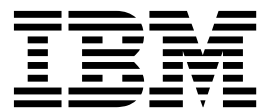


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IBM Campaign User's Guide



Note

Before using this information and the product it supports, read the information in “Notices” on page 233.

This edition applies to version 11, release 0, modification 1 of IBM Campaign and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. IBM Campaign overview

IBM® Campaign is a web-based solution that enables you to design, run, and analyze direct marketing campaigns.

Marketing professionals typically use Campaign in the following ways:

- Administrators perform initial and ongoing tasks such as adjusting configuration settings, mapping database tables, and defining custom attributes and offer templates.
- Users create and run direct marketing campaigns.

To conduct a marketing campaign, you start by defining offers for target audiences. You then build a flowchart, which provides a visual representation of the campaign logic. Part of building a flowchart involves associating offers with target audiences.

To design your campaigns, you can use data from multiple sources, including relational databases and flat files. For example, you can select contact data from a database, merge it with customer data from a flat file, then suppress, segment, and sample the data. To access and manipulate data, IBM Campaign supports the use of raw SQL, macros, and functions. However, you do not need to know SQL to use Campaign.

After you build a flowchart and assign offers to various segments, you run the flowchart to generate a list of contacts. To control the timing of your marketing campaigns, you can schedule different campaigns to run at various times.

During the course of a campaign, contact history and response history are stored. Campaign uses this history to track and analyze campaign results, so you can refine your campaigns over time.

IBM Campaign consists of a back-end server and a web application server, plus security, authentication, and authorization that are supplied by IBM Marketing Platform.

Note: IBM Marketing Platform provides a common access point and user interface for Campaign and other applications, plus features related to security and configuration.

IBM Campaign concepts

There are several basic concepts that can help you understand how to use IBM Campaign to create and manage marketing campaigns.

Campaigns

Each marketing campaign is defined by a business objective, a corporate-defined initiative specific to your marketing plan, and a date range during which the campaign is effective. For example, you could create a retention campaign to deliver an offer to customers who otherwise might be lost through attrition.

Flowcharts

Every marketing campaign consists of one or more flowcharts. For example, a marketing campaign might consist of a flowchart that provides offers to selected customers and another flowchart to track responses to the offers, for reporting and analysis.

Each flowchart makes use of one or more data sources. A data source contains information about your customers, prospects, or products, for use in marketing campaigns. For example, a flowchart can pull contact names and addresses from one database and pull opt-out information from another source.

A flowchart performs a sequence of actions on your marketing data. To define the actions, you use building blocks called *processes*, which you connect and configure. These processes make up the flowchart.

To implement your campaign, you run the flowcharts. You can run each flowchart manually, by a scheduler, or in response to some defined trigger.

Licensed users of Interact can use IBM 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*.

Processes

Each flowchart is made up of processes, or process boxes, that are configured and connected to perform specific tasks in a campaign or session. For example, a Select process can select customers who you want to target, and a Merge process can combine two distinct audience groups.

You configure and connect processes in each flowchart to achieve specific marketing goals. For example, a flowchart can consist of processes that select qualified recipients for a direct mail campaign, assign various offers to recipients, then generate a mailing list. Another flowchart can track respondents to your campaign, so you can calculate your return on investment.

Sessions

Sessions provide a way to create persistent, global data artifacts for use in all campaigns. Each session contains at least one flowchart. Running a session flowchart makes the outcome of the session (the data artifacts) available globally to all campaigns.

A typical use for a session flowchart is to create *strategic segments*, which are segments that can be used in multiple campaigns. For example, you can create strategic segments for opt-ins or opt-outs, then use those segments in various marketing campaigns.

Offers

An offer represents a single marketing message, which can be delivered in a variety of ways. Offers are re-usable:

- in different campaigns
- at different points in time
- for different groups of people (cells) in a flowchart

- as different "versions" (by varying the offer's parameterized attributes)

You can assign offers to target cells in flowcharts using one of the contact processes, such as Mail list or Call list. You can track the campaign results by capturing data about customers who received the offer and those who responded.

Cells

A cell is a list of identifiers, such as customer or prospect IDs, from your database. You create cells by configuring and running data manipulation processes in flowcharts. For example, a Select process can generate an output cell consisting of males between the ages of 25 and 34.

An output cell can be used as input for other processes in the same flowchart. For example, two Select processes can select customers from different data sources. A downstream Merge process can then combine the results.

A cell that has an offer assigned to it is called a *target cell*. A target cell is a group of homogeneous individuals, as defined by the audience level, 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 opted to receive email communications, or loyal repeat buyers. Each cell that you create can be treated differently, receiving different offers or communications through different channels.

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

Prerequisites for using IBM Campaign

Before you begin using IBM Campaign, confirm that your environment meets the following requirements.

- For an improved user experience, use at least a 21" screen.
- For an improved user experience, set your screen resolution to 1600 x 900. Lower resolutions can result in some information not being properly displayed. If you use a lower resolution, maximize the browser window to see more content.
- A mouse is best for navigating in the user interface.
- Do not use the browser controls to navigate. For example, avoid using the Back and Forward buttons. Instead, use the controls that are in the user interface.
- If pop-up blocker (ad blocker) software is installed on the client machine, IBM Campaign might not function properly. For best results, disable pop-up blocker software while running IBM Campaign.
- Ensure that the technical environment meets the minimum system requirements and the supported platforms.*
- The correct browser and versions must be used.*
- Clear the browser cache after upgrading or applying any fix pack. This only needs to be done once, after the application is updated.
- If you use Internet Explorer (IE) with IBM Campaign or any module that uses Campaign flowcharts (eMessage, Contact Optimization, Interact, Distributed Marketing): To log in multiple times to view side-by-side information, open IE

and log in to IBM Marketing Software. Then select **File > New Session** in the IE menu bar. In the new IE browser window, log in to IBM Marketing Software as the same or a different user.

Important: Do not use any other method to open multiple sessions. For example, do not open a new tab; do not open another browser session from the **Start** menu or desktop icon; and do not use **File > New Window** in IE. These methods can corrupt information that is shown in the application.

*For details on the items indicated by an asterisk, see the *IBM Marketing Software Recommended Software Environments and Minimum System Requirements*.

Getting started with IBM Campaign

Before meaningful work can be done in Campaign, some initial configuration is required. 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.

Typically, these tasks are completed with the help of an IBM consultant. After the initial work is done, you can design and run additional campaigns yourself and you can refine, expand, and build on initial campaigns as needed.

For information about initial and ongoing configuration and administration, 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.

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

In Campaign, security settings control your ability to access functions and the objects with which you can work.

Security in Campaign works on two levels.

- **Functional** - Determines the actions that you can perform on types of objects, based on the roles that you belong to. Your organization defines these roles at implementation. Each role has a set of permissions that are associated with it that determine what actions a user who belongs to that role can perform. For example, if you are a user assigned a role that is called "Administrator", you

might have permissions to map and delete system tables. If you are a user assigned a role that is called "Reviewer", you might be denied permissions to map and delete system tables.

- **Object** - Defines the object types on which you can perform your allowed actions. In other words, even if you belong to a role that has general permissions to edit campaigns, object-level security for Campaign can be set up so that you cannot access campaigns that are 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 that belong to Division B.

Logging in to IBM Marketing Software

Use this procedure to log in to IBM Marketing Software.

You need the following.

- An intranet (network) connection to access your IBM Marketing Software server.
- A supported browser installed on your computer.
- User name and password to sign in to IBM Marketing Software.
- The URL to access IBM Marketing Software on your network.

The URL is:

`http://host.domain.com:port/unica`

where

host is the machine where Marketing Platform is installed.

domain.com is the domain in which the host machine resides.

port is the port number where the Marketing Platform application server is listening.

Note: The following procedure assumes that you are logging in with an account that has Admin access to Marketing Platform.

Access the IBM Marketing Software URL using your browser.

- If IBM Marketing Software is configured to integrate with Windows Active Directory or with a web access control platform, and you are logged in to that system, you see the default dashboard page. Your login is complete.
- If you see the login screen, log in using the default administrator credentials. In a single-partition environment, use `asm_admin` with password as the password. In a multi-partition environment, use `platform_admin` with password as the password.

A prompt asks you to change the password. You can enter the existing password, but for good security you should choose a new one.

- If IBM Marketing Software is configured to use SSL, you may be prompted to accept a digital security certificate the first time you sign in. Click **Yes** to accept the certificate.

If your login is successful, IBM Marketing Software displays the default dashboard page.

With the default permissions assigned to Marketing Platform administrator accounts, you can administer user accounts and security using the options listed

under the **Settings** menu. To perform the highest level administration tasks for IBM Marketing Software dashboards, you must log in as **platform_admin**.

Setting your start page

The start page is the page that displays when you log in to IBM Marketing Software. The default start page is the default dashboard, but you can easily specify a different start page.

If you do not want a dashboard page to display when you first log in to IBM Marketing Software, 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 Marketing Software product and by your permissions in IBM Marketing Software.

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.

IBM Campaign integration with other IBM products

IBM Campaign optionally integrates with a number of other IBM products.

For integration instructions, see the documentation that is included with each application, plus any documents mentioned below.

Table 1. Integrate Campaign with other IBM products

Task	Documentation
Integrate with IBM Engage	IBM Campaign and Engage Integration Guide for IBM Marketing Cloud
Integrate with IBM Journey Designer	http://www.ibm.com/support/knowledgecenter/SSER4E/JourneyDesigner/kc_welcome_journeydesigner.dita?lang=en
Integrate with IBM Digital Analytics	<i>IBM Campaign Administrator's Guide</i> : How to configure the integration <i>IBM Campaign User's Guide</i> : Targeting IBM Digital Analytics segments in campaigns
Integrate with IBM Marketing Operations	IBM Marketing Operations and IBM Campaign Integration Guide
Integrate with IBM Opportunity Detect	<i>IBM Campaign Administrator's Guide</i> : How to configure the integration <i>IBM Opportunity Detect Administrator's Guide</i> and <i>IBM Opportunity Detect User's Guide</i> : How to administer and use the product
Integrate with IBM eMessage	<i>IBM Campaign Installation and Upgrade guides</i> : How to install and prepare eMessage components in the local environment. <i>IBM eMessage Startup and Administrator's Guide</i> : How to connect to the hosted messaging resources. <i>IBM Campaign Administrator's Guide</i> : How to configure offer integration.
Integrate with IBM SPSS® Modeler Advantage Enterprise Marketing Management Edition	<i>IBM Campaign and IBM SPSS Modeler Advantage Enterprise Marketing Management Edition Integration Guide</i>

Table 1. Integrate Campaign with other IBM products (continued)

Task	Documentation
Integrate with IBM WeatherFX.	You can integrate WeatherFX with IBM Campaign so that you can pull weather events into your marketing campaigns. Campaign version 9 and version 10 users can integrate with WeatherFX by using the UBX toolkit. For more information, see https://www.ibm.com/support/knowledgecenter/SSWU4L/Integrations/imc_Integrations/Weather_FX_for_IBM_Marketing_Cloud.html .
Note: Additional integrations may be available that are not listed in this table. See Product tools and utilities for IBM Campaign. Also see IBM Solution Engineering Projects.	

Chapter 2. Creating and managing campaigns

One of the first things you do in IBM Campaign is to create a marketing campaign to identify your objective. Each campaign is defined by its business objective, initiative, and effective date range. A campaign always consists of at least one flowchart, where you select recipients and assign offers. You can create, view, edit, delete, and perform similar operations on marketing campaigns.

Note: If Campaign is integrated with Marketing Operations, use campaign projects in Marketing Operations to work with campaigns. If your integrated system is configured to access legacy campaigns, you can open them by choosing **Campaign > Campaigns** and clicking the **Campaign projects** folder. Legacy campaigns are campaigns that were created in IBM Campaign before the integration was enabled.

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

Before you begin creating campaigns

Before you begin using IBM Campaign to create marketing campaigns, there are some important initial tasks. Some of these initial tasks, such as creating offer templates, typically are done by administrators.

One of the most important initial tasks is to make information about your customers and products available to Campaign. To access your user data, Campaign needs to know which tables or files in your data source to use. To make your data available for use in Campaign, your company's database tables and files must be mapped into Campaign. An administrator typically performs this step. An administrator also creates offer templates, strategic segments, and other data objects for use in campaigns. For more information, see the *Campaign Administrator's Guide*.

After the initial objects are created and tables are mapped, you can begin creating marketing campaigns.

Often, the first step is to design the campaign on paper or in IBM Marketing Operations so you can determine your workflow. Identify your campaign goals, decide what offers to make, which customers to include or exclude, and whether to use control groups. After this initial design, you can use Campaign to create marketing campaigns to accomplish your objectives.

Each marketing campaign is made up of one or more flowcharts. Each flowchart performs a sequence of actions on your customer data. A flowchart consists of interconnected process boxes, which you configure to perform the actual data selection, manipulation, and response tracking that is required for your campaign. Each process box performs a specific action, such as selecting customers, segmenting them, merging data, or generating a mail list or a call list. By configuring and connecting process boxes in a flowchart, you determine the logic of your campaign.

Offers are created outside of a flowchart, and are assigned when you configure a contact process box, such as a Mail list or Call list, in a flowchart. Offers can also be assigned on the target cell spreadsheet (TCS), which provides a visual matrix of segments and offers.

You use Campaign to define offers. You then create a flowchart where you select customers or prospects to be contacted, assign offers to your selections, and generate a list of contacts. When customers respond, you can use a separate flowchart to track the campaign results.

For an example of two flowcharts that were designed for a retention campaign using multiple channels to deliver an offer, see “Example: Contact and response flowcharts” on page 17.

Accessing campaigns

Access campaigns in IBM Campaign to view or edit them, depending on what your permissions allow.

1. Choose **Campaign > Campaigns** to open the All campaigns page.
2. Perform one of the following actions:
 - For a **stand-alone Campaign environment**: The All campaigns page lists all campaigns and campaign folders for which you have at least read access. Click the name of any campaign to open it.
 - For an **integrated Marketing Operations-Campaign environment**: Click the link for the **Campaign projects** folder to access campaign projects that were created in Marketing Operations. Campaigns that were created through Marketing Operations are always accessed through campaign projects, unless they are legacy campaigns.

The available projects depend on the default project view that is set in Marketing Operations. You can configure this view to display all campaign projects if wanted.

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

- For an **integrated Marketing Operations-Campaign environment with access to legacy campaigns enabled**: The All campaigns page displays legacy campaigns, which were created before the environment was integrated. Click the name of any legacy campaign to open it. You can also use the **Campaign projects** folder link to access campaigns created through Marketing Operations.
- For information about campaign projects, see the *IBM Marketing Operations and IBM Campaign Integration Guide*.
- For information about project views, see the *IBM Marketing Operations User's Guide*.
- For information about configuring Campaign to enable access to legacy campaigns, see the upgrade documentation.

Creating campaigns


Follow these instructions to create a marketing campaign in IBM Campaign.

Each campaign has a business objective, a corporate-defined initiative specific to your marketing plan, and a date range during which the campaign is effective.

Note: If Campaign is integrated with Marketing Operations, you create campaigns from the **Operations > Projects** menu. See the Marketing Operations documentation for more information.

1. Select **Campaign > Campaigns**.




The All campaigns page displays the folders or campaigns in the current partition.

2. Click **Add campaign** .
3. Complete the **Campaign summary** fields on the New campaign page. Choose **Help > Help for this page** to see explanations of each field.
4. Do one of the following actions:
 - Click **Save and finish** to save and close the campaign. Use this approach if you want to do other initial steps before you create and add flowcharts. For example, you can create and associate offers and strategic segments with a campaign before you create and add flowcharts.
 - Click **Save and add a flowchart** to immediately start creating a flowchart for the campaign.

Typically, your next step is to add a flowchart to the campaign.

Editing campaigns

Users with appropriate permissions can use the Campaign summary page to edit a campaign's details and access its flowcharts, reports, and target cell spreadsheet. Additionally, if you have the appropriate permissions, you can perform actions such as adding flowcharts, segments, or offers to a campaign.

1. Choose **Campaign > Campaigns**.
2. On the All campaigns page, locate the campaign that you plan to edit. It might be listed on the page or it might be in a folder.
3. When you see the campaign that you want to edit, do one of the following:
 - Click the campaign name to open the campaign in View mode. You see tabs for Summary, Target cells, Analysis, and any flowcharts that were added to the campaign. Click **Edit**  in the toolbar to make the information editable.
 - Click the **Edit a tab** icon  next to a campaign and select an option from the menu (Edit summary, Edit target cells, Analysis, or a flowchart) to open the tab in edit mode.
4. The actions that you can perform depend on the tab that you selected (Summary, Target cells, Analysis, or a flowchart). Use the toolbar options to perform the desired actions.
5. Here are some of the operations that you can perform on each tab when you edit a campaign:
 - **Summary** tab: Click **Add/remove segments** to associate strategic segments with the campaign. **Add/remove offers** to associate offers with the campaign. Click **Run** to run a flowchart. Click **Add flowchart**  to create a flowchart for this campaign. You can also **Delete** the campaign, **Move** the campaign to another folder, or **Print** the campaign summary.
 - **Target cells** tab: Use this tab to work with the target cell spreadsheet. You can **Get cell status**, **Export target cells**, or **Import target cells**. See Chapter 6, "Target cell management," on page 137.
 - **Analysis** tab: Use this tab to access reports for this campaign. See Chapter 11, "IBM Campaign reports overview," on page 211.

- Flowchart tabs: To access a flowchart that is part of this campaign, click a flowchart tab.






For detailed information, choose **Help > Help for this page**.

Organizing campaigns in folders

Folders provide a way to keep your campaigns organized. You can create folders and move campaigns from one folder to another.


Follow the steps below to organize campaigns in folders. Note that folder names have character restrictions. See Chapter 12, “Special characters in IBM Campaign object names,” on page 225.

1. Choose **Campaign > Campaigns**.
2. Use the All campaigns page to do any of the following operations.

Option	Description
Add a folder	Click New folder  . If you want to create a subfolder, select a folder, then click New folder .
Edit a folder name or description	Select a folder, then click Rename folder  . You cannot rename the My campaigns folder.
Move a folder	Check the box next to one or more folders, then click Move  and select a destination folder.
Move a campaign	Select one or more campaigns by clicking on them, so a check mark appears to the left of each item. You can use Shift+click or Ctrl+click to select multiple campaigns. Then click Move  and select a destination folder.
Delete an empty folder	Check the box next to any folders that you want to delete, click Delete  , then confirm the deletion.

Printing campaigns

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


1. Choose **Campaign > Campaigns**.
2. Select the campaign that you want to print, or select the tab that you want to print.
3. Click **Print** .

Deleting campaigns

When you delete a campaign, the campaign and all flowchart files are deleted.

If you want to keep portions of the campaign for reuse, save them as stored objects (templates) before you delete the campaign. If you delete a campaign with associated contact or response history records, all of the corresponding contact and response history records are deleted.

Important: Do not delete the campaign if you want to retain the associated contact and response history.

1. Choose **Campaign > Campaigns** and locate the campaign that you want to delete.
2. Select the check box next to the campaign that you want to delete.
3. Click **Delete** .

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

4. Click **OK** to permanently delete the campaign.

The selected campaign is deleted.

Note: You can also delete a campaign while you view the campaign by clicking **Delete**.

How to use control groups to measure campaign results

You can purposely exclude a random sample of prospects or customers from a marketing campaign to ensure that they do not receive the offer. After the campaign runs, you can compare the activity of the control group against those who received the offer, to determine the effectiveness of your campaign.

Controls are applied at the cell level. Cells that contain IDs which you purposely exclude for analysis purposes are called control cells. When you assign offers to cells, either in a contact process in a flowchart or in a target cell spreadsheet (TCS), you can optionally specify one control cell for each target cell.

In Campaign, controls are always hold-out controls. In other words, they are not contacted with an offer, even though they qualify for the offer. Contacts who belong to control cells are not assigned any offers and are not included in contact process output lists. Holdouts ("no-contacts") do not receive communications, but are measured against the target group for comparison.

Campaign provides the following methods for working with control groups:

- To create control groups, use the Sample process. The Sample process provides several options for excluding IDs (Random, Every Other X, Sequential Portions).
- To exclude control groups from offers, configure a Mail list or Call list process in a flowchart. When you configure the process to assign offers to cells, you can optionally exclude control groups from contact.
- If you work with a target cell spreadsheet (TCS), you can use the Control Cell and Control Cell Code columns to identify control cells. Cells that are designated as controls cannot be assigned offers.
- The contact history tables are populated when you run the flowchart in production mode. The contact history identifies the members of control cells and

the offers that were withheld (not sent to controls). This information allows for analysis and comparison of the target versus control cell for lift and ROI calculations.

- Use the Response process in a flowchart to track control group responses simultaneously with offer responses.
- The Campaign Performance and Offer Performance reports indicate the lift, or difference, in response from an active target cell that received an offer.

When you plan an offer, consider whether you want to use holdout control groups for cells that are assigned the offer. Control groups are a powerful analysis tool for measuring campaign effectiveness.

Association of control cells to target cells

A single control cell can be used as the control for multiple target cells. However, each target cell can have only 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.

Chapter 3. Designing flowcharts

IBM Campaign flowcharts define the campaign logic. Each campaign consists of at least one flowchart. A flowchart performs a sequence of actions on data that is stored in your customer databases or flat files.

Note: To work with flowcharts, you must have the appropriate permissions assigned by an administrator.

Creating flowcharts

Follow these instructions to add a flowchart to a marketing campaign. A flowchart determines the campaign logic.

Each marketing campaign consists of at least one flowchart. A typical campaign has a flowchart that selects customers or prospects who will receive offers and a separate flowchart that tracks responses.


For example, a contact flowchart might select a set of customers that will be contacted by phone or email. Another flowchart in the same campaign tracks responses to those offers. After the offers are made, you use the response flowchart to record and analyze responses. You can add multiple flowcharts to a campaign as you analyze and refine your results. More complex campaigns can include many flowcharts to manage multiple offer streams.

Each flowchart is made up of processes. You configure and then connect processes to perform data manipulation, create contact lists, and record contact and response tracking for your campaign. By connecting a series of processes in a flowchart, then running that flowchart, you define and implement your campaign.

For example, a flowchart might include a Select process, which is connected to a Segment process, which is connected to a Call List process. The Select process can be configured to select all customers from your database who live in the northeast. The Segment process can segment those customers into value tiers, such as Gold, Silver, Bronze. The Call List process assigns offers, generates a contact list for a telemarketing campaign, and records the results in the contact history.

The following procedure provides a quick overview of how to create a new flowchart and add it to a campaign or a session. (Alternatively, you can copy an existing flowchart. You can also use the template library to copy configured processes from one flowchart to another.)

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

1. Open a campaign or session.
2. Click **Add flowchart**  .
The Flowchart properties page opens.
3. Enter a flowchart name (required) and description (optional). For **Flowchart type**, **Standard batch flowchart** is the only option unless you are a licensed user of Interact. If you installed a licensed version of Interact, you can select **Interactive flowchart**.

Note: Flowchart names have specific character restrictions. See “Special characters not supported” on page 225.

4. Click **Save and edit flowchart**.

The flowchart window opens. You see the process palette on the left, a toolbar at the top, and a blank flowchart workspace.

5. 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.

6. Double-click a process in the workspace or right-click the process and choose **Process configuration**. Then use the configuration dialog to specify how the process operates.

7. Connect the configured processes to determine the workflow of your campaign.

8. Use **Save and continue**  frequently while you work.

9. When you are done, open the **Save options** menu and choose **Save and exit**



Editing flowcharts

Open a flowchart for editing to make changes to it. For example, you can add or remove processes, reconfigure existing processes, or change the flowchart name and description.

1. Choose **Campaign > Campaigns**.

Note: If your flowchart is in a session, adapt these instructions by choosing **Campaign > Sessions** to open a flowchart from a session.

2. On the All campaigns page, find the campaign that contains the flowchart you want to open. The campaign might be listed on the page or it might be in a folder. If you can't locate it, use the **Search flowcharts** link to search for it.

3. After locating the campaign that contains your flowchart, click the **Edit a tab** icon  next to a campaign, and click the name of a flowchart from the menu.

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.

Important: 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.

4. Make changes to the flowchart, just as you would when creating a flowchart. For example, double-click a process to reconfigure it, or drag a new process from the palette to the workspace.



5. To change the flowchart name, description, or type, click the **Properties** icon



in the toolbar.

Note: Flowchart names have specific character restrictions. See “Special characters not supported” on page 225.

Note: Avoid renaming a flowchart that is using the Scheduler because scheduled tasks rely on the flowchart name. For more information, see the *IBM Marketing Platform Administrator's Guide*.

6. Click **Save and continue**  as you work. When you are done, open the **Save options** menu and choose **Save and exit** .

Example: Contact and response flowcharts

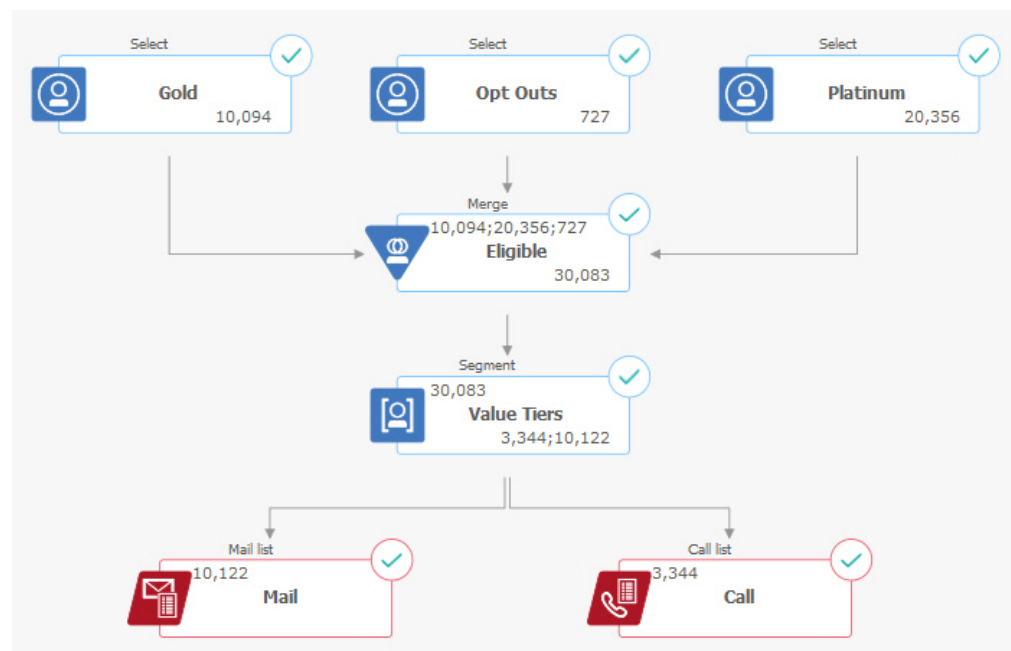
This example shows two flowcharts that were designed for a marketing campaign that uses multiple channels to deliver an offer to customers who otherwise might be lost through attrition.

The campaign includes two flowcharts:

- A contact flowchart generates lists of customers to whom the offer will be sent, using a different channel for each segment.
- A response flowchart tracks responses to the offer and makes the response data available for reporting and analysis.

Contact flowchart

This example shows a simple flowchart for contacting customers for a marketing campaign.



In the first level of the flowchart, Select processes 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. The result is all Eligible customers.

In the third level, a Segment process divides the eligible customers into value tiers based on their scores.

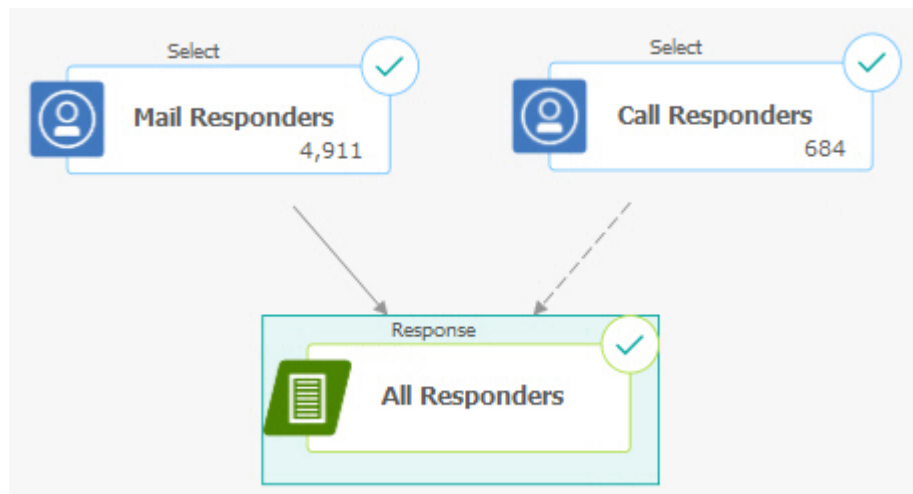
Finally, each customer is assigned to a list. The high-value customers are output to a call list, so they can be contacted with an offer by phone. The remaining

customers are output to a mail list; they will receive a direct mail offer.

Response flowchart

A second flowchart in this same campaign tracks responses to the offers. The response information is compiled outside of the Campaign application. For example, a call center might record responses in a database or flat file. When the response information is made available to Campaign, your response flowchart can then query the data.


The following example shows a response tracking flowchart. Select process boxes query the Mail Responders and Call Responders. The Response process box evaluates which responses are considered valid and how they are credited back to campaigns or offers. When you run the flowchart, 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.

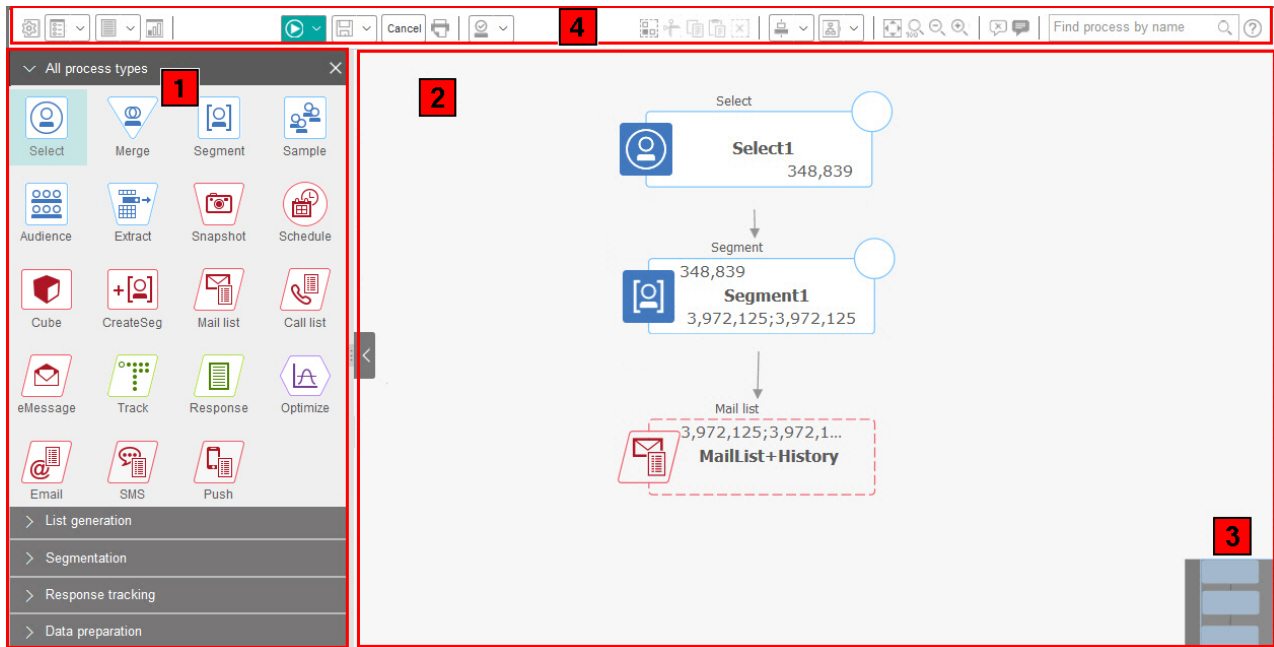


Flowchart workspace overview

Use the flowchart workspace to design flowcharts for marketing campaigns.

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. To open two flowcharts at the same time, see “Viewing two flowcharts side-by-side” on page 113.

If a flowchart is open for viewing but not editing, the toolbar contains a smaller set of functions and the process palette does not appear. Click the pencil icon  to open a flowchart for editing. The following figure shows a flowchart open for editing.



The flowchart workspace consists of the following elements.

Table 2. Flowchart window elements

Element	Description
1 Palette (Edit mode only)	<p>The palette at the left side of the window contains processes that you use to build your flowchart. It is visible only in Edit mode. Drag a process from the palette to the workspace, then configure and connect processes in the workspace.</p> <p>By default, all process types are displayed. Click a category (List generation, Segmentation, Response tracking, Data preparation) to view a subset of processes.</p> <p>To resize the palette, drag the edge of the palette area to widen or narrow it. To hide or show the palette, click Hide palette (gray arrow) or Show palette.</p>
2 Main workspace area	<p>In View mode, you can view but not modify process boxes and you can perform a limited set of operations. In Edit mode, you can configure and connect processes to determine the workflow and behavior of the flowchart. Right-click any process box to open a menu of options.</p> <p>To configure a process: Double-click it, or right-click it and choose Process configuration.</p> <p>To connect processes: Rest the cursor over a process box until four arrows appear, then drag a connection arrow to another process box.</p>
3 Panning area	<p>Use the panning area to highlight the portion of the flowchart that you want to see. This visual representation of the workspace is useful when not all of the process boxes fit on the screen at the same time.</p>
4 Flowchart toolbar	<p>Use the buttons and menus in the toolbar to perform the actions that are described in the following table. Rest your cursor over each item to see what it does. To open a menu, click its down-arrow . The toolbar icons and available options depend on your permissions and whether the flowchart is in View or Edit mode.</p>

The flowchart toolbar contains the following icons and menu options.

Table 3. Flowchart toolbar icons






















Flowchart toolbar icons
In View mode, click the pencil icon  to open a flowchart for editing.
Use the Run menu  to perform test and production runs of a flowchart or to validate a flowchart. You can also pause, continue, or stop a run.
In View mode, use the Schedules menu  to view or schedule process runs at defined intervals. For details, see the <i>IBM Marketing Platform Administrator's Guide</i> .
In View mode, click Delete to permanently delete the flowchart, if you are sure that you no longer need this flowchart. Then confirm or cancel.
In View mode, click Add a flowchart  if you want to create a new flowchart in this campaign.
In View mode, click Copy  to duplicate a flowchart. You are asked for a destination campaign.
In View mode, click Search flowcharts to search all flowcharts in all campaigns for any object (process box, user database, offer, configuration details, and so on).
Click the Properties icon  to change the flowchart name or description.
Use the Options menu  to work with custom macros, stored derived fields, stored triggers, stored templates, stored table catalogs, user variables, user authorization lists, and to match and link target cells.
Use the Log options menu  to view flowchart logs, set logging options, enable or disable logging, clear a log file, or change the path.
Click the Reports icon  to open the Cell specific reports dialog.
Use the Save options menu  to either Save and continue or Save and exit the flowchart designer.
Click Cancel and discard changes  to close the flowchart without saving changes.
Click Print this item  to print a visual depiction of the flowchart. All process boxes in the flowchart are included, regardless of whether they are selected.
Administrators can use the Admin menu  to perform actions on individual flowcharts. See the <i>Campaign Administrator's Guide</i> for details.
Use the Select All, Cut, Copy, Paste, and Delete icons  to select and then perform actions on the selected process boxes. Use Ctrl-click to add or remove process boxes from the selection.
Use the Alignment menu  to align the selected process boxes. To select process boxes for alignment, drag a selection box around the process boxes or use Ctrl-click to add or remove boxes.
Use the Layout menu  to reposition all processes in a flowchart.
Click Fit contents  to resize the flowchart to fit in the workspace.
Use the Zoom  icons to reset zoom, zoom out, or zoom in.

Table 3. Flowchart toolbar icons (continued)

Flowchart toolbar icons
Use Hide all annotations or Show all annotations   to hide or show all annotations that were added to the flowchart. (To add, delete, show, or hide individual annotations, right-click a process box in Edit mode.)
Use the Find process by name field to search for a process box by entering any portion of the name.
Click the Help icon  for a list of topics that explain how to work with flowcharts.

Flowchart design considerations

Be aware of the following considerations when you create flowcharts.

- **Avoid cyclical dependencies.** Be careful not to create cyclical dependencies among processes. Consider this example of a cyclical dependency: (a) Your flowchart contains a Select process whose output provides input to a Create Seg process. (b) The Create Seg process generates a strategic segment as its output. (c) You use that segment as input to the Select process. This situation results in an error when you try to run the process.
- **Applying global suppressions.** If your organization uses the global suppression feature, it is possible that a particular set of IDs might be automatically excluded from use in target cells and campaigns. The flowchart log file indicates whether global suppression is applied.

