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## **Coveo Platform 6.5**

### **Analytics Module Guide**

## Notice

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## Table of Contents

<b>1. About the Analytics Module</b> .....	<b>1</b>
<b>2. Deploying the Analytics Module</b> .....	<b>3</b>
<b>3. Updating the Analytics Database Format</b> .....	<b>8</b>
<b>4. Using the Analytics Module</b> .....	<b>11</b>
4.1 Opening the Analytics User Interface.....	11
4.2 Analytics User Interface Elements.....	11
4.3 Refining Analytics Results.....	13
4.4 Evaluating the Search Solution Adoption.....	16
4.5 Identifying the Gap Between the Available and the Searched Content.....	17
<b>5. Customizing Analytics Data Collection</b> .....	<b>19</b>
5.1 Analytics Database Content.....	19
5.2 Customizing the Collected Analytics Data.....	27
5.3 Logging Analytics Module Errors.....	28
<b>6. Performing Specific Analytics Module Installation Tasks</b> .....	<b>29</b>
6.1 Finding the Name of the User that Runs a Process in IIS.....	29
6.2 Creating a Database in Microsoft SQL Server.....	30
6.3 Running a Script in Microsoft SQL Server.....	32
6.4 Troubleshooting and Handling Analytics Module Errors.....	34
6.5 Deactivating the Analytics Module.....	35

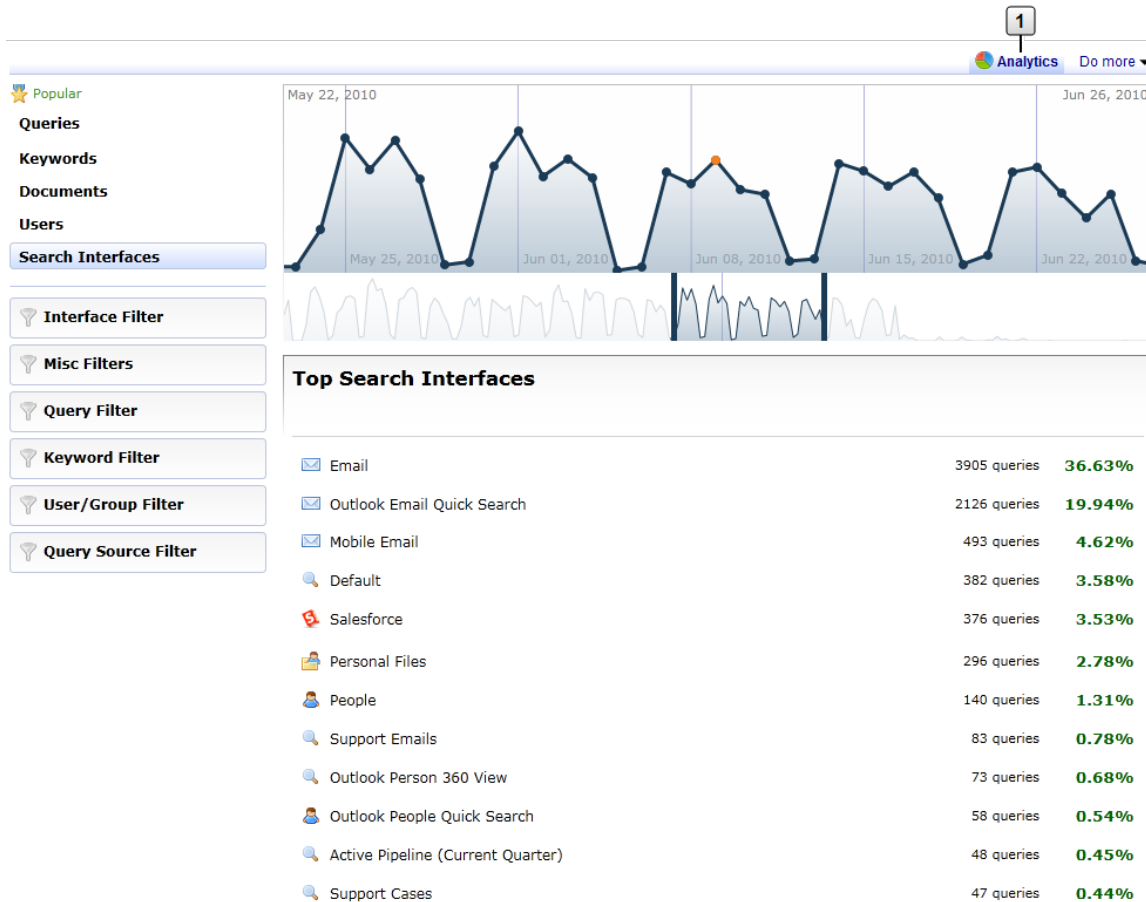


## 1. About the Analytics Module

The Analytics module provides information that helps administrators optimize their Coveo search implementation by analyzing the paths users follow while searching and navigating in the results. By tracking and understanding user behavior, the administrator can better determine the user search requirements, assess performance of the system, and optimize their search results – ultimately increasing adoption of the search solution.

The Analytics database automatically tracks all user actions performed in the Coveo search interfaces, including result click-through, faceted navigation, and the use of the different user interface functions. The actions are saved in the database along with user information, search session data, and the opened documents on which the action was taken.

The administrator uses the Analytics user interface to view and analyze the logged information. The Analytics user interface offers numerous filters to help find precise search usage information.



1 Analytics user interface tab

**Note:** The Analytics module is available starting with the Coveo Platform 6.2. The **Analytics** tab appears at the top of the default web interface only after the Analytics module has been deployed and only when the user has Coveo administrator rights. End-users do not see the **Analytics** tab.

## Steps for using the Analytics module

1. Deploy the Analytics module

You need to setup the database that will collect the Analytics data, enable the Analytics module, and then connect it to the database (see ["Deploying the Analytics Module" on page 3](#)).

If you experience problems, see ["Troubleshooting and Handling Analytics Module Errors" on page 34](#).

2. Learn how to use the Analytics user interface

The Analytics user interface contains numerous filters allowing you to quickly and easily review the Analytics data (see ["Analytics User Interface Elements" on page 11](#) and ["Refining Analytics Results" on page 13](#)).

3. Exploit the Analytics data

The Analytics data being collected in a database, you can develop your own queries and even customize the data that is collected (see ["Analytics Database Content" on page 19](#) and ["Customizing the Collected Analytics Data" on page 27](#)).

## 2. Deploying the Analytics Module

The Analytics module components are included when you install a Coveo Platform 6.2+ server. However, the Analytics features are turned off by default. The Analytics module also needs to connect to a Microsoft SQL database where it will log search and navigation actions. You can use an existing Microsoft SQL Server or create a new SQL Server instance. The Coveo Platform and the Microsoft SQL database can be installed on the same server or on different servers. You can deploy the Analytics module on a single Coveo server configuration or on a multiple Coveo Back-End and Front-End server topology.

In summary, the deployment process consists in creating a dedicated Microsoft SQL database, setting the permissions to the database, and on each Coveo Front-End server, activate the Analytics module and configure the Analytics module to connect to this database.

Analytics module requirements:

- Coveo Platform 6.2+
- Microsoft SQL Server 2005 or 2008. Supports the free Microsoft SQL Express Edition (see <http://www.microsoft.com/express/database/>).
- You need Coveo Platform and Microsoft SQL Server administrator rights to perform the following procedure.
- Microsoft Silverlight support in the browser used to view the Analytics user interface.

### To deploy the Analytics module

1. Choose an existing Microsoft SQL Server or install a new instance where the Analytics database will be created.
2. Note the name of the Microsoft SQL Server instance.
3. On the Coveo Front-End server, find the name of the user that runs the Coveo site in IIS (see "[Finding the Name of the User that Runs a Process in IIS](#)" on page 29).
4. On the Microsoft SQL Server, create a new empty Analytics database using the default name `CoveoAnalytics` (see "[Creating a Database in Microsoft SQL Server](#)" on page 30).

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**Note:** You can use a different database name, but you will need to specify this name in the `Web.config` file later in this procedure. Also, before running the database creation script, you will need to edit the first line of the database creation script to replace the default database name with the name you selected.

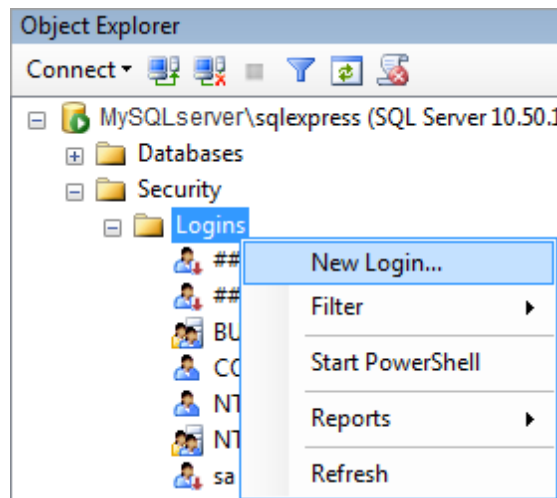
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5. Referring to the following table, select the appropriate script for the version of the Coveo Platform that you are running (distributed in the `[Installation_Path]\Coveo Enterprise Search 6\Web\Analytics\Scripts` folder), and then run it on the Microsoft SQL Server (see "[Running a Script in Microsoft SQL Server](#)" on page 32).

**Important:** Use the creation script only the first time that you start using Coveo Analytics. Running the creation scripts permanently erases any existing Analytics data as it creates blank analytics database tables.

