Acoustic Product Recommendations documentation

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Acoustic Product Recommendations documentation

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Acoustic Digital Recommendations Overview

Acoustic Digital Recommendations is the solution for both Acoustic Product Recommendations and Acoustic Content Recommendations.

Acoustic Product Recommendations uses site analytics, user behavior, wisdom-of-the-crowd algorithms, and product attribute rules to generate highly relevant product suggestions for your visitors. These suggestions can improve the customer experience by suggesting key accessories such as batteries, memory cards, and carrying cases, ensuring they have what they need. It also can increase the average order value of your website sales.

Acoustic Content Recommendations uses site analytics and content rules to suggest other information assets such as PDF white papers, links to discussion forums, recipes, and job aids. These suggestions can increase your ability to retain visitors for longer and keep them engaged.

Key features of Product Recommendations

Plan your implementation by understanding the most useful features in Product Recommendations.

Table 1: Key Features for Product Recommendations

Feature	Description	Refer to
System overview dashboard	This feature provides an easy way to see all of the aspects of your recommendation strategy and quickly navigate to the appropriate pane to make any configuration changes.	"System overview dashboard" on page 93
Multiple recommendation types	Choose from: • Product-based recommendations • Category-based recommendations • Search term-based recommendations	"Offers" on page 8

Table 1: Key Features for Product Recommendations (continued)		
Feature	**Description**	**Refer to**
Business rules	Digital Recommendations provides a user interface to create and manage rules that place further limits on recommendation output. Digital Recommendations supports exclusionary, de-emphasis, and promotional rules. You can visually build advanced and complex rules with the business rules interface.	"Apply business rules to offers by using the new rules interface" on page 24 "Apply business rules to offers by using the legacy rules interface" on page 55
Fallback recommendations	Behavior-based algorithms cannot generate recommendations for products to which the algorithms are not yet applied. When new products are introduced to the site, a mechanism is needed to provide a default and compelling set of recommendations. To manage this process, Digital Recommendations provides fallback recommendation processes.	"Recommendation plans" on page 76
Image-based recommendations	An image-based recommendation delivers recommendations as HTML images with attribute values like the product name. Each image provides a link to the product page on your website for that recommended item. The primary use for image-based recommendations is with email campaigns. This type of recommendation targets an item in the email message and then generates a list of recommended items when the email recipient opens the message.	"Image recommendations" on page 115 Using Digital Recommendations with LIVEMail in the Acoustic Digital Recommendations Configuration Guide

Table 1: Key Features for Product Recommendations (continued)		
Feature	**Description**	**Refer to**
Individual visitor personalization	Digital Recommendations builds individual visitor profiles-based on historical and in-session data to automatically present each shopper with a unique set of recommendations. Even visitors who are not known receive highly relevant recommendations-based on Digital Recommendations wisdom-of-the-crowd algorithms.	"Recommendation plans" on page 76
Synchronization of personalization data across multiple devices	Digital Recommendations is able to associate the cookie data on your visitor's computer or other device to their registration ID. This process captures cookie data across multiple devices to use in personalization.	Product Recommendation Cookies in the Acoustic Digital Recommendations Configuration Guide
A/B testing	Digital Recommendations includes an A/B testing capability that is designed to run A, B, C, and D split tests to determine the effect of various Digital Recommendations settings onsite revenues and conversions. Digital Recommendations A/B testing can also be used to test alternative algorithm affinity weights, business rules, site zone locations (above or below the fold), and the number of recommendations that are delivered to a specific zone.	"A/B testing" on page 110
Preview	You can review the algorithmic and rules logic that is specified and applied to an offer to help you fine-tune or troubleshoot recommendations.	"Preview recommendations" on page 21

Table 1: Key Features for Product Recommendations (continued)		
Feature	**Description**	**Refer to**
Reports	Two reports are available in the **Reports** menu: Zone Performance and A/B Test performance reports. Zone performance is a filtered version of the Product Report by Category and displays performance of the cross-sell parent and subcategories. A/B test performance reports on any active A/B test that is configured in the A/B test tool in Digital Recommendations.	"Reports" on page 96
Dashboards	Dashboards track the performance of active offers and A/B tests.	"Performance dashboards" on page 103
Integration with WebSphere® Commerce	Digital Recommendations version 9 and later is tightly integrated with WebSphere Commerce version 7 FP2 and later.	WebSphere Commerce documentation.
Tracking results with Acoustic Digital Analytics	You can use Digital Analytics to track offer results: • Top Line Summary report • Products report • Products Report Category Trending • Product Zoom • Report Segments	Acoustic Digital Analytics documentation.
Tracking results with Acoustic Digital Analytics Explore	Explore provides custom reports that you can use to analyze Digital Recommendations performance.	Acoustic Digital Analytics Explore documentation.
Integration with Interact	You can deliver category top-seller recommendations from Digital Recommendations to Interact.	Interact documentation.

System requirements

To run Acoustic Digital Analytics products, you must run specific versions of software and browsers and have a minimum required amount of memory.

Maintain the following system requirements:

- Software: Adobe Flash Player, V10 or V11
- Browsers: Microsoft Internet Explorer, V9 or later. Mozilla Firefox, V29 or later. Chrome, V34 or later.

- Memory: 1 GB RAM or more
- Screen resolution: 1024 x 768 or higher

Overview of the User's Guide

The *Acoustic Product Recommendations User's Guide* is intended for users who access the product daily to perform these tasks:

The *Acoustic Content Recommendations User's Guide* is intended for users who access the product daily to perform these tasks:

- View dashboards
- View reports
- View zone performance
- Run A/B tests
- Preview recommendations
- Create and edit offers
- Define and change recommendation plans
- Define and change site zones
- Define image-based recommendations

User's guide assumptions

The Acoustic Digital Recommendations User's Guide assumes that you know whether you are using Flat File or Dynamic recommendations.

If you do not know, contact your Digital Analytics administrator or Digital Analytics Customer Support. Refer to Additional contact information.

For more information, see the DigitalRecommendations/ProductRec_ConfigGuide_map.ditamap.

Access Legacy Digital Analytics products

You can access Legacy Digital Analytics products directly or from another Digital Analytics application.

If your account is enabled for Acoustic Digital Data Exchange Acoustic AdTarget Acoustic Digital Analytics Acoustic Digital Analytics Benchmark Acoustic Search Marketing Acoustic Digital Analytics Explore Acoustic Digital Analytics Export Acoustic Digital Analytics Import Acoustic Digital Recommendations Acoustic LIVEmail Acoustic Digital Analytics Monitor Acoustic Marketing Center Acoustic Digital Analytics for Social Media Acoustic Digital Analytics Enterprise Dashboard, you can access it in two ways:

- If you are already logged in to an Acoustic Digital Analytics application, click **Digital Data ExchangeAdTargetDigital AnalyticsBenchmarkSearch MarketingExploreExportImportRecommendationsLIVEmailMonitorMarketing CenterSocial AnalyticsEnterprise Dashboard** in the header navigation menu. The application opens and you are automatically authenticated.
- Go to the URL your organization was given when your account was set up. On the **Log In** page, enter your client ID, user name, and password, and then click **Log In**.

  If you do not know the URL, contact Acoustic Software Support.

User group permissions

If you have administrator access, you grant access permissions to Digital Recommendations through user group settings. To enable Digital Recommendations for all users that are assigned to a specific user group, navigate to the **Admin** > **Manage Groups** page. Select a user group and check the **Digital Recommendations** check box. After you save those changes, all members of that user group can access Digital Recommendations using either direct authentication or the application toggle.

Workflow for configuring Product Recommendations

Follow this workflow to configure Acoustic Digital Recommendations for your website that is used to sell products.

1. Create an offer. Product Recommendations uses the offer settings to determine how the list of product recommendations is generated. Refer to "Offers" on page 8.
2. You can improve generated recommendations that are targeted toward more specific business goals. For example, you do not want to recommend products that you do not have in inventory. Or, you do not want to offer products that are already top sellers on your website so you can focus on offering products that aren't selling as frequently. To create these improvements to your offers, you create business rules. Refer to "Apply business rules to offers by using the legacy rules interface" on page 55 or "Apply business rules to offers by using the new rules interface" on page 24.
3. Create a recommendation plan. Product Recommendations uses the recommendation plan settings to identify how the target products are selected. The target product is what the recommendations are based on. For example, if you want to recommend a pack of thermal socks on the detail page for a hiking boot, the hiking boot is the target and the pack of thermal socks is the recommendation. Refer to "Recommendation plans" on page 76.
4. Identify the location on your website that the recommendations appear. The following are common examples of zones:
   - The left side of the product detail page
   - The bottom of the shopping cart page
   - The right side of the checkout page

   Refer to "Configuring Site Zones" on page 84.
5. View what recommendations are generated for your targets. These recommendations help you determine whether changes are needed to the offer, the business rules, the recommendation plan, or the zones. Refer to "Test recommendations and rule output" on page 90.
6. When you are satisfied with the targets and recommendations, you can activate the offer. Refer to "Activate an offer" on page 17.
7. To view the impact Product Recommendations has on your site performance, view the reports. Refer to "Reports" on page 96
8. To help you interpret the report information, or to extract specific information from the reports, view the standard dashboard or create a custom dashboard. Refer to "Performance dashboards" on page 103
9. View a summary of your configuration components and their relationships, open the system overview dashboard. You can also change your configuration components from the system overview dashboard. "System overview dashboard" on page 93.

Note: If your setup is configured to support them, you can create image-based recommendations that generate lists of product images to be used in your email messages. Refer to "Configure image recommendations" on page 117.

Offers

Understand the types of offers you can use to generate product recommendations.

An offer is a set of parameters that generates product recommendations. It includes all parameters that identify which products (targets) you are generating product recommendations for and how these recommendations are generated. You can generate recommendations for each target individually. You can generate recommendations that are based on the product categories. You can generate recommendations that are based on search results.

Key features that you can implement with offers:

Table 2: Offer types

Feature	Description	Refer to
Product Cross-Sell Offer	This offer is the most commonly used offer type. You can use it to recommend products that are based on your target product's individual product ID. This offer type gives you the most flexibility in creating business rules to promote and exclude products. You can customize the recommendation algorithm with affinity weights. Affinity weights control the weighting of four key data points in the product cross-sell algorithm. With this feature, you can tune the algorithm to address a range of customer behavior patterns and product mixes. You can also alter the output to address different styles of recommendations.	“Creating an offer” on page 9 “Determine the product cross-sell algorithm” on page 12
Site Category Offer	This offer type generates recommendations that are based on the category that your target product is associated with. You can use any category or subcategory that is defined in your Category Definition File. You can specify the key categories of products to be represented as overall top-sellers.	“Creating an offer” on page 9 “Rank products for recommendation” on page 13

Table 2: Offer types (continued)		
Feature	**Description**	**Refer to**
EPR Category Offer	This offer type generates recommendations that are based on the category that your target product is associated with. You can use any category or subcategory that is defined in your Enterprise Product Report (EPR) product file. You can specify the key categories of products to be represented as overall top-sellers.	"Creating an offer" on page 9 "Rank products for recommendation" on page 13
Attribute Offer	This offer type generates top selling recommendations that match a combination of attributes. You can configure a combination of attributes. For example, Brand and Size, which generates recommendations for each brand-size combination, such as top selling products of Brand A-small and top selling products from Brand A-large.	"Creating an offer" on page 9 "Configure target ID generation for attribute offers" on page 11
Search Offer	This offer type generates recommendations from data that is collected from page view tags and search phrase parameters. Search phrases that are used by shoppers during a session are associated with the products that are viewed and bought during the same session	"Creating an offer" on page 9 "Identifying a set of targets by using a search term" on page 28

Creating an offer

Create an offer that is used to generate product recommendations.

Procedure

1. Click **Offer Actions** and select **Create New Offer**.
2. Type a name for the offer.
3. Select the offer type.
4. See the related concepts in the list that follows this procedure for configuring the components of each type of offer.
5. Save the offer.
6. Add rules to further qualify recommendations. See "Apply business rules to offers by using the legacy rules interface" on page 55 or "Apply business rules to offers by using the new rules interface" on page 24.

Related concepts

"Activate an offer" on page 17

After you configure an offer, you activate it.

“Identify targets” on page 11
A target product is the product on which recommendations are based. You identify how Product Recommendations selects these targets.

“Identify target exclusions” on page 11
You can exclude products from the list of targets.

“Configure target ID generation for attribute offers” on page 11
Use Target ID generation to specify the attributes to use to generate recommendations.

“Determine the product cross-sell algorithm” on page 12
The product cross-sell algorithm determines how user behavior is factored into product recommendations.

“Rank products for recommendation” on page 13
Use the ranking function to recommend products for site category (CDF) and EPR category offers based on how they rank in one of several categories.

“Virtual categories” on page 14
Virtual categories make sure that product sales are reported with the original category of the product.

“Determine delivery options” on page 15
You can define how you deliver data for generating recommendations and how those recommendations are delivered to your site.

“Determine the data analysis time period” on page 15
You can alter the data analysis time period to consider more or less data when recommendations are generated.

“Update frequency” on page 16
You can indicate how frequently offers are updated with behavior data and business rules.

“Preview target list” on page 17
You can use a preview target list to specify the items that you want to include in your preview recommendations.

“Enable email notification” on page 17
You can identify who can be notified when offers are updated.

“Apply business rules to offers by using the legacy rules interface” on page 55
If your offers need to be fine-tuned to include, exclude, promote, or de-emphasize products, use business rules.

“Preview recommendations” on page 21
Digital Recommendations provides a preview capability that delivers visibility into, and control over, the recommendations that are deployed for an offer.

“Test recommendations and rule output” on page 90
You can avoid unexpected results by testing your rules before you put them into production.

Related tasks

“Deciding which rules interface to use” on page 11
When you create an offer, there is an option for you to enable the rules interface.

“Enabling a recommendation fallback” on page 16

You can specify an EPR category offer to generate additional recommendations if your offer does not successfully generate enough recommendations.

Deciding which rules interface to use

When you create an offer, there is an option for you to enable the rules interface.

About this task
This interface is a drag-and-drop interface that simplifies the task of creating business rules. This interface also gives you more options in creating rules. When you create a new offer, use the rules interface.

Identify targets

A target product is the product on which recommendations are based. You identify how Product Recommendations selects these targets.

When you create a product cross-sell offer, you first define how Product Recommendations selects products (targets) to generate recommendations for.

For all options in the **Identify Targets** function, products must be active to display as targets or recommendations.

An active product is any product that receives at least five views during the Data Analysis Time Period for offers with an update frequency of Daily or Weekly. For offers with an Update Frequency of Monthly, products must receive 10 views to be considered active.

Most organizations select **All Active Products** and build category-specific rules to manage how recommendations are derived by department.

However, some organizations with large websites and multiple departments create offers scoped to the needs of each department. This practice allows merchandisers of a particular department to individually create and manage offers and rules for their department without effecting the needs, settings, and rules relative to other departments.

Note: These settings do not constrain what products are recommended. Rather, they identify what products are selected as targets for recommendation. To place extra controls and constraints on the recommendations that are generated for targets, see "Apply business rules to offers by using the legacy rules interface" on page 55.

Identify target exclusions

You can exclude products from the list of targets.

Use this function to exclude product targets from recommendation.

Digital Recommendations does not generate recommendations for the products in this list. For product cross-sell offers, the list you specify here restricts the targets that are generated by the **Identify Target** function.

Configure target ID generation for attribute offers

Use Target ID generation to specify the attributes to use to generate recommendations.

You can specify up to six combinations of attributes. Each combination can contain either one EPR category plus up to five other attributes or contain up to six attributes.

Here are some examples:

Attribute combination	Results
Brand	Generates recommendations from each brand in your product set such as top selling Brand A product and top selling Brand B products.
Category + Brand	Generates recommendations from every category-brand combination such as: • Top selling Brand A coats • Top selling Brand B shoes
Category + Brand + Color	Generates recommendations from every category-brand combination for each color available such as: • Brand A red coats • Brand A white coats • Brand B brown shoes • Brand B black shoes
Gender + Brand	Generates recommendations from gender-brand combination such as: • Brand A Men's • Brand A Women's • Brand B Men's • Brand B Women's

Determine the product cross-sell algorithm

The product cross-sell algorithm determines how user behavior is factored into product recommendations.

Use the product cross-sell algorithm to determine how user behavior is factored into product recommendations.

Digital Recommendations is configured with three preset user behavior algorithms. These algorithms are found to be optimal to the associated page type. The following are the preset algorithms:

- Product page
- Cart page
- Order confirmation page

Each preset algorithm uses a combination of these affinities:

View-to-view

Considers sessions in which visitors **view** the target product and **view** the recommended product in the same session. The Digital Analytics product view tag provides data for this affinity type. View-to-view provides the most data because visitors view more products than they purchase or add to the cart.

Note: To ensure that there is data on which to base recommendations for low volume products, do not set this affinity to a value less than one.

View-to-buy

Considers sessions in which visitors **view** the target product and **buy** the recommended product in the same session.

Buy-to-buy
Considers sessions in which visitors **buy** the target product and **buy** the recommended product. The Buy-to-Buy affinity is calculated across multiple sessions for the data analysis time period.

Note: This affinity type considers cross-session data during the data analysis time period of the offer. For example, a visitor purchase an MP3 player on Monday and came back to buy the high performance headphones on Thursday. Digital Recommendations relates these activities as part of this affinity.

Abandon-to-buy
Considers sessions in which visitors **abandon** the target product and **buy** the recommended product in the same session.

Note: To ensure Digital Recommendations has data from which to base recommendations for low volume products, do not set this affinity to a value less than one.

To use a preset affinity, click the affinity name. After you select an affinity, you can adjust it with the sliding bar. To restore the settings back to the present affinity, click the affinity name.

What product affinity numbers mean

The actual numeric values that are displayed for the individual affinity scores have no real meaning when they are viewed by themselves. They are numbers that correspond to conditional probabilities compared to each other or across products.

For example, if you have a target with a view-to-view affinity set to 40 and view-to-buy affinity is set to 10, it means that Digital Recommendations uses the view-to-view user behavior 4 times more often that the view-to-buy behavior when determining products to recommend.

Affinity weights are not percentages. They do not need to add up to 100. They are values that you supply to the statistical model to indicate the importance of each affinity type relative to the others in the context of the result you are trying to achieve. Setting each affinity type to 1 has the same result as setting each affinity type to 100. More typically, the weights that you give to the affinity types are not all the same, because they do not all contribute equally to the result.

If you need to modify the default settings of the recommendation algorithm for an offer, open the offer, and then from the **Settings** tab, click **Modify Algorithm**.

Do not set affinity to zero

If you set the weight for an individual affinity type to 0, its effect on the calculation of the final Product Affinity Index is minimized. Recommendations based on that affinity display only if there is no data from the other affinity types. It is not recommended to set an affinity weight to 0. It is a best practice to keep at least some data from each affinity type open so that products that receive minimal site interactions are given as much data as possible on which to base recommendations.

Rank products for recommendation

Use the ranking function to recommend products for site category (CDF) and EPR category offers based on how they rank in one of several categories.

Item Revenue
Generates recommendations based on the total revenue that is generated by the sale of items.

Quantity Sold
Generates recommendations based on the number of items sold.

Number of Views
Generates recommendations based on the number of times items that viewed in distinct sessions. Use this value if you do not have enough website purchase activity to generate meaningful recommendations. For example, if your customers shop online, but purchase offline. There is always more view activity than purchase activity.

Custom
Generates recommendations based on a calculation that includes all three of these metrics. When you select this ranking method, you supply a **Weight** for each of the metrics to define its relative importance. The three weight values that you enter must add up to 100%. Digital Recommendations uses the weights in the top seller ranking computation as follows: `(Item Revenue * weight) + (Quantity Sold * weight) + (Number of Views * weight)`

Minimum Value
Recommendations are not included if their ranking is less than this minimum value.

- For ranking based on item revenue, enter the minimum acceptable revenue amount.
- For ranking based on quantity of items that are sold, enter the minimum quantity.
- For custom ranking, you specify the minimum that must be met for each metric.

Do not Recommend Top %
For every category, Digital Recommendations tracks up to 50 top selling items. This feature removes the top percentage, specified by you, of the highest selling items from these recommendations. For example, if there are 50 items or more sold in each category during the data analysis time period, there are a maximum of 50 items in the initial set of recommendations for every category. If this setting is set to 10%, the top five items are removed from each category. Many organizations believe that their top selling items sell regardless of merchandising placement. Removing the top sellers allows better movement of items that visitors might not find if these items are not presented as Category Recommendations.

Enable Overall Top Sellers
This setting is used to configure pages such as the home page, the **No Search Results** page, or the **Empty Cart** page. When you are rendering only overall top selling items, most products are in one dominant site category, which is not optimal. You can specify up to 15 key categories of products to be represented such that each defined category receives an equivalent number of recommendations. If you are not using overall top sellers, leave this box blank.

- The category values that you type in the text box **must match the category ID** value that corresponds to either the EPR or CDF hierarchy. You name Category IDs with only uppercase letters. There must be a reference to a source in the ECDF or CDF file to determine this value. If this information is not available, contact Digital Analytics for assistance.
- As a default, recommendations are generated for categories in the order that the categories are entered into this entry field. For example, if categories are entered as WOMENS, MENS, PETS, FISHING, the first recommendation are from WOMENS, the second from MENS, the third from PETS, the fourth from FISHING, the fifth from WOMENS, the sixth from MENS, up to Recommendation number 20. Up to 20 recommendations are available in the candidate set for home page recommendations.
- To generate recommendations in random order, place "R" as a fourth parameter in the `cmRecRequest` function to show different content that is interesting to visitors.

Virtual categories

Virtual categories make sure that product sales are reported with the original category of the product.

This function applies only to site category offers. Use it to ensure that product sales are reported with the original product category rather than the virtual category. For example, if your CDF file contains "sale" as a virtual category and you have "women's shoes" associated with that category, you list "sale" in the **Virtual Category** field. Doing so ensures that when women's shoes are sold, it is reported under the "women's shoes" category rather than "sale" virtual category.

Select only the virtual categories that are defined in the CDF.

Enter up to 10 virtual categories with each category followed by a return character.

If the website has more than 10 virtual categories, use the Product Category report to determine the top 10 virtual categories that are ranked by total sales to sufficiently redistribute sales for site category top sellers.

If numerous virtual categories contain the same term such as "Search", "Guided Search" or "onsite Search", use a wildcard parameter and capture all three of these examples with one of the available 10 entries. "%Search" means the virtual category must end with "Search". "%Search%" means must contain "Search". "Search%" means begins with "Search".

Determine the data analysis time period

You can alter the data analysis time period to consider more or less data when recommendations are generated.

With longer data analysis time periods, Digital Recommendations considers more data, which generally results in a higher number of recommendations for a higher number of targets. Shorter data analysis time periods reflect changes in buyer purchase preferences and seasonality more rapidly. Specify a data analysis time that is long enough to accumulate search phrase-based browsing activity. You can also select the smallest data analysis time period that provides the greatest number of targets. For further assistance, contact a Digital Recommendations client consultant. Longer data analysis time periods can be requested and configured by Digital Analytics as a system setting.

For product cross-sell offers:

- The **Session Based** value sets the number of days of data to process **View-to-View**, **View-to-Buy**, and **Abandon-to-Buy** behaviors.
- The **Registration Based** value sets the number of days of data to process the Buy-to-Buy affinity.
- Specify longer data analysis time periods for **Registration Based** than for **Session Based** because it takes more time to accumulate data.

Testing for the Optimum Time Period

To determine the optimum data analysis time period for your offer, test offers that look at different time periods. You can create three offer exports. Set one for seven days, one for 14 days, and one for 45 days. When the files finish processing, pick them up from the SFTP server, save them to your hard disk, and open them in Excel. Count the number of rows in each file. Compare this number to the total known number of active targets currently available for sale on your website. Generally, you select the smallest data analysis time period that provides the greatest number of targets.

Determine delivery options

You can define how you deliver data for generating recommendations and how those recommendations are delivered to your site.

- **Flat File** : select this option to receive recommendation data with flat files. Then, specify the following options:
  - **Number of Recommendations**: The number of recommendations that are requested for each target. If you get fewer recommendations than the number specified here, other settings can be a factor: Data Analysis Time Period, the floor for active targets, and the volume of traffic on your site. You might need to **Enable Recommendation Fallback** to avoid having too few recommendations.
  - **Enable Recommendation Fallback**: Enables category fallback recommendations. If Digital Recommendations does not generate enough recommendations to fulfill the **Number of Recommendations** value, the top selling items in the target's defined EPR category are used to complete the recommendation list.
  - **Export Destination**: The configured SFTP destination for Digital Recommendations offers.

- **File Delimiter**: The character that is used to separate distinct data fields (columns) in the export file. Comma is the default field delimiter, but you can enter another character to use as the field delimiter. Enter `\t` to create a tab-delimited export file.
- **File Format**: Select either a compressed file (.zip) or a text file (.txt) format.

- **Site Zone**: If you are not licensed for dynamic recommendations, this option is not available. The following are options for Site Zone:
  - **Send Master Offer File**: Enable this option to have the master offer file that contains all of the recommendations for an offer that is transmitted to the export destination. Send Master Offer File is intended for informational purposes only so that recommendation data can be easily inspected manually.
    - **Export Destination**: The configured SFTP destination for Digital Recommendations offers.
    - **File Format**: For Site Zone, only text file (.txt) format is available.
- **Fallback Processing Only**: enables the Offer and Rules Fallback process. Select this option if you are creating an offer for providing fallback options and there is no intent to display EPR category recommendations on the site. This option is only available for EPR category offers.

Note: If you selected to use the new business rules interface with this offer, the **Flat File** delivery option and the **Send Master Offer File** option are not available.

Update frequency

You can indicate how frequently offers are updated with behavior data and business rules.

This frequency corresponds to any email offers that are fed to the LIVEmail application, ensuring that the most recent recommendations are included in the email offers.

Unless you have few changes or low traffic on your website, set frequency to **Daily**. It is also important to set the frequency to **Daily** if any of the product information that is used in your business rules changes daily, such as price or inventory.

Enabling a recommendation fallback

You can specify an EPR category offer to generate additional recommendations if your offer does not successfully generate enough recommendations.

About this task

If you select a fallback offer, the rules you specify in the current offer will apply.

Procedure

1. Clilck **Enable Recommendation Fallback**
2. Select **Fallback Source Offer**. For best results, specify an EPR category offer for the **Fallback Source Offer**.

   If the current offer uses the new rules interface, select an EPR offer that also uses the new rules interface.

   If the current offer uses the legacy rules interface, select an EPR offer that also uses the legacy rules interface.

Preview target list

You can use a preview target list to specify the items that you want to include in your preview recommendations.

You can specify a list or enable the **Use the top 25 Target IDs as Preview Targets** option to allow Digital Recommendations to select the target IDs to use in Preview. For more information, see "Preview recommendations" on page 21.

Enable email notification

You can identify who can be notified when offers are updated.

Enter a comma-delimited list of email addresses of people to notify when the offer updates are complete. If you are delivering recommendations from site zones, the underlying behavior data and business rules finished processing. Processes run following this notification to prepare offers for customer access. This access can take an extra 15 - 60 minutes, depending on your catalog size and offer volumes.

Activate an offer

After you configure an offer, you activate it.

Before an offer can generate recommendations, you must activate it.

Click **Offers** to display the offer list. Then, from the list, click the green button next to the offer to activate it.

Digital Recommendations processes offers early in the morning of the day that is specified on the **Offer Settings** tab of the offer. For example, if the settings for the offer are to run on Sunday, processing will begin early Sunday morning your local time. Digital Recommendations files are usually processed and complete by 8 AM your local time, however depending on data volumes this might take longer.

If it is absolutely critical that you receive recommendations at 5 AM on a given day, the Digital Recommendations file can be set up to be delivered the day before ensure that your deadline is met. Review this process with your IT team.

Note: You can only activate one EPR category offer and one site category offer.

Adding more top sellers for recommendation

You can use an attribute to represent groupings of products that span multiple categories.

About this task

If your categories are candles, cake toppers, and tablecloths, you can also use another grouping concept like "holiday" or "season." In this example, you would likely want the recommendations for birthday candles to include top-selling items from the candles category and top-selling cake toppers for birthday cakes and tablecloths for birthday parties.

If your website uses a secondary grouping or sorting construct in addition to categories and you want to include top-selling items that are based on those organizational elements in your category top seller recommendations, complete the following steps.

Note: This procedure applies only to EPR category offers.

Procedure

1. Create a product attribute that represents the concept. For example, "holiday" or "theme" or "season".

   The values that are held by this attribute must not exactly match any of your categories.

2. Populate the column with appropriate values for each product. As with any other attribute, use the vertical bar character (|) to separate multiple items.

   To continue with the birthday candles example, say that the attribute is named Theme. You might set the attribute as follows:

   - Birthday candles: Theme= birthday
   - Cake toppers: Theme = birthday|fiesta
   - Tablecloth: Theme = birthday|Spring
3. Upload the data
4. Map the new field by using **Admin > Extra Fields**.
5. Create or open an EPR category offer. From the **Settings** tab, click **Advanced Options**.
6. Navigate to **Optional Top Sellers by Attribute** and select the category or attribute combination you want to be processed as top sellers in the category offer. If you implement the previous example, you would add the Theme attribute.
   - If you create a row with a single attribute, then any product that has a value for that attribute is considered by the top seller algorithm.
   - If you create a row with a combination of attributes, it is an AND condition. Only those products that have values for all the attributes in the row are considered.
   - You can create up to four combinations.
7. Click **Apply**.

Generating recommendations for items in multiple categories

You can recommend items that are in multiple categories as top sellers in each of their alternative categories, and those alternative categories can receive recommendations.

About this task

Acoustic Digital Analytics can enable a category offer to recommend top sellers for the alternative categories that are provided in the Enterprise Product Content Mapping File.

When you enable this setting, every alternative category has top sellers that are recommended for it. The items that are associated in the Enterprise Product Content Mapping File with the alternative categories are potential recommendation candidates.

Note: This procedure applies only to EPR category offers.

Procedure

1. Create a product attribute that represents the alternative category such as "Sale," "Clearance," or "Plus Size."

   Make sure that the alternative category does not exactly match any of the existing categories.
2. Populate the column with appropriate values for each product. As with any other attribute, use the vertical bar character (|) to separate multiple items, such as Sale|Clearance|Plus Size
3. Upload the data.
4. Map the new field by using **Admin > Extra Fields**.
5. Create or open an EPR category offer. From the **Settings** tab, click **Advanced Options**.
6. Navigate to **Optional Top Sellers by Attribute** and select the category or attribute combination you want to be processed as top sellers in the category offer.
   - If you create a row with a single attribute, then any product that has a value for that attribute is considered by the top seller algorithm.

- If you create a row with a combination of attributes, it is an AND condition and . Only those products that have values for all the attributes in the row are considered.
- You can create up to four combinations.

7. Click **Apply**.

Viewing the change history for a specific offer

You can review a history of all changes that are made to an offer's settings and rules.

Procedure

1. Click **Offers**.
2. Click the name of an existing offer.
3. On the upper right corner of the main page, click **Change History**. A window lists all changes that are made to offer settings and rules, from most recent to earliest.
4. To review more details for a change, click an item on the list. The specific fields that changed and the old and new values are shown at the bottom of the window.

Previewing the results of an offer

You can use the **Rules Statistics** tab to preview the recommendations that are generated by an offer.

About this task
After you activate an offer and the offer processes, you can view the results of the offer by viewing the rule statistics. Rule statistics can assist you in troubleshooting and in improving your rules processes.

Procedure

1. Ensure that the offer you for which want to view the statistics for is active.
2. Open the offer for which you want to preview the results.
3. Click the **Rules Statistics** tab.

Track changes to configuration parameters

You can track changes that are made to offers and offer configurations

Tracking changes to offers and offer configurations

You can review a historical list of changes that are made to offers, attributes, and settings.

Procedure

1. Click **Manage** in the side navigation.
2. Click **Change History** in the side navigation. A list of all changes that are made, from most recent to earliest, displays at the top of the page.
3. To review more detail for a specific change, click the change. At the bottom of the page, the Change History report displays the specific fields that are changed and their old and new values.
4. To limit reported values, use the **Filter by** list to select a value, enter a complete or partial item or user name, then click **Apply**. The report displays only items that match the supplied text.

Viewing the change history for a specific offer

You can review a history of all changes that are made to an offer's settings and rules.

Procedure

1. Click **Offers**.
2. Click the name of an existing offer.
3. On the upper right corner of the main page, click **Change History**. A window lists all changes that are made to offer settings and rules, from most recent to earliest.
4. To review more details for a change, click an item on the list. The specific fields that changed and the old and new values are shown at the bottom of the window.

Tracking changes to attributes

You can review a historical list of changes that are made to attributes individually.

Procedure

1. Click **Manage**.
2. Click **Offer Configuration**.
3. To view changes that were made to product attributes, select **Product Offers** > **Attributes**
4. Do one of the following actions:
   - To view changes that were made to page attributes, select **Content Offers** > **Page Attributes**
   - To view changes that were made to element attributes, select **Content Offers** > **Element Attributes**
5. Click **Change History** in the main page.
6. To review more detail for a specific change, click the change. At the bottom of the window, the Change History report displays the specific fields that were changed and their old and new values.

Tracking changes to more settings

You can review a historical list of changes that were made to More Settings for offers.

Procedure

1. Click **Manage**.
2. Click **Offer Configuration**.
3. To view changes that were made to product-more settings, select **Product Offers** > **More Settings**
4. To view changes that were made to page attributes, select **Content Offers** > **More Settings**
5. Click **Change History** in the main page.
6. To review more detail for a specific change, click the change. At the bottom of the window, the Change History report displays the specific fields that were changed and their old and new values.

Preview recommendations

Digital Recommendations provides a preview capability that delivers visibility into, and control over, the recommendations that are deployed for an offer.

Using preview, you can see exactly how candidate recommendations for a target are ranked based on parameters that are defined for the offer. Preview shows you how specific candidates are excluded, promoted, or de-emphasized based on the business rules for the offer and which recommendations apply after the affinity algorithm. Preview also indicates the recommendations that are fallback recommendations.

Use the preview feature to gain insight into the effect of the rules and logic that are specified for an offer, especially if recommendations for a target do not meet your expectations. Or, to test an offer before you activate the offer.

Digital Recommendations provides three ways to preview recommendations for an offer:

- Specified target
- Sampled target
- Custom

The first two ways of previewing recommendations are dynamic: they present the actual output that is available immediately from the Content Delivery Network (CDN) for an offer. These previews are only available if your site is licensed for the Digital Recommendations dynamic recommendations feature. These previews display new, current content each time you request them.

The last type of preview is Custom. Custom previews are available to all Digital Recommendations sites: these previews perform real-time computations to report the recommendations you can expect to display based on the current business rules that are defined for an offer. You can save custom previews for future review and reuse.

You can also use the Rules Statistics to test the effect of rules on an offer. See“Viewing the effect of rules on the offer” on page 47

Previewing recommendations for a specific item

Use the specified target preview to find out exactly what the recommendation output available from the CDN is, right now, for a specific offer and target ID.

About this task

This preview can include all of the attributes and values that are included in the recommendations file, or a subset of them. Use the **Preview Options** feature to select the attributes to include.

Note: For an attribute to be displayed on this type of preview, it must be in both the recommendations file and the list of attributes that are specified as **Preview Options**.

To produce a preview for a specified target:

Procedure

1. Click **Preview**
2. Click **Preview Options** to review or change the attributes to include. See“Selecting attributes to display in previews” on page 24.
3. Click the current set of recommendations for a specified target link.
4. Select an offer.
5. Enter a specific target ID.

6. Click **Submit**.
7. You can view the resulting recommendation data in a grid or in a simulated site zone.
   - To view the preview in grid (table) format, click the **Grid View** tab.
   - To view the preview as a series of images in a site zone, click the **Picture View** tab.

Previewing recommendations for a sample set of item

You can use the sampled target preview to discover output that is available from the CDN for an offer and a sample set of targets.

About this task

Sampled target previews are dynamic: they present the actual output that is available immediately for an offer and present new, up-to-date content each time you request them.

You define the sample set of targets to use for this type of preview on the **Settings** tab for each offer. You can select either the top 25 targets based on item views or specify a list of target IDs.

Sample target previews include all attributes and their values for the targets and candidates, or you can select a subset of attributes. This preview also includes a comprehensive rules analysis. For information about analyzing the rules, see "Test recommendations and rule output" on page 90.

To produce a preview with a predefined sample set of targets:

Procedure

1. Click **Preview**.
2. Optionally, click **Preview Options** to review or change the attributes to include. See "Selecting attributes to display in previews" on page 24.
3. Click the **Current recommendations for sampled targets with detailed tracing** link.
4. Select an offer.
5. Click **Submit**.
6. You can view the resulting preview in a grid or in a simulated site zone.
   - To view the preview in grid (table) format, click the **Grid View** tab.
   - To view the preview as a series of images in a site zone, click the **Picture View** tab.

Previewing recommendations for new or modified offer

You can use custom previews to help you understand how changing the business rules of an offer results in differing recommendations.

About this task

Custom previews are available to all Digital Recommendations sites. These previews perform real-time computations to report the recommendations you can expect to appear based on the current business rules that are defined for an offer. Because they contain static data, you can save custom previews for future review and reuse.

The custom preview is an analytical tool for testing recommendation output for a new or newly modified offer. This preview type does not request data from the CDN, but instead performs all computations in real time to produce a set of recommendations. Because custom previews process against the Digital Recommendations rules engine and database, the request can take some time to complete. Custom previews can include all item attributes and their values for all target and candidate items, or you can select a subset of attributes to include.

Note: For new offers, the recommendation preview is only available after the base recommendations are assembled and the rules are applied. This typically occurs early every morning, so the preview is available the day after changes are made.

Note: For changes to existing offers, changes to rules are available immediately. However, if you change the affinity settings for an existing offer, the preview is not available until the day after changes are made.

Note: For changes to existing offers, changes to rules are available immediately.

Procedure

1. Click **Preview**.
2. Optionally, click **Preview Options** to review or change the attributes to include. See "Selecting attributes to display in previews" on page 24.
3. Click **Create New Preview**.
4. Enter an identifying name and select the offer.
5. Identify targets by either using the sample set that is defined for the offer (as for a sampled target preview) or entering one or more specific target IDs.
6. Click **Save and Submit**.
7. You can view the resulting preview in a grid or as a series of pictures in a simulated site zone.
   - To view the preview in grid (table) format, click the **Grid View** tab.
   - To view the preview as a series of images in a site zone, click the **Picture View** tab.
8. To review the custom preview later, click **Preview** then click the linked name of the preview. You can change the offer or the targets on the **Setup** tab and rerun the preview, or click the **Grid View** or **Picture View** tab to review previously generated recommendations.

Previewing by using a grid

You can preview the recommendations for an offer in a grid, and optionally download the data for use in spreadsheets or other files.

About this task

Procedure

1. Click **Preview**.
2. Create a preview of any type or click a saved custom preview.
3. Click the **Grid View** tab. Each of the targets that you specify for your preview displays on a single line.
4. Click the **+** icon for a target to view all of its candidate recommendations, and whether each one was included or excluded. The business rules that are invoked for the candidates also display.
5. Optionally, click **Download**. The standard Download dialog box opens.

Previewing as images in a zone

You can preview recommendations for an offer as images in a simulated site zone.

About this task

Note: To enable this feature, the Enterprise Product Content Mapping File must include the URL for thumbnail images as an item attribute. You must also identify which of the attributes contain this thumbnail by clicking **Manage > Offer Configuration > Attributes** and selecting the **Attribute containing Image URL**.

Procedure

1. Click **Preview**.
2. Create a preview or select a saved custom preview.
3. Click the **Picture View** tab. An image (if available) for the first target displays at left, and a simulated site zone with its candidate recommendations at right. A notation beneath each image indicates whether the candidate was included or excluded.
4. To review attribute values for a target or candidate, rest the cursor on the image. The attributes and values display until you move the cursor off the image.
5. To view the page on the client site where the image is displayed, click the image. The client page displays in a new window.
6. To scroll through more candidates, click the right arrow.
7. If your preview contains more than one target, click the name of each one to view the images and attributes of its candidate recommendations.

Selecting attributes to display in previews

You can customize the information reported by your previews. You select the attributes to include, then create your preview.

About this task

Specified target previews include only attributes and values that are in the recommendations file. For an attribute to appear on this type of preview it must be in both the recommendations file and the list of attributes that you select.

Procedure

1. Click **Preview**.
2. Click **Preview Options**.
3. Click **Product Offer**.
4. Click the type of offer (**Page View Offers** or **Element Offers**)
5. To add an attribute to your previews, click the name of the attribute in the **Available Attributes** list, then click **>**. To add all of the available attributes, click **>>**.
6. To remove an attribute that currently displays on your previews, click the name of the attribute in the **Selected Attributes** list, then click **<**. To remove all of the selected attributes, click **<<**.
7. To change the order in which attribute information displays, click the name of an attribute in the **Selected Attributes** list, then click the up or down arrow.
8. Click **Save**.

Apply business rules to offers by using the new rules interface

If your offers need to be fine-tuned to include, exclude, promote, emphasize, or de-emphasize products, use business rules.

Here are some examples of using business rules:

- Use category rules to prevent men's products from appearing in the women's department.
- Use inventory rules to prevent recommending out-of-stock items.
- Use price rules to facilitate up-selling and down-selling.
- Use margin rules to eliminate low margin items.

Rules are based on data that is provided to Digital Analytics by using an import file. Available rules depend on the offer type.

Exclusionary rules
: Exclusionary rules eliminate items from recommendations that are based on defined criteria. For example, exclusionary rules are expressed as "Exclude recommendations where the Inventory of the product is less than 10.

De-emphasis rules
: De-emphasis rules, rather than excluding, move recommendations to the back of the candidate list. For example, if a product has low margins but is ranked as having high relevance, a de-emphasis rule that moves that product to the back of the list of valid recommendation candidates and moves the higher margin items forward. If there is limited recommendation data for a specific target or when all recommendations are low margin, then data is still available to present to the visitor.

Promotional rules
: Organizations that are introducing new products or articles or that have items with high inventory can set up promotions that insert designated products in front of behavioral recommendations. You can create promotional rules to prioritize manually designated products over recommendations from Digital Analytics. Digital Recommendations can help you. You can set a percentage weight that says "Display these two products in the first position for 50% of the products in the Men's department".

Emphasis rules
: You can use emphasis rules to move recommendations to the beginning of the candidate list. For example, if a product has high margins but is ranked as having a lower relevance, an emphasis rule moves that product to the front of the list of valid recommendation candidates.

More about business rules for offers

- The business rules that you create for your offers are based on the (up to 50) attributes you provide in the ECDF and EPCMF data files. For information about these files, see the *ECDF and EPCMF data files* chapter in the Acoustic Product Recommendations Configuration Guide.
- Before rules are processed, Digital Recommendations generates recommendations based on the affinity weights that are set for an offer. Digital Recommendations attempts to generate up to 50 recommendations per target so that a large data set is available against which to apply rules. The ability of Digital Recommendations to generate recommendations is largely based on the data analysis time period and the degree of traffic that the site receives. To specify the number of final recommendations you want to receive, following these standards:
  - Specify up to 12 recommendations when you configure the site zone where the offer is used. If you need more than 12 recommendations, contact your Acoustic Digital Analytics client consultant.
- **Rule specificity**
  : You create rules by using attribute values. The values that you enter in the rules interface **must exactly match** the values that are loaded by using the ECDF and EPCMF files. These values can include the use of spaces and capitalization.

  Business rule policy
  : Governs the execution of all rules and cannot be specified by rule set or by an individual rule. For more information, see "Configure business rules policies for offers by using the legacy rules interface" on page 70 .

  Rules data
  : Do not create rules on an active offer until all rule data is loaded into the Digital Analytics database. Rules that are created when rule data is not provided erroneously eliminates items and deliver an unexpected result. For example, rules data that is loaded into Digital Analytics on Tuesday by using the Enterprise Product Report or by using Product View Extra Fields, is available for processing on an Offer that is scheduled for Wednesday delivery.

Defining individual rule groups

Your first step in defining business rules is to create a rule group. Use this procedure to create a rule group that can be used only with the current offer.

About this task

When you have many rules, rule groups are convenient for grouping similar rules so they are easy to find. Rule groups also allow for multiple people to work on different rule groups at the same time for the same offer and manage rules independently.

After you create a rule group, you define one or more business rules in that group.

Procedure

1. Open the offer and then click the **Rules** tab.
2. Click **Add New Group** and provide a rule group name.

Defining shared rule groups

Your first step in defining business rules is to create a rule group. Use this procedure to create a shared rule group that can be used with any offer.

About this task

When you have many rules, rule groups are convenient for grouping similar rules so they are easy to find. Shared rule groups allow you to create a set of rules and use them with multiple offers, reducing the effort of duplicating rules for each offer.

After you create a shared rule group, you define one or more business rules in that group.

Procedure

1. Open the offer and then click the **Rules** tab.
2. Click **Add New Shared Group** and provide a rule group name.

Edit a rule in a shared group

When you edit a rule in a shared group, it affects all offers that use that rule group.

Converting an individual rule group to a shared rule group

You can convert a rule group that was originally created as an individual group to a shared group. This task is useful if you want to create a set of rules and test them before you create them in a shared group.

Procedure

1. Click the group name.
2. Click the copy icon. If you hover over the icons, it is labeled **Convert to Shared Group**.
3. You are prompted to type a name. You can give the group a new name or keep the existing name.

Copying a shared rule group into an individual rule group

You can make a copy of a shared rule group and create it as an individual rule group. This task is useful if you want to use a shared rule group as a starting point for creating another rule group.

Procedure

1. Click the group name.
2. Click the copy icon. If you hover over the icons, it is labeled **Copy Shared Group to Individual Offer Rule Group**.
3. You are prompted to type a name. You can give the group a new name or keep the existing name.

Creating a rule

After your rule group is created, create one or more rules in that rule group.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Define the rule using the **Promote**,**Exclude**, **Exclude All**, **Emphasize**, **De-emphasize**, or **De-emphasize similar** conditions.
5. Click**Save**.

Related concepts

"Build rule queries" on page 28
With the rules interface, you can use building blocks to create your rule conditions.

"Promotions" on page 29
Use promotion rules to place designated items at the beginning or end of the recommendation list that is generated by the parameters that are defined in the offer.

"Emphasize items" on page 33
Use emphasis to place designated items at the beginning of the recommendation list.

"De-emphasize items" on page 36
You can use de-emphasis to place designated items at the end of the recommendation list that is generated by the cross-sell algorithm that is defined in the offer.

"Exclude items" on page 40
You can use an exclude rule to remove items from the recommendation list that are generated by the cross-sell algorithm that is defined in the offer.

Related tasks

"Defining conditions to select rule targets" on page 27
You can limit the targets for which the recommendation rule applies.

Defining conditions to select rule targets

You can limit the targets for which the recommendation rule applies.

About this task

Targets are the items that you are generating recommendations for and are the items for which the rules apply. In some cases, you want a rule only to apply to targets that meet a specific condition.

For example, you might want to create a rule that applies only to a specific brand or category.

For example, you might want to create a rule that applies only to a page URL or category ID.

Procedure

1. Select **Apply this rule to targets matching the following conditions**.
2. Using the **Rule Query Building Blocks**, create the conditions to select targets.
3. You can build more complex conditions with the And Group and Or Group building blocks.

   With an **And Group**, you can apply multiple conditions that must all be met when you select targets. With an **Or Group**, only one of the conditions must be met when you select targets.

Example

To apply a rule only to targets of a specific brand (Brand X), use the **Brand** building block and specify **is** *Brand X*.

Identifying a set of targets by using a search term

When you create a search offer type, you can configure a rule so that only targets associated with the search term are used.

About this task

Procedure

1. Select **Apply this rule to targets matching the following conditions**.
2. From the list of **Target Query Building** blocks, drag **Search Term** to the query building block.
3. In the Edit Rule Criterion screen, select the comparison condition, such as **is** or **contains**.
4. Type the search term in the text box.

   You can add more search terms by using an **OR Group**.
5. Save the rule.

Build rule queries

With the rules interface, you can use building blocks to create your rule conditions.

When you select one of the following rule types, you use the items in the **Rule Query Building Blocks** to create your rule queries:

- Exclude
- Exclude all
- Emphasize
- De-emphasize
- De-emphasize similar
- Promote

In the simplest form, you can create a single condition by dragging and dropping a building block to the recommendation rule group. When you drop the building block, you are prompted for the comparison condition and the value to evaluate.

For example, if you want to exclude Brand X from recommendation, drag the **Brand** building block. When prompted to define the comparison condition, select **is** then type Brand X. The building block becomes **Brand is "Brand X"**.

You can also create more complex conditions with the **AND Group** and the **OR Group**.

For example, if you want to create a rule that excludes Brand X, but only from the clothing category, drag the **Brand** building block as in the previous example. Then, drag the **AND Group**. This action places the brand building block in a group. Drag the **Category** building block into the group. When prompted, select **Category is** and select the **Clothing** category.

Use a predefined date range in your rule

You can use predefined date ranges, such as a holiday season, summer, or other date range in which to apply a rule.

If you use a date-based rule such as today's date or valid date range, you can select **Use predefined date range**. With this option, you can select from date ranges you previously specified.

Related tasks

"Creating a pre-defined date range" on page 29
You can pre-define date ranges to capture meaningful time period such as holiday seasons or promotional seasons such as summer or fall.

Creating a pre-defined date range

You can pre-define date ranges to capture meaningful time period such as holiday seasons or promotional seasons such as summer or fall.

Procedure

1. Click **Manage** in the navigation pane.
2. Click **Date Ranges**.
3. Click **Add date range**.
4. Specify a name of the date range, such as Summer and specify the start and end dates. You can specify it for every year if you want it to repeat annually.

Promotions

Use promotion rules to place designated items at the beginning or end of the recommendation list that is generated by the parameters that are defined in the offer.

You have many options to use for promotion rules.

Promoting specific products

Use item promotions to place designated items in the recommendation list.

About this task

If you are introducing new products to market or you have items with high inventory, you can promote products by product ID in front of behavioral recommendations.

You also specify the percentage of times that the item is displayed at the beginning of the list and the date range of the promotion.

See also "Recommending items that are part of a set" on page 64.

To set up promotions for specific products:

Procedure

1. Click **Add rule** or open an existing rule to edit.
2. Select **Promote** from the drop-down list.
3. In the text field, specify the item IDs that you want to position before behavioral recommendations for the associated targets. **The characters in IDs must be entered as all uppercase letters**.

   Products listed here will be positioned in the order listed.
4. Check the **Apply Exclusionary Rules** check box if you want any already-existing rules that apply to the item to be in effect. If this box is not checked, no already-existing rules affect this promoted item.
5. Set the **Distribution parameters**

- Distribution percentage allows you to control the percentage of associated targets for which the promotion applies. For example, if you specify the Brand A Camera as a promotion for all targets in the Camera department, you might not want to have this item show up on the website as the first recommendation for *every* product in the Camera department. If you set the Frequency Percentage to 25%, then the Brand A Camera is randomly inserted as the first recommendation for only 25% of the targets in the Camera department.
- **Priority level** specifies how those conflicts are handled when multiple promotion rules conflict.
- Promotion order
- **Promotion Schedule**

6. **Save** the rule.

Promoting multiple items in a specific order

You can promote multiple items and specify the order that they are promoted in the recommendation list.

About this task

If you are introducing new items to market or you have items with high inventory, you can promote by item ID in front of behavioral recommendations and specify the order in which they are recommended.

You also specify the percentage of times that the item is displayed at the beginning of the list and the date range of the promotion.