Flowchart process overview

Process boxes are the building blocks of IBM Campaign flowcharts. All available processes are in the palette at the left of the workspace when a flowchart is open for editing.

To create a flowchart, you drag process boxes from the palette to the workspace. You then configure each process box to perform a specific operation, such as selecting customers to target for a mailing. By dragging connector lines from one box to another, you connect processes in the workspace in a logical flow to determine the order of events.

For example, you can configure a Select process to identify high-value prospects, configure another Select process to identify medium-value prospects, then use a Merge process to combine the two lists. You can end with a Call List process, which assigns offers and generates a list of customers to contact by phone.

When you do a test or production run, each process performs an action on your customer data, with the results flowing from one process to the next. The type of process and the way you configure it determines what happens when the process runs.

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.

There are many types of processes, and each one performs a distinct function. Some processes are intended to be used when you implement your campaign. For example, you use the Call List process to assign offers and generate a call list. You

use other processes after your campaign is deployed. For example, you use the Track process to update Contact History after you see who responds to your offers.

Typically, each process takes one or more cells as input, transforms the data, and produces one or more cells as output. (A cell is a list of IDs that identify marketing message recipients, such as customers, prospects, or responders.) Here is one simple example of how you could set up a flowchart:

1. Configure a Select process to select all high-value customers aged 25 - 34 from a database or flat file. Call the Select process "Gold." The output of a Select process is a cell (a list of IDs), which will be used as input into a subsequent process.
2. Configure another Select process to select all medium-value customers aged 25 - 34. Call this process "Silver".
3. Connect both of the Select processes ("Gold" and "Silver" customers) to a Merge process to combine them into a single list. You can also use the Merge process to remove opt-outs from the list of IDs.
4. Connect the Merge process to a Mail List process. The output of the Merge process is a list of IDs for all high and medium value customers aged 25-34 who have not opted out of marketing communications.
5. When you configure the Mail List process, you assign pre-defined offers and generate a list of contacts. For example, you can assign a 10% discount to Silver customers and a 20% discount to Gold customers.
6. Test run each process as you configure it to confirm that it produces the expected results, and save the flowchart frequently.

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 - red
- Optimization processes - green, orange, or purple

Note: IBM Interact, IBM Contact Optimization, IBM eMessage, IBM SPSS Modeler Advantage Enterprise Marketing Management Edition, and IBM Engage provide additional processes for use in campaign flowcharts. For information about those processes, see the separate documentation for those products.

Data manipulation processes

Use data manipulation processes to select contact IDs from your data sources and work with those IDs to create meaningful groups or target audiences.

Examples of the tasks that you can complete by using data manipulation processes follow.

- You can select potential contacts that meet the criteria that you define, such as repeat customers within a certain income range.
- You can merge lists to include or exclude contacts.
- You can segment customers into meaningful groups, for example by language or gender.
- You can set up test or control groups.
- You can change the target audience for your campaign, for example from Household to Individual.
- You can extract sets of data for additional processing to improve performance.

The following data manipulation processes are available:

- “The Select process” on page 46
- “The Merge process” on page 52
- “The Segment process” on page 54
- “The Sample process” on page 62
- “The Audience process” on page 66
- “The Extract process” on page 76

Run processes

After you build your flowchart to select the audience that you want, you need to use a run process to output the results in a usable way. Run processes control the running of the flowchart and initiate 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:

- “The Snapshot process” on page 83
- “The Schedule process” on page 85
- “The Cube process” on page 89
- “The CreateSeg process” on page 90
- “The Mail list process” on page 93 (also called a contact process)
- “The Call list process” on page 98 (also called a contact process)
- Email, SMS, Push (see the *IBM Campaign and Engage Integration Guide for IBM Marketing Cloud*)

Optimization processes

Use the optimization processes to help determine a campaign's effectiveness and refine your marketing campaigns over time.

The Track and Response processes help you to track who is contacted and who responds. In this way, you can evaluate the response to your campaigns and modify them over time.

The Model process automates the creation of a response model that can be used to predict responders and non-responders.

The Score process scores contacts against a data model to rate the likelihood of each customer making a purchase or responding to an offer. Scoring accurately identifies the best customers or prospects for a campaign. In this way, you can determine the most effective campaign, offer, and channels.

For more information, see the following topics:

- “The Track process” on page 98
- “The Response process” on page 101
- The SPSS model and SPSS score processes require IBM SPSS Modeler Advantage Enterprise Marketing Management Edition. For information, see the *IBM Campaign and IBM SPSS Modeler Advantage Enterprise Marketing Management Edition Integration Guide*.

List of Campaign processes

Configure and connect processes in flowcharts to accomplish your campaign goals. Each process performs a specific operation, such as selecting, merging, or segmenting customers.

Note: IBM Engage, Interact, Contact Optimization, eMessage, and IBM SPSS Modeler Advantage Enterprise Marketing Management Edition provide additional processes for use in flowcharts. For more information, see the documentation for those products.

Table 4. List of Campaign processes in batch flowcharts























Process	Overview topic:	Instructions:
	"The Select process" on page 46	"Selecting a list of contacts" on page 46
	"The Merge process" on page 52	"Merging and suppressing contacts" on page 52
	"The Segment process" on page 54	"Segmenting data by field" on page 55 "Segmenting data with queries" on page 56
	"The Sample process" on page 62	"Dividing contacts into sample groups" on page 62
	"The Audience process" on page 66	"Switching and filtering audience levels" on page 69
	"The Extract process" on page 76	"Extracting data from a cell, table, or strategic segment" on page 78 "Extracting data from an eMessage landing page" on page 81 To extract data from an optimized list, see the <i>IBM Contact Optimization User's Guide</i> .
	"The Snapshot process" on page 83	"Taking a snapshot of data for export to a table or file" on page 83
	"The Schedule process" on page 85	"Scheduling processes in a running flowchart" on page 88
	"The Cube process" on page 89	"Creating a multi-dimensional cube of attributes" on page 89
	"The CreateSeg process" on page 90	"Creating segments for global use in multiple campaigns" on page 91
	"The Mail list process" on page 93	"Configuring Mail list or Call list processes" on page 93


Table 4. List of Campaign processes in batch flowcharts (continued)


Process	Overview topic:	Instructions:
	"The Call list process" on page 98	"Configuring Mail list or Call list processes" on page 93
	"The Track process" on page 98	"Tracking contact history" on page 100
	"The Response process" on page 101	"Updating response history" on page 102
	The eMessage process defines the recipient list for an eMessage mailing.	Requires IBM eMessage. See the <i>eMessage User's Guide</i> .
	The Interact list process determines which offers the Interact runtime server presents to customers.	Requires IBM Interact. See the <i>Interact User's Guide</i> .
	The Optimize process associates a marketing campaign with a Contact Optimization session.	Requires IBM Contact Optimization. See the <i>Contact Optimization User's Guide</i> .
	The SPSS model process generates predictive models to predict likely responders based on past behavior.	Requires IBM SPSS Modeler Advantage Enterprise Marketing Management Edition. See the <i>IBM Campaign and IBM SPSS Modeler Advantage Enterprise Marketing Management Edition Integration Guide</i> .
	The SPSS score process rates the likelihood of customers responding to offers, to identify the best prospects for a campaign.	Requires IBM SPSS Modeler Advantage Enterprise Marketing Management Edition. See the <i>IBM Campaign and IBM SPSS Modeler Advantage Enterprise Marketing Management Edition Integration Guide</i> .
	The Email process sends personalized email communications, including offers, from IBM Marketing Cloud.	Requires IBM Engage. See the <i>IBM Campaign and Engage Integration Guide for IBM Marketing Cloud</i> .
	The SMS process sends SMS text messages from IBM Marketing Cloud.	Requires IBM Engage. See the <i>IBM Campaign and Engage Integration Guide for IBM Marketing Cloud</i> .
	The Push process sends mobile push notifications from IBM Marketing Cloud.	Requires IBM Engage. See the <i>IBM Campaign and Engage Integration Guide for IBM Marketing Cloud</i> .

Adding processes to flowcharts

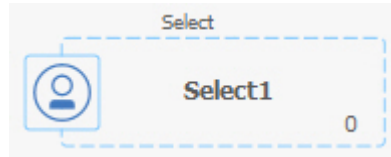
You can add a process to a flowchart by dragging a process box from the palette to the workspace.

This procedure explains how to add processes by dragging them from the palette into your flowchart. Other ways to add processes are to copy an existing process (right-click, copy, then paste), or paste a template from the template library. Templates contain one or more configured processes and connections.

1. Open a flowchart for editing: Select **Campaign > Campaigns**, locate a campaign, click the **Edit a tab** icon  next to a campaign, then select a flowchart from the list. The flowchart window opens and the palette appears at the left of the workspace.

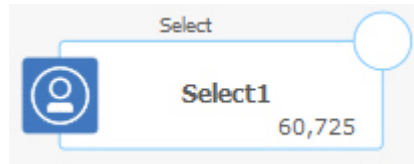
Note: If you do not see the process palette, it means the flowchart is not in Edit mode: Click the pencil icon  in the flowchart toolbar.

2. Drag a process box from the palette to the flowchart.
Newly added process boxes are transparent with a dashed border until they are configured.



Typically, the next step is to configure the process. To open the configuration dialog, double-click a process in the workspace or right-click a process and choose **Process configuration**.

Configured process boxes have a solid background and border. The round status icon is blank to indicate that the process has not yet run.



3. Click **Save and continue**  frequently to save your changes.

As you develop the flowchart, place each subsequent box in a logical position, such as left to right or top to bottom, and connect the boxes to indicate the flow of data. Some processes must be connected before they are configured because they require input from the source process.

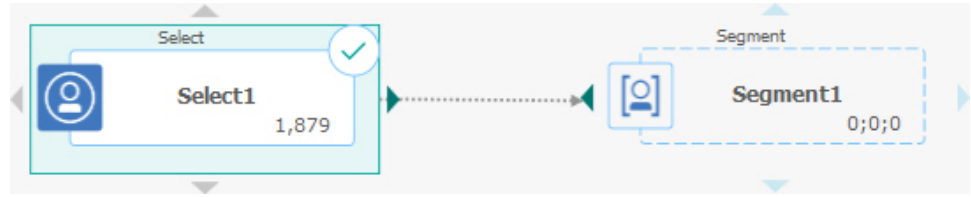
For example, configure a Select process to select households in a specific earning bracket, then connect it to an Audience or Merge process. Finally, you test run the process or branch.

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

Connecting processes in flowcharts

Connect processes in a flowchart to specify the direction of data flow and the order in which the processes run. When you move processes in the workspace, any existing connections between processes remain. Moving processes in a flowchart does not affect data flow. You affect data flow only by adding or deleting connections.

1. Open a campaign flowchart for editing.
2. Move your cursor over a process box until four arrows appear around the box.
3. Drag one of the arrows from the source process to the destination process.



When four arrows appear on the destination process, release the mouse button to complete the connection.

The processes are now connected. An arrow indicates the direction of data flow between the connected processes.



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, a Select process generates output, which can then serve as input to a Segment process.

Whether connection lines are solid or dotted depends on the process box relationships. When a destination process receives data from a source process, the connection line is solid. When a destination process depends on a source process but does not receive data from it, the connection line is dotted. A dotted line indicates that the destination process cannot run successfully until the source process completes. In this way, you can identify temporal processes, which are time-dependent on each other.

Related tasks:

“Changing the appearance of connection lines”

“Deleting a connection between two processes” on page 28

Changing the appearance of connection lines

There are several options to control the appearance of connector lines between process boxes in a flowchart.

You can specify whether connection lines are angled (slanted) or straight (right angles only). You can also control whether connector lines appear in front of or behind process boxes.

Note: Whether connection lines are solid or dotted depends on the process box relationships. When a destination process receives data from a source process, the connection line is solid. When a destination process depends on a source process but does not receive data from it, the connection line is dotted. A dotted line indicates that the destination process cannot run successfully until the source process completes. In this way, you can identify temporal processes, which are time-dependent on each other.

1. Open a flowchart for editing.
2. Right-click in the flowchart workspace to open the context menu.


3. To switch between angled (slanted) and straight (right angles only), choose **View** and check or clear **Angled connections**.
4. To make connection lines appear behind process boxes, choose **View** and clear **Overlap connections**.

Related tasks:

“Connecting processes in flowcharts” on page 26

Deleting a connection between two processes

If you no longer want two processes to be connected, or if you want to change the direction of the data flow between them, you can delete the connection.


1. Open a flowchart for editing.
2. Do one of the following:
 - Right-click a connection and select **Delete** from the context menu.
 - Click the connection that you want to delete, then press **Del** or **Ctrl+X** or use the **Cut** icon .
3. Confirm the deletion.

Related tasks:

“Connecting processes in flowcharts” on page 26

Aligning process boxes

You can align process boxes to improve the appearance of the flowchart.

1. Open a flowchart for editing.
2. Drag a selection box around at least two processes. To add or remove processes from the selection, use **Ctrl-click**.
3. Open the **Alignment** menu  in the toolbar and use one of the following options:
 - To align boxes in a row: Choose **Align top**, **Align bottom**, or **Align center (in a row)**.
 - To align boxes in a column: Choose **Align left**, **Align right**, or **Align center (in a column)**.

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

4. To reposition all process boxes to a horizontal or vertical layout, open the **Alignment** menu and choose **Horizontal/vertical**. Or right-click the flowchart workspace and choose **View > Horizontal/vertical**. You do not have to select process boxes before using this option. It affects all process boxes in the flowchart.

If this option causes connection lines to overlap, right-click the workspace and select **View > Angled connections** twice to redraw the connection lines.

To make connection lines appear behind process boxes, right-click the workspace, select **View**, and clear **Overlap connections**.

Adjusting flowchart layout

When you edit a flowchart, use the **Layout** menu to reposition all process boxes in a single command to improve the appearance of the flowchart. This is a visual change which does not affect the flow of data. The direction of the connection lines between processes determines data flow.

1. Open a flowchart for editing.

2. Open the **Layout** menu  and select an option:

- **Tree:** Organizes process boxes in a tree format. Useful when each process box has a single input.
- **Org chart:** Organizes simple flowcharts and is effective for flowcharts with a single input from the top.
- **Circular:** Arranges 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.

3. To control whether connection lines appear in front of or behind process boxes, right-click the workspace, open the **View** menu and check or clear **Overlap connections**.

Annotating flowcharts

You can annotate process boxes to communicate with other users of the flowchart and clarify the intention and functionality of each process. Annotations appear as yellow sticky notes.




Use annotations to ask and answer questions among team members or communicate implementation details as a flowchart is developed. For example, an analyst can add an annotation to explain the selection logic for a process and the Marketing Manager can use the annotation to request changes.

Annotations can supplement the mouse-over information that is provided by the Note field on the General tab of the process configuration dialog. For example, the Note field might describe the selection criteria, but an annotation can be added to ask questions.

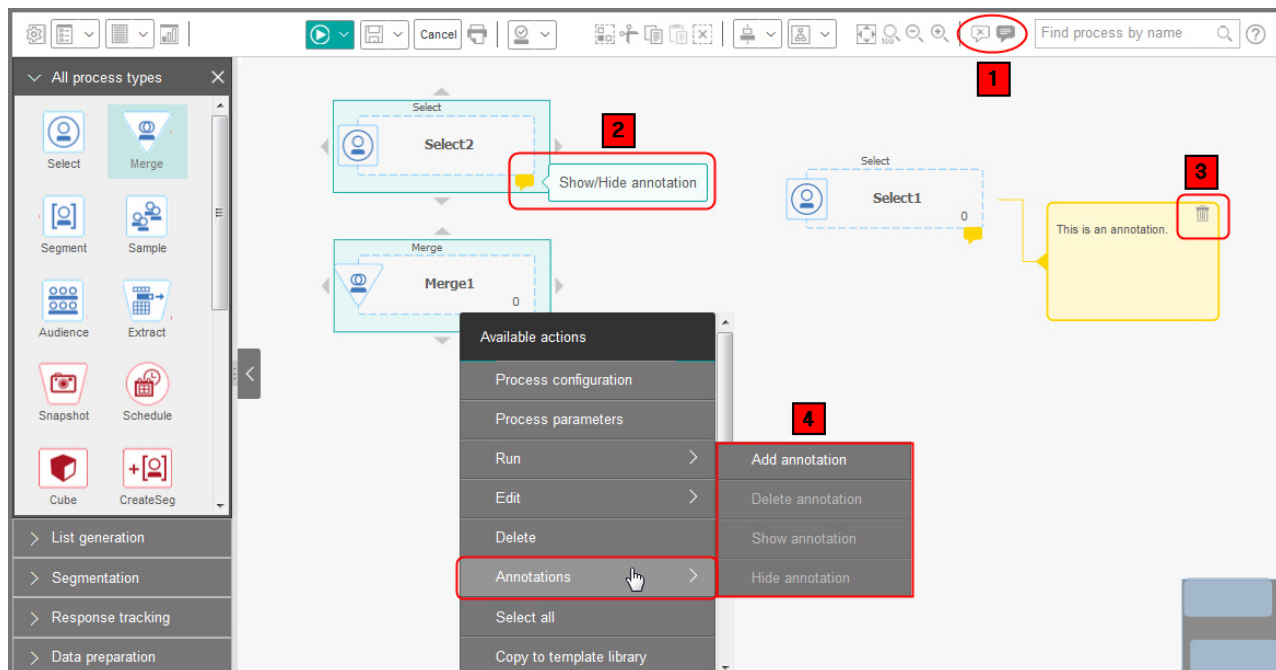
Each process box in a flowchart can have a maximum of one annotation. A process box that has an annotation includes a small annotation icon. The icon helps to identify which processes have annotations if the annotations are hidden.





1. Open a flowchart for editing.
2. Right-click a process box, and choose **Annotations > Add annotation**.
3. Type the information that you want to convey. A small annotation icon is added to the process box so you can tell that the process is annotated, even if annotations are hidden.
4. Save the flowchart. If you do not save the flowchart, the annotations are not saved. The show/hide state for annotations is retained and any blank (empty) annotations are removed.

The following table explains how to work with annotations.

Action	Details
Add an annotation	In flowchart Edit mode, right-click a process box and choose Annotations > Add annotation . You can use a maximum of 1024 characters. Each process box can have only one annotation. Annotations are not saved until you save the flowchart.
Edit an annotation	In flowchart Edit mode, show the annotation. Click the annotation and make your changes. An annotation can be edited by anyone who has permission to edit the flowchart.
Delete an annotation	<p>Use either method in flowchart Edit mode:</p> <ul style="list-style-type: none"> • Right-click a process box and choose Annotations > Delete annotation. • When an annotation is showing, click the Delete annotation icon  on the annotation, then confirm the deletion. <p>An annotation can be deleted by anyone who has permission to edit the flowchart. An annotation is automatically deleted if its process box is deleted.</p>
Show or hide all annotations	In View or Edit mode, click Show all annotations  or Hide all annotations  in the flowchart toolbar. If you are in Edit mode, the state is retained when you save the flowchart.
Show or hide a specific annotation	In flowchart Edit mode, right-click a process box and use the Annotations menu to Show annotation or Hide annotation . The state is retained when you save the flowchart.
Move an annotation	Annotations always appear to the right of the associated process box. If you move a process box, the annotation is also moved. In View or Edit mode, you can drag an annotation to a new position but the position is not saved after you exit the flowchart.
Copy annotations	Annotations are copied in the following situations: a.) If you cut/copy/paste a process box that has an annotation. b.) If you save a process box to a template and paste the template. c. If you copy a flowchart. For method c, the original display state of the annotations is retained.
Select or resize an annotation	Annotations cannot be selected or resized and are unaffected by Zoom.
Save annotations	You must save the flowchart or annotations will not be retained.
Print annotations	When you print a flowchart, any visible annotations are also printed. Show any annotations that you want to print. Only annotations that are visible in the workspace are printed. Annotations that are outside of the screen area might not print.








The following image shows the annotation menus and icons.



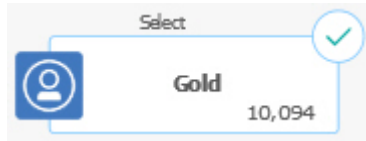
Item	Description
1	Use the toolbar icons to Show all annotations  or Hide all annotations  in the flowchart.
2	The annotation icon  on a process box indicates which processes have annotations. Click the icon to show or hide an individual annotation.
3	Click the Delete annotation icon  to delete an individual annotation.
4	Right-click a process box and use the Annotations menu to add, delete, show, or hide an annotation.

Determining the status of a process

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

	Process not started (has not run)
	Process running
	Process run complete
	Warning
	Error
	Paused
	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.



Copying processes within a flowchart

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

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.


Copying processes between flowcharts

Use the template library to copy configured processes from one flowchart to another. A template contains one or more configured processes and connections. Copying configured process boxes can save time when you design complex flowcharts.

Due to certain limitations, you cannot use two separate browser windows to copy configured processes from one flowchart to another. Instead, use the following procedure.

The best way to copy configured processes from one flowchart to another is to use the template library:

1. Open a flowchart for editing.
2. Select processes in the flowchart. You can use **Ctrl+Click** or drag a selection box around them, or use **Ctrl+A** to select all of the processes in the flowchart.
3. Right-click any selected process box and select **Copy to template library**.
4. When prompted, enter a **Name** and **Note** to help you identify the template later.
5. You can now paste the process boxes into any other flowchart, by choosing **Paste from template library** from the right-click menu or by using **Options > Stored templates**.
6. As an alternative to using the template library, you can perform the following steps:
 - a. Select one or more processes.
 - b. Use the **Copy** icon  or **Ctrl+C** or the right-click menu to copy the processes.

- c. Close the flowchart.
- d. Open another flowchart in edit mode.
- e. Paste the processes by clicking the **Paste** icon  or using **Ctrl+V** or the right-click menu.

Moving processes in flowcharts

You can move any process in a flowchart by dragging the process to a different location in the workspace. Moving a process does not affect the workflow; it only affects the visual appearance of the flowchart.

You might want to move processes so that you can see the process boxes and connections more clearly. In general, it is best to avoid positioning processes on top of each other because it is harder to see the overall flow. If you have a large flowchart with many processes, you can move the processes and then use the zoom feature to see them all.

The position of processes in the flowchart workspace does not affect the logical flow of data. The connections between the processes determine data flow.

Follow the steps below to move process boxes in a flowchart.

1. Open a flowchart for editing.
2. In the flowchart workspace, drag a process to a new location.
Existing connections to and from the process remain, and are redrawn for the new location.
3. Click **Save**.

Deleting processes from flowcharts

As you design and build flowcharts, you can delete processes if you decide that you no longer need them. If you delete a process that has an annotation, the annotation is also deleted.

This procedure assumes that you have a flowchart open for editing.

1. In the flowchart workspace, right-click the process that you want to delete, and select **Delete** from the menu.
You can select more than one process at the same time by holding down the **Ctrl** key.
2. Click **OK** to confirm the deletion.

The selected processes are removed from the workspace and all connections to and from the processes are deleted. Any annotations related to the processes are also deleted.

Data sources for processes

When you configure most processes in a flowchart, you must specify the source of the data that the process will act on. The data source for a process can be one or more incoming cells, segments, files, or tables. For example, the data source for a Select process might be a database table where your organization stores customer information such as Name, Address, Age, and Income.

The available tables depend on which data sources your administrator mapped. (Mapping tables is the process of making external customer tables accessible in IBM Campaign. Only tables that an administrator has mapped are available for selection.)

If multiple tables have been mapped, you can select more than one table as input to a process. For example, a Select process can take input from your company's "A" database and "B" database. The tables that you select must have the same audience level, such as Household or Customer.

It is common to use the output of one process as the input to a subsequent process. For example, you might connect a Select process to a Segment process. When you configure the Segment process, the output of the Select process would serve as the input to the Segment process.

If you select multiple cells as input, all cells must have the same audience level. For example, if two Select processes provide input to a Merge process, both Select processes must have the same audience level. You cannot mix Household and Customer, for example.

To specify the data source for a process, configure the process in a flowchart. In most cases, you use the **Input** field on the first tab of the process configuration dialog. The **Input** field displays all of the base tables that are currently mapped in the table catalog, along with their audience levels. The **Input** field also indicates any connected (upstream) processes.

If there is an incoming cell (for example, if a Select process is connected to a Segment process), then only tables with the same audience level as the cell are displayed.

For more information about selecting data sources, see the instructions for configuring each process.

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.

Note: This feature can impact performance because the application must download all data before it can de-duplicate the data. Best practice is to ensure that the data does not contain duplicates. You can use an ETL process to remove duplicates or choose columns in the audience key to make it unique.

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 in 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 in 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.

Previewing field values from your user data

When you configure a process in a flowchart, you can use the **Profile** feature to preview field values. This feature lets you see actual values from fields in your user data. You can profile any field in a mapped data source. You can also profile derived fields.

You must have the appropriate permissions to profile fields. Ask your system administrator if you have questions about your access to this feature. Also note that your administrator can prevent fields from being profiled. You see a warning if you try to profile a field that is also an audience because profiling an audience can return many records and potentially impact performance.

When you profile a field, you can view and select values to use in the current operation, for example to build a query for a Select process.

In addition to listing the values, the **Profile** feature indicates each value's frequency of occurrence in the selected field. You can use this information to ensure that you are targeting the intended contacts. Only records in the current cell are included in the count, unless the counts were pre-computed.

1. Open a flowchart for editing and begin to configure a process.
2. In the configuration dialog of a process that includes the **Profile** button, such as Select, Extract, or Segment, select the field that you want to profile.
3. Click **Profile**. Campaign profiles the data in the selected field. The Category and frequency Count fields are updated as profiling progresses.

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

Profile selected field

Field: DEMO_CUSTOMER.MAIL_OPTIN_FLAG

Input: None

Recompute

Finished profiling

Category	Count
N	9670
Y	51055

Statistics

Count: 60725

NULLs: 0

Categories: 2

Mean: 0.00

Stdev: 0.00

Min: 0.00

Max: 0.00

Options... Export... Print... OK Cancel

When profiling is complete, the Profile selected field dialog 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. 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 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.

Refreshing profile counts

Refresh the profile count when something occurs that might change the results. For example, you can refresh the count when new values are added to a field or when a database table is updated.

Follow these steps to refresh the profile results for a field.

1. Open any process configuration dialog in which the Profile option is available.
2. Select a field and click **Profile**.
3. In the Profile selected field dialog, 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.

Restricting input for profiling

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

For example, if you restrict input to the Segment process, and you profile a field based on the restricted input, the profile displays only the 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.

Note:

- For the Extract process, you must select the input cell to which the extract table is associated to profile the extracted fields because the extracted fields are attached to the inbound cell. You can choose **None** only for single input cell. For multiple input cells, you must select the input cell to which the extract table is associated.
- In the right panel of the **Select Process Configuration** window, even if you select multiple condition values in the **value** field, only one value would be displayed in the grid. This is because, you may have to perform a double-click to complete the action and double-click works only on a single value at a time. Hence multiple values will not be displayed in the grid.

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 message at the bottom of the Profile selected field dialog 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 dialog 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 dialog 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*.

Changing the maximum number of profile segments

When you profile fields in flowchart process boxes, IBM Campaign automatically creates up to a maximum number of 25 segments. You can change this value for the current flowchart session.

When you use the **Profile** option in a process configuration dialog, you can specify the maximum number of segments to generate when previewing field values. The new value is used by all process boxes in the current flowchart. However, the value applies only to the current flowchart and session. When you open another flowchart or close and then reopen the same flowchart, the value reverts to the default value of 25.

1. Open any process configuration dialog in which the Profile option is available.
2. Select a field for profiling and click **Profile**.
3. In the Profile selected field dialog, click **Options**.
4. In the Profiling options dialog, enter a new value in the **Number of segments** field to indicate the maximum number of segments into which you want the field values grouped.

The profile is recomputed with the new value. If the number of distinct values in the field exceeds the maximum allowed number of segments, the profile groups the values together into equal sized segments to avoid exceeding the maximum number of segments.

Profiling field values by meta type

Profiling by meta type affects how data is sorted when you profile a field in a process configuration dialog. You can sort field values for data types such as dates, money, and other numeric data.

1. Open any process configuration dialog in which the Profile option is available.
2. Select a field for profiling or click **Profile**.
3. In the Profile selected field dialog, click **Options**.

The Profiling options dialog opens and **Profile by meta type** is enabled by default, so field values that represent dates, money, telephone numbers, and similar data types are correctly sorted and binned. For example, dates are sorted as dates, not as numeric values. If you disable this option, the values are sorted as ASCII text.

The following example shows how this setting affects a date field. Meta type profiling recognizes that the data type is Date and sorts the dates accordingly.

Profile by meta type enabled

(sorted by date)

25-DEC-2014
20-FEB-2015
20-MAR-2015

Profile by meta type disabled

(sorted numerically)

20-FEB-2015
20-MAR-2015
25-DEC-2014

Inserting a profile category into a query

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

1. While configuring a process, select a field and click the **Profile** button.
The Profile selected field dialog opens. Wait for the dialog to be populated.
2. When profiling is finished, double-click a category in the Profile selected field dialog to insert that value at the current cursor location in the query text box.

Note: If you do not see the value that you want, it is possible that multiple values are 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 dialog), each field value will be listed as a separate category. This makes it possible to access all of the existing categories.

Printing profile data

After you profile a field, you can print the profile data.

1. Click **Print** from the Profile selected field dialog.
2. Use the resulting dialog to specify the print options.

Exporting profile data

After you profile a field, you can export the profile data to a comma-separated values (CSV) text file.

1. Profile a field while configuring a process in a flowchart.
2. 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.

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

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).

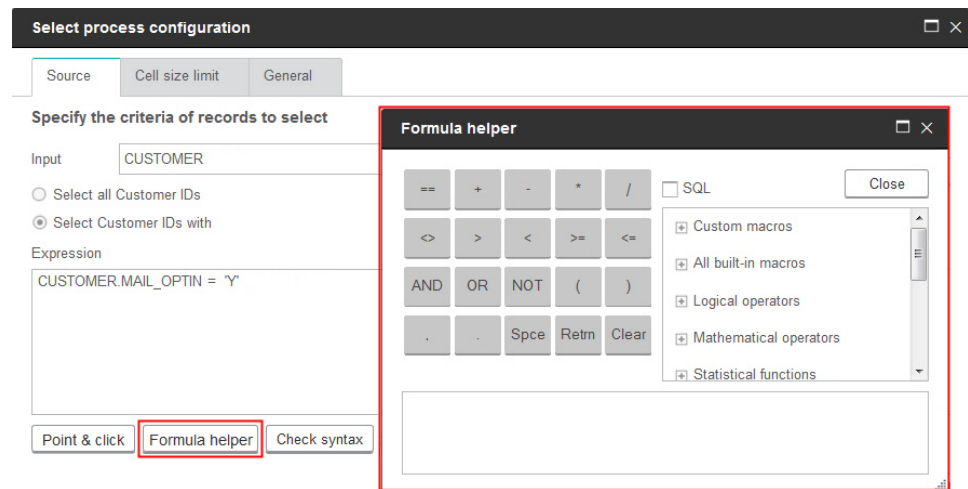
Creating queries with Formula helper

When you create a query to select IDs in a Select, Segment, or Extract process, you can use the Formula helper to help build the query. The Formula helper is available from the process configuration dialog. The Formula helper contains a set of buttons for inserting commonly used operators and a list of macros, operators, and functions.

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, choose **Segment by query**, then either create a segment or double-click a segment to edit it. In the resulting dialog box, choose **Select IDs with**.
 - For an Extract process, choose **Select records with**.
3. Click the **Text Builder** button to change from the default query method. The button label changes to **Point & click**.
4. Click the **Formula helper** button.

The Formula helper dialog opens. It contains a set of buttons for inserting commonly used operators and a list of macros, operators, and functions.



5. (Optional) To restrict the list to only SQL operators and functions, check **SQL**.
6. As you build your query by selecting fields from the **Available fields** list, use the **Formula helper** window to help define the query:
 - a. Expand the list of macros, operators, or functions to locate the item that 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.
7. Note that 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>.
8. Use **Check syntax** in the process configuration dialog box to detect any errors. Checking the syntax does not put any load on the database server.
9. (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 raw SQL queries

When you configure a Select, Segment, or Extract process in a flowchart, you can use queries to identify contacts from your databases or flat files. The Select, Segment, and Extract processes provide query builders to help you construct queries. Additionally, 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.

1. Begin configuring a Select, Segment, or Extract process.
2. For a Select process:
 - a. Choose **Select <audience> IDs with**.
 - b. The button under the Expression box must say **Point & click**. If it does not, click the **Text Builder** button so the label changes to **Point & click**.
 - 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 Marketing Software expressions and custom macros.
 - e. Use the **Database** list to select a data source to query. Select a 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** areas. See “Specifying pre- or post-processing SQL statements” on page 43.
 - g. Click **OK** to close the Advanced Settings dialog.
 - h. Enter raw SQL in the Expression 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. On the Segment tab, choose **Segment by query**.
 - b. Click **New segment** to create a segment, or select an existing segment in the list and click **Edit**.
 - c. In the New segment or Edit segment dialog, choose **Select <audience> IDs with**, click **Text Builder**, then click **Advanced**.
 - d. In the Advanced settings dialog, check **Use raw SQL**, select a database, and click **OK**.
 - e. Enter raw SQL in the Expression 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.
4. For an Extract process:
 - a. Choose **Select <audience> IDs with**.
 - b. The button under the Expression box must say **Point & click**. If it does not, click the **Text Builder** button so the label changes to **Point & click**.
 - c. Enter raw SQL in the Expression 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.

5. Note that 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>`.

Guidelines for using raw SQL queries

Writing raw SQL is an advanced operation; users are responsible for correct syntax and query results.

Note: The **Use raw SQL** permission for user tables in IBM Campaign determines who can use raw SQL. It is strongly recommended that administrators restrict the ability to use raw SQL to a user who has proper ACL privileges within the organization. For important information, read about administrative permissions in the *IBM Campaign Administrator's Guide*.

Follow these guidelines when using raw SQL to construct queries in a process configuration:

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

- A SQL query must 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.
- 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
- Data filters do not apply to raw SQL queries or to custom macros that use raw SQL. To learn about data filters, see the *IBM Marketing Platform Administrator's Guide*.

Hive query language conformance

The following guidelines apply when IBM Campaign is integrated with Hive-based big data sources.

Apache Hive has its own query language called HiveQL (or HQL). While based on SQL, HiveQL does not strictly follow the full SQL-92 standard. HiveQL offers extensions not in SQL, including multitable inserts and create table as select, but only offers basic support for indexes. Also, HiveQL lacks support for transactions and materialized views, and only limited subquery support.

Therefore, the following guidelines apply when using Hive-based big data sources with Campaign:

- The SQL must conform with HiveQL.
- If you are writing raw SQL queries for use in IBM Campaign, confirm that the queries work on Hive.
- Using multiple SQL statements for raw SQL queries is not supported.
- You might need to modify existing queries for Hive if you are using raw SQL in IBM Campaign process boxes, custom macros, or derived fields, for pre- and post-processing.

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.

You can include SQL procedures as part of the process run, which can be useful for ETL, routine data mart updates, performance tuning, and security. You can specify pre- or post-processing SQL:

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

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

Note: For important information, see “Guidelines for using raw SQL queries” on page 42.

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 “Creating raw SQL queries” on page 41.

Using the TempTable and OutputTempTable tokens in raw SQL queries

Temporary tables provide a workspace for intermediate results when processing or passing data. When the operation is finished, temp tables are discarded automatically.

- 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, you must use the <TempTable> token to ensure correct behavior. See below for a full explanation.
- If you are using in-database optimization, also use the <OutputTempTable> token to prevent audience IDs from being unnecessarily copied from the database 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 you are using in-database optimization. (In-database optimization is controlled globally with the **Use In-DB Optimization** configuration setting. It is controlled for individual flowcharts with the **Use In-DB Optimization** during Flowchart Run option on the **Admin** menu.)

- When in-database 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 in-database 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.

In-database optimization is explained in the *IBM Campaign Administrator's Guide*.

Example: Using the TempTable and OutputTempTable tokens

This example shows how to use TempTable and OutputTempTable tokens in a raw SQL query.

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.

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])`

The Select process


Use the Select process to select IDs from your marketing data, such as customers, accounts, or households that you intend to contact.

Select is one of the most frequently used processes in Campaign. Many flowcharts begin with one or more Select processes. The Select process outputs a cell that contains a list of IDs, such as customer IDs, which can be modified and refined by other processes.

Filtering the mapped user tables

You can filter the mapped user tables that appear in the Available Fields section in the Select process configuration window. The tables are filtered by table name.

