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This guide shows you how to create demographic reports on visitors who browse websites powered by Oracle WebCenter Sites. Part I of this guide is a tutorial for creating reports with custom data capture parameters. Part II is a reference section that discusses enabling data capture for different types of Oracle WebCenter Sites assets and reports. Part II also contains information about the schema of the Analytics database, which stores statistics on site visitors.

**Audience**

This guide is written primarily for developers. It is assumed that developers have a clear knowledge of their company's business needs, and a basic understanding of their roles in the development of the online site and its back end. This guide is also useful to administrators, who collaborate with developers by setting up content management sites, site users, workflow processes, publishing methods, and Oracle WebCenter Sites client options.

Developers must know Java, JavaServer Pages (JSP), XML, and HTML. Administrators are not required to have programming experience, although a technical background is assumed.

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**Related Documents**

For more information, see the following documents in the Oracle WebCenter Sites 11g Release 1 (11.1.1.6.0) documentation set:

- *Oracle WebCenter Sites Certification Matrix*
- *Oracle WebCenter Sites Release Notes*
Conventions

The following text conventions are used in this document:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong></td>
<td>Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td>monospace</td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>
What's New in This Guide

This guide consolidates Oracle WebCenter Sites: Analytics developer's documentation that was once available in separate books. This guide contains the following parts:

- **Part I, "Tutorial for Creating Analytics Reports with Custom Parameters"** shows developers how to create and configure their own reports for Oracle WebCenter Sites: Analytics.

- **Part II, "Reference"** contains information about enabling data capture on visitors' usage of different types of published WebCenter Sites assets. This part also outlines the schema of database tables that store statistics on site visitors.
Part I

Tutorial for Creating Analytics Reports with Custom Parameters

This part contains a tutorial to help developers create and configure their own reports for Oracle WebCenter Sites: Analytics.

This part contains the following chapters:

- Chapter 1, "About Creating Reports for Analytics"
- Chapter 2, "Exercise 1: Adding a New Parameter for Data Capture"
- Chapter 3, "Exercise 2: Adding a New Parameter to the DetailDefinition Table"
- Chapter 4, "Exercise 3: Developing a New Analytics Job"
- Chapter 5, "Exercise 4: Creating and Preparing a Report for Viewing"
Part I of this guide is a tutorial with exercises to help you create and configure your own reports for Oracle WebCenter Sites: Analytics.

This chapter outlines the flow of the tutorial and contains the following sections:

- Section 1.1, "About This Tutorial"
- Section 1.2, "The 'NewBrowsers' Report"
- Section 1.3, "Prerequisites for Creating Reports with Custom Parameters"
- Section 1.4, "Quick Reference"

1.1 About This Tutorial

The goal of this tutorial is to provide you with an understanding of how to create and configure reports in Oracle WebCenter Sites: Analytics. To achieve this, you will complete the following exercises:

1. Chapter 2, "Exercise 1: Adding a New Parameter for Data Capture." This exercise walks you through adding a new parameter to Analytics for data capture.

2. Chapter 3, "Exercise 2: Adding a New Parameter to the DetailDefinition Table." This exercise walks you through configuring Analytics to recognize a new parameter. In this exercise, you will add that parameter to the DETAILDEFINITION table. An Analytics job can process a parameter for display in a report only if the parameter is defined in the DETAILDEFINITION table.

3. Chapter 4, "Exercise 3: Developing a New Analytics Job." This exercise walks you through developing an Analytics job for a new parameter. The Analytics job you create will process the new parameter for display in a report ("NewBrowsers" report in this tutorial).

4. Chapter 5, "Exercise 4: Creating and Preparing a Report for Viewing." This exercise walks you through configuring a custom Analytics report. The report will draw statistical data from the Analytics database and contain the following features:
   - A table
   - A time period selector
   - A chart
   - A data filter

Section 1.4, "Quick Reference" outlines the steps you will complete in each exercise.
1.2 The 'NewBrowsers' Report

The report you will be creating in this tutorial is called the "NewBrowsers" report.

Note: Throughout this guide, we assume you are working exclusively with the FirstSite II sample site. Select this site whenever prompted in the Analytics or WebCenter Sites interfaces.

Note: Your "NewBrowsers" report is a duplicate of the default "Browsers" report in your Analytics installation. For the purposes of this tutorial, the xml file and report name of the "Browsers" report you will be configuring, along with the bean and mapper class names, have been renamed to avoid overwriting the default "Browsers" report. To avoid overwriting the default report, the names of your custom report, its xml file, and bean and mapper classes are unique and used throughout this tutorial.

For a quick reference of the steps you need to complete in order to successfully add a parameter and create a report, see Section 1.4, "Quick Reference." Once you have completed the exercises in this tutorial, your report should be displayed as shown in Figure 1–1.

Figure 1–1 "New Browsers" Report
1.3 Prerequisites for Creating Reports with Custom Parameters

Before proceeding through the rest of this document, you should:

- Be familiar with configuring and using Oracle WebCenter Sites: Analytics to capture data and generate reports.
- Have a working knowledge of the following aspects of WebCenter Sites:
  - Element code (JSPs). You will be adding a new parameter to the Analytics image tag call in an element asset, as well as the Analytics image tag JSP.
  - Flex and basic asset models. You should be familiar with how your assets are structured in order to know which asset attributes to pass to Analytics for tracking.
  - Database tables. You will be adding a new parameter to the \texttt{DETAILDEFINITION} table and extending the Analytics database schema by creating a new \texttt{L3} table which will store the processed data collected by the new parameter.
- Know SQL. You will write and modify SQL code that retrieves data in your reports.
- Know XML. Analytics reports are built with XML tags that define report features.

\textbf{Note:} When writing report code, have the \textit{Oracle Fusion Middleware WebCenter Sites: Analytics Tag Reference} handy. It contains descriptions of the XML tags you will use when coding your reports, as well as the parameters they take.

- Have the following documentation handy in case you need to refer to it when completing the exercises:
  - \textit{Oracle Fusion Middleware WebCenter Sites: Analytics User’s Guide}
  - \textit{Oracle Fusion Middleware WebCenter Sites: Analytics Administrator’s Guide}
- Be familiar with the basics of the Hadoop Distributed File System and how to create Hadoop Map/Reduce jobs.

\textbf{Note:} For more information about Hadoop Distributed File Systems and how to create Map/Reduce jobs, refer to the following website:

\url{http://hadoop.apache.org/core/docs/current/mapred_tutorial.html}

1.4 Quick Reference

For your reference, the steps you will follow are outlined below.

**Exercise 1: Adding a New Parameter**

In Chapter 2, “Exercise 1: Adding a New Parameter for Data Capture” you will add a new parameter to Analytics so Analytics can start capturing data on that parameter. The steps are:

1. Modify the Analytics image tag and its JSP to trigger data capture for the new parameter, as explained in Section 2.2, “Adding the New Parameter to the Image Tag and Its JSP.”
2. The next step in this tutorial is to add the new parameter to the DETAILDEFINITION table. For instructions, see "Exercise 2: Adding a New Parameter to the DETAILDEFINITION Table."

**Exercise 2: Adding a New Parameter to the DETAILDEFINITION Table**

In Chapter 3, "Exercise 2: Adding a New Parameter to the DetailDefinition Table" you will configure Analytics to recognize the new parameter by adding that parameter to the DETAILDEFINITION table. The steps are:

1. Add the new parameter to the DETAILDEFINITION table. This enables Analytics to see the new parameter (created in "Exercise 1: Adding a New Parameter") which, in turn, allows an Analytics job (which you will be creating in "Exercise 3: Developing a New Analytics Job") to process the parameter for display in a report ('NewBrowsers' report in this example).

2. The next step in this tutorial is to develop a new Analytics job. Before you start the next exercise, browse your FSII site to create data for the new Analytics job (you will be developing) to process. Make sure that your Analytics sensor, Hadoop, and HDFS Agent are running before you proceed to "Exercise 3: Developing a New Analytics Job."

**Exercise 3: Developing a New Analytics Job**

In Chapter 4, "Exercise 3: Developing a New Analytics Job" you will be developing an Analytics job to process the raw data that the new parameter captures. The steps are:

1. Develop a new Analytics job. In this example we use the "NewBrowsers" report (which you will create in "Exercise 4: Creating and Configuring a Report"). The new job enables Analytics to process raw data captured from the given site. The processed data will then be inserted into the database. For instructions, see Section 4.1.2, "Developing an Analytics Job for the 'New Browsers' Report." The steps are outlined below:

   a. Select the location that will be used as the input data for the report. For instructions, see Section 4.1.2.1, "Step 1: Select the Input Location."

   b. Add a new L3 table to store the processed data. For instructions, see Section 4.1.2.2, "Step 2: Extend the Schema."

   c. Create a new bean class which will store the output data. For instructions, see Section 4.1.2.3, "Step 3: Create the Beans."

   d. Create a new mapper class which will encapsulate the business logic to process the input data for the report. For instructions, see Section 4.1.2.4, "Step 4: Create the Mapper Classes."

   e. Configure the processor to integrate the bean and mapper classes. For instructions, see Section 4.1.2.5, "Step 5: Adding Beans and Mappers to the Processor Definitions."

2. Create and configure the "NewBrowsers" report, which will include the new parameter you create in this exercise. For instructions, see "Exercise 4: Creating and Configuring a Report."