Script purpose	Coveo Platform 6.5 scripts	Coveo Platform 6.2 scripts
Creates the Coveo Analytics database tables in version 4 format for the Coveo Platform 6.5.	Creation\CREATE_CES_ANALYTICS_DB_V4.SQL	N/A
Migrates the Coveo Analytics database tables from the version 3 to version 4 format for migrations from the Coveo Platform 6.2 to 6.5.	Migration\MIGRATE_CES_ANALYTICS_DB_FROM_V3_TO_V4.SQL	N/A
Creates the Coveo Analytics database tables in version 3 format for the Coveo Platform 6.2.	N/A	MSSQL2005_3.SQL
Migrates the Coveo Analytics database tables from the version 2 to version 3 format for migrations from the Coveo Platform 6.1 to 6.2.	Migration\MIGRATE_CES_ANALYTICS_DB_FROM_V2_TO_V3.SQL	MSSQL2005_2_3.SQL

6. In **Microsoft SQL Server Management Studio**, set read and write access rights to the database for the user that runs the CES service:
  - a. In the **Object Explorer** pane, expand the **Security** folder, right-click on **Logins**, and then select **New Login** in the contextual menu.



- b. In the **Login - New** dialog box, create a login for the user identified in [step 3](#), and then click **OK**.

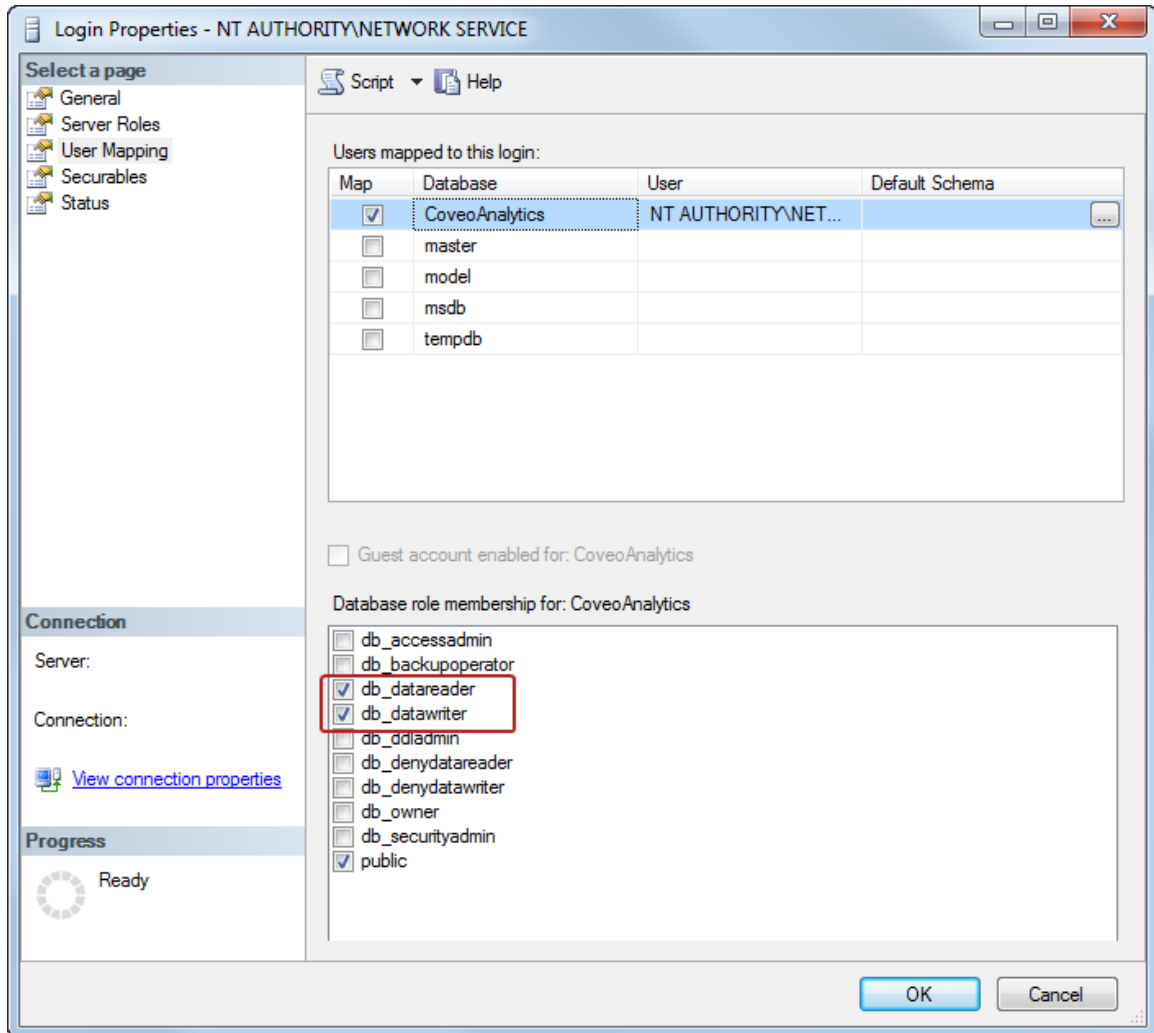
**Example:** When the Coveo Platform and Microsoft SQL run on the same server and the identified user is NetworkServices, create a `NT AUTHORITY\NETWORK SERVICE` login.

**Example:** When the Coveo Platform and Microsoft SQL run on different servers and the identified user is NetworkServices, create a `[CESserverdomain]\[CESservername]$` login, where you replace `[CESserverdomain]` and `[CESservername]` by the appropriate names.

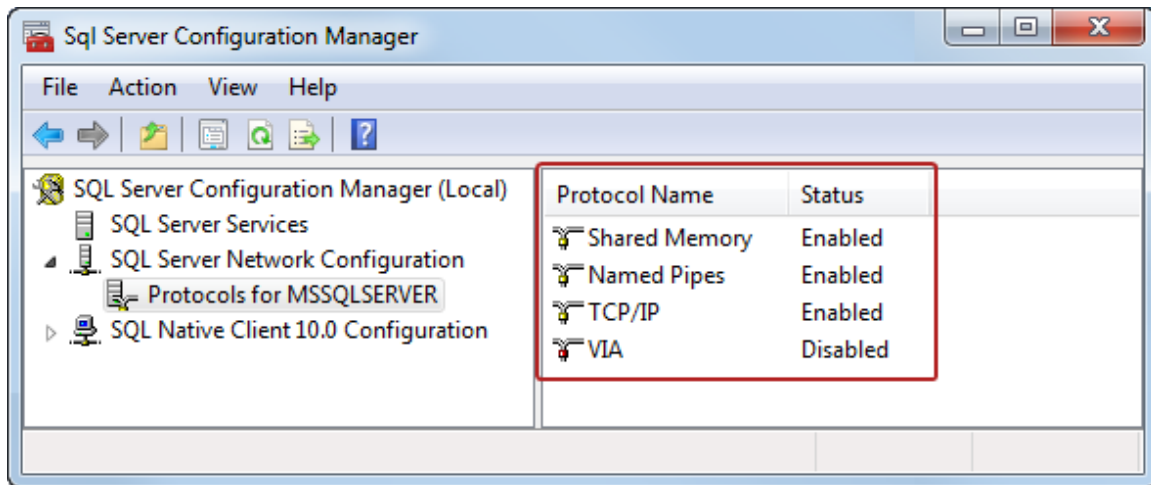
- c. Back in the **Object Explorer** pane, expand **Security** and **Logins**, right-click on the newly created

login name, and then select **Properties** in the contextual menu.

- d. In the **Login Properties** dialog box, for the **CoveoAnalytics** database, select the **db\_datareader** and the **db\_datawriter** check boxes (as shown in the following Microsoft SQL Server Manager Studio 2008 example).



7. On the Microsoft SQL Server, in the **Sql Server Configuration Manager**, ensure that the protocol used by the Coveo Platform to communicate with the SQL database is activated (as shown in the Microsoft SQL 2008 example in the following figure). Restart the SQL server after making changes.



8. When the Coveo Platform and Microsoft SQL run on different servers, ensure that the firewall of the Microsoft SQL Server allows communication from the Coveo server (typically on port 1433).
9. On each Coveo Front-End server, edit the `Web.config` file to activate the Analytics module and configure to which SQL Server it connects:

- a. Using a text editor, open the `[Installation_Path]\Coveo Enterprise Search 6\Web\Web.config` file.
- b. In the file, after the `<coveoEnterpriseSearch>` tag, locate the following line:

```
<analytics enabled="false" connectionString="Data Source=yourServerName;Initial Catalog=CoveoAnalytics;Integrated Security=SSPI;" />
```

- c. Edit the line as follows:
  - i. Change `enabled="false"` to `enabled="true"` to activate the Analytics data collection.
  - ii. Replace `yourServerName` by the name of the Microsoft SQL Server that will host the Analytics database (noted in [step 2](#)) to set the database connection string (`connectionString=`).

**Example:** When the Coveo Platform and Microsoft SQL run on the same server, replace `yourServerName` by `localhost` or by `<yourServerName>\<SQLInstance>` for a specific SQL Server instance (like `MyMachine\SQLExpress`).  
 When the Coveo Platform and Microsoft SQL run on different servers, replace `yourServerName` by a string of the form `CESservername.yourcompany.com` or by the IP address of the Coveo server.

**Tip:** For more information on how to write an SQL connection string, refer to <http://www.connectionstrings.com/sql-server-2008>.

- iii. If you used a database name other than the default name when you created the database, replace `CoveoAnalytics` by the name you used.
- d. Save the `Web.config` file.

The Analytics module immediately starts to collect search usage information to the database and the Analytics user interface tab appears in the default Coveo search interface (for a Coveo administrator only).

**Important:** If you have more than one Coveo Front-End server, repeat the editing of the `Web.config` file on each Front-End server to also collect search usage from these servers.

**Tip:** You can customize the Analytics data collection behavior by configuring the `Web.config` file (see ["Customizing the Collected Analytics Data" on page 27](#)).

