Package ID** to ensure that the package ID from the prior run is assigned to each set of offers. This action links the offers to the existing contact history.

c. Use the **Tracking Audience Level** list to select the audience level at which you are tracking contact history.

d. Use the **Contact Date** field to specify when to contact the people in the contact list. If you do not specify a date, Campaign uses the flowchart run date.

e. Use the **Contact Status Code** list to specify a status code for tracking.

f. Use the controls to select and move fields to and from the **Candidate Fields** and the **Fields to Log** list.

g. Click **Close** to return to the **Log** tab of the process configuration dialog.

13. (Optional) To clear some or all existing contact history and associated response history entries before the next run of the contact process, click **Clear History**. on the **Log** tab.

    Important: Clear History permanently deletes contact and response history records from the system tables. This data is not recoverable.

14. (Optional) Use the **General** tab to assign a name and descriptive notes to the process.

15. Click **OK**.

The process is now configured. You can test run the process to verify that it returns the results you expect. A test run does not output data or update any tables or files, but it does run any triggers that were selected on the Fulfillment tab.

Call List

The Call List process is a contact process. Use it to generate a contact list (for example, for a telemarketing campaign), assign specific offers to that contact list, and log the contact history.

You configure a Call List process in the same way as you configure a Mail List process. See “To configure a contact process (Mail List or Call List)” on page 98.

Track

Use the Track process to update the contact statuses or additionally tracked fields for existing records in contact history.

The Track process can update existing rows in contact history or it can create new rows.

For example, if records were initially written to contact history with a contact status of "Proposed," you can use the Track process to later update records in contact history that were contacted, with a contact status of "Contacted." Or, for example, if all contacts who were sent a direct mail were written to contact history

with a contact status of "Contacted" and you later received a list of undeliverable mailings, you could update individuals on that list with contact statuses of "Undeliverable."

You can use the Track process to log contact information to the contact history tables, separate from the contact process that generated the list of contacts. For example, you might not want to write your initially-generated contact list to contact history because your mail house will perform post-processing on the list, removing invalid and duplicate addresses. If you wait for the mail house to send you a confirmation list of IDs to which they actually sent offers, your contact history will be more accurate. In this case, your input to the Track process will be the final mailing list used by the mail house after they performed post-processing.

Additionally, there are times when the target list is large, and it is not necessary to load all of this information into contact history. Instead, you can log only those contacts who were actually contacted. Often, an organization does not know who was contacted and who was not is not known until you receive feedback from call centers or mailing houses. You can use the Track process so that when feedback is received from different sources you can insert it into the contact history tables.

For details about logging contacts to contact history, see Chapter 9, “Contact history and response tracking,” on page 155.

You can also use the Track process to record contact information in real time. For example, you can use it to record offers that were made over the telephone during a call. Using Campaign Interact, when a call center phone representative makes an offer to a customer over the phone, they might click a button to indicate that offer was made. That information can immediately be sent to the Track process, where it is recorded, or it can be accumulated and periodically processed in batch mode. For more information on the use of the Track process in Campaign Interact, see the documentation provided with Interact.

Examples

You can create two separate flowcharts to take advantage of the Track process’s delayed writing to contact history. You create your contact list in Flowchart 1: A Select process selects data, provides input to a Segment process, where the data is segmented by value tier, then outputs the segmented data to a Mail List process. You configure the Mail List process only to output a list of IDs to a file, without logging contact history, because you want the contact list to undergo post-processing by the mail house.

You create Flowchart 2 to handle the final contact list returned to you by the mail house, and finally to write the actual contacts to contact history. Flowchart 2 consists of a Select process whose input is the list of customers who were actually contacted by the mail house, connected to a Track process which then writes the information to contact history.

In a variation of this example, if instead of returning a list of contacted IDs, the mail house returns a list of IDs that could not be contacted, you can obtain the list of contacted IDs by selecting the original output contact list from Flowchart 1 and suppressing the undeliverables (provided by the mail house) using a Merge process. The output from the Merge process is then your list of contacted IDs, and these can be passed to a Track process for writing to contact history.

To configure a Track process

Configure a Track process to update existing rows in contact history or create new rows. For examples, see "Track" on page 103.

1. Within a campaign, open a flowchart for editing.
2. Drag the Track process from the palette to your flowchart.
3. Connect one or more configured processes as input into the Track process.
4. Double-click the Track process in the flowchart.

   The process configuration dialog opens.
5. Use the **Source** tab to select input cells containing potential responders. Cells from processes connected to the Track process appear in the **Input** list.
   a. Use the **Input** list to select different or additional source cells.
   b. Use the **Contact Date** field to select a date to associate with records that the Track process will update. By default, a value of "Today" is selected. You can also use derived fields to populate the **Contact Date**.
   c. Select a **Contact Status Code** to associate with the records that you are updating in contact history.
6. Click the **Mapping to Treatments** tab.

   Use the **Candidate Action Fields** list to choose the relevant field to match to the Treatment Code. The treatment code uniquely identifies the row in the contact history to update.

   Select a field to use for matching, and click **Add** to move it to the **Matched Offer/Treatment Fields** list, so it is paired with a Treatment Code.
7. Click the **Log** tab to specify how to update contact history.

   Note: You must have the appropriate permissions to enable or disable updates to contact history tables.
   a. To update contact history in the system tables, select the **Log to Contact History Tables** check box.
   b. Specify how the contact history tables should be updated:
      - **Update Existing Records**: If a record exists, update it. If a record does not exist, do not create it.
      - **Create New Records Only**: If a record does not exist, create it. Do not update existing records.
      - **Update Existing and Create New**: If a record exists, update it. If a record does not exist, add it.
   c. To write additional fields to the contact history, click **Additional Fields** to display the Contact History Logging Options dialog. Use the **Add**, **Remove**, **Match**, **Up1**, and **Down1** buttons to select and move fields from the **Candidate Fields** list to the **Fields to Log** list. Unmatched fields will not be updated.
   d. Click **OK**.
8. If you want to log to a destination other than, or in addition to, the contact history in the system tables, select the **Log into Other Destination** check box. This option allows you to write to an alternate table or file.
   a. Use the **Log To** list to specify whether the output should be written to a file or a new or existing table in the database:

      If you select **File**, use the Specify Output File dialog to specify the output file type, the file name, and the corresponding data dictionary.

If you select **New Table**, use the New Table Definition dialog to specify information about the new table to which you want to write the log output.

b. To specify which fields to output, select fields from the **Candidate Fields** list and move them to the **Fields to Output** list. If you do not see the fields that you want to select, expand the items in the Candidate Fields list. You can also used derived fields for Candidate Fields.

c. You can automatically find matching fields by clicking **Match**. Fields with exact matches for the **Table Field** names are automatically added to the **Field to Log** list. If there are multiple matching fields, the first match is taken.

d. Select an option to specify how to handle updates to the output file or table:

- **Append to Existing Data**: Append the new contact information to the end of the table or file. If you select this option for a delimited file, labels will not be exported as the first row. This is the best practice for database tables.
- **Replace All Records**: Remove any existing data from the table or file, and replace it with the new contact information.

9. (Optional) Click the **General** tab to assign a name or descriptive notes to the process.
10. Click **OK**.

The process is now configured. You can test run the process to verify that it returns the results you expect.

Response

The Response process tracks the responses of customers who were contacted in a contact process, such as Mail List or Call List. Based on rules that you define during process configuration, the Response process evaluates which responses are considered valid, and how they are credited back to campaigns or offers. The output of the Response process is written to several response history system tables, where the data can be accessed for analysis using Campaign performance and profitability reports.

In its simplest form, the Response process can appear in its own flowchart connected to a Select process (and optionally a Segment process). In such a flowchart, the Select process selects IDs from a mapped table containing data about responders and their response actions. These IDs are segmented by the Segment process into meaningful groups, and finally passed to a Response process, where response tracking rules are applied and output is written to response history tables.

A Response process is tightly aligned with its corresponding contact process, in which the responders now being tracked were possibly members of cells targeted with particular offers. Therefore, before you can configure a Response process, you must:

- Know the audience level of your contact list and ensure that contact history and response history system tables for each audience level that you are contacting and tracking, have been mapped. This is usually done by your system administrators.
- Set up a separate Response process for each audience level in which you are tracking responders.

- Know the codes representing the response types that you want to track.
- Know what Campaign-generated codes (campaign, cell, offer, or treatment codes) were sent out to your contact list, so you can map them for tracking.
- Enable Campaign to create temp tables in the Campaign system tables database (i.e., the `AllowTempTables` property must be set to true).

To configure a Response process

The Response process compares response information with contact history and logs information to the response history tables for the appropriate audience level.

For complete information, see Chapter 9, "Contact history and response tracking," on page 155.

1. Navigate to the list of campaigns where you created your contact flowcharts (the ones that assigned the offers you plan to analyze).
2. Typically, you would create a separate flowchart to handle the response process.
3. Drag the Response process from the palette to your flowchart.
4. Connect a Select or Extract process as input into the Response process. The Select or Extract process must read from an *action table*. An action table is a database file or table produced outside of IBM Campaign. An action table contains response data collected after offers are presented to customers. Typically, this data includes customer identification, response codes, and attributes of interest.
5. Double-click the Response process in the flowchart.

   The process configuration dialog opens.
6. Use the **Source** tab as follows.
   a. If you followed the steps in this procedure, the **Input** list already displays the correct input. The input must originate from the mapped action table in your data mart that holds your customer response information.

      Note: If you are using a delimited flat file as input to the Response process, you must ensure that all data types in the input files are mapped appropriately, as this is not enforced by the Response process. Using a mismatched data type (for example, having a treatment code mapped as "numeric" when the `UA_Treatment.TreatmentCode` field is a "string" type) causes a database error on some databases (for example, system tables on DB2®).
   b. For **Response Date**, select a date from your action table to associate with the records output by the Response process. By default, a value of "Today" is selected.
   c. For **Response Type Code**, choose a field from your action table. The response type codes are globally defined and available for all campaigns. Response types are the specific actions that you are tracking, such as click-through, inquiry, purchase, activation, and use. Each response type is represented by a unique response code.
7. Use the **Mapping to Treatments** tab to select the fields to be tracked and match them to a list of offer and treatment attributes.
   a. In the **Candidate Action Fields** list, expand the action table that you are using, so you can see the list of fields.

b. Use the **Add** button to match **Candidate Action Fields** to the corresponding attributes in the **Matched Offer/Treatment Fields** list. The **Offer/Treatment Attribute** column lists all offer or treatment attributes in the system.

   It is best to match at least one Attribute of Interest and one Response Code.

   Note: Unmapped fields, and fields for which values not available (or NULL) are not used for response attribution. For a treatment instance to receive response credit, all populated fields must match, except for controls, for which all codes are ignored.

8. Click the **Log** tab to specify additional fields to log to response history.

   Use the controls to match fields from the **Candidate Fields** list with fields in the **Fields to Log** list.

   You can automatically match fields by clicking **Match**. Fields with exact matches for the **Table Field** names are automatically added to the **Fields to Log** list. If there are multiple matching fields, the first match is taken.

9. Click the **General** tab to assign a name and descriptive note to the process.
10. Click **OK**.

The process is now configured. You can test run the process to verify that it returns the results you expect. When you save and run the flowchart, information is written to the response history system tables.

Model

Use the Model process to create a runtime model file, which you can use for real-time or batch scoring. It automates the creation of a response model that can be used to score customers or prospects to determine the candidates most likely to respond.

Typically, you set up the Model process in your flowchart to take input from two cells, one representing the responders (contacts who reacted positively or took some action upon receiving an offer or communication), and one representing the non-responders (contacts who took no action).

For example, you could use two Select processes, one selecting the people who were contacted with an offer, and the other selecting the responders. Then, use a Merge process to exclude the responders so that you have a list of non-responders. Connect the Merge output and the "responders" Select output to your Model process to provide the non-responder and responder cells for the model.

In another scenario, you could use a Select process to select all contacts for an offer, then use a Segment process to segment that cell into responders and non-responders.

To configure a Model process

Configure a Model process to generate response models with the IBM Campaign modeling engine. The Model process generates a runtime model file (.rtm). You can use the .rtm file with the Score process to determine which customers or prospects are most likely to respond.

1. Open a flowchart in Edit mode.
2. Drag the Model process from the palette to your flowchart.

3. Configure and connect the input to the Model process to identify responders and non-responders.

   For example, you can use a Select process to select all contacts for an offer, then use a Segment process to identify responders and non-responders.

   As another example, you can use one Select process to identify responders. To produce a list of non-responders, use a second Select process to identify people who were contacted, then use Merge to exclude responders. You then connect the Merge process (non-responders) and the Select process (responders) as input to the Model process.
4. Double-click the Model process in the flowchart workspace.

   The process configuration dialog opens.
5. Use the **Source** tab to select the fields to use for modeling.
   a. Select responder and non-responder cells from the **Responder** and **Non-Responder** lists. The lists are populated with input cells that are connected to the Model process.

      Note: All input cells must have the same audience level.
   b. For **Variables to be Used for Modeling**, select the fields to be used by the Model process during model generation. You can click **Use All** and allow the Model process decide which set of inputs are most effective for modeling. However, you can speed up the modeling process by eliminating variables that do not add value to the model. For example, you can eliminate fields that contain the same value for all records or different values for all records.

      If you are in doubt as to the predictive value of a variable, include it and allow the Model process decide whether it should be used.
6. Use the **Method** tab to specify how to generate the model.
   a. Select one of the following options to determine how the data mining algorithms should arrive at the best model.
      - **Best Model In**: (Default) Specify a time limit for modeling. The **Model** process retains the best models built in the time period that you specify. The default is three hours.
      - **Best Model Among**: Specify the number of candidate models to build. The **Model** process will retain the best of these models. The default is 20.
   b. **Algorithm to Use**: Select the type of modeling to perform. You can select one, several, or all algorithms. Selecting **All Algorithms** (the default) results in a more accurate model, but it might take longer.
   c. **Max # of Models to Keep**: Specify the maximum number of models to keep. The default is 5. The more models that you keep, the more disk space is required. Each of the top models is saved by appending a number sign (#) to the end of the model file name. If more than one model is kept, an index is appended to the base file name, indicating the rank of the model.
   d. **Model File Name**: Specify the absolute path name for the runtime model file (.rtm) that will be created, or click **Browse** to navigate to a file. When you run the Model process, it generates a *NAME*.rtm model file, which you can use for scoring with the Score process.
7. (Optional) Use the **General** tab to assign a name and descriptive note.
8. Click **OK**.

The process is now configured. You can test run the process to verify that it returns the results you expect.

Score

Use the Score process to rate the likelihood of each customer making a purchase or responding to an offer and to identify the best customers or prospects for the campaign that you plan to run. Scoring is based on modeling results imported from a runtime model file (.rtm file) created by PredictiveInsight or the Model process in Campaign.

The Score process could be used in a flowchart in the following way: The flowchart begins with a Schedule process which runs the flowchart every month. It is connected to a Select process which generates a list of customer IDs from data in the data mart. The IDs are then sent to a Score process for scoring against a data model. Finally, the results of the Score process are sent to a Snapshot process to be written out to a spreadsheet.

To configure a Score process

1. Within a campaign, open a flowchart for editing.
2. Drag the Score process from the palette to your flowchart.
3. Connect a configured process as input into the Score process. For example, connect a Select process that generates a list of customer IDs, so those IDs can be scored against a data model.
4. Double-click the Score process in the flowchart to open the process configuration dialog.
5. Use the **Input** list to select a source cell that contains the customer IDs that you want to score. You can select just one source cell to score.
6. In the **Number of Models** field, indicate how many models you want to create.
7. Click in the parameters area. If you set **Number of Models** to more than 1, the parameters area lists as many models as you requested. The default names for models use the form Model 1, Model 2, Model 3.
8. For each model, double-click the **Score Field Name** and type the name of the field where you want the scoring results stored. The default name is **score*N*_1**. For example, Score1_1.
9. For each model, double-click the **Model File** field, click the down arrow, and use **Browse** to open a file selection window. Select the runtime model file (.rtm) that you are using to score customer IDs. Runtime model files are created by PredictiveInsight or the Model process in Campaign.
10. Click **Match Variables Names** to open the Match Variable Names window.

    For customers to be scored properly, you must match the variables used in the model file with corresponding fields in the data set to be scored. For example, if the model uses an average_balance variable, you must match that variable with a field that contains average balance in the data set.

    a. Select fields in the **Candidate Fields** list that match fields in the data set, and move them to the **Matched Variables** list.

       You can match identical field names automatically by clicking **Match**. This option overrides any manual matching.

       You can also create derived fields by clicking **Derived Fields**.

Important: You must match all of the variables to properly configure the Score process. Variable names do not need to match field names, but the data types (numeric or string) must match.

b. Click **OK** to return to the configuration dialog.

11. (Optional) Click the **General** tab to assign a name or notes to the process.

    The name appears on the process box in the flowchart. The notes appear when you hover the mouse over the process box in the flowchart.

12. Click **OK**.

    The process is now configured. You can save the flowchart, then test run the process to verify that it returns the results you expect.

Chapter 7. Offers

Offers are specific marketing communications that you send to particular groups of people, using one or more channels. They can be simple or complex. For example, a simple offer from an online retailer could consist of free shipping on all online purchases made in the month of April. A more complex offer could consist of a credit card from a financial institution, with a personalized combination of artwork, introductory rate, and expiration date that varies based on the recipient's credit rating and region.

In Campaign, you create offers that can be used in one or more campaigns.

Offers are re-usable:

- in different campaigns;
- at different points in time;
- for different groups of people (cells);
- as different "versions" by varying the offer's parameterized fields.

Once an offer has been used, it cannot be deleted, but it can be retired.

Retired offers can no longer be assigned, and any assigned offers that have been retired will no longer be given out. Retired offers are still visible (although greyed out) in the offer hierarchy, and are still available for reporting and response tracking.

Note: Offer names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219

Offers are identified with unique system-assigned offer codes based on a format that your company has specified. You can override or regenerate offer codes (depending on your security permissions), but if you do so, the uniqueness of the new offer code is no longer checked by Campaign. If you create a non-unique offer code and use the offer code for response tracking, this might result in inaccurate tracking results.

For more details about offer codes, see "Unique Code Administration" in the *Campaign Administrator's Guide*.

Offer attributes

Offer attributes are the fields that define an offer. Offer Name, Description, and Channel are examples of an offer's attributes. Some attributes are specific to a type of offer. For example, interest rate might be an attribute of a credit card offer, but not of a "free shipping" offer.

There are three types of offer attribute:

- **Basic** — the minimum set of fields required to define an offer: the offer name, the unique offer code, an offer description, and related products.
- **Standard** — optional, pre-defined fields for defining an offer, for example, channel can be an optional attribute of an offer.

- **Custom** — additional fields custom-created for your organization's definitions of offers, such as department, sponsor, promotional and go-to interest rates, stock-keeping unit numbers (SKUs), and so on. Custom attributes can be added to offer templates to further define an offer, or for offer analysis (for example, you can group offers by custom attribute for roll-up analysis). For more details about custom attributes, see "Custom Attributes" in the *Campaign Administrator's Guide*.

When you define offer attributes in an offer template, each attribute can be defined as either *static* or *parameterized*. The same offer attribute (for example, channel), could be static in one offer template, but parameterized in another.

- **Static attributes** — these are offer attributes whose values do not change when you create a different version of the offer. For example, the channel, offer code, offer name, and description are static offer attributes.
- **Hidden static attributes** — some static attributes, although part of the offer definition, can be designed to be invisible to users when they use the offer template to create offers. Hidden attributes therefore cannot be edited, but they can be tracked and reported on in the same way as other offer attributes. For example, a hidden static attribute could be the cost of the offer (the cost to your organization of administering the offer). You cannot change the value of this attribute, but it can be used in searches (for example, if you want to find all offers that cost less than $1.00 to administer), or in reporting (for example, in performance ROI analysis reports).
- **Parameterized attributes** — these are offer attributes whose values you can fill in at offer assignment time by entering a value, choosing an option from a pre-defined drop-down list, specifying the value by using a field in the database, or by calculating values in derived fields. Any standard or custom offer attribute can be set up to be a parameter by your administrators when they create offer templates.

Parameterized attributes in offer templates have default values that you can override when the offer is created and when it is assigned. For example, the introductory interest rate for a credit card offer could be parameterized in its offer template so that users can select 5.99%, 8.99%, or 12.99% as the default interest rate from a drop-down list when they create an offer using this template. When the offer is subsequently used in a flowchart and assigned to a cell, users can then change the interest rate to a different value if necessary.

Offer versions

Note: The term "offer versions" as used starting in Campaign versions 7.x does not have the same meaning as "offer versions" in earlier Campaign releases (5.1 to 6.x). Offer versions do not appear in the offer tree hierarchy, and do not have version names or codes. To uniquely identify specific instances of offer usage, you should use treatment codes.

An offer version is created each time you vary the parameterized attributes of an offer to create a unique combination.

For example, you can vary the following attributes in a credit card offer:

- The artwork (lighthouse, kittens, or racing cars);
- The introductory rates (5.99%, 8.99%, or 12.99%);
- The offer valid dates (valid during the month of January, June, or September).

Thus, a card with the lighthouse image, 5.99% introductory rate and offer valid from September 1–31, 2006, is a different version of the offer than a card with the lighthouse image, 5.99% introductory rate and offer valid from January 1–31, 2007.

Offer templates

You create offers using the offer templates available to you in Campaign. These templates will already have been created by a system or offers administrator. Each offer template has a security policy that determines who can access and use the template; you can only see offer templates to which you have access.

Using an appropriate template to create a new offer streamlines your offer creation process. For example, if you create a credit card offer using a template that has been designed for credit card offers, you will be completing only fields that are relevant for credit card offers.

Your administrator can also create drop-down lists of values that you can choose when you are filling in the offer information, saving time in data lookup and reducing data entry errors. Offer attributes can be designed by your administrator to have drop-down lists to which you are allowed to add new items when you use the attribute in an offer. If new values are allowed, you will see an **Add** button beside the offer attribute. When you add new values to such an attribute, you can also delete the values you have added; you cannot delete values that you did not add.

Offer templates define:

- the offer code format;
- the treatment code format;
- offer attributes and their display order;
- for each offer attribute where it is static, hidden, or parameterized;
- default values for offer attributes.

New offer templates can be added at any time, and there is no limit to the number of templates defined in Campaign. The template is an inherent attribute of the offers created from it, so you can search for offers using the template as a search criterion.

Note: Offer templates cannot be deleted, but they can be retired by administrators to prevent further use. Retired offer templates appear greyed out in the list of offer templates, and they cannot be used for creating new offers.

For details about managing offer templates, see “Offer Template Administration” in the *Campaign Administrator's Guide*.

About offer lists

Offer lists are groupings of offers that you can create in Campaign to facilitate assigning multiple or a possibly changing set of offers over time.

The same offer can exist in more than one offer list. Offer lists appear in the same hierarchy as offers, but are identified by icons. Single offers have a single sheet icon with dollar sign; static offer lists have a multiple sheets icon with a dollar sign, and smart offer lists have the multiple sheets icon with a dollar sign and magnifying glass.

Like an offer, once an offer list has been used, it cannot be deleted, but it can be retired.

Retired offer lists can no longer be assigned, and any assigned offer lists that have been retired will no longer be given out.

There are two types of offer lists:

- "Static offer lists"
- "Smart offer lists"

Note: Offer list names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.

Static offer lists

Static offer lists are pre-defined lists of offers whose contents do not change unless you explicitly edit the list. A limitation of static offer lists is that default values are used for any parameterized offer attributes.

Generally you use static offer lists to repeatedly reuse a specific, fixed set of offers. For example, if you have 5 each of RFM (Recency, Frequency, Monetary) segments, giving you 125 cells, and you want to assign the same offers to each cell, you can create a single set of offers in a static offer list, and assign that offer list to all 125 cells. The same type of reusability applies across flowcharts and campaigns.

Smart offer lists

Smart offer lists are dynamic lists of offers which can resolve to different sets of results each time a smart list is used. A smart offer list is specified by a query which can be based on offer attributes, offer locations (folders or subfolders), offer owner, and so on.

Generally you use smart offer lists for periodically recurring campaigns. You can set up a cell to receive a smart offer list and then change the contents of the smart offer list without having to modify the flowchart. For example, if you set up a smart offer list to be the contents of a particular folder, then you can simply add or remove offers to and from that folder to modify the offers given out each time the campaign is run.

A further example for using smart offer lists involves setting up the smart offer list to automatically return the offers you want to give out. If you want to give your "high-value customer" cell the "best credit card offer" available, you can set up a smart offer list that includes all credit card offers, sorted by the lowest interest rate and with maximum size set to 1. The lowest interest rate credit card offer available at the time(s) that the flowchart contact process is run is automatically found and given to the high-value cell.

Security and offer lists

Object-level security applies to offer lists, based on the folders in which your offer lists, and the offers included in your lists, reside.

When you create a static offer list, you can only add offers to which you have access. However, anyone with permission to access an offer list is automatically granted permissions to access the offers included in that list. Therefore, anyone

who can access your list can also use that offer list and all the offers within it, even if they would not normally have access to those offers based on their security permissions.

Similarly, users who can access a folder containing a smart offer list can use that smart offer list. They will get the same result as anyone else running that offer list, even if they would not normally have access to particular offers (for example in another division's folders).

Treatments

Treatments are unique combinations of a cell and an offer version at a particular point in time. Because they enable you to track responses in a very specific way, using treatment codes for response tracking is a best practice.

Treatments are automatically created when you run a flowchart with contact processes (Call List or Mail List) that have been associated with offers. Each treatment is uniquely identified by a system-generated treatment code whose format is specified in the offer template(s) from which the offer(s) were produced. Treatment codes cannot be overridden by users.

Each time a contact process is run (except in test mode), Campaign records the following details:

- The offer version(s) assigned in the contact process;
- The cell(s) to which the offers are assigned;
- The treatment code for each unique combination of offer version, cell, and date/time;
- The contact process run date.

Running the same contact process twice (in production runs) creates two treatment instances, each with a unique treatment code. This enables you to track responses in a very specific way, back to an exact contact instance. For example, you could run the same promotion on January 15 as you ran on February 15, and if you used the treatment codes for tracking, people responding to the February 15 mailing would be distinguishable from people responding to the January 15 mailing by their treatment codes, even if they were targeted by both promotions.

Treatment codes are not available prior to flowchart runs because they are generated only at run-time, and therefore are not suitable for pre-printed codes requirements. However, they can be output as Campaign-generated fields for tracking or on-demand print purposes.

Control groups

When you plan an offer, you should consider whether you want to use holdout control groups for cells assigned that offer. Control groups are non-contact groups that you can use to compare the "lift" or difference in response from an active target cell that received an offer.

Controls are applied at the cell level in Campaign. When you assign offers to cells, either in a contact process in a flowchart or from a target cell spreadsheet, you can optionally specify one control cell for each target cell.

Association of control cells to target cells

A single control cell can be used as the control for multiple target cells, but each target cell may only have a single control cell, where the cell is defined by its cellID. When a single control cell is used in multiple contact processes, you must configure the control cell relationship for the target cell the same way in each contact process. If different control relationships are required, create a copy of the cell (e.g., by attaching a Select process and performing a Select All from the previous cell). This will create another target cell to which you can apply a different relationship to the control cell.

Working with offers

You can perform the following tasks related to offers.

Note: Working with offers requires the appropriate permissions. For information about permissions, see the *Campaign Administrator's Guide*.

Creating new offers

You should create offers to represent the marketing messages you want to communicate to your customers or prospects. Whether you create a new offer or simply a version of an offer depends on how offer templates were defined by your administrator.

You must create a new offer in the following situations:

- Whenever non-parameterized offer fields change;
- When you need a new offer code for tracking purposes (for example, for pre-printing response codes on mailers).

In addition to creating a completely new offer, you can add an offer by duplicating an existing offer and modifying it as required.

Note: To be able to create offers in a folder, you must have the appropriate permissions in the security policy governing that folder.

To add a new offer

Note: Before you can create a new offer, you must have access permissions for at least one offer template on which to base the offer.