To filter the mapped user tables by table name, complete the following steps:

1. Open a flowchart for editing (click **Edit**  in the flowchart toolbar).
2. Double-click the Select process box in the flowchart to open the Select process configuration window.

3. Click the Filter icon  next to **Available Fields**.

4. Enter the text to filter the tables and click **Apply**.

You cannot use any special characters except underscore in the filter text. The search is not case sensitive.

The filtered list of tables is displayed. The Filter icon changes to a dark green color.

5. To clear the filter, click the Filter icon , and in the Filter window, click **Clear**.

The filter is applicable until you click **Clear** or you close the Select process configuration window.

Selecting a list of contacts


Configure a Select process to select contacts from your marketing data.

To select contacts, you can specify all IDs in a segment or table, or you can use a query to find just the contacts that you want. One or more Select processes can then be used as input into another process. For example, you can select all Gold customers, then create another selection of Silver customers. You can then use a Merge process to create a single list of eligible contacts.

1. Open a flowchart for editing (click **Edit**  in the flowchart toolbar).

2. Drag a Select process  from the palette to your flowchart.
3. Double-click the Select process box in the flowchart.

The Select process configuration dialog box opens and the **Source** tab is open by default.

4. On the **Source** tab, use the **Input** list to select a Segment or Table as the data source. To select multiple tables, click the ellipsis button  next to the **Input** field, then check the tables that you want to use.

Note: If IBM Digital Analytics is integrated with Campaign, you can select **IBM Digital Analytics** segments as the input.

5. If you want to include all rows from the segment or table that you selected as the Input source, choose **Select all <audience> IDs** (The word <audience> indicates the audience level, such as Customer, that is specified for the selected input data source.)
6. If you prefer to use a subset of IDs from the selected data source, choose **Select <audience> IDs with**, so you can do a query for the records that you want.

The Expression box shows columns labeled **Field name**, **Oper**, **Value**, and **And/Or**.

When the button says **Text Builder**, you can build expressions by populating the columns labeled **Field name**, **Oper**, **Value**, **And/Or**.

When the button says **Point & click**, you can view or edit raw SQL and you can use the **Formula helper** to pick macros, operators, and string functions from a list.

With either method (**Text Builder** / **Point & click**), you can select fields from the **Available fields** list, including IBM Campaign Generated Fields and Derived fields.

7. Construct a query to determine which records are selected:
 - 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. In the **Available fields** list, expand the fields until you see the one that you want. Select an available field by double-clicking it or by highlighting it and clicking **Use**.

Note: When deciding which field to use, you can highlight an available field and click **Profile** to see a list of values in that field. Then use the **Profile selected field** dialog to examine the field values. For more information, see “Previewing field values from your user data” on page 35.

Note: When the list of Available fields is displayed, you can use the **Derived fields** button if you want to create or select a variable for querying. For more information, see “Derived fields” on page 179.

- b. Click in the **Oper** cell, then double-click a comparison operator in the **Operators** list (=, <, >, <=, >=, <>, In, Not in, Between).
 - c. Click in the **Value** cell, then double-click a value. If no values appear, double-click (**Profile...**) in the Values list to open the Profile selected field dialog so you can select from a list of 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 expression**), try either single clicking or double clicking on a cell in the **Expression** area.

You now have an expression that consists of a field name, operator, and value.

8. Click **Check syntax** to confirm whether the query syntax is valid. Checking the syntax does not put any load on the database server.
9. 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**.
10. Optionally, click the **Text Builder** button so its label changes to **Point & click**. When the button says **Point & click**, you can view or edit raw SQL. You can also use the **Formula helper** to pick macros, operators, and string functions from a list.

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>.

For related information, see “Creating raw SQL queries” on page 41. Also see “Creating queries with Formula helper” on page 39.

11. Click the **Point & click** button to change back to the original query mode. The button label changes back to **Text Builder**.
12. (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.

13. Continue configuring the process, as described below, or click **OK** to close the process configuration dialog and save the query expression.
14. Optionally, use the **Cell size limit** tab to limit the number of IDs generated by the process during production or test runs. See “Limiting the size of output cells” on page 138.

If you selected **Random seed**, in most cases you can accept the default seed. The random seed represents the starting point that IBM Campaign uses to select IDs randomly.

Note: The same random set of records will be used for each subsequent run of the Select process (unless the input to the process changes). This is important if you intend to use the results for modeling purposes, because different modeling algorithms must be compared across the same set of records to determine each model's effectiveness. If you do not intend to use the results for modeling, you can make the Select process select a different random set of records each time it runs. To do this, use a Random Seed of zero (0). A value of 0 ensures that a different random set of records will be selected each time the process runs.

15. Use the **General** tab to set the following options.
 - 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 dialogs and reports to identify the output cell (the set of IDs that the process retrieves).
 - c. (Optional) **Link to target cell:** Perform this step if your organization pre-defines target cells in a target cell spreadsheet. To associate the pre-defined target cell with the flowchart process output, click **Link to target cell**, then select a target cell from the spreadsheet. The **Output cell name** and **Cell code** are inherited from the target cell spreadsheet, and both of those field values are shown in italics to indicate that there is a link relationship.
 - d. **Cell code:** The cell code has a standard format that is determined by your system administrator and is unique when generated. Do not change the cell code unless you understand the implications of doing so. By default, the name of a cell created in a process matches the process name. When you save changes to an output cell name, if **Auto generate** is selected, the cell code is regenerated. If you do not want the cell code to change, uncheck **Auto generate**. See “Cell names and codes” on page 141.
 - e. **Note:** Use the **Note** field to explain the purpose or result of the process. Common practice is to reference the selection criteria or other important information. The contents of this field appears when you rest your cursor over the process box in a flowchart.

16. Click **OK** to save and close the configuration.

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

Targeting IBM Digital Analytics segments in campaigns

IBM Digital Analytics lets users define segments based on visit and view level criteria. When you configure a Select process in IBM Campaign, you can use these segments as the data source.

To use segments exported from IBM Digital Analytics in IBM Campaign, the two products must be integrated. Configuring the integration is explained in the *IBM Campaign Administrator's Guide*.

If you used Digital Analytics to make segments available to IBM Campaign, you can target those segments in a campaign flowchart.

Campaign users who are using both eMessage and the post-click analytics tools can also make use of IBM Digital Analytics segments. The optional post-click analysis tools track customer behavior from the click-through of an email or hosted landing page and subsequent navigation through the web site (within the same visit or session) to browse or buy. Campaign designers can use the analytics to determine how to create follow-up campaigns.

Note: IBM eMessage requires separate integration steps. See the documentation provided with eMessage.

1. Double-click a Select process in a Campaign flowchart to open the Select process configuration dialog.
If the Select process 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 **Digital Analytics segments**.
The **IBM Digital Analytics segment selection** dialog opens.
3. Select a **Client ID** to see a list of the published segments for that IBM Digital Analytics client.

Note: The **Select segment** list shows only the segments that were created for the client ID that is selected. To see other published segments, select a different client ID.

4. In the **Select segment** list, choose the segment that you want to use:
 - The **Select segment** list indicates the Application where the segment was created, its Type, and its Start and End dates, as defined in IBM Digital Analytics.
 - 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.
 - 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.

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. If you are modifying (as opposed to creating) a Select process, the existing segment range is displayed.

- 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 dates 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.


The Merge process

Use the Merge process to specify which input cells are included and combined and which input cells are excluded (suppressed).

In this way, you can include or exclude cells from subsequent processes in your flowchart. For example, use the Merge process to suppress "opt-out" customers who requested that they not receive any marketing materials.

Merging and suppressing contacts

The Merge process accepts input from multiple cells and produces one combined output cell. When you merge cells, you can choose to include or exclude content.

1. Open a campaign and click a flowchart tab.
2. Click the **Edit** icon  in the flowchart window.
3. Configure at least two processes whose output you want to merge. For example, configure two Select processes.



4. Drag the Merge process from the palette to your flowchart.
5. Drag an arrow from an upstream process (for example, a Select process) to the Merge process, to connect the boxes. You must connect from the upstream process to the Merge process. Repeat to connect any other upstream processes into the Merge process. An arrow indicates the direction of data flow between the connected processes

Note: All cells that provide input to the Merge process must have the same audience level. For example, multiple Select processes must use the Household audience.

6. Double-click the Merge process in the flowchart.
The process configuration dialog box opens and the Method tab is open by default. Cells from processes that are connected to the Merge process are listed in the **Input** list.
7. If you want to exclude IDs from the merged output, select a cell in the **Input** list and add it to the **Records to exclude** list. For example, use this option to exclude Opt Outs.
8. If you want to include IDs in the merged output, select a cell in the **Input** list and add it to the **Records to include** list. The IDs in the cells that you add to this list will be combined into one list of unique IDs.

9. 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.
10. Optionally, use the **Cell size limit** tab to limit the number of IDs generated by the process during production or test runs. See "Limiting the size of output cells" on page 138.
- If you selected **Random seed**, in most cases you can accept the default seed. The random seed represents the starting point that IBM Campaign uses to select IDs randomly.

Note: The same random set of records will be used for each subsequent run of the Merge process (unless the input to the process changes). This is important if you intend to use the results for modeling purposes, because different modeling algorithms must be compared across the same set of records to determine each model's effectiveness. If you do not intend to use the results for modeling, you can make the Merge process select a different random set of records each time it runs. To do this, use a Random Seed of zero (0). A value of 0 ensures that a different random set of records will be selected each time the process runs.

11. Use the **General** tab to set the following options.
- 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 dialogs and reports to identify the output cell (the set of IDs that the process retrieves).
 - c. (Optional) **Link to target cell:** Perform this step if your organization pre-defines target cells in a target cell spreadsheet. To associate the pre-defined target cell with the flowchart process output, click **Link to target cell**, then select a target cell from the spreadsheet. The **Output cell name** and **Cell code** are inherited from the target cell spreadsheet, and both of those field values are shown in italics to indicate that there is a link relationship.
 - d. **Cell code:** The cell code has a standard format that is determined by your system administrator and is unique when generated. Do not change the cell code unless you understand the implications of doing so. By default, the name of a cell created in a process matches the process name. When you save changes to an output cell name, if **Auto generate** is selected, the cell code is regenerated. If you do not want the cell code to change, uncheck **Auto generate**. See "Cell names and codes" on page 141.
 - e. **Note:** Use the **Note** field to explain the purpose or result of the process. For example, indicate which records you are including or excluding. The contents of this field appears when you rest your cursor over the process box in a flowchart.

12. Click **OK** to save and close the configuration.

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

The Segment process

Use the Segment process to divide data into distinct groups, or segments. Connect a Segment process to a contact process, such as a Call list or Mail list, to assign treatments or offers to the segments.

For example, you can divide your customers into high-value, medium-value, and low-value segments based on their prior purchase history. Each segment can receive a different offer when the segment is input to a contact process. There is no limit to the number of segments that you can create.

You can segment data in two ways: by using the distinct values in a field, or by using a query to filter the data in a field. In addition to database table fields, you can use derived fields to segment data. In this way, you can perform custom grouping, to segment your customers however you want.

Note: Segments that are created by the Segment process are not persistent across flowcharts or sessions. To create a "permanent" segment (also called a strategic segment), an administrator can use the Create Seg process.

Segmenting considerations

Consider the following options and guidelines when you configure a Segment process in a campaign flowchart.

Choosing a segmenting method

You can segment by field or by query when you configure a Segment process in a campaign flowchart.

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 on the data that you are segmenting.

Making segments mutually exclusive

You can specify that segments are 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, each customer will receive 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

When you configure a Segment process, 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 a campaign flowchart or process.

You can limit the segment size to any positive integer. When you limit the segment size, the qualifying records are chosen randomly.

The same random set of records will be used for each subsequent run of the process (unless the input to the process changes). This is important if you intend to use the Segment results for modeling purposes, because different modeling algorithms must be compared across the same set of records to determine each model's effectiveness.

If you do not intend to use the results for modeling, you can make the Segment process select a different random set of records each time it runs. To do this, use a Random Seed of zero (0) in the upstream process that provides input to the Segment process. A value of 0 ensures that a different random set of records will be selected each time the process runs.

Selecting source cells

When you configure a Segment process in a campaign flowchart, 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.

Using segments as input to another Segment process

Segments can be used as input cells to another Segment process in a campaign flowchart. For example, you can segment by age range, then further segment by preferred channel.

For this example, assume that you want to segment your customers into age ranges. Your database contains the field `AgeRange`, which assigns one of six age ranges (such as 26-30) to each customer. Segment by the `AgeRange` field to create 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 data by field

You can use the Segment process to divide data into segments based on field values. When you segment data by a field in a database table, each distinct value in the field creates a separate segment.

“Segmenting considerations” on page 54

Segmenting data by field is most useful when the values in the field correspond to the segments that you want to create. For example, assume that you want to assign a different offer to customers in four different regions. Your customer database contains a field that is called *region*, which indicates the region to which each customer belongs. Segment by the *region* field to create the four regional segments.

1. Open a flowchart for editing.



2. Drag a Segment process from the palette to your flowchart.
3. Connect at least one configured process, such as a Select process, as input into the Segment process.
4. Double-click the Segment process in the flowchart to open the Segment process configuration dialog.

Cells from processes that are connected to the Segment process appear in the **Input** list.

5. On the **Segment** tab, open the **Input** 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**, then use the drop-down list to select the field that you want to use to create the segments. For example, to segment by region, select the region field.

The Profile selected field dialog opens, and IBM Campaign immediately begins examining the field values. By profiling the field values, Campaign can determine which segments to create.

For more information about this dialog, see "Previewing field values from your user data" on page 35.

7. Wait for profiling to finish to ensure that all segments are properly created. Then click **OK** to close the Profile selected field dialog.

The **# of segments** field and the list of **Segment names** are updated based on the profiling results of the field that was selected for **Segment by field**. For example, if you segment by field "Status" which has two values "A" and "B", two segments are created, "Status_A" and "Status_B."

8. Optionally, you can edit the segment names, adjust the maximum size, create mutually exclusive segments, or create extract tables. For information about options that you can set, see the following topics:

- "Segment process: Segment tab" on page 59
- "Segment process: Extract tab" on page 61
- "Segment process: General tab" on page 61

9. Click **OK** to save your selections and close the Segment process configuration dialog.

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

Segmenting data with queries

You can use the Segment process to segment data based on the results of a query that you create.

"Segmenting considerations" on page 54

Segmenting by query 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 that are 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 use raw SQL to segment data.

1. Open a flowchart for editing.



2. Drag a Segment process from the palette to your flowchart.
3. Connect at least one configured process, such as a Select process, as input into the Segment process.
4. Double-click the Segment process in the flowchart to open the Segment process configuration dialog.
Cells from processes that are connected to the Segment process appear in the **Input** list.
5. On the **Segment** tab, open the **Input** 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. Now you will construct a query for each segment: Select the first segment and click **Edit** to open the Edit segment dialog.

Note: For reference information about each available control, see “Segment process: New segment and Edit segment controls” on page 62.

9. If you want to include all IDs from the segment or table that you selected as the Input source, choose **Select all <audience> IDs** (The word <audience> indicates the audience level, such as Customer, that is specified for the selected input data source.)
10. If you prefer to use a subset of IDs from the selected data source, choose **Select <audience> IDs with**, so you can do a query for the records that you want.

The Expression box shows columns labeled **Field name**, **Oper**, **Value**, and **And/Or**.

When the button says **Text Builder**, you can build expressions by populating the columns labeled **Field name**, **Oper**, **Value**, **And/Or**.

When the button says **Point & click**, you can view or edit raw SQL and you can use the **Formula helper** to pick macros, operators, and string functions from a list.

With either method (**Text Builder** / **Point & click**), you can select fields from the **Available fields** list, including IBM Campaign Generated Fields and Derived fields.

11. Construct a query to determine which records will be used to create the segment:
 - 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. In the **Available fields** list, expand the fields until you see the one that you want. Select an available field by double-clicking it or by highlighting it and clicking **Use**.

Note: When deciding which field to use, you can highlight an available field and click **Profile** to see a list of values in that field. Then use the **Profile selected field** dialog to examine the field values. For more information, see “Previewing field values from your user data” on page 35.

Note: When the list of Available fields is displayed, you can use the **Derived fields** button if you want to create or use derived fields. For more information, see “Derived fields” on page 179.

- b. Click in the **Oper** cell, then double-click a comparison operator in the **Operators** list (=, <, >, <=, >=, <>, In, Not in, Between).
- c. Click in the **Value** cell, then double-click a value. If no values appear, double-click (**Profile...**) in the Values list to open the Profile selected field dialog so you can select from a list of 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 expression**), try either single clicking or double clicking on a cell in the **Expression** area.

You now have an expression that consists of a field name, operator, and value.

12. Click **Check syntax** to confirm whether the query syntax is valid. Checking the syntax does not put any load on the database server.
13. 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**.

14. Optionally, click the **Text Builder** button so its label changes to **Point & click**. When the button says **Point & click**, you can view or edit raw SQL. You can also use the **Formula helper** to pick macros, operators, and string functions from a list.

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>.

15. Click the **Point & click** button to change back to the original query mode. The button label changes back to **Text Builder**.
16. (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.

17. Click **OK** to save the query for this segment and close the Edit segment dialog.
18. In the Segment process configuration dialog, edit the remaining segments to define queries for them.
19. Continue configuring the Segment process by using the controls on the Segment, Extract, and General tabs. For more information, see the following topics:
 - “Segment process: Segment tab”
 - “Segment process: Extract tab” on page 61
 - “Segment process: General tab” on page 61
20. Click **OK** to save your selections and close the Segment process configuration dialog.

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

Segment process: Segment tab

Use the Segment tab of the Segment process configuration dialog to indicate how to divide incoming data into distinct groups, or segments.

The following table describes the controls on the Segment tab of the **Segment process configuration** dialog.

Table 5. 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 values that exist for the selected field. Each distinct value in the field creates a separate segment. For example, a field that contains the values A, B, C results in three segments.

Table 5. Segment tab (continued)

Control	Description
Profile	Opens the Profile selected field dialog, which calculates the values and distributions of records in the selected field. Active only when segmenting by field. To reprofile the field at any time after initially selecting it, click Profile .
Derived fields...	Active only when segmenting by field. Opens the Create derived field dialog so you can create a new field.
Segment by query	Segments data based on a query that you create.
# of segments	<p>Active only when segmenting by query. Indicates the number of segments to create. By default, three segments are created, with default names "Segment1," "Segment2," and "Segment3." The # of segments field does not allow you to enter a value greater than 1000 because that is the maximum number of segments that can be created in a flowchart.</p> <p>When segmenting by field: The # of segments field is updated based on the profiling results of the selected field. The number of segments depends on the values that are detected in the field.</p>
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).
Create extract tables	<p>This control specifies whether segments 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.</p> <p>Select this check box to enable the options on the Extract tab.</p> <p>This check box is disabled if Mutually exclusive segments is selected.</p>
Segment name	<p>Lists all segments by name. By default, three segments are created, with default names "Segment1," "Segment2," and "Segment3."</p> <p>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."</p>
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	The Query column in the list of segments appears only when segmenting by query. It indicates the query criteria that is used to create the segment. To change the query criteria, double-click the segment name or select a segment and click Edit .
Up 1, Down 1 arrows	Move the selected segment up or down in the list. Segments are processed in the order in which they are listed.
New segment	Active only when segmenting by query. Opens the New segment dialog so you can create a new segment by specifying a query.
Edit	This button opens the Edit segment window for the selected segment. When segmenting by field, you can change the segment name or Max size. When segmenting by query, you can change the name, size, and query expression.
Remove	Removes the selected segment. When a segment is removed, the # of segments field updates automatically. If there is only one segment available, the Remove button is disabled to avoid deleting the only segment.

Table 5. Segment tab (continued)

Control	Description
Do not run subsequent processes for empty segments	Prevents downstream processes from running for empty segments.

Segment process: Extract tab

Use the Extract tab of the Segment process configuration dialog to select fields to extract. In this way, you allow the output from the Segment process to be accessible as input to Mail list or Call list processes in a flowchart.

The following table describes the fields, buttons, and controls on the Extract tab. The controls on the Extract tab are active only if you selected **Create extract tables** on the Segment tab.

Table 6. Extract tab

Field	Description
Target data source	Location to which the output from this process is 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	<p>List of fields available to extract, including field name and data type, based on your input data source.</p> <p>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.</p> <p>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.</p>
Fields to extract	<p>Fields that you selected to extract from the Candidate fields list. The Output name defaults to the field name in the Field to extract column.</p> <p>If you change the Output name, you can use any combination of letters and numbers. Do not use spaces, hyphens (-), periods (.), slashes (/ or \), or any special characters.</p>
Profile	Opens the Profile selected field dialog, 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...	Opens the Create derived field dialog.
More...	Opens the Advanced settings dialog, which includes the option to skip duplicate records and to specify how Campaign identifies duplicates.

Segment process: General tab

Use the General tab of the Segment process configuration dialog to modify the **Process name**, **Output cell name**, or **Cell code**. You can also enter a **Note** to explain the purpose of the Segment process. The note appears when you rest your cursor over the process box in a flowchart.

For more information, see these topics:

- “Changing the cell name” on page 144
- “Resetting the cell name” on page 145
- “To copy and paste all cells in the grid” on page 146

- “Changing the cell code” on page 145

Segment process: New segment and Edit segment controls

The following table describes the controls on the New segment and Edit segment dialog boxes. You can access these dialog boxes when configuring a Segment process.

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

Table 7. New Segment and Edit Segment dialog box controls

Control	Description
Name	Name of the segment.
Max. size	Maximum number of records that are allowed in the segment.
Select based on	Specifies a data source on which to base your query.
Select all <i>data source type</i>	Includes all the IDs from the data source in the Input drop-down list.
Select <i>data source type</i> with	Provides access to the functions for creating a query to select only certain IDs based on criteria you define.
Advanced...	Opens the Advanced settings dialog, which provides the following options: <ul style="list-style-type: none"> • 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 combine the query in the source cell (using "AND") with the current selection criteria.
Derived fields...	Opens the Create derived field dialog.
Query text box and buttons	For information about using the query text box and related fields and buttons, see "Creating queries in processes" in the <i>IBM Campaign Administrator's Guide</i> .

The Sample process

Use the Sample process to divide contacts into groups. The classic use of sampling is to establish target and control groups that you can use to measure the effectiveness of your marketing campaign.

Dividing contacts into sample groups

To create target and control groups, use the Sample process. There are several sampling methods: **Random** creates statistically valid control groups or test sets. **Every other X** allocates every other record to a sample group. **Sequential portions** allocates a number of records into subsequent samples.

1. Open a flowchart for editing.



2. Drag the Sample process from the palette to your flowchart.
3. Connect at least one configured process (such as a Select process) as input to the Sample process box.
4. Double-click the Sample process in the flowchart.
5. Use the **Input** list on the **Sample** tab to select the cells that you want to sample. The list includes all output cells from any process connected to the Sample process. If multiple cells are providing input, you can optionally 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, such as Household or Customer.

6. 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.
7. 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.

8. Use one of the following methods to define the sample size:
 - To divide records up 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 that is listed 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.

Optional: Click **Sample size calculator** and use the calculator to determine the optimal sample size. (See “About the sample size calculator” on page 65.) Then copy the value from the **Min. sample size** field in the calculator, click **Done** to close the calculator, and paste the value into the **Max. size** field for **Specify size by # records**.

9. Ensure that each sample in the **Output name** list has a Size defined or has **All remaining** checked.
10. 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 are 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.

11. If you selected **Random sample**, in most cases you can accept the default seed. The **Seed** represents the starting point that IBM Campaign uses to select IDs randomly.

To generate a new seed value, click **Pick** or enter a 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.
- The random sample produces undesired results (for example, all males are being allocated to one group and all females to another).

Note: The same random set of records will be used for each subsequent run of the Sample process (unless the input to the process changes). This is important if you intend to use the results for modeling purposes, because different modeling algorithms must be compared across the same set of records to determine each model's effectiveness. If you do not intend to use the results for modeling, you can make the Sample process select a different random set of records each time it runs. To do this, use a Random Seed of zero (0). A value of 0 ensures that a different random set of records will be selected each time the process runs.

12. If you selected **Every other X** or **Sequential portions**, you must specify a sort order to determine 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.

13. 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 dialogs and reports to identify the process.
- b. **Output cell names:** By default, output cell names consist of the process name followed by the sample name and a digit. These names are used in dialogs and reports. You can double-click an output cell name to change it by typing in the field. Or, click the **Copy** button to open a text box that shows all of the existing Output cell names. Copy them manually, then click **OK**. Then click the **Paste** button to paste them into a text box, where you can edit them. Then click **OK** to copy the edited Output cell names into the fields. You can use the **Reset cell names** button if you want to revert to the default output cell names.
- c. **Cell codes:** The cell code has a standard format that is determined by your system administrator and is unique when generated. Do not change the cell code unless you understand the implications of doing so. By default, the name of a cell created in a process matches the process name. When you save changes to an output cell name, if **Auto generate cell codes** is selected, the cell code is regenerated. If you do not want the cell code to change, uncheck **Auto generate cell codes**. See "Cell names and codes" on page 141.

- d. **Note:** Use the **Note** field to explain the purpose or result of the process. The contents of this field appears when you rest your cursor over the process box in a flowchart.

14. 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 determine the statistical significance of sample sizes in evaluating campaign results.

There are two ways to specify the level of accuracy that you want. You can enter an error bound and compute the minimum sample size needed, or you can enter a minimum sample size and compute the error bound that will result. Results are reported at the 95% confidence level.

Determining the appropriate sample size

The sample size calculator determines the minimum number of contacts to include in your sample, based on what you consider to be an acceptable margin of error. Results are reported at a 95% confidence level.

Determining the appropriate sample size is important when your goal is to make inferences about a group of people based on a sample. In general, a larger sample size produces a smaller margin of error. Use the sample size calculator to either compute the sample size needed for a particular error bound, or to determine the error bound for different sample sizes.

1. On the **Sample** tab of the Sample process configuration dialog, click **Sample size calculator**.

The Sample size calculator opens.

2. For **Response rate estimate**, enter your best guess for the **Minimum** and **Maximum** response rates that you expect from your marketing campaign.

These two values must be percentages between 0% and 100%. The lower the expected response rate, the larger the sample size must be to achieve the same level of accuracy for the measured response rate.

3. If you are not using a predictive model, select **No model** as the **Modeling estimate**.

4. If you are using a predictive model, select **Model performance**, then enter percentages for the **Cumulative gain** and **File depth**.

To obtain these values:

- a. Open the Evaluate reports in IBM SPSS Modeler Advantage Enterprise Marketing Management Edition, and open the Testing partition.
- b. Select the **Gains** tab, and display the information as a **Table**.
- c. Use a value from the first column (Segment) of the table as the **File depth**, to indicate the percentage of customers that you intend to contact.
- d. Use the corresponding value from the last column (Cumulative Gain) of the table as the **Cumulative gain**.

The calculator uses this information to determine the number of samples that you need to use, based on the expected response rate and modeling performance.

5. Use either approach:

- To determine the minimum sample size based on the margin of error that you are willing to accept: Enter a value of 0% to 100% in the **Error bound (+ or -)** field to indicate the percentage margin of error that you are willing to accept for this sample. Then click **Compute sample size**. The **Min. sample size** field indicates the smallest sample that will meet the specified error bound. A smaller error bound percentage requires a larger sample size. Conversely, a larger error bound requires a smaller sample size. For example, a 3% error bound requires a larger sample size than if you allow for a 10% error bound.
 - To determine the margin of error that will result from a specific sample size: Enter a value in the **Min. sample size** field to indicate the sample size that you plan to use, then click **Compute error bound**. Based on the results, you can decide whether to increase or decrease the sample size. Larger sample sizes result in smaller error bounds. If the resulting error bound is too high, use a larger sample size.
6. After you determine the optimal sample size:
 - a. Copy the value from the **Min. sample size** field.
 - b. Click **Done** to close the calculator.
 - c. Confirm that **Specify size by # records** is selected.
 - d. Paste the value into the **Max. size** field in the Sample process box.

The Audience process

Audience levels define the target entity that you want to work with, such as account, customer, household, product, or business division. Use the Audience process in a flowchart to switch between audience levels or to filter out IDs by audience level.

Audience levels are defined by an administrator during the table mapping process. When you use the Audience process in a flowchart, you can specify which audience levels you want to target in your campaign. For example, you can configure 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.

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

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 key represents the audience used most frequently for this data source.) 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 other keys are "alternate" keys that are available for switching audience levels.

After 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.

Restricting audience size

When you configure an Audience process, the default size for the number of records per audience is Unlimited. You may want to restrict the size of the audience if, for example, you are performing test runs of a campaign flowchart or process.

You can limit the audience size to any positive integer. When you limit the audience size, the qualifying records are chosen randomly.

The same random set of records will be used for each subsequent run of the Audience process (unless the input to the process changes). This is important if you intend to use the results for modeling purposes, because different modeling algorithms must be compared across the same set of records to determine each model's effectiveness. If you do not intend to use the results for modeling, you can make the Audience process select a different random set of records each time it runs. To do this, use a Random Seed of zero (0). A value of 0 ensures that a different random set of records will be selected each time the process runs.

Audience levels

Audience levels are defined by IBM 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 an 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 IBM 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 a general term that means 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.

When to switch audience 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.

Example: Audience process

This example shows how to configure an Audience process in a flowchart.

The following figure shows a configured Audience process.

Audience process configuration

Source | Cell size limit | General

Specify selection criteria and result audience level

Input: DEMO (Audience Level: Customer)

Choose audience: Customer in DEMO

Select:

- ☒ One Customer entry per... HouseHold
- ☐ Some Customer entry per...
- ☐ For each Customer

Based on:

MaxOf CREDIT_LIMIT

Derived fields...

Filter...

The process is configured to choose the customer who has the highest credit limit within a household:

- The selected input audience level is **Customer**; it is the default audience level of the DEMO table. The Audience Level is displayed to the right of the **Input** field.
- The output audience level is the same: **Customer** as defined in the DEMO table. The DEMO 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 CREDIT_LIMIT.

Example: Filtering records

This example explains how to use filtering in an Audience process in a flowchart.

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 dialog 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.

Switching and filtering audience levels

Configure an Audience process to switch between audience levels or to filter out IDs by a specific audience level.

To use the Audience process, you must work with tables for which multiple audience levels are defined.

The options that are 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 below are available for all pairs of input and output table selections.

1. 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 use a process such as Select or Merge to provide input to the Audience process.

3. Double-click the Audience process in the flowchart.

The Audience process configuration dialog box opens and the Source tab is open by default.

4. On the Source tab, open the **Input** list and select a data source for the process. You can select a Segment, a Table, or the output cell from any process that is providing input to the Audience process.

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

Tip: Notice that the **Select** options indicate the input audience level. For example, if the audience level is Customer, you can select **One entry per Customer**. If the audience level is Household, you can select **One entry per Household**.

5. Select an output audience level from 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 is Household and your output is Customer, the **Select** options are labeled **All Customer entries**, **Some Customer entries**, **One Customer entry per Household**.

6. Use the **Select** and **Filter** options to specify how to select records. 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:
 - “Options that are available when using the same input and output audience levels” on page 71
 - “Options that are available when using different input and output audience levels” on page 74
7. Optionally, use the **Cell size limit** tab to limit the number of IDs generated by the process during production or test runs. See “Limiting the size of output cells” on page 138.
8. Use the **General** tab to set the following options.

- a. **Process name:** Assign a descriptive name to identify the process in the flowchart and in various dialogs and reports.
 - b. **Output cell name:** This name matches the Process name by default. It is used in dialogs and reports to identify the output cell (the set of IDs that the process retrieves).
 - c. (Optional) **Link to target cell:** Perform this step if your organization pre-defines target cells in a target cell spreadsheet. To associate the pre-defined target cell with the flowchart process output, click **Link to target cell**, then select a target cell from the spreadsheet. The **Output cell name** and **Cell code** are inherited from the target cell spreadsheet, and both of those field values are shown in italics to indicate that there is a link relationship.
 - d. **Cell code:** The cell code has a standard format that is determined by your system administrator and is unique when generated. Do not change the cell code unless you understand the implications of doing so. By default, the name of a cell created in a process matches the process name. When you save changes to an output cell name, if **Auto generate** is selected, the cell code is regenerated. If you do not want the cell code to change, uncheck **Auto generate**. See “Cell names and codes” on page 141.
 - e. **Note:** Use the **Note** field to explain the purpose or result of the process, such as *Contact one individual per household*. The contents of this field appears when you rest your cursor over the process box in a flowchart.
9. Click **OK** to save and close the configuration.
- The process is now configured. You can test run the process to verify that it returns the results that you expect.

Options that are available when using the same input and output audience levels

When the input and output audience levels are the same in an Audience process of a flowchart, you can use the following selections to identify the audience.

The **Select** options vary depending on the relationship of the selected audience levels for the **Input** and output (**Choose audience**). Options that are not meaningful are disabled.

Note: The name of the selected audience level is used 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**.

The **Select** options include:

One per	<p>One member of the input/output audience level, scoped by another audience level.</p> <p>For example: One customer per household.</p> <p>See “Selecting one <Input/Output audience> entry per <Different audience>” on page 72.</p>
Some per	<p>Some members of the input/output audience level, scoped by another audience level.</p> <p>For example: All customers in the household with above average purchases.</p> <p>See “Selecting some <Audience> records per <Different audience>” on page 73.</p>

For each	<p>Select members if the number of members at the selected audience level satisfies some condition.</p> <p>For example: Number of accounts > 1, or number of purchases > 3.</p> <p>See "Selecting entries for each entry at that audience level" on page 73.</p>
----------	--

Selecting 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.

An example is to select the one customer in 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. In the Audience process, select an input source for **Input**.

2. Choose the same audience level for the output audience.

The relevant **Select** options become available.

3. Select the **One entry per** option.

4. Select an audience level from the list.

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

5. Choose a value from the **Based on** 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.

6. If you selected a **Based on** criterion other than **Any one**, select a field on which the function operates. This 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, 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**.

7. (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 dialog 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.

Tip: You create a query expression in the Specify selection criteria dialog the same way that you would for a Select process. For instructions, see the topic “Selecting a list of contacts” on page 46.

8. Click **OK** to save your query and close the Specify selection criteria dialog.
9. Continue configuring the Audience process by completing the fields on the remaining tabs.

Selecting 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. For example, 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 list appears next to the selected option.
3. Select an audience level from the 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 dialog opens.
5. Enter or build a valid query expression, then click **OK** to save it and close the Specify selection criteria dialog.

Tip: You create a query expression in the Specify selection criteria dialog the same way that you would for a Select process. For instructions, see the topic “Selecting a list of contacts” on page 46.

6. Continue configuring the process by completing the fields on the remaining tabs.

Selecting 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 list appears next to the selected option.

3. Choose a **Based on** selection.

If the table that you selected for **Choose audience** (that is, the output audience) is not normalized, there might be duplication in your results. To avoid duplication, specify a **Based on** method for Campaign to use when selecting records. 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 that you configure in this feature.

You must select one of the **Based on** methods:

- **Count:** 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.

When you select **Count**, the **Filter** button becomes available. Optionally, 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. When you click **Filter**, the Specify selection criteria dialog opens. 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.

- **Condition:** Click in the text box to the right of **Condition**. The Specify selection criteria dialog appears. Enter or build a valid query expression, then click **OK** to save your expression and close the Specify selection criteria dialog.

Tip: You create a query expression in the Specify selection criteria dialog the same way that you would for a Select process. For instructions, see the topic “Selecting a list of contacts” on page 46.

4. Continue configuring the process by completing the fields on the remaining tabs.

Options that are available when using different input and output audience levels

When the input and output audience levels are different in an Audience process of a flowchart, you can use the following selections to identify the audience.

Note: The name of the selected audience level is used 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:

All	Select all members of the input audience level, scoped by another audience level. For example: All customers per household. See "Selecting all <Output Audience Level> entries."
Some	Select some members of the output audience level, keeping only those IDs that satisfy a specified condition. For example: All customers aged 18 or over within a household. See "Selecting some <Different Output Audience Level> entries"
One per	Select exactly one output audience record for each input audience record. For example: One customer per household. See "Selecting one <Output Audience> per <Different Input Audience>" on page 76.

Selecting all <Output Audience Level> entries:

Select this option to switch to the output audience level without performing any filtering. For example, you can select all customers in a household or all accounts belonging to a customer.

This option 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 downstream 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**.

Selecting 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.

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

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.

Selecting 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 **AnyOne** (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**.

The Extract process

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

The Extract process can take input from a cell, 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 (in different branches in the same flowchart), they behave the same 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, the 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 with a **UAC_EX** prefix.

Extract tables are *not* deleted at the end of a flowchart run. An extract table persists so that users can continue to access it to perform operations such as profiling its fields.

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

Note: To conserve space, system administrators can periodically delete tables with a **UAC_EX** prefix. However, if these tables are removed, you must rerun the affected Extract processes before you rerun flowcharts or profile fields in the now-missing tables. Otherwise, Campaign generates "Table Not Found" errors.