Procedure

1. Click **Add rule** or open an existing rule to edit.
2. Select **Promote** from the drop-down list.
3. In the text field, specify the item IDs, one on each line. Items are recommended in the order they appear in the list.

   You can use ID groups (one group per line) to split the items in each group across targets. Each group of IDs is used as recommendations for an equal number of targets.

   Note: The characters in IDs must be entered as all uppercase letters.
4. Check the **Apply Exclusionary Rules** checkbox if you want any already-existing rules that apply to the item to be in effect. If this box is not checked, no already-existing rules affect this promoted item.
5. Set the **Distribution parameters**

   - You can control the percentage of associated targets for which the promotion applies by setting the distribution percentage. For example, if you specify an apple pie recipe as a promotion for all targets in the side-dish category, you might not want to have this item show up on the website as the first recommendation for *every* item in the side-dish category. If you set the Frequency Percentage to 25%, then the apple pie recipe is randomly inserted as the first recommendation for only 25% of the targets in the side-dish category.
   - You can control the percentage of associated targets for which the promotion applies by setting the distribution percentage. For example, if you specify the Brand A Camera as a promotion for all targets in the Camera department, you might not want to have this item show up on the website as the first recommendation for *every* item in the Camera department. If you set the Frequency Percentage to 25%, then the Brand A Camera is randomly inserted as the first recommendation for only 25% of the targets in the Camera department.
   - **Priority level** specifies how those conflicts are handled when multiple promotion rules conflict.
   - Promotion order
   - **Promotion Schedule**
6. **Save** the rule.

Promoting multiple groups of items - example

An example of adding two groups of item IDs for promotion.

About this task

If you use multiple groups, each group is promoted for an equal number of targets. In this example, there are two groups. The first target gets promotions from the first group. The second target gets promotions from the second group. This pattern continues for all targets.

Procedure

1. Type the item IDs into the text field.

2. To also promote items ABC123, ABC456, ABC789, for half of the targets, click **Add ID group** and type the item IDs into the next text field.

Results

Item IDs are recommended in the following order: ITEM123, ABC123, ITEM456, ABC456, ITEM789, ABC789

Promoting categories

Use category promotions to place items in specific categories in the recommendation list.

About this task

If you are promoting seasonal items, you can promote items by category and have them placed in the recommendation list, either before or after recommendations generated by the offer.

You also specify the percentage of times that the item is displayed at the beginning of the list and the date range of the promotion.

Procedure

1. Click **Add rule** or open an existing rule to edit.
2. Select **Promote** from the drop-down list.
3. In the text field, specify the category IDs, in parentheses. **The characters in IDs must be entered as all uppercase letters**.

   You can promote only the top-selling items in the category by using double parenthesis.
4. Check the **Apply Exclusionary Rules** check box if you want any already-existing rules that apply to the item to be in effect. If this box is not checked, no already-existing rules affect this promoted item.
5. Set the **Distribution parameters** to
   - You can control the percentage of associated targets for which the promotion applies by setting the distribution percentage. For example, if you specify the Brand A Camera as a promotion for all targets in the Camera department, you might not want to have this item show up on the website as the first recommendation for *every* product in the Camera department. If you set the Frequency Percentage to 25%, then the Brand A Camera is randomly inserted as the first recommendation for only 25% of the targets in the Camera department.
   - You can also control the percentage of associated targets for which the promotion applies by setting the distribution percentage.
   - **Priority level** specifies how those conflicts are handled when multiple promotion rules conflict.
   - Promotion order
   - **Promotion Schedule**
6. **Save** the rule.

Promoting with both item ID and category

Use promotions to place items in specific categories in the recommendation list.

About this task

You also specify the percentage of times that the item is displayed at the beginning of the list and the date range of the promotion.

To set up category promotions:

Procedure

1. Click **Add rule** or open an existing rule to edit.
2. Select **Promote** from the drop-down list.
3. In the text field, specify category IDs in parentheses and items ID without parentheses. **The characters in IDs must be entered as all uppercase letters**.

   You can promote only the top-selling items in the category by using double parenthesis.
4. Check the **Apply Exclusionary Rules** check box if you want any already-existing rules that apply to the item to be in effect. If this box is not checked, no already-existing rules affect this promoted item.
5. Set the **Distribution parameters** to
   - You can control the percentage of associated targets for which the promotion applies by setting the distribution percentage. For example, if you specify the Brand A Camera as a promotion for all targets in the Camera department, you might not want to have this item show up on the website as the first recommendation for *every* product in the Camera department. If you set the Frequency Percentage to 25%, then the Brand A Camera is randomly inserted as the first recommendation for only 25% of the targets in the Camera department.
   - You can also control the percentage of associated targets for which the promotion applies by setting the distribution percentage.
   - **Priority level** specifies how those conflicts are handled when multiple promotion rules conflict.
   - Promotion order
   - **Promotion Schedule**
6. **Save** the rule.

Promoting a list of products using an attribute value

Use an attribute in the EPCMF to specify a list of products to recommend.

Before you begin

This procedure requires an understanding of the EPCMF file. Refer to *The EPCMF* in the *Acoustic Product Recommendations Configuration Guide*.

About this task

Use this feature to promote specific products using an attribute defined in the EPCMF file. This is useful if you want to promote a specific set of accessory products.

Procedure

1. Select an attribute in the EPCMF. In this field, add a list of product IDs you want to recommend. You can specify up to 10 item IDs, separated by the | character. For example: recID1 | recID2 | recID3 | recID4| recID5| recID6| recID7| recID8| recID9| recID10. Set the attribute values as in the following example:

Table 3: Example EPCMF entry					
File Date	**Client ID**	**Item ID**	**Item name**	**Item primary category ID**	**Static attribute 9**
...	...	*target item ID*	*target item name*	...	*recID1 | recID2 | recID3 | recID 4| recID 5| recID 6| recID 7| recID 8| recID 9| recID 10*

2. Upload the EPCMF using Acoustic Digital Analytics Import.
3. From the left navigation, select **Manage** > **Product Offers** > **Attributes**
4. Find the Enterprise Product Static Attributes field that corresponds to the attribute you selected in the previous step (Static attribute 9).
5. Type a name for the product list in the **Alias** field, such as "related products."
6. Identify the data type as **Text**.
7. **Save**.
8. Create an offer or select the offer that you want to work with and open the Rules tab.
9. Click **Add rule** or open an existing rule to edit.
10. Select **Promote** from the drop-down list.
11. Select **Using an attribute** and select the Alias that you defined in this procedure from the list of attributes (related products).
12. Check the **Apply Exclusionary Rules** check box if you want any already-existing rules that apply to the item to be in effect. If this box is not checked, no already-existing rules affect this promoted item.
13. **Save** the rule.

When multiple promotion rules apply to a target

As you develop more business rules, you might find that multiple rules can affect the ordering of your recommendation list.

If you have multiple promotion rules that apply to a target, Digital Recommendations uses the following process to determine which promotion appears in the list:

1. The **Priority level** specified in the rule. Priority level 1 is the highest.
2. Rule type. Individual rules rate higher than shared rules.
3. How the product was added. Promotional products that were added by using the user interface rate higher than products added by using the EPCMF file.
4. Position of promotions relative to recommendations based on affinity. Promotions that are listed before recommendations chosen by affinity are rated higher than promotions that are listed after recommendations chosen by affinity.

Note: If there are still more than one equally ranked promotions, then the higher rating is selected randomly.

Emphasize items

Use emphasis to place designated items at the beginning of the recommendation list.

You have many options to use for emphasizing items.

Related concepts

"The percentage value" on page 34
Use the percentage value for emphasis and de-emphasis rules to recommend only a percentage of the items that match the rule conditions.

"The factor value" on page 34

Use the factor value for emphasis and de-emphasis rules to increase the affinity score of items that match the rules conditions.

Related tasks

"Emphasizing categories" on page 35
You can move items that are contained in one or more categories to the front of the recommendation list.

"Emphasizing specific items" on page 35
You can move one or more specific items to the front of the recommendation list.

"Emphasizing based on the value of an attribute" on page 35
You can move items to the front of the recommendation list by editing the rule criterion.

"Emphasizing by comparing attributes with the target" on page 36
You can move items to the beginning of the recommendation list by evaluating the value of a specified attribute.

The percentage value

Use the percentage value for emphasis and de-emphasis rules to recommend only a percentage of the items that match the rule conditions.

When you are creating emphasis and de-emphasis rules, you have a % of recommendations option. With this option, you can specify the percentage of matching recommendations that are used.

For example, if you want to limit a brand to only 50% of the recommendations, you can use an emphasis rule, but set the condition to Emphasize 50% of recommendations and leave factor empty.

If you do not want to use the percentage to alter the number of recommendations, use 100%.

The factor value

Use the factor value for emphasis and de-emphasis rules to increase the affinity score of items that match the rules conditions.

When you are creating emphasis and de-emphasis rules, you have a factor option. With this option, you can adjust how much emphasis to place on recommendations that match the rule conditions.

As part of the Digital Recommendations process, each recommendation is scored and ranked based on the strength of its affinity to the target.

Using the factor value with emphasis rules
When you use emphasis rules, you can use the factor value to increase the affinity score. The factor value increases how much items are emphasized. For example, if a recommendation has a score of 500 and you use a factor of 2, the new score is 500*2=1000. This can change the rank of the recommendation and move it further to the front of the recommendation list.

Using the factor value with de-emphasis rules
When using de-emphasis rules, you can use the factor value to decrease the affinity score. The factor value increases how much items are de-emphasized. For example, if a recommendation has a score of 500 and you use a factor of 2, the new score is 500 / 2=250. This can change the rank of the recommendation and move it further toward the end of the recommendation list.

When multiple factors affect a target/recommendation pair

There are three scenarios when multiple factors apply to a target recommendation pair.

Multiple emphasis rules
If you are using multiple emphasis rules that use the factor value, and a target/recommendation pair is affected by both rules, the factor values are combined. For example, if a recommendation has a score of 500 and has two factor values that apply: 2 and 3, the resulting factor is 500*2*3= 3000.

Multiple De-emphasis rules
If you are using multiple de-emphasis rules that use the factor value, and a target/recommendation pair is affected by both rules, the factor values are combined. For example, if a recommendation has a score of 500 and has two factor values that apply: 2 and 3, the resulting factor is 500/(2*3)=83.3.

Emphasis and De-emphasis rules

If you are using emphasis and de-emphasis rules that use the factor value, and a target/recommendation pair is affected by both rules, the factor values are combined. For example, if a recommendation has a score of 500 and has 2 factor values that apply: emphasis of 2, de-emphasis of 3, the resulting factor is (500*2)/3=333.3.

The factor value that is required to change the rank of a recommendation is different for every offer, so you need to try multiple factors to get specific results.

Emphasizing categories

You can move items that are contained in one or more categories to the front of the recommendation list.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **Emphasize**. Set **%** to 100 and leave **factor** blank. See "The percentage value" on page 34 and "The factor value" on page 34 for information on other ways to use these values.
5. Drag the **Category** building block to the left. Refer to "Build rule queries" on page 28
6. Define the category in the **Category** building block.
7. **Save** the rule.

Emphasizing specific items

You can move one or more specific items to the front of the recommendation list.

About this task

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **Emphasize**. Set **%** to 100 and leave **factor** blank. See "The percentage value" on page 34 and "The factor value" on page 34 for information on other ways to use these values.
5. Drag the Product ID Page ID or Element ID building block.
6. In the Edit Rule Criterion dialog, select **is in the following list**, type a description, then type one or more item IDs, separated by commas.
7. **Save** the rule.

Emphasizing based on the value of an attribute

You can move items to the front of the recommendation list by editing the rule criterion.

About this task

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27

4. Select **Emphasize**. Select **Emphasize**. Set **%** to 100 and **factor** to 1. See "The percentage value" on page 34 and "The factor value" on page 34 for information on other ways to use these values.
5. Drag the attribute that you want to exclude building block.
6. In the **Edit Rule Criterion** dialog, select **contains**, and type the value on which you want to evaluate the attribute.
7. **Save** the rule.

Emphasizing by comparing attributes with the target

You can move items to the beginning of the recommendation list by evaluating the value of a specified attribute.

About this task

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **Emphasize**. Set **%** to 100 and leave **factor** blank. See "The percentage value" on page 34 and "The factor value" on page 34 for information on other ways to use these values.
5. Drag the attribute building block that you want to emphasize.
6. Enable the **Compare to target** option.
7. In the Edit Rule Criterion dialog, select **contains**, and type the value on which you want to evaluate the attribute and click **Apply**.
8. **Save** the rule.

Emphasizing items that match a higher recommendation's selected attribute

You can compare a recommendation with another recommendation that is delivered within the same zone.

About this task

If a lower-ranked recommendation has one or more of the same attributes as a higher-ranked recommendation, the lower-ranked recommendation is moved to the end of the recommendation list.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **Emphasize similar**.
5. Drag the attribute building block that you want to compare.
6. **Save** the rule.

De-emphasize items

You can use de-emphasis to place designated items at the end of the recommendation list that is generated by the cross-sell algorithm that is defined in the offer.

You have many options to use for de-emphasizing items.

Related concepts

“The percentage value” on page 34
Use the percentage value for emphasis and de-emphasis rules to recommend only a percentage of the items that match the rule conditions.

“The factor value” on page 34
Use the factor value for emphasis and de-emphasis rules to increase the affinity score of items that match the rules conditions.

Related tasks

“De-emphasizing categories” on page 38
You can move items that are contained in one or more categories to the back of the recommendation list.

“De-emphasizing specific items from recommendation” on page 38
You can de-emphasize one or more specific items from the recommendation list.

“De-emphasizing based on the value of an attribute” on page 39
You can move items to the end of the recommendation list by evaluating the value of a specified attribute.

“De-emphasizing by comparing attributes with the target” on page 39
You can move items to the end of the recommendation list by evaluating the value of a specified attribute.

“De-emphasizing items that match a higher recommendation's selected attribute” on page 39
You can compare a recommendation with another recommendation that is delivered within the same zone.

The factor value

Use the factor value for emphasis and de-emphasis rules to increase the affinity score of items that match the rules conditions.

When you are creating emphasis and de-emphasis rules, you have a factor option. With this option, you can adjust how much emphasis to place on recommendations that match the rule conditions.

As part of the Digital Recommendations process, each recommendation is scored and ranked based on the strength of its affinity to the target.

Using the factor value with emphasis rules
: When you use emphasis rules, you can use the factor value to increase the affinity score. The factor value increases how much items are emphasized. For example, if a recommendation has a score of 500 and you use a factor of 2, the new score is 500*2=1000. This can change the rank of the recommendation and move it further to the front of the recommendation list.

Using the factor value with de-emphasis rules
: When using de-emphasis rules, you can use the factor value to decrease the affinity score. The factor value increases how much items are de-emphasized. For example, if a recommendation has a score of 500 and you use a factor of 2, the new score is 500 / 2=250. This can change the rank of the recommendation and move it further toward the end of the recommendation list.

When multiple factors affect a target/recommendation pair

There are three scenarios when multiple factors apply to a target recommendation pair.

Multiple emphasis rules
: If you are using multiple emphasis rules that use the factor value, and a target/recommendation pair is affected by both rules, the factor values are combined. For example, if a recommendation has a score of 500 and has two factor values that apply: 2 and 3, the resulting factor is 500*2*3= 3000.

Multiple De-emphasis rules
: If you are using multiple de-emphasis rules that use the factor value, and a target/recommendation pair is affected by both rules, the factor values are combined. For example, if a recommendation has a score of 500 and has two factor values that apply: 2 and 3, the resulting factor is 500/(2*3)=83.3.

Emphasis and De-emphasis rules
: If you are using emphasis and de-emphasis rules that use the factor value, and a target/recommendation pair is affected by both rules, the factor values are combined. For example, if a

recommendation has a score of 500 and has 2 factor values that apply: emphasis of 2, de-emphasis of 3, the resulting factor is (500*2)/3=333.3.

The factor value that is required to change the rank of a recommendation is different for every offer, so you need to try multiple factors to get specific results.

The percentage value

Use the percentage value for emphasis and de-emphasis rules to recommend only a percentage of the items that match the rule conditions.

When you are creating emphasis and de-emphasis rules, you have a % of recommendations option. With this option, you can specify the percentage of matching recommendations that are used.

For example, if you want to limit a brand to only 50% of the recommendations, you can use an emphasis rule, but set the condition to Emphasize 50% of recommendations and leave factor empty.

If you do not want to use the percentage to alter the number of recommendations, use 100%.

De-emphasizing categories

You can move items that are contained in one or more categories to the back of the recommendation list.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **De-emphasize**. Set **%** to 100 and leave **factor** blank. See "The percentage value" on page 34 and "The factor value" on page 34 for information on other ways to use these values.
5. Drag the **Category** building block to the left. Refer to "Build rule queries" on page 28
6. Define the category in the **Category** building block.
7. **Save** the rule.

De-emphasizing specific items from recommendation

You can de-emphasize one or more specific items from the recommendation list.

About this task

This rule type excludes items from being recommended; it does not exclude them from becoming targets for the offer.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **De-emphasize**. Set **%** to 100 and leave **factor** blank. See "The percentage value" on page 34 and "The factor value" on page 34 for information on other ways to use these values.
5. Drag the Product ID Page ID or Element ID building block.
6. In the Edit Rule Criterion dialog, select **is in the following list**, type a description, then type one or more item IDs, separated by commas.

   To de-emphasize items that are NOT in the specified list, select **is not in the following list**
7. **Save** the rule.

De-emphasizing based on the value of an attribute

You can move items to the end of the recommendation list by evaluating the value of a specified attribute.

About this task

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **De-emphasize**. Set **%** to 100 and **factor** to 1. See "The percentage value" on page 34 and "The factor value" on page 34 for information on other ways to use these values.
5. Drag the attribute that you want to exclude building block.
6. In the **Edit Rule Criterion** dialog, select **contains**, and type the value on which you want to evaluate the attribute.
7. **Save** the rule.

De-emphasizing by comparing attributes with the target

You can move items to the end of the recommendation list by evaluating the value of a specified attribute.

About this task

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **De-emphasize**. Set **%** to 100 and leave **factor** blank. See "The percentage value" on page 34 and "The factor value" on page 34 for information on other ways to use these values.
5. Drag the attribute that you want to exclude building block.
6. Enable the **Compare to target** option.
7. In the **Edit Rule Criterion** dialog, select **contains**, and type the value on which you want to evaluate the attribute and click **Apply**.
8. **Save** the rule.

De-emphasizing items that match a higher recommendation's selected attribute

You can compare a recommendation with another recommendation that is delivered within the same zone.

About this task

If a lower-ranked recommendation has one or more of the same attributes as a higher-ranked recommendation, the lower-ranked recommendation is moved to the end of the recommendation list.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions.
4. Select **De-emphasize similar**.
5. Drag the attribute building block that you want to compare.

If you cannot drag an attribute building block, the attribute might not be enabled.

6. **Save** the rule.

Enabling attributes that have similar rules for de-emphasis

Attributes that are available for de-emphasis by similar rules must be configured. If you cannot drag an attribute building block after you create a de-emphasis by a similar rule, use this procedure to make that attribute building block available.

Procedure

1. In the side navigation, select **Manage** > **Offer Configuration**.
2. In the **Attributes to include in Offer Response** section, move the attribute from **Available** to **Selected**.

When multiple de-emphasis rules apply to recommendations

As you develop more business rules, you might find that multiple rules can affect the ordering of your recommendation list.

For example, if you have an offer that generates four recommendations: A, B, C, D and you have a rule that de-emphasizes recommendations A, C, and D, the new order of the list is B, A, C, D. If you have a second rule that de-emphasizes recommendations A and C, then the order is B, D, A, C.

This reordering can happen any time there is a combination of de-emphasis rules, that include the following rule types:

- De-emphasize by category
- De-emphasize specific items
- De-emphasize based on the value of an attribute
- De-emphasize by comparing attributes with the target

Note: Rules that use de-emphasize do not further de-emphasize items in a recommendation list. An example of this type of rule is "De-emphasizing items that match the selected attribute of a higher ranked recommendation" on page 64

Exclude items

You can use an exclude rule to remove items from the recommendation list that are generated by the cross-sell algorithm that is defined in the offer.

You have many options to use for exclude rules.

Related tasks

"Excluding categories from recommendation" on page 41
You can exclude items that are contained in one or more categories from the recommendation list.

"Excluding specific items from recommendation" on page 41
You can exclude one or more specific items from the recommendation list.

"Excluding based on the value of an attribute" on page 41
Exclude items from the recommendation list by evaluating the value of a specified attribute.

"Excluding by comparing attributes with the target" on page 42
Exclude items from the recommendation list by evaluating the value of a specified attribute.

"Excluding all recommendations for a target" on page 42

You can create a rule that produces no recommendations for an item or category.

Excluding categories from recommendation

You can exclude items that are contained in one or more categories from the recommendation list.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **Exclude**.
5. Build the rule query to match the recommendations to exclude. Refer to "Build rule queries" on page 28
6. **Save** the rule.

Excluding specific items from recommendation

You can exclude one or more specific items from the recommendation list.

About this task

Note: This rule type excludes items from being recommended; it does not exclude them from becoming targets for the offer.

It is also possible to exclude all items that are NOT in the provided list. This feature is intended for print catalogs or call center recommendations where the recommendations must include only items in a specified list. Excluding items not in the provided list can enable cross-sells in the catalog itself and allow call center representatives to offer recommendations that are constrained to the specific print catalog that the caller has in hand.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **Exclude**.
5. Drag the Product ID Page ID or Element IDbuilding block.
6. In the Edit Rule Criterion dialog, select **is in the following list**, type a description, then type one or more item IDs, separated by commas.

   To exclude items that are NOT in the specified list, select **is not in the following list**
7. **Save** the rule.

Excluding based on the value of an attribute

Exclude items from the recommendation list by evaluating the value of a specified attribute.

About this task

This rule type excludes items from being recommended; it does not exclude them from becoming targets for the offer.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.

3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **Exclude**.
5. Drag the attribute that you want to exclude building block.
6. In the Edit Rule Criterion dialog, select **contains**, and type the value on which you want to evaluate the attribute.
7. Click **Apply**.
8. **Save** the rule.

Excluding by comparing attributes with the target

Exclude items from the recommendation list by evaluating the value of a specified attribute.

About this task

This rule type excludes items from being recommended; it does not exclude them from becoming targets for the offer.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **All Targets**, or limit the targets with a set of conditions. See "Defining conditions to select rule targets" on page 27
4. Select **Exclude**.
5. Drag the attribute that you want to exclude building block.
6. Enable the **Compare to target** option.
7. In the Edit Rule Criterion dialog, select **contains** for a text attribute such as brand or item name or **[=]equals** for a numeric attribute such as price or inventory.
8. Type the value on which you want to evaluate the attribute and click **Apply**.
9. **Save** the rule.

Excluding all recommendations for a target

You can create a rule that produces no recommendations for an item or category.

About this task

Excluding all recommendations can be useful for warranty products or gift cards, where it does not make sense to recommend specific products.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. Select to apply the rule to **Targets matching the following condition**.
4. Create a condition to identify the item for which you do not want recommendations that are generated. See "Defining conditions to select rule targets" on page 27
5. Select **Exclude All**.
6. **Save** the rule.

Blacklisting an item

You can create a blacklist rule when it is necessary to remove items from recommendations immediately.

About this task

A blacklist rule prevents a specified list of IDs from displaying as recommendations in all zones within approximately 1 hour of publishing the blacklist. The blacklist rule is intended to be used only in urgent situations where it is determined that an item must be removed from recommendations immediately. A blacklist exclusion remains until the item is removed from the blacklist rule. To exclude items from only one zone or offer rather than all zones, go to the rules interface of Digital Recommendations and create a list exclusion rule for these items. A list exclusion must be created for each active offer.

Note: If you do not have permissions to edit offers, you cannot use the Recommendation Blacklist function.

To create a blacklist rule:

Procedure

1. Determine the IDs to add to the blacklist rule.
2. Navigate to the **Manage** > **Recommendation Blacklist** page.
3. Enter the IDs in the list box. Use all uppercase letters. Click **Save**.
4. Perform a Publish Configuration Change to complete the blacklist update. For more information, see "Publishing configuration changes" on page 49 for more information.

Removing an item from the blacklist

You can remove the item from the blacklist to make the item available for recommendation.

About this task

To make an item available for recommendation, follow these steps:

Procedure

1. Determine the IDs to remove from the blacklist.
2. Navigate to the **Manage** > **Recommendation Blacklist** page.
3. Remove the IDs from the list box.
4. Click **Save**.
5. Perform a Publish Configuration Change to complete the blacklist update. For more information, see "Publishing configuration changes" on page 49.

Example business rules

Use these examples as models for creating your own rules or use them to better understand how to create rules

The following are some example business rules. To demonstrate the use of rule queries, the target on this first set of rules is **All Targets**.

Table 4: Example Business Rules for Products - All Targets			
Example	**Procedure to use**	**Apply this rule to**	**Rule Details**
1. You include a warranty with every product, but do not sell the warranties separately. Therefore, you never want warranties to appear as recommendations.	"Excluding categories from recommendation" on page 41	All targets	Exclude > Category >select Category is >select the Warranty category
2. You want to promote a larger variety of products, so you do not want to include recommendations within the same category level of the target product.	"Excluding categories from recommendation" on page 41	All targets	Exclude>Category >select The top 1 parent categories that are the same as the target's top parent category
3. You include a free product with every order and do not want this product to appear as a recommendation.	"Excluding specific items from recommendation" on page 41	All targets	Exclude > Product ID > Product ID is in the following list >Add the free product ID to the list
4. You have a top selling product that does not need to be recommended.	"Excluding specific items from recommendation" on page 41	All targets	Exclude> Product ID > Product ID is in the following list >Add the top selling product ID to the list
5. You do not want to recommend products with inventory fewer than 10 units.	"Excluding based on the value of an attribute" on page 41	All targets	Exclude>Inventory > Inventory [<] is less than 10
6. You want only to recommend products with a different brand name than the target product.	"Excluding based on the value of an attribute" on page 41	All targets	Exclude> Brand > Brand is *X*
7. You want only to recommend products of the same brand as the target product.	"Excluding based on the value of an attribute" on page 41	All targets	Exclude > Brand > Brand is not *X*
8. You do not want to recommend products with a price less than $5.	"De-emphasizing based on the value of an attribute" on page 39	All targets	Exclude > Price > Price [<] is less than 5
9. You sell gift cards (product ID *005531*), but you want only to recommend them if there are no other recommendations.	"De-emphasizing specific items from recommendation" on page 38	All targets	De-emphasize > Product ID > Product ID is in the following list *gift card product ID*

Table 4: Example Business Rules for Products - All Targets (continued)			
Example	**Procedure to use**	**Apply this rule to**	**Rule Details**
10. You want products with inventory fewer than 20 units to appear at the end of the recommendation list.	"De-emphasizing based on the value of an attribute" on page 39	All targets	De-emphasize >Inventory >Inventory [<] is less than 20
11. You want products with a price less than $10 to appear at the end of the recommendation list.	"De-emphasizing based on the value of an attribute" on page 39	All targets	De-emphasize >Price > Price [<] is less than 10
12. You want products on clearance to be at the end of the recommendation list.	"De-emphasizing based on the value of an attribute" on page 39	All targets	De-emphasize >Sale (attribute) > Sale is Clearance
13. You want products of the same brand as the target product to be included as recommendation, but only at the end of the recommendation list.	"De-emphasizing by comparing attributes with the target" on page 39	All targets	De-emphasize by similar > Brand is the same
14. You want to promote products across multiple categories. If a recommendation is in the same category as a higher-ranked recommendation, you want to move it to the end of the recommendation list.	"De-emphasizing by comparing attributes with the target" on page 39	All targets	De-emphasize by similar > Category is the same
15. You want to promote products across multiple brands. If a recommendation has the same brand name of a higher-ranked recommendation, you want to move it to the end of the recommendation list.	"De-emphasizing by comparing attributes with the target" on page 39	All targets	De-emphasize by similar > Brand is the same
16. For camera products, you want products of the same brand higher on the recommendation list.	"Emphasizing items that match a higher recommendation's selected attribute" on page 36	All targets	Emphasize 100% of products by a factor of 1 where: > Brand > Compare to target > is the same as the target's brand

Table 4: Example Business Rules for Products - All Targets (continued)			
Example	**Procedure to use**	**Apply this rule to**	**Rule Details**
17. You want to emphasize a specific brand (Brand X) in a recommendation list but, you want a maximum of 50% of recommendations to be from that brand.	"Emphasizing based on the value of an attribute" on page 35 "The percentage value" on page 34	All targets	Emphasize 50% of products by a factor of 1 where: > Brand > is Brand X
18. You want to emphasize clearance items and you want them to appear closer to the front of the recommendation list.	"Emphasizing based on the value of an attribute" on page 35 "The factor value" on page 34	All targets	Emphasize 100% of products by a factor of 2 where: > Sale is Clearance

Table 5: Example Business Rules for Products - All Targets			
Example	**Procedure to use**	**Apply this rule to**	**Rule Details**
You have excess inventory of a product and need to generate more sales. You want the product to appear as a recommendation for All products.	"Promoting specific products" on page 29	All targets	Promote specific items>By specified ID>add a list of IDs to promote

Following are some additional example business rules that use a combination of **Rule Target**, **Rule Type**, and **Rule Class**.

Table 6: Example Business Rules for Products - Other Targets			
Example	**Procedure to Use**	**Apply this rule to**	**Rule type and building blocks**
19. You sell gift cards, but do not want recommendations that are generated on the product view page for the gift card.	"Defining conditions to select rule targets" on page 27 "Excluding all recommendations for a target" on page 42	Targets matching the following conditions > Product ID > *gift card product ID*	Exclude All
20. For target products with a price less than $10, recommend only products that are also less than $10.	"Defining conditions to select rule targets" on page 27 "Excluding based on the value of an attribute" on page 41	Targets matching the following conditions > Price > Price [<] is less than 10	Exclude > Exclude recommendations where: > Price [>] is greater than 10

Table 6: Example Business Rules for Products - Other Targets (continued)			
Example	**Procedure to Use**	**Apply this rule to**	**Rule type and building blocks**
21. For target products over $200, you do no want to recommend products with a price less (60%) than the target.	"Defining conditions to select rule targets" on page 27 "Excluding based on the value of an attribute" on page 41	Targets matching the following conditions > Price > Price [>] is greater than 200	Exclude > Exclude recommendations where: > Price [<] is less than 120
22. For the Camera product ID 008221, you want to recommend only products of Brand X.	"Defining conditions to select rule targets" on page 27 "Promoting specific products" on page 29	Targets matching the following condition > Product ID > *008221*	Exclude > Exclude recommendations where: > Brand is not Brand X.

Table 7: Example Business Rules for Products - Other Targets			
Example	**Procedure to Use**	**Apply this rule to**	**Rule type and building blocks**
You have a new camera that you want to promote for any target product in the Camera category. This promotion lasts 90 days.	"Defining conditions to select rule targets" on page 27 "Promoting categories" on page 31	Targets matching the following conditions > Category > Category is *Camera category ID*	Promote > By specified IDs > *product ID of the new camera* > Promotion schedule > Specified date range > start and end date of the 90-day sale period
You want a category of products that has a lower profit margin (Category name is *Dollar*) to appear only at the end of the recommendation list.	"Defining conditions to select rule targets" on page 27 "Excluding based on the value of an attribute" on page 41	Targets matching the following condition > Categories >*Dollar*	De-emphasize 100% of recommendations by a factor of 1 where:> Profit margin > Profit margin[<] is less than 5

Viewing the effect of rules on the offer

After you activate an offer and the offer processes one time, you can view the effect of the rules that you created by viewing the rule statistics. Rule statistics can assist you in troubleshooting and in improving your rules processes.

Procedure

1. Ensure that the offer you for which want to view the statistics for is active.
2. Select the offer to view rules statistics for.
3. Click the **Rules Statistics** tab to view the number of items that are excluded, de-emphasized, emphasized, or promoted by each rule you created.

Description of the rule statistics view

You can view how rules affected the offer results. You can also open the individual rules.

Initial Targets
The number of targets that are generated for the offer.

Final Targets
The number of targets that produced recommendations after any target rules apply.

Rules
The number of rules that are active for the offer.

Initial Recommendations Candidates
Candidates for recommendation before any rules are applied. The **Avg / Target** value is the average number of recommendations that are generated for the **Initial Targets**.

Excluded by EPCMF settings
The number and percentage of candidates that were removed because they were not in the most recent EPCMF file. These exclusions can occur if you recently updated your EPCMF and some items were removed.

Excluded by Invalid Metrics
The number and percentage of candidates that were excluded because a numeric attribute contained an invalid numeric value. These exclusions occur if a column such as quantity has a non-numeric value.

Excluded by Rules
The number and percentage of candidates that were excluded by all exclusion rules in the offer. In the lower part of the screen, you can view a summary and a link to the rules that impacted the offer.

Emphasized
The number and percentage of candidates that were emphasized by all emphasis rules in the offer. In the lower part of the screen, you can view a summary and a link to the rules that impacted the offer.

De-emphasized
The number and percentage of candidates that were de-emphasized by all de-emphasis rules in the offer. In the lower part of the screen, you can view a summary and a link to the rules that impacted the offer.

Promotion Added
The number and percentage of candidates that were promoted by all promotion rules in the offer. In the lower part of the screen, you can view a summary and a link to the rules that impacted the offer.

Fallbacks Added
The number and percentage of candidates that were added because the Enable Recommendation Fallback option was selected as part of the offer settings. If a fallback is added and later removed by an exclusion rule, that fallback is not included in the **Fallbacks Added** statistics.

Final Recommendations
The number of recommendations that are generated after all rules are applied. The **Avg / Target** value is the average number of recommendations that are generated for the **Final Targets**.

Flagging rules that exclude too many candidates

When you create rules, there is a risk of eliminating too many recommendation candidates. You can flag rules that eliminate too many recommendations.

Procedure

1. Open the Rules Statistics tab in the offer.
2. Set the Flag rules that eliminate more than *x*% of recommendations parameter with the slider.

   The default is 50%.

Results
If the number of recommendations that are excluded exceeds the threshold that you set, the % value in the rule appears read and a red circle in the heading bar of the rule.

Testing rule variations

You can use test rules to create variations of a rule and compare output results.

Test rules allow you to create alternatives to rules that are already created. This enables you to make variations to the rule and compare the output. If you find an alternative rule that gives better results, you can convert it to a live rule.

Test rules do not run in production. However, if the offer that you are testing rule variations for has run at least once, you can see the affect that a test rule has using the Preview function. In the Preview function, the name of the test rule is displayed for any recommendation that was affected by the test rule.

Creating a test rule

You can create a test rule to compare alternate rule configurations.

About this task
You can only create one test rule for each rule in the offer.

Procedure

1. Navigate to the offer that you want to create a test rule for.
2. Click the **Rules** tab.
3. Identify the rule that you want to use as the basis for the test rule.
4. In the **Action** column, click the **Create Test Rule** icon.

   A new rule is created with the name Test*<rule>* where *<rule>* is the name of the rule you created the test rule from.
5. Click the test rule name.
6. Make the changes to the test rule that you want to compare with the original rule.

Converting a test rule to a real rule

If you prefer the results you get from your test rule, you can replace the original rule with the test rule.

About this task
If you convert your test rule to a real rule, the test rule details replace the real rule details and the test version is deleted.

Procedure

1. Navigate to the offer for which you want to convert a test rule in.
2. Click the **Rules** tab.
3. Identify the rule that you want to convert.
4. In the **Action** column, click the **Promote to Real Rule** icon.

Publishing configuration changes

You can change and publish configurations if adjustments are needed.

About this task

The following are examples of needing to change configurations:

- A/B test settings - The results of an A/B test are not going well. The A/B test must be stopped immediately.
- Zone settings - You must see four recommendations on the page instead of three.
- Recommendation plans - You must change a step in a recommendation plan.

In the preceding cases, after you complete the change, do the following steps:

Procedure

1. Select **System Overview**.
2. Click **Publish Configuration Changes**.

Results

The system publishes the changes and the changes go into effect in approximately 1 or 2 hours.

Note: This procedure does not update business rules.

Configure business rules policies for offers by using the new rules interface

Business rule policy defines what offer processing does when it applies a rule that evaluates an attribute but an item does not have a value or has an invalid value for that attribute.

During the early stages of your implementation, your EPCMF is configured for regular data uploads. Part of that configuration was determining what to do when a product does not have a value for an attribute that a rule is trying to evaluate.

For example, if you have a brand rule in place, whether the omission of brand data causes an item to be excluded from or included in the recommendation list depends on your data and the criteria for your rules. Perhaps you have a house brand that is indicated by a null value in the Brand attribute. In such a case, if you specify that a null value equals true, the brand rule excludes your house brand in the recommendation list. If you specify that a null value equals false, the brand rule includes your house brand along with all other non-matching brands.

Your administrator implemented rules during the preliminary data upload stages of your Digital Recommendations implementation and configured business rule policies in the Offer Configuration settings (**Manage > Offer Configuration**). See also "Configure business rules policies for offers by using the legacy rules interface" on page 70.

More considerations:

- The business rule policy is global for all rules and cannot be specified by rule set or by an individual rule.
- To minimize over eliminating recommended items because they have missing data, scope the business rules so they affect only the specific set of targets for which the rule applies. For example, suppose that you have a set of items, in the electronics category, to be excluded from recommendations that are based on the weight of the product. When you define the target for this rule, define the rule targets so that they apply only to targets in the electronics category. This practice prevents the rule system from processing this rule across the entire catalog and constrains exclusions that are based on missing data to the electronics department only.

Creating a null value policy for evaluating items against a rule

When you use the new rules interface, use this procedure to create a policy for evaluating items against a rule when those items have a null value.

Procedure

1. Click **Manage** on the side navigation menu.
2. Select **Attributes** under **Product Offers**.
3. Perform one of these actions:

- If you are configuring page content offers, select **Page Attributes** under **Content Offers**.
- If you are configuring element content offers, select **Element Attributes** under **Content Offers**.

4. For **Attribute Behavior in Rules Processing** select one of these options under **When comparing an attribute that has no value to a value entered on a rule**:
   - Treat the comparison as True. If you select this option, when attributes with no value are evaluated against a rule, the comparison is treated as if it matches the rule.
   - Treat the comparison as False. If you select this option, when attributes with no value are evaluated against a rule, the comparison is treated as if it does not match the rule.

Creating a null value policy for comparing recommendations to the target

When you use the new rules interface, use this procedure to create a policy for comparing an attribute value between a recommendation and the target.

Procedure

1. Click **Manage** on the side navigation menu.
2. Select **Attributes** under **Product Offers**.
3. Perform one of these actions:
   - If you are configuring page content offers, select **Page Attributes** under **Content Offers**.
   - If you are configuring element content offers, select **Element Attributes** under **Content Offers**.
4. For **Attribute Behavior in Rules Processing** select one of these options under **When comparing a recommendation attribute to a target attribute, and either attribute has no value or both attributes have no value**:
   - Treat the comparison as True. If you select this option, all cases where an attribute has no value, the comparison is treated as if the two values match.
   - Treat the comparison as False. If you select this option, all cases where an attribute has no value, the comparison is treated as if the two values do not match.

Creating an invalid attribute policy

For offers that use the new rule interface, you have 3 options for protection against invalid or malformed attributes.

About this task

A common example of an invalid attribute is a nonnumeric value in a numeric field.

Procedure

1. Click **Manage** on the side navigation menu.
2. Select **Attributes** under **Product Offers**.
3. Perform one of these actions:
   - If you are configuring page content offers, select **Page Attributes** under **Content Offers**.
   - If you are configuring element content offers, select **Element Attributes** under **Content Offers**.
4. For **Attribute Behavior in Rules Processing** select one of these options under **When a numeric attribute has an invalid value**:
   - Do not generate any recommendations for the offer, force correction of the value before you continue. If you select this option, no offers are run until the attributes are corrected.
   - Treat the value as if it has no value and use the preceding comparison settings. If you select this option, the invalid value is treated as null and evaluated based on the policies for null values. Refer to “Creating a null value policy for evaluating items against a rule” on page 50 and “Creating a null value policy for comparing recommendations to the target” on page 51

- Do not include the item with the invalid value in the attribute. Select this option to not recommend the item with the invalid value.

Field definitions for attributes and more settings

Reference information for Attributes and More Settings.

*Table 8: Reference information for **Offer Configuration** > **Product Offers** > **Attributes***

Field	Description
Attribute	Name of the attribute. This value is defined in the EPCMF.
Alias	Common name that is associated with the attribute. This value is defined in the EPCMF.
Data Type	Indicates the type of data that describes the alias. This value is defined in the EPCMF.
Default Value	The value that the batch data process provides if items in the data file being processed do not have a value that is specified for this attribute.
Attribute Prefix	In most cases, the attribute prefix is the value that is added to the beginning of the attribute value when it is included in response data. For attributes designated in the Special Values as URLs for image-based recommendations, this value is used to construct URLs at run time.
Attribute containing Image URL	Supports the image-based recommendation feature and picture view for previews. The attribute that provides the URL of a product's thumbnail image.
Attribute containing Product URL	Supports the image-based recommendation feature. The attribute that provides the URL of the item's main page on your website.
Use alternative prefix for images in image recommendations	Enable if you want to use a different prefix for image recommendations. Type the prefix in the text box.
If any attribute used in a rule has no value and a default was not specified	These options designate how to interpret items with null values for attributes that are evaluated by business rules. If you select TRUE, then an item with a null value for the attribute that is being considered is excluded in the recommendation list. If you select FALSE, it is included.
If any attribute used in a rule contains an invalid value in a comparison	These options designate what offer processing does with invalid attributes. Offer processing can either use the default value (if one is specified) or it can stop processing and display an error message.
Available	A list of all the attributes that can be used in the HTTP response data for a recommendation list that is to be displayed in a site zone on your website.
Selected	The attributes that are included in the HTTP response.

*Table 9: Reference information for **Offer Configuration** > **Product Offers** > **More Settings***

Field	Description
Age of Data (session)	Click **Add time range** to add a time range for session-related data. The age of the data, in days, that is weighted by the value that is specified in the **Affinity Weight** field. For example, if you specify 3, then data older than three days old has the affinity weight specified.

*Table 9: Reference information for **Offer Configuration** > **Product Offers** > **More Settings** (continued)*	
Field	**Description**
Affinity weight (session)	The value, as a percentage, is applied to the data that meets the value that is specified in the **Age of Data** field.
Age of Data (buy-to-buy)	Click **Add time range** to add a time range for buy-to-buy data. The age of the data, in days, that is weighted by the value that is specified in the **Affinity Weight** field. For example, if you specify 3, then data older than three days old has the affinity weight specified.
Affinity weight (buy-to-buy)	The value, as a percentage, that is applied to the purchases that occur in the time period that is specified by the Days between events field.
File format	The following format options are available for your output files: • Tabular: Formats the data so that each row represents a single target and has as many columns as there are recommendations. • Serial: Formats the data so that each row represents a recommendation. With this format, each target has multiple rows (one for each recommendation).
Rank Type	The following values are used to indicate the priority of a recommendation: • Score - the affinity score that is calculated for the recommendation • Rank - the item's position in the recommendation list. That is, the item with the highest affinity score has the rank of 1.
Include file headers	For tabular files only. Indicates whether you want to include in the output the comments and metadata that describe the contents of the file. The value that you select depends on the data processing mechanism that uses the output files. Some mechanisms can strip out the header and others cannot. If your process cannot strip out the header, clear this option to suppress the file header.

*Table 10: Reference information for **Offer Configuration** > **Content Offers** > **Page View Attributes***	
Field	**Description**
Attribute	Name of the attribute.
Alias	Common name that is associated with the attribute.
Data Type	Indicates the type of data that describes the alias.
Default Value	The value that the batch data process provides if items in the data file being processed do not have a value that is specified for this attribute.
Attribute Prefix	In most cases, the attribute prefix is the value that is added to the beginning of the attribute value when it is included in response data. For attributes designated in the Special Values as URLs for picture views for previews, this value is used to construct URLs at run time.
Attribute containing Image URL	Supports the picture view for previews. The attribute that provides the URL of an item's thumbnail image.
If any attribute used in a rule has no value and a default was not specified	These options designate how to interpret items with null values for attributes that are evaluated by business rules. If you select TRUE, then an item with a null value for the attribute that is being considered is excluded in the recommendation list. If you select FALSE, it is included.

Table 10: Reference information for ***Offer Configuration*** > ***Content Offers*** > ***Page View Attributes*** (continued)	
Field	**Description**
If any attribute used in a rule contains an invalid value in a comparison	These options designate what offer processing does with invalid attributes. Offer processing can either use the default value (if one is specified) or it can stop processing and display an error message.
Available	A list of all the attributes that can be used in the HTTP response data for a recommendation list that is to be displayed in a site zone on your website.
Selected	The attributes that are included in the HTTP response.

Table 11: Reference information for ***Offer Configuration*** > ***Content Offers*** > ***Element Attributes***	
Field	**Description**
Attribute	Name of the attribute.
Alias	Common name that is associated with the attribute.
Data Type	Indicates the type of data that describes the alias.
Default Value	The value that the batch data process provides if items in the data file being processed do not have a value that is specified for this attribute.
Attribute Prefix	In most cases, the attribute prefix is the value that is added to the beginning of the attribute value when it is included in response data. For attributes designated in the Special Values as URLs for picture view for previews, this value is used to construct URLs at run time.
Attribute containing Image URL	Supports the picture view for previews. The attribute that provides the URL of an item's thumbnail image.
Attribute containing Content Page URL	The attribute that provides the URL of the content page on your website.
If any attribute used in a rule has no value and a default was not specified	These options designate how to interpret items with null values for attributes that are evaluated by business rules. If you select TRUE, then an item with a null value for the attribute that is being considered is excluded in the recommendation list. If you select FALSE, it is included.
If any attribute used in a rule contains an invalid value in a comparison	These options designate what offer processing does with invalid attributes. Offer processing can either use the default value (if one is specified) or it can stop processing and display an error message.
Available	A list of all the attributes that can be used in the HTTP response data for a recommendation list that is to be displayed in a site zone on your website.
Selected	The attributes that are included in the HTTP response.

Table 12: Reference information for ***Offer Configuration*** > ***Content Offers*** > ***More Settings***	
Field	**Description**
Age of Data	Click **Add time range** to add a time range for session-related data. The age of the data, in day, that is weighted by the value that is specified in the **Affinity Weight** field. For example, if you specify 3, then data older than three days old has the affinity weight specified.
Affinity weight	The value, as a percentage, is applied to the data that meets the value that is specified in the **Age of Data** field.

Field	Description
Pages to exclude from targets or recommendations in Page Content offers	Add the pages that you do not want to appear in recommendations. You can exclude pages that you never want to recommend from a content page, such as a home page or search results page.
Categories of elements to be included as targets or recommendations in Element Content offers	Add the element types that you want to include as targets for element content offers. Categories can include PDF downloads, video views, and other element-tagged specific content. If left blank, all element types are used.

*Table 12: Reference information for **Offer Configuration** > **Content Offers** > **More Settings** (continued)*

The impact of deprecated categories on rules

During recommendation processing, if a rule is found to have deprecated categories, then the rules is not applied/included in the offer processing. It is excluded and an exception is added to the rule errors table. All remaining rules that are valid, are applied to the offer and the offer is processed.

A category is deprecated if it is removed from the ECDF or if it changes location in the category hierarchy. If rules are based on a deprecated category, it can cause that rule to fail.

When Digital Recommendations encounters a rule that refers to a deprecated category, it ignores the rule but continue to process subsequent rules. This process ensures that the offer continues to generate recommendations.

Digital Recommendations also provides multiple methods of notifying you of any errors that occur due to deprecated categories.

- Digital Recommendations writes the recommendation files in the SFTP job. If an offer is found to have rules with deprecated categories, an email is generated for each offer. Anyone that is listed in the email contact list for the offer receives the email. The email contains information about which rules have errors along with the deprecated categories present in those rules.
- In the user interface, the rules that contain errors due to deprecated categories are marked with a warning icon. The warning icon also contains tooltips, which identify the rules in error.

When you are notified of an error due to deprecated categories, you will need to correct the rules in error so the next recommendation run can apply the corrected rules to the offer.

Apply business rules to offers by using the legacy rules interface

If your offers need to be fine-tuned to include, exclude, promote, or de-emphasize products, use business rules.

For example:

- Use category rules to prevent men's products from appearing in the women's department.
- Use inventory rules to prevent recommending out-of-stock items.
- Use price rules to facilitate up-selling and down-selling.
- Use margin rules to eliminate low margin items.

Rules are based on data that is provided to Digital Analytics by using an import file. Available rules depend on the offer type. For example: product cross-sell offers has different rules available than category or search term-based offers. There are four types of rules:

Exclusionary rules

Exclusionary rules eliminate items from recommendations that are based on defined criteria. For example, exclusionary rules are expressed as "Exclude recommendations where the Inventory of the product is less than 10.

De-emphasis rules

De-emphasis rules, rather than excluding, move recommendations to the back of the candidate list. For example, if a product has low margins but is ranked as having high relevance, a de-emphasis rule moves that product to the back of the list of valid recommendation candidates and moves the higher margin items forward. If there is limited recommendation data for a specific target or when all recommendations are low margin, then data is still available to present to the visitor.

Promotional rules

Organizations that are introducing new products or articles or that have items with high inventory can set up promotions that insert designated products in front of behavioral recommendations. You can create promotional rules to prioritize manually designated products over recommendations from Digital Analytics. Digital Recommendations can help you. You can set a percentage weight that says "Display these two products in the first position for 50% of the products in the Men's department".

Blacklisting

When Digital Recommendations delivers recommendations to a website in real time, in some cases, you need to immediately remove items from recommendations. You can accomplish this using the blacklist function. Blacklisting removes a list of IDs from displaying as recommendations to site zones. Blacklisting goes into effect within approximately 1 hour of starting the blacklist. Blacklisting is only available for dynamically delivered recommendations.

More about business rules for offers

The business rules that you create for your offers are based on the (up to 50) attributes you provide in the ECDF and EPCMF data files. For information about these files, see the ECDF and EPCMF data files chapter in the Acoustic Product Recommendations Configuration Guide.

Starting with affinity data

Before rules are processed, Digital Recommendations generates recommendations based on the affinity weights that are set for an offer. Digital Recommendations attempts to generate up to 50 recommendations per target so that a large data set is available against which to apply rules. The ability of Digital Recommendations to generate recommendations is largely based on the data analysis time period and the degree of traffic that the site receives. To specify the number of final recommendations you want to receive, follow these examples:

- For flat file offers, specify up to 30 recommendations on the **Offer Settings** tab.
- For dynamic offers, specify up to 12 recommendations when you configure the site zone where the offer is used. If you need more than 12 recommendations, contact your Acoustic Digital Analytics client consultant.

Rule specificity

When you create rules by using attribute values, the values you enter in the rules interface **must exactly match** the values that are loaded by using the ECDF and EPCMF files.

Note: Rule specificity includes the use of spaces and capitalization.

Business rule policy

The business rule policy governs the execution of all rules and cannot be specified by rule set or by an individual rule. For more information, see “Configure business rules policies for offers by using the legacy rules interface” on page 70.

Rules data

Do not create rules on an active offer until all rule data is loaded into the Digital Analytics database. Rules that are created when rule data is not provided erroneously eliminates items and deliver an unexpected result. For example, rules data is loaded into Digital Analytics by using the **Enterprise Product Report** or **Product View Extra Fields** on Tuesday. The data is available for processing on an Offer that is scheduled for Wednesday delivery.

What is a node?

Use node levels as a comparison option for creating rules.

A node is a category level in a category hierarchy. The top level nodes of the hierarchy are:

Node 1
First level

Node 2
Second level

Node 3
Third level

For example:

Table 13: Description of a Node.

