

SAS® Customer Intelligence 360: Creating a Consistent Customer Experience in an Omni-channel Environment

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ABSTRACT

SAS® Customer Intelligence 360 enables marketers to create customer journeys using activity maps to delight customers with a consistent experience on digital channels such as web, mobile, and email. Activity maps enable the user to create a customer journey across digital channels and assign conversion measures as individual customers and prospects navigate the customer experience. This paper details how those interactions are constructed in terms of what types of tasks are supported and how those tasks can be related to each other in a visual paradigm with built-in goal splits, analytics, wait periods, and A/B testing. Business examples are provided for common omni-channel problems such as cross-selling and customer segmentation. In addition, we cover the integration of SAS® Marketing Automation and other marketing products, which enables sites to leverage their current segments for digital channels.

INTRODUCTION

SAS Customer Intelligence 360 is a new digital marketing hub offering that enables users to plan, analyze, manage, and track digital customer journeys. It includes digital intelligence and execution capabilities that enable marketers to dynamically create, manage, and place digital content across a variety of channels.

SAS Customer Intelligence 360 enables organizations to orchestrate omni-channel customer activity. This solution helps organizations combine indirect and direct communication channels such as websites, stores, catalogs, direct mail, email, mobile, and so on, and take action by using customers' channel of choice for a desired user experience. In today's world of empowered consumers and escalating digital spend by corporations, marketers face three challenges to driving revenue: managing customer relationships effectively across channels; creating meaningful customer interactions for memorable experiences; and making analytical decisions based on integrated cross-channel data. SAS Customer Intelligence 360 helps meet all three challenges by delivering context-based customer interactions across channels based on analytically driven decisions and integrated contact and response data.

SAS CUSTOMER INTELLIGENCE 360 OVERVIEW

SAS Customer Intelligence 360 enables users to define, manage, and execute all customer interactions across channels by customizing the interaction to each customer's or visitor's context. Customizing interactions provides today's organizations with a level of consistency in maintaining policies and managing interactions that is expected by digitally empowered customers and prospects. By combining events, the industry-leading analytics of SAS, and audience segmentation techniques, SAS Customer Intelligence 360 delivers contextually relevant interactions with customer journeys that can be analytically tested and measured. This paper focuses specifically on SAS Customer Intelligence 360 capabilities for customer journey creation, task building, and segmentation management.

DEFINING ACTIVITY MAPS

Users create customer journeys via easy-to-use activity maps that connect individual marketing tasks together in a desired customer journey or experience over time. For example, you can deliver content based on location and customer response to a website, and then you can deliver that content to a mobile device. The activity workflow incorporates splitting, wait periods, and both channel and path A/B testing into the design of the customer journey. When the activity map is designed and completed, you can publish the map to bring your journey alive for your customers.

DEFINING TASKS

Tasks are steps along the journey, engagement actions that take place inside an activity or in an independent stand-alone fashion outside an activity. Digital engagement channels include web, mobile, and email. These channels enable marketers to define how customers and visitors engage with their digital properties.

Users create individual tasks that deliver and measure the effectiveness of a creative. This creative is delivered to a targeted set of visitors in a specific spot in a specific channel. These tasks record whether the goal has been reached. When users finish creating a task, the task can be published for execution independently, or the task can be included in an activity map.

DEFINING SEGMENTS

Segmentation management enables users to build reusable segments or groups of customers or visitors that are then used to define target audiences with a task. New segments can be defined directly within SAS Customer Intelligence 360. In addition, segments or marketing cells that have been created with SAS® Customer Intelligence can be imported for use with SAS Customer Intelligence 360.

CREATING CUSTOMER JOURNEYS IN SAS CUSTOMER INTELLIGENCE 360

Activity maps in SAS Customer Intelligence 360 enables users to create customer journeys to solve a broad range of business problems such as acquisition, retention, cross-sell, customer onboarding, segmentation management, and targeting. Multiple customer journeys can be used together to orchestrate life cycle management strategies.

Consider this example: A marketer for a major hotel has been tasked with driving more stays by visitors at the hotel's properties as well as driving incremental revenue during each visitor stay. This business goal is part of the quarterly marketing plan for the organization. To address this goal, the marketer creates two related activities.

The first activity is designed to entice visitors to the hotel's website to complete more reservations via a "Leisure Escape" message being delivered on the website. The second activity is designed to create cross-sell opportunities for incremental revenue via the hotel's mobile app. Visitors who complete a dinner reservation are then presented additional offers for golf and the spa. Examples of these two activities are shown in Figure 1 and Figure 2.

