NETVIBES | Exalead CloudView

CloudView CV23

Business Console

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Business Console

The Business Console is a graphical interface for business users to control the search results relevance, manage alerting services and control how user queries are interpreted by defining search synonyms and other semantic resources.

Audience

The target audience of the Business Console are consultants or business users.

Access the Business Console

When you connect to the Business Console as a user (not as administrator), you see a list of all the Mashup UI applications on which you have access. If there is only one application, you are redirected automatically to its Home page.

To get the rights to access more applications, ask your Exalead CloudView administrator.

To access the Business Console:

1. Go to http://<HOSTNAME>:<BASEPORT+1>/business-console.

Replace `<HOSTNAME>:<BASEPORT+1>` with the web server name provided by your administrator.

2. Select a Mashup UI application, for example, **default**.

This brings you to the Business Console **Home** page. It gives you a centralized view of the main features (see below).

Business Console Capabilities

This section gives a quick description of each Business Console component.

- **Boosted Facets** allow you to boost or decrease the relative importance of certain facets in your search results, either globally, or only for specific queries. For example, in an enterprise search you may want to give high priority to all documents from an official document source.
- **Boosted Hits** allow you to sponsor content based on a search query by ensuring it always appears at the top of the result list for specific search. For example, boost an online book store when user searches for books.
- **Query Reporting** feature analyzes search activity, including: top queries, top queries without matches, opened documents. This information can then be used to tune your synonyms or relevance settings.
- **Recommendation Rules** (Optional) can be used to promote upselling and cross-selling opportunities using the Content Recommender module of the Business Console. Available as a separate license.

- **Semantic resources** are compiled XML files containing instructions, or rules, that define how a semantic processor is to annotate text during analysis. Semantic resources such as ontologies or rules matchers are used to enrich a document at indexing time or rewrite a search query at search time. To be integrated into the indexing or query expansion processes, these resources must be created by the administrator into the Administration Console. Once this is done, the content of the resources can be edited using the Business Console.
- **Synonyms** allow you to define synonym resources for the current application. When searching the index, synonyms are searched in addition to the words in the user query. Unlike the **Synonyms (compiled)** from the **Semantic resources**, they can be tested without publishing the modifications (in the **Test search** menu).

Further Reading

You might need to refer to the following guides as you are learning to use the Business Console.

Guide	for more details on
Configuration	semantic resources creation.
Mashup Builder	building the front-end of your search application.

What's New?

There are no enhancements in this release.

Basic Administration

This section describes how to access the Business Console, change its global settings and test your modifications.

Configuring the Business Console Global Settings

This section describes how to manage the general configuration elements.

Modify the default Business Console general settings

Since the Business Console installs with a default configuration it can be used right away. You can easily modify this configuration for the selected application.

1. Go to `http://<HOSTNAME>:<BASEPORT+1>/business-console` and select the application if necessary.
2. Select **Misc > Configuration**.

Set user permissions

Business Console user security is based on the security defined in the Administration Console. For more information, see "Understanding User Management in" in the Exalead CloudView Administration Guide.

Once you have created your users in the Administration Console, you can change their access permissions.

By default, only the administrator user has the right to apply the test environment configuration to the production search application. You can grant this right to other users on the **General** tab, under **Privileges**.

Testing Modifications

Business users can test their modifications from the Business Console by going to **Misc > Test Search**. Typically, before going live with your changes, you may need to test the behavior for Boosted Hits and Content Recommender.

Enable testing for the Business Console

1. In Mashup Builder, open the search application.
2. Go to **Triggers > Mashup Page Trigger**.
3. Select and drop **Business Console Debug Trigger**.

   Important: Do not add this trigger to production search applications.

4. Click **Save** and then **Apply** your configuration changes.

   Once you have enabled testing, you can test your changes as described in the procedure below.

Test your changes in the Business Console

1. On the Business Console **Home** page, select **Misc > Test Search**.
2. Use the mock search application to verify the search results display as expected.

   Once you have verified your changes in the Business Console, you can apply them to your search application as described in the procedure below.

View your changes in search application

1. After verifying your changes in **Test Search**, click **Go Live** at the top of the Business Console.
2. Open your search application and verify the search results display as expected.

Configuring Relevance Tools

This section explains how to configure boosting hits, boosting facets and query reporting

Boosting Hits

Boosted Hits allows you to promote content, by specifying which hits should always display as the top hits for a particular query.

Boosted hits are organized into groups, where each group represents a specific boosting order. Note that the search results for boosted hits may be impacted by the maximum number of results to be displayed defined in the **Max fetched hits per slice** and **Total No. of fetched hits** parameters (see the Administration Console > **Search > Search Logics > Limits** tab).

Add a new Boosted Hit group

1. On the Business Console **Home** page, click **Configure** in the **Boosted Hits** box.
2. On the **Boosted Hits** page, click **Add** in the **Boosted Hits List** box.
   a. For **Expression**, type the query for which you want to boost specific hits.
   b. Select a **Matching Mode**. A **partial** match applies to queries where at least one word matches. An **exact** match applies to queries strictly identical to the Expression defined in step a.
   c. For **Group**, type a name for this boosted hit configuration.
3. Click **Accept**.

Define a boosted hit

1. On the Business Console **Home** page, click **Configure** in the **Boosted Hits** box.
2. Under **Boosted Hits List**, select a group.
3. Under **Boosted Hits for: Your_group**, in the list of matching documents, click the document you want to boost.
4. At the bottom of the document details section that displays, click **Set first**.

   This document now displays on the boosted hit list.

5. Repeat Step 3 to Step 4 for up to five boosted hits.
6. Test your modifications.

Add additional expressions to a Boosted Hit group

1. On the Business Console **Home** page, click **Configure** in the **Boosted Hits** box.
2. Under **Boosted Hit List**, select a group and then click **Add**.
   a. For **Expression**, type the query for which you want to boost specific hits.
   b. Select a **Matching Mode**. A **partial** match applies to queries where at least one word matches.
3. Click **Accept**.
4. Repeat the previous steps for all the expressions you want to associate with these boosted hits.
5. Test your modifications.

Re-order a boosted hit

1. On the Business Console **Home** page, click **Configure** in the **Boosted Hits** box.
2. Under **Boosted Hits List**, select a group that you want to reorder.
3. Under **Boosted Hits for: Your_group**, select the boosted hit expression.
4. Navigate though the boosted hits list in **Boosted Hits for...** and click either **Set first**, **Set second**, **Set third**, **Set fourth** or **Set fifth** to reorder a specific result hit.
5. Test your modifications.

Remove a boosted hit

1. On the Business Console **Home** page, click **Configure** in the **Boosted Hits** box.
2. Under **Boosted Hits List**, select the boosted hit group for which you want to remove a boosted hit.
3. Under **Boosted Hits for: Your_group**, click the boosted hit to display the details, and then click **Cancel**.
4. Test your modifications.

Disable proximity boost for consistent results

When the boosted hits feature is activated, the order of your search results may be impacted by the Exalead CloudView proximity boost feature. For consistent results, we recommend disabling proximity boost.

1. In the Administration Console, go to **Search > Search Logics > search logic > Sort & Relevance**.
2. Under **Proximity Boost**, clear the **Enable** option.
3. Click **Apply**.

Boosting Facets

Boosted Facets allow you to increase or decrease the relative importance of certain facets in your search results, either globally, or only for specific queries.

You can tune relevance at different levels. For example, you can boost a:

- facet group, such as "People"
- facet, such as "People > Author"
- facet value, such as "People > Author > J.Smith"

1. On the Business Console **Home** page, click **Configure** in the **Boosted Facets** box.
2. On the **Boosted Facets** panel, select the type of tuning you want to do:
   - To tune relevance globally, click the **Default Tuning** group and then go to Step 5.
   - To tune relevance for specific queries, click **Add.**
3. In the **Add Boosted Facets Expression** dialog box:
   a. For **Expression**, type the query for which you want to tune relevance.
   b. Select a **Matching Mode**. A **partial** match applies to queries of three words or more, where at least two words are matched.
   c. For **Group**, type a name for the relevance setup.
4. Click **Accept**.
5. Under **Tuning for:** "Your Group", click the facet group, facet, or facet value you want to tune.
   - Click the icon.
   - This moves the item to top of the list, and displays a slider for it.

6. Use the slider to adjust the relevance of the item.
   - **-**: decreases the score for the item. By default, the score is halved.
   - **+**: increases the score for item. By default, the score is doubled.

- **Top**: places this category facet just below boosted hits.

Note: To adjust the level of increase or decrease for the score, go to **Misc > Configuration > Boosted Facets**.

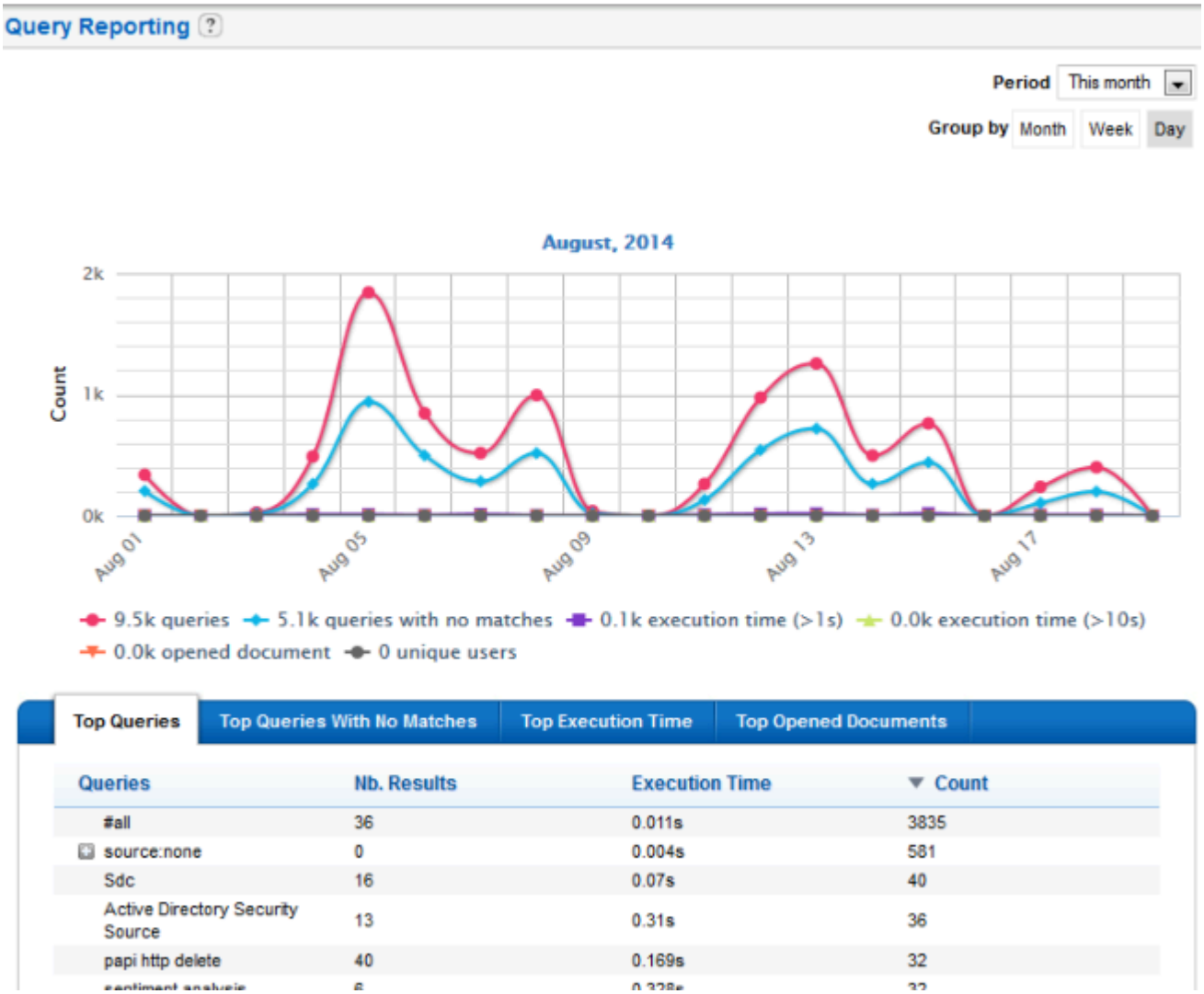
7. Repeat Step 5 and Step 6 as much as needed.
8. Test your modifications.

Query Reporting

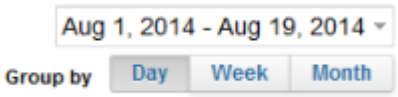
Use the **Query Reporting** panel to understand how users are searching for content. This information can be used to decide how to tune your synonyms or relevance settings. For example, **Top queries with no matches** indicates which synonyms you could define to produce some matching results for popular queries.