1. Select **Campaign > Offers**.

   You see the Offers page.
2. Click the **Add an Offer** icon.

   If you have more than one offer template in your Campaign system, you see the Select an Offer Template page. If only one offer template exists, you do not select a template; you are taken directly to the New Offer page.
3. Select the template on which to base your new offer. The selected offer template's name, description, suggested usages, offer and treatment code formats, and static and parameterized attributes are displayed.
4. Click **Continue**.

   You see the New Offer page.
5. Enter values for the new offer, including default values for any parameterized attributes.

For attributes with values supplied in a drop-down list and that allow the addition of list items, you can add list items here as you create the offer. Any additions to the list are saved back to the offer custom attribute and are then available to all users. Once you save changes, you cannot remove list items that you add. Only administrators can remove items from lists, by modifying the custom attribute.

Note: Offer names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.

6. When you have finished entering your offer details, click **Save Changes**.

   You see the Offer Summary page for the new offer.

Relevant products for offers

Relevant products is a required attribute in offer templates, although it does not need to be populated in each offer. When you create an offer, you can specify a query which returns the list of product IDs that you want to associate with this offer. These product IDs can then be used for inferred response tracking to determine whether an event (for example, a purchase) is considered to be a response (for example, a purchase of one of the relevant products associated with an offer is considered a response).

You can also import a list of product IDs during offer creation by copying them from a source file and pasting them into Relevant Products definition when creating a new offer.

To import a list of relevant products to an offer by pasting

1. In Campaign, when creating a new offer, on the New Offer page, click **Import Product IDs**. The Select Products window opens.
2. Copy product IDs from your source file, using `Copy` from the context menu or `Ctrl+C`.

   Note: When copying product IDs, you can use one or more of the following delimiters: tab, comma, or linefeed/newline. Multiple consecutive delimiters are ignored. If product IDs are text strings, spaces are not stripped, and case is preserved.
3. Paste the IDs that you have copied into the Import Product IDs list, using `Paste` from the context menu, or `Ctrl+V`. While working in the Select Products window, you can also manually add, edit, or delete entries from the Import Product IDs list. There is no limit to the number of entries you can paste into the Import Product IDs list.
4. When you have finished adding entries to the Import Product IDs area, click **Import**.

   The IDs from the Import Product IDs area are imported and listed in the Select Products Where section, with "PRODUCTID =" prepended to each product ID. If any errors are detected during import (for example, alphabetic characters when the Product ID field is numeric, or exceeding the maximum string length for a text product ID), you see a pop-up for each error. Note each error and click OK to view the next error.

   Note: The Import feature only imports a product ID once; duplicate occurrences of the same value are automatically ignored.

   Note: You can continue to paste and import product IDs until you click **Save Changes** on the Select Products window. Once you have exited the Select

Products window, you cannot import additional product IDs. Clicking **Import Product IDs** again clears any existing query to allow you to begin anew. If you do not want to clear your existing query, click **Cancel** when prompted for confirmation.

5. When you have finished importing product IDs, click **Save Changes**. The product IDs that were in the Select Products Where list are saved as a query for the offer, and the list of product IDs is displayed under Relevant Product(s).
6. Continue creating the offer.

To edit the relevant products query for an offer

After importing a list of relevant products for an offer, the list is saved as a query. You can edit this query, including adding additional query conditions, when you edit the offer.

1. In Campaign, open the offer for which you want to edit the list of Relevant Products.
2. Under the list of Relevant Products, click **Edit Query** . The Select Products window opens, displaying the list of IDs currently in the query under Select Product Where.
3. Edit the query, using the **<<** button to remove a selected entry from the list, or the up and down arrow buttons to change the order of entries. Add a query clause using any attribute in the UA_Products table, including Product ID, using the **>>** button to move it to the **Select Products Where** list.
4. When you have finished editing the query, click **Save Changes** to save the query
5. On the offer Edit page, click **Save Changes** to save the offer.

To clear the relevant products query for an offer

After importing a list of relevant products for an offer, the list is saved as a query. You can clear the entire query, including all existing product IDs in the query when you edit the offer.

1. In Campaign, open the offer for which you want to clear the list of Relevant Products.
2. Under the list of Relevant Products, click **Import Product IDs** . You see a warning indicating that importing Product IDs will reset all existing conditions.
3. Click **OK** . The Select Products window opens, with no IDs displayed. You can now import new Product IDs, or import no IDs to leave the query empty.
4. Click **Save Changes** to save the query
5. On the offer Edit page, click **Save Changes** to save the offer.

To remove selected products from the relevant products query

You can remove selected products from the query rather than clearing the entire query.

1. In Campaign, open the offer for which you want to remove selected product IDs from Relevant Products.
2. In the list of Relevant Products, select the items you want to remove by holding the Ctrl key and selecting with your mouse.
3. When you have finished selecting the items you want to remove, click **Remove** . The selected items are removed from Relevant Products.
4. Click **Save Changes** to save the offer.

Duplicating offers

Duplicating existing offers to create new ones can save data entry time. Retired offers as well as active offers can be duplicated. Offers that are created by duplication are automatically assigned unique offer codes; they are named "Copy of <original offer name>" and have the same description, security policy, and offer attribute values as the original offer.

Note: Duplicated offers are created in the same folder as their originals, but can be moved to a different location later. You must have the appropriate permissions to be able to duplicate and move offers.

To duplicate an offer from the Offers page

1. Select **Campaign > Offers**. The Offers page appears.
2. Navigate to the folder containing the offer(s) you want to duplicate.
3. Select the checkbox(es) next to the offer(s) you want to duplicate.
4. Click the **Duplicate Selected Offers** icon. A confirmation window appears.
5. Click **OK** to continue. The selected offer(s) are duplicated and are displayed in the list of offers.

To duplicate an offer from the offer's Summary page

1. On the Offer Summary page of the offer you want to copy, click the **Create Duplicate Offer** icon. A confirmation window appears.
2. Click **OK** to continue. You see the New Offer page in Edit mode, with fields pre-populated with values from the original offer but with a new offer code.
3. Edit the values that you want to change, including the offer name and description.

   Note: Offer names have specific character restrictions. For details, see “Special characters in IBM Campaign object names,” on page 219
4. Click **Save Changes** to create the new offer. The offer is saved; you are taken to the Offer Summary page of the new offer.

Grouping offers

You might want to group offers for reporting or analysis purposes. For example, you might want to see the response rates to a "Free Shipping" offer that was sent through various channels and offered at different times of year.

Note: For any report to use an offer attribute for grouping or roll-up purposes, the report must be customized by your report administrator.

You can group offers in two ways.

- Using attributes
- In folders

Using attributes

You can create any number of custom attributes in your offers to use as "offer grouping fields." For example, if you have various college-affiliation credit card promotions, you could create a custom attribute called "region" that you can then use in reports. This would allow you to group together offers targeted to alumni of colleges in New England colleges versus those on the West coast.

When you create offers that use custom attributes, you must enter the values manually. You can also duplicate a similar offer to reduce data entry effort, as the values of parameterized attributes will also be copied.

Offer attributes can also be used within smart offer lists to identify and group offers.

Grouping offers in folders

It can be useful to group offers in folders for reporting purposes. If you maintain all related offers in the same folder, and specify the folder as the target when prompted for offers to report on, all the offers in that folder (and in any of its subfolders) are automatically selected for reporting.

Note: Including folder and subfolder contents for reporting in this way does not achieve "roll up" reporting for the offers. They are simply selected based on inclusion in a folder structure.

To edit an offer

You can edit an existing offer at any time, whether or not it has been used in a contact process, depending on your roles and permissions.

Note: Once an offer has been used in production (once it has been assigned to a cell in a flowchart that has been run in production and logged to contact history), you can edit only the offer name, description, and default values for parameterized offer attributes. This restriction ensures that Campaign can track the exact offer details for offers that have already been given out to individuals.

1. Select **Campaign > Offers**. The Offers page appears.
2. Navigate to the offer you want to edit and click the hyperlinked offer name. The offer's Summary page appears in Read-Only mode.
3. Click the **Edit** icon to enter **Edit** mode.
4. Make your changes.

   Note: Offer names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219
5. When you have finished making your changes, click **Save Changes**. Your changes are saved and you are returned to the offer page in Read-Only mode.

To move an offer or offer list

You can move one or more offers among folders. The procedure for moving offers is the same as that for moving offer lists, and you can move offers and offer lists in the same operation.

Note: When you move any objects in Campaign you must be aware that access to different locations can be governed by different security policies. You can only move offers into a folder with a security policy in which you have permissions to do so.

1. From the Offers page, select the offer(s) or offer list(s) you want to move, and click the **Move Selected Items** icon.

   An alternative way to move an offer is to view its Offer Summary page and click the **Move to Another Folder** icon. Be aware, however, that this alternative method is available only for moving offers, not offer lists.

   The Move Items To window appears.
2. Navigate to the folder to which you want to move the selected items.

3. Click **Accept this Location**.

The selected offer(s) or offer list(s) are placed in the folder you chose.

Adding offers to offer lists

You can add offers to static offer lists either when you create the offer list, or by editing the list.

Note: Newly created offers can become part of smart offer lists with no action on your part if they meet the smart offer list query criteria.

Deleting offers

You must have the appropriate permissions before you can delete an offer or offer list. In addition, to preserve system integrity, Campaign will not allow you to delete offers or offer lists that have been referenced in system tables. This includes offers or offer lists that:

- are associated with a campaign;
- have been assigned to a cell in a contact process in a flowchart for which contact history has been populated; or
- have been assigned to a cell in an Optimize process in a flowchart.

Important: If you attempt to delete an offer or offer list in these situations, a confirmation message appears indicating that the offer or offer list will be retired instead of deleted. To prevent further use of offers or lists that have been referenced in system tables, you should retire rather than delete them.

If the offers you want to delete belong to any static offer lists, you will be asked to confirm the deletion. If you choose to continue, the deleted offer(s) are automatically removed from any static offer lists.

Contact processes containing cells that were assigned offers that have subsequently been deleted will remain configured, but the offer will be indicated as "Unknown Offer" in the process configuration dialog, and a warning will be produced when the flowchart is run.

The procedure for deleting offers is the same as that for deleting offer lists, and you can delete offers and offer lists in the same operation.

To delete an offer or offer list

1. From the Offers page, select the offer(s) or offer list(s) that you want to delete, and click the **Delete Selected Items** icon.

   OR

   From the Offer Summary page of the offer you want to delete, click the **Delete This Offer** icon. A confirmation window appears.
2. Click **OK**. You are returned to the Offers page. The deleted offer(s) is (are) no longer displayed.

Retiring offers

If you have the appropriate permissions, you can retire offers and offer lists to prevent their further use. Retiring an offer does not affect campaigns or flowcharts in which the offer has already been used, and maintains the data integrity with any system table data that has been generated based on the offer, such as contact and response history.

Retired offers remain visible in the offer hierarchy, but are grayed out. They can be found using the search feature, can be duplicated to create new offers, and are available for reporting. However, they can no longer be assigned, and cannot be given out as part of an offer list.

You can clean up static offer lists by deleting retired offers from them. Smart offer lists do not require cleanup as they will resolve only to non-retired offers matching their query criteria.

Note: Once you retire an offer, you cannot re-enable it. Instead, if you need an offer with the same details, you can create a new one by duplicating the retired offer.

The procedure for retiring offers is the same as that for retiring offer lists, and you can retire offers and offer lists in the same operation.

To retire an offer or offer list

1. From the Offers page, select any offers or offer lists that you want to retire, and click the **Retire Selected Lists** icon.

   An alternative way to retire an offer is to view its Offer Summary page and click the **Retire This Offer** icon. However, this method is available only for offers, not offer lists.
2. Click **OK**.

The selected offers and offer lists are retired and displayed in gray.

To assign offers to cells in a flowchart

You can assign offers to cells when you configure a Mail List or Call List process in a flowchart, and you can optionally exclude control groups from contact. In this way, you determine which cells receive which offers.

Note: You can also assign offers to cells from a target cell spreadsheet (TCS). See "To assign offers to cells in the target cell spreadsheet."

1. Create the offer or offer list.
2. In a flowchart in **Edit** mode, double-click the Mail List or Call List process that contains the cells to which you want to assign the offers.
3. Use the **Treatment** tab to assign one or more offers to each cell. Use the **Parameters** tab to specify offer parameter values. For instructions, see "To configure a contact process (Mail List or Call List)" on page 98.

   Note: If Campaign is integrated with Marketing Operations, use Marketing Operations to assign offers to output cells in the target cell spreadsheet (TCS) form of a campaign project. If your integrated Campaign environment is configured to access legacy campaigns, there are two ways to assign offers to cells: from the target cell spreadsheet or by configuring a contact process. For more information, see "About integration with IBM Marketing Operations" on page 2.

To assign offers to cells in the target cell spreadsheet

You can assign offers to cells in "top down" mode in the target cell spreadsheet.

1. In the campaign for which you want to assign offers to cells, click the **Target Cells** tab. You see the target cell spreadsheet for the current campaign.

2. Click the **Edit** link in the spreadsheet. You see the spreadsheet in Edit mode. Existing cells that are used in flowcharts are highlighted in color.
3. In the target cell spreadsheet in **Edit** mode, click the **Assigned Offer(s)** column in the row for the cell to which you want to assign offers.

   You see the **Search Offers** icon.
4. Click the **Search Offers** icon.

   You see the Select Offer(s) window.
5. In the Select Offer(s) window, navigate through the offer folders to select one or more offers or offer lists, or click the **Search** tab to find an offer by name, description, or code.
6. When you have selected the offer(s) you want to assign to the current cell, click **Accept and Close**.

   The Select Offer(s) window closes, and the **Assigned Offer(s)** column is populated with your selected offer(s).
7. When you have finished assigning offers to cells, click **Save** or **Save and Return** to save your changes.

Searching for offers

Campaign supports searches for offers but not for offer lists. You can perform a basic search for offers using any of the following criteria:

- Name or partial name
- Description or partial description
- Offer code or partial offer code
- Owner name

In addition, you can use the Advanced Search feature to find offers or offer lists using queries based on offer attributes and specified values.

To use Advanced Search to search for offers

1. From an Offers folder, click the **Advanced Search** icon.

   The **Advanced Search Options** window appears.
2. In the **Create a Condition** section, select an offer attribute to use in the **On This Attribute** field.
3. Based on the type of attribute you selected, you can enter further conditions for searching. For example:
   - On the attribute "Cost Per Offer", search for values less than or equal to $10.00
   - On the attribute "Expiration Date", search for specified date of 11/30/2007
   - On the attribute "Description", search for specified values that do not contain the string "2005"
4. Click **AND>>** or **OR>>** to move your set(s) of criteria to the **Find Offers Where** section, and to build your query. To remove a condition from the **Find Offers Where** section, click **<<** .

   Note: Depending on the operator(s) that you use in your query (for example, =, >, contains, begins with, and so on), you might be able to select multiple values or only a single value. Be aware that in some cases when you choose multiple values with an operator, you create "OR" conditions. For example, if you create a query where "Color =" and select blue, red, and white as the colors, the query you create is "Color = blue OR color = red OR color = white."

5. When you have finished building your query, click **Search**.
   The Search Results page displays any offers that match your search criteria.

All Offers page icons

The All Offers page uses the following icons

The icons, left to right, are described in the following table.

Table 15. The All Offers page icons

Icon Name	Description
Add an Offer	Click to add a new offer.
Add a List	Click to add a new offer list.
Add a Subfolder	Click to add a new offer subfolder.
Advanced Search	Click to open the Advanced Search Options dialog, where you can specify attributes and values to search for offers.
Print this Item	Select one or more offers by clicking the checkbox next to each offer, then click this icon to print the selected offer(s).
Move Selected Items	Select one or more offers by clicking the checkbox next to each offer, then click this icon to move the selected offer(s).
Delete Selected Items	Select one or more offers or offer lists by clicking the checkbox next to each item, then click this icon to delete the selected item(s).
Retire Selected Lists	Select one or more offers or offer lists by clicking the checkbox next to each item, then click this icon to retire the selected item(s).
Duplicate Selected Offers	Select one or more offers by clicking the checkbox next to each offer, then click this icon to duplicate the selected offer(s).
Reload Offers	Click this icon to refresh the list of offers and offer lists on the page.

To view offer reports from a Summary page

You can access reports on offers from their Summary pages. These are the same as the reports available in the **Campaign Analytics** area of the application, except that they provide data only for the current offer.

1. Click **Campaign > Offers**.
   The Offers page appears.
2. Navigate through the folder structure to find the offer for which you want to view a report.
3. Click the offer name.
   The Offer Summary page appears.
4. Click the **Analysis** tab.
5. Select a report from the **Report Type** drop-down list.

Campaign displays the selected report.

Working with offer lists

You can perform the following tasks with offer lists.

Note: Working with offer lists requires the appropriate permissions. Form information on permissions, see the *Campaign Administrator's Guide*.

To add a static offer list

1. Select **Campaign > Offers**.

   The Offers page appears.
2. Click the **Add a List** icon.

   The New Offer List page appears.
3. Enter a name, security policy, and optionally a description for the offer list.

   Note: Offer list names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
4. Leave the **This is a smart offer list** checkbox unchecked.
5. In the **Included Offers** section, use the Tree or List View to select offers to add to your list. Move the selected offers to the **Included Offers** box using the **>>** button.
6. When you have finished selecting your offers, click **Save Changes**. You are returned to the Offer List Summary page for your new list.

To add a smart offer list

1. Select **Campaign > Offers**.

   The Offers page appears.
2. Click the **Add a List** icon.

   The New Offer List page appears.
3. Enter a name, security policy, and optionally a description for the offer list.
4. Select the **This is a smart offer list** checkbox.
5. In the **Included Offers** section, use existing offer attributes, their values, and the AND and OR operators to create conditions for including offers in this offer list.
6. If desired, use the folder view under Restrict search access (for all users) to limit the search to selected folders. To include subfolders in search results, select the Include Subfolders checkbox.

   Note: Any offers chosen as a result of this search will be available to any user with access permissions to this offer list, even if they do not normally have permissions to see or access the offers.
7. If desired, use the drop-down lists under **Order Matching Offers by** to select the offer attribute by which you want matching orders to be sorted, and whether the sort is in Ascending or Descending order.
8. If desired, indicate whether you want to limit the search results to the first "X" offers matching. By default, there is no limit.
9. When you have finished defining the criteria for your smart offer list, click **Save Changes**. You are returned to the Offer List Summary page for your new list.

To edit an offer list

After you save your offer list changes, any campaigns using offer lists will automatically use the latest offer list definitions when they are next executed.

1. Select **Campaign > Offers**.

   The Offers page appears.
2. Click the hyperlinked name of the offer list that you want to edit.

   The **Summary** tab for the offer list appears.
3. Click the **Edit** icon.

   The offer list details appear in **Edit** mode.
4. Make the desired changes.

   Offer list names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
5. When you have finished making your changes, click **Save Changes**. You are returned to the Offer List Summary page for your list.

Moving offer lists

You can move one or more offer lists among folders by performing the same steps as you do to move offers, and you can move offers and offer lists in the same operation.

Deleting offer lists

You can delete one or more offer lists by performing the same steps as you do to delete offers, and you can delete offers and offer lists in the same operation.

Retiring offer lists

You can retire an offer list at any time to prevent its further use. Retiring an offer list does not affect the offers contained in that list.

Retired offer lists remain visible in the offer hierarchy, but are grayed out. They are available for reporting; however, they can no longer be assigned.

Note: Once you retire an offer list, you cannot re-enable it. If you need an offer list with the same details as a retired one, you must manually recreate it.

You retire offer lists by performing the same steps as you do to retire offers, and you can retire offers and offer lists in the same operation.

Assigning offer lists to cells

Note: If your Campaign environment is integrated with Marketing Operations, you must use Marketing Operations to assign offers or offer lists to output cells in the target cell spreadsheet form of a campaign project. If your Campaign environment is configured to access legacy campaigns, use the instructions in this guide to assign offers or offer lists to output cells in legacy campaigns. For legacy campaigns, there are two ways to assign offers to cells: from the campaign's target cell spreadsheet, or within a process configuration dialog. For more information, see "About integration with IBM Marketing Operations" on page 2.

You can assign offer lists to cells in contact processes in the same way as you assign individual offers. You can assign any combination of offers and offer lists to the same cell.

However, any parameterized attributes in the offers contained in the offer list will use their default values. You will not be able to assign parameter values for offers contained in the offer list. If you need to change parameterized values, you can do one of the following:

- change the default value(s) associated with the existing offer, create a copy of the offer with the desired defaults, and ensure that it is used in the offer list;
- assign the offer individually, outside of an offer list.

Managing offers when Marketing Operations is integrated with Campaign

If your IBM Campaign environment is integrated with IBM Marketing Operations, there are two options for offer management.

- If your system is configured so that offers are managed through the Marketing Operations version of the feature, then you use the **Offers** option from the **Operations** menu. For information about creating offers in this way, see the *IBM Marketing Operations and Campaign Integration Guide*.
- If your system is configured so that offers are managed through the Campaign version of the feature, then you use the **Offers** option from the **Campaign** menu.

Ask your system administrator which offer management option is configured on your system.

Introduction to using Marketing Operations assets in Campaign offers

If both Marketing Operations and Campaign are installed, and you have licensed the IBM Marketing Asset Management add-on for Marketing Operations, your campaigns can include digital assets from your Marketing Operations asset libraries. For example, an offer can include a product logo that is stored in a Marketing Operations asset library.

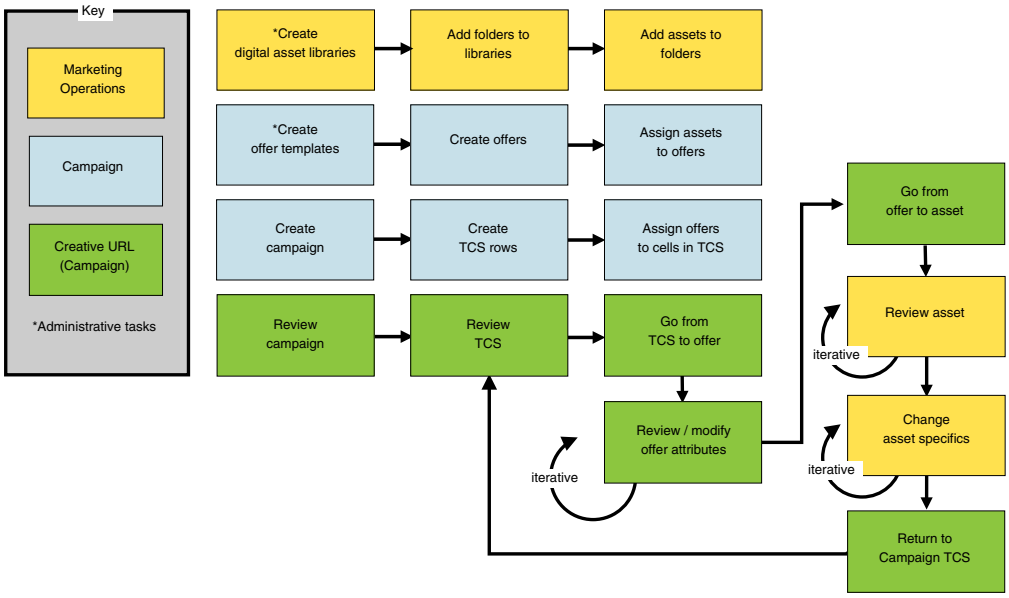
Note: Campaign may or may not be integrated with Marketing Operations.

To include an asset in an offer, a user creates an offer based on a template that includes the **CreativeURL** attribute. A "Creative URL" is a pointer that indicates the location of an asset in Marketing Operations. The asset that the **CreativeURL** attribute points to is included in the offer.

The **CreativeURL** attribute allows users to move seamlessly from Campaign to Marketing Operations when configuring offers, offer templates, or campaigns.

For example, when creating or editing a campaign, you can go from a Target Cell Spreadsheet (TCS) cell to the offer related to that cell. From the offer, you can go to the related asset in Marketing Operations, where you can view or modify it. You can also upload a new asset to the library for immediate use in the campaign.

The following example shows one possible workflow for a system that does not integrate Marketing Operations with Campaign. Your workflow might differ.



How to use a Marketing Operations asset in a Campaign offer

This topic explains how to relate a digital asset from Marketing Operations to a Campaign offer, for systems that are not integrated.

Note: If Marketing Operations is integrated with Campaign, and offer integration is enabled, you follow a slightly different procedure. See the *IBM Marketing Operations and Campaign Integration Guide*.

An asset is an electronic file that is designed for use in a marketing program. Examples include logos, brand images, marketing research documents, reference materials, corporate collateral, or document templates. If you use both Marketing Operations and Campaign, you can include a file from a Marketing Operations asset library as part of a Campaign offer. To include an asset in an offer, you use the **CreativeURL** attribute. A "Creative URL" is a pointer to a file in a Marketing Operations asset library.

Table 16. How to use a Marketing Operations asset in a Campaign offer

Task	Details
Prerequisite: Create and populate an asset library in Marketing Operations.	Marketing Operations administrators create asset libraries, which serve as repositories for files. Marketing Operations users can upload digital assets and organize them in folders within the asset libraries. For a list of prerequisites and guidelines, see the *Campaign Administrator's Guide.*
Prerequisite: Add the **CreativeURL** attribute to an offer template.	Campaign administrators add the **CreativeURL** attribute to an offer template when defining the template. For more information, see the *Campaign Administrator's Guide.*

Table 16. How to use a Marketing Operations asset in a Campaign offer (continued)

Task	Details
Create an offer based on a template that includes the **CreativeURL** attribute, and relate one asset to the offer.	1. Select **Campaign > Offers**, click the **Add an Offer** icon, and select a template that includes the **CreativeURL** attribute. 2. Use the New Offer page to define the offer (name, security policy, and other information), then click **Browse Library** in the **Creative URL**. (Steps 2 - 5 can also be done from the Target Cell Spreadsheet view mode.) 3. In the pop-up, click a library to open it. The library window opens. 4. In the library window, go to a folder in the asset library, and select the asset that you want to use in this offer. 5. To add an asset, click **Add Asset**, then define the asset name, owner, and other information. In the **File** field, click **Upload**, then browse to the asset. You can upload a File, Preview File, or Thumbnail. 6. Follow the prompts to select and upload assets to the library, save changes, and accept the asset. 7. Click **Save Changes** to save the offer. A link to the specified asset is now included in the **Creative URL** field.
Assign offers to cells in the campaign Target Cell Spreadsheet (TCS).	1. Go to the All Campaigns page, click a campaign, select the Target Cells tab, and edit the TCS. 2. Click in the Assigned Offers column and click **Select one or more offers**. 3. Use the Select Offers window to select the offer you created. 4. Save and exit the TCS. Your campaign now includes a digital asset from Marketing Operations. Typically, a campaign now goes through a review and adjustment process, which is explained in the following steps.
Optionally, modify the offer.	1. Go to the All Campaigns page, click a campaign, select the Target Cells tab, and edit the TCS. 2. Click in the Assigned Offers column and click **View offers**. 3. The **View/Edit Offer** window opens. Select the offer and click **Preview**. (If you decide to remove an offer, select it and click Remove.) 4. To open the offer for editing, click the **Edit** icon at the top of the pop-up window. 5. With the offer open for editing, you can edit the values of parameterized attributes. You can also access Marketing Operations assets: a. Click the **Browse Library** link in the **Creative URL** field. b. In the window that opens, click a library. c. In the resulting window, go to a folder in the asset library, and select an asset to use in this offer. d. If you want to add an asset, click **Add Asset**, then provide the required information. In the **File** field, click **Upload**, then browse to the asset. You can upload a File, a Preview File, or a Thumbnail. Follow the prompts to complete the action. e. Click **Save Changes** to save the offer. A link to the selected asset is now included in the **Creative URL** field.
Save and exit.	Close the windows in IBM Marketing Operations and return to the Campaign TCS. Save and exit the TCS.

Chapter 8. Cells

A cell is a list of identifiers (such as customer or prospect IDs from your database) to which you assign one or more offers in Campaign.