10. On the Coveo Front-End server, test the Analytics module:
  - a. Using a Coveo administrator account, open the default Coveo search page (Windows taskbar **Start > All Programs > Coveo Enterprise Search 6 > Default Search Interface**).
  - b. Perform a few queries to ensure that some data is sent to the Analytics database.
 

If an error message appears, the connection or the permissions to the database may not be set properly (see ["Troubleshooting and Handling Analytics Module Errors" on page 34](#)).
  - c. In the default search interface, click the **Analytics** tab to open the Analytics user interface.
  - d. If Microsoft Silverlight is not yet installed on your server, click the **Install Microsoft Silverlight** icon that appears to install it.
  - e. Verify that the Analytics user interface presents the queries that you performed.

**Note:** You may see **No Data to Display** in the time graph and top result list zones until a minimum number of queries are recorded, or until the next day.

### 3. Updating the Analytics Database Format

The format of the Microsoft SQL database used to collect the Analytics data may change when you upgrade from one Coveo Platform version to another. When your Coveo implementation takes advantage of the Analytics module features, in the Coveo migration process, you therefore need to update the Analytics database to the latest format.

#### To update the Analytics database format

1. Referring to the following table, select the migration script appropriate for your migration.

The scripts files are distributed in the `[Installation_Path]\Coveo Enterprise Search 6\Web\Analytics\Scripts` folder.

Script purpose	Coveo Platform 6.5 script file	Coveo Platform 6.2 script file
Migrates the Coveo Analytics database tables from the version 3 to version 4 format for migrations from the Coveo Platform 6.2 to 6.5.	<code>Migration\MIGRATE_CES_ANALYTICS_DB_FROM_V3_TO_V4.SQL</code>	N/A
Migrates the Coveo Analytics database tables from the version 2 to version 3 format for migrations from the Coveo Platform 6.1 to 6.2.	<code>Migration\MIGRATE_CES_ANALYTICS_DB_FROM_V2_TO_V3.SQL</code>	<code>MSSQL2005_2_3.SQL</code>

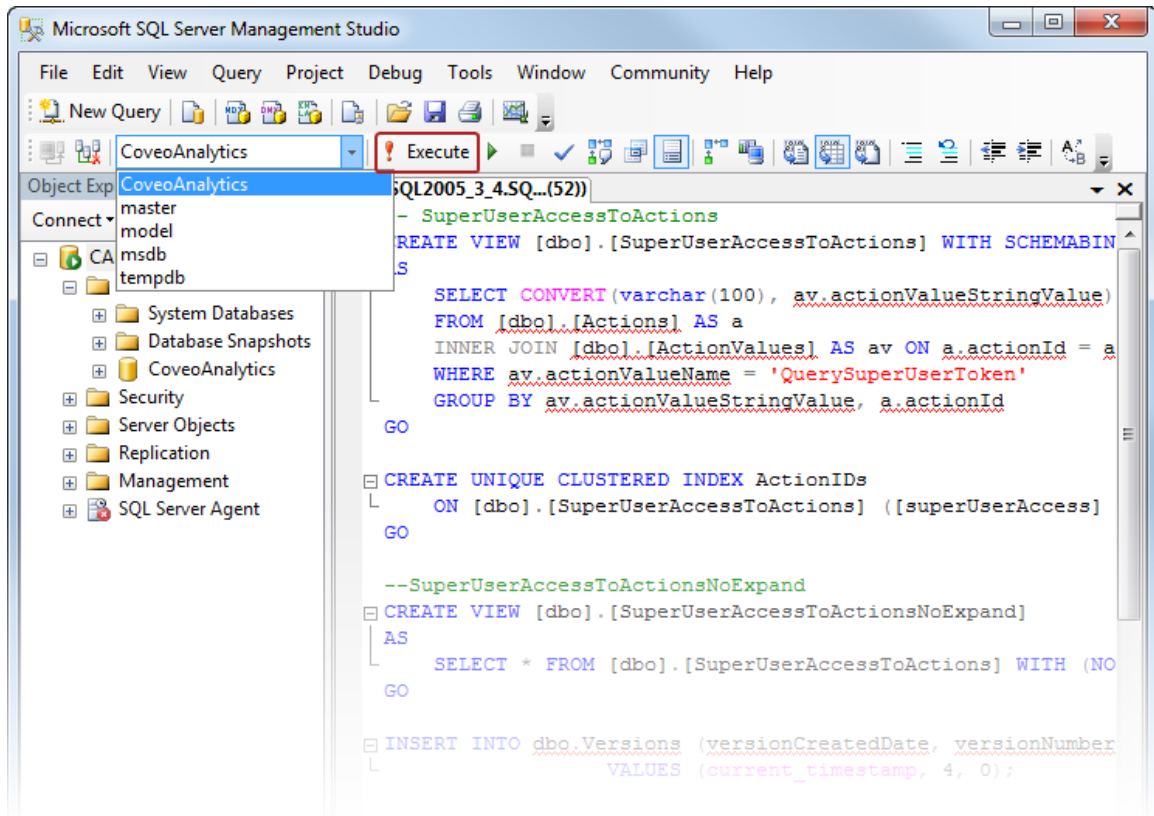
**Important:** Use the creation script only the first time that you start using Coveo Analytics. Running the creation script permanently erases any existing Analytics data as it creates blank analytics database tables.

2. On the Coveo server, copy the appropriate script file from the `[Installation_Path]\Coveo Enterprise Search 6\Web\Analytics\Scripts` folder.

**Note:** The script uses the Analytics database default name (`CoveoAnalytics`). If your implementation of the Analytics database uses a different name, edit the first line of the script to replace the default database name with the name of your database.

3. On the Microsoft SQL Server:
  - a. Paste the script file to a temporary folder of your choice.
  - b. Start Microsoft SQL Server Management Studio (on the Windows taskbar, select **Start > All Programs > Microsoft SQL Server 2008 > SQL Server Management Studio**).
4. In **Microsoft SQL Server Management Studio**:
  - a. On the menu, select **File > Open > File**.
  - b. In the **Open File** dialog box, browse for the script file that you pasted, and then click **OK**.
  - c. On the SQL Editor toolbar, select the appropriate database (`CoveoAnalytics` by default), and

then click **Execute** to run the script.



A message appears at the bottom of the **Microsoft SQL Server Management Studio** window to indicate that the execution of the script completed successfully.





## 4. Using the Analytics Module

### 4.1 Opening the Analytics User Interface

**Note:** The **Analytics** user interface tab is available in the Coveo Platform 6.2+ and appears in the default search interface only for a Coveo administrator.

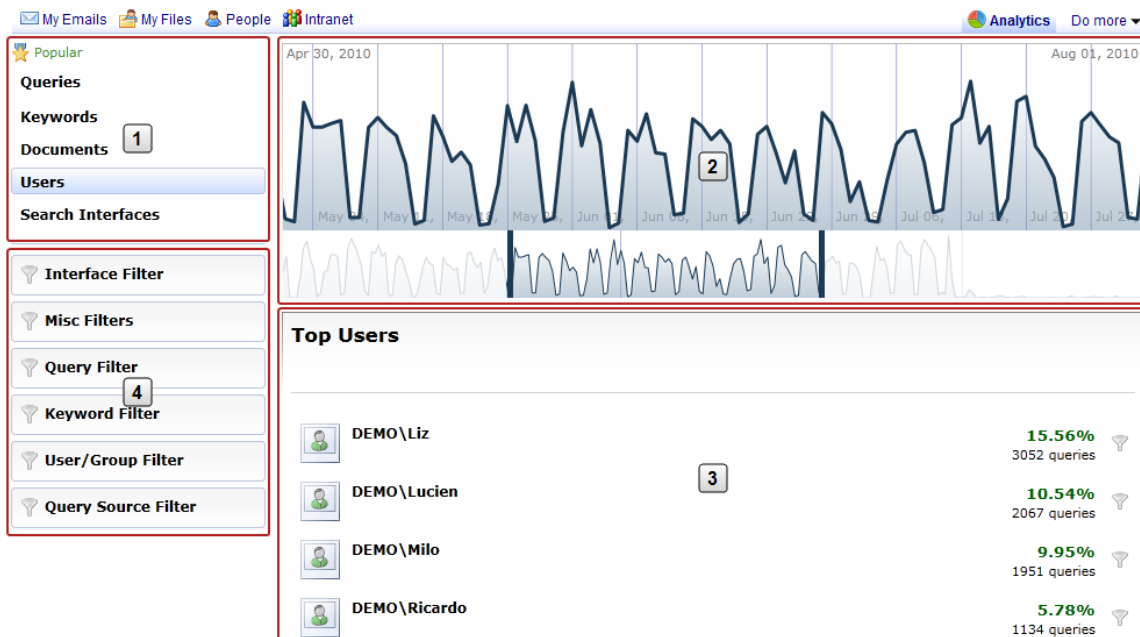
1. Using a Coveo administrator account, on a Coveo Front-End server, open the default search interface (on the Windows taskbar select **Start > All Program > Coveo Enterprise Search 6 > Default Search Interface**).
2. On the search interface toolbar, click **Analytics**.



The Analytics user interface opens.

### 4.2 Analytics User Interface Elements

The Analytics user interface is divided in four sections as shown in the following example and legend.



#### 1 Popular

Contains choices of top results lists. The selected top results list appears in section **3** and shows the corresponding most frequent elements found in the Analytics database (for example, as shown in the previous figure, selecting **Users** displays the **Top Users** list).

**2 Timeline graph**

The timeline graph shows the number of queries recorded as a function of time for the current filter selection.

The upper part of the graph shows the number of queries for the date range selected in the lower part of the graph. The lower part of the graph shows the number of queries for the complete date range available from the Analytics database. In this part, you can select to narrow results in time by moving the date range start and end markers (see ["Refining Analytics Results" on page 13](#)).