**Exercise 4: Creating and Configuring a Report**

In Chapter 5, "Exercise 4: Creating and Preparing a Report for Viewing" you will create, from scratch, a "NewBrowsers" report, by completing the following steps:
1. Create a new report file and register it with Analytics as explained in Section 5.2.1, "Creating and Registering the Report File" and outlined below:
   a. Create the XML file that will contain the report code. For instructions, see Section 5.2.1.1, "Step 1: Create the XML File."
   b. Place the file in the Analytics reports directory so that Analytics can access the file. For instructions, see Section 5.2.1.2, "Step 2: Place the XML File in the Analytics Reports Directory."
   c. Label the report components, such as module captions, column heads, and so on by defining them in a property file and registering the file with Analytics, as explained in Section 5.2.1.3, "Step 3: Label the Report Components."
   d. Make the report available to Analytics users, as explained in Section 5.2.1.4, "Step 4: Make the Report Available to Analytics Users."
   e. Test the report, as explained in Section 5.2.1.5, "Step 5: Test the New Report" to make sure it has been coded correctly.

2. Add a table, as explained in Section 5.2.2, "Adding a Table." A table is the primary method of presenting statistical data in an Analytics report.

3. Add a time period selector, as explained in Section 5.2.3, "Adding a Time Period Selector." The selector allows users to restrict the statistical data displayed in the report to a specific time period.

4. Add a data filter, as explained in Section 5.3, "Adding a Filter." Filters allow users to restrict the statistical data displayed in the report to specific parameter values. A separate filter is required for each parameter against which you want to filter data.

5. Add a chart, as explained in Section 5.3.3, "Adding a Chart." Charts allow you to visually present statistical data in a report.

6. Test your completed "NewBrowsers" report. At this point, you should have a complete, functional report, as shown in Section 5.3.4, "Testing the Completed 'NewBrowsers' Report."
Exercise 1: Adding a New Parameter for Data Capture

This exercise shows you how to add a new parameter to Analytics for data capture. This exercise contains the following sections:

- Section 2.1, "Overview"
- Section 2.2, "Adding the New Parameter to the Image Tag and Its JSP"
- Section 2.3, "Next Steps"

2.1 Overview

In this exercise, based on the FirstSite II sample site, you will configure Analytics to start capturing data on a new parameter, agent. The new agent parameter will be used for capturing raw data on the browsers used by visitors of your site.

Once you add the new agent parameter to Analytics, you will proceed to the next exercise (Chapter 3, "Exercise 2: Adding a New Parameter to the DetailDefinition Table") in order to configure Analytics to recognize the new agent parameter. Then, you will follow instructions in Chapter 4, "Exercise 3: Developing a New Analytics Job" to create an Analytics job that statistically processes the new parameter for display in a report ("NewBrowsers" report in this tutorial). The statistics of the processed agent parameter will be displayed as a table column in the "NewBrowsers" report once you create the report, as shown in Chapter 5, "Exercise 4: Creating and Preparing a Report for Viewing."

**Note:** Throughout this exercise, we assume you are working exclusively with the FirstSite II sample site. Select this site whenever prompted in the Analytics or WebCenter Sites interfaces.

2.2 Adding the New Parameter to the Image Tag and Its JSP

The first step is to make Analytics aware of the new parameter so that it starts capturing data on that parameter. In our example, you will do so by adding the parameter to the Analytics image tag inside the FSIIWrapper element and to the AddAnalyticsImgTag JSP. When you complete the steps below, the sensor servlet will start capturing the parameter values and storing them as raw data.

1. Add the new parameter to the Analytics image tag call in the FSIIWrapper element:
Adding the New Parameter to the Image Tag and Its JSP

1. Log in to the WebCenter Sites Admin interface as an administrator or another user who has the permissions to edit "CSElement" assets.

2. When prompted, select the FirstSite II sample site.

3. In the button bar, click Search.

4. In the list of asset types, click Find CSElement.

5. In the "Search" form, enter FSIIWrapper into the search field and click Search.

6. In the list of results, click the Edit (pencil) icon next to the FSIIWrapper asset.

7. WebCenter Sites displays the "FSIIWrapper" asset in the "Edit" form.

8. In the section selector at the top of the form, click Element.

9. WebCenter Sites displays the "Element" section of the "Edit" form.

10. To make editing the element code easier, select all of the text in the Element Logic field, then copy and paste it into a text editor of your choice. Save the code to a temporary file.

   - In the element code, locate the call to the Analytics image tag, shown below:

     ```
     <render:callelement elementname="Analytics/AddAnalyticsImgTag">
     <render:argument name="c" value='<%#ics.GetVar("c")%>' />
     <render:argument name="cid" value='<%#ics.GetVar("cid")%>' />
     <render:argument name="site" value='<%#ics.GetVar("site")%>' />
     <render:argument name="pagename" value='<%#ics.GetVar("childpagename")%>' />
     <render:argument name="recid" value='<%#ics.GetVar("recid")%>' />
     </render:callelement>
     ```

   - Insert the following statement at the end of the Analytics image tag call, but before the closing `</render:callelement>` tag:

     ```
     <render:argument name="agent" value='<%=
request.getHeader("User-Agent")%>' />
     ```

   - The modified Analytics image tag call should look as follows:

     ```
     <render:callelement elementname="Analytics/AddAnalyticsImgTag">
     <render:argument name="c" value='<%#ics.GetVar("c")%>' />
     <render:argument name="cid" value='<%#ics.GetVar("cid")%>' />
     <render:argument name="site" value='<%#ics.GetVar("site")%>' />
     <render:argument name="pagename" value='<%#ics.GetVar("childpagename")%>' />
     <render:argument name="recid" value='<%#ics.GetVar("recid")%>' />
     <render:argument name="agent" value='<%=
request.getHeader("User-Agent")%>' />
     </render:callelement>
     ```

   - Save and close the file.

2. Add the new parameter to the Analytics image tag JSP.

   - Note: The agent variable must be set before the Analytics image tag is called.
Exercise 1: Adding a New Parameter for Data Capture

a. Start WebCenter Sites Explorer.

b. In the WebCenter Sites Explorer screen, select File, then Open Content Server to display the "Content Server Login" dialog box.

c. Enter the following values:
   - **Host name or address** – The host name or IP address. You must not leave this blank.
   - **Username** – Your WebCenter Sites user name.
   - **Password** – Your WebCenter Sites password.
   - **Port** – The port number (the default is 8080).
   - **Protocol** – Typically, this is HTTP. (You may select HTTPS if the web server is running SSL).
   - **Application server URL path** – Select the *CS servlet (/cs/CatalogManager)* option.

   Your completed login form should be similar to the one in Figure 2–1:

   **Figure 2–1  WebCenter Sites Explorer Login Form**

   ![WebCenter Sites Explorer Login Form](image)

   d. Click OK to log in.

   The Sites Explorer window appears.

e. In the **localhost** tree, expand the following: **Tables**, then **ElementCatalog**, and then **Analytics**.

f. In the **Analytics** table, open the **AddAnalyticsImgTag** JSP.
Adding the New Parameter to the Image Tag and Its JSP

**g.** Copy and paste the `AddAnalyticsImgTag.jsp` code in a text editor and locate the following lines:

```java
String recid = ics.GetVar("recid");
String siteName = ics.GetVar("site");
```

**h.** Add the following line after the two lines listed in step **g** (directly above):

```java
String agent = ics.GetVar("agent");
```

The modified section will look as follows:

```java
String recid = ics.GetVar("recid");
String siteName = ics.GetVar("site");
String agent = ics.GetVar("agent");
```

**i.** Locate the following piece of code and insert the bold-type code in the exact locations shown:

```javascript
<script type="text/javascript">
<!--
var jsParam = '';
if(self.StatPixelParamFromPage) {jsParam=StatPixelParamFromPage;};
var color = 'n/a'; var size = 'n/a'; var puri = '';
var java = navigator.javaEnabled();
var nav = navigator.appName;
var agent = navigator.userAgent;
var objValue = '';
var write = (navigator.appName=='Netscape' &&
(navigator.appVersion.charAt(0)=='2' ||
navigator.appVersion.charAt(0)=='3')) ? false:true;
if (write==true) {
  size = screen.width + "x" + screen.height;
  color = (nav!='Netscape') ? screen.colorDepth:screen.pixelDepth;
  objValue= encodeURIComponent('<%= ics.GetVar("assetname") %>');
  puri = '?siteName=<%= siteName %>&objType=<%= UobjType %>&objID=<%= id %>&objName=' +objValue+'&sessionID=<%= TsessionID %>&agent=<%= agent %>&Referer=<%= referer %>&snav=+'+nav+'&sizes='+size+'&color='+color+'&java='+'&js=true'+jsParam;
  puri = puri+'&Referer=_referer&nav='+nav+'&size='+size+'&color='+color+'&java='+'&js=true'+jsParam;
  puri += '<%= recparameter%>'; //alert(puri);
  document.write('<!--[if gte mso 9]><![endif]-->

  <script type="text/javascript">
    <![CDATA[
      if (window.statisticSensorPath) {
        statisticSensorPath = statisticSensorPath + puri + ' ';
      }
    ]]>
  </script>
  <!--[if lte mso 9]>

  <script type="text/javascript">
    <![CDATA[
      if (window.statisticSensorPath) {
        statisticSensorPath = statisticSensorPath + puri + ' ';
      }
    ]]>
  </script>
  <![endif]-->

  <noscript>
    <img src="statisticSensorPath"/>
  </noscript>
</div>
</body>
</html>
```

3. When you have made your modifications, select all of the code in your text editor, then copy and paste it back into the Sites Explorer field.
4. **Save** and close the file.