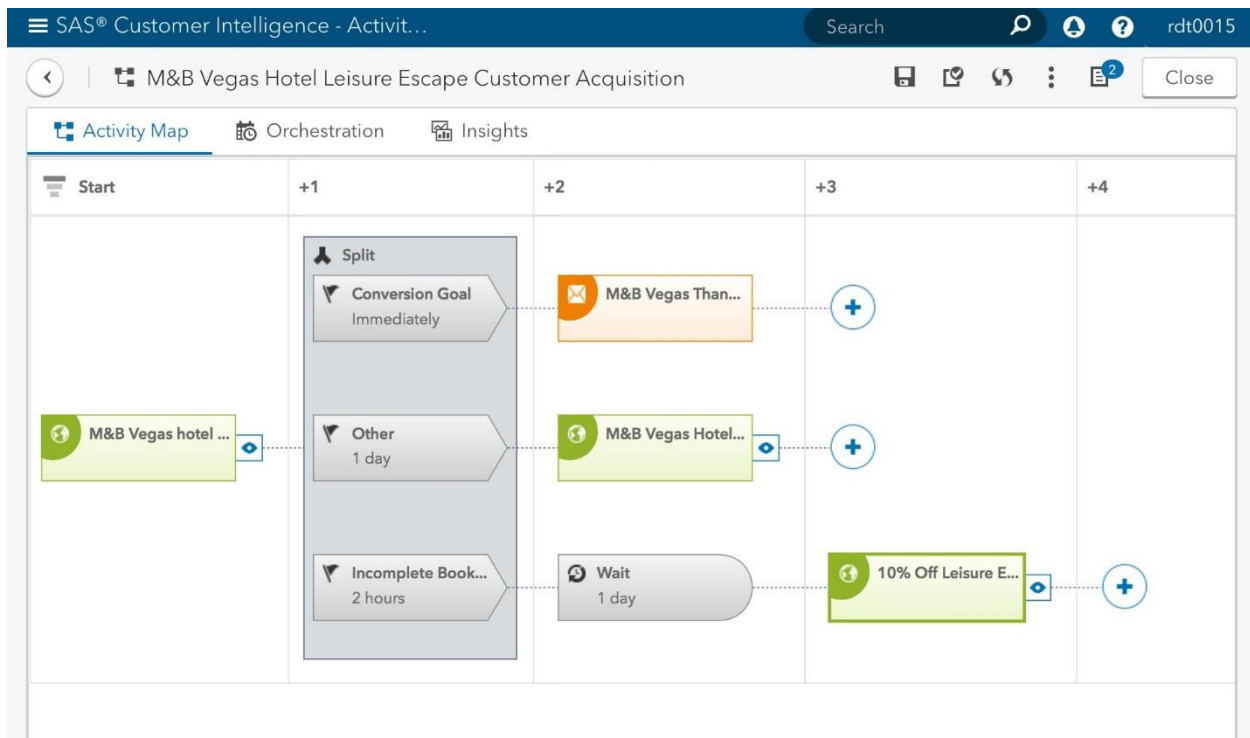


Figure 1. Example of a simple Hotel Customer Acquisition Journey

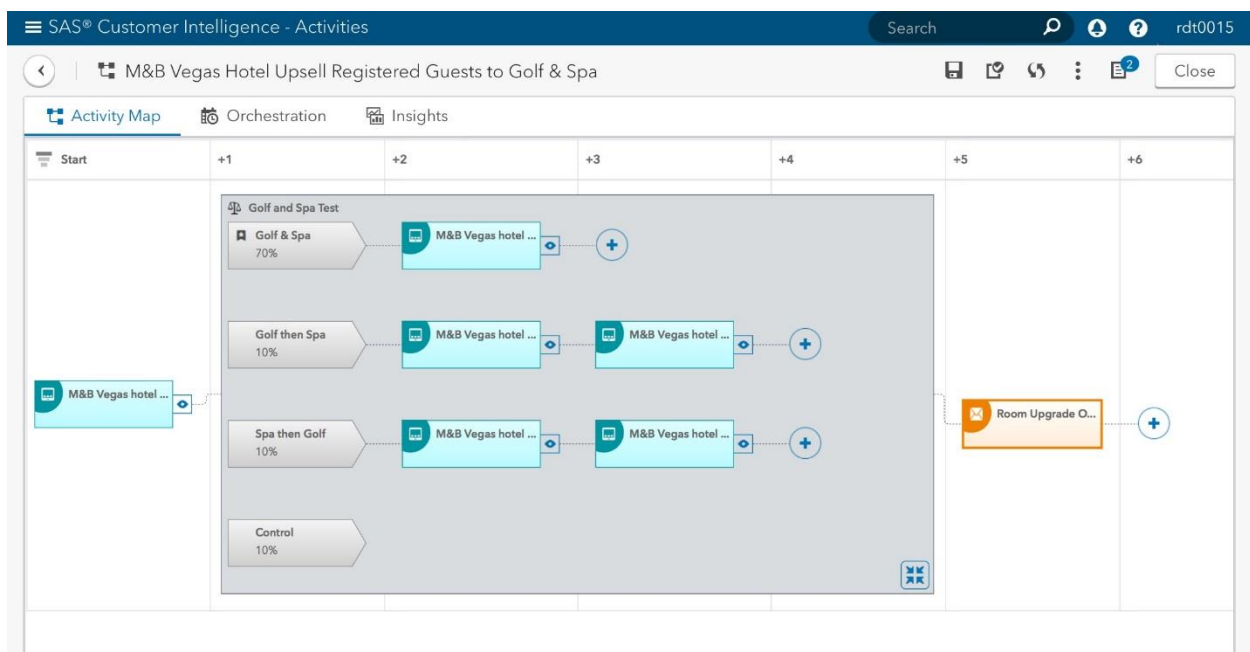


Figure 2. Example of Mobile Cross-Sell Journey

HOTEL ACQUISITION JOURNEY

Journeys consist of related tasks organized in an activity and delivered over time. The first task in our activity is a Web task that offers visitors who have viewed at least three room pages in the last 24 hours a Leisure Escape offer in the main spot page on the hotel booking home page. (See Figure 3.)

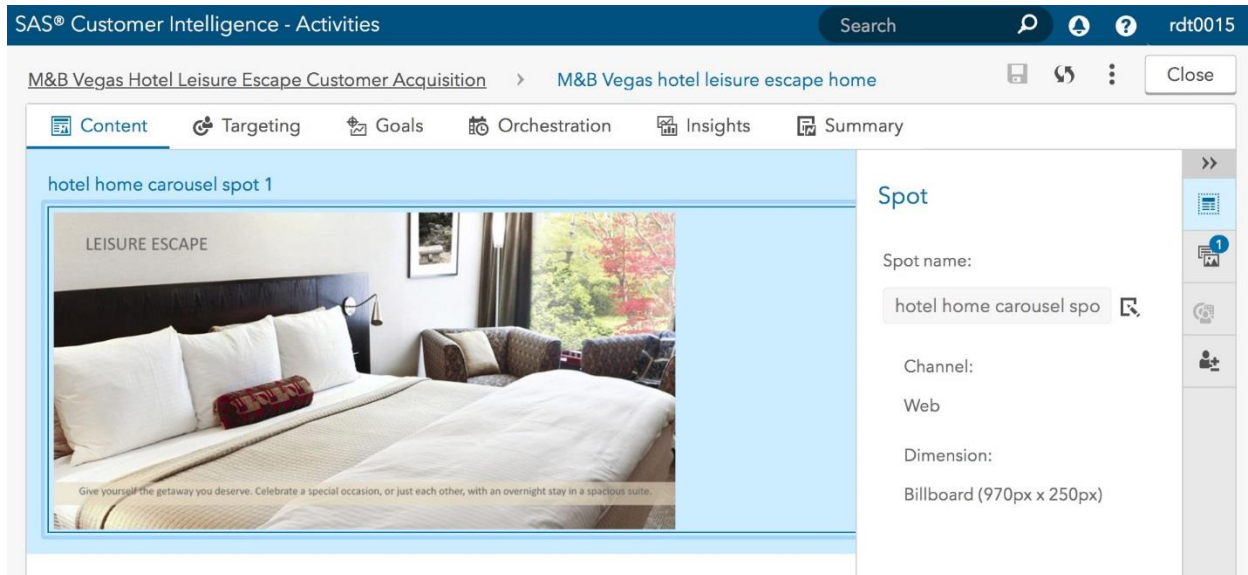


Figure 3. Web Task Content Definition

When visitors see the Leisure Escape offer, they then split in to three different paths as seen in Figure 1: one for conversion (which is booking a room); one for “Other” where the visitors haven’t completed an action within a day after seeing the Leisure Escape offer; and one for an incomplete booking (added a room to their cart but didn’t book after two hours).

If the visitors who viewed the original spot convert on the goal of booking a room, the activity immediately sends them down the first path of the split based on their conversion. In the conversion path is a personalized thank-you Email task. This personalized thank-you encourages visitors to download the hotel’s mobile app so that they can check in through the app and receive other great offers.

If the visitors who viewed the original spot take no action as defined by the split, they are sent down the ‘Other’ path of the split. The Other node serves as a reminder to pick up visitors who take no action so that they remain available for further marketing. In the Other node path is a follow-up web page offer in a different spot that uses the same Leisure Escape theme, but this offer has multiple creative variations to see if something else works better to encourage bookings. This follow-up offer uses a Web A/B test task to test the different variants to see which one performs better. The ability to automatically select a winner and reallocate visitor flow based on ongoing analytics is included. (See Figure 4.)