**3 Top results list**

The top results list presents the found elements for the current selection in the **Popular** list, starting with the most frequent elements. You can click an element in the list to refine the results to that element and drill down further using other criteria that appear in the list title bar (see ["Refining Analytics Results" on page 13](#)).

**4 Filter selectors**

The filter selectors allow you to refine the top results list content (see ["Refining Analytics Results" on page 13](#)). The timeline graph is also updated to show the number of filtered queries. The filter selector box is shaded in green when the filter is active. The following table presents the available filters.

Filter type	Description
<b>Interface Filter</b>	<p>Lists the search interfaces from which queries were performed. Select the check box of one or more search interfaces to update the top results list and the timeline graph with queries entered only in the selected search interfaces.</p> <p>This filter is useful to evaluate the adoption of a search interface.</p>
<b>Misc Filter</b>	<p>Presents a selection of the following special filters:</p>
	<p><b>No results returned</b></p> <p>Lists only queries for which no results were found.</p> <p>This filter is useful to help identify the gap between the available content and what users are looking for.</p>
	<p><b>At least one result was opened</b></p> <p>Lists only queries for which the user clicked to open at least one result.</p>
	<p><b>User switched to next page</b></p> <p>Lists only queries for which the user opened at least one other search results page in the search interface.</p> <p>This filter is useful to identify content that users are looking for and do not find within the first results page.</p>
	<p><b>User changed the query</b></p> <p>Lists only queries that were modified by the user within a query session.</p> <p>This filter is useful to identify original queries with which user probably did not find what they were looking for.</p>

Filter type	Description
<b>Query Filter</b>	Presents a text box to type and search one or more specific queries so that it can be added as a custom filter. When more than one custom filters are selected, the underlying query uses an OR logical operator between the expressions.
<b>Keyword Filter</b>	Presents a text box to type and search one or more specific keywords so that it can be added as a custom filter. When more than one custom filter is selected, the underlying query uses an OR operator between the keywords.
<b>User/Group Filter</b>	<p>Presents a text box to type and search one or more specific users or groups of users so that they can be added as a custom filter.</p> <p>This filter is useful to help evaluate the adoption of the search tool by a user or by a group of users.</p>
<b>Query Source Filter</b>	<p>Lists the access points from which listed queries where performed.</p> <p>This filter is useful to determine from which access points users perform searches.</p>

### 4.3 Refining Analytics Results

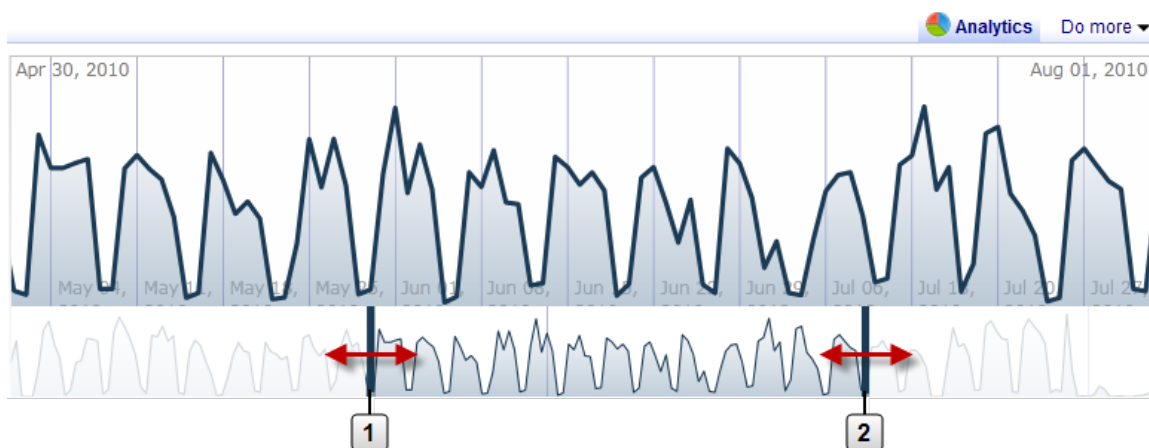
In the Analytics user interface, you can refine the results using the following methods.

#### Refining Analytics results for a specific date interval

In the Analytics user interface, you can easily filter results for a date range using the timeline graph.

1. Open the Analytics user interface (see "[Opening the Analytics User Interface](#)" on page 11).
2. In the lower part of the timeline graph that shows the number of queries for the complete date range available from the Analytics database, click and drag the date range start and end markers to set the desired date range.

The upper part of the timeline graph and the top results list are updated to show only the newly selected date range.

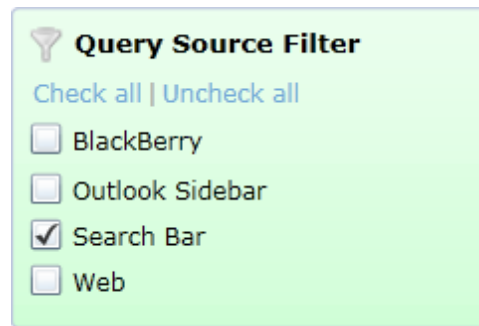


- 1 The start marker for the date range
- 2 The end marker for the date range

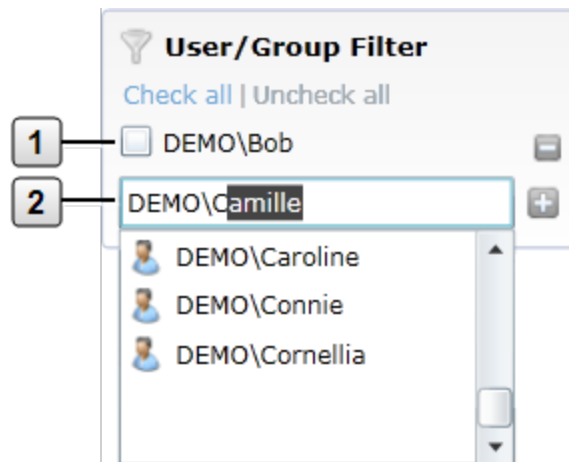
### Refining Analytics results using the filters



The Analytics user interface includes filter selectors to help you refine the presented results (see ["Analytics User Interface Elements" on page 11](#)). You can use one, or a combination of filters, to narrow the results presented in the top results list and in the timeline graph.

1. Open the Analytics user interface (see ["Opening the Analytics User Interface" on page 11](#)).
2. In the **Popular** list, select the desired element for which you wish to see top results.
3. To use a filter selector, click its box to expand it.
4. When the filter selector contains predefined check boxes (as shown in the following figure):



- a. Click one or more check boxes to refine the top results list to the corresponding selection.  
The filter selector box turns green to indicate that a filter is active.
  - b. Click **Check all** or **Uncheck all** when you want to respectively select or clear all available check boxes.
5. When a filter selector contains a text box (as shown in the following figure):

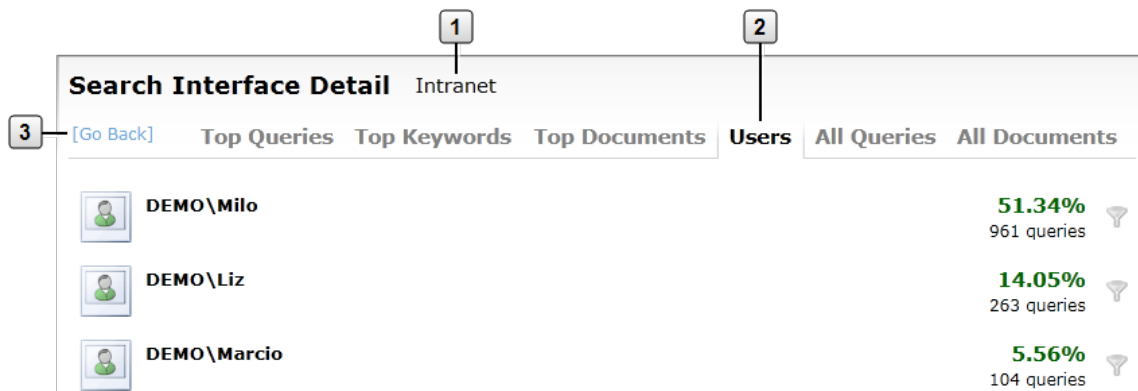


- 1 Previously created custom filter
  - 2 Creating a custom filter
- a. In the text box, start typing the text with which you want to create a custom filter.  
As you type, text completion and a list below the text box automatically appear, matching available elements from the Analytics database.
  - b. Select one of the available choices.
  - c. Click  on the right of the text box to add the element as a custom filter.  
The custom filter appears as a check box above the text box.
  - d. Select the newly created check box to activate the custom filter.
  - e. To eliminate a custom filter from the filter selector, click  on the right of the custom filter.

### Refining Analytics results using the top results list

You can click a top results list element to see details about the selected element.

1. Open the Analytics user interface (see "[Opening the Analytics User Interface](#)" on page 11).
2. In the **Popular** list, select the desired elements for which you wish to see the top results (for example **Search Interfaces**).
3. In the top results list:
  - a. Click a result for which you want to see details.  
The top results list is refined to this selection. The element you clicked appears on the title bar of the top results list together with a series of tabs.
  - b. On the top results list title bar, click the desired tab to see the corresponding details.
  - c. Click **[Go Back]** to clear the previous top results list selection.



- 1 A result clicked in the top results list for which details are shown.

- 2 A selected tab, showing corresponding details.
- 3 Click **[Go Back]** to clear the previous top results list selection.

## 4.4 Evaluating the Search Solution Adoption

You can use the Analytics user interface to evaluate who uses the Coveo search solution, from what access point, and using which search interface. The following procedures provide simple examples of how you can do this. Use one or combinations of the following procedures.

