SAS® Customer Intelligence 360: Tutorials and Examples
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About SAS Customer Intelligence 360

About This Documentation

The documentation included in Tutorials and Examples highlights some of the features of SAS Customer Intelligence 360. For more information about these tasks, or to access all of our documentation, see SAS Customer Intelligence 360 Documentation.

What Determines which Features I See?

Your license and role determine which parts of SAS Customer Intelligence 360 you have access to. Your license determines the set of functionality that is available to you, and your user role determines the specific menu items and pages that you can see. You can have more than one license and more than one role.

After your license is purchased, your access is further refined by using roles. There are many user roles available in SAS Customer Intelligence 360, and these user roles determine which parts of the user interface you can access. By assigning multiple roles to a user, you customize the type of access each person has to the different parts of SAS Customer Intelligence 360.

Note: Any user who is a member of a role has all of that role’s access rights.

User roles are managed on the User Roles page. To learn how to update user roles, see Video: Manage User Roles.

Note: The User Roles page is available only to people who are administrators in SAS App Central.

Most of the predefined roles can be grouped into the following categories:
Roles restricted to Read-Only access. Use these roles when you want a user to view an item, but do not want that user to create or edit the item. Look for roles with “Viewer” in the name.

Roles that allow users to view, create, and edit an item and mark that item ready for publishing. Users with this role cannot publish, pause, or complete an item. Look for roles with “Designer” or “Creator” in the name.

Roles restricted to the ability to configure settings. Users with this role cannot access or edit items, but can edit the settings for a set of items. Look for roles with “Admin” in the name.

Roles that do not restrict access. Users with this role can view, edit, and create items. They can also publish items. Assign this role to experienced users who need to access various parts of the user interface and affect content that is live. Look for roles with “Super User” in the name.

Roles that allow publishing. The Publisher role allows a user to publish, pause, or complete items. A person with only this role cannot view, create, or update items. Combine this role with other roles that grant the access to view or edit the appropriate areas of the site. For example, you might pair the Publisher role with a Designer role to ensure that users have access to the items that they need to publish.

SAS 360 Discover

Use SAS 360 Discover to collect and analyze web and mobile data about users. The data is loaded into a data warehouse so that it can be used for analysis and reporting. Here are some of the features of this license:

- access to detailed database tables
- access to reports that apply business meaning to data, showing you user trends and transactions
- access to data views and events that you can use to collect data across your sites and mobile applications

You can combine SAS 360 Discover with other licenses to increase the features that you have access to. For example, if you have SAS 360 Discover and SAS 360 Engage: Digital, you can create a web task to deliver content to a website. Then you can use SAS 360 Discover to gain insights about the web content that you are delivering.

SAS 360 Engage: Digital

With SAS 360 Engage: Digital you can deliver content to web and mobile channels. The customer data that this license uses is stored in the cloud. Here are some of the features of this license:

- create segments using your cloud-based customer data
- create tasks to dynamically deliver content to your target audience using mobile and web channels
create activities to coordinate the tasks that are designed to meet the goals of your marketing campaign

test content to find the best-performing creatives

You can combine SAS 360 Engage: Digital with other licenses to increase the features that you have access to. For example, if you have SAS 360 Engage: Direct and SAS 360 Engage: Digital, you can create a web task that uses an on-premises segment to define a target audience. If you have SAS 360 Engage: Digital and SAS 360 Plan, you can create planning items that include tasks and activities. For more information about your licenses, see your administrator.

**SAS 360 Engage: Direct**

SAS 360 Engage: Direct is designed for direct marketing channels that use your on-premises data. Here are some of the feature of this license:

- create segments that use your on-premises data. Use those segments to target users.
- create Direct tasks that combine your on-premises data and analytics from SAS Customer Intelligence 360 to create catalogs and various print marketing material that will be delivered to targeted customers.
- create External tasks that use your on-premises data to send messages and creatives to other campaign systems such as Facebook.

You can combine SAS 360 Engage: Direct with other licenses to increase the features that you have access to. For example, if you have SAS 360 Engage: Direct and SAS 360 Engage: Digital, you can create a web task that uses an on-premises segment to define a target audience. For more information about your licenses, see your administrator.

**SAS 360 Engage: Email and SAS 360 Engage: Email Testing**

With SAS 360 Engage: Email you can deliver emails to a set of recipients. Here are some of the tasks that you can complete with this license:

- create an email task to deliver information and call-to-action content to your recipient’s inbox
- use email events to capture information about how your recipients interact with email content, such as how many recipients received, opened, clicked, or viewed a link in your email.
- send emails triggered by events in SAS Customer Intelligence 360 or by external events

If you have a license for SAS 360 Engage: Email, you can also get a license for SAS 360 Engage: Email Testing. With SAS 360 Engage: Email Testing you can preview email content to ensure it is correct and determine the likelihood that the email is marked as spam by recipients’ inboxes. Here are some of the features in this license:
eliminate manual testing by previewing email content to see how it is displayed on multiple devices, browsers, email clients, and platforms.

test your email content across several spam filters to decrease the likelihood that the emails are marked as spam. You can get a score on your email to see how it might perform and correct the content before sending the email.

You can combine SAS 360 Engage: Email with other licenses to increase the features that you have access to. For example, if you have SAS 360 Engage: Email and SAS 360 Engage: Digital, you can orchestrate cross-channel customer journeys including email and web and mobile channels. For more information about your licenses, see your administrator.

SAS 360 Plan

Use SAS 360 Plan to help your marketing department operate more efficiently by integrating and managing end-to-end marketing processes. Here are some of the features of SAS 360 Plan:

- centralize your marketing plans by grouping all of the information that is related to the marketing plans in one place. You can create and approve plans in a centralized repository so that you can easily manage, retrieve them. This feature enables you to plan strategically and collaboratively to ensure that your marketing plan aligns with your organization’s objectives.

- integrated budget and expense management designed to let you monitor finances, track expenses, and automatically update your plans and calendars.

- one calendar that is integrated with your marketing plan and can be used to schedule and track the timing of your plans and tasks for marketing efforts.

- automated workflows to manage assignments and get real-time visibility into project timelines. You can customize the available workflow templates to match your business needs.

You can combine SAS 360 Plan with other licenses to increase the features that you have access to. For example, if you have SAS 360 Plan and SAS 360 Engage: Digital, you can integrate planning, execution, and monitoring of your marketing objectives by associating items used for content creation, omnichannel delivery, and monitoring with your planning items. For more information about your licenses, see your administrator.
Learn the Basics

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Add the SAS Tag to Your Site

See the video here: SAS Customer Intelligence 360 - Website Tagging.

Set Up a Domain

This tutorial for SAS Customer Intelligence 360 explains how to define and manage domains that implement the SAS tag.

About Domains

Domains are classified in two primary categories: approved (active or inactive) and unapproved. Data collection depends on which category a domain is included in.

Approved

- Domains that you explicitly defined (or approved from the unapproved list). These are domains that you know traffic is going to come from.
- Active domains are approved domains that you want to collect data for.
Inactive domains are approved domains that you do not want to collect data for. Possible reasons are because you want resources for a rush on another domain or you want to suspend collection from that domain.

Unapproved
Traffic coming from sources that are not defined. Domains that are not defined are unapproved by default.

Define a Domain

After your site includes the SAS tag and is ready to collect data, you need to define the domain of the site to monitor. When you define a domain, any data that is collected from that domain is associated with the definition that you provided.

1. From the navigation bar, click General Settings and select Site Configuration ⇒ Domains.
2. Click and complete the fields on the Domain page.

On the Domain page, complete these actions:
- activate or deactivate data collection.
- specify a default path for elements in that domain.
- create rules to exclude data collection from certain elements. You can use keywords or regular expressions in this field.

Here is an example of values that you can use to define a domain:

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain</td>
<td><a href="http://www.mysite.com">www.mysite.com</a></td>
</tr>
<tr>
<td>Note:</td>
<td>Do not include a protocol (for example, http://), path (for example, mysite.com/some_path), or port number (for example, <a href="http://www.mysite.com:7556">www.mysite.com:7556</a>) in the Domain field.</td>
</tr>
<tr>
<td>Default URL</td>
<td><a href="https://www.mysite.com/">https://www.mysite.com/</a></td>
</tr>
<tr>
<td>homepage#lnk=gnavweeklyad</td>
<td></td>
</tr>
<tr>
<td>Data Collection Status</td>
<td>Active</td>
</tr>
</tbody>
</table>

Here is an example of an exclusion rule that you can define that excludes any "admin" pages from being tracked:

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>URL path</td>
<td>Contains admin</td>
</tr>
</tbody>
</table>
3 (Optional) Set the domain as the default in the **Approved Domains** list. When you set a domain as the default, that domain is used to automatically populate the domain fields for configuration rules for other data collection settings.

---

### Activate or Deactivate a Domain

You can suspend data collection for one or more sites if you want SAS Customer Intelligence 360 to stop monitoring it. For example, a site might be offline for a few days for maintenance and you no longer need to use resources to monitor it. In another case, you might have a promotion for one site that generates heavy customer traffic, and you want to deactivate other domains and focus data collection and processing on that site.

To suspend data collection for a domain that you defined:

1. Select a domain from the **Approved Domains** list.
2. Set the status to **Inactive** on the **Edit Domain** page.

To activate, deactivate, or delete multiple domains at the same time:

1. Click **Select** on the **Approved Domains** list.
2. Select one or more domains in the list, or select the checkbox at the top of the list to select all domains.
3. Click **Activate**, **Deactivate**, or [trash can icon], depending on the action that you want to take.

---

### Manage Unapproved Domains

If you implement a site with a SAS tag without defining a domain for the site, the data is collected in the **Unapproved Domains** section of the **Manage Domains** page.

To approve a domain that is not defined:

1. Select a domain from the **Unapproved Domains** list.
2. Click **Approve**.

To delete entries from the list of unapproved domains:

1. Click **Select** in the **Unapproved Domains** table.
2. Select one or more domains.
3. Click [trash can icon].
Identify Users

SAS Customer Intelligence 360 has the ability to collect data for both anonymous users and users with identifiable characteristics. These users can be identified through forms or by page view events. When users enter information that is recognized, you can map their interactions to their user profiles. You must republish data collection settings after you create, edit, delete, or change the priority of an identity definition.

1. From the navigation bar, click General Settings and select Classification >> User Identities.
2. Click .
3. Select the event type.
   - Select Click if you want to monitor a page element when it is clicked. The page element that a user clicks is known as the click target.
   - Select Form Submit if you want to specify form elements on a page to monitor.
   - Select Page View when you want to specify a specific page or pages that match a pattern that you define.

   Note: The Advanced Event option is no longer available. Existing advanced events still generate data for SAS 360 Discover, but they cannot be used in other licenses of SAS Customer Intelligence 360.

4. Select the page on your site to watch for this event.

   CAUTION! Define only one identity event for a page on a site. When more than one identity event exists for the same page on a site, there is no way to ensure which event is triggered. Also, be sure your site’s pages follow the guidelines for preparing your site.

   - For a click event, navigate to the page that contains the click target. From the navigation bar, change the radio button to Select (from Navigate).
     Select the click target to highlight it. You can change this element later on the Target Location tab.
   - For a form submit event, navigate to the page that contains the form. From the navigation bar, change the radio button to Select (from Navigate).
     Select the form element to highlight it. You can change this page or form element later on the Form Location tab.
   - For page view events, select the page that you want to monitor.

   Note: You can change this page or page view event later on the Page Location tab.

5. Click Create Definition.

6. Select the identification type. The identification type is the category that best fits the user ID that you are capturing. All identity types are bridged together in the system to create unique customer profiles.

   Select one of these types:
Login
a login ID that represents a customer. For example, this value could be the user name that the customer uses for your site. Customer profiles can be associated with more than one login ID.

Note: For SAS 360 Discover, you must define the user identity as a login type to ensure it is written to the SESSION_FACT.LAST_USER_ID table and automatically used as the primary key for the ECV process.

Customer ID
a unique ID for a customer on your site. For example, this value could be the customer’s account number. Typically, a customer has only one customer ID, but customers can be associated with multiple customer identities.

7 Refine which pages to include in the event on the Event Configuration tab.

a For form submit events, refine the elements that are used to identify the form in the Form Identification section.

b In the Pages Containing Form or Pages in Event section (depending on your event type), specify the pages to monitor for this event.

- To use only the page that you selected originally, select Only page where selector was chosen or Selected page (depending on your event type).
- Select Pages matching attribute pattern to define rules that determine which pages to include.
- Select Any page to include all pages.

8 Complete the fields on the User ID Attribute tab.

a Define how to capture the identification data.

- For form submit events, click for the Field Name, ID field and select the form field to use.

  For the Return field, select the appropriate value from the menu. You might need to complete additional information based on the option that you choose.

- For click events and page view events, select an element that contains the information that you need.

  For the Return value from field, select a value based on the type of element:

  - For attributes, select the name of the attribute.
  - For field values, select value.
  - For the content of a node, select innerHTML orinnerText, depending on the node type.
  - If you use a JavaScript object, you must specify object.property in the Variable name field. You cannot specify only the object.

b For the Obscured option, select Yes or No. This option specifies whether values are obscured before they are saved.

CAUTION! For best results, do not modify this setting after identities are created. If you change the obfuscation value after identities are created, the existing identities can be adversely impacted in the back-end database.

9 (Optional) Define an event to confirm a user’s ID.

a Set the time period in which the user ID must be confirmed. The time can be in seconds or minutes. The default is one minute.
Specify the page attributes that identify the confirmation event.

For example, assume that the body tag contains the text "isLoggedIn" for logged-in users. In the Page Attributes section, enter this text in the Page element field:

```
body:contains(isLoggedIn)
```

10 Republish data collection settings after you create, edit, delete, or change the priority of an identity definition. For more information, see “Publish Data Processing Settings” in SAS Customer Intelligence 360: User’s Guide.

Add and Manage Search Tags

About Tags

Tags are simple strings that you can associate with item instances in SAS Customer Intelligence 360. You can create tags independent of any item, or you can create and add a tag directly from an item itself. You can also edit or delete tags from an item's details or from the global tag list.

Here are some of the benefits of using tags:

- **Explicit association.** Tagging an item enables you to associate it with a known value, so you can group items that might not be naturally related.

  For example, you might want a group of assets that are associated with cloth. This category could contain items such as jeans, car seats, and towels. Without tags, you would need to create a custom attribute or include specific words in the description so that the search could find the items. However, if you add a "cloth" tag, retrieving this group is simple.

- **Precise search result.** Some items might have names or descriptions that are useful for their purpose but are not precise enough for some searches. Tags enable you to select distinct words that you know are associated with items.

- **Multiple associations.** Items can have as many tags as you need, so you could have one item that is a member of multiple tag groups.

- **Global content management.** You can review global tag lists to see all the items in your environment that use specific tags. This benefit enables you to quickly retrieve and operate on items that are in separate areas.

Global Tag Management

Create a New Tag

1. Click [ ].

2. Enter a name in the New Tag dialog box.

3. Click Save.
Edit a Tag
1. Click the check box to select the tag that you want to edit. You can rename only one tag at a time.
2. Click Rename, and enter a new name in the Rename window.
3. Click Save.

Reconcile Tags
You can reconcile tags by consolidating several tags to a single tag and removing the unwanted tags.
1. Click the check boxes to select two or more tags that you want to reconcile and click Reconcile Tags. The Reconcile Tags window displays the list of tags that you selected.
2. (Optional) Click + and select additional tags to reconcile.
3. Select a tag that you do not want to reconcile and click − to remove the tag.
4. To reconcile the selected tags to a new tag, in the Tag name field, enter a new tag.
   To reconcile the selected tags to an existing tag, click Browse and select the existing tag.
   Click OK.
5. Click Save. The tags that you selected are replaced by the reconciled tag.

Delete a Tag
1. Click Select, and select one or more tags to delete.
2. Click −.
3. Click Yes to confirm that you want to delete the selected tags.

Manage Tags on an Item
When you are viewing the Summary tab of an item, you can add a search tag or manage any tags that are associated with it.

Add a Tag
1. Start typing in the Tags text field.
   - If the tag already exists, it appears with similar tags in a drop-down list. Select the tag that you need from the list.
   - If the tag does not exist, finish entering the tag and click Add to List. If the tag is new to the global tag universe, an asterisk (*) appears next to it.
2. Save the item.
Remove a Tag

1. Click the (x) that appears next to the tag’s name.
2. Save the item.

About GDPR Support in SAS Customer Intelligence 360

General Data Protection Regulation (GDPR) is a data privacy regulation that enables individuals to have more control over how organizations use their data.

Right to Access
The right to access is a regulation that enables individuals to request that an organization disclose any information they have on that individual.

SAS Customer Intelligence 360 provides export REST APIs to retrieve customer data and event data that has been collected about a specific customer. The data is exported as CSV files that can be downloaded by the person issuing the request through the REST API. The response from the export request returns an ID that can be used to retrieve the CSV files after processing is complete, typically in a few minutes.

See these topics for more information:

Right to Be Forgotten
The right to be forgotten is a regulation that enables individuals to request that an organization delete any data about them.

SAS Customer Intelligence 360 provides the deleteList import descriptor that can be used with the existing REST API. This descriptor enables you to define the type of customer IDs that need to be deleted and then upload a corresponding list of IDs. After the IDs are imported and processed, SAS Customer Intelligence 360 deletes all customer data about the individual, as well as identity types and mappings to IDs that might not identify them (such as visitor IDs and device IDs). This deletion effectively orphans the identity ID and event data so that it cannot be matched to an individual.

For information about this feature, see “Deleting Customer Identity Data” in SAS Customer Intelligence 360: User’s Guide.

Protecting Customer Data
In its initial proposal to reform data protection rules, the European Commission defined personal data as “any information relating to an individual, whether it relates to his or her private, professional or public life. It can be anything from a name, a home address, a photo, an email address, bank details, posts on social networking websites, medical information, or a computer’s IP address.” This information is typically referred to as personally identifiable information, or PII.

SAS Customer Intelligence 360 enables you to customize messages and create segments with PII and discard the data afterward. When you import PII with a data descriptor that uses the transient type, the system creates a temporary table to process the data and
deletes it afterward, so sensitive information is not kept in the database. For more information, see “Using a Transient Table for Temporary PII Data” in SAS Customer Intelligence 360: User’s Guide.

For general information about GDPR and SAS, see General Data Protection Regulation on www.sas.com.
Define Traffic Sources

Traffic sources help you see how visitors are coming to your site. This knowledge enables you to analyze the effectiveness of marketing and email campaigns, search engine optimizations (SEOs), and other channels that you use to communicate with visitors.

First, you establish rules to identify a visitor's origin by parsing the referral URL, using cookie information, examining search terms, and so on. You then assign the visitor to a traffic source based on these rules.

About Originations

An origination is the original link, ad, search result, and so on, that leads a customer to your site. Originations contain referral information that helps you determine how visitors arrived at your website. This knowledge enables you to analyze the effectiveness of marketing and email campaigns, search engine optimizations (SEOs), and other channels that you use to communicate with visitors.

The source of a visit might be from one of the following origins:
a personal referral or brand aware link
an email
a banner ad
a sponsored search
a natural (organic) search

An origination link should be constructed so that it contains referral information that you can use in your traffic source definitions. For example, a link might have the parts shown in this image:

Figure 3.1 Traffic Source Link

The *query string* is the series of characters that follow the question mark (?) in the URL of the landing page. The query string has these features:

- the string consists of [identifier]=[value] or name/value parameter pairs, which are typically separated by an ampersand (&) character
- the string can provide instructions that define what to display to your content management system

You can add additional data to the query string, which can assist with identifying a campaign or promotion, without affecting the content management system.

**TIP** If you include a CID query attribute in your link, then SAS Customer Intelligence 360 can use the link to populate some of the traffic source's attributes (such as placement, type, and creative). Alternatively, if a visitor uses a generic link, then SAS Customer Intelligence 360 can process the link based on custom or built-in rules.

---

**Defining Rules for a Traffic Source**

To define a rule to assign traffic sources:

1. From the navigation bar, click  
   General Settings.
2. Click Classification ➔ Traffic Sources.
3. Click + to create a new rule.
4 On the **Source Properties** tab, define rules to identify the landing page for this traffic source. You can match patterns based on parts of the URL, a referral URL, values in a stored cookie, page attributes, and so on.

5 Perform these steps on the **Source Information** tab:

   a Define rules for how to construct the name for this source. Enter a custom value, or click + to construct the name based on attributes or elements from the page.

   For example, you can use these attribute rules to construct the traffic source name based on part of the referring URL’s domain:

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute name</td>
<td>Referrer site</td>
</tr>
<tr>
<td>Source attribute</td>
<td>Referrer URL domain</td>
</tr>
<tr>
<td>Return</td>
<td>After</td>
</tr>
<tr>
<td>After</td>
<td><a href="http://www">http://www</a>.</td>
</tr>
</tbody>
</table>

   b Select a type that fits this traffic source. Types of traffic sources might be displayed in other parts of SAS Customer Intelligence 360 if traffic source information is used (such as the **Attribution** tab for a data view).

   You can select one of these types:

   - **Affiliate**: an origination that contains information for an affiliate program.
   - **Email**: an origination from an email.
   - **Organic Search**: an origination that is the result of a customer entering one or more terms into a search engine and then clicking a search result that is not a paid ad. Organic searches are generated by a search engine’s algorithm, and the results are based on relevance instead of sponsored placement.
   - **Poster**: an origination that is associated with a poster ad campaign.
   - **Print**: an origination that is associated with a print ad campaign. For example, this link could be tied to a QR code in a magazine.
   - **Referrer**: an origination associated with a referral link from a third-party website.
   - **Search**: an origination that is associated with a search type. You can use this type to cover both sponsored searches and organic searches, or you could use this type to cover an origination that might not fit those other types.
   - **Sponsored Search**: an origination that is the result of a customer entering one or more terms into a search engine and then clicking one of the paid ads.
   - **TV**: an origination that is associated with a television ad campaign.
   - **Other**: an origination that does not fit another, predefined type.
   - **Custom value**: an origination that is a custom type that you define.

   If an origination does not match one of the traffic source types, it is processed based on built-in rules. In this case, all of the origination information (such as creative or placement) might not be assigned to the traffic source record.
Tip: You can define a rule as one of the general types (such as Other) to act as a default in case you want to prevent a session or visit from being evaluated with the built-in rules.

Here are the built-in rules:

**Bookmark**
- classifies visitors who land deep in your site and there is no referrer information.
- Landing page URLs are generally long and not likely entered by hand, so visitors most likely used a bookmark to visit this page. Sessions and visits are assigned to this type if these conditions are true:
  - The visitor's first page is not a home page.
  - There is no referral information.

These values are assigned for this type:

**Table 3.2 Values for Bookmark Traffic Sources**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origination type</td>
<td>Organic</td>
</tr>
<tr>
<td>Origination name</td>
<td>Bookmark</td>
</tr>
<tr>
<td>Origination placement</td>
<td></td>
</tr>
<tr>
<td>Origination creative</td>
<td></td>
</tr>
<tr>
<td>Origination tracking code</td>
<td></td>
</tr>
</tbody>
</table>

**Brand Aware**
- identifies visitors who arrive directly to the website. A session or visit is assigned to the brand-aware origination if these conditions are true:
  - The first page matches a landing page that is defined in SAS Customer Intelligence 360.
  - There is no referral information, which means that the visitor entered the URL or used a bookmark.

Note: A search might start from a search engine (such as Google), but it is evaluated as a Brand Aware source when the visitor uses a set of predefined search terms (such as the website address, a brand name, or a brand product).

These values are assigned for this type:

**Table 3.3 Values for Brand Aware Traffic Sources**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origination type</td>
<td>Organic</td>
</tr>
<tr>
<td>Origination name</td>
<td>Brand Aware</td>
</tr>
<tr>
<td>Origination placement</td>
<td></td>
</tr>
<tr>
<td>Origination creative</td>
<td></td>
</tr>
</tbody>
</table>
Origination tracking code

Organic Search
- A traffic source or a search result that is a product of a search engine’s algorithm. A session or visit is assigned to this definition if these conditions are true:
  - The referrer matches a search engine that is recognized by SAS Customer Intelligence 360.
  - The referrer contains the query string for a known search engine.
- These values are assigned for this type:

  **Table 3.4 Values for Organic Search Traffic Sources**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origination type</td>
<td>Organic Search</td>
</tr>
<tr>
<td>Origination name</td>
<td>The name of the search engine (such as Google, Yahoo, or Bing)</td>
</tr>
<tr>
<td>Origination placement</td>
<td>The referrer’s domain (such as google.com, yahoo.com, or bing.com) but without the specific server</td>
</tr>
<tr>
<td>Origination creative</td>
<td></td>
</tr>
<tr>
<td>Origination tracking code</td>
<td></td>
</tr>
</tbody>
</table>

Social Media
- Traffic from social network sites. A session or visit is assigned to the name of the social network if it does not match a defined type and the referrer matches a social network site.
- These values are assigned for this type:

  **Table 3.5 Values for Social Media Traffic Sources**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origination type</td>
<td>Social Media</td>
</tr>
<tr>
<td>Origination name</td>
<td>The name of the social media site (such as Facebook or Twitter).</td>
</tr>
<tr>
<td>Origination placement</td>
<td>The complete referral information</td>
</tr>
<tr>
<td>Origination creative</td>
<td></td>
</tr>
<tr>
<td>Origination tracking code</td>
<td></td>
</tr>
</tbody>
</table>
Unlisted Campaign
classifies visitors who land deep in your site and there is referral information. The
visitor has most likely clicked a link that was provided at a third-party site that did not
contain any campaign parameters. Sessions and visits are assigned to this type if
these conditions are true:

- The visitor’s first page is not a home page.
- The referrer is not null.

These values are assigned for this type:

**Table 3.6 Values for Unlisted Campaign Sources**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origination type</td>
<td>Unlisted Campaign</td>
</tr>
<tr>
<td>Origination name</td>
<td>The referrer’s domain</td>
</tr>
<tr>
<td>Origination placement</td>
<td>The complete referral information</td>
</tr>
<tr>
<td>Origination creative</td>
<td></td>
</tr>
<tr>
<td>Origination tracking code</td>
<td></td>
</tr>
</tbody>
</table>

Unlisted Affiliate
classifies visitors who land on one of your publicly advertised home pages, and there
is information about the referring site. Sessions and visits are assigned to this type if
the following conditions are true:

- The visitor’s first page is a home page.
- The referrer is not null.

These values are assigned for this type:

**Table 3.7 Values for Unlisted Affiliate Traffic Sources**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origination type</td>
<td>Affiliate</td>
</tr>
<tr>
<td>Origination name</td>
<td>Unlisted Affiliate</td>
</tr>
<tr>
<td>Origination placement</td>
<td>The domain of the referrer</td>
</tr>
<tr>
<td>Origination creative</td>
<td>The complete referral information</td>
</tr>
<tr>
<td>Origination tracking code</td>
<td></td>
</tr>
</tbody>
</table>

(Optional) On the **Source Attributes** tab, configure the following items:

- In the **Traffic Source Placement** section, define a placement rule. This rule defines the
  location of the element or link that led a visitor to your site. This location can be a
  specific page, site, or even location within a web page.

  For example, you can define the placement by extracting the title for a landing page:
### Table 3.8 Definition for Traffic Source Placement

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute name</td>
<td>Product landing page</td>
</tr>
<tr>
<td>Source attribute</td>
<td>Page element</td>
</tr>
<tr>
<td>Selector</td>
<td><code>div#product-805 &gt; div.summary.entry-summary &gt; h1.product_title.entry-title</code></td>
</tr>
<tr>
<td>Return value from</td>
<td>Inner text</td>
</tr>
<tr>
<td>Return</td>
<td>Everything</td>
</tr>
</tbody>
</table>

- In the **Traffic Source Tracking Code** section, define a rule to determine the tracking code. This tracking code could be something that you use to identify specific demographics, targeted campaigns, and so on.

- In the **Traffic Source Creative** section, define a rule to associate this traffic source with a creative.

7. Publish the configuration changes. For more information, see “Publish Data Processing Settings” in *SAS Customer Intelligence 360: User’s Guide*.

---

### Capture Page URLs

The rules for transforming URLs determine how the different parts of a URL are parsed to create collections that are useful in site analysis.

1. From the navigation bar, click **Basic Collection Rules** and select **Page URLs**.
2. Click **+** to create a new rule.
3. On the **Rule to Find Page** tab, define a rule for how the page URL is matched.

   **TIP** If you select **Equals** in the drop-down menu of the **URL domain** section, you can select one or more domains from the **Manage Domains** tab.