You create cells by configuring and running data manipulation processes in flowcharts. These output cells can also be used as input for other processes in the same flowchart (downstream from the process that created them).

Each cell generated in a flowchart has:

- a system-generated **cell code**. The cell code has a standard format determined by your system administrators, and is unique when generated. Cell codes are not checked for uniqueness unless the flowchart configuration parameter `AllowDuplicateCellCodes` is set to "No," in which case cell codes are enforced to be unique only within the current flowchart. For details about cell codes and cell code generators, see the *Campaign Administrator's Guide*. For details about configuration parameters provided by IBM EMM, see the *Marketing Platform Administrator's Guide*.
- a system-generated **cell name**, unique within the current flowchart.

In addition to creating cells in flowcharts, you can also create placeholder cell codes in the target cell spreadsheet, to which you can later link cells created in flowcharts.

Cell names and codes

Cell names and codes are important because they establish the links between processes that output cells or use cells as input.

Cell codes

Cell codes have a standard format determined by your system administrators, and are unique when generated. Because cell codes can be edited, they are not checked for uniqueness unless the flowchart configuration parameter AllowDuplicateCellCodes is set to "No," in which case cell codes are enforced to be unique only within the current flowchart. There is no checking for uniqueness in the target cell spreadsheet (TCS). For details about cell codes and cell code generators, see the *Campaign Administrator's Guide*. For details about configuration parameters provided by IBM EMM, see the *Marketing Platform Administrator's Guide*.

Cell names

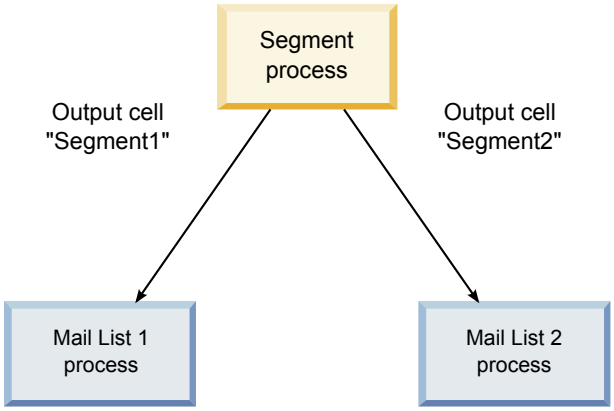
Note: Cell names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.

By default, cell names are based on the process from which they are generated (for example, if a cell is generated by a process named "Select1", then the default cell name is "Select1") but they can be overridden. If you change a process name, the names of cells generated by that process are automatically changed as well, both in that process and in any connected downstream processes within the same

flowchart. If you change a cell name, you might also affect the links between that cell and any downstream processes using that cell as input.

For example, if you have a Segment process that generates two output cells named Segment1 and Segment2, and these cells are used as input into two Mail List processes (Mail List 1 and Mail List 2), if you change the names of the Segment cells after you have already connected the Mail List processes, you need to understand how Campaign handles the new cell names.

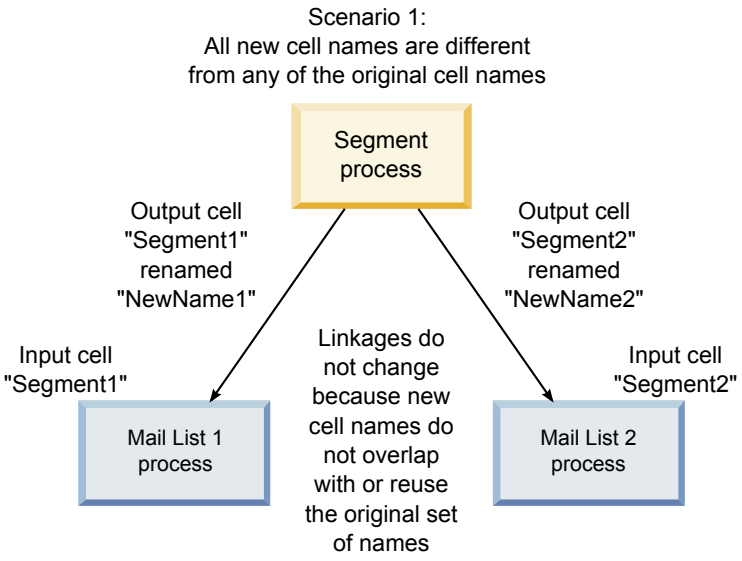
The following diagram illustrates a basic example of a Segment process that outputs two cells, each cell then becoming the input for downstream Mail List processes.



Examples: cell renaming scenarios

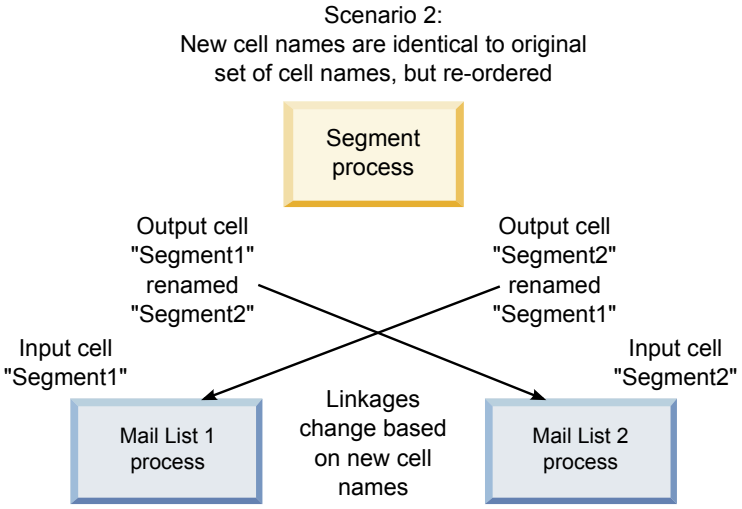
Scenario 1: All new cell names are different from any of the original names

If no new cell names overlap with the original default names (that is, in the example, if you do not use "Segment1" or "Segment2" as the name for either of the Segment output cells), then Campaign can maintain the original linkages based on the original "order" of the cells. In this situation, because there is no overlap or re-use of either of the original cell names, the linkage between the output cells from the Segment process and the two respective Mail List processes remains unchanged, as shown in the following diagram.

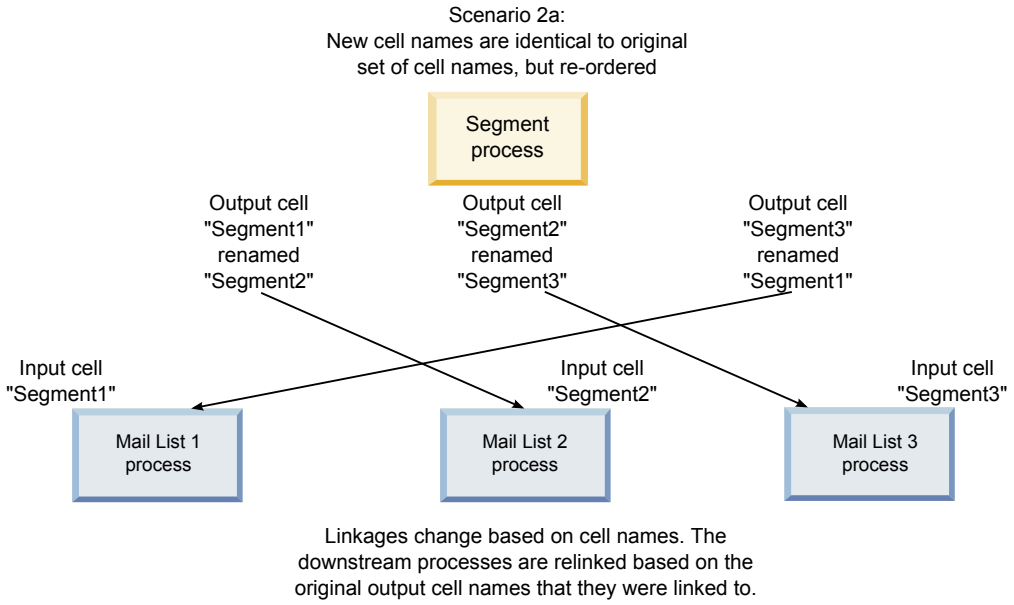


Scenario 2: The set of new cell names is identical to the original set of cell names, but re-ordered

If the new names you choose for your cells are exactly the same as the names in the original set and simply re-ordered, the downstream processes will look for available output cells by name (that is, the new cell names), and the linkages will be switched as necessary. In the example, the newly renamed Segment2 output cell is now the input cell to Mail List 2, and the newly named Segment1 cell is now the input cell to Mail List 1, as shown in the following diagram.

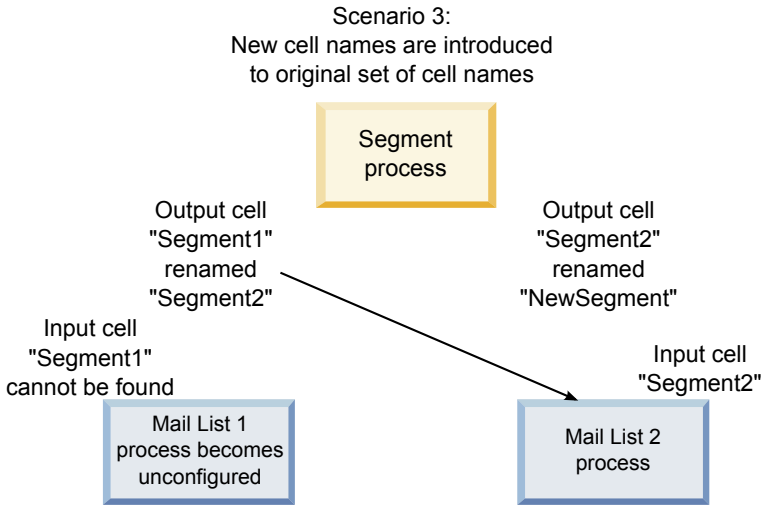


The following diagram illustrates the same situation with three output and input cells.



Scenario 3: The set of new cell names overlaps with some of the original cell names, and new cell names are introduced

If the new names overlap with some of the original names, and new cell names are added, any links using names in the original set of cell names can be recognized, otherwise they are broken. For example, if you rename cell "Segment1" to "Segment2" and rename cell "Segment2" to "NewSegment", the new "Segment2" will be hooked up to Mail List2 and Mail List1 will become unconfigured, because it cannot find an input cell name with the name "Segment1."



Working with cells

A cell is a list of identifiers (such as customers or prospects) to which you assign one or more offers. You can perform the following tasks with cells.

To create a cell in a flowchart process

You create cells as the output of any data manipulation process (such as Audience, Extract, Merge, or Select) in a flowchart.

1. In a flowchart in **Edit** mode, configure a data manipulation process.
2. When you run the process, one or more cells (depending on the type of process and the configuration details) are created as the output of the process.

   Note: In addition to creating cells in flowcharts, you can also create placeholder cells in the target cell spreadsheet, then later link them to cells in flowcharts.

Limiting the size of output cells

To limit the number of IDs generated by data manipulation processes such as Audience, Extract, Merge, or Select, click the **Cell Size Limit** tab of the process configuration dialog.

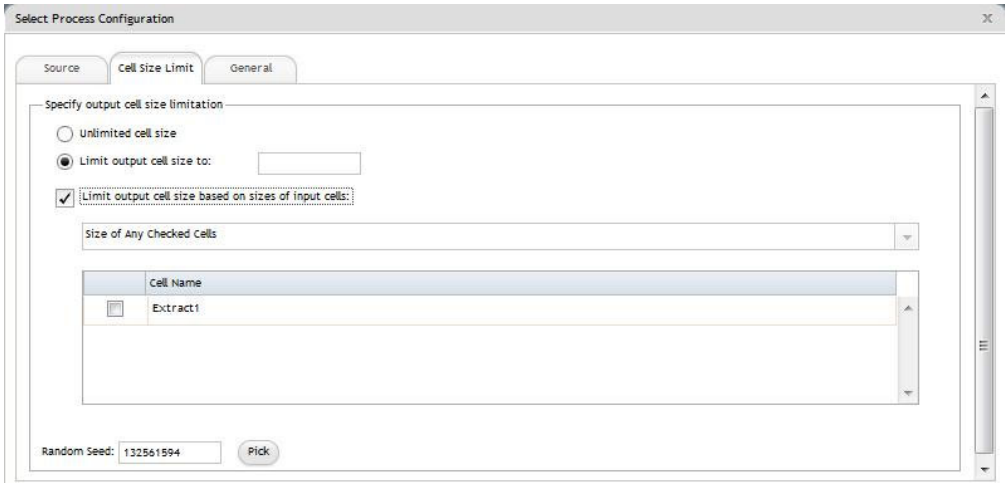
The options that you have for limiting output cell size depend on whether the process accepts input from a cell or a table. In processes that can accept either type of input, the Cell Size Limit window changes dynamically to present options appropriate to the input type.

- Processes taking input from an output cell
- Processes taking input from a table

For either type of input, you can also change the random seed for use in selecting IDs randomly.

Processes taking input from an output cell

If the process takes input from an output cell, you can use the Cell Size Limit tab to limit the number of IDs to be output.



Use the following controls to affect the output cell size:

- **Unlimited cell size** returns all IDs satisfying the query or selection criteria. This option is the default.
- **Limit output cell size to** returns no more than the specified number of unique IDs, selected randomly from all IDs that meet the query criteria. In the text box, enter the maximum number of IDs that you want returned. Campaign matches

the deduplicated records that are returned from the database to those of the input cells, then does a random selection to arrive at the final cell size. The ID list in cells that are passed from process to process is always unique.

Note: Use the **Random** option only when it is important for exactly *N* records to be returned. This option uses a large amount of temporary space and takes the most time because all IDs must be retrieved to the Campaign server.

Limiting the output cell size based on the input cell size

In processes that take input from cells, you can use the sizes of cells from connected incoming processes as attributes for limiting the output cell size, even if you are not using the actual cell data or IDs.

For example, if you connect 3 processes that each have one output cell, to a Select process, you might use only one of the three incoming cells as the actual data input for the Select process, but you can use the *attributes* of the other incoming cells to specify the output cell size for the Select process. A solid line connects the process whose output cell is actually used by the Select process; dotted lines connect the processes whose output cells are not used as data input but only have a temporal relationship with the Select process.

Use the **Limit output cell size based on sizes of input cells** checkbox to specify the input cells whose size attributes you want to use for limiting your current process's output cell size. Some of these options act in conjunction with the **Limit output size to** value that you specify.

To limit output cell size based on size of input cells:

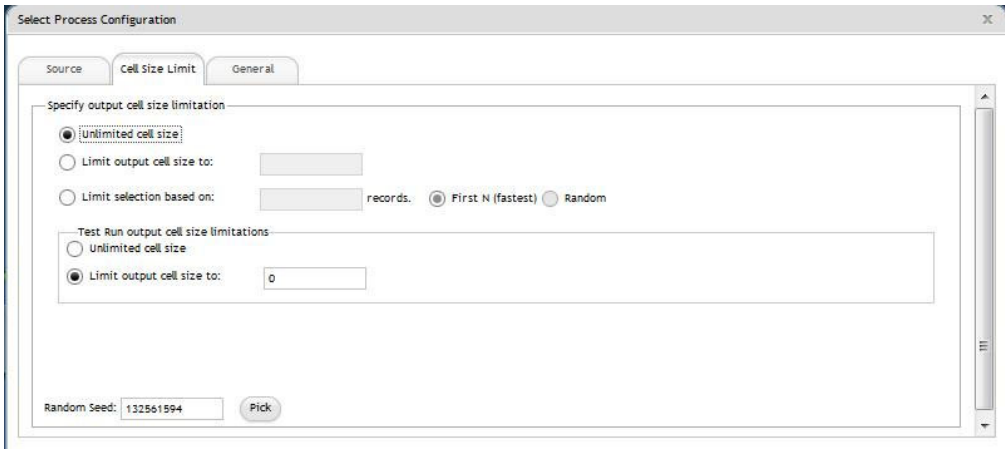
1. Click the **Cell Size Limit** tab in the process.

   You see the Cell Size Limit window.
2. Choose the method by which the limits will be calculated by selecting an option from the pull-down list:
   - **Largest Checked Cell** — specifies that the output cell size should not exceed the size of the largest selected input cell. For example, if cells A, B, and C are checked, with sizes of 250, 500, and 100 respectively, the size of the output cell for this process would be limited to 500, the largest of the input cell sizes.
   - **Maximum Size (Above) Minus Sum of All Checked Cells** — use this option in conjunction with the **Limit output cell size to** value specified above. This option specifies that the output cell size should not exceed , where is the difference between the number specified in the **Limit output cell size to** field above, and the sum of all selected input cells. For example, if you entered 1000 as the **Limit output cell size to** value, and checked input cells A and B with sizes 100 and 200 respectively, the size of the output cell for this process would be limited to 1000 – (100+200) = 700.
   - **Size of Any Checked Cells** — specifies that the output cell size should not exceed the size of any of the selected input cells. For example, if cells A, B, and C are checked, with sizes of 250, 500, and 100 respectively, the size of the output cell for this process would be limited to 100, the smallest of the input cell sizes.
   - **Sum of All Checked Cells** — specifies that the output cell size should not exceed the total size (sum) of all the selected input cells. For example, if cells A, B, and C are checked, with sizes of 250, 500, and 100 respectively, the size of the output cell for this process would be limited to 850, the sum of all three of the input cell sizes.

3. In the list of input cells, select the checkboxes for the input cells on whose size(s) you want the output cell size criteria to be based.

Processes taking input from a table

If the process takes input from a table (or a strategic segment, in processes that allow this option), use the Cell Size Limit tab as follows.



Use this tab to specify limits on the output cell size. The key difference between the two **Limit** options is their impact on resources and the final number of records when your data source is non-normalized.

- **Unlimited cell size**: Returns all IDs that meet the query or selection criteria. This option is the default.
- **Limit output cell size to**: Returns no more than the specified number of unique IDs, selected randomly from all IDs that meet the query criteria. In the text box, enter the maximum number of IDs that you want returned. Campaign deduplicates the complete set of IDs before random selection, then retains only the specified number of records, so that a list of unique IDs is returned even when duplicates exist on the ID fields. This option uses a large amount of temporary space and takes the most time because all IDs must be retrieved to the Campaign server. Use this option only when the data is not normalized on the ID field and if it is important that exactly *N* records are returned.
- **Limit selection based on**: Use this option to limit records that meet your query criteria. This option reduces the time and memory that are required to select the final set of records. However, it can result in fewer than the specified number of unique IDs.
  - **First N (fastest)**: Campaign retrieves from the database only the first *N* records that meet your query criteria. Campaign then deduplicates these IDs. If the data is not normalized, then the final result contains fewer than the requested number of unique records. This method is the fastest because it takes less time to retrieve data and uses less temporary space.
  - **Random**: Campaign retrieves from the database all records that meet your query criteria, then randomly selects the number of records requested. Campaign then deduplicates those IDs. If the data is not normalized, the final result contains fewer than the requested number of unique records. This option uses less temporary space because only the randomly selected records are retrieved and stored by Campaign.

Applying test run output cell size limitations

In some processes, including Audience and Select, you can also limit cell size specifically for test runs. Use the options in this section to control the amount of data returned and subsequently processed during a test run.

- **Unlimited cell size** — this is the default option. The number of IDs returned from the query or selection criteria on the **Source** tab of this process is not changed. With this option, the test run operates on all the data that it would during a production run, but offer and contact histories are not populated.
- **Limit output cell size to** — returns an exact specified number of IDs, selected randomly from all IDs that meet your query criteria. In the text box, enter the number of IDs that you want returned. With this method, Campaign deduplicates the complete set of IDs prior to random selection, then retains only the specified number of records, so that a list of unique IDs is returned even when duplicates exist on the ID fields.

Note: Selecting records with this option uses a large amount of temporary space and takes the most time, because all IDs must be retrieved to the Campaign server. Use this option only when the data is not normalized on the ID field, and if it is important for exactly *N* records to be returned.

Changing the cell name

By default, the name of a cell created in a process matches the process name. For processes that create more than one cell, the output cell names are a concatenation of the process name and the segment name. For example, a Segment process named "Segment1" creating 3 segments will have output cells whose default names are "Segment1.Segment1", "Segment1.Segment2", and "Segment1.Segment3."

Cell names are designed to be linked to the name of the process from which they were created. If you edit a process name, the cell names will automatically change as well.

However, if you edit the cell names, you remove their link to the process name. This means that if you subsequently change the process name, the cell name(s) will no longer automatically change.

To change the name of a cell in a flowchart process

Note: When you save changes to the output cell name, if **Auto Generate** is selected for the cell code, the cell code is regenerated. If you do not want the cell code to change, uncheck **Auto Generate** prior to editing the cell name.

1. In a flowchart in **Edit** mode, double-click the process whose output cell name you want to change. You see the process configuration dialog for the process.
2. Click the **General** tab. You see the general information for the process, including the process name and the output cell name.
3. Place your cursor in the **Output Cell Name** field so that the text is selected, and edit the cell name.
4. Click **OK**. Your changes are saved. If you have edited the cell name so that it no longer matches the process name, these names are no longer linked.

   Note: Saving a flowchart does not trigger any type of validation. To check that your flowchart has configured correctly with no errors, you can manually perform a flowchart validation.

Resetting the cell name

By default, the name of a cell created in a process matches the process name. For processes that create more than one cell, the output cell names are a concatenation of the process name and the segment name. For example, a Segment process named "Segment1" creating 3 segments will have output cells whose default names are "Segment1.Segment1", "Segment1.Segment2", and "Segment1.Segment3."

If you rename the process, the cell name(s) will automatically change as well, so that the cell name and process name remain linked.

However, if you have change the cell name manually so that it is different from the process name, the cell and process names are no longer linked. You can restore the link by renaming the cell name to the same as the process name.

To reset the cell name

1. In a flowchart in **Edit** mode, double-click the process whose output cell name you want to reset. You see the process configuration dialog for the process.
2. Click the **General** tab. You see the general information for the process.
3. The next step varies depending on whether you are editing a process that outputs a single cell or multiple cells:
   - In processes that output a single cell, edit the text in the **Output Cell Name** field so that it is identical to the process name displayed in the Process Name field.
   - In processes that output multiple cells, click **Reset Cell Names**. The cell names revert to the default format, which is a concatenation of the current process name and the segment name.

   The process and cell names are now relinked. If you now change the process name, the output cell name will automatically change as well.
4. Click **OK**. Your changes are saved and the process configuration dialog closes.

About copying and pasting cell names and codes

In processes that output more than one cell, you can use the copy and paste feature to edit multiple output cell names and codes in the Output Cells grid.

To copy and paste all cells in the grid

In processes that output more than one cell, you can use the copy and paste feature to edit multiple output cell names and codes in the **Output Cells** grid.

1. In a flowchart in **Edit** mode, double-click the process for which you want to copy and paste cell names and codes. You see the process configuration dialog for the process.
2. Click the **General** tab. You see the general information for the process, including the **Output Cells** grid.
3. In the **Output Cells** grid, click anywhere to select all cells. All cells are always selected for pasting regardless of the cursor position.

   Note: The **Cell Code** column is not selectable or editable unless you clear the **Auto Generate Cell Codes** checkbox.
4. Click **Copy**. All cells are copied to the clipboard.
5. Click inside the cell that will be at the top left position of where you want to paste the cells.
6. Click **Paste**. The contents of your copied cells replaces the original content of a block of cells the same size as that which was copied.

To paste cell names and codes from an external spreadsheet

1. Select and copy cells or text from an external spreadsheet or other application using that application's copy feature.
2. In Campaign, in a flowchart in **Edit** mode, double-click the process for which you want to copy and paste cell names and codes. You see the process configuration dialog for the process.
3. Click the **General** tab. You see the general information for the process, including the **Output Cells** grid.

   Note: The **Cell Code** column is not selectable or editable unless you clear the **Auto Generate Cell Codes** checkbox. If you want to paste content into the **Cell Code** column, make sure you clear this checkbox.
4. Click inside the cell where you want to paste what you have copied. If you are copying and pasting a rectangular group of cells, click inside the cell that will be the top left cell of the rectangle.
5. Click **Paste**. The contents of your copied cell(s) replaces the original contents of a block of cells the same size.

Changing the cell code

By default, a cell's code is automatically generated by the system, based on the format defined for all cell codes by your system administrators. Cell code uniqueness is enforced across flowcharts and campaigns, but cell codes can be duplicated within flowcharts if you have the flowchart configuration parameter `AllowDuplicateCellCodes` set to "Yes."

For more details about configuration parameters in the central configuration parameter provided by IBM EMM, see the *Marketing Platform Administrator's Guide*.

Note: Although you can override the default system-generated cell code, any cell code you enter manually must still conform to the cell code format. This format is displayed below the **Cell Code** field in the process configuration dialog. Code formats are represented by constants and variables as follows: uppercase letters represent alphabetical constants, a lowercase "n" represents a numeric character. For example, a cell code format of "Annn" indicates that the cell code must be 4 characters long, with the first character being uppercase "A", followed by 3 numbers. A sample cell code of this format would be "A454."

To change the code for a cell in a flowchart process

1. In a flowchart in **Edit** mode, double-click the process whose output cell name you want to change. You see the process configuration dialog for the process.
2. Click the **General** tab. You see the general information for the process.
3. Clear the **Auto Generate** checkbox if it is selected. The **Cell Code** field becomes editable.
4. In the **Cell Code** field, edit the cell code. Remember that the modified code must conform to the cell code format displayed below the **Cell Code** field.
5. When you have finished editing the cell code, click **OK**. The process configuration dialog closes and your changes are saved.

To match and link flowchart cells using the Match and Link Target Cells dialog

In addition to linking cells from each process's configuration dialog, you can link and manage target cells for the entire flowchart from the **Match & Link Target**

Cells dialog. Before you do this, make sure placeholder cell codes and names exist in the target cell spreadsheet for the campaign. If you want to perform Automatching, make sure the cells defined in the target cell spreadsheet have the same name, or names starting with at least the same three characters as the output cell names.

1. In a flowchart in **Edit** mode, select the **Options** > **Match & Link Target Cells** option.

   You see the Match and Link Target Cells dialog, displaying Available Target Cells in the left pane, and flowchart output cells in the right pane.
2. To automatically match target cells and flowchart output cells based on name, click **Automatch**.

   Successfully automatched cells have a status of **Exact** or **Best Match** displayed in the right pane. Target cells that have been matched display in red.
3. To complete the linking of these matched pairs of cells, click **OK** to save and close the dialog.

   You see a warning indicating that the flowchart run results will be lost. Click **OK** to continue.

   The next time you view the **Match & Link Target Cells** dialog for this flowchart, you see that the status of the cells you matched and linked is displayed as **Linked**.

   Note: Target cell linkages are not saved in the database until you save the flowchart. If you cancel changes in the flowchart, cell linkages are not saved to the database.

To unmatch or unlink flowchart cells using the Match and Link Target Cells dialog

Note: Unlinking cells that have associated contact history causes these cells to be "retired". Because retired cells are not displayed in the target cell spreadsheet, they will no longer be visible there. To retain cells in the target cell spreadsheet, delete contact history for the cell before unlinking it.

1. In a flowchart in **Edit** mode, select the **Options** > **Match & Link Target Cells** option.

   Any matched or linked cells are displayed in the right pane, with their status indicated in the **Status** column.
2. To unmatch all matched cell pairs, click **Unmatch All**.

   The unmatched target cells are refreshed in the **Available Target Cells** pane, and the output cell **Status** and **Target Cell Name** columns are cleared. Linked pairs of cells are not changed.
3. To unlink all linked cell pairs, click **Unlink All**.

   Previously linked pairs are unlinked, but they remain matched. The target cells now appear in the **Available Target Cells** list in red, as matched target cells.

   Note: Target cell linkages are not saved in the database until you save the flowchart. If you cancel changes in the flowchart, cell linkages are not saved to the database.

To manually match and link flowchart cells using the Match and Link Target Cells dialog

1. In a flowchart in **Edit** mode, select the **Options** > **Match & Link Target Cells** option.

   You see the Match and Link Target Cells dialog, displaying Available Target Cells in the left pane, and flowchart output cells in the right pane.
2. Select one or more pairs of target cells and flowchart output cells to match, and click **Match > >**.