### Finding who uses the search solution

1. Open the Analytics user interface (see ["Opening the Analytics User Interface" on page 11](#)).
2. In the **Popular** list, click **Users**.
3. Review the **Top Users** list to see the most frequent users.
4. In the time line graph, change the date range selection to see if the most frequent users change as a function of time.
5. To narrow the search solution adoption evaluation to a specific group of users:
  - a. In the filter selector area on the left, click **User/Group Filter** to expand the filter box.
  - b. In the text box, start to type the name of the desired group, and then select the desired group in the list that automatically appears.

The **Top Users** list and the timeline graph are updated to only show queries and users from this group.

6. Repeat the previous step for other or combinations of other groups.

### Finding which search interfaces are used

1. Open the Analytics user interface (see ["Opening the Analytics User Interface" on page 11](#)).
2. In the **Popular** list, click **Search Interfaces**.
3. Review the **Search Interface Detail** list to see the most frequently used search interfaces.
4. In the time line graph, change the date range selection to see if the most frequently used search interface changes as a function of time.
5. To narrow the results to one or a few specific search interfaces:
  - In the **Search Interface Detail** list, click a search interface.

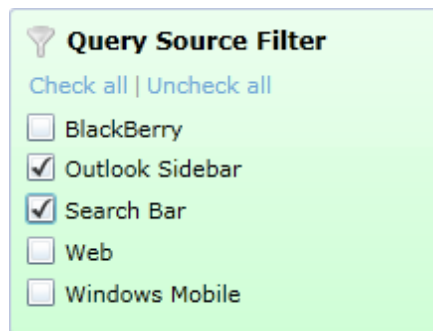
OR

- a. In the filter selector area on the left, click **Interface Filter** to expand the filter box.
- b. Select the check box of one or more search interfaces.

The **Search Interface Detail** list and the timeline graph are updated to only show information from this or these search interfaces.

### Finding from which access point searches are performed

1. Open the Analytics user interface (see ["Opening the Analytics User Interface" on page 11](#)).
2. In the filter selector area on the left, click **Query Source Filter** to open the filter box.
3. Select the check box of one or more access point to narrow the top results list content to this selection.



4. Use the **Popular** list to update the top results list and see the search usage from the selected access point.

### 4.5 Identifying the Gap Between the Available and the Searched Content

You can use the Analytics user interface to identify the content that users are looking for and that is missing, not found, or harder to find. The following procedures provide simple examples of how you can do this.

#### Identifying missing content

1. Open the Analytics user interface (see ["Opening the Analytics User Interface" on page 11](#)).
2. In the **Popular** list, click **Queries** or **Keywords**.
3. In the filter selector area on the left, click **Misc Filter** to expand the filter box.
4. Select the **No results returned** check box.
5. Review the top results list to see the most frequent queries or keywords for which no results were returned.

You can forward a relevant summary of missing content to the people who can improve existing or create new content to fill the knowledge gap.

You can also use this information to feed the Coveo thesaurus to increase the number of successful queries.

#### Identifying harder to find content

1. Open the Analytics user interface (see ["Opening the Analytics User Interface" on page 11](#)).
2. In the **Popular** list, click **Queries** or **Keywords**.

3. In the filter selector area on the left, click **Misc Filter** to expand the filter box.
4. Select the **User switched to next page** or the **User changed the query** or both check boxes.
5. Review the top results list to see the most frequent queries or keywords for which the user worked harder.

You can forward a relevant summary of hard to find content to the people who can improve existing or create new related content.

You can also use this information to feed the Coveo thesaurus to increase the number of successful queries.

## 5. Customizing Analytics Data Collection

### 5.1 Analytics Database Content

You may want to take advantage of data collected by the Analytics module by directly querying the Analytics database. This section presents detailed information on the content of the Analytics database.

#### Analytics database schema

The following schema presents all the tables and the relations between the tables of the Analytics database.



### Content of Analytics database tables

The following table describes the content of each Analytics database table.

Table	Description
Users	<p>Represents a user that accesses one of the search interfaces monitored by the Analytics module.</p> <ul style="list-style-type: none"> <li>• <b>userId:</b> (PK<sup>1</sup>) The unique identifier of the user.</li> <li>• <b>userCreateDate:</b> The date at which the user was created.</li> <li>• <b>userName:</b> The full name of the user.</li> </ul>
UserMetadata	<p>Represents metadata related to a specific user. This entity is used to store additional information (see <a href="#">"Customizing the Collected Analytics Data" on page 27</a>).</p> <ul style="list-style-type: none"> <li>• <b>usermetadataId:</b> (PK) The unique identifier of the user metadata.</li> <li>• <b>usermetadataName:</b> The name of the metadata.</li> <li>• <b>usermetadataValue:</b> The value of the metadata.</li> <li>• <b>userId:</b> (FK<sup>2</sup>) The user related to this metadata.</li> </ul>
Sessions	<p>Represents a sequence of interactions between a user and a search interface. Looking at the sequence of actions in a session allows administrators to determine if a search session was a success or not.</p> <ul style="list-style-type: none"> <li>• <b>sessionId:</b> (PK) The unique identifier of the session.</li> <li>• <b>sessionCreateDate:</b> The date at which the session was created.</li> <li>• <b>sessionGuid:</b> The globally unique identifier (GUID) of the session. This value is required by the search interface as there is a strong distinction between the search user interface and the mechanism responsible for writing in the database.</li> <li>• <b>userId:</b> (FK) The user related to the session.</li> </ul>
SessionMetadata	<p>Represents the metadata related to a specific session. This entity is used to store additional information (see <a href="#">"Customizing the Collected Analytics Data" on page 27</a>).</p> <ul style="list-style-type: none"> <li>• <b>sessionmetadataId:</b> (PK) The unique identifier of the session metadata.</li> <li>• <b>sessionmetadataName:</b> The name of the metadata.</li> <li>• <b>sessionmetadataValue:</b> The value of the metadata.</li> <li>• <b>sessionId:</b> (FK) The session related to the metadata.</li> </ul>
SearchInterfaces	<p>Represents the search interfaces on which data is collected.</p> <ul style="list-style-type: none"> <li>• <b>searchInterfaceId:</b> (PK) The unique identifier of the search interface.</li> <li>• <b>searchInterfaceCreateDate:</b> The date at which the search interface was created.</li> <li>• <b>searchInterfaceName:</b> The name of the search interface.</li> </ul>

<sup>1</sup>Public Key  
<sup>2</sup>Foreign Key

Table	Description
Actions	<p>Represents any action that can be performed on a search interface. This table is the central part of the Analytics database design.</p> <ul style="list-style-type: none"> <li>• <b>actionId:</b> (PK) The unique identifier of the action.</li> <li>• <b>actionCreatedDate:</b> The date the action was performed.</li> <li>• <b>actionGuid:</b> The globally unique identifier (GUID) of the action. This value is required by the search interface as there is a strong distinction between the search UI and the mechanism responsible for writing in the database.</li> <li>• <b>actionType:</b> The type of the action (see "<a href="#">Logged actions</a>" on page 25).</li> <li>• <b>actionOutputType:</b> The type of output the action has generated (ex.: web, RSS, xml, etc.).</li> <li>• <b>sessionId:</b> (FK) The session in which the action was performed.</li> <li>• <b>searchInterfacId:</b> (FK) The search interface the action was performed on.</li> <li>• <b>searchHubId:</b> : (FK) The search hub the action was performed from.</li> <li>• <b>parentActionId:</b> (FK) The action ID of the parent of the action.</li> <li>• <b>actionResponseTime:</b> The time required to perform the action.</li> <li>• <b>rootActionId:</b> (FK) The action ID of the root of the action.</li> <li>• <b>queryId:</b> (FK) The query ID related to this action.</li> </ul>
ActionValues	<p>Represents the various values related to an action.</p> <ul style="list-style-type: none"> <li>• <b>actionId:</b> (PK)(FK) The action ID the action value is related to.</li> <li>• <b>actionValueName:</b> (PK) The name of the action value.</li> <li>• <b>actionValueStringValue:</b> The string representation of the action value.</li> <li>• <b>actionValueIntegerValue:</b> The integer representation of the action value.</li> <li>• <b>actionValueDoubleValue:</b> The double representation of the action value.</li> <li>• <b>actionValueDateTimeValue:</b> The date and time representation of the action value.</li> </ul>
Queries	<p>Represents the various queries entered by users.</p> <ul style="list-style-type: none"> <li>• <b>queryId:</b> (FK) The unique identifier for the query.</li> <li>• <b>queryExpression:</b> The expression of the query</li> </ul>
SearchHubs	<p>Represents the various search hubs.</p> <ul style="list-style-type: none"> <li>• <b>searchHubId:</b> (PK) The unique identifier of the search hub.</li> <li>• <b>searchHubCreatedDate:</b> The date at which the search hub was created.</li> <li>• <b>searchHubName:</b> The name of the search hub.</li> </ul>