Filter and group reports

1. The reports, represented by tabs, are self-explanatory.



2. To filter and group reports, in the upper right of the **Query Reporting** page, select the **Period** and **Group by** options, as shown in the screenshot below.



Refresh reports

Reporting information is refreshed every day at midnight. If you want to generate reporting for the current day, your Exalead CloudView administrator must launch two `cvadmin` commands.

1. Make sure that the Exalead CloudView instance is running.
2. Go to `<DATADIR>/bin/` and run `cvadmin`.
3. Launch the following commands:

```
cvconsole cvadmin> search generate-static-application-report
cvconsole cvadmin> search generate-static-report
```

4. Refresh the **Query Reporting** page.

You should now see the queries made on the current day up to the time you launch the `cvadmin` commands.

Configuring Semantic Resources

To enrich indexed documents or enhance search queries, you can define semantic resources (such as ontologies, block lists, allow lists, etc.).

The **Semantic > Resources** section of the Business Console provides you with editors to edit and publish the content of the semantic resources deployed in the Administration Console. Note that you can easily:

- Define any semantic resource using through a dedicated GUI.
- Import resource files from various formats (CSV, Excel (XLS, XLSX), XML).
- Export resource files to CSV, XLS or XML.

  Important: Changing the content of a resource might impact all indexed documents which means that all applications accessing the same documents will be impacted.

Adding a Publishing Worflow

The Exalead CloudView administrator can define a publishing workflow to create/edit semantic resources.

Publishing workflow description

This section describes the user roles involved in the publishing workflow and a step-by-step view of this process.

Publishing workflow user roles

This workflow is based on specific two user roles that must be assigned to users by the Exalead CloudView administrator:

- **Linguist** is a business user who:
  - Proposes new semantic packages using the Business Console.
  - Publishes resources for use in actual processing.
- **Administrator** is a technical user (consulting, IT...) who:
  - Configures the resource usage in the product.
  - Manages the technical deployment of resources on multiple hosts.
  - Deploys the resources from pre-prod to production.

Publishing workflow steps

The following table describes the publishing workflow steps that can be performed in the Business Console > **Semantic** menu by the Linguist and the Business administrator.

Step	Who	For details, see...
1	The linguist(s) defines the content of the semantic resource, tests it if applicable and submits his draft for approval. This locks the resource which changes from **Draft** to **Submitted for approval** status.	Submit for validation (see also Review a single resource)
2	The Business administrator approves or rejects changes. • If changes are approved, the resource turns to **Approved** status. • If changes are rejected, the resource is unlocked and returns to **Draft** status.	Review a single resource. and Review several resources
3	The Business administrator clicks **Go live** to put **Approved** semantic resources. The resource changes to **Published** status, and is deployed on all hosts.	Publish the resources

Step	Who	For details, see...
4	(Optional) The Business administrator may also want to view the resource history of all approved versions and rollback to a given version, to redeploy it afterwards.	View and manage resources history

Reviewing & publishing resources

The following procedures detail how to perform each step of the publishing workflow.

Enable the publishing workflow

This procedure explains how the Exalead CloudView administrator enables a standard publishing workflow in the Business Console.

1. The Exalead CloudView administrator assigns `Linguist` and `Business administrator` roles to users. For more information, see "Default roles" in the Exalead CloudView Administration Guide
2. In the Administration Console, the Exalead CloudView administrator must create and deploy the semantic resources that will be defined in the Business Console. The requirements depend on the semantic resource type, for details, see the Exalead CloudView Configuration Guide
3. In the Business Console, the Exalead CloudView administrator must enable the publishing workflow by selecting **Misc > Configuration > Semantic Resources > Enable approval workflow.**

Submit for validation

If you do not have Administrator rights, after completing the resource changes, you may submit the resource for validation.

1. In **Semantic > Resources**, select the resource to submit and then select **Review & Publish**.
2. Under **Submit for approval**, click the **Submit** button.

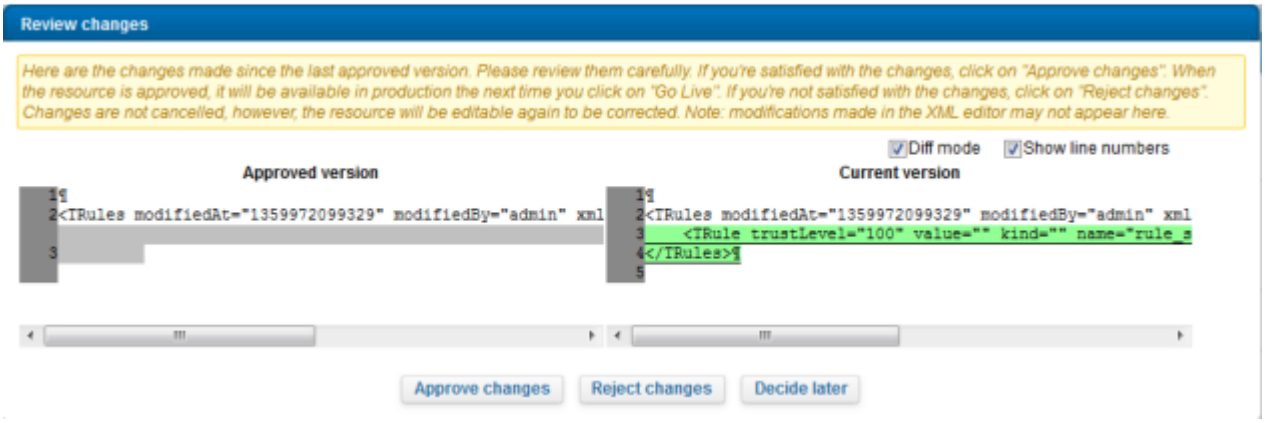
The resource now has the status **Submitted for approval** and will be locked until it is approved.

Review a single resource

You must have `Business administrator` rights to review resources.

1. In **Semantic > Resources**, select the resource to review and then select **Review & Publish**.
2. Under the **Approval** section, click **Review changes**.

   This displays the proposed changes for the current version of the resource file. Only the differences are shown on what has changed since the last approval for the given resource.



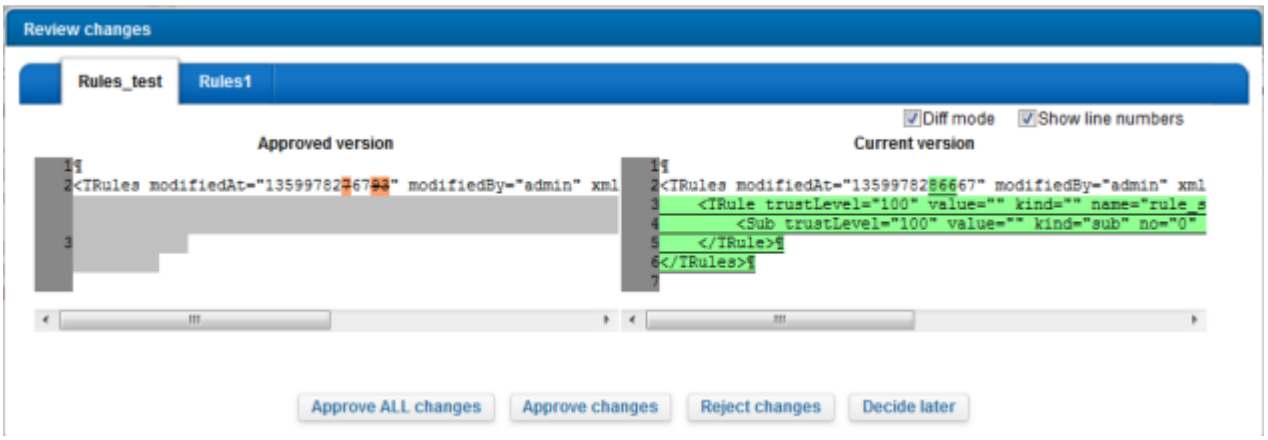
3. From here, you can:
   - **Approve changes** – this approves the changes for the selected resource only
   - **Reject changes** – this unlocks the resource file for further editing
   - **Decide later** – do nothing and close this window

Review several resources

You must have `Business administrator` rights to review resources.

1. In **Semantic > Resources**, select the resources to be reviewed and click the **Review resources** button.

   This displays the proposed changes for the current version of the resource file(s). Only the differences are shown on what has changed since the last approval for the given resource.



2. From here, you can:
   - **Approve ALL changes** – (available only when more than one resource is selected) this approves the changes for all the selected resources.
   - **Approve changes** – this approves the changes for the selected resource only
   - **Reject changes** – this unlocks the resource file for further editing

- **Decide later** – do nothing and close this window

Publish the resources

You must have `CloudView Administrator` rights to publish resources.

1. In the Business Console, click **Go Live**.
2. If one or more resources are have been modified, you will be prompted with a list of modified resources. You can select the resources you want to publish.
3. Click **Accept**.

This deploys the resource to all hosts and sets the resources to **Published**.

View and manage resources history

The Exalead CloudView administrator can specify the number of versions that will be kept in history in **Misc > Configuration > Semantic Resources > Max versions kept**.

1. In **Semantic > Resources**, select a resource and go to the **History** tab.
2. This tab allows you to:
   - **View** resource versions.
   - **Download** specific versions of a resource in all supported formats (xml, xls, csv). Once downloaded, you can edit the content of the file into a simple editor like Excel, and import the modified content back using the **Edit** tab **Import file** button.
   - **Rollback** to a specific version. Rollback operations completely overwrite the content of draft versions. If the resource was not in draft status, it will turn to draft after the rollback operation.

Adding Synonym Resources (compiled)

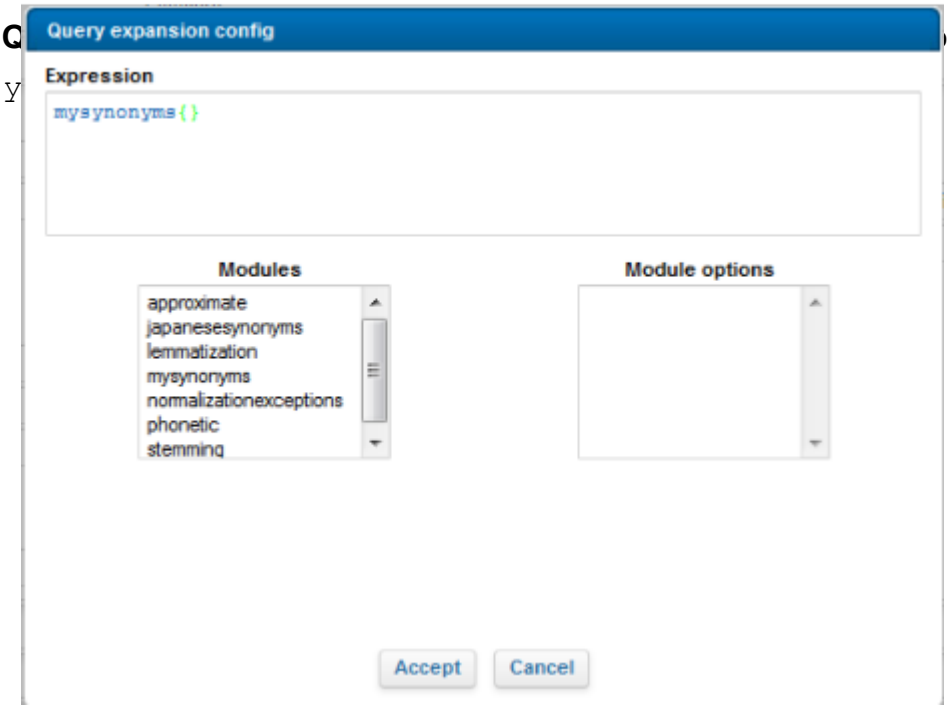
Synonym resources can be edited in the **Semantic** > **Resources** editor of the Business Console. These compiled synonym resources apply to the search logics configured in the Administration Console. If multiple mashup applications use the same search logic, then these synonyms work for all them.

Note: To create synonyms that apply to specific mashup applications only, go to **Semantic > Synonyms**.

Enable synonyms resources in the Administration Console

This procedure explains how the Exalead CloudView administrator enables synonym resources in the Administration Console so that they can be edited in the Business Console.

1. Go to **Search > Search Logics > Query Expansion**.
2. In the **Query expansion modules** section, click **Add module**.
   a. Enter the name of your synonym dictionary, for example, `mysynonyms`.
   b. For type, select **Synonyms**.
3. Click **Create new** to create a new resource file for your synonyms.
4. Go to **Query Language** to map the synonyms module to the prefix handler of your choice, typically on the **text** prefix handler.
   a. Expand the prefix handler configuration panel.
   b. For **Q** use, for example `mysy`



5. Click **Save** and **Apply**.

Your new synonyms resource shall now be available in the Business Console, under **Semantic > Resources**.