   The selected target cells are matched, in order, with the selected flowchart output cells. Successfully matched output cells have a status of **Manual** displayed, and target cells that have been matched display in red.
3. To complete the linking of these matched pairs of cells, click **OK** to save and close the dialog.

   You see a warning indicating that the flowchart run results will be lost. Click **OK** to continue.

   The next time you view the **Match & Link Target Cells** dialog for this flowchart, you see that the status of the cells you matched and linked is displayed as **Linked**.

   Note: Target cell linkages are not saved in the database until you save the flowchart. If you cancel changes in the flowchart, cell linkages are not saved to the database.

To link flowchart cells to target cells using the process configuration dialog

Before you do this, make sure placeholder cell codes and names exist in the target cell spreadsheet for the campaign.

1. In a flowchart in **Edit** mode, double-click the process whose output cell(s) you want to link to cell(s) in the target cell spreadsheet. You see the process configuration dialog for the process.
2. Click the **General** tab. You see the general information for the process.
3. Access the Select Target Cell window.
   - In processes that output a single cell, such as Select, click **Link to Target Cell...**.
   - In processes that output multiple cells, such as Segment, click the **Output Cell Name** or **Cell Code** row for each cell that you want to link. Click the ellipsis button that appears.

   You see the Select Target Cell window, displaying the cells defined in the target cell spreadsheet for the current campaign.
4. In the Select Target Cell window, select the row for the cell to which you want to link the current output cell.
5. Click **OK**. The Select Target Cell window closes. The Output Cell Name and Cell Code in the process configuration dialog are replaced with the code and name of the cell in the target cell spreadsheet. These are italicized, indicating that they are linked to the target cell spreadsheet.
6. Click **OK**. The process configuration dialog closes and your changes are saved.

To unlink flowchart cells from target cells using the process configuration dialog

Important: Unlinking cells that have associated contact history causes these cells to be "retired". Because retired cells are not displayed in the target cell spreadsheet, they will no longer be visible there. To retain cells in the target cell spreadsheet, delete contact history for the cell before unlinking it.

1. In a flowchart in **Edit** mode, double-click the process whose output cell(s) you want to unlink from cell(s) in the target cell spreadsheet. You see the process configuration dialog for the process.
2. Click the **General** tab. You see the general information for the process.
3. Access the Select Target Cell window.
   - In processes that output a single cell, such as Select, click **Link to Target Cell...**.
   - In processes that output multiple cells, such as Segment, click the **Output Cell Name** or **Cell Code** row for the cell that you want to unlink. Click the ellipsis button that appears.

   You see the Select Target Cell window, displaying the cells defined in the target cell spreadsheet for the current campaign. The currently linked cell is highlighted.
4. In the Select Target Cell window, select **[Not Linked]**. The cell name and code are no longer highlighted.
5. Click **OK**. The Select Target Cell window closes. The Output Cell Name and Cell Code in the process configuration dialog are no longer italicized, indicating that they are not linked to the target cell spreadsheet.
6. Click **OK**. The process configuration dialog closes and your changes are saved.

To assign offers to cells in a flowchart

You can assign offers to cells when you configure a Mail List or Call List process in a flowchart, and you can optionally exclude control groups from contact. In this way, you determine which cells receive which offers.

Note: You can also assign offers to cells from a target cell spreadsheet (TCS). See "To assign offers to cells in the target cell spreadsheet" on page 124.

1. Create the offer or offer list.
2. In a flowchart in **Edit** mode, double-click the Mail List or Call List process that contains the cells to which you want to assign the offers.
3. Use the **Treatment** tab to assign one or more offers to each cell. Use the **Parameters** tab to specify offer parameter values. For instructions, see "To configure a contact process (Mail List or Call List)" on page 98.

   Note: If Campaign is integrated with Marketing Operations, use Marketing Operations to assign offers to output cells in the target cell spreadsheet (TCS) form of a campaign project. If your integrated Campaign environment is configured to access legacy campaigns, there are two ways to assign offers to cells: from the target cell spreadsheet or by configuring a contact process. For more information, see "About integration with IBM Marketing Operations" on page 2.

Assigning offer lists to cells

You assign an offer list to a cell in the same way as you assign a single offer or multiple offers to a cell, whether from a flowchart or in the target cell spreadsheet. However, you cannot specify the values for parameters in offers within the offer list. The default values for parameterized offer fields are used.

To set parameter values in offers assigned to cells

After you assign offers to cells, you can specify values for parameterized attributes that are used in the assigned offers. For example, if a Mail List process includes a credit card offer, you can adjust the terms that are offered.

1. Open a flowchart in **Edit** mode.
2. Double-click the Mail List or Call List contact process whose offer attributes you want to adjust.
3. Click the **Parameters** tab. This tab shows the parameter names and values for each parameterized offer that was assigned on the Treatment tab.
4. In the **For Cell(s)** field, select a cell by name or select **[All Cells]** to assign the same parameter values to all cells.
5. For each cell/offer/parameter combination, click the **Assigned Value** field to display available values (if applicable) or edit the text in the field. The value is applied to every cell that has this offer.

   You can assign the same offer to multiple cells on the Treatment tab, but set different parameter values for each cell. In this case, the **[All Cells]** view displays the text **[Multiple Values]** in the **Assigned Value** column. Use the **For Cell(s)** list to see which value is assigned to each cell.
6. For complete information about using the **Parameters** tab in the contact configuration process dialog, see "To configure a contact process (Mail List or Call List)" on page 98.

About the target cell spreadsheet

Note: If your Campaign environment is integrated with Marketing Operations, you must use Marketing Operations to work with target cell spreadsheets. If your Campaign environment is configured to access legacy campaigns, use the instructions in this guide to work with target cell spreadsheets for legacy campaigns. For more information, see "About integration with IBM Marketing Operations" on page 2.

The target cell spreadsheet (TCS) is a spreadsheet-type feature for each campaign that displays all cells used in flowcharts within that campaign, and their details, including assigned offers. In addition to providing an accessible view of all cells as used in the campaign's flowcharts, it is a tool for cell-based offer assignment.

The target cell spreadsheet can be edited at any time, and writes values to the Campaign system tables when it is saved.

It can be used in two modes:

- **Top-down** — you create all target and control cells in the target cell spreadsheet, then later link them to cells created in flowcharts using their cell codes. For cells created within the TCS, all fields except those that are "**Used in Flowchart**" can be edited in the TCS.

- **Bottom-up** — each target cell that you create in a flowchart process is displayed in the TCS after you save the flowchart. For cells created from flowcharts, only the custom attributes can be edited in the TCS.

You can switch between the two modes at any time, although in general this will not be done often, because the top-down and bottom-up definition tasks are likely to be performed by different people.

Important: You should put in place business rules that minimize the possibility of a target cell spreadsheet being edited when any of the flowcharts in the associated campaign are being edited or run. Incorrect data might be saved and conflicts can arise if edits are made to the flowchart and the TCS by different users at the same time, for example, if one user is editing contact processes from within a flowchart, while another user is changing offer assignments for the same cells from the TCS.

However, in some cases you will need to switch between modes. For example, if you are working in a flowchart and find that a target cell has not been defined in the TCS in top-down mode, you can save the flowchart, then switch to top-down mode (go to the TCS and create the cell there), then switch back to bottom-up mode (go back to the flowchart and link to the new cell in the TCS. The contact process then configures successfully).

Cells created in the TCS in top-down mode never are visually disabled (grayed out) if they are unused in bottom-up mode.

Cell status information in the target cell spreadsheet

The target cell spreadsheet in Campaign displays the current status of each cell, including the cell count, last run type (production or test run of a flowchart, branch, or process), and the last run time. The cell count is the number of unique audience IDs for each cell that is linked to an output cell in a flowchart that has been run. This cell status is the result of the latest saved production or test run of the corresponding process.

Cell status information displays in the target cell spreadsheet in either Campaign (stand-alone) or Marketing Operations (when integrated).

Updating the cell counts

If you make changes to a process configuration, any previous run results are lost and the **Cell Count**, **Last Run Type** and **Last Run Time** columns appear blank in the target cell spreadsheet. You must run the flowchart, branch, or process in production or test mode and subsequently save the flowchart to update the cell count.

Note the effect on the cell counts in the TCS for the following types of process configuration changes.

- **Linking a flowchart output cell to a target cell.** The cell count remains blank until the next saved production or test run.
- **Unlinking a flowchart output cell from a target cell.** Any previous run results are removed and the cell count is blank.

To refresh the cell counts manually

The cell counts in the target cell spreadsheet are updated automatically when you run the flowchart, branch, or process in production, or when you save a test run. If the TCS is open when the run completes, you must refresh the cell counts manually by clicking the **Get Cell Status** icon.

Working with the target cell spreadsheet

See the following topics for information on working with the target cell spreadsheet (TCS).

To add one row to the target cell spreadsheet

1. In the campaign for which you want to add a cell, click the **Target Cells** tab.

   The target cell spreadsheet for the current campaign appears.
2. Click the **Edit** icon.

   The spreadsheet appears in **Edit** mode. Existing cells that are used in flowcharts are highlighted in color.
3. Click the **Add a Cell** icon.

   One row is added to the bottom of the spreadsheet.

To add multiple empty rows to the target cell spreadsheet

1. In the campaign for which you want to add cells, click the **Target Cells** tab. The target cell spreadsheet for the current campaign appears.
2. Click the **Edit** icon.

   The spreadsheet appears in **Edit** mode. Existing cells that are used in flowcharts are highlighted in color.
3. Click the **Add Many Cells** icon and select **N empty rows** from the drop-down list. The Add Multiple New Rows window appears.
4. In the Number of Rows to Create field, enter the number of rows you want to add.
5. Click **Create Target Cells**.

   You see the new target cell rows added to the bottom of the spreadsheet, with the cell code and cell name already populated.
6. Enter any additional information you have for the new cells in the spreadsheet, then click **Save** or **Save and Return** to save your changes.

To duplicate rows in the target cell spreadsheet

1. In the campaign for which you want to duplicate cells, click the **Target Cells** tab. The target cell spreadsheet for the current campaign appears.
2. Click the **Edit** icon.

   The spreadsheet appears in **Edit** mode. Existing cells that are used in flowcharts are highlighted in color.
3. Select the row that you want to duplicate.
4. Click the **Add Many Cells** icon and select **N duplicate rows** from the drop-down list.

   The Add Multiple New Rows window appears.
5. In the **Number of Rows to Create** field, enter the number of rows you want to add.
6. Click **Create Target Cells**.

   You see the new target cell rows added below your selected row, with the cell code and cell name already populated. All other column values except **Used in Flowchart** are copied from your original cell row.
7. Enter any additional information you have for the new cells in the spreadsheet, then click **Save** or **Save and Return** to save your changes.

To search in the target cell spreadsheet

The Search function in the target cell spreadsheet allows you to enter a partial string and find matches in any column of the spreadsheet. For example, entering "924" in the search field will match both the row containing the cell with code "A0000000924" as well as the row for a cell assigned to an offer named "Offer9242007."

Note: The search function is only available in Edit mode in the target cell spreadsheet.

1. In the campaign for which you want to search for cells, click the **Target Cells** tab.

   The target cell spreadsheet for the current campaign appears.
2. Click the **Edit** link in the spreadsheet.

   The spreadsheet appears in **Edit** mode. Existing cells that are used in flowcharts are highlighted in color.
3. Click **Search**.
4. In the Find window, enter the string for which you want to search, then click **Find String**.

   The row containing the first match found for your search string is highlighted.
5. Click **Find Next** to continue finding matches in the spreadsheet.

To specify whether the current cell is a control cell

1. In the target cell spreadsheet in **Edit** mode, click in the **Control Cell** column for the cell you are editing.

   The cell becomes editable, with a drop-down list.
2. Select **Yes** or **No** from the drop-down list to indicate whether the current cell is a control cell.
3. Click **Save** or **Save and Return** to save your changes.

Important: If you assign a control cell (for example, Cell A) as the control for one or more target cells, then subsequently change the Cell A to a target cell, Cell A is removed as a control from any target cells that previously used it as a control.

To specify a control cell for the current cell

1. In the target cell spreadsheet in **Edit** mode, click in the **Control Cell Code** column for the cell you are editing.

   The cell becomes editable, with a drop-down list. Cell codes for any cells designated as control cells (in other words, that have a value of **Yes** in their Control Cell column) are available to be selected as control cells.
2. Select the cell to be used as a control for the current cell from the drop-down list.
3. Click **Save** or **Save and Return** to save your changes.

To generate and use cell codes in the target cell spreadsheet

Use this feature to have Campaign generate a unique cell code for use in the target cell spreadsheet.

1. In the target cell spreadsheet in **Edit** mode, click the **Generate Cell Code** icon.

   A window with the generated cell code appears.
2. Click inside the window and use your mouse to select the cell code.
3. Right-click and select **Copy** from the context menu.

4. Click the field in the target cell spreadsheet in which you want to paste the cell code.
5. Right-click and select Paste from the context menu. The generated cell code is pasted into the target cell spreadsheet.
6. Click **Save** or **Save and Return** to save your changes.

To edit the target cell spreadsheet

When you edit the attributes of cells in the target cell spreadsheet at any time, be careful that you are not doing so at the same time that any flowcharts in the associated campaign are being edited or run.

Important: Incorrect data might be saved and conflicts can arise if edits are made to the flowchart and the TCS by different users at the same time, for example, if one user is editing CSPs from within a flowchart, while another user is changing offer assignments for the same cells from the TCS.

1. In the campaign for which you want to edit cells, click the **Target Cells** tab.

   The target cell spreadsheet for the current campaign appears.
2. Click the **Edit** icon.

   The spreadsheet in **Edit** mode appears. Existing cells that are used in flowcharts are highlighted in color.
3. Click the cell field(s) that you want to edit, and make your changes.
4. Use the icons on the Campaign toolbar to move a selected row in the spreadsheet up or down, or to delete selected rows.
5. When you have finished making your edits, click **Save** or **Save and Return** to save your changes.

To paste data from an external source into the target cell spreadsheet

1. In the campaign for which you want to edit cells, click the **Target Cells** tab. You see the target cell spreadsheet for the current campaign.
2. Click the Edit link in the spreadsheet. You see the spreadsheet in Edit mode. Existing cells that are used in flowcharts are highlighted in color.
3. In your external application, copy the cell contents or text that you want to paste into the target cell spreadsheet.
4. In the target cell spreadsheet in **Edit** mode, click the cell in which you want to paste the copied contents or, to select multiple cells, click and hold the **Shift** key while selecting cells.
5. Right-click and select Paste from the context menu. Your copied cell contents are pasted into the selected cell(s).
6. Click **Save** or **Save and Return** to save your changes.

To import data from a .csv file into the target cell spreadsheet

You can import large amounts of target cell data into the Target Cell Spreadsheet from a file in .csv format. The file must be formatted as specified in "Required Format for .csv File For Importing to TCS".

1. In the campaign for which you want to import target cell data, click the **Target Cells** tab. You see the target cell spreadsheet for the current campaign.
2. Click the **Import Target Cells** icon in the spreadsheet.
3. In the **Import TCS** dialog, use the **Browse** button to navigate to the .cvs file that you want to import, select the file, and click **Open** in the **Choose file** dialog.
4. Click **Import**.

5. The Target Cell Spreadsheet refreshes, with the contents of the .csv file appended below any existing cells in the TCS.

Required Format for CSV File to Import to the Target Cell Spreadsheet

To successfully import data to the Target Cell Spreadsheet, the comma-separated values (.csv) file that you prepare must match the following format. When you export the contents of the Target Cell Spreadsheet, this is also the format in which data is exported.

- The file must contain a header row with column names matching the predefined and custom cell attributes.
- Each row must have the same number of columns as specified in the header row.
- If there is no data for a given column, it should be left blank.
- Values of custom attributes will be converted to the appropriate data type. For dates, the date string must be in the user's locale format.

Column Name	Description	Required	Valid Values
CellName	Name of the target cell.	Yes	
CellCode	Cell code assigned to this target cell. If empty, Campaign will generate a cell code, otherwise the specified value will be used.	Yes, if this row is marked as IsControl = Yes.	Cell code must match the defined cell code format.
IsControl	Indicates whether the cell in this row is a control cell or a regular target cell.	No	Yes, No
ControlCellCode	The CellCode of a cell that is marked as IsControl = Yes.	No	A valid cell code that exists for a call marked as IsControl = Yes.
AssignedOffers	A semicolon-delimited set of offers, offer lists, or a combination of both.	No	Offers can be specified using offer codes, and offer lists can be specified using offerlist names.The format is: `OfferName1[OfferCode1]; OfferName2[OfferCode2]; OfferListName1[]; OfferListName2[]`, where the offer name is optional, but the offer code is required, and the offer list name is required with empty square brackets.
FlowchartName	Name of the associated flowchart.	No. This column will be populated by Campaign. If specified, it will be ignored. Will be populated for export.	

Column Name	Description	Required	Valid Values
CellCount	The counts for this cell.	No. This column will be populated by Campaign. If specified, it will be ignored. Will be populated for export.	
LastRunType	The type of the last flowchart run.	No. This column will be populated by Campaign. If specified, it will be ignored. Will be populated for export.	
LastRunTime	The time of the last flowchart run.	No. This column will be populated by Campaign. If specified, it will be ignored. Will be populated for export.	
Custom Attr1	Add a column for each custom cell attribute you have defined for which you are importing data.	No	Valid values as required by the custom attribute's data type and user locale/format.

To export data from the target cell spreadsheet

You can export the contents of the Target Cell Spreadsheet in .csv format to a location on your local or networked drive. The entire contents of the TCS is exported; you cannot select a subset of the contents.

1. In the campaign for which you want to export TCS contents, click the **Target Cells** tab. You see the target cell spreadsheet for the current campaign.
2. Click the **Export Target Cells** icon.
3. In the File Download dialog, click **Save**.
4. In the **Save As** dialog, specify a file name for the file, navigate to the directory where you want to save it, and click **Save**. The File Download dialog indicates that the download is complete.
5. Click **Close** to return to the Target Cell Spreadsheet.

To assign offers to cells in the target cell spreadsheet

You can assign offers to cells in "top down" mode in the target cell spreadsheet.

1. In the campaign for which you want to assign offers to cells, click the **Target Cells** tab. You see the target cell spreadsheet for the current campaign.
2. Click the **Edit** link in the spreadsheet. You see the spreadsheet in Edit mode. Existing cells that are used in flowcharts are highlighted in color.
3. In the target cell spreadsheet in **Edit** mode, click the **Assigned Offer(s)** column in the row for the cell to which you want to assign offers.

   You see the **Search Offers** icon.
4. Click the **Search Offers** icon.

   You see the Select Offer(s) window.

5. In the Select Offer(s) window, navigate through the offer folders to select one or more offers or offer lists, or click the **Search** tab to find an offer by name, description, or code.
6. When you have selected the offer(s) you want to assign to the current cell, click **Accept and Close**.

   The Select Offer(s) window closes, and the **Assigned Offer(s)** column is populated with your selected offer(s).
7. When you have finished assigning offers to cells, click **Save** or **Save and Return** to save your changes.

To unassign offers from cells in the target cell spreadsheet

After you have assigned offers to cells, you can unassign them.

1. In the campaign for which you want to unassign offers from cells, click the **Target Cells** tab. You see the target cell spreadsheet for the current campaign.
2. Click the **Edit** link in the spreadsheet. You see the spreadsheet in Edit mode. Existing cells that are used in flowcharts are highlighted in color.
3. In the target cell spreadsheet in **Edit** mode, click the **Assigned Offer(s)** column in the row for the cell for which you want to unassign offers.

   You see the **View Offers** icon.
4. Click the **View Offers** icon.

   You see the View/Edit Offer Details window, with the assigned offers or offer lists in the Assigned offers section.
5. Select the offer(s) or offer list(s) that you want to remove from the cell, and click the **>>** button to move the selected items to the Removed offers section.
6. When you have finished removing offers or offer lists, click **Accept Changes**.

   The View/Edit Offer Details window closes and the removed offer(s) or offer list(s) are no longer displayed in the Assigned Offer(s) column for the cell.
7. When you have finished unassigning offers from cells, click **Save** or **Save and Return** to save your changes.

To view assigned offers or offer lists

After you have assigned offers or offer lists to cells, you can view the assigned offers or preview the contents of assigned offer lists.

1. In the campaign for which you want to view the offers or offer lists assigned to cells, click the **Target Cells** tab. You see the target cell spreadsheet for the current campaign.
2. Click the **Edit** link in the spreadsheet. You see the spreadsheet in Edit mode. Existing cells that are used in flowcharts are highlighted in color.
3. In the target cell spreadsheet in `Edit` mode, click the **Assigned Offer(s)** column in the row for the cell for which you want to view assigned offers or offer lists.

   You see the **View Offers** icon.
4. Click the **View Offers** icon.

   You see the View/Edit Offer Details window, with the assigned offers or offer lists displayed in the Assigned offers section.
5. Select an offer list and click **Offer List Preview**.

   You see the Summary page for the selected offer list, displaying the preview of included offers.

Target Cells tab icons

The Target Cells tab uses the following icons.

The icons, left to right, are described in the following table.

Table 17. Icons for Target Cells tab

Icon Name	Description
Edit	Click this icon to edit the target cell spreadsheet (TCS). **Note:** Editing the target cell spreadsheet requires the appropriate permission. For more information, see the *Marketing Platform Administrator's Guide*.
Import Target Cells	Click this icon to import the contents of a .csv file to the Target Cell Spreadsheet.
Export Target Cells	Click this icon to export the entire contents of this Target Cell Spreadsheet to a .csv file.
Get Cell Status	Click this icon to refresh the data in the target cell spreadsheet.

Chapter 9. Contact history and response tracking

In Campaign, the general term "contact history" refers to information captured about:

- **what offers** were sent
- to **which customers** (or accounts, or households, depending on audience level)
- by **which channel**
- on **what date**.

For example, a list of target customers for a campaign can be produced as the output of a contact process (such as Call List or Mail List) in the campaign's flowchart. Each of the target customers belongs to a cell that has been assigned one or more offers. When the Call List or Mail List process is run in production mode (not in test mode) with logging to contact history enabled, details are written to several tables in the Campaign system database.

Together, those tables comprise contact history, which records the specific offer version (including the values of parameterized offer attributes) given to each ID in each cell at flowchart run time, as well as the members of control cells, who are withheld from receiving any communications.

Control cells in Campaign are always hold-out or no-contact controls, therefore customers belonging to control cells cannot be assigned any offers, and are not included in contact process output lists (although they are written to the contact history tables).

Contact history and audience levels

Campaign records and maintains a separate contact history and detailed contact history for each audience level defined by your system administrators. Each audience level has its own related contact history and detailed contact history tables in the Campaign system database, although these can be mapped to the same underlying physical table in the database.

For more details about contact history and audience levels, see the *Campaign Administrator's Guide*.

Detailed contact history

When all members of a cell are treated the same (that is, when they are all given the same offer version(s), basic contact history is recorded. However, when different individuals in the same cell receive a different number of offers or different offer versions (when offers are personalized so that individuals in the same cell receive different offer versions), Campaign records exactly what each individual received in detailed contact history.

All control information is also recorded in detailed contact history, identifying the specific offer an individual would have received if they had not been selected to be in the hold-out control group. This information allows for appropriate analysis and comparison of the target versus control cell for lift and ROI calculations.

Detailed contact history can quickly grow very large, but it provides complete data to enable you to perform response tracking to a very detailed level, and to analyze targets and controls.

Writing entries to contact history tables

Entries are written to the contact history tables only when a flowchart contact process (Call List or Mail List) runs in production mode with the contact logging options enabled. Test runs do not populate any contact history tables.

If you have the appropriate permissions, you can enable or disable logging to contact history in the configuration window for a contact process.

Important: For flowcharts containing contact processes, note that each production run of a flowchart can generate contact history only once. To generate multiple contacts from the same list of IDs, snapshot out the list of IDs and read from the list for each flowchart run. Another way is to use the same list of IDs as input to multiple contact processes.

When logging to contact history is enabled, contact history captures the following details:

- The date and time of the contact (by default, this is when the contact process was run);
- The offer version(s) assigned in the contact process, including parameterized offer attribute values;
- Exactly which offer version(s) were given to each ID;
- For target and control cells, the treatment codes for tracking each unique combination of offer version, cell, and date/time.

The production run of a flowchart contact process affects the following system tables:

- Treatment history (UA_Treatment)
- Base contact history (UA_ContactHistory)
- Detailed contact history (UA_DtlContactHist)
- Offer history

For more details about the system tables that are written to for contact history, see the *Campaign Administrator's Guide*.

Treatment history (UA_Treatment)

Rows are added to the treatment history table (UA_Treatment) each time a flowchart is run in production mode. In other words, if you have a flowchart scheduled to run periodically, each new run generates a new set of treatments, one for each offer per cell, for both contact and control cells, at flowchart run time. Campaign thus provides the most granular tracking possible, by recording as a separate instance each time a treatment is generated.Treatment history works together with base contact history to provide a highly compressed and efficient way to store complete contact history information. The base contact history table (UA_ContactHistory) records only the cell membership information for the appropriate audience, while the treatment(s) given to each cell are recorded in the treatment history table (UA_Treatment).

Each treatment instance is identified with a globally unique treatment code that can be used in response tracking to directly attribute to a specific treatment instance.

Treatment history also records control cell data if controls are used. Rows pertaining to offers given to a target cell are called target treatments. Rows pertaining to offers given to a control cell are called control treatments. Target treatments will have an associated control treatment if a control cell was assigned to the target cell in the contact process. Each control treatment is also assigned a unique treatment code, although the codes are not distributed to hold-out control members. Control treatment codes are generated to facilitate custom response tracking where custom flowchart logic is used to identify a control: control treatment codes can be looked up and associated with the event so that the response can be attributed to an exact control treatment instance.

Base contact history (UA_ContactHistory)

One row is written to the base contact history table for each combination of contact ID, cell, and flowchart run date/time, for target cells as well as control cells.

Mutually exclusive cell membership

If your cells are mutually exclusive cells, and each ID can belong to only one cell, then each ID has one row in the contact history table when it is treated within a single contact process, regardless of the number of offers assigned. For example, this is the case if you define cells that correspond to "Low," "Medium," and "High" value segments, and customers can belong only to one of these segments at any given time. Even if the "High value" segment is given 3 offers in the same contact process, only one row is written to base contact history, since base contact history records cell membership.

Non-exclusive cell membership

However, if individuals can belong to more than one target cell (for example, if each of your target cells receives offers based on different eligibility rules, and customers might qualify for none, one, or more than one of the offers), then each individual has the number of rows in the contact history table corresponding to the number of cells in which that individual is a member.

For example, if you define two cells: "Customers who have made purchases within the last 3 months," and "Customers who have spent at least $500 in the last quarter," an individual could be a member of one or both of these cells. If the individual is a member of both cells, two entries are written to the base contact history for that individual when the contact process is run.

Even if multiple rows are written to the contact history table for an individual because he or she belongs to more than one target cell, all offers given in the same contact process are considered to be a single "package" or interruption. A unique "package ID" in the contact history table groups together the rows written by a particular run instance of a specific contact process for an individual. Multiple "interruptions" to a person or household would occur only if the individual or household belonged to multiple cells in separate contact processes.

Writing additionally tracked fields to contact history

You can create additionally tracked fields and populate them in the base contact history table. For example, you might want to write out the treatment code from the treatment table, or an offer attribute, as an additionally tracked field in contact history.

However, since it is cell membership that is being captured in base contact history, and each target or control cell writes one row per audience ID, note that if you are populating additionally tracked fields in base contact history with offer or treatment data, only the first treatment for each target or control cell is written out.