Table	Description
Results	<p>Represents the results on which an action is performed. This entity is a bridge between an action and documents.</p> <ul style="list-style-type: none"> <li>• <code>actionId</code>: (PK)(FK) The action that targets the result.</li> <li>• <code>documentId</code>: (PK)(FK) The document targeted by the result.</li> <li>• <code>resultIndex</code>: The order in which the result was displayed.</li> <li>• <code>resultsTopResult</code>: The top result for the result.</li> </ul>
Documents	<p>Represents documents that are available for the search. Basically, it holds information to find this document in the index.</p> <ul style="list-style-type: none"> <li>• <code>documentId</code>: (PK) The unique identifier of the document.</li> <li>• <code>documentCreatedDate</code>: The date at which the document was created.</li> <li>• <code>documentAggregatedMirrorId</code>: The ID of the aggregated mirror the document came from.</li> <li>• <code>documentPhysicalIndexName</code>: The name of the physical index the document came from.</li> <li>• <code>collectionId</code>: (FK) The ID of the collection the document came from.</li> <li>• <code>sourceId</code>: (FK) The ID of the source the document came from.</li> <li>• <code>documentUrl</code>: The URL of the document.</li> </ul>
DocumentMetadata	<p>Represents metadata related to a specific document. This identity is used to store additional information (see <a href="#">"Customizing the Collected Analytics Data" on page 27</a>).</p> <ul style="list-style-type: none"> <li>• <code>documentmetadatald</code>: (PK) The unique identifier of this document metadata.</li> <li>• <code>documentmetadataIndexedDate</code>: The date this document was indexed.</li> <li>• <code>documentmetadataName</code>: The name of the metadata.</li> <li>• <code>documentmetadataValue</code>: The value of the metadata.</li> <li>• <code>documentId</code>: (FK) The document related to this metadata.</li> </ul>
Collections	<p>Represents collections from which sources come from.</p> <ul style="list-style-type: none"> <li>• <code>collectionId</code>: (PK) The unique identifier of this collection (@syscollection from the Coveo Platform).</li> <li>• <code>collectionIndexedDate</code>: The date at which the collection name was indexed.</li> <li>• <code>collectionName</code>: The name of the collection.</li> </ul>
Sources	<p>Represents sources from which documents come from.</p> <ul style="list-style-type: none"> <li>• <code>sourceId</code>: (PK) The unique identifier of this source (@syssource from the Coveo Platform).</li> <li>• <code>sourceIndexedDate</code>: The date the source name was indexed.</li> <li>• <code>sourceName</code>: The name of the source.</li> </ul>

Table	Description
ActionKeywords	<p>Represents the various keywords related to an action.</p> <ul style="list-style-type: none"> <li>• actionId: (FK) The ID of the action related to this keyword.</li> <li>• keywordId: (FK) The unique identifier of the keyword</li> </ul>
Keywords	<p>Represents the various query keywords.</p> <ul style="list-style-type: none"> <li>• keywordId: (FK) The unique identifier of the keyword</li> <li>• keywordValue: The keyword itself.</li> </ul>
Versions (Internal Coveo Table)	<p>Represents the version of this database. This is a utility table used by the Coveo Platform to determine if the database is up to date.</p> <ul style="list-style-type: none"> <li>• versionId: (PK) The unique identifier of the version.</li> <li>• versionCreatedDate: The date the version was installed.</li> <li>• versionNumber: The main version number (for example "4" in 4.0).</li> <li>• versionData: The data version number (for example "0" in 4.0).</li> </ul>

### Relations between tables in the Analytics database

The following table provides a description of the relations between Analytics database tables.

Table Relation	Description
User – UserMetadata	Users can have zero or more metadata. By default, the Coveo Platform does not store metadata on users. This table is filled by custom data (see <a href="#">"Customizing the Collected Analytics Data" on page 27</a> ).
User – Session	A session must be initiated by a user. If a search interface allows anonymous connections, then the anonymous user initiates all the sessions on that search interface.
Session – SessionMetadata	Sessions can have zero or more metadata. By default, the Coveo Platform does not store metadata on sessions. This table is filled by custom data (see <a href="#">"Customizing the Collected Analytics Data" on page 27</a> ).
Session – Action	An action must be performed on a specific session. This relation allows administrators to link every action performed to a specific user.
SearchHub – Action	An action can be performed on a specific search hub. This allows administrators to track statistics on specific search hubs.
Search Interface – Action	An action must be performed on a specific search interface. This allows administrators to track statistics on specific search interfaces.
Parent Action – Action	A series of actions can be performed to complete a search session. This relation allows administrators to follow the search path of a user through the search interface.
Root Action – Action	Actions are based on a root action. A root action is the first action of a search path of a user through the search interface.

Table Relation	Description
Action – ActionValue	An action contains one or more action values (see <a href="#">"Logged values" on page 26</a> for the list of possible action values).
Action – Result	An action contains zero or more search results depending on the action type.
Document – Result	A document is linked to one or more search results across the actions.
Document – DocumentMetadata	Documents can have zero or more metadata. By default, the Coveo Platform does not store metadata on documents. This table is filled by custom data (see <a href="#">"Customizing the Collected Analytics Data" on page 27</a> ).
Source – Document	Documents must be located in a source.
Collection– Document	Documents must be located in a collection.
Action – ActionKeyword	An action can have zero or more action keywords depending on the action type.
Keyword – ActionKeyword	A keyword is linked to one or more action keyword across the actions.
Query – Action	A query is linked to one or more action.

### Logged actions

The following table lists the action types logged by the Analytics module. You can overwrite these actions in ASP.net (see ["Customizing the Collected Analytics Data" on page 27](#)).

Logged action type	Logged action name
CHANGE_INTERFACE	"ChangeInterface"
CLEAR_REFINE_BY_FIELD	"ClearRefineByField"
DID_YOU_MEAN	"DidYouMean"
EXPAND_QUERY	"ExpandQuery"
EXPORT_TO_EXCEL	"ExportToExcel"
FILTER_REFINE_BY_FIELD	"FilterRefineByField"
MANUAL_RATING	"ManualRating"
OPEN_CACHED_VERSION	"OpenCachedVersion"
OPEN_DOCUMENT	"OpenDocument"
PAGE_CHANGE	"PageChange"
PERFORM_SEARCH	"PerformSearch"
RATE_THIS_SEARCH	"RateThisSearch"
REFINE_BY_CLUSTER	"RefineByCluster"
REFINE_BY_FIELD	"RefineByField"

Logged action type	Logged action name
REFINE_BY_SCOPE	"RefineByScope"
REMOVE_REFINE_BY_CLUSTER	"RemoveRefineByCluster"
REMOVE_REFINE_BY_FIELD	"RemoveRefineByField"
REMOVE_REFINE_BY_SCOPE	"RemoveRefineByScope"
RSS_LINK	"RSSLink"
SEARCH_WITHIN_RESULTS	"SearchWithinResults"
SHOW_DETAILS	"ShowDetails"
SHOW_IN_DETAIL_VIEW	"ShowInDetailView"
SORT_BY_FIELD	"SortByField"

### Logged values

The following table lists the value types logged by the Analytics module.

Logged value type	Logged value name
CLUSTER_NAME	"ClusterName"
DOCUMENT_SCORE	"DocumentScore"
FACET_TYPE_NAME	"FacetTypeName"
FIELD_LOOKUP	"FieldLookup"
FIELD_NAME	"FieldName"
FIELD_VALUE	"FieldValue"
OUTPUT_TYPE	"OutputType"
PREVIOUS_INTERFACE	"PreviousInterface"
PREVIOUS_PAGE	"PreviousPage"
QUERY_ADVANCED_EXPRESSION	"QueryAdvancedExpression"
QUERY_AFTER	"QueryAfter"
QUERY_BEFORE	"QueryBefore"
QUERY_EXECUTION_TIME	"QueryExecutionTime"
QUERY_MODE	"QueryMode"
QUERY_SORT_CRITERIA	"QuerySortCriteria"
QUERY_SOURCE	"QuerySource"
QUERY_SUPER_USER_TOKEN	"QuerySuperUserToken"
QUERY_SUPER_USER_TOKEN_NAME	"QuerySuperUserTokenName"
QUERY_TOTAL_COUNT	"QueryTotalCount"

Logged value type	Logged value name
QUERY_WAS_CHANGED	"QueryWasChanged"
REFINE_TYPE	"RefineType"
REPORT_COMMENT	"ReportComment"
REPORT_SCORE	"ReportScore"
REQUESTED_PAGE	"RequestedPage"
SCOPE_CAPTION	"ScopeCaption"
SCOPE_EXPR	"ScopeExpr"
SORT_ORDER	"SortOrder"

## 5.2 Customizing the Collected Analytics Data

You can customize the data that the Analytics module collects.

### Adding custom data

The `DocumentFields` parameter needs to be added in the `Web.config` file (edited in ["Deploying the Analytics Module" on page 3](#)) to be able to log document metadata into the Analytics database. The `DocumentFields` value is a comma-separated list of custom fields.

```
<coveoEnterpriseSearch>
  <analytics enabled="true" connectionString="myConnectionString"
  DocumentFields="@myFirstField,@mySecondField" />
</coveoEnterpriseSearch>
```

### Modifying actions before they are saved into the database

The following C# code is an example that adds information to an action before it is saved. The following example, added to the ASPX page, changes the values for `UserId`, `SiteId`, and `ActionValueMetadata` (current date and time) before they are saved into the SQL database.

```
<%@ Import Namespace="Coveo.CES.Web.Search.Analytics" %>
<script language="c#" runat="server">
  protected override void OnLoad(EventArgs p_Args)
  {
    this.ReportCustomActionData += delegate(object sender, AnalyticsActionEventArgs args)
    {
      args.ActionData.UserMetadata.Add("UserId", "test1234567890");
      args.ActionData.SessionMetadata.Add("SiteId", "site #987654321");
      args.ActionData.Values.Add(new ActionValueData("myDate", DateTime.Now));
    };
  }
</script>
```

### Creating custom actions

This example is similar to the one shown in ["Modifying actions before they are saved into the database" on page 27](#) except that it adds values on custom actions based on your own events that are not in the predefined list of logged actions (see ["Analytics Database Content" on page 19](#)).

```
using Coveo.CES.Web.Search.Analytics;
var values = new List<ActionValueData>() {new ActionValueData("myActionValue", "valueToLog")};
AnalyticsLogging.LogAction(SearchObject, "myAction", ActionValueNames.OutputTypeValues.WEB, values,
null);
```

### 5.3 Logging Analytics Module Errors

If you need to collect Analytics module errors, you can create a log of these errors by adding a parameter to the `Web.config` file on each Coveo Front-End server.