Add a new expression

Synonyms are mapped to expressions, where each expression represents a specific user query.

Before adding synonyms, you must create an expression for the user query.

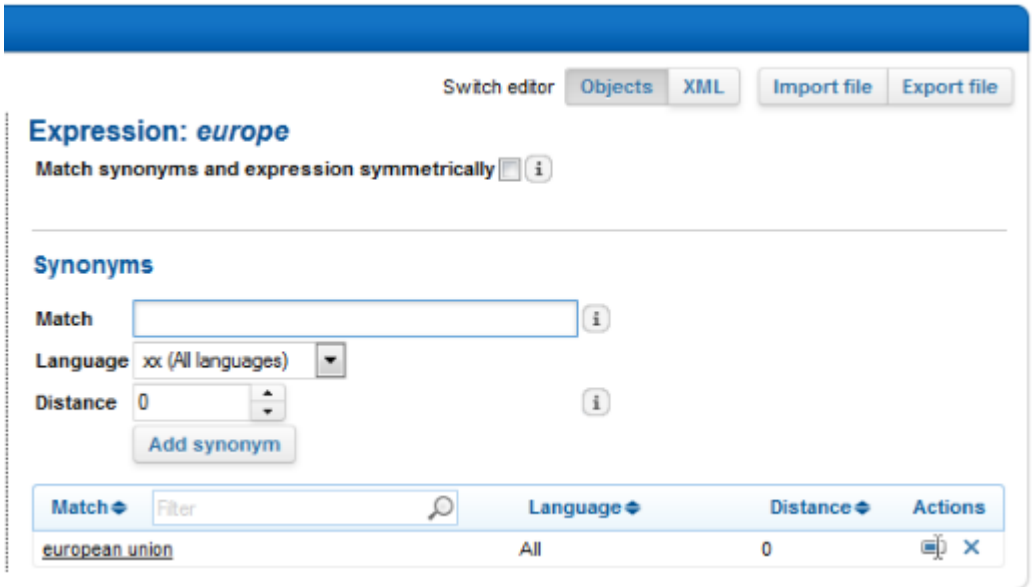
1. In **Semantic > Resources**, select a synonym resource from the list of **Resources**.
   - If the semantic resource is not available in the list, click on the **Refresh** button.
   - If the semantic resource is in the list but you get an error message, check with your Exalead CloudView Administrator. When a new resource is created, the changes must be applied to the configuration before being able to edit the resource.
2. Click **Add expression**, and from the **Add expression** dialog box:
   - In **Expression**, enter the search query that will trigger the synonym matching. In our example, we'll use `europe`. All synonyms expressions will normalized as lowercase without accents.
   - For **Language**, either accept **xx**(All languages), or select a specific language.

     Note: If you select a specific language, the same language must be set up in the search application for synonym matching to work.
   - Click **Accept.**

You are now ready to define synonyms for this expression.

Add synonyms to an expression

1. Under **Expression:** `Your_Expression`, for example, `europe`
   - In the **Match** field, type a synonym. For our example, we'll type `european union`
   - Click **Add synonym**.



2. Add more synonyms to the expression if necessary.
3. (Optional) To have a two-way matching between the expression and its related synonyms, select **Match synonyms and expression symmetrically**.

For example, if you defined `european union` as a synonym for the `europe` expression:

- If non-symmetrical, the query `europe` will be expanded to (`europe OR "european union"`), but the query `"european union"` will not be expanded.
- If symmetrical, users can reverse the query and the synonym: the query `"european union"` also expands to (`"european union" OR europe`).

Adding Ontology Resources

A **Semantic** > **Resources** interface is available in the Business Console to easily configure your ontology needs. You can define, amongst others, ontology/thesaurus resources for the search application without impacting the search service.

Create ontology resources before editing them in the Business Console

This procedure explains how the Exalead CloudView administrator creates ontology resources in the Administration Console so that they can be edited in the Business Console.

For more information, see "Ontology Matcher (resource-based)" in the Exalead CloudView Configuration Guide.

1. Go to **Index > Data Processing > Semantic Processors**.
2. Drag the **Ontology Matcher** processor to the list of current processors, and expand its configuration panel.
3. Click **Create new** next to **Resource directory**.
4. Enter the name of your ontology resource, for example, `myonto`.
5. Click **Save** and **Apply**.

Your new ontology resource shall now be available in the Business Console, under **Semantic > Resources**.

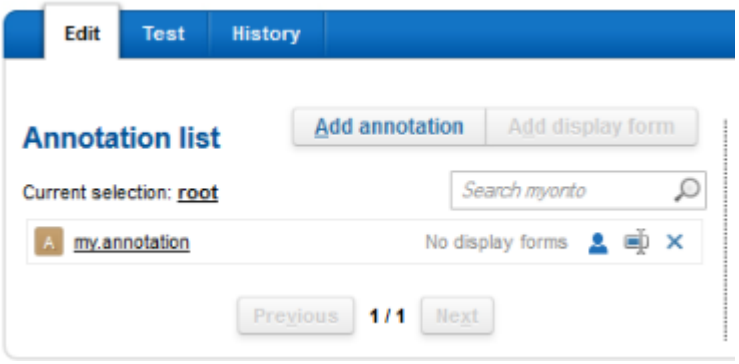
Configure ontology annotations

The Ontology Matcher detects expressions (or text forms) in a token stream. It tags these expressions with an annotation name that can then be mapped to a category field or an index field. Ontologies are made of annotations, where each annotation can contain sub-annotations and/or multiple display forms.

Add a new annotation package

You must first create an annotation package for the user query.

1. In **Semantic > Resources**, select an ontology resource from the list of **Resources**.
   - If the semantic resource is not available in the list, click on the **Refresh** button.
   - If the semantic resource is in the list but you get an error message, check with your Exalead CloudView Administrator. When a new resource is created, the changes must be applied to the configuration before being able to edit the resource.
2. To create an annotation, click **Add annotation**, and enter a name, for example, `my.annotation`

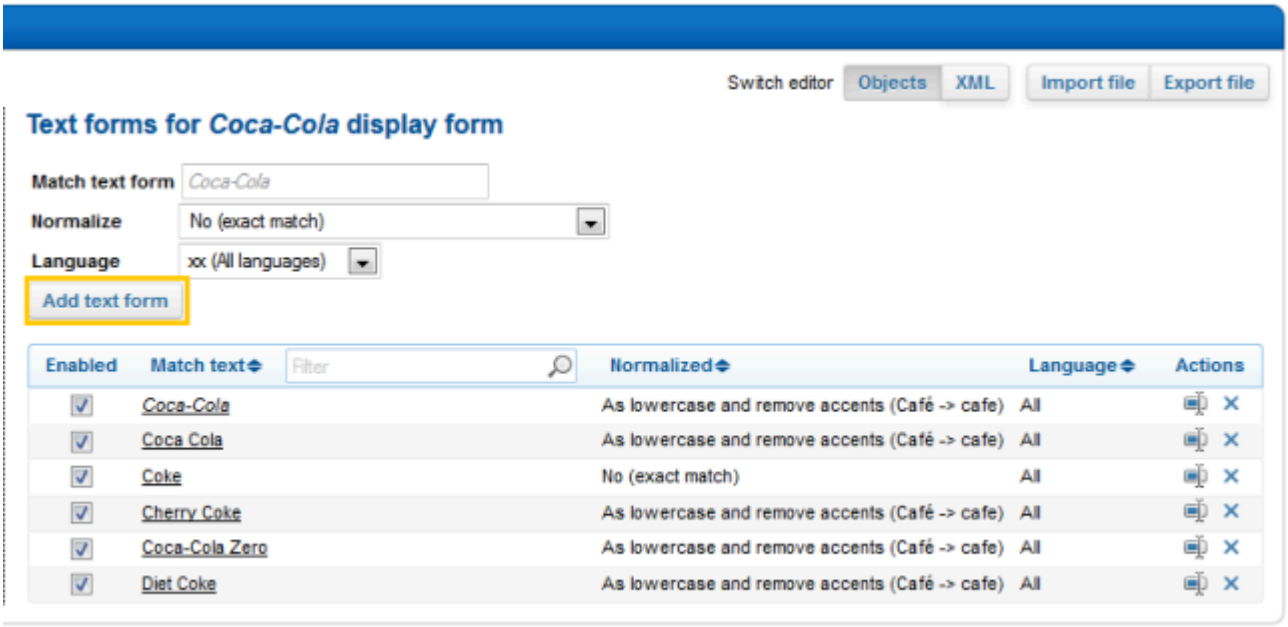


Add a display form to an annotation

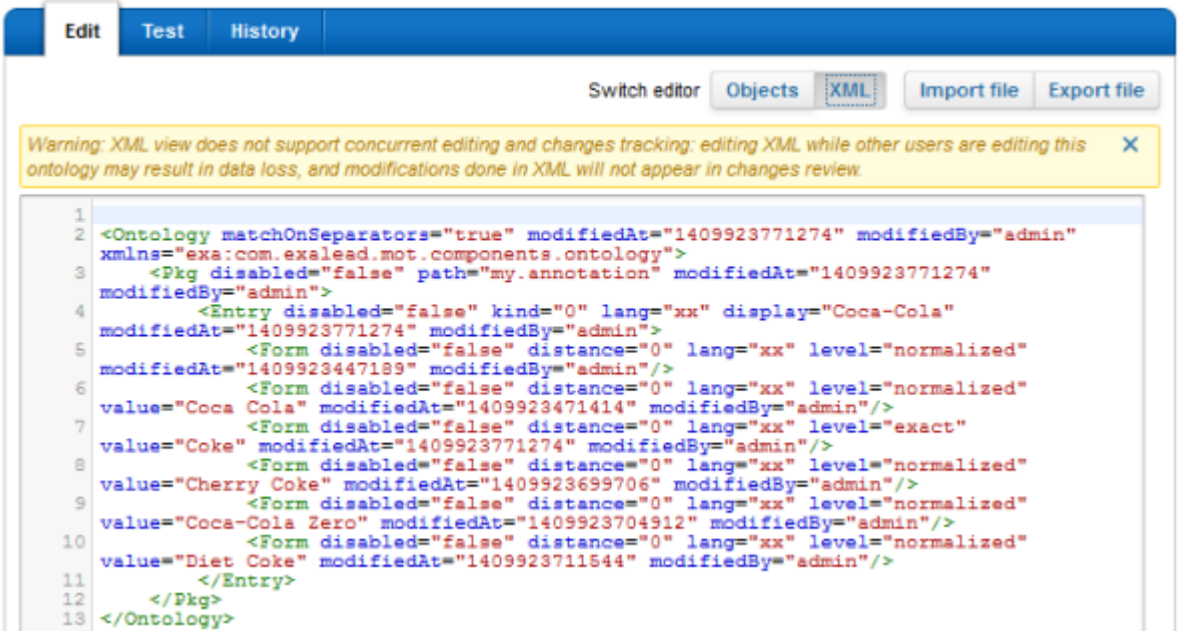
1. In the **Annotation list**, select an annotation or sub-annotation.
2. Click **Add display form** and configure the following.
   a. In **Value**, enter the display name that should be returned when a matching textual form is found in a document. For example, enter `Coca-Cola`
   b. In **Language**, restrict the match to a specific language or accept **xx** (**N/A)** (for all languages).
3. The display form can be configured either directly in xml, by switching to the **XML** editor (see the example in Figure 2) or using the interface with the **Objects** editor as follows:
   a. In **Match text form**, enter the text to match with the display form, for example, `Coca Cola` (without hyphen).
   b. In **Normalize**, select how to normalize text forms: No (exact match), As lowercase, As lowercase and remove accents, etc.
   c. In **Language**, you can either restrict the match to a specific language or accept **xx (All languages)**.

   Note: To quickly add similar new text forms, click **Add text form**.

   In this example, we want to link different text forms of Coca-Cola to the `Coca-Cola` display form in our `my.annotation` annotation, and we create forms for each of them.