Example: Extracting transaction data

This example explains how to use the Extract process to obtain data about purchase transactions.

Assume that you 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 IBM 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

Several 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*.

Extracting data from a cell, table, or strategic segment

This procedure explains how to use the Extract process to obtain data from an input cell, such as a Select process, or from a single table or a strategic segment. In this way, you can pare down a large amount of data to a manageable size for subsequent operations, resulting in improved performance.

See “The Extract process” on page 76.

1. Open a flowchart for editing (click **Edit**  in the flowchart toolbar).



2. Drag the Extract process from the palette to your flowchart.
3. Optionally, connect a configured process, such as a Select process, as input into the Extract process.
4. Double-click the Extract process in the flowchart.

The Extract process configuration dialog opens and the Source tab is open by default.

5. On the **Source** tab, use the **Input** list to select an input cell, a table, or a strategic segment. The **Select based on** list indicates your selection. If you selected a strategic segment, you must join it to a table by selecting a table from the **Select based on** list.
6. Specify which records to select. If you want to include all records from the input data source, choose **Select all records**.
7. If you prefer to use a subset of IDs from the selected data source, choose **Select all records with**, so you can do a query for the records that you want to extract.

The Expression box shows columns labeled **Field name**, **Oper**, **Value**, and **And/Or**.

When the button says **Text Builder**, you can build expressions by populating the columns labeled **Field name**, **Oper**, **Value**, **And/Or**.

When the button says **Point & click**, you can view or edit raw SQL and you can use the **Formula helper** to pick macros, operators, and string functions from a list.

With either method (**Text Builder** or **Point & click**), you can select fields from the **Available fields** list, including IBM Campaign Generated Fields and Derived fields.

8. Construct a query to determine which records are selected:
 - 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. In the **Available fields** list, expand the fields until you see the one that you want. Select an available field by double-clicking it or by highlighting it and clicking **Use**.

Note: When deciding which field to use, you can highlight an available field and click **Profile** to see a list of values in that field. Then use the **Profile selected field** dialog to examine the field values. For more information, see “Previewing field values from your user data” on page 35.

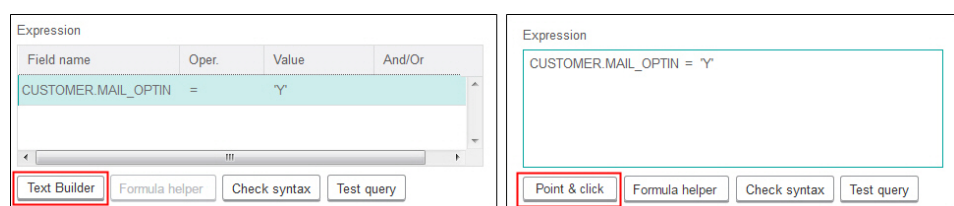
Note: When the list of Available fields is displayed, you can use the **Derived fields** button if you want to create or select a variable for querying. For more information, see “Derived fields” on page 179.

- b. Click in the **Oper** cell, then double-click a comparison operator in the **Operators** list (=, <, >, <=, >=, <>, In, Not in, Between).
- c. Click in the **Value** cell, then double-click a value. If no values appear, double-click (**Profile...**) in the Values list to open the Profile selected field dialog so you can select from a list of 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 expression**), try either single clicking or double clicking on a cell in the **Expression** area.

You now have an expression that consists of a field name, operator, and value.

9. Click **Check syntax** to confirm whether the query syntax is valid. Checking the syntax does not put any load on the database server.
10. 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**.
11. Optionally, click the **Text Builder** button so its label changes to **Point & click**. When the button says **Point & click**, you can view or edit raw SQL. You can also use the **Formula helper** to pick macros, operators, and string functions from a list.



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>.

For related information, see “Creating raw SQL queries” on page 41. Also see “Creating queries with Formula helper” on page 39.

12. Click the **Point & click** button to change back to the original query mode. The button label changes back to **Text Builder**.
13. (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.

14. Continue configuring the process, as described below, or click **OK** to close the process configuration dialog and save the query expression.
15. Optionally, use the **Cell size limit** tab to limit the number of IDs generated by the process during production or test runs. See “Limiting the size of output cells” on page 138.

If you selected **Random seed**, in most cases you can accept the default seed. The random seed represents the starting point that IBM Campaign uses to select IDs randomly.

Note: The same random set of records will be used for each subsequent run of the Extract process (unless the input to the process changes). This is important if you intend to use the results for modeling purposes, because different modeling algorithms must be compared across the same set of records to determine each model's effectiveness. If you do not intend to use the results for modeling, you can make the Extract process select a different random set of records each time it runs. To do this, use a Random Seed of zero (0). A value of 0 ensures that a different random set of records will be selected each time the process runs.

16. 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.

Then 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 82.

17. 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.

Note: The **Dimension** tab is not applicable if you are extracting data to the **IBM Campaign Server**.

18. Select the **General** tab to set the following options.
 - 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 dialogs and reports to identify the output cell (the set of IDs that the process retrieves).
 - c. (Optional) **Link to target cell:** Perform this step if your organization pre-defines target cells in a target cell spreadsheet (TCS). To associate the pre-defined target cell with the flowchart process output, click **Link to target cell**, then select a target cell from the spreadsheet. The **Output cell name** and **Cell code** are inherited from the TCS, and both of those field values are shown in italics to indicate that there is a link relationship. For more information, read about using target cell spreadsheets.
 - d. **Cell code:** The cell code has a standard format that is determined by your system administrator and is unique when generated. Do not change the cell code unless you understand the implications of doing so. By default, the name of a cell created in a process matches the process name. When you save changes to an output cell name, if **Auto generate** is selected, the cell code is regenerated. If you do not want the cell code to change, uncheck **Auto generate**. See “Changing the cell code” on page 145.
 - e. **Note:** Use the **Note** field to explain the purpose or result of the process. Common practice is to reference the selection criteria or other important information. The contents of this field appears when you rest your cursor over the process box in a flowchart, in View or Edit mode.
19. Click **OK** to save and close the configuration.

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

Extracting data from an eMessage landing page

You can use the Extract process in a flowchart to extract data from an eMessage landing page. The Extract process selects fields from one table and writes them out to another table for subsequent processing.

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 78.

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, 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.

Then 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.”

7. Perform any of the following optional tasks:
 - Add a derived field to the list of candidate fields. See “Derived fields” on page 179
 - Specify that duplicate IDs are excluded from the output. See “Skipping duplicate IDs in process output” on page 34.
 - 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 138.
 - Use 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 “Linking flowchart cells to targeted offers defined in a target cell spreadsheet” on page 153.

Note: Profiling is not available for eMessage landing page attributes.

8. 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

Use the fields on the Extract tab when you configure an Extract process in a flowchart.

Table 8. Fields on the Extract tab

Field	Description
Target data source	Location to which the output from this process will be written. The IBM Campaign Server and any other data sources to which you are connected are available in the Target data source drop-down list.
Candidate fields	<p>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.</p> <p>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.</p> <p>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.</p>

Table 8. Fields on the Extract tab (continued)

Field	Description
Fields to extract	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. If you change the Output name, you can use any combination of letters and numbers. Do not use spaces, hyphens (-), periods (.), slashes (/ or \), or any special characters.
Profile...	Click Profile to preview a list of values in the selected candidate field. Profiling is not available for eMessage landing page attributes.
Derived fields...	Click Derived fields... to create a variable in the list of candidate 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.
More...	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.

The Snapshot process

Use the Snapshot process to capture data for export to a table or a file.

To make sure that duplicate rows are not exported, set **Skip records with duplicate IDs** to **Yes** in the snapshot configuration. Or you can use an Extract process and then snapshot the results.

To associate or track offers with the list, use the snapshot as input to a Mail list or Call list process. When you configure the Mail list or Call list process, export the necessary data to an alternate location (either a file or a table).

Taking a snapshot of data for export to a table or file

Use the Snapshot process to capture data for export to a table or file. Select the source of the values that you want to capture, and define the output table or a file for those values.

1. Open a flowchart for editing.



2. Drag the Snapshot process from the palette to your flowchart.
3. Connect one or more configured processes to provide input to the Snapshot process.

Note: All of the cells that you select as input must have the same audience level.

4. Double-click the Snapshot process in the flowchart workspace.
The Snapshot process configuration dialog box opens and the Snapshot tab is open by default.
5. Use the Snapshot tab to specify how to capture data.
 - 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. Also, the **Multiple cells** option is available only if the input process generates multiple cells.

- b. Use the **Export to** list to select a table or file for the Snapshot output.

Note: You can test the Snapshot process by running the process with output exported to a temporary file that you can review.

- You can select an existing table from the list
 - If the table that you want to use is not in the list, or if you want to output to an unmapped table, select **Database table**. Use the Specify database table dialog box to specify the table and database name. User variables are supported in the table name that you specify here.
 - You can select **File** to open the Specify output file dialog, so you can define how to output to a **Flat file with data dictionary**, **Flat file based on existing data dictionary**, or **Delimited file**.
 - If you want to create a new user table, select **New mapped table** from the **Export to** list. For instructions on mapping tables, see the *IBM Campaign Administrator's Guide*.
 - Choose **[Extract table]** if you want to export to an extract table, which has a UAC_EX prefix. An extract table persists so that users can continue to access it to perform operations such as profiling its fields.
- 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 are not 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 that are 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 that you run the process, a new file is created with an underscore and digit appended to the file name (file_1, file_2, and so on).
6. To specify which fields to snapshot, use the controls to move selected fields from the **Candidate fields** list to the **Fields to snapshot** list. You can select multiple fields with **Ctrl+Click** or select a range of fields with **Shift+Click**.

Note: To view the values in a field, select a field in the **Candidate fields** list and click **Profile**.

- If you selected a table as the snapshot destination, the fields in that table appear in the **Candidate fields** list. You can automatically find matching fields by clicking the **Match**  button. Fields with exact matches for the table field names are automatically added to the **Fields to snapshot** list. If there are multiple matching fields, the first match is taken. You can manually modify the pairings by using **Remove <<** or **Add >>**.
- To include generated fields, expand the list of IBM Campaign generated fields in the **Candidate fields** list, select a field, then use the controls to move the field to the **Fields to snapshot** list.

- To work with derived fields, click the **Derived fields** button.
 - You can reorder the **Fields to snapshot** by selecting a field and clicking **Up 1** or **Down 1** to move it up or down in the list.
7. To skip records with duplicate IDs or to specify the order in which records are output, click **More** to open the **Advanced settings** dialog.
 - 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, 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 removes duplicates only within the same input cell. Your snapshot data can still contain duplicate IDs if the same ID displays 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, select **Last_Name** and **Ascending** to sort IDs by surname in ascending order.
 - c. Click **OK**.
 8. Use the **General** tab to set the following options:
 - **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.
 - **Note:** Use the **Note** field to explain the purpose or result of the process. The contents of this field appears when you rest your cursor over the process box in a flowchart.
 9. Click **OK** to save and close the configuration.

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

The Schedule process

Use the Schedule process to initiate a process, a series of processes, or an entire flowchart. The Schedule process works only if the flowchart is running.

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.

Note: A flowchart can include multiple Schedule process boxes as long as they are in independent branches. However, errors can occur if a process has more than one Schedule ancestor in different ancestral branches leading to the same process.

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.

- You can schedule a process to run in a variety of ways, including repetitively, by trigger, and by calendar.

- You can combine multiple scheduling options. For example, you can schedule a process to run every Monday at 9:00 a.m., and whenever it is triggered by a specific event, such as a visit to 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 limits on the number of options that you can use simultaneously in scheduling a flowchart, as long as 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 that 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 IBM Campaign Schedule process and IBM Marketing Software Scheduler

Starting with the 8.0 release of Marketing Platform, the IBM Marketing Software Scheduler is intended to replace the Campaign Schedule process for scheduling runs of an entire flowchart. The IBM Marketing Software Scheduler is more efficient, as it does not consume any server system resources when the flowchart is not actually running.

The IBM Marketing Software 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 Marketing Software 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 Marketing Software 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 Marketing Software Scheduler, it functions as configured; conditions required by the IBM Marketing Software Scheduler and the Schedule process must be met before subsequent processes run.

Unlike the IBM Marketing Software Scheduler, the Campaign Schedule process can send external triggers to call command-line scripts. The IBM Marketing Software Scheduler can send triggers only to its own schedules.

Inbound and outbound triggers

You can configure the Schedule process to be triggered by an event and to trigger events upon completion. Use **Options > Stored Triggers** to define triggers, then call the triggers by configuring the Schedule process in a flowchart.

Note: For performance advantages, use the IBM Marketing Software Scheduler to send triggers to Campaign. To learn more about the Scheduler, see the *Marketing Platform Administrator's Guide*.

Inbound triggers: Events that activate the Schedule process

An inbound trigger is an external event that sets a flowchart or campaign in motion. A trigger can be anything that you define. Examples include clicking a website link, receiving an email message, a telemarketer's response indicator, completion of a database upload, or any other defined event.

To specify inbound triggers that activate the Schedule process, configure the Schedule process and select **Custom run** from the **Schedule to run** list, then use the **Run on trigger(s)** option.

The **Run on trigger(s)** option uses `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."

Outbound triggers: Events activated by the Schedule process

An outbound trigger executes a command line, which can be a batch file or a script. Campaign can 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 dialog. Each time that 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 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 expires.

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*.

Scheduling processes in a running flowchart

Configure the Schedule process to initiate processes in a running flowchart. The Schedule process works only if the flowchart is running.

1. Open a flowchart for editing.



2. Drag the Schedule process from the palette to your flowchart.
3. Double-click the Schedule process box in the flowchart.
The Schedule process configuration dialog box opens and the Schedule tab is open by default.
4. 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 will be active. By default, the total schedule period is 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 **Once only**, 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.
5. If you select **Custom run** from the **Schedule to run** list, you can use one or both of the following options to specify when the schedule runs:
 - Choose **Run on time**, then specify dates and times for the process to run. Multiple entries must be separated by commas. Click **Calendar** to select dates and times from a calendar.
 - Choose **Run on trigger(s)** if you want the schedule to be triggered by an event.
The named trigger(s) must be defined using **Options > Stored Triggers**. 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.

For more information, see “Inbound and outbound triggers” on page 87.

6. Use one or both of the following options if you want to specify a delay or require authorization.
 - 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. This option 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**, 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.
7. (Optional) Specify triggers to send after the Schedule run is completed.

If you select **Send trigger(s) after each run**, 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. Any named triggers must be defined using **Options > Stored triggers**. If you specify multiple trigger names, they must be separated by commas.
 8. (Optional) Click the **General** tab to assign a name and descriptive note.

The name displays on the process box in the flowchart. The note displays when you hover the cursor over the process box 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.

The Cube process

Administrators use the Cube process to allow users to drill into data from multiple sources. Data cubes consist of dimensions that are based on strategic segments.

The Cube process is intended for technical users or IBM consultants. A best practice is to create all global constructs, such as cubes and strategic segments, 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. The audience can then be converted into the appropriate processes, such as Select, for inclusion in a flowchart.

Creating a multi-dimensional cube of attributes

Configure a Cube process to create a multi-dimensional cube of attributes. Any cubes created in the **Sessions** area will be available globally.

Before you can create a cube using a Cube process, you must create a strategic segment or dimension hierarchy.

1. Open a session flowchart for editing.



2. Drag the Cube process from the palette to your flowchart.
3. Double-click the Cube process in the flowchart.

The Cube process configuration dialog box opens and the Source tab is open by default.
4. On the **Source** tab, use the **Input segments** list to select one or more segments as input for the cube.

Important: If you select more than one source segment, ensure that they all have the same audience level.

5. Click the **Cube definitions** tab to define your cube:
 - Click **Add** to add a new cube. Enter a name and description. Select up to three dimensions from the corresponding lists. The dimensions must be related to the strategic segments that the cube source is based on. When you click **OK**, the new cube definition appears in the list of cubes on the **Cube definitions** tab.
 - Select a cube and click **Edit** to modify it.
 - Select a cube and click **Remove** to delete it.
6. Click the **Select additional fields to track** tab to specify additional fields for tracking. 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 see the contents of the selected field.
7. (Optional) Click the **General** tab to assign a name and descriptive note.

The name displays on the process box in the flowchart. The note displays when you hover the cursor over the process box in the flowchart.
8. Click **OK**.

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

Related concepts:

"About cubes" on page 208

"About dimension hierarchies" on page 205

The CreateSeg process

Use the CreateSeg process to create lists of audience IDs from customer database tables. Define the CreateSeg process in the **Sessions** area of Campaign so that the segments are available globally for use in all campaigns.

The CreateSeg process is intended to be used by Campaign administrators. A CreateSeg process that is defined in a session flowchart creates a *strategic segment*, which can then be used in any flowchart. The segments can then be used as input for processes. They can also be used to create dimensions and cubes, or as the global suppression segment for an audience level.

Note: A best practice is to create all global constructs in a session flowchart.

To work with strategic segments, you do the following:

- Create segments in the **Sessions** area, using CreateSeg.
- Manage segments from the **Segments** area.
- Use the segments in campaigns from the **Campaign** section.

Related tasks:

“Creating segments for global use in multiple campaigns”

Creating segments for global use in multiple campaigns

Administrators use the CreateSeg process in session flowcharts to create segments that can be used in multiple campaigns. The resulting segments are called *strategic segments*.

The **Save flowchart run results** option under **Admin > Advanced settings** must be enabled for flowcharts that include CreateSeg processes. Otherwise, the strategic segments will not persist. To enable this option, the configuration property `Campaign|partitions|partition[n]|server|flowchartRun|saveRunResults` must be set to TRUE

Define a CreateSeg process in the Sessions area of the application so the segments are available globally. Users can then use the segments in any campaign.

1. Open a session flowchart for editing.



2. Drag the CreateSeg process from the palette to your flowchart.
3. Connect one or more data manipulation processes (for example, a Select process) as input to the CreateSeg process.
4. Double-click the CreateSeg process.

The CreateSeg process configuration dialog box opens and the Define segments tab is open by default.

5. On the **Define segments** tab:
 - a. Select one or more source cells from the **Input** list. These source cells will be turned into segments. If there is only one input, it is already selected.
 - 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.

6. In the Edit segment dialog:
 - a. Give the segment a name that describes its purpose. The name that you assign is the name that will appear when users select this segment from lists.
 - b. Provide a brief description of the segment contents (for example, what input was used to create the segment).
 - c. From the **Create under** list, select a folder where the segment will be stored.
 - d. From the **Temp table data source** list, select a data source in which to cache the strategic segment. Use the **Ctrl** key to select multiple data sources.

If you prefer to store the temporary tables in a binary file on the server, rather than in a user data source, do not select a data source. To deselect a 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 `doNotCreateServerBinFile` 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.

- e. From the **Security policy** list, select a security policy, if applicable, to apply to the new segment.
- f. Click **OK** to return to the **Define segments** tab.
7. (Optional) Use the **General** tab to assign a name and descriptive note. The name and note only appear in the session flowchart. They are not used to identify the generated segment in lists.
8. Click **OK** to save and close the configuration.
9. To create or update strategic segments, run the CreateSeg process in production mode or use the Run menu to save and run the flowchart in production mode. Test runs do not create or update strategic segments.

After you save and run the flowchart in production mode, the strategic segments are available for use in other flowcharts. Typically, the next step is to associate the strategic segment with a campaign

Related concepts:

“The CreateSeg process” on page 90

“About strategic segments” on page 198

Associating strategic segments with campaigns

A strategic segment is a list of IDs created by an administrator or 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 a campaign makes it easier to select that segment when you create flowcharts. Associating the relevant strategic segments with a campaign also provides greater reporting capabilities.

1. Choose **Campaign > Campaigns**.
2. Locate your campaign and click the campaign name.
3. On the campaign **Summary** tab, click **Add/remove segments** at the top of the page.
4. Use **Browse** or **Search** to locate the segments that you want to add. You can switch between **Tree view** and **List view**.
5. Select the segments that you want to add, and click >> to move them to the **Segments to include** list. Use **Shift+Click** or **Ctrl+Click** to select multiple segments.
6. Click **Save**.

The segments that you added are listed on the Campaign summary page under **Relevant segments**. When you use the Select process to select customers in your campaign flowcharts, the segments that are associated with your campaign appear at the top of the list, so they are easy to locate.



The Mail list process

Use the Mail list process to assign offers to contacts, generate a contact list for a direct mail campaign, and log the contact history. The Mail list process is often referred to as a *contact process*.

Configuring Mail list or Call list processes


Follow these instructions to configure a Mail list or Call list process in a Campaign flowchart. Configure a Mail list or Call list process to assign offers to contacts, generate a contact list for a direct mail or telemarketing campaign, and write the results to contact history.

1. Open a flowchart for editing.

2. Drag a Mail list  or Call list  process from the palette to your flowchart.
3. Connect one or more configured processes as input to the Mail list or Call list. The input processes must produce output cells, which provide input to the Mail list or Call list process. For example, a Select process produces a list of IDs, which are used by the Mail list or Call list process.

Important: All of the cells that you select as input cells must have the same audience level.

4. Double-click the Mail list or Call list process in the flowchart workspace to open the configuration dialog.
5. Use the **Fulfillment** tab to build the contact list and specify whether the output is sent to a list or table.
 - a. From the **Input** list, specify the cells to use as the data source for the contact list.

If multiple processes are connected to the Mail list or Call list process (or if an input process generates multiple cells), click the ellipsis button  then select which inputs to use. For example, if Gold, Silver, and Bronze cells are connected to a Mail list, you can select one, two, or all three of them. When more than one cell is selected, the Input list says **Multiple cells**.

- b. To export the list to a table or file, select **Enable export to**, then use the appropriate options:
 - To write the output to a file, select **File** from the **Enable export to** list, then provide a file name and other details. You can write to a file to test the output of the Mail list or Call list process. After you run the process, review the file to confirm that the results are what you expect.
 - To write the output to a database table, select a table 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 name and database. User variables are supported in the table name that you specify.
 - To create a user table, select **New mapped table** from the **Enable export to** list. For instructions, see the *IBM 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 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** option. (To specify how to log to the Contact history tables, use the Log tab, explained later in these steps.)
 - 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. A summary file is generated only if you select the **Enable export to** option.
 - e. (Optional) To send a trigger when the process finishes running, select **Send trigger(s)**, 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 target cell. The cells that appear depend on the inputs you selected on the Fulfillment tab:
 - a. Double-click the **Offer** field next to a Target cell, then select an offer. To assign multiple offers to a cell, select one or more target cells, then click **Assign offers**. You can then choose which offers to assign to which cells.

Note: If the input cells are linked to a top-down cell defined in the target cell spreadsheet, and offers are already assigned in the target cell spreadsheet, the offers are displayed here. You can override these assignments. Any changes that you make here are reflected in the target cell spreadsheet after you save the flowchart.

 - b. If you want to use control groups to exclude some IDs from the contact list, check **Use holdout control groups**, then change the **Control?** field to **Y** for each cell that you want to use as a control. Those cells appear in the **Control cell** list and cannot be assigned offers.
 - c. For each non-control cell, you can specify a control cell and an offer.
 7. The **Parameters** tab shows the parameter names and values for each offer that was assigned on the **Treatment** tab. For example, an offer might have the parameter "Channel" with values of 'Email' and 'Phone'. If there are no parameterized offers, you can skip this tab.
 - a. Use the **For cell(s)** list to select the cells that you want to affect.
 To save data entry time, select **[All cells]** to assign values that apply to most of the cells, then select individual cells to override the values. When 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.
 If you assigned the same offer to multiple cells on the **Treatment** tab, but you assign different parameter values for each cell, the **[All cells]** view

displays the text **[Multiple values]** in the **Assigned value** column, and the **For cell(s)** list shows the value that is assigned to each cell.

When you select an individual cell in the **For cell(s)** list, you see only the offers assigned to the selected cell. Values that you enter in the **Assigned value** field apply to that cell only.

- 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. For example, if the parameter is **Discount**, the available values might be 10%, 15%, and 20%. The available values depend on how the offer was defined.


The configuration setting `Campaign | partitions | partition[n] | server | flowchartConfig | disallowAdditionalValForOfferParam` determines whether you are allowed to specify additional values or whether you are restricted to values in the list for offer attributes of type **Single select drop down**.

Note: If you edit an offer to change a parameter value after assigning the offer, the original value continues to be used in any assigned offers. This behavior prevents unintentional changes of attribute values for offers that have already been assigned. For example, say you assign an offer that has a Cost Per Offer value of \$1.00. Later, someone edits the offer on the Offer Summary page and changes the value to \$1.99. The Assigned value on the **Parameters** tab of the Mail list or Call list remains set to its original value of \$1.00. To update the value, you must explicitly remove and then re-add the offer on the **Treatment** tab: Select the Target cell, click **Assign offers**, and remove the offer. Select a different tab, then select the **Treatment** tab again and reassign the offer. Now when you select the **Parameters** tab, the edited value (\$1.99) appears.

Note: Do not use a Campaign generated field (UCGF) in a Mail list derived field unless the generated field is constant. Campaign assumes constant values for generated fields and does not re-calculate them for records in the result set. Therefore, you may see blank or incorrect results from derived fields that call a generated field that changes value. Instead of using a derived field, output the necessary generated field directly into your Mail list fulfillment table or file. Then read that table or file back into Campaign as a Select and use a Snapshot process to manipulate a new fulfillment table or file using data from the old one.

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 fields** list indicates which fields to write to the output list.
- If you selected a table on the Fulfillment tab, the **Export fields** 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 fields 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 might still contain duplicates. If your goal is to remove all duplicates from the list, use a Merge or Segment process upstream of the Mail list or Call list 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 Mail list or Call list 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 dialog.
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 create 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). Instead, consider using a Track process to log the information after it 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**, 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 **Log** dialog for contact history logging options 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 7, "Contact history," on page 157.
 - 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** to determine which audience level is written to contact history.

Note: The Mail list or Call list process removes duplicate records based on the Audience level of the input process. Changing the **Tracking audience level** does not affect how records are de-duped. For example, say the input process for a Mail list process uses Audience level 1. However, you want to log records to contact history at Audience level 2. In this case, you must configure an Audience process to change the audience level. Then connect the Audience process as input to the contact process. Now you can select a Tracking audience level of 2.

- d. Use the **Contact date (flowchart run date will be used if empty)** 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 add fields from the **Candidate fields** list to the **Fields to log** list.
 - g. Click **Close** to return to the **Log** tab of the process configuration dialog.
13. (Optional) To permanently delete 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 note to the process. 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. The content of the **Note** field appears when you rest your cursor over the process box in a flowchart.
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.

The Call list process

Use the Call list process to assign offers to contacts, generate a contact list for a telemarketing campaign, and log the contact history. The Call list process is often referred to as a *contact process*.

You configure a Call list process the same way as you configure a Mail list process. See “Configuring Mail list or Call list processes” on page 93.

The Track process

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 contact history records, create new records, or do a combination of both.

The Track process lets you log contact information to the contact history tables, separate from the contact process that generated the list of contacts.

For example, if your mail house does post-processing to remove invalid and duplicate addresses, then you probably would not write your initially-generated list to contact history. Instead, you would wait for the mail house to send you a confirmation list of IDs to which they actually sent offers.

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, and your contact history will be more accurate. Later, if some direct mail pieces are returned as undeliverable, you can use the Track process to update the contact status for those contacts as "Undeliverable."

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, you do not know who was or was not contacted until you receive feedback from call centers or mail 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 7, "Contact history," on page 157.

Example 1

You create two separate flowcharts to take advantage of the Track process's delayed writing to contact history.

Create your contact list in Flowchart 1: A Select process selects data and provides input to a Segment process, where the data is segmented by value tier. The segmented data from the Segment process is input to a Mail List process. You configure the Mail List process 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.

Create Flowchart 2 to handle the contact list that the mail house returns to you, and to write the final list of 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.

Example 2

In a variation of the previous example, the mail house returns a list of IDs that could *not* be contacted. To obtain the list of contacted IDs, select the original output contact list from Flowchart 1 and use a Merge process to suppress the IDs that could not be contacted. The output from the Merge process is then your list of contacted IDs, and these IDs can be passed to a Track process for writing to contact history.

Note: In both examples, the Treatment code is needed to map the updated data back to the original list.

Tracking contact history

Configure a Track process to update existing rows in contact history or create new rows.

For examples, see "The Track process" on page 98.

1. 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 Track process configuration dialog box opens and the **Source** tab is open by default.
5. Use the **Source** tab to select input cells that contain potential responders. Cells from processes that are 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 to update the contact history tables:
 - **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 output to a **Flat file with data dictionary**, **Flat file based on existing data dictionary**, or a **Delimited file**.
If you select **New table**, use the **New table definition: Select the table type** dialog to specify information about the new table to which you want to write the log output.
- b. To specify which fields to output to the log, 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 use 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 and descriptive note to the process. 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. Use the **Note** field to explain the purpose or result of the process. The content of this field appears when you rest your cursor over the process box in a flowchart.
10. Click **OK**.

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

The Response process

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.

Related tasks:

“Updating response history”

Related reference:

“Performance reports for IBM Campaign” on page 220


Updating response history


Use the Response process to update response history. The Response process compares campaign response information with contact history and writes information to the response history tables for the appropriate audience level.

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.
- Ensure that contact history and response history system tables are mapped for each audience level that you are contacting and tracking. This is usually done by the Campaign administrator.
- 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 to your contact list, so you can map them for tracking.
- Enable the ability to create temp tables in the Campaign system tables database (set the AllowTempTables configuration property to true).

Follow the steps below to configure a Response process.

1. Navigate to the list of campaigns where you created your contact flowcharts (the flowcharts that assigned the offers that you plan to analyze).
2. Typically, you create a separate flowchart to handle the response process. You could also have one response flowchart per channel or one global response tracking flowchart for all campaigns.
3. Click **Edit**  to open the flowchart for editing.

4. Drag the Response process  from the palette to your flowchart.
5. Connect a Select or Extract process as input to the Response process.

The Select or Extract process typically reads from an action table. An *action table* is an optional database table or file containing response data that is collected after offers are presented to customers. Often, data originates from several tables such as transactions or sales information.

Note: Administrators must ensure that the action table is locked during response processing. Administrators must also clear rows after each Response process run to ensure that responses are not credited multiple times. For

example, use Campaign to run SQL after the Response process to purge the action table. For important information, see the *IBM Campaign Administrator's Guide*.

6. Double-click the Response process in the flowchart to open the process configuration dialog.
7. 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 should originate from the mapped action table 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 of the 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 that will be 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.
8. 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 are not available (or are NULL) are not used for response attribution. For a treatment instance to receive response credit, all populated fields must match, except for controls. For controls, all codes are ignored.

9. 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.
10. Click the **General** tab to assign a name and descriptive note to the process.
11. Click **OK**.

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

When you save and run the flowchart, information is written to the response history system tables. Campaign administrators must be sure to clear rows after each Response process run to ensure that responses are not credited multiple times.

Related concepts:

"How to track responses to a campaign" on page 168

"The Response process" on page 101

"Direct responses" on page 173

"Attribution methods" on page 176

Chapter 8, "Campaign response tracking," on page 167

Chapter 4. Managing flowcharts

IBM Campaign flowcharts define the campaign logic. Each flowchart in a campaign performs a sequence of actions on data that is stored in your customer databases or flat files.

During and after creating flowcharts, you can perform various management activities on them. For example, you can test and run flowcharts, edit them, print them, and so on.

Note: To work with flowcharts, you must have the appropriate permissions assigned by an administrator.


Validating flowcharts

When you validate a flowchart, each process is checked for errors. Each error that is found displays in succession so you can view and correct each one. A best practice is to run validation on flowcharts before you do a production run. This is especially important if you are running scheduled flowcharts; using batch mode; or you are not planning to actively monitor the run.

Use the **Validate flowchart** feature to check the validity of a flowchart before you do a production run. Validation performs the following checks for a flowchart:

- Processes in the flowchart are configured.
- Cell codes are unique in the flowchart, if the AllowDuplicateCellCodes configuration parameter is set to **No**. If this parameter is set to **Yes**, duplicate cell codes in flowcharts are allowed.
- Cell names are unique in the flowchart.
- Offers and offer lists that are referenced by contact processes are valid (have not been retired or deleted). Offer lists that are referenced but are empty generate warnings, not errors.
- Cells that were 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 errors.

1. On a flowchart page in **Edit** mode, open the **Run** menu  and select **Validate flowchart**.
Campaign checks your flowchart.
2. If errors exist, a message displays the first error that was found. As you correct each error and rerun the validation, any remaining errors display successively.

Testing and running flowcharts

You can do a test or production run on an entire flowchart, a branch, or an individual process in the flowchart. You can also validate flowcharts. For best results, conduct test runs and perform validation as you build a flowchart, so that you can troubleshoot errors as they occur. Be sure to save each flowchart before you do a test or production run and before you perform validation.

Important: For flowcharts that contain contact processes, 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 status. The Monitoring page also provides controls to suspend, resume, or stop flowchart runs.

Doing a test run of a process, branch, or flowchart

Conduct test runs as you build a flowchart so that you can troubleshoot errors as they occur. You can then view a report of any errors in the flowchart.

Always save an edited flowchart before you do a test run. When you do a test run, be aware of the following:

- Test runs do not update any tables or files. However, triggers run on completion of test runs and global suppression is applied.
- The option **Advanced settings > Test run settings > Enable output** determines whether output is generated during test runs.
- When you test run a data manipulation process (Select, Merge, Extract, Audience), you can limit the number of records. Use the **Limit output cell size** option on the Cell Size Limit tab in the process configuration dialog.
- Results from a previous test run are lost.
- If a process requires data from an upstream process, you might have to run the upstream process first so that its data is available to the downstream process.

1. Open a flowchart in **Edit** mode.
2. To test run a process or branch, right-click a process, open the **Run** menu  and select **Test run selected process** or **Test run selected branch**.
3. To test run the entire flowchart, open the **Run** menu  in the toolbar and select **Test run flowchart**.

The process, branch, or flowchart runs in test mode. Each process that runs successfully displays a green check mark. If there are errors, the process displays a red "X".
4. If you want to pause or stop the run, right-click a process box and select **Pause** or **Stop** from the **Run** menu.
5. Use one of the **Save** options in the toolbar. If you click **Save and exit** before the flowchart finishes the test run, the flowchart continues to run and is saved 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 you run it.
6. To determine if there were any errors in the run, click the **Analysis** tab and view the **Campaign flowchart status summary** report.

Doing a production run of a flowchart




When you do a production run of a flowchart, the data that it generates is saved in system tables. After you run and save the flowchart, you can view the results of the run in reports.

Do a production run after you save, validate, and do a test run. A production run writes to the history tables.


The contact processes, such as Mail list and Call list, write entries into Contact History. Each production run can generate contact history only once. Contact processes that already ran for that production run can be rerun only if the contact history from the current run is first deleted. To generate multiple contacts from the same list of IDs, snapshot the list of IDs and read from the list for each flowchart run.

Triggers run on completion of a production run.

After initiating a run, users with Administrative privileges can access the Monitoring page, which displays all running flowcharts and their status.

1. Save the flowchart before you run it.
2. If you are viewing a flowchart, open the **Run** menu  and select **Run**.
If you are editing a flowchart, open the **Run** menu  and select **Save and run flowchart**.
3. To run a process or branch, right-click a process, open the **Run** menu  and select **Save and run selected process** or **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. The Run history options dialog appears only when you run a branch or process that previously generated contact history for the current Run ID. You can either append information to contact history or replace existing contact history for the Run ID.

4. To run the entire flowchart, open the **Run** menu  in the toolbar and select **Save and run flowchart**.
If the flowchart has already run, you are asked to confirm the run.
The process, branch, or flowchart runs in production mode. Data from the run is saved to the appropriate system tables. Each process that runs successfully displays a green check mark. If there are errors, the process displays a red "X".
5. If you want to pause or stop the run, right-click a process box, open the **Run** menu and select **Pause** or **Stop**.
6. Use one of the **Save** options in the toolbar. If you click **Save and exit** before the flowchart finishes the run, the flowchart continues to run and is saved when it finishes. If anyone reopens the flowchart while it is still running, any changes made to the flowchart are lost.
You must save the flowchart after it runs to view the results of the run in any reports. After you save the flowchart, results of repeated runs are immediately available.
7. To determine if there were any errors in the run, click the **Analysis** tab and view the **Campaign flowchart status summary** report.


Doing a production run of a process or branch

If you run only a process or a branch, the Run ID of the flowchart is not incremented.

Do a production run after you save, validate, and do a test run. A production run writes to the history tables.

After initiating a run, users with Administrative privileges can access the Monitoring page, which displays all running flowcharts and their status.

Important: For contact processes, each production run 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.

1. Open a flowchart in Edit mode.
2. Click a process on the branch that you want to run.
3. Open the **Run** menu  and select **Save and run selected branch**.