5. Restart the application server for your changes to take effect.

### 2.3 Next Steps

In Chapter 3, "Exercise 2: Adding a New Parameter to the DetailDefinition Table," you will add the `agent` parameter to the `DETAILDEFINITION` table for data capture. This enables Analytics to process the `agent` parameter which, in turn, makes the parameter available to an Analytics job (which you will create in Chapter 4, "Exercise 3: Developing a New Analytics Job") to process the raw data captured by the new `agent` parameter. The new Analytics job will process the `agent` parameter for display in a report ("NewBrowsers" report in this tutorial). The processed `agent` parameter will be displayed as a table column in the "NewBrowsers" report.
Exercise 2: Adding a New Parameter to the DetailDefinition Table

Custom parameters capture data on specific operations visitors perform on your website. This exercise shows you how to add a custom parameter to the DETAILDEFINITION table for data capture.

This exercise contains the following sections:

- **Section 3.1, "Overview"
- **Section 3.2, "Create a Database Entry for a Custom Parameter"
- **Section 3.3, "Next Steps"

### 3.1 Overview

To create a report based on custom parameters, you must first create the parameters for which you wish to capture data, and then configure Analytics to process those parameters. In this exercise, you will be configuring Analytics to process the agent parameter (created in Chapter 2, "Exercise 1: Adding a New Parameter for Data Capture") by creating a database entry for the parameter in the DETAILDEFINITION table.

Any parameter defined in the DETAILDEFINITION table can be seen by Analytics which, in turn, makes the parameter available to the Analytics job that is created to process that parameter. You will be creating an Analytics job to process the agent parameter in the next exercise (Chapter 4, "Exercise 3: Developing a New Analytics Job").

### 3.2 Create a Database Entry for a Custom Parameter

For an Analytics job to process a custom parameter for display in your report, you will add a row (record) to the DETAILDEFINITION table in the Analytics database for the custom parameter on which you wish to capture data. In this exercise, you will add a row for the agent parameter (created in Chapter 2, "Exercise 1: Adding a New Parameter for Data Capture").

Since the DETAILDEFINITION table requires you to specify the type of parameter you are adding as an entry to it, you should have an understanding of the types of custom parameters Analytics supports.

Analytics supports the following types of custom parameters:

- **Session related** – These parameters are bound to a particular session. The value of a session-related parameter remains the same for the entire session.
- **OI (Object Impression) related** – These parameters are bound to a particular page-view or object-impression. The values of OI-related parameters are different for each page rendered (object impression).

The agent parameter that you will be adding to the DETAILDEFINITION table is a session related parameter. The DETAILDEFINITION table's schema is shown in Table 3–1.

**Table 3–1  The DETAILDEFINITION table**

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>NUMBER (22)</td>
<td>The primary key, which is a unique number generated by the database for a custom parameter. This key is used to access the row for this parameter.</td>
</tr>
<tr>
<td>Name</td>
<td>VARCHAR2 (64 Bytes)</td>
<td>The name of the custom parameter.</td>
</tr>
<tr>
<td>Key</td>
<td>VARCHAR2 (64 Bytes)</td>
<td>The parameter name to be passed via the image tag, which is generally the same value as the Name parameter. This name is used in the tag to identify the value being passed.</td>
</tr>
<tr>
<td>Objecttypeid</td>
<td>NUMBER (22)</td>
<td>The object type identifier which is used by Analytics to track the number of different objecttypeid occurrences.</td>
</tr>
<tr>
<td>Siteid</td>
<td>NUMBER (22)</td>
<td>The siteid (foreign key from the site table) for which the parameter is configured. If you set the value to NULL, the parameter is applicable for all registered sites.</td>
</tr>
<tr>
<td>Type</td>
<td>NUMBER (22)</td>
<td>Specifies the type of parameter. Possible values: 0 for OI-related parameters and 1 for session-related parameters.</td>
</tr>
<tr>
<td>Groupfunction</td>
<td>VARCHAR2 (64 Bytes)</td>
<td>This field is used only for the L2_SESSIONDET table in the Analytics database. In this exercise, the value of this field is NULL.</td>
</tr>
<tr>
<td>Autodef</td>
<td>NUMBER (22)</td>
<td>This field is deprecated. In this exercise, the value of this field is NULL.</td>
</tr>
</tbody>
</table>

To store the data collected by the agent parameter, you will need to add the new record to the DETAILDEFINITION table. Execute the following SQL statement (replacing the sample Values with the values for the parameter you wish to insert into the table):

```sql
insert into DETAILDEFINITION (ID, NAME, KEY, OBJECTTYPEID, SITEID, TYPE, GROUPFUNCTION, AUTODEF) Values(249, 'mime', 'mime', NULL, NULL, 0, NULL, NULL);
```

**Note:** The ID must be unique and must not conflict with any existing rows. SITEID must be the value for the site as registered in the Analytics database.
3.3 Next Steps

In Chapter 4, “Exercise 3: Developing a New Analytics Job” you will create a new Analytics job to process the raw data that is captured by the new agent parameter you added to the DETAILDEFINITION table in this exercise. The new Analytics job will process the agent parameter for display in a report ("NewBrowsers" report in this tutorial). The processed agent parameter will be displayed as a table column in the "NewBrowsers" report.

Before you develop a new Analytics job, keep in mind that:

In order for the new parameter to start capturing data for Analytics, the following components must be installed and running:

- Analytics Sensor
- Hadoop
- hadoop-jobs
- HDFS Agent

Note: Before developing a new Analytics job, browse your FSII site. Browsing ensures that there will be data to process for the new Analytics job (you will be developing in the next exercise).
In order for Analytics to process raw data for a custom report, you must develop a new Analytics job to process that data. The processed data will be inserted into the database.

**Note:** This exercise walks you through the process of developing a new Analytics job, for the parameter you added (in Exercise 1) to your Analytics installation. The Analytics job you will be developing is a duplicate of the default Analytics job in your Analytics installation. For the purposes of this tutorial, all bean and mapper class names used to develop the Analytics job in this exercise have been renamed to avoid overwriting the default Analytics job.

This exercise contains the following sections:

- Section 4.1, "Overview for Creating an Analytics Job"
- Section 4.2, "Next Steps"

### 4.1 Overview for Creating an Analytics Job

The following is a brief description of the steps that are required for developing an Analytics job.

1. Select the most appropriate location as the input:

   Select a location from the folders within the `analytics` directory, which must be used by the Analytics job as input data for the report. The criteria for choosing a particular location as an input depends primarily on the data required for a particular report. In most instances, the following location is sufficient for satisfying the data requirements for your report.

   **Sesdata:** This location stores the data for all sessions, along with the details of the visitor, object impressions, and other relevant information associated with a session.
2. Extend the schema:

To store the processed data, you will add a new L3 table to the Analytics database.

3. Create a new bean class:

The main purpose of the bean class is to store the output data. The framework will use the bean class to store the final output of the job. The database injection processors will take the data stored within each bean class and insert the data into the L3 table (created in the previous step).

The new bean class extends the pre-defined classes provided by the framework. Implementation details are explained in the following sections: Section 4.1.1, "Example for Developing a New Analytics Job" and Section 4.1.2, "Developing an Analytics Job for the 'New Browsers' Report."

4. Create a new Mapper class:

The Mapper class will encapsulate the business logic to process the input data. For every input bean, the Mapper class will create a new instance of the bean class (created in step 3), and then store the processed data in the newly created instance. The output of the Mapper class will be collected by the Analytics framework and further processed before it is finally written to the designated output location.

The new Mapper class will extend the pre-defined classes provided by the framework. The implementation details will be explained in the next section.

5. Configuring the processor.

To integrate your newly coded beans and Mapper classes with the Analytics framework, you need to add them to the existing processor configuration file (.xml file).

Figure 4–1 depicts the job execution flow with the custom mapper integrated into the Analytics-Hadoop job framework.

---

**Note**: When creating a custom report, do not use the injected folders (such as oinjected, sesinjected, or visinjected) as your input location(s), because the data stored within these locations is used by the database injection processor to store into the database.

For more information about locations and processors, and which type of data is stored in each location, see the Oracle Fusion Middleware WebCenter Sites: Analytics Administrator’s Guide.
In the **Map Phase**, the processor will read the data from the input location. This data will be passed to the custom mapper. The custom mapper will transform every input bean to custom bean.

In the **Reduce Phase**, the data collected from the Custom Mapper will be further processed before it is written to the output location. The content of the output location will contain the Custom Bean. This aggregated data will be stored into the database by the database injection processor.

### 4.1.1 Example for Developing a New Analytics Job

This section contains the following topics:

- Section 4.1.1.1, "Designing the 'NewBrowsers' Report"
- Section 4.1.2, "Developing an Analytics Job for the 'New Browsers' Report"
- Section 4.1.3, "Configuring Database Injection"
4.1.1.1 Designing the 'NewBrowsers' Report

The "NewBrowsers" report identifies the browsers that visitors used to access a given site's page view within the reported time period.

Counting browsers is simply counting the sessions for each browser. We simply sum up the aggregated values on sessions. Aggregating sums for all possible time ranges that users can select results in too many aggregated values, so we concentrate on daily sums.

Data aggregation is done in a single Map-Reduce phase. (1) The starting point is the session data (SesData location). You will use this data to generate intermediate/uncompressed raw data stored as L3NewBrowserBean objects in the SesProcessed location. (2) The SessionBean objects are then used by the SessionProcessor processor to create L3NewBrowserBean objects, which store aggregated data that can be inserted into the database. The implementation is illustrated in Figure 4–2.