Same ontology resource example in XML editor



4. You can test your resource changes.

Test a resource

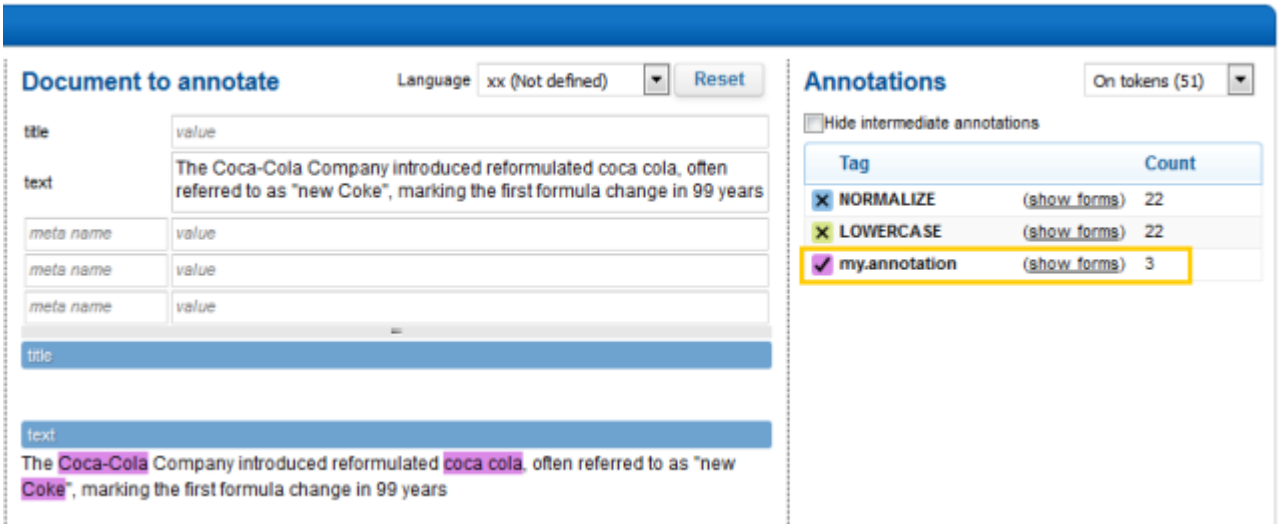
You can test your ontology resources to see the annotations it creates on tokens (words, punctuation marks, etc.) or documents.

1. Go to the **Test** tab and select:
   a. An analysis pipeline configuration where the ontology matcher resource appears.
   b. The **Ontology matcher** processor and its resource versions (if several versions have been saved).

c. The **Language** to match.

2. Type or paste text in the **Annotate a text sample** box.

   The annotated text displays below the box and the **Annotations** panel on the right displays its tags and associated forms. In our example, `Coca-Cola`, `Coca Cola` and `Coke` are highlighed and we can see that they produce the `my.annotation` annotation with the `Coca-Cola` display form as required.



   Note: You can select **Hide intermediate annotations** to focus only on the most important annotations.

3. If you are satisfied with the test then you are ready to publish.

Keep annotations with the highest trust level only

An annotation can be generated several times for the same text form, when you declare the same text form with different normalization levels.

For example, if you have:

```
<Entry display="anything">
  <Form value="whatever" level="normalized"/>
  <Form value="whatever" level="phonetic"/>
</Entry>
```

The word `whatever` will match both forms and therefore generate the annotation entry twice.

This also means that when mapped to a category, it will increase the count more than once which has no interest as we don't want to use category counts for ranking and only want each document to be counted once.

1. Open your `<DATADIR>/config/Analysis.xml` file.
2. In the `<OntologyMatcher>` node, set the `trustLevelBasedDedup` attribute to `"true"`, as shown in the following example.

```
<ana:OntologyMatcher trustLevelBasedDedup="true" annotationPrefix="" ignoreSpaces=
tokenizeAnnotations="false" keepLongestMatchInterTag="false"
keepLongestMatch="true" restrictLanguage="true" resourceDir="resourcemanager://g1/
minWordSizeForDist2="8" minWordSizeForDist1="3" enableApproxMatching="false"
disabled="false" name="OntologyMatcher.0"/>
```

3. Then, in the Business Console, edit your ontology resource with the XML editor to specify the required trust levels for each `<Form>` node using the distance="n" attribute. The distance formula is actually “distance=100 - n”, so to get the highest score, set the distance value to `0`, and to get the lowest score, set it to `100`.

   For our example, to keep only the annotation generated for the `“normalized”` level, you could have:

```
<Entry display="anything">
   <Form value="whatever" level="normalized" distance="0"/>
   <Form value="whatever" level="phonetic" distance="80"/>
</Entry>
```

Adding Rules Matcher Resources

A **Semantic** > **Resources** interface is available in the Business Console to easily configure your rules matcher needs.

Create rules matcher resources in the Administration Console

This procedure explains how the Exalead CloudView administrator creates rules matcher resources in the Administration Console so that they can be edited in the Business Console.

1. Go to **Index > Data Processing > Semantic Processors**.
2. Drag the **Rules Matcher** processor to the list of current processors, and expand its configuration panel.
3. Click **Create new** next to **Resource directory**.
4. Enter the name of your rules matcher resource, for example, `myrules`.

   Note: For more details on its configuration, see "Rules Matcher (rule-based)" in the Exalead CloudView Configuration Guide.

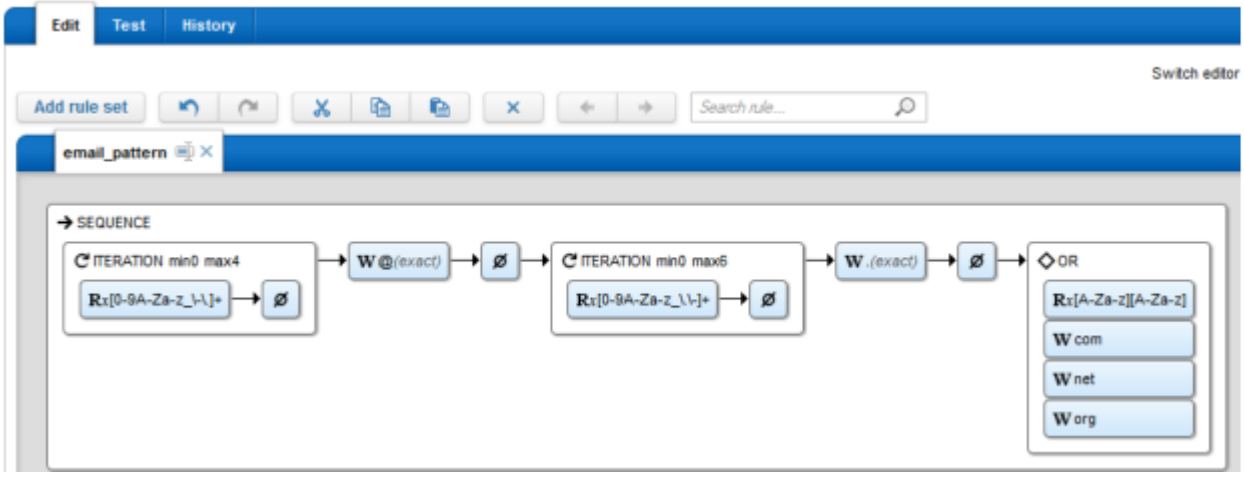
5. Click **Save** and **Apply**.

   Your new rules matcher resource shall now be available in the Business Console, under **Semantic > Resources**.

Configure a rules matcher resource

1. In **Semantic > Resources**, select a Rules Matcher resource from the list of **Resources**.
   - If the semantic resource is not available in the list, click the **Refresh** button.
   - If the semantic resource is in the list but you get an error message, check with your Exalead CloudView Administrator. When a new resource is created, the changes must be applied to the configuration before being able to edit the resource.
2. Click **Add rule set** and specify rules either graphically as in the following screenshot or in XML.

   Example of rule to detect email addresses in documents (we only search for addresses with `.com`, `.net` and `.org` here).



   Note: Note that in this example, we use `No blank` tags between each rule chunk. If we don't add them, the rule will also detect email addresses with spaces and words before the email addresses, like "`my address is john doe @ BusinessConsole.com`".

Adding Fast Rules Resources

A **Semantic** > **Resources** interface is available in the Business Console to easily configure your fast rules needs.

Create fast rules resources in the Administration Console

This procedure explains how the Exalead CloudView administrator creates fast rules resources in the Administration Console so that they can be edited in the Business Console.

1. Go to **Index > Data Processing > Semantic Processors**.
2. Drag the **Fast Rules** processor to the list of current processors, and expand its configuration panel.

3. Click **Create new** next to **Resource directory**.
4. Enter the name of your fast rules resource, for example, `myfastrules`.

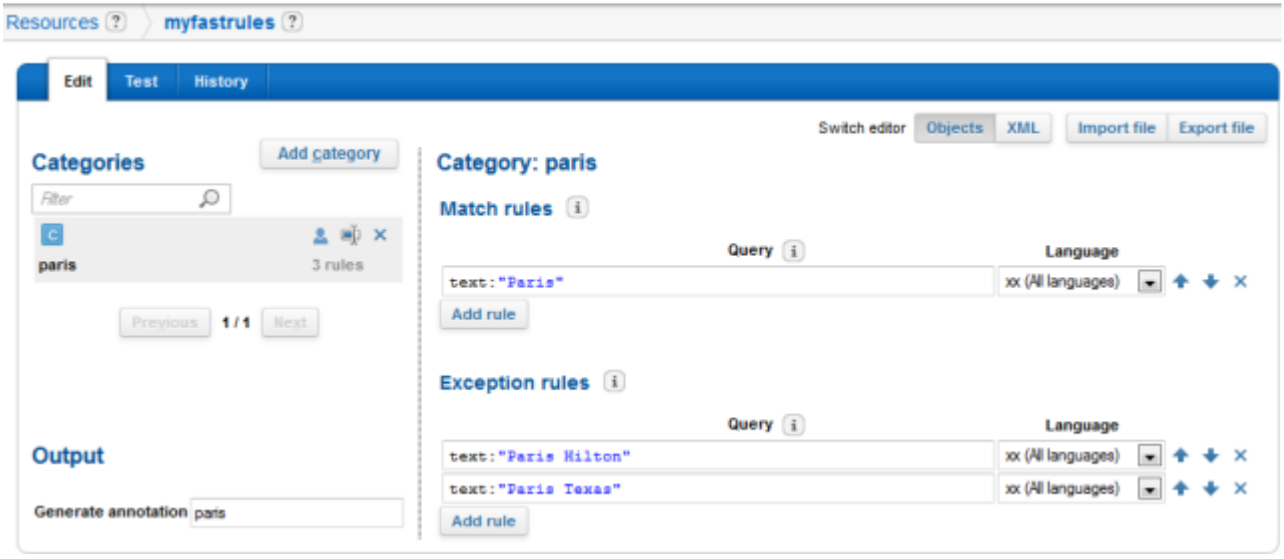
   Note: For more details on its configuration, see "Fast Rules Matcher (rule-based)" in the Exalead CloudView Configuration Guide.

5. Click **Save** and **Apply**.

   Your new fast rules resource shall now be available in the Business Console, under **Semantic > Resources**.

Configure a fast rule resource

1. In **Semantic > Resources**, select a fast rules resource from the list of **Resources**.
   - If the semantic resource is not available in the list, click the **Refresh** button.
   - If the semantic resource is in the list but you get an error message, check with your Exalead CloudView Administrator. When a new resource is created, the changes must be applied to the configuration before being able to edit the resource.
2. Click **Add category** and specify matching and/or exception rules for this category.
   a. **Language**, restrict the match to a specific language or accept **xx** (**N/A)** (for all languages).
   b. **Query**, type the query that should generate or not the annotation, for example, we may want to create a match rule that will match **Paris** if it is not used in the expression “Paris Hilton” or “Paris Texas”.
   c. Do not forget to prefix your queries by the context (the meta) on which the rule applies to. For example, we could write the following match rule: `text: "Paris" BUTNOT text: "Paris Hilton"` or a match rule and one or more exception rules as in the following screenshot, but always specifying to search within the `text` context.



Adding Semantic Extractor Resources

A **Semantic** > **Resources** interface is available in the Business Console to easily configure your semantic extraction needs.

Create semantic extractor resources in the Administration Console

This procedure explains how the Exalead CloudView administrator creates ontology resources in the Administration Console so that they can be edited in the Business Console.

1. Go to **Index > Data Processing > Semantic Processors**.
2. Drag the **Semantic Extractor** processor to the list of current processors, and expand its configuration panel.
3. Click **Create new** next to **Resource directory**.
4. Enter the name of your semantic extractor resource, for example, `mysemanticextractor`.

   Note: For more details on its configuration, see "Semantic Extractor" in the Exalead CloudView Configuration Guide.

5. Click **Save** and **Apply**.

Your new semantic extractor resource shall now be available in the Business Console, under **Semantic > Resources**.