Note: 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 “Updating contact history by doing a production run” on page 161.

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


4. Click the **Analysis** tab and view the **Campaign flowchart status summary** report to determine whether there were any errors in the run.

Pausing or stopping a flowchart run

When you pause a running flowchart, branch, or process, the server stops running but saves all of the data that was already processed. When you stop a flowchart run, the results of any currently running processes are lost and a red "X" appears on those processes.


You can pause a run to free up computing resources on the server, for example. After you pause a run, you can continue the run or stop it. After you stop a run, you can continue the run from the point at which it stopped.

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

1. On a flowchart page, open the **Run** menu .
2. To pause the run, select **Pause**. To stop the run, select **Stop**.

Continuing a stopped flowchart run


If you stopped a flowchart run, you can continue the run by running the flowchart branch that begins with the process where the run stopped. That process is rerun along with all downstream processes.

1. On a flowchart page in **Edit** mode, click the process that has a red "X".
2. Open the **Run** menu  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*.

Continuing a paused flowchart run

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

1. On a flowchart page, open the **Run** menu .
2. Select **Continue**.

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.

Working with flowchart log files

Each flowchart has its own log file, named CampaignName_CampaignCode_FlowchartName.log. By default, flowchart log files are saved in Campaign_home/partitions/partition_name/logs.

1. Open a flowchart for editing.


2. Open the **Log options** menu . The options that are available depend on your permissions:
- **View log:** Each flowchart has its own log file, which records events during each flowchart and process run. You can analyze the log file to determine how a flowchart is performing and troubleshoot errors.
 - **Logging options:** Open the Logging options dialog. You can select which **Severity levels** to include in the log: Information, Warning, Error, Debug. You can also select which categories of **Events** get logged. For example: Memory allocation, File operations (open, read, write, etc.), Process run, Cell level operations, and so on. You can also specify whether to include the process ID in log entries.
 - **Enable logging:** Check or clear this box to turn logging on or off for the current flowchart.
 - **Clear log:** Remove all existing entries in the log file. To back up the log file before clearing it, open it for viewing and copy the contents to another file.
 - **Change log path:** Specify a different location for the current flowchart log.
3. If the log file contains too much information (or not enough), use **Logging options** to adjust the severity level and event categories, then do a test run of a process and reexamine the log file. When you are done, revert to the default logging level to avoid performance issues.

The selected options apply only to the flowchart that is being edited. The selected options do not persist beyond the current session. The next time a user edits the flowchart, the logging options revert to the default settings.

Flowchart log file structure

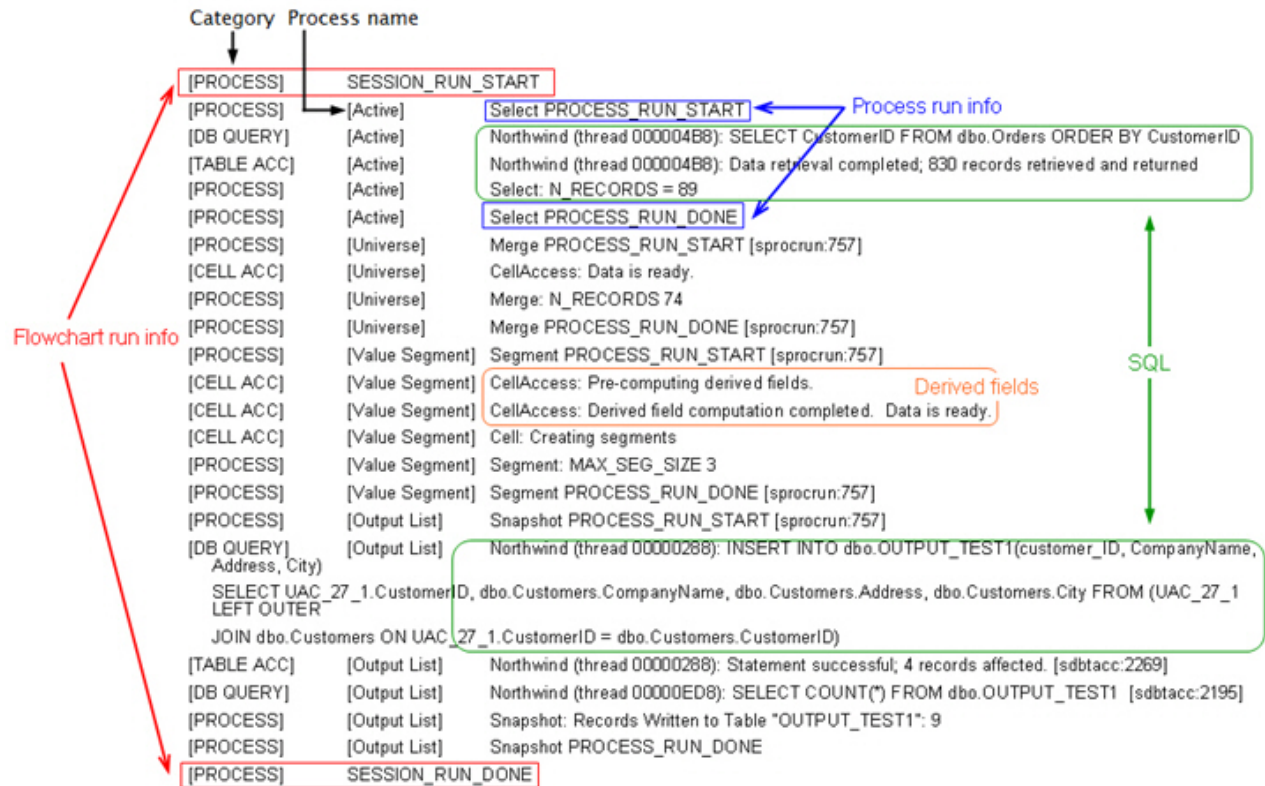
To analyze flowchart log files, it helps to understand the log file structure.

The following example illustrates the log file structure. To view or set logging

options, open a flowchart for editing and use the **Log options** menu  menu. The **Logging options** choice lets you adjust the logging level (Information, Warning, Error, Debug), specify which event categories to log, and include the Process ID in log entries.

Timestamp	PID	Level (I. W. E)	Category	Process name	Message body
04/20/2005 17:14:20.667	(1752)	[I]	[PROCESS]		SESSION_RUN_START
04/20/2005 17:14:20.797	(1752)	[I]	[PROCESS]	[Active]	Select PROCESS_RUN_START
04/20/2005 17:14:20.907	(1752)	[I]	[DB QUERY]	[Active]	Northwind (thread 000004B8): SELECT
04/20/2005 17:14:20.957	(1752)	[I]	[TABLE ACC]	[Active]	Northwind (thread 000004B8): Query completed;
04/20/2005 17:14:22.069	(1752)	[I]	[TABLE ACC]	[Active]	Northwind (thread 000004B8): Data retrieval
04/20/2005 17:14:22.089	(1752)	[I]	[PROCESS]	[Active]	Select N_RECORDS = 89
04/20/2005 17:14:22.099	(1752)	[I]	[PROCESS]	[Active]	Select PROCESS_RUN_DONE

The following example shows a portion of a flowchart log file. When you analyze a log file, it is helpful to identify where each process run starts and ends and to see the SQL that generated the database queries. Depending on your flowchart, you can also look for information about derived fields or other entities that you are interested in analyzing.



Searching for flowcharts and flowchart-related objects

Use **Search flowcharts** to find a flowchart or a flowchart-related object by entering one or more characters as search criteria.

Flowchart-related objects include flowchart and process box names, configuration details, descriptions, owners, user variables, user database tables, segments, associated offers, and any other objects that are stored in the campaign session files (.ses). When you do a search, all flowcharts in all campaigns in the current partition are searched. Searching is not case-sensitive. For example, a search for "Customer" can find user databases, process boxes, and assigned offers that contain the word "customer."


1. Click **Search flowcharts** from any available location:
 - On the **All campaigns** or **All sessions** page
 - From flowchart tab in View mode
2. When the **Search flowcharts** dialog opens, enter your search criteria.
If you click the **Search** button without entering any criteria, the search results include all flowcharts.
3. Use the Search results area to examine the results and optionally navigate to a flowchart. For example, you can click the name of a flowchart to open that flowchart in View mode.

If you want to see a list of all of the process boxes that contain the search criteria, expand a cell in the **Matching process boxes** column or use the **Expand all** / **Collapse all** icons in the Search results toolbar.

4. Search results are retained, even if you close the dialog. Therefore, you can navigate to various flowcharts while still being able to access the existing search results. The results remain until you click **Clear results** in the dialog box or perform another search.

Copying flowcharts

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

1. View the flowchart that you want to copy. For example, click a flowchart tab while you view its campaign.
2. Click the **Copy** icon .
3. In the Duplicate flowchart dialog, select the destination campaign into which you want to copy the flowchart.
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 copied to the campaign that you selected.

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

If the copied flowchart includes contact processes (Mail list or Call list) with target cells that are linked to a target cell spreadsheet, new cell codes are generated for cells in the new 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 for the new flowchart.

Note: If the flowchart logic uses derived fields that reference cell codes from the old flowchart, the logic does not carry over to the new flowchart.


Reviewing flowcharts



Depending on your permissions, you might be allowed to review, but not edit, flowcharts. Reviewing a flowchart means you can look at process configurations and make changes, but you cannot save any changes or perform production runs. The flowchart auto-save option is disabled and cannot be enabled. To save changes to a flowchart, you must have Edit permissions.

If you are allowed to review but not edit flowcharts, you can verify a flowchart's contents without inadvertently changing the flowchart.

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

Follow these steps to review a flowchart.

1. Use one of the following methods to open a flowchart:
 - On the Campaigns page, **Edit a tab**  next to the campaign, and select a flowchart from the menu.

- Open a campaign, click the flowchart tab, then click **Edit**  in the flowchart toolbar.
- Open the campaign's **Analysis** tab, click the flowchart link, then click **Edit** .


A message indicates that the flowchart is in review mode and that any changes you make cannot be saved. The page header says "Reviewing" and only the **Cancel** option is visible.


2. You can perform the following actions in Review mode:
 - Save processes as a template.
 - Save the flowchart as a template.
 - Modify the flowchart (but you cannot save your changes).
 - Perform test runs, if you have the appropriate permissions.

Important: Even in Review mode, test runs can write output and execute triggers. Also, if you have the appropriate permissions, you can edit custom macros and triggers in the flowchart, and thus might change the flowchart.

Viewing flowcharts in Read-Only mode

If you have View permissions for a flowchart, you can open it in Read-Only mode to see which processes are used and how they are connected. However, you cannot open process configuration dialogs or make any changes.

1. Choose **Campaign > Campaigns**.
2. Use one of the following methods to open a flowchart.
 - Click **View a tab**  next to the campaign name, and select a flowchart from the menu.
 - Open the campaign, then click the flowchart tab.
 - Open the campaign's Analysis tab, then click the name of the flowchart that you want to view.

If you want to see more details of the flowchart, such as how the processes are configured, you must open the flowchart for reviewing or editing: Click the **Edit**  in the flowchart toolbar. Your permissions determine whether the flowchart opens in review or edit mode.

Viewing two flowcharts side-by-side

Some campaign designers prefer to view two flowcharts side-by-side when developing new flowcharts. When using Internet Explorer, you must use **File > New Session** to open additional browser windows.

Do not use any other method to open multiple browser sessions. For example, do not use a new tab; do not open another browser session from the **Start** menu; and do not use **File > New Window**. Using these methods can confuse or corrupt information that is displayed in Campaign.

Note: When using the method below, you cannot copy processes from one flowchart to another. To copy configured processes across flowcharts, use the template library options available on the right-click command menu, as explained in "Copying processes between flowcharts" on page 32.

1. Open Internet Explorer.


2. Log in to the IBM Marketing Software Suite and navigate to a Campaign flowchart in view mode only.
3. In the browser window that you opened in Step 1, select **File > New Session** in the Internet Explorer menu bar.
A new Internet Explorer instance opens.
4. In the new browser window, log in to the IBM Marketing Software suite as the same or a different user, and navigate to a Campaign flowchart in view mode only.

Remember: You must disable any pop-up blockers in your browser or browser add-ons, such as toolbars. Pop-up blockers prevent the flowchart window from opening.

Printing flowcharts

You can print hardcopies of flowcharts from IBM Campaign.

Note: Do not use the web browser **File > Print** command. This procedure does not always print flowcharts correctly.

1. Open a flowchart in **View** or **Edit** mode.
2. Click the **Print** icon .

Deleting flowcharts

You can delete a flowchart if you are sure that you no longer need it.

Deleting a flowchart permanently removes a flowchart and all of its associated files, including the log file. If you want to retain portions of your flowchart for reuse, save them as stored objects. Output files (such as files written by a Snapshot, Optimize, or a contact process) are not deleted, and contact and response history are retained.

1. Open a flowchart in **View** mode.
2. Click the **Delete** button.

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, the other user's changes are lost. To prevent the loss of work, do not continue without first checking with the other user.

3. If you are sure that you want to permanently delete the flowchart, click **OK** to confirm the deletion.

The flowchart and all of its associated files are deleted.

Chapter 5. Offer management

Offers are specific marketing communications that you send to particular groups of people, using one or more channels. Each offer is based on an offer template that a Campaign administrator defines.

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.

The general workflow is:

1. (Optional) An administrator defines custom attributes.
2. An administrator creates offer templates (required) and adds custom attributes to them (optional).
3. A user creates offers based on the templates.
4. A flowchart designer assigns the offers by configuring a contact process in a flowchart or by relating offers to target cells that were defined in a target cell spreadsheet.
5. The campaign runs, and the offer is made to the customer.

After an offer has been used in a campaign that has run in production mode, the offer cannot be deleted. However, it can be retired. Retired offers cannot be assigned, and any assigned offers that have been retired will no longer be sent. Retired offers are grayed out in the offer hierarchy. They are still available for reporting and response tracking.

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

Offer attributes

Offer attributes are the information that defines an offer. Offer name, Description, and Channel are examples of offer 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 fields that are required to define an offer, such as Offer name, Security policy, a unique Offer code, Description, and Relevant product(s).

- **Standard:** Offer attributes that are supplied with Campaign, which can optionally be included in an offer. Examples are Channel, Effective date, and Expiration date.
- **Custom:** Attributes that are created for your organization, such as Department, Sponsor, Interest Rate, and SKU.

When administrators define offer attributes in an offer template, each attribute is 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:** Offer attributes whose values do not change when you create a different version of the offer. Examples are offer code, offer name, and description.
- **Hidden static attributes:** Static attributes are included on an offer template but hidden from the person who creates the offer. Hidden attributes can be searched for, tracked, and reported on. For example, if a template includes Offer Cost (the cost to your organization of administering the offer), you can search for all offers that cost less than \$1.00 to administer. The information can be used in reports for performance ROI analysis.
- **Parameterized attributes:** Offer attributes whose values can be supplied when the offer is assigned. For example, you can type a value, select an option from a pre-defined drop-down list, or select a database field. When the offer template is defined, your administrator can set up any standard or custom offer attribute as a parameterized attribute.

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 with values of 5%, 8%, and 12%. When you use the template to create an offer, you can select one of those values as the default interest rate. When the offer is subsequently used in a flowchart and assigned to a cell, the flowchart designer can change the interest rate to a different value.

Offer versions

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:

- Artwork (lighthouse, kittens, or racing cars)
- Introductory rates (5.99%, 8.99%, or 12.99%)
- Offer valid dates (January, June, or September)

Thus, a credit card with the lighthouse image, 5.99% introductory rate, and offer valid from September 1-31 is a different version of the offer than a credit card with a different image, rate, or valid date.

Note: To uniquely identify specific instances of offer usage, use treatment codes.

Offer templates

When you create an offer, you base it on an offer template. Offer templates are created in advance by an administrator.

Every offer template includes several required fields, such as Offer name and Security policy. Additionally, templates may include custom attributes that were defined separately. For example, a template for creating "Reward Card" offers might include a "Discount" drop-down list (a custom attribute) that contains the values 10%, 15%, and 20%.

When you create an offer based on that template, you fill out any fields that are defined in the template. For example, you supply an Offer name, select a Security policy, and choose a default value from the "Discount" drop-down list. If you are allowed to add values to the list, you see an **Add** button next to the attribute when you create the offer. For example, if you add the value 25%, the list will then contain four values (10%, 15%, 20%, 25%).

When you save the offer, it becomes available for use in campaign flowcharts. The flowchart designer can then assign offers by configuring a contact process, such as Mail list, Call list, or Optimize.

The behavior of drop-down lists in contact processes is controlled by the generic configuration parameter `disallowAdditionalValForOfferParam`. This parameter determines whether flowchart designers are restricted to selecting a value from the list when they configure a contact process. If the parameter is true, designers can only select values from the drop-down list. If the parameter is false, designers can select values outside of the list, for example from a database table.

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 (for example, 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.

Creating offers


Create offers to represent the marketing messages that you want to communicate to customers or prospects.

Before you can create an offer, an administrator must create at least one offer template and you must have permission to use that template. To be able to create offers in a folder, you must have appropriate permissions in the security policy that governs that folder.

Whether you create a new offer or a new version of an existing offer depends on how your administrator defined offer templates. 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).


To create an offer you can follow this procedure, or you can duplicate an existing offer and then edit it.

1. Select **Campaign > Offers**.
2. Click **New offer** .
3. If only one offer template exists, the New offer page opens. If there is more than one offer template, you are prompted to select an offer template on which to base your new offer.

Note: Template names that are displayed in gray are retired and cannot be used for creating offers.

4. Click **Continue**.
5. Use the New offer page to define the offer. The fields that you see depend on the offer template that is being used. However, the following fields are always included:

Offer name	Offer names have specific character restrictions. See Chapter 12, "Special characters in IBM Campaign object names," on page 225.
Security policy	A policy that is defined by your administrator.
Description	Optional.
Offer code	Offers are identified with unique system-assigned offer codes based on a format that is specified by your company. If you override or regenerate offer codes, Campaign cannot assure that the new offer code is unique. If you use a non-unique offer code for response tracking, your results can be inaccurate. For details about offer codes, see the <i>Campaign Administrator's Guide</i> .

Relevant products	<p>The relevant products functionality relates product IDs to offers. Optionally, list any products that you want to associate with this offer for inferred response tracking. These product IDs can then be used to determine whether an event (for example, a purchase of a relevant product) is considered to be a response.</p> <p>There are two ways to define relevant products:</p> <ul style="list-style-type: none"> • Use Edit query  to build a query that returns a list of product IDs that you consider relevant. • Use Import product IDs to type or paste a list of product IDs from a source file. <p>Note: When offer management is performed from IBM Marketing Operations, the relevant products functionality is not available.</p>
Parameterized attributes	<p>Optionally, select values and specify defaults. The values that you can view and change are defined by the offer template that you are using.</p> <p>Parameterized attributes are offer attributes whose values can be supplied when the offer is assigned. The Parameterized attributes section might contain fields, buttons, or drop-downs from which you can select predefined values or enter your own default values. You can modify the Parameterized attributes section only if the offer template has defined parameterized attributes.</p> <p>If a list of values is available and you are allowed to add values to it, you see an Add button next to the attribute. For example, you might add the value 25% to a "Discount" offer list.</p> <p>If you add list items, those additions are saved back to the custom attribute so they are available to all users. After you save changes, you cannot remove any items that you added. Only administrators can remove items from lists, by modifying the custom attribute.</p>
Offer suppression for real time interactions	<p>Optionally, determine whether to stop presenting this offer in real-time interactions based on criteria you specify. This section is displayed only if you are defining an offer using a template that has Allow offers created from this template to be used in real-time interactions selected.</p> <p>For example, you might suppress this offer from being presented to visitors who have explicitly rejected it, or you might want to suppress the offer after it has been presented to a visitor a certain number of times.</p> <p>For detailed information on using the Offer suppression for real time interactions section, see the <i>Interact User's Guide</i>.</p>

6. Click **Save changes**.


To use the offer, assign it to a cell in a flowchart or a target cell spreadsheet.

Editing offers

You can edit an offer at any time, whether or not it has been used in a contact process, depending on your roles and permissions.

After an offer is 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 made.

1. Select **Campaign > Offers**.
2. Click the offer name.
3. Click the **Edit** icon  on the offer Summary tab.
4. Edit the offer name, description, or default values for parameterized offer attributes. For explanations of these fields, see “Creating offers” on page 118.
5. Click **Save**.

Assigning offers to cells in a flowchart


Flowchart designers assign offers to cells by configuring a contact process in a flowchart. A *cell* is a list of customers who you want to contact with a specific offer. A *target cell* is a cell that has an offer assigned to it. You can optionally exclude control groups from contact, for analysis purposes.

Before you begin, you must create an offer so it is available for assignment. You can also choose to associate offers with campaigns by using the campaign **Summary** tab. Offers that are associated with a campaign appear at the top of selection lists as “relevant” offers.

Note: Organizations who use a “top-down” management approach assign offers to cells in a target cell spreadsheet. A flowchart designer then selects recipients for those offers. For more information, see “Assigning offers to cells in a target cell spreadsheet” on page 151.

Note: If Campaign is integrated with Marketing Operations, use Marketing Operations to assign offers to output cells in the target cell spreadsheet form of a campaign project. You cannot assign offers in a contact process unless you are working with legacy campaigns.

Follow these steps to assign offers to cells in a flowchart.

1. Open a campaign and click a flowchart tab.
2. Click **Edit**  in the flowchart window.
3. Double-click the contact process, such as Mail list or Call list, which contains the recipients for your offer.
4. Use the **Treatment** tab to assign at least one offer to each cell.
5. Click the **Parameters** tab to see the names and values of each parameterized offer that was assigned on the **Treatment** tab and to adjust the offer parameter values.

Depending on how the offer was defined, you might be able to select values from a list. For example, if a Mail list process includes a discount offer, you might see the values 10%, 15%, 20%. If a list of values appears, the configuration setting Campaign | partitions | partition[n] | server | flowchartConfig | disallowAdditionalValForOfferParam determines whether you can specify more values or whether you are restricted to selecting values from the list.

Note: If you edit an offer to change a parameter value after assigning the offer, the original value continues to be used in any assigned offers. This behavior prevents unintentional changes of attribute values for offers that have already

been assigned. For example, say you assign an offer that has a Cost Per Offer value of \$1.00. Later, someone edits the offer on the Offer Summary page and changes the value to \$1.99. The Assigned value on the **Parameters** tab of the Mail list or Call list remains set to its original value of \$1.00. To update the value, you must explicitly remove and then re-add the offer on the **Treatment** tab: Select the Target cell, click **Assign offers**, and remove the offer. Select a different tab, then select the **Treatment** tab again and reassign the offer. Now when you select the **Parameters** tab, the edited value (\$1.99) appears.

For more information, see “Configuring Mail list or Call list processes” on page 93.

Associating relevant offers with campaigns

You can associate offers with campaigns to make it easier for users to select relevant offers when they configure contact processes in flowcharts (assign offers to cells).

1. Click **Campaign > Campaigns**.
2. Locate the campaign and click its name.
3. On the campaign **Summary** tab, click **Add/remove offers**.
4. Browse or search for the offers that you want to add, and move them into the **Offers to include** list.

You can use **Shift+Click** or **Ctrl+Click** to select multiple offers.

5. Click **Save**.

The **Relevant offers** area of the campaign Summary tab shows all of the offers that are associated with the campaign. The offers are grayed out until someone uses them in a flowchart in this campaign.

As asterisk next to an offer name indicates that the offer was associated with a campaign (“top-down” association). Offers that were used directly in a flowchart (“bottom up”) without first being associated with a campaign do not have an asterisk.

When users configure a contact process to create contact lists in campaign flowcharts, relevant offers appear at the top of the list so they are easy to locate and select for assignment to one or more target cells.


Relevant products for offers

Relevant product(s) is a required attribute in offer templates, although it does not have to be populated in each offer.

You can assign relevant products when you create or edit an offer, by using the **Relevant product(s)** section of the create or edit an offer page.

The relevant products functionality relates product IDs to offers. Optionally, list any products that you want to associate with this offer for inferred response tracking. These product IDs can then be used to determine whether an event (for example, a purchase of a relevant product) is considered to be a response.

There are two ways to define relevant products:

- Use **Edit query**  to build a query that returns a list of product IDs that you consider relevant.

- Use **Import product IDs** to type or paste a list of product IDs from a source file.

Note: When offer management is performed from IBM Marketing Operations, the relevant products functionality is not available.

Importing relevant products to an offer by pasting product IDs

You can assign a list of relevant product IDs to an offer. Relevant products are products that are not explicitly part of the offer but which you intend to count as responses.

1. Choose **Campaign > Offers**.
2. Create an offer or open an offer for editing.
3. Click **Import product IDs** in the Relevant products section of the New offer page.

The Select products dialog opens.

4. Copy product IDs from your source file.

Note: The source content can include one or more of the following delimiters: tab, comma, linefeed, newline. Multiple consecutive delimiters are ignored. If product IDs are text strings, spaces are not stripped and case is preserved.

5. Paste the IDs into the **Import product IDs** list. You can also manually add, edit, or delete entries from the list. There is no limit to the number of entries that you can add to the list.
6. 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 ignored.

7. Click **Save and test query** to confirm that the query gets results.

When the results are displayed in the View selected products dialog, you can either click **Edit query** to return to the Select products dialog or click **Finish** to save and exit.

Note: You can continue to paste and import product IDs until you click **Save** in the Select products dialog or **Finish** in the View selected products dialog. After you close the View selected products or the Select products dialog, you cannot import additional IDs. If you click **Import product IDs** again, your existing IDs will be cleared unless you click **Cancel**.

The product IDs from the **Select products where** list are saved as a query for the offer, and the IDs are added to the **Relevant products** list on the offer page.


8. Save the offer.

If you want to remove items from the list of **Relevant products**, select an item (or use **Ctrl+click** or **Shift+click** to select multiple items), then click **Remove selected**. If you want to test the query again, use **Test query**. If you want to edit the query, click **Edit query**. For instructions, see "Using Edit query to create or edit relevant products for an offer" on page 123.

Using Edit query to create or edit relevant products for an offer

When you create or edit an offer, you can use **Edit query** in the Relevant products section of the page to specify a query that finds products to relate to the offer.

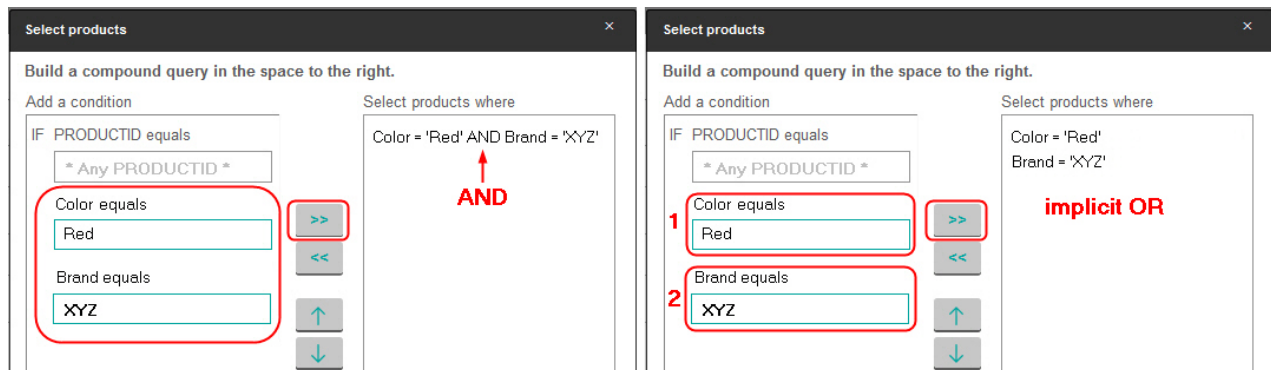
You can use **Edit query** to create or edit a query that relates products to an offer. If you used **Import product IDs** to assign a list of relevant products to an offer, the list is saved as a query. You can use **Edit query** to edit the query, including adding additional conditions.

1. Choose **Campaign > Offers**.
2. Create or edit an offer.
3. Locate the Relevant products portion of the page and click  **Edit query**.

The **Select products** dialog opens.

The **Add a condition** list on the left of the dialog shows fields from the UA_Product system database table, such as ProductID and any additional fields that were added by a system administrator. The **Select products where** list shows the currently defined list of relevant products..

4. Edit the query by adding or removing conditions:
 - To build an AND query: When multiple values (fields) are added in a single step, they are combined as an AND. Specify at least two values in the **Add a condition** area, then click >> to move them into the **Select products where** list. For example: Color = 'Red' AND Brand = 'XYZ'.
 - To build an OR query: When values are added one at a time, they are implicitly OR'd. Type a value in one field in the **Add a condition** list, then click >> to move it into the **Select products where** list. Then specify another condition and again use >>. Each condition that appears in the list is OR'd.



The image shows two side-by-side screenshots of the 'Select products' dialog box. Both dialogs have a title bar with a close button (X). The left dialog is titled 'Select products' and contains the instruction 'Build a compound query in the space to the right.' It has two main sections: 'Add a condition' on the left and 'Select products where' on the right. In the 'Add a condition' section, there is a dropdown menu set to 'IF PRODUCTID equals' and a text input field containing '* Any PRODUCTID *'. Below this, there are two rows of conditions: 'Color equals' with a text input field containing 'Red', and 'Brand equals' with a text input field containing 'XYZ'. To the right of these input fields are two buttons: '>>' and '<<'. The right dialog is also titled 'Select products' and contains the same instruction. It has the same 'Add a condition' section, but the 'Color equals' field is empty and the 'Brand equals' field contains 'XYZ'. The 'Select products where' section on the right shows the result of the query: 'Color = 'Red' AND Brand = 'XYZ''. A red arrow points from the '>>' button in the left dialog to the 'AND' in the right dialog's query. The right dialog also has a red arrow pointing from the '>>' button to the text 'implicit OR'.

5. Click **Save and test query** to keep the dialog open so you can edit the query if necessary after testing it. Or click **Save** to save the query and close the dialog.
6. On the offer Edit page, click **Save** to save the offer.

If you want to remove items from the list of **Relevant products**, select an item (or use **Ctrl+click** or **Shift+click** to select multiple items), then click **Remove selected**. If you want to test the query again, use **Test query**. If you want to edit the query, click **Edit query**.

Duplicating offers

You can create new offers by duplicating existing offers, to save data entry time. You can duplicate retired offers or active offers.

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.

Duplicating an offer from the Offers page

To save time, you can duplicate an offer from a list of offers. You can then change the new offer so that it meets your needs.

1. Select **Campaign > Offers**. The Offers page opens.
2. Navigate to the folder that contains the offer or offers that you want to duplicate.
3. Select the check box next to each offer that you want to duplicate.
4. Click **Duplicate**.
5. Click **OK** to confirm. The selected offers are duplicated and display in the list of offers.

Duplicating an offer from the offer's Summary page

To save time, you can duplicate an offer while you are viewing or editing its summary information. You can then change the new offer so that it meets your needs.

1. On the Summary tab of the offer that you want to copy, click **Duplicate**.
A confirmation window indicates that you are about to duplicate the offer and new offer codes will be generated.
2. Click **OK** to confirm. You see the New offer page in **Edit** mode, with fields 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 Chapter 12, "Special characters in IBM Campaign object names," on page 225

4. Click **Save** to create the new offer.

Grouping offers

You can 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

Grouping offers 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 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.

Moving offers or offer lists

You can move one or more offers among folders. The procedure for moving offers is the same as for moving offer lists, and you can move offers and offer lists in the same operation.

Access to different locations is 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. Choose **Campaign > Offers**.
2. Select the offers or offer lists that you want to move, and click **Move**.
Another way to move an offer (but not a list) is to click its name link to view its Summary tab, and click **Move**.
3. When prompted, select a destination folder and click **Accept this location**.

Retiring offers or offer lists

If you have the appropriate permissions, you can retire offers and offer lists to prevent their further use. Retired offers can no longer be assigned and cannot be given out as part of an offer list.

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.

Note: A retired offer cannot be re-enabled. If you need an offer with the same details, you can create a new one by duplicating the retired offer.

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.

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.

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.

1. Choose **Campaign > Offers**.
2. Select any offers or offer lists that you want to retire, and click **Retire**.
Another way to retire an offer (but not a list) is to click its name link to view its Summary tab, and click **Retire**.
3. When prompted, click **OK**.

The selected offers and offer lists are retired and display in gray.

Deleting offers or offer lists

You use the same procedure to delete an offer or an offer list.

You must have the appropriate permissions to delete an offer or offer list. To preserve system integrity, Campaign does not allow you to delete offers or offer lists that are referenced in system tables. You cannot delete offers or offer lists that:


- are associated with a campaign
- are assigned to a cell in a contact process in a flowchart for which contact history has been populated
- are 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 indicates that the offer or offer list will be retired instead of deleted. You can back out if you want. To prevent further use of offers or lists that are referenced in system tables, you should retire rather than delete them.

If the offers that 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.

1. Choose **Campaign > Offers**.
2. Select the offers or offer lists that you want to delete, and click  **Delete**.
Another way to delete an offer (but not an offer list) is to click its name link to view its Summary tab, and click **Delete**.
3. When prompted, click **OK**.

Searching for offers

You can search 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.

Searching for offers with Advanced Search

With the **Advanced Search** option, you define a query to find the offers that match your specifications.

1. Choose **Campaign > Offers**.

2. Click  **Filter**.

The Advanced search dialog opens.

3. Use the first drop-down list to select an offer attribute.

4. Based on the type of attribute you selected, you can specify 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 the exact date 11/30/2015
- On the attribute "Description", search for specified values that do not contain the string "abc"

5. If you want to specify another condition, click **Add another condition** then select either **And** or **Or** to combine the conditions. To remove a condition, click **X**. To reorder a condition, use the up or down arrow.

Note: Depending on the operator(s) that you use in your query (=, >, contains, begins with, and so on), you might be able to select multiple values or only a single value. 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."

6. When you finish building your query, click **Apply**.

The Search results page lists any offers that match your search criteria.

Analyzing offers

Use IBM Campaign reports to analyze an individual offer or do a system-wide analysis across multiple offers.

1. To analyze an individual offer:

- a. Select **Campaign > Offers**.
- b. Click the name of an offer.
- c. Click the **Analysis** tab.
- d. Select a report from the **Report type** list at the top of the page. The report displays in the same window.

2. To analyze results across multiple offers:
 - a. Select **Analytics > Campaign analytics**.
 - b. Click one of the report folders.
 - c. Click a report link.
If the report allows filtering, the Report parameter window opens.
 - d. Select one or more objects on which to filter the report. Use **Ctrl+click** to select multiple objects. Your permissions determine which objects appear.
 - e. Click **Generate the report**.
The report displays in the same window. The report generation date and time are displayed at the bottom of the page. If the report spans more than one page, use the provided controls to move to the top or bottom of the report or to page up and down.

Offer lists




Offer lists are configurable groups of offers that you can use to manage offers. The same offer can exist in more than one offer list. You can add offers to offer lists and assign offer lists to cells. You can also edit, move, delete, or retire offer lists.

After an offer list has been used, it cannot be deleted but it can be retired. Retired offer lists can no longer be assigned. Assigned offer lists that have been retired will no longer be given out.

You can create two types of offer lists:

- “Creating static offer lists” on page 129: Pre-defined lists whose contents do not change unless you edit the list.
- “Creating smart offer lists” on page 129: A dynamic list of offers that is specified by a query, so its contents can change each time it is used.

Offer lists appear in the same hierarchy as offers, but are identified by different icons:

	Offers
	Static offer lists
	Smart offer lists

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

Security and offer lists

Object-level security applies to offer lists, based on the folders where 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).

Creating static offer lists

Static offer lists are pre-defined lists of offers whose contents do not change unless you explicitly edit the list.

To create a static offer list, select individual offers to include in the list.

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.

A limitation of static offer lists is that default values are used for any parameterized offer attributes.

1. Select **Campaign > Offers**.
2. Click **New offer list**.
3. Enter a Name, Security policy, and Description.

Note: Offer list names have specific character restrictions. See Chapter 12, "Special characters in IBM Campaign object names," on page 225.

4. You are creating a static offer list, so do not check **This is a smart offer list**.
5. In the **Included offers** section, click **Add offer**.
6. Use the Relevant offers dialog to locate the offers that you want to add to the list. You can use the search box to locate offers.
7. Select each offer that you want to add to the list.
8. Click **Add selected offers**.
9. Click **Save changes**.

Creating smart offer lists

A smart offer list is a dynamic list of offers that can resolve to different results each time the 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 that 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 that the flowchart contact process is run is automatically found and given to the high-value cell.

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.

To create a smart offer list, you use a query to specify characteristics for the offers to include in the list.