Figure 4–2 "NewBrowsers" Report Implementation

- The SesData location has all data on all sessions. You will use this data as the starting point for generating your report data. There is no need to add to or modify that data; you can use the existing SessionBean objects.
- Extend the SessionProcessor processor to create a new L3NewBrowserBean object for each combination of siteid, dateid, browserid, siteid/dateid/browserid combination. This object will be stored by the SessionProcessor processor in the Sesinjected location.
- The SessionInjection processor inserts the data into the database. A new bean is not required, but for proper insertion into the database, make sure that you have properly annotated the fields of the L3 Bean (created in the SessionProcessor) with theAggregator.
4.1.2 Developing an Analytics Job for the 'New Browsers' Report

Follow the general steps, as described in Section 4.1, "Overview for Creating an Analytics Job," for developing an Analytics Job.

Section 4.1.2.1, "Step 1: Select the Input Location"
Section 4.1.2.2, "Step 2: Extend the Schema"
Section 4.1.2.3, "Step 3: Create the Beans"
Section 4.1.2.4, "Step 4: Create the Mapper Classes"
Section 4.1.2.5, "Step 5: Adding Beans and Mappers to the Processor Definitions"

4.1.2.1 Step 1: Select the Input Location

In the "NewBrowsers" report you are aggregating data on a session, so the input location should be the sesdata location.

4.1.2.2 Step 2: Extend the Schema

To store the data, you will need to add a new table to store the pre-aggregated L3 data. Execute the following SQL statement as the analytics user:

```
CREATE TABLE L3_DATEXSITEXNEWBROWSERXCOUNT ( DATEID NUMBER NOT NULL , SITEID NUMBER(6) , BROWSERID NUMBER , COUNT NUMBER);commit;
```

4.1.2.3 Step 3: Create the Beans

For this report, one bean is required:

L3NewBrowserBean - This class is mapped to the L3 table in the database. The L3NewBrowserBean is used to store the aggregated count of browser visits. The content of this bean will be injected into the L3_DATEXSITEXNEWBROWSERXCOUNT table.

Create the L3NewBrowserBean bean class. For sample code, see the example in Section 4–1, "L3NewBrowserBean.java."

```
Example 4–1  L3NewBrowserBean.java
1. package com.fatwire.analytics.domain.l3;
2. import javax.persistence.AttributeOverride;
3. import javax.persistence.Column;
```
import javax.persistence.Entity;
import javax.persistence.Id;
import javax.persistence.Transient;
import com.fatwire.analytics.domain.AbstractL3Bean;
import com.fatwire.analytics.domain.annotation.Aggregate;
import com.fatwire.analytics.domain.annotation.SumAggregator;
import com.fatwire.analytics.domain.key.DateSiteEntityKey;

/**
 * this class represents entries in the L3_dateXsiteXnewbrowserXcount table
 */
@Entity(name="L3_dateXsiteXnewbrowserXcount")
@AttributeOverride(name = "key.firstEntity", column = @Column(name = "BROWSERID", nullable = false, insertable = false, updatable = false))
public class L3NewBrowserBean extends AbstractL3Bean<DateSiteEntityKey> {
    private static final long serialVersionUID = 1L;
    @Id
    private DateSiteEntityKey key = new DateSiteEntityKey();
    /** the count value for the entity */
    @Aggregate(aggregatorClass = SumAggregator.class)
    private Long count;
    /** overwrite constructor to set the hadoop keys */
    public L3NewBrowserBean() {
        keys = new String[] {"dateid", "siteid", "browserid", "type"};
    }
    public Long getBrowserid() {
        return key.getFirstEntity();
    }
    public void setBrowserid(Long browserid) {
        key.setFirstEntity(browserid);
    }
    @Transient
    public DateSiteEntityKey getKey() {
        return key;
    }
    public void setKey(DateSiteEntityKey key) {
        this.key = key;
    }
    public Long getSiteid() {
        return key.getSiteid();
    }
    public void setSiteid(Long siteid) {
45. key.setSiteid(siteid);
46. }
47. public Long getDateid() {
48.  return key.getDateid();
49. }
50. public void setDateid(Long dateid) {
51.  key.setDateid(dateid);
52. }
53. public Long getCount() {
54.  return count;
55. }
56. public void setCount(Long count) {
57.  this.count = count;
58. }
59. }

The L3NewBrowserBean code is analyzed as follows:

- Lines 2-10: Import all the required packages
- Line 16: Extends the com.fatwire.analytics.domain.AbstractL3Bean class.
- Lines 20-23:
  Declare private member variables where:
  - key: primary key
  - count: number of sessions
- @Entity annotation designates this class as persistent entity thereby making it eligible for use by the JPA services (Line 14). The value of the name attribute is the name of the database table to which the entity should be mapped.
- With the @Attribute annotation (Line 15), the L3_DATEXSITEXNEWBROWSERXCOUNT table would have the key.firstEntity attribute of the persistent entity mapped to the BROWSERID column.
- Use the DateSiteEntity key (Line 20) which is an implementation of an L3 multi-column primary key.

**Note:** If you do not wish to use the DateSiteEntity implementation, then you can use any of the following multi-column primary key implementations:

- DateSiteEntityKey
- DateSiteEntityStringkey
- DateSiteStringkey

where **Entity** represents a numeric entity.

The choice of implementation will depend solely on the primary key of the table used for storing the contents of the L3 bean.
■ Use the @Id annotation (Line 19) to designate DateSiteEntity key member variable as the entity’s primary key.

■ Use the aggregate annotation to annotate the count field with SumAggregator. The SumAggregator annotation is used to sum the session count for each browser. (Line 22)

■ In the constructor specify the key on the basis of which multiple instances of the bean class will be aggregated (Lines 25-26). The type signifies the name of the bean class.

■ Implement getter/setter methods to expose the private member fields (Lines 28-57).

4.1.2.4 Step 4: Create the Mapper Classes
For this report, one Mapper class L3NewBrowserMapper (L3NewBrowserMapper.java) is required:

Example 4–2  L3NewBrowserMapper.java

1. package com.fatwire.analytics.report.mapper;
2. import java.io.IOException;
3. import org.apache.log4j.Logger;
4. import com.fatwire.analytics.domain.SessionBean;
5. import com.fatwire.analytics.domain.l3.L3NewBrowserBean;
6. import com.fatwire.analytics.mapreduce.AbstractAnalyticsMapper;
7. import com.fatwire.analytics.mapreduce.AnalyticsOutputCollector;
8. /**
9. * L3 mapper on New Browser
10. */
11. public class L3NewBrowserMapper extends AbstractAnalyticsMapper<SessionBean,
12. L3NewBrowserBean> {
13. /**
14. private static final Logger logger =
15. Logger.getLogger(L3NewBrowserMapper.class);
16. 
17. @Override
18. public void map(SessionBean input, AnalyticsOutputCollector<L3NewBrowserBean>
19. outputCollector) throws IOException {
20. if(logger.isTraceEnabled()) {
21. logger.trace("mapping input bean "+ input ++" to L3NewBrowserBean");
22. }
23. 
24. L3NewBrowserBean output = new L3NewBrowserBean();
25. output.setDateid(input.getDateid());
26. output.setSiteid(input.getSiteid());
27. output.setBrowserid(input.getBrowserid());
28. output.setCount(1L);
27. // collect the output bean
28. outputCollector.collect(output);
29. }
30. }
31. }

The L3NewBrowserMapper class code is analyzed as follows:

- The L3NewBrowserMapper class will extend the AbstractAnalyticsMapper class (Line 11) and override the map method (Lines 16-17).
- In the map method, every input SessionBean is transformed into L3NewBrowserBean by setting the value of L3NewBrowserBean from the SessionBean (Lines 19-25).
- The count property of the L3NewBrowserBean is set to 1L for every input bean (Line 26).
- Every L3NewBrowserBean created will be collected by the output collector (AnalyticsOutputCollector) (Line 29).
- Add debugging statements (Line 19).

4.1.2.5 Step 5: Adding Beans and Mappers to the Processor Definitions

To enable your newly coded beans and mapper classes, add them to the existing processor definitions. Adding a mapper is done by adding the mapper to the spring-mapper.xml files in the corresponding processor folder.

In this exercise you will be configuring:

- L3NewBrowserMapper
- L3NewBrowserBean

To add beans and mappers to the processor definitions

1. Configure L3NewBrowserMapper:
   a. Open the processors/sesprocessor/spring-mapper.xml file in a text editor.
   b. Add the bean class line (shown in bold type, below) to the spring-mapper.xml file:

```
<bean id="AnalyticsMapperConfigBean" class="java.util.ArrayList">
  <constructor-arg>
    <list>
      <bean id="clickstreamMapper" class="com.fatwire.analytics.report.mapper.L3ClickstreamMapper"/>
      <bean id="newBrowserMapper" class="com.fatwire.analytics.report.mapper.L3NewBrowserMapper"/>
      <bean id="osMapper" class="com.fatwire.analytics.report.mapper.L3OperatingSystemMapper"/>
      <bean id="sessionEntryidMapper" class="com.fatwire.analytics.report.mapper.L3SessionEntryMapper"/>
      <bean id="sessionExitidMapper" class="com.fatwire.analytics.report.mapper.L3SessionExitMapper"/>
      <bean id="ipMapper" class="com.fatwire.analytics.report.mapper.L3IpMapper"/>
      <bean id="hostnameMapper" class="com.fatwire.analytics.report.mapper.L3HostnameMapper"/>
      <bean id="jsMapper"
```
2. Configure L3NewBrowserBean:
   a. Open the processor/sesprocessor/spring-combiner_reducer.xml file in a text editor.
   b. Add the entry key line (shown in bold type, below) to the spring-combiner_reducer.xml file:

   ```
   <util:map id="AnalyticsCombinerReducerConfigBean" map-class="java.util.HashMap">
     <entry key="com.fatwire.analytics.domain.l3.L3ClickstreamBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3OperatingsystemBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3NewBrowserBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SessionEntryBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SessionExitBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3IpBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3HostnameBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3JsBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SearchengineBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3RefererBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3ScreenresBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SessionQuantilBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3ObjectDurationBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3EngageRecBean" value-ref="analyticsBeanReducer"/>
   </util:map>
```
4.1.3 Configuring Database Injection

Follow these steps to configure the database injection:

1. Open the `processors/sesinjection/spring-combiner.xml` file in a text editor.

2. Add the entry key line (shown in bold type, below) to the `spring-combiner.xml` snippet:

   ```
   <util:map id="AnalyticsCombinerConfigBean" map-class="java.util.HashMap">
     <entry key="com.fatwire.analytics.domain.l3.L3ClickstreamBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3NewBrowserBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3OperatingsystemBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SearchengineBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SessionEntryBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SessionExitBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3IpBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3HostnameBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3JsBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SearchengineBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3RefererBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3ScreenresBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3SessionQuantilBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3ObjectDurationBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3EngageRecBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3EngageRecSegBean" value-ref="analyticsBeanReducer"/>
     <entry key="com.fatwire.analytics.domain.l3.L3EngageRecSegObjBean" value-ref="analyticsBeanReducer"/>
   </util:map>
   ```

3. Open the `processors/sesinjection/spring-reducer.xml` files in a text editor.
4. Add the entry key line (shown in bold type, below) to the spring-reducer.xml snippet:

```xml
<util:map id="AnalyticsReducerConfigBean" map-class="java.util.HashMap">
    <entry key="com.fatwire.analytics.domain.l3.L3ClickstreamBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3NewBrowserBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3OperatingSystemBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3SearchengineBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3SessionEntryBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3SessionExitBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3IpBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3HostnameBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3JsBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3SearchengineBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3RefererBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3ScreenresBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3SessionQuantilBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3ObjectDurationBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3EngageRecBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3EngageRecSegBean" value-ref="databaseInjection"/>
    <entry key="com.fatwire.analytics.domain.l3.L3EngageRecSegObjBean" value-ref="databaseInjection"/>
</util:map>
```

4.1.4 Integrating the New Analytics Job with the Existing Hadoop-Jobs Component

Once you have developed the new Analytics job, integrate the new job you developed with the existing hadoop-jobs component by recreating a jar file (`hadoop-jobs.jar`). Copy the new `hadoop-jobs.jar` file to the hadoop-jobs directory. Recreating the jar file enables the hadoop-jobs component to process the data captured by the new Analytics job you developed in this exercise.

To integrate the new Analytics job with the existing hadoop-jobs component

1. Create the `hadoop-jobs.jar` file.
2. Replace the existing `hadoop-jobs.jar` file, located in the hadoop-jobs installation directory, with the jar file you just created. Then, remove the `_tmp_ hadoop-jobs.jar` file, which is the actual jar used by the run command. By
deleting this jar, the run command will rebuild it from the new
hadoop-jobs.jar.

3. Run the hadoop-jobs component in order to process the data captured by the
parameter (added in Chapter 2, "Exercise 1: Adding a New Parameter for Data
Capture").

4.2 Next Steps

Chapter 5, "Exercise 4: Creating and Preparing a Report for Viewing" of this tutorial
walks you through the process of creating a new report in the reporting interface. As
an example, you will create the "NewBrowsers" report, which displays the number of
visitors for each browser.

Note: The "NewBrowsers" report you will be creating in this
tutorial, is a duplicate of the default "Browsers" report in your
Analytics installation. For the purposes of this tutorial, the xml file
and report name of the "Browsers" report you will be configuring,
along with the bean and mapper class names, have been renamed to
avoid overwriting the default "Browsers" report.
Exercise 4: Creating and Preparing a Report for Viewing

Your goal in this exercise is to learn how to configure a complete, usable Analytics report. To accomplish that, you will configure a custom report called "NewBrowsers" that will display the browsers that visitors used to gain access to the given site's page view within the reported time period.

The report will display data that has already been captured on the FirstSite II sample site and stored in the Analytics database.

When building the report, you will first create a simple report with a test module that displays a “Hello World” greeting. You will remove this test module when you begin adding features to your report.

This exercise consists of the following sections:

- Section 5.1, "Report Design"
- Section 5.2, "Creating and Preparing the 'NewBrowsers' Report for Viewing"
- Section 5.3, "Adding a Filter"

5.1 Report Design

An Analytics report is composed of modules. A module is a piece of code that implements a specific feature in the report, such as a table, a chart, or a filter. For example, the "NewBrowsers’ report you will build in this exercise contains the following features: filter, chart, table, and time period selector, shown in Figure 5–1.

Note: The "NewBrowser" report you will be creating in this tutorial, is a duplicate of the default "Browsers" report in your Analytics installation. For the purposes of this tutorial, the xml file and report name of the "Browsers" report you will be configuring, along with the bean and mapper class names, have been renamed to avoid overwriting the default "Browsers" report.

Note: Throughout this exercise, we assume that you are working exclusively with the FirstSite II sample site. Select this site whenever prompted in the Analytics or WebCenter Sites interfaces.
Each of these features, except for the time period selector, is implemented as a separate and, in most cases, self-contained module. (Some features, such as filters, require you to modify the code of other modules in order to function.) Let's look at the structure of the table module. It has a module declaration, a data retrieval section, and a display section:

```xml
<module type="stdtable" name="tableexample">
  <sql>
    <!-- This is the data retrieval section. It contains the queries that retrieve data from the Analytics database for display in your table. -->
  </sql>
  <display>
    <!-- This is the display section. It contains the code that defines the layout and contents of your table. -->
  </display>
</module>
```

Modules that query the database to display data contain the `<sql>` and `<display>` tags, as shown in the sample code above. Modules that do not display data, such as filter modules, contain the following structure:

```xml
<filter name="filter-browsername" required="false" type="text" captions="name" keys="filter-browsername" />
```

The chart module has the same structure as described above.
Tables, charts, and other features of your report contain areas (such as headings, field names and column heads) that must be filled in by having their values defined in a property file accessible within your application server's classpath. For example, the following statement defines the heading for the "Browser Name" column in your table:

```java
report_newbrowser_module_browser_column_broname=Name
```

**Note:** For your reference, the code for the "NewBrowsers" report, annotated module by module, is shown in Section 5.1.1, "NewBrowsers' Report Code."

Now that you know how reports are built, let's go ahead and create the "NewBrowsers" report. Continue to Section 5.2, "Creating and Preparing the 'NewBrowsers' Report for Viewing."

### 5.1.1 'NewBrowsers' Report Code

Below is the code that powers the "NewBrowsers" report. The code is annotated for your reference.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE report SYSTEM "report.dtd" -->

<report type="std" visible="true" name="newbrowser" >

<!-- Global parameters (such as sitenames), are defined here-->
<globalparam name="sitenames" />

<!-- After declaring global parameters, start declaring several request parameters like rgrpid, timepreset, sdate, edate etc. sdate, edate enable the time range selector in the report-->
<param type="request" name="rgrpid" key="rgrpid" required="false" />
<param type="request" name="timepreset" key="timepreset" required="false">
    <restriction type="listvalue">
        <restrictionvalue value="yesterday" />
        <restrictionvalue value="lastweek" />
        <restrictionvalue value="lastmonth" />
        <restrictionvalue value="last7days" />
        <restrictionvalue value="last4weeks" />
        <restrictionvalue value="last12months" />
    </restriction>
</param>