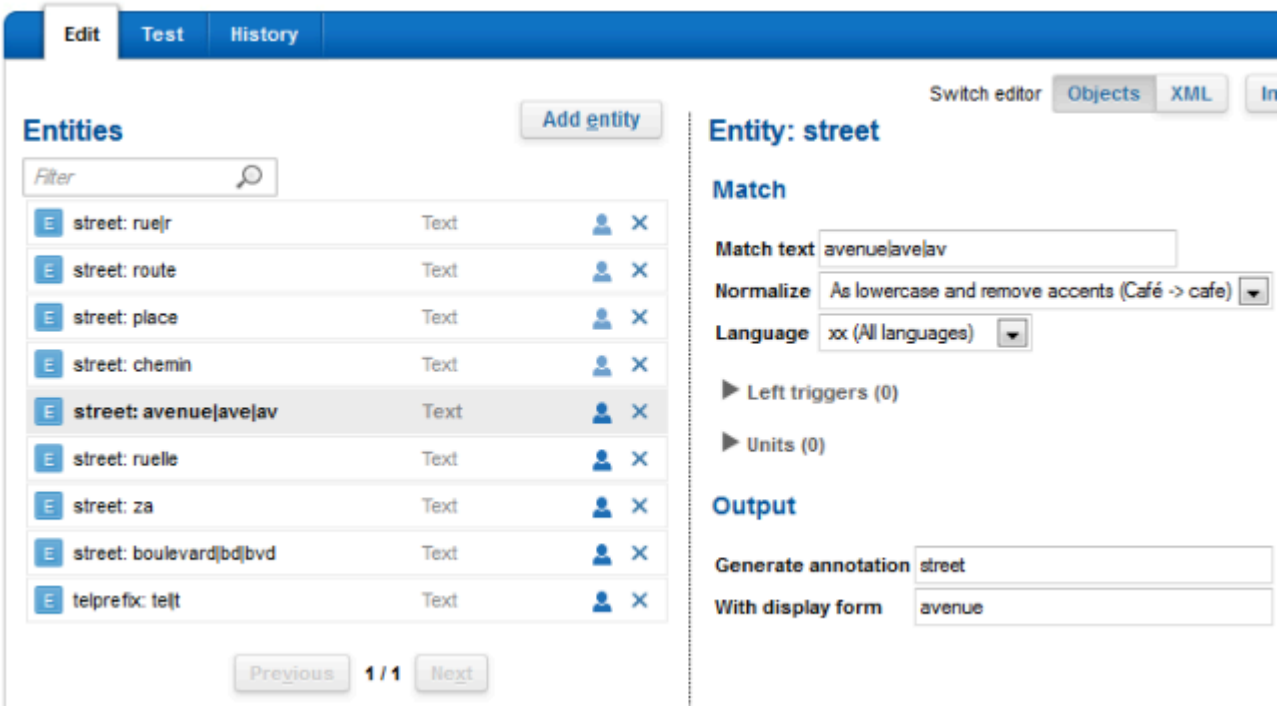
Configure Semantic Extractor resources

To describe the configuration of Semantic Extractor resources in the Business Console, let's take a use case where we want to apply semantic extraction on French postal addresses and telephone numbers.

1. We first define entities for all the terms that could be used to design a street location, for example, `avenue|ave|av`, `boulevard|bd|bvd`, etc.

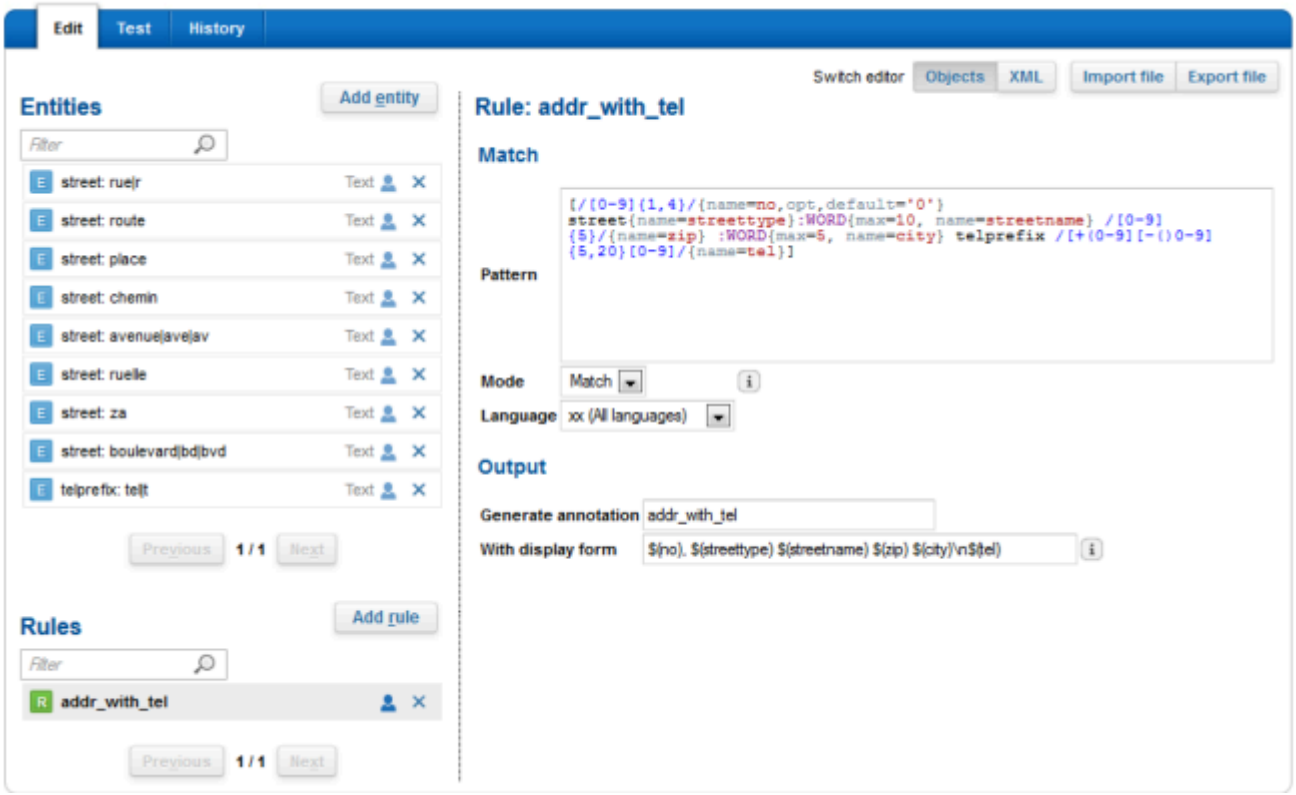
   Our aim is to generate a "`street`" annotation whenever one of these entities is detected in the corpus and assign it a specific display form.

   Definition of an entity that will generate a "street" annotation when `avenue`, `ave` or `av` is detected in a document



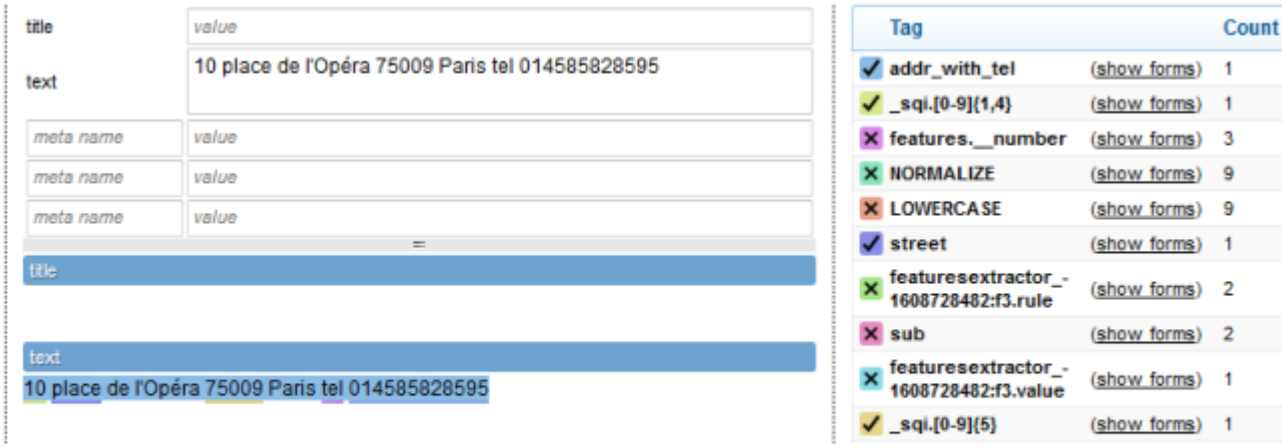
2. We then define an entity for telephone prefixes “`tel|t`”.
3. We also specify a rule with a pattern matching both the address and the telephone number, and generating an `addr_with_tel` annotation with a given display form.

   Example of semantic extractor rule definition



4. Go to the **Test** tab and test your semantic extractor resource by seeing how a sample text get annotated.

In this example the text sample matches the addr_with_tel rule so the entire sample is highlighted in blue. 10, place, 75009 and tel, also match the defined entities.



Adding Synonyms to Specific Applications (not compiled)

The **Semantic > Synonyms** feature allows you to define synonym set resources for the mashup application without impacting search service. The synonym configuration is updated dynamically and applies only to the mashup application selected when you open Business Console.

Important: We recommend using compiled synonyms under **Semantic > Resources** instead of this feature.

Unlike the synonyms edited in the **Semantic > Resources** editor, you can create the resource without the intervention of the Exalead CloudView administrator or the Business administrator. Again, they only apply to the selected mashup application, in general, **default**.

If there is a mismatch between the terms found in your content and the search terms used by your users, you can specify synonyms to use for queries. This effectively expands the user's query to include those synonyms. They are referred to as search-time synonyms.

For example, if all the documents in your Exalead CloudView index refer to `european union` while your users tend to query for `europe`, add `european union` as a synonym. The next time a customer searches for `europe`, the query will be automatically expanded to also include the synonym: `europe OR "european union"`

Synonyms are organized into sets, where each set represents a specific user query. Before adding synonyms, you must create a synonym set for the user query.

Add a new synonym set

To add synonyms, you must first create a synonym set for the user query.

1. On the Business Console **Home** page, click **Configure** in the **Synonyms** box.
2. On the **Synonyms** page, under **Synonym Set List**, click **Add**.
   a. In **Expression**, enter the search query that will trigger the synonym matching. In our example, we'll use `europe`.
   b. In **Language**, either accept **N/A** (all languages), or select a language.

   Note: If you select a specific language, the same language must be set up in the search application for synonym matching to work.
3. Click **Accept.**

You are now ready to define synonyms for this query.

Add synonyms to a set

Once the synonym set for the user query is created, you can add synonyms to this set.

1. On the Business Console **Home** page, click **Configure** in the **Synonyms** box.
2. Under **Synonym Set List**, select a synonym set.
3. Under **Synonym Set:** Your_Synonym_Set, type a synonym.

   For our example, we'll type `european union`.
4. Click **Add Synonym**.
5. (Optional) To have two-way synonym matching for the set, select **Symmetrical synonyms**.

   For example, if you defined `european union` as a synonym for the query `europe`:
   - If non-symmetrical, the query `europe` will be expanded to (`europe OR "european union"`), but the query `"european union"` will not be expanded.
   - If symmetrical, users can reverse the query and the synonym: the query `"european union"` also expands to (`"european union" OR europe`).
6. Test your modifications.

Setting up Query Alerting

This section explains how to setup scheduled alerts and real-time alerts.

About Query Alerting

You can set up query alerting on your Mashup Builder application. This enables end-users to save queries so they are alerted whenever new or modified documents that match the query are added to the index.

Query alerts can either be:

- **Scheduled** - the alert runs at a fixed time, at regular intervals.
- **Real time** - the alert runs as soon as a new matching document is indexed.

This section describes alerting for use with a Mashup Builder application. However, if you are using the Mashup API or Search API to build a custom application, you can configure alerting through the Management API's (MAMI) AlertingManager. For more information, see "Customizing Alerting" in the Exalead CloudView Programmer's Guide.

Setting up alerting involves the following steps:

Step	What	For details, see...
1	In the Administration Console, create a security source.	"Configuring security sources" in the Exalead CloudView Administration Guide.
2	In the Business Console and Administration Console, set up alerting. This means defining whether the alerting is scheduled or real-time, which security source to use, the output, and the frequency (for scheduled alerting). The steps to follow depend on the alert type: scheduled or real-time.	Using Scheduled Alerts Using Real-time Alerts

Step	What	For details, see...
3	In Mashup Builder, enable security on the appropriate page(s), and add widgets for saving and managing alerts.	Managing Alerts in Mashup Builder

Using Scheduled Alerts

To set up alerts you must create an alert group. When end-users save a query as an alert, they must select an alert group for their alert.

Note: For incremental alerts, you may also need to change the offset time for the alert. The offset is needed because there is a lag between analysis (the document processing) and saving the documents to the index. For details, see Define timestamp offsets for incremental alerts (Optional).

Create an alert group

An alert group allows to gather alerts sharing the same parameters.

A scheduled alert group defines:

- when and how often to check for matching documents, such as daily at 3 pm, or every Monday at noon.
- the security source. To save a query as an alert in the Mashup Builder, the end-user must be logged in.
- how the alert will be published, which can be either as an email, as a web service or using a custom publisher.

1. In the Business Console, go to **Notification > Alerting**.
2. On the **Alert Group List**, click **Add**.
3. In the **Add Alert Group** dialog box,
   a. For **Name**, type something that is descriptive for end-users such as `Daily-email`.
   b. For **Type**, select **Scheduled**.