1. Select **Campaign > Offers**.
2. Click **New offer list**.
3. Enter a Name, Security policy, and Description.
4. For **List type**, select **This is a smart offer list**.
5. In the **Smart offer list criteria** section, click **Add criteria**.
6. In the Smart offer list dialog, use the drop-down lists to build a query to include offers in the list. Select an offer attribute, a condition, and a value. To specify multiple expressions, use **Create condition** to add another set of drop-down lists, then combine the expressions using **And** or **Or**.
7. Use the **Restrict search access** tab to limit the search to the selected folders. To include subfolders in search results, select **Restrict access to all subfolders of selected folders**.

Note: Any offers that are chosen as a result of this search are 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.

8. Use the controls under **Order matching offers by** to specify sorting options. Select the offer attribute by which you want matching orders to be sorted, select **Ascending** or **Descending** order, and indicate whether to limit the search results to the first "X" offers that match. By default, there is no limit.
9. Click **Save changes**.

Editing offer lists

When you change an offer list, the campaigns that use the list use the updated offer list definition the next time they are run.

1. Select **Campaign > Offers**.
2. Click the hyperlinked name of the offer list that you want to edit.
The **Summary** tab for the offer list appears.
3. Click **Edit** .
4. Make your changes.
Offer list names have specific character restrictions. For details, see Chapter 12, "Special characters in IBM Campaign object names," on page 225.
5. Click **Save Changes**.

How to retire 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: After 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.

Offer list assignment to cells

You can assign offer lists to cells in contact processes in the same way that 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 that are in the offer list use their default values. You cannot assign parameter values for offers that are in the offer list. In order to change parameterized values, you can do one of the following:

- Change the default values associated with the existing offer, create a copy of the offer with the new defaults, and ensure that it is used in the offer list.
- Assign the offer individually, outside of an offer list.

Offer lists in systems that are integrated with Marketing Operations

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.

Offer lists and legacy campaigns

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.

Offer management in integrated Marketing Operations-Campaign systems

If your IBM Campaign environment is integrated with IBM Marketing Operations, you work with offers in one of two ways.

- If your system is configured so that offers are managed by Marketing Operations, then you use the **Offers** option from the **Operations** menu. For information about creating offers in this way, see the *IBM Marketing Operations and IBM Campaign Integration Guide*.
- If your system is configured so that offers are managed through Campaign, 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 licensed the IBM Marketing Asset Management add-on for Marketing Operations, your campaigns can include digital assets from your Marketing Operations asset libraries. Campaign does not need to be integrated with Marketing Operations, although it may be.

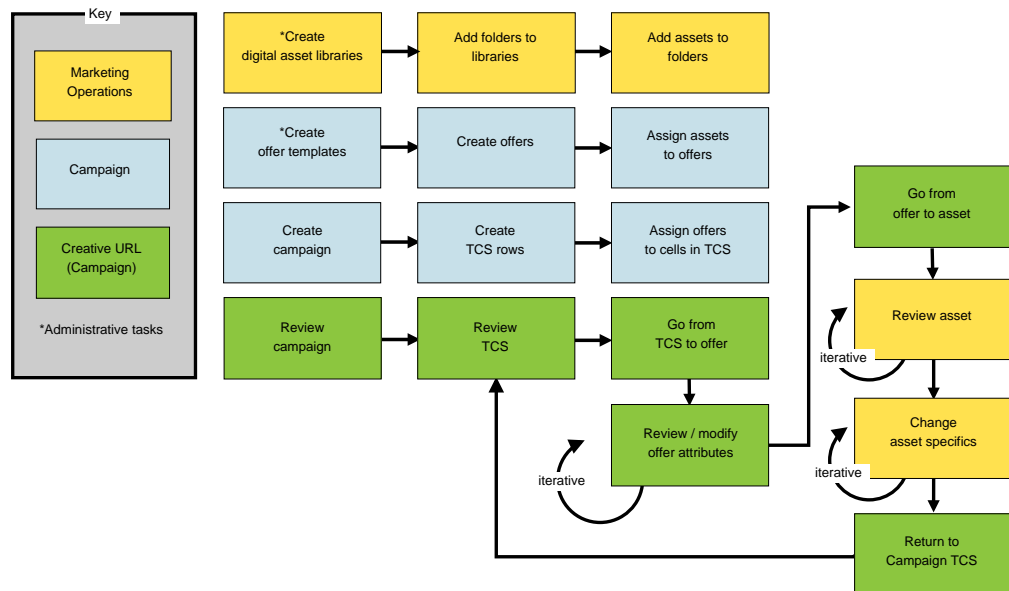
An example of this functionality is to create an offer that includes a product logo stored in a Marketing Operations asset library.

To include a Marketing Operations 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. This example is for a system that is not integrated. Your workflow might differ.



Using Marketing Operations assets in Campaign offers

This topic explains how to relate a digital asset from Marketing Operations to a Campaign offer, for systems that are not integrated. 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, use the **CreativeURL** attribute. A "Creative URL" is a pointer to a file in a Marketing Operations asset library.

Table 9. Using Marketing Operations assets in Campaign offers



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 <i>Campaign Administrator's Guide</i> .
Prerequisite: Add the CreativeURL attribute to an offer template.	Campaign administrators add the CreativeURL attribute to an offer template when they define the template. For more information, see the <i>Campaign Administrator's Guide</i> .
Create an offer that is based on a template that includes the CreativeURL attribute, and relate one asset to the offer.	<ol style="list-style-type: none"> 1. Select Campaign > Offers, click New offer , 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 dialog, 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 to save the offer. <p>A link to the specified asset is now included in the Creative URL field.</p>
Assign offers to cells in the campaign target cell spreadsheet.	<ol style="list-style-type: none"> 1. Go to the All Campaigns page, click a campaign, select the Target cells tab, and edit the target cell spreadsheet. 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 target cell spreadsheet. <p>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.</p>

Table 9. Using Marketing Operations assets in Campaign offers (continued)

Task	Details
Optionally, modify the offer.	<ol style="list-style-type: none"> 1. Go to the All campaigns page, click a campaign, select the Target cells tab, and edit the target cell spreadsheet. 2. Click in the Assigned offers column and click View offers . The View/Edit offer window opens. 3. 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 window. 5. With the offer open for editing, you can edit the values of parameterized attributes. You can also access Marketing Operations assets: <ol style="list-style-type: none"> 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 to save the offer. <p>A link to the selected asset is now included in the Creative URL field.</p>
Save and exit.	Close the windows in IBM Marketing Operations and return to the Campaign target cell spreadsheet. Save and exit the target cell spreadsheet.

Overview of eMessage offer integration with IBM Campaign

If your Campaign administrator enabled eMessage offer integration, Campaign offers can be associated with eMessage assets.

When offer integration is configured:

- Cross-channel marketers can create and use the same marketing offers on multiple channels to measure the effectiveness of offers across channels. For example, compare email to direct mail.
- The Campaign performance reports show the sum of all contacts or responders over all channels that were used. You can customize the reports to break out the information by channel.
- The Campaign Detailed Offer Response Breakout report analyzes eMessage link clicks that are associated with offers. This report lists all offers associated with a campaign and the number of responses for each channel.

When offer integration is configured, the basic workflow for eMessage users is:

1. Use Campaign to create offer attributes, offer templates, and offers, as you normally would, with the following exceptions:
 - Offer lists are not supported because only one offer can be associated with a digital asset.
 - You cannot use Derived Fields in eMessage offer attributes because you cannot populate Derived Fields in eMessage. However, you can use Derived Fields on an offer if you also target that offer over another channel.

- You can populate parameterized offer attributes with a constant value. However, you cannot use Derived Fields for the email channel and you cannot change values per recipient.
2. Use eMessage as you normally would, with one addition: You must associate a Campaign offer with a digital asset in the eMessage Content Library.
 3. Add the asset and its associated offer to an email communication.
 4. If you want to modify the offer, open the offer Summary page in Campaign. Click **Link to IBM eMessage Digital Asset** at the top of the offer Summary page to see a list of eMessage assets that are related to the offer. Double-click an asset to open it in the eMessage Content Library.
 5. Send the mailing.
Recipients open the email and click the offer links.
eMessage receives the responses and processes them using a configurable ETL process so that they end up in the Campaign database.
Campaign checks for updated offer and contact data at intervals that are scheduled by your Campaign administrator. The offer and contact information is then processed by Campaign and moved to the appropriate report tables.
 6. Use the eMessage reports as you normally would. Additionally, use the Campaign Detailed Offer Response Breakout report to analyze responses to your offers.

The eMessage offer integration depends on an ETL process to coordinate offer and response information between eMessage and Campaign:

- To configure Campaign for eMessage offer integration, see the *Campaign Administrator's Guide*.
- To use eMessage, see the *IBM eMessage User's Guide*.

Related tasks:

“Viewing and editing eMessage assets that are linked to a Campaign offer”

Viewing and editing eMessage assets that are linked to a Campaign offer

You can view all of the related eMessage digital assets for an offer from the offer Summary page and optionally edit the assets in the Content Library.

Before you can view eMessage assets in an offer, you must use the eMessage Document Composer to associate the offer with at least one asset in the Content Library. Each asset can be associated with only one offer at time, but an offer can be associated with more than one asset. For more information, see your eMessage documentation.

After establishing the relationship between an offer in Campaign and assets in eMessage, you can view those assets from the Campaign offer Summary page.

1. Click **Campaign > Offers**.
2. Locate an offer that has eMessage assets.
3. Click the offer name.
The offer Summary page appears.
4. Click **Link to IBM eMessage Digital Asset** at the top of the Summary page.

The eMessage Content Library opens and displays a list of all of the eMessage assets that are related to the offer.

5. You can double-click an asset to open it.

Related concepts:

“Overview of eMessage offer integration with IBM Campaign” on page 134

Chapter 6. Target cell management

A *cell* is a group of people that you want to target, such as high value customers. A *target cell* is a cell that has an offer assigned to it.

Cells are created when you configure and then run a data manipulation process (Select, Merge, Segment, Sample, Audience, or Extract) in a flowchart. For example, a Select process can generate an output cell that consists of Gold customers. An output cell can be used as input for other processes in the same flowchart.

You create a target cell by assigning an offer to a cell. You can assign offers by configuring a contact process (such as a Mail list or Call list) in a flowchart or by editing the Target Cell Spreadsheet (TCS). Most organizations use only one of the two approaches:

- Bottom-up: A campaign designer creates offers, then assigns offers by configuring a Mail List or Call List process in a flowchart.
- Top-down: A marketing manager creates offers, then assigns the offers in a Target Cell Spreadsheet (TCS). A campaign designer then creates a flowchart to select recipients for the offers, and links the flowchart cells to cells in the TCS.

Every cell has:

- A system-generated **cell name**, unique within the current flowchart.
- A system-generated **cell code**. The cell code has a standard format that is determined by your system administrator and is unique when generated. Cell codes are not checked for uniqueness unless the flowchart configuration parameter `AllowDuplicateCellCodes` is set to "No." In this case, cell codes are enforced to be unique only within the current flowchart.

Cell codes and cell code generators are explained in the *Campaign Administrator's Guide*. Configuration parameters are explained in the *Marketing Platform Administrator's Guide*.

Generating cells in a flowchart

When you run a data manipulation process in a flowchart, the process generates one or more cells as output. A cell is a list of IDs. The generated output can be used as input into downstream processes.

Data manipulation processes include Select, Merge, Segment, Sample, Audience, and Extract. When you run a configured process, one or more cells are created as the output. The number of cells that is generated depends on the type of process and its configuration details. For example, you can configure and then run a Select process to generate an output cell of high-income households. You can use that cell as input into a Segment process to divide the contacts by age. The resulting output from the Segment process would be multiple cells, segmented into age groups.

If your organization uses top-down management to define campaigns, you can link output cells in a flowchart to placeholder target cells that were defined in the Target Cell Spreadsheet (TCS). In this way, the campaign designer generates output that meets the goals that are defined in the TCS.

Limiting the size of output cells

To limit the number of IDs generated by data manipulation processes such as Audience, Extract, Merge, or Select, use the **Cell size limit** tab of the process configuration dialog.

The options 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. The random seed represents the starting point that Campaign uses to select IDs randomly.

Processes taking input from an output cell

If a process takes input from an output cell, the **Cell size limit** tab includes the options described below. Use these options to limit the number of IDs that the process will output.

Use the following controls to affect the output cell size:

- **Unlimited cell size** returns all IDs that satisfy the query or selection criteria. This option is the default.
- **Limit output cell size to Random (slowest)** 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.

- **Limit output cell size based on sizes of input cells:** For information about this option, see “Limiting the output cell size based on the input cell size.”

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.

1. Click the **Cell size limit** tab in the process configuration dialog.
2. Choose the method by which the limits will be calculated:
 - **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 and B are checked, with sizes of 100 and 200, the size of the output cell for this process would be limited to 200.
 - **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 N , where N 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 100, 200, and 500 respectively, the size of the output cell for this process would be limited to 100.
 - **Sum of all checked cells:** Specifies that the output cell size should not exceed the total (sum) of all the selected input cells. For example, if cells A, B, and C are checked, with sizes of 100, 200, and 500, the size of the output cell for this process would be limited to 800, the sum of all three of the input cell sizes.
3. In the list of input cells, select the check boxes 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 a process takes input from a table or strategic segment, the **Cell size limit** tab includes the options described below. Use these options to limit the number of IDs that are output by the process in production or test runs.

Use the **Specify output cell size limitation** options to control production runs of the process. 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.

Use the **Test run output cell size limitations** options to control test runs.

In some processes, including Audience and Select, you can limit cell size specifically for test runs. Use these options to control the amount of data returned and processed during test runs. For information, see “Applying test run output cell size limitations.”

Applying test run output cell size limitations

In some processes, including Audience and Select, you can 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 random seed for record selection

The random seed represents the starting point that IBM Campaign uses to select records randomly.

Some processes provide the ability to select a random set of records. If you decide to select random records, there are times when you might want to change the random seed. For example:

- Your random sample is producing highly skewed results (for example, if all males in your data fall into one group and all females into another).

- You have the same number of records in the same sequence, and using the same seed value each time that you run this process results in records being created into the same samples.

Follow the steps below to generate a different starting point for random record selection.

1. Click the **Cell size limit** tab of the Audience, Extract, Merge, Select, or Sample configuration dialog.
2. Perform one of the following operations:
 - Click the **Pick** button next to the **Random seed** field to randomly select a new seed value.
The same random set of records will be used for each subsequent run of the process (unless the input to the process changes). This is important if you intend to use the process results for modeling purposes, because different modeling algorithms must be compared across the same set of records to determine each model's effectiveness.
 - If you do not intend to use the results for modeling, you can make the process select a different random set of records each time it runs. To do this, enter a zero (0) as the **Random seed**. A value of 0 ensures that a different random set of records will be selected each time the process runs.

Tip: The Segment process does not include a **Random seed** control. To make the Segment process select a different random set of records each time it runs, set the **Random seed** to 0 in the upstream process that provides input to the Segment process.

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 administrator, and are unique when generated. Cell codes can be edited. Therefore, they are not checked for uniqueness unless the flowchart configuration property **AllowDuplicateCellCodes** is False, 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*.

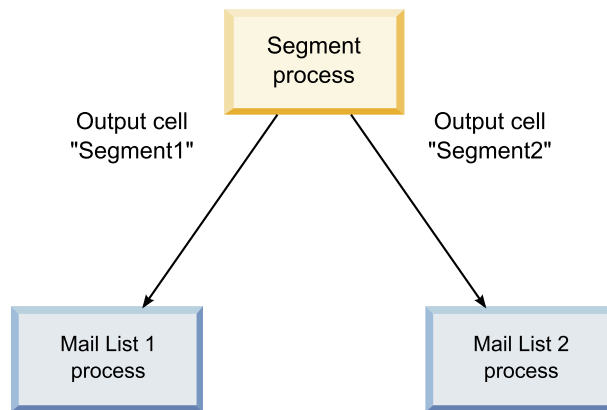
Cell names

Note: Cell names have specific character restrictions. For details, see Chapter 12, "Special characters in IBM Campaign object names," on page 225.

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". You can change the cell name. 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 a Segment process 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.

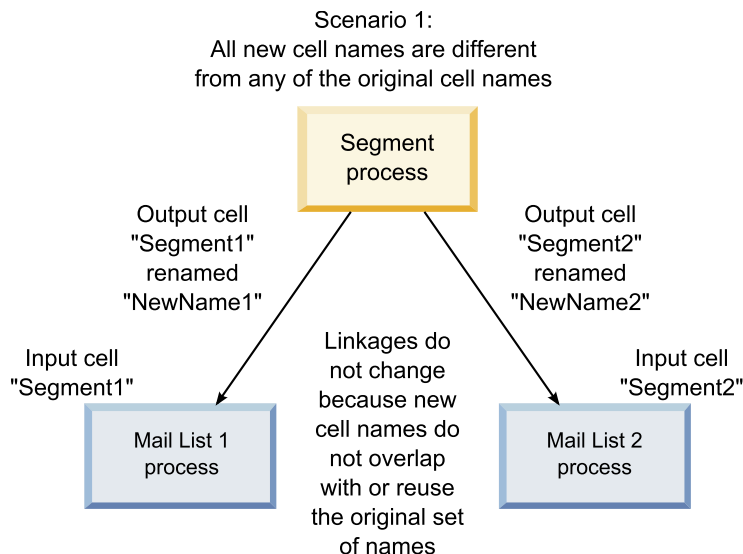
The following diagram illustrates a basic example of a Segment process that outputs two cells, each cell then becoming the input for downstream Mail List processes.



Examples: cell renaming scenarios

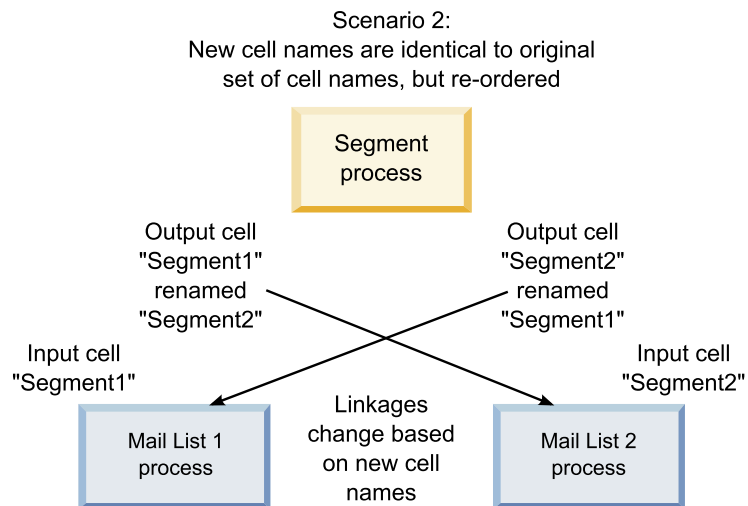
Scenario 1: All new cell names are different from any of the original names

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.

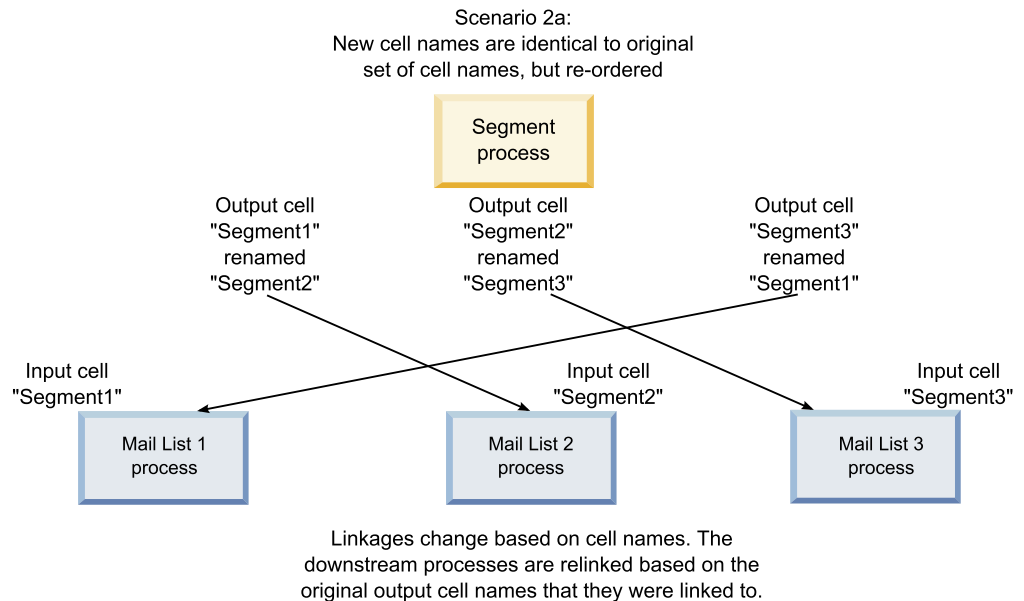


Scenario 2: The set of new cell names is identical to the original set of cell names, but re-ordered

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.

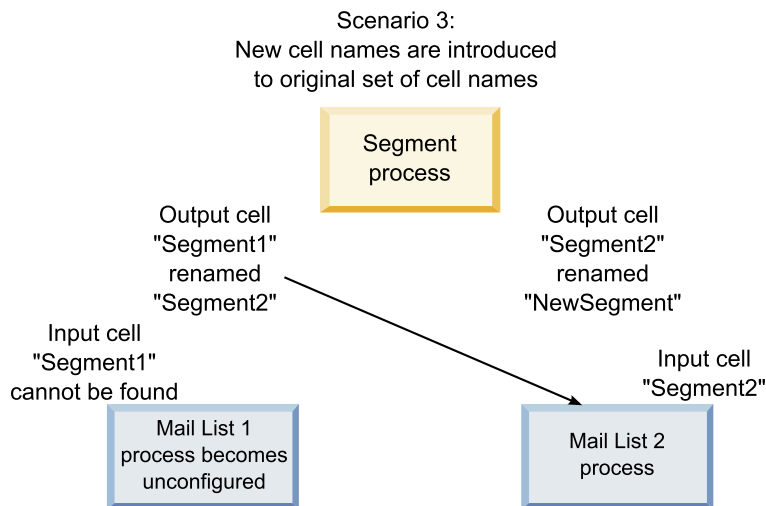


The following diagram illustrates the same situation with three output and input cells.



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."



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.

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 Marketing Software, 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.

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.

Target cell spreadsheets

Each marketing campaign has a target cell spreadsheet (TCS), which provides a visual matrix of segments and offers. The TCS provides the ability to build and examine relationships between target cells and their associated offers or controls. (Controls are not contacted with an offer, even though they qualify for the offer.)

Note: To use the target cell spreadsheet, you must have Global Policy permission to **Manage Campaign target cells**.

The TCS includes one row for each target cell and, if you use control groups, one row for each corresponding control cell. A target cell is a cell that has an offer assigned to it. A control cell is qualified for the offer but is excluded from receiving the offer for analysis purposes. Controls do not receive communications, but are measured against the target group for comparison.

When you work with the TCS, you can use a top-down or bottom-up management approach. Most organizations use only one of the following management methods.

Table 10. Top-down and bottom-up TCS management

Top-down	<p>This approach typically is used by larger organizations, where one person creates the TCS and another person designs the flowchart.</p> <p>The first person creates a TCS that contains target and control cells. For example, the TCS for a direct mail campaign might include 4 rows: One row for a cell that gets a 10% offer, one row for a cell that gets a 20% offer, one row for 10% holdouts, and one row for 20% holdouts.</p> <p>Then, the flowchart designer creates processes to select IDs that meet the 10% and 20% offer and hold-out criteria. To link the data manipulation process output to a pre-defined cell in the TCS, the flowchart designer selects Link to Target Cell in each process configuration dialog box.</p>
Bottom-up	<p>Create a flowchart that includes a Mail List or Call List process.</p> <p>When you save the flowchart, a TCS is generated. The TCS includes one row for each target cell that provides input to the Mail List or Call List process.</p> <p>Bottom-up cells cannot be linked or unlinked. The concept of linking applies only to top-down management.</p>

When you work with a target cell spreadsheet, keep in mind the following guidelines:

- Linking is based on cell codes, so avoid changing cell codes after you link cells.
- You can unlink or relink a cell at any time, provided the cell did not write to Contact History.
- If you unlink a cell that has Contact History, it is "retired". Retired cells cannot be linked again. They do not appear in the target cell spreadsheet and they cannot be selected in a process configuration dialog box. (If Campaign is

integrated with Marketing Operations, retired cells continue to be displayed in the target cell spreadsheet but cannot be reused.)

Important: Incorrect data might be saved if edits are made to the flowchart and the TCS by different users at the same time. To avoid conflicts, define business rules that minimize the possibility of a TCS being edited when its flowchart is being edited or run. For example, do not edit a flowchart contact process while another user is changing offer assignments in the TCS.

Note: If Campaign is integrated with Marketing Operations, you must use Marketing Operations to work with target cell spreadsheets.

Related tasks:

“Linking flowchart cells to targeted offers defined in a target cell spreadsheet” on page 153

“Unlinking flowchart cells from targeted offers defined in a target cell spreadsheet” on page 155

“Using Match & Link to remove an association” on page 155

“Using Match & Link to associate flowchart cells with a target cell spreadsheet” on page 154

Managing target cell spreadsheets


The target cell spreadsheet (TCS) for a marketing campaign provides a visual matrix of segments and offers. The TCS provides the ability to build and examine relationships between target cells and their associated offers and hold-outs.

Editing a target cell spreadsheet

You edit a target cell spreadsheet so that it contains target and control cells for the offers you intend to make.

For example, the target cell spreadsheet for a direct mail campaign might include four rows: One for a 10% offer, one for 10% holdouts, one for a 20% offer, and one for 20% holdouts.

Important: Never edit the attributes of cells in the target cell spreadsheet at the same time that any flowcharts in the associated campaign are being edited or run. Put business practices in place to ensure that users do not edit or run a flowchart at the same time as the target cell spreadsheet is being edited.

1. Open a campaign and click the **Target cells** tab.
2. Click **Edit**  .
The spreadsheet opens in **Edit** mode. Existing cells that are used in flowcharts are highlighted in color.
3. Click the cell fields that you want to edit, and make your changes. Descriptions of the most common edits follow.

To	Do this
Add one row to the bottom of the spreadsheet	Click Add a cell .

To	Do this
Add several rows to the bottom of the spreadsheet	<ol style="list-style-type: none"> 1. Click Add many cells. 2. Select N empty rows, enter the number of rows to add, and click Create target cells.
Duplicate one or more rows	<ol style="list-style-type: none"> 1. Select at least one row. 2. Click Add many cells, select N duplicate rows, enter the number of rows to add, and click Create target cells. <p>The new rows are added below the selected row, with the cell code and cell name already populated. All other column values except Used in flowchart are copied from the selected row.</p>
Search the target cell spreadsheet	<ol style="list-style-type: none"> 1. Click Search. 2. Use the Search to enter one or more characters. You can enter a partial string to find matches in any column of the spreadsheet. For example, "924" finds a row that contains cell code "A0000000924" and also finds a row with "Offer9242013" assigned. 3. Click Find next to highlight the row that contains the first match. 4. Click Find next to continue searching.
Paste data from an external source	<ol style="list-style-type: none"> 1. Copy content from another application. 2. Click a cell in the target cell spreadsheet to make it editable. 3. Use the right-click menu to Paste.
Import target cell data from a .csv file	<ol style="list-style-type: none"> 1. Obtain a comma-separated values file in the required format. See "Import and export format for TCS data" on page 150. 2. Open a target cell spreadsheet for viewing (not editing). 3. Click Import target cells. 4. In the Import TCS dialog, click Browse to locate the .CSV file that you want to import, select the file, and click Open. 5. Click Import. <p>The contents of the .CSV file is appended below any existing cells in the target cell spreadsheet.</p>
Move rows up or down, or delete rows	Select a row, then use the options in the toolbar: Move up, Move down, or Delete.

4. Click **Save** or **Save and exit**.

The flowchart designer can now create processes to select IDs that meet the 10% and 20% offer and hold-out criteria. To link the data manipulation process output to a cell in the target cell spreadsheet, the flowchart designer selects **Link to target cell** in the process configuration dialog box.

Specifying control cells in a target cell spreadsheet

Cells that contain IDs that you purposely exclude for analysis purposes are called control cells. When you assign offers to cells, you can optionally specify one control cell for each target cell.

1. Open a campaign and click the **Target cells** tab.
2. Click **Edit**.
3. To designate a cell as a control cell: Click in the **Control cell** column to make the field editable, then select **Yes**.

Cells that are designated as controls cannot be assigned offers.

4. To assign a control cell to a target cell: Click in the **Control cell code** column to make the field editable. Then, select a control cell (any cell whose **Control cell** column is **Yes**) for the current target cell.

Important: If you assign a control cell (for example, Cell A) for one or more target cells, then later change the control cell (Cell A) to a target cell, Cell A is removed as a control from any target cells that previously used it as a control.

5. Click **Save** or **Save and exit**.

Import and export format for TCS data

To import data into a target cell spreadsheet (TCS), the comma-separated values (.CSV) file that you prepare must match the required format. When you export the contents of a TCS, this is also the format in which data is exported.

- The file must contain a header row with column names that match 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, leave it 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 generates a cell code, otherwise the specified value is used.	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 where IsControl = Yes.	Only if IsControl = Yes	A valid cell code that exists for a cell marked IsControl = Yes.
AssignedOffers	A semicolon-delimited set of offers, offer lists, or a combination of both.	No	Offers can be specified using offer codes. 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*	

Column Name	Description	Required?	Valid Values
CellCount	The counts for this cell.	No*	
LastRunType	The type of the last flowchart run.	No*	
LastRunTime	The time of the last flowchart run.	No*	
Custom Attr1	Add a column for each custom cell attribute that you defined for which you are importing data.	No	Valid values as required by the custom attribute's data type and user locale/format.
*This column is populated by Campaign. If specified, it is ignored. It is populated for export.			

Generating unique cell codes for use in a target cell spreadsheet

Campaign can generate a unique cell code for use in the target cell spreadsheet. Cell codes have a standard format that is determined by your system administrators, and are unique when generated.

1. Open a campaign and click the **Target cells** tab.
2. Click **Edit**.
3. Click **Generate cell code**.
A window with the generated cell code opens.
4. Select and copy the generated cell code, then click **OK**.
5. Paste the cell code into a field in the target cell spreadsheet.
6. Click **Save**.


Exporting data from a target cell spreadsheet

You can export the contents of a target cell spreadsheet in comma-separated values (.csv) format to a local or network drive. The entire contents of the target cell spreadsheet is exported; you cannot select a subset of the contents.

1. Open a campaign and click the **Target cells** tab to open the target cell spreadsheet for the campaign.
2. Click **Export target cells**.
3. Use the resulting dialog to open or save the file.
For information about the export format, see "Import and export format for TCS data" on page 150.

Assigning offers to cells in a target cell spreadsheet

Some organizations create target cells and assign offers in a target cell spreadsheet. Then, another person creates a flowchart to select customers to receive the offers. Follow these instructions if you are using a target cell spreadsheet to assign offers.


1. Open a campaign and click the **Target cells** tab to open the target cell spreadsheet for the campaign.
2. Click **Edit** in the toolbar. The target cell spreadsheet opens in edit mode and any existing cells that are used in flowcharts are highlighted in color.
3. In the **Assigned offer(s)** cell for the target cell where you want to assign an offer, click the **Assign offers** icon  in the cell where you want to assign offers.
4. In the Select offer(s) window, locate and select one or more offers or offer lists or click the **Search** tab to find an offer by name, description, owner, or code.
5. After you select the offers that 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 offers.

6. Click **Save** or **Save and exit**.

Managing assigned offers or offer lists in a target cell spreadsheet

You can view (and optionally edit) or unassign offers or offer lists in a target cell spreadsheet.

1. Open a campaign and click the **Target cells** tab to open the target cell spreadsheet for a campaign.
2. Click **Edit**. The target cell spreadsheet opens in edit mode. Any existing cells that are used in flowcharts are highlighted in color.
3. In the **Assigned offer(s)** cell, click the **Manage offer assignments** icon  . The View/edit offer details dialog opens. Any assigned offers or offer lists appear in the **Assigned offers** section.
4. To view or edit an item in the View/edit offer details dialog: Select an offer or offer list and click **Preview**.
A window opens, showing the offer details. Optionally, click Edit to make changes to the offer. If an offer has been used in production (assigned to a cell in a flowchart that has been run in production and logged to contact history), you are limited in what changes are allowed.
5. To unassign an offer or offer list in the View/edit offer details dialog: Select the offers or offer lists that you want to remove from a cell, and click the >> button to move the selected items to the **Removed offers** section. Then click **Accept changes**.
The View/edit offer details window closes. The removed items no longer appear in the **Assigned offer(s)** column for the cell.
6. Click **Save** or **Save and exit**. Or, if you want to discard your changes, click **Cancel**.

Cell status information in the target cell spreadsheet

The target cell spreadsheet in IBM 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 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 target cell spreadsheet 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.

Refreshing 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 target cell spreadsheet is open when the run completes, you must refresh the cell counts manually.

1. Choose **Campaign > Campaigns**.
2. Click a campaign link.
3. Select the **Target cells** tab.
4. Click the **Get cell status** 

Linking flowchart cells to a TCS

Larger organizations often use one person to create a target cell spreadsheet (TCS) for a campaign, and another person to design flowcharts. The TCS associates offers with targets and controls. The flowchart designer then configures flowchart processes that select recipients for the offers. By linking output cells in a flowchart with the cells and offers that were pre-defined in the TCS, the flowchart designer completes the association between the flowchart cells and a TCS.

Linking flowchart cells to targeted offers defined in a target cell spreadsheet

If your organization pre-defines targeted offers in a target cell spreadsheet, a flowchart designer must then configure processes to select recipients for the offers. The designer must link the flowchart cells with the predefined cells in the target cell spreadsheet. This completes the association between the cells in the target cell spreadsheet and the recipients defined in the flowchart.

Before you begin, someone in your organization must define target cells in a target cell spreadsheet. Then the flowchart designer can follow the steps below to associate output cells in a flowchart with the cells that were defined in the TCS.

Note: An alternative method is to use **Options > Match & link target cells**.

To associate flowchart cells with pre-defined cells in a target cell spreadsheet:

1. In a flowchart in **Edit** mode, double-click the process whose output cell you want to link to a cell in the target cell spreadsheet.
2. Click the **General** tab in the process configuration dialog.
3. To open the Select target cell dialog:
 - 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.

You see the Select target cell dialog, which displays the cells that were predefined in the target cell spreadsheet for the current campaign.

4. In the Select target cell dialog, select the row for the cell to which you want to link the current output cell.

5. Click **OK**.

The Select target cell dialog closes. The Output cell name and Cell code in the process configuration dialog are replaced with the name and code from the target cell spreadsheet. These fields are italicized to indicate that they are obtained from the spreadsheet.

6. Click **OK** to save your changes.
7. Save the flowchart. 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.

Related concepts:

“Target cell spreadsheets” on page 147

Using Match & Link to associate flowchart cells with a target cell spreadsheet

Use the **Match & link target cells** dialog to associate target cells in a flowchart with predefined cells in a target cell spreadsheet. This option is an alternative to using a flowchart process configuration dialog to establish the link.

Before you begin, someone in your organization must define target cells in a target cell spreadsheet. Then the flowchart designer can follow the steps below to associate output cells in a flowchart with the cells that were defined in the target cell spreadsheet.

Note: To use automatching, ensure that the flowchart output cell names match the target cell spreadsheet cell names or start with at least the same three characters.

1. In a flowchart in **Edit** mode, select **Options > Match & link target cells**.

The Match and link target cells dialog shows Available target cells in the left pane and flowchart output cells in the right pane.

2. Use one of the following methods to match target cells from the target cell spreadsheet with flowchart cells.

To automatically match cells based on name	Click Automatch . Successfully automatched cells have a status of Exact or Best match , and target cells that are matched display in red.
To match cells manually	Select one or more pairs of target cells and flowchart output cells, 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 . Target cells that are matched display in red.

3. Click **OK**. You see a warning that the flowchart run results will be lost.
4. Click **OK** to continue.
5. Save the flowchart. Target cell linkages are not saved until you save the flowchart. If you cancel the flowchart changes, cell linkages are not saved.

The next time that you view the **Match & link target cells** dialog for this flowchart, the status of the matched and linked cells is **Linked**.

Related concepts:

“Target cell spreadsheets” on page 147

Unlinking flowchart cells from targeted offers defined in a target cell spreadsheet

The flowchart designer can remove the association between IDs that were selected in a flowchart and targeted offers that were predefined in a target cell spreadsheet. This procedure pertains only to organizations that define targeted offers using a target cell spreadsheet.

If a cell does not have Contact History, you can unlink (and subsequently relink) it at any time.

Note: If you unlink a cell that has Contact History, it is "retired". Retired cells cannot be linked again. They do not appear in the target cell spreadsheet and they cannot be selected in a process configuration dialog box. (If Campaign is integrated with Marketing Operations, retired cells continue to be displayed in the target cell spreadsheet but cannot be reused.)