4. (Optional) On the **Page URL** tab, define a rule for how you want to transform a page URL. This rule enables you to add or remove parts in the URL. For example, the links to some pages might contain strings that are not useful, but you need to record the rest of the URL. In other cases, you might want to append user-specific information from a cookie or referrer to associate the URL with a specific use case.

   a. Select the check box to enable **Transform Page URL**, and the domain entry is created by default.

   **Note:** For most attributes, you can use **regular expressions** to capture complex text patterns.
b (Optional) Click to add another attribute. A section to define the attribute appears, and an entry for the attribute is added to the page URL.

To match a page based on its URL, define your criteria based on how you want to parse the URL:

i Add page attribute for **URL path (entire path)**, and set the value to *profile/ui*.

ii Add a page attribute for **URL query parameters**. Set the parameter to *returnURL* and the value to `https://data.example.com/MyLogon/login?service=aHR0`.  

**Note:** Be aware of the case for all elements and selectors on your site when you configure rules. This includes form names, IDs, elements, and class names that are used in a CSS selector. For most comparisons, search terms and the page source is converted to lowercase and compared. However, **regular expressions** are left in their original case to preserve special characters.

c (Optional) Review or modify the page URL that is constructed from your attributes. You can add separators in the fields that are between attributes.  

**Tip** If you select **URL path (entire path)** for a section’s **Source attribute** value, typically you should remove the default separator (`/`) for the attribute sections. Removing the default separator avoids issues where an extra forward slash is added to a URL part that already contains a forward slash.

d Click **Preview Value** to see the final page URL.

For example, assume that you want to transform a URL to remove everything after the string “testurl”. Complete these steps on the **Page URL** tab:

a Add these values to the **Domain** section:

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute name</td>
<td>Domain</td>
</tr>
<tr>
<td>Source attribute</td>
<td>URL domain</td>
</tr>
</tbody>
</table>

b Add a section called "URL without testurl".

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute name</td>
<td>URL without testurl</td>
</tr>
<tr>
<td>Source attribute</td>
<td>URL path (entire path)</td>
</tr>
<tr>
<td>Return</td>
<td>After</td>
</tr>
<tr>
<td>After</td>
<td>testurl</td>
</tr>
</tbody>
</table>

c Add a forward slash between the attributes in the preview URL.
5 (Optional) On the Query Parameters tab, define a rule to keep or remove query parameters from the URL. Like transforming the URL, defining this rule gives you more control over the URL that data collection is associated with. Use a comma (,) to separate multiple values.

6 Publish the configuration changes. For more information, see “Publish Data Processing Settings” in SAS Customer Intelligence 360: User’s Guide.

Define Advanced Collection Rules

The advanced collection rules enable you to collect data on common actions by users on your site. These actions are more complex, so simple collection rules might not capture your user’s behavior in a way that enables you to see the larger picture. These actions include behaviors such as using shopping carts, filling out specific forms, going through a check-out sequence, or performing a custom business process.

The advanced rules that you can configure align with the model for how the data is stored in the database. In this way, you can easily find the data that you need in the targeting and analytics components of SAS 360 Discover.

Note: When you first start SAS Customer Intelligence 360, no advanced collection rules are defined.

The procedure to define an advanced collection rule is similar for most types. These are the common steps:

1 From the navigation bar, click Advanced Collection Rules.

2 Click and select the type of rule.

3 Define attributes to identify the page or pages that relate to the collection rule. Define attributes that are based on values such as the path, page elements, attributes, and so on.

   To match a page based on its URL, define your criteria based on how you want to parse the URL:

   a Add page attribute for URL path (entire path), and set the value to profile/ui.

   b Add a page attribute for URL query parameters. Set the parameter to returnURL and the value to https:%2F%2Fdata.example.com%2FMyLogon%2Flogin%3Fs&service%3DaHR0.
Note: Be aware of the case for all elements and selectors on your site when you configure rules. This includes form names, IDs, elements, and class names that are used in a CSS selector. For most comparisons, search terms and the page source is converted to lowercase and compared. However, regular expressions are left in their original case to preserve special characters.

Define attributes to identify additional details. This information can come from page elements, page or element attributes, cookie data, and so on. For example, you define rules that capture data such as this:

- content change on a page
- changes to the value of a JavaScript variable inside an object
- form interactions
- an element ID or the onClick() value for a click event
- HTML5 custom attributes that exist on an element

Note: Be aware of the case for all elements and selectors on your site when you configure rules. This includes form names, IDs, elements, and class names that are used in a CSS selector. For most comparisons, search terms and the page source is converted to lowercase and compared. However, regular expressions are left in their original case to preserve special characters.

Assign a name for categories or types. You can use either a static term for everything that fits that type, or you can construct the name based on a combination of static terms and attributes that extract information.

a. Click † and define a page load attribute.

b. Click Preview Value to see the constructed field name.

Publish the configuration changes. For more information, see “Publish Data Processing Settings” in SAS Customer Intelligence 360: User’s Guide.

Note: The Last Published date in the table is the same for all advanced collection rules. This is because all configuration changes are published at the same time.

View Reports

To view predefined reports in SAS Customer Intelligence 360, click ⌂ from the navigation bar. Click a report name to open the report.

The Discover reports contain detailed data about website visitors and their activities during a browsing session. You can filter the data by metric, date range, visitor type, device type, bounce status, and other options.

The real-time reports provide information for the preceding 24 hours.

The following reports are available:

- Email Summary: Compares the performance of email tasks.
- Advertising and Campaigns: Uses the highest number of conversions or highest number of visits to evaluate overall marketing performance.
- **Business Processes:** Analyzes the success and abandonment rates of multi-step business processes.
- **Content:** Analyzes the most-visited URLs, entry pages, and exit pages.
- **Downloads:** Analyzes content that has the highest download rate.
- **Ecommerce:** Analyzes product performance, purchases, and revenue over time.
- **Forms:** Uses the highest number of completed forms and highest number of abandoned forms to analyze user interaction with forms.
- **Goals:** Analyzes the highest-performing goals.
- **Internal Searches:** Analyzes the effectiveness of internal searches in locating information.
- **Media:** Uses the highest number of views or highest total viewing time to evaluate media content.
- **Promotions:** Uses the highest number of displays or highest number of click-throughs to evaluate site-specific promotions.
- **Visits:** Analyzes types of visits and tools that are used to access websites.
- **Real-Time Email Task Performance:** Displays email task activity for the preceding 24 hours.
- **Real-Time Mobile App Performance:** Displays active, returning, and new users for unique mobile device ID for the preceding 24 hours.
- **Real-Time Push Notification Task Performance:** Displays information about push notifications that were sent and opened for the preceding 24 hours.

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**Create and Manage Access Points**

To get access to APIs that are exposed through the API gateway, you must first set up an access point in SAS Customer Intelligence 360. This access point enables you to generate a JWT that is required to make REST calls to the API.

**Add a General Access Point**

To use the on-premises gateway functionality, you must define a general access point in SAS Customer Intelligence 360. If you need to set up SAS Real-Time Decision Manager or on-premises SAS Event Stream Processing to process SAS Customer Intelligence 360 events, you must download the general access point ZIP file, unzip it, and configure it. You do not need to download the ZIP file to send external events to SAS Customer Intelligence 360. You can also set up your own process to receive SAS Customer Intelligence 360 events without downloading the ZIP file.

To add a general access point:

1. Click 🗃.
   - Select **New General Access Point** from the drop-down list.
2. Click **Access Point Credentials**.
3. Enter unique information in the **Name** field.
The ID is automatically generated by the system.

4 To add general access point credentials (that is, a key for the access point), click Add.

5 To activate the general access point, select Active. By default, the status of the general access point is Inactive.

   Note: You must add general access point credentials before you can change the status of the access point to Active.

6 In the Request New Credentials dialog box, click OK to accept the system-generated Tenant ID and Client secret.

7 If necessary, replace or remove the credentials. To replace the client secret, click Replace, and then click OK in the Request New Credentials dialog box. To remove the system-generated tenant ID and client secret, click Remove, and then click Yes in the confirmation dialog box.

8 To identify the events that you want SAS Customer Intelligence 360 to send to the general access point, click Associations, select Select events, and then complete these actions:
   a Click .
   b Select the check box in the row for the event that you want to add. To add all items in the table, select the check box in the top row of the event table.

      To search for an event, enter information in the search box in the Select Event window.
   c Click OK.

9 To identify the data views that you want SAS Customer Intelligence 360 to send to the general access point, click Associations, select Select data views, and then complete these actions:
   a Click .
   b Select the check box in the row for the data view that you want to add. To add all items in the table, select the check box in the top row of the data view table.

      To search for a data view, enter information in the search box in the Select Data View window.
   c Click OK.

10 To specify the IDs that become mapped to the internal ID for outgoing and incoming events:
   a Click Associations.
   b Select Associated IDs.
   c Select one or more items in the Available items panel, and then click . To select all available items, click . To undo your selection, click .

      The values for these IDs are inserted into events sent from SAS Customer Intelligence 360 to the on-premises access point (outgoing events) and into events sent from the on-premises access point to SAS Customer Intelligence 360 (incoming events).

11 Email send agents must be associated with an on-premises access point in order for the email send agent to send generated opt-out events to the on-premises access point for processing. For more information, see "Email Settings" in SAS Customer Intelligence 360: User's Guide.
Note: If any of the email send agents are associated with an external access point, then that external access point also receives all hard-bounce events for that tenant.

To associate an email send agent with the access point, click Email, select Select send agents, and then complete these actions:

a Click .

b Select the check box in the row for the send agent that you want to add. To add all send agents in the table, select the check box in the top row of the send agent table.

c Click OK.

12 To associate a third-party content management system (CMS) with the general access point, click Content Management, and then complete these steps:

a Select the Enable content management check box. Only a single general access point for a tenant is allowed to have CMS integration enabled.

b Enter appropriate information into the Name field.

c Enter the name of the class defined in your JAR file into the Class field.

d (Optional) Select the Allow search check box if your CMS is enabled to allow searches.

e (Optional) Select the Allow folders check box if your CMS includes folders.

13 To map SAS Event Stream Processing windows either inbound to or outbound from SAS Customer Intelligence 360 external events, click SAS Event Stream Processing, and complete these actions:

a Select the Enable events from or to SAS Event Stream Processing check box.

b Enter the location of the SAS Event Stream Processing application in the SAS Event Stream Processing URL field.

c Click either the Inbound Events or Outbound Events tab.

d Click the Add Event Maps button.

e Enter the names of SAS Event Stream Processing windows that are being mapped into (inbound) or out from (outbound) SAS Customer Intelligence 360 external events in the Event Stream Processing window field.

f In the Trigger event field, click and select external events that are being mapped into (inbound) or out from (outbound) SAS Customer Intelligence 360.

Note: For inbound events, the Event Stream Processing window field appears first, followed by the Trigger event field to signify that the mapping goes in the direction of SAS Customer Intelligence 360. For outbound events, these fields appear in reverse to signify that the mapping is out from SAS Customer Intelligence 360.

g In the Attributes field, enter SAS Event Stream Processing window variables and SAS Customer Intelligence 360 event attributes in this format: window variable name, event attribute for inbound mappings and event attribute, window variable name for outbound mappings. You can enter multiple pairs of window variables and event attributes that are separated by a new line.

h To map additional SAS Event Stream Processing windows to SAS Customer Intelligence 360 events, click .

i To remove an event map, click in the panel for the map.
To map SAS Customer Intelligence 360 events to SAS Real-Time Decision Manager events, click **SAS Real-Time Decision Manager**, and then complete these actions:

a. Select the **Enable streaming events to SAS Real-Time Decision Manager** check box.

b. Enter the location of the SAS Real-Time Decision Manager application in the **SAS Real-Time Decision Manager URL** field.

c. Click **[ ]** and then select a SAS Customer Intelligence 360 trigger event. The occurrence of this event generates an offer from SAS Real-Time Decision Manager.

d. In the **Real-Time Decision Manager event** field, enter the SAS Real-Time Decision Manager event that you want to map to a SAS Customer Intelligence 360 event.

e. (Optional) Click **[ ]** and select an external event in SAS Customer Intelligence 360 to use as a response event.

f. In the **Attributes** field, enter SAS Customer Intelligence 360 event attributes and SAS Real-Time Decision Manager event attributes in this format: **SAS Customer Intelligence 360 event attribute, SAS Real-Time Decision Manager event attribute**. You can enter multiple pairs of event attributes that are separated by a new line.

g. To map additional SAS Customer Intelligence 360 events to SAS Real-Time Decision Manager events, click **[ ]**.

h. To remove an event map, click **[ ]** in the panel for the map.

To download the general access point SDK, click **Download Framework**, and then click **Download General Framework** to download the ZIP file to a directory on your local system. Provide the file and login credentials to users who need access to interact with SAS Customer Intelligence 360.

To configure the general access point, manually copy and paste the tenant ID and client secret to the `/config/event-streaming-configuration.properties` file located in the folder where the access point is installed and included in the downloaded SDK ZIP file. For more information about configuring the general access point, see “Contents of the General Access Point SDK” in **SAS Customer Intelligence 360: User’s Guide**. Be sure to delete “#” in the lines that contain the tenant ID and client secret.

Click **Done**. The general access point appears in the table on the **Access** page.

**Edit a General Access Point**

*Note:* Edits to associated IDs, associated SAS Real-Time Decision Manager and SAS Event Stream Processing events, and associated email send agents are updated dynamically. Edits to the client secret and the class name for the CMS require a restart of the general access point.

1. In the table on the **Access** page, select a general access point.

2. Click **Access Point Credentials** to modify the general access point name, status, and credentials.

*Note:* You cannot edit the existing general access point ID.
3 If you want to discontinue sending events to the general access point, click **Associations** and select **None**.

To change the events that are sent to the general access point, click 📊, select the events that you want to send, and then click **OK**.

To delete an event that is being sent to the general access point, click 🗑️ in the row for the event.

To search for an event, enter information in the search box in the **Select Event** window.

4 If you want to discontinue sending data views to the general access point, click **Associations** and select **None**.

To change the data views that are sent to the general access point, click 📊, select the data views that you want to send, and then click **OK**.

To delete a data view that is being sent to the general access point, click 🗑️ in the row for the data view.

To search for a data view, enter information in the search box in the **Select Data View** window.

5 If you want to modify the associated IDs for a general access point, perform the following actions:
   a Select **Associations**.
   b Select **Associated IDs**.
   c Select one or more items in the **Available items** panel, and then click 🔄. To select all available items, click 🔄. To undo your selection, click 🔄.

To deselect items, select one or more items in the **Selected items** pane, and then click 🔄️. To deselect all items, click 🔄️. To undo your deselection, click 🔄️.

6 If you want to discontinue the general access point’s existing association with email send agents, click **Email** and select **None**.

To change an existing association with send agents, click 📩, select the email send agents that you want to associate with the general access point, and then click **OK**.

To delete an email send agent that is associated with the general access point, click 🗑️ in the row for the email send agent.

7 If you want to associate a CMS with the general access point, click **Content Management**, and then complete these steps:
   a Select the **Enable content management** check box. Only a single general access point for a tenant is allowed to have CMS integration enabled.
   b Enter appropriate information into the **Name** field.
   c Enter the name of the class defined in your JAR file into the **Class** field.
   d (Optional) Select the **Allow search** check box if your CMS is enabled to allow searches.
   e (Optional) Select the **Allow folders** check box if your CMS includes folders.

8 If you want to modify existing map events for SAS Event Stream Processing, click **SAS Event Stream Processing**, and then enter information in fields and make selections as desired.
9 If you want to modify existing map events for SAS Real-Time Decision Manager, click SAS Real-Time Decision Manager, and then enter information in fields and make selections as desired.

10 If you want to download the general access point SDK, click Download Framework, and then click Download General Framework to download the ZIP file to a directory on your local system. Provide the file and login credentials to users that need access to interact with SAS Customer Intelligence 360.

To configure the general access point, manually copy and paste the tenant ID and client secret to the /config/event-streaming-configuration.properties file located in the folder where the access point is installed and included in the downloaded SDK ZIP file. For more information about configuring the general access point, see "Contents of the General Access Point SDK" in SAS Customer Intelligence 360: User’s Guide. Be sure to delete “#” in the lines that contain the tenant ID and client secret.

11 Click Done.

Deactivate an Access Point

1 In the table on the Access page, select an access point with the status of Active.

2 Select Inactive.

3 Click Done.

Delete an Access Point

1 Click Select.

2 Click the check box in the row for the access point that you want to delete. To delete all access points in the table, click the check box in the top row of the access point table.

3 Click .

4 Click Yes in the confirmation dialog box.

Use the SAS 360 Discover Download API

Overview

The SAS 360 Discover Download API enables you to download data that was collected by SAS 360 Discover. After setting up the access point in the user interface, you access this API through a REST client or by using PROC HTTP in SAS.
To set up and use the API:

1. Set up the access point in SAS Customer Intelligence 360.
2. Generate the JSON web token (JWT).
3. Use REST to get a signed URL to download the data. This step is performed only once at the beginning of the process (or whenever the client secret is changed).

Here are the types of files that you can download from the API:
- non-partitioned identity data files
- partitioned detail data files
- Discover base table (DBT) files from the report mart
4. Download and process the data file.

Set Up the Access Point

To get access to the SAS 360 Discover Download API, you must first set up an access point in SAS Customer Intelligence 360. This access point enables you to generate a JWT that is required to make REST calls to the API.

To set up an access point:

1. Sign in to SAS Customer Intelligence 360.
2. From the navigation bar, click General ➔ External ➔ Access.
3. On the Access page, click < to create an access point.
4. Enter a name for the access point, and ensure that it is activated.
5. To get the tenant ID and client secret, click Add under Access Key, and then click OK. Take note of the following information for the access point:
   - access point name, which is needed for REST calls
   - tenant ID, which is needed for REST calls and to generate the JWT
   - client secret, which is needed to generate the JWT
6. Determine the URL for the API.
   - The URL is displayed in the Access section of the interface where access points are created and downloaded so that the endpoint is known to the user.
   - In your REST calls, substitute the SAS 360 Discover Download API string in the following example with your actual host name and path:

     ```
     GET https://<SAS 360 Discover Download API>/marketingGateway/discoverService/dataDownload/eventData/detail/nonPartitionedData
     ```
Generate the JWT

Access to the SAS 360 Discover Download API is controlled by a JWT that is generated from the tenant ID and a string that is used as a client secret. JWTs are self-contained objects that enable two parties to transmit data securely between them. JWTs are defined by the RFC 7519 standard. They are digitally signed and can be independently verified.

Here are two methods that you can use to generate a JWT:

- an online tool such as JSON Web Token by Stormpath
- a local installation of Python and the pyjwt package

To generate a JWT with a local Python installation:

1. Install version 3.x or later of Python (external link).
2. Use the pip command in Python to install the pyjwt package. For example:
   ```bash
   c:\>c:\Python27\Scripts\pip.exe install pyjwt
   Collecting pyjwt
   Using cached PyJWT-1.5.2-py2.py3-none-any.whl
   Installing collected packages: pyjwt
   Successfully installed pyjwt-1.5.2
   ```
3. Start Python, and use the interactive Python console to generate a JWT. For example:
   ```python
   c:\>c:\Python27\python.exe
   Python 2.7.13 (v2.7.13:a06454b1afa1, Dec 17 2016, 20:42:59)
   [MSC v.1500 32 bit (Intel)] on win32
   Type "help", "copyright", "credits" or "license" for more information.
   >>> import jwt
   >>> import base64
   >>> tenant_id = "<tenant ID>"
   >>> client_secret = "<client secret>"
   >>> client_secret_bytes = bytearray(client_secret, 'ascii')
   >>> token = jwt.encode({'clientID': tenant_id}, base64.b64encode(client_secret_bytes), algorithm='HS256')
   >>> print(token)
   >>> quit()
   ``
   The print() function of this script displays the value for the JWT in the console window.

For REST calls and other access points to connect to the external API gateway, the JWT must be included in the HTTP Authorization header as `<type> <credentials>`, where type is Bearer and credentials is the JWT string. For example, the Authorization header of a REST call might look like this example:

```
Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiJ...</`
```

Send a REST Call to Get the Download Location

After you have generated the JWT, use a REST call to get a list of data files and schema files (in JSON format) to download. You can issue REST calls from a REST client (such as REST Client for Firefox or the stand-alone Insomnia REST Client), the PROC HTTP method in SAS, or a command line application such as curl.
Generally, the URL for a REST call looks similar to this example:

GET https://<SAS 360 Discover Download API>/discoverService/dataDownload/eventData/detail/<download_type>?params...

Use these guidelines to construct the URLs:

- The protocol for the REST call is HTTPS.
- The host address for the SAS 360 Discover Download API depends on the region in which your tenant is hosted.
- With each REST call, be sure to include the JWT in the header or send the JWT through a parameter. The JWT can be passed to the API by using one of these methods:
  - In SAS, specify the header statement in PROC HTTP.
  - Specify the JWT in the header option or header tab of the REST client that you are using. For more information, see the documentation for your REST client.
  - If you are using curl to send REST calls, specify the JWT with the -H parameter.

The URL string for the REST call depends on the data that you want to download.
# Working with SAS 360 Engage: Digital

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Work with Spots

A spot is the place on a mobile application or web page where a task delivers content. When you create a spot, you specify the location on a mobile application or web page where you want content to appear. You can also define spot attributes for use in data collection and task targeting. When you create a task, you select the spot that you want the task to deliver content to.

Create a Spot

1. From the navigation bar, click \( \text{Spots} \).
2. Click \( \text{Add Spot} \).
3. Select the spot type.
   - Select \( \text{Mobile} \) to define the place in a mobile application where a message is displayed.
   - Select \( \text{Web} \) to define the place on a web page where creatives are displayed.
   - Select \( \text{Web Single-Page Set} \) to create a set of spots on a single web page. Use single-page sets to coordinate the delivery of your content to multiple same-page spots at once.
   - Select \( \text{Web Multi-Page Set} \) to create a set of spots on different web pages. Use multi-page sets to coordinate the delivery of your content to multiple spots on different pages.
4. Select the spot location.
5. Update the properties of the spot by navigating to \( \text{Spot Details} \) \( \Rightarrow \) \( \text{Spot Configuration} \). For example, you can edit the spot identification, location, or dimensions.
6. Add additional spot attributes by selecting \( \text{Spot Details} \) \( \Rightarrow \) \( \text{Spot Attributes} \).
Navigate to the **Default Content** tab and activate the switch to add default content to your spot. Specifying default creatives ensures that content is displayed in your spot even if the spot is not used in an active task.

8 Navigate to the **Orchestration** tab and select either **Mark Ready** or **Mark Ready and Publish**. This action makes your spot available to a task.

A Ready status indicates that the spot is ready to be published with a task. When someone publishes a task that uses a Ready spot, that person is prompted to confirm that the spot should be published along with the task. Spots with a Ready status can be changed back to a Designing status by clicking **Return to Designing**. Changing the status prevents the spots from being published by a task.

To move a spot from a Ready status to an Active status, click **Publish**. Spots with an Active status cannot be changed back to Designing. A spot with an Active status does not prevent a task from publishing.

**Note:** To see which tasks use a spot, navigate to the **Orchestration** tab of that spot.

---

**Copy a Spot**

1. From the navigation bar, click **Spots**.
2. Click the check box next to a spot to select it.
3. Click \( \square \) and select **Copy**.
4. Enter a name for a spot. For mobile spots, enter a unique ID. For web spots, enter a selector.

---

**Manage a Spot**

While your spot is active, you can monitor its performance on the **Insights** tab. You can use the information to gauge how much traffic your spot is getting, which can help you determine whether your spot is in a good location.

Click **End** from the **Orchestration** tab to change the status from Active to Complete. Completed spots cannot be used in a task and cannot be modified. Ending a spot stops any associated data collection and makes the spot's content unavailable. In addition, any unsaved changes to the spot are lost.

**Note:** If you complete a spot that is associated with an active task, then that active task is also completed. If you complete a spot that is associated with an active task that is part of an activity, then both the task and the activity are completed. As a result, all data collection ends for these items. In addition, any spot sets that use the spot are also completed. Content cannot be delivered to completed spots. As a result, any unpublished tasks that use the completed spot need to be updated to use a different spot before the tasks can be published.
A creative represents the content that a task delivers to a web page, via email, or to a mobile application. There are many ways to build creatives, including importing or using assets, using an HTML editor, or importing treatments from external applications. Creatives can be used in a spot or in a task, and you can group several creatives in a message.

For example, you can define a default creative for a spot so that the spot is never empty. Or, you can create a task that displays a creative on a web page when a known user is logged in. If you use merge tags or personalization variables in your creatives, you can deliver personalized content to your users.

To add creatives, click Creatives from the navigation bar.

- To import assets, click and then select Add creative from asset.
  
  Note: If you import an asset from Creatives, the imported asset is saved as a new creative.

- To import treatment offers from external applications, click and select Import Creatives.

- To build a creative, click and select the creative type.

  - HTML: Edit the HTML source, embed content from a URL, embed assets, and add merge tags to personalize the creatives. HTML creatives are used for web and email tasks.

  - Recommendation: Specify the information that a web task needs before the task can deliver personalized recommendations. A recommendation creative specifies the URL template that you want a task to use when making product recommendations.

  - Mobile In-App Message: Build the creatives that are displayed while a user is active within your mobile application.

  - Mobile Push Notification: Build the creatives that are used in a push notification.
Deliver Mobile In-App Messages

In-app messages are notifications that are displayed while the user is active in the application itself.

Add Content to Your Task

1. From the navigation bar, click Tasks.
2. Click and select In-App Message to deliver content to a mobile application.
3. Select the application where your message will be delivered. Click Create Task.

All of the details and items associated with the content that your task delivers are specified on the Content tab. In the properties pane of the Content tab, use the icons to change the spot, message, and creatives that the task uses. You can also set the distribution and impression limits for the creatives or add targeting criteria to each creative associated with the task.

1. On the Content tab, click .
2. Click Select Content to add a message or creatives to the task. If there is more than one creative, in the Select creatives section, select which creatives the task displays.

Note: Instead of selecting an existing message or creative to add to the task, you can choose to create a message or creative. To create a message or creative, click New Message or New Creative. The message or creative that you create is automatically added to the task.

Set Impression Limits

Click to limit the number of times a customer sees your content.

- Select Limit total impressions per user to specify the total number of times a creative is displayed to a customer. This limit is valid for the duration of this task.
- Select Limit impressions per user by period.

Select Time period to specify the maximum number of impressions that a user sees during a specified time interval (for example, minutes, hours, days, or months).

Select Session to limit the number of impressions that a user sees while interacting with content, such as your website or mobile app. By default, the session is set to expire after 30 minutes of inactivity, but you can contact a SAS representative to modify this value.
Add a Target Audience

On the Targeting tab, set the criteria that define the target audience for the content that the task delivers. Previously defined segments, events, and data views can be selected as criteria. Criteria can be used to include or exclude people from the target audience.

- Add criteria to the Eligible page to specify which people to include in your target audience.
- Add criteria to the Exclusions page to specify which people to exclude from your target audience.

Set Metrics

Metrics measure events that the system can detect such as a person clicking on a spot on a device. On the Insights tab, add primary and secondary metrics to measure the success of the content being delivered by the task.

A primary metric is the leading measure for the success of the task. A secondary metric measures other benchmarks that you are interested in. A task must have one primary metric. A task can have multiple secondary metrics. Each secondary metric can have only one data view or event.

By default, a primary metric is created when content is added to a task. To add another primary metric:

1. Click +.
2. Select the criteria that you want to add. You can select an event view or a data view.
3. If attributes are defined for the event or data view, select the attribute conditions that must be met. For example, for a Click Through metric, you can select a particular creative as an attribute condition. The primary metric would be a click-through response to that creative.
   
   **Note:** Attributes are joined by an AND operator. Make sure that you do not define conflicting attributes that result in a condition that cannot be met.

4. Select *Stop delivery after conversion* to stop delivering creatives when the primary metric for the task is met.
5. Click *Add Secondary Metric* to add a secondary metric.

Set the Trigger Event for Your Task

1. Navigate to Orchestration ⇒ Trigger Event.
2. Select the event to trigger the task, and then click OK.
Set the Priority of Your Task

Multiple tasks might compete for the same resources. When this happens, the system needs to know which task to deliver to the user. For this reason, tasks must be assigned a priority. For example, you might have the following situations:

- you might create two mobile in-app message tasks that deliver content using the same trigger event.
- you might create two mobile spot tasks that use the same spot.
- you might create two web tasks that use the same spot.

Here are the rules for how relative priority is determined:

- Priority is set relative to other tasks of the same type.
- Priority is set based on a scale of 1 to 5, where 1 is the highest priority and 5 is the lowest priority. The default priority is 3. You can change the priority.

Note: A/B test tasks have a priority of Test, which is a higher priority than tasks that are not A/B tests. You cannot change the priority of an A/B test task.

- If the priority of two or more tasks of the same type is the same and a user qualifies for both, the system randomly chooses the task to deliver.

To set the priority of a task:

1. Navigate to the Orchestration → Priority tab.
2. Select the number that represents the task’s priority over all other tasks that compete for the same resource.

Note: If an A/B test task exists that competes for the same resource, the A/B test task delivers its content regardless of the priority that you set here.

Schedule and Start Your Task

When you finish updating your task, you can mark the task ready, publish the task immediately, or set a schedule for the task.

On the Orchestration tab, take these actions:

- Click No schedule if you plan to publish the task manually.
- Click Set a schedule to set a time period that the task is active.
- Select a time zone. For example, you might want to select a time zone that is different from the default if the task is targeted to a specific locale. By default, the time zone is the same as the time zone that is set for the tenant. If a valid time zone is not set for the tenant, the default time zone is UCT.
- Click Single occurrence to specify a single time span that the task is active.
- Select a start date and an end date for the task.

Note: If you select Single occurrence, the start date cannot be edited after the task is published.
Click **Recurrence** to specify a recurring task. Click 📅.

Specify these details for a recurring schedule:

- **Start time** is the start time for the first occurrence.
- **Duration** specifies the amount of time that the content is available for each occurrence. For example, a task might start every week on Monday, and continue for four days.
- **Frequency** specifies that the schedule for the recurrence. If you click **Weekly**, click the day for each occurrence. You can select multiple days in each week. If you click **Monthly**, select the numbered day or the weekday for the recurrence. For example, you can select the 10th day of each month or the second Tuesday of each month.

  **Note:** You can edit the weekly or monthly frequency after the task is published and the start date has passed. The recurrence must occur within the start and end dates.

- **Range of recurrence** specifies the start and end dates, or that the recurrence continues without an end date.

- **Extend metrics analysis** continues collecting data after the last occurrence. Select the number of days to extend data collection. The default value is 7 days. For example, if you use the default value, and the **Start time** is 9:00 PM, data collection continues until 9:00 PM seven days after the **End by** date.

  Customers might respond several days after the last occurrence. You can extend the time for data collection in order to more effectively measure task performance.

  During the extended period of data collection, the status is Active - Metrics Only. The status changes to Complete when the **Extend metrics analysis** period is over.

- Select **Mark Ready** to change the status from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click **Publish**.

  **Note:** When you publish an item, you are prompted to publish any dependent items that are marked Ready.

  Items with a Ready status can be changed back to a Designing status by clicking **Return to Designing**. Changing this status to Designing prevents the item from being published.

  **Note:** If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.

- Select **Mark Ready and Publish** to change the status from Designing to Active. Items with an Active status cannot be changed back to Designing.

Changes to a scheduled or active task are not automatically propagated to the published version of the task. You must republish the task after you save it to resolve the Out of Sync status. Otherwise, the task stays out of sync with the published version and the updates are not delivered.

When the end date of a task is reached, its status changes to Complete. Completed tasks cannot be modified. The task stops any associated data collection and makes the task’s content unavailable. In addition, any unsaved changes are lost.

**Note:** A recurring schedule is not available if the task is included in an activity.
End the Task

While your task is running, it collects data and gathers information about progress toward your goals. Navigate to the Insights tab to check the progress of your task.

Click **End** on the **Orchestration** tab when you no longer need the task to run or when the scheduled end date is reached. The status changes from Active to Completed. Completed tasks do not collect new data, do not deliver content to a spot, and cannot be modified. Any unsaved changes to the task are lost.

Deliver Mobile Push Notifications

Add Content to Your Task

1. From the navigation bar, click **Tasks**.
2. Click 📰 and select **Push Notification** to deliver content to a mobile application.
3. You can determine whether the task delivers all content at the same time or when event conditions are met. Select a delivery type to specify how the task delivers content:
   - Click **Bulk** to deliver messages at the same time. You specify the schedule on the **Orchestration** tab. A bulk task can be used as the Start task in an activity.
   - Click **Triggered** to add a trigger event. You can add a trigger event on the **Trigger** page on the **Orchestration** tab. You can also specify criteria and values to add attribute conditions for the event. Content is delivered when all of the conditions are met.
4. Select the application where the message will be delivered. Click **Create Task**.

All of the details and items associated with the content that your task delivers are specified on the **Content** tab. In the properties pane of the **Content** tab, use the icons to change the spot, message, and creatives that the task uses. You can also set the distribution and impression limits for the creatives or add targeting criteria to each creative associated with the task.

1. Click 💻 on the **Content** tab.
2. Click **Select Content** to add a message or creative to the task. You can either choose to add an existing message or creative, or you can click **New Message** or **New Creative** to create a message or creative. The message or creative that you create is automatically added to the task.

**CAUTION!** Select only event attributes for creatives that are in triggered mobile push notifications. When creatives are used in triggered mobile push notifications, merge tags can only use event attributes. Values that are from other data sources, such as the data hub, will not be resolved.
Add a Target Audience

On the **Targeting** tab, set the criteria that define the target audience for the content that the task delivers. Previously defined segments, events, and data views can be selected as criteria. Criteria can be used to include or exclude people from the target audience.

- Add criteria to the **Eligible** page to specify which people to include in your target audience.
- Add criteria to the **Exclusions** page to specify which people to exclude from your target audience.

Set Metrics

Metrics measure events that the system can detect such as a person clicking on a spot on a device. On the **Insights** tab, add primary and secondary metrics to measure the success of the content being delivered by the task.

A primary metric is the leading measure for the success of the task. A secondary metric measures other benchmarks that you are interested in. A task must have one primary metric. A task can have multiple secondary metrics. Each secondary metric can have only one data view or event.

By default, a task is created with a primary metric. To add another primary metric:

1. Click ++.
2. Select the criteria that you want to add. You can select an event view or a data view.
3. If attributes are defined for the event or data view, select the attribute conditions that must be met. For example, for a Click Through metric, you can select a particular creative as an attribute condition. The primary metric would be a click-through response to that creative.

   **Note:** Attributes are joined by an AND operator. Make sure that you do not define conflicting attributes that result in a condition that cannot be met.

4. Select **Stop delivery after conversion** to stop delivering creatives when the primary metric for the task is met.
5. Click **Add Secondary Metric** to add a secondary metric.

Schedule and Start Your Task

When you finish updating your task, you can mark the task ready, publish the task immediately, or set a schedule for the task.

On the **Orchestration** tab, take these actions:

- Click **No schedule** if you plan to publish the task manually.
- Click **Set a schedule** to set a time period that the task is active.
Select a time zone. For example, you might want to select a time zone that is different from the default if the task is targeted to a specific locale. By default, the time zone is the same as the time zone that is set for the tenant. If a valid time zone is not set for the tenant, the default time zone is UCT.

Click **Single occurrence** to specify a single time span that the task is active.

Select a start date and an end date for the task.

**Note:** If you select **Single occurrence**, the start date cannot be edited after the task is published.

Click **Recurrence** to specify a recurring task. Click **Recurrence**.

Specify these details for a recurring schedule:

- **Start time** is the start time for the first occurrence.
- **Frequency** specifies that the schedule for the recurrence. If you click **Weekly**, click the day for each occurrence. You can select multiple days in each week. If you click **Monthly**, select the numbered day or the weekday for the recurrence. For example, you can select the 10th day of each month or the second Tuesday of each month.

  **Note:** You can edit the weekly or monthly frequency after the task is published and the start date has passed. The recurrence must occur within the start and end dates.

- **Range of recurrence** specifies the start and end dates, or that the recurrence continues without an end date.

- **Extend metrics analysis** continues collecting data after the last occurrence. Select the number of days to extend data collection. The default value is 7 days. For example, if you use the default value, and the **Start time** is 9:00 PM, data collection continues until 9:00 PM seven days after the **End by** date.

  Customers might respond several days after the last occurrence. You can extend the time for data collection in order to more effectively measure task performance.

  During the extended period of data collection, the status is Active - Metrics Only. The status changes to Complete when the **Extend metrics analysis** period is over.

- Select **Mark Ready** to change the status from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click **Publish**.

  **Note:** When you publish an item, you are prompted to publish any dependent items that are marked Ready.

  Items with a Ready status can be changed back to a Designing status by clicking **Return to Designing**. Changing this status to Designing prevents the item from being published.

  **Note:** If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.

- Select **Mark Ready and Publish** to change the status from Designing to Active. Items with an Active status cannot be changed back to Designing.

Changes to a scheduled or active task are not automatically propagated to the published version of the task. You must republish the task after you save it to resolve the Out of Sync status. Otherwise, the task stays out of sync with the published version and the updates are not delivered.

When the end date of a task is reached, its status changes to Complete. Completed tasks cannot be modified. The task stops any associated data collection and makes the task's content unavailable. In addition, any unsaved changes are lost.
Note: A recurring schedule is not available if the task is included in an activity.

End the Task

When your task is running, it collects data and gathers information about progress toward your metrics. Navigate to the Insights tab to check the progress of your task.

Click End on the Orchestration tab when you no longer need the task to deliver content or when the scheduled end date is reached. The status changes from Active to Complete. Completed tasks do not collect new data, do not deliver content to a spot, and cannot be modified. Any unsaved changes to the task are lost.

Add Task to an Activity

To publish the task, you have to associate it with an activity.

Deliver Web Content

Create tasks that deliver content to one or more spots on your web pages. You can track and collect data about customer behavior on those web pages, and then use that information to gain insights about your web campaign.

Add Content to Your Task

All of the details and items associated with the content that your task delivers to the web are specified on the Content tab. Use the icons available on the Content tab to change the spot, message, and creatives that the task uses. You can also set the distribution and impression limits for the creatives or add targeting criteria to each creative associated with the task.

Create a Task

1. From the navigation bar, click Tasks.
2. Click .

Select the Spot

You can add either a spot or spot set to the task. When you are designing your task, you can see information about the spot by clicking to open the Spot tab. On the spot tab, click to change the spot where your content is displayed. You can select an existing spot, or you can click New Spot to create one. The spot that you create is automatically added to the task.
Add Message or Creatives

1. Click to open the Content Selection tab.

2. Click Select Content to add a message or to add creatives to the task. You can choose either to add an existing message or creative, or you can click New Message or New Creative to create a message or creative. The message or creative that you create is automatically added to the task. In the Select creatives section, select which creatives the task displays.

   Note: If you add a creative that contains a personalization variable, a message prompting you to specify the event or data view attribute is displayed above the creative. You can specify the attribute at any time on the Personalization tab of the Content tab.

3. Click Preview in Site to see how creatives look on your site before updating it. You can select the different creatives associated with a spot by clicking .

   Note: The creatives that appear are ordered by name.

Personalize Creatives

To deliver personalized content to a web page, your task must include a creative that uses merge tags or personalization variables. If the creative contains a personalization variable, you must select which event or data view attribute the task uses to resolve the variable.

1. Navigate to the Personalization tab.

2. Select the creative.

3. Click to add a value to the personalization variable.

4. Select the event or data view attribute that corresponds to the information that you want the creative to display when the task delivers content.

   Note: In order for the personalized content to be displayed successfully, the event or data view attribute that you select must also be included in the targeting criteria for this task.

5. (Optional) Enter a default value. The default value is used when the customer data cannot be retrieved. For example, if a user is not logged on to your website, the system cannot know the user’s identity. As a result, no customer information is available to replace the merge tag. Instead, the default value is used.

Set Distribution of Content

If this task contains more than one creative, you can refine how each creative is displayed.

Click to open the Distribution tab and select the method that you want the task to use when determining how to display content.
Frequency Distribution

Select **Frequency** to specify how often a creative is displayed compared with the other creatives in this task. Next, set a percentage for each creative.

**Note:** Frequency is the default distribution method. By default, each creative is assigned equal distribution.

Sequential Distribution

Select **Sequential** to set the order in which the creatives are displayed.

**CAUTION! The order is reset every 24 hours.** After 24 hours the order is reset, and the first creative in the sequence is selected again. If the content delivery schedule for your task is longer than 24 hours, the creatives might not be displayed in the order that you have specified.

Rule-based Distribution

Select **Rule-based** to split a task’s target audience into subgroups and associate a creative with each subgroup, thereby personalizing the content that your target audience sees. You can assign different criteria to each creative so that you can decide which creatives are delivered to different subgroups of the target audience.

**Note:** When you select the rule-based option, the criteria that you add to each creative are applied after the criteria on the **Targeting** tab are applied. Think of rule-based criteria as a way of refining which members of the task’s target audience see specific creatives.

Each creative is assigned a number that indicates the order in which the creative’s targeting criteria are evaluated. The creative that has the number 1 associated with it is evaluated first. The first creative with criteria that match a user is the creative that is delivered to that user. As a result, any creatives that come after the matching creative are not evaluated.

You can change the numbers that are associated with a creative by changing the position of the creative in the list. To change the creative order:

1. Click ![ from the **Distribution** tab.
2. Select the creative that you want to move.
3. Click the arrows to move the creative up or down in the list.

A best practice is to ensure that there is always a creative that is displayed in your spot. For web and mobile spot tasks, there are two ways to ensure that a spot that this task delivers content to is never empty.

- **Your task includes a spot that contains a default creative.**
- **The creative in the rule-based creatives list that comes last (that is, the creative associated with the highest number) does not contain additional targeting. A creative that is listed last and does not have additional criteria associated with it is displayed when none of the previous criteria match the task’s audience member.**

The creative that does not contain additional criteria becomes the default creative for this task. The default creative is denoted by ![]. As a result, any creatives listed after the default creative are never delivered.

**Note:** When you create a mobile in-app message or mobile push notification, you must denote one creative as the default creative.

To add targeting criteria to each creative, select the creative and follow these steps:
Select All of the following to include members who meet all of the criteria in a group. Or, select Any of the following to include members who meet one or more of the criteria in a group.

Click to view a summary of the criteria.

Click to make a copy of the criteria.

Click or to move criteria up or down in the list.

Click to create a group for a set of criteria.

Click to add criteria. In the Select Criteria window, select the criteria to add. In addition, you can use customer lists that have been imported from other sources, such as SAS Marketing Automation.

Note: For mobile in-app, mobile spot, and web targeting, when you add Browser and Device to your criteria, only the people who are using that browser or device during the current session are included in the target audience. For example, if you add Chrome as the browser, only the people who are using Chrome during the current session are eligible to be included in the target audience.

When you add a spot attribute that contains a URL query string parameter, the value of that parameter needs to be decoded for multi-byte character sets (MBCS). If you are adding a URL query string, the value should be encoded for MBCS.

Set Impression Limits

Click to limit the number of times a customer sees your content.

Select Limit total impressions per user to specify the total number of times a creative is displayed to a customer. This limit is valid for the duration of this task.

Select Limit impressions per user by period.

Select Time period to specify the maximum number of impressions that a user sees during a specified time interval (for example, minutes, hours, days, or months).

Select Session to limit the number of impressions that a user sees while interacting with content, such as your website or mobile app. By default, the session is set to expire after 30 minutes of inactivity, but you can contact a SAS representative to modify this value.

Add a Target Audience

On the Targeting tab, set the criteria that define the target audience for the content that the task delivers. Previously defined segments, events, and data views can be selected as criteria.

Note: You must define a login event type if you have tasks that depend on segments with data from logged-in users.

Criteria can be used to include or exclude people from the target audience.

Add criteria to the Eligible page to specify which people to include in your target audience.

Add criteria to the Exclusions page to specify which people to exclude from your target audience.

If no criteria are added to either the Eligible page or the Exclusions page, then the target audience consists of everyone.
To add eligibility or exclusion criteria:

- Select **All of the following** to include members who meet all of the criteria in a group. Or, select **Any of the following** to include members who meet one or more of the criteria in a group.
- Click  to view a summary of the criteria.
- Click  to make a copy of the criteria.
- Click  or  to move criteria up or down in the list.
- Click  to create a group for a set of criteria.
- Click  to add criteria. In the **Select Criteria** window, select the criteria to add. In addition, you can use customer lists that have been imported from other sources, such as SAS Marketing Automation.

**Note:** For mobile in-app, mobile spot, and web targeting, when you add **Browser and Device** to your criteria, only the people who are using that browser or device during the current session are included in the target audience. For example, if you add Chrome as the browser, only the people who are using Chrome during the current session are eligible to be included in the target audience.

When you add a spot attribute that contains a URL query string parameter, the value of that parameter needs to be decoded for multi-byte character sets (MBCS). If you are adding a URL query string, the value should be encoded for MBCS.

**Note:** Depending on the task type, you can select only one segment on the **Eligible** page, and one segment on the **Exclusions** page. If you do not add criteria, no content is delivered.

### Set Metrics

Metrics measure events that the system can detect. For example, the system can detect certain events such as a person clicking on a spot on a web page. Define metrics by adding data views or events that measure the success of the content being delivered by the task. Add a primary metric and additional secondary metrics on the **Insights** tab.

The primary metric measures conversions to determine the success of the task. A secondary metric measures other benchmarks that you are interested in. A task must have one primary metric. A task can have multiple secondary metrics. Each secondary metric can have only one data view or event.

By default, a task is created with a Click Through primary metric. To change the metric:

1. Select the metric and click .
2. Click  to add conditions to the existing metric. For example, for a Click Through metric, you can select a particular creative as an attribute condition. The primary metric would be a click-through response to that creative.

   **Note:** Attributes are joined by an AND operator. Make sure that you do not define conflicting attributes that result in a condition that cannot be met.

3. Click  to select a different data view or event.
4. To mark this metric as a contact or response that can be tracked and used for reporting and future targeting, select **Classify this selection**. Classifying a selection enables you to compare contacts and responses across creatives and channels. You can personalize
future messages and creatives. You can also use the information to segment customers. You can classify selections in both primary and secondary metrics.

To record the number of times that a customer interacts with a creative or a spot, select **Mark this selection as a contact**. This information is available as contact history for SAS Marketing Automation, SAS Real-Time Decision Manager, and other applications.

To mark this metric as a response to a creative, select **Mark this selection as a response**. Enter an Associated value to identify the type of response. For example, enter blue to track the customer response to an image of a blue shirt.

5. Select **Stop delivery after conversion** to stop delivering creatives when the primary metric for the task is met.

When delivery of the creatives stops, that same spot might switch to displaying creatives from another task. If there is no other task delivering a creative to that spot, then the spot's default creative is displayed. If there are no other tasks delivering content to that spot and there is no default content defined for that spot, then the spot is empty.

To add secondary metrics:

1. Click **Add Secondary Metric**.

2. Select the data views or events that you want to add. Each data view or event that you select becomes a secondary metric.

For example, you could create multiple secondary metrics that are Click Through events. Each metric could have a different creative as an attribute condition. Each secondary metric would be a click-through response to a different creative.

To change an existing metric, select the metric and click **Save**. To delete a metric, click it, and then click **Delete**.

### Set the Priority of Your Task

Multiple tasks might compete for the same resources. When this happens, the system needs to know which task to deliver to the user. For this reason, tasks must be assigned a priority. For example, you might have the following situations:

- you might create two mobile in-app message tasks that deliver content using the same trigger event.
- you might create two mobile spot tasks that use the same spot.
- you might create two web tasks that use the same spot.

Here are the rules for how relative priority is determined:

- Priority is set relative to other tasks of the same type.
- Priority is set based on a scale of 1 to 5, where 1 is the highest priority and 5 is the lowest priority. The default priority is 3. You can change the priority.

  **Note:** A/B test tasks have a priority of Test, which is a higher priority than tasks that are not A/B tests. You cannot change the priority of an A/B test task.

- If the priority of two or more tasks of the same type is the same and a user qualifies for both, the system randomly chooses the task to deliver.

To set the priority of a task:
1. Navigate to the Orchestration ➤ Priority tab.

2. Select the number that represents the task’s priority over all other tasks that compete for the same resource.

   **Note:** If an A/B test task exists that competes for the same resource, the A/B test task delivers its content regardless of the priority that you set here.

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**Schedule and Start Your Task**

When you finish updating your task, you can mark the task ready, publish the task immediately, or set a schedule for the task.

On the Orchestration tab, take these actions:

- Click **No schedule** if you plan to publish the task manually.
- Click **Set a schedule** to set a time period that the task is active.

- Select a time zone. For example, you might want to select a time zone that is different from the default if the task is targeted to a specific locale. By default, the time zone is the same as the time zone that is set for the tenant. If a valid time zone is not set for the tenant, the default time zone is UCT.

- Click **Single occurrence** to specify a single time span that the task is active.

- Select a start date and an end date for the task.

  **Note:** If you select **Single occurrence**, the start date cannot be edited after the task is published.

- Click **Recurrence** to specify a recurring task. Click ▼.

  Specify these details for a recurring schedule:

  - **Start time** is the start time for the first occurrence.
  - **Duration** specifies the amount of time that the content is available for each occurrence. For example, a task might start every week on Monday, and continue for four days.
  - **Frequency** specifies that the schedule for the recurrence. If you click **Weekly**, click the day for each occurrence. You can select multiple days in each week. If you click **Monthly**, select the numbered day or the weekday for the recurrence. For example, you can select the 10th day of each month or the second Tuesday of each month.

    **Note:** You can edit the weekly or monthly frequency after the task is published and the start date has passed. The recurrence must occur within the start and end dates.

  - **Range of recurrence** specifies the start and end dates, or that the recurrence continues without an end date.

  - **Extend metrics analysis** continues collecting data after the last occurrence. Select the number of days to extend data collection. The default value is 7 days. For example, if you use the default value, and the **Start time** is 9:00 PM, data collection continues until 9:00 PM seven days after the **End by** date.

    Customers might respond several days after the last occurrence. You can extend the time for data collection in order to more effectively measure task performance.

    During the extended period of data collection, the status is Active - Metrics Only. The status changes to Complete when the **Extend metrics analysis** period is over.
Select **Mark Ready** to change the status from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click **Publish**.

**Note:** When you publish an item, you are prompted to publish any dependent items that are marked Ready.

Items with a Ready status can be changed back to a Designing status by clicking **Return to Designing**. Changing this status to Designing prevents the item from being published.

**Note:** If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.

Select **Mark Ready and Publish** to change the status from Designing to Active. Items with an Active status cannot be changed back to Designing.

Changes to a scheduled or active task are not automatically propagated to the published version of the task. You must republish the task after you save it to resolve the Out of Sync status. Otherwise, the task stays out of sync with the published version and the updates are not delivered.

When the end date of a task is reached, its status changes to Complete. Completed tasks cannot be modified. The task stops any associated data collection and makes the task's content unavailable. In addition, any unsaved changes are lost.

**Note:** A recurring schedule is not available if the task is included in an activity.

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**Create an Activity**

Create an activity that charts the customer paths that are designed to meet the goals of a marketing campaign.

1. From the navigation bar, click **Activities**.
2. Click **Create**.
3. Click **+** in the **Start** column of the activity map and select a task or a trigger event.
   
   For more information about trigger events, see "Use Events to Guide Customers Through an Activity" on page 54.

4. Add tasks to the path after the Start task or trigger event by clicking **+**.
   
   For information about other nodes that you can add to the activity map, see “Test Activity Paths” on page 72 and “Create New Paths Based on Customer Behavior” on page 54.

5. When you finish adding paths to your activity map, click **Create** to ensure that the activity map is valid.
Use Events to Guide Customers Through an Activity

Use a Trigger event to select customers based on their actions, such as clicking a link on a web page.

1. Click ‡ in the Start column of the activity map and select Trigger Event to add an event.
2. In the Event Details window, click to select the event.
3. To change the occurrence or time period of this event, click and set the event occurrence details.
4. Specify the number of times the event must occur in order for a person to be eligible. Set an operator and value for Occurrences. For example, you can set the Occurrence to Less than (<) 5. This setting specifies that an event must occur at most four times in order for a person to be eligible.
   Set the time period in which all occurrences must occur:
   - Select Relative to define a time period relative to the current time, such as within the previous week or the previous hour.
   - Select Absolute to define a time period with specific dates. For example, you can set the time period so that the event occurs at least one time before a specified date or between two specified dates.
   - Select None when you do not need to define a time period for the event. Events that are added to an activity and do not have a defined time period are eligible anytime that they occur.
5. If the event contains attributes, click ‡ to add more conditions. For example, you can specify a product name if the event has a product name attribute.

Create New Paths Based on Customer Behavior

Use a Split in an activity to decide how to treat customers according to their behavior.

1. Click ‡ and select Split to add a split to the activity map.
2. The metrics that are used in the split are defined in the preceding task. Secondary metrics have separate paths. Select the metrics that you want to include as output paths from the split.
3. In the Split Properties window, click Add Split.
You can then specify the following conditions for creating additional output paths from the split:

- Set the length of time to wait before evaluating the conditions and determining whether the customer is qualified to follow the path.
- The additional conditions are derived from the task metrics. For example, you can specify a condition that selects customers who clicked through but did not meet the primary metric within an hour of the impression. Click [3] to group the conditions.

4 Click OK. The Split on Conditions section in the Split Properties window displays the conditions for the split. By default, only users who qualify during the evaluation period are included. Click [4] and select Include all qualified users to include all users who meet the conditions, whether before or during the evaluation period.

5 Click Add Other node to create an output node that contains customers who have not followed any other output path from the Split node.

Attributing Credit to Touchpoints

Overview

A customer journey is a set of actions, or touchpoints, that a customer takes before converting. These touchpoints often cross channels, devices, and sessions. For example, a customer might click a paid search result for a product, and then see an ad for that product in a social media feed. In addition, the customer might receive an email or a message on a mobile device about the product. How do you know which of these touchpoints—the email, mobile message, search result, or social media advertisement—contributed to the final conversion? Attribution is the process of identifying touchpoints along a customer journey and assigning credit to those touchpoints so that you can analyze the contribution of each of these touchpoints toward the conversion. In order to determine attribution, analytics first discovers customer journeys for conversions and then assigns credit to the touchpoints in those journeys.

Analyzing Customer Journeys

Attribution analysis builds a customer journey by finding a conversion for the data view, and then identifying the touchpoints that led to that conversion. Attribution analysis is completed using two approaches: rule-based and analytical. Rule-based methods build customer journeys using touchpoints that have occurred prior to the conversion. An analytical method is not bound by a time period. Instead, the customer journeys that are identified by analytical methods have an association with the data view.

You can explore the results of both methods on the Attribution tab of the data view that you are interested in. The customer journeys built using analytics depend on data-driven decisions that identify whether a customer journey is worth evaluating. The rule-based method for building customer journeys depends on changing a parameter such as maximum number of touchpoints specified for a customer journey.
Analyzing Attribution

After a customer journey for a data view is created, each touchpoint in that journey is allocated a share of the credit for the conversion. This credit is known as a touchpoint’s attribution share. There are several models on the Attribution tab of a data view that you can use to explore a touchpoint’s attribution share.

The Attribution tab contains the following information:

- The Attribution Share graph that shows a touchpoint’s contribution toward a conversion across all customer journeys. Any touchpoint found in a customer journey is displayed on this graph. Each touchpoint contains a set of bars, one bar for each model. You can position your mouse pointer over a bar to see information about the touchpoint, such as the percentage of its attribution share.
- A Customer Journey section, where you can find details about the customer journeys for a selected touchpoint. For example, you can click a node in a customer journey to see information about that touchpoint and to access journey details such as the time period between touchpoints.

Track User Interaction with Events and Data Views

Events and data views can be used when creating segments and adding target audiences to a task. Data views, which contain events, are used to set metrics in tasks and activities.

Creating Events

To create an event, complete these actions:

1. From the navigation bar, click Events.

2. Click .

3. Select the event type that is appropriate for the interaction that you are tracking. By default, email events are recorded for all of the recipients. You do not need to perform any additional tasks to capture the data for email events.

Table 4.1  Events Types

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add to Cart</td>
<td>Define an event when a user adds a product to a cart.</td>
</tr>
<tr>
<td>Cart View</td>
<td>Define an event when a user views a cart.</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Check-out View</td>
<td>Define an online store's check-out page and the elements within it.</td>
</tr>
<tr>
<td>Click</td>
<td>Define an event when a page element is clicked.</td>
</tr>
<tr>
<td>External</td>
<td>Define an event that interacts with an external application.</td>
</tr>
<tr>
<td>Form Submit</td>
<td>Define an event when a user submits a form.</td>
</tr>
<tr>
<td>Mobile</td>
<td>Define an event when a user interacts with a mobile application.</td>
</tr>
<tr>
<td>Page View</td>
<td>Define an event when a user views a page.</td>
</tr>
<tr>
<td>Product View</td>
<td>Define an event when a user views a product on a mobile device or web page.</td>
</tr>
<tr>
<td>Purchase View</td>
<td>Collect data on a user's shopping experience.</td>
</tr>
</tbody>
</table>

4 Select the appropriate page or selector for your event. For example, if you are creating a page view event, navigate to the appropriate web page. If you are creating a form submit event, navigate to the appropriate form.

**Note:** Mobile events do not have a location tab.

5 Navigate to the Event Details tab to add or update information about your event. You can configure the event and edit or create event attributes.

6 On the Orchestration tab, complete one of these actions:

- Select Mark Ready to change the status from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click Publish.

  **Note:** When you publish an item, you are prompted to publish any dependent items that are marked Ready.

  Items with a Ready status can be changed back to a Designing status by clicking Return to Designing. Changing this status to Designing prevents the item from being published.

  **Note:** If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.

- Select Mark Ready and Publish to change the status from Designing to Active. Items with an Active status cannot be changed back to Designing.

If the content of a published item is changed and saved, that item becomes out of sync with the published version. To synchronize the content, select Republish. Otherwise, the item stays out of sync with the published version and the updates are not delivered.
Creating Data Views

Data views enable you to combine the attributes and data from one or more events to create an item that can be reused for targeting and analysis.

Create Data Views

To create a data view:

1. From the navigation bar, click Data Views.

2. On the Data Views page, click.

3. On the Conditions tab, add one or more existing events.

   Note: Currently, events can be combined only with the Any of the following option (which is a logical OR association). As a result, creating a nested group (with [ ]) has no discernible effect.

   a. Click.

   b. Enter the name of an event in the criteria’s text field, or click and select an event.

   c. (Optional) Refine the event’s attributes. Click. The attributes that you can modify are based on the attributes that are associated with the original event.

      Attributes that you modify do not affect the attributes for the event itself. The attributes in this panel affect how the event is processed for this data view only, so you can use an event in multiple contexts without changing its underlying definition.

   d. (Optional) After you add all the events, you can click to review the summary of how your events are used in this data view.

4. On the Attributes tab, review all of the attributes associated with this data view. This list is an intersection of the attributes from all of the events.

   Note: Data view attributes can be used in personalization variables if the attribute is listed on this tab.

5. On the Orchestration tab, complete one of these actions:

   - Select Mark Ready to change the status from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click Publish.

     Note: When you publish an item, you are prompted to publish any dependent items that are marked Ready.

     Items with a Ready status can be changed back to a Designing status by clicking Return to Designing. Changing this status to Designing prevents the item from being published.

     Note: If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.
Select Mark Ready and Publish to change the status from Designing to Active. Items with an Active status cannot be changed back to Designing.

If the content of a published item is changed and saved, that item becomes out of sync with the published version. To synchronize the content, select Republish. Otherwise, the item stays out of sync with the published version and the updates are not delivered.

**Note:** If a task or activity is using a data view that is published, you cannot modify the data view’s conditions. Other properties (such as the name) can be modified even if the data view is consumed by other items.

6 From the Orchestration ➔ External Availability tab, select the agents that you want to send the data view to. You can click to view more information about the agents.

7 (Optional) Click ➔ and select **Properties** to add a name and a description.

8 Use your data view in a task or activity to complete these actions:
   - Set metrics for an activity or task.
   - Add a target audience to a task.

**Manage Data Views**

From the Orchestration ➔ Usage tab, you can view which items use the data view and the items that the data view uses.

The ability to view dependencies between items enables you to see the items that a task depends on to work successfully. Usage information helps you identify how changes that you make to one item might affect another item.

**Items That Use the Data View**

The first section shows the items that use the data view. For example, if the data view is used in a task, the task is included in the list.

The Priority column displays the priority of like tasks that use the data view. Priority applies only to mobile spot, web spot, and mobile in-app message tasks because each of those task types might have two or more tasks that compete for the same resources. Other task types do not use prioritization.

For non-A/B test tasks, priority is on a scale of 1 through 5 (where 1 is the highest). The default is 3. An A/B test task has a priority of Test, which is higher than a non-A/B test task. An A/B test task always delivers its content.

You can change the priority of a non-A/B test task on the task’s Orchestration ➔ Priority tab.

**Items That the Data View Uses**

The second section shows items that the data view uses.

- Click **Directly Related** to list the items that the data view uses. For example, if a data view uses an event, the event is included in the list.

- Click **All Related** to view directly related items as well as any items that those directly related items use. For a data view, the list of directly related and all related items is the same.

The list displays items with a Designing, Ready, or Active status. Click **Show Designing Status only** to display only items with a Designing status.
To open an item, click the item. To view item details and to open the item, click ▶️ in the item’s row.

Create a Cloud Segment

A segment represents a group of people who share common characteristics, such as age or gender. For example, you might create a segment that includes females who are at least 40 years old. Segments can be used to define the target audience for a task and are reusable. Segments are created by building a segment map. Segment maps contain paths made up of nodes. There are three types of nodes:

- **Criteria** nodes contain characteristics that define a group of people. The group of people defined by a node is the node’s segment.
- **And** nodes are used when you combine criteria nodes with an AND operator.
- **Or** nodes are used when you combine criteria nodes with an OR operator.

Create a Segment

1. From the navigation, selectSegments.
2. Click ▶️.
   
   **Note:** The name of your segment cannot exceed 49 characters.
3. Select Cloud Data Hub to create a segment that uses customer information that was uploaded to SAS Customer Intelligence 360.

No more than 50 segments can be active at once. If you have 50 active segments and you need to publish an additional segment, change the status of an existing active segment to Complete before publishing the new segment.

**TIP** You can also create a segment by copying an existing segment. From Segments, select the segment that you want to copy and click ±. Then select Copy.

Add Criteria Nodes

When you are adding criteria to the nodes, you can use data and events to define who is included in the segment. In addition, you can use customer lists that have been imported from SAS Marketing Automation or other sources. For more information, see “Integrating with SAS Marketing Automation” in SAS Customer Intelligence 360: User’s Guide.

1. Click Criteria or drag the Criteria node onto the workspace.
2. Right-click the node and select Open.
TIP  You can double-click a node to open it.

3  Add a name and description to the node. The name is displayed on the node in the map view.

4  Add criteria to the node. For some criteria, you can choose whether to include or exclude the members that satisfy the criteria.

   - Select All of the following to include members who meet all of the criteria in a group. Or, select Any of the following to include members who meet one or more of the criteria in a group.

   - Click \( \square \) to view a summary of the criteria.

   - Click \( \square \) to make a copy of the criteria.

   - Click \( \uparrow \) or \( \downarrow \) to move criteria up or down in the list.

   - Click \( \square \) to create a group for a set of criteria.

   - Click \( \square \) to add criteria. In the Select Criteria window, select the criteria to add. In addition, you can use customer lists that have been imported from other sources, such as SAS Marketing Automation.

   Note:  For mobile in-app, mobile spot, and web targeting, when you add Browser and Device to your criteria, only the people who are using that browser or device during the current session are included in the target audience. For example, if you add Chrome as the browser, only the people who are using Chrome during the current session are eligible to be included in the target audience.

   When you add a spot attribute that contains a URL query string parameter, the value of that parameter needs to be decoded for multi-byte character sets (MBCS). If you are adding a URL query string, the value should be encoded for MBCS.

   Note:  All nodes must contain criteria before you can update segment counts or save the segment.

Add Events to Criteria Nodes

When you add an event to your segment node, you can change the occurrence and time period of the event. The occurrence defines how often the event must occur so that a person is eligible for the segment. The time period defines when the event must occur in order to be eligible. By default, an event must occur at least once in the past week. To change the occurrence or time period of an event, click \( \square \) and set the event occurrence details.

Specify the number of times the event must occur in order for a person to be eligible. Set an operator and value for Occurrences. For example, you can set the Occurrence to Less than (<) 5. This setting is how you specify that an event must occur at most four times in order for a person to be eligible.

Set the time period in which all occurrences must occur:

   - Select Relative to define a time period relative to the current day, such as within the past week.

   - Select Absolute to define a time period with specific dates. For example, you can set the time period so that the event occurs at least one time before a specified date or between two specified dates.
Select **None** when you do not need to define a time period for the event. Events that are added to a segment and do not have a defined time period are eligible anytime they occur.

For example, you want your segment to include customers who have visited your website’s home page at least three times since January 1, 2016.

1. Define an event that detects and records a customer’s view of your site’s home page.
2. Create a segment or targeting in a task that uses that event as a criterion.
3. Set the occurrence and time period details for the event that detects a customer’s view of the home page. Set **Occurrences** to **Greater than (>)** 2. Select **Absolute** for the date range, and set the time period to be greater than or equal to January 1, 2016.

---

### Add AND and OR Nodes

Add AND and OR nodes to continue building your segment map. Complete your segment map by connecting the nodes to create paths.

#### Select the Node Type

- Click or drag **And** to create a node that combines two criteria nodes using an AND operator.
- Click or drag **OR** to create a node that combines two criteria nodes using an OR operator.
- Connect nodes to create a path that represents your segment.

*Note:* If a node is selected, you must deselect it before you can connect it to another node.

#### Set Node Properties

You can edit the properties of the node, such as the name and description. View the list of input nodes that lead to the AND node or the OR node, and change the rule that is used to evaluate potential segment candidates.

*Note:* The option that you select can result in different segments and impact performance.

#### AND Node Rule

You create a segment map that represents a household, and that map contains two criteria nodes. The first criteria node represents people who are female. The second criteria node represents people who are older than 55. You add an AND node to complete the segment map.
Here are the two options for the AND node rule:

- **Meets all conditions defined by input nodes.** This is the default option, and it works the same way that a logical AND works. In this case, your segment includes households that contain at least one person who is both female and older than 55.

- **Is a member of each group defined by input nodes.** This second option works like an SQL intersect command. In this case, a household is included in the segment if the household contains either of these conditions:
  - At least one person who is both female and older than 55. For example, a household that contains a 60-year-old woman satisfies the criteria.
  - At least one person who is female and at least one person who is older than 55. For example, a household that contains a 40-year-old woman and a 56-year-old man satisfies the criteria. So does a household that contains a 60-year-old woman.

**OR Node Rule**

You create a segment map that represents a household, and that map contains two criteria nodes. The first criteria node represents people who are female. The second criteria node represents people who are older than 55. This time, you add an OR node to complete the segment map.
Here are the two options for the OR node rule:

- **Meets any conditions defined by input nodes.** This is the default option, and it works the same way that a logical OR works. In this case, your segment includes households that contain either a person who is female or a person who is older than 55.

- **Is a member of any of the groups defined by input nodes.** This second option works like an SQL intersect command, which often results in the same segment. For the example, using this option, the resulting segment includes households that contain either a person who is female or a person who is older than 55. If you create a segment map that combines aggregate data, such as total household income, you can get different results depending on which option you select for the OR node.

  **Note:** When using aggregated data, the best practice is to select this option.

---

### Set Node Properties

You can edit the properties of the node, such as the name and description. View the list of input nodes that lead to the AND node or the OR node, and change the rule that is used to evaluate potential segment candidates.

**Note:** The option that you select can result in different segments and impact performance.

### AND Node Rule

You create a segment map that represents a household, and that map contains two criteria nodes. The first criteria node represents people who are female. The second criteria node represents people who are older than 55. You add an AND node to complete the segment map.
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  - At least one person who is both female and older than 55. For example, a household that contains a 60-year-old woman satisfies the criteria.
  
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Here are the two options for the OR node rule:

- **Meets any conditions defined by input nodes.** This is the default option, and it works the same way that a logical OR works. In this case, your segment includes households that contain either a person who is female or a person who is older than 55.

- **Is a member of any of the groups defined by input nodes.** This second option works like an SQL intersect command, which often results in the same segment. For the example, using this option, the resulting segment includes households that contain either a person who is female or a person who is older than 55. If you create a segment map that combines aggregate data, such as total household income, you can get different results depending on which option you select for the OR node.

  **Note:** When using aggregated data, the best practice is to select this option.

---

**Mark Your Segment Ready**

Select **Mark Ready** to change the status of your segment from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click **Publish**.

**Note:** When you publish an item, you are prompted to publish any dependent items that are marked Ready.

Items with a Ready status can be changed back to a Designing status by clicking **Return to Designing**. Changing this status to Designing prevents the item from being published.

**Note:** If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.
Discover a Segment

When an A/B test recommends a winning variant, segment discovery searches for segments of the target audience that respond well or poorly to a variant that is different from the recommended winner. A segment represents a group of people who share common characteristics. Impression rates, conversion rates, and segment size are analyzed to compare the performance of the winning variant to the remaining variants in an A/B test. By looking for common attributes among customer data, SAS Customer Intelligence 360 can discover a segment and find an alternate variant that performs better for that segment than the winning variant. The discovered segment is displayed on the Insights tab.

In order to discover a segment, SAS Customer Intelligence 360 tracks customer information, including conversions. The completion of a conversion is counted only once per visitor. For example, each of these scenarios counts as one conversion:

- A visitor views the variant and completes the conversion. The same visitor then leaves the site and returns later, without completing the conversion.
- A visitor views the variant but does not complete the conversion. Later, the same visitor returns to the site and completes the conversion.
- A visitor views the variant and completes the conversion. The visitor leaves the site. The same visitor returns later and completes the conversion again.

SAS Customer Intelligence 360 takes all of the historic impressions and conversion rates into account when comparing a variant against the winning variant. These comparisons are used to display statistics on the confidence between competing variants. By default, the confidence threshold for identifying a discovered segment is 90%. The variant that performs better for a discovered segment than the overall winning variant is identified as the winner for that particular discovered segment.

Profile Segments

Learn how to use segment profiling to understand the characteristics and attributes of a new segment.

See the video here: Profile Segments.

Creating an A/B Test Task

You can compare the performance of multiple creatives. When creating a test task, you can optimize the task, which enables analytics to use a multi-armed bandit approach to finding the best-performing variant. As a result, an optimized test task delivers the best-performing variants to more of the target audience. Test tasks can also discover previously undefined segments of people that prefer a different creative than the creative that most of the target audience prefers. You can learn about a discovered segment by reviewing its profile.
Add Content to Your Task

Select the Spot or Spot Set

1. From the navigation bar, click Tasks.

2. Click and select the task type.
   - Select Mobile Spot A/B Test to compare creatives in a mobile app.
   - Select Web A/B Test to compare creatives on a website.

When you create a task, it has a Designing status, which indicates that the task is still being worked on and is not ready to be published.

3. Select the spot where you want your variants to be displayed.
   - If you want to compare the performance of creatives in the same spot, select the spot that you want the task to use. Each creative is denoted as a variant.
   - For a Web A/B Test task, if you want to compare the performance of creatives in a spot set, select the spot set that you want the task to use. Each combination of creatives in the set is denoted as a variant.

   - Avoid selecting spot sets that display a subset of their spots on one web page. The analytics assume that all of the spots in the set are always available simultaneously.
     - **Note:** To guarantee that all of the spots in a set are displayed simultaneously, the values for the spot location details must be identical across all of the spots in the set. Matching the spot location details enables analytics to run successfully on your A/B test or web multivariate test task.

   - Avoid spots that are used by another active A/B task or web multivariate test task.

4. Click Create Task.

Add Message or Creatives

The Content tab contains the details that are associated with the content that the task delivers. Click Select Content to add variants and set their properties. You can also complete these actions:

- set the distribution of the variant frequency.
- optimize the test so that the system can change the distribution of variants as the A/B test progresses. Optimizing the test ensures that the best-performing variant gets a larger portion of the distribution.
- add or remove variants. After the task is published, variants cannot be added or removed.

   - **Note:** When you add a variant, select an existing message or creative for that variant. Alternatively, you can create a message or creative. To create a message or creative, click New Message or New Creative. The message or creative that you create is automatically added to the task.

- rename variants.
- change the champion. After the task is published, the champion cannot be changed.
Add a Target Audience

On the **Targeting** tab, set the criteria that define the target audience for the content that the task delivers. Previously defined segments, events, and data views can be selected as criteria.

**Note:** You must define a login event type if you have tasks that depend on segments with data from logged-in users.

Criteria can be used to include or exclude people from the target audience.

- Add criteria to the **Eligible** page to specify which people to include in your target audience.
- Add criteria to the **Exclusions** page to specify which people to exclude from your target audience.

If no criteria are added to either the **Eligible** page or the **Exclusions** page, then the target audience consists of everyone.

To add eligibility or exclusion criteria:

- Select **All of the following** to include members who meet all of the criteria in a group. Or, select **Any of the following** to include members who meet one or more of the criteria in a group.