If the visitors who viewed the original spot added a room to their cart but did not complete the booking within two hours, the activity waits one day and then follows up by qualifying the visitors for a 10% off Leisure Escape ad on a different spot on the hotel’s web page.

The Wait node in an activity defines a period of time before the next step is taken and is relative to when the customer or visitor took the initial action.

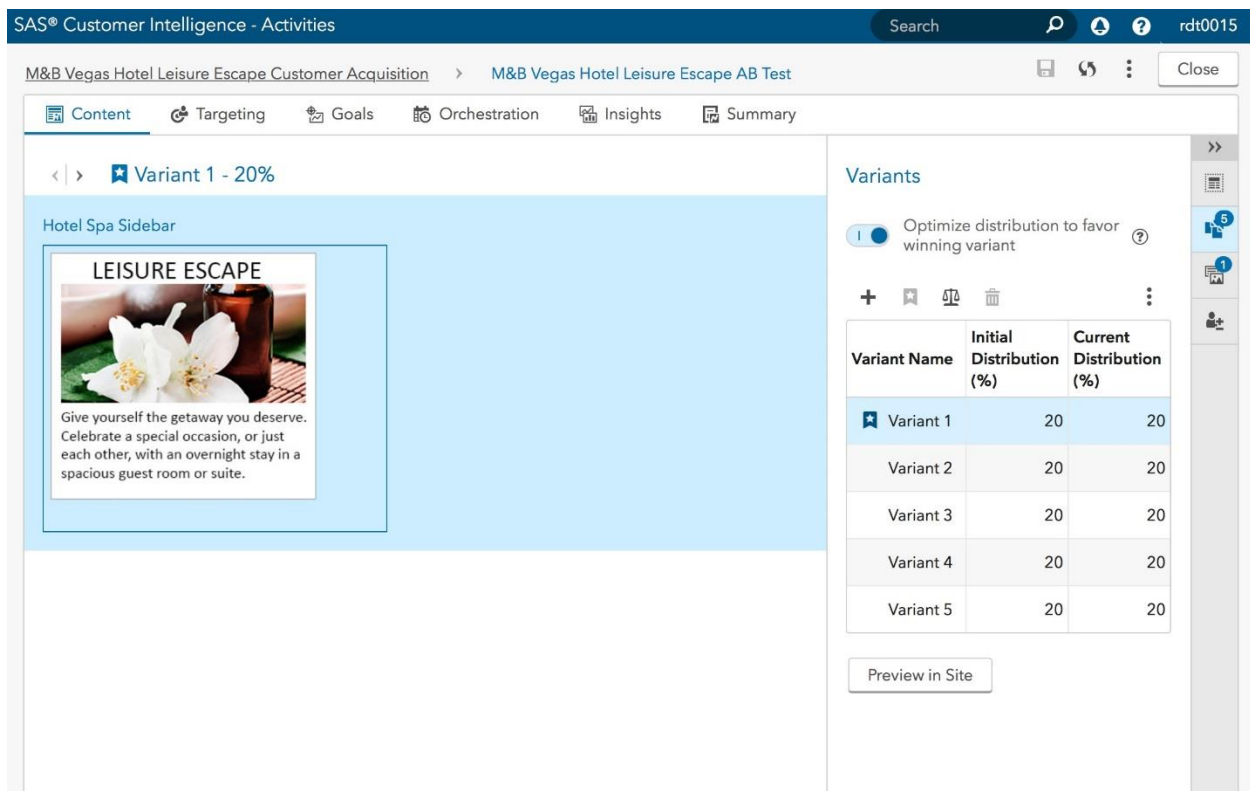


Figure 4. Web A/B Test Task

The second activity (Hotel Upsell Journey) is linked to the first activity via the email sent from the first activity suggesting that visitors download the hotel's mobile app. When visitors invoke the mobile app and complete a dinner reservation, this event triggers a task in the Hotel Upsell Journey (see Figure 2).

HOTEL UPSELL JOURNEY

The Hotel Upsell Journey starts with a mobile in-app message task that is triggered when a visitor books a dinner reservation through the hotel's mobile app. Upon completing the reservation, an in-app message pops up and encourages the visitor to check out the hotel golf and spa options.

The visitor then enters an Activity A/B test, which tests various offer combinations and sequences, or paths, against each other to see which offers provide the best golf and spa bookings (conversions). This path test can involve multiple tasks by using different channels and wait periods. Each visitor is assigned to a path and can only follow that path. Within the A/B test, the marketer can define a champion path as well as multiple challenger paths. In addition, the marketer can define a control (holdout) path. The control path has no offers, and any visitor assigned to this path immediately flows into the activity map node downstream of the A/B test. The marketer can also determine the percentage of visitors to be assigned to each path while the test is running. Next, the marketer can define the goal for the A/B test, which will be used to determine the winner of the test. When a winner is determined, the marketer, using embedded analytic techniques, can choose to declare the winner, which removes the A/B test and replaces it with the nodes in the winning path. For an example of an A/B test node configuration, see Figure 5.

A/B Test Node

Done
Cancel

Properties
Goal
Insights
Summary

A/B test name:

Golf and Spa Test

Path variants:

☒ Include control path

+ ☆ ⚖️ 🗑️ ⋮	
★ Golf & Spa	70%
Golf then Spa	10%
Spa then Golf	10%
Control	10%

Figure 5. Activity A/B Test Node

The Activity A/B test enables the hotel marketing department to determine which path, or sequence of offers is best, whether one of the challengers is better than the champion, and what the advantage is over a control path (no offers). In the Hotel Upsell Journey, we have four paths in the A/B test. There is a champion path, which is a combined golf and spa offer in a single mobile spot, and there are two challenger paths that offer sequences of a golf offer followed by a spa offer, or a spa offer followed by a golf offer in specific mobile spots. Finally, there is a control path (holdout) that doesn't offer the visitor anything specific for this test, although the visitor might receive another offer in the mobile app advertising spots by default. The champion path is allocated to 70% of the visitors; the two challenger paths and control path each receive 10% of the visitors. Allocation to a path is done randomly for each visitor or customer.

SUMMARY

Marketing departments use activities to coordinate their customer journeys. Activities are published for execution in the digital channels and then are monitored through embedded reporting capabilities. These capabilities enable marketers to gauge the effectiveness of their activities over time, which translates into quicker, more efficient marketing processes and savings in time, money, and resources.

INTEGRATION BETWEEN SAS CUSTOMER INTELLIGENCE 360 AND SAS CUSTOMER INTELLIGENCE 6

Integrating SAS Customer Intelligence 360 with SAS Customer Intelligence 6 improves the value of both to any marketing organization. SAS Customer Intelligence 6 can now be seamlessly integrated with web, mobile, and other digital channels, in concert with traditional direct marketing channels. SAS Customer Intelligence 360 can leverage information about users from a much broader set of information, including analytics and non-digital interactions, to inform targeting and interactions in digital channels.