1. In a flowchart in **Edit** mode, double-click the process whose output cell you want to unlink from the target cell spreadsheet.
2. Click the **General** tab in the process configuration dialog.
3. Open the Select target cell window:
 - In processes that produce a single cell as output, such as Select, click **Link to target cell**.
 - In processes that produce 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.

The Select target cell window shows the cells that are defined in the target cell spreadsheet for the current campaign. The currently linked cell is highlighted.

4. Select **[Not linked]**.

The cell name and code are no longer highlighted.

5. Click **OK**. 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.

Related concepts:

“Target cell spreadsheets” on page 147

Using Match & Link to remove an association

You can use the **Match and link** dialog to remove the association between target cells in a flowchart and cells in the target cell spreadsheet.

If a cell does not have Contact History, you can unlink (and subsequently relink) it at any time.

Important: If you unlink a cell that has Contact History, it is retired. Retired cells cannot be linked again. They do not appear in the target cell spreadsheet and cannot be selected in a process configuration dialog. (If Campaign is integrated with Marketing Operations, retired cells continue to be displayed in the target cell spreadsheet but cannot be reused.)

1. In a flowchart in **Edit** mode, select **Options > Match & link target cells**.
Any matched or linked cells are displayed in the right pane, and their status is 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.
4. Save the flowchart. Target cell linkages are not saved until you save the flowchart. If you cancel flowchart changes, cell linkages are not saved.

Related concepts:

“Target cell spreadsheets” on page 147

Chapter 7. Contact history

IBM Campaign maintains contact history to record information about offers that are sent to contacts. History is also recorded about control cells, to identify customers who are purposely not sent the offer.

The term "contact history" refers to information that Campaign maintains 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 can be generated as the output of a Call list or Mail list process in a campaign flowchart. Each target customer belongs to a cell that is assigned one or more offers. When the Call List or Mail List process is run in production mode with logging to contact history enabled, details are written to several tables in the Campaign system database.

Together, those tables comprise the contact history. The contact history records the specific offer version (including the values of parameterized offer attributes) given to each ID in each cell at flowchart run time. Contact history also records the members of control cells, who are purposely withheld from receiving any communications. Control cells indicate hold-out or no-contact controls, therefore customers belonging to control cells are not assigned any offers and are not included in contact process output lists.

Contact history and audience levels overview

Campaign maintains contact history for each audience level, such as Customer and Household. Contact history provides a historical record of your direct marketing efforts, including who was contacted, what offers were made, by which channels.

Campaign maintains contact history in the system database tables:

- Base contact history (UA_ContactHistory) is recorded when all members of a cell are treated the same (when they are all given the same version of an offer).
- Detailed contact history (UA_DtlContactHist) is recorded only when individuals in the same cell receive different offer versions (offers with different values for personalized offer attributes) or a different number of offers.

Detailed contact history can quickly grow very large, but it provides complete data to support detailed response tracking and to analyze targets and controls.

- For every production run, data is recorded in the Treatment tables (UA_Treatment). Control information for hold-outs is also recorded here. Hold-outs do not receive communications, but are measured against the target group for comparison. Treatment history is used together with contact history to form a complete historical record of offers that were sent.

Contact history and the corresponding response history are maintained for each audience level.

For example, suppose you have two audience levels, Customer and Household. The table implementation depends on how your database is configured:

- Each audience level usually has its own set of contact and response history tables in the Campaign system database. In other words, the Customer audience level has a set of tables (contact history, detailed contact history, response history), and the Household audience level has its own set of tables.
- If your database is configured so that multiple audience levels write to the same underlying physical tables, then each audience level does not require its own set of tables. However, the underlying physical tables (contact history, detailed contact history, response history), must include a key for each audience level.

How the contact history tables are updated

Entries are written to the Campaign contact history tables when a flowchart contact process (such as Call list or Mail list) or the Track process runs in production mode with the history logging options enabled. Test runs do not populate the contact history tables.

When contact history logging is enabled, the following details are written to contact history during a production run:

- The date and time of the contact (by default, this is when the contact process was run);
- The offer versions assigned in the contact process, including parameterized offer attribute values;
- Exactly which offer versions were given to each ID;
- For target and control cells, the treatment codes for tracking each unique combination of offer version, cell, and date and time.

The following system tables are involved:

- Base contact history (UA_ContactHistory), if all members of a cell are given the same version of an offer
- Detailed contact history (UA_DtlContactHist), if individuals in the same cell receive different offer versions
- Treatment history (UA_Treatment)
- Offer history (multiple system tables which collectively store information about offers that were used in production)

Treatment history and offer history are used together with contact history to form a complete historical record of offers that were sent. Controls, who were not assigned offers, are identified in the Treatment table.

History is updated only if the **Log to contact history tables** option is checked in the Mail list, Call list, or Track process configuration dialog box.

Note: This does not affect how eMessage and Interact load data into the Campaign history tables. Those products use their own ETL processes to extract, transform, and load data into the Campaign contact and response history tables.

Treatment history (UA_Treatment)

Rows are added to the treatment history table (UA_Treatment) each time a flowchart runs in production mode.

If a flowchart is 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.
- 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. The treatment code can be used in response tracking to attribute each response to a specific treatment instance.

How controls are handled in treatment history

A control cell is qualified for an offer but is excluded from receiving the offer for analysis purposes. If controls are used, treatment history also records control cell data:

- Rows pertaining to offers that are given to a target cell are called target treatments.
- Rows pertaining to offers that are assigned to a control cell are called control treatments.

Target treatments have an associated control treatment if a control cell was assigned to the target cell in the contact process. Each control treatment is assigned a unique treatment code, although the codes are not distributed to 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, 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

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 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: If you output offer attribute information as additionally tracked fields, complete treatment information *can* be displayed because detailed contact history and alternate contact history write a row for each treatment (rather than a row for each cell).

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 and 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 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.

Updating contact history by doing a production run

When you do a production run, you can update contact history for the current Run ID. Use the **Run history options** window to choose how the new contact history will be written to the contact history table.

1. On a flowchart page in **Edit** mode, click the process that you want to run.
2. Open the **Run** menu  and select **Save and run selected branch**.
3. If contact history records exist, you are prompted to choose run history options.

The **Run history options** dialog appears only when you run a branch or process that previously generated contact history for the current Run ID. You can either append information to contact history or replace existing contact history for the Run ID.

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.

Run History Options scenario

In this example, 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, by 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 exists for process A and Run ID = 1. You want to retain the original contact history.

When you select contact process A and click **Run Process**, the Run History Options window opens. If you choose to leave the Run ID unchanged (Run ID = 1), you will replace the existing contact history, which is not what you want to do. Instead, you choose **Create a new run instance**. This option increments the Run ID to 2, retains the contact history associated with Run ID = 1, and appends new contact history to Run ID = 2. In this way, you will not lose the contact history that is associated with the first offer.

If you now edit and run contact process B, the Run History Options window does not open, because you are using a new Run ID (Run ID =2), which does not have any contact history associated with it. When you run only contact process B, you generate more contact history records for Run ID = 2.

Specifying a database table for contact logging

You can log contact information to a database when you configure a contact process.

1. In the process configuration dialog box, select **New mapped table** or **Database table** from the **Enable export to** or **Log to** list. This option usually appears at the bottom of the list, after the list of mapped tables.

The Specify database table dialog box opens.

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 `UserVar.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 you run the flowchart.

3. Select a database name from the list.
4. Click **OK**.

The Specify database table window closes. The **Export/log to** field in the process configuration dialog displays the name of the database table that 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.

Specifying an output file for contact logging

You can optionally output contact history to a flat file with a data dictionary or a delimited file.

1. Open a flowchart in **Edit** mode.
2. In the process configuration dialog box for a contact process, select **File** from the **Enable export to** or **Log to** list. The **File** option usually displays at the bottom of the list, after the list of mapped tables.

The Specify output file dialog box opens.
3. Select an output file type:
 - **Flat file with data dictionary:** Create a fixed-width file and a new data dictionary file.
 - **Flat file based on existing data dictionary:** Create a fixed-width file and select an existing data dictionary file.
 - **Delimited file:** Create a file in which field values are delimited by a tab, comma, or other character. If you select **Other**, enter the character to use as a delimiter. Check **Include labels in top row** if you want the first row of the file to contain a column header for each column of data.
4. Enter the complete path and file name in the **File name** field or use **Browse** to select an existing file.

Note: You can include user variables in the output file name (**Options > User variables**). For example, if you specify `MyFile<UserVar.a>.txt` as the file name, and the value of `UserVar.a` is "ABC" at the time that the process is run, the output is written to `MyFileABC.txt`. You must set the **Initial value** and the **Current value** of the user variable before running the flowchart.

5. Campaign completes the **Data dictionary** field with a .dct file with the same name and location as the file that you entered. 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.
6. Click **OK**.

Disabling writing to contact history

If you do not want production runs to update the contact history tables, you can configure the Call list or Mail list process to prevent logging. However, the best practice is not to disable contact history logging.

Test runs do not populate the contact history tables, so if you want to run a contact process without writing to contact history, you can do a test run.

Contact history is updated when a flowchart contact process runs in production mode with the contact logging options enabled. If you want to prevent a contact process from writing to contact history, you can configure the process to disable logging during production runs.

Important: The best practice is not to disable contact history logging. If you run a campaign in production mode without logging to contact history, you will not be able to accurately re-generate the contact history at a later date if any of the underlying data changes.

1. Double-click the contact process (Call list or Mail list) for which you want to disable contact history logging.
2. Click the **Log** tab.
3. In the window for configuring logging of contact transactions, clear the **Log to contact history tables** and the **Log into other destinations** checkboxes.

Note: To change the **Log to contact history tables** option, the **OverrideLogToHistory** configuration setting must be set to true and you must have the appropriate permissions.

4. Optionally, click **More Options** to access the **Contact history logging options** and select **Create treatments only**. This option generates new treatments in the Treatments table but does not update the contact history.
5. Click **OK**.

When you run the contact process, no entries will be written to the contact history tables or to alternate logging destinations.

Note: This does not affect how eMessage and Interact load data into the Campaign history tables. Those products use their own ETL processes to extract, transform, and load data into the Campaign contact and response history tables.

Clearing contact history and response history

Clearing contact and response history permanently deletes history records from the system tables. This data is not recoverable.

The following procedure permanently deletes contact and response history. If later recovery might be required, back up the system table database prior to clearing any history.

Note: History is also permanently deleted when you delete a campaign. In this case, you are prompted to continue. If you continue, the entire campaign and all of its contents, including all contact and response history, is deleted.

You might want to delete contact or response history records in the following situations:

- If a production run was executed by mistake.
- If you decide to cancel a campaign after a production run.

You can choose to delete all associated contact and response history records, or delete only the response history records. Usually, it is best not to delete contact history for which responses have been recorded. However, you have the option of doing so.

Referential integrity across Campaign system tables is always preserved. All contact history tables are written to simultaneously, and any clean up of contact history is done simultaneously across all contact history tables. For example, treatment table entries cannot be deleted if there are entries in the base or detailed contact history tables referencing them.

To permanently delete contact and/or response history for a contact process, follow the steps below.

1. In a flowchart in Edit mode, double-click the contact process whose history you want to permanently delete.
2. In the process configuration dialog, click the **Log** tab. You see the window for configuring logging of contact transactions.
3. Click **Clear history**.
If no contact history entries exist, a message indicates that there are no entries to clear.
4. If contact history exists, specify which entries to delete:
 - All entries
 - All entries within a selected date range
 - Specific flowchart runs identified by the run date and time
5. Click **OK**.
If no response history records exist for the entries that you selected, you see a confirmation message.
6. If response history records exist for any of the entries that you selected, use the Clear History Options dialog to select an option:
 - **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 retained.
 - **Cancel:** No contact history or response history records are cleared.

Chapter 8. Campaign response tracking

Use the Response process in a flowchart to track the actions that occur after a campaign. When you run the Response process, data is recorded in the response history tables and is available for the Campaign performance reports.

Response tracking helps you to evaluate the effectiveness of your campaigns. You can determine whether actions taken by individuals are in response to offers that were given. You can evaluate responders and non-responders who were sent offers. You can also evaluate controls (individuals who were not sent offers) to see whether they performed the desired action despite not being contacted.

Campaign saves the response history and uses it in the Campaign performance reports, so you can easily determine:

- **Who responded:** The list of audience entities (such as individual customers or households) whose behavior matched the response types being tracked.
- **What they did, and when:** Campaign records the actions that were performed and the date and time of the actions. Examples are a click-through on a website or the purchase of a specific item. This information depends on the Response Types that are set up and/or additional data that is captured during response processing.
- **Which offer treatment they responded to:** Any Campaign-generated codes (campaign, offer, cell, or treatment code) and any offer attributes with non-null values returned by the respondent are matched for response tracking.
- **How the response is attributed:** Criteria include matching Campaign-generated codes or non-null values for offer attributes, whether responders were in the original targeted group or a control group, and whether the response was received before the expiration date.
- **Additional information:** The response history tables also record the following information:
 - Whether the response was direct (one or more Campaign-generated codes were returned) or inferred (no response codes were returned).
 - Whether the respondent was in a target cell or control cell
 - Whether the response was unique or a duplicate
 - Best, fractional, and multiple attribution scores
 - The response type (action) attributed to the response
 - Whether the response was received before or after the expiration date of the specific offer version. (This information depends on the following property: **Settings > Configuration > Campaign > partitions > partition[n] > server > flowchartConfig > AllowResponseNDaysAfterExpiration**. The default value is 90 days.)

Related tasks:

“Updating response history” on page 102

How to track responses to a campaign

To perform response tracking, create a flowchart that includes the Response process. The Response process takes input from a Select or an Extract process and typically uses an action table as the source data.

Using an action table as input to the Response process

An *action table* is an optional database table or file containing response data that is collected after offers are presented to customers. There is usually one action table per audience level.

An action table usually serves as the source data of the input cell for the Response process. An action table is not required for response processing, but is considered a best practice.

An action table includes data such as customer identification, response codes, and attributes of interest. Depending on how responses are tracked in your organization, the responses could be directly related to transactional data, such as purchases or contracts and subscriptions.

When you use an action table as input to a Response process, the actions or events in the table are evaluated to see whether they should be attributed as responses to contact or control treatments. Campaign reads from the action table, and if a match is found between the relevant attributes and/or response codes, Campaign populates the response history tables for response tracking.

The Campaign system tables include a sample action table for the Customer audience level, called `UA_ActionCustomer`. Administrators can customize the table as needed.

Important: Administrators must ensure that any action table that is used for response tracking is locked during response processing. Administrators must also clear rows after each Response process run to ensure that responses are not credited multiple times. For example, Campaign can be configured to run SQL after the Response process to purge the action table.

For important information about action tables, see the *Campaign Administrator's Guide*.

How the Response process works

You configure the Response process in a flowchart to evaluate and output the IDs that you consider to be responses to your offer. The evaluation is done by matching some combination of response codes or other standard or custom offer attributes from the action table.

The response processing logic uses response codes of interest and response attributes of interest to determine direct and inferred responses:

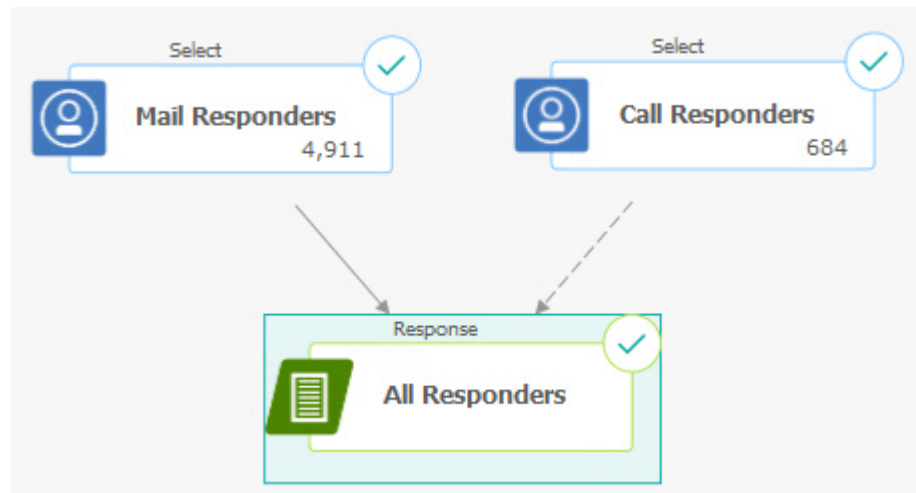
- Response codes of interest: Any Campaign-generated codes (campaign, offer, cell or treatment code) that are mapped in the Response process are considered to be "response codes of interest."
- Response attributes of interest: Any other offer attributes, whether standard or custom, that are mapped in the Response process are considered to be "response

attributes of interest." For example, you can use the "Relevant Products" field as an offer attribute to track inferred responses.

Those responses are written to the response history system table (UA_ResponseHistory, or its equivalent for each audience level) when you run the Response process. There is one response history system table for each audience level that you are tracking.

The response history data is then available for use and analysis by the Campaign performance reports.

The following example shows a simple flowchart that tracks responses to direct mail and telephone offers.



Related tasks:

"Updating response history" on page 102

Related reference:

"Performance reports for IBM Campaign" on page 220

Using multiple response tracking flowcharts

Many organizations choose to use multiple response tracking flowcharts, for various reasons.

It is possible to have a single response tracking flowchart for all of the campaigns in your corporation. If a single action table is used, your system administrator will typically set up session flowcharts to write data to 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.

The following sections describe why you might use multiple response tracking flowcharts.

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 response 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.

You want a response flowchart for each product or product group that was promoted

(Optional) You can create a separate response flowchart for each product or product group that was promoted through the offers. In this way, you can easily analyze response per product.

You want one response flowchart per campaign

(Optional) In this scenario, you have one or more flowcharts that generate output but only one flowchart per campaign that tracks responders. If the data is available on a per campaign basis, this is a convenient way to set up response processing.

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 Administrator'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.

Related tasks:

"Updating response history" on page 102

Related reference:

"Performance reports for IBM Campaign" on page 220

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.

Related tasks:

“Updating response history” on page 102

Related reference:

“Performance reports for IBM Campaign” on page 220

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 9. Stored objects

If there are campaign components that you use frequently, you can save them as stored objects. Reusing stored objects across flowcharts and campaigns saves time and ensures consistency.

The types of stored objects in IBM Campaign are:

- “Derived fields”
- “User variables” on page 184
- “Custom macros” on page 186
- “Templates” on page 191
- “Stored table catalogs” on page 192

Note: For related information, read about sessions and strategic segments, which can be reused across campaigns.

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.

Derived fields that are 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 so it is available for all processes and all flowcharts.

Note: Do not use a Campaign Generated Field (UCGF) in a Mail List derived field unless the generated field is constant. Campaign assumes constant values for generated fields and does not re-calculate them for records in the result set. Therefore, you may see blank or incorrect results from derived fields that call a generated field that changes value. Instead of using a derived field, output the necessary generated field directly into your Mail List fulfillment table or file. Then read that table or file back into Campaign as a Select and use a Snapshot process to manipulate a new fulfillment table or file using data from the old one.

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 Chapter 12, “Special characters in IBM Campaign object names,” on page 225

Creating derived fields

You can create fields from one or more existing fields, even across different data sources.

1. From the configuration window of a process that supports derived fields, click **Derived fields**.

The Create derived field dialog opens.

2. All derived fields that were 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. 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.

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 be able to use the derived field 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.

Creating a derived field from an existing one

You can create a new derived field by basing it on an existing derived field, then changing the expression.

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.

1. From the configuration window of a process that supports derived fields, click **Derived fields**.

The Create Derived Field dialog opens.

2. From the **Field name** list, select an existing derived field.

The expression for the selected field appears in the **Expression** area.

3. Change the name of the existing derived field to the name that you want to use 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.
5. Click **OK**.

Creating a derived field based on a macro

You can create a derived field by basing it on a macro.

1. From the configuration dialog of a process that supports derived fields, click **Derived Fields**.
2. In the Create Derived Field dialog, click **Formula Helper**.
3. Select a macro from the list by double-clicking it.
The macro's declaration and description display, and the macro is inserted in the **Formula Helper**.
4. Select the appropriate fields from the **Fields available for expression** list to complete your expression.
5. Click **OK**.

Making derived fields 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 because 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 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.

Storing derived fields

Store a derived field if you want to be able to use it in another process in the same or a different flowchart.


Derived fields are variables that do not exist in a data source; they are created from one or more existing fields, even across different data sources. A derived field is available only within the process where it was created. It is not available in any other process (except an immediately following process if **Make persistent** is enabled).

If you want to store a derived field definition so that you can use it in other processes and flowcharts, follow the procedure below.

1. From the configuration window of a process that supports derived fields, click **Derived fields** and create the derived field that you want to store. For example, define an expression such as $(\text{Balance} / \text{Credit_limit}) * 100$.
2. In the **Create derived field** dialog, open the **Stored derived fields** list and select **Save current expression to stored list**.
3. Use the Save derived field expression dialog to specify whether to save the expression in a folder. You can assign a security policy and optionally change the expression and assign it a different name. The expression that you save will be stored in a list that you can access when you configure other processes and flowcharts.
4. Click **Save**.

Using and managing stored derived fields

A derived field that was stored can be used in another flowchart. A derived field consists of an expression, such as `AccountType='gold'`. 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.

1. To use a saved expression in a flowchart process:
 - a. Open the configuration dialog of a process that supports derived fields, and click **Derived fields**.
 - b. Open the **Stored derived fields** menu and select **Retrieve expression from stored list**.
 - c. Select an expression from the list and click **Use expression**.
2. To create, edit, move, or delete stored expressions:
 - a. Open the **Options** menu  and select **Stored derived fields**.
 - b. Use the Stored derived field expressions dialog to create or edit expressions, delete expressions, or move an expression to a different folder.

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 they have global scope within a flowchart run.
- 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** 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.

- The length of the User Variables of type `TEXT(UserVar)` supports up to 512 characters..
- 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.
- You cannot rename a user variable in the following cases:
 - You created a derived field using the user variable in a flowchart process and saved or ran the flowchart or process.
 - You created the user variable in a flowchart process and published the flowchart to Distributed Marketing.

User variable behavior with Flowchart Templates:

Copy Template:

If a flowchart template is copied and pasted then the User Variables are also copied along with template.

If specific process boxes from the template are selected, then only the User Variables used in those process boxes will get copied from the flowchart template.

If all process boxes from the template are selected, then all the User Variables used in those process boxes will get copied from the flowchart template.

If a flowchart contains user variable with the same name as a copied variable, it (UserVariable) will be overwritten by template paste operation. In this case, if the data type of the UserVariable copied from the template and existing user variable are different, then any process boxes using this user variable reference from the existing flowchart, get unconfigured.

Paste Template:

Only the user variables from copied process boxes are pasted into their respective process boxes and into the global variables section. All existing user variables remain unchanged.

If a flowchart contains user variable with the same name as a copied variable, it (UserVariable) will be overwritten by template paste operation. In this case, if the data type of the UserVariable copied from the template and existing user variable are different, then any process boxes using this user variable reference from the existing flowchart, get unconfigured.

Creating user variables

You can define variables for use in the processes that you add to a flowchart.

1. Open a flowchart in **Edit** mode.

2. Click **Options**  and select **User variables**.

The User variables dialog opens.

3. In the **Variable name** column, enter a name for the new user variable: Click the **<Click here to add new item>** hotspot.

4. In the **Data type** column, select a data type from the list. If you do not select a data type, the application selects **None** when you click **OK**.
The **None** data type can produce unpredictable results, so it is best to specify the correct data type.
5. In the **Initial value** column, enter a starting value. You can also profile fields for available values by clicking the ellipsis button (...) that becomes available when you click inside the column.
6. 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.
7. Repeat these steps for each user variable that you want to create.
8. Click **OK**.
The application stores the new user variables. You can access them later when you configure processes.

After a flowchart runs, the **Current value** of each user variable displays 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 has no effect on the value of the user variable during a flowchart, branch, or process run.

Custom macros

A custom macro is a query that you create using an IBM macro expression, raw SQL, or raw SQL that includes a value. Custom macros support the use of variables.

Creating custom macros

Macros that you create are available when configuring processes in a flowchart and defining derived fields.

Campaign supports the following types of custom macros, which in turn support an unlimited number of variables:

- Custom macros that use an IBM expression
- Custom macros that use raw SQL
- Custom macros that use raw SQL and include a specified value

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.

Important: Non-technical users are able to use custom macros; therefore, 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. This approach can help reduce the possibility that someone might use a custom macro incorrectly and retrieve data that they were not expecting.

1. Open a flowchart in **Edit** mode.

2. Open the **Options**  menu and select **Custom macros**.

3. In the Custom macros dialog, click **New item**.

4. In the **Save under** list, select the folder where you want to save the macro. If no folders exist, use the default, **None**.
5. In the **Name** field, enter a name and declaration for the macro so that it can be referenced.

Use the following syntax: `MacroName(var1,var2,...)`

For example: `GenGroupBy(id,val1,table,val2)`

The `MacroName` must be unique and alphanumeric. It can include underscores (`_`) but not spaces.

Note: If a custom macro has the same name as a built-in macro, the custom macro takes precedence. To avoid confusion, do not name custom macros with operator names or names that are the same as the built-in macros. The exception would be if you specifically want the new custom macro to always be used instead of the built-in macro.

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 in parentheses.

6. From the **Security policy** list, select a security policy for the new custom macro.
7. Use the **Note** field to explain what the custom macro is designed to do and what each variable represents. Be sure to describe the macro carefully, so users understand how it works when they encounter it in lists.
8. From the **Expression type** list, select the type of custom macro that you are creating:
 - **IBM macro expression:** For more information, see the *IBM Macros User's Guide*.
 - **Raw SQL selecting ID list:** If you select this option, you must select a **Database**.
 - **Raw SQL selecting ID + value:** If you select this option, you must select a **Database** and a **Value type**. Be sure to select the correct value type. Otherwise, when you later attempt to profile this query, a "Mismatched Type" error results. If you select **Text** as the value type, fill in the **Width (# bytes)** field. You can obtain this 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.
9. Click in the **Expression** field to open the Specify selection criteria dialog.
10. Create your query expression. You can use as many variables as you like. Variable syntax is alphanumeric, and the variable must be enclosed in angle brackets (`< >`). Operands (values and strings) and operators might be variables.

Important: Do not use flowchart user variables in custom macro definitions because custom macros are global but flowchart user variables are not global. The following example shows a custom macro definition.

Custom macros

Save under: None

Items list: GenGroupBy(id,val1,table,val2)

Name: GenGroupBy(id,val1,table,val2)

Security policy: Global Policy

Note: id = customer ID, val1 = field to perform sum on
val2 = field to group by, table= some table

Expression: select <id>, sum(<val1>) from <table> group by <id>,<val2> Edit...

Expression type: Raw SQL selecting ID + va...

Database: DEMO

Value type: Numeric

Width (# bytes):

Save Cancel Help

11. Click **Save**.

The custom macro is saved in the Items list.

12. Close the **Custom macros** dialog.

The macro can now be accessed by name for use in flowchart processes and in definitions for derived fields. If you need to edit the macro, select **Custom macros** from the **Options** menu.

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 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.

Organizing and editing custom macros

You can create a folder structure to organize your custom macros. You can move custom macros from one folder to another. You can change the macro name, description, and expression.

1. Open a flowchart in **Edit** mode.

2. Click **Options**  and select **Custom macros**.

The Custom macros dialog opens.

3. Select a macro in the **Items list**.

The **Info** area shows detailed information for the selected macro.

4. Click **Edit/move** to edit or move the selected macro.

The Edit/move custom macros dialog opens.

5. 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.
6. Click **Save** to save your changes.
7. Click **Close**.

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.


Copying a template to the template library

You can add templates to the template library by copying them.

1. Open a flowchart in **Edit** mode.
2. Select the processes that you want to save as a template. Use **Ctrl+click** to select multiple processes. Use **Ctrl+A** to select all processes in the flowchart.
3. Right-click any selected process and select **Copy to template library**.
The Save Template window appears.
4. 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.
5. (Optional) Enter a description in the **Note** field.
6. (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 any number of folders (including nesting folders in a hierarchy) to organize and store your templates.
7. Click **Save**.

Pasting a template from the template library

You can paste a template from the template library into a flowchart you are building.

1. Open a flowchart in Edit mode.
2. Click **Options**  and select **Stored templates**.
The Stored templates dialog opens.
3. Select a template from the **Items** list.
4. Click **Paste template**.


The selected template is pasted onto the flowchart workspace.

Note: The inserted processes can 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.

Organizing and editing templates

You can create new folders, edit, move, and remove stored templates.

1. Open a flowchart in **Edit** mode.
2. Click **Options**  and select **Stored templates**.
3. From the **Items list**, select the template that you want to edit or move.
4. Click **Edit/move**.
The Edit/move stored templates dialog opens.
5. In the **Save under** field, specify a new location for the template.
6. You can also change the name of the stored template, or edit the note that is associated with it.
7. Click **Save**.
8. Click **Close**.

Stored table catalogs

A table catalog is a collection of mapped user tables.


Table catalogs store metadata information about user table mappings for re-use across flowcharts. By default, table catalogs are stored in a binary format with the extension `.cat`.

For information on creating and working with table catalogs, see the *Campaign Administrator's Guide*.

Accessing stored table catalogs


You access stored table catalogs from within a flowchart. A table catalog is a collection of mapped user tables.

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*.

1. Open a flowchart in **Edit** mode.
2. Click **Options**  and select **Stored table catalogs**. The Stored table catalogs window opens.

Editing table catalogs

Within a flowchart, you can edit the name or description of a table catalog, or move the table catalog to a different location.

1. Open a flowchart in **Edit** mode.
2. Click **Options**  and select **Stored table catalogs**.
The Stored table catalogs dialog opens.
3. Select a 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.
4. Click **Edit/move**.

5. 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.
6. Click **Save**.
7. Click **Close**.

Deleting table catalogs

You can permanently remove a table catalog so that it is no longer available to any flowcharts in any campaigns.

Removing a table catalog deletes the .cat file, which points to database tables and possibly flat files. Removing a table catalog does not affect the underlying tables in the database. However, it does permanently remove the catalog file.

Important: Only use the Campaign interface to remove table catalogs or perform table operations. If you remove tables or change table catalogs directly in the file system, Campaign cannot guarantee data integrity.

1. Open a flowchart in **Edit** mode.

2. Open the **Options** menu  and select **Stored table catalogs**.

The Stored table catalogs dialog opens.

3. Select a 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.

4. Click **Remove**.

You see a confirmation message asking you to confirm removal of the selected table catalog.

5. Click **OK**.

6. Click **Close**.

The catalog is removed from the **Items list** and is no longer available to any flowcharts in any campaigns.

Chapter 10. Session flowcharts

Sessions provide a way to create persistent, global "data artifacts" for use in all campaigns. Each session contains one or more flowcharts. Running a session flowchart makes the outcome of the session (the data artifacts) available globally to all campaigns.

Session flowcharts are not intended to be used in marketing campaigns. They do not have associated offers or start and end dates.

To work with sessions, use the Sessions menu. Advanced users can create session flowcharts to perform computations outside of a campaign and to perform ETL tasks that are not associated with any specific marketing initiative or program.

Often, a session flowchart starts with a Schedule process, to ensure that the data is refreshed on a regular basis.

When you run a session flowchart, the data artifacts that are created are then available for use in any number of campaign flowcharts.

Some typical examples follow:

- Use the Create Seg process in a session flowchart to create *strategic segments*, which are segments that can be used in multiple campaigns.
For example, start with a Schedule process, then a Select process, then a CreateSeg process to generate strategic segments for opt-ins, opt-outs, or global suppressions. The Schedule process periodically updates the segment, which is written out as a static member list. The resulting segment is then available for selection in campaign flowcharts.
- Perform data preparation of large complex tables. A session flowchart can snapshot the data into smaller data chunks for reuse in Campaign.
- Set up periodic modeling tasks to score data or create derived fields for ETL/rollups. For example, if a session flowchart creates and writes out model scores that are then mapped in a table catalog/mapping, those model scores can be used in campaign flowcharts for selection and targeting.

Note: When you design flowcharts, be careful not to create cyclical dependencies among processes. For example, if a Select process provides input to a CreateSeg process, do not use a segment created by that CreateSeg process as input to the Select process. This situation will result in an error when you try to run the process.

Creating sessions

Create a session if you need to create persistent, global "data artifacts" that can be used in all campaigns. Then add a flowchart to the session and run it, to create the persistent objects.

Each session contains one or more flowcharts. Run a session flowchart to make the outcome of the session (the data artifacts) available globally to all campaigns. You can create, view, edit, move, and delete sessions, and you can organize sessions in folders. To work with sessions, you must have the appropriate permissions. You do

not copy sessions, but rather the flowcharts within sessions. You do not run a session; you run each of its flowcharts individually.

1. Select **Campaign > Sessions**.

The All sessions page displays the folder structure that is used to organize your company's sessions.

2. Locate the folder where you want to add a session, and click **Add session**.

The New session page appears.

3. Enter a Name, Security policy, and Description.


Note: Session names have character restrictions. For details, see Chapter 12, "Special characters in IBM Campaign object names," on page 225.

4. Click **Save changes**.

Note: You can also click **Save and add a flowchart** to immediately start creating a session flowchart.



Adding flowcharts to sessions

A session can contain one or more flowcharts. You create a session flowchart the same way that you create a campaign flowchart, except that you start by opening a session.

1. Select **Campaign > Sessions**.
2. Click the name of a session.
3. Click Add a Flowchart .
4. Create the flowchart as you normally would.

Editing session flowcharts

To edit a session flowchart, use the Sessions menu.



1. Select **Campaign > Sessions**.
The All Sessions page opens.
2. Click **Edit a tab**  next to the name of the session whose flowcharts you want to edit.
3. From the menu, click the name of the flowchart that you want to edit.
4. Make your changes to the flowchart:
 - Use the palette and workspace to add and change process configurations.
 - To change the flowchart name or description, click the **Properties**  icon in the flowchart window toolbar.
5. Click **Save and continue** or click **Save and exit** to close the flowchart window.

Organizing sessions in folders

Choose **Campaign > Sessions**, then use the All sessions page to create folders for sessions and move sessions from one folder to another.

You can complete the following operations after you select **Campaign > Sessions**.

Table 11. Organizing sessions in folders

Task	Description
Add a folder	<p>Click New folder to add a folder at the top level. To add a subfolder, select an existing folder then click New folder.</p> <p>Enter a Name, Security policy, and Description.</p> <p>Note: Folder names have character restrictions. For details, see Chapter 12, “Special characters in IBM Campaign object names,” on page 225.</p>
Edit a folder name or description	<p>Click a folder name, click  Edit, then change the name.</p>
Move a folder and all of its contents	<p>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. Be sure that none of the flowcharts in the session are open for editing when you move the session.</p> <ol style="list-style-type: none">1. Select the check box next to the folder or folders that you want to move.2. Click Move.3. Select a destination folder and click Accept this location.
Delete a folder	<p>You can delete an empty session folder and all of its empty subfolders. (If you have permission to delete a folder, you can also delete any one of its subfolders.)</p> <ol style="list-style-type: none">1. If necessary, move or delete the contents of the session folder.2. Open the folder that contains the subfolder that you want to delete.3. Check the box next to the folder or folders that you want to delete.4. Click  Delete, then confirm the deletion.

Moving sessions


You can move sessions from folder to folder for organizational purposes.

Note: If someone is editing a flowchart in the session that you plan to move, the 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 opens.
2. Open the folder that contains the session you want to move.
3. Select the check box next to the session that you want to move. You can select multiple sessions.
4. Click **Move**.
The Move items to dialog opens.
5. Select a destination folder and click **Accept this location**.


Viewing sessions

Open a session in Read-Only mode to access its associated flowcharts.

1. Select **Campaign > Sessions**.
2. When All Sessions page appears, use one of the following methods:
 - Click a session name to display its Summary tab and also any flowchart tabs.
 - Click **View a tab**  next to the name of the session that you want to view, then select Summary or a flowchart from the menu.

Editing sessions

You can change the name, security policy, or description of a session.


1. Select **Campaign > Sessions**.
2. Click the name of a session.
3. On the session Summary tab, click  **Edit**.
4. Change the session name, security policy, or description.

Note: Session names have specific character restrictions. For details, see Chapter 12, “Special characters in IBM Campaign object names,” on page 225.

5. Click **Save**.

Deleting sessions

When you delete a session, the session and all of its flowchart files are deleted. If there are portions of your session that you want to retain for reuse, save them as stored objects before you delete the session.

1. Select **Campaign > Sessions**.
2. Open the folder that contains the session that you want to delete.
3. Select the checkbox next to one or more sessions that you want to delete.
4. Click  **Delete**.
5. Click **OK** to confirm.