4. Select **Use as default** if you want this alert to be the default choice displayed to the user when clicking **Save query as alert** in the Mashup Builder.
5. Enter a description, for example, `daily alerts`.
6. For **Result mode** select:
   - **New and modified documents** to retrieve documents matching the query and that have been added or changed since the time the alert ran.
   - **All matching documents** to retrieve all matching documents regardless of timestamp.
7. For **Recurrence**, click **Edit** and:
   - Choose to execute the alert monthly, weekly or using a `Quartz scheduling`.
   - Specify the execution time and the update frequency. For example, weekly at 08:30:00 on Tuesday and Friday.
8. For **Security source**, enter the security source name, for example, `mysecurity`.
   - This is only required for saving alerts using the Mashup Builder alerting widgets. If building your own, or building a custom application, a security source is optional.

You must now specify how to publish the alert.

Publish scheduled alerts

You can publish scheduled alerts as email, web service or using custom publishers.

Publish the alert as an email

1. Still in the same alert group details, click **Add Alert Publisher**.
   a. Enter a descriptive **Name**, for example `email to user`.
   b. Select **Send by email**.
2. Specify the addresses and content:
   a. **From address**: Specify the sender address you want to display in the email.
   b. **To address**: Replace `mycompany.com` with your company's domain name. `${USER}` is a variable, and will automatically be populated with the end-user's login name.
   c. **Feed to render**: Specify the Mashup feed to include in the email, by default this is `cloudview`. You must verify that this is the correct feed. This is the mashup feed that determines which document matches which query.
3. (Optional) Modify the **Email Format**.
   a. **Title**: Modify the format for the email subject line.

b. **Templates directory**: Specify a different directory for the template file that defines the message format. The default template directory is `<INSTALLDIR>/resource/all-arch/alerting/mail/templates`.

c. **Template file**: Specify a different template filename. Templates are based on FreeMarker.

4. For **SMTP Server**: Set the properties for outgoing mail transport:
   a. **Host**: SMTP Server host.
   b. **Port**: SMTP Server port.
   c. **Username**: admin user name on the SMTP server.
   d. **Password**: admin password on the SMTP server.
   e. **Use TLS**: Activates Transport Layer Security encryption.
5. Click **Go Live**.

Publish the alert to a web service

You can publish the alerts to a web service for both real-time and scheduled alerting.

1. Still in the same alert group details, click **Add Alert Publisher**.
   a. Enter a descriptive **Name**.
   b. Select **Push to Web service**.
2. In **Address**, specify the URL for the web service.
3. Select the **Format** output, either **Atom** or **JSON**.

   The http publisher sends the `acces-api` response in POST. See Define timestamp offsets for incremental alerts (Optional).
4. Click **Go Live**.

Publish the alert using custom publishers

You can publish alerts using custom publishers for both real-time and scheduled alerting. For more information, see "Custom scheduled publisher" in theExalead CloudView Programmer's Guide.

1. Still in the same alert group details, click **Add Alert Publisher**.
   a. Enter a descriptive **Name**.
   b. Select **Custom**.
2. In **Class id**, select your custom publisher.
3. Click **Go Live**.

Define timestamp offsets for incremental alerts (Optional)

Incremental alerting is based on a document's analysis timestamp. Since there is a lag between analysis and indexing, there is the chance an alert may run after the analysis of a new batch of documents has started, but before all of these documents have been added to the index.

As a result, there's a risk that some matching documents will be excluded from both the current alert and the alert that follows.

To prevent this, there is a timestamp offset. The default value is 900s (15 minutes), which you can change. The value needed for the offset depends on typical lag time between analysis and indexing, and the frequency of alerts.

For example, say 10 documents enter the analysis pipeline at 1:00.

Without an offset

- An alert runs at 1:05. It looks for all matching documents in the index with an analysis timestamp between "now" (1:05) and the previous alert.

  However, at this time only 4 of the 10 documents from the 1 pm analysis have been saved to the index, so only these 4 documents are included in the alert notification.
- The next time the alert runs at 2:05, it looks for all matching documents in the index with an analysis timestamp that falls between 2:05 and the previous alert from 1:05.
- Even though the 6 remaining documents from the 1:00 analysis are now saved to the index, since their analysis timestamp (1:00) precedes the previous alert (1:05), they are excluded from the 2:05 alert notification.

With an offset

- An alert runs at 1:05. It looks for all matching documents in the index with an analysis timestamp that falls between "now minus 15 min" (12:50) and the previous alert.

  By offsetting "now", none of the 10 documents from the 1:00 analysis are included in the 12:50 alert notification.
- The next time the alert runs at 2:05, it looks for all matching documents in the index with an analysis timestamp between "now minus 15 min" (1:50) and the previous alert (12:50).
- Therefore, all 10 matching documents with a 1:00 analysis timestamp are included in the 2:05 alert notification.

Conversely, if alerts are so frequent that several run between analysis and indexing, an offset that is too large could result in the same documents with the same analysis timestamp being included in multiple alert notifications.

Changing the timestamp offset

The size of this offset depends on how frequently these alerts are scheduled, and how long the lag is between the start of analysis and when the documents are saved to the index. These settings are used by all alert groups.

1. Select **Misc > Configuration > Alerting**.
2. Under **Incremental mode**, change the **Timestamp offset(s)** value.

Example - ATOM feed output

Below is an example of ATOM feed output.

```
<?xml version="1.0" encoding="UTF-8" ?>
<feed xmlns="http://www.w3.org/2005/Atom" xmlns:os="http://a9.com/-/spec/opensearch/1
 xmlns:exa="http://schemas.exalead.com/access/1.0">
  <id>search</id>
  <generator>com.exalead.access.basefeeds.PageFeed</generator>
  <os:totalResults>0</os:totalResults>
  <os:startIndex>0</os:startIndex>
  <os:itemsPerPage>0</os:itemsPerPage>
  <exa:property name="alerting.user">login</exa:property>
  ...
  <exa:property path="Top/language" description="Language" refinable="true" refinemen
 type="category">
  <exa:category id="f/Language/en" path="Top/language/en" description="en" count="0"
 state="DISPLAYED" />
  </exa:facet> <exa:facet id="mime" path="Top/mime" description="mime" refinable="tru
 refinementPolicy="exclusive" type="category">
  <exa:category id="f/mime/text#plain" path="Top/mime/text#plain" description="text#p
 score="0" state="DISPLAYED" />
  </exa:facet>
 </exa:facets>
 </entry>
</feed>
</link>
</entry>
</feed>
```

Using Real-time Alerts

To set up alerts you must create an alert group. When end-users save a query as an alert, they must select an alert group for their alert. To avoid spam issues, real-time alerts cannot be sent

directly through email as for scheduled alerts. Real-time alerts can only be sent to a web service that will handle processing and publishing.

Real-time alerts limitations and performance

This section describes the limitations and performance considerations you should be aware of when defining a real-time alert.

Limitations

The following constraints must be considered when defining a real-time alert:

- It takes only transformed UQL into account:

  It means that refinements (i.e. facets) are not managed. An alert is published when a new document matches the query regardless of other refinements. You may use prefix handlers instead to restrict the query.
- Some UQL operators are not supported:
  - Geo operators: `distance`, `within`.
  - Separators: `#sentence`, `#paragraph`, `#page`
  - Attributes: `#uid`, `#around`
  - Other operators: `INNERJOIN`, `FUZZYAND`, `SPLIT`, `XOR`, `BUTNOT`
  - Queries with both proximity and boolean operators. For example, `(cat OR cats) NEAR (dog OR dogs)`
- It is triggered at the end of the analysis pipeline, before semantic processing and mapping.

  It means that the following objects are not managed:
  - Metas stored in a dynamic field or renamed during mapping.
  - Filters based on virtual expressions.
  - Conditions set on entities built during the semantic processing (for example, named entities or related terms).
  - Categories (for example, `Top/Language/fr`).

A workaround is to set a meta with the value of the meta you need to retrieve, directly in the analysis pipeline and before the Real-time alerting processor.

Performance considerations

When task queues are not used, real-time alerting increases the amount of analysis required on incoming documents. The first round of analysis checks whether an incoming document matches any real-time alerts, and then all documents must go through the normal analysis pipeline.

Queries with proximity operators (for example, `NEAR`, `NEXT`) have a more significant impact than queries with boolean operators (for example, `AND`, `OR`, `NOT`). As an example, 10 million rules using `AND` with 1 to 5 words need 1 GB RAM. Raw text processing speed reaches 2.5MB/s on a single core. Note that, as the number of rules increases, processing speed is gradually impacted.

Create a real-time alert group

An alert group allows to gather alerts sharing the same parameters.

A real-time alert group is defined by:

- a document processor (only if you are not using task queues).
- a security source. To save a query as an alert in the Mashup Builder, the end-user must be logged in.
- the web service address(es) or the custom publisher to publish the alert to.

Enable real-time alerting (only if you are not using task queues)

1. In the Administration Console, add a **RealTimeAlerting** document processor to the analysis pipeline.

The **Alert groups** field allows you to specify the alert group to which the real-time alerting applies. If no alert group is specified, it will apply to all real-time alert groups.

Create a real-time alert group

1. In the Business Console, go to **Notification > Alerting**.
2. On the **Alert Group List**, click **Add**.
3. In the **Add Alert Group** dialog box,
   a. Enter a **Name**.
   b. For **Type**, select **Real time**.
4. Select **Use as default** if you want this alert to be the default choice displayed to the user when clicking **Save query as alert** in the Mashup UI.
5. Enter a description.

6. For **Security source**, enter the security source name, for example, `mysecurity`.
    - This is only required for saving alerts using the Mashup Builder alerting widgets. If building your own, or building a custom application, a security source is optional.

You must now specify how to publish the alert, either as a web service or using a custom publisher.

Publish real-time alerts

You can publish real-time alerts as a web service or using custom publishers.

Publish the alert to a web service

1. Still in the same alert group details, click **Add Alert Publisher**.
    a. Enter a descriptive **Name**.
    b. Select **Push to Web service**.
2. In **Address**, specify the URL for the web service.
3. Click **Go Live**.

Publish the alert using custom publishers

You can publish alerts using custom publishers for both real-time and scheduled alerting. For more information, see "Custom real-time publisher" in theExalead CloudView Programmer's Guide.

1. Still in the same alert group details, click **Add Alert Publisher**.
    a. Enter a descriptive **Name**.
    b. Select **Custom**.
2. In **Class id**, select your custom publisher.
3. Click **Go Live**.

Test real-time alerts

If you are using the **RealTimeAlerting** document processor and the task queue mode is not used, you can send a test document to the analysis pipeline to trigger the alert.

For more information, see "Testing your Analysis Pipeline Behavior" in the Exalead CloudView Configuration Guide.

Example - Web service and PHP scripts

Below is an example of web service in PHP. It allows to listen to POST requests in JSON format and save results to disk in a directory (here `alerts_json/alert`)

```
<?php
$method = $_SERVER['REQUEST_METHOD'];
$request = explode('/', substr(@$_SERVER['PATH_INFO'], 1));
switch ($method) {
case 'POST':
  $jsonAlert = file_get_contents('php://input');
  $alert = json_decode($jsonAlert, true);
  $fileName = 'alerts_json/alert_' . $alert['occurence.key'];
  file_put_contents($fileName, $jsonAlert, FILE_APPEND | LOCK_EX);
  break;
default:
  break;
}
?>
```

Then the following script in PHP (installed in the web service directory) allows to read alerts saved to disk and display them in a table:

```
<?php
header('Content-Type: application/json');
if ($handle = opendir('alerts_json')) {
  $entries = array();
  while (false !== ($entry = readdir($handle))) {
    if (substr($entry, 0, 5) === "alert") {
      $fileName = "alerts_json/" . $entry;
      array_push($entries, json_decode(file_get_contents($fileName), true));
      unlink($fileName);
    }
  }
  echo json_encode($entries);
  closedir($handle);
}
?>
```

Managing Alerts in Mashup Builder

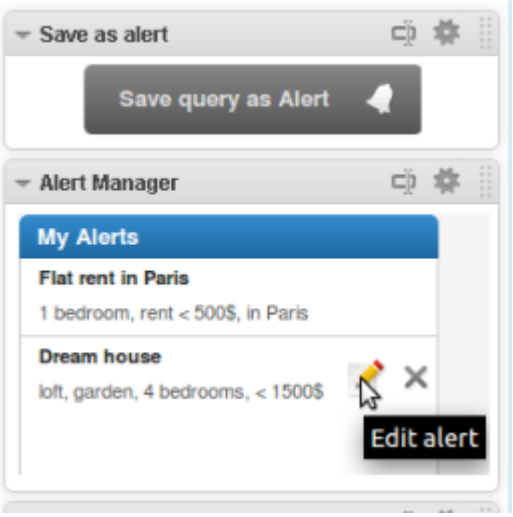
Managing alerts in Mashup Builder involves:

- enabling security since users will have to be logged in to save and link alerts to their profiles.
- adding a widget that enables users to save a query as an alert.
- adding a widget that enables users to edit or delete their alerts.