Node 1	Node 2	Node 3
Men's		
	Men's Shoes	
		Athletic Shoes
		Dress Shoes
	Men's Pants	
		Casual Pants
		Dress Pants
Women's		
	Women's Shoes	
		Boots
		Sandals
	Women's Tops	
		Blouses
		Sweaters

Defining individual rule groups

Your first step in defining business rules is to create a rule group. Use this procedure to create a rule group that can be used only with the current offer.

About this task

When you have many rules, rule groups are convenient for grouping similar rules so they are easy to find. Rule groups also allow for multiple people to work on different rule groups at the same time for the same offer and manage rules independently.

After you create a rule group, you define one or more business rules in that group.

Procedure

1. Open the offer and then click the **Rules** tab.
2. Click **Add New Group** and provide a rule group name.

Creating a rule

After your rule group is created, create one or more rules in that rule group.

Procedure

1. Select the rule group in which to add the rule.
2. On the Rules tab, click **Add Rule**.
3. See "Rule targets" on page 58
4. Click **Update Rules**.
5. Define the rule parameters. See "Rule classes and rule types" on page 59
6. Click **Save**.

Rule targets

Rule Targets are the targets for which are generating recommendations. The following are the items for which target rules apply.

All Active Targets
Includes all active targets or categories for which data is collected by Digital Analytics during the Data Analysis Time Period that is established for this offer.

Select From Categories
Defines categories of Targets. You can select one or more categories to include as allowed targets for this rule set.

Note: These categories are defined by the import files for the Enterprise Product Report. To use this feature, these import files must be provided. Categories as defined in the Category Definition File are supported but must be configured by a Digital Analytics Support member.

Input List
You specify a list of Targets by specifying the item ID. Up to 999 items can be defined in this list. This option is not available for Site Category, EPR Category, and Search offers because they do not have targets that are based on individual items.

Select From Attributes
You specify Targets by specifying one or more attributes. This option is not available for Site Category, EPR Category, and Search offers because they do not have targets that are based on individual items.

Note: These Attributes are defined by the import files for the Enterprise Product Report. To use this feature, these import files must be provided and aliased.

Building complex logic for rule targets

The attribute rules tool is flexible. You can use a combination of attributes and attribute values to accommodate different use cases.

The attribute rules tool dynamically visualizes the rule as it is being constructed by using the supported `AND` and `OR` logic. The following rules apply to attribute target selection:

- When the operator is selected as being either positive (is) or negative (is not) for a specific attribute, the available operators are limited in the interface to the selected type.
  - If the operator is positive, then the condition is always `OR`.
  - If the operator is negative (is not), then the condition is always `AND`.

– When multiple attributes are used together, the condition between attributes is AND.

After you identify the rule targets, a rule set is shown with the associated targets.

Rule classes and rule types

When you create a rule, you specify a class of rules.

The following are the available rule classes.

- Promotion
- Exclusion
- De-emphasis

For each class, you specify a rule type within that class that gives you flexibility in creating your rule. The following table contains a summary of rule classes and types and where to look for more information.

Table 14: Rule Class and Type Table.

Rule Class	Rule Type	Rule Subtype	Related Procedure
Promotion	Promote a Specific Item	None	"Promoting products" on page 60
Exclusion	Exclude by Category	None	"Excluding categories of products" on page 61
Exclusion	Exclude by ID	None	"Excluding specific items" on page 61
Exclusion	Exclude by Attribute	Recommendation Attribute Exclusion	"Excluding based on the value of an attribute" on page 62
Exclusion	Exclude by Attribute	Recommendation attribute to target attribute exclusion	"Excluding by comparing attributes with the target" on page 63
De-emphasis by criteria	De-emphasis by Category	None	"De-emphasizing categories of products" on page 61
De-emphasis by criteria	De-emphasis by ID	None	"De-emphasizing specific items" on page 62
De-emphasis by criteria	De-emphasis by Attribute	Recommendation Attribute de-emphasis	"De-emphasizing based on the value of an attribute" on page 62
De-emphasis by criteria	De-emphasis by Attribute	Recommendation attribute to target attribute de-emphasis	"De-emphasizing by comparing attributes with the target" on page 63
De-emphasis by Similarity	De-emphasis by Attribute	None	"De-emphasizing items that match the selected attribute of a higher ranked recommendation" on page 64

Promoting products

You use promotions to place designated items at the beginning of the recommendation list.

About this task

If you are introducing new products to market or you have items with high inventory, you can use promotions that insert products in front of behavioral recommendations. Promoting products prioritizes these items over recommendations that are generated from the Digital Recommendations algorithm.

You also specify the percentage of times that the item is displayed at the beginning of the list.

See also "Recommending items that are part of a set" on page 64.

You cannot use this function with Site category, EPR category, or Search term.

To set up promotions, follow these steps:

Procedure

1. Click **Update Rules** in the rule set that corresponds to the Targets for a promotion.
2. Select **Exclusion/Promotion**.
3. Select **Rule Type**. Then, select **Promote a Specific Item**.
4. In the **ID** fields, enter one or more IDs that you want to position before behavioral recommendations for the associated targets.

   The characters in IDs must be entered as all uppercase letters. Products that are listed here are positioned in sequence.
5. Set the **Frequency Percentage** to control the percentage of associated targets for which the promotion applies.
   For example, if you specify the Brand A Camera as a promotion for all targets in the Camera department, you might not want to have this item show up on the website as the first recommendation for every product in the Camera department. If you set the Frequency Percentage to 25%, then the Brand A Camera t is randomly inserted as the first recommendation for 25% of the targets in the Camera department.

   Note: If you apply more than one promotion rule to a single target, Digital Recommendations resolves the conflicts so that only one promotion rule is applied to a target. Priority is given to promotions in the following order:

   a. Promotions that are applied to a list of items.
   b. Promotions that are based on where the promotion is applied to the category hierarchy (category depth).
   c. Promotions that are applied to all items.
   d. Any remaining conflicts are resolved by a random selection.
6. Check the **Apply Exclusionary Rules** check box if you want any already-existing rules that apply to the item to be in effect. If this box is not checked, no already-existing rules affect this promoted item.
7. Set the **Promotion Schedule**.

   The following options are available to schedule a promotion.

   Always in effect
   Promotions set to **Always in effect** run until the promotional rule is deleted or its schedule is changed.

   Scheduled Promotion
   Promotions set to a specific start and end date are valid for the specified time period.

   Note: The promotion is processed only when the offer it is associated with is scheduled to be updated. For example, if the offer is updated weekly every Wednesday and the promotion is scheduled to end on a Monday, the promotion is not removed from the offer until Digital Recommendations runs on the following Wednesday.

8. Click **Save**.

Promoting products based on an attribute

You can use product attributes to promote products.

About this task

When you create your EPCMF file, you can create attribute fields to further describe your products. If so, you can promote product based on the value of one of the attributes.

Procedure

1. Create or open a product cross-sell offer. From the **Settings** tab, click **Advanced Options**.
2. In the **Product Promotion Options** area, select **Enable promotions via an attribute**.
3. Select the attribute that you want to base your promotion on.
4. From the **Behavior** drop-down list, specify how to prioritize the related items: before the regularly determined list of recommendations, after that list, or after everything, including any fallback recommendations.
5. Click **Apply**.

Results

At run time, items with these relationships are included in recommendation lists before any business rules are applied to the list.

Note: You can also create business rules (on the **Rules** tab of the offer) to promote specific items by their ID. For information, see "Promoting products" on page 60.

Excluding categories of products

You can exclude items that are contained in one or more categories from the recommendation list.

Procedure

1. Click **Update Rules** in the Rule Set.
2. Select **Exclusion/Promotion** as the **Rule Class**.
3. Select **Exclude by Category** as the **Rule Type**.
4. Specify one or more categories.

De-emphasizing categories of products

You can move items that are contained in one or more categories to the end of the list of recommendations.

Procedure

1. Click **Update Rules** in the Rule Set.
2. Select **De-emphasis by Criteria** as the **Rule Class**.
3. Select **De-emphasis by Category** as the **Rule Type**.
4. Specify one or more categories.

Excluding specific items

You can exclude one or more specific items that are from the recommendation list.

About this task

This rule type excludes items from being recommended; it does not exclude items from becoming targets for the offer.

It is also possible to exclude all items that are NOT in the provided list. This feature is intended for print catalogs or call center recommendations where the recommendations must include only items in a specified list. Excluding items not in the provided list can enable cross-sells in the catalog itself. Excluding items also allows call center representatives to offer recommendations that are constrained to the specific print catalog that the caller has in hand. To exclude all items that are NOT in the specified list, precede the descriptor with a tilde (~).

It is also possible to exclude all items that are NOT in the provided list. This feature is intended for print catalogs or call center recommendations where the recommendations must include only items in a specified list. To exclude all items that are NOT in the specified list, precede the descriptor with a tilde (~).

Procedure

1. Click **Update Rules** in the rule set.
2. Select **Exclusion/Promotion** as the **Rule Class**.
3. Select **Exclusion** as the **Rule Class**.
4. Select **Exclude by ID** as the **Rule Type**.
5. Specify the ID for up to 999 items.

De-emphasizing specific items

You can move one or more specific items to the end of the recommendation list.

Procedure

1. Click **Update Rules** in the Rule Set.
2. Select **De-emphasis by Criteria** as the **Rule Class**.
3. Select **De-emphasis by ID** as the **Rule Type**.
4. Specify the ID for up to 999 items.

Excluding based on the value of an attribute

You can exclude items from the recommendation list by evaluating the value of a specified attribute.

About this task

Load any attribute into Digital Recommendations by using the EPCMF and ECDF files and use them as criteria for creating rules.

Procedure

1. Click **Update Rules** in the Rule Set.
2. Select **Exclusion/Promotion** as the **Rule Class**.
3. Select **Exclusion** as the **Rule Class**.
4. Select **Exclude by Attribute** as the **Rule Type**.
5. Select **Recommendation Attribute Exclusion** as the **Rule Sub Type**.
6. Select the attribute that you want to evaluate.
7. Specify how you want to evaluate the value of the attribute.

   The list of available operators changes depending on the type of data the attribute uses.
8. Specify the value against which you want to evaluate the attribute.

De-emphasizing based on the value of an attribute

You can move items to the end of the recommendation list by evaluating the value of a specified attribute.

Procedure

1. Click **Update Rules** in the Rule Set.

2. Select **De-emphasis by Criteria** as the **Rule Class**.
3. Select **De-emphasis by Attribute** as the **Rule Type**.
4. Select **Recommendation attribute Exclusion** as the **Rule Sub Type**.
5. Select the attribute that you want to evaluate.
6. Specify how you want to evaluate the value of the attribute.
   The list of available operators changes depending on the type of data the attribute uses.
7. Specify the value against which you want to evaluate the attribute.

Excluding by comparing attributes with the target

You can exclude items by comparing the value of an attribute with the value of the same attribute on the target.

About this task

Sale items are a common use for selecting targets from attributes. If a target is not on sale, many merchants want to eliminate all sale items from recommendations. But if the target is on sale, those merchants want to allow sale and non-sale items as recommendations. With this rule, all targets that are not on sale can be selected if a sale attribute is provided in the Enterprise Product Report. Then, a subsequent exclusionary rule can be created to eliminate all items that are on sale. The result is that sale items are not recommended when full-price items are being displayed, but both full-price and sale items are recommended when sale items are being displayed.

One of the comparison options is by node.

Procedure

1. Click **Update Rules** in the Rule Set.
2. Select **Exclusion/Promotion** as the **Rule Class**.
3. Select **Exclusion** as the **Rule Class**.
4. Select **Exclude by Attribute** as the **Rule Type**.
5. Select **Recommendation attribute to target attribute Exclusion** as the **Rule Sub Type**.
6. Select the attribute that you want to compare.
7. Specify how you want to compare the values of the attribute.
   The list of available operators changes depending on the type of data the attribute uses.

De-emphasizing by comparing attributes with the target

You can move items to the end of the recommendation list by comparing the value of an attribute with the value of the same attribute on the target.

About this task

One of the comparison options is by node.

Just as your items can have relationships in the context of sets or matches, they can also have relationships that make them mutually exclusive. For example, if you have the kind of relationships between items such that item A must never be included in the recommendations for item B.

If your catalog has these kinds of relationships and you want to exclude or de-emphasize items based on one-to-one relationships, complete the following steps.

Procedure

1. Click **Update Rules** in the Rule Set.
2. Select **De-emphasis by Criteria** as the **Rule Class**.
3. Select **De-emphasis by Attribute** as the **Rule Type**.

4. Select **Recommendation attribute to target attribute de-emphasis** as the **Rule Sub Type**.
5. Select the attribute that you want to compare.
6. Specify how you want to compare the values of the attribute.

   The list of available operators changes depending on the type of data the attribute uses.

De-emphasizing items that match the selected attribute of a higher ranked recommendation

You can compare a recommendation with another recommendation that is delivered within the same zone.

About this task

If a lower-ranked recommendation has one or more of the same attributes as a higher-ranked recommendation, the lower-ranked recommendation is moved to the end of the recommendation list.

Procedure

1. Click **Update Rules** in the Rule Set.
2. Select **De-emphasis by Similarity** as the Rule Class.
3. Select **De-emphasis by Attribute** as the Rule Type.
4. In the **Recommendation** field, select the attributes to compare with the target list. If any of the attributes match with the same attribute of the higher ranked recommendations, the lower ranked recommendation moves to the bottom of the recommendation list.
5. **Save** the rule.

When multiple de-emphasis rules apply to recommendations

As you develop more business rules, you might find that multiple rules can affect the ordering of your recommendation list.

For example, if you have an offer that generates four recommendations: A, B, C, D and you have a rule that de-emphasizes recommendations A, C, and D, the new order of the list is B, A, C, D. If you have a second rule that de-emphasizes recommendations A and C, then the order is B, D, A, C.

This reordering can happen any time there is a combination of de-emphasis rules, that include the following rule types:

- De-emphasize by category
- De-emphasize specific items
- De-emphasize based on the value of an attribute
- De-emphasize by comparing attributes with the target

Note: Rules that use de-emphasize do not further de-emphasize items in a recommendation list. An example of this type of rule is "De-emphasizing items that match the selected attribute of a higher ranked recommendation" on page 64

Recommending items that are part of a set

You can include matching or related items in recommendation lists

About this task

Some items in your online catalog might have relationships to other products such as sets or matches. For example, a table can have matching chairs. Or a necklace can be a part of a set that includes a matching bracelet and earrings.

If your catalog has these kinds of permanent relationships and you want to include matching or related items in recommendation lists, complete the following steps:

Procedure

1. Select an attribute in the EPCMF. In this field, add the remaining products in the set. Separate them with a pipe delimiter. For example, if the necklace is sku123, the bracelet is sku456, and the earrings are sku789, you set the attribute values as in the following example:

Table 15: Example EPCMF entry

File Date	Client ID	Item ID	Item name	Item primary category ID	Static attribute *9*
...	...	sku123	Necklace	...	sku456|sku789
...	...	sku456	Bracelet	...	sku123|sku789
...	...	sku789	Earrings	...	sku123|sku456

2. Go to the **Admin** function and select **Extra Fields**.
3. Find the **Enterprise Product Static Attributes** field that corresponds to the attribute you selected in the previous step (Static attribute *9*).
4. Type a name for the set in the **Alias** field, such as "related products."
5. Upload the EPCMF by using Acoustic Digital Analytics Import.
6. Create or open a product cross-sell offer. From the **Settings** tab, click **Advanced Options**.
7. In the **Product Promotion Options** area, select **Enable promotions via an attribute**.
8. Select the attribute that you selected to represent the relationship ("related products").
9. From the **Behavior** drop-down list, specify how to prioritize the related items: before the regularly determined list of recommendations, after that list, or after everything, including any fallback recommendations.
10. Click **Apply**.

Results

At run time, items with these relationships are included in recommendation lists before any business rules are applied to the list.

Note: You can also create business rules (on the **Rules** tab of the offer) to promote specific items by their ID. For information, see "Promoting products" on page 60.

Blacklisting an item

You can create a blacklist rule when it is necessary to remove items from recommendations immediately.

About this task

A blacklist rule prevents a specified list of IDs from displaying as recommendations in all zones within approximately 1 hour of publishing the blacklist. The blacklist rule is intended to be used only in urgent situations where it is determined that an item must be removed from recommendations immediately. A blacklist exclusion remains until the item is removed from the blacklist rule. To exclude items from only one zone or offer rather than all zones, go to the rules interface of Digital Recommendations and create a list exclusion rule for these items. A list exclusion must be created for each active offer.

Note: If you do not have permissions to edit offers, you cannot use the Recommendation Blacklist function.

To create a blacklist rule:

Procedure

1. Determine the IDs to add to the blacklist rule.

2. Navigate to the **Manage** > **Recommendation Blacklist** page.
3. Enter the IDs in the list box. Use all uppercase letters. Click **Save**.
4. Perform a Publish Configuration Change to complete the blacklist update. For more information, see "Publishing configuration changes" on page 49 for more information.

Removing an item from the blacklist

You can remove the item from the blacklist to make the item available for recommendation.

About this task

To make an item available for recommendation, follow these steps:

Procedure

1. Determine the IDs to remove from the blacklist.
2. Navigate to the **Manage** > **Recommendation Blacklist** page.
3. Remove the IDs from the list box.
4. Click **Save**.
5. Perform a Publish Configuration Change to complete the blacklist update. For more information, see "Publishing configuration changes" on page 49.

Example business rules for products

Use these examples as models for creating your own rules or use them to better understand how to create rules

The following are some example business rules. To demonstrate the use of Rule Type and Rule class, the Target on this first set of rules is **All Targets**.

Table 16: Example Business Rules for Products- All Targets

Example	**Procedure to Use**	**Rule Target**	**Rule Class and Type for the Example**
1. You have excess inventory of a product and need to generate more sales. You want the product to appear as a recommendation for All products.	"Promoting products" on page 60	All Targets	Promotion>Promote a Specific Item>specify Product ID
2. You include a warranty with every product, but do not sell the warranties separately. Therefore, you never want warranties to appear as recommendations.	"Excluding categories of products" on page 61	All Targets	Exclusion>Exclude By Category>select the Warranty category

Table 16: Example Business Rules for Products- All Targets (continued)			
Example	**Procedure to Use**	**Rule Target**	**Rule Class and Type for the Example**
3. You want to promote a larger variety of products, so you don't want to include recommendations within the same category level of the target product.	"Excluding by comparing attributes with the target" on page 63	All Targets	Exclusion>Exclude by Attribute>Recommendation Attribute to Target Attribute Exclusion>Product Category ID does not match node 1 of target Attribute
4. You include a free product with every order and do not want this product to appear as a recommendation.	"Excluding specific items" on page 61	All Targets	Exclusion>Exclude by ID>specify the Product ID
5. You have a top selling product that does not need to be recommended.	"Excluding specific items" on page 61	All Targets	Exclusion>Exclude by ID>specify the Product ID
6. You don't want to recommend products with inventory fewer than 10 units.	"Excluding based on the value of an attribute" on page 62	All products	Exclusion>Exclude by Attribute>Recommendation Attribute Exclusion>Inventory [<] is less than 10
7. You want to recommend only products with a different brand name than the target product.	"Excluding by comparing attributes with the target" on page 63	All Targets	Exclusion>Exclude by Attribute>Recommendation Attribute to Target Attribute Exclusion>Brand is X.
8. You want to recommend only products of the same brand as the target product.	"Excluding by comparing attributes with the target" on page 63	All Targets	Exclude>Exclude by Attribute>Recommendation Attribute to Target Attribute Exclusion>Brand is not X.
9. You sell gift cards (product ID *005531*), but you want to recommend them only if there are no other recommendations.	"De-emphasizing specific items" on page 62	All Targets	De-emphasis by Criteria> De-emphasis by ID>005531
10. You want products with inventory fewer than 20 units to appear at the end of the recommendation list.	"De-emphasizing based on the value of an attribute" on page 62	All Targets	Exclude>by Attribute>Recommendation Attribute Exclusion>Inventory [<] is less than 20
11. You want products with a price less than $10 to appear at the end of the recommendation list.	"De-emphasizing based on the value of an attribute" on page 62	All Targets	De-emphasis by Criteria> De-emphasis by Attribute>Recommendation Attribute De-emphasis >Price [<] is less than 10

Table 16: Example Business Rules for Products- All Targets (continued)			
Example	**Procedure to Use**	**Rule Target**	**Rule Class and Type for the Example**
12. You want products on clearance to be at the end of the recommendation list.	"De-emphasizing based on the value of an attribute" on page 62	All Targets	De-emphasis by Criteria>De-emphasis by Attribute>Recommendation Attribute to Target Attribute Exclusion>Brand is Clearance.
13. You want products of the same brand as the target product to be included as recommendation, but only at the end of the recommendation list.	"De-emphasizing by comparing attributes with the target" on page 63	All Targets	De-emphasis by Criteria > De-emphasis by Attribute>Recommendation Attribute De-emphasis > Brand is target Attribute
14. You want to promote products across multiple categories. So, if a recommendation is in the same category as a higher-ranked recommendation, you want to move it to the end of the recommendation list.	"De-emphasizing items that match the selected attribute of a higher ranked recommendation" on page 64	All Targets	De-emphasis by Similarity>De-emphasis by Attribute>Product Category ID
15. You want to promote products across multiple brands. So, if a recommendation has the same brand name of a higher-ranked recommendation, you want to move it to the end of the recommendation list.	"De-emphasizing items that match the selected attribute of a higher ranked recommendation" on page 64	All Targets	De-emphasis by Similarity>De-emphasis by Attribute>Brand
16. You don't want to recommend products with a price less than $5.	"Excluding based on the value of an attribute" on page 62	All Targets	Exclusion>Exclude by Attribute>Recommendation Attribute Exclusion>Price [<] is less than 5

The following are more examples of business rules that use a combination of **Rule Target**, **Rule Type**, and **Rule Class**.

Table 17: Example Business Rules for Products- Other Targets			
Example	**Procedure to Use**	**Rule Target**	**Rule Type and Class**
17. You have a new camera that you want to promote for any target product in the Camera category. This promotion lasts 90 days.	"Promoting products" on page 60	Select from Categories>Camera	Promotion>Promote a Specific Item>Schedule Promotion>Specify a 90-day date range.

Table 17: Example Business Rules for Products- Other Targets (continued)			
Example	**Procedure to Use**	**Rule Target**	**Rule Type and Class**
18. For target products with a price less than $10, recommend only products that are also less than $10.	“Excluding based on the value of an attribute” on page 62	Select from Attributes>Price [<] is less than 10	Exclusion>Exclude by Attribute > Recommendation Attribute Exclusion>Price [>] is greater than 10
19. For target products over $200, you don't want to recommend products with a price less (60%) than the target.	“Excluding based on the value of an attribute” on page 62	Select from Attributes>Price [>] is greater than 200	Exclusion>Exclude by Attribute > Recommendation Attribute to Target Attribute Exclusion>Price [<] is less than 60% of the target Price
20. For camera products, you want products of the same brand higher on the recommendation list.	“De-emphasizing based on the value of an attribute” on page 62	Select from Categories>Camera	De-emphasis by Criteria>De-emphasis by Attribute > Recommendation Attribute De-emphasis > Brand is not target Attribute
21. For the Camera product ID 008221, you want to recommend only products of Brand X.	“Excluding based on the value of an attribute” on page 62	Select from Categories>Camera Input List>008221	Exclusion>Exclude by Attribute > Recommendation Attribute Exclusion>Brand is not X.
22. You want a category of products that has a lower profit margin (Category name is *Dollar*) to appear only at the end of the recommendation list.	“De-emphasizing categories of products” on page 61	Select from Categories>*Dollar*	De-emphasize by Criteria>De-emphasis By Category>select the Dollar category

Viewing the effect of rules on the offer

After you activate an offer and the offer processes one time, you can view the effect of the rules that you created by viewing the rule statistics. Rule statistics can assist you in troubleshooting and in improving your rules processes.

Procedure

1. Ensure that the offer you for which want to view the statistics for is active.
2. Select the offer to view rules statistics for.
3. Click the **Rules Statistics** tab to view the number of items that are excluded, de-emphasized, emphasized, or promoted by each rule you created.

Publishing configuration changes

You can change and publish configurations if adjustments are needed.

About this task

The following are examples of needing to change configurations:

- A/B test settings - The results of an A/B test are not going well. The A/B test must be stopped immediately.
- Zone settings - You must see four recommendations on the page instead of three.
- Recommendation plans - You must change a step in a recommendation plan.

In the preceding cases, after you complete the change, do the following steps:

Procedure

1. Select **System Overview**.
2. Click **Publish Configuration Changes**.

Results

The system publishes the changes and the changes go into effect in approximately 1 or 2 hours.

Note: This procedure does not update business rules.

Configure business rules policies for offers by using the legacy rules interface

A business rule policy defines what offer processing does when it applies a rule that evaluates an attribute. An item does not have a value or has an invalid value for that attribute.

EPCMF configuration

During the early stages of your implementation, your EPCMF is configured for regular data uploads. Part of that configuration was determining what to do when a product does not have a value for an attribute that a rule is trying to evaluate.

For example, if you have a brand rule in place, whether the omission of brand data causes an item to be excluded from or included in the recommendation list depends on your data and the criteria for your rules. Perhaps you have a house brand that is indicated by a null value in the Brand attribute. In such a case, if you specify that a null value equals `true`, the brand rule excludes your house brand in the recommendation list. If you specify that it equals `false`, the brand rule includes your house brand along with all other non-matching brands.

Note: Your administrator made the previous decisions during the preliminary data upload stages of your Digital Recommendations implementation and configured business rule policies in the Offer Configuration settings (**Manage > Offer Configuration**). For more information, see "Configure business rules policies for offers by using the legacy rules interface" on page 70.

Defining default values for specific attributes gives you control over business rule behavior separately for each attribute. For offers that use the legacy rules interface, these defaults apply if a rule is evaluating items that are based on an attribute and encounters an item that has a null value for the attribute. For example, you define a rule for all targets to eliminate all recommendations where ratings are greater than three. Yet your data feeds do not provide inventory values for all items. In this case, your administrator most likely used the **Product Attribute Definition** settings to specify a default value of -1 for any items with a null value for their inventory attribute. That way, items with unknown inventories are excluded from recommendation lists when your rating rule is processed.

More considerations:

- The business rule policy is global for all rules and cannot be specified by rule set or by an individual rule.
- To minimize over eliminating recommended items because they have missing data, scope the business rules so they affect only the specific set of targets for which the rule applies. For example, suppose that you have a set of items, in the electronics category, to be excluded from recommendations that are based on the weight of the product. When you define the target for this rule, define the rule targets so that they apply only to targets in the electronics category. This practice prevents the rule system from processing this rule across the entire catalog and constrains exclusions that are based on missing data to the electronics department only.

Implementation configuration - null values

Business rule policy defines what offer processing does when it applies a rule that evaluates an attribute but an item does not have a value for that attribute.

During the early stages of your implementation, part of configuration was determining what to do when content does not have a value for an attribute that a rule is trying to evaluate. For example, if you have a publisher rule in place. Whether the omission of publisher data causes an item to be excluded from or included in the recommendation list depends on your data and the criteria for your rules. Perhaps you have self-published content that is indicated by a null value in the Publisher attribute. In such a case, if you specify that a null value equals `true`, the publisher rule excludes your self-published item in the recommendation list. If you specify that it equals `false`, the publisher rule includes your self-published item along with all other items with non-matching publishers.

Defining default values for specific attributes gives you control over business rule behavior separately for each attribute. These defaults apply if a rule is evaluating items that are based on an attribute and encounters an item that has a null value for the attribute.

For example, you define a rule for all targets that eliminate all recommendations where ratings are greater than three. Yet your data feeds do not provide rating values for all items. In this case, your administrator most likely used the **Page Attribute Definition** settings to specify a default value of `-1` for any items with a null value for their rating attribute. Items with unknown ratings are excluded from recommendation lists when your rating rule is processed.

More considerations:

- The business rule policy is global for all rules and cannot be specified by rule set or by an individual rule.
- To minimize over eliminating recommended items because they have missing data, scope the business rules so they affect only the specific set of targets for which the rule applies. For example, suppose that you have a set of items, in the children's category, that are to be excluded from recommendations based on the length of the article. When you define the target for this rule, define the rule targets so that they apply only to targets in the children's category. This practice prevents the rule system from processing this rule across the entire catalog and constrains exclusions that are based on missing data to the children's department only.

Specifying a default value for items with a null value

Use this procedure to define default values for attributes. These defaults apply if a rule is evaluating items that are based on an attribute and encounters an item that has a null value for the attribute.

Procedure

1. Click **Manage** on the side navigation menu.
2. Select **Attributes** under **Product Offers**.
3. Perform one of these actions:
    - If you are configuring page content offers, select **Page Attributes** under **Content Offers**.
    - If you are configuring element content offers, select **Element Attributes** under **Content Offers**.

4. In the **Attribute Definition** table, find the attribute that needs a default value and specify it in the **Default Value** field.

   As a safeguard for attributes that use a character string, you can set a default value of "n/a". So, rather than a rule processing a null value, it uses the term "n/a". The term "n/a" is unlikely to cause a conflict in your data because character attributes such as brand do not have a value of "n/a".

   As a safeguard for attributes that use a numeric value, you can set a default value of "-1". So rather than a rule processing a null value, it uses a "-1". T3he "-1" value is unlikely to cause a conflict in your data because numeric attributes such as price or inventory do not have a value of -1.

   As a safeguard for attributes that use a character string, you can set a default value of "n/a". So, rather than a rule trying to process a null value, it uses the term "n/a". The term "n/a" is unlikely to cause a conflict in your data because character attributes such as publisher do not have a value of "n/a".

   As a safeguard for attributes that use a numeric value, you can set a default value of "-1". So rather than a rule attempting to process a null value, it uses a "-1". The "-1" value is unlikely to cause a conflict in your data because numeric attributes such as rating or length of article do not have a value of -1.

Creating a null value policy for items with no default

For further protection for null value attributes, you can determine how to handle attributes that have a null value and do not have a default value specified. You can choose to automatically include it for recommendation or automatically exclude it from recommendation. Use this procedure to create a policy.

Procedure

1. Click **Manage** on the side navigation menu.
2. Select **Attributes** under **Product Offers**.
3. Perform one of these actions:
   - If you are configuring page content offers, select **Page Attributes** under **Content Offers**.
   - If you are configuring element content offers, select **Element Attributes** under **Content Offers**.
4. Under **Attribute Behavior in Rules Processing**, perform one of these tasks:
   - To exclude the item in recommendations, select **Treat any rule criteria in which it is used to have a result of TRUE** .
   - To include the item in recommendations, select **Treat any rule criteria in which it is used to have a result of FALSE**.

Creating an invalid attribute policy

For offers that use the legacy rules interface, you have two options for protection against invalid or malformed attributes: use the default value or stop processing the offer.

About this task

Use this procedure to create a policy. If you decide to use the default value, be sure that you set the default value. See "Specifying a default value for items with a null value" on page 71.

Procedure

1. Click **Manage** on the side navigation menu.
2. Select **Attributes** under **Product Offers**.
3. Perform one of these actions:
   - If you are configuring page content offers, select **Page Attributes** under **Content Offers**.
   - If you are configuring element content offers, select **Element Attributes** under **Content Offers**.
4. For **Attribute Behavior in Rules Processing**:

- To continue processing the offer by using the default attribute value, select **Apply the default value to the attribute and continue processing the offer**.
- To stop the offer from processing and force the value to be corrected, select **Do not generate any recommendations for the offer, force correction of values before continuing**.

Field definitions for attributes and more settings

Reference information for Attributes and More Settings.

Table 18: Reference information for ***Offer Configuration*** *>* ***Product Offers*** *>* ***Attributes***

Field	Description
Attribute	Name of the attribute. This value is defined in the EPCMF.
Alias	Common name that is associated with the attribute. This value is defined in the EPCMF.
Data Type	Indicates the type of data that describes the alias. This value is defined in the EPCMF.
Default Value	The value that the batch data process provides if items in the data file being processed do not have a value that is specified for this attribute.
Attribute Prefix	In most cases, the attribute prefix is the value that is added to the beginning of the attribute value when it is included in response data. For attributes designated in the Special Values as URLs for image-based recommendations, this value is used to construct URLs at run time.
Attribute containing Image URL	Supports the image-based recommendation feature and picture view for previews. The attribute that provides the URL of a product's thumbnail image.
Attribute containing Product URL	Supports the image-based recommendation feature. The attribute that provides the URL of the item's main page on your website.
Use alternative prefix for images in image recommendations	Enable if you want to use a different prefix for image recommendations. Type the prefix in the text box.
If any attribute used in a rule has no value and a default was not specified	These options designate how to interpret items with null values for attributes that are evaluated by business rules. If you select TRUE, then an item with a null value for the attribute that is being considered is excluded in the recommendation list. If you select FALSE, it is included.
If any attribute used in a rule contains an invalid value in a comparison	These options designate what offer processing does with invalid attributes. Offer processing can either use the default value (if one is specified) or it can stop processing and display an error message.
Available	A list of all the attributes that can be used in the HTTP response data for a recommendation list that is to be displayed in a site zone on your website.
Selected	The attributes that are included in the HTTP response.

Table 19: Reference information for ***Offer Configuration*** > ***Product Offers*** > ***More Settings***	
Field	**Description**
Age of Data (session)	Click **Add time range** to add a time range for session-related data. The age of the data, in days, that is weighted by the value that is specified in the **Affinity Weight** field. For example, if you specify 3, then data older than three days old has the affinity weight specified.
Affinity weight (session)	The value, as a percentage, is applied to the data that meets the value that is specified in the **Age of Data** field.
Age of Data (buy-to-buy)	Click **Add time range** to add a time range for buy-to-buy data. The age of the data, in days, that is weighted by the value that is specified in the **Affinity Weight** field. For example, if you specify 3, then data older than three days old has the affinity weight specified.
Affinity weight (buy-to-buy)	The value, as a percentage, that is applied to the purchases that occur in the time period that is specified by the Days between events field.
File format	The following format options are available for your output files: • Tabular: Formats the data so that each row represents a single target and has as many columns as there are recommendations. • Serial: Formats the data so that each row represents a recommendation. With this format, each target has multiple rows (one for each recommendation).
Rank Type	The following values are used to indicate the priority of a recommendation: • Score - the affinity score that is calculated for the recommendation • Rank - the item's position in the recommendation list. That is, the item with the highest affinity score has the rank of 1.
Include file headers	For tabular files only. Indicates whether you want to include in the output the comments and metadata that describe the contents of the file. The value that you select depends on the data processing mechanism that uses the output files. Some mechanisms can strip out the header and others cannot. If your process cannot strip out the header, clear this option to suppress the file header.

Table 20: Reference information for ***Offer Configuration*** > ***Content Offers*** > ***Page View Attributes***	
Field	**Description**
Attribute	Name of the attribute.
Alias	Common name that is associated with the attribute.
Data Type	Indicates the type of data that describes the alias.
Default Value	The value that the batch data process provides if items in the data file being processed do not have a value that is specified for this attribute.
Attribute Prefix	In most cases, the attribute prefix is the value that is added to the beginning of the attribute value when it is included in response data. For attributes designated in the Special Values as URLs for picture views for previews, this value is used to construct URLs at run time.
Attribute containing Image URL	Supports the picture view for previews. The attribute that provides the URL of an item's thumbnail image.

Table 20: Reference information for ***Offer Configuration*** > ***Content Offers*** > ***Page View Attributes*** *(continued)*	
Field	**Description**
If any attribute used in a rule has no value and a default was not specified	These options designate how to interpret items with null values for attributes that are evaluated by business rules. If you select TRUE, then an item with a null value for the attribute that is being considered is excluded in the recommendation list. If you select FALSE, it is included.
If any attribute used in a rule contains an invalid value in a comparison	These options designate what offer processing does with invalid attributes. Offer processing can either use the default value (if one is specified) or it can stop processing and display an error message.
Available	A list of all the attributes that can be used in the HTTP response data for a recommendation list that is to be displayed in a site zone on your website.
Selected	The attributes that are included in the HTTP response.

Table 21: Reference information for ***Offer Configuration*** > ***Content Offers*** > ***Element Attributes***	
Field	**Description**
Attribute	Name of the attribute.
Alias	Common name that is associated with the attribute.
Data Type	Indicates the type of data that describes the alias.
Default Value	The value that the batch data process provides if items in the data file being processed do not have a value that is specified for this attribute.
Attribute Prefix	In most cases, the attribute prefix is the value that is added to the beginning of the attribute value when it is included in response data. For attributes designated in the Special Values as URLs for picture view for previews, this value is used to construct URLs at run time.
Attribute containing Image URL	Supports the picture view for previews. The attribute that provides the URL of an item's thumbnail image.
Attribute containing Content Page URL	The attribute that provides the URL of the content page on your website.
If any attribute used in a rule has no value and a default was not specified	These options designate how to interpret items with null values for attributes that are evaluated by business rules. If you select TRUE, then an item with a null value for the attribute that is being considered is excluded in the recommendation list. If you select FALSE, it is included.
If any attribute used in a rule contains an invalid value in a comparison	These options designate what offer processing does with invalid attributes. Offer processing can either use the default value (if one is specified) or it can stop processing and display an error message.
Available	A list of all the attributes that can be used in the HTTP response data for a recommendation list that is to be displayed in a site zone on your website.
Selected	The attributes that are included in the HTTP response.

Table 22: Reference information for ***Offer Configuration*** > ***Content Offers*** > ***More Settings***	
Field	**Description**
Age of Data	Click **Add time range** to add a time range for session-related data. The age of the data, in day, that is weighted by the value that is specified in the **Affinity Weight** field. For example, if you specify 3, then data older than three days old has the affinity weight specified.
Affinity weight	The value, as a percentage, is applied to the data that meets the value that is specified in the **Age of Data** field.
Pages to exclude from targets or recommendations in Page Content offers	Add the pages that you do not want to appear in recommendations. You can exclude pages that you never want to recommend from a content page, such as a home page or search results page.
Categories of elements to be included as targets or recommendations in Element Content offers	Add the element types that you want to include as targets for element content offers. Categories can include PDF downloads, video views, and other element-tagged specific content. If left blank, all element types are used.

Recommendation plans

Use recommendation plans to define the targets to use to generate recommendations, which offer to use, and what header text to show on the banner of the zone.

You also specify a fallback recommendation, which is the last recommendation request in the recommendation plan to be evaluated. If you still are not getting the required number of recommendations, the default fallback processing is used. For more information, see "Default fallback processing" on page 83.

You can configure multiple recommendation plan requests. The requests are processed in order until your recommendations are delivered.

Recommendation plan workflow

Use this procedure to configure a recommendation plan.

1. Create a single-step recommendation plan. This plan includes the primary recommendation request and a fallback. Refer to "Creating a single-step recommendation plan" on page 76.
2. If necessary, add more relevant, or a larger number of recommendations by adding steps and personalization to your recommendation plan. Refer to "Adding steps and personalization to your recommendation plan" on page 77.

Creating a single-step recommendation plan

Use this procedure to create a simple, one-step recommendation plan.

Procedure

1. Select a business case for your recommendation plan. Refer to "Business cases for selecting targets" on page 78.
2. Start the **Recommendation Plan List** page by selecting the **Recommendation Plan** link from the side navigation pane.
3. Click **Create New Recommendation Plan** to start the Recommendation Plan Settings Panel.
4. Enter a **Recommendation Plan Name**.

Defined recommendation plans are listed in the Zone settings panel. Give the recommendation plan a name that is descriptive of its use, for example, "Recent Cart Activity Recommendation Plan".

5. Enter a **Recommendation Plan Name**.

   Defined recommendation plans are listed in the Zone settings panel. Give the recommendation plan a name that is descriptive of its use, for example, "Home Page".
6. Enter a **Recommendation Plan Description**.

   This description is for informational purposes only. It is intended to remind users of the intent of the recommendation plan.
7. Set the values in the **Recommendation Plan** table based on the business case you selected in step “1” on page 76.
8. In the **Offer** drop-down list, select from the list of active offers to use for the target you selected. If an offer does not display, be sure that it is activated.
9. In the **Zone Header Text** field, enter the text to be displayed on the banner of any site zone, which uses this recommendation plan. You can enter up to 96 characters.
10. Specify a Fallback process. The fallback process determines what happens if recommendations for all preceding requests are not available. Select a Target, Offer, and Zone Header text for the fallback offer. You have the additional option of selecting **No recommendations**. If you select **No recommendations**, then no recommendations are generated if your recommendation plan does not produce recommendations. You use No recommendation only in special circumstances.

    For an example, refer to “Creating a zone that is visible only if the recommendation plan is valid” on page 85
11. Click **Save and Close**.

Adding steps and personalization to your recommendation plan

You can use these additional steps ensure that you have enough recommendations.

About this task

At a minimum, you need one Request recommendation plan and one Fallback. This plan is enough in most circumstances. However, you can add more steps in your recommendation plan. The additional steps are run in order until your recommendations are delivered. You can configure up to six steps in your recommendation plan, plus one fallback. The fallback recommendation is used only when all other requests are exhausted.

Procedure

1. Select a business case that you want to add to your recommendation plan. Refer to “Business cases for selecting targets” on page 78.
2. Select the recommendation plan to which you are adding a step.
3. Click **Add Request** in the recommendation plan.
4. Specify the Target, Offer, and Header text for the additional request.

Business cases for selecting targets

You select a target in your recommendation plan

Table 23: Product recommendation plan targets.

Business Case	What to select for Target	Information
Generate recommendations from a list of specific products	Specified Product ID	You can use this option with multiple products. Refer to "Configuring a step in your recommendation plan to use multiple targets" on page 80.
Generate recommendations from a specific category	Specified Category ID	Uses a category ID for recommendations. You need to code the category ID that you want recommendations for in position 3 of the cmRecRequest function. Refer to "The cmRecRequest function" in the Acoustic Product Recommendations Configuration Guide for more information.
Generate recommendations for search terms.	Specified Search Term	Uses the visitor's most recent page views and search phrases for recommendations. You need to code the search term that you want recommendations for in position 5 of the cmRecRequest function. Refer to "The cmRecRequest function" in the Acoustic Product Recommendations Configuration Guide for more information.
Generate recommendations for attribute values.	Specified Attribute Value	Uses attribute value(s) for recommendations. You need to code the attribute(s) value that you want recommendations for in position 6 of the cmRecRequest function. Refer to "The cmRecRequest function" in the Acoustic Product Recommendations Configuration Guide for more information.
Personalize recommendations by generating recommendations based on products the user recently viewed.	Last Viewed Product	Uses the visitor's most recently viewed product as the target product for recommendations. This recommendation is determined by data that is received in the last Acoustic Digital Analytics product view tag. You can use this option with multiple products. Refer to "Configuring a step in your recommendation plan to use multiple targets" on page 80.

Table 23: Product recommendation plan targets. (continued)		
Business Case	**What to select for Target**	**Information**
Personalize recommendations by generating recommendations based on products the user recently purchased.	Last Purchased Product	Uses the visitor's most recently purchased product as the target product for recommendations. This recommendation is determined by data that is received in the last Acoustic Digital Analytics shop9 tag. You can use this option with multiple products. Refer to "Configuring a step in your recommendation plan to use multiple targets" on page 80.
Personalize recommendations by generating recommendations based on products the user recently carted but not purchased.	Last Carted Product	Uses the item the visitor last added to their cart as the target product for recommendations. This recommendation is determined by the last item that is received in an Acoustic Digital Analytics shop5 tag. You can use this option with multiple products. Refer to "Configuring a step in your recommendation plan to use multiple targets" on page 80.
Personalize recommendations by generating recommendations that are associated with last category the user viewed.	Most Recently Viewed Category	
Personalize recommendations by generating recommendations that are associated with the category the user most frequently views.	Visitors Most Popular Category	Uses the visitor's most popular category as the target category for recommendations. This recommendation is determined by tracking, for each visitor, the EPR categories of products that are viewed, carted, and purchased through responses to the recommendation request. Categories are then ranked for each visitor. The category that receives the most interaction receives the highest ranking and becomes the visitor's most popular category. **Note:** This target is always based on Enterprise Product Report (EPR) categories. Categories that are defined in the Category Definition File (CDF) are not supported for use in personalization because of complications from virtual categorization in the CDF.
Personalize recommendations by generating recommendations based on the user's most significant purchase.	Most Significant Purchase	Uses the visitor's most significant purchase as the target product for recommendations. This recommendation is determined by the largest purchase (based on price) that occurred within the last 6 purchases.

Table 24: Content recommendation plan targets.		
Business Case	**What to select for Target**	**Notes®**
Generate recommendations from a list of specific pages	Specified Page ID	You can use this option with multiple pages. Refer to "Configuring a step in your recommendation plan to use multiple targets" on page 80.
Generate recommendations from a specific page category	Specified Page Category ID	Uses a page category ID for recommendations. You need to code the page category ID that you want recommendations for in position 3 of the cmPageRecRequest function. Refer to "The cmPageRecRequest function" in the Acoustic Content Recommendations Configuration Guide.
Personalize recommendations by generating recommendations based on pages the user recently viewed	Last Viewed Page	Uses the visitor's most recently viewed page as the target product for recommendations. This recommendation is determined by data that is received in the last Acoustic Digital Analytics page view tag. You can use this option with multiple pages. Refer to Configuring a step in your recommendation plan to use multiple targets.

Configuring a step in your recommendation plan to use multiple targets

You can improve the personalization of a recommendation by basing a recommendation on multiple targets, providing more focused recommendations, or a greater variety of recommendations.

About this task

Here are some examples for how you can use multiple targets to improve recommendations:

- You want to help your customers complete an outfit. For example, a customer is viewing a sweater, but they also viewed jeans, and a pair of boots. You can use multiple targets to identify accessories that go with the sweater, boots, and jeans: such as jewelry, jackets, and hats to present a cohesive outfit.
- You want to make sure that recommendations are based on a customer's largest purchase. For example, a customer purchases an air compressor and masking tape. You want recommendations to be based more on the air compressor than the masking tape.
- You want to expand the number of recommendations by basing them on the several of your customers' last purchases rather than the user's last single purchase.

Here are some examples for how you can use this feature to improve recommendations:

- You want to help your customers complete a meal. For example, a customer is viewing a recipe for a main course, but they also recently viewed a recipe for green beans, and apple pie. You can use multiple targets to identify other recipes that go with the main course, green beans, and apple pie: such as baked potatoes, and a salad to present a complete meal.
- You want to make sure that recommendations are based on a customer's primary component. For example, a customer purchases a new computer and a mouse. You want support articles to be based more on the computer than the mouse.
- You want to expand the number of recommendations by basing them on the several of your customers' last viewed articles rather than the user's last single article.

Use this process to configure your recommendation plan for multiple targets:

Procedure

1. Identify the recommendation plan in which you want to use multiple targets personalization.
2. Identify the multiple target algorithm that you want to use for generating the recommendations. Refer to "Multiple target algorithms" on page 81.
3. Select a recommendation plan.
4. Select the step in the recommendation plan to change to a multiple target recommendation step, or click **Add Request** to create a new step.
5. Select one of the **Target** options listed that support multiple targets.
   - Specified Product ID
   - Last Viewed Product
   - Last Purchased Product
   - Last Carted Product
6. Select one of the **Target** options listed that support multiple targets.
   - Specified Page ID
   - Last Viewed Page
7. Enable the **Use multiple targets** option.
8. Select the algorithm to you identified from "Multiple target algorithms" on page 81. If you selected **Target with highest value for attribute**, select the attribute to use.
9. Save the plan.

Results

If you selected Specified Product ID as your target, you must code the product IDs that you want recommendations for in position 2 of the cmRecRequest function. Refer to "The cmRecRequest function" in the Acoustic Product Recommendations Configuration Guide for more information.

If you selected Specified Page ID as your target, you must code the page IDs that you want recommendations for in position 2 of the cmPageRecRequest function. Refer to Acoustic Content Recommendations Configuration Guide for more information.

Multiple target algorithms

The follow tables describe the different multiple target algorithms.

Table 25: Multiple target algorithms

Business Goal	**Algorithm to use**	**How recommendations are generated**
You want the recommendations ordered based on the value of some attribute of one of the target products. For example, by using price as an attribute, you can generate recommendations based on the price of user's previous purchases. You want recommendations from the purchased product with the highest price presented first.	Target with highest value for attribute	Recommendations are generated based on multiple recently viewed products. Recommendations based on the highest priced product are presented first.

Table 25: Multiple target algorithms (continued)		
Business Goal	**Algorithm to use**	**How recommendations are generated**
You want to order the recommendations based on the strength of the affinity with multiple target products. For example, you want to generate recommendations based on the affinity score of the last 6 products the user carted.	Affinities to multiple targets	Recommendations with a strong affinity to multiple carted products are presented first. For example, if a recommendation has a strong buy-to-buy affinity with all of the last carted products, it is presented first. If a product has only a strong buy-to-buy affinity with only one of the carted products, it is presented further down the list.
You want to recommend the user's most recently viewed products. This option is only available for Last Viewed Product.	Targets as recommendations	The last viewed products are presented as recommendations.
You do not have a certain preference that you want the recommendations to be ordered.	Even distribution among targets	Recommendations for the most recent target are presented first. When the list is cycled through, it starts again from the beginning.

Table 26: Multiple target algorithms		
Business Goal	**Algorithm to use**	**How recommendations are generated**
You want the recommendations ordered based on the value of some attribute of one of the target pages. For example, by using rating as an attribute, you can generate recommendations based on the rating of user's most recently viewed recipes. You want recommendations from the viewed page with the highest rating presented first.	Target with highest value for attribute	Recommendations are generated based on multiple recently viewed pages. Recommendations based on the highest rated recipe are presented first.
You want to order the recommendations based on the strength of the affinity with multiple target pages. For example, you want to generate recommendations based on the affinity score of the last 6 pages the user viewed.	Affinities to multiple targets	Recommendations with a strong affinity to multiple viewed pages are presented first. For example, if a recommendation has a strong affinity with all of the last viewed pages, it is presented first. If a recommendation has only a strong affinity with one of the viewed pages, it is presented further down in the list.
You want to recommend the user's most recently viewed pages. This option is only available for Last Viewed Page.	Targets as recommendations	The last viewed pages (up to 6) are presented as recommendations.

Table 26: Multiple target algorithms (continued)		
Business Goal	**Algorithm to use**	**How recommendations are generated**
You do not have a preference for how the recommendations are ordered.	Even distribution among targets	Recommendations for the most recent target are presented first. When the list is cycled through, it starts again from the beginning.

Fallback processing

You can prevent too few recommendations by having a fallback process.

After you create an offer and recommendation plan, it is possible that Digital Recommendations cannot generate the required number of recommendations for a target. A lack of recommendations can happen if there is limited data on a target, the rules that you configured in an offer restrict too many recommendations, or the target received fewer than 5 views in the Data Analysis Time Period.

To prevent too few recommendations, Digital Recommendations provides a default fallback process.

Default fallback processing

If you don't configure a fallback step to your recommendations plan, there is a default fallback process.

The default offer/rule fallback process is started when each offer is processed. After offer settings and business rules are processed, Digital Recommendations will validate whether the requested number of recommendations generate. If more recommendations are needed for a target, Digital Recommendations locates the top selling items in the target's EPR category and inserts those items into the offer. This process is run for every item in the offer every time an offer is processed.

If you use dynamic delivery, the default fallback process happens automatically. However, if for any reason, dynamic recommendations are not available when your website requests them, configure the fallback step in the recommendation plan. Refer to "Adding steps and personalization to your recommendation plan" on page 77

Note: All offer/rule category fallback recommendations are subject to the business rules that are in place within the offers.