<!-- a filter is getting configured here, that will filter the report data by browser name. -->
<filter name="filter-browsername"
    required="false"
    type='text'
    captions="name"
```
<param type="sql" name="browsertotal">
<query>
select
  nvl(sum(count), 0) as count
from
  help_dates dates
join l3_datexsitexnewbrowserxcount l3 on (dates.id = l3.dateid)
where <![CDATA[
    siteid = #siteid# and 
    dates.dat >= to_date('#sdate#', 'DD-MM-YYYY') and 
    dates.dat < to_date('#edate#', 'DD-MM-YYYY')+1 ]]>
</query>
</param>

<!-- The chart module defines your pie chart. -->
<module type="stdchart" name="chartbrowser">
  <param type="request" name="charttype" key="chartbrowser_charttype" default="pie_labeled">
    <restriction type="listvalue">
      <restrictionvalue value="pie_labeled"/>
      <restrictionvalue value="bar_labeled"/>
    </restriction>
  </param>
  <param type="string" name="chart_max_display" value="10"/>
  <param type="string" name="chart_display_rest" value="true"/>
  <sql>
    <query>
      select
        bro.id as broid,
        bro.name as broname,
        nvl(count, 0) as count,
        <equals name="browsertotal" value="0">0 as percent</equals>
        <notEquals name="browsertotal" value="0">
          (nvl(count, 0)/#browsertotal#)*100 as percent
        </notEquals>
      from
        l2_browser bro
      join {
        select
          bro2.id as broid,
          bro2.name as broname,
          sum(count) as count
        from
          help_dates dates
        join l3_datexsitexnewbrowserxcount 13 on (dates.id = 13.dateid)
        where <![CDATA[
          siteid = #siteid# and 
          dates.dat >= to_date('#sdate#', 'DD-MM-YYYY') and 
          dates.dat < to_date('#edate#', 'DD-MM-YYYY')+1 ]]>
        group by
          bro2.id, bro2.name
      } bro2
    </query>
  </sql>
</module>
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```xml
<module type="stdtable" name="browser">
<sql>
<query>
select
   bro.id as broid,
   bro.name as broname,
   bro.iconpath as broiconpath,
   nvl(count, 0) as count,
   <equals name="browsertotal" value="0">
      0 as percent
   </equals>
   <notEquals name="browsertotal" value="0">
      (nvl(count, 0)/#browsertotal#)*100 as percent
   </notEquals>
from
   l2_browser bro
join (select
      bro2.id as broid,
      bro2.name as broname,
      sum(count) as count
   from
      help_dates dates
   join l3_datexsitexnewbrowserxcount l3 on (dates.id = l3.dateid)
   join l2_browser bro2 on (l3.browserid = bro2.id)
   where<!CDATA[
      <!-- The CDATA statement allows the time period selector to limit the data displayed in the table to a specific time period. -->
      siteid = #siteid# and
      dates.dat >= to_date('#sdate#', 'DD-MM-YYYY') and
      dates.dat < to_date('#edate#', 'DD-MM-YYYY')+1 ]>)
   <notNull name="filter-browsername">
      and lower(bro2.name) like lower(replace('#filter-browsername#','*','%'))
   </notNull>
group by
</query>
</sql>
</module>
</display>
<!-- This module defines the table that will show statistics for each browser to the target page.-->
bro2.id, bro2.name
}
</query>
<count type="simple" />
</sql>
<display type="html">
<!-- Table columns are defined here. Each <column> statement defines one column. -->
<column name="broname" columntype="text" sortrscolumn="broname">
  <value type="image">
    <valueparam name="src" value="#imgpath#/browser/#broiconpath#" />
    <valueparam name="alt" value="#broname#" />
    <valueparam name="text" value="#broname#" />
    <valueparam name="width" value="16" />
    <valueparam name="height" value="16" />
  </value>
</column>
<column name="count" columntype="number" sortrscolumn="count">
  <value type="number">
    <valueparam name="format" parse="false" value="#####0" />
    <valueparam name="value" value="#count#" />
  </value>
</column>
<column name="percent" columntype="number" sortrscolumn="count">
  <value type="number">
    <valueparam name="format" parse="false" value="#####0.0" />
    <valueparam name="value" value="#percent#" />
  </value>
</column>
<column name="chart" columntype="string">
  <value type="chart">
    <valueparam name="format" parse="false" value="#####0" />
    <valueparam name="value" value="#percent#" />
    <valueparam name="maxvalue" value="100" />
    <valueparam name="image" value="#imgpathstyle_branding#graph_blue.gif" />
  </value>
</column>
</display>
</module>
</report>

5.2 Creating and Preparing the 'NewBrowsers' Report for Viewing

You will now create the "NewBrowsers" report (shown in Section 5.1, "Report Design").
Section 5.2.1, "Creating and Registering the Report File." The first task is to create the XML file that will hold the report code and register it with Analytics.

Section 5.2.2, "Adding a Table." The table displays a set of statistics for each browser (Browser Name; Sessions; Percent of all sessions; and the chart that shows the percent graphically).

Section 5.2.3, "Adding a Time Period Selector." This selector allows you to limit the data displayed in the report to a specific time period. (This feature does not require a module.)

Section 5.3, "Adding a Filter." Using filters, you can restrict the data displayed in the report to specific browsers and session counts.

Section 5.3.3, "Adding a Chart." The "NewBrowsers" chart shows how often a given browser was used to access the site's page view during the reported time period.

Section 5.3.4, "Testing the Completed 'NewBrowsers' Report." Test your report to make sure it looks and behaves as intended.

5.2.1 Creating and Registering the Report File

Your first task is to create the foundation for the report – the XML file that will hold the report code. In this section you will create a report file containing the "Hello World" test module that will display only text, and you will register the report with Analytics.

The steps for creating and registering a report file are:

Section 5.2.1.1, "Step 1: Create the XML File"
Section 5.2.1.2, "Step 2: Place the XML File in the Analytics Reports Directory"
Section 5.2.1.3, "Step 3: Label the Report Components"
Section 5.2.1.4, "Step 4: Make the Report Available to Analytics Users"
Section 5.2.1.5, "Step 5: Test the New Report"

5.2.1.1 Step 1: Create the XML File

The first step is to create an XML file called report_newbrowser.xml.

1. In a text editor, create a new file named report_newbrowser.xml.

2. Paste the following code into the file:

```xml
<report type="std" name="newbrowser">
  <param type="request" name="rgrpid" key="rgrpid" required="false" />
  <param type="request" name="siteid" key="siteid" required="true" />