There are currently two main integration points between SAS Customer Intelligence 360 and SAS Customer Intelligence 6.5:

- segment creation from imported lists
- contact and response synchronization from SAS Customer Intelligence 360 to the SAS Customer Intelligence 6.5 common data model

More integrations will be added over time, and SAS-provided integrations with versions 6.1, 6.3 and 6.4 of Customer Intelligence are also planned.

This section describes the mechanisms for leveraging these two current integration points to help coordinate marketing campaigns across traditional channels that use SAS Marketing Automation (or SAS Campaign Management) and across digital channels that use SAS Customer Intelligence 360.

SEGMENT CREATION FROM IMPORTED LISTS

A mechanism is provided to allow a third-party system to upload lists of known customers into SAS Customer Intelligence 360 for the creation of segments. This mechanism is built into SAS Marketing Automation 6.5 in the Cell node as a check box that can be selected on a per-cell basis. When the check box is selected, the population (unique subject IDs) from the SAS Marketing Automation Cell node is automatically uploaded to SAS Customer Intelligence 360 each time the campaign is executed.

When users create a segment within SAS Customer Intelligence 360, they can select an imported list from the data hub. The data hub, which is a framework component of SAS Customer Intelligence 360, serves as the data repository for the solution. Imported lists are another form of selection criteria available within the Segment Builder. These lists can be combined with other selection criteria to create a segment for use in task targeting.

Configuring the SAS Customer Intelligence 6.5 to SAS Customer Intelligence 360 Integration

Within SAS Customer Intelligence 6.5, the integration with SAS Customer Intelligence 360 is configured at the Business Context level. The business context in SAS Customer Intelligence 6.5 is analogous to the tenant concept in SAS Customer Intelligence 360. For the purposes of integration, there is a 1-to-1 relationship between a business context and a single SAS Customer Intelligence 360 tenant. If a customer has multiple business contexts in SAS Customer Intelligence 6.5, each business context needs to be associated with one tenant. Multiple business contexts can target a single tenant from an integration perspective, but a single business context cannot target multiple SAS Customer Intelligence 360 tenants.

The integration configuration between SAS Customer Intelligence 6.5 and SAS Customer Intelligence 360 is shown in Figure 6. The business context administrator configures the user ID and password of a user in the correct tenant on the SAS Customer Intelligence 360 side, and then configures the SAS Customer Intelligence 360 server URL and logon server URL that are used to communicate with SAS Customer Intelligence 360. When the business context is saved or the **Validate** button is clicked, a connection is made using the configuration information in the business context. The tenant name is retrieved and displayed in the Business Context Properties dialog box (if **Validate** was clicked to trigger this action). This action ensures that the proper credentials are available for integration and that the URLs are configured correctly.

Business Context Properties

Name: CI Product Managers

Details Information Map Settings Permissions Users Notifications Codes Metadata Optimization Settings **Digital Marketing Integration**

Connection Details

User: [redacted]

Password: [redacted]

SAS Customer Intelligence 360 Server URL: https://[redacted]/SASWebMarketingMid/rest/

Logon Server URL: https://[redacted]/SASLogon/V1/tickets/

Tenant: [redacted]

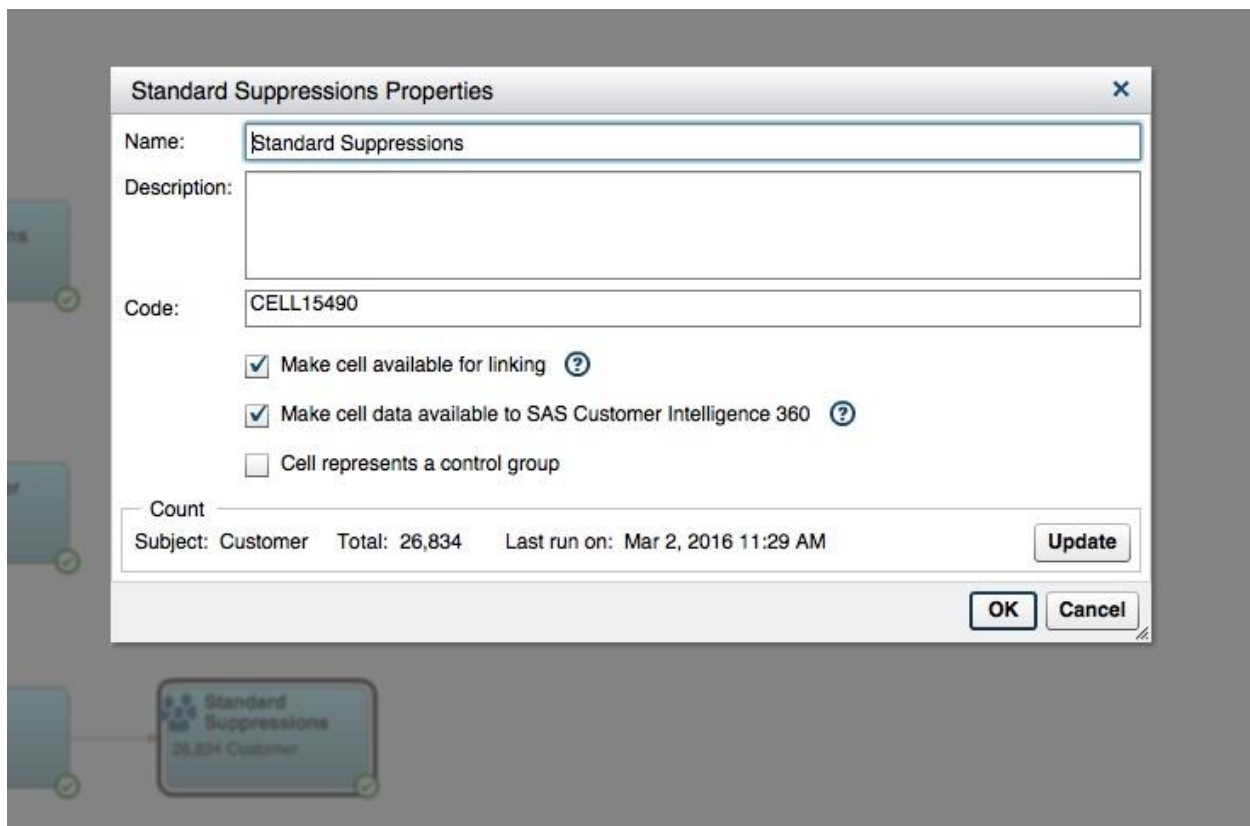
Validate OK Cancel

Figure 6. Configuring the SAS Customer Intelligence 6.5 to SAS Customer Intelligence 360 Integration

Selecting a Cell in SAS Marketing Automation 6.5 for Upload to SAS Customer Intelligence 360

In SAS Marketing Automation 6.5, a new check box is added in the Cell Properties window that allows the resulting cell population to be uploaded to SAS Customer Intelligence 360 as an imported list. This mechanism leverages the open REST APIs that are available in SAS Customer Intelligence 360 to make selected populations reusable for marketing on the digital channels, including web, mobile, and email.