Example

Cell	Associated control cell	Offer given to cell
TargetCell1	ControlCell1	OfferA, OfferB
TargetCell2	ControlCell1	OfferC
ControlCell1	-	-

When the flowchart containing the contact process that assigns the listed offers to TargetCell1 and TargetCell2 is run in production (with writing to contact history enabled), a treatment is created for each combination of cell, offer given, and the run date/time. In other words, six treatments are created in this example:

Treatments	Treatment Code
TargetCell1 receiving OfferA	Tr001
TargetCell1 receiving OfferB	Tr002
ControlCell1 receiving OfferA	Tr003
ControlCell1 receiving OfferB	Tr004
TargetCell2 receiving OfferC	Tr005
ControlCell1 receiving OfferC	Tr006

If you have added Treatment Code as an additionally tracked field in base contact history, only the first target or control treatment for each cell is written out. In this example, therefore, only three rows are written to base contact history, for the first treatment for each cell:

Cell	Treatment Code
Target Cell1	Tr001
ControlCell1	Tr003
TargetCell2	Tr005

For this reason, capturing offer-level attributes in the base contact history table may not be a good practice, since it will only provide complete contact information if:

- only one offer is assigned to any target cell; and
- each control cell is assigned to only one target cell.

In any other instance, only data associated with the first treatment (or control treatment) is output. An alternative is to use a database view to flatten and provide access to offer-level information by joining the UA_ContactHistory and UA_Treatment system tables. You can also output this information to alternate contact history.

Note: In detailed contact history and alternate contact history, the behavior is different; a row is written for each treatment (rather than a row for each cell). Therefore, if you output offer attribute information as additionally tracked fields, complete treatment information can be displayed as rows are written out for all treatments.

Updates to contact history

New entries to the contact history table are appended after existing entries. You can manually clear selected entries using the **Clear History** function.

Detailed contact history (UA_DtlContactHist)

The detailed contact history table is written to only if you are using a scenario where individuals within the same cell receive different versions of an offer. For example, members of the same cell might receive the same mortgage offer, but the offer can be personalized so that Person A receives a 5% rate offer, while Person B receives a 4% rate offer. Detailed contact history contains one row for each offer version that an individual receives, as well as one row for each control cell based on the offer versions they would have received.

Offer history

Offer history is comprised of multiple system tables which collectively store the exact information about an offer version that has been used in production. New rows are added to the offer history table only if the combination of parameterized offer attribute values are unique. Otherwise, existing rows are referenced.

For more details about the contact history tables, see the *Campaign Administrator's Guide*.

Disabling writing to contact history

Important: It is possible to disable writing to contact history, but the best practice is not to disable contact history loggin. If you execute a campaign in production and do not log to contact history, you will be unable to accurately re-generate this history at a later date if any underlying data changes.

However, you can run contact processes without writing to contact history tables in two ways:

- "Performing a test run"
- "To disable logging options" on page 160

Performing a test run

Entries are written to the contact history tables only when a flowchart contact process (Call List or Mail List) runs in production mode with the contact logging options enabled. Test runs do not populate any contact history tables.

To disable logging options

Each contact process can be configured to disable logging to contact history during production runs.

1. Double-click the contact process for which you want to disable logging to contact history. You see the process configuration dialog.
2. Click the **Log** tab. You see the window for configuring logging of contact transactions.
3. To prevent any logging to contact history, clear the **Log to Contact History Tables** and the **Log into Other Destinations** checkboxes.

   Optionally, you can also click **More Options** to see the Contact History Logging Options window. This window provides additional control over which information is logged to the contact history. See "To configure a contact process (Mail List or Call List)" on page 98 for more information.
4. Click **OK**. The process configuration dialog closes and your changes are saved. When you run this contact process, no entries will be written to the contact history tables or to alternate logging destinations until these options are re-enabled.

Clearing contact and response history

You might want to clear contact or response history records if, for example, a production run was executed by mistake, or if, after a production run, you decide to cancel the campaign.

Important: Clearing contact and response history permanently deletes this data from the database. Cleared contact and response history cannot be recovered. If later recovery might be required, back up the system table database prior to clearing any history.

Referential integrity across all Campaign system tables is always preserved. All contact history tables are written to simultaneously, and any clean up of contact history is also done simultaneously across all contact history tables. For example, treatment table entries cannot be deleted if there entries in the base or detailed contact history tables referencing them.

You can clear contact history only if you have the appropriate permissions to do so, and if there are no associated response history records. Therefore, if you clear contact history you must also clear the associated response history.

Important: In typical situations, it is best not to delete contact history for which responses have been recorded. However, if you must delete such contact history, you can choose to clear all associated contact and response history records, or clear only the response history records.

To clear contact history and response history

Important: Clearing contact history permanently deletes contact history records from the system tables. This data is not recoverable.

1. In a flowchart in Edit mode, double-click the contact process for which you want to clear history. You see the process configuration dialog.
2. Click the **Log** tab. You see the window for configuring logging of contact transactions.
3. Click **Clear History**. You see the Clear Contact History window.

Note: If no contact history entries exist, when you click **Clear History** an error message indicates that there are no entries to clear.

4. Choose the appropriate option for clearing history: all entries, all entries between a selected date range, or specific flowchart runs, identified by the run date and time.
5. Click **OK**.
   - If no response history records exist for the entries you selected, you see a confirmation message.
   - If response history records exist for any of the entries you selected, you see the Clear History Options window. Select one of the following options:
     - **Clear All Associated Contact and Response History Records**: Both contact history and response history are cleared for the entries you specified.
     - **Clear Associated Response History Records Only**: Only response history is cleared for the entries you specified. Contact history records are not cleared.
     - **Cancel**: No contact history or response history records are cleared.
6. When the selected action is completed, a confirmation message indicates that the specified records have been cleared.
7. Click **OK** to close the confirmation message.
8. Click **OK** to close the process configuration dialog.

About response tracking

In Campaign, the term "response tracking" refers to the process of determining whether events or actions taken by individuals are in response to offers they have been given. Response tracking also includes tracking the behavior of individuals in hold-out control groups, to see whether they performed the desired action despite not having been contacted.

Campaign captures the following information about responses to campaigns:

- who responded — the list of audience entities (such as individual customers or households) whose behavior matched the response types being tracked.
- the actions they performed, and the date and time of these actions — for example, a click-through on a Web site, a purchase, or purchase of a specific item.
- which offer treatment they responded to — any Campaign-generated codes (campaign, offer, cell or treatment code) as well as any offer attributes with non-null values returned by the respondent are matched for response tracking.
- how their response is counted — determine how responses are credited to the campaign based on matching Campaign-generated codes or non-null values for offer attributes, whether respondents were in the original targeted group or a control group, and whether the response was received before the expiration date.

Performing response tracking

You perform response tracking by creating a flowchart containing the Response process, which takes input from an action table via a Select or an Extract process. The action table is a file or table containing a record of all the actions or events that are evaluated to see if they should be attributed as responses to any contact or control treatments.

You configure the Response process to process, evaluate, and output the IDs that you consider as responses to your offer, based on matching some combination of response codes and/or other standard or custom offer attributes from the action table. Any Campaign-generated codes (campaign, offer, cell or treatment code) that are mapped in the Response process are considered to be "response codes of interest." Any other offer attributes, whether standard or custom, that are mapped in the Response process are considered "response attributes of interest." For example, you can use the "Relevant Products" field as an offer attribute to track inferred responses. The response processing logic uses both response codes of interest and response attributes of interest to determine direct and inferred responses.

Running the Response process writes those responses to the response history system table (UA_ResponseHistory, or its equivalent for each audience level). Like contact history, there is one response history system table for each audience level that you are tracking.

The data captured in the response history is then available for analysis using the performance reports in Campaign.

Campaign automatically records the following data related to response tracking:

- Whether the response was direct (one or more Campaign-generated codes were returned) or inferred (no response codes were returned)
- Whether the response was received before or after the expiration date of the specific offer version
- Whether the respondent was in a target cell or a control cell from the campaign
- Whether the response was unique or a duplicate
- Best, fractional, and multiple attribution scores
- The response type (action) attributed to the response

Using multiple response tracking flowcharts

It is possible to have a single response tracking flowchart for all the campaigns in your corporation. If a single action table is used, your system administrator will typically have set up session flowcharts to write data into the action table for processing.

However, your implementation of Campaign might use one or more action tables for convenience, each related to a separate response tracking flowchart.

You might use multiple response tracking flowcharts when:

- You are tracking responses for different audience levels
- You have real-time vs. batch processing requirements
- You want to avoid duplicating large volumes of data
- You want to hard-code specific data for different situations
- You need custom response processing logic

You are tracking responses for different audience levels

(Required) You need one response tracking flowchart for each audience level for which you receive and track responses. The Response process operates at the audience level of the incoming cell, and automatically writes to the appropriate reponse history table for that audience level. To track responses for two different audience levels, for example, customer and household, you need two different

Response processes, most likely in two separate response tracking flowcharts.

You have real-time vs. batch processing requirements

(Required) Most of your response tracking sessions will be batch flowcharts, periodically processing events populated into an action table (for example, nightly processing of customer purchases). The frequency of response tracking runs will depend on the availability of the transaction data used to populate the action table.

For example, if you process responses from different channels (such as web vs. direct mail), you might need separate response processing sessions because the frequency of availability of incoming transaction data will be different for each channel.

You want to avoid duplicating large volumes of data

(Optional) If you have large transaction volumes (such as millions of sales transactions per day) that must be evaluated, you might want to build a response tracking flowchart to map directly against the source data, rather than ETL (extract, transform, load) it into an action table.

For example, you can build a response tracking flowchart in which an Extract process pulls transactions directly from an e-commerce system's purchase transaction history table (based on a particular date range), and a Response process that maps directly to columns in this table from this extract.

You want to hard-code specific data for different situations

(Optional) You might want to hard-code specific data (such as response types) for different situations, such as different channels. For example, if you are interested specifically in tracking a specific response type (such as "inquiry") that is specific to a channel (such as "call center"), you can create a derived field to filter these responses, and use it in a response processing flowchart to pull all inquiries from the call center database. It might be more convenient to create the data necessary for response tracking using derived fields, and pull the data directly from the source, than to write the data to a single action table.

You need custom response processing logic

(Optional). If you need to write your own rules for attributing responses, you can create a separate response tracking flowchart to implement custom response-tracking logic. For example, if you need to identify responders to a "Buy 3 Get 1 Free" offer, you need to look at multiple transactions to determine whether an individual qualifies as a responder. Upon finding qualifying individuals, you can then input them into a Response process to record the responses using the treatment code and appropriate response type.

Response tracking using multi-part offer codes

You can track responses using a derived field that consists of a multi-part offer code (that is, an offer code that consists of two or more codes). All parts of the offer code must be concatenated using the partition-wide `offerCodeDelimiter` configuration property. The following example creates a derived field called `MultipleOfferCode` consisting of two parts concatenated using the default delimiter "-":

```
MultipleOfferCode = string_concat(OfferCode1, string_concat("-",
OfferCode2))
```

When configuring the Response process to use the derived field as a Candidate Action Field, you must match the derived field to the offer/treatment attribute of each offer code in the multi-part code.

Date scope for response tracking

In addition to recording whether responses were made within the valid offer time period (that is, after the effective date and on or before the expiration date), response tracking also records whether the response was outside a valid date range for all offers. Campaign tracks late responses for all offers based on a configurable time period after an offer's expiration date to provide data on how often your offers are redeemed after their official end dates.

The date scope for response tracking in Campaign is set globally, and is applied to all campaign offers. Your system administrator sets the number of days past the offer expiration date that responses will be tracked.

This date setting automatically limits the possible treatment instances that can match an event. The smaller the date scope, the more performance is improved because fewer instances from the treatment table are returned for possible matches.

For details about setting the date scope, see "Setting the number of days after a campaign ends to record responses" in the *Campaign Adminstrator's Guide*.

Response tracking for controls

Control group responses are tracked simultaneously with offer responses, using the Response process.

Control cell responses are handled in the same way as inferred responses, except that any response codes are first discarded. For any responses from control cell members, any response tracking codes are ignored and any attributes of interest (for example, relevant products) are checked for matches against control treatment instances. Campaign uses an internal, globally-unique treatment code that is generated for all control treatments; however, control treatment codes are not given out, as control treatments are always no-contact, hold-out controls.

It is possible for the same event to credit both target treatment instances and control treatment instances. For example, if a particular customer is targeted with an offer for 10% of any purchase in the women's department, and that customer is also a member of a hold-out control group monitoring for any purchase from the store, if that customer makes a purchase using the coupon, that event would be associated with both the target treatment instance (using the coupon's treatment code) and the control treatment instance. Control treatment instances are also marked within the valid date range or after the expiration date, in the the same manner as target treatment instances — this provides a valid control comparison for late activity in the target cell.

Best or fractional attribution is not used for control cell responses — multiple attribution is always used. In other words, if a respondent is in a control cell for an offer and her action qualifies as an inferred response for multiple control treatments, all of these matching control treatments are credited for the response.

Response tracking for personalized offers

If you have used data-driven, personalized, or derived or parameterized offer fields to generate different offer versions, for responses to these personalized offers to be correctly attributed, your action table must contain fields representing the parameterized offer attribute fields. When these fields are mapped in a Response process as attributes of interest and populated, they can be used to match responses back to the offer version or treatment instance. Responses with values for these "attributes of interest" must exactly match the values recorded for that individual in offer version history, for attribution to that treatment.

For example, if you had flight offers which were personalized with an origin airport and a destination airport, then your action table should contain fields for "Origin Airport" and "Destination Airport." Each flight purchase transaction would contain these values, and response tracking would be able to match the specific flight purchased by an individual to the offer version(s) that were promoted to him or her. These fields also would be used to track inferred responses for members of the control group, to see if they purchased any flights that would have been promoted to them.

Response types

Response types are the specific actions that you are tracking, such as click-through, inquiry, purchase, activation, use, and so on. Each response type is represented by a unique response code. Response types and codes are defined globally in the Campaign Response Type system table, and are available for all offers, although not all response types are relevant for all offers. For example, you would not expect to see a click-through response type for a direct mail offer.

When events are written to the action table, each event row can have only one response type. If the response type field is empty (null) for an action, it will be tracked as the default response type ("unknown").

If a single event needs to be associated with multiple response types, multiple rows must be written to the action table, one for each response type. For example, if a financial institution is tracking the purchase usage level of a new credit card during the first month after activation with response types of "Purch100," "Purch500," and "Purch1000," a purchase of $500 might need to generate an event with response types of both "Purch100" and "Purch500," because the purchase meets both of these conditions.

If you need to detect complex sequences of separate transactions that will together constitute a response event, you will need a separate monitoring session that looks for the qualifying transactions and, when these are found, then submits an event to the action table. For example, if a retailer's promotion rewards customers who purchase any three DVDs during the month of December, you can build a flowchart to compute the number of DVD purchases for each customer, select the customers who have made three or more purchases, and write these customers to the action table with a special response type (such as "Purch3DVDs").

For more details about response types, see the *Campaign Administrator's Guide*.

Response categories

Responses in Campaign fall into two categories:

- Direct response — one or more Campaign-generated tracking codes sent out with the offer were returned, and any returned attributes of interest must match.
- Inferred response — no tracking codes were returned, but at least one offer attribute used for response tracking was returned and matched. Responses from hold-out control groups are always inferred responses.

Direct responses

A response is considered to be a direct response if:

- The respondent returned at least one Campaign-generated code (campaign, cell, offer, or treatment code) that exactly matches one or more of the possible target treatment instances generated by Campaign.

AND

- Any "attributes of interest" (that is, any offer attribute, standard or custom, that was mapped in the Response process for tracking) returned must have a value exactly matching the value of attribute in the treatment.

For example, if treatment code is a response code of interest and "Response Channel" is an attribute of interest, an incoming response with the values of "XXX123" for treatment code and "retail store" for Response Channel will not be considered a direct match for a treatment with the respective values of "XXX123" and "Web."

A response with a null value for an attribute of interest cannot match a treatment that has that offer attribute. For example, a response that is missing a value for "interest rate" cannot match any offer created from an offer template that contains interest rate as an offer attribute.

However, a response with a value for an attribute of interest that does not exist in a treatment does not prevent a match. For example, if a Free Shipping offer was created from an offer template without an "interest rate" offer attribute, and "interest rate" is an attribute of interest, the value of the "interest rate" attribute for an incoming response does not matter when Campaign considers possible matches against treatments associated with the Free Shipping offer.

Response tracking considers whether the response was made within the valid offer time period (that is, after the effective date and on or before the expiration date), or whether the response was outside the valid date range. Campaign tracks late responses for a configurable time period after an offer's expiration date.

Response tracking also identifies whether a direct response was from a respondent that was in the originally contacted group, that is, the target cell.

Note: If a direct response was not from the originally targeted group, then the response is considered a "viral" response or a "pass-along," meaning that the responder somehow obtained a valid response code although they did not originally receive the offer.

It can be valuable to understand how many of your responses came from your target group, especially if you are trying to cultivate high-value customers. These values can be broken out in performance reports to see how many direct responses came from the original target group and how many were viral responses.

Direct responses can be exact or inexact matches.

Direct exact matches

A response is considered to be a direct exact match if Campaign can uniquely identify a single target treatment instance to credit.

Note: It is a best practice to use Campaign-generated treatment codes for tracking, because Campaign can always uniquely identify a treatment instance to credit if the treatment code is returned.

For example, if you used the treatment codes generated from a contact flowchart as coupon codes in an offer, and a treatment code is returned by a respondent in one of the offer's target cells, then the response is a direct exact match to that offer.

If multiple tracking codes or attributes of interest are received, all codes and attribute values must match exactly for the treatment instance to be counted. In other words, if a respondent provides an offer code, a treatment code, and an offer attribute with a non-null value, all must exactly match the codes and offer attribute values in the treatment.

Direct inexact matches

A response is considered to be a direct inexact match if Campaign cannot uniquely identify a treatment instance to credit, but the returned tracking code(s) match multiple possible target treatment instances.

To narrow down target treatment instances that will receive credit for this response, if any target treatment instance contacted the responder, Campaign then discards any treatment instances that did not contact the responder. If no target treatment instances contacted the responder, all are kept, and all will receive credit for a viral response.

For example, if a customer in the high-value segment received an offer from a campaign which was given to both high and low-value customers and returned the offer code, this would initially match two target treatment instances (one for the high-value cell and one for the low-value cell). Applying this response tracking rule, since the treatment instance for the high-value cell actually targeted this responder but the treatment instance for the low-value cell did not, the latter is discarded. Only the treatment instance associated with the high-value customer group is credited for this response.

In addition, if the response date was within any of the remaining treatment instances' valid date range, any treatment instances not within their effective and expiration dates are discarded.

For example, if a customer was contacted in both the January and February instances of the same campaign, and the offer code was returned, it would match two target treatment instances (one from January and one from February). If each offer version expired at the end of the month in which it was issued, a response in February would cause the January treatment instance to be discarded because it had expired. Only the February treatment instance would be credited for this response.

After response tracking rules are applied and all invalid target treatment instances are discarded, Campaign uses different attribution methods to calculate the credit to give to any remaining treatment instances.

Inferred responses

A response is considered to be inferred when the following conditions are met:

- no Campaign-generated tracking codes (campaign, cell, offer, or treatment code) are returned
- the responder belongs to either a target cell or a control cell
- at least one offer attribute used for response tracking was returned
- all returned offer attributes match.

A response with a null value for an attribute of interest cannot match a treatment that has that offer attribute. For example, a response that is missing a value for "interest rate" cannot match any offer created from an offer template that contains interest rate as an offer attribute.

However, a response with a value for an attribute of interest that does not exist in a treatment does not preclude a match. For example, if a Free Shipping offer was created from an offer template without an "interest rate" offer attribute, and "interest rate" is an attribute of interest, the value of the "interest rate" attribute for an incoming response does not matter when Campaign considers possible matches against treatments associated with the Free Shipping offer.

In addition, the respondent must have been contacted (that is, they must have been in the target cell, or in a group that was contacted), for their response to be counted as inferred.

For example, if a customer was sent a coupon for $1 off laundry detergent and that customer purchased laundry detergent (even if they did not redeem the coupon), Campaign infers a positive response to that target treatment instance.

Inferred responses from control groups

All responses from members of control groups (which are always hold-out controls in Campaign) are inferred responses. Matching inferred responses is the only mechanism for crediting responses from holdout control group members.

Since members of a control group did not receive any communication, they cannot have any tracking codes to return.

Response tracking monitors members of control groups to see if they take a desired action without having received any offer. For example, a campaign might target a group of customers who do not have checking accounts with a checking account offer. Members of the control group are tracked to see if they open a checking account within the same time period as the checking account offer.

All incoming events are evaluated to see if they are possible inferred responses for control treatment instances. Any response codes are discarded and remaining attributes of interest are evaluated against control treatment instances for possible response credit.

Attribution methods

Campaign supports three methods by which responses are credited to offers:

- Best match
- Fractional match
- Multiple match

All three of these response attribution methods are used simultaneously and recorded as part of response history. You can choose to use one, a combination, or all of these in the various performance reports to evaluate your campaign and offer performance.

Response attribution is performed on target treatment instances that remain after invalid responses are discarded (either because the treatment instance did not contact the responder, or because the target instance is expired).

For example, a respondent in a target cell that was given three offers returns a cell code; an exact treatment instance cannot be identified. Best match attribution would choose one of the three offers to receive full credit; fractional match attribution would give each of the three offers 1/3 credit each, and multiple match attribution would give all three offers full credit for the response.

Best match

With best match attribution, only a single target treatment instance receives full credit for a response; and any other matching treatment instances receive zero credit. When multiple treatment instances match for a response, Campaign chooses the treatment instance with the most recent contact date as the best match. If there are multiple treatment instances with the same contact date and time, Campaign credits one of them arbitrarily.

Note: In the case of multiple treatment instances with the same contact date and time, the same instance will be credited each time, but you should not expect Campaign to select a specific treatment instance.

Fractional match

With fractional match attribution, all n matching treatment instances get $1/n$ credit for the response, so that the sum of all attributed scores sum is 1.

Multiple match

With multiple match attribution, all n matching treatment instances receive full credit for the response. This can lead to over-crediting of treatments and should be used with caution. Control groups are always tracked using multiple attribution: every response from a member of a control group receives full credit.

Chapter 10. Stored objects

If there are campaign components that you use frequently, you should try to design and save them as stored objects. Reusing stored objects across flowcharts and across campaigns can result in time savings and more consistency across campaigns.

The types of stored objects in Campaign are:

- Derived fields
- User variables
- Custom macros
- Templates
- Stored Table Catalogs

About derived fields

Derived fields are variables that do not exist in a data source and are created from one or more existing fields, even across different data sources. In many processes, the configuration window includes a **Derived Fields** button that you can use to create a new variable for querying, segmenting, sorting, calculating, or providing output to a table.

You can make derived fields that you create explicitly available to a subsequent process by enabling the **Make Persistent** option when you create it.

In general, derived fields available to a process are listed in the **Derived Fields** folder. Derived fields are available only for the process in which they were created. If you have not created any derived fields in a process, no **Derived Fields** folder appears in the list.

To use a derived field in another non-subsequent process, store the derived field expression in the **Stored Derived Fields** list. Inclusion in the Stored Derived Fields list makes a derived field available for all processes and all flowcharts.

Creating derived fields

You create derived fields from the configuration windows for processes that support derived fields.

Only fields from tables that are selected in the process configuration dialog can be used in a derived field expression. If a desired table does not appear, make sure it is selected as a source table.

Naming restrictions for derived fields

Derived field names have the following restrictions:

- They cannot be the same as either of the following types of names:
  - A database keyword (such as INSERT, UPDATE, DELETE, or WHERE)
  - A field in a mapped database table
- They cannot use the words `Yes` or `No`.

If you do not follow these naming restrictions, database errors and disconnects may result when these derived fields are called.

Note: Derived field names also have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219

To create a derived field

1. From the configuration window of a process that supports derived fields, click **Derived Fields**.

   The Create Derived Field window opens.
2. All derived fields previously created in this process appear in the **Field Name** list. To create a new derived field, enter a different name.
3. Select the **Make Persistent** check box if you want to store and pass on the calculated values for this field. This option makes the derived field available to a subsequent process.
4. Define the derived field directly in the Expressions area or use the Formula Helper. You can double-click an available field to add it to the Expressions area.

   A derived field can be a null value. Use NULL to return a null value for a snapshot. Use NULL_STRING to return a null value with a string data type if you want the derived field to be used with a Campaign macro.

   You can enter a string in a derived field as a constant. If you use a string, it must be surrounded by double quotation marks. For example, "my string". Quotation marks are not required for numeric strings.
5. (Optional) **Click Stored Derived Fields** if you want to save this derived field in a list so it can be used again in another process or flowchart. You can also use this option to load an existing derived field or to organize the list of stored derived fields.
6. Click **Check Syntax** to detect any errors.
7. Click **OK** to save the derived field and return to the process configuration dialog.

To create a new derived field from an existing one

1. From the configuration window of a process that supports derived fields, click **Derived Fields**.

   The Create Derived Field window appears.
2. From the **Field Name** drop-down list, select the existing derived field from which you want to create a new one.

   The expression for the selected derived field appears in the **Expression** area.
3. Change the name of the existing derived field to the name you want for the new derived field.

   Important: You cannot use the words "Yes" or "No" as names for derived fields; doing so results in database disconnects when these derived fields are called.
4. Edit the derived field expression as required.
5. Click **OK** to save the new derived field and return to the process configuration dialog.

To use a custom macro to create a derived field

1. From a process that supports derived fields, click **Derived Fields**.

   The Create Derived Field window appears.
2. In the Create Derived Field window, click **Formula Helper**.

A list of custom macros appears in the **Formula Helper**.

3. Select a macro from the list by double-clicking it.

   The macro's declaration and description are displayed, and the macro itself is inserted in the Formula Helper window.
4. Select the appropriate fields from the **Fields available for expression** list to complete your expression.
5. Click **OK** to save the new derived field and return to the process configuration dialog.

Storing derived fields

Derived fields are available only within the process in which it was created and subsequent processes. For example, if you define a derived field named Pct_Usage with the formula:

(Curr_bal / Credit_limit) * 100

in a process, Pct_Usage will not be available in any other process (except an immediately following process if **Make Persistent** is enabled).

However, you can save the derived field definition in the same way that you would save any other query. You can store the derived field definition in the **Stored Derived Fields** list and give it a name (for example, Pct_of_limit_used). Later, if you want to use the same derived field in another process in the same or a different flowchart, you can select Pct_of_limit_used from the **Stored Derived Fields** list and insert the stored derived expression, rather than reconstructing it from scratch.

To store a derived field

1. In a process that supports derived fields, create the derived field that you want to store.
2. Click Stored Derived Fields.

   The Stored List window appears.
3. Select **Save Current Expression to Stored List**.
4. Click **OK**.
5. Use the Save Derived Field Expression window to specify where to store the field, a security policy if applicable, and any notes about the derived field.
6. Click **Save**.

   Note: If you want to store an already created derived field, select the derived field from the **Field Name** drop-down list. When the derived field expression appears in the **Expression** area, click **Stored Expressions**.

To use a stored derived field

1. In a process that supports derived fields click **Derived Fields**, or click **Tools > Stored Derived Fields** to access the Stored Derived Fields Expressions window.
2. From the list of stored derived fields, select the one you want to use.

To make a derived field persistent

When you make a derived field persistent, you instruct Campaign to store its calculated values and make them available to subsequent processes. This saves time and resources as Campaign does not have to recalculate these values downstream in the flowchart.

1. From the configuration window of a process that supports derived fields, click **Derived Fields**.

   The Create Derived Field window appears.
2. Select the **Make Persistent** checkbox if you want to store and pass on the calculated values for this field.

Example: Persistent derived field

You might have a Select process configured to choose IDs based on a constraint on a derived field, connected to a Snapshot process to output the selected records that include that derived field. If you mark the derived field to be persistent, the calculated value is passed from the Select process to the Snapshot process.

Another use of persistent derived fields is with any aggregate-type derived field (for example, AVG or GROUPBY). These aggregated fields are calculated based on the multiple rows of data within the current cell, so the value of these aggregated fields changes as the contents of the cell change. With persistent derived fields, you can choose to keep the original calculated value, then carry that to other processes. If you choose to recalculate the derived field instead, you get a calculated value based on the remaining records in the current cell.