The default offer/rule fallback process is started when each offer is processed. After offer settings and business rules are processed, Digital Recommendations will validate whether the requested number of recommendations generate. If more recommendations are needed for a target, Digital Recommendations locates the top viewed items in the target's category and inserts those items into the offer. This process is run for every item in the offer every time an offer is processed. The default fallback process happens automatically. However, if for any reason, dynamic recommendations are not available when your website requests them, configure the fallback step in the recommendation plan. "Adding steps and personalization to your recommendation plan" on page 77

Note: All offer/rule category fallback recommendations are subject to the business rules that are in place within the offers.

Configuring fallback processing for flat file delivery

You can avoid too few recommendations when flat file delivery is used.

About this task

For Flat File implementation, you define the number of recommendations by using the **Number of Recommendations** field in the Delivery Options of the Offer. To avoid having too few recommendations, follow these steps:

Procedure

1. Open the offer that you are configuring.
2. In the Delivery Options group, select **Enable Recommendation Fallback**.

Search term recommendation plan best practices

Follow these best practices when you create search term-based recommendations plans.

Refer to Search Term-based `cmRecRequest` Best Practices in the Acoustic Product Recommendations Configuration Guide.

On-site search recommendations:

- Ensure that a "Search Recommendations" offer type is established.
- Set up the recommendation plan so that one step equals "Specified Search Term".

Typical paid search landing page recommendations:

- Category
- Search results
- Product pages
- Category pages
- If you have or want category recommendations on the category pages:
  - Set up a recommendation plan where the first step is "Specified Search Term" and the second step is "Specified Category ID".
  - If a search term is present, present recommendations in the recommendation zone that are based on the search term.
  - When the search term is not present, present top selling items for the category on which they landed.
- If you do not want category top seller recommendations, create only a one step in the recommendation plan.
- Paid search traffic that is routed to onsite search landing pages:
  - Assume that the recommendation zone is used for all sources of search traffic.
  - Create the recommendation plan with one step: "Specified Search Term".
- If paid search traffic is routed to item detail pages, do not base recommendations on the search term.

Configuring Site Zones

A zone refers to a position on a web page where recommendations are rendered by the visitor's browser through Digital Recommendations dynamic recommendations.

About this task

Each zone has a unique eight-character ID that you enter in the **Zone Setting** window and reference on your web pages. To identify the zones to Digital Recommendations, complete the following steps.

Procedure

1. Start the **Zone List** page by selecting the **Zone** link from the side navigation pane.
2. Click **Create New Zone** to start the **Zone Settings** pane.
3. Enter a **Zone Name**.
   Use a description that helps to describe exactly where this zone is located. For example: `Page Zone Upper Right`.

4. Enter up to 8 characters to define the **Zone ID**. This value is case-sensitive and can contain only alphanumeric or underscore characters. Do not use spaces or any special character other than underscore.

   This ID is used across the application. It is sent in each recommendation request to indicate which zone to use for the request. The page developer who encodes the recommendation request needs the configured zone ID for each active zone on the site.

   Important: The zone ID that is passed in the recommendation request must exactly match the zone ID that you specify in this field.
5. Select from previously defined Recommendation Plans. If a plan does not exist, click **cancel** and go to the **Recommendation Plan** list page to create one.
6. Enter the **Number of Recommendations** that are passed to the zone.

   If you have multiple zones on one page, always send more recommendations than the zone is able to display. Passing extra zones prevents you from having too few recommendations when items are recommended for more than one zone.
7. Set **Recommendation Filtering**.

   These selections remove previously purchased items and items in the visitor's cart from recommendations.
8. Click **Save and Close**.

Creating a zone that is visible only if the recommendation plan is valid

If no recommendations are produced in a zone, you might not want the zone to appear on your page.

About this task

You can configure a recommendation plan so that a zone is only visible if a recommendation plan request produces valid results. For example, on the home page, you can specify a zone to display with recommendations at the bottom of the page only if the visitor added an item to their cart. If they do not have items in their cart, they do not see the zone.

You can configure a recommendation plan so that a zone is only visible if a recommendation plan request produces valid results. For example, on the home page, you can specify a zone to display with recommendations at the bottom of the page only if the visitor viewed items. If the customer did not view items, they do not see the zone.

Procedure

1. Create a recommendation plan that contains at least one request step. Continuing with the example, select **Last Carted Product** as the Target.
2. Create a recommendation plan that contains at least one request step. For example, select **Most Recently Viewed Page List**.
3. For the Fallback, select **No Recommendations**.
4. Create a Zone by using **Zones** from the side navigation pane.
5. In the zone configuration, select the Recommendation plan that you created in steps 1-2.

Personalize product recommendations

Use Digital Recommendations to build individual visitor profiles based on historical and in-session data.

Because no two visitors have the same interests nor demonstrate identical shopping patterns, Digital Recommendations uses its `wisdom-of-the-crowd` algorithms to automatically present each shopper a unique set of recommendations. Since visitor profiles are constructed in real time, recommendations are quickly personalized. Quick personalization allows Digital Recommendations to optimize recommendations for every visitor. Visitors who are not known also receive relevant recommendations. Previous purchases and currently carted items can be automatically removed from recommendations as a configurable setting.

In addition to automatically optimizing product page, cart recommendations, and category recommendations to the individual, specific recommendations zones can be defined in the recommendation plan. This plan to offer recommendations that are based on the following customer data:

- An item recently carted.
- An item that was recently purchased.
- Top selling items from a category of interest.
- An item that was recently viewed.
- Top Selling items from the Last Viewed Category
- Recently Viewed Product List

Personalization and Enterprise Product Report Categories

The category structure that is defined in the Enterprise Category Definition File (ECDF) of the Enterprise Product Report (EPR) import forms the basis for categories. These categories are used in the Digital Recommendations personalization algorithm, regardless of whether category recommendations are based onsite categories (Category Definition File categories) or EPR categories (Enterprise Category Definition File categories). For the purposes of personalization, CDF categories cannot be used because of their use of virtual categories. Data integrity issues result in the delivery of recommendations that are either invalid or that do not have relevancy to the visitor. The EPR categories provide a clean and consistent set of categories that contribute to the personalization algorithm.

Personalization Category

A setting can be enabled to increase the affinity weight for a recommendation candidate that has a category ID that matches the visitor's that are most popular in the personalization cookie. This setting can be used with product and search offers.

Extra Personalization Attribute

As an optional configuration, you can define one attribute from the Enterprise Product Report file to be used as extra input to the personalization algorithm. If the defined attribute value of the recommendation matches the attribute value of the target, the affinity weighting is increased by a predetermined value set by the client. Attributes that are considered are brand, author, or genre. This additional attribute is not fundamental to the personalization algorithm and is provided as an option. This option can be used with product and search offers.

Note: This setting is on the **Advanced Settings** tab in the **Offer Configuration** window. You might need to contact Digital Analytics support for help with this setting.

Tracking EPR Data in the Product Recommendations Personalization Cookie

Every time a visitor views, carts, or purchases an item, the library updates the EPR category and the optional personalization attribute, and the scoring of that information in the Digital Recommendations personalization cookie. There are no specific tasks for you to do to ensure that these actions happen beyond defining and maintaining EPR data. For more information, see "Product recommendation cookies" in the Acoustic Product Recommendations Configuration Guide.

Every time a visitor views, carts or purchases an item, the library handles updating the EPR category and optional personalization attribute and the scoring of that information in the Digital Recommendations personalization cookie. There are no specific tasks for you to do to ensure that these actions happen beyond defining and maintaining EPR data. For more information, see "Content recommendation cookies" in the Acoustic Content Recommendations Configuration Guide.

Personalizing by assigning products to segments

You can personalize recommendations that are based on the segment or group that a visitor is associated with.

Before you begin

This procedure requires an understanding of the EPCMF file. Refer to The EPCMF in the Acoustic Product Recommendations Configuration Guide.

About this task

If you assign visitors to a specific segment or group based on visitor preferences, you can use this procedure to exclude or de-emphasize recommendations based on their segment or group.

For example, when a user creates an account they might have the choice to identify themselves as a male or female. Or, as part of a specific industry such as food services or hospitality. If your products also align with this segment or group, you can choose to filter recommendations based on segment or group that is assigned to a visitor.

As another example, if your company has multiple, unrelated product lines, you can define a segment that associates each product with a product line. Then, when your visitor is identified with a segment, you can exclude all recommendations that are not in that product line.

Procedure

1. Work with your Digital Analytics Client Consultant to determine whether to exclude or de-emphasize products that do not match the visitor's segment. Also, determine which site zones this filter applies to and the attribute you want to use for filtering. Your consultant configures these items for you.
2. Create a column in your EPCMF for the segment attribute.
3. Define one or more segment values for each product. Separate multiple values with a delimiter such as | or ^.
4. In the Digital Recommendations interface, select **Manage** > **Offer Configuration** > **Product Offers** > **Attributes**.
5. In the **Product Attributes Definition** table, define the following values for the **Enterprise Product Static Attribute** associated with the segment attribute:

Option	Description
Alias	segment
Data Type	Text
Default	The segment value that you want assigned for products that do not have a value that is defined in the EPCMF.

6. In the **Attributes to include in Offer Response**, move the `segment` attribute to **Selected**.
7. Save the configuration.
8. Code `cmSetSegment` into your web pages.

   Refer to "cmSetSegment Function" on page 88 for more details about this function.

Results

Because this procedure changes the EPCMF, you must wait until the next morning when the new EPCMF is uploaded to see results.

cmSetSegment Function

Use this function to identify the segment that a visitor is associated with.

Pass this function one time per session. It must be passed after `eluminate.js` library and before the `cmDisplayRecs` function.

When this function is passed during the session, recommendations whose segment value in the EPCMF does not match the visitor's segment value are excluded or de-emphasized. For example, a visitor identifies as a hospitality user. When recommendations are presented, products that are not assigned to the hospitality segment are recommended last (de-emphasized) or not recommended at all (excluded). This presentation order ensures that the most relevant recommendations are aligned with a user segment.

Parameters

The `cmSetSegment` function takes the following parameter:

Table 27: `cmSetSegment` response parameters

Parameter	Valid parameter values	Example
`segment`	The segment that the visitor is associated with. You need to populate this value from your session data. If the value of the segment parameter is blank, the visitor is removed from the segment they were assigned. If a new `segment` value is passed, the previous value is overwritten.	`cmSetSegment('hospitality')`

Personalize by synchronizing cookie data across devices

You can personalize recommendations by using tracking cookies on more than one computer, smartphone, or tablet.

Because cookies are stored locally on your visitor's device, it is difficult to track and use the information in cookies that are stored on difference devices. For example, a visitor accesses your site from their work computer. The next day, they return by using a mobile device. The cookie data on the work computer is not available to generate personalized recommendations on the mobile device. When they return by using their work computer, the cookie data on the mobile device is not available to generate personalized recommendations on the work computer.

To address this limitation, Digital Recommendations can track the information in your visitor's cookies across multiple devices.

To accomplish this, Digital Recommendations associates the personalization data from your visitor's device to their registration ID. When the user visits your website from a device on which they logged in using their registration ID, Digital Recommendations is able to associate activities that are captured and stored in the Digital Analytics database to that registration ID. When your visitor returns to your site by using another device on which they logged in using their registration ID, the data from the second device is also stored in the database. When the user returns to your website from either device, all data in the database is added to the local cookie and is now available to generate personalized recommendations on either device.

To enable this capability, you need to contact your Acoustic representative. You also need to decide how to configure the opt-in requirement. Opt-in configuration determines whether visitors to your site are opted in or opted out by default and affects how you use the opt-in indicator on calls to the cmSetRegId function. The cmSetRegId function accepts an opt-in indicator, but the indicator is only required if the visitor's opt-in state is not the default. Your choices are shown in the following table:

Table 28: Opt-in Options	
Option	**Description**
Mandatory	Select Mandatory opt-in to have visitors opted out by default if no opt-in indicator is specified on the cmSetRegId call. To opt-out a visitor, set the opt-in indicator on each call to `cmSetRegId` to **false** or leave blank. To opt-in a visitor, set the opt-in indicator on each call to `cmSetRegId` to **true**. See "Synchronize cookie function" on page 89.
Default	Select Default opt-in to have visitors opted in by default if no opt-in indicator is specified on the cmSetRegId call. To opt-out a visitor, set the opt-in indicator on each call to `cmSetRegId` to false. To opt-in a visitor, set the opt-in indicator on each call to `cmSetRegId` to true or leave blank.

The ability to synchronize cookie data has the following limitations:

- The database is updated nightly, so user data from multiple devices is not available until the next day. For example, a user visits your site during the day from a notebook computer. That evening, they return to your site by using a tablet. Any personalization data that is collected on the notebook computer is not available on the tablet. However, if they return to your site by using the tablet the following day, the personalization data from the notebook computer is available on the tablet.
- Data from a cookie is only loaded in the database from a device in which the user logged in with their registration ID. If they never logged in from a device, the server cannot collect the data from the cookie on that device. For example, a user browses your site from their work computer on which they never logged in with their registration ID. The next day, they visit your site from their home computer, on which they logged in with their registration ID. The data that is collected on their work computer is not available on their home computer for generating personalized recommendations.

Synchronize cookie function

Use this function if you implemented the feature to synchronize your visitor's cookie data across multiple devices. This feature must be enabled by your Acoustic representative.

`cmSetRegId` Parameters

The `cmSetRegId` function takes two parameters in the following order:

Table 29: `cmSetRegId` response parameters		
Position	**Parameter**	**Valid parameter values**
1	Registration ID	The registration ID of the visitor, loaded from the visitor's cookie (if they are opted in).
2	Opt-in indicator	true - the visitor did opt in to allow cookie synchronization. false - the visitor did not opt in to allow cookie synchronization. This parameter is optional, depending on how you configured the opt-in requirement.

Example `cmSetRegId` function call:

```
cmSetRegId('52D8177F5751', true);
```

For more information, see "Personalize by synchronizing cookie data across devices" on page 88.

User privacy for synchronizing cookies

Understand the privacy implications of tracking cookies across multiple devices.

Because this function can update the local Digital Recommendations cookie with information that is gathered from another user-associated device (or devices), carefully consider the privacy of visitors to your site.

As part of implementing this feature, you decide whether a visitor's opt-in to this additional cross-device information sharing is automatic or manually required.

- If you decide to use manual opt-in, you must make a cmSetRegId call on behalf of the visitor to a function in the Digital Recommendations JavaScript.
- If you decide to use automatic (Default) opt-in, the `cmSetRegId` opt-in call is not required on an on-going basis. The visitor is assumed to be opted-in unless Digital Recommendations receives the `cmSetRegId` call, specifically opting out the user. However, you must make at least one `cmSetRegId` call on behalf of the visitor on each device to set the visitor's registration ID for that device

If a visitor is opted-in either by automatic or manual method, the Digital Recommendations local cookie can be modified to contain product activity that occurred on other devices that the visitor used to browse the customer's site. If a visitor registered by using their registration ID on more than one device, then a link that uses that registration ID can be established on the Digital Analytics server between those devices (which have their own local Digital Recommendations cookie). Digital Analytics activity is gathered by registration ID and the activity is stored on a Digital Recommendations server. As a result, when the visitor visits the site, the new synchronization processing might call the Digital Recommendations server and receive activity from those associated devices.

If a visitor is opted-out on a device, it applies only to that device, not to all devices on which the user registered. Opt-out prevents the local device from receiving data from other associated devices. It does not prevent activity from this device from being shared with other associated devices that are opted-in.

If you do not implement the cookie synchronization feature, Digital Recommendations creates and uses a browser cookie only if the user also allows the Digital Analytics cookie. The Digital Recommendations cookie is persistent and does not collect any personal information. It collects only some tracking information and a limited number of product IDs and associated time stamps that the user browsed, carted, or purchased. It encrypts that data within the Digital Recommendations cookie.

Test recommendations and rule output

You can avoid unexpected results by testing your rules before you put them into production.

To ensure that exclusionary rules are not too restrictive and that all rule data is set up correctly, and that affinity weights are giving the expected result, run and inspect at least one test file before you put it into production.

To ensure that exclusionary rules are not too restrictive and that all rule data is set up correctly, run and inspect at least one test file before you put it into production.

When you set up an offer, you define whether you are interested in reviewing recommendation results for a specific set of items or for a sampling of items in the Preview Target List section on the **Settings** tab. Be sure to activate the offer, and after it runs you can use the Preview feature to review the results. For more information, see "Preview recommendations" on page 21 .

Another method that you can use for troubleshooting offers is the Rules Statistics. Using this tool, you can view the impact of rules you put in place by showing you the number of items that a rule excluded. For more information, see "Viewing the effect of rules on the offer" on page 47.

Guidelines for testing

- Many organizations set up a development server where the recommendations are loaded and can easily be previewed during the initial implementation phase of Digital Recommendations. This development server helps your team get comfortable with the output from Digital Recommendations.
- Inspect preview results to ensure that the expected number of recommendations is present.
- Ensure that your sample targets test each business rule. For example, for a rule that specifies that for all items in the men's department, exclude women's items, then test at least one men's item and inspect its recommendations. Do women's items appear in the list?
- Confirm that affinity weights are providing the expected recommendations.

Test recommendations

If you are implementing Digital Recommendations for the first time, or if you are implementing dynamic recommendations for the first time, you can test your dynamic offer implementation.

1. Log in to Digital Recommendations with your supplied production client ID.
2. Set up the offers, rules, recommendation plans, and zones that you want to test in Digital Recommendations.
3. Create the corresponding site zones on a test website.
4. Ensure that the offers you created run successfully at least once.

Then, when a request for recommendations is received from your test website using your test client ID, the system automatically returns recommendations as though they are requested by your production client ID.

This automated process allows you to test your implementation of Digital Recommendations with real data that is under your production client ID before you launch or change your production website. Using your test site with your test client ID prevents the business reports for the production website from being affected.

If you already are running Digital Recommendations, you can use the same procedure to test new and changed zones, offers, or recommendation plans.

Testing recommendations

You can test your dynamic offer implementation when you implement Digital Recommendations or dynamic recommendations for the first time.

About this task

If you already are running Digital Recommendations, you can use the same procedure to test new and changed zones, offers, or recommendation plans.

This automated process tests your implementation of Digital Recommendations with real data that is under your production client ID before you launch or change your production website. Using your test site with your test client ID prevents the business reports for the production website from being affected.

Procedure

1. Log in to Digital Recommendations with your supplied production client ID.
2. Set up the offers, rules, recommendation plans, and zones that you want to test in Digital Recommendations.

3. Create the corresponding site zones on a test website.
4. Ensure that the offers you created run successfully at least one time.

Results

When a request for recommendations is received from your test website by using your test client ID, the system automatically returns recommendations as though they are requested by your production client ID.

Troubleshoot results of business rules

If the results of a defined business rule are not affecting the offer recommendations as expected, use this procedure to identify the issue.

1. Return to the **Rules** tab of the offer and examine it to ensure that the rule is set up correctly. Many merchants set up rules to specify "remove all items NOT on sale" when the intention was to "remove all items on sale".
2. Return to the **Rules** tab of the offer and examine it to ensure that the rule is set up correctly. It is common to set up rules to exclude items by using NOT logic and leave out the NOT option.
3. Understand your business rule policy, the implications of missing attribute data and the setting for this policy. If you have questions, examine the settings on the **Manage > Product Offers > Attributes** tab. If you do not have access to those settings, contact your administrator.
4. Understand your business rule policy, the implications of missing attribute data and the setting for this policy. If you have questions, examine the settings on the **Manage > Content Offers > Attributes** tab. If you do not have access to those settings, contact your administrator.

More troubleshooting steps for product recommendations:

1. When you enter a value into the rules tool, make sure that the value you enter exactly matches the values that are loaded by using the Enterprise Product Report files. For example, if the rule says exclude all items where the Brand equals Channel, but the Brand value in the Enterprise Product Content Mapping File is CHANNEL, the item is not excluded by the rule engine.
2. Make sure that the Enterprise Product Report (EPR) files are current. Many reported rule issues are the result of out-of-date EPR files.
3. The preview results show the values of data in the EPR file as of the time that the offer was run. For the items in question, inspect the values. Do they have the correct values to support the rules? Are the values in uppercase but entered in lowercase in the rule tool? Is there an extra space in the rule or the EPR data that causes a mismatch?

Troubleshoot too few recommendations

If targets have no recommendations while others have few recommendations, use this procedure to identify the issue.

1. The ability for Digital Recommendations to generate recommendations depends on the amount of traffic an item gets in the set data analysis time period and the degree to which the business rules eliminate items.
2. When business rules are set up, navigate to the **Rules Statistics** tab for the selected offer. The information in the table provides insight into the degree to which a specific rule is eliminating items from recommendations.
3. If a rule is eliminating too many recommendations, consider relaxing the rule or eliminating the rule altogether. Some rules are required, but many people conceptualize rules that are more experimental in nature. In some cases, more rules equate to fewer recommendations, which means less revenue lift.
4. For any rule that is applied to all targets, consider whether the rule needs to be applied to all targets. To achieve the wanted result, consider applying the rule to a specific category of items to prevent the rule from working against more items than necessary.

5. If an item has limited recommendations and rules do not seem to be the source, go to the Category report and set the time period of the report to match the data analysis time period of the offer that is being investigated. Find the item in question and see how many views and purchases it received in that time period. If the item is receiving little interaction, Digital Recommendations probably does not have enough data to generate recommendations. Consider extending the data analysis time period so that more data is captured. Remember, the ideal data analysis time period is the shortest window that gets the wanted amount of recommendation coverage.
6. Examine the affinity weights (product recommendations only). If view-to-view is set to 0, most of the data available for making recommendations is turned off. Consider opening this affinity up to a small weight of at least 5 or 10, and rerun the offer to gauge the effect.

System overview dashboard

The system dashboard provides you with an easy way to see all of the aspects of your recommendation strategy. You can quickly navigate to the appropriate pane to adjust configurations as required.

Following are some examples of using this dashboard.

- You can view all of your configured site zones and their relationships with recommendation plans and offers, and key parameter settings. You can also edit each of these components by clicking zone, recommendation plan, or offer name from the dashboard.
- Identify which zones are active.
- For A/B testing, you can view the recommendations plans that are used in the test and key parameters of the test.
- For image recommendations, you can view publish status, the offers that are used to generate recommendations, the fallback offer, and the number of recommendations generated.

You can also access the configuration settings by clicking the zone ID, recommendation plan name, A/B test name, or image recommendation template name.

Viewing a list of zones, offers, and recommendations plans

The **Active Zones** and **Inactive Zones** section of the system overview displays all of the site zones you configured in Digital Recommendations. The system overview shows what zones are active and which recommendation plan and offers are associated with each zone.

Procedure

Click **System Overview** in the side navigation pane. The zones are listed by zone ID. You can identify the zone name, recommendation plans, and offers. The following are other columns that are displayed:

Option	Description
#Recs	The number of recommendations that are generated for the zone.
Filtering	Identifies if previously carted or purchased items are filtered out.
Target	Identifies how the target is determined.
V2V	Identifies the view-to-view affinity setting in the product cross-sell algorithm.
V2B	Identifies the view-to-buy affinity setting in the product cross-sell algorithm.

Option	Description
B2B	Identifies the buy-to-buy affinity setting in the product cross-sell algorithm.
A2B	Identifies the abandon-to-buy affinity setting in the product cross-sell algorithm.
#Rules	Identifies how many rules are defined in the offer.

Comparing the algorithm used in different offers

You can use the system overview to compare the product cross-sell algorithms that are used in different offers.

About this task

You might want to configure zones in a way that you have different product cross-sell algorithms for difference zone locations. For example, on a cart page, you might want to have greater affinity for view-to-buy than you have for view-to-view. You can use the system overview to see what affinity settings are used across site zones.

Procedure

1. Click **System Overview** in the side navigation pane.
2. View the following column values for each zone:

Option	Description
V2V	Identifies the view-to-view affinity setting in the product cross-sell algorithm.
V2B	Identifies the view-to-buy affinity setting in the product cross-sell algorithm.
B2B	Identifies the buy-to-buy affinity setting in the product cross-sell algorithm.
A2B	Identifies the abandon-to-buy affinity setting in the product cross-sell algorithm.

Identifying which zones are active or inactive

You can use the system overview to quickly see which site zones are active and inactive.

Procedure

1. Click **System Overview** in the side navigation pane.
2. Expand the **Active Zones** and **Inactive Zones** sections.

Identifying the number of recommendations

You can use the system overview to see how many recommendations are generated for a zone.

Procedure

1. Click **System Overview** in the side navigation pane.

   The zones are listed by zone ID.
2. Expand the **Active Zones** and **Inactive Zones** sections.
3. Find the zone that you want to look at. The **#Recs** column displays the number of recommendations generated.

Identifying the number of recommendations for an image recommendation template

You can use the system overview to find the number of recommendations generated.

Procedure

1. Click **System Overview** in the side navigation pane.
2. Expand the **Image Recommendations** section.
3. Find the template that you want to look at. The **#Recs** column displays the number of recommendations generated.

Identifying or compare the parameters of one or more A/B tests

You can use the system overview to identify or compare parameters of A/B tests.

Procedure

1. Click **System Overview** in the side navigation pane.
2. Expand the **Active A/B Tests** section.
3. Find the A/B tests that you want to look at.

   You can access configuration parameters for the A/B test and the associated recommendation plans and offers.

Identifying inactive recommendation plans and zones

You can use the system overview dashboard to determine if any recommendation plans or zones are inactive.

Procedure

1. Click **System Overview** in the side navigation pane.
2. Look through the system overview dashboard for any recommendation plan names, or zones that are in red text. Red text indicates that the element is inactive.
3. Click the element name to open the configuration screen.

Identifying every instance that an offer is used

You can use the system overview to quickly identify where an offer is used in the system. This procedure highlights all instances of an offer in every section of the system overview.

Procedure

1. Click **System Overview** in the side navigation pane.
2. Expand any of the system overview sections (Active Zones, Inactive Zones, Active A/B Tests, Image Recommendations).
3. Locate any instance of the offer you are interested in.
4. Double-click the offer name.
   The offer name is highlighted in every instance that it is used.

Identifying every instance that a recommendation plan is used

You can use the system overview to quickly identify where a recommendation plan is used in the system. This procedure highlights all instances of a recommendation plan in every section of the system overview.

Procedure

1. Click **System Overview** in the side navigation pane.
2. Expand any of the system overview sections (Active Zones, Inactive Zones, Active A/B Tests, Image Recommendations).
3. Locate any instance of the recommendation plan that you are interested in.
4. Double-click the recommendation plan name.
   The plan name is highlighted in every instance that it is used.

Identifying recommendation plans that are overridden by an A/B test

You can use the system overview to identify which zones are overridden.

About this task

When you run an A/B test in a zone, it overrides the recommendation plan that is originally specified for the zone.

Procedure

1. Click **System Overview** in the side navigation pane.
2. Look for the yellow exclamation point icon next to the recommendation plan name. The exclamation point indicates that the A/B test is overriding the plan.

Reports

Reports provide information about the performance of your recommendations.

Digital Recommendations provides the performance reports and the A/B test performance report.

Product zone performance reports

The product zone performance reports present information that is related to the value of recommendations that are delivered by Digital Recommendations. You can see information for products, both site-wide and broken down by categories (for example, zones and any subcategories within those zones).

You can add categories to the chart by using the check boxes in the Table section below the chart.

For product offers, use the **Manage** > **Report Configuration** > **Product Zone Performance** function to select the parent category from the Category Definition File that you use to track sales that are driven by Digital Recommendations.

Automated zone performance tracking

You can use automated zone performance tracking to automatically maintain a valid Acoustic Digital Recommendations CDF structure. Automated zone performance tracking also adds a virtual category tag to each product page URL that is presented in your recommendation zone.

After you enable automated zone performance tracking, the following actions run automatically:

- When you send your CDF structure to be loaded into Digital Analytics, all active product-based Zone IDs are added as child categories of your parent recommendations category.
- `cm_vc=Zone_id` appends to your product URL before it passes to your Zone population function.

No further actions are needed to track your recommendations while automated zone performance tracking is enabled.

Activating automated zone performance tracking

You can use automated zone performance tracking to automatically provide a valid CDF structure and add a virtual category tag to each product page URL that is presented in your recommendation zone.

Before you begin

Before you enable automated zone performance tracking, you must verify that you are passing the product URL of each product in the EPCMF file. Make sure that you designate which attribute contains this product URL and include the attribute in your offer response fields. You must also configure your product offer attributes following these steps.

1. Click **Manage > Product Offers > Attributes** in the side navigation pane.
2. Select the appropriate **Product URL** attribute in the **Special Values** section.
3. If the attribute you select is not shown in the **Selected** list under **Attributes to Include in Offer Response** section, select the attribute from the **Available** list and click the **>** button arrow to move it to the **Selected** list.

About this task

To activate automatic zone performance tracking for Acoustic Product Recommendations, complete the following steps.

Procedure

1. Click **Manage > Report Configuration > Product Zone Performance** in the side navigation pane.
2. Choose the parent category that you use to track recommendations from the **Category Definition File Hierarchy** drop-down.
3. Click the **Use Automated Tracking** check box.
4. By default, **Zone granularity** is selected.
5. Click **Save**.

What to do next

Click **Zones** in the left navigation to view the status of your automated product zone performance configuration. Also, an email is sent that confirms the success of the implementation of automated zone performance tracking or issues a warning if the Zone ID needs to be changed. The Zone ID must be unique.

A/B test performance report

You can use the A/B testing function only if your site is implemented by using dynamic recommendations.

The A/B test performance report is sourced from the Digital Analytics Elements reports and displays results for any active A/B test that is configured in the A/B test tool in Digital Recommendations.

You can view many metrics in this report, including lift metrics. Lift metrics are calculated as (test split metric - control metric) / control metric.

Indirect attribution report

You use the indirect attribution report to view the impact that recommendations have across multiple sessions.

The impact of recommendations is often attributed to the session in which a recommendation is viewed. For example, a customer is viewing a product and sees a list of recommendations at the bottom of the page. Sale or other performance indicators are measured based on how the customer reacts to those recommendations, such as carting or purchasing a recommended product.

However, recommendations often have an impact beyond the same session. Following are examples of how sales can be impacted by Digital Recommendations:

- A recommendation is viewed, placed into the cart, and the purchase is made in a subsequent session
- A recommendation is viewed, carted, but the purchase is intentionally deferred to a later day
- A recommendation is viewed without carting. However, later, the product is selected from a recently viewed list and then purchased

The preceding examples show how sales can be indirectly attributed to Digital Recommendations.

The following metrics are new for the Indirect attribution report. For more information about these metrics, see "Glossary of Reporting Metrics for Product Recommendations" on page 101:

- Item Sales Total
- Item Sales Same-Session
- Item Sales Cross-Session
- Items Sold Total
- Items Sold Same-Session
- Items Sold Cross-Session

Selecting the attribution period

You can select the number of days for the attribution period.

Procedure

1. Click **Reports** in the side navigation.
2. Select **Indirect Attribution Report**.
3. Click the **Attribution Dropdown** and select the number of days (1 - 7) for the attribution period. The default value is 7 days.

Allocating attribution percentage

You can allocate different percentages of sales that are attributed to Acoustic Digital Recommendations for each of the last seven days with Indirect Attribution report configuration.

About this task

Note: Report Configuration pages are only available for client administrators.

By allocating attribution percentage, you adjust how much of a sale is indirectly attributed to a recommendation generated by Digital Recommendations. If the sale happens on the same day the recommendation is viewed, you can assume that the recommendation directly results in a sale. So, the allocation is set to 100% for the same day. However, if the sale is the day after the recommendation was viewed, another factor might be a contributor to the sale. Therefore, you can allocate a lower percentage of the sale, such as 70%, on day 2. You can adjust the allocation for each day.

Procedure

1. Click **Manage** in the side navigation.
2. Click **Report Configuration** in the side navigation.
3. Click **Indirect Attribution** in the side navigation.
4. Enter the percentage of sales you want to be attributed for each day (1 - 7) by Acoustic Digital Recommendations. The current day always attributes 100% of sales.

Table 30: Example of attribution allocation

Day	**Percentage**
Today	100%
Day 1	80%
Day 2	20%
Day 3	10%

5. You can enable **Show additional indirect attribution information in the Zone Performance Report** to add this configured information to the Zone Performance Report and dashboards.
   - Configuring the attribution % does not apply to information displayed in the Product Zone Report
   - If the check box is selected, you can select the following metrics to display in dashboards:
     - Items Sold Same-Session
     - Items Sold Cross-Session
     - Items Sold Total
     - Item Sales Same-Session
     - Item Sales Cross-Session
     - Item Sales Total
   - If the check box is not selected, you can select only these two metrics to display in dashboards:
     - Item Sales
     - Items Sold
6. Click **Save**.

Select report options

You use the icons and lists that are located above a report to select more options.

For all reports, you can do the following actions:

- Change the appearance of graphed data by clicking the icons at upper left.
- Collapse or expand sections to show the controls above the data, a data graph, or a data grid by clicking the **-/+** or arrow icons at upper left of each section.
- Enter comments that you want to save by clicking **Comments**. For more information, see "Save reports" on page 100

You use the **Report** list at that is in the upper right to choose how you want to review performance data:

- **Report** shows data for a specific point in time.
- **Trend** shows changes over time.

More options are available based on these viewing options you select.

Options for report views

- To define the reporting period, click the calendar icon for the **Period A** field or **Report Options** that is in the upper right. For more information about time reports, see "Select comparison time periods" on page 101
- To select metrics to include on the report from a predefined list or to create a formula of your own, click **Report Options** then the **Metrics** tab.
- To reduce reported values to values that match characteristics that you define, click **Report Options** then the **Filters** tab.
- To specify the calculations to make for a report with two periods, click **Report Options** then the **Comparison Settings** tab.

Options for trend views

- To specify the time frame for the trend view, use the lists at upper right to specify the length of the period. For more options, click the calendar icon or **Report Options** at upper right.
- To include a second trend line that plots data for the same time period in the previous year for comparison, select the **Show Previous Year** check box at upper right. For a trend view that includes two trend lines, data for the previous year can be plotted so that the x-axis values match the same calendar date or the same day of the week in the current year. Select either **Align by Date** or **Align by Day**.
- To apply four-week average smoothing to the trend line, click **Report Options** that is in the upper right and check the **Smoothing** check box.
- To select the metric for the trend view, use the **Select Metric** list that is included in the upper left of the graph.

Save reports

You can save reports and optionally share them within Digital Recommendations, or print, download, and email reports for other uses.

To select any of these options for a report, click the icons that are included in the upper right.

If you choose to email a report, you have the following options:

- Send the report one time or on a recurring schedule that is based on the specified Period A time period.
- Specify the file type.
- Choose the time periods to include for reports that include a comparison time period (Period B):
  - For reports sent by email on a recurring schedule, specify either a relative period or a fixed period.
  - For reports sent by email, specify the fixed period.
  - Alternatively, include only the Period A time period in the report by clicking **Do not include B range**.
- Supply an identifying file name.
- Designate a list of recipients and a subject for the email message.

Select comparison time periods

You can review performance data for a single time period or compare two time periods.

To view a Digital Recommendations report, you define the initial, "Period A" time frame by indicating a specific or relative day, week, month, quarter, or year. Click the calendar icon for a comprehensive set of options.

To include a second, "Period B" time frame for comparison, check the **Period B** check box then select the time period.

Note: For a trend view, you do not specify Period A and Period B. Instead, you can plot a trend line for the same time period in the previous year.

Glossary of Reporting Metrics for Product Recommendations

Descriptions for all metrics use in Reports and Dashboards.

Note: For the A/B test reports, **Lift metrics** are calculated as (test split metric - control metric) / control metric.

Abandoned Sales
: The total value of sales that are lost on items that are abandoned during the selected time period.

Average Abandoned Item Price (Abandoned Sales / Items Abandoned)
: Average Price of all abandoned items during selected time period.

Average Item Price
: The average price of all items sold (Items Sales / Items Sold).

Average Number of Items Ordered from Zone
: Items sold/Buying sessions = Average number of items for buying sessions.

Average Value of Items Ordered from Zone
: Item sales/Buying sessions = Average value of basket for buying sessions.

Buying Sessions
: The number of sessions in which orders were placed.

Buying Sessions / Viewing Session
: The percentage of viewing sessions where the product was purchased by a session during selected time period.

Element Views
: The number of times an element is viewed. A count of the Element tag. Element data is collected by the Element tag.

Element Views / Sessions
: The ratio of elements views to visitor sessions: Element Views that are divided by Sessions. Element data is collected by the Element tag.

Event Points
: The total number of event points. Event data is collected by the Conversion Event tag. Action Type = 1 reflects an initiation. Action Type = 2 reflects a completion. Passing Event Point values is optional.

Event Points / Session
: The average number of event points per session: Event Points that are divided by Sessions. Event data is collected by the Conversion Event tag. Action Type = 1 reflects an initiation. Action Type = 2 reflects a completion. Passing Event Point values is optional.

Events Completed
: The number of conversion events completed. A count of the collected Conversion Event tags where type = 2. Event data is collected by the Conversion Event tag. Action Type = 1 reflects an initiation. Action Type = 2 reflects a completion. Passing Event Point values is optional.

Items Abandoned
The total number of items that are placed in a shopping cart but not purchased.

Item Abandonment Rate
The ratio of items that are abandoned to items placed in the shopping cart.

Item Sales
Total sales of items that are calculated with the shop tags.

Item Sales Cross-Session
The total item sales indirectly attributed for the selected day range (1 - 7 days).

Item Sales Same-Session
The total item sales in one session.

Item Sales Total
The total number of sales that are attributed to recommendations that are viewed within a previous session over a specified period.

Items Sold
The number of products (units) sold.

Items Sold Cross-Session
The number of items that are sold indirectly attributed for the selected day range (1 - 7 days).

Items Sold Same-Session
The total number of items that are sold in one session.

Items Sold Total
The total number of items sold that are attributed to recommendations are viewed within a previous session over a specified period.

Orders
The total number of orders placed.

Product Views
The total number of times a product detail page (or category that contains the page) was viewed. A count of the collected Product View tags.

Product Views / Session
The average number of product views per session.

Product Views / Items Sold
The average number of product views per items sold.

New Buyers
The number of unique visitors who made their first purchase during the specified time period. They can be new or repeat visitors.

Sales
Total sales of purchased items that are calculated with the order tags.

Sessions
The total number of sessions. A session is defined by a sequence of records that are collected by a common session cookie with no more than 30 minutes of inactivity between collected records.

Viewing Sessions
The number of sessions during a selected time period that included a product page view.

Zone Order/Session ratio
Buying sessions/Viewing sessions.

Performance dashboards

You can customize dashboards to see specific data. Dashboards provide a summary of the Digital Recommendations reports.

Product zone performance modules

With the assumption that Digital Recommendations is already implemented, your first step in the application is to look at performance dashboards. Dashboards provide reporting capabilities within the application. You can view a standard dashboard that shows the product site performance and product zone performance modules. The product site performance module shows what sales came as a result of the Digital Recommendations implementation. The product zone performance breaks down performance further by showing sales attributed to the various zones on your site that are displaying Digital Recommendations recommendations.

Content zone performance modules

With the assumption that Digital Recommendations is already implemented, your first step in the application is to look at performance dashboards. These dashboards provide reporting capabilities within the application. You can view a standard dashboard that shows the page site performance, content zone performance, and element reporting dashboards. The page site performance module shows page views that came as a result of the Digital Recommendations implementation. The content zone performance breaks down performance further by showing views attributed to the various zones on your site that are showing Digital Recommendations recommendations. The element reporting dashboard shows the number of views for each element.

Viewing a dashboard

You can view standard dashboards or dashboards that you created.

About this task

Digital Recommendations is initially configured with the product site performance and product zone performance dashboards in the Standard Dashboards category. If you created more dashboards, you can find them in a category other than Standard Dashboards.

Digital Recommendations is initially configured with the content zone performance and page site performance dashboards in the Standard Dashboards category. If you created more dashboards, you can find them in a category other than Standard Dashboards.

Procedure

1. On the side navigation pane, click **Dashboards**.
2. Click the dashboard category where the dashboard is located.
3. Click the dashboard to view.

The Standard Dashboard

You use the standard dashboard to monitor module performance.

Your Digital Recommendations implementation includes a standard dashboard that contains a product site performance and product zone performance module.

Your Digital Recommendations implementation includes a standard dashboard that contains a page site performance and content zone performance module.

Note: You cannot edit the standard dashboard. However, you can create custom dashboards.

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Creating a dashboard

You can create custom dashboards to capture information that standard dashboards do not.

Procedure

1. Click **Dashboards** on the side navigation pane.
2. To create a dashboard, click **Create New Dashboard**from the **Actions** menu.
3. Select an existing category to place the dashboard or create a category.
4. Add modules to the dashboard by clicking and dragging them to the **Configuration View**. You can add any combination of modules even multiple modules of the same type.
5. Save the dashboard.
6. Edit the dashboard modules.

The Product zone performance dashboard module

You can view the performance of a single metric for your product zones by using the Product Zone Performance dashboard module.

The Product Zone Performance dashboard module displays data for the product zones that are deployed on your site. Use these dashboards to display the performance of a single metric for a category during a specified time period. You can configure multiple modules to increase the value of a dashboard. You can also use the product zone performance module for product recommendations.

Editing a product zone performance dashboard module

You can edit a zone performance module by clicking the **Edit Dashboard** icon at the upper right corner of the module.

About this task

The following are the most common ways to edit the zone performance dashboard:

- Change the span of time that the dashboard covers by using the **Period** field.
- Change the element category that you are viewing.
- Change the category that the dashboard includes by using the **Zone Performance Tracking Filter**. The default for category for the product zone performance dashboard is specified in **Manage** > **Zone Performance Tracking** > **Product Zone Performance**.
- Add a module to the dashboard.

The A/B test dashboard module

You use the A/B test dashboard module to plots the performance of each group of an active A/B test in a bar chart

You can specify which A/B Test to track in the module and which KPI is used to assess the performance. The A/B Test Performance dashboard module type is disabled if your implementation is configured to use flat file recommendations only.

Editing the A/B Test Dashboard module

You can customize the A/B test dashboard.

About this task

You can edit the A/B Test module by clicking the Edit Dashboard icon at the upper right corner of the module.

The most common ways to edit the A/B Test module are:

- Change the A/B test you are tracking. You also can create a separate module for each AB test.
- Change the metric that you are viewing in the module.
- Add a module to the dashboard.

The KPI Spark Dashboard module

You can use the Key Performance Indicators (KPI) Spark Dashboard module to view trends of your KPIs.

All metrics that are available in the Zone Performance report are available in the KPI report. You can display five metrics at a time.

A spark (trend) line for each metric highlights the most recent metric value and the high and low values in the trend date range.

Editing the KPI Spark Dashboard module

You can edit the KPI spark module.

About this task

You can edit the KPI Spark module by clicking the **Edit Dashboard** icon at the upper right corner of the module.

The most common ways to edit the KPI spark module are:

- Change the metrics you are viewing in the module
- Specify the time span of data that you are viewing
- Change the category that the dashboard includes using the **Zone Performance Tracking Filter**. The default for category is specified in **Manage** > **Zone Performance Tracking** > **Product Zone Performance**.
- Add a module to the dashboard.

The Product Site Performance Dashboard module

You can use the Product Site Performance Dashboard module to view the overall performance of recommendations over the specified number of days.

The Product Site Performance dashboard shows the total site sales and the site sales attributed to recommendations generated by Digital Recommendations sales and views. The following metrics are presented in the module:

- Total Sales - Cumulative site-wide sales.
- Digital Recommendations Sales - Cumulative sales total for all products in the parent category that is selected on the **Manage** > **Zone Performance Tracking** > **Product Zone Performance Tracking** page.
- % of Total Sales - Digital Recommendations Sales / Total Sales.

Editing a product site performance dashboard module

Customize the site performance module.

About this task

You can edit a Site Performance module by clicking the **Edit Dashboard** icon at the upper right corner of the module.

The most common ways to edit the site performance dashboard are:

- Change the span of time that the dashboard covers using **Period**.
- Change the category that the dashboard includes using the **Zone Performance Tracking Filter**. The default for category for the product site performance dashboard is specified in **Manage** > **Zone Performance Tracking** > **Product Zone Performance**.
- Add a module to the dashboard.

Sharing a dashboard

You can share a custom dashboard with others on your team, or change one of your custom dashboards so only you can view it.

About this task

By default, custom dashboards are only available to the user that created them. You can modify a dashboard to be available only to a user group or globally to all users. If you shared a custom dashboard with others, you can change it back so it is available only to you.

Procedure

1. On the side navigation, select the dashboard to share.
2. Select **Share Dashboard** from the **Actions** menu.
3. Select one of these options:
    - **Keep private to dashboard owner**: Keeps the dashboard private to the user that created it.
    - **Share globally with all users**: Makes the dashboard available to all users of the system.
    - **Share only with users from the following groups**: Makes the dashboard available to all user groups you select from the list.

    Note: User groups are managed by using the Admin function.

Emailing a dashboard

You can share a dashboard through email.

About this task

Follow these steps to email the data that is associated with a dashboard to any email address.

Procedure

1. Go to the dashboard that you want to share through email.
2. Click the envelope icon at the upper right of the dashboard.
3. Specify whether to send the email one time, or to send it on a daily, weekly, or monthly schedule.
4. Click **Save**.

Glossary of Reporting Metrics for Product Recommendations

Descriptions for all metrics use in Reports and Dashboards.

Note: For the A/B test reports, **Lift metrics** are calculated as (test split metric - control metric) / control metric.

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The total number of orders placed.

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The total number of times a product detail page (or category that contains the page) was viewed. A count of the collected Product View tags.

Product Views / Session
The average number of product views per session.

Product Views / Items Sold
The average number of product views per items sold.

New Buyers
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Sales
Total sales of purchased items that are calculated with the order tags.

Sessions
The total number of sessions. A session is defined by a sequence of records that are collected by a common session cookie with no more than 30 minutes of inactivity between collected records.

Viewing Sessions
The number of sessions during a selected time period that included a product page view.

Zone Order/Session ratio
Buying sessions/Viewing sessions.

Workbooks

You can create a workbook to group commonly used tabs together for easier access.

The following are examples of how to use workbooks:

- Group all components of a campaign together. With this workbook, you can quickly change a campaign configuration.
- Share reports and dashboards with others.
- Download your reports and dashboards in the same format each time you need them.
- Download data to a spreadsheet for presentation or distribution and share your common views with others.
- Create a set of dashboards for executive overviews.
- Create a set of frequently used reports.

Creating a workbook

You create a workbook by opening the components that you want to include in the workbook and then save them as a workbook.

About this task

Anytime you view a component, you see the component title in a tab at the top of the screen. As you open more components, more tabs display.

Procedure

1. With one or more tabs that are displayed, click **Workbooks** from the side navigation pane.
2. click **Save** from the **Actions** menu.

Results

All open tabs are saved to the workbook.

Sharing a workbook

You can use workbooks to share a group of configuration components with other users. You can also group a set of critical dashboards and reports and share it with other users of the system.

Procedure

1. Open the configuration components, dashboards, or reports that you want to include in a shared workbook.
2. Click **Workbooks** in the side navigation pane.
3. Click **Actions**.
4. Select **Save**.
5. Select **Save as a new workbook** and type a descriptive name for the workbook.
6. Select the saved workbook from the side navigation pane.
7. From the **Actions** menu, select **Share**.
8. Select who you want to share the workbook with.

What to do next

You can stop sharing a workbook by selecting **Keep private to workbook owner** from the **Share Workbook** dialog box.

Viewing frequently used dashboards or reports

You can set up workbooks that contain the reports and dashboard that you use frequently.

Procedure

1. Open all reports and dashboards that you frequently view.
2. Click **Workbooks** in the side navigation pane.
3. Click **Actions**.
4. Select **Save**.
5. Select **Save as a new workbook** and type an appropriate name for the workbook.

What to do next

The next time that you use the system, select this workbook.

Grouping a set of dashboards or reports for recurring download

If you regularly download reports and dashboards, it is more efficient to group your reports and dashboards into a workbook and download the workbook. This practice ensures that your information looks the same each time you download.

Procedure

1. Open all Report and Dashboard that you report on.
2. Click **Workbooks** in the side navigation pane.
3. Select **Actions**.
4. Select **Save**.
5. Select **Save as a new workbook** and type an appropriate name for the workbook.
6. Click **Workbooks**.
7. Select **Actions** from the side navigation pane.
8. Select **Download**.

What to do next

The next time that you want to download these dashboards and reports, select this workbook and repeat step 5.

Configuring a workbook for fast loading

If you have a workbook that you use frequently, you can keep the workbook in cache so that it loads faster the next time you open it.

Procedure

1. Click **Workbooks** from the side navigation pane.
2. Select the workbook that you want to cache.
3. Select **Cache** from the **Actions** menu. You can cache up to 10 workbooks.

Closing all workbook tabs

When you are finished viewing or configuring items in your workbook, you can quickly close all tabs with a single action.

Procedure

Select **Workbooks Actions** > **Close All Tabs**

A/B testing

Digital Recommendations includes an A/B testing capability that is designed to run A, B, C, and D split tests to determine the effect of various Digital Recommendations settings onsite performance.

You can use A/B testing to test alternative behavior algorithms, business rules, site zone locations (above or below the fold), and the number of recommendations that are delivered to a specific site zone.

You can use A/B testing to test business rules, site zone locations (above or below the fold), and the number of recommendations that are delivered to a specific site zone.

You can use A/B Testing only if you are using dynamic recommendations.

How A/B Testing Works

When a new visitor arrives to a website tracked by Digital Analytics, they are assigned a random A/B testing number between 0 through 99 regardless of whether they are in a test or not. This value is established in the Digital Recommendations personalization cookie and stays with the visitor until the cookie is deleted. A/B tests are associated with a site zone. When a visitor arrives at a site zone where an active A/B test is running, a single Digital Analytics element tag is sent to Digital Recommendations with the name of the test and name of the test group the visitor is in. To report on the results of an A/B test, Digital Recommendations creates report segments by using the appropriate element tag variables as criteria. You can use Top Line, Merchandising, and other Digital Analytics reports that support report segment filtering to determine the results for each test group.

Test Groups and Multiple Zone Tests

A Digital Recommendations A/B test is associated with a site zone. However, to achieve some testing scenarios, configure multiple A/B tests for simultaneous operation. In general, test only one hypothesis or scenario at one time. Testing multiple hypotheses one time makes it difficult to determine which change was responsible for a lift or drop in conversions.

When you use multiple Digital Recommendations A/B tests to test a single hypothesis, split the percentage for each test equally. For example, if you are running an A/B test on zone 1 and the test has a 50/50 split across a Control group and a Test A group. If you run a second A/B test on zone 2, make sure that the test has a 50/50 split across a Control group and a Test A group. All visitors who are assigned a test number are in the Control group for both tests. All visitors who are assigned a test number between 50 through 99 are in the Test A group for both tests.

Creating an A/B test

Use this procedure to create an A/B test.

Procedure

1. Click **A/B Tests** on the side navigation pane
2. Click **Action** > **Create New A/B Test**.
3. Type an appropriate name and description for the test you want to run.

   Note: Make sure that the name of your test is unique and does not conflict with any category IDs.
4. Specify the zone that the test applies.
5. Specify the start and end dates for the test.
6. Specify Control parameters for the test.
7. Specify Test A parameters.
8. If you are running more than one variation, click **Add request** to add Test B. You can click **Add request** again to add a Test C.
9. In the % column, split the test equally across tests.
   For example, if you have a Control and Test A, set both to 50%. If you have a Control, Test A, and Test B, set each to 33%.
10. Activate the test.

Related concepts

"Measure A/B test results" on page 115
You have different ways to measure your A/B test results.

Related tasks

"Comparing recommendations" on page 112
You can compare the results of any offer that you create in Digital Recommendations against results that do not use Digital Recommendations.