The selection of a cell that represents a segment for upload in SAS Customer Intelligence 6.5 is easy. (See Figure 7.) The new **Make cell data available to SAS Customer Intelligence 360** check box enables a SAS Customer Intelligence 6.5 user to mark any cell in a campaign as a population to upload to SAS Customer Intelligence 360. This check box is independent from the **Make cell available for linking** check box. Because the population in the cell might have changed since the previous execution, each time the campaign with the tagged cell is executed, the population of the cell is uploaded to SAS Customer Intelligence 360.



The image shows a 'Standard Suppressions Properties' dialog box. It has a title bar with a close button (X). The dialog contains the following fields and controls:

- Name:** A text field containing 'Standard Suppressions'.
- Description:** An empty text area.
- Code:** A text field containing 'CELL15490'.
- Checkboxes:**
 - ☒ Make cell available for linking ?
 - ☒ Make cell data available to SAS Customer Intelligence 360 ?
 - ☐ Cell represents a control group
- Count section:**
 - Subject:** Customer
 - Total:** 26,834
 - Last run on:** Mar 2, 2016 11:29 AM
 - Update** button
- Buttons:** **OK** and **Cancel** buttons at the bottom right.

In the background, a flowchart is partially visible, showing a box labeled 'Standard Suppressions' with '26,834 Customer' below it.

Figure 7. Check Box for Integration with SAS Customer Intelligence 360

If a cell selected for upload to SAS Customer Intelligence 360 has the upload check box deselected, or if the cell is deleted, or if the campaign is deleted, SAS Customer Intelligence 6.5 informs SAS Customer Intelligence 360 that this cell is no longer uploading its population to SAS Customer Intelligence 360. This transition causes the imported list in SAS Customer Intelligence 360 to become “static,” which means that the population of the imported list is no longer being updated from SAS Customer Intelligence 6.5. SAS Customer Intelligence 360 users can continue to use the imported list in existing and new segments, but the population is now static. When the upload check box is deselected, the SAS Customer Intelligence 6.5 user is informed that this will impact segments in SAS Customer Intelligence 360 that use the imported list from this cell. See Figure 8.

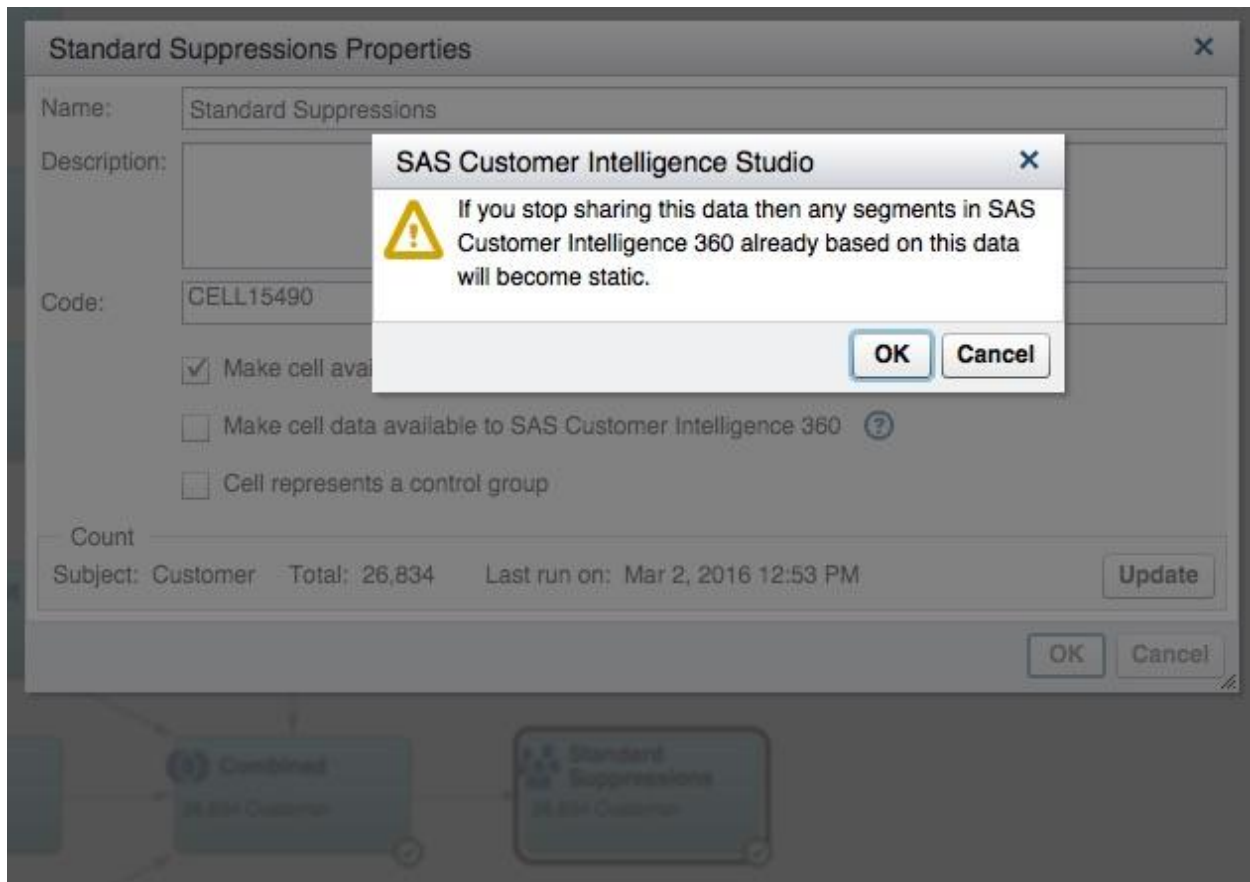


Figure 8. Sample Warning When Deselecting Upload Check Box

Using Imported Lists in SAS Customer Intelligence 360 to Create Segments

Imported lists can be used to create segments. Segments are reusable populations to use in task targeting. Users of SAS Marketing Automation 6.5 will likely have numerous cells (populations) that they have already defined based on specific attributes of those populations. Assuming that your customer data mart data is fully available in SAS Customer Intelligence 360, these same segments could be re-created by selecting the appropriate data items. However, often users might not want to push all their customer data into the cloud, or they simply might not want two independent copies of the same segments created in both their on-premises system and in SAS Customer Intelligence 360. In this situation, users can use imported lists to make their SAS Customer Intelligence 6.5 cells available for targeting in SAS Customer Intelligence 360 without re-creating the segment selection criteria.

Creating a segment from an imported list in SAS Customer Intelligence 360 is straightforward. All imported lists from SAS Customer Intelligence 6.5 appear in the Segment Builder as Imported Lists items. When creating a new segment, SAS Customer Intelligence 360 users can select an Imported Lists item from the Select Criteria dialog box, as shown in Figure 9. The name of an item is a concatenation of the SAS Marketing Automation 6.5 campaign name and the cell that is tagged for upload, separated by a hyphen.