When a process takes multiple inputs, such as a Snapshot process working with the input from two Select processes, all persistent derived fields are available to the downstream process.

If a persistent derived field is not available across all incoming Select processes, and it is included in the output for a Snapshot process, then the Snapshot process displays a NULL value for that persistent derived field in all the output rows from the Select processes that did not have that persistent derived field.

If a persistent derived field is not available across all incoming Select processes, and you use it to define a Segment process, then the Segment process has empty segments for the Select processes that did not have that persistent derived field.

The Segment process remains unconfigured if you try to define a segment with an expression using more than one persistent derived field not available across all the Select processes.

The following guidelines apply to persistent derived fields (PDFs):

- PDFs attach to an inbound cell (vector)
- PDFs are calculated before query execution
- Multiple PDFs are available in the following processes:
  - Snapshot: If a PDF is not defined for a cell, its value = NULL. If a single ID is greater than one cell, one row is output for each cell.
  - Segment: PDFs are not available for segmentation by field when multiple input cells are selected. PDFs must exist in all selected input cells for use in a segment by query.
- PDFs keep only a single value (selected at random) per ID value, regardless of the number of times an ID value occurs in the data. Thus, when the output includes no table fields (and includes an IBM ID), there will be only one record per ID value.

  However, when you use a derived field based on a table field, the output includes a table field indirectly. Thus, there will be a record for each instance of an ID value. (In other words, if the ID value occurs seven times in the data, there will be seven records output.)

Persistent derived fields only store a *single* value for each audience ID, which is randomly selected from the available values. This means that when working with unnormalized data, you must use a GROUPBY macro function to achieve the desired behavior.

For example, say you want to find from the purchase transaction table, the highest dollar amount in a single transaction a customer has made and save this as a persistent derived field for downstream processing. You could write a derived field (and then persist it as a persistent derived field) as follows:

```
Highest_purchase_amount = groupby(CID, maxof, Purch_Amt)
```

Against unnormalized purchase transaction data such as the following, this would compute as follows:

CID	DATE	PURCH_AMT	HIGHEST_PURCHASE_AMOUNT
A	1/1/2007	$200	$300
A	3/15/2007	$100	$300
A	4/30/2007	$300	$300

When the derived field is persisted, it choose (randomly) any value (which are all $300) and persists the value $300 for customer A.

A second less obvious example might be to select a predictive model score from a scoring table for a specific model X. Here the derived field might look like this:

```
ModelX_score = groupby(CID, maxof, if(Model = 'X', 1, 0), Score)
```

And the data might look like:

CID	MODEL	SCORE	MODELX_SCORE
A	A	57	80
A	B	72	80
A	X	80	80

Persisting the derived field, ModelX_Score, gives the desired result of the score value of 80. It is incorrect to create a derived field:

```
Bad_ModelX_score = if(Model = 'X', Score, NULL)
```

This would result in the following:

CID	MODEL	SCORE	BAD_MODELX_SCORE
A	A	57	NULL
A	B	72	NULL
A	X	80	80

Then when you persist the derived field Bad_ModelX_score, the persisted value could be NULL or 80. If you are working with unnormalized data and the derived field values are not all the same, persisting that derived field could result in *any* of the values being returned. For example, defining Derived_field_Score = SCORE and persisting it could result in the value 57, 72, or 80 for customer A. To ensure

desired behavior, you must use the GROUPBY macro over the customer ID and guarantee the derived field value is the *same* for all data for that customer.

About user variables

Campaign supports user variables, which can be used during process configuration when creating queries and expressions.

Guidelines for using user variables

The following guidelines apply to user variables:

- User variables are local to the flowchart in which they are defined and used, but have global scope within that flowchart.
- User variables use the following syntax: UserVar.UserVarName
- User variables have **Initial Values**, which is the value assigned when a user variable is initially defined in the **User Variables** dialog. The **Initial Value** is only used to set the **Current Value** before executing a flowchart run. It is the **Current Value** that Campaign uses during a flowchart run.

  Note: If the **Current Value** for a user variable is not set and you execute a process run or a branch run, Campaign will not be able to resolve the user variable. Campaign only sets the **Current Value** of a user variable to the **Initial Value** before a flowchart run.
- You can change the **Current Value** of a user variable in the Derived Field window of a Select process.
- User variables can be set to constants or to expressions, such as UserVar.myVar = Avg(UserTable.Age).

  Note: If you use an expression that returns multiple values (such as UserTable.Age+3, which will return one value for each record in the table), the user variable is set to the first value returned.
- When using user variables within SQL statements, do not enclose user variables in quotation marks, either single or double.
- If you pass object names to your database (for example, if you use a user variable that contains a flowchart name), you must ensure that the object name contains only characters supported by your particular database. Otherwise, you will receive a database error.
- The values of user variables can be passed in on process execution.
- User variables are supported in outbound triggers.
- User variables are supported for use in custom macros.

To create a user variable

1. From a flowchart in **Edit** mode, click the **Options** icon and select **User Variables**.

   The User Variables dialog appears.
2. In the **Variable Name** column, enter a name for the new user variable by clicking the **<Click here to add new item>** hotspot.
3. In the **Data Type** column, select a data type from the drop-down list. If you do not select a data type, the application selects **None** when you click **OK**.

   The **None** data type may produce unpredictable results; to avoid this, specify the correct data type.

4. In the **Initial Value** column, enter an initial (starting) value for the user variable. You can also profile fields for available values by clicking the ellipsis button that becomes available when you click inside the column.
5. In the **Current Value** column, enter a current value for the user variable. You can also profile fields for available values by clicking the ellipsis button that becomes available when you click inside the column.
6. Repeat these steps for each user variable that you want to create.
7. When you complete defining user variables, click **OK**.

   The application stores the new user variables. You can access them later when configuring processes.

After a flowchart run executes, the **Current Value** of each user variable is displayed in the **Current Value** section for each user variable. If the current value is different from the initial value, you can restore the initial value by clicking **Restore Defaults**.

Note: If the **Current Value** of a user variable is redefined in a Select process, resetting the **Current Value** to the **Initial Value** manually will have no effect on the value of the user variable during a flowchart, branch, or process run.

About custom macros

A custom macro is a query that you create using either a IBM Expression, raw SQL, or raw SQL that includes a value. Custom macros also support variables, which makes them far more powerful than the stored queries they are designed to replace.

You can save a custom macro and use it in configuring processes in a flowchart, and in defining derived fields.

Support for raw SQL improves performance, allowing complex transactions to be carried out in the database rather than having the raw data filtered and manipulated in the application server.

Campaign supports the following three types of custom macros, which in turn support an unlimited number of variables:

- Custom macros that use a IBM Expression
- Custom macros that use raw SQL
- Custom macros that use raw SQL and include a specified value

Important: Since non-technical users are able to use custom macros, when you create a custom macro you should describe how it works very carefully, place similar kinds of macros in special folders, and so on, to reduce the possibility that someone might use a custom macro incorrectly and retrieve data that they were not expecting.

To create a custom macro

1. On a flowchart page in **Edit** mode, click the **Options** icon and select **Custom Macros**.

   The Custom Macros dialog appears, displaying existing custom macros.
2. Click **New Item**.
3. From the **Save Under** drop-down list, select the folder location to which you want to save the custom macro.

4. In the **Name** field, enter a name and declaration for the custom macro so that it can be referenced, using the following syntax:

   MacroName(var1,var2,...)

   Only the name of the custom macro (which must be unique) and the list of variables need to be expressed.

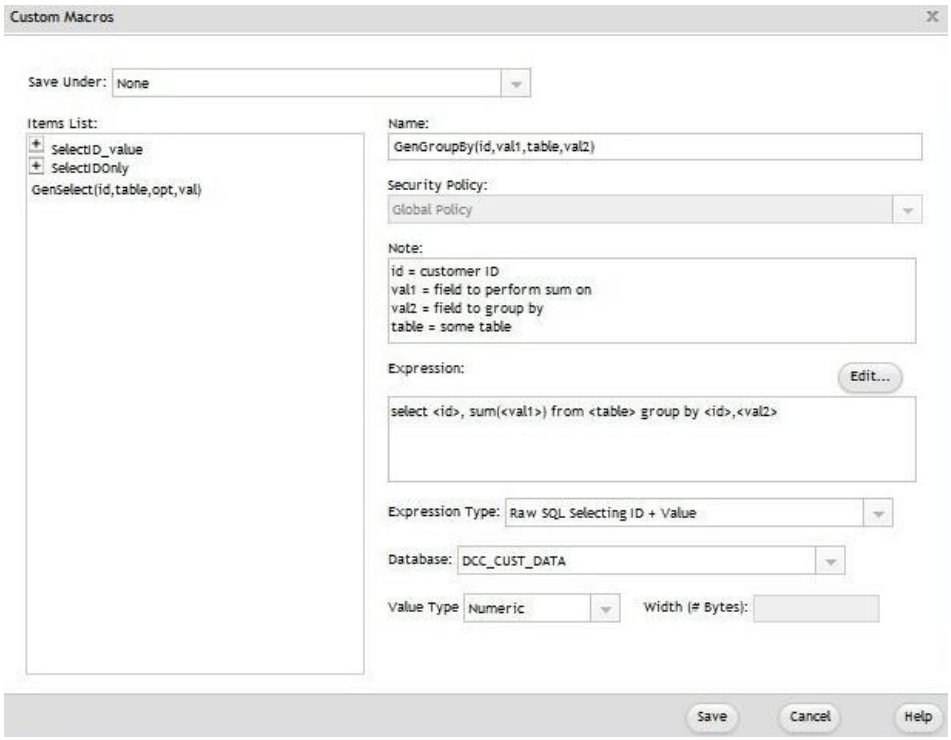
   The *MacroName* must be alphanumeric. You cannot use spaces in the MacroName string, but you can use underscores (_).

   Note: If a custom macro has the same name as a built-in macro, the custom macro will take precedence. As a best practice, to avoid confusion, do not name custom macros with operator names or names that are the same as those of built-in macros in Campaign. The exception would be if you specifically want the new custom macro to always be used, and the built-in macro to be inaccessible.

   Important: The variable names must match the variable names in the custom macro definition in the Expression window, and they must be expressed as a comma-separated list within parenthesis.
5. From the **Security Policy** drop-down list, select a security policy for the new custom macro.
6. Optionally, use the **Note** field to enter any notes for the new custom macro, providing a clear explanation of what the custom macro is designed to do and what each variable represents.
7. From the **Expression Type** drop-down list, select the type of custom macro you are creating.
   - If you select **Raw SQL Selecting ID List,** you must also select a database from the drop-down list in the **Database** field.
   - If you select **Raw SQL Selecting ID + Value**, you must also select a database from the drop-down list in the **Database** field and select the value type of the field from the **Value Type** drop-down list. Ensure that the value type you select here is correct. Otherwise, when you later attempt to profile this query, you will get a "Mismatched Type" error.
   - If you selected **Text** as the value type, specify the width of the value type in bytes in the **Width (# Bytes)** field. You must obtain this width in bytes information from the database. If you do not have access to the database or are unable to obtain the information, enter 256, the maximum width.
8. Click inside the **Expression** field to open the Specify Selection Criteria window.
9. Create your query expression. You can use as many variables as you like. Variable syntax is alphanumeric, and the variable must be enclosed in open and closed angle brackets (<>). Operands (values and strings) and operators might be variables.

   Important: Do not use flowchart user variables in custom macro definitions, since custom macros are global and flowchart user variables are not.

   Example: Custom macro that uses raw SQL selecting an ID and a value



10. Click **Save** to save the custom macro.

    The custom macro is then stored, and can be accessed by its name.

11. Click **Close** to exit the Custom Macros dialog.

Guidelines for using custom macros

Keep the following guidelines in mind when creating or using a custom macro:

- The name of a custom macro must be alphanumeric. You cannot use spaces in the name string, but you can use underscores (_).
- If a data source has been configured with the property ENABLE_SELECT_SORT_BY = TRUE, then you *must* write raw SQL custom macros with an **ORDER BY** clause in order to sort the returned records by the audience key fields of the audience level under which you are working. Otherwise, if the sort order is not as expected, an error will be generated when the custom macro is used in a derived field in a Snapshot process.
- If you do not compare a returned value from a custom macro, if the value is numeric, non-zero values are treated as TRUE (and therefore IDs associated with them are selected) and zero values are treated as FALSE. String values are always treated as FALSE.
- When creating a custom macro that uses raw SQL, using a temp table can greatly speed up the performance of the raw SQL by scoping the amount of data it needs to work with.

  When a custom macro uses temp tables in its underlying logic, a temp table will be forced up to the database so that the logic does not fail.

  However, if a custom macro is used in a top level SELECT, then there is no history for Campaign to use to force a temp table up to the database, and the logic fails.

  Thus, when creating a custom macro that uses raw SQL, you might need to create two versions of the same custom macro – one that uses temp table tokens and one that does not.

The custom macro without temp table tokens can be used at the top of a tree (for example, in the first SELECT). The one with temp table tokens can be used anywhere else in the tree when there might be a temp table to take advantage of.

- Self-joins might occur when combining values returned from custom macros when querying against unnormalized data, which is not likely to be the desired behavior.

  For example, if you a use a custom macro based on raw SQL that returns a value and (in a Snapshot process, for example) you output the custom macro and another field from the table that the custom macro is based on, Campaign performs a self join on that table. If the table is non-normalized, you will end up with a Cartesian product (that is, the number of records displayed is more than you would expect).
- Custom macros are now automatically by reference, because the definition of the custom macro is not copied into the current process.

  At execution time, a custom macro is resolved by looking up its definition in the **UA_CustomMacros** system table (where definitions are stored) and then used/executed.
- Unlike stored queries, custom macro names must be unique, independent of the folder path. In releases prior to 5.0, you could have a stored query named A, for example, in both folder F1 and F2.

  Campaign supports stored queries from earlier releases. However, references to non-unique stored queries must use the old syntax:

  storedquery(<query name>)
- When resolving user variables in custom macros, Campaign uses the current value of the user variable when checking syntax. If the current value is left blank, Campaign generates an error.
- The temp table token is provided as a performance optimization advanced feature that scopes the amount of data pulled down from the database by the set of audience IDs in the temp table available for use by the current process. This temp table list of IDs might be a superset of the IDs in the current cell. Therefore, aggregate functions performed over the temp table (for example, average or sum) are not supported and might generate incorrect results.
- If you intend to use the custom macro across several different databases, you might want to use a IBM expression rather than raw SQL, since raw SQL can be specific to a particular database.
- If a custom macro contains raw SQL and another custom macro, the custom macro is resolved, executed and its value returned before the raw SQL is executed.
- Campaign treats a comma as a parameter separator. If you are using commas as literal characters in a parameter, enclose the text in open and close brackets ({}), as in the following example:

  TestCM({STRING_CONCAT(UserVar.Test1, UserVar.Test2) })
- Campaign supports simple substitution for parameters in custom macros using raw SQL code. For example, if you set up a Select process box on a flowchart containing this query:

  ```
  exec dbms_stats.gather_table_stats(tabname=> <temptable>,ownname=>
  'autodcc')
  ```

  Campaign would successfully substitute the actual temp table in place of the <temptable> token. Note that the single quotes around the table name are required.

The following tables show how Campaign treats custom macros in queries and derived fields.

Custom macros in queries and derived fields (Select, Segment, and Audience Processes)

Type of custom macro	How it is used
Raw SQL: IDs	Runs as a separate query. The ID list is merged with other results. If a custom macro contains other custom macros plus raw SQL, the custom macros are resolved and executed and then the raw SQL is executed.
Raw SQL: IDs + Value	Expects that the returned value will be used in an expression or as a comparison. If the value is not used this way, Campaign treats a non-zero value as TRUE for ID selection and a zero value and string as FALSE.
IBM Expression	The expression is resolved and a syntax check is performed. One query per table is supported, and the IDs are match/merged.

In a Raw SQL Query (Select, Segment, and Audience Processes)

Type of custom macro	How it is used
Raw SQL: IDs	Custom macro is resolved and then the query is executed.
Raw SQL: IDs + Value	Not supported.
IBM Expression	The expression is resolved, but no syntax check is performed. If the expression is incorrect, it is detected by the database server when executed.

To manage a custom macro

You can create a folder structure to organize your custom macros. You can then move custom macros from one folder to another within this structure.

1. On a flowchart page in **Edit** mode, click the **Options** icon and select **Custom Macros**.

   The Custom Macros dialog appears.
2. Navigate through the **Items List** to select the macro you want to edit.

   The **Info** area shows the detailed information for the selected macro.
3. Click **Edit/Move** to edit or move the selected macro.

   The Edit/Move Custom Macros dialog opens.
4. You can change the name of the macro, edit the note, change the folder/location where the macro is stored, or click **Edit** to edit the expression.
5. Click **Save** to save your changes.
6. Click **Close** to exit the Custom Macros dialog.

About templates

A template is a group of selected and saved processes from flowcharts. Templates allow you to design and configure one or more processes only once, and save them in the Template Library. Templates save process configurations and table mappings, and are available for any session or campaign.

To copy a template to the Template Library

You can add templates to the template library by copying them there.

1. In a flowchart in **Edit** mode, select the processes you want to save as a template. Use **Ctrl+Click** to select multiple processes. Use **Ctrl+A** to select all processes in the flowchart.
2. Right-click any selected process and select **Copy to Template Library**.

   The Save Template window appears.
3. Enter a name for the template in the **Name** field.

   You cannot use spaces in the name. Stored templates are identified by names, which must be unique in the folder in which it is stored.
4. (Optional) Enter a description in the **Note** field.
5. (Optional) Use the **Save Under** list to select a folder for the template, or use **New Folder** to create a new folder. You can create an unlimited number of folders (including nesting folders in a hierarchy) to organize and store your templates.
6. Click **Save**.

To paste a template from the Template Library

You can paste a template from the Template Library into a flowchart you are building.

1. On a flowchart page in Edit mode, click the **Options** icon and select **Stored Templates**.

   The Stored Templates dialog appears.
2. Select a template from the **Items** list.
3. Click **Paste Template**.

The selected template is pasted onto the flowchart workspace.

Note: The inserted processes might appear on top of other process already in the flowchart. All inserted processes are initially selected to make them easy to move as a group.

Templates can be accessed by any other session or campaign through the Template Library. If a template is pasted into a flowchart that has different table mappings, the subsequent mapping is augmented but not replaced by the new mapping, unless the table name(s) are the same.

To manage a template

You can create new folders, edit, move, and remove stored templates through this command.

1. On a flowchart page in Edit mode, click the **Options** icon and select **Stored Templates**.

   The Stored Templates dialog appears.
2. From the **Items List**, select the template that you want to edit or move.

3. Click **Edit/Move**.

   The Edit/Move Stored Templates dialog opens.
4. In the **Save Under** field, specify the folder/location to which you want to move the template.
5. You can also change the name of the stored template, or edit the note associated with it.
6. Click **Save** to save your changes.
7. Click **Close** to exit the Stored Templates window.

About stored table catalogs

A table catalog is a collection of mapped user tables. Table catalogs store all the user table mapping meta data information for re-use across flowcharts. Table catalogs are stored by default in a proprietary binary format using a `.cat` extension.

For information on creating and working with table catalogs, see the *Campaign Administrator's Guide*

To access stored table catalogs

From a flowchart in page in **Edit** mode, click the **Options** icon and select **Stored Table Catalogs**.

The Stored Table Catalog dialog appears.

Note: If you have administrator permissions, you can also access stored catalogs from the Campaign Settings page. For more information, see the *Campaign Administrator's Guide*.

To edit a table catalog

1. On a flowchart page in **Edit** mode, click the **Options** icon and select **Stored Table Catalogs**.

   The Stored Table Catalogs dialog appears.
2. Select the desired table catalog in the **Items List**.

   The **Info** area shows the detailed information for the selected table catalog, including the table catalog name and file path.
3. Click **Edit/Move**.
4. You can change the name of the stored table catalog, edit the table catalog description, or change the folder/location where the table catalog is stored.
5. Click **Save**.
6. On the Stored Table Catalogs window, click **Close**.

To remove a table catalog

Important: You should remove table catalogs only using the Campaign interface. If you remove tables or otherwise change table catalogs directly in the file system, Campaign cannot guarantee data integrity in your system.

1. On a flowchart page in **Edit** mode, click the **Options** icon and select **Stored Table Catalogs**.

   The Stored Table Catalogs window appears.
2. Select the desired table catalog in the **Items List**.

The **Info** area shows the detailed information for the selected table catalog, including the table catalog name and file path.

3. Click **Remove**.

   You see a confirmation message asking you to confirm removal of the selected table catalog.

4. Click **OK**.
5. On the Stored Table Catalogs window, click **Close**.

Chapter 11. Sessions

Like campaigns, sessions are comprised of individual flowcharts. However, sessions allow you to create persistent data constructs (such as strategic segments, stored dimension hierarchies, and cubes) that are available globally to all campaigns. You can use sessions to create flowcharts that:

- Transform data required across campaigns;
- Produce PredictiveInsight input files;
- Contain strategic segments.

Note: When you are designing flowcharts, be careful not to create cyclical dependencies among your processes. For example, your flowchart has a Select process that provides input to a CreateSeg process. If you choose as input in your Select process a segment that will be created by the same CreateSeg process that the Select process provides output to, you will have created a cyclical dependency. This situation will result in an error when you try to run the process.

Working with sessions

You can perform the following tasks with sessions.

Note: Working with sessions requires the appropriate permissions. For information on permissions, see the *Campaign Administrator's Guide*.

Related concepts:

"About organizing sessions" on page 188

"About copying sessions" on page 187

"About running sessions" on page 187

To create a session

1. Select `Campaign > Sessions`.

   The All Sessions page displays the folder structure used to organize your company's sessions. If you have previously opened a subfolder within the All Sessions page, that subfolder will be displayed instead.
2. Navigate through the folder structure until you are displaying the contents of the folder where you want to add your session.
3. Click the **Add a Session** icon.

   The New Session page appears.
4. Enter a name, security policy and description for the session.

   Note: Session names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
5. Click **Save Changes**.

   Note: You can also click **Save and Add Flowchart** to immediately start creating your session's flowcharts.

To view a session

1. Select **Campaign > Sessions**.
   The All Sessions page appears.
2. Click the name of the session you want to view, to open the session's **Summary** tab.
   OR
3. Click the **View a tab** icon next to the name of the session you want to view.
   The **Summary** and the names of any flowcharts in the session appear in a context-menu.
4. Select the session tab you want to view.
   The session opens to the tab you selected.

To edit a session's Summary details

1. Select **Campaign > Sessions**.
   The All Sessions page appears.
2. Click the name of the session whose summary details you want to edit.
   The session opens to its **Summary** tab.
3. Click the **Edit Summary** icon.
4. Make your desired edits on the **Summary** tab.

   Note: Session names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
5. When you have finished making your changes, click **Save Changes**.
   Your changes are saved and the session closes.

To edit a session flowchart

1. Select **Campaign > Sessions**.
   The All Sessions page appears.
2. Click the **Edit a tab** icon next to the name of the session whose flowchart(s) you want to edit.
3. From the context-menu, click the name of the flowchart you want to edit.
   The flowchart page appears in **Read Only** mode.
4. Click the **Edit** icon to open the flowchart in **Edit** mode.
5. Make the desired changes to the flowchart.
6. When you have finished making your changes, click **Save** or **Save and Exit**.

To edit a session flowchart's properties

1. Open the flowchart for editing.
2. Click **Properties** in the Flowchart toolbar.
   The Edit Flowchart Properties page appears.
3. Modify the flowchart name or description.

   Note: Flowchart names have specific character restrictions. See "Special characters in IBM Campaign object names," on page 219.
4. Click **Save Changes**.
   The modified flowchart details are saved.

About copying sessions

You do not copy sessions, but rather the flowcharts within sessions.

About running sessions

To run a session, you need to run each of its flowcharts.

To move a session

You can move sessions from folder to folder for organizational purposes.

Note: If someone is editing a flowchart in the session you plan to move, that entire flowchart might be lost when you move the session. You must make sure that none of the flowcharts in the session are open for editing when you move the session.

1. Select **Campaign > Sessions**.

   The All Sessions page appears.
2. Open the folder that contains the session you want to move.
3. Select the checkbox next to the session you want to move. You can select multiple sessions to move to the same location at one time.
4. Click the **Move** icon.

   The Move Items To window appears.
5. Click the folder where you want to move the session.

   Navigate through the list by clicking the **+** sign next to a folder to open it.
6. Click **Accept this Location**.

   Note: You can also double-click a folder to select and accept the location in one step.

   The session is moved into the destination folder.

About deleting sessions

When you delete a session, the session and all flowchart files are deleted. If there are portions of your session you want to store for reuse, you can save them as a stored object. For more information, see "About derived fields" on page 171.

Important: If you delete a session that has associated contact or response history records, all corresponding contact and response history records will be deleted. Do not delete the session if you need to retain the associated contact and response history.

To delete a session

1. Select **Campaign > Sessions**.

   The All Sessions page appears.
2. Open the folder that contains the session you want to delete.

   Navigate through the folder structure by clicking a folder name to open it, clicking **All Sessions** to return to the All Sessions page, or clicking **Parent Folder** to open the folder that contains the currently open folder.
3. Select the checkbox next to the session you want to delete. You can select multiple sessions to delete at one time.
4. Click the **Delete Selected** icon.

Note: If you attempt to delete a session that has associated contact or response history records, a warning message indicates that all corresponding contact and response history records will be deleted. If you need to retain the corresponding contact and response history, click **Cancel**.

5. Click **OK** on the confirmation window.

   The session is deleted.

About organizing sessions

You can organize your sessions by creating a folder or series of folders. You can then move sessions from one folder to another within the folder structure you have created.

You can add, move, and delete folders to organize your sessions. You can also edit a folder's name and description.

To add a session folder

1. Select **Campaign > Sessions**.

   The All Sessions page appears.
2. Click the folder where you want to add a subfolder and click **Add a Subfolder**, or simply click Add a Subfolder to add a folder at the top level.

   The Add a Subfolder page appears.
3. Enter a name, the security policy, and description for the folder.

   Note: Folder names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
4. Click **Save Changes**.

You are returned to the All Sessions page. The new folder or subfolder you created is displayed.

To edit a session folder's name and description

1. Select **Campaign > Sessions**.

   The All Sessions page appears.
2. Click the folder you want to rename.
3. Click the **Rename** icon.

   The Rename a Subfolder page appears.
4. Edit the name and description of the folder.

   Note: Folder names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
5. Click **Save Changes**.

   You are returned to the All Sessions page. The folder or subfolder is renamed.

To move a session folder

Important: If someone is editing a flowchart in the session you plan to move, flowchart results or the entire flowchart might be lost when you move the session. Please be sure that none of the flowcharts in the session are open for editing when you move the session.

1. Select **Campaign > Sessions**.

The All Sessions page appears.

2. Click the folder containing the subfolder you want to move.
3. Select the checkbox next to the folder you want to move. You can select multiple folders to move to the same location at one time.
4. Click the **Move** icon.

   The Move Items To window appears.
5. Click the folder where you want to move the subfolder.

   Navigate through the list by clicking the + sign next to a folder to open it.
6. Click **Accept this Location**.

   Note: You can also double-click a folder to select and accept the location in one step.

The subfolder and all its contents are moved into the destination folder.

To delete a session folder

You must move or delete the contents of a folder before you can delete it.

Note: If you have the permissions required to delete a folder, Campaign also allows you to delete any of the subfolders in that folder.

1. Select **Campaign > Sessions**.

   The All Sessions page appears.
2. Open the folder that contains the subfolder you want to delete.
3. Select the checkbox next to the folder you want to delete. You can select multiple folders to delete at one time.
4. Click the **Delete Selected** icon.
5. Click **OK** on the confirmation window.

   The folder and all its empty subfolders are deleted.

All Sessions page icons

The All Sessions page uses the following icons.

The icons, left to right, are described in the following table.