"Comparing offers" on page 112

Another useful test is comparing results of two offers that are configured differently.

"Testing the zone header text" on page 113
You can test the effect of changes to the Zone Header Text.

"Testing the number of recommendations" on page 113
You can test if the number of recommendations improves results.

"Testing the zone placement" on page 114
Tests how visitors respond to recommendations that are placed in different zones.

"Deactivating an A/B test" on page 114
A/B tests that are configured to stop on a specified day runs through the specified end date. The test will stop early in the morning of the day after the specified end date when all Digital Recommendations processes are complete.

Comparing offers

Another useful test is comparing results of two offers that are configured differently.

About this task

In this scenario, make the offers the same, but change one parameter such as behavior algorithm. For example, have one offer set with a 7-day data analysis time period and another offer set with a 14-day data analysis time period.

In this scenario, make the offers the same, but change one parameter such as the data analysis time period. For example, have one offer set with a strong view-to-view behavior algorithm and another offer set with a strong buy-to-buy behavior algorithm.

You can also create all offer parameters the same, but use a different set of rules. For example, you can set one offer with a rule to exclude items that are not in the same category and one offer with a rule to de-emphasize items that are not in the same category.

Procedure

1. Create two offers: one, the **Control** and the other **Test A**. Configure the offers the same, changing only one parameter or rule.
2. Create a recommendation plan for each offer. Use the same target in both recommendation plans. Select the control offer in one recommendation plan and the Test A offer in the other recommendation plan.
3. Create an A/B test.
   a) Specify the zone that you created.
   b) For the **Control** test element, select the recommendation plan that is associated with the Control offer.
   c) For the **Test A** test element, select the recommendation plan that is associated with the Test A offer.
4. View the test results in the A/B test report or in an A/B performance dashboard. Results complete when the end date you specified for the test is past.

Comparing recommendations

You can compare the results of any offer that you create in Digital Recommendations against results that do not use Digital Recommendations.

Procedure

1. If the Control offer for the test does not exist, create an offer.

2. Create a recommendation plan that uses the offer that you created.
3. Create a zone that uses the recommendation plan that you created.
4. Create an A/B test.
5. Specify the zone that was created in the **Zone** field.
6. For the **Control** test element, specify the recommendation plan that you created.
7. For the **Test A** test element, select **No Recommendations** as the Recommendation plan.
8. Specify 50% each for Control and Test A.
9. Specify the same number of recommendations for Control and Test A.
10. View the test results in the A/B test report or in an A/B performance dashboard. Results are complete when the end date you specified for the test is past.

Testing the zone header text

You can test the effect of changes to the Zone Header Text.

About this task

For example, test "Other customers also shopped:" versus "Other customers also viewed:"

For example, test "Your recently viewed pages:" versus "Pages that you viewed:"

Procedure

1. Create two identical recommendation plans.
2. Change the header text in the first recommendation plan to the first header text that you want to test.
3. Change the header text in the second recommendation plan to the second header text that you want to test.
4. Create an A/B test. Make sure that you specify the first recommendation plan as the Control and the second recommendation plan as Test A.
5. View the test results in the A/B test report or in an A/B performance dashboard. Results are complete when the end date you specified for the test is past.

Testing the number of recommendations

You can test if the number of recommendations improves results.

About this task

Test whether showing four recommendations is better than showing six recommendations.

Procedure

1. Open the zone.

   Note: The number of recommendations that are delivered to the client zone population function is a standard setting in the A/B Test Settings.
2. Configure the number of recommendations for the control and the test groups.
3. View the test results in the A/B test report or in an A/B performance dashboard. Results are complete when the end date you specified for the test is past.

Testing the zone placement

Tests how visitors respond to recommendations that are placed in different zones.

About this task

You create two zones. 50% of the time recommendations are displayed in a single zone and 50% of the time recommendations are displayed in the other zone. Visitors see the same zone placement during the length of the test. For example, test if the horizontal zone is more effective than the zone at the bottom of the page.

Procedure

1. This test assumes that both zones are coded into the site's pages and are tested to be fully functional with the ability to render Digital Recommendations dynamic recommendations.
2. This test requires the creation of two A/B tests. Create A/B Test 1 according to the following steps. You must assign `No Recommendations` to the opposite test group in Test 1 versus Test 2. The percentage splits must be the same for the control and test groups across both tests. This split ensures that any visitor who falls into the Control of Test 1 also fall into the Control of Test 2. Likewise, any visitor who falls into Test A group of Test 1 also fall into Test A group of Test 2.
   a) Create the first test around zone 1 where the Control Group sees the default set of recommendations 50% of the time.
   b) Configure Test A to see No Recommendations the other 50% of the time. The "No Recommendations" option is available in the Recommendation Plan list in the A/B Test Settings. When "No Recommendations" is selected, Digital Recommendations delivers "_NR_" to the site's zone population function. This response causes the site zone not to display.
3. Create A/B Test 2 as follows:
   a) Create a second A/B test around zone 2 where the Control shows No Recommendations 50% of the time.
   b) Configure Test A to use the recommendation plan that is used on the Control Group of Test 1.

Deactivating an A/B test

A/B tests that are configured to stop on a specified day runs through the specified end date. The test will stop early in the morning of the day after the specified end date when all Digital Recommendations processes are complete.

About this task

If a test is not going well, it might be necessary to stop a test immediately.

Procedure

1. Change the **End Date** of the test to a date in the past.
2. Select **Manage > Recommendations Blacklist** from the navigation menu.
3. Click **Publish Configuration Changes**.

Results

The A/B test stops running in approximately 1 hour from the time that you publish the configuration changes.

Measure A/B test results

You have different ways to measure your A/B test results.

Element Report
View top-level metrics that correspond to visitors who fell into established test groups.

Report Segments
Create a report segment for each test group. To do so, use the appropriate Element Category (test name) and Elements Viewed (test group ID) as the criteria for the segment. Set the report segment to filter the Top Line Summary and the Category report.

Filtering the Product Category and Top Line reports
When the report segments are established, use the **Open Settings** button in the Product Category and Top Line Summary reports to compare the performance of the test groups in these reports.

Filtering the Category and Top Line reports
When the report segments are established, use the **Open Settings** button in the Category and Top Line Summary reports to compare the performance of the test groups in these reports.

Image recommendations

You use image recommendations to provide a recommendation list as HTML images that include attribute values like price and product name.

Each image in the list also provides a link to the product page on your website for that recommended item. An image recommendation uses the dynamic delivery method to provide a recommendation list in a different output format: as HTML images that include attribute values like price and product name. Each image in the list also provides a link to the product page on your website for that recommended item.

The primary use for image recommendations is with email campaigns. This type of recommendation generates the list of recommended items when the email recipient opens the message, based on a targeted item in the email message.

Image recommendations are currently only available for product recommendations.

How image recommendations work

Understand how image recommendations are delivered.

As with most campaigns, you start with the offer. For image recommendations meant for email campaigns, you create offers meant to be used in messages to users. Messages can be about abandoned shopping carts, order confirmation, and order tracking. When you create the image recommendation template, you configure the primary offer (and fallback offer, if necessary). Then, you specify what to do with multiple targets, add any campaign tracking parameters that you need, and configure the HTML style and size information for the images.

Then, you preview and proofread the results. The Preview tab of the image recommendation provides generated HTML. For each recommendation, an `img` tag is wrapped in an HREF tag that includes a variable for the target, typically something like %SKU%. When you are satisfied with the way it looks, you publish the template to the Content Delivery Network.

In the meantime, you or your email designers work with your email service provider to make the following configurations:

- Select the HTML code that is generated for the template from the Preview tab of the image recommendation template and position it in the correct locations in the email template.
- Configure the appropriate processing that resolves the values of the target variable when emails are generated from the email template that includes the HTML.

When someone opens the resulting email and the email client loads the message, the HTML from the image recommendation template sends an HTTP request to the Client Delivery Network (CDN). The CDN responds with the recommended items.

In other words, the HTML copied from the recommendation template acts in a similar way as a dynamic site zone on your web page. In this case, you do not use the recommendation request function or a zone population function. The HTML handles the request and the recommendation processing on the CDN handles the formatting of the results.

If there are no recommendations for the target product, the CDN sends a one-pixel transparent image. As a result, email recipients do not see the red X that indicates a missing image. Instead, the area where the image normally appears is blank.

Image recommendations work with HTML email messages only. You cannot use image recommendations with text-only email messages.

Add the required data to the data uploads

You can add product attributes for image recommendations.

To use the image recommendation feature, your Enterprise Product Content Mapping File must include the following product attributes:

- An attribute that holds the URL of the product thumbnail images
- An attribute that holds the URL of the product page (on your website)

Work with your database administrator and your Digital Analytics client consultant to modify your data load files so they include this information.

Determine the design requirements

You must design images to fit the area and position where they are delivered.

At run time, the result of an image recommendation is a number of composite images. Each image contains the thumbnail of the product that is recommended and includes the attribute data that is specified in the template. When you create the template, you configure design attributes so that the final images of the recommended items fit into the design of the email messages that display them.

Before you begin, you must determine the following specifications:

- What are the dimensions of the thumbnail images? How do you want them styled? For example, what is the horizontal and vertical position to use, and what do you want the border color and width to be?
- How do you want to style the text for the attribute values? That is, the font name and size, alignment (left, center, or right), horizontal and vertical position.
- How do you want to style the full image that includes the thumbnail and the attributes? That is, the horizontal and vertical position, size of the full area, background color, border color, and width.
- Do you want to include a secondary image, such as star rating, as part of the image recommendation?

Create or identify the offers

Before you create an image recommendation template, you must determine the offers to use.

- The delivery method must be set to Site Zone.
- The primary offer must be a product cross-sell offer, site category offer, EPR category offer, or an attribute offer. You cannot use search-based offers.
- The fallback offer must be a category offer.

As with any offer, the one to use depends on what you plan to target. For example, if you plan to use the image recommendation in an order confirmation email, you are likely to use some variation of the preset cart page affinity settings so that items that "go with" the targeted item are included in the recommendations. For an email about an abandoned shopping cart, you are likely to use some variation of the product page affinity settings, which weights the view-to-view method higher than the others.

Note: While business rules can be applied as usual to the recommendation list-brand rules or inventory rules, for example - you cannot use personalization or filter items from the recommendation list-based onsite visitor behavior because the offer is not used in a site zone.

In addition, the lists for the offer fields in the image recommendation form include active offers only. So if the offers you want to use are not active, activate them before you create the image recommendation template.

Configure image recommendations

You configure image recommendations.

- Whether your site uses tracking parameters for marketing reports (Acoustic Digital Analytics) or for your email service provider, consider the following suggestions to configure your image recommendations:
- The URL root of your product images. For example: `http://MyCompany.com/creatives/images/products/`
- If there is no target or none of the targets have any recommendations, create a fallback offer. Determine which offer is the fallback offer and determine the product ID to use as the fallback target.
- You can have Acoustic Digital Analytics determine which product attribute to evaluate if there are multiple targets. It chooses the product with the highest value. So, use an attribute with a numeric value like price or rank or profit margin.

Configuring image URLs for recommendations

You can configure image URLs to determine how product images are loaded.

About this task

The Digital Recommendations administrator for your company must complete the following configuration steps.

Note: Configuring product image URLs is optional.

Procedure

1. In the left navigation pane, select **Manage > Offer Configuration**.
2. On the **Attributes** tab, in the **Product Attribute Definition** table, scroll to the attribute that represents the URL of the image thumbnails.
3. In the **Attribute Prefix** field for this URL, enter the URL root of your product images.
   For example: `http://MyCompany.com/creatives/images/products/`
4. Under **Special Values**, specify which attribute contains the URL of the image thumbnail.
5. Under **Special Values**, specify which attribute contains the URL of the product page.
6. In the **Attributes** to include in **Offer Response**, move the attributes that contain the URL of the image and product page to **Selected**.
7. Click **Save**.

Creating the image recommendation templates

Complete the following steps to configure the offer, number of recommendations, and what to do with multiple targets when email recommendations are generated.

Procedure

1. Select **Image Recommendations > Create New Image Recommendation**.
2. In the **Template Name** field, enter an appropriate, short descriptive name with alphanumeric characters and no spaces.
3. In the **E-mail Service Provider** field, select the appropriate option from the list.
4. In the **Primary Offer** field, select the main offer. The list includes all currently active product cross-sell, site category, EPR category offers, and attribute offers that target site zones.
5. Optional. Select a fallback offer and specify the ID of the fallback target. The list in the **Fallback Offer** field includes all currently active product cross-sell and category offers (that target site zones).
6. For the **Number of Recommendations**, choose a number that fits into the design of the email messages with which you plan to use this image recommendation.
7. In the **Recommendations for multiple targets** section, specify how you want the target to be selected if the email message has multiple targets. If you decide that recommendations generate for just one target, select the attribute that determines which target to choose.
   For example, the price or (profit) margin attribute. The product with the greatest value for that attribute becomes the target.
8. Use the settings on the right side of the **Setup** tab to configure any tracking parameters that are necessary for your website and campaign tracking and analytics. At run time, when the list of recommended items is generated, the query strings that are appended to the URLs for the product pages includes name-value pairs for the parameters that are listed here.
   - Note: the `cm_vc` parameter is included and set to the name of the template by default. (For more information, see "Configure the template names as virtual categories in the Category Definition File" on page 120.
   - If you are using the Marketing Programs By Vendor report, then select the **Add MMC parameters to URL** option and configure the parameters.
   - If you are passing tracking values to the ESP, then enter the name-value pairs for the parameters. These name-value pairs are appended to the query string after the "?" character in the URL.

   The values that you specify are passed to the product page (your web page) when the email recipient clicks the thumbnail image of a recommended item.
9. Click **Save** to continue working or if your template is complete, click **Save and Close**.
10. Continue to "Configuring the images generated by the template" on page 118.

Configuring the images generated by the template

The images for each recommended item include the thumbnail of the product that is recommended and any attribute/value pairs that are specified.

About this task

To configure the size and other design attributes of the images that are generated by recommendation image template, complete the following steps.

Procedure

1. From the image recommendation template (**Image Recommendations > open**), click the **Attributes** tab.
2. In the **Full Image Specifications** area, enter the values, in pixels, for the full image. This image is the composite image that includes the thumbnail and the appropriate attribute/value pairs.
3. Specify the background and border colors, as hexadecimal color codes, for the entire image.

4. In the **Thumbnail Specifications** section, enter the values, in pixels, for the size and position attributes of an individual thumbnail. Also, specify the background and border colors, as hexadecimal color codes, for the thumbnail image.
5. In the **Optional Secondary Image Specification** section, specify the attribute alias that is associated with the secondary image and size and position of the image.

   For more information, see "Adding a secondary image to the image recommendation" on page 119.
6. In the **Text attributes used within recommendation image** section, complete the following steps:
   a) Click **Add Attribute**.
   b) Select the attribute from the list.
   c) Specify the horizontal and vertical position values, in pixels.
   d) Select the font type, color, and style.
   e) Enter the font size and select the alignment option.
   f) Repeat these steps for each attribute you want to include.
7. Click **Save** to continue working or if your changes are complete, click **Save and Close**.

Adding a secondary image to the image recommendation

You can add additional information in graphics form, such as star-ratings, to an existing product image.

Before you begin

This procedure requires an understanding of the EPCMF file. For more information, see "The EPCMF" on page 155 in the Acoustic Product Recommendations Configuration Guide.

About this task

Procedure

1. Create a column in your EPCMF for the secondary image.
2. Define the secondary image for each product in your EPCMF.
3. In the Digital Recommendations interface, select **Manage** > **Product Offers** > **Attributes**.
4. In the **Product Attributes Definition** table, define the following values for the **Enterprise Product Static Attribute** associated with the secondary image attribute:

Option	Description
Alias	The alias of the secondary image, as defined in the EPCMF file. For example, `RatingStars`.
Data Type	Text
Default	A secondary image value that you want assigned for products that do not have a value that is defined in the EPCMF. If you do not want to use a default secondary image, leave this blank. For products with no secondary image defined, the product thumbnail and text attributes are displayed.

5. In the **Attributes to include in Offer Response**, move the `RatingStars` attribute to **Selected**.
6. Save the configuration.
7. Add the extra field attribute name of the secondary image to the **Optional Secondary Image Specifications** section of the Attributes tab
8. Add the height and width of the secondary image to the attributes pane.
9. Add the location that you want the secondary image to appear within the primary image.

Results

The secondary image displays inside the full image. If the secondary image is not available, the full image displays.

Previewing the images

You can preview and examine the formatting of your images before you publish the template.

About this task

You can specify which image to preview in various ways:

- Use the first recommendation for the default target as specified in the primary offer.
- Use the first recommendation for the default target from the fallback offer.
- Specify the product ID or category ID of a specific product image.

Complete the following steps.

Procedure

1. From the image recommendation template, click the **Preview** tab.
2. Select an option in the **Target to use for preview** section. If you select **Other product from primary offer**, enter the product ID or category ID. The **Fallback target** option is available if you configure a fallback on the **Setup** tab.

   The option that you choose is not saved. The next time that you examine the Preview tab, it defaults back to the default option.
3. Click **Update Preview**. The first time that you click **Update Preview**, it can take more than several seconds to get the results because Digital Recommendations publishes some temporary files to the Content Delivery Network.
4. Examine the results. Are you satisfied with the way it looks? If not, return to the **Attributes** tab, make your modifications, save your changes, and return to the **Preview** tab.

Results

When there are no recommendations to return, the CDN returns a single-pixel, transparent image to the email message. To help with troubleshooting, the CDN also returns one of the following error codes, which displays while you use image recommendation preview:

Error code	Description
4	There are no recommendations for the target.
7	There are no backup recommendations for the target.
100	The image file is malformed in some way and cannot be displayed.
101	The image file cannot be found.

Configure the template names as virtual categories in the Category Definition File

Provide information about the image recommendation templates (zones) in the Product Categories report.

By default, the system adds the `cm_vc` parameter and sets the value to the image recommendation template name when it generates the URLs for the product pages of the recommended items at run time. The Product Categories report uses the information from the `cm_vc` parameter to determine which recommendation zone - which in this case is the image recommendation template - offered the recommendation.

To provide information about the image recommendation templates (zones) in the Product Categories report, you or your DBA must add the names of the templates as virtual categories in the Category Definition File. The new categories are added as subcategories of a general recommendations category.

For more information, see "Virtual categories" on page 14 in the Digital Analytics Digital Recommendations Configuration Guide.

Configure the email templates

The **Preview** tab of your image recommendation template also provides the generated HTML that your email designers use in your email templates.

For each recommended item, it generates an `<img>` tag that is wrapped in an `<href>` anchor tag. For example, if the template is configured to provide two recommended items, the generated HTML has two sets of "img" and "href" tags that look something like this example:

```
<a href="http://recs.coremetrics.com/iorequest/url?cm_cid=00000000&
cm_template=OrderConf&cm_target=%SKU%&cm_rank=1">
<imgsrc="http://recs.coremetrics.com/iorequest/image?cm_cid=00000000&
cm_template=OrderConf&cm_target=%SKU%&cm_rank=1"/></a>

<ahref="http://recs.coremetrics.com/iorequest/url?cm_cid=00000000&
cm_template=OrderConf&cm_target=%SKU%&cm_rank=2">
<imgsrc="http://recs.coremetrics.com/iorequest/image?cm_cid=00000000&
cm_template=OrderConf&cm_target=%SKU%&cm_rank=2"/></a>
```

Copy the generated HTML code into a text file of some sort and give it to your email designers so they can determine the appropriate placement for each recommended product image. They can use custom CSS styling to specify the placement.

Configure the email processing that resolves the target variable

You can configure the appropriate processing that resolves the values of the target variable as name-value pairs for the target attribute in the URLs for the emails that are generated from the email template. Follow the instructions from your email service provider.

Typically, a mail merge or dynamic token feature runs email processing and is similar to these examples:

`target=sku85039382`

For multiple targets, be sure to use the vertical bar character (|) to separate each value. For example:

`target=sku1|sku5|sku9`

Publishing the image recommendation template

Before the email messages can obtain recommendations from the Content Delivery Network, you must publish the image recommendation template.

Procedure

1. From the **Image Recommendation** list, locate the template that you want to publish.
2. In the **Action** column, click **Publish** for your template. Digital Recommendations publishes the information from the template that determines how to construct the image recommendation images.

Test the email messages and run the campaign

After the image recommendation is published and the offers used by the image recommendation template are processed, send yourself a test message.

Open and examine the message. Make any necessary adjustments and send it again.

If your email service provider provides deliverability testing, it is also a good idea to run a deliverability test on the message. That way that you can ensure that adding recommendations to the email does not affect the deliverability of the message.

When you are satisfied with the email message, run your campaign.

Glossary

A

A/B testing
: A tool that runs A, B, C, and D split tests so you can determine the effect of various Digital Recommendations settings on site revenues and conversions. You can use A/B testing to test alternative algorithm affinity weights, business rules, site zone locations (above or below the fold), and the number of recommendations that are delivered to a specific site zone.

  A tool that runs A, B, C, and D split tests so you can determine the effect of various Digital Recommendations settings on site revenues and conversions. You can use A/B testing to test business rules, site zone locations (above or below the fold), and the number of recommendations that are delivered to a specific site zone.

Affinity score
: A score that encapsulates the relative probability of a recommended item that has a specific affinity with a target item. Digital Recommendations calculates four separate affinity scores and then uses them to calculate a final Affinity Index for every recommended item.

Affinity Weights
: Affinity weights control the weighting of four key data points in the Product Cross Sell algorithm. This capability allows you to tune the algorithm to address a range of customer behavior patterns and product mixes and to alter the output to address different styles of recommendations. For example, weighting recommendations toward items that customers view together generally delivers recommendations of similar items. Weighting recommendations based on items that are purchased together deliver recommendations of products across categories. Affinity weights provide controls to address a range of considerations. Changing the weights of each affinity type can dramatically alter the recommendations that are generated for each product.

Attributes
: Attributes are individual pieces of product information such as price, brand name, or margin. Attributes are evaluated by business rules when Digital Recommendations calculates offers. When you are using dynamic recommendations, attribute/value pairs can be included in the response dataDigital Recommendations sends to the website to aid in with your display of the recommended items.

  Attributes are individual pieces of product information such as rating, publisher, or article length. Attributes are evaluated by business rules when Digital Recommendations calculates offers. When you are using dynamic recommendations, attribute/value pairs can be included in the response dataDigital Recommendations sends to the website to aid in with your display of the recommended items.

B

Business Rules
: You use business rules to place further limits on recommendation output. Exclusionary rules eliminate products, promotional rules force products into recommendations, and de-emphasis rules move products to the back of the candidate list of recommendations rather than excluding them. Rules can be configured globally (at the category level) or by product attribute. The data that rules evaluate is the business data you upload to the system in import files. Business Rules are always defined to apply to a set of Target products.

  You use business rules to place further limits on recommendation output. Exclusionary rules eliminate items and de-emphasis rules move items to the back of the candidate list of recommendations rather than excluding them. Rules can be configured globally (at the category level) or by item attribute. The data that rules evaluate is the business data you upload to the Acoustic Digital Analytics system in import files. Business Rules are always defined to apply to a set of Target items.

Business Rules Data
The product attribute data and category data that you upload into Digital Analytics using the Enterprise Product Report files (EPCMF and ECDF). This data enables exclusionary rules processing to allow for category, price, margin, and other product attribute driven business rules.

The item attribute data and category data. This data enables exclusionary rules processing to allow for category, rating, publisher, and other attribute driven business rules.

C

Category Recommendations
Recommendations based on the site's top selling items that are ranked by unit sales or dollar sales. These top sellers are grouped by categories that are defined in the Enterprise Category Definition File) file. These recommendations can be presented at various points on your website. Configuration options enable you to modify the results of category top-sellers. For example, visitors find the top selling items no matter where they are placed on the website so you might want to remove the top 5%, 10%, or 20% of the top selling items from the recommendations. This allows additional products to be featured, which customers might not otherwise find on their own. Overall Site Top Sellers can also be configured for use on the home page, no search results page, or empty cart page.

Recommendations based on the site's top viewed items that are ranked by the number of views. These top viewed items are grouped by category. These recommendations can be presented at various points on your website. Configuration options enable you to modify the results of category top viewed items. For example, visitors find the top viewed items no matter where they are placed on the website so you might want to remove the top 5%, 10%, or 20% of the top viewed items from the recommendations. This allows additional items to be featured, which customers might not otherwise find on their own. Overall Site Top Views can also be configured for use on the home page or no search results page.

CDN (Content Delivery Network)
The mechanism for delivering Dynamic Recommendations to the website. This service is the dynamic delivery method of Digital Recommendations.

CDF (Category Definition File)
A file that defines the category hierarchy structure in place on your website category with the addition of virtual categories to track items that are sold through on-site search, product recommendations, and other non-navigational methods of finding and purchasing products.

cmDisplayRecs
The JavaScript function that must immediately follow the list of *cmRecRequest* calls on a page. When this call is received, the Digital Recommendations service processes the personalization algorithm, eliminates duplicate products, and passes the final sets of recommendations to the client's zone population functions on the page.

The JavaScript function that must immediately follow the list of *cmPageRecRequest* or *cmElementRecRequest* calls on a page. When this call is received, the Digital Recommendations service processes the personalization algorithm, eliminates duplicate items, and passes the final sets of recommendations to the client's zone population functions on the page.

cmElementRecRequest
The JavaScript function that requests element content recommendations. The parameters of *cmElementRecRequest* are a Zone ID, a Target Element ID, a Target Category ID, and a Randomize Function.

cmPageRecRequest
The JavaScript function that requests page content recommendations. The parameters of *cmPageRecRequest* are a Zone ID, a Target Page ID, a Target Category ID, and a Randomize Function.

cmRecRequest
The JavaScript function that requests product recommendations. The parameters of *cmRecRequest* are a Zone ID, a Target Product ID, a Target Category ID, a Randomize Function, and a Search Term.

cmSetSegment
The JavaScript function that identifies the segment or group that a visitor is associated with.

Content Recommendation
: Content recommendations allow you to recommend information to your visitors, rather than products. For example, if your website includes informational web page content such as articles, recipes, or instructions, you can recommend other articles, recipes instructions. If your website contains elements that are not within the content of your web page, such as videos or PDF files, you can generate content recommendations for other elements.

Cross-sell
: To recommend related or similar products to a customer who is considering a purchase.

D

Data Analysis time period
: The number of previous days for which data is processed when generating recommendations.

Digital Recommendations Personalization Cookie
: This cookie is used to maintain ordered lists of the most recently viewed, carted, and purchased items and the most recently viewed categories. Associated category counts are maintained for the viewed products to help you to understand a visitor's category preference. This cookie is updated in real time using a hook into the Acoustic Digital Analyticslibraries.

  This cookie is used to maintain an ordered list of the most recently viewed pages. This cookie is updated in real time using a hook into the Acoustic Digital Analytics libraries.

Dynamic Recommendations
: One of the two recommendation delivery mechanisms, this method delivers dynamic (variable) recommendations based on pre-defined logic (like top sellers or price constraints) directly to your web pages. See also flat file recommendations.

  One of the two recommendation delivery mechanisms, this method delivers dynamic (variable) recommendations based on pre-defined logic (like top view or rating constraints) directly to your web pages. See also flat file recommendations.

E

Element Tag (`cmCreateElementTag`)
: The Element tag is used to track intra-page content. It also the function that passes extra fields to use for element content offers in Digital Recommendations.

`eluminate.js`
: The Digital Recommendations library file, which handles creation and management of the Digital Recommendations Personalization Cookie and the execution of the *cmRecRequest* and *cmDisplayRecs* functions. This file is provided only to those clients that are using locally hosted Digital Analytics libraries. This file is not provided to clients that are using Digital Analytics hosted libraries.

  The Digital Recommendations library file, which handles creation and management of the Digital Recommendations Personalization Cookie and the execution of the *cmPageRecRequest*, *cmElementRecRequest*and *cmDisplayRecs* functions. This file is provided only to those clients that are using locally hosted Digital Analytics libraries. This file is not provided to clients that are using Digital Analytics hosted libraries.

EPR (Enterprise Product Report)
: A report that also includes an import process for importing product and category data into Digital Recommendations and other Digital Analytics applications. This function is included with Digital Recommendations. The following two files are associated with the Enterprise Product Report:

  - ECDF (Enterprise Category Definition File). A file used to import information that Digital Recommendations uses to process recommendations. It defines a category structure where items can reside in only one parent category. It must contain all of the categories that are included in the EPCMF file and all parent categories.
  - EPCMF (Enterprise Product Content Mapping File). A file that defines each product, the category it belongs in (which must also be in the Enterprise Category Definition File), and up to 50 attributes about each product.

F

Fallback Recommendations

Fallback recommendations are used when there is limited behavior data history for a product, when strict business rules eliminate the requested number of final recommendations, or when recommendations are not available for the specified target to the *cmRecRequest*. There are two fallback processes. The first fallback process happens when the **Wisdom-of-the-Crowd** behavioral data is processed. When there is not enough site behavior data to complete the number of requested recommendations or if business rules eliminate recommendations, then top selling items from the Target Product's EPR category are used as default recommendations. A secondary fallback process is started when recommendations are not available when Dynamic Recommendation Requests are made from the client's website. The sequence of steps in the recommendation plan is used to customize this fallback process for each request.

Fallback recommendations are used when there is limited behavior data history for an item, when strict business rules eliminate the requested number of final recommendations, or when recommendations are not available for the specified target to the *cmPageRecRequest* or *cmElementRecRequest*. There are two fallback processes. The first fallback process happens when the **Wisdom-of-the-Crowd** behavioral data is processed. When there is not enough site behavior data to complete the number of requested recommendations or if business rules eliminate recommendations, then top viewed items from the Target Item's category are used as default recommendations. A secondary fallback process is started when recommendations are not available when Dynamic Recommendation Requests are made from the client's website. The sequence of steps in the recommendation plan is used to customize this fallback process for each request.

Flat file Recommendations Delivery

One of the two recommendation delivery mechanisms, this method delivers a fixed list of recommendations in a flat file which means the recommendations can be integrated with offline channels or custom applications such as call centers, paper catalogs, and in-store kiosks. See also, Dynamic Recommendations.

I

Image Recommendation

An image recommendation uses the dynamic delivery method to deliver recommendations as HTML images with attribute values like the product's name. Each image provides a link to the product page on your website for that recommended item.

The primary use for image recommendations is with email campaigns. This type of recommendation targets an item in the email message and then generates the list of recommended items when the email recipient opens the message.

Individual Visitor Personalization

No two visitors have the same interests nor do they demonstrate identical shopping patterns. Digital Recommendations builds rich individual visitor profiles based on historical and in-session data to automatically present each shopper with a unique set of recommendations. Even unknown visitors receive highly relevant recommendations based on the proven **Wisdom-of-the-Crowd** based algorithms of Digital Recommendations. Because visitor profiles are constructed in real time, recommendations can become personalized quickly, which allows Digital Recommendations to optimize recommendations for every visitor. In addition to automatically optimizing product page, cart recommendations, and category recommendations to the individual, specific recommendation zones can be defined to offer recommendations based on the visitor's observed behaviors. These behaviors include the following.

- Recommendations that are based on an item the visitor recently carted.
- Recommendations that are based on an item the visitor recently purchased.
- Top selling items from a category of the visitor's interest.
- Recommendations that are based on an item the visitor recently viewed.

No two visitors have the same interests nor do they demonstrate identical browsing patterns. Digital Recommendations builds rich individual visitor profiles based on historical and in-session data to automatically present each visitor with a unique set of recommendations. Even unknown visitors receive highly relevant recommendations based on the proven **Wisdom-of-the-Crowd** based algorithms of Digital Recommendations. Because visitor profiles are constructed in real time, recommendations can become personalized quickly, which allows Digital Recommendations to optimize recommendations for every visitor. Specific recommendation zones can be defined to offer recommendations based on the visitor's observed behaviors. These behaviors include the most recently viewed pages as recommendations.

Item

An item is a unique product in your catalog.

An item is a unique page or element in your catalog.

O

Offer

A collection of settings including offer type (Product, Category, Search), algorithm affinity weightings, data analysis time period, and business rules that generates a list of recommended items.

A collection of settings including offer type (Page Content, Element Content, or Category Recommendations), data analysis time period, and business rules that generates a list of recommended items.

Offer Setting

Offer settings define the frequency with which an offer is updated (monthly, weekly, or daily), the amount of data that is considered, the set of products for which recommendations are generated, the number of recommendations per product (flat file only), and the delivery method. Offers can be delivered using a flat file or can be generated dynamically using the Digital Recommendations Recommendation Service for integration directly to the website's presentation layer.

Offer settings define the frequency with which an offer is updated (monthly, weekly, or daily), the amount of data that is considered, and the set of items for which recommendations are generated. Offers are generated dynamically using the Digital Recommendations Recommendation Service for integration directly to the website's presentation layer.

Overall Top Seller Recommendations

These recommendations allow the merchandiser to specify the key categories of products to be represented for pages such as the home page, no search results page, or empty basket page. The top *n* selling items (*n* is a configurable number) are pulled from each of the key categories and represented to the visitor such that each category gets representation through the overall top seller recommendations. As a result, the best selling, highest converting items from the key site categories are merchandised for unknown visitors. Optionally, the order in which the collection of overall top seller recommendations is presented can be randomly determined on page load by passing "R" as the fourth variable in the *cmRecRequest* function.

P

Page View Tag (`cmCreatePageViewTag`)

The Page View tag is used to capture clickstream data as the visitor moves from page to page within the site. It also the function that passes extra fields to use for page content offers in Digital Recommendations.

Product Affinity Index

The total affinity score that is used to rank the products that are recommended for each specific target product.

R

Recommendation Candidate

A product that becomes a candidate for recommendation for the target product or category. It might be excluded later by a business rule, by personalization functions, or by its low score relative to other recommendations.

An item that becomes a candidate for recommendation for the target item or category. It might be excluded later by a business rule, by personalization functions, or by its low score relative to other recommendations.

Recommendations Delivery
Product Recommendations offers the flexibility to deliver a fixed list of recommendations using flat files or dynamic delivery. Flat file delivery enables you to post selected static recommendations. Dynamic delivery enables you to post rotating recommendations that are based on configurable parameters. Both methods of delivery generate sound recommendations and help drive additional sales.

Content Recommendations offers the flexibility to deliver a fixed list of recommendations using dynamic delivery. Dynamic delivery enables you to post rotating recommendations that are based on configurable parameters.

Recommendation Plan
The mechanism for assigning offers to site zones for dynamic recommendations. Additionally, you can configure fallback targets and fallback offers in case recommendations for an item are not available, and specify the header text to display on the banner of the zone.

Recommended Items
The final items that are being recommended for any target item or category after the processing of business rules and personalization functions.

Rule Set
A selection of target items and a corresponding set of rules. Rules in a rule set are applied only to the targets that are defined in the rule set. You configure rules and rule sets on the Rules tab of an offer.

Rule Targets
The target items for which the business rules from an offer are applied. A rule can apply to all targets or for targets that are defined by category, attribute, or item ID. For example, a rule might apply to only items in a specific category.

S

Search Term Based Recommendations
Search term-based recommendations allow merchandising teams to improve the following two business problems: Paid search landing pages are not always relevant, and websites and on-site search results that do not learn from visitor behavior.Digital Recommendations determines the best products to recommend for visitors who search using a query such as "Fishing Pole" or "Running Shoes". For every search term, a view of all sources of search traffic (Paid, Natural, and on-site) feeds the Digital Recommendations algorithm. This aggregated view of customer interaction data across all search sources ensures the richest underlying data set for a single customer query. Search based recommendations can be rendered on Search Engine Marketing (SEM) or on-site search results pages and other locations such as the home page.

T

Target
The item or category for which recommendations are generated.

U

Up-sell
To recommend similar, higher priced products to a customer who is considering a purchase.

Z

Zone
An area on one or more web pages where recommendations are delivered.

Zone Population Function
The JavaScript function that your web designer codes to render the Digital Recommendations recommendations on the client's web page. Fourteen arguments are passed to the Zone Population

Function to aid in the rendering. Your web designer must code the body of the function so that the recommendations can be displayed in a manner that is consistent with the design of your website.

Zone ID

An eight character ID, determined by your web team, that identifies an individual site zone. Zone ID is one of the variables that the `cmRecRequest` function passes when it requests a recommendation list.

An eight character ID, determined by your web team, that identifies an individual site zone. Zone ID is one of the variables that the `cmPageRecRequest` or `cmElementRecRequest`functions passes to requests a recommendation list.

Overview of the configuration guide

What is in this guide.

The *Acoustic Product Recommendations Configuration Guide* is intended for users who access the product daily to:

- Work with the data files used by Acoustic Product Recommendations
- Manage communication between your website and Acoustic Product Recommendations
- Manage advanced configuration options

The *Acoustic Content Recommendations Configuration Guide* is intended for users who access use daily to:

- Work with the data files used by Acoustic Content Recommendations
- Manage communication between your website and Acoustic Content Recommendations
- Manage advanced configuration options

For an overview of the product and more information about using Acoustic Product Recommendations, see the *Acoustic Product Recommendations User's Guide*.

For an overview of the product and more information about using Acoustic Content Recommendations, see the *Acoustic Content Recommendations User's Guide*.

Configuration guide assumptions

This guide assumes that you know whether you are using Flat File or Dynamic recommendations. If you do not know, contact your Digital Analytics administrator or Digital Analytics Customer Support. See Additional contact information.

See the *Acoustic Product Recommendations User's Guide* for information about daily use of the product.

Use the latest `eluminate.js` file

Ensure that you are using the most current support file.

If you are upgrading to a more recent version of Digital Recommendations, ensure that the most current file is active. Contact your Digital Analytics representative for more information.

Deploy dynamic recommendations

You can use dynamic recommendations to create upload files and page requests to load recommendations to your website.

The best implementation option for Product Recommendations is dynamic. A dynamic implementation provides more up-to-date recommendations than flat file recommendations and gives you access to more product features such as A/B testing, personalization, search-term recommendations, and fallback recommendations. Also, future enhancements of Digital Recommendations focus on dynamic capabilities and not flat file capabilities.

To implement dynamic recommendations, use this process:

1. Create two files:

   - The Enterprise Product Content Mapping File (EPCMF) is a file that defines each product, the category it belongs in (which must also be in the Enterprise Category Definition File), and up to 50 attributes about each product.
   - The Enterprise Category Definition File (ECDF) is a file that contains information that is used by Digital Recommendations to process recommendations. It defines a category structure where items are in only one parent category. The ECDF must contain all of the categories that are included in the EPCMF file and all parent categories.

   Digital Recommendations uses data in the ECDF and EPCMF and the offers, rules, and recommendation plans you configure in the user interface.
2. Use Acoustic Digital Analytics Import to make them accessible to Digital Recommendations.
3. Your website administrator inserts the `cmRecRequest` function, the `cmDisplayRecs` function, and one or more zone population functions to request the most recent recommendation data from Digital Recommendations. Recommendations data that is delivered to your website uses a Content Delivery Network (CDN).

For content recommendations, you do not create an ECDF or EPCMF file.

Your website administrator inserts the `cmPageRecRequest` or `cmElementRecRequest`, the `cmDisplayRecs` function and one or more zone population functions to request the most recent recommendation data from Digital Recommendations. Recommendations data that is delivered to your website uses a Content Delivery Network (CDN).

Recommendation request functions

You can create recommendation request calls by using recommendation request functions.

On your web pages that use Digital Recommendations site zones, create one or more recommendation request calls, one for each zone, followed by a single `cmDisplayRecs` call. For more information, see the example in "Sample page source" on page 142 .

The `cmRecRequest` function

Use the `cmRecRequest` function on pages with a site zone that is requesting product-based recommendations. For example, you might have site zones that use product cross-sell, site category, EPR category, or search offers.

Parameters

The `cmRecRequest` function takes up to five parameters in the following order:

Table 31: `cmRecRequest` response parameters		
Position	**Parameter**	**Valid parameter values**
1	Zone ID	The Zone ID is 8 characters or fewer and is defined when you create a zone in the Digital Recommendations interface. The zone ID is case-sensitive. The zone ID is required.
2	Target Product IDs	If you are using a cross-sell offer, Target Product ID is the item ID of the target product. • For zones that are designated solely to drive category recommendations or designated to drive search term-based recommendations, pass empty single quotation marks ('') or empty double quotation marks ("") in this parameter • To use this value, the recommendation plan that is associated with the zone ID must have a step with a target symbolic argument value of _SP_ (for specified product). • If you are you using the multiple target option in your recommendation plan, include multiple target product IDs, separated by a pipe character. For example, `cmRecRequest ('zone1','`**`1111111|222222|333333`**`','catID')` You can pass a maximum of 20 product IDs when you use the multiple target function.
3	Target Category ID	If you are using a category offer, Target Category ID is the category ID of the target product. Typically it is the category ID of the target that is passed by the Target Product ID parameter in position 2. Having Target Product ID parameter in position 2 provides the method to fall back to the category recommendations for the requested category if cross-sell recommendations are not available for the item Digital Recommendations requested. • For category recommendations, pass the category ID on which to base the category recommendations. • For overall top sellers recommendations (if configured in the category offer settings panel) pass a value of '_TS_'. To use this value, the recommendation plan that is associated with the zone ID must have a step with a target symbolic argument value of _SC_ (for specified category). In addition, the category ID passed here must correspond to the category structure for the type of category offer that is associated with the _SC_ step in the recommendation plan. For Site Category offers, Target Category ID is a website category. For EPR Category offers, Target Category ID is a category from the Enterprise Category Definition File (ECDF). Do not use commas in this parameter. **Note:** A recommendation plan would typically contain Target Category ID as the last step in the plan.

Table 31: cmRecRequest response parameters (continued)		
Position	**Parameter**	**Valid parameter values**
4	Randomize Function	This parameter is used only with overall top sellers recommendations (with a target symbolic argument value of _TS_). Pass an "R" as the value for this parameter and the order of the recommendations is randomly sorted on each page load. **Best Practices Recommendation:** In all other cases, it is proven to lower revenues when recommendations are not presented in the exact order that is provided by the algorithm. Statistical significance drops off with every recommendation and proceeds down the list of items in the recommendation set for a specific target.
5	Search Term	The target search term for which recommendations are based for search offer recommendations. If you are using search-term offer, this is the search term that the user provided. Pass in the exact user query, removing leading and trailing spaces. This is required only for zones that are designated to drive search term-based recommendations. To use this value, the recommendation plan that is associated with the zone ID must have a step with a target symbolic argument value of _SS_ (for specified search term).
6	Attribute value	If you are using an attribute-based offer, this is the attribute value to use as the target for requesting recommendations. This is required only for zones that are designated to drive attribute based recommendations. To use this value, the recommendation plan that is associated with the zone ID must have a step with a target symbolic argument value of _SA_ (for specified attribute). **Note:** If the target is a combination of multiple attributes then use the vertical bar character (|) to separate each value. For example: `TOPS|SUMMER|RED`

Specifying the content of the HTTP response from CDN

Dynamic recommendations data is delivered through a Content Delivery Network (CDN) by an HTTP response. This delivery occurs when a site zone triggers the `cmDisplayRecs` function.

About this task

You must define which attribute/value pairs are included in the HTTP response from the CDN.

Procedure

1. On the side navigation pane, select **Manage** > **Product Offers** > **Attributes**.
2. To configure page content offers, select **Manage** > **Content Offers** > **Page Attributes** from the side navigation pane.
3. To configure element content offers, select **Manage** > **Content Offers** > **Element Attributes** from the side navigation pane.
4. Under **Attributes to Include in Offer Response**, move the attributes to include in the response from **Available** to **Selected**.

Search term-based `cmRecRequest` best practices

Use the following information when you configure search term-based recommendations.

Use the following information when you configure search term-based recommendations. For more information, see Search Term-based Recommendation Plan Best Practices in the Acoustic Product Recommendations User's Guide.

Onsite search recommendations

- Code the page so that the fifth parameter of the function is populated with the search term when a visitor initiates an onsite search query.
- When Digital Recommendations does not have recommendations for a search term, code the page so that it does not display the zone.

Paid search landing page recommendations

The following are typical paid search landing pages:

- Category
- Search results
- Product pages
- Category pages
- If you have or want category recommendations on the category pages:
  - Code the pages so that the fifth position of the `cmRecRequest` function is populated with a search term only when a visitor lands directly on that page from a paid or natural search term.
  - If a visitor does not land directly on a page from paid or natural search, code the page so that the fifth position of the `cmRecRequest` function is left blank.
- If you do not want category top seller recommendations, code the page such that the zone is not visible if a search term is not present.
- Paid search traffic that is routed to onsite search landing pages:
  - Code the pages so that the fifth position of the `cmRecRequest` function is populated with a search term only when a visitor lands directly on that page from a paid or natural search term.
  - When Digital Recommendations does not have recommendations for a search term, code the page so that it does not display the zone.
- If paid search traffic is routed to item detail pages, do not base recommendations on the search term.

The `cmDisplayRecs` function

You place the `cmDisplayRecs` function after all recommendation requests functions on a page.

The `cmDisplayRecs` function requires no parameters. It must appear only one time per page and be positioned after all `cmRecRequest` requests on a page. This request tells Digital Recommendations that all zone requests for the page is complete and to call the page's zone population functions with the final recommendations.

The `cmDisplayRecs` function requires no parameters. It must appear only one time per page and be positioned after all `cmPageRecRequest` and `cmElementRecRequest` requests on a page. This request tells Digital Recommendations that all zone requests for the page is complete and to call the page's zone population functions with the final recommendations.

Zone population function

The zone population function is the JavaScript function that your website developers code into your website.

You can pass 14 arguments that aid in rendering recommendations to the zone population function. You code the body of the function so that the recommendations display in a manner that is consistent with the design of your website. The result of the `cmDisplayRecs` request is one or more calls to a client-defined zone population function.

You can define one or more zone population functions. The `cmDisplayRecs` function looks for a zone population function that matches the zone ID in the recommendation request.

Name conventions for the zone population function

Zone population functions must exist for each zone and be named as according to these guidelines.

`*zoneid*_zp`

Where *zoneid* is case-sensitive and can contain alphanumeric or the underscore characters only. Do not use spaces or any special character other than underscore. This ID is used across the application. It is sent in each recommendation request to indicate which zone to use for the request. The page developer who encodes the recommendation request needs the configured zone ID for each active zone on the site. This zone ID is the same value that is used when you are defining the zone with the Acoustic Digital Recommendations user interface.

Note: Store all zone population functions in a single client-defined JavaScript library and this library must be included in all necessary pages.

Arguments for the zone population function

The following arguments are passed to the zone population function.

Table 32: Zone population function arguments

Position	Parameter	Description and use	Field always populated?	Used by zone population function?
1	Recommended Item IDs	An array of recommended item IDs is returned in position 1. Configure the zone population function to render the appropriate content (often including but not limited to a thumbnail image and a short description) for these item IDs in the site real estate that is designated for this zone.	Yes	Standard
2	Zone ID	The zone ID that was specified in the request.	Yes	Standard
3	Target Symbolic	A value that represents the step in the recommendation plan that was used to generate the recommendations. Each step identifies an offer so by identifying the step. This value represents how the recommendation list was generated. When no recommendations are passed into the zone population function, this argument contains the value '_NR_'. See also "Values for the target symbolic argument" on page 137.	Yes	Standard
4	Target ID	The item ID or category ID that was used as the basis for the list of recommended item IDs passed to position 1. Optionally, you can use this parameter to build more advanced zone population function capabilities to render the target ID on which the recommendations are based.	Yes	Optional
5	Category of Target ID	The category ID for the target ID passed to position 4, as defined in the ECDF file.	Yes	Optional

Position	Parameter	Description and use	Field always populated?	Used by zone population function?
6	Attributes for the Recommended Items	A two-dimensional array of attributes for the Recommended Items that are passed to parameter 1. This parameter is useful only if you provide attributes in your EPCMF file. The attributes can be used to help render the final content and might include the location of the thumbnail image, the product page web address, the price, and the item short description. Also, a specified value can be used as an input into the personalization algorithm. For example, personalization attributes might be brand, author, or genre.	Must be configured	Optional
7	Attributes for the Target ID	A one-dimensional array of attributes for the Target ID passed to parameter 4. Same as the previous parameter, however regarding the target ID.	Must be configured	Optional
8	Zone Header Text	When you create a recommendation plan, you can specify the text to display in the zone header on the web page. This parameter provides that header text for the banner of the site zone.	Yes	Standard
9	A/B Test ID	A string that contains the A/B test name, a semicolon, and the A/B test ID for the test element requested. The A/B test name and ID are defined when you create an A/B test in Digital Recommendations. If there is no A/B test for the zone, contains 'no ab test'.	Yes	Optional
10	Categories of Recommended Items	An array that contains the category ID for each of the items that were passed to position 1, as identified in the ECDF.	Yes	Optional
11	Target Page URL	The Page URL for the target ID passed to position 4.	Only populated for page content offers	Optional
12	Target Page Name	The Page Name for the target ID passed to position 4.	Only populated for page content offers	Optional
13	Page URLs of Recommended Items	An array that contains the Page URL for each of the items that were passed to position 1.	Only populated for page content offers	Optional
14	Page Names of Recommended Items	An array that contains the Page Name for each of the items that were passed to position 1.	Only populated for page content offers	Optional

Table 32: Zone population function arguments (continued)

Zone Population Attributes

The Enterprise Product Report attribute values are attribute values that you provide and load into your Digital Analytics database with your EPCMF. Attribute values can be no longer than 2000 characters and there can be no more than 50 attributes per item. For best results, use the minimum number of characters that are needed to support your use case.

Additionally, if you have any attributes that have a consistent prefix such as thumbnail image URL, you can either store the value of the prefix in the zone population function (and then append it to each item received in the recommendation list), or you can configure the prefix for the attribute on the **Attributes** tab in the **Offer Configuration** window. Note: do not include full URLs as attribute values in your EPCMF.

Zone Population Prefixes

You might need to add a prefix to your onsite search keywords. There are several reasons: some sites use different search modes, such as search by part number or by keyword. For example, search by department. This practice allows the web analyst to see the degree to which the search mode is used.

For search recommendations, this type of prefix must not be passed as part of the search query by the client page developer when the client passes the search term in the recommendation request. If there are prefix values to be passed, communicate with your Digital Analytics Client Consultant to determine the appropriate way to factor them out of the search term for data calculation purposes. For search term-based recommendations, the target ID that is passed into the zone population function is altered from the original format that is sent by the website in the recommendation request: spaces and punctuation are removed. This change in output is necessary so that Digital Recommendations can remove meaningless variations between otherwise identical search terms. For example, "women's blouse" and "womens blouse" are both returned as "womensblouse".