#### To log Analytics module errors

1. On the Coveo Front-End server, using a text editor, open the `[Installation_Path]\Coveo Enterprise Search 6\Web\Web.config` file.
2. In the file, after the `<coveoEnterpriseSearch>` tag, locate the following line:

```
<analytics enabled="true" connectionString="Data Source=yourServerName;Initial
Catalog=CoveoAnalytics;Integrated Security=SSPI;" />
```

3. Add the `logFolder="[log_folder_path]"` parameter to the line, changing `[log_folder_path]` to the desired path. For example:

```
<analytics enabled="true" connectionString="Data Source=yourServerName;Initial
Catalog=CoveoAnalytics;Integrated Security=SSPI;" logFolder="C:\AnalyticsLogFolder" />
```

4. Save the `Web.config` file.
5. When your Coveo server topology includes more than one Front-End server, repeat this procedure for each Front-End server.

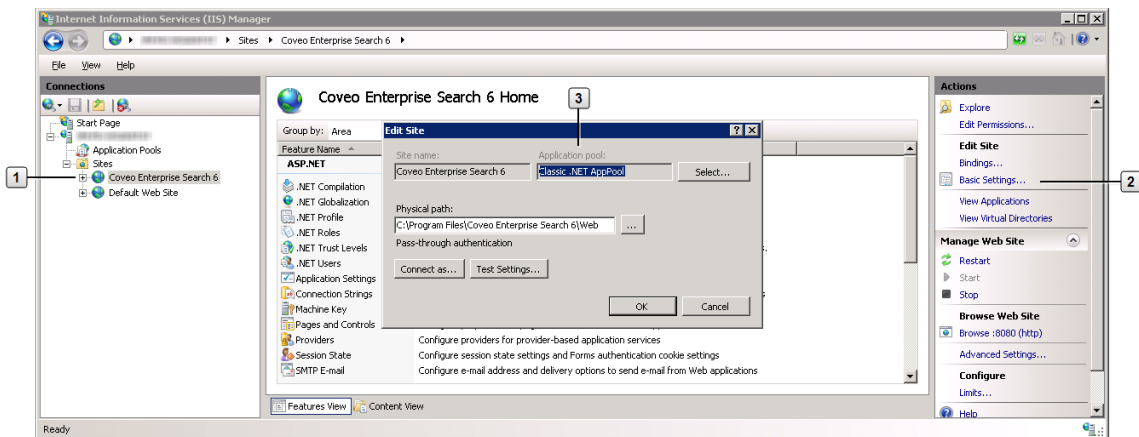
## 6. Performing Specific Analytics Module Installation Tasks

### 6.1 Finding the Name of the User that Runs a Process in IIS

The Coveo administrator often needs to know the identity of the user that runs a process in Microsoft Internet Information Services (IIS) to be able to set the permission for that user in another system.

#### To find the name of the user that runs a process in IIS 7

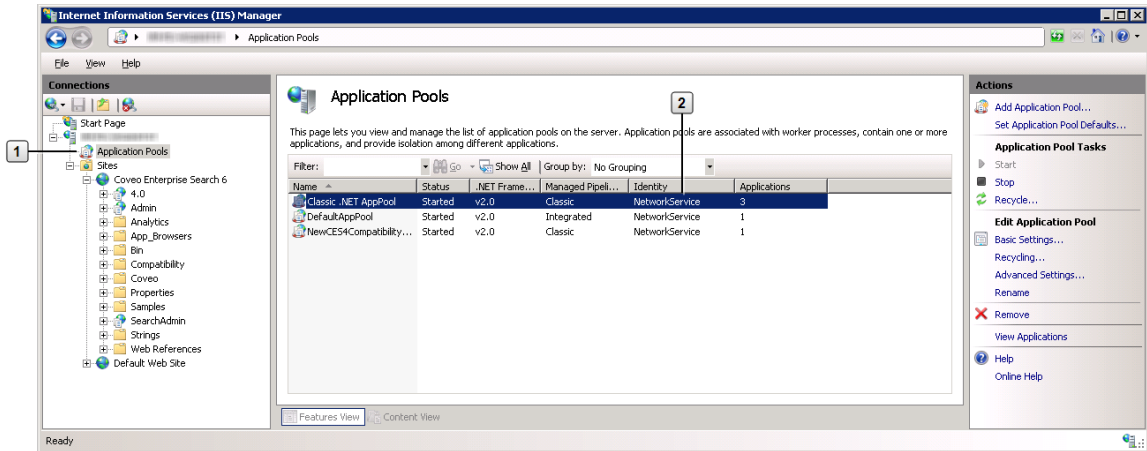
1. On the IIS server, start the IIS Manager (on the Windows taskbar, select **Start > Administrative Tools > Internet Information Services (IIS) Manager**).
2. In **Internet Information Services (IIS) Manager**:
  - a. In the **Connections** panel, under **Sites**, select the site for which you want to know the user identity (for example, select **Coveo Enterprise Search 6**).
  - b. In the **Actions** panel on the right, click **Basic Settings**.
  - c. In the **Edit Site** dialog box that appears, note the name of the **Application pool** (for example: **Classic .NET AppPool** in the previous figure), and then click **OK**.



- 1 Select the website
- 2 Click **Basic Settings**
- 3 Note the Application Pool name

- d. In the **Connections** panel, select **Application Pools**, and then note the name in the **Identity**

column for the applicable Application Pool (for example: **NetworkService** in the following figure).



- 1 Select **Application Pools**
- 2 Note the name in the **Identity** column

## 6.2 Creating a Database in Microsoft SQL Server

You may need to create a database in a Microsoft SQL Server, for example to create the database needed for the Coveo Analytics module.

Requirements:

- You need administrator rights in the Microsoft SQL Server instance to perform the following tasks.

### To create a database in Microsoft SQL Server 2008

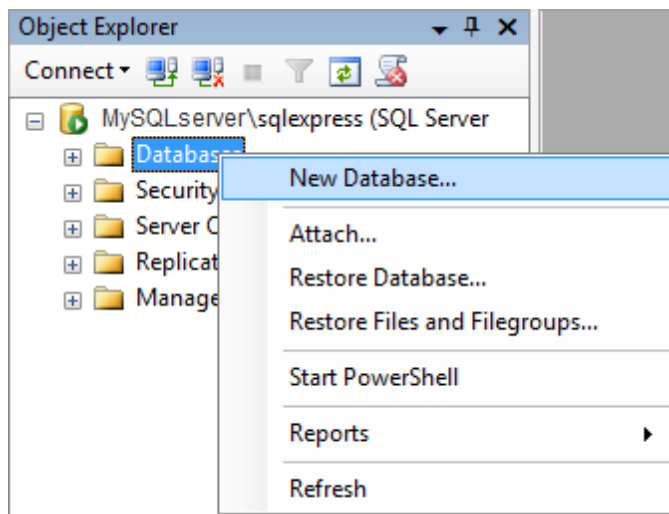
1. On the Microsoft SQL Server computer, start Microsoft SQL Server Management Studio (on the Windows taskbar, select **Start > All Programs > Microsoft SQL Server 2008 > SQL Server Management Studio**).
2. In the **Connect to Server** dialog box:
  - a. In **Server type**, select **Database Engine**.
  - b. In **Server name**, type or select the name of your SQL server instance in the form `<hostname>\<SQL_instance_name>`.

**Example:** On a server named *MySQLserver*, when using SQL Express with the default instance name, enter `MySQLserver\sqlexpress` in **Server name**.

- c. In **Authentication**, select **Windows Authentication**.
- d. Click **Connect**.



3. In **Microsoft SQL Server Management Studio**, in the **Object Explorer**, right-click on **Databases**, and then select **New Database** in the contextual menu.

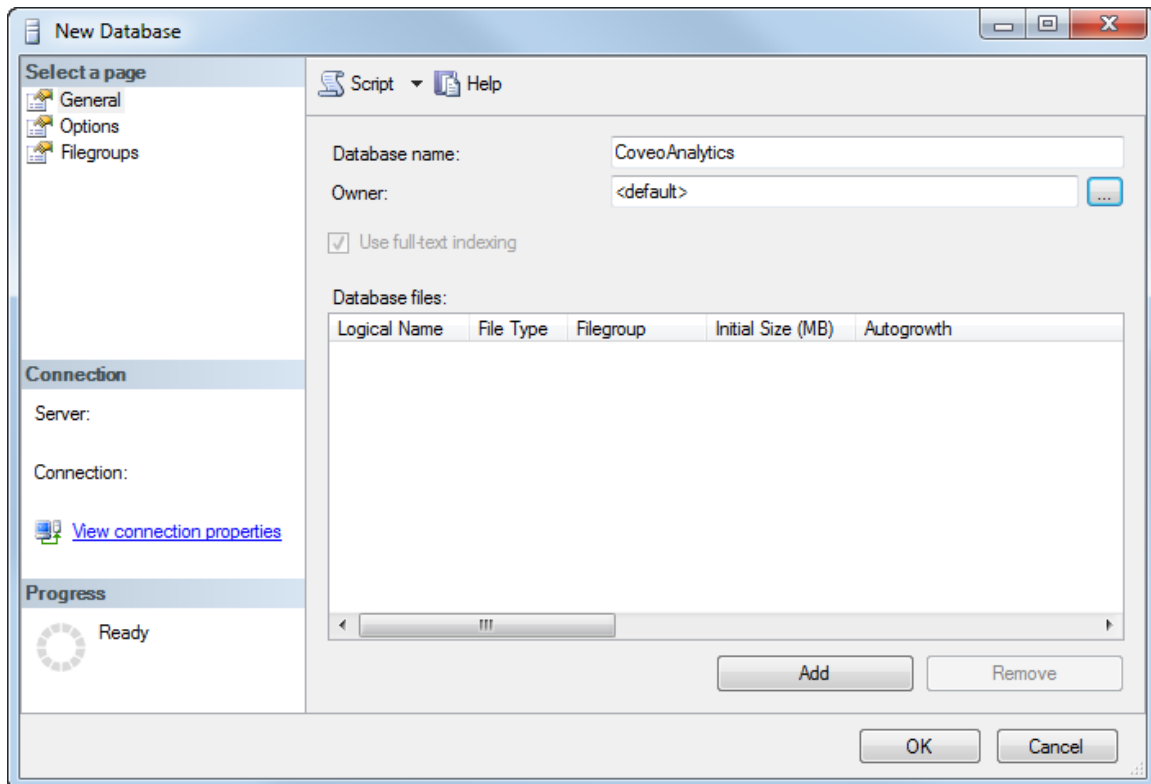


4. In the **New Database** dialog box, in **Database name**, enter the default Analytics database name (CoveoAnalytics), and then click **OK**.