Set up query alerting

1. Configure a Exalead CloudView Security Provider. For more information, see "Add a CloudView Security Provider" in the *Exalead CloudView Mashup Builder User's Guide* .

2. In Mashup Builder, enable security on the **/index** or **/search** page.
3. Select the page on which you want to add the alert widgets, for example **/search**, and select the **Design** view.
4. In the **Widgets** panel, expand the **Collaborative** group, and drag the **Save as alert** widget to the canvas, for example above the Standard Facets widget.
5. Drag the **Alert Manager** widget on the canvas, for example below the **Save as alert** widget.

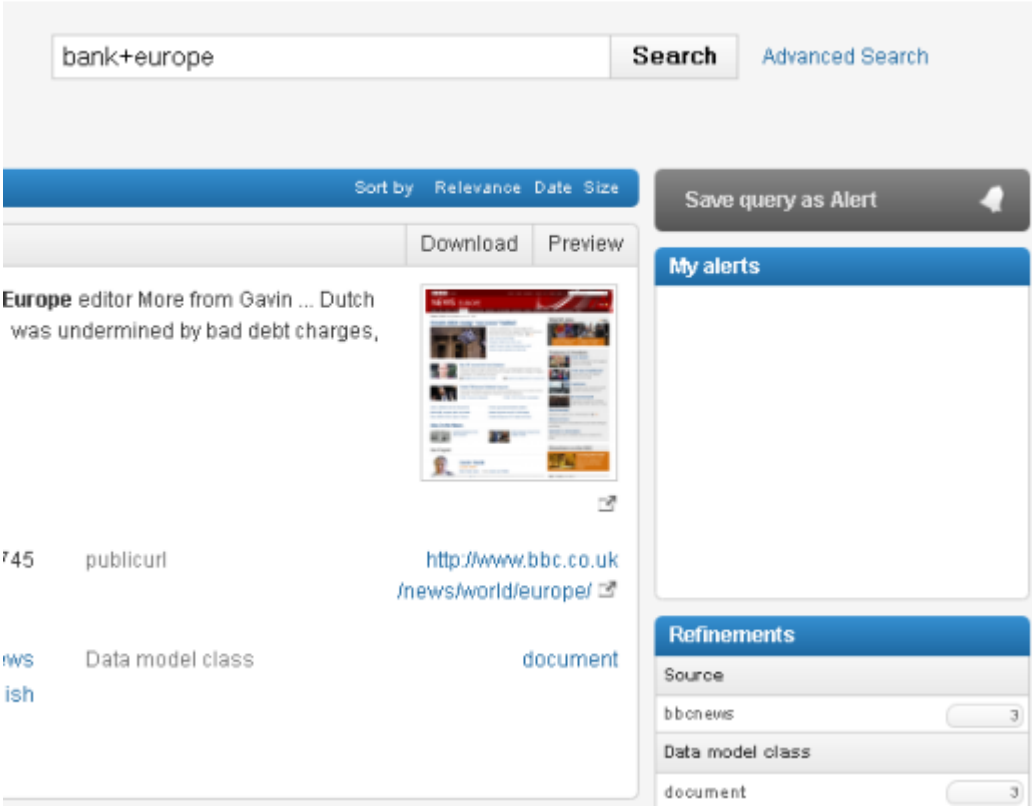


6. Optionally, from the widget properties panel, modify the widget title which is set to `My alerts` by default.
7. Click **Save** and then **Apply** your configuration changes.

Test query alerting on the Mashup UI

1. To see your changes, go to http://<HOSTNAME>:<BASEPORT>/mashup-ui.
2. On the login page, enter your credentials and click **Login**.
3. Enter a query in the index page search box and click **Search**.

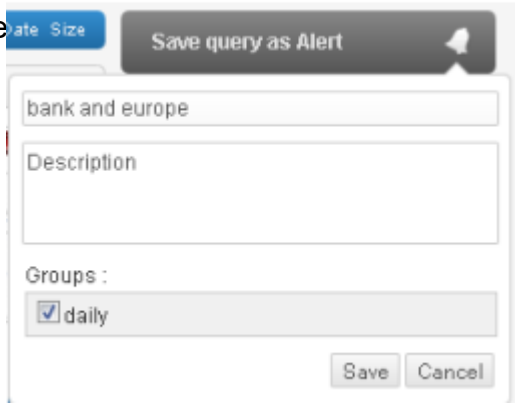
   Your Mashup UI application should now have a search result page with a **Save query as Alert** button and a **My alerts** widget.



4. Click **Save query as Alert**.

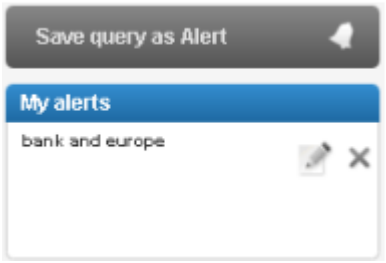
   A pop-up dialog box opens.

5. Save your query as alert.
   a. Give it a name and a description (optional).
   b. Optionally, select a group to store it in a predefined alert group. Alert groups are configured in the
   c. Click



6. In the **My alerts** widget, you can then:
   - Click the alert to run the query. It does not, however, run the alert. The alert itself is triggered only by a scheduled or a real-time alert, when a new or modified document matches.

- Or hover over the alert name to edit or delete the alert.



Important: The compilation of alerts (when you click **Save**) can be time consuming. To edit multiple alerts, we recommend to edit all alerts before recompiling rather than recompiling after each alert edition. However, as alert name editions are taken into account instantly, if a query alert is sent after the edition but before the recompilation, it will be executed with the old rules but you will receive it with its new name.

Configuring Recommendations

Enable upselling and cross-selling using the Content Recommender module.

Content Recommender adds recommendations to the search results of a Exalead CloudView Search Application.

For example, if a customer is searching for a laptop with a relatively small hard drive, your Search Application can suggest an external hard drive with more storage space than the laptop's hard drive. The rule governing this recommendation could be: *when searching for a snowboard with a price < $400, recommend snowboard boots < $200*.

Note: Content Recommender is available as a separate license. Contact your Exalead representative for more details.

Before you Begin

Before you can begin using Content Recommender, your Exalead CloudView administrator must perform some simple setup to configure search and recommendation feeds. Before you start creating recommendation rules, meet with your Exalead CloudView administrator to understand what data is available.

How Content Recommendations Work

This section explains how recommendations work, and what is involved in creating them in Content Recommender.

In the search application

Step	What
1	The user enters a search request in the search application.

Step	What
2	The search request is processed by Exalead CloudView, which sends back the matching results to the Search Application.
3	Content Recommender compares the results against its rules. If there is a match, it sends the recommendations associated with the rule(s) to the search application.
4	The user views the search results, and the associated recommendations.

In Content Recommender

The recommendations that display in the Search Application are governed by rules. To create a rule, you'll need to define the following:

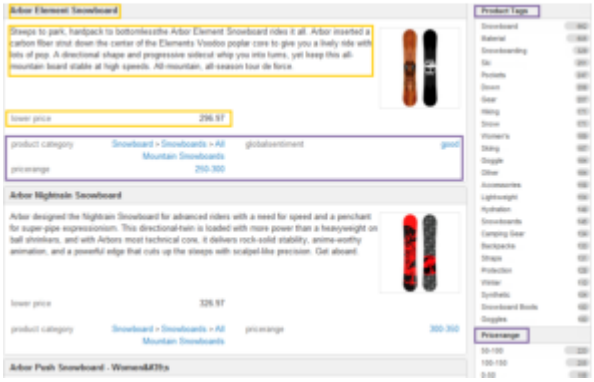
1. Define a trigger - The trigger conditions determines when to display recommendations. In the example above, the trigger is "snowboard with a price < $400".
2. Define the recommendation - The recommendation is a query, based on your Exalead CloudView index, that defines which items to recommend. In the example above, the recommendation is "snowboard boots < $200".
3. Schedule the rule (optional) - Determines how long and how frequently should the rule be in effect.

Exalead CloudView terminology

Understanding the following terms will be helpful when building trigger conditions and recommendation actions.

- **Index**: The repository of all searchable content in your Exalead CloudView search application.
- **Hit metas**: The data describing each document in the Index. In the following screenshot, the metas shown are Price, Product Title, and Product Description (see orange rectangles).
- **Facets**: Users can refine their search results can by drillling-down on facets. In the following screenshot, the facets are Product type and Price-range (see purple rectangles).

  Search results are described by metas and organized into categories. Use metas and categories to define triggers and recommendations for rules.



Plan your recommendations

Which search results should trigger recommendations?

- Do the matching search results display on the first page of the Search Application?

  Content Recommender will only display recommendations when the Trigger search result is on the first page.

- Does the Exalead CloudView administrator need to create custom trigger conditions?

  Custom trigger conditions are more user-friendly conditions, because the business logic has already been pre-defined. For example, if triggers are often based on price, then create a pre-defined condition called "price greater than" which only requires a value to be input by the business user.

Which items should be included in the recommendations?

- Does the Exalead CloudView administrator need to create custom recommendation actions? These work similarly to custom trigger conditions.

Does the search application have all the hit metas and facets needed to create trigger conditions and recommendation actions?

Where should the recommendations display?

- On which page in the Search Application?
- Where on the page?

Configuring the search and recommendation feeds

For each target page in the Search Application, you must create feeds for search results and recommendations in Mashup Builder. Afterwards, you can access these either through the Mashup UI or the Mashup API (Access API).

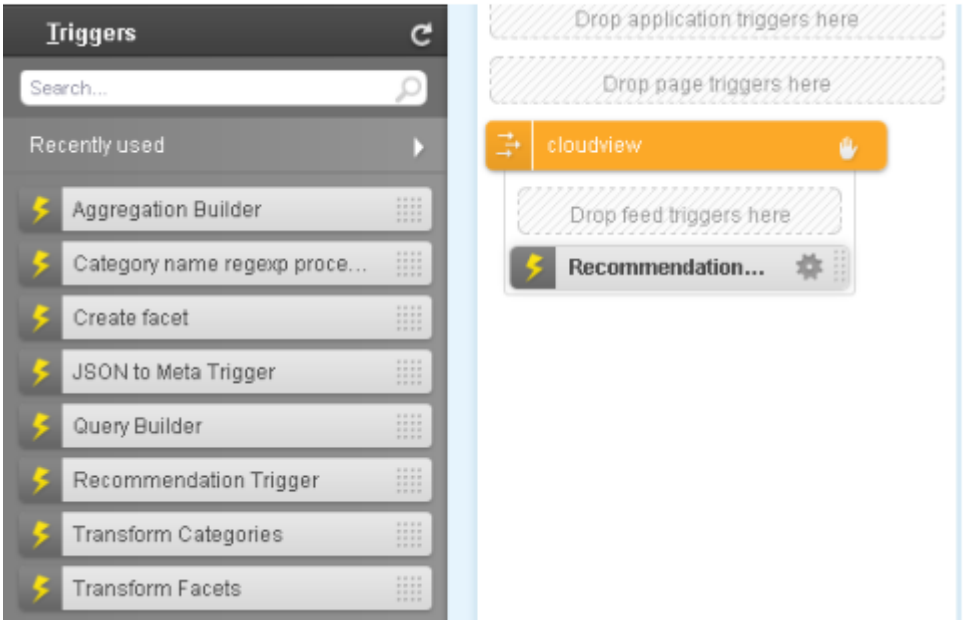
The “Related items” come from a separate recommendations feed that is triggered by certain search results.

Important: Place the Search feed above the Recommendation feed(s), to ensure it is read first.

Configure the search feed

1. In Mashup Builder, open the search application.
2. Go to the target page, and select the **Feeds** view.
3. Drag a Exalead CloudView Search feed onto the page, if one is not already there.

   Make sure this feed is above the recommendation feed(s) on the page.
4. Under **Feed settings**, select **Synchronized**.
5. Expand **Triggers** and drag the **Recommendation Trigger** to the Exalead CloudView Search feed trigger drop zone.



6. Click **Save** and then **Apply** your configuration changes.

Configure the recommendation feed(s)

You can associate multiple recommendation rules to a single Recommendation feed.

Content Recommender evaluates rules first by going to the top-most Recommendation feed, then comparing each rule to the search results in order of rule priority.

For more information, see Setting rule priority.

Important: Place the Recommendation feed(s) below the Search feed, to ensure the Search feed is read first.