Table 33: Zone population function arguments

Position	Parameter	Description and use	Field always populated?	Used by zone population function?
1	Recommended Item IDs	An array of recommended item IDs is returned in position 1. Configure the zone population function to render the appropriate content (often including but not limited to a thumbnail image, a short description, and a link) for these item IDs in the site real estate that is designated for this zone.	Yes	Standard
2	Zone ID	The zone ID that was specified in the request.	Yes	Standard
3	Target Symbolic	A value that represents the step in the recommendation plan that was used to generate the recommendations. Each step identifies an offer so by identifying the step. This value represents how the recommendation list was generated. When no recommendations are passed into the zone population function, this argument contains the value '_NR_'. See also "Values for the target symbolic argument" on page 137.	Yes	Standard
4	Target ID	The item ID, category ID, or search phrase that was used as the basis for the list of recommended item IDs passed to position 1. Optionally, you can use this parameter to build more advanced zone population function capabilities to render the target ID on which the recommendations are based.	Yes	Optional
5	Category of Target ID	The category ID for the target ID passed to position 4, as defined in the analytics tag.	Yes	Optional

Table 33: Zone population function arguments (continued)				
Position	**Parameter**	**Description and use**	**Field always populated?**	**Used by zone population function?**
6	Attributes for the Recommended Items	A two-dimensional array of attributes for the Recommended Items that are passed to parameter 1. This parameter is useful if you provide attributes in your analytics tag. The attributes can be used to help render the final content and might include the location of the thumbnail image, the page web address, and an item description as examples.	Must be configured	Optional
7	Attributes for the Target ID	A one-dimensional array of attributes for the Target ID passed to parameter 4. Same the previous parameter, however regarding the target ID.	Must be configured	Optional
8	Zone Header Text	When you create a recommendation plan, you can specify the text to display in the zone header on the web page. This parameter provides that header text for the banner of the site zone.	Yes	Standard
9	A/B Test ID	A string that contains the A/B test name, a semicolon, and the A/B test ID for the test element requested. The A/B test name and ID are defined when you create an A/B test in Digital Recommendations. If there is no A/B test for the zone, contains 'no ab test'.	Yes	Optional
10	Categories of Recommended Items	An array that contains the category ID for each of the items that were passed to position 1, as identified in the analytics tag.	Yes	Optional
11	Target Page URL	The Page URL for the target ID passed to position 4.	Only populated for page content offers	Optional
12	Target Page Name	The Page Name for the target ID passed to position 4.	Only populated for page content offers	Optional
13	Page URLs of Recommended Items	An array that contains the Page URL for each of the items that were passed to position 1.	Only populated for page content offers	Optional
14	Page Names of Recommended Items	An array that contains the Page Name for each of the items that were passed to position 1.	Only populated for page content offers	Optional

Values for the target symbolic argument

The target symbolic argument holds a value that represents a step in the recommendation plan and, therefore, identifies how a recommendation is generated.

You might need to code your zone population function to display values that are different based on the value that is returned by the target symbolic argument. Enclose values in either single quotation marks (') or double quotation marks (").

Table 34: Values for the target symbolic argument for product recommendations

Target Type	Argument value	Description
Product Targets	_SP_	Retrieves recommendations that are based on one or more product IDs that are specified in position 2 of the `cmRecRequest`.
	RVP	Retrieves recommendations that are based on the visitor's most recently viewed products.
	LCP	Retrieves recommendations that are based on the last product added to a visitor's cart as determined by the last shop5 tag that is seen by Digital Analytics.
	RPP	Retrieves recommendations that are based on the visitor's most recently purchased products as determined by the last product in an order in the last shop9 tag that is seen by Digital Analytics.
	MSP	Retrieves recommendations that are based on the visitor's most significant purchase as determined by the largest purchase (based on price) that occurred within the last six purchases.
Category Targets	_SC_	Retrieves recommendations that are based on the category ID that is specified in position 3 of the `cmRecRequest`. **Note:** If this argument retrieves the item ID that is specified in position 2 of the `cmRecRequest` as one of the recommendations, Digital Recommendations removes it automatically.
	RVC	Retrieves recommendations that are based on the visitor's most recently viewed category as determined by the last product view tag that is seen by Digital Analytics.
	MPC	Retrieves recommendations that are based on the visitor's most popular category as determined by tracking, for each visitor, the EPR categories of products that are viewed, carted, and purchased through responses to the recommendation request. Categories are then ranked for each visitor. The category that receives the most interaction receives the highest ranking and becomes the visitor's most popular category. **Note:** This target is always based on Enterprise Product Report (EPR) categories. Categories that are defined in the Category Definition File (CDF) are not supported for use in personalization given the range of issues that arise from the use of virtual categorization in the CDF.
Search Targets	_SS_	Retrieves recommendations that are based on the search term that is specified in position 5 of the cmRecRequest.
Attribute Value Targets	_SA_	Retrieves recommendations that are based on the attribute value that is specified in position 6 of the cmRecRequest.
No Recommendations	_NR_	No recommendations are passed to the zone population function. No recommendations is the expected value if the associated content area on the page is not be visible to the visitor: for example, if the visitor is in an A/B test and the associated test group does not see any recommendations, or if the fallback process for this item is exhausted and no recommendations are available for it.

*Table 35: Values for the target symbolic argument for **page content** recommendations*

Argument value	Description
_SG_	Retrieves recommendations that are based on one or more page IDs that are specified in position 2 of the `cmPageRecRequest`.

Argument value	Description
SGC	Retrieves recommendations that are based on the category ID that is specified in position 3 of the cmPageRecRequest. If this argument retrieves the item ID that is specified in position 2 of the cmPageRecRequest as one of the recommendations, Digital Recommendations removes it automatically.
RVG	Retrieves recommendations that are based on the visitor's most recently viewed pages.
_NR_	No recommendations are passed to the zone population function. _NR_ is the expected value if the associated content area on the page is not visible to the visitor: for example, if the visitor is in an A/B test and the associated test group does not see any recommendations.

*Table 35: Values for the target symbolic argument for **page content** recommendations (continued)*

*Table 36: Values for the target symbolic argument for **element content** recommendations*

Argument value	Description
_SE_	Retrieves recommendations that are based on the element ID that is specified in position 2 of the `cmElementRecRequest`.
SEC	Retrieves recommendations that are based on the category ID that is specified in position 3 of the cmElementRecRequest. Note: If this argument retrieves the item ID that is specified in position 2 of the cmElementRecRequest as one of the recommendations, Digital Recommendations removes it automatically.
_NR_	No recommendations are passed to the zone population function. _NR_ is the expected value if the associated content area on the page is not visible to the visitor: for example, if the visitor is in an A/B test and the associated test group does not see any recommendations, or if the fallback processes for this item are exhausted and no recommendations are available for it.

Zone population function examples

Here are some example parameter values that are passed to a zone population function. The numbers indicate the position of each argument.

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1. **`['FUCO-02','FUCO-03','FUDE-01','FUDE-02'],`**
   The array of final recommendation IDs (four in this example).
2. **`'ProdZ1',`**
   The ID of the zone for which the recommendations were requested.
3. **`'_SP_',`**
   The code that identifies the target of the recommendation plan step that was ultimately used.
4. **`'FUCO-01',`**
   The actual target that was used, and for which the four recommendations in position 1 were generated.
5. **`'10307',`**
   The category ID of the target.
6. **`[['Modern Occasional Table','10091','299.95','KIAC_01.jpg'], ['Two-Drawer Coffee Table','10073','329.95','KIFR_02.jpg'], ['Executive Six-Drawer Desk','10073','1299.95','KIFR-01.jpg'],[''Craft Table'','10075',''299.95,'KIAC_06.jpg']],`**
   The two-dimensional array of attributes corresponding to the array of items that is passed in the first position. In this example, the attribute array that corresponds to `'FUCO-02'` is `['Modern Occasional Table'','10091','299.95','KIAC_01.jpg']`. If eight recommendations are passed in position 1 and each recommendation has five attributes, the two-dimensional array contains eight rows and five columns.
7. **`['Sleek Occasional Table','10039','159.95','FUDEL_02.jpg'],`**
   The array of attributes for the target.
8. **`'Recommendations from a product recently viewed',`**
   The zone header text.

9. **'PageAB:Ctrl',**
   A string that contains the AB Test Name, followed by a semicolon, followed by the AB test ID of the test element requested. If there is no AB test active for this zone, then the string contains: 'no ab test'.
10. **['10091','10073','10073','10075'],**
    The array of category IDs corresponding to the array of items that is passed in the first position.
11. **'',**
    Not used in this example.
12. **'',**
    Not used in this example.
13. **[],**
    Not used in this example.
14. **[],**
    Not used in this example.

)

Page Content Recommendations Example

(

1. **['MOMS_POT_ROAST','POT_ROAST_ON_THE_GRILL','BARBECUED_POT_ROAST','CROCK-POT_CHICKEN'],**
   The array of final recommendation IDs (four in this example).
2. **'PageZ1',**
   The ID of the zone for which the recommendations were requested.
3. **'_SG_',**
   The code that identifies the target of the recommendation plan step that was ultimately used.
4. **'POT ROAST',**
   The actual target that was used, and for which the four recommendations in position 1 were generated.
5. **'440000100708497832',**
   The category ID of the target.
6. **[['http://www.mysite.com/moms-pot-roast.jpg','Oven','Rating: 1'],['http://www.mysite.com/pot-roast-on-the-grill.jpg','Grill','Rating: 1'],['http://www.mysite.com/barbecued-pot-roast.jpg','Oven','Rating: 2'],['http://www.mysite.com/crock-pot-chicken.jpg','Crock pot','Rating: 2']],**
   The two-dimensional array of attributes corresponding to the array of items that is passed in the first position. In this example, the attribute array that corresponds to `'MOMS_POT_ROAST'` is `['http://www.mysite.com/moms-pot-roast.jpg','Oven','Rating: 1']`. If there are eight recommendations are passed in position 1 and each recommendation has five attributes, the two-dimensional array has eight rows and five columns.
7. **['http://www.mysite.com/pot-roast.jpg','','Rating: 2'],**
   The array of attributes for the target.
8. **'Pages you might enjoy',**
   The zone header text.
9. **'PageAB:Ctrl',**
   A string that contains the AB Test Name, followed by a semicolon, followed by the AB test ID of the test element requested. If there is no AB test active for this zone, then the string contains: 'no ab test'.
10. **['440000100708497832','440000100708498787','440000100708497832', '440000100708498787'],**
    The array of category IDs corresponding to the array of items that is passed in the first position.
11. **'http://www.mysite.com/recipes/pot_roast.html',**
    The page url of the target.

12. **'POT ROAST',**
    The page name of the target.
13. **['http://www.mysite.com/recipes/moms-pot-roast.html','http://www.mysite.com/recipes/pot-roast-on-the-grill.html','http://www.mysite.com/recipes/barbecued-pot-roast.html','http://www.mysite.com/recipes/crock-pot-chicken.html'],**
    The array of page urls corresponding to the array of items that is passed in the first position.
14. **['MOMS POT ROAST','POT ROAST ON THE GRILL','BARBECUED POT ROAST','CROCK-POT CHICKEN'],**
    The array of page names corresponding to the array of items that is passed in the first position.

)

Element Content Recommendations Example

(

1. **["BREAKFAST|EGG RECIPES","DINNER|CHEESY RECIPES","LUNCH|POULTRY RECIPES","DINNER|SEAFOOD RECIPES"],**
    The array of final recommendation IDs (four in this example).
2. **"ElemRZ1",**
    The ID of the zone for which the recommendations were requested.
3. **"_SE_",**
    The code that identifies the target of the recommendation plan step that was ultimately used.
4. **"MAIN PAGE",**
    The actual target that was used, and for which the four recommendations in position 1 were generated.
5. **'10307',**
    The category ID of the target.
6. **[["Title: Healthy egg recipes","http://www.mysite.com/recipes/breakfast-egg.html","http://www.mysite.com/images/breakfast-egg.jpg","Rating: 3","20"],["Title: Dinner is better with cheese!","http://www.mysite.com/recipes/dinner-cheese.html","http://www.mysite.com/images/dinner-cheese.jpg","Rating: 1","50"],["Title: Chicken for lunch","http://www.mysite.com/recipes/lunch-chicken.html","http://www.mysite.com/images/lunch-chicken.jpg","Rating: 4","40"],["Title: Seafood that rocks!","http://www.mysite.com/recipes/dinner-seafood.html","http://www.mysite.com/images/dinner-seafood.jpg","Rating: 2","100"]],**
    The two-dimensional array of attributes corresponding to the array of items that is passed in the first position. In this example, the attribute array that corresponds to `"BREAKFAST|EGG RECIPES"` is `["Title: Healthy egg recipes","http://www.mysite.com/recipes/breakfast-egg.html","http://www.mysite.com/images/breakfast-egg.jpg","Rating: 3","20"]`. If there are eight recommendations are passed in position 1 and each recommendation has five attributes, the two-dimensional array has eight rows and five columns.
7. **["Title: Our great recipes","http://www.mysite.com/recipes.html","http://www.mysite.com/recipes.jpg","Rating: 2","30"],**
    The array of attributes for the target.
8. **"Videos you might like",**
    The zone header text.
9. **"ElemAB:Test_A",**
    A string that contains the AB Test Name, followed by a semicolon, followed by the AB test ID of the test element requested. If there is no AB test active for this zone, then the string contains: 'no ab test'.
10. **["BREAKFAST","DINNER","LUNCH","DINNER"],**
    The array of category IDs corresponding to the array of items that is passed in the first position.
11. **'',**
    Not used in this example.

12. '',
Not used in this example.

13. [],
Not used in this example.

14. [],
Not used in this example.

)

Library and function call placement

All pages that use dynamic recommendations must include the following libraries and functions.

In the <head></head> section (in this order):

1. Load `eluminate.js`
2. Load `cmcustom.js` (if needed)
3. Call `cmSetClientID` (be sure to use the correct domain).

In the <body></body> section (in this order):

1. All tags other than Acoustic Digital Recommendations functions such as `cmCreateProductView` and `cmCreatePageviewTag`.
2. The zone population function can be placed anywhere in the<head></head> or <body></body>, but it must be before all `cmRecRequest` functions.
3. `cmPageRecRequest` or `cmElementRecRequest`. Include one time for each zone on the page
4. `cmRecRequest`. Include this one time for each zone on the page.
5. `cmDisplayRecs` . Call this only one time after all `cmRecRequest` calls.

For more information, see "Tagging Guide" chapter of the Acoustic Digital Analytics Implementation Guide for more information about tagging your site.

For more information, see "Sample page source" on page 142.

Special considerations to display search term-based recommendations

Your organization manages all of the header text that is displayed in the recommendation area within the code for your page.

The search term that is used must be presented back to the visitor in the header text so that the header is clear and engaging to the visitor. The following example demonstrates how the search term "dress shoes" drove the displayed recommendations and is displayed in the zone header.

Disabling Console Log Message

The console log messages are enabled by default. Follow this procedure to disable the console log messages.

Procedure

Insert the following line in your page source, just after loading eluminate.js and typically in the same script block as cmSetClientID: `cmSetupOther({"IORequest.disable_console_logging":true});`.

Example

Following is an example:

```
<script type="text/javascript" src="//libs.coremetrics.com/eluminate.js">
</script>
<script type="text/javascript">
cmSetClientID("99999999",true,"data.coremetrics.com","yoursite.com");
cmSetupOther({"IORequest.disable_console_logging":true});
</script>
```

Enabling Console Log Message

The console log messages are enabled by default. However, if you disabled the console log messages, use this procedure to re-enable.

Procedure

1. Locate the following line in your page source. It is typically in the same script block as cmSetClientID: `cmSetupOther({"IORequest.disable_console_logging":true});`
2. Change the `true` statement to `false`.

   Following is an example:

Example

Following is an example:

```
<script type="text/javascript" src="//libs.coremetrics.com/eluminate.js">
</script>
<script type="text/javascript">
cmSetClientID("99999999",true,"data.coremetrics.com","yoursite.com");
cmSetupOther({"IORequest.disable_console_logging":false});
</script>
```

Sample page source

Digital Recommendations functions must be run after all other tags.

A best practice is to store all zone population functions in a single client defined JavaScript library and this library is included in all pages that display recommendations.

Sample Acoustic hosted libraries for product recommendations

The following code is an example of page source that uses Acoustic hosted libraries, the `cmRecRequest` function, and the `cmDisplayRecs` function.

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<!-- Essentially the smallest html file possible to demonstrate Product Recommendations tagging. -->
<title>Bare Bones Example - Product Recommendations</title>

<!-- The eluminate library is the standard library required for all pages. This file contains all
necessary information for Digital Recommendations to function. -->
<script type="text/javascript" src="//libs.coremetrics.com/eluminate.js"></script>

<!-- The cmSetClientID function is required and sets values for "Client ID", 1st Party method
("Client Managed" or "Coremetrics Managed"), "Data Collection Domain" and "Cookie Domain". -->
<script type="text/javascript">cmSetClientID ("99999999", true, "data.coremetrics.com", "your_domain");</script>

<!-- product_zpf.js is an example of a zone population function. It is recommended to include zone population
functions in a .js file and embed the file in each page for which recommendations are desired. -->
<script src="product_zpf.js"></script>

<!-- example.css is the example style sheet -->
<LINK REL=StyleSheet HREF="example.css" TYPE="text/css"/>
</head>
```

```
<!-- In the body, define a div into which the html created by the zone population function is embedded.
The example div id defined below is "dr_zone1". -->
<body>

<!-- demo_banner is included for appearance only and is not part of Digital Recommendations -->
<div class="demo_banner"></div>

<div class="example_demo">
<div id="dr_zone1"></div>
</div>

<script type="text/javascript">
cmCreateProductviewTag("PROD1234", "Doctor Who TARDIS Blanket", "CAT5678");

// cmRecRequest ("ZoneID","ProdID","CatID") is the call made to the Digital Recommendations library that defines
// the first zone (for this sample page there is only one zone).
//
// "ZoneID" - zone id
// "ProdID" - target product id - for "Specified Product ID(s)" recommendation plan steps, recommendations associated
//             with product "ProdID" will be passed to the zone population function
// "CatID"  - target category id - for "Specified Category ID" recommendation plan steps, recommendations associated
//             with category "_TS_" (Top Sellers) will be passed to the zone population function
cmRecRequest ("PDPZ1","PROD1234","_TS_");

// cmDisplayRecs triggers the recommendation process. It is required.
cmDisplayRecs();
</script>
</body>
</html>
```

Sample zone population function

The following code is an example of zone population function for product recommendations that are requested with the `cmRecRequest` function. A modification (or rewrite) is needed for your website.

```
function test_zpfs(
   a_product_ids,     // Array of recommended product IDs
   zone,              // Zone ID specified in the request (as entered on zone edit screen)
   symbolic,          // Target type:
                      //    _SP_  Specified Product ID(s)
                      //    _SC_  Specified Category ID
                      //    _RVP_ Last Viewed Product(s)
                      //    _RPP_ Last Purchased Product(s)
                      //    _LCP_ Last Carted Product(s)
                      //    _RVC_ Most Recently Viewed Category
                      //    _MPC_ Visitors Most Popular Category
                      //    _MSP_ Most Significant Purchase
                      //    _SA_  Specified Attribute Value
                      //    _SS_  Specified Search Term
                      //    _NR_  No Recommendations
   target_id,         // Target ID recommendations are based on
   category,          // Category of Target item
   rec_attributes,    // 2 dimensional array of attributes for each recommendation
   target_attributes, // Array of attributes for the target
   target_header_txt, // Header text (as entered on recommendation plan edit screen)
   ab_test_id,        // String containing AB Test Name, a semicolon, AB test ID for the test element requested
                      // "no ab test" if no AB Test
   a_cat_ids,         // Array of category IDs for each recommended item
   div_id)            // div id defined in the html - not a standard parameter - added via the function call at bottom
{
   var html = zone + "_zp: No recommendations returned";
   if (symbolic !== '_NR_')
   {
      // attribute offset for description (offset is zero based, first attribute is index 0)
      var i_description = 2;
      // attribute offset for image
      var i_image_url = 0;
      var image_prefix = '';
      var div_recs = '<div class="dr_test_recs"\>';
      var n_recs = a_product_ids.length;
      var div_title = '<div class="dr_recs_title">' + target_header_txt + '<\/div>';
      var div_table = '<div class="dr_recs_table">';
      var image_table = '<TABLE CELLSPACING="2" CELLPADDING="0" Align="center" style="border-color:white;"><TR>';
      var lines = [];
      var width = 100 / n_recs;
      for (var ii=0; ii < n_recs; ii++)
      {
         var rec_prod_id = a_product_ids[ii];
         var image_description = rec_attributes[ii][i_description];
         var image_url = image_prefix + rec_attributes[ii][i_image_url];
         var alt_description = image_description;
         if (!image_description)
         {
            alt_description = 'No Image Available';
            image_description = ' ';
         }
         lines.push('<TD valign="top" class="borderedRollover" width=' + width + '%><div class="bordered_Rollover"><TABLE ALIGN="center"
 WIDTH=' + width + '%>');

         // Display image and it's description
         lines.push('<TR><TD ALIGN="center"><A HREF="' + '"><IMG SRC="' + image_url + '" width=128" + ALT="' + alt_description + '" +
 WIDTH=128
         + height=128 + style="border: medium none; cursor: pointer; padding-bottom: 5px; padding-top: 5px;" /><\/TD><\/TR>');
         lines.push('<TR><TD ALIGN="center"><A STYLE="text-decoration:none" HREF="' + '">' + image_description + '<\/A><\/TD><\/TR>');

         // Display a separator line and then all the attributes
         lines.push('<TR><TD ALIGN="center">_________<\/TD><\/TR>');
         lines.push('<TR><TD ALIGN="center">' + rec_prod_id + '<\/TD><\/TR>');
         if (a_cat_ids !== undefined)
         {
```

```
            lines.push('<TR><TD ALIGN="left">Category:<A STYLE="text-decoration:none" HREF="' + '">' + a_cat_ids[ii-1] + '<\/A><\/TD><\/
TR>');
         }
         for (var jj=0; jj < 50; jj++)
         {
            var attr = rec_attributes[ii][jj] ? rec_attributes[ii][jj] : '-';
            lines.push('<TR><TD ALIGN="left">Attr ' + jj + ':<A STYLE="text-decoration:none" HREF="' + '">' + attr + '<\/A><\/TD><\/TR>');
         }
         lines.push('<TR ><TD><TABLE BORDER="0" CELLSPACING="0" CELLPADDING="0" WIDTH=100%><\/TABLE><\/TD><\/TR>');
         lines.push('<\/TABLE><\/div><\/TD>');
      }
      html = div_recs + div_title + div_table + image_table + lines.join("\n") + '<\/TR\><\/TABLE\><\/div\><\/div\>';
   }
   // Put the generated html into the div defined in the .html file
   document.getElementById(div_id).innerHTML= html;
}
// [ZoneID]_zp, where [ZoneID] is the zone id as entered on zone edit screen
function PDPZ1_zp(a,b,c,d,e,f,g,h,i,j)
{
   test_zpfs(a,b,c,d,e,f,g,h,i,j,'dr_zone1');
}
```

Sample page content zone population function

This is an example zone population function for page content recommendations that are requested with the cmPageRecRequest function. A modification (or rewrite) is needed for your website.

```
function test_zpfs(
   a_page_ids,        // Array of recommended page IDs
   zone,              // Zone ID specified in the request (as entered on zone edit screen)
   symbolic,          // Target type:
                      //    _SG_  Specified Page ID(s)
                      //    _SGC_ Specified Page Category ID
                      //    _RVG_ Last Viewed Page(s)
                      //    _NR_  No Recommendations
   target_id,         // Target ID recommendations are based on
   category,          // Category of Target item
   rec_attributes,    // 2 dimensional array of attributes for each recommendation
   target_attributes, // Array of attributes for the target
   target_header_txt, // Header text (as entered on recommendation plan edit screen)
   ab_test_id,        // String containing AB Test Name, a semicolon, AB test ID for the test element requested
                      // "no ab test" if no AB Test
   a_cat_ids,         // Array of category IDs for each recommended item
   target_page_url,   // Page URL of Target item
   target_page_name,  // Page Name of Target item
   a_page_urls,       // Array of Page URLs for each recommended item
   a_page_names,      // Array of Page Names for each recommended item
   div_id)            // div id defined in the html - not a standard parameter - added via the function call at bottom
{
   var html = zone + "_zp: No recommendations returned";
   if (symbolic !== '_NR_')
   {
      // attribute offset for description (offset is zero based, first attribute is index 0)
      var i_description = 5;
      // attribute offset for image
      var i_image_url = 0;
      var image_prefix = '';
      var div_recs = '<div class="dr_test_recs"\>';
      var n_recs = a_page_ids.length;
      var div_title = '<div class="dr_recs_title">' + target_header_txt + '<\/div>';
      var div_table = '<div class="dr_recs_table">';
      var image_table = '<TABLE CELLSPACING="2" CELLPADDING="0" Align="center" style="border-color:white;"><TR>';
      var lines = [];
      var width = 100 / n_recs;
      for (var ii=0; ii < n_recs; ii++)
      {
         var rec_page_id = a_page_ids[ii];
         var image_description = rec_attributes[ii][i_description];
         var image_url = image_prefix + rec_attributes[ii][i_image_url];
         var alt_description = image_description;
         if (!image_description)
         {
            alt_description = 'No Image Available';
            image_description = ' ';
         }
         lines.push('<TD valign="top" class="borderedRollover" width=' + width + '%><div class="bordered_Rollover"><TABLE ALIGN="center"
 WIDTH=' + width + '%>');

         // Display image and it's description
         lines.push('<TR><TD ALIGN="center"><A HREF="' + '"><IMG SRC="' + image_url + '" width=128" + ALT="' + alt_description + '" +
 WIDTH=128
         + height=128 + style="border: medium none; cursor: pointer; padding-bottom: 5px; padding-top: 5px;" /><\/TD><\/TR>');
         lines.push('<TR><TD ALIGN="center"><A STYLE="text-decoration:none" HREF="' + '">' + image_description + '<\/A><\/TD><\/TR>');

         // Display a separator line and then all the attributes
         lines.push('<TR><TD ALIGN="center">_________<\/TD><\/TR>');
         lines.push('<TR><TD ALIGN="center">' + rec_page_id + '<\/TD><\/TR>');
         if (a_page_urls !== undefined)
         {
            lines.push('<TR><TD ALIGN="left">Page URL:<A STYLE="text-decoration:none" HREF="' + '">' + a_page_urls[ii-1] + '<\/A><\/TD><\/
TR>');
         }
         if (a_page_names !== undefined)
         {
            lines.push('<TR><TD ALIGN="left">Page Name:<A STYLE="text-decoration:none" HREF="' + '">' + a_page_names[ii-1] + '<\/A><\/TD><\/
TR>');
         }
         for (var jj=0; jj < 15; jj++)
         {
            var attr = rec_attributes[ii][jj] ? rec_attributes[ii][jj] : '-';
            lines.push('<TR><TD ALIGN="left">Attr ' + jj + ':<A STYLE="text-decoration:none" HREF="' + '">' + attr + '<\/A><\/TD><\/TR>');
         }
         lines.push('<TR ><TD><TABLE BORDER="0" CELLSPACING="0" CELLPADDING="0" WIDTH=100%><\/TABLE><\/TD><\/TR>');
```

```
         lines.push('<\/TABLE><\/div><\/TD>');
      }
      html = div_recs + div_title + div_table + image_table + lines.join("\n") + '<\/TR\><\/TABLE\><\/div\><\/div\>';
   }
   // Put the generated html into the div defined in the .html file
   document.getElementById(div_id).innerHTML= html;
}
// [ZoneID]_zp, where [ZoneID] is the zone id as entered on zone edit screen
function CBZ1_zp(a,b,c,d,e,f,g,h,i,j,k,l,m,n)
{
   test_zpfs(a,b,c,d,e,f,g,h,i,j,k,l,m,n,'dr_zone1');
}
```

Sample element content zone population function

This is an example zone population function for element content recommendations that are requested with the cmPageRecRequest function. A modification (or rewrite) is needed for your website.

```
function test_zpfs(
   a_element_ids,     // Array of recommended element IDs
   zone,              // Zone ID specified in the request (as entered on zone edit screen)
   symbolic,          // Target type:
                      //    _SE_   Specified Element ID
                      //    _SEC_  Specified Element Category ID
                      //    _NR_   No Recommendations
   target_id,         // Target ID recommendations are based on
   category,          // Category of Target item
   rec_attributes,    // 2 dimensional array of attributes for each recommendation
   target_attributes, // Array of attributes for the target
   target_header_txt, // Header text (as entered on recommendation plan edit screen)
   ab_test_id,        // String containing AB Test Name, a semicolon, AB test ID for the test element requested
                      // "no ab test" if no AB Test
   a_cat_ids,         // Array of category IDs for each recommended item
   div_id)            // div id defined in the html - not a standard parameter - added via the function call at bottom
{
   var html = zone + "_zp: No recommendations returned";
   if (symbolic !== '_NR_')
   {
      // attribute offset for description (offset is zero based, first attribute is index 0)
      var i_description = 0;
      // attribute offset for image
      var i_image_url = 2;
      var image_prefix = '';
      var div_recs = '<div class="dr_test_recs"\>';
      var n_recs = a_element_ids.length;
      var div_title = '<div class="dr_recs_title">' + target_header_txt + '<\/div>';
      var div_table = '<div class="dr_recs_table">';
      var image_table = '<TABLE CELLSPACING="2" CELLPADDING="0" Align="center" style="border-color:white;"><TR>';
      var lines = [];
      var width = 100 / n_recs;
      for (var ii=0; ii < n_recs; ii++)
      {
         var rec_prod_id = a_element_ids[ii];
         var image_description = rec_attributes[ii][i_description];
         var image_url = image_prefix + rec_attributes[ii][i_image_url];
         var alt_description = image_description;
         if (!image_description)
         {
            alt_description = 'No Image Available';
            image_description = ' ';
         }
         lines.push('<TD valign="top" class="borderedRollover" width=' + width + '%><div class="bordered_Rollover"><TABLE ALIGN="center"
 WIDTH=' + width + '%>');

         // Display image and it's description
         lines.push('<TR><TD ALIGN="center"><A HREF="' + '"><IMG SRC="' + image_url + '" width=128" + ALT="' + alt_description + '" +
 WIDTH=128
         + height=128 + style="border: medium none; cursor: pointer; padding-bottom: 5px; padding-top: 5px;" /><\/TD><\/TR>');
         lines.push('<TR><TD ALIGN="center"><A STYLE="text-decoration:none" HREF="' + '">' + image_description + '<\/A><\/TD><\/TR>');

         // Display a separator line and then all the attributes
         lines.push('<TR><TD ALIGN="center">_________<\/TD><\/TR>');
         lines.push('<TR><TD ALIGN="center">' + rec_prod_id + '<\/TD><\/TR>');
         if (a_cat_ids !== undefined)
         {
            lines.push('<TR><TD ALIGN="left">Category:<A STYLE="text-decoration:none" HREF="' + '">' + a_cat_ids[ii-1] + '<\/A><\/TD><\/
TR>');
         }
         for (var jj=0; jj < 15; jj++)
         {
            var attr = rec_attributes[ii][jj] ? rec_attributes[ii][jj] : '-';
            lines.push('<TR><TD ALIGN="left">Attr ' + jj + ':<A STYLE="text-decoration:none" HREF="' + '">' + attr + '<\/A><\/TD><\/TR>');
         }
         lines.push('<TR ><TD><TABLE BORDER="0" CELLSPACING="0" CELLPADDING="0" WIDTH=100%><\/TABLE><\/TD><\/TR>');
         lines.push('<\/TABLE><\/div><\/TD>');
      }
      html = div_recs + div_title + div_table + image_table + lines.join("\n") + '<\/TR\><\/TABLE\><\/div\><\/div\>';
   }
   // Put the generated html into the div defined in the .html file
   document.getElementById(div_id).innerHTML= html;
}
// [ZoneID]_zp, where [ZoneID] is the zone id as entered on zone edit screen
function ElemRZ1_zp(a,b,c,d,e,f,g,h,i,j)
{
   test_zpfs(a,b,c,d,e,f,g,h,i,j,'dr_zone1');
}
```

Sample style sheet

The following sample is an example style sheet.

```
<style type="text/css">
.example_demo
{
   width: 700px;
}
.dr_recs_title
{
   background-color: #666666;
   padding: 5px;
   color: white;
   font-family: Verdana,Arial,sans-serif;
   font-size: 11px;
   font-weight: bold;
   text-decoration: none;
   text-transform: uppercase;
}
.V5_dr_example_recs
{
   border: 1px solid #666666;
}
.V5_dr_example_recs td
{
   color: #000000;
   font-family: Verdana,Arial,sans-serif;
   font-size: 11px;
}
td.borderedRollover
{
   background-color: #FFFFFF;
   border: 1px solid #F7F7F7;
   cursor: pointer;
}
td.borderedRollover:hover
{
   background-color: #FFFFFF;
   border: 1px solid #666666;
}
.rating_bar
{
   width: 55px;
   background: url(star_x_grey.gif) 0 0 repeat-x;
   float: right;
   text-align: left;
}
.rating_bar div
{
   height: 12px;
   background: url(star_x_orange.gif) 0 0 repeat-x;
}
.demo_banner
{
   height: 100px;
   background-image: url('example.jpg');
}
</style>
```

Deploy flat file recommendations

Another deployment option that you can use with Product Recommendations is the Flat File deployment. You can use flat files to integrate with offline channels or custom applications such as call center, paper catalogs, and in-store kiosks. You can use flat files only for product cross-sell and category recommendations.

When you use the flat file delivery method, you cannot use A/B testing, personalization, or search term-based recommendations. To use these capabilities and future roadmap enhancements, deploy dynamic recommendations.

To implement flat file recommendations:

1. Create two files:
   - The Enterprise Product Content Mapping File (ECDF) is a file that defines each product, the category it belongs in (which must also be in the Enterprise Category Definition File), and up to 50 attributes about each product.
   - The Enterprise Category Definition File (ECDF) is a file that contains information that is used by Digital Recommendations uses to process recommendations. It defines a category structure where items can belong in only one parent category. It must contain all of the categories that are included in the EPCMF file and all parent categories.
2. Set up a process to upload the ECDF and EPCMF to Digital Analytics. Product Recommendations generates recommendations by using data in the ECDF and EPCMF and the offers, rules, and recommendation plans you configure in the Digital Recommendations user interface.

   The resulting recommendations are written to the Product Recommendations file, which is a comma-delimited flat file. This file is posted to an SFTP server according to the export settings you choose (for example, monthly, weekly, or daily).
3. Your organization creates an automated process that picks up the Product Recommendations file, transforms it, and loads it into your e-commerce database. Generally, e-commerce systems designate tables where product cross-sells are stored.

   When your ECDF or EPCMF files change, the old Product Recommendations file is deleted and replaced with the new file.

For more information, see

- "Selecting tabular or serial format for your flat file" on page 152
- "ECDF and EPCMF data files" on page 154

Plan for Multiple Offers

When you plan your flat file implementation, account for loading multiple files. For example, some organizations have one Product Recommendations file that is designed for product page recommendations and a second file for shopping cart recommendations. Some organizations implement two recommendation files for the product page. One recommendation file is constrained to products in the same category. For example, customers that are looking for tennis shoes on the product page see recommendations only for related tennis shoes. The second recommendation file excludes items in the direct category of the target product and includes only products from the same department. For example, for men's active clothing in the shopping cart, the shopper does not see other tennis shoes but sees recommendations for socks, shorts, and t-shirts.

For more information, see:

- "Deploy flat file recommendations" on page 146
- "ECDF and EPCMF data files" on page 154

- For information about the location of this file, contact your Digital Analytics representative.

Combine flat file and dynamic recommendations

Digital Recommendations supports use of both the flat file and dynamic methods on a single client website. Using both methods limits the effect of personalization.

For example, if you deploy Digital Recommendations by using flat files for the product page and the shopping cart, you might want to enable Category Recommendations by using dynamic recommendations without changing your product page and shopping cart implementations. Digital Recommendations supports this hybrid integration approach.

This hybrid approach places limitations on the personalization algorithm. When an item is viewed from the cart or on the product page from a Digital Recommendations dynamic request, the library automatically collects data from the response message about the target category and attribute information then stores this data in the visitor's personalization cookie.

The tabular format Product Recommendations File

The tabular format is the default file format of the Product Recommendations file. It is a comma-delimited flat file.

The first row in the tabular format defines the metadata. Refer to "Tabular file format metadata" on page 148.

The second row in the file describes the columns in the file. Refer to "Tabular format column headers" on page 149.

Following is a sample from a tabular format Product Recommendations file:

```
20070317,20070415,1260860,10,9388,20,30,30,20
Target Client Product ID,Recommended Client Product ID 1,...
185,1851,50759.006,191,47586.568,1880,39118.28,1852,34896.816,189,30138.16,...
```

You can open this file in a spreadsheet program to look at the number of rows and quickly see how many targets are in the file. Viewing the file helps you determine the degree to which Digital Recommendations is generating recommendations for your entire catalog. Following is how this file appears in a spreadsheet.

Figure 1: Sample from a tabular file when viewed in a spreadsheet program

Note: Using this file format requires that you build a transformation step to transform the file into a format that can be loaded into your e-commerce systems database.

Note: When you use this file type, you also specify whether to include the file header information. If your data processing functions cannot strip out headers from a flat file, refer to "Suppressing flat file headers" on page 152

After you create your tabular format Product Recommendations file, refer to "Selecting tabular or serial format for your flat file" on page 152

Null values in the tabular file format

When not enough recommendations available, the term "null" displays in some rows in the Tabular recommendations file.

"null" displays because of sparse data for some item IDs. There might not be enough recommendations available to populate the number of recommendations you specified for the export. In these situations, Digital Recommendations inputs "null" for those recommendation slots.

Tabular file format metadata

The first row of the data file contains the metadata record about the recommendations file.

The following table describes this first row.

Table 37: Digital Recommendations metadata record (row 1)			
Field Data	**Data Type**	**Value in the Previous Example**	**Notes**
Data Analysis Start Date	N 8	20070317	Digital Recommendations analyzes affinity data over the period that generally corresponds to the frequency of the export. This field provides the date of the first day of data that was used for analysis by the Digital Recommendations solution.
Data Analysis End Date	N 8	20070415	This field provides the date of the last day of data that was used for analysis by the Digital Recommendations solution.
Total Sessions Analyzed	N 16	1260860	The total number of individual sessions that were used in the analysis.
Number of Product Recommendations	N 2	10	The number of recommendations that are configured by your organization to be included for each target in the file.
Total Number of Target Products	N 16	9388	The total number of records (rows) contained in the export file, excluding the two header rows.
Affinity Weighting 1	N 3	20	The weight that is configured by your organization for the Browse-to-Browse affinity score.
Affinity Weighting 2	N 3	30	The weight that is configured by your organization for the Browse-to-Buy affinity score.
Affinity Weighting 3	N 3	30	The weight that is configured by your organization for the Buy-to-Buy affinity score.
Affinity Weighting 4	N 3	20	The weight that is configured by your organization for the Abandon-to-Buy affinity score.

Tabular format column headers

The second row of the recommendations file contains the column header information.

This header information is for the subsequent *n* rows of data in the export (where *n* is the number of target items you configured in the file). This row is optional when you create the Product Recommendations file. The following table describes the columns in the header row.

Table 38: Digital Recommendations header record (row 2) and recommendations data		
Field	**Data Type**	**Notes**
Target Client Product ID	C 256	The client item ID for which the specified number of recommendations are generated.
Recommended Client Product ID 1	C 256	The client ID with the highest Product Affinity Index score for the target.
Affinity Score for Recommended Client Product ID 1	N 8	The overall affinity score for the recommendation.
Recommended Client Product ID 2	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.

Field	Data Type	Notes
Affinity Score for Recommended Client Product ID 2	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Recommended Client Product ID 3	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Affinity Score for Recommended Client Product ID 3	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Recommended Client Product ID 4	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Affinity Score for Recommended Client Product ID 4	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Recommended Client Product ID 5	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Affinity Score for Recommended Client Product ID 5	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Recommended Client Product ID 6	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Affinity Score for Recommended Client Product ID 6	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Recommended Client Product ID 7	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Affinity Score for Recommended Client Product ID 7	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Recommended Client Product ID 8	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Affinity Score for Recommended Client Product ID 8	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.

Table 38: Digital Recommendations header record (row 2) and recommendations data (continued)

Table 38: Digital Recommendations header record (row 2) and recommendations data (continued)		
Field	**Data Type**	**Notes**
Recommended Client Product ID 9	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Affinity Score for Recommended Client Product ID 9	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Recommended Client Product ID 10	C 256	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.
Affinity Score for Recommended Client Product ID 10	N 8	Optional - inclusion in the export file depends on the number of recommendations that are configured by the client for the Digital Recommendations export.

The serial format product recommendations file

You can use the serial format option for the product recommendations file.

This file format is structured in a way that your data processing mechanism is able to directly load this file with no file transformation process. When you use this file type, file header information is not included. If your data processing mechanism cannot load this file without a file transformation process, refer to "Suppressing flat file headers" on page 152.

Figure 2: Sample serial file when viewed in a spreadsheet program

After you create your serial format Product Recommendations file, refer to "Selecting tabular or serial format for your flat file" on page 152

Naming conventions for the product recommendations file

Use these guidelines for naming the product recommendations file.

The naming convention that is used for the output files for flat file recommendations is the same for both file formats (serial and tabular). File names contain the following six components, which are separated by underscore (_) characters:

`IO_90001006_CartRecommendations_20110913_|.txt`

Where:

IO
: Identifies the Digital Analytics data export type (for example, IO for Digital Recommendations).

Client ID
: Your client ID.

Offer name
: Identifies the name of the offer. If the offer name contains spaces, the space characters are replaced with underscore (_) characters in the file name.

yyyymmdd
: Identifies the year, month, and day when the recommendations file was processed and sent to your organization.

Vertical bar (|) character
Indicates that the recommendations file contains item-based recommendations.

.txt or .zip
Identifies the file as either text or compressed file format.

Selecting tabular or serial format for your flat file

You must identify in the user interface which file format you are using for the product recommendations file.

Procedure

1. Click **Manage** > **Offer Configuration** > **Product Offers** > **More Settings**
2. Select the format in the **File Format** field.
3. Save the settings.

Suppressing flat file headers

Use this procedure to suppress the headers if your data processing functions cannot strip headers out of a flat file.

Procedure

1. Click **Manage** > **Offer Configuration** > **Product Offers** > **More Settings**
2. In the **Flat File Output Options** group, disable **Include File Headers**.
3. Save the settings.

Sorting flat file by affinity score or rank

You can sort your flat file based on the affinity score, or by how the recommendations rank.

About this task

The parameter on which the recommendations are ranked is defined in the offer configuration. For more information, see the "Product Offers" chapter of the Acoustic Digital Recommendations User's Guide.

Procedure

1. Click **Manage** > **Offer Configuration** > **Product Offers** > **More Settings**
2. Select the **Rank Type**.
3. Save the settings.

Overriding the default delimiter

You can override the default delimiter and specify a character other than a comma on the **Offer Settings** tab when you create an offer.

About this task

Procedure

1. Click the **Offer** tab.
2. Click the offer that you want to change.

3. In the **Delivery Options** section, change the **File Delimiter** field.
4. Save the offer.

Configuring the SFTP export location

You specify the location and other settings that are used by Digital Analytics Scheduler to export the data files.

Before you begin

You can modify the SFTP settings for Digital Recommendations at any time. Incorrectly changing SFTP settings that are being used by active offers causes offer export files to not be sent correctly. For this reason, Digital Analytics suggests that organizations grant access permissions to the **Data Export Settings** page to a limited number of users, specifically those individuals in IT responsible for collecting and processing the Digital Recommendations data feed.

Procedure

1. Click **Admin**.
2. Click **Export Settings - FTP** > **Create an SFTP Target**
3. Type a name for the target and specify the **SFTP Settings** and **SFTP Transmission Options**.

   When this SFTP target is published, the Data Export Target name displays in the **Export Destination** list in the **Offer Settings** for an offer.
4. Check the newly created export target and click **Publish**. The SFTP target must be published before it displays in the **Export Destination** list in the **Offer Settings** for an offer.

Display flat file recommendations on your site

The website pages are designed to reference a database table that holds the Digital Recommendations recommendations when the page loads.

The page then displays the top *n* (where *n* is a configurable parameter) recommendations for each item as specified in the Digital Recommendations file. The most relevant recommendation is the first recommended item. The second most relevant recommendation is the second recommended item. This implementation is straightforward to implement on the product page because most e-commerce websites do this today by using manual recommendations. The recommendations are populated into the database by using a content management tool.

Special considerations for shopping cart recommendations

Your organization must create display rules that are applied to the shopping cart to control which recommendations are shown when multiple items are added to the cart.

For example, a shopping cart might be designed to display up to six recommendations. The following are possible shopping cart recommendation scenarios. Base these decisions on your specific business objectives.

- If a single men's product is added to the cart, the cart page picks up the first six recommendations for the cart and displays them.
- If a women's item is added to the cart in addition to the men's item, logic in the cart determines which recommendations to display.
- If multiple items are added the cart, you can base all of the recommendations on the higher priced item in the cart.
- "last chance for conversion" strategy and base the recommendations on lower priced items.
- Equally split the recommendations so the shopper sees three men's items and three women's items.

Draw out scenarios for all cart combinations then create display rules.

ECDF and EPCMF data files

Data on which rules are based is provided using the Enterprise Category Definition File and the Enterprise Product Content Mapping File (EPCMF). These files are required for both flat file and dynamic implementations.

For additional information about creating these data files, refer to *Enterprise Product Report Import File* in the *Acoustic Digital Analytics Import User Guide*

The ECDF

The ECDF is similar in format to the Digital Analytics Category Definition File (CDF).

You must provide the ECDF to use the Enterprise Product Report or to build Digital Recommendations business rules. This file defines:

- The hierarchical structure that you see in the EPR report.
- The categories that are used in Digital Recommendations rules.
- The categories that are used to define top sellers for category recommendations and fallback recommendations.

The table that follows shows the structure of an ECDF when viewed as a spreadsheet.

Table 39: ECDF file structure example

File date	Client ID	Category ID	Category name	Parent category ID
YYYYMMDD	98765432	101GR	Men's	
YYYYMMDD	98765432	201GR	Women's	
YYYYMMDD	98765432	102GR	Men's Shirts	101GR
YYYYMMDD	98765432	103GR	Men's Pants	101GR
YYYYMMDD	98765432	202GR	Women's Shirts	201GR
YYYYMMDD	98765432	203GR	Women's Pants	201GR

An example snippet from an ECDF follows.

```
YYYYMMDD,98765432,"101GR","MEN'S",
YYYYMMDD,98765432,"201GR","WOMEN'S",
YYYYMMDD,XXXXXXX,"102GR","MEN'S SHIRTS","101GR"
YYYYMMDD,XXXXXXX,"103GR","MEN'S PANTS","101GR"
YYYYMMDD,XXXXXXX,"202GR","WOMEN'S SHIRTS","201GR"
YYYYMMDD,XXXXXXX,"203GR","WOMEN'S PANTS","201GR"
```

File naming convention

Use the following naming convention for ECDF files: `ECDF_[clientID]_[optionalparameter].csv`.

Typically, you use the date as the optional parameter. For example, if your client ID is 1938220 and the date is July 18, 2011, then the file name would be: `ECDF_1938220_20110718.csv`

Formatting guidelines

Use the following guidelines when you develop your ECDF:

- Top level categories (such as *Men's* and *Women's*), do not have a do not have a parent category, so you leave the **Parent category ID** field blank.
- Files must follow CSV standards as documented in RFC 4180.

- Files **must** be UTF-8 encoded to handle special characters and trademark symbols.
- Values cannot have unintentional leading or trailing spaces. Trailing spaces are treated as valid characters by Digital Analytics.
- Values for the Category ID cannot contain commas (,).
- Numeric values cannot contain a thousands separator.
- Numeric values cannot have more than 10 digits to the left of the decimal point and 4 digits to the right of the decimal point.
- Do not include currency symbols.
- Each category must be defined only once in this file. For example, there cannot be two categories with the same category ID, and there cannot be two categories with the same name.
- If you are including quotation marks within quotation marks, use double quotation marks per this example:
  - `20070625, xxxxxxxxx,"STR95","Stool - 45"" High","166"`
  - in this case, the description in the report reada as follows: Stool - 45" High
- The ECDF supports a category depth of up to 15, which matches the depth that is supported by the Category Definition File and the Product Categories Report.

The EPCMF

The EPCMF provides data about items and relationships to categories.

An example snippet from an EPCMF follows. The first five columns are the same for every client and are required. They correspond the columns in the ECDF. Values 6-50 are custom attributes and are optional.

```
YYYYMMDD,98765432,"P12323","Men's knit Shirt","102GR","345.00","45", "Blue"
YYYYMMDD,98765432,"W4343","Women's slacks","203GR","15.00","121", "Green"
YYYYMMDD,98765432,"W1323","Women's sandals","204GR","33.00","57", "Silver"
```

An example snippet from the spreadsheet follows. The first five columns are the same for every client and are required. They correspond the columns in the ECDF. Values 6-50 are custom attributes and are optional.

Table 40: EPCMF sample file structure

File date	Client ID	Item ID	Item name	Item primary category ID	Price	Inventory	Color	Enterprise Product Static attribute 50
YYYYMMDD	98765432	P12323	Men's knit shirt	102GR	34.50	45	Blue	User defined
YYYYMMDD	98765432	W4343	Women's slacks	203GR	15.00	121	Green	User defined
YYYYMMDD	98765432	W1323	Women's sandals	204GR	33.00	57	Silver	User defined

File naming convention

Use the following naming convention for the file: `EPCMF_[clientID]_[optionalparameter].csv`

Typically, you use the date as the optional parameter. For example, if your client ID is 98765432 and the date is July 18, 2011, then the file name would be: `EPCMF_98765432_20110718.csv`

Formatting guidelines

Use the following guidelines when you develop your Enterprise Product Content Mapping File:

- Files must follow CSV standards as documented in RFC 4180.

- Files **must** be UTF-8 encoded to handle special characters and trademark symbols.
- Values cannot not have unintentional leading or trailing spaces. Trailing spaces are treated as valid characters by Digital Analytics.
- Values for the Category ID cannot contain commas (,).
- Numeric values cannot contain a thousands separator.
- Numeric values cannot have more than 10 digits to the left of the decimal point and 4 digits to the right of the decimal point.
- Do not include currency symbols.
- Provide a record for each item ID.
- The item ID **must match** the values that are being sent in the Digital Analytics product view, shop5, and shop9 tags.
- For business rules to function properly, in position 5 of each record, each item ID must be assigned to **only one** primary category ID and that ID must be included in the Enterprise Category Definition File. In other words, the category ID **must match** one valid category that is defined in the ECDF.
- Each row in the file must have the same number of entries. For example, if the client is providing two static attributes for row one but no static attributes for row two, row two must end with an extra comma. If the file is a number, provide a value that indicates null, for example "99999".