---

**Note:** You can use a different database name, but you will need to specify this name in the `web.config` file. Also, before running the database creation script, you will need to edit the first line of the database creation script to replace the default database name with the name you selected.

---



### 6.3 Running a Script in Microsoft SQL Server

You need to run a script in a Microsoft SQL Server for example to create the tables in the Coveo Analytics database.

Requirements:

- You need administrator rights in the Microsoft SQL Server instance to perform the following tasks.

#### To run a script in Microsoft SQL Server 2008

1. On the Microsoft SQL Server machine, start the Microsoft SQL Server Management Studio (on the Windows taskbar, select **Start > All Programs > Microsoft SQL Server 2008 > SQL Server Management Studio**).
2. In the **Connect to Server** dialog box, in **Server name**, select the name of your SQL server instance, and then click **Connect**.

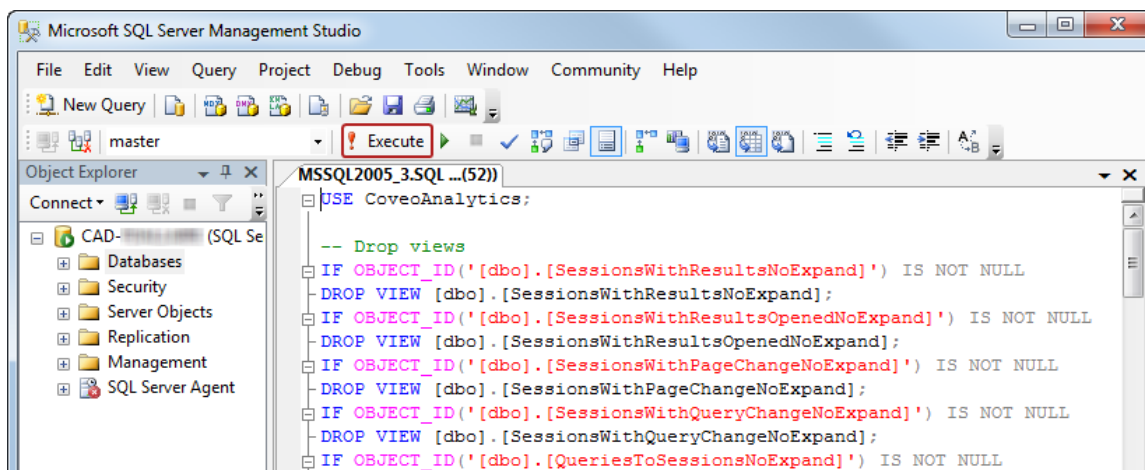


3. In **Microsoft SQL Server Management Studio**, on the menu, select **File > Open > File**.
4. In the **Open File** dialog box, browse for the script file, and then click **OK**.

**Example:** The Analytics database creation and migration scripts are available on the Coveo server in the [Installation\_Path]\Coveo Enterprise Search 6\Web\Analytics\Scripts\ folder.

**Note:** If your Coveo Analytics database has a custom name, edit the first line of the script to replace the default name (CoveoAnalytics) by the custom name.

5. On the SQL Editor toolbar, select the appropriate database, and then click **Execute** to run the script.

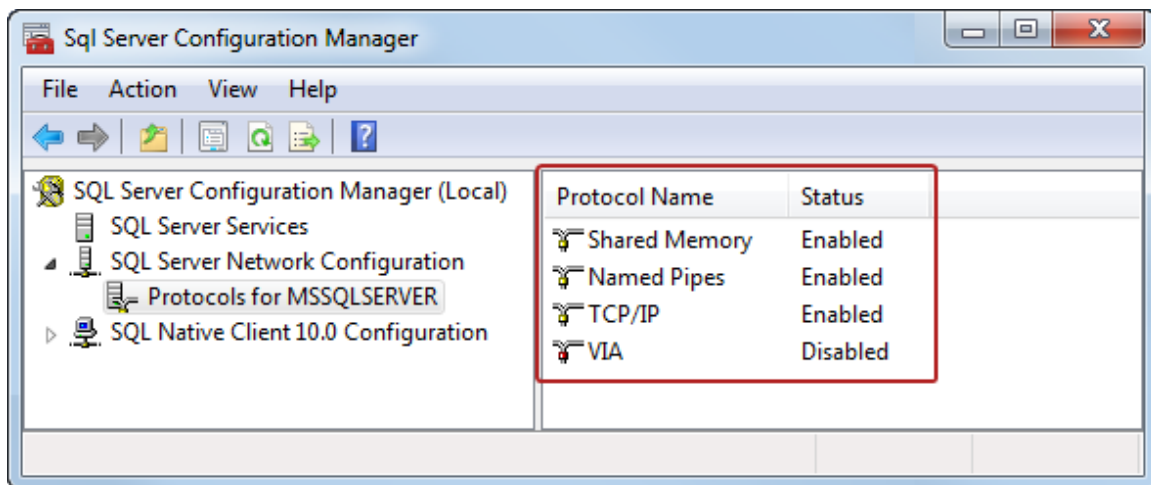


A message appears at the bottom of the **Microsoft SQL Server Management Studio** window to indicate that the execution of the script completed successfully.



## 6.4 Troubleshooting and Handling Analytics Module Errors

- When the Coveo Platform and Microsoft SQL run on different servers, ensure that the firewall of the Microsoft SQL Server allows communication from the Coveo server (typically on port 1433).
- Verify that the Microsoft SQL Server identified in the `Web.config` file exists, is running, and that the user that runs the Coveo website in IIS on the Coveo Front-End servers has the read and write permissions to the database (see "Deploying the Analytics Module" on page 3).
- Most Analytics module errors are linked to problems with the connection to the Microsoft SQL Server. In the `Web.config` file, make appropriate changes to the `connectionString` parameter (refer to the following website for details: <http://www.connectionstrings.com/sql-server-2008>).
- In **Sql Server Configuration Manager**, ensure that the protocol used by the Coveo Platform to communicate with the SQL database is activated (see the example for Microsoft SQL 2008 in the following figure).



### Analytics error messages

By default, the Analytics module displays errors below the search box in the Coveo search interface. These Analytics module errors only appear for a Coveo administrator, not for end-users.

---

**Note:** You can configure the Analytics module to log errors (see "Logging Analytics Module Errors" on page 28).

---

You may encounter the following Analytics module errors:

- Analytics Error: A network-related or instance-specific error occurred while establishing a connection to SQL Server. The server was not found or was not accessible. Verify that the instance name is correct and that SQL Server is configured to allow remote connections. (provider: Named Pipes

Provider, error: 40 - Could not open a connection to SQL Server)

Showing results **1 - 10** of **539**. Sort By: **Relevance** | Date

**Analytics Error: A network-related or instance-specific error occurred while establishing a connection to SQL Server. The server was not found or was not accessible. Verify that the instance name is correct and that SQL Server is configured to allow remote connections. (provider: Named Pipes Provider, error: 40 - Could not open a connection to SQL Server)**

- Possible causes:
  - The SQL server is not running or not accessible.
- Possible solutions:
  - Ensure that the connection string and the permissions are configured correctly (see ["Deploying the Analytics Module" on page 3](#)).
  - In **Sql Server Configuration Manager**, ensure that the Named Pipes protocol used by the Coveo Platform to communicate with the SQL database is activated.
- Analytics Error: The Analytics database is outdated. The current version is 3.1; version 4.0 is required.

Showing results **1 - 10** of **28**. Sort By: **Relevance** | Date | Pages

**Analytics Error: The Analytics database is outdated. The current version is 3.1; version 4.0 is required**

- Cause:
  - The format of the Microsoft SQL database used to collect the Analytics data changed from Coveo Platform version 6.2 to version 6.5.
- Solution:
  - The format of the Analytics database used with Coveo Platform 6.2 needs to be updated to version 4, to be compatible with Coveo Platform 6.5 (see ["Updating the Analytics Database Format" on page 8](#)).

## 6.5 Deactivating the Analytics Module

You can deactivate the Analytics module by editing the `Web.config` file on each Coveo Front-End server. Deactivating the Analytics module turns off the collection of Coveo search and navigation user interface usage to the database and eliminates the **Analytics** tab from the default search interface.

1. On the Coveo Front-End server, open the `[Installation_Path]\Coveo Enterprise Search 6\Web\Web.config` file with a text editor.
2. Under `<coveoEnterpriseSearch>`, locate the following line:

```
<analytics enabled="false" connectionString="Data Source=yourServerName;Initial Catalog=CoveoAnalytics;Integrated Security=SSPI;" />
```

3. Replace `enabled="true"` by `enabled="false"` to deactivate the Analytics module.
4. Save the `Web.config` file.

The Analytics module immediately stops to collect search usage data and the **Analytics** tab is no longer available in the default search interfaces on this Front-End server..

5. When your Coveo Platform topology includes more than one Front-End servers, repeat this procedure on each Front-End server.