- Click ![summary](image) to view a summary of the criteria.
- Click ![copy](image) to make a copy of the criteria.
- Click ![up](image) or ![down](image) to move criteria up or down in the list.
- Click ![group](image) to create a group for a set of criteria.
- Click ![add](image) to add criteria. In the **Select Criteria** window, select the criteria to add. In addition, you can use customer lists that have been imported from other sources, such as SAS Marketing Automation.

**Note:** For mobile in-app, mobile spot, and web targeting, when you add **Browser and Device** to your criteria, only the people who are using that browser or device during the current session are included in the target audience. For example, if you add Chrome as the browser, only the people who are using Chrome during the current session are eligible to be included in the target audience.

When you add a spot attribute that contains a URL query string parameter, the value of that parameter needs to be decoded for multi-byte character sets (MBCS). If you are adding a URL query string, the value should be encoded for MBCS.

**Note:** Depending on the task type, you can select only one segment on the **Eligible** page, and one segment on the **Exclusions** page. If you do not add criteria, no content is delivered.
Set Metrics

Metrics measure events that the system can detect such as a person clicking on a spot in a web page. Add metrics to measure the success of the content being delivered by the task. Add a primary metric and additional secondary metrics on the Insights tab.

The primary metric measures conversions to determine the success of the task. A secondary metric measures other benchmarks that you are interested in. A task must have one primary metric. A task can have multiple secondary metrics. Each secondary metric can have only one data view or event.

By default, a task is created with a Click Through primary metric. To change the metric:

1. Select the metric and click ☐.

2. Click + to add conditions to the existing metric. For example, for a Click Through metric, you can select a particular creative as an attribute condition. The primary metric would be a click-through response to that creative.

   **Note:** Attributes are joined by an AND operator. Make sure that you do not define conflicting attributes that result in a condition that cannot be met.

3. Click ☐ to select a different data view or event.

4. To mark this metric as a contact or response that can be tracked and used for reporting and future targeting, select Classify this selection. Classifying an event enables you to compare contacts and responses across creatives and channels. You can personalize future messages and creatives. You can also use the information to segment customers. You can classify selections in both primary and secondary metrics.

   To record the number of times that a customer interacts with a creative or a spot, select Mark this selection as a contact. This information is available as contact history for SAS Marketing Automation, SAS Real-Time Decision Manager, and other applications.

   To mark this metric as a response to a creative, select Mark this selection as a response. Enter an Associated value to identify the type of response. For example, enter blue to track the customer response to an image of a blue shirt.

5. Select Stop delivery after conversion to stop delivering creatives when the primary metric for the task is met.

   When delivery of the creatives stops, that same spot might switch to displaying creatives from another task. If there is no other task delivering a creative to that spot, then the spot’s default creative is displayed. If there is no other task delivering content to that spot and there is no default content defined for that spot, then the spot is empty.

   To add secondary metrics:

   1. Click Add Secondary Metric.

   2. Select the data views or events that you want to add. Each data view or event that you select becomes a secondary metric.

   For example, you could create multiple secondary metrics that are Click Through events. Each metric could have a different creative as an attribute condition. Each secondary metric would be a click-through response to a different creative.
Schedule and Start Your Task

When you finish updating your task, you can mark the task ready, publish the task immediately, or set a schedule for the task.

On the **Orchestration** tab, take these actions:

- Click **No schedule** if you plan to publish the task manually.
- Click **Set a schedule** to set a time period that the task is active.
- Select a time zone. For example, you might want to select a time zone that is different from the default if the task is targeted to a specific locale. By default, the time zone is the same as the time zone that is set for the tenant. If a valid time zone is not set for the tenant, the default time zone is UTC.
- Click **Single occurrence** to specify a single time span that the task is active.
- Select a start date and an end date for the task.
  
  **Note:** If you select **Single occurrence**, the start date cannot be edited after the task is published.

- Click **Recurrence** to specify a recurring task. Click **Recurrence**.
  
  Specify these details for a recurring schedule:

  - **Start time** is the start time for the first occurrence.
  - **Duration** specifies the amount of time that the content is available for each occurrence. For example, a task might start every week on Monday, and continue for four days.
  - **Frequency** specifies that the schedule for the recurrence. If you click **Weekly**, click the day for each occurrence. You can select multiple days in each week. If you click **Monthly**, select the numbered day or the weekday for the recurrence. For example, you can select the 10th day of each month or the second Tuesday of each month.

  **Note:** You can edit the weekly or monthly frequency after the task is published and the start date has passed. The recurrence must occur within the start and end dates.

  - **Range of recurrence** specifies the start and end dates, or that the recurrence continues without an end date.

  - **Extend metrics analysis** continues collecting data after the last occurrence. Select the number of days to extend data collection. The default value is 7 days. For example, if you use the default value, and the **Start time** is 9:00 PM, data collection continues until 9:00 PM seven days after the **End by** date.

    Customers might respond several days after the last occurrence. You can extend the time for data collection in order to more effectively measure task performance.

    During the extended period of data collection, the status is Active - Metrics Only. The status changes to Complete when the **Extend metrics analysis** period is over.

    Select **Mark Ready** to change the status from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click **Publish**.

    **Note:** When you publish an item, you are prompted to publish any dependent items that are marked Ready.
Items with a Ready status can be changed back to a Designing status by clicking Return to Designing. Changing this status to Designing prevents the item from being published.

**Note:** If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.

- Select **Mark Ready and Publish** to change the status from Designing to Active. Items with an Active status cannot be changed back to Designing.

Changes to a scheduled or active task are not automatically propagated to the published version of the task. You must republish the task after you save it to resolve the Out of Sync status. Otherwise, the task stays out of sync with the published version and the updates are not delivered.

When the end date of a task is reached, its status changes to Complete. Completed tasks cannot be modified. The task stops any associated data collection and makes the task’s content unavailable. In addition, any unsaved changes are lost.

**Note:** A recurring schedule is not available if the task is included in an activity.

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**Test Activity Paths**

Use an A/B Test node to test activity paths against each other.

1. Click ✌️ in the activity map and select **A/B Test**. An A/B Test node cannot be the first node in an activity map.

2. On the **Node Details** tab of the A/B Test node, select **Include control path** to add a control path variant that does not contain any Task nodes or Wait nodes. The control path is compared with the other path variant to determine whether a sequence of tasks nets a higher return than no tasks.

3. Click ✍️ to add a new path variant.

4. Select the path variant that you want to mark as the champion and click 🟡.

5. Click 📊 to set the distribution for each path variant.

6. After you define the path variants, you can add Task and Wait nodes to the path variants in the A/B Test node. Random selection is used to assign the proper percentage of customers to each path variant.

7. Click the **Insights** tab in A/B Test properties to assign a primary metric.
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Creating On-Premises Segments

On-premises segments are created by building a segment map. Segment maps contain paths made up of nodes. Nodes process records for a subject, the hierarchical level to which selection criteria are applied. For example, a record can be selected because of household, customer, or account criteria. All three hierarchical levels are subjects. On the Segment Map tab, click to display the following types of nodes:

- **Criteria** nodes contain characteristics that define a group of people. The group of people defined by a node is the node’s segment.
- **AND** nodes are used when you combine criteria nodes with an AND operator.
- **OR** nodes are used when you combine criteria nodes with an OR operator.
- **Split** nodes are used when you split incoming records into two or more cells. The Split node is preceded by an input node that provides a population to split.
- **Limit** nodes are used when you specify the settings that are used to create a subset of records.
- **Prioritize** nodes are used when you rank and de-duplicate the subjects of input nodes in order to create output nodes according to the priorities that you specify. The only nodes that cannot link to a Prioritize node are the Export, Prioritize, and Split nodes. You can use the Prioritize node to both de-duplicate and impose a limit. The result is that subjects that are excluded from one node are available for subsequent nodes in the prioritization.
- **Map** nodes are used when you change the record type of a selected group of customers in the segment map. For example, you can map information about the account to the customer in order to generate a list of customers.
- **Process** nodes enable you to write your own SAS code to analyze campaign data. You can also use the Process node to select and run stored processes. You can link a Process node to any node. The count for a Process node that generates cells is the count of the unique subject IDs that are distributed to its cells. When a Process node is the first node in the diagram and begins a selection, you must designate a subject. If a Process node is downstream from an Export node, you can use the Process node to create post-process operations. In this way, you can follow the execution of an export and test an export process.
- **Link** nodes are used to link to a Criteria node in a different segment map or to nodes that are generated by Split or Prioritize nodes in a different segment map. To link to nodes, select the Mark node as linkable check box in the source node.
- **Export** nodes create a file or table that contains information about the subjects of the preceding nodes. The subject is determined by the preceding nodes and the export definition. For example, you might have a Map node that maps customers to households and an export variable that has a unique value for customers, such as the name. In this case, the Export node creates an export file that contains names based on the customers that came into the Map node.
Create a Segment That Uses On-Premises Data

Note: You cannot create a segment that uses on-premises data by copying an existing segment that uses on-premises data.

1. From the navigation bar, select Segments.
2. Click .
3. Click On-Premises Datamart.

Add a Criteria Node

When you are adding criteria to the nodes, you can use data to define who is included in the segment. In addition, you can use customer lists that have been imported from SAS Marketing Automation or other sources. For more information, see “Integrating with SAS Marketing Automation” in SAS Customer Intelligence 360: User’s Guide.

1. Click or drag Criteria onto the workspace.
2. Right-click the node and select Open.

**TIP** You can double-click a node to open it.

3. Select a Subject from the list.

   The subject determines the output for this node. For example, if you selected Customer, the output of this node would be individual customers. If you selected Household, the output of this node would be households.

   If a subject is not supported as a segment by SAS Customer Intelligence 360, the Mark node as segment option is disabled for some node types. In some cases, a subject cannot be changed because it inherits the subject from a previous node in the segment map.

4. Enter information in the Name field. The name is displayed on the node in the map view.
5. (Optional) Enter information in the Description field.
6. Select Mark node as segment if you want to save the members of the node in your flow as a segment. Because the segment that is created from a node is associated with the larger segment flow, it inherits the status of that segment map. As a result, when you change the status of the segment map, the node segment status is updated automatically.

   **Note:** You can access the node segment by navigating to the Segments tab and expanding the segment flow that contains it.

7. Select Mark node as linkable if you want to use this node as input to Link nodes in other segment maps. The segment map that contains the node must be published before you can use the node as input to a Link node.

   **Note:** To ensure that the most recent subject results are used in the consumer segment map, enable the Use the most current data when referenced by a link option by selecting Linking Information ➤ Orchestration for the segment map that contains the node.
8 Select **Always generate a count for this node** to generate a count if the count for the node is not produced when counts are updated. On subsequent runs of this segment map, the counts for this node are updated. By default, a count is not generated for a **Criteria** node when a count is updated for a downstream node. However, when you select this option, a count is generated for the **Criteria** node every time that a count is generated for a downstream node.

To specify that queries for this node are processed by downstream nodes separately from other nodes, select **Generate a population of subjects from this node that will be used by downstream nodes**. Typically, separate queries for nodes are combined for optimization purposes. When this option is enabled, the query for this node is processed separately and is used by any direct nodes that are downstream. Depending on your unique scenario, selecting this option might increase or decrease performance. Experiment with this option to determine the optimal results for your use case.

9 Add criteria to the node. For some criteria, you can choose whether to include or exclude the members that satisfy the criteria. On the **Data Items Rules** tab, perform the following actions:

- Select **All of the following** to include members who meet all of the criteria in a group. Or, select **Any of the following** to include members who meet one or more of the criteria in a group.
- Click **summary** to view a summary of the criteria.
- Click **copy** to make a copy of the criteria.
- Click **up** or **down** to move criteria up or down in the list.
- Click **group** to create a group for a set of criteria.
- Click **add** to add criteria. In the **Select Criteria** window, select the criteria to add.

**Note:** When you add a spot attribute that contains a URL query string parameter, the value of that parameter needs to be decoded for multi-byte character sets (MBCS). If you are adding a URL query string, the value should be encoded for MBCS.

**Note:** If you select **Exclude selected values** on the **Specify Values** page for a criteria data item with a NULL value, counts for the node are not accurate because the command uses a WHERE clause in SQL that requires that the test be TRUE instead of FALSE or NULL.

10 On the **Aggregate Data Rules** tab, you can select aggregate data items and specify values to include in the **Criteria** node by performing the following actions:

**Note:** The criteria are determined by the rules that are specified on both the **Aggregate Data Rules** tab and the **Data Item Rules** tab.

- Select **All of the following** to include members who meet all of the criteria in a group. Or, select **Any of the following** to include members who meet one or more of the criteria in a group.
- Click **summary** to view a summary of the criteria.
- Click **copy** to make a copy of the criteria.
- Click **up** or **down** to move criteria up or down in the list.
- Click **group** to create a group for a set of criteria.
- Click **add** to add criteria. In the **Select Criteria** window, select the criteria to add.
Note: When you add a spot attribute that contains a URL query string parameter, the value of that parameter needs to be decoded for multi-byte character sets (MBCS). If you are adding a URL query string, the value should be encoded for MBCS.

Note: If you select Exclude selected values on the Specify Values page for a criteria data item with a NULL value, counts for the node are not accurate because the command uses a WHERE clause in SQL that requires that the test be TRUE instead of FALSE or NULL.

11 Click Done to save updates to the node properties.

Note: All nodes must contain criteria before you can update segment counts or save the segment.

Add AND and OR Nodes

Add AND and OR nodes to continue building your segment map. Complete your segment map by connecting the nodes to create paths.

Select the Node Type

- Click or drag And to create a node that combines two criteria nodes using an AND operator.
- Click or drag OR to create a node that combines two criteria nodes using an OR operator.
- Connect nodes to create a path that represents your segment.
  
  Note: If a node is selected, you must deselect it before you can connect it to another node.

Set Node Properties

You can edit the properties of the node, such as the name and description. View the list of input nodes that lead to the AND node or the OR node and change the rule that is used to evaluate potential segment candidates. You can also mark the node as a segment, mark the node as linkable, or specify that a count is always generated for the node.

AND Node Rule

You create a segment map that represents a household, and that map contains two criteria nodes. The first criteria node represents people who are female. The second criteria node represents people who are older than 55. You add an AND node to complete the segment map.
Here are the two options for the AND node rule:

- **Meets all conditions defined by input nodes.** This is the default option, and it works the same way that a logical AND works. In this case, your segment includes households that contain at least one person who is both female and older than 55.

- **Is a member of each group defined by input nodes.** This second option works like an SQL intersect command. In this case, a household is included in the segment if the household contains either of these conditions:
  - At least one person who is both female and older than 55. For example, a household that contains a 60-year-old woman satisfies the criteria.
  - At least one person who is female and at least one person who is older than 55. For example, a household that contains a 40-year-old woman and a 56-year-old man satisfies the criteria. So does a household that contains a 60-year-old woman.

**OR Node Rule**

You create a segment map that represents a household, and that map contains two criteria nodes. The first criteria node represents people who are female. The second criteria node represents people who are older than 55. This time, you add an OR node to complete the segment map.
Here are the two options for the OR node rule:

- **Meets any conditions defined by input nodes.** This is the default option, and it works the same way that a logical OR works. In this case, your segment includes households that contain either a person who is female or a person who is older than 55.

- **Is a member of any of the groups defined by input nodes.** This second option works like an SQL intersect command, which often results in the same segment. For the example, using this option, the resulting segment includes households that contain either a person who is female or a person who is older than 55. If you create a segment map that combines aggregate data, such as total household income, you can get different results depending on which option you select for the OR node.

  **Note:** When using aggregated data, the best practice is to select this option.

Mark the Node as a Segment

Select **Mark node as segment** if you want to save the members of the node in your flow as a segment. Because the segment that is created from a node is associated with the larger segment flow, it inherits the status of that segment map. As a result, when you change the status of the segment map, the node segment status is updated automatically.

  **Note:** The option that you select can result in different segments and affect performance.

Mark the Node as Linkable

Select **Mark node as linkable** if you want to use this node as input to **Link** nodes in other segment maps. The segment map that contains the node must be published before you can use the node as input to a **Link** node.
Specify That a Count Is Always Generated

Select **Always generate a count for this node** to generate a count if the count for the node is not produced when counts are updated. On subsequent runs of this segment map, the counts for this node are updated. By default, a count is not generated for a **Criteria** node when a count is updated for a downstream node. However, when you select this option, a count is generated for the **Criteria** node every time that a count is generated for a downstream node.

To specify that queries for this node are processed by downstream nodes separately from other nodes, select **Generate a population of subjects from this node that will be used by downstream nodes**. Typically, separate queries for nodes are combined for optimization purposes. When this option is enabled, the query for this node is processed separately and is used by any direct nodes that are downstream. Depending on your unique scenario, selecting this option might increase or decrease performance. Experiment with this option to determine the optimal results for your use case.

Add a Split Node

Add a **Split** node to continue building your segment map. Complete your segment map by connecting the nodes to create paths.

Click or drag **Split** to split incoming records into two or more nodes. The **Split** node is preceded by a **Criteria** node that provides a population to split.

Split Node Rule

You create a segment map that represents a customer population and add a **Split** node that splits the population in the **Criteria** node by values from a data item. The population can also be split by counts and percentage.

*Figure 5.3  Segment Map Representing the Split of a Population of Customers Younger Than 55*
Set Node Properties

You can edit the properties of the node, such as the name, description, and split method.

Create Splits by Using Values from a Data Item

To create splits by using values from a data item, select Data Item from the Split method list. On the Outputs tab, click and select the criteria to add. Next, specify the values for the criteria and click OK.

A subject might be listed more than once in a database. For example, a customer might have more than one account. To restrict the number of cells that list a subject and limit the number of times that the subject is counted, move the slider to the On position for Restrict number of output cells subjects appear in, and then specify a number.

Enter label information for the output node in the Output Name field.

To add another output node for the split, click , click in the Data Item Value column for the output node, and then enter label information for the output node in the Output Name field.

To move output nodes up or down, select the row for the nodes and click or . To remove output nodes, select the row for the nodes and click .

To combine the values for multiple output nodes, select the check boxes in the rows for the nodes and click Combine Output. Next, enter information in the Name field in the Combine Output window.

Click Done to save updates to the node properties.

Note: To create a Split output node that contains multiple output values, enter the same information in the Name field in the rows for multiple nodes. appears in the rows for output values that have the same name.

Create Splits by Using Counts

To create splits by using counts, select Counts from the Split method list. On the Outputs tab, click Add Output to create an output node. In the row for each output node that you create, enter the actual count of the segment that you want to assign in the Requested Count field and enter information in the Output Name field.

To move output nodes up or down, select the row for the nodes and click or . To remove output nodes, select the row for the nodes and click .

The order in which each output node is filled is based on the sort option that you specify on the Sort tab.

To combine the values for multiple output nodes, select the check boxes in the rows for the nodes and click Combine Output. Next, enter information in the Name field in the Combine Output window.

Click Done to save updates to the node properties.
Create Splits by Using Percentages

To create splits by using percentages, select Percentages from the Split method list. On the Outputs tab, click Add Output to create an output node. In the row for each output node that you create, enter the percentage of the segment that you want to assign in the Requested % field and enter information in the Output Name field. You can enter a value of less than 1%. You can click Quick Split to specify four equal nodes or 10 equal nodes. You can alter the percentages in the Requested % field for the nodes that are created when you click Quick Split.

To move output nodes up or down, select the row for the nodes and click ▲ or ▼. To remove output nodes, select the row for the nodes and click .

The order in which each output node is filled is based on the sort option that you specify on the Sort tab.

To combine the values for multiple output nodes, select the check boxes in the rows for the nodes and click Combine Output. Next, enter information in the Name field in the Combine Output window.

Click Done to save updates to the node properties.

Modifying a Split Output Node

To modify a split output node, open the node to make desired changes to the Name and Description fields or to change the Mark node as linkable and Mark node as segment selections.

Add a Limit Node

Add a Limit node to continue building your segment map. Complete your segment map by connecting the nodes to create paths.

Click or drag Limit to specify the settings that are used to create a subset of records.

Requirements for a Limit Node

Before counts for a Limit node can be updated, the node must meet the following requirements:

- At least one input node is connected to the Limit node.
- All required upstream nodes are connected to the Limit node.
- Upstream nodes that are connected to the Limit node contain all required information.

Limit Node Rule

You create a segment map that represents a customer population, and then create a subset of that population that can be targeted for marketing.
Set Node Properties

You can select the method for splitting the population into subsets.

Enter information in the Name and Description fields.

To specify a count limit for the subset, select Count from the Limit using list, and then enter a value in the Requested field. To specify a percentage limit for the subset, select Percentage from the Limit using list and enter a value in the Requested field.

The order in which each output node is filled is based on the sort option that you specify on the Sort tab.

Click Done to save updates to the node properties.

Add a Prioritize Node

Add a Prioritize node to continue building your segment map. Complete your segment map by connecting the nodes to create paths. Click or drag Prioritize to create a node that specifies the priorities for two or more Criteria nodes that are used to create output cells. You must connect the Prioritize node to an input node with a selected subject.
Prioritize Node Rule

You create a segment map that represents a customer, and that map contains two criteria nodes. The first criteria node represents customers who are female. The second criteria node represents customers who are older than 55. You add a Prioritize node to complete the segment map.

Set Node Properties

You can edit the properties of the node, such as the name, description, prioritization, output name, output limit, and sort order.

Enter information in the Name and Description fields.

If you do not want to use the default names for the output node, you can modify the Output Name field in the row for each output node. To modify the priority order for an output node, select the row for the node and click ▲ or ▼. To remove an output node from the prioritization, select the row for the node and click ❌.

Click □ in the Output Limit cell and specify a limit for every output node on the Limit tab. You can limit the number of subjects based on a count or percentage. The order in which each
output node is filled is based on the sort option that you specify on the Sort tab. If a sort is not specified, the default sort is used on this Prioritize node.

Note: You can also specify a sort order on the Default Sort Order tab in the Properties window. The first sort order that you specify is the primary sort order. To add a sort order, click +. To delete a sort order, click −.

If you do not specify a limit, the sort criteria do not take effect. This setting overrides the setting in the Sort field. The value in the Output Count cell is the number of unique subject IDs that are assigned to an output cell. The Prioritize node de-duplicates the input cells. The count of the output cell might decrease for those cells that are prioritized greater than 1, depending on the count for the higher priority cells.

To mark or unmark an output node as a segment, click □ in the Segment column for the node. To mark or unmark an output node as linkable, click ☐ in the Segment column for the node.

Click Remainder to create records that do not belong in any other output cell after limits and de-duplication have been applied. The remainder is calculated when you click □.

In the output node, click Mark node as segment to enable the node to be used as a segment in another segment map. This option affects cells that are generated after the option is selected. Mark node as segment can be selected or cleared in the generated output node without affecting whether the option is selected in the Prioritize node.

To mark or unmark an output node as linkable, click Mark node as linkable.

Click Done to save updates to the node properties.

---

**Add a Map Node**

Add a Map node to continue building your segment map. Complete your segment map by connecting the nodes to create paths.

Click or drag Map to create a node that changes the record type of a selected group of customers in your diagram. The Map node enables you to obtain a count for a subject that is different from the criteria node that the Map node is connected to.

**Map Node Rule**

You create a segment map that maps information about the account to the customer in order to generate a list of customers.
Set Node Properties

Enter information in the Name and Description fields.

To enable the node to be used as a segment in another segment map, select Mark node as segment.

If you selected Mark node as segment, you can also enter a value or modify an existing value in the Code field to identify the object for activities such as auditing and reporting. When an object is imported or migrated to SAS Customer Intelligence 360, the existing code value for the object is retained. Depending on the code settings for your environment, the code value might be editable. This value is not required to be unique to be valid. If the value is editable, you can change it to match the code value for another item. The Code field must always include a value. Valid characters for codes are alphanumeric characters, multi-byte characters, numerals, underscores, hyphens, and periods. Blank spaces are not allowed in code formats.

Click Mark node as linkable to enable this node to be used as input to Link nodes in other segment maps.

Select a target subject from the To subject list. The selection for the To subject field determines the output for this node. For example, if you select Customer, the output of this node is individual customers. If you select Household, the output of this node is households. Some subjects might not be mapped to other subjects. In some cases, a subject cannot be changed because it inherits the subject from another node in the segment map.

To refine the output by referencing existing nodes from the segment map, move the slider to the On position for Restrict population by node selection, and then select nodes to use for the restriction criteria. You can use this option to specify mapping rules, limit the number of output records, and specify data items to use in sorting records. This option is available when the From subject field and To subject field have a one-to-many or many-to-many relationship.
Select a **Refinement rule** from the list to specify a rule to apply to the subjects from the input node.

To refine the criteria for the output node that is generated by the **Map** node, move the slider to the **On** position for **Refine population by criteria**, and then select the criteria.

The order in which each output node is filled is based on the sort option that you specify on the **Sort** tab. If a sort is not specified, the default sort is used on the output node.

On the **Options** tab, you can limit the number of output records and specify the rule to apply to the subjects from the input node.

**Note:** To ensure that the most recent subject results are used in the consumer segment map, enable the **Use the most current data when referenced by a link** option by selecting **Linking Information** ⇒ **Orchestration** for the segment map that contains the node.

Click **Done** to save updates to the node properties.

---

**Add a Process Node**

Add a **Process** node to continue building your segment map. Complete your segment map by connecting the nodes to create paths.

Click or drag the **Process** icon to write your own SAS code to analyze campaign data or to select and run stored processes.

**Process Node Rule**

The counts for a **Process** node that generates cells are the unique subject IDs that are distributed to its cells. If a **Process** node is downstream from an **Export** node, you can use the **Process** node to create post-process operations. In this way, you can follow the execution of an export and test an export process.
Set Node Properties

Enter information in the Name and Description fields.

Click and select a process that has been defined. To remove an existing process from the node, click Clear selection.

You set the parameters for a stored process when you select it.

Depending on the stored process, you might be able to select input or output subjects for a newly created node that is not connected to other nodes. Select subjects from the Input subject and Output subject lists. If the subjects do not match the subjects of nodes that are linked to the Process node, the links might be broken. The input subjects and output subjects for a stored process are specified during the creation of the stored process. If no input and output subjects have been specified, all subjects are available for selection.

If the stored process contains parameters, set the required parameter values on the Parameters tab. In the stored process, you can specify relative dates such as Today or
Tomorrow. The stored process supplies missing values for optional parameters if you do not enter a parameter value.

On the Output tab, you can change the name and number of output nodes that are generated by a stored process, create a new output node, mark or unmark output nodes as segments, and mark or unmark output nodes as linkable.

Note: Some stored processes do not generate output nodes.

All output cells have the same subject ID. You can change the names of the output cells. The default name of each generated output cell is output n, where n is a number in a sequence. For example, a Process node generates output cells that are named Output 1 and Output 2. The next Process node in the diagram generates output cells that are named Output 3 and Output 4.

The default number of output cells that are generated is set by the NumberofCells keyword in the stored process. The MinCells and MaxCells keywords specify the minimum and maximum number of cells. The NumberofCells keyword does not have to be specified.

If the MaxCells value is specified, and MinCells and NumberofCells values are not specified, the minimum number of rows is 1. If only the MinCells value is specified, the maximum number of rows is unlimited.

Select a row and click the arrows to change the order of output cells. Select Make output cells available for linking to link to these cells from the Link node. This option affects cells that are generated after the option is selected. Make output cells available for linking can be manually selected or cleared in the generated cells without affecting whether the option is selected in the Process node.

To create an output node for the stored process, click and enter information in the field in the Output Name column.

To mark or unmark an output node as a segment, click in the row for the node and enter the desired information in the Code field. To mark or unmark an output node as linkable, click in the row for the node.

The Input Nodes tab displays the nodes that contribute to the Process node. Select a row and click the arrows to change the order of input nodes that are submitted to the process.

To understand how the SAS code is working, click the Log tab to display logging messages.

You can use the contents of the Log tab to debug any errors that appear. The segment map name and Process node name are displayed at the top of the log. To copy a log so that you can paste it into an email message or another application, right-click the selected text and select Copy.

Here are the log statuses:

Not available means that the Process node has not been executed or that the logs have been cleared.

Current means that the log is from the most recent time that the Process node was executed, and that no changes have been made to the process. The log text is grayed-out.

Outdated means that changes have been made to the code since the last time the Process node was executed.

Click to clear the contents of the log.

Click Done to save updates to the node properties.
Add a Link Node

Add a Link node to continue building your segment map. Complete your segment map by connecting the nodes to create paths.

Click or drag Link to link a node in a different segment map or to output nodes that are generated by the Split or Prioritize node in a different campaign.

Link Node Rule

You create a segment map that links a node to another node.

Figure 5.8 Segment Map Link Node Connecting a Source Subject to a Node

Set Node Properties

You can edit the properties of the node, such as the name, description, source node to be linked to, and subject exclusions.

Enter information in the Name and Description fields.

Click and select a linkable source node from a segment map.

Select the Exclude these subjects check box to exclude the selected subjects from the population.

Click Done to save updates to the node properties.
Note: If the values have changed in the segment map that you have linked to, you must close and reopen the current segment map in order to display the changed values.

Add an Export Node

Add an Export node to continue building your segment map. Complete your segment map by connecting the nodes to create paths.

Click or drag Export to create a file or table that contains information about the subjects of the preceding nodes.

The counts for an Export node reflect the number of unique subjects, not the number of records, to be exported. Before its counts can be updated, an Export node must meet the following requirements:

- At least one input node is connected to the Export node. You can connect multiple input nodes through an And node.
- A subject has been defined for each input node.
- There are no input nodes that have a Designing status.
- At least one export field is selected.

Export Node Rule

You create a segment map that uses an Export node to create data for a node that is connected to the Export node.
Set Node Properties

You can edit the properties of the node, such as the name, description, export template, and the fields that will be included in the exported table.

Enter information in the Name and Description fields.

Click and select a template that contains predefined export data.

To build the export table that is produced by the Export node, click Edit on the Export Table tab, and then perform the following actions:

- On the Properties tab, enter an Export name, specify a default export location for the new export table. You can also select Include header row to add a header row to the export template so that the exported data displays the output name for every export field.

- On the Export Selection tab, click Add Fields, click , and then select the criteria to add.

To add more fields, select and select one or more fields in the Select Criteria window.

To delete existing export fields, select the check box in the row for an export field and click .

Enter information in the Output Name column for each export field.

Note: The name of the export output file must be unique.

(Optional) In the Format column for an export field, use the standard SAS format to specify the formatting of your data. (For example, you can specify a currency format or a date format.) For information about formatting, see SAS Formats and Informats: Reference.
On the **Sorting Options** tab, click **Add Sort Order** to specify the sequence in which the columns are sorted to specify whether the columns are sorted in ascending or descending order.

**Note:** The **Add Sort Order** button is not available if no export fields have been created.

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**Manage the Segment Map**

From the **Segment Map** tab, you can build and edit your segment nodes, change how you view the segment map, and update the node counts.

**Understanding Node Status**

The nodes in your segment map might include a status icon that provides the following information about that node.

*Table 5.1  Segment Map Node Statuses*

<table>
<thead>
<tr>
<th>Status Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="icon" alt="No status icon" /></td>
<td>The node contains criteria, but the count is not calculated.</td>
</tr>
<tr>
<td><img src="icon" alt="Green checkmark" /></td>
<td>The node is complete and contains a count.</td>
</tr>
</tbody>
</table>
| ![Red exclamation mark](icon) | A node with this icon is incomplete. An example of an incomplete node is a node that does not contain criteria. For example, when you first add a node, it is incomplete until you open the node and add criteria to it.  
**Note:** While a node is incomplete, you cannot update the node counts on the segment map. |
| ![Red X](icon) | The member count failed. You can choose to update the count on the segment map to try again. |
| ![Green light bulb](icon) | The member count is currently being calculated. |

**View Counts**

A node count represents the number of people who satisfy the criteria listed in the node. Click ![Update count](icon) to update the segment count on all of the nodes of your map. To update counts, all nodes must contain criteria.

To update the count for a single node, open the node and click ![Update single count](icon).

To obtain a partial update of counts in a segment map:
1 Update the criteria for a node in the map and save your changes. The existing count for the node is cleared.

2 Select the updated node.

3 Click \( \mathcal{F} \).

Counts are updated in the selected node and in any nodes that are downstream from the node. The counts for upstream nodes are not changed.

Note:
If your map contains a node that is not part of the segment map, the count is updated on any of the first nodes instead of the last node. To get a count on the last node, which represents the segment, remove any nodes that are not connected to the segment map.

You can reset the counts on all nodes at any time by clicking \( \mathcal{F} \).

Opening a Segment Map That Is Running Counts

If you open a segment map that is in the process of running node counts, you can modify only the portions of the segment map that are not running counts. To allow counts in the segment map to continue running until completion, click Continue Counts. To abandon counts in the segment map that is still running, click Abandon Counts.

Navigate the Map

In addition to the icons that update counts, there are icons on the map workspace that you can use to navigate the map:
- Click \( \mathcal{F} \) to move the map so that different parts of it are displayed.
- Click \( \mathcal{X} \) and \( \mathcal{X} \) to change how much detail is displayed on each node in the segment map.
- Click \( \square \) to display a navigation window for your map.

You can right-click the area around the nodes to see a complete set of actions that you can take on the map. The following additional options are available by right-clicking the map workspace:
- Select all nodes.
- Zoom to make the map larger or smaller.
- Select a different Layout to change the orientation of the map.
- Click Find node to quickly select a node in your map.

Work with Nodes and Paths

You can right-click a node or path to see a set of actions that you can take. For example, by right-clicking a node, you can select one of these actions:

Note: Some actions might not be available for a selected node.
- Open to display the properties of the node.
- Update counts to reset the counts for the node.
- Add (Before) and Add (After) to add nodes either as input or output nodes.
- Add (Before) and Add (After) to add nodes either as input or output nodes.
- **Combine output** to combine the output for **Split** nodes after pressing the Ctrl key while clicking each node. To undo the creation of a **Split** node with combined output, right-click the **Split** node and select **Separate output**.

- **Copy (Ctrl+C)** and **Cut (Ctrl+X)**. For more information, see “Copying and Pasting Nodes” on page 95.

- **Show summary** to show the summary of the targeting criteria for the node.

- **Mark node as segment** to save the members of the node as a segment. Because the segment that is created from a node is associated with the larger segment flow, the segment inherits the status of that segment map. As a result, when you change the status of the segment map, the node segment status is updated automatically. The segment appears on the **Segments** tab in the segment map and in the table on the **Segment Maps** and **Segments** page.

- **Unmark node as segment** to undo the **Mark node as segment** action.

- **Mark node as linkable** to enable the node to link to other segments.

- **Unmark node as linkable** to undo the **Mark node as linkable** action.

### Copying and Pasting Nodes

The following considerations apply when you copy and paste nodes.

**All nodes**

- When a pasted node references a variable and the source of the variable is not copied, the node status is Incomplete (_inactive).

- **AND node**
  - If an **AND** node is copied and the upstream nodes are not included, the subject is undefined and no items appear in the Input Nodes table in the pasted node.

- **Export node**
  - You cannot change the export definition or the contents of the export file in an **Export** node that is pasted by itself. This restriction does not apply to an **Export** node that is pasted with upstream nodes.
  - Any export items that do not exist in the target segment map, such as custom details, are removed from the pasted **Export** node.
  - Refine output specifications are retained. If you are pasting the **Export** node into a segment map, the node reference is retained only if the **Export** node, refine output references, and all of the intervening nodes necessary to make the refine output reference valid are copied and pasted at the same time. If the **Export** node is pasted into the same segment map and the node that is the source for refine output is a terminal node and is included in the copy, the refine output reference is to the pasted node. If the terminal refine output node is not part of the copied set of nodes, the reference is to the original refine output node.

- **Limit node**
  - The **Incoming** and **Actual** fields are blank in the pasted node.
  - You cannot select a data item on the **Sort** tab if the pasted node is not connected to an input node with a selected subject.

- **Link node**
  - If a node is assigned to a **Link** node and the **Link** node is pasted into the segment map from which the node originates, the **Link** node is cleared. The **Link** node is set to an Incomplete state.
Map node
If the Map node is pasted without a connecting node upstream, the From subject is set to Undefined. Only a node with a subject that is compatible with the To subject can be connected to the Map node as an input node.

OR node
If an OR node is copied and the upstream nodes are not included, the subject is undefined and no items appear in the Input Nodes table in the pasted node.

Prioritize node
- Generated nodes are pasted only if the relevant input nodes are included in the copy.
- Output nodes cannot be copied by themselves; they must be included in a copy of the node.
- Output nodes are pasted in the same relative position as the original output cells.
- When generated nodes have been grouped and the group is not selected in the copy, the pasted generated nodes are not grouped.
- The remainder node is pasted with the Prioritize node.

Process node
- Code is copied with the node.
- If a process has been selected, the following considerations apply:
  - All parameters are copied with their values if the values are set.
  - Output nodes cannot be copied by themselves; they must be included in a copy of the node.
  - Output nodes are pasted in the same relative position as the original output cells.
  - All of the generated nodes of a Process node are automatically included with the node when the node is pasted into the same diagram.
  - If a Process node’s generated nodes have been grouped and the node is pasted, the individual nodes are pasted, but the group is not pasted.

Split node
- All parameters are copied with their values if the values are set.
- Output nodes cannot be copied by themselves; they must be included in a copy of the node.
- Output nodes are pasted in the same relative position as the original output cells.
- All of the generated cells of a Split node are automatically included with the node when the node is pasted into the same diagram. The exception is when the split is made using values from a previous node and the previous node was not copied. In this case an empty Split node is pasted.
- If a Split node’s generated nodes have been grouped and the node is pasted, the individual nodes are pasted, but the group is not pasted.
- When the Split node is pasted into a different diagram, all of the generated nodes of a Split node are included with the node. An exception is when the split is made using values from a previous node and the previous node was not copied. In this case, an empty Split node is pasted.
- When a Split node uses values from a previous node and is pasted into the same diagram without pasting the previous node and all of the nodes between the previous node and the Split node, the Split node has a Not ready status. The status is Not ready until you reconnect the previous node to the Split node or you change the Split method selection in the Split node.
Select Criteria

In the **Select Criteria** window, click ‼️ to display a hierarchical folder view of criteria. You can expand and collapse individual folders. Click ⬇️ to expand all of the folders. Click ⬆️ to collapse all of the folders.

Click ⬅️ to display individual criteria in alphabetical order.

Search for criteria by entering the name in the **Search** field. Select criteria and click ➤️ to display details.

About Marking Nodes as Segments and Marking Nodes as Linkable

You cannot mark a **Split** or **Prioritize** node without output nodes as segments or linkable. If a node that has a Ready status is at an incompatible subject level, the parent node or output nodes cannot be marked as a segment. You can always mark any node that is in the Not ready status as linkable except the **Split** and **Prioritize** nodes.

When you select **Mark node as segment**, you can click **Manage Custom Properties** to edit and view custom properties, and to complete any missing fields that are required to mark the segment as Ready.

**Note:** The **Manage Custom Properties** button does not appear if custom properties are not available. For more information, see “Define Custom Properties” in *SAS Customer Intelligence 360: User’s Guide*.

View Nodes Marked as Segments

To view information about nodes that have been marked as segments, click 📍 on the **Segment Map** tab.

Mark Your Segment Ready

**Note:** To publish an on-premises segment map, at least one node in the map must be marked as a segment or marked as linkable.

Click the **Orchestration** tab and select **Mark Ready** or **Mark Ready and Publish** to make your segment available to a task. The status changes from Designing to either Ready or Active.

A Ready status indicates that the segment is ready to be published with a task. When a user publishes a task that uses a Ready segment, that user is prompted to confirm that the segment should be published along with the task. Segments with a Ready status can be changed back to a Designing status by clicking **Return to Designing**. Changing this status prevents segments from being published by a task.

To move a segment from a Ready status to an Active status, click **Publish**. Segments with an Active status cannot be changed back to Designing. An Active status does not prevent a task from publishing.

If the content of a published item is changed and saved, that item becomes out of sync with the published version. To synchronize the content, select **Republish**. Otherwise, the item stays out of sync with the published version and the updates are not delivered.
Schedule Your Segment Map

When you finish updating your segment map, you can set a schedule for the segment map.

On the Orchestration tab, complete these actions:

- Click No schedule if you plan to publish the segment map manually.
- Click Set a schedule to set a time period that the segment map is active.
- Select a time zone. For example, you might want to select a time zone that is different from the default if the segment map is targeted to a specific locale. By default, the time zone is the same as the time zone that is set for the tenant. If a valid time zone is not set for the tenant, the default time zone is UCT.
- Click Single occurrence to specify a single time span that the segment map is active.
- Select a start date and an end date for the segment map.
  
  Note: If you select Single occurrence, the start date cannot be edited after the segment map is published.

- Click Recurrence to specify a recurring segment map. Click .
  
  Specify these details for a recurring schedule:

  - Start time is the start time for the first occurrence.
  - Duration specifies the amount of time that the content is available for each occurrence. For example, a segment map might start every week on Monday and continue for four days.
  - Frequency specifies the schedule for the recurrence. If you click Weekly, click the day for each occurrence. You can select multiple days in each week. If you click Monthly, select the numbered day or the weekday for the recurrence. For example, you can select the 10th day of each month or the second Tuesday of each month.
    
    Note: You can edit the weekly or monthly frequency after the segment map is published and the start date has passed. The recurrence must occur within the start and end dates.
  - Range of recurrence specifies the start and end dates, or that the recurrence continues without an end date.

Execute the Segment Map

On the Execution tab for a published segment map, click Run Now to immediately execute the flow, update counts on nodes, and update any segments that have been published.

View Usage Information

From the Orchestration ⇒ Usage tab, you can view which items use the segment and the items that the segment uses.
The ability to view dependencies between items enables you to see the items that a task depends on to work successfully. Usage information helps you identify how changes that you make to one item might affect another item.

Items That Use the Segment

The first section shows the items that use the segment. For example, if the segment is used in a task, the task is included in the list.

The Priority column displays the priority of like tasks that use the segment. Priority applies only to mobile spot, web spot, and mobile in-app message tasks because each of those task types might have two or more tasks that compete for the same resources. Other task types do not use prioritization.

For non-A/B test tasks, priority is on a scale of 1 through 5 (where 1 is the highest). The default is 3. An A/B test task has a priority of Test, which is higher than a non-A/B test task. An A/B test task always delivers its content.

You can change the priority of a non-A/B test task on the task's Orchestration → Priority tab.

Items That the Segment Uses

The second section shows items that the segment uses.

- Click Directly Related to list the items that the segment uses. For example, if a segment uses an event, the event is included in the list.

- Click All Related to view directly related items as well as any items that those directly related items use. For a segment, the list of directly related and all related items is the same.

  The list displays items with a Designing, Ready, or Active status. Click Show Designing Status only to display only items with a Designing status.

  To open an item, click the item. To view item details and to open the item, click in the item's row.

Enable Current Data to Be Used by Linked Nodes

On the Linking Information tab for a segment map, click Use the most current data when referenced by a link to display the most recent data. This data applies to a segment map that contains a source cell that is referenced by a Link node. The data is refreshed when the campaign is executed. The data for static report links is not refreshed. The counts might vary between the current segment map and the segment map that contains the Link node. The segment map that contains the Link node is updated only when that campaign is opened.

End Your Segment

When your segment is no longer needed, click End. The status changes to Complete. Any unsaved changes are lost.
Managing Segment Maps and Segments

From the Segments page, you can rename, copy, delete, and open (for editing) a segment map. You can also rename and open a segment. To access the options, select the segment map or segment in the Segment Maps and Segments table and select the appropriate action.

**Note:** The count that is displayed above the Segment Maps and Segments table indicates the number of rows for both segment maps and segments.

- To rename a segment map or segment, click and select Rename.
  
  You cannot rename a segment with a status of Completed or Ended. If you rename a segment map that is published, it becomes out of sync and must be republished.

- To copy a segment map, click and select Copy.
  
  **Note:** This action is not available for segments.

- To open a segment map or segment for editing, click .
  Alternatively, click the name of the segment map or segment in the list.

- To delete a segment map, click .
  
  You can delete a segment map that is published.
  
  **Note:** This action is not available for segments.

**TIP** After you rename a segment that is included in a segment map, when you return to the segment map, you might need to click to see the change.

Using Save As to Create a Segment Map

To save a segment map with a different file name, open the segment map, click , and then select Save As. Enter a name and click Save. You can also save a segment map with a different file name by opening a segment that is being used by the segment map from the Segment Maps and Segments table and then clicking .

When you use Save As to create a segment map, new IDs are generated for the nodes in the new map.

**Note:** You cannot save a segment with a different file name.

Refining Output for a Node

You can export data from any relationship level that has been previously referred to in the segment map. You can refine your data so that extra output records are not included. Refining the data is useful when you import from tables that are in a many-to-one relationship to the subject of the export table.

On the Refine by Node Subject tab in a Map or Export node, you can refine the output for the node by selecting nodes from the segment map that the Map or Export node belongs to.
subjects from the selected nodes are used as the refinement condition for the node output. To specify the refinement criteria:

1. On the **Refine by Node Subject** tab, click 🔍.

2. Select one or more nodes in the **Available items** panel and click 🖐️. To select all available nodes, click 🖐️. To undo your selection, click 🖐️.

3. Click **OK**.

The **Available items** panel contains upstream nodes that are linked to the node and nodes that are not linked to the node. If you selected multiple cells, the list contains terminal nodes that are not upstream from the cell nodes and upstream nodes that are common to the selected cell nodes.

### Unmarking Nodes

To unmark a node as linkable, right-click a node, which displays 📺, and select **Unmark node as linkable**.

*Note:* Unmarking a node as linkable might cause a segment map to be out of sync. 😥 appears next to the segment map in the list on the **Segments** page.

### Add Properties to a Segment Map

Perform the following actions on the **Properties** tab:

1. In the **Standard** properties section, modify the values in the fields as desired.

2. In the **Custom** properties section, enter or view information for your custom properties. For more information, see "Define Custom Properties" in *SAS Customer Intelligence 360: User’s Guide*.

### Creating an External System Task

### Add Content to Your Task

All of the details and items associated with the content that your task delivers are specified on the **Content** tab. Use the icons to change the spot, message, and creatives that the task uses. You can also set the distribution and impression limits for the creatives or add targeting criteria to each creative associated with the task.
Add an External System Task

1. From the navigation bar, click Tasks.
2. Click ☰ and select External System to use an external system to deliver content.
3. Select agents that will have access to external events or content, and then click Create Task.

Add Message or Creatives

1. Click 
2. Click Select Content to add a message or creatives to the task. If there is more than one creative, in the Select creatives section, select which creatives the task displays.

   Note: Instead of selecting an existing message or creative to add to the task, you can choose to create a message or creative. To create a message or creative, click New Message or New Creative. The message or creative that you create is automatically added to the task.

   For information about using merge tags in HTML creatives, see “Personalizing HTML Creatives” in SAS Customer Intelligence 360: User’s Guide.

Set Distribution of Content

If this task contains more than one creative, you can refine how each creative is displayed.

Click ☰ to open the Distribution tab and select the method that you want the task to use when determining how to display content.

Frequency Distribution

Select Frequency to specify how often a creative is displayed compared with the other creatives in this task. Next, set a percentage for each creative.

Note: Frequency is the default distribution method. By default, each creative is assigned equal distribution.

Sequential Distribution

Select Sequential to set the order in which the creatives are displayed.

CAUTION! The order is reset every 24 hours. After 24 hours, the order is reset and the first creative in the sequence is selected again. If the content delivery schedule for your task is longer than 24 hours, the creatives might not be displayed in the order that you have specified.
Rule-Based Distribution

Select **Rule-based** to split a task’s target audience into subgroups and associate a creative with each subgroup, thereby personalizing the content that your target audience sees. You can assign different criteria to each creative so that you can decide which creatives are delivered to different subgroups of the target audience.

**Note:** When you select the rule-based option, the criteria that you add to each creative are applied after the criteria on the **Targeting** tab are applied. Think of rule-based criteria as a way of refining which members of the task's target audience see specific creatives.

Each creative is assigned a number that indicates the order in which the creative's targeting criteria are evaluated. The creative that has the number 1 associated with it is evaluated first. The first creative with criteria that match a user is the creative that is delivered to that user. As a result, any creatives that come after the matching creative are not evaluated.

You can change the numbers that are associated with a creative by changing the position of the creative in the list. To change the creative order:

1. Click from the **Distribution** pane.
2. Select the creative that you want to move.
3. Click the arrows to move the creative up or down in the list.

A best practice is to ensure that there is always a creative that is displayed in your spot. For Web and Mobile Spot tasks, there are two ways to ensure that a spot that this task delivers content to is never empty.

- Your task includes a spot that contains a default creative.
- The creative in the rule-based creatives list that comes last (that is, the creative associated with the highest number) does not contain additional targeting. A creative that is listed last and does not have additional criteria associated with it is displayed when none of the previous criteria match the task’s audience member.

The creative that does not contain additional criteria becomes the default creative for this task. The default creative is denoted by 🛠️. As a result, any creatives listed after the default creative are never delivered.

**Note:** When you create a Mobile In-App Message or Mobile Push Notification, you must denote one creative as the default creative.

To add targeting criteria to each creative, select the creative and complete these steps:

- Select **All of the following** to include members who meet all of the criteria in a group. Or, select **Any of the following** to include members who meet one or more of the criteria in a group.
- Click 📊 to view a summary of the criteria.
- Click 📋 to make a copy of the criteria.
- Click ⬆️ or ⬇️ to move criteria up or down in the list.
- Click ☐️ to create a group for a set of criteria.
- Click ✖️ to add criteria. In the **Select Criteria** window, select the criteria to add. In addition, you can use customer lists that have been imported from other sources such as SAS Marketing Automation.
Note: When you add **Browser and Device** to your criteria, only the people who are using that browser or device during the current session are included in the target audience. For example, if you add Chrome as the browser, only the people who are using Chrome during the current session are eligible to be included in the target audience.

When you add a spot attribute that contains a URL query string parameter, the value of that parameter needs to be decoded for multi-byte character sets (MBCS). If you are adding a URL query string, the value should be encoded for MBCS.

---

## Set Impression Limits

Click ☑️ to limit the number of times a customer sees your content.

- Select **Limit total impressions per user** to specify the total number of times a creative is displayed to a customer. This limit is valid for the duration of this task.
- Select **Limit impressions per user by period**.
  
  Select **Time period** to specify the maximum number of impressions that a user sees during a specified time interval (for example, minutes, hours, days, or months).

  Select **Session** to limit the number of impressions that a user sees while interacting with content, such as your website or mobile app. By default, the session is set to expire after 30 minutes of inactivity, but you can contact a SAS representative to modify this value.

---

## Add a Target Audience

On the **Targeting** tab, set the criteria that define the target audience for the content that the task delivers. Previously defined segments, events, and data views can be selected as criteria.

**Note:** You must define a login event type if you have tasks that depend on segments with data from logged-in users.

Criteria can be used to include or exclude people from the target audience.

- Add criteria to the **Eligible** page to specify which people to include in your target audience.
- Add criteria to the **Exclusions** page to specify which people to exclude from your target audience.

If no criteria are added to either the **Eligible** page or the **Exclusions** page, the target audience consists of everyone.

To add eligibility or exclusion criteria:

- Select **All of the following** to include members who meet all of the criteria in a group. Or, select **Any of the following** to include members who meet one or more of the criteria in a group.
- Click ☑️ to view a summary of the criteria.
- Click ☑️ to make a copy of the criteria.
- Click ↑ or ↓ to move criteria up or down in the list.
- Click ⌆ to create a group for a set of criteria.
Click ✪ to add criteria. In the Select Criteria window, select the criteria to add. In addition, you can use customer lists that have been imported from other sources such as SAS Marketing Automation.

**Note:** When you add **Browser and Device** to your criteria, only the people who are using that browser or device during the current session are included in the target audience. For example, if you add Chrome as the browser, only the people who are using Chrome during the current session are eligible to be included in the target audience.

When you add a spot attribute that contains a URL query string parameter, the value of that parameter needs to be decoded for multi-byte character sets (MBCS). If you are adding a URL query string, the value should be encoded for MBCS.

---

**Select Criteria**

In the Select Criteria window, click ✪ to display a hierarchical folder view of criteria. You can expand and collapse individual folders. Click ✪ to expand all of the folders. Click ✪ to collapse all of the folders.

*Figure 5.9 Select Criteria Window*
Click to display individual criteria in alphabetical order.

Search for criteria by entering the name in the Search field. Select criteria and click to display details.

---

Add Properties to Your Task

Here are the types of properties that are associated with a task:

- properties that identify the task, such as a name, description, or code. To update task properties, click the Properties tab and modify the values in the fields as desired.

  **Note:** An item can be identified by its code for activities such as auditing and reporting. When an item is imported or migrated to SAS Customer Intelligence 360, the existing code value for the item is retained. Depending on the code settings for your environment, the code value might be editable. This value is not required to be unique to be valid. If the value is editable, you can change it to match the code value for another item. Valid characters for codes are alphanumeric characters, multi-byte characters, numerals, underscores, hyphens, and periods. Blank spaces are not allowed in code formats.

  The **Code** field enables marketers to use a segment map to target customers based on their internal attributes (account type, balance, and so on) and their previous interactions. These codes are used to communicate information about the targeted customers to vendors or downstream systems. Using codes can minimize errors in text and punctuation that might occur when using an item name that is typically lengthy.

  The information in the **Code** field can be used for operational reporting. The information can also be used to select or suppress customers for targeting messages (for example, a marketing message might target or exclude all customers who responded to direct marketing task 12345).

- properties that are used for Plans. To add planning information to a task, open the task and click . For more information, see “Creating a Planning Item” in SAS Customer Intelligence 360: User’s Guide.

To return to the task view after opening the planning view, complete one of these actions:

- Fill out the required planning properties and save the task.
- Navigate to the Tasks view and click the task from the list.

---

Schedule and Start Your Task