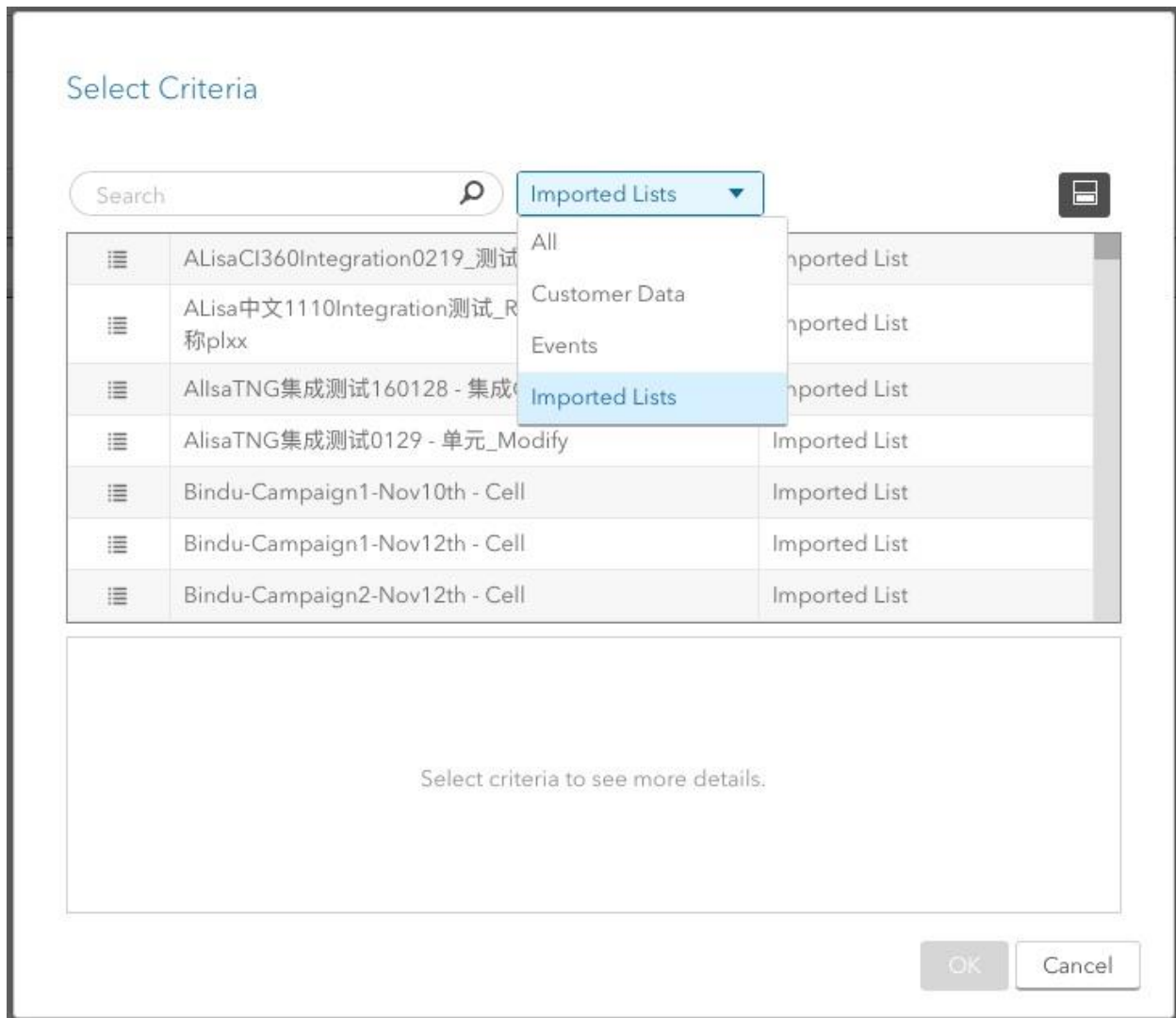


Figure 9. Imported Lists in Select Criteria Dialog Box

When selecting an imported list to use in a segment, it might be important to know more about the imported list than what is inherent in its name. For this reason, there is metadata for the imported list that is available as an aid in selecting the correct imported list. The available metadata is dependent on the system that is uploading the imported list to SAS Customer Intelligence 360. In the case of SAS Marketing Automation 6.5, the metadata that is associated with the uploaded cell data includes information such as the business context name, the cell and campaign name and code, the subject level of the cell in SAS Customer Intelligence 6.5, the count, and when the campaign was last run. This information is displayed when an imported list is selected in the Select Criteria dialog box, as shown in Figure 10.