```
1111,98765432,"SKU1000","Table Saw Compact","Tools","200.00","Y"
1111,98765432,"SKU1001","Table Saw Portable","Tools","250.00",,
```

- Reporting does not support calculated metrics that are based on static metrics.
- If you need an attribute to contain multiple values, the field must be a text field. Separate the values with a subdelimiter character. It is recommended that you use subdelimiter characters such as the caret (^) or vertical bar (|). The maximum length for each attribute value is 2000 characters, including subdelimiters if used. Numeric fields cannot contain multiple values.

If you are using dynamic recommendations, you can include data in the Enterprise Product Content Mapping File (such as the item name and price) and have it returned as attribute data with the recommendation list to aid in rendering the recommended items on your website. Trademark symbols or special characters such as German umlauts are examples of the type of data that, if not handled correctly, become malformed through this process. You can load multibyte characters in the Enterprise Product Report files and receive multibyte characters as part of the Digital Recommendations response message.

Defining EPCMF custom attributes in the user interface

Attributes that are defined in the EPCMF file need to also be defined in the Digital Recommendations interface.

Before you begin

Open your EPCMF and log in to the Digital Recommendations.

Procedure

1. Click **Admin** to open the Digital Analytics Admin interface.
2. Click **Extra Fields** in the side navigation pane.
3. Select the client ID for which you want the change to apply.
4. Select **Enterprise Product Static Attributes** as the **Extra Field Type**.
5. Add a name for the sixth value/column in your EPCMF file as the **Alias** for **Enterprise Product Static Attribute 1**.

   Continuing from the previous example, the sixth value/column is **Price**, so type "Price" as the Alias for **Enterprise Product Static Attribute 1**. The seventh value/column is **Inventory**, so type "Inventory" as the Alias for **Enterprise Product Static Attribute 1**. The eighth value/column is **Color**, so type "Color" as the Alias for **Enterprise Product Static Attribute 1**. Continue until all values/columns in the ECDF are identified in the **Extra Fields** table.

6. Identify the data type for each Enterprise Product Static Attribute.

   For example, Price and Inventory are both numeric values, so select **Number** in the **Data Type** field. Color is a text field, so select **Text** in the **Data Type** field.

Secondary categories and category recommendations

You can include products in multiple categories.

Digital Recommendations allows for secondary categories to be defined in the Enterprise Product Content Mapping File. Products that are in multiple categories can be processed as top sellers in any or all of the subcategories that are defined in this attribute field. To use secondary categories with a category offer, subcategories can be passed by using a string of vertical bar (|) delimited values as one of the Enterprise Product Content Mapping File attributes that indicate the secondary categories to which each item is associated, as shown in the following example.

To use subcategories with a category offer, contact Digital Analytics support.

Add attributes and product IDs to the master catalog

The master catalog contains all product IDs and attributes that are loaded from the EPCMF.

When the EPCMF is uploaded, Product Recommendations creates a Master Catalog (MC) of all product IDs and their specified attributes. This information is used for processing offers.

If you send Product Recommendations extra attributes by using product tags, these attributes are added to the corresponding product IDs in the master catalog. However, if a product ID does not exist in the master catalog, attributes are not added from the product tag.

Note: You cannot add a product ID to the master catalog by using a product tag. To add extra product IDs to Product Recommendations, update the EPCMF file.

Product Recommendations always uses product name that is in the Master Catalog.

Enabling Product Recommendations to use ECDF and EPCMF in business rules

Before you can use the data in the ECDF and EPCMF files for rule management, you need to create aliases for the attribute fields.

About this task

Aliasing the attribute fields gives titles to attributes such as "price" or "inventory". These titles are available in the Enterprise Product Report as titles of the columns in the report. The titles are also available as names in drop-down lists on the **Rules** tab of the offer (where you create business rules). The aliasing tool also defines whether an attribute is numeric or text. This determines the type of operators that are applicable to each attribute when you create rules for the offer.

Procedure

1. Click **Admin** > **Extra Fields**.
2. From the **Extra Field Type** drop-down list, choose the fields that you want to alias. To alias extra fields of the Enterprise Product Report, select **Enterprise Product Static Attributes**.
3. Title each extra field corresponding to the position of values that are provided in the Enterprise Product Report.
4. Set the **Data Type** for each attribute to either Numeric or Text.
5. Enter a comment in the **Comments** field if wanted.
6. Click **Save** when finished.

What to do next

Important: Aliases for attribute fields can be changed before the first Enterprise Product Report file is loaded. However, do not change the position of the attributes if the attribute is aliased. If you need to change the position of attributes after they are aliased, contact Digital Analytics support to reset the associated database tables. All attributes are realiased.

Attributes can be aliased before the Enterprise Product Report files are loaded when the attribute positions align with the final import files. Rules can be defined for aliased attributes when they are aliased. The key principle is not to activate the offer with rules that require those attributes until after the data is loaded through the Enterprise Product Report. For offers that are already in production, do not create new rules until the corresponding rule data is provided. Depending on your business rules policy setting, rules that are defined attributes that are not loaded into the Digital Analytics database can eliminate all items for which data is not provided.

Enterprise Product Report attributes for special use cases

You can use Enterprise Product Report attributes to support the many special use cases. Some of these settings are in the **Offer Configuration** area (**Manage > Offer Configuration**) and some are still configured by Digital Analytics staff.

Product ID mapping
Some organizations send item IDs to Digital Analytics using web tags that use a different item ID than what is needed by the e-commerce system. Digital Recommendations includes an item ID mapping capability to address this requirement. An alternative item ID can be loaded into Digital Recommendations using the import files of the Enterprise Product Report in one of the available extra fields. When the Digital Recommendations are generated, the desired item IDs are inserted using the mapping provided in the Enterprise Product Report files.

Extra personalization attribute
Using **Manage** > **Offer Configuration** > **Attributes**, you can specify one EPR attribute to use as input for the Digital Recommendations personalization algorithm. Examples are item brand, genre, or author.

Sending Enterprise Product Report attributes in the recommendation request response
If needed, EPR attributes can be configured for transmission in the recommendation request response for use by the client's zone population function. Attributes can include image ID, short description, and page URL.

Appending a prefix to EPR attributes
EPR attribute values have a limit of 2,000 characters. If an attribute value always has a consistent prefix such as product thumbnail image URL or product page URL, use the **Product Attribute Definition** setting on the **Attributes** tab of the **Offer Configuration** window to include the prefix for the attribute. This way, you can have attribute values that are longer than 2,000 characters. This is stored in one location in the recommendation response message and is assembled by the `io.js` file before passing the data to the Zone Population Function. This solution also helps manage the Content Delivery Network costs that are associated with Digital Recommendations.

Using secondary categories with an EPR category offer
Digital Recommendations allows for secondary categories to be provided in the Enterprise Product Content Mapping File (EPCMF). Products that live in multiple categories can be processed as top sellers in all of the subcategories that are defined in this attribute field. To use secondary categories with a category offer, secondary categories can be passed a string of vertical bar-delimited values as one of the EPCMF attributes, which indicate the secondary categories in which each item should be associated. It is important to also include the category that is already defined in the EPCMF as the category ID. To use secondary categories with a category offer, contact Digital Analytics support.

What to do when your catalog changes

Most retailers have a constantly changing inventory. They regularly drop items and add new items. For each offer, you can define how the system responds to changes in the data uploaded in your Enterprise Product Content Mapping File (EPCMF) during offer processing.

A key ingredient in calculating recommendations for each item is the strength of that item's affinity to other items. Digital Recommendations determines affinity using data on different relationships that an item has with other items. The principal relationships that the system uses to generate recommendations are various viewing and purchasing activities.

The following definitions provide guidance for how recommendations are made when affinity data is unavailable, or when affinity data is available for an item that is no longer included in the EPCMF. You make the following selections for an offer. Access these options by clicking **Advanced Options** from the offer screen.

Figure 3: Defining recommendation settings for an offer

Generate category-based recommendations for items in the latest EPCMF that do not have sufficient viewing or purchase activity

When a new item is added to the EPCMF, typically there is insufficient viewing or purchase activity to evaluate for that item. As a result, the system cannot generate good recommendations.

- If this check box is cleared, since Digital Recommendations cannot accurately generate affinity-based recommendations, these items are not included in your offer as targets. As a result, if a request for recommendations for the item is made, a timeout occurs because the recommendation file does not exist for this offer.
- If this check box is selected, when the system cannot generate recommendations that are based on affinity data it instead generates recommendations that are based on the category of the item. These category recommendations are retrieved directly from the EPR Category offer by looking at the category of the item and then retrieving those corresponding recommendations. As a result, for the system to retrieve these recommendations successfully the item must be correctly categorized, you must have an active EPR Category offer, and the item category must have sufficient sales in the EPR Category analysis window. If an item is not included in the EPCMF for 60 days, recommendation generation is discontinued.

This check box is selected for all offers by default.

Exclude any recommendations that are not in the latest EPCMF

There are many situations in which you no longer want an item included as a recommendation for any target. For example, if an item is discontinued, and in most client implementations that means it is no longer sent in the EPCMF file.

- If this check box is cleared, any recommendation that is calculated by examining affinity data is passed through as a recommendation provided it is not excluded by the business rules of the offer. This could be undesirable if you stop sending items that you do not want to recommend in the EPCMF.
- If this check box is selected, the system checks to make sure that any recommendation that is calculated based on affinity data is sent as an entry in the latest EPCMF. If the item was not in the latest EPCMF, it is eliminated as a recommendation for all target. This is most often used to prevent recommendations from including potentially discontinued items.

This check box is selected for all offers by default.

Do not generate any recommendations for items that are not in the latest EPCMF

This setting defines whether the system continues to generate recommendations for targets if they are no longer being sent in the EPCMF.

- If this check box is cleared, the system continues to generate recommendations for these targets.

- If this check box is selected, the system checks that each target is sent as an entry in the latest EPCMF and does not generate recommendations for any item that is not found in the file. Typically, you do not want to check this box. Rather, continue to generate recommendations for all items for which you have affinity data. This practice allows your recommendation plans to successfully reference Most Recently Purchased Product, Last Carted Product, and Most Recently Viewed Product. If a visitor does not visit the site frequently, or if the items are recently discontinued, you still want to generate valid recommendations for them, so, you will want these targets included in your offer file.

  Note: If a target is not included in your offer file, the Content Delivery Network does not have recommendations to supply for it. In this situation, a time out occurs before the system can attempt to fulfill the next step in your recommendation plan.

  This check box is cleared for all offers by default.

It is possible that these default settings do not reflect how you manage your data. For example, if your regular data loads do not include the entire item list each time, rather, they include just changed or new items, you should change the default recommendation settings for your offers. To change these settings:

1. From the **Settings** tab of your saved offer, click **Advanced Options**.
2. In the **Recommendation Settings** area, clear or select the options to reflect your intentions.
3. Click **Apply**.

Uploading your input data files

Upload your data to Digital Analytics regularly.

Digital Analytics recommends that you set up a regular process that uploads your Enterprise Category Definition File (ECDF) and Enterprise Product Content Mapping File (EPCMF) once each day.

During your account setup process, you are provided with an import file location where you put your ECDF, EPCMF, and Category Definition File. Add this information to Digital Recommendations

- ftp.coremetrics.com
- User name: <client ID>-import
- Password

Note: Always enter the email address of a person or user group who you want notified of the upload results - whether it was successful or whether there were data loading errors.

Use the following naming conventions for your files:

Table 41: Naming conventions for files

File	Convention	Example
Enterprise Product Content Mapping File (EPCMF)	`EPCMF_[client ID]_[optional date]`	`EPCMF_1938220_07182011.csv`
Enterprise Category Definition File (ECDF)	`ECDF_[client ID]_[optional date]`	`ECDF_1938220_07182011.csv`
Category Definition File	`CDF_[client ID]_[optional date]`	`CDF_1938220_07182011.csv`

You can also use the Import user interface from http://import.coremetrics.com to upload data files.

Figure 4: Import: Enterprise Product Report

Your EPR files are processed once per day overnight in your time zone. If you discover that you have errors in your data files after you have loaded them, you can upload your corrected files the same day. However, they will not be processed until the next scheduled overnight process. Always load both the ECDF and EPCMF daily at the same time or within 15 minutes of each other to ensure successful processing of both files.

When the EPCMF and ECDF are uploaded using either SFTP or the user interface, Digital Analytics conducts pre-loading data checking to ensure correct file format and contents. If there are any error messages, they are sent to the email address entered in the import file management window.

Keeping product and category data Current®

For business rules to function correctly, it is important that the data on which rules are based is kept current.

It is highly recommended that your organization use an automated process to update the files of the Enterprise Product Report when source data for the file changes or the day before each new Digital Recommendations is scheduled to run. If rule data is not kept current, recommendations might be included or excluded from the offer, conflicting with the intent of the business rules established.

For example, if you add a new product to the women's department but you don't update the Enterprise Product Report files to include the new product, a rule that excludes women's products from recommendations for men's items will not exclude the new product.

Determine how frequently to update data files

All data used by Digital Recommendations (rules and affinity data) uses Enterprise Product Report data received the day before the file is scheduled to process.

For example, if an offer file is scheduled to run on Tuesday and has a data analysis time period of seven days, the offer considers rules data and site behavior data captured from the previous Monday looking seven days backward. As a result, update the Enterprise Product Report files the day before each Offer is scheduled to run. For the weekly offer example, update the Enterprise Product Report files and post to Digital Analytics no later than 9 PM local time on Monday. Organizations that run offers daily need to update Enterprise Product Report files daily or when source data changes. Your organization should implement automated processes to trigger Enterprise Product Report updates.

Change attributes

When you designate an extra field in the Enterprise Product Report as a specific attribute, such as product price or brand, avoid changing that attribute. If you must change the attribute, take these steps.

1. Delete all rules that are related to the old attribute.
2. Update the Enterprise Product Report file and post it to Digital Analytics SFTP.
3. Update the old and new fields in the alias tool.
4. Create new rules or criteria.

Tip: When you define the hierarchy, strive to achieve a uniform depth across as many categories as possible. This depth allows for creating category attribute-driven rules that apply to all categories. This approach requires less maintenance than manually selecting categories from a category tree when you are building rules. Before you define the Enterprise Product Report hierarchy, read *Exclude Based on the Value of an Attribute* in the *Product Recommendations User's Guide.*

To enable the exclusion of clearance or marked down items, consider providing an attribute in the EPCMF that signifies that an item is on clearance rather than defining a clearance category in the Enterprise Product Report. Handling this scenario with categories might not be feasible if clearance or marked down items also need to be in their natural categories.

Rules cannot be created on metrics that are created using Edit Metrics in the Enterprise Product Report.

Configuring the SFTP export location

You specify the location and other settings that are used by Digital Analytics Scheduler to export the data files.

Before you begin

You can modify the SFTP settings for Digital Recommendations at any time. Incorrectly changing SFTP settings that are being used by active offers causes offer export files to not be sent correctly. For this reason, Digital Analytics suggests that organizations grant access permissions to the **Data Export Settings** page to a limited number of users, specifically those individuals in IT responsible for collecting and processing the Digital Recommendations data feed.

Procedure

1. Click **Admin**.
2. Click **Export Settings - FTP** > **Create an SFTP Target**
3. Type a name for the target and specify the **SFTP Settings** and **SFTP Transmission Options**.

   When this SFTP target is published, the Data Export Target name displays in the **Export Destination** list in the **Offer Settings** for an offer.
4. Check the newly created export target and click **Publish**. The SFTP target must be published before it displays in the **Export Destination** list in the **Offer Settings** for an offer.

Reduce data requests to your backend systems

You might want to receive additional data about your item in the dynamic recommendation response message.

When you are integrating with Digital Recommendations using dynamic recommendations (real-time calls from your web pages), you might want to receive data about your items, such as the item name or thumbnail image location, as part of the response message. Including this information in the message prevents a second request to your backend system to determine this item content before recommendations are rendered. These values are passed as attributes in the Enterprise Product Report files. Consult your site developers to understand their policies and preferences. Each IT environment is unique and the final determination as to what content, beyond the item ID, is needed must be determined by your IT team.

Data file process summary matrix

The following table summarizes a number of Digital Recommendations processes and identifies the supporting source data.

Digital Recommendations process	Source data
Business Rules	ECDF and EPCMF
Personalization	ECDF and EPCMF
Offer/Rules Fallback Process	ECDF and EPCMF
Dynamic Recommendations Fallback Process	ECDF and EPCMF or CDF Data
Category Recommendations	ECDF and EPCMF or CDF Data

Configure offer processing, attributes, and affinity weights

Configuring time-based weighting for session data

You can customize the affinity weighting for session data (view-to-view and view-to-buy) by specifying that the data is weighted differently based on its age.

About this task

For example, to recognize seasonal or other hot trends immediately, you can specify that the session data from the recent past is more important than session data from last week or last month. Granting a higher value to session data from the recent past also helps newly introduced items get included into recommendation lists more quickly.

Procedure

1. Click **Manage** on the side navigation menu.
2. Select **Product Offers** > **More Settings**.
3. Select **Content Offers** > **More Settings**.
4. In the **Affinity Weights for Session-Related Data** table, specify the age of data and they weight you want to give to each. To add a range to the list, click **Add time range**.

Example

For example, you can enter the following time ranges in the **Affinity Weights for Session-Related Data** table:

- More than 5 days: 90%
- More than 15 days: 85%
- More than 30 days: 80%

In this case, data from the past five days is fully weighted at 100%. Data from 6 through 15 days ago is discounted by 10% - that is, it has a 0.90 affinity weight that is applied to its affinity activity. Data from 16 through 30 days ago has an affinity weight of 0.85 applied to it. And data older than 30 days has an affinity weight of 0.80 applied to it.

Note: These values are weighting ratios that are applied to affinity scores to calculate the final affinity index - the entries do not need to add up to 100.

Configuring time-based weighting for buy-to-buy data

You can customize the affinity weighting for buy-to-buy data by specifying that the data is weighted differently based on the number of days between events

About this task

The time period that is used for the buy-to-buy analysis is a custom value set differently for each company. That is, within the data analysis window, there is a time period value that is used to determine whether individual purchases have an affinity with each other.

Note: The feature is not available for content offers.

Procedure

1. Click **Manage** on the side navigation menu.
2. Select **Product Offers** > **More Settings**.
3. In the **Affinity Weights for Session-Related Data** table, specify the age of data and they weight you want to give to each. To add a range to the list, click **Add time range**.

Example

For example, say that your data analysis window is 90 days and your buy-to-buy analysis period is 21 days. In this case, within the 90 days, any purchases by a visitor that occur within 21 days of each other are related. Purchases that are more than 21 days apart have no affinity and are not considered by the buy-to-buy algorithm.

You can fine-tune the buy-to-buy affinity weighting even more by specifying that items purchased within a certain period within the buy-to-buy window have the strongest affinity. For example, say that you enter the following time ranges in the **Affinity Weights for Buy-to-Buy Data** table:

- More than 10 days: 85%
- More than 15 days: 80%

In this case, purchases that occur within 10 days of each other have the most importance and are fully weighted at 100%. Purchases that occur after 10 days still qualify, but are less important. Purchases that occur within 11 to 15 days of each other have an affinity weight of 0.85 and purchases that occur within 16 to 21 days have an affinity weight of 0.80.

Specify output format for call center and email campaigns

When you plan to use your Digital Recommendations results with channels like call centers or certain kinds of email campaigns, you use the flat file option and generate an output list that you then send to be fulfilled.

The **Flat File Output Options** section on the **More Settings** tab is where you configure how the exported data is formatted in the output files.

Publishing configuration changes

You can change and publish configurations if adjustments are needed.

About this task

The following are examples of needing to change configurations:

- A/B test settings - The results of an A/B test are not going well. The A/B test must be stopped immediately.
- Zone settings - You must see four recommendations on the page instead of three.
- Recommendation plans - You must change a step in a recommendation plan.

In the preceding cases, after you complete the change, do the following steps:

Procedure

1. Select **System Overview**.
2. Click **Publish Configuration Changes**.

Results

The system publishes the changes and the changes go into effect in approximately 1 or 2 hours.

Note: This procedure does not update business rules.

Selecting the cross-sell parent category

To use the Digital Recommendations reports and dashboards, you must define the parent-level cross-sell category. Select the category that includes all of the categories that you are using recommendations such as product page, cart page, or email. This parent category must be at the highest level of categories in the CDF.

Procedure

1. From the side navigation, select **Manage** > **Zone Performance Tracking** > **Product Zone Performance**
2. Select the parent category that will be the top-level category displayed in the reports and dashboards.
3. **Save**

Track cross-sell performance

Putting tracking in place is the first step in the implementation plan, allowing for a base line measurement of the current recommendation program so that you can measure the value (lift) that is delivered by Digital Recommendations.

In most cases, tracking recommendation performance is done in the Digital Analytics Product Categories report through the use of virtual categorization. Many clients who adopt Acoustic Digital Analytics Explore started usingDigital Analytics Explore for recommendation tracking as well.

It is critical that tracking is put in place early in the recommendation implementation cycle. If there is another recommendation program in place, and you are replacing it with Digital Recommendations, it is critical to put tracking in place to measure the performance of the current program at least two weeks before you launch Digital Recommendations.

Use Virtual categories

Visitors who find items through cross-sell recommendations can be tracked using virtual categorization in the Product Categories report. These types of categories are called virtual categories because they are not part of your navigational hierarchy structure.

You typically generate the Digital Analytics Category Definition File (CDF) using a utility that looks at site navigational categories. However, because site search and cross-sells are not navigational categories, they must be added manually to the CDF. Additionally, you need to add virtual categories for tracking recommendations that are delivered through email campaigns or image-based recommendations.

For virtual categorization for website data, there are two options:

- Override all item views and later shop5 and shop9 tags in a session for an item. This option requires you to persist the virtual category throughout the session for an item so that when it is viewed from a cross-sell, for example, its later shop5 (when added to cart) and shop9 (when purchased) also have the same cross-sell category.
- If you cannot change and override categories, see "Tagging Virtual Categories" on page 166.

When you are using Digital Recommendations to deliver recommendations to your web pages, it is a common practice to establish a virtual category for every distinct recommendation location on the site, or in email. This allows for more granular reporting of recommendation activity. You can combine all locations together with a parent-level master category ID in the CDF. For example, when you present recommendations on the product page and in the shopping cart, you define a separate category for each location.

When you use the dynamic delivery method of recommendations, you can create category IDs that match the site zone IDs you have already created for your recommendation area. It is not required that you use the Zone ID as the category ID but it can be helpful. For image-based recommendations, create category IDs for each image-based recommendation template name.

In the following example, categories are defined around how a customer can find, view, cart, and purchase a product on the website. This example compares all site tools and methods in a single report.

Virtual Categorization allows tracking of recommendation performance before Digital Recommendations is implemented, the lift provided by Digital Recommendations, and the effect of changes to recommendations, such as page layout and affinity weights.

Making Changes to the CDF

The Category Definition File (CDF) must be updated with your virtual categories. The example in "Categorize Performance-based Pricing" on page 166 shows how a general cross-sell virtual category can be represented in the CDF. The Digital Recommendations client consultant advises you about how to change the CDF. If multiple recommendation styles are presented on a single page, there might be subcategories to the product page such as "other customers also shopped" and "other customers also bought".

The value of the parameter that is sent cannot have spaces and needs to be alphanumeric. The parameter value must be contained in the category ID field of the CDF file to support their Product Category Report hierarchy.

Categorize Performance-based Pricing

If you contracted Digital Recommendations based on performance-based pricing, you need to add an entry to the CDF to implement performance-based pricing.

Table 42: CDF entry for performance-based pricing

Client ID	Category ID	Category name	Parent category ID
XXXXXXXX	IOR1	Recommendations	
XXXXXXXX	101	Product Page Recs	IOR1
XXXXXXXX	102	Cart Page Recs	IOR1

Tagging Virtual Categories

The `cm_vc` parameter is designed to make tagging for virtual categories a simple one-step process. When a visitor clicks a cross-sell or up-sell recommendation, the `cm_vc` parameter is be placed on the destination URL of the recommended item or sent as an additional item view tag parameter. Digital Analytics provides the appropriate library function handler that is needed to support either `cm_vc` parameter option, and the client must push these new libraries into production. When the `cm_vc` parameter is used in the destination URL of the item details page or is placed in the appropriate field in the item view tag, later shop5 and shop9 tags for that item are automatically categorized appropriately, to persist the earlier cross-sell category ID. The `cm_vc` parameter functions only when used in a item view tag. In cases where a cross-sold item can be added to a cart directly, clients must create an item view tag in addition to a shop5 tag when the item is added to the cart, to set the virtual category for the shop5 and later shop9 tags.

Note: the URLs generated for image-based recommendations include the `cm_vc` parameter by default. You must add the names of the image-based recommendation templates to the CDF manually, but there are no additional steps to ensure that the `cm_vc` parameter is appended to the URLs.

All standard tagging restrictions apply to text that can be passed with this parameter. The parameter maximum length is 256 characters.

The client continues to populate the standard category ID for the item in the item view tag. The Digital Analytics libraries pick up the `cm_vc` parameter value and override the category value with the `cm_vc` parameter value.

ProductContent recommendations cookies

Digital Recommendations relies on two cookies: a session cookie and a permanent first party cookie.

Session cookie
: **CoreM_Ses**: Groups visitors into A/B test groups. It sets only when an A/B test is active.

Permanent first party cookie
: **CoreM_StateCoreM_State_Content**: Manages visitor data for personalization and uses a hook into the Digital Analytics libraries to update in real time. It is placed under the client domain.

  The following are some of the information that is stored in the permanent cookie:

  - An ordered list of the most recently viewed pages.
  - An ordered list of the most recently viewed products.
  - An ordered list of the items added to the cart.
  - An ordered list of the items that are purchased and the prices of the purchases.
  - An ordered list of the most recently viewed categories.
  - Counts are maintained for the categories that are viewed to determine the visitor's most popular category.

Important: The ordered list of items added to the cart operates as stated. Digital Recommendations currently does not attempt to maintain the current contents of the cart. If a visitor purchased an item, it is on the cart list in addition to the previous purchase list in the cookie. The main intent of tracking items in the cart is to filter such items from showing in recommendations for visitors.

Cookie count management

How Digital Recommendations manages the number of cookies.

If you have an active A/B test, Digital Recommendations creates both a session cookie and the Digital Recommendations permanent (personalization) cookie. If you do not have an active A/B test, Digital Recommendations sets the Digital Recommendations personalization cookie only.

If adding the Digital Recommendations personalization cookie would cause the count on IE6 or lower browsers to exceed 20, the session cookie and the Digital Recommendations personalization cookie are not written. For all other browsers the limit Digital Recommendations manages is 50. The minimum number of cookies a browser must support per domain as specified in RFC 2109 section 6.3 is 20 and is the maximum supported for IE 6 and below. Most current browsers support 50 cookies per domain.

Cookie size management

How Digital Recommendations manages the size of the permanent cookie.

The intent of the Digital Recommendations personalization function is to keep enough recent history to manage personalization use cases on the website. Because many visitors delete cookies every three months and the average visitor purchases from a site less than once every three months, the Digital Recommendations approach effectively holds the complete visitor history.

The intent of the Digital Recommendations personalization function is to keep enough recent history to manage personalization use cases on the website. Because many visitors delete cookies every three months, the Digital Recommendations approach effectively holds the complete visitor history.

The maximum size to which the Digital Recommendations personalization cookie can grow is 270 bytes (7% of the 4096 limit), given the current default settings to roll the data off the list. If writing the cookie fails due to the size limitation, the cookie is not written. Data that is stored in the Digital

Recommendations cookies are obfuscated with the CRC32 checksum to compress the size of each list. Each list in the cookie has a configurable number of elements that are stored.

For example, the default number of items purchased that is stored is the most recent six items. When the seventh item is purchased, the oldest item is rolled off the list.

For example, the default number of pages viewed that is stored is the most recent six pages. When the seventh page is viewed, the oldest page is rolled off the list.

Various browsers allow for different individual and collective cookie size. Digital Recommendations does not write to or add a cookie if this action exceeds the number of bytes allowed for the visitor's browser. So whether the maximum allowable cookie size is 4k for all cookies or 2k or 4k per cookie, the Digital Recommendations cookie is only written or updated if the additional information fits. This behavior follows the default behavior inherent in the browser.

For information, see http://support.microsoft.com/kb/306070.

The REST API

Use the this API to retrieve recommendation data as JSON objects.

You can also access Acoustic Digital Recommendations recommendation data through the Digital Recommendations REST API.

The REST API allows developers to build applications that interact directly with the Digital Recommendations servers to retrieve recommendation data as JSON objects. Your application can then process the data as needed and display it appropriately.

The most common use cases for the REST API are call centers, mobile applications, and server-side integrations.

Construct the HTTP request to send to the REST API

The HTTP request to the REST API must include the following URL components in the exact order that is specified here.

```
http://recs.coremetrics.com/iorequest/restapi?cm_cid=[client ID]&
cm_zoneid=[zone ID]&cm_targetid=[target product ID]&
cm_fallbackid=[fallback target ID]
```

```
http://recs.coremetrics.com/iorequest/restapi?cm_cid=[client ID]&
cm_zoneid=[zone ID]&cm_targetid=[target item ID]&
cm_fallbackid=[fallback target ID]
```

Where:

cm_cid
: Required. Your client ID. For example: `00000002`.

  Required. Your client ID. For example: `00000003`.

cm_zoneid
: Required. The site zone ID. The recommendation plan associated with this zone determines the offers used by the REST API to retrieve recommendations. If the zone has an active a/b test then the recommendation plan specified in the control group in the a/b test will be used.

cm_targetid
: Required. The item ID of the target. Recommendations are returned for this target ID using the offer specified in step 1 of the recommendation plan associated with the zone specified by the cm_zoneid parameter. The REST API does not support multiple targets.

cm_fallbackid
: Optional. The item ID of the fallback target. Recommendations are only requested for this target when no recommendations were returned for the target specified by the cm_targetid parameter. Recommendations are returned for this target ID using the offer specified in the Fallback step of the recommendation plan associated with the zone specified by the cm_zoneid parameter. The REST API does not support multiple targets.

For example:

```
http://recs.coremetrics.com/iorequest/restapi?cm_cid=00000002&
cm_zoneid=CartZ1&cm_targetid=PROD550099&cm_fallbackid=CAT002
```

```
http://recs.coremetrics.com/iorequest/restapi?cm_cid=00000003&
cm_zoneid=PageV1&cm_targetid=PAGE760061&cm_fallbackid=CAT011
```

Display the list from the REST API

The response from the REST API is a JSON object that contains the list of recommendations, formatted as described in this section. Use the examples and descriptions in this section when you construct the code that will display the results.

Example


```
{
  "io":
  {
    "clientid": "00000002",
    "offer_id": 10,
    "offer_type": "P",
    "offer_name": "Product_Cross_Sell",
    "target_id": "FULO-0101",
    "offer_version": "2016061311",
    "attributes": [
      {"name": "Product Name", "format": "string", "prefix": ""},
      {"name": "Price", "format": "string", "prefix": "$"},
      {"name": "Product Image", "format": "string", "prefix":
       "http://iocdn.coremetrics.com/prodqa/"}],
    "rec_count": 3,
    "recs": [
      {"id": "FULO-0201", "score": 867.96, "category": "CHAISES", "rank": 1,
       "Product Name": "RED LEATHER ROLL ARM CHAISE", "Price": "105",
       "Product Image": "images/FULO-0201.jpg"},
      {"id": "FUDE-0101", "score": 758.2, "category": "DESKS", "rank": 2,
       "Product Name": "EXECUTIVE SIX-DRAWER DESK", "Price": "100",
       "Product Image": "images/FUDE-0101.jpg"},
      {"id": "FUDEL-0201", "score": 653.78, "category": "LAMPS", "rank": 3,
       "Product Name": "DEVINE DESK LAMP", "Price": "103",
       "Product Image": "images/FUDEL-0201.jpg"}]
  },
  "message": {"code": 200, "text": "OK", "version": "V9"}
```


Example


```
{
  "io": {
    "clientid": "00000003",
    "offer_id": 25,
    "offer_type": "A",
    "offer_name": "Page_Content",
    "target_id": "DESK LAMPS",
    "offer_version": "2016061311",
    "attributes": [
      {"name": "Page Rating", "format": "string", "prefix": ""},
      {"name": "Avg Read Time ", "format": "string", "prefix": ""},
      {"name": "Image Representation", "format": "string", "prefix": ""}],
    "rec_count": 3,
    "recs": [
      {"id": "PRODUCT: MAHOGANY DESK CHAIR (CLEOF-0101)", "score": 7.15,
       "category": "CLEARANCE", "rank": 1, "page URL":
```