1. In Mashup Builder, open the search application.
2. Go to the target page, and select the **Feeds** view.
3. Drag a **CloudView Search** feed onto the page and place it below the search feed.
4. Type a name for this feed in the **Feed ID**, for example `recommendation`.
5. (Optional) Under **Feed settings**, select **Embed**.

   This hides the recommendation feed when no recommendations are triggered.
6. Click **Save** and then **Apply** your configuration changes.

Configuring Recommendation Rules

The recommendations that display in the Search Application are governed by rules.

To create a rule, you'll need to define the following:

1. Define a trigger - The trigger conditions determines when to display recommendations. For example, the user query `laptop with a hard drive < 250 GB`.
2. Define the recommendation - The `recommendation` is a query, based on your Exalead CloudView index, that defines which items to recommend. For example, the recommendation is `external hard drive > 250 GB`.
3. Schedule the rule (optional)- How long and how frequently should the rule be in effect?

Define triggers

You can set up a rule so that it is always triggered, or you can define multiple conditions that must be satisfied to trigger the rule.

Create a rule

1. Go to the Business Console URL provided by your Exalead CloudView administrator.
2. On the menu at left, click **Recommendation > Rules**.
3. On the **Rules** page, click **Add Rule**.
4. In the **Add Rule** dialog box:

a. For **Rule**, type a name
b. For **Page**, select a target page for the recommendations.

5. Click **Accept**.

Specify a trigger

1. From the Business Console home page, click **Recommendation > Rules**.
2. On the **Rules** page, click the rule you want to modify.
3. On the **Triggers** tab, define the conditions that will launch the rule.

   From the **Launch rule** drop-down, select one of:

   - **if any trigger matches.**
   - **if all triggers match.**
   - **always.**

4. If you selected the **if any trigger matches** or **if all triggers match** matching modes in the previous step, click **Add trigger**.
   - If you selected **always**, you are ready to define the recommendations.
5. Specify a trigger name, then click **Accept**.
6. On the **Trigger Details** box, click **Add Condition**.
7. Select the condition type, and then click **Accept**. Typically, your Exalead CloudView administrator will have created some pre-defined conditions. These appear at the top of the list.
8. In the **Triggername: Conditions** box, specify the values for the condition. Click anywhere in the box to accept these values.

Define recommendations

Now you must add one or more actions to define which items will display as recommendations. This is also where you specify the target feed, which determines where the recommendations display on the target page.

If defining conditions, you need to understand the different condition types available in Content Recommender.

Recommendation actions vs. trigger conditions

While the types and the process to create a recommendation action are nearly identical to creating trigger conditions, their purposes are different:

- Trigger conditions define when to launch a rule.
- Recommendation actions define which items to recommend.

Define recommendations

1. From the Business Console home page, click **Recommendation > Rules**.
2. From the **Rules** dashboard, click the rule you want to modify.
3. On the **Recommendations** tab, complete the **Options** box:
   a. For **Display feed**, select the feed that will display the recommendations.
   b. For **Nb Results**, enter the maximum number of recommendations to display
   c. For **Sort by**, enter the field to sort by, and then choose **Ascending** or **Descending** from the drop-down to the right.
4. Define a content query. In the **Actions** box, click **Add action**.
5. Select an **Action type**, and then click **Accept**. Typically, your Exalead CloudView administrator will have created some pre-defined actions. These appear at the top of the list.
6. In the **Actions** box, select or specify the action values. Click anywhere in the box to accept these values.

You are now ready to activate your rule.

Activate and schedule a rule

By default, rules are scheduled to "always". You can add one scheduler per rule.

Activate a rule

1. From the Business Console **Home** page, click **Recommendation > Rules**.
2. On the **Rules** page, under the **Status** column, click **Inactive**. The status changes to **Active**.

You are now ready to schedule (optional) and test your rule.

Schedule a rule (optional)

1. From the Business Console **Home** page, click **Recommendation > Rules**.
2. On the **Rules** page, click the rule you want to modify.
3. On the **General** tab beside **Scheduler**, click **Edit Scheduler**.
4. Select a schedule type:
   - **Always** (default): contains an optional start date
   - **Once**: contains a start date and time and optionally an end date and time
   - **Periodic**
   - Provide a start date and time. Optional: end date and time.

Specify frequency: either monthly (for example, every 2nd and 3rd of each month) or weekly (for example, every saturday and sunday).

5. Click **Accept**.

You are now ready to test your rule.

Creating Conditions for Recommendations and Triggers

Conditions are used to create both triggers and recommendations in Content Recommender.

About recommendation condition and action types

When defining triggers, you usually need to define one or more conditions. When defining recommendations, you must define at least one action.

The process to create both conditions and actions is almost identical. Keep in mind, however, that their purposes differ:

- For triggers: Trigger rule when...<condition> is true
- For recommendations: Return recommendations that include...<action>

The following types are compared against the results from a search request.

Built-In Conditions	Description
Specific item	Includes a specific item. This is typically a product identifier
Text	Includes a particular text metadata. Use Exalead CloudView text metas to define matching criteria. For example, trigger a rule when the search results include a “Title” meta that contains the word "ski".
Numerical	Includes a numerical value or range. Use Exalead CloudView numerical metas to define matching criteria. For example, trigger a rule when the search results include a “price” meta that is greater than 100 EUR.
Category	Includes a particular Exalead CloudView category. For example, to trigger a rule when the search results belongs under the "Mountain section, in the ski category", select `Top/Mountain/Ski`.

The remaining types are compared against the search request itself.

Built-In Conditions	Description
Query	The specific search request entered by the end-user.
Page Parameters (trigger condition only)	: unlike the other types, this triggers a rule based on a parameter value that is external to the Exalead CloudView Index. For example, if your Search Application is embedded within a national website for a chain store, different rules could be triggered based on the “choose your location” value from the website. **Note:** To use this feature, your Exalead CloudView administrator must have first defined Page parameters in Mashup Builder.

Enable and disable condition types

Conditions are used to create both triggers and recommendations in Content Recommender.

1. In the Business Console, go to **Misc > Configuration > Recommendation**.
2. Under **Built-In Conditions**, select or deselect the condition type(s).

Additional conditions configuration

Create custom conditions

You can create pre-defined conditions that business users can use when defining Triggers or Recommendations for rules.

1. In the Business Console UI, go to **Misc > Configuration > Recommendation.**
2. Under **Custom Conditions**, click **Add custom condition**.

Enable external URL parameters

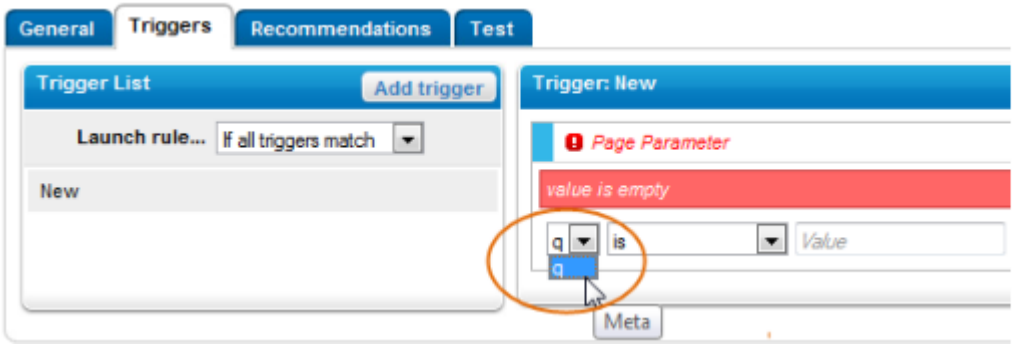
In Content Recommender, users can trigger rules or base recommendations on a parameter value that is external to the Exalead CloudView Index. The parameter value is passed to Content Recommender via the search request URL. This is done by creating a Page Parameter condition.

1. In Mashup Builder, create a Page parameter on the target page.

   Page parameter in Mashup Builder

2. Once added to Mashup Builder, the available parameters display dynamically in Content Recommender.

   Corresponding parameter available in Content Recommender



Testing rules

To verify that your rule both triggers correctly and recommends the correct items, you should test it before implementing it in your production system.

Test a rule without schedule

Before you test a rule, the rule must be active.

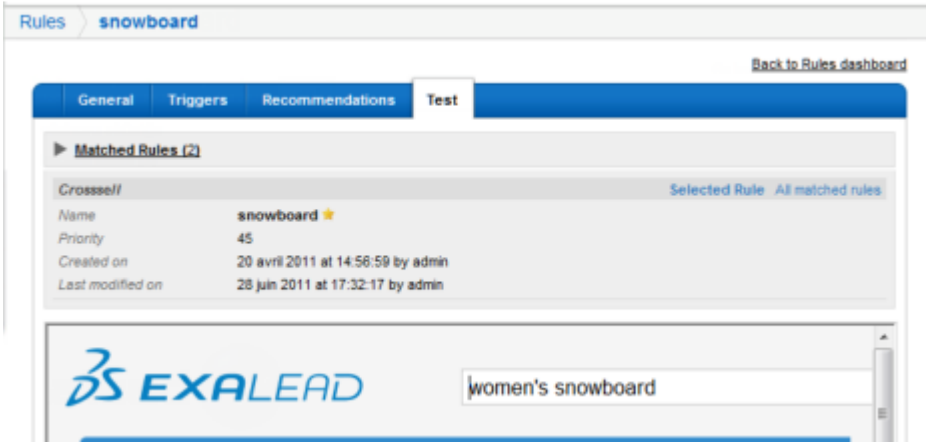
1. From the Business Console **Home** page, click **Recommendation > Rules**.
2. On the **Rules** page, check the **Status** column to verify the rule is activated.
3. Under the **Rule Name** column, click the rule you want to test.
4. On the **Test** tab, enter a search request in the test Search Application.

A list of matching rules displays above the test Search Application.

Example 1. Understand test results

In this example, we will test the `snowboard` rule by entering the query `women's snowboard`. For a particular hit to be considered a match, it must display on the first page of the search results.

The results from this search request triggered two rules, included the rule being tested (snowboard)



As shown above, the results from this test indicate:

- Two rules matched the search results, including the rule being tested (`snowboard`), which we'll refer to as the *current rule*.
  - The current rule name displays in bold text when it is one of the matched rules.
  - To show all rules that had matches in the search results, click **All matched rules** (on the top right of the Matched Rules box).
- The `snowboard` rule was the first rule matched by the search results, denoted by the star icon beside its name.

Test a rule with a schedule

If you set up your rule to use a scheduler, you can verify your rule works for time period.

1. From the Business Console **Home** page, click **Recommendation > Rules**
2. On the **Rules** page, check the **Status** column to verify the rule is activated.
3. Under the **Rule Name** column, click the rule you want to test.
4. On the **Test** tab, click Advanced Settings.
5. Under **Advanced Settings** section, select a date and time.
6. Click **Refresh** (at the bottom right of the Advanced Settings box)
7. Enter a search request in the test search application.

A list of matching rules displays above the test search application.

Managing and Filtering Rules

The **Rules** page is the starting point to add, delete, or modify rules.

Managing rules

Manage rules

1. In the Business Console, go to **Recommendation > Rules**.
2. On the **Rules** page, select a rule.
3. From the **Actions** drop-down, select an action.

Modify column values directly

1. Alternatively, from the **Rules** page you can modify the **Priority**, **Scheduler**, and **Status** settings for a rule by clicking the corresponding column.

Rename a rule

1. On the **Rules** page, select the rule to modify.
2. On the **General** tab, modify the name that appears in the **Rule** field.

Filtering rules

You can filter rules using key words or tags.

Add tags to a rule

To add a tag, use the **Actions** drop-down menu. See Manage rules.

1. On the **Rules** page, click the name of the rule to modify.
2. On the **General** tab, click **Add tag**.
3. In the **Tag(s)** field, type a tag name. You can enter multiple tags, separated by commas.
4. Click **Add tag(s)**.

The tag is displayed beside the Tags field.

Filter by tag

1. On the **Rules** page:
   - under the **Tags** column, click the tag you want to filter with.
   - or in the **Filter** box, enter the tag name (for example, `laptop`) and then click **Enter**.

The **Rules** page now only displays Rules with that tag.

Filter by keyword

1. On the **Rules** page, in the **Filter** box, enter your keyword, and then click Enter.

Setting rule priority

Priority determines the order of execution if a search result matches the trigger conditions for multiple rules. Rule priority value ranges from 1 to 100. The lower this value, the higher the rule priority.

Content Recommender evaluates rules as follows:

- First Content Recommender evaluates feeds as they appear in the Feeds view of the page in Mashup Builder, starting from the top.
- Then, if the feed has multiple rules, each rule is evaluated in order of priority value. The rule with the lowest priority value is evaluated first.

Set rule priority

1. On the **Rules** page, click the name of the rule to modify.
2. On the **General** tab beside **Priority**, adjust the slider or enter a value between 1 and 100.
3. Click anywhere in the **General** tab to save the change.