About strategic segments

A strategic segment is a globally persistent list of IDs, which is available for use in multiple campaigns. A strategic segment is a static list of IDs until the flowchart that created it originally is re-run.

Strategic segments are created using the Create Seg process in a session flowchart. A strategic segment is no different from segments created by a Segment process in a flowchart except that a strategic segment is available globally. Availability depends on the security policy that is applied to the folder in which the strategic segment is stored.

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 any number of strategic segments with a campaign.

Strategic segments can be used for global suppression. A global suppression segment defines the list of IDs that are automatically excluded from cells in flowcharts for a particular audience level.

Strategic segments are also used in cubes. A cube can be created from any list of IDs, but cubes that are based on strategic segments are global and can be analyzed by the various segment reports.

Strategic segments can optionally specify one or more IBM data sources in which that strategic segment will be cached (stored in the database so that uploading the strategic segment IDs is not required for each flowchart that uses the segment). This can provide significant performance improvements. Cached strategic segments are stored in temporary tables, which are assigned the `SegmentTempTablePrefix` configuration parameter.

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

Related tasks:

“Creating segments for global use in multiple campaigns” on page 91

Prerequisites for creating strategic segments

Before you create a strategic segment, you must meet the following prerequisites.

- The `saveRunResults` configuration property (Campaign|partitions|partition[n]|server|flowchartRun) must be set to TRUE.
- You must have the appropriate permissions to work with strategic segments.
- 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.”

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`, `SegmentTablePostExecuteSQL`, 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*.

Creating strategic segments

A strategic segment is one that is available for use in multiple campaigns. Create strategic segments in a session flowchart, run the flowchart in production mode, and save the flowchart. The resulting segments can then be used in marketing campaigns.

You must meet the prerequisites described in “Prerequisites for creating strategic segments” on page 199. For example, you must have the appropriate permissions and `Campaign|partitions|partition[n]|server|flowchartRun | saveRunResults` must be set to `TRUE`.

1. Create a session or open an existing session for editing.
2. Create a flowchart whose final output process is the `CreateSeg` process.
For instructions, see “Creating segments for global use in multiple campaigns” on page 91.
3. Run the flowchart in production mode and click **Save and exit**. Running the process in test mode does not create a strategic segment or update an existing one. You must run the process in production mode in a session flowchart.

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.

Viewing strategic segments

You can view information about strategic segments that were created with the `Create Seg` process in a session flowchart. The session flowchart must run in production mode in order to generate the segments, which are then globally available.

Use one of the following methods:

- Go to the Summary page of any campaign that uses strategic segments, then click the segment name in the **Relevant Segments** list.
- Select **Campaign > Segments**, then click the name of the segment that you want to view.

The Summary page provides information about the segment.

Element	Description
Description	The description of the segment provided in the Create Seg process.
Source flowchart	The name of the session 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 the segment last ran.
Used in the following campaign(s)	A list of the campaigns that use the segment, with links to those campaigns.

Editing a strategic segment's Summary details

You can change the name or description of a strategic segment.

1. Select **Campaign > Segments**.
2. Click the name of the segment whose summary you want to edit.
The segment opens to its **Summary** tab.
3. Change the name or description of the segment.

Note: Segment names have specific character restrictions. For details, see Chapter 12, “Special characters in IBM Campaign object names,” on page 225.

4. Click **Save Changes**.

Editing a strategic segment's source flowchart

You can make changes to the session flowchart where a strategic segment is defined.

1. Select **Campaign > 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. Click **Save** or **Save and exit**.

The strategic segment is not updated until you re-run the session flowchart in production mode. If you want to update the segment, run the session flowchart in production mode, then save it. The segment will be saved only if the configuration property Campaign | partitions | partition[n] | server | flowchartRun | saveRunResults is set to TRUE.

Note: When a CreateSeg process is re-run in production mode, the existing strategic segment created by that process is deleted. Any users of the existing strategic segment (including global suppressions) might see an "invalid segment" error if the new CreateSeg process run fails to complete successfully, or while it is still running.

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.

Adding a segment folder

You can add, move, and delete folders to organize strategic segments. You can also edit the folder name and description.

1. Select **Campaign > Segments**.
The All segments page opens.
2. Click the folder where you want to add a subfolder.
3. Click **New folder**.
4. Enter a name, security policy, and description for the folder.

Note: Folder names have specific character restrictions. For details, see Chapter 12, "Special characters in IBM Campaign object names," on page 225.

5. Click **Save**.

Editing a segment folder name and description

You can change the name or description of a folder.

1. Select **Campaign > Segments**.
The All segments page appears.
2. Click the folder that you want to rename.
3. Click **Rename folder**.
4. Edit the name or description of the folder.

Note: Folder names have specific character restrictions. For details, see Chapter 12, "Special characters in IBM Campaign object names," on page 225.

5. Click **Save**.

Moving a segment folder

You can organize strategic segments by creating folders for them, and then moving the folders into a hierarchical structure.

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 that none of the source flowcharts are open for editing when you move the subfolder.

1. Select **Campaign > Segments**.

The All segments page opens.

2. Locate the folder that you want to move, and select the check box next to the folder. You can select multiple folders to move to the same location at one time.
3. Click **Move**.
4. Use the Move items to dialog to select a destination folder, and click **Accept this location**.

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

Deleting a segment folder

You must move or delete the contents of a folder before you can delete it. If you have the permissions that are required to delete a folder, you can also delete any of the subfolders in that folder.

1. Select **Campaign > Segments**.
2. Locate the folder that you want to delete and select the check box next to the folder. You can select multiple folders to delete at one time.
3. Click **Delete**.
4. Click **OK** to confirm.

The folder and all of its empty subfolders are deleted.

Moving 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**.
2. Open the folder that contains the segment that you want to move.
3. Select the check box for the segment that you want to move. You can select multiple segments to move to the same location at one time.
4. Click **Move**.
window opens.
5. Use the The Move items to dialog to select a destination folder, and click **Accept this location**.

The segment is moved into the destination folder.

Deleting strategic segments

Use the following procedure to delete a strategic segment.

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 are re-created if the Create Seg processes that generated them originally are re-run in production mode.
- 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.

Use the following procedure to delete a strategic segment directly from the All Segments page.

1. Select **Campaign > Segments**.
 2. Open the folder that contains the segment that you want to delete.
 3. Select the check box next to the segment that you want to delete. You can select multiple segments to delete at one time.
 4. Click **Delete**.
 5. Click **OK** to confirm.
- 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 that contains the segment was open for editing when you deleted the segment, it also is re-created.

About global suppressions and global suppression segments

Use global suppression to exclude a list of IDs in a single audience level from all cells in all Campaign flowcharts.

To define global suppression, an administrator creates a list of unique IDs as a strategic segment in a session flowchart and runs the session flowchart. Then campaign designers can specify that segment as a global suppression segment for a specific audience level in a campaign flowchart. Only one global suppression segment can be configured for each audience level.

If a global suppression segment is configured for an audience level, all top-level Select, Extract, or Audience processes associated with that audience level automatically exclude the IDs from their output results, unless global suppression is disabled for a specific flowchart. By default, all flowcharts (except session flowcharts) have global suppression enabled.

Note: Specifying and managing global suppression segments requires the "Manage Global Suppressions" permission and is usually performed by a 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 for a flowchart

Global suppression is an administrator-applied feature that excludes a list of IDs in a single audience level from all cells in all Campaign flowcharts. By default, flowcharts have global suppression enabled. If your permissions allow, you can disable this feature for individual flowcharts.

You can disable global suppressions for individual flowcharts if you have the appropriate permissions. If you do not have the appropriate permissions, you cannot change the setting and you 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.

1. Open a flowchart for editing.
2. Open the **Admin** menu  and select **Advanced settings**.
3. In the Advanced settings dialog, select **Disable global suppressions for this flowchart**.
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.

You can have 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.)

Related tasks:

“Creating a multi-dimensional cube of attributes” on page 89

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.

Mapping a hierarchical dimension to a Campaign dimension

To map dimensions, you create a dimension in Campaign and then specify the file or table that contains the hierarchical dimension. The hierarchical dimension must exist in your data mart before you can complete this task.

Note: Since in almost all cases dimensions are used to create cubes, you may want to create dimensions from a flowchart in the **Sessions** area of the application.

1. Open the Dimension hierarchies dialog in one of these ways:


- In a flowchart in **Edit** mode, open the **Admin** menu  and select **Dimension hierarchies**.
 - On the Administrative settings page, select **Manage dimension hierarchies**.
2. In the Dimension hierarchies dialog, click **New dimension**.
The Edit dimension dialog opens.
 3. Enter the following information about the dimension that you are creating:
 - Dimension name.
 - Description.
 - Number of levels in the dimension. (In most cases, this number corresponds 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 selected (it is selected by default). Otherwise, when you use this dimension to create a cube an error results, since the values in elements cannot overlap in a cube.
 4. Click **Map table**.
The Edit table definition dialog opens.
 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 finish mapping the table for the dimension, the Edit dimension window opens with the dimension information for the new dimension.
6. Click **OK**.
The Dimensions hierarchies window opens 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 re-created, click **Save** in the Dimension hierarchies dialog.

Updating 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 consist of dimensions that are based on strategic segments. Therefore, you must update dimensions whenever strategic segments are updated.

1. Open the Dimension hierarchies window in one of these ways:
 - In a flowchart in **Edit** mode, open the **Admin** menu  and select **Dimension hierarchies**.
 - On the Administrative settings page, select **Manage dimension hierarchies**.
2. In the Dimension hierarchies dialog, click **Update all**.
Alternatively, to update an individual dimension, select the dimension and then click **Update**. You must load the dimension hierarchy in order to use it.

Loading a stored dimension hierarchy

After you define a dimension hierarchy, you make it accessible in Campaign by loading it.

1. Open the Dimension hierarchies dialog in one of these ways:

- In a flowchart in **Edit** mode, open the **Admin** menu  and select **Dimension hierarchies**.
- On the Administrative settings page, select **Manage dimension hierarchies**.
The Dimension hierarchies dialog opens.

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, (txn_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 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.

Related tasks:


“Creating a multi-dimensional cube of attributes” on page 89

Chapter 11. IBM Campaign reports overview

IBM Campaign provides reports to aid in campaign and offer management.

Some reports are intended to be used during the flowchart design phase. Other reports help you to analyze contact responses and campaign effectiveness after a campaign is deployed.

IBM Campaign reports provide several different types of information:

- **Object-specific reports** analyze a specific campaign, offer, cell, or segment. To access these reports, click the **Analysis** tab for a campaign or offer.
- **System-wide reports** provide analysis across multiple campaigns, offers, cells, or segments. To access these reports, choose **Analytics > Campaign analytics**.
- **Cell reports** provide information about customers or prospects who are being targeted or used as controls. Cell reports are useful when creating campaign flowcharts. To access these reports, click the **Reports** icon  while editing a flowchart.

The reports that are available depend on several factors:


- Your permissions, which are set by your IBM Campaign administrator.
- Some reports are available only if you installed the IBM Campaign Reports Pack and integrated IBM Campaign with Cognos®. For information, see the *IBM Marketing Software Reports Installation and Configuration Guide*. Also see the *IBM Campaign Report Specifications*, which are provided as a compressed file with the reports pack.
- Cognos report packs for eMessage, Interact, and Distributed Marketing are also available, if you have licenses for those additional products. You can access the reports from the **Analytics** page for each product or from the campaign or offer **Analysis** tab. For more information, see the documentation for those products.

Using flowchart cell reports during flowchart development

As you create a Campaign flowchart, you can use flowchart cell reports to analyze the accuracy of each process. Flowchart cell reports provide information about which IDs are selected and how each downstream process affects the list of selections.



To access cell reports, you must have permission to edit or review flowcharts and view or export cell reports. See the *IBM Campaign Administrator's Guide* for information about cell report permissions for the system-defined Administrative Role.

IBM Campaign provides flowchart cell reports for use during flowchart development. Some reports examine each cell, or list of identifiers, that a data manipulation process (Select, Merge, Segment, Sample, Audience, or Extract) generates as output. Other reports show the flow of data throughout the flowchart, from one process to the next. By analyzing cell data, you can refine your selections and identify possible errors. You can also confirm that each process is producing the output that you expect. For example, the Cell Content report shows the field values, such as names, phone numbers, and email addresses, for each ID in the cell.

1. Open a flowchart in **Edit** mode.
2. Click **Reports**  in the flowchart toolbar.
3. Select a report from the list:
 - “Cell List report: Displaying information about all cells in a flowchart”
 - “Cell Variable Profile report: Profiling one characteristic of a cell”
 - “Cell Variable Crosstab report: Profiling two characteristics of a cell simultaneously” on page 213
 - “Cell Content report: Displaying the contents of cells” on page 214
 - “Cell Waterfall report: Analyzing cell waterfall in downstream processes” on page 214

Cell List report: Displaying information about all cells in a flowchart

Use the **Cell List** report to obtain information about all of the cells that are in the current flowchart. The report provides information about any processes that were run.



1. Open a flowchart in **Edit** mode.
2. Click **Reports**  in the toolbar.
The Cell specific reports window opens. Each cell in the flowchart corresponds to a row in the report.
The Cell List report is selected by default in the **Report to view** list. This report shows data from the last run of the flowchart. The Status column indicates the type of flowchart run, such as a test or production run.
3. To sort the display, click a column header in the report.
4. To change the display, click **Options**  in the dialog toolbar and select one of the following options:
 - **Tree view:** View the flowchart cells in a folder hierarchy. The levels 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: Profiling one characteristic of a cell

Use the **Cell Variable Profile** report to display data that is associated with one variable of a specified cell. For example, you can select the Gold.out cell and specify Age as the variable to see the age range of all clients with gold credit cards.

The Cell Variable Profile report displays demographic information that can help you to identify potential targets for your campaign.



1. Open a flowchart in **Edit** mode.

2. Click **Reports** .
3. Select **Cell Variable Profile** from the **Report to view** list.
4. Select the cell that you want to profile from the **Cell to profile** list.
5. Select a field from the **Field** list.
6. (Optional) To modify the display, click **Options** , then change the following options:
 - **Number of bins:** IBM Campaign groups field values to create equal-sized segments, or bins. The field values along the horizontal axis are organized into bins. For example, if you specify four bins for Age, values might be grouped into bins of 20-29 and 30-39, 40-49, and 50-59. If the number that you specify is less than the number of different field values, some fields are joined in one bin. The default maximum number of bins is 25.
 - **Profile by meta type:** This option ensures that field values that represent dates, money, telephone numbers, and other numeric data are correctly sorted and binned, rather than sorting on ASCII text. For example, when you profile by meta type, dates are sorted as dates, not as numeric values.
 - **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 option is the default. Right-click 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. The two cells are displayed side by side in graphical format.

Cell Variable Crosstab report: Profiling two characteristics of a cell simultaneously

Use the **Cell Variable Crosstab** report to profile data from two fields simultaneously for the specified cell. For example, you can select Age and Amount for the Gold.out cell to see the relative amount of purchases by age for clients with gold credit cards.

Each field that you select represents one axis of the grid. For example, you could select Age for the X axis and Amount for the Y axis. The report divides the field values into a number of bins along each axis. The size of the box at each intersection represents the relative number of customer IDs that have both attributes. For example, using Age and Amount, you can visually identify which age groups spent the most money.

1. Open a flowchart in **Edit** mode.
2. Configure and run the process to generate the cell that you want to profile.
3. Click **Reports**  in the toolbar.
4. Select **Cell Variable Crosstab** from the **Report to view** list.
5. Select a cell from the **Cell** list.
6. Select fields (variables) to profile from the **Field 1** and **Field 2** lists.
7. (Optional) To modify the display, click **Options** , then change the following options:
 - **Number of bins:** IBM Campaign groups field values along each axis to create equal-sized segments, or bins. For example, if you specify four bins for



Age, values might be grouped into bins of 20-29 and 30-39, 40-49, and 50-59. If the number that you specify is less than the number of different field values, some fields are joined in one bin. The default number of bins is 10.

- **Profile by meta type:** This option is enabled by default. This option ensures that field values that represent dates, money, telephone numbers, and other numeric data are correctly sorted and binned, rather than sorting on ASCII text. For example, when you profile by meta type, dates are sorted as dates, not as numeric values.
- **View table:** View the report in a table format.
- **View 2-D plot:** View the report as a 2-D plot graph (the default). Right click the report to access more display options.
- **View 3-D plot:** View the report as a 3-D plot graph. Right click the report to access more display options.
- **Cell 1 display:** Specify how the cell information is displayed on the X-axis. For certain numeric fields, you can select fields to operate on from the **Value field** list.
- **Value field** (For both Cell 1 display and Cell 2 display): Add a variable to the existing variable that is being profiled. This second variable will appear as a box within the box that represents the first variable.

Cell Content report: Displaying the contents of cells

Use the **Cell Content** report to display details of the records in a cell. Using the report options, you can display actual field values, such as the email addresses, phone numbers, and other demographic data for each customer in the cell.

This report can display values from any table sources defined at the current audience level. This report is useful for verifying the results of runs and to confirm that you are selecting the intended set of contacts.

1. Open a flowchart in **Edit** mode.
2. Click **Reports**  in the toolbar.
3. Select **Cell Content** from the **Report to view** list.
4. Select a cell from the **Cell to view** menu.
5. (Optional) To modify the display, click **Options** , then specify 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 in the Available Fields area and add 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 is limited to 10000.

Cell Waterfall report: Analyzing cell waterfall in downstream processes

Use the **Cell Waterfall** report to see how many individuals are removed with each downstream process in your flowchart. The report provides information about the output of each data manipulation process, so you can see how each subsequent

process affects your selections. You can then refine target counts based on viewing the falloff that is incurred by each successive criteria.

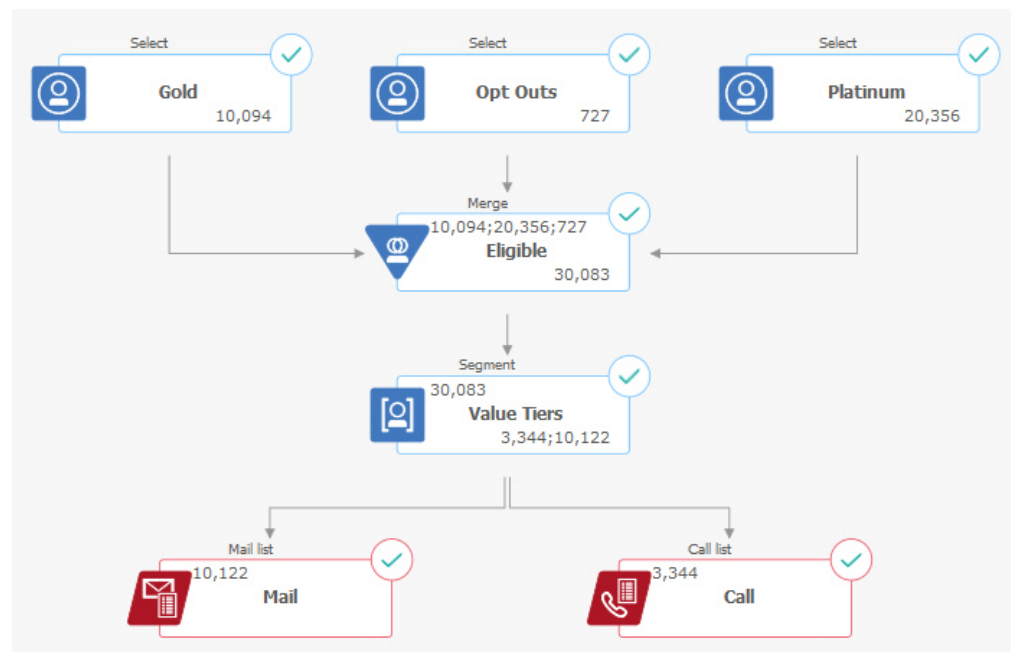
By analyzing the falloff of audience members as cells are processed, you can refine your selections and identify possible errors. You can also confirm that each process is producing the output that you expect. For example, you can see how many IDs are initially selected, then see what happens when you use a Merge process on those results. In this way, you can see the falloff that is incurred by each successive criteria. If your flowchart is complex and contains multiple processing paths, you can select which path you want to analyze.

1. Open a flowchart in **Edit** mode.
2. Click **Reports**  in the flowchart window toolbar.
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 indicate which path in the flowchart that you want to analyze.

Cell Waterfall report example

This example shows how you can use a Cell Waterfall report to identify processes that affect output volume. The report provides details about the output by percentage and quantity.

This example analyzes the output from a Select process named "Gold" in the campaign flowchart shown below.



The Cell Waterfall report for this flowchart is shown in the following figure. The Gold cell is selected in the **Cell** list at the top of the report. Therefore, the report analyzes the output from the "Gold" Select process. 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	#IDs removed	%Remain	Seg%	#IDs (removal query)	Removal query	Notes
Gold [Gold]	10094	0	100.00				
Eligible [Eligible]	30083	Added 19989	298.03	0.00	727	All	
Value Tiers	Unknown	Unknown	Unknown				
Segment1	3344			11.12		ACC_DEMO_CUSTOMER.HHOLD_ID < 3000	
Segment2	10122			33.65		ACC_DEMO_CUSTOMER.HHOLD_ID > 3000	
Total	Unknown	Unknown	Unknown				

Each cell is identified by its output cell name, plus a [process name] shown in square brackets. These names were assigned on the General tab of the process configuration dialog.




This example report shows the following progression:

1. The IDs in the Gold cell are passed to a Merge process named Eligible.
2. You can see that some IDs were added and some were removed.
3. By looking at the flowchart, you can see that the Platinum (Select) process added some IDs and the Opt Outs (Select) process removed some IDs.
4. The Eligible IDs (Gold and Platinum, minus Opt-Outs) are passed to a Segment process named Value Tiers.
5. The Segment process divides the Eligible IDs into multiple contact channels.

The Total row shows how many IDs the Gold process originally selected. This row also shows the number and percentage of Gold IDs that remain.

Printing or exporting flowchart cell reports

You can print any flowchart cell report or export it to another format.

1. Open a flowchart.
2. Click **Reports** .
3. Select a report from the list and set any report-specific controls.
4. Click **Print**  to print the report.
5. Click **Export**  to save 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**. Then click **Export**.

You are prompted to either open or save the file.

Using reports to analyze campaigns and offers

IBM Campaign provides reports to help you analyze information about your campaigns and offers. Some reports can be run during campaign development as part of your planning process. Other reports show campaign results, so you can analyze and fine-tune your offers and campaign strategy.

Before you run a campaign, use the IBM Campaign flowchart cell reports to analyze your selections. To use the cell reports, open a flowchart in Edit mode and click the **Reports** link at the top of the page. For more information, see “Using flowchart cell reports during flowchart development” on page 211.

IBM Campaign reports provide detailed information about offers, segments, and campaigns. By viewing reports, you can analyze campaign offers, response rates, revenue, profit per responder, and other data to calculate your total and incremental revenue, profit, and ROI.

1. To analyze an individual campaign, offer, or segment, use the **Analysis** tab:
 - a. Open the **Campaign** menu and choose **Campaigns**, **Offers**, or **Segments**.
 - b. Click the name of a campaign, offer, or segment.
 - c. Click the **Analysis** tab.
 - d. Select a report from the **Report type** list at the top of the page. The report displays in the same window.
2. To analyze results across multiple campaigns, offers, cells, or segments, use the **Campaign analytics** page:
 - a. Select **Analytics > Campaign analytics**.
 - b. Click one of the report folders.
 - c. Click a report link.
 - d. Select one or more objects on which to filter the report. Use **Ctrl+click** to select multiple objects. Your permissions determine which objects appear.
 - e. Click **Generate the report**.

The report displays in the same window. The report generation date and time are displayed at the bottom of the page. If the report spans more than one page, use the provided controls to move to the top or bottom of the report or to page up and down.

The Reports toolbar is displayed for reports generated by Cognos. It is not available for the calendar or segment reports or for flowchart cell reports. You can use the Reports toolbar to 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 list. The icon changes to indicate the selected view option.

Note: Not all reports can be viewed in all formats. For example, reports that use multiple queries cannot be viewed in CSV or XML.

List of IBM Campaign reports

IBM Campaign reports are intended to help you design effective marketing campaigns and analyze campaign results.

Standard reports

Campaign administrators and designers use the following reports to plan and analyze campaigns.

Table 12. Standard reports for campaign development

Report	Description	How to Access
Segment Crosstab Analysis	<p>Campaign administrators use this report to drill into cells and create a Select process for use in a campaign or session flowchart.</p> <p>This report calculates detailed information about any two dimensions in a cube and displays the results in tabular format. Only strategic segments or cells that are part of a cube can be analyzed in this report.</p>	Use the campaign Analysis tab.
Segment Profile Analysis	<p>Campaign administrators use this report to build strategic segments and construct cubes for use in multiple campaigns.</p> <p>This 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 can be analyzed in this report.</p>	Use the campaign Analysis tab.
Campaign Flowchart Status Summary	Campaign designers use this report after doing a test or production run to determine if there were any errors in the flowchart run.	Use the campaign Analysis tab.
Calendar of Campaigns	<p>Campaign designers use the calendar reports when planning and running campaigns.</p> <p>These reports display campaigns and offers on a calendar based on the Effective and Expiration Dates defined in the campaign. Double arrows indicate the start (>>) and end (<<) dates of a campaign.</p>	Choose Analytics > Campaign analytics .

Flowchart cell reports

Use the flowchart cell reports when designing campaign flowcharts, to help identify the intended targets of a marketing campaign. A cell is a list of identifiers that a data manipulation process (Select, Merge, Segment, Sample, Audience, or


Extract) generates as output. To access the cell reports, click the **Reports** icon  when editing a flowchart.

Table 13. Campaign flowchart cell reports

Report	Description
Cell List	<p>Display information about all of the cells that are in the current flowchart. Each cell represents a potential target group.</p> <p>For more information: See "Cell List report: Displaying information about all cells in a flowchart" on page 212.</p>
Cell Variable Profile	<p>Display demographic information to identify potential targets for your campaign. You can display data for one variable of a cell. For example, you can display the age range of clients with gold credit cards.</p> <p>For more information: See "Cell Variable Profile report: Profiling one characteristic of a cell" on page 212.</p>

Table 13. Campaign flowchart cell reports (continued)

Report	Description
Cell Variable Crosstab	<p>Display demographic information to identify potential targets for your campaign. You can display data for two variables of a cell. For example, using Age and Amount for the "Gold" credit cards cell, you can visually identify which age groups spent the most money.</p> <p>For more information: See "Cell Variable Crosstab report: Profiling two characteristics of a cell simultaneously" on page 213.</p>
Cell Content	<p>Display details about the records in a cell. For example, you can see email addresses, phone numbers, and other demographic data for each customer in a cell. Use this report to verify the results of runs and confirm that you are selecting the intended set of contacts.</p> <p>For more information: See "Cell Content report: Displaying the contents of cells" on page 214.</p>
Cell Waterfall	<p>Analyze the falloff of audience members as cells are processed, so you can refine your selections and identify possible errors. For example, you can see how many IDs are initially selected, then see what happens when you use a Merge process to exclude opt-outs.</p> <p>For more information: See "Cell Waterfall report: Analyzing cell waterfall in downstream processes" on page 214.</p>

Cognos reports

The Cognos reports are supplied with the IBM Campaign Reports Pack. Use the Cognos reports to plan, adjust, and analyze campaigns. These reports are examples that you can customize for your own use. To access these reports, you must integrate IBM Campaign with IBM Cognos. For instructions, see the *IBM Marketing Software Reports Installation and Configuration Guide*.

Table 14. Cognos reports

Report	Description	How to access
Campaign Summary	<p>Campaign designers use this report when creating and running campaigns.</p> <p>This report displays information about 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.</p> <p>For more information: See the <i>IBM Campaign Report Specifications</i> provided with the reports pack.</p>	Choose Analytics > Campaign analytics .
Offer Campaign Listings	<p>Campaign designers use this report when planning offers or creating and running campaigns.</p> <p>This report shows which offers were provided with various campaigns; it lists campaigns grouped by offers. It lists the campaign code, initiative, start and end dates and last run date.</p> <p>For more information: See the <i>IBM Campaign Report Specifications</i> provided with the reports pack.</p>	Choose Analytics > Campaign analytics .

Table 14. Cognos reports (continued)

Report	Description	How to access
Performance reports	<p>Campaign designers and marketing managers use the "What If" Offer Financial Summary report when planning offers and campaigns.</p> <p>They use the other performance reports after deploying a campaign and obtaining response data. These reports analyze campaign results by looking at contact and response data across campaigns, offers, cells, or segments.</p> <p>For more information: See "Performance reports for IBM Campaign."</p>	<p>Choose Analytics > Campaign analytics > Performance Reports to analyze results across one or more campaigns, offers, cells, or segments.</p> <p>To analyze results for a specific campaign, open the Analysis tab of the campaign or offer.</p>

Performance reports for IBM Campaign

Performance reports are provided with the IBM Campaign Reports Pack. The performance reports are example reports that you can modify to analyze contact and response data across one or more campaigns, offers, cells, or segments.

To use these reports, you must integrate IBM Campaign with IBM Cognos. For more information, see:

- *IBM Marketing Software Reports Installation and Configuration Guide*.
- *IBM Campaign Report Specifications*, which is a compressed file with the reports pack. The specification provides examples of output from the performance reports.

The performance reports are available in the following ways:

- From the **Analysis** tab of a campaign or offer.
- By choosing **Analytics > Campaign Analytics > Performance Reports** to analyze results across one or more campaigns, offers, cells, or segments.

Use the "What If" Offer Financial Summary report when planning offers and campaigns. Use the other performance reports after deploying a campaign and obtaining response data.

Table 15. Performance reports

Report	Description
"What If" Offer Financial Summary	<p>This 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 an increment of 0.25%, the report will return performance data for six scenarios with response rates ranging from 2% to 3.25%.</p> <p>You can optionally change parameters in this report, such as cost per contact, offer fulfillment fixed cost and revenue per response.</p>
Campaign Detailed Offer Response Breakout	<p>The Campaign Detailed Offer Response Breakout report provides campaign performance data for offer response types. It lists all offers that are associated with a campaign and indicates the number of responses for each response type across all channels.</p> <p>If eMessage offer integration is configured, this report includes information about the eMessage Link Click response type. Landing Page and SMS Reply Message are not currently supported. Columns that exist for those response types are not populated by the ETL process at this time.</p>

Table 15. Performance reports (continued)

Report	Description
Campaign Financial Summary by Offer (Actual)	The Campaign Financial Summary by Offer (Actual) report provides financial data for offers in 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, which shows the increase in response compared to the control group.
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, which shows the increase in response compared to the control group.
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, which shows the increase in response compared to the control group.
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, which shows the increase in response compared to the control group.
Campaign Performance Summary by Cell (with Revenue)	<p>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, which shows the increase in response compared to the control group.</p> <p>Note: This report requires the additionally tracked field Revenue in the response history table.</p>
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, which shows the increase in response compared to the control group.
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, which shows the increase in response compared to the control group.

Table 15. Performance reports (continued)

Report	Description
Campaign Performance Summary by Cell and Offer (with Revenue)	<p>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, which shows the increase in response compared to the control group.</p> <p>Note: This report requires the additionally tracked field Revenue in the response history table.</p>
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, which shows the increase in response compared to the control group.
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, which shows the increase in response compared to the control group.
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, which shows the increase in response compared to the control group.
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, which shows the increase in response compared to the control group.

Related concepts:

“How to track responses to a campaign” on page 168

“The Response process” on page 101

“Direct responses” on page 173

“Attribution methods” on page 176

IBM Cognos report portlets for Campaign

The IBM Cognos report portlets are provided with the Campaign reports package. Use the report portlets to analyze response rates and campaign effectiveness.

You can enable and then add pre-defined dashboard portlets to any dashboard that you create. To manage your dashboards and add portlets to them, click **Dashboard > Create Dashboard**.

Table 16. IBM Cognos report portlets for Campaign

Report	Description
Campaign Return on Investment Comparison	An IBM Cognos report that compares, 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 that compares 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 that compares 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 that compares 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 that compares the response rate by offer created or updated by the user viewing the report.
Offer Response Breakout	An IBM Cognos report that shows the active offers created or updated by the user viewing the report, broken out by status.

Campaign list portlets

The standard Campaign list portlets are available for use on dashboards even if the reports package for Campaign is not installed.

Table 17. Campaign list portlets

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.

Sending reports by email

If your SMTP server is configured to work with Cognos, you can email a report directly from Campaign.

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 list. You see the **Set the email options** page, where you specify the recipients 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.

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.

Chapter 12. Special characters in IBM Campaign object names

Some special characters are not supported in any IBM 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

The following special characters are not supported in the names of campaigns, flowcharts, folders, offers, offer lists, segments, or sessions. These characters are also not supported in the Audience Level Name and the corresponding field names, which are defined in Campaign Settings.

Table 18. 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
+	Plus
\$	Dollar
Tab	Tab

Objects with no naming restrictions

The following objects in IBM Campaign have no restrictions for characters used in their names.

- custom attribute *display* names (the *internal* names do have naming restrictions)
- offer templates

Objects with specific naming restrictions

The following objects in IBM Campaign have specific restrictions on their names.

- Custom attribute *internal* names

- Audience Level Names and the corresponding field names, which are defined in Campaign Settings
- 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, IBM Campaign supports all of the characters that are supported by the configured string encoding configured.

Note: Derived field names have additional restrictions.

Chapter 13. 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.

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

Perform this task to package flowchart data files so you can send them to IBM Technical Support. You can specify which items to include and indicate date ranges to limit data. The data is written to the folder you choose, and the contents can be compressed and sent to IBM Technical Support.

1. Open a flowchart in **Edit** mode.
2. Select **Admin > Collect flowchart data**.
3. In the Create Data Package for Troubleshooting window, 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.
4. Click **Browse** and select the folder where the data package will be saved.
5. Select the items that you want to include in the package or check **Select default items** to select all data that is commonly required. Some items, when selected, may allow additional information to be entered.

For more information, see "Options for packaging flowchart data" on page 228.

6. Click **OK** to create the package.
7. Send the data package to IBM Technical Support by email or use the method recommended by your support representative. IBM Technical Support accepts uncompressed data (the entire package subdirectory), but you may optionally compress, encrypt, and package the files into a single file before sending them.

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

- Current date and time
- Version and build numbers of the software
- Your user name
- The selections that you included in the package
- Campaign name and ID
- Flowchart name and ID

Options for packaging flowchart data

Select **Admin > Collect flowchart data** to package flowchart files to send to IBM Technical Support. When prompted, specify the options described in this topic.

Table 19. 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, including all of the listed items except 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_ac1snr.log file.	Optionally set start and end time stamps. If you do not set them, the default is the entire log file.
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 help troubleshooting the flowchart.	
Campaign custom attributes	The customcampaignattributes.dat file, which lists attribute name and value pairs for Campaign custom attributes. Only entries that are 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 that are 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.	

Table 19. Options for packaging flowchart data (continued)

Item	Description of what is included	Additional specifications you may set
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.	<p>Select each system table to include. The entire table will be included (all rows and all columns).</p> <p>If you do not select any sub-options, the package will not include any system tables.</p>
+ 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.	<p>For each set you select, the package will include the contact history and detailed contact history records for that audience level.</p> <p>You can optionally set start and end time stamps. If you do not set them, the default is all records.</p> <p>If you do not select a suboption, the package will not contain any contact history table information.</p>
+ Include response history tables	When you select this option, it expands to show response history tables for all audience levels.	<p>For each table you select, the package will include the response history records for that audience level.</p> <p>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.</p> <p>If you do not select a table, the package will not contain any response history table information.</p>
+ Include user table contents	When you select this option, it expands to show the user table contents that you can select for the package.	<p>Select the user tables from the flowchart to include.</p> <p>If you do not select any, the package will not include any user table contents.</p> <p>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.</p>
+ Include strategic segments	When you select this option, it expands to show all the strategic segments that you can select for the package.	Select the segment data for each strategic segment from the flowchart that you want to include.

Table 19. Options for packaging flowchart data (continued)

Item	Description of what is included	Additional specifications you may set
+ 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_ac1snr.log.	Select the stack trace files that you want to include in the package. If you do not select any sub options, the package will not include any stack trace files.

Before you contact 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 these guidelines 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.

Note: Technical Support does not write or create API scripts. For assistance in implementing our API offerings, contact IBM Professional Services.

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, check for a `version.txt` file that is located under the installation directory for your application.

Contact information for IBM technical support

For ways to contact IBM technical support, see the IBM Product Technical Support website: (http://www.ibm.com/support/entry/portal/open_service_request).

Note: To enter a support request, you must log in with an IBM account. This account must be linked to your IBM customer number. To learn more about associating your account with your IBM customer number, see **Support Resources > Entitled Software Support** on the Support Portal.

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