Note: Many of the icons in the Campaign interface are associated with features that require permissions. For more information, see the *Marketing Platform Administrator's Guide*. The following **Add a Session** and **Add a Subfolder** icons do not appear without the appropriate permissions.

Icon Name	Description
Add a Session	Click to add a new session.
Add a Subfolder	Click to add a new session subfolder.

Icon Name	Description
Print this Item	Select one or more sessions by clicking the checkbox next to each session, then click this icon to print the selected sessions.
Move	Select one or more sessions by clicking the checkbox next to each session, then click this icon to specify a location to move the selected sessions.
Delete Selected	Select one or more sessions by clicking the checkbox next to each item, then click this icon to delete the selected sessions.

About strategic segments

A strategic segment is a globally persistent list of IDs. Strategic segments are simply segments that are created, typically by Campaign administrators, using the Create Seg process in a session flowchart, so that they are available for use globally, in all campaigns.

Campaign supports multiple strategic segments; the ID list that is created for each strategic segment and audience level is stored in the Campaign system tables. You can associate an unlimited number of strategic segments with a campaign.

Strategic segments are often used in cubes. A cube can be created from any list of IDs, but it is more powerful if it is based on a strategic segment, since cubes based on strategic segments are global and can be analyzed by the various segment reports.

Strategic segments can be used as global suppression segments. A global suppression segment defines the list of IDs that are automatically excluded from cells in flowcharts for a particular audience level.

Strategic segments can optionally specify one or more IBM data sources in which that strategic segment will be cached (that is, stored in the database so that uploading the strategic segment IDs is not required for each flowchart using the strategic segment). This can provide significant performance improvements in using strategic segments.

Cached strategic segments are stored in temp tables, which are assigned the `TempTablePrefix` configuration parameter.

Note: Working with stratetic segments requires the appropriate permissions. For information on permissions, see the *Campaign Administrator's Guide*.

Improving performance of strategic segments

By default, the Create Seg process creates a binary file on the application server, which can take a long time for a large strategic segment. When Campaign updates the binary file, it drops and then inserts the rows again into a cached table; the entire file is rewritten for sorting. For extremely large strategic segments (for example, 400 million IDs), it takes a long time to rewrite the entire file, even when most of the IDs have not changed.

To improve performance, set the `doNotCreateServerBinFile` property on the Configuration page to `TRUE`. A value of `TRUE` specifies that strategic segments create a temp table in the data source instead of creating a binary file on the application

server. When this property is set to TRUE, at least one valid data source must be specified on the Define Segments tab of the CreateSeg process configuration.

Other performance optimizations, such as creating indexes and generating statistics, which cannot be applied to cached segment tables, can be used with segment temp tables. The PostSegmentTableCreateRunScript, SegmentTablePostExecutionSQL, and SuffixOnSegmentTableCreation properties on the Configuration page support these performance optimizations.

For details about properties on the Configuration page, see the *Campaign Administrator's Guide*.

Prerequisites for creating strategic segments

Before you create a strategic segment, you should do the following:

- Determine how your strategic segments will be organized, the folder hierarchy and naming conventions you will use.
- Determine exactly what strategic segments are important to you.
- Determine the logic behind your strategic segments.
- Identify the relationship between different strategic segments.
- Identify the audience levels appropriate to your strategic segments.
- Determine how often the strategic segments should be refreshed.
- Determine what level of detail is defined in each strategic segment. For example, should a segment include all suppressions?
- Determine if you want to keep historical strategic segments in an archive folder.
- Consider the size of the strategic segments you want to create and their potential impact on performance. See "Improving performance of strategic segments" on page 190.

To create a strategic segment

Note: Working with strategic segments requires the appropriate permissions. For information on permissions, see the *Campaign Administrator's Guide*.

Strategic segments are created and made available for selection only when the CreateSeg process has run successfully in production mode. Configuring the CreateSeg process is not sufficient. Running the process in test mode does not create a strategic segment or update an existing one.

1. Create a session, or open an existing session for editing.

   Note: Segment names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
2. Build a flowchart whose final output process is the CreateSeg process.
3. Click **Save and Return** when you have finished creating your flowchart.

   The flowchart is saved. The strategic segments are listed on the All Segments page and are available for use in all campaigns.

Example: Session flowchart creating strategic segments

In a flowchart in the Sessions area of Campaign, add two Select processes, one to select all records from a particular field in a mapped table in your datamart, and the other to select all records from the same datamart that have been classified as opt-outs and thus need to be removed from the total list of IDs.

Next, use a Merge process whose input consists of the output cells of the two Select processes to eliminate the OptOut IDs and produce an output cell of eligible IDs.

Then, add a Segment process to which the eligible IDs from the Merge process are passed, where they are divided into three discrete groups of IDs.

Finally, add a Create Seg process to output the three segments as a globally persistent list of audience IDs.

Run the flowchart in production mode to create the strategic segment and make it available for use in multiple campaigns.

To view a segment from the All Segments page

1. Select **Campaign > Segments**.
   The All Segments page appears.
2. Click the name of the session you want to view.

The Summary page displays the segment's summary information.

Table 18. Summary information for segments

Element	Description
Description	The description of the segment provided in the Create Seg process
Source Flowchart	The name of the flowchart where the segment was defined
Audience Level	The audience level for the segment
Current Count	The number of IDs in this segment and the date that this segment was last run
Used in the Following Campaign(s)	A list of all the campaigns that use the segment, with links to those campaigns

To view a strategic segment from the Campaign summary page

1. Go to the summary page of any campaign that uses the segment you want to view.
2. In the **Relevant Segments** list, click the name of the segment.
   The segment's summary page appears.

To edit a segment's Summary details

1. Select **Campaign > Segments**.
   The All Segments page appears.
2. Click the name of the segment whose summary details you want to edit.
   The segment opens to its **Summary** tab.
3. Make your desired edits to the name or description of the segment.

   Note: Segment names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
4. When you have finished making your changes, click **Save Changes**.
   Your changes are saved and the segment closes.

To edit a strategic segment's source flowchart

1. Select **Camaign > Segments**.
   The All Segments page appears.
2. Click the name of the segment whose flowchart you want to edit.
   The segment's Summary page appears.
3. Under **Source Flowchart**, click the link to the flowchart.
   The flowchart page opens in **Read Only** mode.
4. Click **Edit** to open the flowchart in **Edit** mode.
5. Make the desired changes to the flowchart.
6. When you have finished making your changes, click **Save** or **Save and Exit**.

Important: The existing strategic segment is not updated until you re-run the updated flowchart in production mode.

All Segments page icons

The All Segments page uses the following icons

The icons, left to right, are described in the following table.

Table 19. Icons on the All Segments page

Icon Name	Description
Add a Subfolder	Click to add a new segment subfolder.
Advanced Search	Click to open the Advanced Search Options dialog, where you can specify attributes and values to search for offers.
Print	Select one or more segments by clicking the checkbox next to each segment, then click this icon to print the selected segments.
Move	Select one or more segments by clicking the checkbox next to each segment, then click this icon to specify a new location for the selected segments.
Delete Selected	Select one or more segments by clicking the checkbox next to each segment, then click this icon to delete the selected segments.

Running strategic segments

You should re-generate strategic segments if the contents of your datamart have changed. To re-generate a strategic segment, you run the flowchart in which that segment was created, in production mode. The Enable Output setting in Test Run mode has no effect; strategic segments are output only in production mode.

Note: When a Create Seg process is re-run in production mode, the existing strategic segment created by that process is deleted. This means that any users of the existing strategic segment (including global suppressions) might see an "invalid segment" error if the new Create Seg process run fails to complete successfully, or while it is still running.

Organizing strategic segments

You can organize your strategic segments by creating a folder or series of folders. You can then move strategic segments from one folder to another within the folder structure you have created.

Note: The folder in which a strategic segment resides specifies the security policy applying to the strategic segment, determining who can access, edit, or delete it.

To add a segment folder

You can add, move, and delete folders to organize your segments. You can also edit a folder's name and description.

1. Select **Campaign > Segments**.

   The All Segments page appears.
2. Click the folder where you want to add the subfolder.
3. Click the **Add a Subfolder** icon.

   The Add a Subfolder page appears.
4. Enter a name, the security policy, and description for the folder.

   Note: Folder names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
5. Click **Save Changes**.

   You are returned to the All Segments page. The new folder or subfolder you created is displayed.

To edit a segment folder's name and description

1. Select **Campaign > Segments**.

   The All Segments page appears.
2. Click the folder you want to rename.
3. Click **Rename**.

   The Rename a Subfolder page appears.
4. Edit the name and description of the folder.

   Note: Folder names have specific character restrictions. For details, see "Special characters in IBM Campaign object names," on page 219.
5. Click **Save Changes**.

   You are returned to the All Segments page. The folder or subfolder is renamed.

To move a segment folder

Important: If someone is editing the source flowchart for any segment you plan to move, that entire flowchart might be lost when you move the segment. Make sure none of the source flowcharts are open for editing when you move the subfolder.

1. Select **Campaign > Segments**.

   The All Segments page appears.
2. Open the folder that contains the subfolder you want to move.

   Navigate through the folder structure by clicking a folder name to open it, clicking **All Segments** to return to the All Segments page, or clicking a folder name to open folders in the tree.
3. Select the checkbox next to the folder you want to move. You can select multiple folders to move to the same location at one time.
4. Click the **Move** icon.

The Move Items To window appears.

5. Click the folder where you want to move the subfolder.

   Navigate through the list by clicking the + sign next to a folder to open it.

6. Click **Accept this Location**.

   Note: You can also double-click a folder to select and accept the location in one step.

   The subfolder and all its contents are moved into the destination folder.

To delete a segment folder

You must move or delete the contents of a folder before you can delete it.

Note: If you have the permissions required to delete a folder, Campaign also allows you to delete any of the subfolders in that folder.

1. Select **Campaign > Segments**.

   The All Segments page appears.

2. Open the folder that contains the subfolder you want to delete.

   Navigate through the folder structure by clicking a folder name to open it, clicking **All Segments** to return to the All Segments page, or clicking a folder name to open folders in the tree.

3. Select the checkbox next to the folder you want to delete. You can select multiple folders to delete at one time.
4. Click the **Delete Selected** icon.
5. Click **OK** on the confirmation window.

   The folder and all its empty subfolders are deleted.

To move a segment

You can move strategic segments from folder to folder for organizational purposes.

Important: If a source flowchart for the segment you plan to move is open for editing, the entire flowchart may be lost when you move the segment. Make sure that none of the source flowcharts are open for editing before you move the subfolder.

1. Select **Campaign > Segments**.

   The All Segments page appears.

2. Open the folder that contains the segment you want to move.
3. Click the checkbox next to the segment you want to move. You can select multiple segments to move to the same location at one time.
4. Click the **Move** icon.

   The Move Items To window appears.

5. Click the folder where you want to move the segment.

   Navigate through the list by clicking the + sign next to a folder to open it.

6. Click **Accept this Location**.

   Note: You can also double-click a folder to select and accept the location in one step.

   The segment is moved into the destination folder.

Deleting strategic segments

Strategic segments can be deleted in the following ways:

- By deleting the strategic segment itself from its folder location on the All Segments page. Strategic segments that you delete by this method will be re-created if the Create Seg processes that generated them originally are re-run in production mode. For details, see "To delete a segment."
- By deleting the Create Seg process that created the strategic segment. The strategic segment is deleted only when the flowchart is saved. Strategic segments deleted in this way cannot be recovered. For details, read about deleting processes in flowcharts.
- By deleting the flowchart containing the Create Seg process that created the strategic segment. Strategic segments deleted in this way cannot be recovered. For details, read about deleting flowcharts.

To delete a segment

Use the following procedure to delete a strategic segment directly from the All Segments page.

Note: Strategic segments that you delete by this method will be re-created if the Create Seg processes that generated them originally are re-run in production mode.

1. Select **Campaign > Segments**.

   The All Segments page appears.
2. Open the folder that contains the segment you want to delete.
3. Select the checkbox next to the segment you want to delete. You can select multiple segments to delete at one time.
4. Click the **Delete Selected** icon.
5. Click **OK** on the confirmation window.

   The segment is deleted.

   Note: If there are still active flowcharts that contain the segment, the segment can be re-created when those flowcharts are run. If a flowchart containing the segment was open for editing when you deleted the segment, it will also be re-created.

About global suppressions and global suppression segments

Use the global suppression feature to specify a list of IDs (in a single audience level) that are automatically excluded from all cells in flowcharts in Campaign.

You do this by creating this list of unique IDs as a strategic segment, then by specifying that segment as a global suppression segment for a particular audience level. Only one global suppression segment can be configured for each audience level.

Note: Specifying and managing global suppression segments requires the appropriate permissions and is usually performed by your Campaign administrator. For details, see the *IBM Campaign Administrator's Guide*.

Applying global suppressions

If a global suppression segment has been defined for an audience level, all top-level Select, Extract, or Audience processes associated with that audience level automatically exclude the IDs in the global suppression segment from their output cells (unless the global suppression is explicitly disabled for a specific flowchart). By default, flowcharts have global suppression enabled so that no action needs to be taken for any configured global suppression to be applied.

An exception to the default of global suppression being enabled is the flowchart containing the CreateSeg process that created the global strategic segment itself. In this case, the global suppression is always disabled (only for the audience level for which the global suppression segment is being created).

Note: Also note that performing Test Query in Select, Extract or Audience processes does not take into account any global suppressions.

Switching audiences with global suppressions

If you are switching from Audience 1 to Audience 2 in a flowchart, and have one global suppression defined for each of these audience levels, the global suppression segment for Audience 1 is applied to the input table, and the global suppression segment for Audience 2 is applied to the output table.

Disabling global suppressions

You can disable global suppressions for individual flowcharts only if you have the appropriate permissions. If you do not have the appropriate permissions, you cannot change the setting and must run the flowchart with the existing setting.

An administrator might grant global suppression override permissions to specific users so that they can design and execute special campaigns that are allowed to contact normally suppressed IDs, for example, IDs in a universal holdout group.

To disable global suppressions for a flowchart

1. Open the flowchart for editing.
2. Click the **Admin** icon and select **Advanced Settings**.
3. In the Advanced Settings window, check the **Disable Global Suppressions for this Flowchart** checkbox.
4. Click **OK**.

About dimension hierarchies

A dimension hierarchy is a set of SQL selection queries that can be applied to any list of IDs. Like strategic segments, dimension hierarchies can be made available globally in a Select process or used as the basis for constructing cubes.

Among the most commonly specified dimensions are time, geography, product, department, and distribution channel. However, you can create any kind of dimension that best relates to your business or campaign.

As the building blocks of cubes, dimensions become the basis for a variety of reports (total sales across all products at increasing aggregation levels, cross-tabular analysis of expenses versus sales by geography, and so on). Dimensions are not limited to a single cube; they can be used in many cubes.

A dimension hierarchy is made up of various *levels*, which in turn are comprised of *dimension elements*, or *elements* for short.

Campaign supports dimensions that are comprised of an infinite number of levels and elements, as well as:

- Data points built as input to customer analytic reporting and visual selection

- Roll ups into unlimited number of categories to support drill-down capability. (Dimensions must roll up cleanly across boundaries, so elements must be mutually exclusive and not overlap.)

Examples: Dimension hierarchies

The following two examples illustrate a basic dimension hierarchy that would be created in your datamart and then mapped into Campaign.

Example: Age Dimension Hierarchy

Lowest level: (21–25), (26–30), (31–35), (36–45), (45–59), (60+)

Rollups: *Young* (18–35), *Middle* (35–59), *Older* (60+)

Example: Income Dimension Hierarchy

Lowest level: >$100,000, $80,000–$100,000, $60,000–$80,000, $40,000–$60,000

Rollups: *High (> $100,000), Middle ($60,000–$100,000), Low (< $60,000)* (> $100,000), ($60,000–$100,000), (< $60,000)

Creating dimension hierarchies

To use dimensions in Campaign, you must do the following:

- Define and create a hierarchical dimension in a table or delimited flat file in your data mart
- Map this hierarchical dimension table or flat file to a dimension in Campaign

Note: A hierarchical dimension is created in the data mart either by the Campaign system administrator or by members of your IBM consulting team, and is an operation external to Campaign. Also note that the lowest level of the hierarchical dimension must use either raw SQL or a *pure*IBM Expression (no custom macros, strategic segments, or derived fields) to define the individual elements.

When this hierarchical dimension is then mapped into Campaign, Campaign executes this code to perform the various roll-ups.

To map a hierarchical dimension to a Campaign dimension

Note: The following instructions assume that a hierarchical dimension already exists in your data mart.

Note: Since in almost all cases dimensions will be used to create cubes, you may want to create dimensions from a flowchart in the **Sessions** area of the application.

1. Access the Dimension Hierarchies window from one of the following places:
   - In a flowchart in **Edit** mode, click the **Admin** icon and select **Dimension Hierarchies**.
   - On the Administrative Settings page, select **Manage Dimension Hierarchies**.

   The Dimension Hierarchies window appears.
2. Click **New Dimension**.

   The Edit Dimension window appears.
3. Enter the following information about the dimension you are creating:
   - Dimension Name

- Description
- The number of levels in the dimension (in most cases, this should correspond to the levels in the hierarchical dimension in the data mart to which you are mapping this dimension).
- If you are using this dimension as the basis for a cube, ensure that the **Elements are Mutually Exclusive** check box is checked (Campaign checks this option by default). Otherwise, you will receive an error when you use this dimension to create a cube, since the values in elements cannot overlap in a cube.

4. Click **Map Table**.

   The Edit Table Definition window appears.
5. Select one of the following options:
   - Map to Existing File.
   - Map to Existing Table in Selected Database.

   Proceed with the steps for mapping a table. For details, see the *Campaign Administrator's Guide*.

   Note: When mapping tables for dimension hierarchies, the field names "Level1_Name," "Level2_Name," etc. must exist in the table for mapping to succeed.

   When you have finished mapping the table for the dimension, the Edit Dimension window appears with the dimension information for the new dimension.
6. Click **OK**.

   The Dimensions Hierarchies window appears with the newly mapped dimension visible.
7. To store a dimension hierarchy so that it is available for future use and does not need to be recreated, click **Save** on the Dimension Hierarchies window.

To update a dimension hierarchy

Campaign does not support automatic updates of dimension hierarchies. If the underlying data changes, you must update the dimension hierarchies manually.

Note: Cubes are comprised of dimensions which are based on strategic segments, therefore you must update dimensions whenever strategic segments are updated.

1. Access the Dimension Hierarchies window from one of the following places:
   - In a flowchart in **Edit** mode, click the **Admin** icon and select **Dimension Hierarchies**.
   - On the Administrative Settings page, select **Manage Dimension Hierarchies**.

   The Dimension Hierarchies window appears.
2. Click **Update All**.

   Note: To update individual dimensions, select the dimensions, then click **Update**.

To load a stored dimension hierarchy

1. Access the Dimension Hierarchies window from one of the following places:
   - In a flowchart in **Edit** mode, click the **Admin** icon and select **Dimension Hierarchies**.
   - On the Administrative Settings page, select **Manage Dimension Hierarchies**.

The Dimension Hierarchies window appears.

2. Highlight the dimension hierarchies that you want to load and click **Load**.

About cubes

A cube is the simultaneous segmentation of a list of IDs (most often a strategic segment) by the queries provided by a number of dimension hierarchies. After the cube is created, you can view segment cross-tab reports that drill into two dimensions of the cube at any given time.

Before you can create a cube, you must perform the following preliminary tasks:

- Create a strategic segment
- Create dimensions that are based on the strategic segment
- The following guidelines apply to cubes:
- Cube metrics can be defined as any Campaign expression with the following restrictions:
  - You can specify an unlimited number of additional NUMERIC metrics and Campaign will calculate min, max, sum, average for them. Selected metrics can be derived fields or persistent derived fields.
  - The aggregation function on cell count (min, max, avg, % of total no, and so on) is calculated automatically.
  - The aggregation function on an attribute value (for example, avg(age)) automatically calculates min, max, sum, and average.
  - Expressions that contain multiple attribute values (for example, (attribute1 + attribute2)) are supported in derived fields.
  - The Cube process supports derived fields and persistent derived fields.
  - Groupby expressions (for example, (groupby_where (ID, balance, avg, balance, (trxn_date > reference_date)))) are supported in derived fields.
  - Expressions involving user variables (defined in same flowchart as cube process AND exposed to Distributed Marketing) are supported in derived and persistent derived fields. (For more information about Distributed Marketing, see the *Distributed Marketing User's Guide*.)
  - Expressions that use raw SQL are supported in a derived field that uses a raw SQL custom macro
  - Expressions that use a custom macro are supported in a derived field.
- Although cubes are composed of up to three dimensions, metrics can be displayed for only two dimensions at a time. The undisplayed third dimension is still computed and stored on the server, but is not used in visual selection/reporting for that particular report.
- Cubes can be built on cells as well as segments (which, for example, can be created at the transaction level). However, if a cube is built on a cell, the cube is available only in that flowchart. For that reason, you may want to base cubes on strategic segments.
- Unless your tables are normalized, defining dimensions with a many-to-many relationship with the audience level could produce unexpected results. The cube algorithm used by Campaign relies on normalized tables. Before you select and build a cube, normalize data by rolling it up (to the customer level through a data prep session for example).

  Note: If you build a cube on non-normalized dimensions, the sum counts will be wrong in the crosstab reports, owing to the way that Campaign processes the dimension IDs. If you must use non-normalized dimensions, build cubes with

only two dimensions and use transactions as the lowest level metric of the nonnormalized dimensions, rather than customer IDs, since the transaction sum will be correct.

- When creating a cube dimension, you must give the dimension a name, audience level, and a table to correspond to the dimension. Later, when working in a session or a campaign flowchart, you map this dimension the same as if you were mapping a database table.
- Cubes should be built when users are not accessing them, typically after business hours and on weekends.

Chapter 12. Reports

Campaign provides reports to aid in campaign and offer management. Some reports are designed to be used during the flowchart design phase. Other reports help you analyze contact responses and overall campaign effectiveness.

The following standard reports are included with Campaign:

- **Flowchart cell reports**. To access these reports, open a flowchart in Edit mode and click the **Reports** icon  in the flowchart toolbar. See "Flowchart cell reports" on page 208.
- **Segment Crosstab reports**. To access these reports, select **Campaign Analytics** from the **Analytics** menu. See "Segment Crosstab reports" on page 213.
- **Calendar of Campaign**s. To access this report, select **Campaign Analytics** from the **Analytics** menu. See "Calendar of Campaigns" on page 213.

Many additional reports are also provided:

- The Campaign Reports Pack provides example reports for use with Campaign. These reports are available if Campaign is integrated with IBM Cognos®. To access these reports, select **Campaign Analytics** from the **Analytics** menu or use the **Analysis** tab for a specific object, such as a campaign or offer.
- Report packs for related products (eMessage, Interact, or Distributed Marketing) are also provided. These reports require that Campaign is integrated with IBM Cognos. You can access these reports from the **Analytics** page for each product or the **Analysis** tab for a campaign or offer. For more information, see the documentation for those products.

For information about installing and configuring IBM Cognos reports, see the *IBM EMM Reports Installation and Configuration Guide*.

Report types

Campaign supports three general types of reports:

- **System-wide reports** — reports across multiple objects within Campaign. These reports are accessed from the Campaign Analytics page, which is launched from the Analysis link on the main navigation pane. For example, from the folders on the Campaign Analytics page, you can access the Calendar of Campaigns report, which displays all campaigns in the system in a calendar format.
- **Object-specific reports** — reports pertaining to a specific object (a campaign or offer). These reports are accessed through an object's Analysis tab. For example, from a campaign's Analysis tab, you can access the Campaign Performance Summary by Offer report, which provides a summary of campaign and offer performance with offers grouped by the corresponding campaigns.
- **Flowchart cell reports** — reports that provide a variety of information relating to the cells in a particular flowchart in a session or campaign. Cell reports can be accessed by clicking the **Reports** icon when you view a flowchart in Edit mode.

Note: Access to an object's flowcharts, Analysis tab, and Campaign Analytics page depends on your permissions.

Campaign list portlets

This section describes the standard Campaign portlets that are available for use on dashboards even if the Campaign reports package is not installed.

Report	Description
My Custom Bookmarks	A list of links to websites or files created by the user viewing the report.
My Recent Campaigns	A list of the most recent campaigns created by the user viewing the report.
My Recent Sessions	A list of the most recent sessions created by the user viewing the report.
Campaign Monitor Portlet	A list of the campaigns that have run or are currently running that were created by the user viewing the report.

Campaign IBM Cognos report portlets

This section describes the dashboard portlets that are available in the Campaign reports package.

Report	Description
Campaign Return on Investment Comparison	An IBM Cognos report comparing, at a high level, the ROI of campaigns created or updated by the user viewing the report.
Campaign Response Rate Comparison	An IBM Cognos report comparing the response rates of one or more campaigns created or updated by the user viewing the report.
Campaign Revenue Comparison by Offer	An IBM Cognos report comparing the revenue received to date per campaign containing offers created or updated by the user viewing the report.
Offer Responses for Last 7 Days	An IBM Cognos report comparing the number of responses that were received over the last 7 days based on each offer created or updated by the user viewing the report.
Offer Response Rate Comparison	An IBM Cognos report comparing the response rate by offer created or updated by the user viewing the report.
Offer Response Breakout	An IBM Cognos report showing the various active offers created or updated by the user viewing the report, broken out by status.

Working with reports

The following sections provide information about using reports in Campaign.

Accessing and viewing reports

Access to reports is dependent on your access permissions to an object or function. For example, if you do not have permissions to edit flowcharts, you will not be able to access the cell reports for flowcharts.

Reports are accessible from these sections of Campaign:

- **The Campaign Analytics link in the Analytics menu** — this link opens the Campaign Analytics page, which displays folders for all available reports in Campaign. Click the link for a folder to view subfolders or lists of reports you can run. Reports are listed with a modified date and time.

- **The Analysis tab of an object** — displays links to reports for this campaign, offer, or segment. You select the type of report to view from the **Report Type** drop-down list at the top right of the page.
- **A flowchart page in Edit mode** — The **Reports** link at the top of the page opens cell reports for the flowchart. Access to cell reports and the ability to export cell reports are dependent on your access permissions.

To view reports from the Campaign Analytics page

1. Select **Analytics > Campaign Analytics**.

   The Campaign Analytics page appears, displaying folders for the available reports in Campaign.
2. Click the folder containing the reports you want to view. You see a page displaying the folder contents, including subfolders, if any.
3. Click the link for the report you want to view. If the report allows filtering, the Report Parameter window opens.
4. Select one or more objects on which to filter the report. Note that only the specific objects to which you have access will appear for selection. For reports allowing multiple object selection, select multiple objects by holding down the **Ctrl** key while selecting.
5. When you have finished selecting objects for the report, click **Generate the Report**. The report displays in the same window.

To view reports from a campaign's Analysis tab

1. Select the campaign on which you want to report. You see the Campaign Summary page.
2. Click the **Analysis** tab. You see the Report Type drop-down list at the top right of the page.
3. Select the type of report you want to view from the drop-down list. The report displays in the same window.

To view cell reports from a flowchart

Access to cell reports depends on your permissions. For example, if you do not have permissions to edit or review (edit without save) flowcharts, you cannot access flowchart cell reports. Also, you must have explicit access to view or export cell reports. See the *Campaign Administrator's Guide* for information about cell report permissions for the system-defined Administrative Role.

1. Open a flowchart in **Edit** mode.
2. Click the **Reports** icon in the flowchart window toolbar.

   The Cell Specific Reports window opens. By default, the Cell List report is displayed.
3. Use the **Report to View** list to select a different report. Use the controls at the top of the report to print, export, or perform other operations specific to that report.

   For descriptions of the reports and their available controls, see "Flowchart cell reports" on page 208.

Report controls

When you generate a report for viewing, the following controls and information are available:

- **Report generation time** — displayed at the bottom right of the report page.
- **Report generation date** — displayed at the bottom left of the report page.

- **Top/Bottom control** — click these links to display the top or bottom of the report. Only displayed if the current report spans more than one page.
- **Page up/Page down control** — click these links to display the previous or next page of the report. Only displayed if the current report spans more than one page.