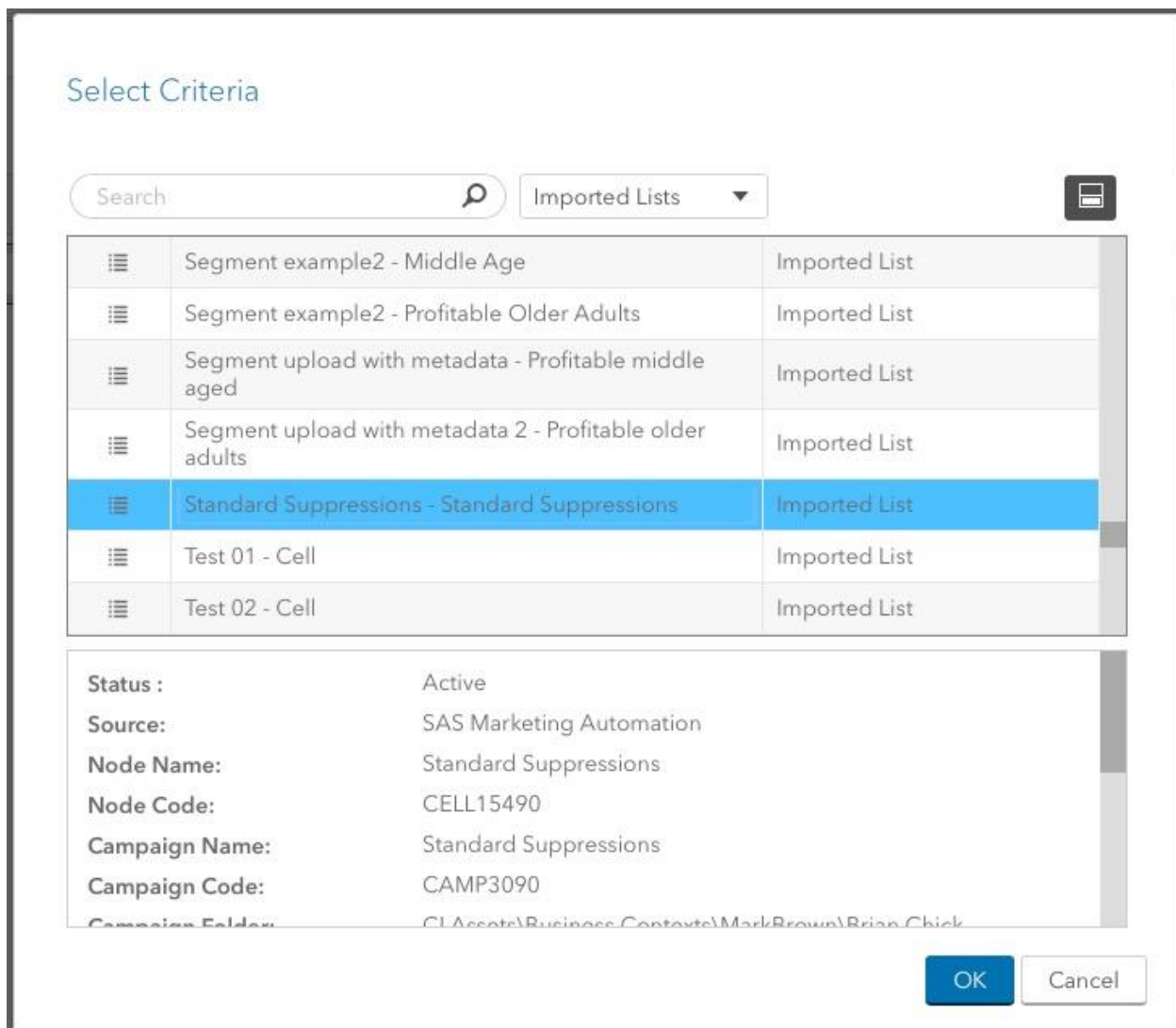


Figure 10. Metadata for Imported List Displayed in Select Criteria Dialog Box

Using Segments from Imported Lists in Task Targeting

It is important to note that the SAS Customer Intelligence 360 imported lists that come from external sources (such as SAS Marketing Automation 6.5) need to use the same customer identities that are used in SAS Customer Intelligence 360 for targeting. This ensures that when an imported list is used in SAS Customer Intelligence 360, the user identity is mapped properly and the correct customers are targeted.

To use a segment created from an imported list in a SAS Customer Intelligence 360 task, the same mechanism is used as for any other segment. Figure 11 shows a segment created from an imported list from SAS Marketing Automation 6.5. In this case, the “Std Supp from MA” segment is being used in the Exclusions section of Task targeting to ensure that we do not target anyone who is in the marketer’s Standard Suppressions list, which came from SAS Marketing Automation 6.5. Using this exclusion enables a marketer to create a single global suppressions list and use it across SAS Customer Intelligence 6.5 and SAS Customer Intelligence 360. If the content of the suppressions list changes, all the users of that list see the updates.

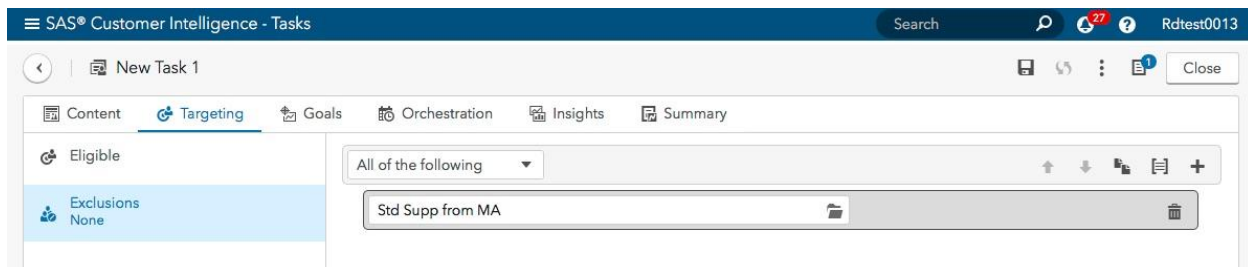


Figure 11. Using an Imported List Segment in a Task

When a campaign that generates an imported list is updated, the segment is automatically updated with the latest content when the new imported list is uploaded to SAS Customer Intelligence 360. This means that running tasks, which are using the imported list Segment as part of their targeting, automatically see the changes in the segment population. For example, suppose that a company hired 10 new people yesterday and updated its customer data mart in SAS Customer Intelligence 6.5 to include those people as “employees.” Because employees are part of the standard suppressions criteria in SAS Marketing Automation 6.5, when the standard suppressions campaign is rerun after the data mart update, the population of the standard suppressions cell now includes those 10 new people. In SAS Customer Intelligence 360, after the imported list is uploaded via campaign execution and the segmentation is rerun, any running tasks that are using the “Std Supp from MA” segment are now referencing the latest suppression population without any user interaction required on the SAS Customer Intelligence 360 side. This level of automation simplifies the use of imported lists and ensures consistency across strategic segments.

INTEGRATION OF CONTACTS AND RESPONSES TO THE SAS CUSTOMER INTELLIGENCE 6.5 COMMON DATA MODEL

The second integration point between SAS Customer Intelligence 360 and SAS Customer Intelligence 6.5 is the ability to synchronize contact and response information from SAS Customer Intelligence 360 to the SAS Customer Intelligence 6.5 common data model. The existing SAS Customer Intelligence 6.5 common data model is used for several purposes, but two important ones are for reporting on campaign performance and tracking prior offers and responses for use in future marketing decisions. In this regard, a SAS Customer Intelligence user who is leveraging both SAS Customer Intelligence 6.5 and SAS Customer Intelligence 360 would like a single reporting data model that captures all the contacts and responses from both the traditional SAS Customer Intelligence 6.5 channels such as direct mail as well as from the SAS Customer Intelligence 360 digital channels such as web and mobile.

To support this use case, the SAS Customer Intelligence 6.5 common data model has been extended to provide external contact and response tables that contain the contact and response information from SAS Customer Intelligence 360. The structure of these new tables is shown in Figure 12. These tables capture the contact and response information related to the customer ID, contact or response name, and contact or response date/time, as well as the information related to the SAS Customer Intelligence 360 objects that generated the contact or response. This table includes names and IDs for the activity, task, message, and creative, as well as the channel code and tenant name. This table can be used with data items defined in the information map to query contacts and responses that were generated in SAS Customer Intelligence 360 and used in selections in SAS Customer Intelligence 6.5 campaigns.