```
        "http://retail-demo.coremetrics.com/LiveDemo/product?catalog_id=1
         &category_id=20&prod_id=103", "page name":
        "PRODUCT: MAHOGANY DESK CHAIR (CLEOF-0101)", "Page Rating": "6",
        "Avg Read Time ": "6", "Image Representation":
        "http://iocdn.coremetrics.com/prodqa/images/img6.jpg"},
       {"id": "PRODUCT: BANKER DESK LAMP (FUDEL-0101)", "score": 7.15,
        "category": "DESK LAMPS", "rank": 2, "page URL":
        "http://retail-demo.coremetrics.com/LiveDemo/product?catalog_id=1
         &category_id=6&prod_id=15", "page name": "PRODUCT: BANKER DESK LAMP (FUDEL-0101)",
        "Page Rating": "2", "Avg Read Time ": "1", "Image Representation":
        "http://iocdn.coremetrics.com/prodqa/images/img2.jpg"},
       {"id": "SEARCH SUCCESSFUL", "score": 7.04, "category": "SEARCH", "rank": 3,
        "page URL": "http://retail-demo.coremetrics.com/LiveDemo/search?searchTerm=
         Desk Chair", "page name": "SEARCH SUCCESSFUL", "Page Rating": "5",
        "Avg Read Time ": "1", "Image Representation":
        "http://iocdn.coremetrics.com/prodqa/images/img5.jpg"}]
   },
   "message": {"code": 200, "text": "OK", "version": "V9"}
 }
```


Response parameters

The following table defines the parameters in the response from the REST API.

Table 43: REST API response parameters

Field	Type	Definition
io	Node	Contains all the recommendation data.
clientid	Node	Your client ID.
offer_type	Node	The type of offer, indicated by one of the following codes: • P = product cross-sell • E = Enterprise Product Report category • C = website category • S = search term • T = attribute based offer • A = page content • B = element content • F = page content category • G = element content category
offer_name	Node	The name of the offer.
offer_version	Node	The offer version, as indicated by a timestamp with the following format: YYYYMMDDHHMISS
target_id	Node	The ID of the target.
attributes	List	The list of available attributes.
attributes.name	Node	Name of attribute.
attributes.format	Node	Format of attribute.
attributes.prefix	Node	If the attribute has a prefix that is configured, its value. For example, for a price attribute, a currency symbol ($).
rec_count	Node	The number of recommendations that is included in the list.
recs	List	List of recommendations.

Table 43: REST API response parameters (continued)		
Field	**Type**	**Definition**
recs.id	Node	The ID of the recommended item.
recs.category	Node	The category of the recommended item.
recs.score	Node	The affinity score that is calculated for the item in the context of the target.
recs.rank	Node	The rank of the recommended item as a 1-based number.
recs.attribute	Node	An unbounded list of attribute name-value pairs that are based on number of available attributes.

Response codes

The REST API also returns one of the following HTTP response codes.

Table 44: HTTP response codes

Response code	Message	Description
200	OK	The request was successful.
404	Error	The URL was incorrect or not found.
500	Error	There was an error on the server and the request did not succeed.

REST API error codes

List of possible error codes in the REST API.

Table 45: REST API error codes

Code	Description
1	Template not published
2	Invalid template
3	Invalid Recommendation file URL
4	Recommendation file does not exist
5	Invalid Recommendation file format
6	Recommendation file unreadable
7	Recommendation files for primary/backup do not exist
8	IRS (Image Rec Server) section missing/invalid
9	PD (Product Detail) section missing/invalid
10	Recommendation instance error
11	JSON Error
12	Error creating image
13	Recommendation file contains no recommendations
14	Missing/invalid target in recommendation file

Table 45: REST API error codes (continued)	
Code	**Description**
15	Missing IO Config file
16	Invalid IO Config file
17	Invalid Zone ID
18	Error Processing IO Config
19	Too few Recommendations
20	Invalid SSP (Server-Side Personalization) URL
21	SSP (Server-Side Personalization) file not found
22	MIDS section missing/invalid
23	AP section missing/invalid
24	HD section missing/invalid
25	AN section missing/invalid
26	An internal error occurred
27	Invalid recommendation file format
100	Thumbnail image error
101	Image file not found
201	Cannot connect to URL
202	Cannot open connection to URL
203	Cannot read from URL

Using Digital Recommendations with LIVEmail

The Acoustic LIVEmail application enables you to use the web analytics data from Acoustic Digital Analytics to target segments for your email campaigns.

You can use Digital Recommendations with your LIVEmail marketing campaigns in one of the following ways:

- Use the output from offers that output flat file recommendations in the email messages.
- Use the new image-based recommendation type described *Work with Image-based Recommendations* in the *Digital Analytics Digital Recommendations User's Guide.* to deliver dynamic recommendations in the email messages.

Use cases and considerations

Email marketers find that including Digital Recommendations results in both promotional and transactional emails greatly increases the relevancy of those messages, which in turn boosts click-through and conversion rates, while increasing email-based purchase frequency and volume.

You can use Digital Recommendations results in most email communications, including:

- Post-purchase cross-sell or up-sell emails
- Abandoned shopping cart emails
- Browse behavior-based emails

- Order confirmation emails
- Shipping confirmation emails

Consider the following when you create offers that are meant to be used with email campaigns.

Targets
Select targets that are appropriate email campaigns rather than web pages.

Frequency
Set the offer to process the night before the email deploys to ensure the most up-to-date recommendation. If emails are deployed every Friday afternoon, set the offer to process every Friday because offers are processed early in the morning. The offers should be synchronized with the LIVEmail daily feed.

Algorithm settings
Use the algorithm settings to ensure that recommendations are aligned with the focus of the email campaign. For example, if the email is reaching out to customers that abandoned a product, more emphasis should be placed on the abandoned-to-buy affinity. If the email is reaching out to customers who just purchased a product, emphasis should be placed on the buy-to-buy affinity.

Delivery options
To use dynamic offers, you must use image-based recommendations. See *Work with Image-based Recommendations* in the *Digital Analytics Digital Recommendations User's Guide.* for information about this option.

For flat file offers, your Digital Recommendations exports can be delivered either to ftp.coremetrics.com for retrieval or directly to the ESP SFTP location. If it is sent to the Digital Analytics SFTP, alert the ESP of the expected file name and location. If this file is sent directly to the ESP, request the credentials from the ESP, create a SFTP location in the Admin menu, and configure the offer to specify the appropriate SFTP location to which the recommendation file should be sent. If the ESP is a certified LIVEmail partner, when the LIVEmail activity feed and the Digital Recommendations recommendation file are received by the ESP, the data can be transformed as necessary and stored until it is needed to populate recommendation zones within the email creative.

Tracking
Tracking these recommendations is also important. Be sure to use mmcs parameters on links that are provided for recommendations and on the `cm_vc` parameter. Refer to the *Digital Recommendations Email Brief* at https://support.coremetrics.com for more information.

Response times and performance

All Digital Recommendations data that is accessed through dynamic recommendations is delivered using a Content Delivery Network (CDN).

When recommendations are requested for each item, the first request of the day can take up to 400® milliseconds to complete the full round trip because this data is at the CDN origin. Each subsequent response is delivered from cache at the edge where response times averages 20 milliseconds. Therefore, the typical response time for performance planning purposes is 20 milliseconds. These response times are derived from a testing environment using a lightweight HTML page which is not burdened by the heavy code requirements of a typical merchandise site. Therefore, your actual experience might be different based on the design of your page. One key step for fast response times is to place the `cmDisplayRecs` function immediately after all recommendation request functions are called.

Test before launch

Before you go into production, test these changes as you would any release of code changes to your production website. As part of this test cycle, the test recommendations in the most common browsers.

Important: The order in which recommendations are sequenced by the Digital Recommendations algorithms must be maintained when rendering recommendations on the website. Changing this order has a negative impact on the performance of recommendations.

Administration

Administrative actions are performed using the Admin console that is accessible using the **Admin** link in the Application Header.

Administrative actions (other than My Account Updates) are reserved for designated administrators from your organization.

User Administration

User administration consists of three components: My Account, Manage Users, and Manage Groups.

My Account

The My Account area is accessible to all users. It allows users to update their name, title, department, and contact information. It also provides a means for the user to change his or her password. After making changes, click **Save**.

Manage Users

The Manage Users section allows administrators to manage all of the user accounts. The search box at the top of the form allows administrators to quickly narrow the view. Click the column headers to sort the columns in ascending or descending order. To remove a user's account, select the check boxes on the left and click **Delete Users**. To edit the user account, click the hyperlink in the User Name column. To download a list of user account information, click **Download** at the upper right of the form. Consider using the Manage Users - Full List view to quickly search for the set of users with access to a particular client ID or to find all administrators.

Creating a user

To create a New User, click **New User** at the top of the form. Complete the New User form. Name, email, user name, and Password are mandatory. On the bottom of the form, select which client IDs (if your organization has more than one) to which this user should have access. If the list is long, consider using the Search box at the top of the table. Also, choose the User Group to which he or she should belong using the drop-down menus. When you are finished, click **Save**.

Manage Users - Full List

Because some users are associated with multiple client IDs and, therefore, might be associated with multiple user groups, the Manage Users - Full List view offers a comprehensive list that can be sorted and searched. Use this view to quickly find all users that are associated with a particular client ID, find a list of all administrators, or other.

Manage Groups

User groups govern to what a particular user has access. Therefore, it is important to ensure that each user group is carefully created and that new users are placed in appropriate groups.

The Manage Groups section allows administrators to manage all of their user groups. The search box at the top of the form allows administrators to quickly narrow the view, including searches on client ID or client name. Click the column headers to sort the columns in either ascending or descending order. To remove a user group, select the check boxes on the left and click **Delete Groups**. To edit the user group, click the hyperlink in the User Group Name column. To download a list of user groups, click **Download** at the upper right of the form.

New User Group

To create a New User, click the **New User Group** button at the top of the form. Give the group a name and click **Select** to choose a client ID. Under Permission options, check the box to the left of every function to which you want the user group to have access.

Note: Only administrators have the ability to share a report view with a user group without granting them access to the report. For example, you might not want your agency to have access to all of your marketing programs, but you might want to give them access to your Display Ad Campaign results. In their user group, remove access to the "Marketing Programs" report. Then go to Marketing Programs and create a new report view (for example, Display Campaigns) and save it. Then click **Share** and share it with your agency's group.

Manage IP Restrictions

Although careful allocation and maintenance of user accounts should provide sufficient security for your reports, you can also specify the Internet Protocol (IP) addresses from which your Digital Analytics reports can or cannot be accessed.

Search for your IP range in the search box at the top. Click the column headers to sort the columns in ascending or descending order. Click the check boxes on the left and select Delete IP Ranges to remove any ranges. Click the **IP Range** hyperlink to edit the range.

Create new IP range

1. Click **New IP Range**.
2. Select a **Client ID** for which you would like to set up the IP range.
3. Decide on an action:
   - **Allow Access from the IP Range**: Allows only the IP ranges that you specify to access your reports.
   - **Restrict Access from the IP Range**: Prevents the IP ranges that you specify from accessing your reports.
4. Type the **IP Range**.
5. Click **Save**.

Password Setting

If you decide that current password settings are stricter than is necessary for your business, you can adjust to a more lenient setting. The Standard password must be eight characters long, but does not require any special characters. Further, you can specify a password expiration policy.

Export Settings

The Export Settings area enables the administrator to view, edit, and create the parameters for data exports. These settings are used for Digital Recommendations, Import, the Standard Data Export, LIVEmail, and the Digital Analytics - WebSphere Commerce integration among other exports.

Manage exports

The search box at the top of the form allows administrators to quickly narrow the view of established exports settings. Click the column headers to sort the columns in ascending or descending order. Select the check boxes on the left and click **Delete SFTP Targets** to remove export settings. To edit the export setting, click the hyperlink in the Export Target Name column. To activate a target, check the box and click **Publish**.

Create an SFTP target

To create an SFTP target, click **Create an SFTP Target**. Select the **Client ID**, give the target a name, specify the SFTP server, the port, the directory path, the user name, and the password. Then select **your SFTP transmission option**.

Extra Fields

If you are using extra fields to pass data from your Digital Analytics tags, you can give these fields user-defined titles (for example, "aliases") on this page so that they display with these meaningful names. To set up an optional or extra field:

1. The field type is set to **Enterprise Product Static Attributes**.
2. Enter the required alias for each field in the appropriate **Alias** field.
3. Select the data type for this field from the drop-down list. This can be **Text** or **Number**.
4. Enter any **Comments** appropriate for the field.
5. Click **Save**.

Frequently asked questions

This section contains answers to frequently asked questions about Digital Recommendations.

Offers

Q. Can I specify a longer (or shorter) data analysis time period than the options provided in the settings interface?

A. Yes. There are default data analysis time period settings that are established for offers. If you require a longer data analysis time period than is available when you configure your offers, ask your Digital Analytics client consultant to alter the settings.

Q. What if I have items that receive little activity. Can they still receive recommendations?

A: Yes. Work with Digital Analytics Support to put the necessary settings into place to ensure that offers receive enough recommendations. By default, Digital Recommendations defines an active item as one with at least 5 sessions with a item page view for daily and weekly offers and 10 sessions with a page view for monthly offers. When a recommendation request is issued from a site zone, the Dynamic Recommendations Fallback process can be invoked to assist in providing recommendations when low volume items fail to meet the view floor threshold or in cases where the recommendation data for the requested target becomes unavailable. If recommendations are not available for the specified target item ID, Digital Recommendations can default to the category recommendation for the target category, and will send top sellers from the target product's category.

Q. What if I have a new product introduced to our site. Can it still receive recommendations?

A: Yes. If the product has been added to the Enterprise Product Content Mapping File, Digital Analytics can provide category back-up recommendations, which will be the top selling products from the target product's category. Work with Digital Analytics Support to put the necessary settings into place to ensure that offers receive enough recommendations.

Q. What is listed in the Digital Recommendations Archive, located in the Digital Recommendations User Interface?

A: The Digital Recommendations Archive page includes all Digital Recommendations runs over the past three months. You can access the number of target products in the offer, the number of recommendations that are delivered in the offer, the affinity weight settings that are used, and the data analysis time period of the offer.

Q. How do I determine the visitor activity time period to use for offers?

A: This answer depends on your product mix and customer interaction patterns. Longer data analysis time periods consider more data, which generally allows Digital Recommendations to create a higher number of recommendations for a higher number of target products. At the same time, shorter data analysis time periods reflect changes in buyer purchase preferences and seasonality more rapidly. Seven days is recommended as a minimum. To help determine the optimum time period, test offers that look at different time periods. You can create three offer exports. Set one for seven days, one for 14 days, and one for 45 days. When the files process, pick them up from the SFTP server, save them to your hard drive, and open them in Excel. Count the number of rows in each file. Compare this number to the total known number of active products currently available for sale on your website. Generally the smallest data analysis time period that provides the greatest number of target products should be selected. This exercise should be conducted with your Digital Analytics client consultant. At this time, the larger file should be explored to look over the product IDs and affinity scores to ensure that the data is as expected. Longer data analysis time periods can be requested and configured by Digital Analytics staff.

Note: You can enable a setting for offers so that the system will generate recommendations for any product if it exists in the EPCMF and its category has been selling products during the analysis time period. The system uses category fallback recommendations to create recommendations.

Q. If I make a change to an offer such as changing a business rule, how long does it take to see the change take effect on our website?

A: All changes controlled in the Digital Recommendations interface are executed and updated once a day to the final recommendation set. This includes offer settings, new business rules or the execution of an AB Test. For example, if a change is made to an offer in the interface on a Monday the change will take effect early Tuesday morning at the same time offer update processing is completed. This is generally between 3 AM and 8 AM in the time zone of the client ID but will depend on client data processing load volumes. Blacklisting a product will take effect within one hour.

Q. Can Digital Recommendations be customized so that I can have more than 10 recommendations delivered for every target product?

A. Yes. Contact your Digital Analytics client consultant. It is important to note that Digital Recommendations might not receive enough data to generate 30 recommendations for any or all items. This depends on your data analysis time period, the floor for active products, and the volume of traffic that is received on your site.

Business rule changes can be tested immediately by creating a Preview. The preview will show the effect of the rule change on a product's recommendations, but the actual changes will not occur on your website until the next regularly scheduled processing time.

Q. I set up my offer to receive 30 recommendations but Digital Recommendations is generating fewer recommendations than that for all targets. Why is that?

A. Digital Recommendations might not receive enough data to generate 30 recommendations for any or all items. This depends on your data analysis time period, the floor for active products, and the volume of traffic received on your site.

Q. In Digital Recommendations, there are several places in the interface where one can select the number of recommendations requested. There is a setting in the offer settings panel, there is a setting in the zone settings panel, and there is a setting in the AB Testing panel. How are these related?

A. You can only set the number of requested recommendations at the offer settings panel if your offer is set to flat file delivery. For dynamic recommendations you select the number of recommendations requested on the Zone Settings panel. This value might be overridden during an A/B test by changing the value on the A/B Test Settings panel. If you want to have more than 12 recommendations (the default setting) sent to a site zone, a back-end setting must be edited by your Digital Analytics client consultant to enable this.

Algorithm and Affinities

Q. What if I do not want to use all affinity scores in creating my product offers? For example, what do I do if I do not want the Abandon-to-Buy affinity to be used?

A. If you set the weight for an individual affinity type to 0, its impact on the calculation of the final Product Affinity Index is minimized and would only drive recommendations if there is no data from the other affinity types. However, it is not recommended to set an affinity weight to 0. It is a best practice to keep at least some data from each affinity type open so that products that receive minimal site interactions are given as much data as possible on which to base recommendations.

Q. In the offer, what do the Product Affinity Index or the individual affinity values represent?

A: The actual numeric values that are displayed for the individual affinity scores have no real meaning when they are viewed by themselves. They are numbers that correspond to conditional probabilities that have meaning when they are compared to each other or across products. For example, a view-to-view affinity score of 45.343 does not necessarily mean anything by itself. However, if it is compared to a view-to-buy affinity score of 10.567 for the same target product to recommend a product pair, you could interpret that the recommended product is approximately four times more likely to be viewed as compared to purchased in a session where the target product is viewed. Similarly, if you compared a view-to-view affinity score for various recommended products for a given target product, you can see how much more or less likely each recommended product is to be viewed relative to each other in sessions where the target product was viewed.

Q. In the Offer setup in the User Interface, do the affinity weights have to add up to 100?

A: No. These are multiplier values that are simply applied to the individual affinity scores to calculate a final Product Affinity Index. Any whole number values between 1 and 100 may be entered. Although zero can be entered as an affinity weight value it is highly recommended that all affinity types have some value set greater than zero. It is a best practice to keep at least some data from each affinity type open so that products that receive site interactions are given as much data as possible on which to base recommendations.

Q. Does Digital Recommendations examine behavior across sessions, when determining recommendations?

A: The Buy-to-Buy affinity is calculated across visitor sessions for the data analysis time period. All other affinities are calculated based on same-session data only.

Q. What does a final affinity index score of zero mean? Does it indicate zero relevance and, if so, why is it in the file?

A. A final affinity index score of zero means that the relevance is low when compared to the other recommended items yet generally these items should be left in the recommendations file. A product does not become active for a recommendation until it has at least five sessions with a product page view for daily and weekly offers and 10 sessions with a page view for monthly offers. This floor was set so that recommendations were based on a data set defined by these minimums. The product's final affinity index, the number you see in the Digital Recommendations file, is the product's relative ranking considering all the data that was collected and the affinity weight settings for each affinity type. If you see a final affinity index of zero in the Digital Recommendations file this is due to a low score that carried out beyond three decimal places and was rounded to zero. These products have statistical relevance to the target product but the relevance is low. When considering whether to use these recommendations you should evaluate the potential opportunity cost of having unpopulated content spots on their site and the potential loss in sales from doing so.

Business Rules

Q. For recommendation rules, why can't we define category rules from the Digital Analytics Product Category report and the Category Definition File?

A. Initially, we took this route in our design. We hoped we could allow clients to build category rules from the Product Category report hierarchy. This would prevent many clients from having to define an additional data import because the primary rule management use cases are built around product category information. However, we found that most of our clients are using the Product Category report in a way that puts a product into multiple categories. For example you can file a product in the clearance category, in the women's department, and in virtual categories such as search and cross-sell. If you then build a rule that says "Exclude all recommendations where the item is in the women's department" you will likely not achieve the expected end result because items from the women's department also reside in search, cross-sell and clearance categories. The Enterprise Product Report requires that an item be assigned to only one category. This provides a clean and dependable category definition from which rules can be created.

Q. If I provide an attribute for a product in the Enterprise Product Report upload file and I build a rule against it, for example, exclude all recommendations where inventory is less than five, what happens if there is no inventory value provided for some items? How does Digital Recommendations handle this?

A: The Business Rule Policy handles this.

Q. I have created a number of rules for one offer and now I want to create a new offer but do not want to have to create all of the rules over again. Is there a way that I can copy all of the rules and settings from an existing file to create a new one?

A. Yes. Go to the Digital Recommendations list page. Find the offer that contains the rules and settings you want to use. Click **Save As**. Give the new offer a name and click save on the bottom of the Digital Recommendations settings screen.

Q. If I want to promote one or more product as the first recommendation on the product page for specific products or categories of products, how do I do that?

A. A promotional business rule will allow you to do this.

Q. Can I alias attribute fields in the user interface before the first Enterprise Product Report file has been loaded into Digital Analytics database?

A. Attribute fields can be aliased at any time. Rules can be defined for aliased attributes. The key principle is to not 'Activate' the offer with rules that require those attributes until the data is loaded. For offers that are already in production, clients should not create new rules until the corresponding rule data is provided. Depending on the your business rules policy, rules that defined with no corresponding attributes loaded into the Digital Analytics database can eliminate all items for which data is not provided. It is important to confirm that the data fields in your file correspond correctly to the location aliased in the user interface.

Q. Handling Inventory Checks? Can this be done on the client side?

A. Yes. However this will depend on your capabilities. The approach will likely vary by client. One large retailer uses a technique where products that fall out of inventory have the image pulled from Akamai and replaced with a "no image available" indicator. When rendering recommendations if a product in the recommendation set pulls a "no image" indicator the client's code moves to the next product in the recommendation set. If your implementation will be performing client side look-ups prior to displaying recommendations, Digital Analytics recommends that clients set up their offers to send themselves more recommendations than they will ultimately use, in case a recommendation is removed from the set at loading time.

Q. Our product inventory changes throughout the day, and we have business rules set up to offer products based on inventory level. How can we ensure that Digital Recommendations recommends only in-stock items?

A: To handle the primary use case of changing inventory during the day, clients should consider one of two alternatives. Some clients have the ability to filter products that are received from the `cmRecRequest` for out-of-stock status at the time of rendering recommendations using the Zone Population Function. This is the most efficient method. If the client does not have this capability, they should use an inventory rule and determine a minimum inventory threshold based on product turn rates where products will be excluded from recommendations. For example, "Exclude recommendations where the inventory is less than 5". This will minimize the instances where products with zero inventory are recommended. Inventory threshold rules can be set up at a global level, for all products, or at a more finite level to set different floors for different product categories or even individual products.

Enterprise Product Report

Q. I've made an error in my EPR files (ECDF or EPCMF) and I've already uploaded them. Can I change the files an upload them again?

A. You can change your EPR files and upload the corrected files. However, they will not be processed until the next scheduled overnight process. Always load both the ECDF and EPCMF daily at the same time or within 15 minutes of each other to ensure successful processing of both files.

Q. How can I tell that my Enterprise Product Report (EPR) files were loaded into the system?

A. Use the Import tool to check on the status and history of EPR file uploads. Navigate to **Manage** > **Import Archive** to see if the file was received and if it was loaded successfully.

Q. How do I determine the last successful load of an EPR file?

A: Use the Import tool to check on the history of EPR file uploads. Navigate to **Manage** > **Import Archive** to see if the file was received and if it was loaded successfully. View the last **successful** upload by date.

Q. The categories that I see in the Enterprise Product Report (EPR) do not exactly match the categories that I see in the Digital Recommendations rules tool where I can select from categories to define rules. Why is this? Is there a problem?

A. Most likely there is not a problem. The EPR report only shows categories for which there were sales during the time period that is specified in the report. The Digital Recommendations category selector in the Digital Recommendations rules system shows every category that is defined by the EPR files regardless of whether there are sales or not. This difference in determining what is displayed causes some confusion.

Q. We have loaded a new hierarchy that is defined in the Enterprise Category Definition File. When I go into the rules interface and select the category tree that I see the old hierarchy and the new hierarchy. Why is this?

A. When Enterprise Category Definition File categories change over time, old categories are not eliminated from the category tree structure in the Digital Recommendations rules interface. This interface provides a view of all values resident in the system. If you would like to completely update (change) your Enterprise Category Definition File hierarchy and eliminate old categories that you need to contact Digital Analytics Support. Support will delete all data from the data tables and reload your new Enterprise Category Definition File hierarchy.

Note: This process removes all data from the EPR related tables. All Digital Recommendations related category rules need to be re-created. Also, because other Digital Analytics applications might use EPR data, such as Search tables, the EPR data should be cleaned out and reloaded during the same day before the next overnight set of Digital Analytics processes starts. This ensures that the data expected by other Digital Analytics applications is present.

Q. We've updated our Enterprise Category Definition File and had Digital Analytics clean the EPR tables to reflect new product categorization. I see the new category structure in the category tree of the Digital Recommendations rules tool but the Enterprise Product Report still shows the previous hierarchy structure. Why don't both category structures now match?

A. Previously processed Enterprise Product Report data retain the values resident in the system at the time reports were processed. All EPR reports processed going forward shows the new category values.

Category Recommendations

Q. If we base category recommendations on our Category Definition File category, the sales of many of our products will be allocated to virtual categories such as "Search" and "Cross Sell" and as a result the top selling items in our navigational categories might not be the best list of top selling items for that category. We have items assigned to many categories on our website. How does Digital Recommendations know which category to use for the purpose of providing fallback recommendations?

A. In the category Offer Settings interface for "Site Categories", which are category offers based on the CDF file, clients can enter their top 10 virtual categories in the interface. At the time that the Digital Recommendations offer is updated, a backend process will allocate sales of items found in the identified virtual categories to the last non-virtual category that was transmitted using site tags. The category values should be entered into the interface of the Site Category offer using the values as displayed in the Product Category Report (not the values passed into the site tags). If you have more than 10 virtual categories, identify the top 10 virtual categories by sales. Generally this is enough to provide a meaningful reallocation of sales out of the virtual categories.

Fallback Recommendations

Q. When I set up an offer to be delivered to a Site Zone (dynamic delivery) on the offer settings panel, the Enable Fallbacks selection box disappears? How do I enable Offer Based Fallback recommendations for offers delivered to site zones?

A: Offer based fallback recommendations are enabled automatically for all offers set to site zone delivery. When an Enterprise Product Report category recommendation offer is enabled, fallbacks are inserted into the offer and the offer rule process time when needed.

Q. Will the Fallback component provide category top sellers for all items in the Enterprise Product Content Mapping File, even if we have never seen a page view for the target on the website?

A: Yes, if you want it to. From the offer's Offer Setting tab, click Advanced Options. Select the "Generate category-based recommendations for products in the latest Enterprise Product Content Mapping File that do not have sufficient viewing or purchase activity" option.

Q. If fallback recommendations are correctly configured can we expect to receive the amount of recommendations we have set up in the Zone area of the User Interface?

A: Offer fallback processes will work to create the number of requested recommendations, but there will be cases when it is not possible to deliver the expected number of recommendations to a zone. The causes will typically be lack of visitor activity on which to base recommendations or overly restrictive business. To help ensure that the number of request recommendations is always delivered, it is important that clients always use de-prioritization business rules whenever possible instead of exclusionary rules.

Dynamic Recommendations

Q. How is your system designed to handle the request loads driven by real time recommendations?

A. Digital Recommendations data is propagated to a Content Delivery Network (CDN). Data is placed in cache on edge servers across the globe to ensure speed and availability. We use Akamai, the creator of the world's premier content distribution network and the market leader in content delivery, as our CDN provider. Akamai's content delivery network is one of the world's largest distributed computing platforms, responsible for serving 15 - 30 percent of all web traffic.

Q. What if recommendation data is not available for a product? How does your system handle this?

A. When a `cmRecRequest` is issued from a site zone, a fallback process is provided to handle new product introductions, low volume items that do not make the view floor threshold, or when the recommendation data for the requested target becomes unavailable. The target product and a category ID are passed in the `cmRecRequest`. If recommendations are not available for the specified target product ID, Digital Recommendations can be set to default to the category recommendation for a category ID that can optionally be passed in the Digital Recommendations Request. The category ID passed in the `cmRecRequest` must be a valid category ID from one of the sites that are configured Category Recommendations offers, either the CDF or EPR categories. And the category ID recommendations will not be processed by any business rules.

Q. If two zones are placed on a page, what provision is in place to ensure that the same product is not recommended twice?

A. As part of dynamic recommendation, a conflict resolution function eliminates duplicate recommendations. Priority is given to the first `cmRecRequest` that is sent for each page. As a best practice, the recommendation zone that has the most visibility above the fold should have the corresponding `cmRecRequest` positioned first in the page code.

Q. Is the zone ID case-sensitive? Are there any concerns about special characters?

A. Yes, the zone ID is case sensitive. A space is not a valid character for a zone ID. Underscore is the only special character supported.

Q. How do dynamic recommendations impact the page load speed? Can the request prevent a page from loading?

A. All of Digital Analytics tag creation functions and recommendation requests are processed asynchronously from other page operations. It does not prevent, slow, or depend on other page components. The typical round trip for an Digital Recommendations request from an HTML page that is not burdened by the complexities of a typical client production web page is 20 milliseconds.

Q. On the shopping cart, how do I determine which product is passed into the `cmRecRequest` as the target product when there is more than one product in the cart?

A. The best practice is to base recommendations on the last item added to the cart or the most expensive item in the cart. Basing recommendations on a blend of recommendations has not proven to drive higher conversions as it distorts the "sales conversation" when resulting recommendations are mixed.

Q. Why do I have an option to pass Enterprise Product Report attributes to the Zone Population Function?

A. You might want additional product metadata to be sent back to you about the recommended products to help in rendering the final content. The attributes might include, for example, the location of the thumbnail image, the product page URL, the price, and the product short description. This approach should be used only in the case where you cannot render recommendation content based only on product ID.

Q. Attribute values in the Enterprise Product Content Mapping File of the EPR report have a limitation of 2,000 characters. What if I want to pass a longer value in the dynamic recommendation response message such as a full URL that is more than 2,000 characters? Is there any way to accomplish this?

A. If an attribute value always has a consistent prefix, such as product thumbnail image URL, this prefix can be defined in the back-end of Digital Recommendations for a specific attribute. This allows for handling values that are longer than 2,000 characters. This is stored in one location in the recommendation response message and is assembled by the `io.js` file before passing the data to the Zone Population Function. This technique is only supported for dynamic recommendations. This technique is supported only for dynamic recommendations. The prefix is not available to other Digital Analytics application functions.

Q. The *User Guide* shows that the values in the recommendation arrays that are passed to the Zone Population Function are encapsulated by single quotation marks and comma-delimited. Is that hard-coded, or is there a backend setting to change?

A. We do not have plans to provide configurable response messages.

Q. What is the character limit for the zone header text?

A. 96 characters.

Q. For locally hosted libraries, on which site pages must the Digital Recommendations JavaScript Libraries be added?

A. Most clients use the hosted libraries. But for those clients who still use locally hosted libraries, you should put them in the same location as the Digital Analytics `eluminate.js` library.

Q. What happens when the Product ID that is captured by Digital Analytics differs from the Product ID used by the e-commerce system to display the products on the site? How do dynamic recommendations work in this scenario.

A. For each product recommendation, additional data about the product can optionally be included in the Digital Recommendations response message. This data is provided as attributes in the EPR file. One of the attributes in this case would be the alternate product ID which would be provided by the client in the EPR file and then passed back to the client in the Digital Recommendations response message. When making Digital Recommendations requests however, the client must use the product ID that is passed in the Digital Analytics tags. This is not an issue because clients are already populating that value in the Digital Analytics tags. Work with Digital Analytics support to correctly set up the use of alternative product IDs.

Q. We want to render recommendations in a Flash object. Do you know if this is possible?

A. It is easy to communicate between Flash and JavaScript. A developer who knows Flash and JavaScript should have no problems doing this.

Digital Recommendations Personalization

Q. What happens if the visitor deletes their Digital Recommendations Personalization cookie?

A. The cookie is deleted.

How does Digital Recommendations use cookies?

A. Digital Recommendations uses two cookies. A session cookie is used only if an A/B test is active and is for the purposes of grouping visitors into A/B test groups. A permanent first party cookie is placed under the client domain. It is used to manage visitor data for personalization and is updated in real time using a hook into the Digital Analytics libraries. Information stored in the permanent cookie includes:

- An ordered list of most recently viewed products.
- An ordered list of items added to the cart.
- An ordered list of items purchased.
- An ordered list of most recently viewed categories.
- Counts are maintained for categories viewed to determine the visitor's most popular category.

Q. Our site uses many cookies. We are concerned with total cookie count and total cookie size. How is this managed?

A. If adding the Digital Recommendations personalization cookie would cause the count on IE 6 or lower browsers to exceed 20, neither the session cookie nor the Digital Recommendations personalization cookie will be written. For all other browsers the limit Digital Recommendations manages to is 30. The minimum number of cookies that a browser must support per domain is 20, as specified in RFC 2109 section 6.3, and that is the maximum supported for IE 6 and below. Most current browsers support 50 cookies per domain. Opera supports 30.

When the cookie(s) cannot be set, recommendations cannot be personalized. For example, if the offer is based on "last product purchased," there is no way to determine the target. For this reason, you should always have a fallback step in the recommendation plan. Typically, you configure the fallback step to recommend overall top sellers.

The typical size of an Digital Recommendations cookie is approximately 150 bytes. Data that is stored in the Digital Recommendations cookies will be obfuscated to compress the size of each list. Each list in the cookie has a configurable number of elements that are stored. This configuration for list roll-off is defined and documented in the clients `eluminate.js` file.

For example, the default number of items purchased stored is the most recent seven items. When the eighth item is purchased, the oldest item on the list is rolled off.

Various browsers allow for different individual and collective cookie sizes. Digital Recommendations will not write to or add a cookie if this action will exceed the number of bytes allowed for the visitors browser. So whether the maximum allowable cookie size is 4k for all cookies or 2k or 4k per cookie, the Digital Recommendations cookie will only be written or updated if the additional information will fit. This behavior follows the default behavior inherent in the browser.

Q. If we have multiple items in an order, what determines which item becomes the Most Recently Purchased Product?

A. Digital Recommendations uses the last item sent as a shop9 record.

Q. Can the personalization be based on some type of registration attribute of the user? For example, a registered user comes to the site and belongs to industry X, so can we show offers particular to that industry?

A. In Digital Recommendations, the answer is no. However, this brings up the question as to what personalization approach will deliver higher conversions. Do we personalize to a group or do we personalize to the individual visitor? If you can personalize to the individual you are working at a finer level of granularity. We know that individuals in a segment of visitors have unique interests and behaviors that differ from the group. Digital Recommendations personalization functions at the individual visitor level. As soon as the visitor begins to navigate the site, data is collected that is used to tailor recommendations to the observed interests of the visitors.

Q. In the recommendation plan you can specify that the recommendation target can be the "last carted product." How does Digital Recommendations determine the last item added to the visitor's cart?

A. Digital Recommendations uses the last value of the Digital Analytics shop5 tag as the last item added to the cart.

Q. Where are personalization filtering rules established so that items purchased or items in the cart are filtered from recommendations?

A. This is provided as a setting is in the Zone Settings Panel.

A/B Testing

Q. How do I determine the results of an A/B Test?

A. When an A/B test is operational, an Digital Analytics element tag is sent once per session when a visitor arrives to a zone where an A/B test is active. To measure the results of an A/B test, use the following tools in Digital Analytics:

- **Element Report**: View top level metrics that correspond to visitors who fell into established test groups.
- **Report Segments**: Create a key segment for each test group. To do so, use the appropriate Element Category (test name) and Elements Viewed (test group ID) as criteria for your segment. Set your Report Segment to filter Top Line Summary and the Product Category Report.

- **Filtering the Product Category and Site Metrics reports**: When your Report Segments are established, use the **Update Settings** button in the Product Category and Top Line reports to compare the performance of your test groups in these reports.

Tagging and Implementation

Q. What if I do not use Product View tags? Can I still use Digital Recommendations?

A. Maybe. Although we would need to test Digital Recommendations for your organization, we do know for certain that two of the four affinity types will always yield "0" values for organizations without product views (the View-to-View and View-to-Buy affinity scores). However, the affinities that are based on product orders should still be valid and if a you want to base product offers solely on Buy-to-Buy and Abandon-to-Buy affinities, you can use Digital Recommendations.

Q. Does Digital Recommendations require any tagging changes?

A. It depends. Data that is collected to drive the base **wisdom-of-the-crowd** behavior recommendations is gathered using the standard Digital Analytics tags. Tagging changes might be needed to ensure that the results of the Digital Recommendations are correctly tracked by changing category IDs of product view and shop5 and shop9 tags when recommendations are viewed and purchased. Also, if you are going to render recommendations using Digital Recommendations Dynamic Recommendations, JavaScript must be added to the site to request and render recommendation data.

Flat Files

Q. With the introduction of dynamic recommendations, can we continue to receive recommendations using flat files?

A: Yes. When setting up an offer in the interface clients can choose how they want to receive recommendation data. It is important to note that personalization and A/B Testing do not work when recommendations are delivered using flat files. It is also important to note that there is a feedback loop when a recommendation response is executed. Data about the products' EPR category is populated into the personalization cookie and is pulled at the time that the response message is delivered. EPR categories are used to drive a component of Digital Recommendations personalization. Therefore, clients should not mix flat file recommendations with dynamic recommendations on the same web page because this data will not be populated into the visitor's cookie. Mixing these recommendations will have a negative impact on personalization.

Q. Why does the term "null" appear in some rows in my recommendations file?

A: Due to sparse data for some product IDs and the rare case where Offer/Rule Fallback recommendations do not deliver the requested number of recommendations, there might not be enough product recommendation data available to populate the number of recommendations that the client had specified for the offer settings. In these situations, Digital Recommendations inputs "null" for those product recommendation slots.

Q. I receive Digital Recommendations offers using flat tile and did not get my Digital Recommendations file by 8 AM my time on the day it was scheduled. It arrived somewhat later. Why is this?

A: You should receive your Digital Recommendations exports by 8 AM your local time, but depending on the number of data volumes to analyze, this process can take longer. Historically, the vast majority of clients do receive their exports early in the morning.

The great thing about Digital Recommendations is that you control your export delivery date. So, if it is absolutely critical for you to deploy recommendations at 5 AM on a given day every week or month, you can set up their export to run and be delivered the day before its deployment. In doing so, you give up one day of "data freshness" (which should not significantly impact recommendations) and subsequently a technically 'late' export would not impact your deployment timing requirements. Also, we have email notifications in the application to alert you if there is a failure. CMC is a great tool to see how a client's exports are performing, and if a failure did occur the day before deployment, Digital Analytics would have time to react and fix the export for you before your launch requirements.

Q. I would like to receive their Digital Recommendations files as uncompressed .txt files. Is this possible?

A. Yes. This is an option in the offer **Settings** tab.

Reporting and Analysis

Q. How can I get to a deeper level of analysis with recommendations? I want to not only know how product page recommendations perform, I want to know how they perform by site category? I want to see how product page recommendations perform in women's pants versus women's tops, for example.

A: Digital Analytics Explore enables this level of reporting. To achieve this, the values that are used to track the recommendation category in the Product Category report should also be passed as an Digital Analytics Explore attribute in the product view, shop5, and shop9 tags.

Note: The `cm_vc` category override function will not handle this use case. Clients must handle sending the correct values in the shop5 and shop9 tags for Digital Analytics Explore usage.

Q. Over the last several weeks I have experimented with different affinity weightings. I am tracking the performance of my cross-sell program in the Product Categories report to see if different affinity weightings alter the conversion. How can I reference the affinity settings that are used for any period of time in the past without having to write them down and store them in my personal notes?

A: Go to the Digital Recommendations Archive. You will see a list of all Digital Recommendations files sent over the last 90 days. If you click the yellow callout icon next to each export, a window shows the affinity settings used for each Digital Recommendations file. This information is also in the header row of the offer file.

Q. When tagging to track cross-sell performance if I use virtual categories for the Product Category Report, would that pull sales from my product categories? I would like to have a report that lets me see total sales by product categories. I also want to track cross-sell performance. What should I do?

A. The Digital Analytics Product Category Report is intended to provided analysis for how visitors find, view, cart, and purchase products. This can include navigational categories and cross-sells, search, wish lists, and more. The Digital Analytics Enterprise Product report provides a report where an item can reside in only one category. This report shows metrics by product category. The EPR is included with Digital Recommendations. It requires that two files be uploaded that are very similar to the CDF file that supports the Product Category report. Check the Digital Analytics Support site for the *Enterprise Product Report Solution Brief*.

Q. I have multiple steps in my recommendation plan. How do I know how often each step is used to render recommendations to visitors?

A: There is a value sent in the Digital Recommendations response message called the Target Symbolic, which indicates the row in the recommendation plan that was used to derive recommendations. The Target Symbolic can be populated in an Digital Analytics tag such as the Element tag or in a Product View extra field to drive such reporting.

Common Issues and Resolutions

Q. Why are the results of my business rule incorrect?

A. There could be a number of reasons for this:

- Check the rule interface to ensure that the rule is set up correctly. Many clients have set up rules to specify "remove all items NOT on sale" when the intention was to "remove all items on sale".
- When entering a value into the rules tool, make sure that the value entered exactly matches the values loaded using the Enterprise Product Report files. For example, if the rule says to exclude all products where the Brand equals Channel but the Brand value in the EPCMF file is CHANNEL, the item will not be excluded by the rule engine.
- Make sure the Enterprise Product Report files are current. Many reported rule issues are a result of out-of-date Enterprise Product Report files.
- Get the latest copy of the EPR files. For the products in question, inspect the values in the Enterprise Product Report files. Do they have the correct values to support the rules? Is the data old? Are the values in uppercase but entered in lowercase into the rule tool? Is there an additional space in the

rule or the EPR data that causes a mismatch? These are the first, second, and third most common reasons when rules are not working correctly.

- Understand the Business Rule Policy, the implications of missing attribute data and the setting for this policy. The default is False and will not be different unless the client has requested to have this changed by Coremetrics.

Q. Why do some, or many, targets have no recommendations but others have only a couple of recommendations?

A. There could be a number of reasons for this:

- The ability for Digital Recommendations to generate recommendations depends on the amount of traffic a product gets in the set data analysis time period and the degree to which the business rules eliminate products. Having this understanding is a key starting point to resolving this issue.
- When business rules have been set up, navigate to the Rules Preview tab for the selected offer. The information in the table will provide insight into the degree to which a specific rule is eliminating products from recommendations. If a rule is eliminating all products or more than expected, this can provide a starting place for the investigation.
- If a rule is eliminating a lot of recommendations, consider relaxing the rule or eliminating the rule altogether. While some rules are required, many clients conceptualize rules that are more experimental in nature. In some cases, more rules equate to less recommendations, which means less revenue lift.
- For any 'applied to all targets' rule, consider whether the rule really needs to be applied to all targets. To achieve the expected result, consider applying the rule to a specific category of products, preventing the rule from working against more products than necessary.
- If a product has limited recommendations and rules do not seem to be the source, go to the Product Category report and set the time period of the report to match the data analysis time period of the offer that is being investigated. Find the product in question and see how many views and purchases it has received in that time period. If the product is receiving little interaction, Digital Recommendations likely does not have enough data on which to base recommendations. Consider extending the data analysis time period so that more data is captured. Remember that the ideal data analysis time period is the shortest window that gets the desired amount of recommendation coverage.
- Check the affinity weights. If view-to-view is set to 0, this turns off a large majority of the data that is available for making recommendations. Consider opening this up to a small weight of at least 5 or 10 and re-run the offer to gauge the impact.
- The sales of targets are low and might not generate recommendations. Use the fallback process.
- Check the data in the EPR data. Were categories correctly set up in the ECDF? Were the attributes provided consistently for all products?

Q. Why are my cross-sell recommendations showing a coffee pot with clothing?

A. Typically cross-sells that make no sense occur when a target has very little sales and gets purchased with odd items. Create a rule to ensure this does not happen, such as show only men's clothing with other men's clothing.

Most issues can be identified with the Preview feature.

Project overview

Describes the overall process for implementing Product Recommendations and a sample project plan with more detail.

Table 46: Project Overview.			
Step	**Estimated Time to Complete**	**Acoustic Actions**	**Customer Actions**
Setup	up to 3 days	• Activate the module after completion of the contract amendment-2 days • Provide updated versions of the required library files-2 days • Deliver a welcome kit with documentation that covers tagging, FAQs, and other reference material-1 day	Complete client pre-launch survey-3 days.
Preparation for Production	up to 4 weeks	• Kick off meeting: introduce the application, review the documentation, discuss strategy, review required data inputs from clients-1 day • Consult the offer strategy and business rules-up to 1 week • Audit/advise on clients commerce tags for correct Digital Recommendations functioning. • Create offers, recommendation plans, and zones after strategy is final-up to 3 days	• Produce required data files for business rules and display data- up to 3 weeks • Plan offer strategy for website areas- 4 days • Dynamic delivery recommendation clients: code web page to request, receive, and display dynamic recommendations- up to 3 weeks • Flat file delivery clients: plan database to store recommendations- up to 2 weeks
Production	1 day and ongoing	• Provide analysis training-3 days • Assist with post-launch issues and questions-up to 3 days	• Create reports and analyze data in analytics application-up to 1 week • Use Acoustic Support for 24x7 assistance, on-demand training, and live chat.

Table 47: Sample project plan

Task #	Action	Description	Owner	Notes
1	`io.js` library file created	A library file is provided to the client. If using hosted libraries Digital Analytics update.	Digital Analytics	Confirm that the library is created.
2	Create offers	Create an actual offer (dynamic) and recommendation plan in the UI for testing and normal use purposes.	Digital Analytics	
3	Build the Enterprise Product Report (EPR)	Create and export the Enterprise Category Definition File and Enterprise Product Content Mapping File.	Your organization	Verify that the ECDF and EPCMF files are created before you import.
4	Attribution / Argument	Find out which arguments need to be passed or displayed in the presentation layer of recommendations.	Your organization and Digital Analytics	The product ID and category ID are to be passed, your organization handles other attributes that are used in the presentation layer.
5	Determine business rules	Business rules can be used with offers to exclude, de-emphasize, or promote items from being recommendations.	Your organization and Digital Analytics	
6	Create recommendation plans and site zones	A multi-step strategy to define targets and areas where recommendations appear on the website is created in the UI.	Your organization and Digital Analytics	
7	Technical training	A review of the code that is used with Digital Recommendations, which includes recommendation requests, `cmDisplayRecs`, and zone population functions.	Your organization and Digital Analytics	It is recommended that you create a zone for offer testing purposes.
8	Virtual categorization	Add virtual categories to the Category Definition File and the website so that Digital Recommendations can be tracked and reports can be run.	Your organization	
9	Training	Training in the use of the offer creation feature, rules, and basic reporting.	Digital Analytics	
10	Post-analysis	A post-analysis document is created and sent to your organization.	Digital Analytics	Conduct post-enablement analysis of Digital Recommendations with top metrics and KPIs.

Table 47: Sample project plan (continued)				
Task #	**Action**	**Description**	**Owner**	**Notes**
11	Ongoing Digital Analytics support	Your organization has access to the Digital Analytics knowledge base, training materials, support (ticket support for technical and how-to questions, live-chat).		Digital Analytics online support:https://support.coremetrics.com • Online support • Support request • Live-chat with a business analyst • Access to web conferences and pre-recorded training sessions

The following tables describe the overall process for implementing Content Recommendations and a sample project plan with more detail.

Table 48: Project Overview.			
Step	**Estimated Time to Complete**	**Acoustic Actions**	**Customer Actions**
Setup	up to 3 days	• Activate the module after completion of the contract amendment-2 days • Provide updated versions of the required library files-2 days • Deliver a welcome kit with documentation that covers tagging, FAQs, and other reference material-1 day	Complete client pre-launch survey-3 days.

Table 48: Project Overview. (continued)

Step	Estimated Time to Complete	Acoustic Actions	Customer Actions
Preparation for Production	up to 4 weeks	• Kick off meeting: introduce the application, review the documentation, discuss strategy, review required data inputs from clients-1 day • Consult the offer strategy and business rules-up to 1 week • Audit/advise on clients commerce tags for correct Digital Recommendations functioning. • Create offers, recommendation plans, and zones after strategy is final-up to 3 days	• Produce required data files for business rules and display data- up to 3 weeks • Plan offer strategy for website areas- 4 days • Dynamic delivery recommendation clients: code web page to request, receive, and display dynamic recommendations- up to 3 weeks • Flat file delivery clients: plan database to store recommendations- up to 2 weeks
Production	1 day and ongoing	• Provide analysis training-3 days • Assist with post-launch issues and questions-up to 3 days	• Create reports and analyze data in analytics application- up to 1 week • Use Acoustic Customer Support for 24x7 assistance, on-demand training, and live chat.

Table 49: Sample project plan

Task #	Action	Description	Owner	Notes
1	`io.js` library file created	A library file is provided to the client. If using hosted libraries Digital Analytics update.	Digital Analytics	Confirm that the library is created.
2	Create offers	Create an actual offer (dynamic) and recommendation plan in the UI for testing and normal use purposes.	Digital Analytics	

Task #	Action	Description	Owner	Notes
Table 49: Sample project plan (continued)				
4	Attribution / Argument	Find out which arguments need to be passed or displayed in the presentation layer of recommendations.	Your organization and Digital Analytics	For Content Page recommendations the Page ID, Page Category, Page URL and Page Name are passed. For Content Element recommendations the Element ID and Element Category are passed. Your organization handles other attributes that are used in the presentation layer.
5	Determine business rules	Business rules can be used with offers to exclude, de-emphasize, or promote items from being recommendations.	Your organization and Digital Analytics	
6	Create recommendation plans and site zones	A multi-step strategy to define targets and areas where recommendations appear on the website is created in the UI.	Your organization and Digital Analytics	
7	Technical training	A review of the code that is used with Digital Recommendations, which includes recommendation requests, `cmDisplayRecs`, and zone population functions.	Your organization and Digital Analytics	It is recommended that you create a zone for offer testing purposes.
8	Virtual categorization	Add virtual categories to the Category Definition File and the website so that Digital Recommendations can be tracked and reports can be run.	Your organization	
9	Training	Training in the use of the offer creation feature, rules, and basic reporting.	Digital Analytics	
10	Post-analysis	A post-analysis document is created and sent to your organization.	Digital Analytics	Conduct post-enablement analysis of Digital Recommendations with top metrics and KPIs.

Table 49: Sample project plan (continued)

Task #	Action	Description	Owner	Notes
11	Ongoing Digital Analytics support	Your organization has access to the Digital Analytics knowledge base, training materials, support (ticket support for technical and how-to questions, live-chat).		Digital Analytics online support:https://support.coremetrics.com • Online support • Support request • Live-chat with a business analyst • Access to web conferences and pre-recorded training sessions

Project preparation

Project preparation is key to a smooth implementation of Digital Recommendations.

To facilitate a smooth implementation process, the following preparation items are helpful.

- Load the updated Digital Analytics libraries in your production site. If you are using hosted library files, they are automatically updated.
- Review the Welcome Kit. An understanding of the terms in the Acoustic Digital Recommendations User's Guide and Configuration Guide is recommended.
- Have an idea of how you want to implement recommendations (static or dynamic recommendations, what locations on the site such as product, category, cart, or home page).
- Prepare a high-level offer strategy that reflects input from stake holders, typically merchandising managers. Considerations for offer strategy include consideration of attributes. Up to 50 attributes can be specified for product recommendations. The following are some common attributes (and examples).
  - Price - Recommend sale items only with other sale items, do not recommend products that are less than a certain percentage of items in a cart.
  - Brand - Do not recommend Brand X products with Brand Y products.
  - Stocking levels - Do not recommend an item if there are less than a specified number in inventory.
  - Category - Show dresses with dresses, not dresses with sweaters.
  - Image - Will images be shown with the recommendations?
- Determine whether you will provide data (the Enterprise Product Content Mapping File) in full with each import or will provide changed data at each load. As a best practice, you are encouraged to load the entire catalog each time.
- When new items are added and there is not enough historical data to provide recommendations, do you want to recommend the category top sellers?
- Identify any exceptions to the strategy that might need to be addressed using a rule. For instance, for all purses, show other purses unless the purse price is greater than $500. If the purse price is greater than $500, show other purses from the Designer category.
- Identify required data sources or input files for business rule data.
- Identify the internal project participants such as project manager, IT resources, and merchandising manager.
- Establish the approximate date when you want to launch Digital Recommendations.
- Determine the virtual categorization requirements that capture high-level categorization for merchandise reporting purposes. For example, capturing metrics on **you may also like**, or **top sellers**.

Note: There are no additional or special tagging requirements to support Digital Recommendations if you are also using Digital Analytics. If you are not using Digital Analytics and want to use Digital Recommendations, you must tag your site with a minimum set of tags. Consult an Digital Analytics representative for documentation and guidance.

These topics are beneficial to discuss internally before the project launch. Your Digital Analytics client consultant works with you to formulate the approach for the project and address any of your questions. Your client consultant will also review any adjustments to the strategy are that are needed.

To facilitate a smooth implementation process, the following preparation items are helpful.

- Load the updated Digital Analytics libraries in your production site. If you are using hosted library files, they are automatically updated.
- Review the Welcome Kit. An understanding of the terms in the Acoustic Digital Recommendations User's Guide and Configuration Guide is recommended.
- Have an idea of how you want to implement recommendations (static or dynamic recommendations, what locations on the site such as page, category, or home page).
- Prepare a high-level offer strategy that reflects input from stake holders, typically merchandising managers. Considerations for offer strategy include consideration of attributes. Up to 15 attributes can be specified for content recommendations. The following are some common attributes (and examples).
  - Rating - Do not recommend pages that have been given a low rating by users.
  - Publisher - Do not recommend articles from Publisher X with articles from Publisher Y.
  - Article Length - Do not recommend articles over a certain length to younger audiences, such as children.
  - Category - Show recipes with recipes, not recipes with political articles.
- When new items are added and there is not enough historical data to provide recommendations, do you want to recommend the category top views?
- Identify required data sources or input files for business rule data.
- Identify the internal project participants such as project manager, IT resources, and merchandising manager.
- Establish the approximate date when you want to launch Digital Recommendations.
- Determine the virtual categorization requirements that capture high-level categorization for merchandise reporting purposes. For example, capturing metrics on **you may also like**, or **top views**.

Note: There are no additional or special tagging requirements to support Digital Recommendations if you are also using Digital Analytics. If you are not using Digital Analytics and want to use Digital Recommendations, you must tag your site with a minimum set of tags. Consult an Digital Analytics representative for documentation and guidance.

These topics are beneficial to discuss internally before the project launch. Your Digital Analytics client consultant works with you to formulate the approach for the project and address any of your questions. Your client consultant will also review any adjustments to the strategy are that are needed.

Implementing dynamic recommendations

The main steps for implementing dynamic recommendations with Digital Recommendations follow.

Procedure

1. Determine the specific site locations and Digital Recommendations site zones that are to be used.
2. Determine what information is needed in the Digital Recommendations response message.

   Questions to answer include:

   - If you only provide an item ID will all of the needed content for recommendations be rendered in the Digital Recommendations response message?

- Is there a requirement for a item name, thumbnail image location, product page destination web address, or other information?
- Is additional content beyond the item ID needed? If so, you must provide the additional content to Digital Analytics in the data feed as extra attributes in the Enterprise Product Content Mapping File.

The Digital Recommendations client consultant must then configure Digital Recommendations to include only the attributes that are necessary to render content in the Digital Recommendations response message.

3. Determine what information is needed in the Digital Recommendations response message.

   Questions to answer include:

   - If you only provide an item ID will all of the needed content for recommendations be rendered in the Digital Recommendations response message?
   - Is there a requirement for a item name, thumbnail image location, page destination web address, or other information?

   The Digital Recommendations client consultant must then configure Digital Recommendations to include only the attributes that are necessary to render content in the Digital Recommendations response message.
4. If extra content is needed in the response message, determine which content is mandatory and which is optional, if any.

   The client consultant will configure Digital Recommendations to eliminate any recommendations where, for example, the thumbnail image location is missing.
5. Ensure that your consultant configured Digital Recommendations site zones and sample offers.
6. Ensure that you have the Digital Recommendations Libraries and a sample HTML page to assist with development activity.

   The sample HTML page demonstrates how to request and render recommendations, and is a functioning sample using your recommendation data. Clients using Digital Analytics hosted libraries are updated automatically.
7. Thoroughly test the Digital Recommendations implementation.

   Make sure that content is rendering as expected for all site zones before going into production. Be sure that the zone does not show any content and is invisible on the page if the response from the Content Delivery Network provides "_NR_" as the value of the target symbolic argument.

Glossary

A

A/B testing
: A tool that runs A, B, C, and D split tests so you can determine the effect of various Digital Recommendations settings on site revenues and conversions. You can use A/B testing to test alternative algorithm affinity weights, business rules, site zone locations (above or below the fold), and the number of recommendations that are delivered to a specific site zone.

  A tool that runs A, B, C, and D split tests so you can determine the effect of various Digital Recommendations settings on site revenues and conversions. You can use A/B testing to test business rules, site zone locations (above or below the fold), and the number of recommendations that are delivered to a specific site zone.

Affinity score
: A score that encapsulates the relative probability of a recommended item that has a specific affinity with a target item. Digital Recommendations calculates four separate affinity scores and then uses them to calculate a final Affinity Index for every recommended item.

Affinity Weights

Affinity weights control the weighting of four key data points in the Product Cross Sell algorithm. This capability allows you to tune the algorithm to address a range of customer behavior patterns and product mixes and to alter the output to address different styles of recommendations. For example, weighting recommendations toward items that customers view together generally delivers recommendations of similar items. Weighting recommendations based on items that are purchased together deliver recommendations of products across categories. Affinity weights provide controls to address a range of considerations. Changing the weights of each affinity type can dramatically alter the recommendations that are generated for each product.

Attributes

Attributes are individual pieces of product information such as price, brand name, or margin. Attributes are evaluated by business rules when Digital Recommendations calculates offers. When you are using dynamic recommendations, attribute/value pairs can be included in the response dataDigital Recommendations sends to the website to aid in with your display of the recommended items.

Attributes are individual pieces of product information such as rating, publisher, or article length. Attributes are evaluated by business rules when Digital Recommendations calculates offers. When you are using dynamic recommendations, attribute/value pairs can be included in the response dataDigital Recommendations sends to the website to aid in with your display of the recommended items.

B

Business Rules

You use business rules to place further limits on recommendation output. Exclusionary rules eliminate products, promotional rules force products into recommendations, and de-emphasis rules move products to the back of the candidate list of recommendations rather than excluding them. Rules can be configured globally (at the category level) or by product attribute. The data that rules evaluate is the business data you upload to the system in import files. Business Rules are always defined to apply to a set of Target products.

You use business rules to place further limits on recommendation output. Exclusionary rules eliminate items and de-emphasis rules move items to the back of the candidate list of recommendations rather than excluding them. Rules can be configured globally (at the category level) or by item attribute. The data that rules evaluate is the business data you upload to the Acoustic Digital Analytics system in import files. Business Rules are always defined to apply to a set of Target items.

Business Rules Data

The product attribute data and category data that you upload into Digital Analytics using the Enterprise Product Report files (EPCMF and ECDF). This data enables exclusionary rules processing to allow for category, price, margin, and other product attribute driven business rules.

The item attribute data and category data. This data enables exclusionary rules processing to allow for category, rating, publisher, and other attribute driven business rules.

C

Category Recommendations

Recommendations based on the site's top selling items that are ranked by unit sales or dollar sales. These top sellers are grouped by categories that are defined in the Enterprise Category Definition File) file. These recommendations can be presented at various points on your website. Configuration options enable you to modify the results of category top-sellers. For example, visitors find the top selling items no matter where they are placed on the website so you might want to remove the top 5%, 10%, or 20% of the top selling items from the recommendations. This allows additional products to be featured, which customers might not otherwise find on their own. Overall Site Top Sellers can also be configured for use on the home page, no search results page, or empty cart page.

Recommendations based on the site's top viewed items that are ranked by the number of views. These top viewed items are grouped by category. These recommendations can be presented at various points on your website. Configuration options enable you to modify the results of category top viewed items. For example, visitors find the top viewed items no matter where they are placed on the website so you might want to remove the top 5%, 10%, or 20% of the top viewed items from the recommendations. This allows additional items to be featured, which customers might not otherwise find on their own. Overall Site Top Views can also be configured for use on the home page or no search results page.

CDN (Content Delivery Network)
The mechanism for delivering Dynamic Recommendations to the website. This service is the dynamic delivery method of Digital Recommendations.

CDF (Category Definition File)
A file that defines the category hierarchy structure in place on your website category with the addition of virtual categories to track items that are sold through on-site search, product recommendations, and other non-navigational methods of finding and purchasing products.

cmDisplayRecs
The JavaScript function that must immediately follow the list of *cmRecRequest* calls on a page. When this call is received, the Digital Recommendations service processes the personalization algorithm, eliminates duplicate products, and passes the final sets of recommendations to the client's zone population functions on the page.

The JavaScript function that must immediately follow the list of *cmPageRecRequest* or *cmElementRecRequest* calls on a page. When this call is received, the Digital Recommendations service processes the personalization algorithm, eliminates duplicate items, and passes the final sets of recommendations to the client's zone population functions on the page.

cmElementRecRequest
The JavaScript function that requests element content recommendations. The parameters of *cmElementRecRequest* are a Zone ID, a Target Element ID, a Target Category ID, and a Randomize Function.

cmPageRecRequest
The JavaScript function that requests page content recommendations. The parameters of *cmPageRecRequest* are a Zone ID, a Target Page ID, a Target Category ID, and a Randomize Function.

cmRecRequest
The JavaScript function that requests product recommendations. The parameters of *cmRecRequest* are a Zone ID, a Target Product ID, a Target Category ID, a Randomize Function, and a Search Term.

cmSetSegment
The JavaScript function that identifies the segment or group that a visitor is associated with.

Content Recommendation
Content recommendations allow you to recommend information to your visitors, rather than products. For example, if your website includes informational web page content such as articles, recipes, or instructions, you can recommend other articles, recipes instructions. If your website contains elements that are not within the content of your web page, such as videos or PDF files, you can generate content recommendations for other elements.

Cross-sell
To recommend related or similar products to a customer who is considering a purchase.

D

Data Analysis time period
The number of previous days for which data is processed when generating recommendations.

Digital Recommendations Personalization Cookie
This cookie is used to maintain ordered lists of the most recently viewed, carted, and purchased items and the most recently viewed categories. Associated category counts are maintained for the viewed products to help you to understand a visitor's category preference. This cookie is updated in real time using a hook into the Acoustic Digital Analyticslibraries.

This cookie is used to maintain an ordered list of the most recently viewed pages. This cookie is updated in real time using a hook into the Acoustic Digital Analytics libraries.

Dynamic Recommendations

One of the two recommendation delivery mechanisms, this method delivers dynamic (variable) recommendations based on pre-defined logic (like top sellers or price constraints) directly to your web pages. See also flat file recommendations.

One of the two recommendation delivery mechanisms, this method delivers dynamic (variable) recommendations based on pre-defined logic (like top view or rating constraints) directly to your web pages. See also flat file recommendations.

E

Element Tag (`cmCreateElementTag`)

The Element tag is used to track intra-page content. It also the function that passes extra fields to use for element content offers in Digital Recommendations.

`eluminate.js`

The Digital Recommendations library file, which handles creation and management of the Digital Recommendations Personalization Cookie and the execution of the *cmRecRequest* and *cmDisplayRecs* functions. This file is provided only to those clients that are using locally hosted Digital Analytics libraries. This file is not provided to clients that are using Digital Analytics hosted libraries.

The Digital Recommendations library file, which handles creation and management of the Digital Recommendations Personalization Cookie and the execution of the *cmPageRecRequest*, *cmElementRecRequest*and *cmDisplayRecs* functions. This file is provided only to those clients that are using locally hosted Digital Analytics libraries. This file is not provided to clients that are using Digital Analytics hosted libraries.

EPR (Enterprise Product Report)

A report that also includes an import process for importing product and category data into Digital Recommendations and other Digital Analytics applications. This function is included with Digital Recommendations. The following two files are associated with the Enterprise Product Report:

- ECDF (Enterprise Category Definition File). A file used to import information that Digital Recommendations uses to process recommendations. It defines a category structure where items can reside in only one parent category. It must contain all of the categories that are included in the EPCMF file and all parent categories.
- EPCMF (Enterprise Product Content Mapping File). A file that defines each product, the category it belongs in (which must also be in the Enterprise Category Definition File), and up to 50 attributes about each product.

F

Fallback Recommendations

Fallback recommendations are used when there is limited behavior data history for a product, when strict business rules eliminate the requested number of final recommendations, or when recommendations are not available for the specified target to the *cmRecRequest*. There are two fallback processes. The first fallback process happens when the **Wisdom-of-the-Crowd** behavioral data is processed. When there is not enough site behavior data to complete the number of requested recommendations or if business rules eliminate recommendations, then top selling items from the Target Product's EPR category are used as default recommendations. A secondary fallback process is started when recommendations are not available when Dynamic Recommendation Requests are made from the client's website. The sequence of steps in the recommendation plan is used to customize this fallback process for each request.

Fallback recommendations are used when there is limited behavior data history for an item, when strict business rules eliminate the requested number of final recommendations, or when recommendations are not available for the specified target to the *cmPageRecRequest* or *cmElementRecRequest*. There are two fallback processes. The first fallback process happens when the **Wisdom-of-the-Crowd** behavioral data is processed. When there is not enough site behavior data to complete the number of requested recommendations or if business rules eliminate recommendations, then top viewed items from the Target Item's category are used as default recommendations. A secondary fallback process is started when recommendations are not available when Dynamic Recommendation Requests are made from the client's website. The sequence of steps in the recommendation plan is used to customize this fallback process for each request.

Flat file Recommendations Delivery
One of the two recommendation delivery mechanisms, this method delivers a fixed list of recommendations in a flat file which means the recommendations can be integrated with offline channels or custom applications such as call centers, paper catalogs, and in-store kiosks. See also, Dynamic Recommendations.

I

Image Recommendation
An image recommendation uses the dynamic delivery method to deliver recommendations as HTML images with attribute values like the product's name. Each image provides a link to the product page on your website for that recommended item.

The primary use for image recommendations is with email campaigns. This type of recommendation targets an item in the email message and then generates the list of recommended items when the email recipient opens the message.

Individual Visitor Personalization
No two visitors have the same interests nor do they demonstrate identical shopping patterns. Digital Recommendations builds rich individual visitor profiles based on historical and in-session data to automatically present each shopper with a unique set of recommendations. Even unknown visitors receive highly relevant recommendations based on the proven **Wisdom-of-the-Crowd** based algorithms of Digital Recommendations. Because visitor profiles are constructed in real time, recommendations can become personalized quickly, which allows Digital Recommendations to optimize recommendations for every visitor. In addition to automatically optimizing product page, cart recommendations, and category recommendations to the individual, specific recommendation zones can be defined to offer recommendations based on the visitor's observed behaviors. These behaviors include the following.

- Recommendations that are based on an item the visitor recently carted.
- Recommendations that are based on an item the visitor recently purchased.
- Top selling items from a category of the visitor's interest.
- Recommendations that are based on an item the visitor recently viewed.

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Item
An item is a unique product in your catalog.

An item is a unique page or element in your catalog.

O

Offer
A collection of settings including offer type (Product, Category, Search), algorithm affinity weightings, data analysis time period, and business rules that generates a list of recommended items.

A collection of settings including offer type (Page Content, Element Content, or Category Recommendations), data analysis time period, and business rules that generates a list of recommended items.

Offer Setting

Offer settings define the frequency with which an offer is updated (monthly, weekly, or daily), the amount of data that is considered, the set of products for which recommendations are generated, the number of recommendations per product (flat file only), and the delivery method. Offers can be delivered using a flat file or can be generated dynamically using the Digital Recommendations Recommendation Service for integration directly to the website's presentation layer.

Offer settings define the frequency with which an offer is updated (monthly, weekly, or daily), the amount of data that is considered, and the set of items for which recommendations are generated. Offers are generated dynamically using the Digital Recommendations Recommendation Service for integration directly to the website's presentation layer.

Overall Top Seller Recommendations

These recommendations allow the merchandiser to specify the key categories of products to be represented for pages such as the home page, no search results page, or empty basket page. The top *n* selling items (*n* is a configurable number) are pulled from each of the key categories and represented to the visitor such that each category gets representation through the overall top seller recommendations. As a result, the best selling, highest converting items from the key site categories are merchandised for unknown visitors. Optionally, the order in which the collection of overall top seller recommendations is presented can be randomly determined on page load by passing "R" as the fourth variable in the *cmRecRequest* function.

P

Page View Tag (`cmCreatePageViewTag`)

The Page View tag is used to capture clickstream data as the visitor moves from page to page within the site. It also the function that passes extra fields to use for page content offers in Digital Recommendations.

Product Affinity Index

The total affinity score that is used to rank the products that are recommended for each specific target product.

R

Recommendation Candidate

A product that becomes a candidate for recommendation for the target product or category. It might be excluded later by a business rule, by personalization functions, or by its low score relative to other recommendations.

An item that becomes a candidate for recommendation for the target item or category. It might be excluded later by a business rule, by personalization functions, or by its low score relative to other recommendations.

Recommendations Delivery

Product Recommendations offers the flexibility to deliver a fixed list of recommendations using flat files or dynamic delivery. Flat file delivery enables you to post selected static recommendations. Dynamic delivery enables you to post rotating recommendations that are based on configurable parameters. Both methods of delivery generate sound recommendations and help drive additional sales.

Content Recommendations offers the flexibility to deliver a fixed list of recommendations using dynamic delivery. Dynamic delivery enables you to post rotating recommendations that are based on configurable parameters.

Recommendation Plan

The mechanism for assigning offers to site zones for dynamic recommendations. Additionally, you can configure fallback targets and fallback offers in case recommendations for an item are not available, and specify the header text to display on the banner of the zone.

Recommended Items

The final items that are being recommended for any target item or category after the processing of business rules and personalization functions.

Rule Set
A selection of target items and a corresponding set of rules. Rules in a rule set are applied only to the targets that are defined in the rule set. You configure rules and rule sets on the Rules tab of an offer.

Rule Targets
The target items for which the business rules from an offer are applied. A rule can apply to all targets or for targets that are defined by category, attribute, or item ID. For example, a rule might apply to only items in a specific category.

S

Search Term Based Recommendations
Search term-based recommendations allow merchandising teams to improve the following two business problems: Paid search landing pages are not always relevant, and websites and on-site search results that do not learn from visitor behavior.Digital Recommendations determines the best products to recommend for visitors who search using a query such as "Fishing Pole" or "Running Shoes". For every search term, a view of all sources of search traffic (Paid, Natural, and on-site) feeds the Digital Recommendations algorithm. This aggregated view of customer interaction data across all search sources ensures the richest underlying data set for a single customer query. Search based recommendations can be rendered on Search Engine Marketing (SEM) or on-site search results pages and other locations such as the home page.

T

Target
The item or category for which recommendations are generated.

U

Up-sell
To recommend similar, higher priced products to a customer who is considering a purchase.

Z

Zone
An area on one or more web pages where recommendations are delivered.

Zone Population Function
The JavaScript function that your web designer codes to render the Digital Recommendations recommendations on the client's web page. Fourteen arguments are passed to the Zone Population Function to aid in the rendering. Your web designer must code the body of the function so that the recommendations can be displayed in a manner that is consistent with the design of your website.

Zone ID
An eight character ID, determined by your web team, that identifies an individual site zone. Zone ID is one of the variables that the `cmRecRequest` function passes when it requests a recommendation list.

An eight character ID, determined by your web team, that identifies an individual site zone. Zone ID is one of the variables that the `cmPageRecRequest` or `cmElementRecRequest`functions passes to requests a recommendation list.

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