The Reports toolbar

Note: The Reports toolbar is displayed only for reports generated by Cognos. It is not available for the calendar or segment reports, or for the cell reports within flowcharts.

When a report is generated, you see the Reports toolbar, from which you can perform the following tasks:

- **Keep this version**: Send the report by email
- **Drill Down/Drill Up**: Used for reports that support dimensional drilling.
- **Related links**: Used for reports that support dimensional drilling.
- **View format**: The default viewing format for reports is HTML. You can choose other viewing formats from the drop-down list. The viewing format icon changes depending on the currently selected view option.

To send a report by email

This option requires that your SMTP server be set up to work with Cognos. If this feature is not available, please see your reports administrator.

If you acquired your Cognos license with your IBM products, the option to include a link to the report is not supported. To use this feature, you must purchase a full license for Cognos.

1. After the report has finished running, click **Keep this version** in the Reports toolbar and select Email Report from the drop-down list. You see the Set the email options page, where you specify the recipients of the email, and optional message text.
2. To send the report as an attachment in the email message, select the **Attach the report** checkbox and clear the **Include a link to the report** checkbox.
3. Click **OK**. The request is sent to your email server.

Viewing reports in various formats

Note: Not all reports can be viewed in all formats. For example, reports that use multiple queries cannot be viewed in CSV or XML formats.

The report viewer allows you to view the report in these formats:

- HTML
- PDF
- Excel
- CSV
- XML

To view a report in HTML format

HTML is the default view for reports. If you are viewing a report in another format, you can switch back to HTML by clicking the **View format** icon on the Reports toolbar and selecting **View in HTML Format** from the drop-down list. After the page refreshes, you can use the Report controls to navigate through the report, if it spans more than one page.

To view a report in PDF format

After generating a report, click the **View format** icon on the Reports toolbar and select **View in PDF Format** from the drop-down list. The page refreshes, and the report displays in PDF format. You can save or print the report using the PDF reader controls.

To view a report in Excel format

After generating a report, click the View format icon on the Reports toolbar, then use the View in Excel Options. When prompted, specify whether to open or save the file:

- To view the report without saving it, click Open. The report displays as a single page in Excel format.
- To save the report, click Save and follow the prompts.

To view a report in CSV (comma-separated value) format

After generating a report, click the **View format** icon on the Reports toolbar, click **View in Excel Options** and select **View in CSV Format** from the drop-down list. A new window opens. You see a window asking whether you want to open or save the file.

- To view the report without saving it, click **Open**. The report displays as a single page in a spreadsheet format.
- To save the report, click **Save**. The Save As window opens. Navigate to the location where you want to save the file, and enter a name in the **File name** field. (By default, the file is saved as an .xls file.) Click **Save**. When the file has finished saving, you see the Download complete window.

To view a report in XML format

After generating a report, click the View format icon on the Reports toolbar and select View in XML Format from the drop-down list. The page refreshes and the report is displayed as XML in the same window.

Re-running reports

Reports are generated against the data source so that they reflect the latest data. If you believe that the data has changed since the report you want to view was last run and want to view an up-to-date version, you can re-run the report.

List of Campaign reports

Campaign provides the following standard reports:

- "Flowchart cell reports" on page 208
- "Segment Crosstab reports" on page 213
- "Calendar of Campaigns" on page 213

Additional reports, which serve as examples, are provided in the Campaign Reports Pack. The example reports are available if Campaign is integrated with IBM Cognos. The following topics provide information about the example reports:

- "Campaign and offer listings reports" on page 214

- "Performance reports" on page 214

For information about installing and configuring the IBM Cognos reports, see the *IBM EMM Reports Installation and Configuration Guide*.

For detailed information about the data items, queries and expressions used in each report, see the *IBM Campaign Report Specifications document*.

Flowchart cell reports

Cell reports provide a variety of information relating to the cells in a particular flowchart in a session or campaign. All cell reports can be accessed from the Reports menu when you view a flowchart in Edit mode.

Campaign supports the following types of cell reports:

- "Cell List report"
- "Cell Variable Profile report" on page 209
- "Cell Variable Crosstab report" on page 210
- "Cell Content report" on page 211
- "Cell Waterfall report" on page 211

To print and export cell reports

You can print any cell report or export it to an Excel spreadsheet by clicking on the **Print** or **Export** button at the top of the Cell Specific Reports page.

Cell List report

Cell List reports provide information about all the cells used in the current flowchart. The information is a result of the cell outputs from all processes run on the flowchart.

To generate a Cell List report:

1. Open a flowchart in Edit mode.
2. Click the **Reports** icon in the toolbar.

   The Cell Specific Reports window opens, with the Cell List report displayed by default. Each cell in the flowchart corresponds to a row in the report.

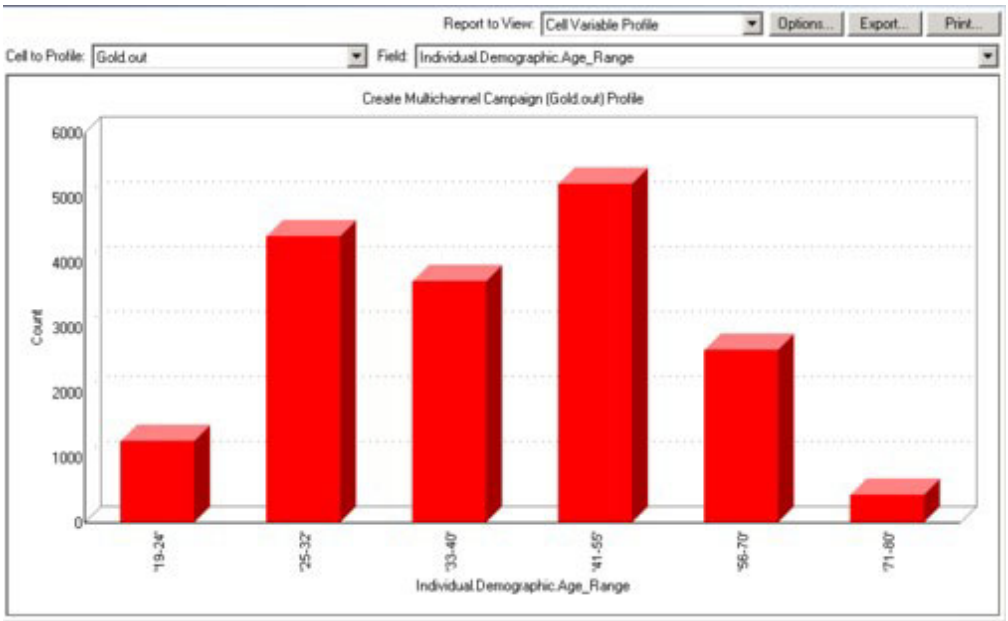
   The report shows data from the last run of the flowchart. The Status column indicates the type of flowchart run, such as Test Run or Production Run.
3. To sort the display, click a column header in the report.
4. To change the display, open the Options menu and select **Tree View** or **Table View**:
   - **Tree View**: View the flowchart cells in a folder hierarchy. The levels in this view represent the levels and relationships in the flowchart. Expand or collapse each level to show or hide the items below it.

     If the flowchart contains Merge processes, they are color coded throughout the report. For example, Merge1 is red and Merge2 is blue. The child and parent cells of each Merge process are also color coded, so you can easily identify them no matter how the list is sorted. For example, if Merge1 is red, the **Cell ID** field is red for all of the Merge1 child processes and parent processes.
   - **Table View**: View the flowchart cells in a table format (default).

Cell Variable Profile report

The Cell Variable Profile report displays the data associated with one variable of a specified cell. For example, the following figure shows the Gold.out cell (for those clients with gold credit cards) of the Multi-channel Retention campaign. The Age-Range variable is displayed to show the age range of those who belong to the Gold.out cell.

Cell Variable Profile report



To generate a Cell Variable Profile report:

1. Open an existing flowchart in **Edit** mode, or create a new flowchart
2. Click the **Reports**icon. The Cell Specific Reports window appears, with the Cell List report displayed by default. Each cell in the flowchart displays on one row in the report.
3. Select **Cell Variable Profile** from the **Report to View** drop-down list.
4. Select the cell you want to profile from the **Cell to Profile** drop-down list.
5. Select a field on which to profile the selected cell, from the **Field** drop-down list.
6. Campaign generates a cell variable profile based on the cell and field you selected.
7. (Optional) To modify the report display, click Options. You see the Report Options window, where you can select from the following options:
   - Number of Bins — Enter the number of bins you want to report to display. The field values along the horizontal axis are organized into bins. If the number you specify is less than the number of different field values, some fields will be joined in one bin. The default is 25.
   - Profile By Meta Type — Click to profile by metadata. For more information on profiling by metadata, see Profiling by meta type. This option is enabled by default.
   - View Table — View the report in a table format. Each bin is represented as a row, with the count for each bin as a column.

- View Plot — View the report as a graph. This is the default option. When you view a two- or three-dimensional report, you can right-click on the report to access more display options.
- Show 2nd Cell — If more than one cell is available for profiling, select this option to view a second cell in the report. When you select this option, you see a drop-down list from which you select an additional cell to profile. The two cells are then displayed side by side in graphical format.

Cell Variable Crosstab report

The Cell Variable Crosstab report displays details for a cell profiled by two fields simultaneously. The report divides each selected field into a number of bins, and the size of the box at each intersection represents the relative number of customer IDs that have the selected attributes. For example, in the following figure, two records from the Gold.out cell are profiled: funds (Indiv._Total_Funds) by name (First_Name). Another example might be age by amount purchased.

Note: The process from which the cell is generated must be fully configured and must run successfully in order to profile the cell.

Cell Variable Crosstab report

To generate a Cell Variable Crosstab report:

1. Open an existing flowchart in **Edit** mode, or create a new flowchart.
2. Click the **Reports** icon. The Cell Specific Reports window appears, with the Cell List report displayed by default. Each cell in the flowchart displays on one row in the report.
3. Select **Cell Variable Crosstab** from the **Report to View** drop-down list.
4. Select a cell from the **Cell** drop-down list.
5. Select fields (variables) to profile from the **Field 1** and **Field 2** drop-down lists. Campaign generates the report based on your selections.

6. (Optional) To modify the report display, click Options. You see the Report Options window, where you can select from the following options:
   - Number of Bins — Change the number of bins displayed. The field values along the horizontal axis are organized into bins. If the number you specify is less than the number of different field values, some fields will be joined in one bin. The default is 10.
   - Profile By Meta Type — Click to profile by metadata. For more information on profiling by metadata, see Profiling by meta type. This option is enabled by default.
   - View Table — Select to view the report as a table.
   - View 2-D Plot — elect to view the report as a 2-D plot graph (the default). When viewing a two or three dimensional report, you can right click on the report to access an array of display options.
   - View 3-D Plot — Select to view the report as a 3-D plot graph. When viewing a two or three dimensional report, you can right click on the report to access an array of display options.
   - Cell 1 Display — Select the way the cell information is displayed in the X-axis. For certain numeric fields, you can select fields to operate on from the Value Field drop-down menu.
   - Value Field — (For both Cell 1 Display and Cell 2 Display). Add a variable to the existing variable being profiled. This second variable will appear as a box within the box that represents the first variable.

Cell Content report

The Cell Content report displays details of the records within a cell. You can display values from any table sources defined at the current audience level. This report is useful for verifying the results of runs.

To generate a Cell Content report:

1. Open an existing flowchart in Edit mode, or create a new flowchart.
2. Click **Reports** icon. The Cell Specific Reports window appears, with the Cell List report displayed by default. Each cell in the flowchart displays on one row in the report.
3. Select **Cell Content** from the **Report to View** drop-down list.
4. Select a cell from the **Cell To View** pull-down menu.
5. (Optional) To modify the report display, click **Options**. You see the Report Options window, where you can select from the following options:
   - Max. number of rows to view — Change the maximum number of rows that the report displays. The default is 100.
   - Fields to View — Select fields to view in the report by selecting fields in the Available Fields area and adding them to the Fields to View area.
   - Skip Records with Duplicate IDs — Choose to skip records with duplicate fields. This is useful if you are using non-normalized tables. This option is disabled by default.

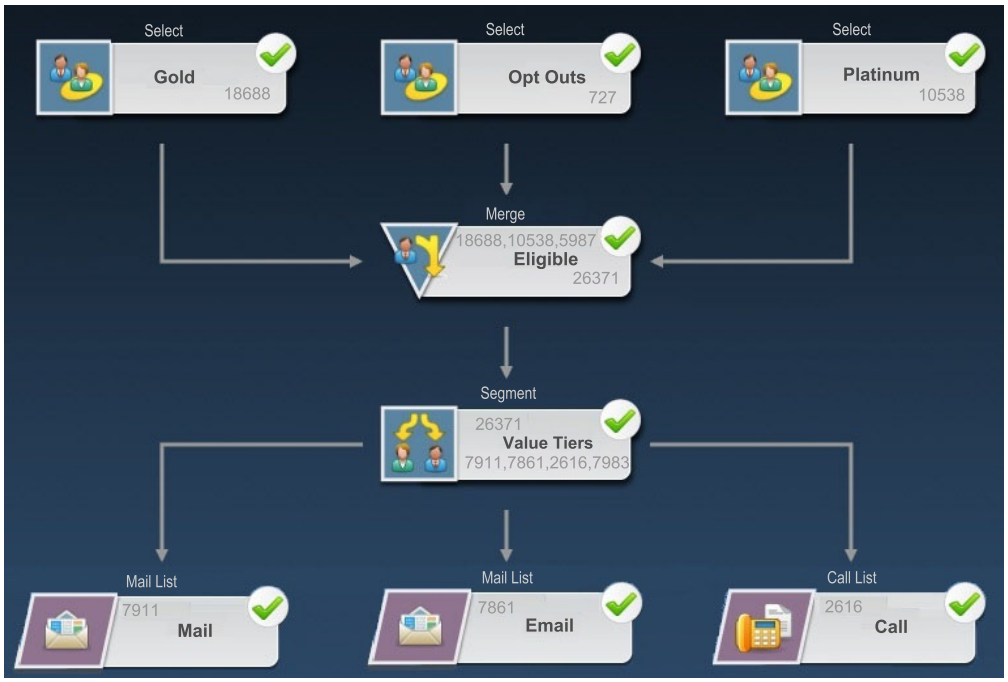
   Note: The number of records field has a maximum limit of 10000.

Cell Waterfall report

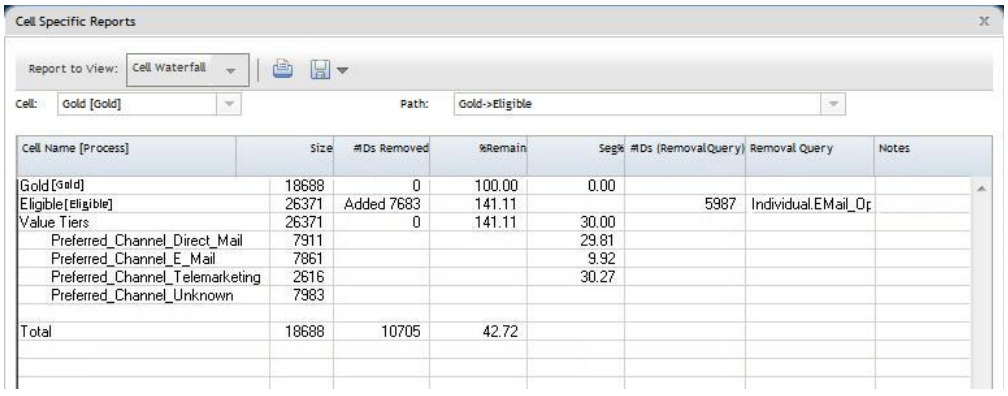
The Cell Waterfall report shows the falloff of audience members as cells are input and output through various processes in a flowchart. This report identifies processes that affect output volume and provides details about the output by

percentage and quantity. Use Cell Waterfall reports to refine target counts by viewing the falloff that is incurred by each successive criteria.

The following example shows a flowchart for a Multi-Channel Retention campaign. The report that follows analyzes the output from the Select process named "Gold".



The Cell Waterfall report that is based on this flowchart is shown in the following figure. The Gold (Select) process is analyzed because it is the one selected in the **Cell** list. The **Path** list is not relevant in this example because the Gold cell has only one path in this flowchart (from Gold to Eligible). If the Gold process box provided output to other processes in the flowchart, you could use the **Path** list to look at other sequences.



Cell Name [Process]	Size	#Ds Removed	%Remain	Seg%	#Ds (RemovalQuery)	Removal Query	Notes
Gold [Gold]	18688	0	100.00	0.00			
Eligible [Eligible]	26371	Added 7683	141.11		5987	Individual.EMail_Op	
Value Tiers	26371	0	141.11	30.00			
Preferred_Channel_Direct_Mail	7911			29.81			
Preferred_Channel_E_Mail	7861			9.92			
Preferred_Channel_Telemarketing	2616			30.27			
Preferred_Channel_Unknown	7983						
Total	18688	10705	42.72				

Each cell is identified by the Output Cell Name and Process Name (in square brackets) assigned on the General tab of the process configuration dialog.

This report shows that the IDs in the Gold cell are passed to the Merge process named Eligible. As a result of the Merge process, a number of IDs are added (from the Platinum Select process).The Removal Query columns indicate that some IDs were also removed. In this example, the Opt Outs process in the flowchart

removed customers who elected not to receive email communications. Therefore, the merged result of the Gold and Platinum cells is less than the sum of the two cells. Next, the Eligible IDs are passed to a Segment process named Value Tiers. The Segment process divides the Eligible IDs into multiple contact channels.

The Total row in the Cell Waterfall report shows the total number of IDs removed from the Gold output cell. It also shows the number and percentage of Gold IDs that remain.

To generate a Cell Waterfall report:

1. Open a flowchart in Edit mode.
2. Click the **Reports** icon in the flowchart window toolbar. The Cell Specific Reports window opens.
3. Select **Cell Waterfall** from the **Report to View** list.
4. Select the cell that you want to analyze from the **Cell** list.
5. If the cell is connected to multiple downstream processes, use the **Path** list to select which path in the flowchart you want to analyze.
6. (Optional) Use the **Print** icon to print the report.
7. (Optional) Use the **Export** icon to save or open the report as a comma-separated values (csv) file. Assign a file name but do not include a path or extension. If you want to include column headers in the CSV file, check **Include Column Labels**.

   If you choose to save the file, you are prompted for a path and you have the opportunity to change the file name.

Segment Crosstab reports

Segment crosstab reports are accessed from the Analysis section of Campaign, and consist of the following individual reports:

- "Segment Crosstab Analysis"
- "Segment Profile Analysis"

Segment Crosstab Analysis

The Segment Crosstab Analysis report calculates detailed information about any two dimensions in a cube, as defined in a Cube process, and displays the results in tabular format. This report allows you to drill into cells and create a Select process that can then be used in a campaign or session flowchart.

Only strategic segments or cells that are part of a cube are available to be analyzed in the Segment Crosstab Analysis report.

Segment Profile Analysis

The Segment Profile Analysis report calculates and displays the count for a strategic segment's dimensions. The information is displayed in both tabular and graphical views. Only strategic segments that are part of a cube are available to be analyzed in the Segment Profile Analysis report.

Calendar of Campaigns

The Calendar of Campaigns report allows you to view the campaign start and end dates on a calendar.

Campaign and offer listings reports

Campaign and offer listings reports are available only with the installation of IBM reporting and the Campaign reports pack. For information on installing and configuring IBM reporting, see the installation guide and the *IBM Campaign Administrator's Guide*.

Campaign and offer listings reports are accessed from the Analysis section of Campaign, and consist of the following individual reports:

- "Campaign Summary"
- "Offer Campaign Listings"

Campaign Summary

The Campaign Summary report provides an overview of all campaigns that have been created. It lists the campaign code, creation date, start and end dates, last run date, initiative and objective of each campaign.

Offer Campaign Listings

The Offer Campaign Listings report lists campaigns grouped by offers. It lists the campaign code, initiative, start and end dates and last run date.

Performance reports

Performance reports are provided with the Campaign Reports Pack. These reports are available only if Campaign is integrated with IBM Cognos. For information about installing and configuring reporting, see the *IBM EMM Reports Installation and Configuration Guide*.

For examples of output from performance reports, see the IBM Campaign Report Specifications document.

To access the performance reports, select **Campaign Analytics** from the **Analytics** menu or use the **Analysis** tab for a specific object, such as a campaign or offer.

The following topics provide information about the performance reports:

- "Offer Performance Metrics" on page 217
- "Offer Performance Summary by Campaign" on page 217

"What If" Offer Financial Summary

The "What If" Offer Financial Summary report calculates the hypothetical financial performance of an offer based on your input. You specify parameters for evaluating different response rate scenarios. The report calculates financial performance for six scenarios, incrementing upward based on your specified response rate and the response rate increment. For example, if you specify a response rate of 2% and a response rate increment of 0.25%, the report will return performance data for six scenarios with response rates ranging from 2% to 3.25%.

You can optionally change parameters in the "what-if" report, such as cost per contact, offer fulfillment fixed cost and revenue per response.

Campaign Detailed Offer Response Breakout

The Campaign Detailed Offer Response Breakout report provides campaign performance data for different response types. It lists all offers associated with a campaign and the number of responses for each response type.

Campaign Financial Summary by Offer (Actual)

The Campaign Financial Summary by Offer (Actual) report provides financial data for offers within campaigns. It includes data such as contact costs, gross revenue, net profit, and ROI.

Campaign Offer Performance by Month

The Campaign Offer Performance by Month report shows campaign performance for a specified month with performance data for each offer within the campaign. It lists the number of offers given, number of response transactions, and response rate for the specified month.

Campaign Performance Comparison

The Campaign Performance Comparison report compares the financial performance of campaigns. It includes data such as response transactions and response rate, number of unique responders and responder rate. It also includes lift over control group information.

Campaign Performance Comparison (with Revenue)

The Campaign Performance Comparison (with Revenue) report compares the financial performance of selected campaigns. It includes data such as response transactions, response rate, number of unique responders, responder rate and actual revenue. It also includes optional lift over control group information.

Campaign Performance Comparison by Initiative

The Campaign Performance Comparison by Initiative report compares the financial performance of selected campaigns grouped by their initiatives. It includes data such as response transactions and response rate, number of unique responders and responder rate. It also includes optional lift over control group information.

Campaign Performance Summary by Cell

The Campaign Performance Summary by Cell report provides performance data for campaigns with cells grouped by the corresponding campaigns. It includes data such as the number of offers given, number of response transactions, response rate, number of unique responders and responder rate. It also includes lift over control group information.

Campaign Performance Summary by Cell (with Revenue)

The Campaign Performance Summary by Cell (with Revenue) report provides performance data for selected campaigns with cells grouped by the corresponding campaigns. It includes data such as number of offers given, number of response transactions, response rate, number of unique responders, responder rate and actual revenue. It also includes optional lift over control group information.

Note: This report requires the additionally tracked field Revenue in the response history table.

Campaign Performance Summary by Cell and Initiative

The Campaign Performance Summary by Cell and Initiative report provides performance data for selected campaigns with cells grouped by the corresponding campaigns and initiatives. It includes data such as number of offers given, number of response transactions, response rate, number of unique responders and responder rate. It also includes optional lift over control group information.

Campaign Performance Summary by Cell and Offer

The Campaign Performance Summary by Cell and Offer report provides a way to see campaign performance by both offer and cell in the same report. Each campaign is listed, along with each cell and the associated offer names. For each combination of cell and offer, the report shows the number of offers given, number of response transactions, response rate, number of unique recipients and responders and responder rate. It also includes lift over control group information.

Campaign Performance Summary by Cell and Offer (with Revenue)

The Campaign Performance Summary by Cell and Offer (with Revenue) report provides a way to see campaign performance by both offer and cell in the same report, along with revenue information. Each campaign is listed, along with each cell and the associated offer names. For each combination of cell and offer, the report shows the number of offers given, number of response transactions, response rate, number of unique recipients and responders and responder rate, plus revenue. It also includes lift over control group information.

Note: This report requires the additionally tracked field Revenue in the response history table.

Campaign Performance Summary by Offer

The Campaign Performance Summary by Offer report provides a summary of campaign and offer performance with selected offers grouped by the corresponding campaigns. It includes data such as number of offers given, number of response transactions, response rate, number of unique responders, and responder rate. It also includes lift over control group information.

Campaign Performance Summary by Offer (with Revenue)

The Campaign Performance Summary by Offer (with Revenue) report provides a summary of offer performance for selected campaigns. It includes data such as number of offers given, number of response transactions, response rate, number of unique responders, responder rate and actual revenue. It also includes optional lift over control group information.

Offer Performance by Day

The Offer Performance by Day report shows offer performance for a specified date or date range. It lists the number of offers given, number of response transactions, and the response rate during the specified date or date range.

Offer Performance Comparison

The Offer Performance Comparison report compares the performance of selected offers. It includes data such as the number of offers given, number of response transactions, response rate, number of unique responders, and responder rate. It also includes lift over control group information.

Offer Performance Metrics

The Offer Performance Metrics report compares the performance of selected offers based on various response attributions, such as Best Match, Fractional Match and Multiple Match. It also includes optional lift over control group information and percentage differences between various attribution rates.

Offer Performance Summary by Campaign

The Offer Performance Summary by Campaign report provides a summary of the performance of selected offers by campaign. It includes data such as number of offers given, number of response transactions, response rate, number of unique responders, and responder rate. It also includes lift over control group information.

Appendix. Special characters in IBM Campaign object names

Names of objects in Campaign can have specific requirements. Some special characters are not supported in any Campaign object names. In addition, some objects have specific naming restrictions.

Note: If you pass object names to your database (for example, if you use a user variable that contains a flowchart name), you must ensure that the object name contains only characters supported by your particular database. Otherwise, you will receive a database error.

Special characters not supported

Do not use any of the characters listed in the following table in the names of these objects:

- campaigns
- flowcharts
- folders
- offers
- offer lists
- segments
- sessions

Table 20. Special characters not supported

Character	Description
%	Percent
*	Asterisk
?	Question mark
|	Pipe (vertical bar)
:	Colon
,	Comma
<	Less than symbol
>	Greater than symbol
&	Ampersand
\	Backward slash
/	Forward slash
“	Double quotation mark

Objects with no naming restrictions

The following objects in Campaign have no restrictions for characters used in their names:

- audience levels (audience level *field* names have naming restrictions)
- custom attribute *display* names (custom attribute *internal* names have naming restrictions)

- offer templates

Objects with specific naming restrictions

The following objects in Campaign have specific restrictions on their names:

- Custom attribute *internal* names (custom attribute *display* names have no naming restrictions)
- Audience level *field* names (audience level names have no naming restrictions)
- Cells
- Derived fields
- User table and field names

For these objects, names must:

- Contain only alphabetic or numeric characters, or the underscore (_) character
- Start with an alphabetic character

For non-Latin-based languages, Campaign supports all the characters that are supported by the string encoding configured.

Note: Derived field names have additional restrictions. For details, see "Naming restrictions for derived fields" on page 171.

Contacting IBM technical support

If you encounter a problem that you cannot resolve by consulting the documentation, your company's designated support contact can log a call with IBM technical support. Use the information in this section to ensure that your problem is resolved efficiently and successfully.

If you are not a designated support contact at your company, contact your IBM administrator for information.

Information to gather

Before you contact IBM technical support, gather the following information:

- A brief description of the nature of your issue.
- Detailed error messages that you see when the issue occurs.
- Detailed steps to reproduce the issue.
- Related log files, session files, configuration files, and data files.
- Information about your product and system environment, which you can obtain as described in "System information."

System information

When you call IBM technical support, you might be asked to provide information about your environment.

If your problem does not prevent you from logging in, much of this information is available on the About page, which provides information about your installed IBM applications.

You can access the About page by selecting **Help > About**. If the About page is not accessible, you can obtain the version number of any IBM application by viewing the `version.txt` file located under the installation directory for each application.

Contact information for IBM technical support

For ways to contact IBM technical support, see the IBM Product Technical Support website: (http://www-947.ibm.com/support/entry/portal/open_service_request).

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