When you finish updating your task, you can mark the task ready, publish the task immediately, or set a schedule for the task.

On the **Orchestration** tab, take these actions:

- Click **No schedule** if you plan to publish the task manually.
- Click **Set a schedule** to set a time period that the task is active.

- Select a time zone. For example, you might want to select a time zone that is different from the default if the task is targeted to a specific locale. By default, the time zone is the same as the time zone that is set for the tenant. If a valid time zone is not set for the tenant, the default time zone is UCT.
☐ Click **Single occurrence** to specify a single time span that the task is active.

☐ Select a start date and an end date for the task.

    Note: If you select **Single occurrence**, the start date cannot be edited after the task is published.

☐ Click **Recurrence** to specify a recurring task. Click 📅.

Specify these details for a recurring schedule:

- **Start time** is the start time for the first occurrence.
- **Duration** specifies the amount of time that the content is available for each occurrence. For example, a task might start every week on Monday, and continue for four days.
- **Frequency** specifies that the schedule for the recurrence. If you click **Weekly**, click the day for each occurrence. You can select multiple days in each week. If you click **Monthly**, select the numbered day or the weekday for the recurrence. For example, you can select the 10th day of each month or the second Tuesday of each month.

    Note: You can edit the weekly or monthly frequency after the task is published and the start date has passed. The recurrence must occur within the start and end dates.

- **Range of recurrence** specifies the start and end dates, or that the recurrence continues without an end date.

☐ **Extend metrics analysis** continues collecting data after the last occurrence. Select the number of days to extend data collection. The default value is 7 days. For example, if you use the default value, and the **Start time** is 9:00 PM, data collection continues until 9:00 PM seven days after the **End by** date.

    Customers might respond several days after the last occurrence. You can extend the time for data collection in order to more effectively measure task performance.

    During the extended period of data collection, the status is Active - Metrics Only. The status changes to Complete when the **Extend metrics analysis** period is over.

- Select **Mark Ready** to change the status from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click **Publish**.

    Note: When you publish an item, you are prompted to publish any dependent items that are marked Ready.

    Items with a Ready status can be changed back to a Designing status by clicking **Return to Designing**. Changing this status to Designing prevents the item from being published.

    Note: If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.

- Select **Mark Ready and Publish** to change the status from Designing to Active. Items with an Active status cannot be changed back to Designing.

Changes to a scheduled or active task are not automatically propagated to the published version of the task. You must republish the task after you save it to resolve the Out of Sync status. Otherwise, the task stays out of sync with the published version and the updates are not delivered.

When the end date of a task is reached, its status changes to Complete. Completed tasks cannot be modified. The task stops any associated data collection and makes the task’s content unavailable. In addition, any unsaved changes are lost.

Note: A recurring schedule is not available if the task is included in an activity.
Pause the Task

You can pause an active task to temporarily stop delivery of a task. For example, if you want to correct the percentage of a discount that is offered, you can pause the task, edit the amount, and republish. You do not need to end a task in order to update the content. You can make the same changes to a paused task that you can make to an active task.

When a task is paused, you can resume the task to restart content delivery or end the task.

To pause an active task, select Pause on the Orchestration tab.

During the time that a task is paused, content is no longer delivered. Customers are not selected by the task. Data such as conversions continues to be collected based on impressions that were viewed prior to the pause. When the task resumes, new data is added to the data that was collected before the pause.

Content delivery that does not rely on a trigger and is in progress, such as bulk mobile push notifications, might continue for items that are already in the queue.

If the task is paused and the content has not changed, select Resume to make the task active again.

If task content is changed and saved, the task becomes out of sync. Select Republish to make the task active again and to deliver the updated content.

End the Task

Click End on the Orchestration tab when you no longer need the task to run or when the scheduled end date is reached. The status changes from Active to Complete. Completed tasks do not collect new data and cannot be modified. Any unsaved changes to the task are lost.

Specify the Event That Triggers the Task

To add a trigger that prompts the task to deliver content, click Trigger on the Orchestration tab, and then select an event. Specify criteria and values to add attribute conditions. Content is delivered when all of the conditions are met. For more information, see “Select Criteria” on page 105.

When you add an event to your task, you can change the occurrence and time period of the event. The occurrence defines how often the event must occur. The time period defines when the event must occur in order to be eligible. By default, an event must occur at least once in the past week. To change the occurrence or time period of an event, click and set the event occurrence details.

Specify the number of times the event must occur in order to trigger the task. Set an operator and value for Occurrences. For example, you can set the Occurrence to Less than ( < ) 5. This setting is how you specify that an event must occur at most four times in order for a person to be eligible.

Set the time period in which all occurrences must occur:

- Select Relative to define a time period relative to the current day, such as within the past week.
Select **Absolute** to define a time period with specific dates. For example, you can set the time period so that the event occurs at least one time before a specified date or between two specified dates.

Select **None** when you do not need to define a time period for the event. Events that are added to a segment and do not have a defined time period are eligible anytime they occur.

For example, you want your task to be triggered when your customers have visited your website’s home page at least three times since January 1, 2016.

1. Define an event that detects and records a customer's view of your site's home page.
2. Create a trigger in a task that uses that event as a criterion.
3. Set the occurrence and time period details for the event that detects a customer's view of the home page. Set **Occurrences** to **Greater than (>) 2**. Select **Absolute** for the date range, and then set the time period to be greater than or equal to January 1, 2016.

### Name the Outgoing Event

On the **Orchestration** tab, click **Outgoing Information** and enter a name for the outgoing event and the selected creatives that will be sent to specified agents. If you do not enter an event name, the default name is “Outgoing_{next available integer}”. You can open the selected creatives by clicking a link in the table.

### Specify Agents for the Event

On the **Orchestration** tab, click **Agent** and select the agents that you want to receive content from the task.

### Items That the Task Uses

The second section shows items that the task uses.

- Click **Directly Related** to list the items that the task uses. For example, if a task uses a creative, the creative is included in the list.

- Click **All Related** to view directly related items as well as any items that those directly related items use. For example, you might see the creative that the task uses and the asset that is used by the creative.

  The list displays items with a Designing, Ready, or Active status. Click **Show Designing Status only** to display only items with a Designing status.

To open an item, click the item. To view item details and to open the item, click [ ] in the item's row.

**Note:** HTML assets that are the content source for mobile spot, web spot, and email creatives are not listed.
Using Save as to Create a Task

To save a task with a different filename, click \(\text{COPY} \rightarrow\) and select Save As. Enter a name and click Save.

Create a Direct Marketing Task

A direct marketing task is an outbound channel that uses customer data and analytics from SAS Customer Intelligence 360 export files that can be used for print marketing, call centers, webpages, and other marketing channels. Companies might want to create a direct marketing task that sends information from an export file to a marketing channel such as a print catalog. The task selects the message (such as a 10% off coupon) and the target audience for the mailing (such as middle-aged vacationers). The task also includes the export file which contains selected data items from the data hub (such as first name, last name, address, city, state, ZIP code, message code, and so on) that are used to create a mailing label at the mail house.

1. From the navigation bar, click \(\text{Tasks}\).
2. Click \(\text{COPY} \rightarrow\) and select Direct Marketing to deliver content for direct marketing.
3. To use the data store in the cloud data hub, click Cloud Data Hub. To use data from your organization’s data mart, click On-Premises Datamart.
4. To build new export data for your content, click Design your own export data. On the Content tab, click \(\text{COPY} \rightarrow\) to update the table.
   
   **Note:** To use an existing template to edit and build export data from, click Use saved template, select a template, and then click Create Task. The data table is exported as a .csv file after the task is published.
5. Add a message. Click \(\text{COPY} \rightarrow\) to open the Content Selection tab. Then click Select Content to add messages to the task.
6. Add a target audience. On the Targeting tab, you must select a segment with the status of Active in order to define the target audience for the content that the task delivers.
   
   **Note:** Multiple segments with the same name can be created for different segment maps. To display information about the segment map for a selected segment, click \(\text{COPY} \rightarrow\) in the Select Criteria window.
7. Generate a file for an export table. You must publish the direct marketing task before you can generate a file for an export table. On the Orchestration tab, click Export File. Then Click \(\text{COPY} \rightarrow\) to refresh the URL for the table. You can copy the link or download the table.
8. Schedule and start your task. When you finish updating your task, you can mark the task ready, publish the task immediately, or set a schedule for the task on the Orchestration tab.
9. From the Orchestration Post Process tab, you can add Process nodes that will be run in the last step in an on-premises export process.
Note: The Mark node as segment and Mark node as linkable settings are not available for the Process nodes in the map on the Post Process tab.
Deliver Emails

Learn how to deliver content to your recipient’s inbox by creating email tasks.

Create an Email Task

1. From the navigation bar, click Tasks.
2. Click and select Email to deliver content through the email channel.
3. You can determine whether the task delivers all content at the same time or when event conditions are met. Select a delivery type to specify how the task delivers content:
   - Click Bulk to deliver messages at the same time. You specify the schedule on the Orchestration tab. A bulk task can be used as the Start task in an activity.
   - Click Triggered to add a trigger event. You can add a trigger event on the Trigger page on the Orchestration tab. You can also specify criteria and values to add attribute conditions for the event. Content is delivered when all of the conditions are met.
4. Select one of these methods to build your layout. An email layout contains text, images, creatives, and HTML content.
   - Select Design your own layout to build a new layout.
   - Select Use saved layout to use an existing layout in HTML format.
5. To use a saved layout, select a layout. Click Done, and then click Create Task. A new task is created.
Add Content to Your Task

All the content that your task delivers in an email is specified on the Content tab. Email content includes the layout, message, and creatives that you want to deliver in an email task.

Manage Content

All the content that your task delivers in an email is specified on the Content tab. On the Content tab, use these icons to manage your content:

- Click to display the Layout pane. In the Layout pane, you can perform these actions:
  - Select a check box for the content type from these options: HTML or Plain Text.
    To send emails that include both HTML and plain text content types, select both check boxes.
    Next, click a content type to select it. Based on the content type that you select, the relevant Edit buttons are displayed. Click an Edit button to open an editor window:
      - Click Edit Content to open a drag-and-drop editor.
      - Click Edit HTML Code to open an HTML editor.
      - Click Edit Plain Text to open a plain text editor.
  - To meet legal requirements, you must provide a valid option for recipients to unsubscribe from receiving further emails.
  - Click to select a saved template. Click Save as Template to save a layout as a reusable template.
- Click to view the number of content blocks in the email content.
- Click to display the Content Selection pane. In the Content Selection pane, click Select Content to select a message or creative. If you selected a message with more than one creative, in the Select Creatives section, select the creatives that the task displays.
  - Note: is enabled when you add a content block to the layout.
- Click to display the Personalization pane. If the content block contains more than one creative, you can set rules to personalize each creative for a subset of the target audience.
  - Note: is enabled when you add a content block that contains more than one creative.

Edit Content in the HTML Editor

You have the option to modify and customize your email content by using the HTML editing capabilities in an email task. Complete these actions:

1. In the Layout pane, select the check box for the HTML content type.

   **TIP** To send emails that include both HTML and plain text content types, select both check boxes.

2. Click the HTML content type to select it. Based on the content type that you select, the relevant Edit buttons are displayed.
3 Click **Edit HTML Code** to open an HTML editor.

4 In the **Edit HTML Code** window, click in the **HTML Editor** to edit the email.

Click **Update Preview** to preview your changes or to refresh the preview. Click **Done** to implement your changes and exit the window.

**Note:** You cannot preview your changes after you exit the window.

---

### Edit Content in the Plain Text Editor

You have the option to modify and customize your email content by using the plain text editing capabilities in an email task. For help with setting up the plain text editor, contact your SAS technical consultant.

Complete these actions:

1 In the **Layout pane**, select the check box for the **Plain Text** content type.

   **TIP** To send emails that include both HTML and plain text content types, select both check boxes.

2 Click the **Plain Text** content type to select it. Based on the content type that you select, the relevant Edit buttons are displayed.

3 Click **Edit Plain Text** to open a plain text editor.

4 In the **Edit Text Content** window, enter your plain text email content.

---

### Edit Content in the Layout Manager

You have the option to modify and customize your email content by using the drag-and-drop editing capabilities in an email task. Complete these actions:

1 In the **Layout pane**, select the check box for the **HTML** content type.

   **TIP** To send emails that include both HTML and plain text content types, select both check boxes.

2 Click the **HTML** content type to select it. Based on the content type that you select, the relevant Edit buttons are displayed.

3 Click **Edit Content** to open a drag-and-drop editor.

4 In the **Layout Manager** window, you can add or edit these types of email content:

   - Multiple Columns
   - Text
   - Image
   - Button
   - Horizontal Line
   - Content Block
   - View-on-Web Text
Opt-out Text
You can preview how your email content is displayed on multiple devices. To preview the content, click Responsive Previews.

On the Responsive Previews page, you can resize or preview the email content.

- Click and drag to resize the preview pane and preview how the content renders at different screen widths.
- Click to preview how the content renders on a mobile screen; click to preview how the content renders on a tablet screen; and click to preview how the content renders on a desktop screen.

If you added content, to save your content changes and continue working in the Layout Manager, click and select Save Task. To exit the Layout Manager, click OK.

Set Preview Text
You can set the text that is displayed with the subject of an email message. Enter text in the Preview text field, in the General Layout Settings pane.

Preview text is displayed in your recipient's inbox. If you do not add the preview text, the beginning of your email body text is displayed as the default preview. The number of characters that are displayed depends on the email client.

Click to add a merge tag to the preview text.

Specify a Background Color for the Layout
You can specify a background color for the layout to align to the color scheme of your organization or to a seasonal event. In the Layout Manager, specify Layout Background Color in the General Layout Settings pane. Click the color swatch and select from the Basic or Custom colors.

Note: The General Layout Settings pane is displayed when the layout is in zero state, or when you have not selected any content element in the existing layout.

Specify Default Settings for Text Formatting
You can set defaults for text formatting so that each time you add a Text block, you do not need to format it. In the Layout Manager, specify Default Text Settings in the General Layout Settings pane.

Add Text

Add and Edit Text
Use a drag-and-drop operation to move a text block onto the layout. Click inside the text block to insert text. Modify the attributes of the selected text block in the Text Settings pane.

To copy formatted text from an external source and paste it without the source formatting, right-click and select Paste without source formatting. Paste the text in the Paste window by using the keyboard shortcut (Ctrl+Shift+V) and click OK. The source formatting is not retained in the pasted text. However, the formatting that you specified in Default Text Settings in the General Layout Settings pane is applied.
Add a Hyperlink

A hyperlink directs recipients to a web page that displays content.

1. Use a drag-and-drop operation to move a text block onto the layout.

2. Enter text. For example:
   
   To view product details, click here.

3. Select the word or words that you want to hyperlink. In this example, select the word here.

4. In the Text Settings pane, click 📝.

5. In the Link window, the Link Info tab is displayed by default.

6. In the Link Type field, make sure that the URL option is selected from the drop-down list. In the Protocol field, make sure that the http:// option is selected from the drop-down list.
   
   Select <other> as the protocol if you are using merge tags in the URL.

7. In the URL field, enter the URL for the web page that you want to direct your recipients to.

8. Click OK. The word here now contains a hyperlink. When the link is clicked, it loads the web page URL that you specified in your default browser.

Add a Merge Tag to Personalize Text

A merge tag enables you to insert a data item from the customer data or behavioral data. When the message is delivered, the merge tag is resolved to personalized information about each recipient that is retrieved from the data hub and inserted as a value.

In the text block, position your cursor where you want to insert a merge tag. In the Text Settings pane, click 📝.

In the Select Merge Tag window, a merge tag that you select can resolve to a regular text value or a conditional text value for each recipient. Select a merge tag and select one of these options:

- Select Insert text from a merge tag value to insert a regular text value. For example, you select the merge tag, “Customer Name”.

- Select Specify a condition based on a merge tag value to specify a conditional text value. For example, you select the merge tag, “Customer Gender” and specify a basic condition, “if Merge tag value = Female, then Text = Dear Madam”.

In the Default value field, add a value. The merge tag inserts the default value if the customer data is missing, or if the condition that you specified is not satisfied.

Add an Image

Drag an Image from the Layout Gallery to the page. In the Image Settings pane, click 📝 to select an image. In the Select Image window:

- Select From Assets and click 📝 to select a static image from the Assets repository in SAS Customer Intelligence 360. Only assets that are enabled for sharing with external users are available for selection.

(Optional) To specify the image source, click the Content source drop-down list and select an option:
Select **SAS Digital Asset Management** to add assets from the internal repository in SAS Customer Intelligence 360. This option is selected by default.

Select **Third Party CMS** to add assets from an external content management system (CMS) that is integrated with SAS Customer Intelligence 360.

Only assets that are enabled for sharing with external users are available for selection from SAS Digital Asset Management.

When you select an image, the URL in the email content refers to the location of the image that is published on the external content delivery server.

Select **From URL** and enter a URL, or click ![Link](image) and select a merge tag that resolves to a personalized image URL based on recipient data. You can select a merge tag from data tables in the data hub or from event attributes.

You can add a merge tag to insert a value for the whole URL, or a part of the URL.

**Note:** Ensure that the image URL is correct and accessible when the email is delivered. The URL must be acceptable to the application server that hosts the content at the desired location.

It is recommended that you add a default image URL in the **Select Merge Tag** window.

**Note:** When a task has a Design status, URLs that use merge tags might not be fully resolved to the site or content that they represent. The Layout Manager displays a placeholder image. You can modify the image attributes but you cannot preview the actual image. However, you can save and publish the task in this state.

In the **Image Settings** pane, customize the design attributes of the image.

**Add a Button**

Drag a **Button** from the **Layout Gallery** to the page. In the **Button Settings** pane, customize the design attributes of the button and button text.

**Add a Horizontal Line**

Drag a horizontal line from the **Layout Gallery** to the page. In the **Horizontal Line Settings** pane, customize the attributes of the horizontal line.

**Add a Content Block**

Complete these steps:

1. Drag a **Content Block** from the **Layout Gallery** to the page. A content block can contain one or more creatives. Multiple creatives can be personalized for different subsets of the target audience.

2. Click ![Select](select), and then click **Select Content** to select a message or creative.

3. If you selected more than one creative, click ![Select](select).

4. In the **Rule-based Settings: Content Block** window, select each creative and add criteria to specify which subset of the target audience receives the selected creative.

5. In the **Content Block Settings** pane, customize the design attributes of the content block.

**TIP** If you inserted a content block inside a multiple columns block, a recipient who does not meet any targeting criteria will receive an email message without a personalized
Add View-on-Web Text

Add View-on-Web Text with a hyperlink that recipients can click to view email content in a web browser.

1. Use a drag-and-drop operation to add View-on-Web Text, which contains some default text with a hyperlink.

   For example: To view this email in your web browser, click here. In the example, the word here contains a hyperlink.

2. Click View-on-Web Text and use the icons in the View-on-Web Text Settings pane to edit, format, and customize the default text.

   For more information about editing text, see “Add and Edit Text” in SAS Customer Intelligence 360: User’s Guide.

   Note: Recipients can see the View-on-Web Text only when the message is viewed in the email client. View-on-Web Text is not displayed when the message is viewed in the browser.

Add a Multiple Columns Block

A Multiple Columns block is a container into which you can drag any of the content elements from the Layout Gallery, except another Multiple Columns block. Use a drag-and-drop operation to move a Multiple Columns onto the page and add content elements. When you add a Multiple Columns block, you select the number of columns that you want in the Select Multiple Columns window.

To add content to a column in a Multiple Columns block, drag a content element from the Layout Gallery to the page. Select each content element that you inserted in the Multiple Columns block to view and edit settings.

Use the Multiple Columns Settings pane to customize the Multiple Columns block.

Add or Edit Opt-out Text

By default, an email layout contains opt-out text. You can set up an unsubscribe option for email recipients by inserting a link in the opt-out text that directs recipients to a page on your website with a mechanism to unsubscribe. Select the Opt-out Text and use the icons in the Opt-out Text Settings pane to edit, format, and customize the default text. For more information about editing text, see “Add and Edit Text” in SAS Customer Intelligence 360: User’s Guide. You can add one or more opt-out text blocks.

To meet legal requirements for email marketing, you must provide recipients with an option to unsubscribe from receiving further emails. Therefore, do not delete the opt-out text.

Create Responsive Email Content

You can display variants of email content in response to the recipient's device by using the media queries technique in Cascading Style Sheets (CSS). In the Layout Manager, add a
content element from the Layout Gallery and click Edit Styles and Preview. In the Edit Layout Styles and Preview window, click in the CSS editor to add or edit the styles and style properties for the CSS classes. To preview changes, click Update Preview.

Click to preview how the content renders on a mobile screen, click to preview how the content renders on a tablet screen, and click to preview how the content renders on a desktop screen.

Save a Layout as a Reusable Template

You can save an email layout as a reusable template:

1. After you add content to your layout in the Layout Manager, in the Layout pane, click Save as Template.
2. In the Save as Template window, specify a unique name and save the layout as an HTML asset.

Set Impression Limits

You can set impression limits to limit the number of times that users receive email content when an email task is triggered in response to multiple event occurrences in an activity.

To limit the number of times an email is sent to a user, click to display the Impression Limits tab.

- Select Limit total impressions per user to specify the total number of email impressions that a user receives. This limit is valid for the duration of this task.
- Select Limit impressions per user by period ⇒ Maximum impressions to specify the maximum number of email impressions that a user receives.
- Select Limit impressions per user by period ⇒ Time period to specify the maximum number of email impressions that a user receives during a specified time interval (for example, minutes, hours, days, or months).

Define Email Header Information

On the Header tab, complete these fields:

Subject
Enter a subject line for your email. You can select a merge tag to personalize this field.

To
By default, the To field is populated with a merge tag %%email_contact%% that automatically retrieves the email addresses of your recipients from the data source.

From
From the drop-down list, select a From address or From domain that is added for the send agent on the New Send Agent page.

Reply-to
From the drop-down list, select an approved Reply-to address or Reply-to domain that is added for the send agent on the New Send Agent page.
Note: The send agent that is selected on the Orchestration → Delivery page determines the values for the From and Reply-to fields.

To personalize an email header field, click 📝. In the Select Merge Tag window, select a merge tag. In the Default value field, define a default value for the merge tag and click OK.

The field is populated with personalized information about each recipient from the data source.

---

## Previewing and Testing Email Content

### Preview Email Content

You can preview how your email content is displayed on multiple devices, browsers, email clients, and platforms. To preview the content, click Multiple-Client Previews, and then click Run.

When the test is complete, you can search the results for platform, client, or an application such as a browser. For example, you can enter Web.de in the Search field to find previews on the Web.de web client.

If you have content blocks in your email messages, the preview displays the default creatives. You can select an individual preview and expand it. Within the expanded preview, you can choose whether to view the creatives, suppress them, or view them as thumbnails.

The Previews run field displays the count of previews that were run.

### Run a Spam Test

You can test whether your email content will be flagged as spam. To test the content, click Spam Test, and then click Run.

The Spam tests run field displays the count of spam tests that were run.

### Preview and Test

To preview the email and run the spam test, click Overview, and then click Run All. To view the results, navigate to the Preview Email or Spam Test pages.

You can configure the time limit for the test to run. By default, the configured time duration for the test to run is five minutes. Tests that run beyond the configured time limit are terminated. For more information contact your SAS account manager.

The count of total tests run indicates the total number of previews and spam tests that were run from the Review tab, within the organization, by all of the users.

---

## Add a Target Audience

On the Targeting tab, define the target audience for the content that the task delivers.

1. Add criteria to the Eligible page to specify which people to include in your target audience.
2. Click 💼. In the Select Criteria window, select a set of users to include.
3 Depending on the selected target audience for a bulk email task (customer data) or a triggered email task (trigger event data), data items from the recipient data in transient files are available for selection as merge tags for personalization.

For a bulk email task, you can select recipients from one of these sources:

- a segment that is created from existing customer data
- an imported list
- a transient file that contains data in temporary tables

4 In the Select Criteria window, click \(\text{expand icon}\) to display a hierarchical folder view of criteria. You can expand and collapse individual folders. Click \(\text{expand all icon}\) to expand all of the folders. Click \(\text{collapse all icon}\) to collapse all of the folders.

5 Click \(\text{alphabetical order icon}\) to display individual criteria in alphabetical order.

6 Search for criteria by entering the name in the Search field. Select criteria and click \(\text{display details icon}\) to display details.

---

**Set Metrics**

To add primary and secondary metrics:

1 Click Add Primary Metric.

2 Click \(++\).

3 Select the criteria that you want to add. You can select an event view or a data view.

4 If attributes are defined for the event or data view, select the attribute conditions that must be met. For example, for a Click Through metric, you can select a particular creative as an attribute condition. The primary metric would be a click-through response to that creative.

**Note:** Attributes are joined by an AND operator. Make sure that you do not define conflicting attributes that result in a condition that cannot be met.

5 To mark this selection as a contact or response that can be tracked and used for reporting and future targeting, select Classify this selection. Classifying an event or data view enables you to compare contacts and responses across creatives and channels. You can personalize future messages and creatives. You can also use the information to segment customers. You can classify events and data views in both primary and secondary metrics.

To record the number of times that a customer interacts with a creative or a spot, select Mark this selection as a contact. This information is available as contact history for SAS Marketing Automation, SAS Real-Time Decision Manager, and other applications.

To mark this selection as a response to a creative, select Mark this selection as a response.

6 Click Add Secondary Metric to add a secondary metric.

To change the settings for an existing metric, click \(\text{edit icon}\) next to the metric. Click \(\text{remove icon}\) to remove a metric from the Insights tab.
Deliver Your Task

Schedule and Start Your Task

When you finish updating your task, you can mark the task ready, publish the task immediately, or set a schedule for the task.

On the Orchestration tab, take these actions:

- Click **No schedule** if you plan to publish the task manually.
- Click **Set a schedule** to set a time period that the task is active.

- Select a time zone. For example, you might want to select a time zone that is different from the default if the task is targeted to a specific locale. By default, the time zone is the same as the time zone that is set for the tenant. If a valid time zone is not set for the tenant, the default time zone is UCT.

- Click **Single occurrence** to specify a single time span that the task is active.

- Select a start date and an end date for the task.

  **Note:** If you select **Single occurrence**, the start date cannot be edited after the task is published.

- Click **Recurrence** to specify a recurring task. Click 🔄.

  Specify these details for a recurring schedule:

  - **Start time** is the start time for the first occurrence.
  - **Duration** specifies the amount of time that the content is available for each occurrence. For example, a task might start every week on Monday, and continue for four days.
  - **Frequency** specifies that the schedule for the recurrence. If you click **Weekly**, click the day for each occurrence. You can select multiple days in each week. If you click **Monthly**, select the numbered day or the weekday for the recurrence. For example, you can select the 10th day of each month or the second Tuesday of each month.

  **Note:** You can edit the weekly or monthly frequency after the task is published and the start date has passed. The recurrence must occur within the start and end dates.

  - **Range of recurrence** specifies the start and end dates, or that the recurrence continues without an end date.

- **Extend metrics analysis** continues collecting data after the last occurrence. Select the number of days to extend data collection. The default value is 7 days. For example, if you use the default value, and the **Start time** is 9:00 PM, data collection continues until 9:00 PM seven days after the **End by** date.

  Customers might respond several days after the last occurrence. You can extend the time for data collection in order to more effectively measure task performance.

  During the extended period of data collection, the status is Active - Metrics Only. The status changes to Complete when the **Extend metrics analysis** period is over.

- Select **Mark Ready** to change the status from Designing to Ready. A Ready status indicates that this item is ready to be published. When you are ready to promote an item from a Ready status to an Active status, click **Publish**.
Note: When you publish an item, you are prompted to publish any dependent items that are marked Ready.

Items with a Ready status can be changed back to a Designing status by clicking Return to Designing. Changing this status to Designing prevents the item from being published.

Note: If your item has a Ready status and a start date, the item is not automatically published when the start date is reached. For example, if you are creating a task, it must be published in order for the start date to activate the task.

Select Mark Ready and Publish to change the status from Designing to Active. Items with an Active status cannot be changed back to Designing.

Changes to a scheduled or active task are not automatically propagated to the published version of the task. You must republish the task after you save it to resolve the Out of Sync status. Otherwise, the task stays out of sync with the published version and the updates are not delivered.

When the end date of a task is reached, its status changes to Complete. Completed tasks cannot be modified. The task stops any associated data collection and makes the task's content unavailable. In addition, any unsaved changes are lost.

Note: A recurring schedule is not available if the task is included in an activity.

Select a Send Agent

A send agent represents a connection to an outbound mail server for the delivery of emails.

Navigate to Orchestration ➤ Delivery, and then select a send agent from the drop-down menu.

Configure Unsubscribe Settings

To receive unsubscribe requests from recipients through an email reply, you can configure unsubscribe settings for a tenant or for a single task. In an email task, you can override the unsubscribe settings that you configured for a tenant.

To configure unsubscribe settings in an email task, select Orchestration ➤ Delivery.

Select an option to configure unsubscribe settings:

- If you do not want to receive unsubscribe requests through an email reply, select Disable unsubscribe requests through email reply.
- If you want to receive unsubscribe requests through an email reply, select Enable unsubscribe requests through email reply.

If you select Enable unsubscribe requests through email reply, specify one or more keywords that the subject text of the email reply must contain to process the unsubscribe requests. If an email reply from your recipient contains any of the keywords that you specified, the system processes the unsubscribe request.

Add Task to an Activity

To publish the task as part of an activity, add it to an activity. When the task is published, the emails are delivered to the target audience that is defined by the activity. The status of the task changes to Active, and it collects data.
End the Task

When your task is running, it collects data and gathers information about progress toward your metrics. Navigate to the **Insights** tab to check the progress of your task.

Click **End** on the **Orchestration** tab when you no longer need the task to deliver content or when the scheduled end date is reached. The status changes from Active to Complete. Completed tasks do not collect new data, do not deliver content to a spot, and cannot be modified. Any unsaved changes to the task are lost.
Working with SAS 360 Plan

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Plan Your Marketing Strategy

Marketing departments that use SAS 360 Plan can operate more efficiently by integrating and managing end-to-end marketing processes.

- Plan strategically and collaboratively to ensure that your marketing plan aligns with your organization’s objectives. Create and approve plans in a centralized repository, so that you can easily manage and retrieve them.
- Manage finances with an integrated budget that tracks expenses and automatically updates your plans and calendars.
- Use an integrated calendar to schedule and track timing of your plans and tasks for marketing efforts.
- Use workflows to manage assignments and get real-time visibility into project timelines. You can customize the available workflow templates to match your business needs.

By combining SAS 360 Plan with other licenses, you can integrate planning, execution, and monitoring of your marketing objectives. Integration with other licenses gives you the information to ensure that your objectives are on track or enable you to quickly change your strategy when necessary.
Customize Your Marketing Hierarchy

A marketing hierarchy can represent the structure of your organization based on the functions and divisions of your company either by region or subdivision, or based on business requirements. You can create only one hierarchy and customize it to meet your needs. Create a maximum of 10 planning levels, and assign unique values to each level.

In SAS Customer Intelligence 360, the Plan, Program, and Campaign hierarchy is available by default.

To create a marketing hierarchy:

1. From the navigation bar, click General Settings → Plans.
2. In the Plans section, click Marketing Hierarchies.
3. To add a level in the hierarchy, click +
4. Enter a name and description for the level. The name for each level should be unique.
5. By default, an icon is selected for the level. You can change the icon by clicking Change.
6. Click Save.

Work with Assets

Learn how to create and view assets, and create versions and renditions from an asset. To begin working with assets, click Assets from the navigation bar.

Create an Asset

1. On the top navigation bar, click 📚.
2. In the Standard properties section, enter this information:
   - Enter a Name for the asset.
   - (Optional) Enter a Description for the asset.
   - Click Browse to select the original file to upload. You can save the asset without uploading a file and add the file later. A file size of 20 MB is supported for a single asset.
   - Click Browse to select the appropriate location for the asset. The folder that you are currently in is the default.
   - Add or search for a tag in the Tags field. To add a tag, enter the text and click Add to list. Click View all tags to view all of the available tags.
   - Select a Category for the asset.
(Optional) Click to select an expiration date for the asset.

3 In the Custom properties section, enter information for your custom properties.

4 Click . The asset is uploaded, and a preview and a thumbnail are created. Click Close.

For a video asset, you can upload any file as the original asset file and upload the video file in a supported format as a preview rendition. The thumbnail image is generated by default. Click the asset to view the properties. The thumbnail image is displayed on the Asset Details tab. Click the image to play the video file in your browser, in the Preview window.

Click to preview the asset, download the original, download a preview, open the asset, delete the asset, move the asset, copy the asset, rename the asset, or share the asset.

**Supported File Formats**

Assets support various file formats for upload. However, only these types of file formats are supported for media processing and autogeneration of thumbnails and preview renditions:

- The supported image file formats are .tiff, .jpeg, .jpg, .bmp, .gif, and .png.
  
  **Note:** The .pcx file format is not supported for creatives. The supported image file formats for mobile in-app message and mobile push notification creatives are .jpeg, .jpg, and .png.

- The supported document formats include .xls, .xlsx, .ppt, .pptx, .doc, .docx, and .pdf.

- The supported video file formats include .mp4, .avi, .flv, .wmv, .mov, .mpeg, and .mpg.
  
  **Note:** Mp4 videos must conform to video H264 codec and audio AAC codec standards.

- The supported file formats also include HTML files.
  
  **Note:** The supported character encoding is UTF-8. Other formats in an uploaded HTML file might display garbage characters.

**View an Asset**

You can view and edit an asset and its properties, and create versions and renditions.

1 Click an asset.

2 Click the image to display a preview. Click Close.

3 On the Properties page, view or edit the information. Click or Close.

4 On the Summary page, view the properties of the asset.

5 On the Versions page, view or edit the information.

6 From the Orchestration ⇒ Usage tab, you can view which items use the asset.

   To open an item, click the item. To view item details and to open the item, click in the item’s row.

You can download the original or preview, save the file with a different name, or share the asset.
To download the asset, click \ and select Download Original or Download Preview. The file appears at the bottom left of the screen.

To save the asset with a different filename, click and select Save as. Enter a name, select the location to copy the asset to, and then click OK.

To share the asset, click \ and select Share. Select the access level of the user that you want to share the asset with, copy the URL, and then click Close. Provide the link to the user.

From the Tile view, you can click \ on each individual asset to preview the asset, download the original, download a preview, open the asset, delete the asset, move the asset, copy the asset, or share the asset.

To work with several assets at the same time, select the Select all check box, click \ and complete these actions:

- To update attributes for the selected assets, click Update Properties. Edit as necessary and click Apply. You can clear the description and expiration date.

- To share the selected assets, click \ Share. Select the access level of the user that you want to share the assets with, copy the URLs, and then click Close. Provide the links to the user.

- To move the selected assets, select Move. Select the location and click OK.

- To copy an asset, select Copy. Enter a name, select the location, and then click OK. All attribute values, other metadata, and renditions are copied from the source asset to the new copy.

- To rename an asset, select Rename. Enter a name and click OK.

- To download the selected assets, select Download Assets. You can select the original, the preview, or the thumbnail. Enter a filename and click Create. (Do not use /, \, ;, :,* , ?, <, >, or |.) Click Download. Ensure that your pop-up blocker is disabled.

- To create a properties file, select Download Properties File. This Microsoft Excel file contains the standard properties (folder path, name, description, and expiration date) and any custom properties and tags associated with the assets. The Excel file can be used as a template for batch uploads. Open the file to view or edit the properties. Update from Excel. Ensure that your pop-up blocker is disabled.

- To view the recycle bin, select Recycle Bin.

- After you update properties in the spreadsheet, click Update from Excel.

Create a Version

1 Click an asset.

2 On the Versions page, click +.

3 Click Browse to select an image to upload.

   (Optional) Select the Generate custom renditions check box to generate custom renditions for the asset.

4 (Optional) Click Browse to select the image for the thumbnail.

5 (Optional) Click Browse to select the image for the preview.
6 Add any **Comments** for the new version of the asset.

7 Click **Save**, and then click **Done**.

Click  to preview, download, restore, or delete the version.

---

### Create a Rendition

A rendition is a different base file format (for example, a different size, resolution, or format). Each asset version has a set of defined renditions.

1 Click an asset.

2 Click the **Renditions** tab to see the original asset, a preview of the asset, and a thumbnail of the asset. Additional renditions of the asset are also displayed.

3 Click  to create a rendition. Enter a **Rendition name**, and then click **Browse** to select the image to upload.

4 Click **Save**.

After a rendition is added, you can download, rename, delete, or replace the rendition:

- To download the rendition, click  and open or save the asset.
- To rename the rendition, click  and enter a new name. Click **Save**.
- To delete the rendition, click  . Click **Yes**.
- To replace the rendition, click  . Click **Browse** and navigate to the appropriate file to upload. Click **Save**.

---

### Delete an Asset

To delete an asset, on an asset, click  and select **Delete**, or from the table view, select an asset and click  .

Deleted assets are sent to the recycle bin.

---

### Recycle Bin

You can restore assets and permanently delete assets from the recycle bin.

1 On the top navigation bar, click  and select **Recycle bin**.

2 To restore an asset, select the appropriate asset and click  . Click **Yes** to confirm the restoration of the asset to its original folder.

   Click **Select all** to restore all of the items in the recycle bin.

3 To permanently delete an asset, select the appropriate asset and click  . Click **Yes** to confirm the permanent deletion of the asset.

   Click **Select all** to delete all of the items in the recycle bin.
Create a Plan

Create a marketing plan to help you achieve your goal. A plan contains marketing strategies, objectives, and other information. A plan can include tasks, activities, and other elements that have been created in SAS Customer Intelligence 360. In this tutorial, you create a plan and add an activity to it.

1. From the navigation bar, click 📚.

2. Click 📚.

3. Select the type of planning item that you want to create.

4. Fill in the information about the standard and custom properties on the Details tab.
   - Standard properties provide basic information about the planning item, such as the name, description, and other details that uniquely identify the planning item.
   - Custom properties provide additional business information related to the planning item. Custom properties are specifically configured to the organizational context and needs.

5. Click ☑️ so that you can continue creating your planning item.

By default, the status of the new planning item is Planning.

After you create and save your planning item, navigate to the remaining tabs to add more information, levels, tasks, activities, or messages.

- Add messages to this planning item on the Details ⇒ Messages tab.
- Add levels or related items, such as tasks and activities on the Relationships tab.
- Add financial information, such as budgets, commitments, invoices, and cost centers on the Financials tab.
- Add approvals for this planning item on the Approvals tab.
- Add and initiate workflow tasks for this planning item on the Workflows tab.

Upload and Update Multiple Assets at Once

Learn how to upload or update multiple assets at one time.

See the video here: Upload Multiple Assets.
Add Levels to Your Marketing Hierarchy

After you create a planning item, you can add child planning items at various levels, depending on the marketing hierarchy that is customized for your organization. The default marketing hierarchy contains three levels: plan, program, and campaign. Plan is the parent planning item that you create within the default marketing hierarchy. You can add or associate the following planning items with a plan.

Add Programs or Campaigns

You can add an existing planning item to the marketing hierarchy, or create a planning item within this hierarchy.

To add an existing program or campaign, on the Relationships tab, click Add Program or Add Campaign. Select the planning item and click OK.

To create a planning item, click New Program in the Add Program window, or click New Campaign in the Add Campaign window.

View Marketing Hierarchy

You can view the hierarchy of the planning item. In the Table view for Plans, click the planning item to view its details. You can also perform actions such as remove, delete, copy, rename, and export to Excel. Use the breadcrumbs that are available at the top left of the window to return to the previous planning item.

Use Tasks, Activities, and Messages with Planning Items

Integrate with Activities and Tasks

Activities and tasks can be part of the hierarchy, if they are used with Plans. Budget information can be assigned and tracked for the activities and tasks and the numbers can be rolled up. Associating activities and tasks with planning items can help you complete these actions:

- attribute revenue to marketing activities
- ensure that what you planned is actually completed
- align planning and execution teams
- make decisions about future marketing activity
- compare the amount you actually spent with the amount that you planned to spend
- analyze what works best and what you should not do again

To associate activities or tasks with the planning item:

1. On the **Relationships** tab of a planning item, click **Add Activities** or **Add Tasks**.
2. You can select an existing activity or task and click **OK**.
3. Create an activity or task by clicking **New Activity** or **New Task**.

### Integrate with Messages

As multiple messages or offers are communicated across planning items, associating messages with planning items enables marketing managers to track the flow of messages. A message can contain creatives that can be associated with a planning item. After the planning item is associated with a message, the creatives in that message are available to the planning item and all the parent items. At higher levels, a single list of messages can be viewed across the hierarchy. The message can be used with different campaigns, and you can assess the performance of that message.

1. On the **Details** tab of a planning item, click the **Messages** tab.
2. Click **Add Message**. The **Select Message** screen displays a list of messages. To view the messages that are associated with a parent item, select the **Associated with Parent** check box.
3. Select the messages to be associated with the planning item and click **OK**. These messages are associated with all the planning items located in the hierarchy above the planning item.
4. To add messages, click **+**.

### Allocate Budgets and Track Expenses

A plan enables you to specify the budget and track the expenses of your marketing campaign. In this tutorial, you add financial information to an existing plan.

#### About Budgets

A **budget** is a financial plan for a given planning item to estimate revenues and expenditures for a financial year. You can allocate a maximum amount of funding for a planning item.

Information about the amount that is available for a planning item is displayed on the **Budget** page.
Allocate the Budget

On the **Budget** page, enter the following information:

1. In the **Budget Amount** section, enter the total budget amount for the planning item. You can allocate amounts to items at the associated lower level, which you added in the marketing hierarchy on the **Relationships** tab.

2. In the **Level Amount** field, enter the amount that is available to manage commitments and invoices for the planning item. For example, if the level name is Plan, the Level Amount is the budget for Plan. This amount is not available for lower-level items.

   If you want to allocate the entire Budget Amount for this level, activate the switch for **Same as Budget Amount**.

View Information about the Budget

On the **Financials** tab for a planning item, on the **Budget** page, you can view the following information:

**Budget Amount**
- is available for this planning item and any items at the associated lower level.

**Allocated Budget**
- includes the Level Amount and the Rolled-up Budget.

**Level Amount**
- is available for the planning item at this level. This amount is not available for the lower-level items.

**Rolled-up Budget**
- the sum of the budget amounts that are directly associated with the lower-level planning items.

**Available Budget**
- the remaining amount that is available for allocation to this planning item or to associated items at the lower level. Available Budget can be a negative amount if you allocate more than your Budget Amount.

**TIP** To view the formula for the Available Budget amount, click \( f(x) \).

The breadcrumbs at the top of the **Budget** page shows the level of the planning item that you are currently viewing.

View Rolled-Up Budget

To view the budget that is rolled up from the lower levels in the marketing hierarchy, on the **Financials** tab, see Rolled-up Budget Allocation. You can view the planned budgets for each of the immediate lower-level items. Click the planning item to view the financial details of the
lower-level items. Use the breadcrumbs at the top left of the screen to return to the previous planning item.

### Bulk Edit of Budgets

A bulk edit of budgets enables you to reallocate budgets for a set of programs, activities, and tasks. Unused budgets can be reallocated from one planning item to another or moved to an activity that is running low on funds.

1. Select the planning item to edit its budget amount.
2. Click and select 
3. The Edit Budget window displays the budgets for all of the planning items in the entire marketing hierarchy. In this window, you can edit the budgets for each planning item all at once.
4. Click Apply.

### About Expenses

*Expense* is the money spent while executing the activities associated with a planning item. You need to track your expenses to control your finances and check whether the budgeted amount has been exceeded.

Information about the expenditures related to the planning item is displayed on the Expenses page.

### Add Commitments and Invoices

Commitments are monetary amounts that you commit to vendors. Invoices are submitted by the vendors for services rendered to the organization.

1. You can add commitments and invoices on the Expenses page:
   - Click Add Commitment and enter the commitment number, name, and other information.
     - If the setting for Cost Centers is enabled, you can distribute the commitment amount to the appropriate cost centers. An administrator can enable the settings for Cost Centers by navigating to General Settings ⇒ Plans ⇒ Configurations ⇒ Budget Settings section.
   - Click Add Invoice and enter the invoice number, name, and other information.
     - If the setting for Cost Centers is enabled, you can distribute the invoice amount to the appropriate cost centers. An administrator can enable the settings for Cost Centers by navigating to General Settings ⇒ Plans ⇒ Configurations ⇒ Budget Settings section.
   - To add existing invoices to a commitment or to create an invoice:
     - On the Invoices tab, click Add Invoices. Select from the existing invoices and click OK.
     - To add invoices, click New Invoice.
     - To add more invoices, click + on the Invoices tab.
To remove invoices from a commitment:

- On the **Invoices** tab, click **Select** and select an invoice.
- Click ✖ and confirm the removal.

---

### Reconcile Invoices

You can reconcile invoices to reflect the actual amount that is adjusted for payment against an invoice. To reconcile an invoice:

1. In the **Invoices** section, select an invoice.
2. Click ✖.
3. In the **Invoice Reconciliation** window, select the payment date and enter the reconciled amount for the invoice.
4. In the Invoice Details table, you can distribute the reconciled amount to the appropriate cost centers.

   - Select the invoice for which you want to add a cost center. At the top of the Invoice Details table, click ✖ to add a cost center.

   You can distribute the reconciled invoice amount to the cost centers only if the setting for Cost Centers is enabled. An administrator can enable the settings for Cost Centers by navigating to **General Settings → Plans → Configurations → Budget Settings** section.

5. The **Select Cost Centers** window displays the cost centers that are associated with the planning item. You can search for a cost center, and you can activate the switch for Show **all the cost centers**. Activating this switch displays all of the cost centers that are available in the system. Select one or more cost centers that you want to add and click **Save**.

6. In the Invoice Details table, in the Reconcile Amount column, add or edit the reconciled amount for that cost center.

   **Note:** The total amount that you distribute to the cost centers should match the reconcile amount that you entered in the table in step 3.

7. Click **Save**.

---

### View Information about Expenses

On the **Financials** tab for a planning item, on the **Expenses** page, you can view the following information:

**Level Amount**
- the amount that is available for the planning item at this level. This amount is not available for lower-level items.

**Level Expenses**
- the sum of the Outstanding Commitments and Invoices for the planning item at this level.

**Outstanding Commitments**
- the amount that has been entered for all of the planning item commitments but has not been assigned to an invoice.
Invoices
the sum of all the invoiced amounts that are associated with the planning item.

**TIP** To view the formula for the Invoices amount, click $f(t)$.

Available to Spend
the remaining amount of the budget for this level after expenses are deducted.

**TIP** To view the formula for the Available to Spend amount, click $f(t)$.

---

**Distribute Budget to Cost Centers**

To distribute the budget for a planning item to the cost centers:

1. Navigate to Financials ➔ Cost Center Distribution.
2. To add a cost center, click +.
3. Select each cost center that you want to add and click OK.
4. Enter the amount that you want to distribute to each cost center in the Distribution column. The total amount distributed to the cost centers for a level should not exceed the budget amount for that level.

**Note:** If the setting for Restrict Overbudgeting is enabled, a message is displayed if the Cost Center Distribution amount exceeds the Level Amount.

---

**View Information about the Cost Center Distribution**

On the Financials tab for a planning item, on the Cost Center Distribution page, you can view the following information:

**Level Amount**
the amount that is available for the planning item at this level.

**Total Cost Centers Amount**
the sum of the amounts that are distributed to the cost centers, which are associated with this planning item.

**Remaining Amount**
the amount that is available for distribution to the cost centers.

**TIP** To view the formula for Remaining Amount, click $f(t)$.

The Cost Center Distribution table lists the cost centers that you added and other relevant information.
Creating Workflows

About Workflows

Workflows enable you to automate processes to save time. A workflow consists of a series of steps that are executed in a specific order to track the progress of a project. Marketing teams can build workflow templates based on best practices. These templates can be created for product launches, collateral designs, advertising, direct marketing, sponsorships, event management, and so on.

Create a Workflow

To create a workflow:

1. Click the Workflows tab of the planning item.
2. Navigate to Workflow List ➔ Start Workflow.
3. Select a workflow template and click Continue. A diagram of all the workflow tasks for each workflow template is displayed. The workflow templates are configured by your administrator and made available to the users in your organization.
4. On the Details tab, enter a Name and Description for your workflow.
5. In the Categories field, select a category from the drop-down list. If you have already selected a default category in the workflow template, that category is automatically displayed and can be updated. Depending on the selected category, the custom properties are displayed.
   Note: The attribute groups for the custom properties are listed, depending on the category that you select. Selected attribute groups (not included in any category) from the workflow template are also displayed.
6. On the Workflow Tasks tab, select the contributors who will execute the tasks by clicking +.
7. For each contributor, enter the duration in days. The duration is the number of working days, excluding weekends and holidays, that the contributor has to complete the workflow task. When you enter the duration, the due date is automatically calculated.
8. Alternatively, you can change the due date and the duration is calculated accordingly.
9. Click Add to provide instructions to each contributor individually.
10. Click and select Edit details to add these details to the workflow task:
    - Enter the duration in days.
    - Click Add to provide instructions to the contributor.
    - Click to change the contributor.
1. Click to change the task name.
2. Click to add attachments. Click Add and add the supporting files.
3. Click to add comments. Enter the topic name and comments, and then click Post to post the comments.

11. Click Activate to start the workflow on the supplied start date. To save a draft of the workflow, click .

12. A workflow with a status of In Progress is initiated.

You can switch between a table view of the workflow task and a calendar view by clicking the appropriate icons. You can access a Gantt view to visualize the start and end dates for each workflow task and the contributors. If a contributor is removed from a task, that contributor is not visible in the calendar view.

**Cancel a Workflow**

When you create and initiate a workflow, its status is In Progress. To cancel the workflow:

1. On the Workflow List tab, click the workflow. A workflow details screen is displayed.
2. Click .
3. The status of the workflow changes to Canceled.

**Update Tasks**

1. On the Workflow Tasks tab, a list of your assigned tasks is displayed.
2. Click the workflow to enter your response, and then click Mark Complete.
3. The completed task is removed from the list.

**Delete Workflows**

You can delete workflows that are completed, canceled, or in draft form.

1. On the Workflow List tab, select the workflows that you want to delete.
2. Click .
Working with Your Workflow Tasks

View the Workflow and Approval Task List

To view all the workflow and approval tasks that are active and assigned to you:

1. On the left navigation bar, click My Workflow Tasks or click the link that you receive in the email notification about the task.

2. A list of the workflow and approval tasks assigned to you is displayed.

For approval tasks, the workflow name column refers to the item name that has been routed for approval.

Respond to a Workflow Task or an Approval Task

To respond to a workflow task or an approval task that is assigned to you:

1. Click the task name in the task list. You can view details such as start date, due date, and status, and whether the task is on time.

2. The Reference Information section is displayed with a link to the planning item where the workflow was initiated. The link is available only if the administrator configures the option to show a link in the task so that the contributor can view the details. You can click the link to view the details of the planning item.

3. In the Preceding Workflow Task section, the details of the task that is configured as a preceding task by the administrator are displayed. All the configured information from the previous task can be viewed.

4. In the Status Update section, all the files for approval are listed on the Items for Approval tab. You can annotate the video and image files. For more information, see "Annotating Files" on page 143.

   On the Details tab, responses from previous tasks are displayed. You can download the annotated PDF files with all annotations and comments embedded in the file. You have the option to download files with or without annotations.

5. Enter a response in the text area. A response can be mandatory depending on how the workflow task is configured.

6. Upload files to support your response by clicking Add. There is no restriction on the file type. You can upload multiple files. Ensure that the upload is complete and there are no errors. Files with errors are removed from the list. These files can be downloaded by the initiator and by other contributors. You can delete an uploaded file by clicking .

Note: By default, the file upload feature is not available for an approval task. This feature can be configured if required.
To add reference files, click 
, and then click Add and upload the files.

If you select a template with multiple contributors and file approvals when creating a workflow, the contributors can upload files for approval. All the contributors in the Workflow can view and approve or reject the files individually and add comments. If a file is rejected, the contributor of the previous task needs to change and upload the files again for approval.

You can save the task without marking it complete by clicking . Saving the task enables you to keep adding details to the task as you progress. You can mark the task complete when you have entered all the necessary details.

**Cancel a Workflow Task**

You can cancel any workflow task that does not have a completed status in an active workflow.

**Note:** You cannot cancel a task in an approval workflow or a workflow that has a single task. Instead, you must cancel the workflow.

From the left navigation bar, click My Workflows. On the Workflow Tasks tab, click , and then click Cancel task.

If the attributes of the workflow task are used in subsequent conditions, or if the task has a file upload option that might be affected by the cancel action, you cannot cancel the task.

**Annotating Files**

**Annotate an Image File**

These image files can be annotated:

- GIF
- JPEG
- BMP
- PNG
- SVG

To annotate an image file:

- Click an image file to open it.
- Select the annotation tools, mark the area, and add comments in the comments pane.
- You can view all comments in the comments pane by clicking View All Comments. To view a specific comment, use the select tool and select the annotation.
- You can edit a comment by clicking , delete a comment by clicking , and respond to the comment.
- To view the latest responses, click to synchronize the responses.
- Use the search box to search for a specific comment.
- The annotations are saved automatically.
Annotate a Video File

These video files can be annotated:
- Mp4
  - Note: Mp4 videos must conform to video H264 codec and audio AAC codec standards.
- WebM
- OGV

To annotate a video file:
- Click a video file to open it.
- Play the video. Pause when you want to annotate a frame.
- Select the annotation tools and mark the area. Add comments in the comments pane.
- You can view all comments in the comments pane by clicking View All Comments. To view a specific comment, use the select tool and select the annotation.
- You can edit a comment by clicking , delete a comment by clicking , and respond to the comment.
- To view the latest responses of other contributors, click to synchronize the responses.
- Use the search box to search for a specific comment.
- The annotated frames are listed in the Annotation Navigator section.
- The annotations are saved automatically.

Annotate a PDF File

To annotate a PDF file:
- Click the PDF to open it. All the comments on the first page, if any, are displayed.
- Select the annotation tools such as rectangle, ellipse, freehand drawing, and polygon, and then mark the area. Add comments in the comments pane. You can use text tools such as highlight, strikethrough, and underline.
- You can view all comments in the comments pane by clicking View All Comments. To view a specific comment, use the select tool and select the annotation.
- Click the toggle sidebar icon to expand the sidebar. You can switch between viewing the thumbnail of each page and viewing the document outline. The document outline can be viewed only if it has been configured for the PDF file.
- You can edit a comment by clicking , delete a comment by clicking , and respond to the comment.
- To delete an annotation, select the annotation and click .
- To view the latest responses, click to synchronize the responses.
- Use the search box to search for a specific comment.
- The annotations are saved automatically.

You can search for specific items in the file by clicking and use the zoom tools to change the magnification.
Complete a Workflow Task

To complete a workflow task that is assigned to you:

1. Click the workflow task name in the workflow task list. You can view all the task details.
2. After you respond to the task, click **Mark Complete**.

Complete an Approval Task

To complete an approval task that is assigned to you:

1. Click the approval task name in the task list. You can view all the task details.
2. Select **Approve** or **Reject** and add your comments.
3. Click **Submit**.
Import a Data Descriptor through the REST API

About Data Descriptors

Before you can import data, you need to define the basic layout of the data and its contents in a data descriptor. Data descriptors are JSON objects that describe the structure and the type of data items that are contained in a data set. An import descriptor is a data descriptor that is used only to describe data that is imported. When you upload data into SAS Customer Intelligence 360, you choose an import descriptor that already exists in the system.

Import descriptors contain these parts:
top-level attributes. These attributes apply to the entire descriptor. They define basic information (such as name and description) and specific implementation settings (such as targeting availability).

- `dataItems` object. This is a JSON object that contains a list of one or more data items. In an import descriptor, data items are definitions of each field (column) that exists in your data set. Each data item can have its own set of attributes that define how the item is used by the system.

For example, assume you have a data set with three columns of information: login, name, and email. The import descriptor would have a `dataItems` object with three defined items:

```json
{
    "name": "customer_tables",
    "description": "Sample import descriptor for customer tables",
    "type": "customer",
    "dataItems": [
        {
            "name": "login ID",
            "label": "Login",
            "description": "Customer login ID",
            "type": "STRING",
            "tags": [],
            "excludeFromAnalytics": true,
            "identityType": "login_id",
            "identity": true,
            "segmentation": true
        },
        {
            "name": "name",
            "label": "name",
            "description": "Customer name",
            "type": "STRING",
            "tags": "DEMOGRAPHICS",
            "excludeFromAnalytics": true,
            "channelContactInformation": true,
            "segmentation": true
        },
        {
            "name": "email",
            "label": "email",
            "description": "Customer email",
            "type": "STRING",
            "tags": "DEMOGRAPHICS", "EMAIL_CONTACT",
            "excludeFromAnalytics": true,
            "channelContactInformation": true,
            "segmentation": true
        }
    ]
}
```

For examples of data descriptors and corresponding data samples, see “Sample Data Descriptors and Data” in *SAS Customer Intelligence 360: User’s Guide*. 
Create the Import Descriptor

To create an import descriptor:

1. Open a text editor and create a basic template for your descriptor. You can use text similar to this example:

```json
{
  "name": "",
  "description": "",
  "type": "",
  "dataItems": [
    {
      "name": "",
      "label": "",
      "description": "",
      "type": "",
      "tags": []
    },
    {
      "name": "",
      "label": "",
      "description": "",
      "type": "",
      "tags": []
    }
  ]
}
```

2. Define the top-level attributes. For more information, see “Import Descriptor Attributes” in SAS Customer Intelligence 360: User's Guide.

3. Define a data item for each column of your input data. For more information, see “Data Item Attributes” in SAS Customer Intelligence 360: User's Guide.

4. (Optional) Modify attributes to use merge tags with imported data. Merge tags enable you to personalize messages and creatives for specific members of the audience. You can use merge tags to dynamically retrieve personalized information about your recipient (such as his or her first name). This information can then be used to customize the content of a task.

   To make your imported data available to merge tags, set these properties in the data descriptor:

   a. Add the EMAIL_CONTACT field tag to a data item that contains email addresses.

   b. Set the channelContactInformation attribute to true for the data item.

   **TIP** If you have data that could be used for merge tags but are unsure, add the channelContactInformation property just in case you do decide to use the data later.

5. (Optional) Modify attributes for segmentation. Set these attributes to control how SAS Customer Intelligence 360 uses your data in segment discovery, segment creation, and targeting:

   a. Set the type attribute for the data descriptor object (the top-level element) to customer.
For best results, set these values for each dataItems property in the data descriptor:

Table 8.1 Property Settings for Segmentation

<table>
<thead>
<tr>
<th>Property</th>
<th>Recommended Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>segmentation</td>
<td>true</td>
<td>Enables an item to be used as criteria when you define a segment in the UI.</td>
</tr>
<tr>
<td>excludeFromAnalytics</td>
<td>false</td>
<td>If the value is true, then analytics cannot view the property. So, the user record cannot be part of a discovered segment criteria or segment profiles. Segment profiling still runs using that criteria to define the segment and the population, but that record is not part of the resulting analysis.</td>
</tr>
<tr>
<td>segmentProfilingField</td>
<td>true</td>
<td>Enables the system to use this record for segment profiling.</td>
</tr>
</tbody>
</table>

6 Upload the import descriptor. Use this REST call:

```plaintext
POST https://design-<server>/SASWebMarketingMid/rest/descriptors/
```

In the body of the REST call, paste the JSON code for the import descriptor.

Follow these guidelines when you submit a REST call:
- When you include JSON data in the body, set the Content-Type header value to `application/json`. How you set this value depends on the REST client.
- You must be authenticated with SAS Customer Intelligence 360. In most cases you can submit authentication information through your REST client.

If you receive an OK (response code 200) as a response, the upload was successful. If you need to update a descriptor, see “Update an Import Descriptor” in SAS Customer Intelligence 360: User’s Guide.

---

Import Customer Data

This video tutorial for SAS Customer Intelligence 360 explains how to import customer data with an existing data descriptor.

See the video here: Import Customer Data.
Upload Data Through the REST API

This tutorial for SAS Customer Intelligence 360 explains how to upload customer data and location (geofence or geobeacon) data through the REST API. This data can be used in other parts of SAS Customer Intelligence 360 for targeting, defining segments, and so on.

Prerequisite

Before you can upload data, ensure that you define your data descriptors. If you need to create a data descriptor, see “Import a Data Descriptor through the REST API” on page 147.

Get the Data Descriptor

The REST call to create a data descriptor returns an ID that can be used to access the descriptor in other calls.

Use this REST call to get the data descriptor:

GET https://design-<server>/SASWebMarketingMid/rest/descriptors/

Follow these guidelines when you submit a REST call:

- When you include JSON data in the body, set the Content-Type header value to application/json. How you set this value depends on the REST client.
- You must be authenticated with SAS Customer Intelligence 360. In most cases you can submit authentication information through your REST client.

The REST call returns a response that is similar to this example:

```json
{
   "links": [links removed from example. You can use the links to navigate through resource collections.],
   "name": "descriptors",
   "accept": "application/vnd.sas.marketing.data.descriptor.summary application/vnd.sas.marketing.data.descriptor application/vnd.sas.collection application/json text/plain",
   "start": 0,
   "count": 3,
   "items": [
      {
         "name": "customer",
         "id": "7f995e66-4474-4b9b-b37a-c64796c09bab",
      },
      {
         "name": "geofence_location",
         "id": "dc8947e9-ed62-4b0c-b7bd-f82c52e310f9",
      },
      {
         "name": "contact_preference",
       
```
In the sample response, the customer table has a data descriptor ID of 7f995e66-4474-4b9b-b37a-c64796c09bab. This value is used to retrieve the location where you upload the data file.

**Get a Transfer Location**

Use a POST call to get a temporary URL to upload the file.

*Note:* Temporary URLs can be accessed for about 15 minutes before they time out. You can use temporary URLs more than once, but you can always request a new URL if you do not start your upload in the 15-minute window.

```
POST https://design-<server>/SASWebMarketingMid/rest/fileTransferLocation/
```

The response should be similar to this example. (Line breaks in the URL string are for readability only.)

```
{
  "signedURL": "https://<host>.s3.amazonaws.com/transfers/5/fc80e6ed904e4a9881625b3448153c2?x-amz-security-token=<token>&AWSAccessKeyId=<access_key>&Signature=n9mYRyF%2Fc47Czni4bdvnnsmushI%3D",
  "httpMethod": "POST",
  "createdTimeStamp": "2016-03-08T13:47:03Z",
  "expiresTimeStamp": "2016-03-08T14:02:03Z"
}
```

**Upload the File with Customer Data**

Upload the file with curl with the temporary URL that was generated:

```
curl -v --upload-file myfile.csv "https://<temporary_URL>"
```

For more information about curl, see [https://curl.haxx.se/](https://curl.haxx.se/).

*Note:* Before you upload customer data, make note of these guidelines:

- Only CSV files are supported.
- As a best practice, ensure that the data for a single customer is in one row only. For example, do not include the same customer on multiple rows with different login IDs.
Initialize the Import Process

After the data file is uploaded, use this REST call to create an import request:

```plaintext
POST https://design-<server>/SASWebMarketingMid/rest/descriptors/<import_descriptor_ID>/imports
```

In the body of the request, add JSON data to describe the upload. Here is an example import request:

```json
{
    "fileLocation": "https://<temporary_URL>",
    "fieldDelimiter": ",",
    "contentName": "Customer Data as of May 2015",
    "fileType": "CSV",
    "recordLimit": 0,
    "headerRowIncluded": true
}
```

The data columns in the CSV file must be in the same order that is specified in the data descriptor. Use a comma to separate the columns.

The JSON data uses the attributes in the following table:

**Table 8.2 JSON Body of POST Call to Import Data**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>fileLocation</td>
<td>String</td>
<td>The temporary URL that is generated when you request the transfer location.</td>
</tr>
<tr>
<td>fieldDelimiter</td>
<td>String</td>
<td>The delimiter that separates columns in the data file. Note: Only commas (,) are currently supported.</td>
</tr>
<tr>
<td>fileType</td>
<td>String</td>
<td>The file type of the data. Note: Only CSV files are currently supported.</td>
</tr>
<tr>
<td>recordLimit</td>
<td>int</td>
<td>(Optional) Specifies the number of records to import. If the value is empty or set to 0, then all of the records are imported.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>updateMode</td>
<td>String</td>
<td>(Optional) The mode in which the imported data is processed. The mode can be one of these:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>replace</strong>: This mode replaces all the data from previous uploads to this descriptor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>append</strong>: This mode appends data from the imported file to the customer records that already exist for this data descriptor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>upsert</strong>: This mode updates any existing records and appends new records. The upsert mode updates values based on checking data items that have the key parameter set. For more information, see the key attribute in see “Data Item Attributes” in SAS Customer Intelligence 360: User’s Guide.</td>
</tr>
<tr>
<td>headerRowIncluded</td>
<td>Boolean</td>
<td>Set to <strong>true</strong> if the first row contains header information instead of a data record. Note: Even if you include a header row, the column is not read to determine the placement of columns. The data must be in the same order as the fields in the descriptor.</td>
</tr>
</tbody>
</table>

After you send the import request, the REST API returns an import request ID that you can use to check the status of that request.

## Use the SAS 360 Discover Download API

### Overview

The SAS 360 Discover Download API enables you to download data that was collected by SAS 360 Discover. After setting up the access point in the user interface, you access this API through a REST client or by using PROC HTTP in SAS.

To set up and use the API:

1. Set up the access point in SAS Customer Intelligence 360.
2. Generate the JSON web token (JWT).
3. Use REST to get a signed URL to download the data. This step is performed only once at the beginning of the process (or whenever the client secret is changed).

Here are the types of files that you can download from the API:

- non-partitioned identity data files
- partitioned detail data files
- Discover base table (DBT) files from the report mart

4 Download and process the data file.

---

**Set Up the Access Point**

To get access to the SAS 360 Discover Download API, you must first set up an access point in SAS Customer Intelligence 360. This access point enables you to generate a JWT that is required to make REST calls to the API.

To set up an access point:

1. Sign in to SAS Customer Intelligence 360.
2. From the navigation bar, click \(\text{General } \Rightarrow \text{External } \Rightarrow \text{Access}\).  
3. On the **Access** page, click \(\text{Create}\) to create an access point.
4. Enter a name for the access point, and ensure that it is activated.
5. To get the tenant ID and client secret, click **Add** under Access Key, and then click \(\text{OK}\). 
   Take note of the following information for the access point:
   - access point name, which is needed for REST calls
   - tenant ID, which is needed for REST calls and to generate the JWT
   - client secret, which is needed to generate the JWT
6. Determine the URL for the API.
   a. The URL is displayed in the Access section of the interface where access points are created and downloaded so that the endpoint is known to the user.
   b. In your REST calls, substitute the SAS 360 Discover Download API string in the following example with your actual host name and path:

```
GET https://<SAS 360 Discover Download API>/marketingGateway/discoverService/dataDownload/eventData/detail/nonPartitionedData
```

---

**Generate the JWT**

Access to the SAS 360 Discover Download API is controlled by a JWT that is generated from the tenant ID and a string that is used as a client secret. JWTs are self-contained objects that enable two parties to transmit data securely between them. JWTs are defined by the RFC 7519 standard. They are digitally signed and can be independently verified.

Here are two methods that you can use to generate a JWT:

- an online tool such as **JSON Web Token by Stormpath**
- a local installation of Python and the **pyjwt** package

To generate a JWT with a local Python installation:
1 Install version 3.x or later of Python (external link).

2 Use the pip command in Python to install the pyjwt package. For example:
   
   ```
   c:\>c:\Python27\Scripts\pip.exe install pyjwt
   Collecting pyjwt
   Using cached PyJWT-1.5.2-py2.py3-none-any.whl
   Installing collected packages: pyjwt
   Successfully installed pyjwt-1.5.2
   ```

3 Start Python, and use the interactive Python console to generate a JWT. For example:
   
   ```
   c:\>c:\Python27\python.exe
   Python 2.7.13 (v2.7.13:a06454b1afa1, Dec 17 2016, 20:42:59)
   [MSC v.1500 32 bit (Intel)] on win32
   Type "help", "copyright", "credits" or "license" for more information.
   >>> import jwt
   >>> import base64
   >>> tenant_id = "<tenant ID>"
   >>> client_secret = "<client secret>"
   >>> client_secret_bytes = bytearray(client_secret, 'ascii')
   >>> token = jwt.encode({"clientID": "<tenant ID>"}, base64.b64encode (client_secret_bytes),algorithm='HS256')
   >>> print(token)
   >>> quit()
   ```

   The print() function of this script displays the value for the JWT in the console window.

   For REST calls and other access points to connect to the external API gateway, the JWT must be included in the HTTP Authorization header as `<type> <credentials>`, where `type` is `Bearer` and `credentials` is the JWT string. For example, the Authorization header of a REST call might look like this example:

   ```
   Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.ey...J9.3WIGMwJ_7z_HAavu5-oqgQCZNIplaqj
   ```

Send a REST Call to Get the Download Location

After you have generated the JWT, use a REST call to get a list of data files and schema files (in JSON format) to download. You can issue REST calls from a REST client (such as REST Client for Firefox or the stand-alone Insomnia REST Client), the PROC HTTP method in SAS, or a command line application such as `curl`.

Generally, the URL for a REST call looks similar to this example:

```
GET https://<SAS 360 Discover Download API>/discoverService/dataDownload/eventData/detail/<download_type>?params...
``` 

Use these guidelines to construct the URLs:

- The protocol for the REST call is HTTPS.
- The host address for the SAS 360 Discover Download API depends on the region in which your tenant is hosted.
- With each REST call, be sure to include the JWT in the header or send the JWT through a parameter. The JWT can be passed to the API by using one of these methods:
  - In SAS, specify the header statement in PROC HTTP.
  - Specify the JWT in the header option or header tab of the REST client that you are using. For more information, see the documentation for your REST client.
If you are using curl to send REST calls, specify the JWT with the `-H` parameter. The URL string for the REST call depends on the data that you want to download.

Set Up Mobile Applications

This tutorial for SAS Customer Intelligence 360 explains how to create and manage mobile applications (apps).

Create Mobile Applications

Before you begin working with your application, you need to create and register your mobile application.

1. Click `General Settings` from the navigation bar and select `Content Delivery` ⇒ `Mobile Applications`.
2. Click `Create`.
3. Specify the application name and ID. The system uses the application ID to associate the application with the mobile events and spots that you create. The application ID must be unique.
4. Select whether you want the data collection status to be active or inactive. Selecting inactive stops the collection of data for the mobile app.
5. Enter the required credentials for Apple or Google notifications:
   - Click `Add` in the `Apple Production Certificate and Key` section. Enter the Apple Push Services production certificate and key, and then click `OK`.
     For more information about setting up your iOS device, see the appropriate Apple Developer website.
   - Click `Add` in the `Apple Development Certificate and Key` section. Enter the Apple Push Services development certificate and key, and then click `OK`.
     For more information about setting up your iOS device, see the Apple Developer website.
   - Click `Add` in the `Firebase Cloud Messaging Server Key` section. Enter the Firebase cloud messaging server key, and then click `OK`.
     For the most recent information about registering and setting up your mobile app on Android, see the Firebase Developers website.
6. Click `Done`.

After you have established a certificate and a key for your mobile app, you can replace or remove them by clicking the appropriate button.
Download the SDK Framework for a Mobile Application

SAS Customer Intelligence 360 enables you to download an SDK framework that is preconfigured to work with a registered app. The properties files that you download include information such as the tag server URL, the application ID, and custom attributes. These properties files enable SAS Customer Intelligence 360 to communicate with your app and collect data about its usage and interactions with customers.

After you download the SDK framework for your registered app and integrate the SDK framework into your app code, you can start collecting data about app behavior such as the events and ads that are displayed in the app.

To download and activate the mobile SDK for SAS Customer Intelligence 360:

1. Open SAS Customer Intelligence 360.
2. Click General Settings from the navigation bar and select Content Delivery → Mobile Applications.
3. Click Select and select an application for which you want to download a SDK framework. The date the app was last modified is displayed.
4. Click Download. An SDK ZIP file (SASCollector-<applicationID>.zip) downloads to your workstation for the application that you selected. Unzip and save the file to a folder. The ZIP file includes SDK files for iOS and Android apps.

A list of the mobile apps is provided with the last modified date displayed.

To delete an app, select the app and click Delete.