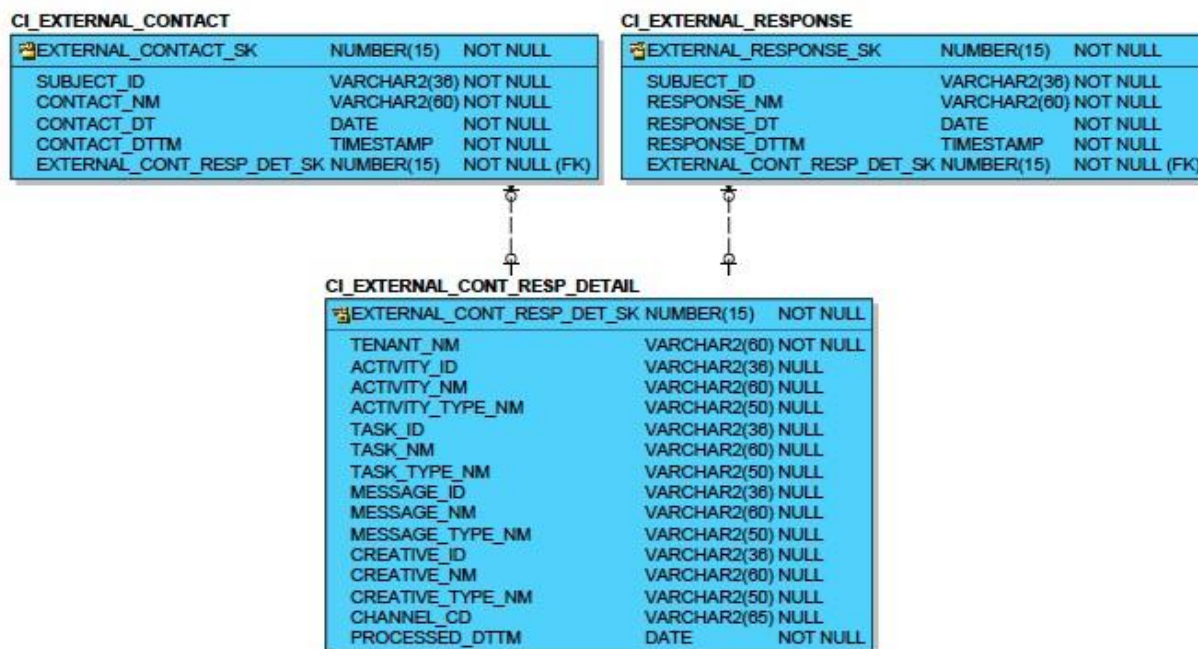


Figure 12. External Contact and Response Tables in SAS Customer Intelligence 6.5 Common Data Model

In SAS Customer Intelligence 360, the data model captures contacts and responses in an events table. A contact could be an impression (for example, when web page visitors see the creative actually rendered within their browser window), or it could be an email that is sent to a customer. These contacts are recorded for both known and unknown customers, but for SAS Customer Intelligence 6.5, we care only about the known customers from a contact and response perspective.

The SAS Customer Intelligence 360 data model is comprehensive and not the subject of this paper. In order to simplify the synchronization of contacts and responses to the SAS Customer Intelligence 6.5 data model, a couple of views have been created. These views, shown in Figure 13, consolidate all of the information required for the SAS Customer Intelligence 6.5 common data model tables in Figure 12. The views contain contact and response rows for known customers who have a subject ID that was loaded from the on-premises customer data mart.

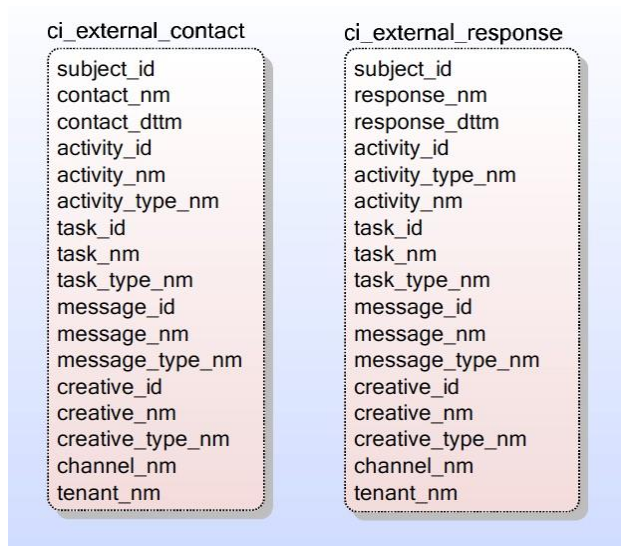


Figure 13. External Contact and Response Views in SAS Customer Intelligence 360 Common Data Model

Synchronizing Contacts and Responses

The synchronization mechanism uses this general procedure:

1. At a predetermined interval, a scheduled job kicks off in SAS Customer Intelligence 360. The job uses the contact and response views to create an extract file of all the contacts and responses since the last extract was performed.
2. The extract files are pushed into Amazon S3 by SAS Customer Intelligence 360.
3. This process is repeated based on the schedule for the extract job, regardless of what happens on the SAS Customer Intelligence 6.5 side.
4. On the SAS Customer Intelligence 6.5 side, a SAS® Data Integration Studio job is set up to run on a schedule. When kicked off, the job uses a REST API in SAS Customer Intelligence 360 to request all the extracted contact and response files from the SAS Customer Intelligence 360 common data model.
5. The SAS Data Integration Studio job on the SAS Customer Intelligence 6.5 installation then pulls down one contact or response file at a time and inserts the rows into the external contact and response tables in the SAS Customer Intelligence 6.5 common data model. The external contact and response detail table is populated at the same time with the information related to the contacts.
6. After an entire contact or response extract file has been successfully processed, another REST API is invoked to inform SAS Customer Intelligence 360 that the file has been processed and can be deleted from Amazon S3.
7. The same process is repeated for the other existing contact and response files.

Note: If an error occurs during the insertion process, any unprocessed contact and response files remain in Amazon S3 and are processed the next time the SAS Data Integration Studio job is executed.

The configuration of the extract job in SAS Customer Intelligence 360 and the SAS Data Integration Studio job running on premises is under the control of the SAS Customer Intelligence user and can be set up with any desired schedule. The recommendation is to execute the jobs no more than hourly, but they can run on different schedules. For example, the extract job could be set up to run every three hours, and the insert SAS Data Integration Studio job could be set up to run only once a day at midnight.

After the contacts and responses are inserted into the SAS Customer Intelligence 6.5 common data model, they can be used for selection purposes in SAS Marketing Automation campaigns.

INTEGRATION WITH EARLIER RELEASES OF SAS CUSTOMER INTELLIGENCE AND FUTURE INTEGRATION CAPABILITIES

The preceding section described the integration between SAS Customer Intelligence 6.5 and SAS Customer Intelligence 360, but the same two integration points (imported list upload and contact and response synchronization) are supported with earlier releases of SAS Customer Intelligence (6.1, 6.3, and 6.4).

An additional integration capability is being developed for preconfiguring a task in SAS Customer Intelligence 360 from the communication node export file in SAS Marketing Automation. This capability will enable SAS Marketing Automation users to export both a list of customers as well as a selection of treatments to configure a marketing task in SAS Customer Intelligence 360.

CONCLUSION

With SAS Customer Intelligence 360, the marketer can design contextual customer engagement strategies via an activity map. The activity map supports contextual engagement across various channels, devices, and points in time, and eliminates the need for separate inbound and outbound channel applications. SAS Customer Intelligence 360 is unique in that it enables organizations to leverage existing

SAS Customer Intelligence offerings as an integrated hybrid cloud solution. Prior segmentation can be leveraged in the cloud, and contact and response history is available for all channels, both traditional and digital, in a unified form.

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