  <module type="simpletext" name="helloworld">
    <display type="html">
      <text>
        Note: In this exercise, you will add features to your report in the order shown below. Once you are familiar with report code, you can build your report in the order that's most convenient for you. Be aware, however, that certain features, such as filters, require you to modify the code in other modules.
      </text>
    </display>
  </module>
</report>
```
Creating and Preparing the 'NewBrowsers' Report for Viewing

3. Save and close the file.

5.2.1.2 Step 2: Place the XML File in the Analytics Reports Directory
Copy the report file to the directory defined by the report_instdir parameter in the global.xml configuration file, so that Analytics can access the report file. For information on the global.xml file and its location, see the Oracle Fusion Middleware WebCenter Sites Installation Guide.

5.2.1.3 Step 3: Label the Report Components
You must now define the labels for areas such as the report name, module headings, and so on. The labels you define will be displayed in the reporting interface when the report is generated.

Note: Component labeling in Analytics is implemented using the ResourceBundle Java class. For more information on this class, see the following URL:
http://java.oracle.com/developers/technicalArticles/Intl/ResourceBundles/

1. In a text editor, create a new file named NewBrowsersLocalization.properties.
2. Save the file in a directory that is within your application server’s classpath. In this exercise, place it in the WEB-INF/classes directory inside the analytics web application directory on your application server.
3. In the property file, add a statement for each parameter string that you want to label in the reporting interface. For now, you will give the report a name, and give the "Hello World" module a heading. Add the following statements to the property file:

report_newbrowser=New Browsers
report_newbrowser_module_helloworld=My first report in Analytics!

Note: You must use the following syntax when adding statements to the property file:

- Report name: report_reportName
- Module names: report_reportName_module_moduleName
- Column heads in a table: report_reportName_module_column_columnName
4. When you have added the two statements, save and close the file.

5. Register the property file with Analytics by adding its name to the global.xml file as follows:
   a. Open the global.xml file (usually located in the WEB-INF/classes directory inside the analytics web application directory on your application server) in a text editor.
   b. Locate the <locales/></locales> section and insert the following statement inside it:
      
      <locale name="NewBrowserLocalization" />
   c. Save and close the file.

6. Restart the application server for your changes to take effect.

5.2.1.4 Step 4: Make the Report Available to Analytics Users
In order to make the new report available to your Analytics users, you must register the report with Analytics, add it to a report group, and grant users access to the report.

1. Log in to the Analytics administration interface as csuser/csuser via the following URL:
   
   http://<hostname>:<port>/analyticsadmin/Admin?advmode=true

   Note: The advmode=true parameter gives you access to advanced configuration options normally unavailable in the administration interface.

2. Register the new report with Analytics:
   a. In the "Report" section of the left-hand pane, click Register.
   b. Analytics displays the "Add/Edit Report" form.
   c. In the Name field, enter newbrowser.
      
      This is the object handle for your report. The value you enter here will be used to refer to the report in code (you used this name when you labeled the components of your report in Section 5.2.1.3, "Step 3: Label the Report Components"). This name will not be displayed in the reporting interface.
   d. In the Config-file path field, enter report_newbrowser.xml.
   e. Click Save.

3. Add the new report to the "Favorites" report group:
   a. In the "Report to Reportgroup" section of the left-hand pane, click Assign.
      
      Analytics displays the "Report Group" form.
   b. In the "Report Group" drop-down list, select user.
   c. In the list of reports, select the check box next to newbrowser.
   d. In the "Report Group" drop-down list, select favorite.
   e. In the list of reports, select the check box next to newbrowser.
   f. Click Save.

4. Grant users access to the report:
a. In the "Access Rights" section of the left-hand pane, click Grant rights.

b. Analytics displays the "User Groups" form.

c. In the form, select the check box next to newbrowser.

d. Click Save.

5.2.1.5 Step 5: Test the New Report

Generate the report to check that it is behaving as intended.

1. Log in to the Analytics reporting interface as csuser/csuser via the following URL:

   http://<hostname>:<port>/analytics/Reports.do

2. In the "Group" drop-down list in the left-hand pane, select Favorites.

3. In the "Report" list, double-click New Browsers.

   Analytics displays your report. The report should look similar to the one in Figure 5–2:

   ![Generated New Browsers Report](image)

4. If your report does not appear as in the above figure, or if an error is displayed, retrace your steps and check your code for errors.

   Once you have verified your report is behaving as intended, continue on to Section 5.2.2, "Adding a Table."

5.2.2 Adding a Table

A table is the primary way of presenting data in an Analytics report. In this section, you will add a table to your "NewBrowsers" report that will display several categories of information on different browsers.

How Do I Add a Table?

You add a table to your report by inserting a table module into your report's code. A table module has two sections (as shown in the example in the Section 5.1, "Report Design"):
- **Data retrieval section** (enclosed within the `<sql>` tag, lines b–ao below). This section contains the SQL code that retrieves the data you want to display in your table from the Analytics database.

- **Display section** (enclosed within the `<display>` tag, lines aq–by below). This section contains the code that formats and displays the data retrieved from the Analytics database by the code in the data retrieval section. The code in the display section defines the layout of the table and the formatting applied to each column.

In this section, you will add the "NewBrowsers" table to your report. The table will display the following columns:

- Name
- Sessions
- Percent of All Sessions
- Chart

The table will look like the one in Figure 5–3:

![Figure 5–3 Table for the "New Browsers" Report](image)

**To add a table to your report**

1. Open your `report_newbrowser.xml` file and replace the "Hello World" test module with the following code:
   
   a. `<module type="stdtable" name="browser"`>
   b. `<sql>`
   c. `<query>`
   d. `select` 
   e. `bro.id as broid,`  
   f. `bro.name as broname,`  
   g. `bro.iconpath as broiconpath,`  
   h. `nvl(count, 0) as count,`  
   i. `<equals name="browsertotal" value="0">`  
   j. `0 as percent`  
   k. `</equals>`  
   l. `<notEquals name="browsertotal" value="0">`  
   m. `(nvl(count, 0)/#browsertotal#)*100 as percent`  
   n. `</notEquals>`
o.    from
p.    12_browser bro
q.    join {
  r.    select
  s.        bro2.id as broid,
t.        bro2.name as broname,
u.        sum(count) as count
  v.        from
  w.        help_dates dates
  x.        join 13_datexisitexnewbrowsersxcount l3 on (dates.id = l3.dateid)
y.        join 12_browser bro2 on (l3.browserid = bro2.id)
z.        where<![CDATA[
  aa.            siteid = #siteid# and
  ab.            dates.dat >= to_date('#sdate#', 'DD-MM-YYYY') and
  ac.            dates.dat < to_date('#edate#', 'DD-MM-YYYY')+1 ]]>  
  ad.            <notNull name="filter-browsername">
  ae.            and lower(bro2.name) like lower(replace('#filter-
  af.            browsername#','*','%'))
  ag.            </notNull>
  ah.        group by
  ai.            bro2.id, bro2.name
  aj.
  ak.        ) on (bro.id = broid)
  al.        <dynamicOrderBy default="count-desc" />
  am.        </query>
  an.    <count type="simple" />
  ao.    </sql>
  ap.
  aq.    <display type="html">
  ar.    <column name="broname" columntype="text" sortrscolumn="broname">
  as.    <value type="image">
  at.        <valueparam name="src" value="#imgpath#/browser/#broiconpath#" />
  au.        <valueparam name="alt" value="#broname#" />
  av.        <valueparam name="text" value="#broname#" />
  aw.        <valueparam name="width" value="16" />
  ax.        <valueparam name="height" value="16" />
  ay.        </value>
  az.        <value type="string">
  ba.        <valueparam name="value" value="#broname#" />
  bb.        </value>
  bc.    </column>
  bd.    <column name="count" columntype="number" sortrscolumn="count">
Creating and Preparing the 'NewBrowsers' Report for Viewing

Exercise 4: Creating and Preparing a Report for Viewing

The code above is analyzed as follows:

- In the data retrieval section, a select query retrieves the required rows (broid, broname, broiconpath, count, percent) from the L3_DATEXSITEXNEWBROWSERXCOUNT and L2_BROWSER tables (lines d-ao). You access these values from the display section by calling them enclosed within hash (#) signs, (for example, value="#broname#" in line ba).

- The <dynamicOrderBy> tag in line al defines how the rows should be ordered. In our example, the value "count-desc" indicates the rows are ordered by the number of sessions, in descending order.

- In the display section, the <column> statements define columns that constitute your table (lines ar-bc, bd-bi, bj-bo, and bp-bx). Each column definition is responsible for one column in the table and takes the following parameters:

  name (required) – specifies the object handle for the column. You use this handle to specify a label for the column in the NewBrowserLocalization.properties file.

  columntype (required) – specifies the type of the column. Your table uses number, text, and string columns.

  sortrscolumn (required) – specifies whether the column should be sortable, and if so, how the data should be sorted.
Creating and Preparing the 'NewBrowsers' Report for Viewing

---

**Note:** A sortable column displays a small arrow in its heading that indicates the direction in which its values are being sorted. Clicking the arrow reverses the sort order.

---

The following columns are defined in our example:

- The **broname** column of type text (lines ar-bc) displays the name of the browser along with the corresponding icon. Columns of type text may have a value parameter (lines as-bb) of type image, number, string, date etc. (parameter type is defined in the value tag). Here the **broname** column is composed of two different types of values namely image and string. The value of type image can have several value-parameters, including but not limited to: *src* (source path), *alt* (alternative text), *width*, and *height*, which collectively define the rendition of the image on the report.

- The **count** column (lines bd-bi) of type number displays the number of sessions that have come from the browser. Columns of type number must have a value parameter (lines as-bb) of type number (parameter type is defined in the value tag) which specifies what data should be displayed (value parameter, line ba, and how the data should be formatted (format parameter, line az).

- The **percent** column (lines bj-bo) of type number displays the percent of sessions with respect to all sessions that have come from all different browsers.

- The **chart** column (lines bp-bx) of type chart is the graphic representation of the **percent** column.

2. Save and close the file.

3. Label the table and column headings as follows:
   a. Open the *NewBrowserLocalization.properties* file (in this exercise, located in the *WEB-INF/classes* directory in the analytics application directory on your application server) in a text editor.
   b. Add the following statements at the end of the file:

   ```
   # Report New Browser
   report_newbrowser=Browsers
   report_newbrowser_module_browser_column_broname=Name
   report_newbrowser_module_browser_column_count=Sessions
   report_newbrowser_module_browser_column_percent=Percent of All Sessions
   report_newbrowser_module_browser_column_chart=Chart
   report_newbrowser_module_browser=Browsers
   ```
   c. Save and close the file.
   d. Restart your application server for your changes to take effect.

4. Test your report. At this point, it should look similar to the one in Figure 5-4:
5. If your report does not appear as in Figure 5–4, or if an error is displayed, retrace your steps and check your code for errors.

6. Continue on to Section 5.2.3, "Adding a Time Period Selector."

5.2.3 Adding a Time Period Selector

Now that your "NewBrowsers" report displays data, you will add a time period selector. This selector is a very useful feature, as it allows you to limit the amount of data displayed in the report to a specific time period. For example, you might want to view visitor activity that happened during a specific day or even hour, instead of all activity captured to date.

The time period selector will appear in the navigation pane in the reporting interface when you access the report:

![Time Period Selector](image)

To enable time period selection in your report

1. Open the report_newbrowser.xml file (located in the Analytics reports directory described in Section 5.2.1.2, "Step 2: Place the XML File in the Analytics Reports Directory") in a text editor.

2. Locate the global parameter section and add the parameters (shown in bold type, below):

```xml
<param type="request" name="rgrpid" key="rgrpid" required="false" />
<param type="request" name="timepreset" key="timepreset" required="false" />
```
Creating and Preparing the 'NewBrowsers' Report for Viewing

The new parameters cause the "Time Period" panel to appear in the left-hand navigation pane when the report is accessed.

3. Insert the code (shown in bold type, below) into the data retrieval section of the table module at the exact locations shown:

```sql
SELECT bro.id AS broid,
       bro.name AS broname,
       bro.iconpath AS broiconpath,
       NVL(count, 0) AS count,
       CASE
         WHEN browsertotal = 0 THEN 0 AS percent
         ELSE CAST((NVL(count, 0) / browsertotal) * 100 AS NUMBER(10, 2)) END AS percent
FROM l2_browser bro
JOIN (SELECT bro2.id AS broid,
           bro2.name AS broname,
           SUM(count) AS count
      FROM help_dates dates
           JOIN l3_datexsitexnewbrowserxcount l3 ON (dates.id = l3.dateid)
           JOIN l2_browser bro2 ON (l3.browserid = bro2.id)
      WHERE siteid = #siteid# AND dates.dat >= TO_DATE('#sdate#', 'DD-MM-YYYY') AND dates.dat < TO_DATE('#edate#', 'DD-MM-YYYY')+1 ) l3
GROUP BY bro2.id, bro2.name
ON (bro.id = broid)
```

4. Save and close the file.

5. Test your report. The report should now look like the one in Figure 5–6:
6. Test the time period selector.
   a. Click the **Time Period** bar to expand the time period selector panel.
   b. Select the desired start date and end date.
   c. Click **Apply**.

   The data displayed in the table should change depending on the selected time period. If it does not, or if an error is displayed, retrace your steps and check your code for errors.

7. Continue on to Section 5.3, "Adding a Filter."

### 5.3 Adding a Filter

In the previous section you added a time period selector to your report to enable restriction of the displayed data to a specific time period. However, what if you want to restrict the displayed data by a parameter other than time? Your solution is to add a data filter.

#### 5.3.1 What Does a Filter Do?

A filter module adds the "Filter by" field in the summary section of the report, and allows the users to:

- Search for a specific data point or value (for example, a specific browser).
- Restrict the displayed data to a specific range of a particular parameter (such as the number of recorded sessions).

You will add the following filter to your "NewBrowsers" report:

- A "**Browser Name**" filter, which will allow you to search for specific browsers or to restrict the displayed data to a specific range of browser names.

#### 5.3.2 How Do I Add a Filter?

To implement a filter, you must:
Add the filter module that defines your filter(s) to the report code.

Modify the data retrieval sections of your display modules (such as table or chart modules) to support query filtering.

To add filters to your report

1. Open the report_newbrowser.xml file (located in the Analytics reports directory described in Section 5.2.1.2, "Step 2: Place the XML File in the Analytics Reports Directory") in a text editor.

2. Add the following module code after the table module but before the closing </report> element:

```xml
<filter name="filter-browsername" required="false" type="text" captions="name"
key="filter-browsername" />
```

The code above is analyzed as follows:

---

**Note:** For detailed information on the tags shown in this example, and the parameters they take, see the Oracle Fusion Middleware WebCenter Sites: Analytics Tag Reference.

---

You define the filter by using a `filter` tag, which takes the following parameters:

- **name** (required) – specifies an object handle for the filter. The following conditions apply to this parameter:
  - The value of this parameter must begin with `filter-` so that Analytics treats this definition as a filter definition.
  - The value must be identical to the value of the `key` parameter (explained below).

---

**Note:** If either of these conditions is not met, the filter will not function.

---

- **required** (required) – specifies whether the `key` parameter (explained below) must be assigned a value for the report to function. In our example, `required` is set to `false`.

- **type** (required) – specifies the type of the filter and, simultaneously, the filter's input method (for example, how the filter will be presented in the reporting interface).

  In this example, you are using a filter of type `text`, which manifests the filter as a text field into which the user can enter one or more filtering criteria. Other available types include `yesno`, `radio`, `dbselect`, `date`, and others.

- **key** (optional, see `required` above) – specifies the name used for the parameter in the URL of the report page to pass the value of the filter entered by the user when the user clicks **Apply**. The following conditions apply to this parameter:
  - The value of this parameter must begin with `filter-` so that Analytics treats this definition as a filter definition.
3. Insert the code (shown in bold type, below) into the data retrieval section at the exact locations shown:

```sql
select
    bro.id as broid,
    bro.name as broname,
    bro.iconpath as broiconpath,
    nvl(count, 0) as count,
    <equals name="browsertotal" value="0">0 as percent
    </equals>
    <notEquals name="browsertotal" value="0">
        (nvl(count, 0)/#browsertotal#)*100 as percent
    </notEquals>
from
    l2_browser bro
join (select
    bro2.id as broid,
    bro2.name as broname,
    sum(count) as count
from
    help_dates dates
join l3_datexsitexnewbrowserxcount l3 on (dates.id = l3.dateid)
join l2_browser bro2 on (l3.browserid = bro2.id)
where <![CDATA[ siteid = #siteid# and
    dates.dat >= to_date('#sdate#', 'DD-MM-YYYY') and
    dates.dat < to_date('#edate#', 'DD-MM-YYYY')+1 ]]>)
    <notNull name="filter-browsername">
        and lower(bro2.name) like lower(replace('#filter-browsername#','*','%'))
    </notNull>
    group by
        bro2.id, bro2.name
) on (bro.id = broid)
```

The code above is analyzed as follows:

- The inserted code limits the results returned by the SQL query based on the criteria provided to the filter (for example, the filter value).
- The code inside each `<notNull>` tag is added to the query only if the value of the parameter called by the `<notNull>` tag is not null.

4. Save and close the report file. Open the `NewBrowserLocalization.properties` file (in this exercise, located in the WEB-INF/classes directory in the analytics application directory on your application server) in a text editor. Add the following line to the end of the file:

```properties
report_newbrowser_filter-browsername=Filter By Browser Name
```

Note: If either of these two conditions is not met, the filter will not function.
5. Test your report. The “Filter” field should appear in the summary section at the top of the report, as shown in Figure 5–7:

![Figure 5–7 “New Browsers” Report Displaying the Filter field](image)

If your report does not appear as in the above figure, or if an error is displayed, retrace your steps and check your code for errors.

6. Continue on to Section 5.3.3, "Adding a Chart."

### 5.3.3 Adding a Chart

The final step in this exercise will be to add a chart to your "NewBrowsers" report. A chart allows you to graphically present statistical data in your report.

You add a chart to your report by inserting a chart module into your report's code. A chart module is structured in a way similar to the table module. It has two sections:

- **Data retrieval section** (see step 5). This section contains the SQL code that retrieves the data you want to display in your pie chart from the Analytics database.

- **Display section** (enclosed within the `<display>` tag in step 6). This section contains the code that formats and displays the data retrieved from the Analytics database by the code in the data retrieval section. The code in the display section defines the type of the chart and assigns data to the chart's axes.

In our example, you will create a pie chart (XY chart, refer to step 2 below) displaying session-count of all browsers in percentage format. Each section of the pie chart will display browser data, along with a legend section at the right of the chart. If you hover the mouse on the pie section, the percentage of session count will be displayed along with the browser's name.

**To add the chart to your report**

1. Open the `report_newbrowser.xml` file (located in the Analytics reports directory described in Section 5.2.1.2, "Step 2: Place the XML File in the Analytics Reports Directory") in a text editor.

2. Add the following module declaration at the beginning of the report code, right after the last global parameter definition, but before the table module. This will cause the chart to appear above the table when the report is generated.
Adding a Filter

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3. Now, add the following parameters to the chart module:

   `<param type="string" name="chart_max_display" value="10"/>`
   `<param type="string" name="chart_display_rest" value="true"/>`

4. The `chart_max_display` parameter denotes that the pie chart will display ten different colored pie sections corresponding to the top 10 popular browsers. The `chart_display_rest` parameter denotes that the rest of the browser session counts will be shown as a single pie chart section. These two parameters are optional, and in the absence of these parameters the reporting engine takes the default values for chart rendering.

5. Add the data retrieval section to your chart module. Insert the following code after the chart module declaration you added in the previous step:

   ```sql
   select
   bro.id as broid,
   bro.name as broname,
   nvl(count, 0) as count,
   ```
Adding a Filter

The code above is analyzed as follows:

The SQL query retrieves the data that will be displayed on the pie chart. Note that the data retrieval query in the chart module is similar to the query of the table module. The only difference is that the data retrieval query for the chart module lacks the filter part, (for example, the data on the chart will not be filtered by the filter input, only table data will be filtered). However you can add the same filter in the query to filter the chart data.

6. Add the display section code to your chart module. Insert the following code after the data retrieval section you added in the previous step:

```
<display type="html">
  <value name="xaxis" type="string">
    <valueparam name="format" parse="false"/>
    <valueparam name="value" value="#broname#" />
  </value>

  <value name="yaxis" type="number">
    <valueparam name="format" parse="false" value="#####0" />
    <valueparam name="value" value="#count#" />
  </value>
</display>
```

The code above is analyzed as follows:

In the display section, you define the axes for your chart and assign the appropriate data to each axis.

Analytics distinguishes between two categories of charts:

- XY charts are charts that have no axes, such as pie charts, and therefore require no legend for the data series (and thus, no Z axis declaration)
- XYZ charts are charts that have axes, (such as line, bar, area, and column charts) and therefore require that the data series legend be defined through a Z axis declaration.
In our example you are defining a pie chart, which is an XY chart so there will be no Z axis. However, we assign the different categories/data points (browser names in this exercise) to the X axis (value name="xaxis") and values for each category (here session count) to Y axis (value name="yaxis")

7. Save and close the file.

8. Give your chart a heading. Do the following:
   a. Open the NewBrowserLocalization.properties file (in our example, located in the WEB-INF/classes directory in the analytics application directory on your application server) in a text editor.
   b. Add the following statement at the end of the file:
      
      # Chart Module
      report_newbrowser_module_chartvisitorsdetail=Browsers Chart
      
   c. Save and close the file.
   d. Restart your application server for your changes to take effect.

9. Your report is now complete! Continue on to the final step in this exercise, Section 5.3.4, "Testing the Completed 'NewBrowsers' Report," to test your finished report and check your code.

5.3.4 Testing the Completed 'NewBrowsers' Report

Congratulations! You have successfully built your first Analytics report. Test your report to make sure there are no errors in the code.

1. Log in to the Analytics reporting interface and generate the "NewBrowsers" report.

Your report should look like the one in Figure 5–8:
2. If your report does not appear as in the above figure, or if an error is displayed, retrace your steps and check your code for errors by comparing it to the sample code in Section 5.1.1, "NewBrowsers' Report Code."
This part contains information about enabling data capture for different types of published WebCenter Sites assets. This part also outlines the schema of database tables in which statistics on site visitors are stored.

This part contains the following chapters:

- Chapter 6, "Enabling Data Capture for Different Types of Reports"
- Chapter 7, "WebCenter Sites: Analytics Database Schema"
This chapter shows you how to enable data capture on website visitors and their usage of pages that are published on Oracle WebCenter Sites. In this chapter, you will implement the `AddAnalyticsImgTag` and the associated code to enable data capture. Once the captured data is statistically processed, the results can be made available for various Analytics reports such as General Information, Content Information, User Information, and Engage reports.

This chapter contains the following sections:

- Section 6.1, "Enabling Data Capture"
- Section 6.2, "Testing Your Analytics Installation"

### 6.1 Enabling Data Capture

**Note:** The steps in this section require you to have a working knowledge of WebCenter Sites elements, Java, and JSP. If you plan to enable data capture on Engage assets, you must also have a thorough understanding of recommendations and segments.

Before starting the steps in this chapter, ensure WebCenter Sites administrators have completed the procedures for integrating Analytics with Web Center Sites, as described in the *Oracle Fusion Middleware WebCenter Sites: Analytics Administrator’s Guide*.

Analytics can capture data on the usage of WebCenter Sites assets, on their visitors, and the visitors’ searches only if published pages are tagged for data capture. In the case of Engage assets and internal searches, the assets themselves must be tagged for data capture.

This section shows you how to enable data capture for a variety of reports:

- Section 6.1.1, "Enabling Data Capture for General, Content, and User Information Reports"
- Section 6.1.2, "Enabling Data Capture for the "Internal Searches" Report"
- Section 6.1.3, "Enabling Data Capture for Engage Reports"

Completing the steps enables data capture for all reports in all report groups.
6.1.1 Enabling Data Capture for General, Content, and User Information Reports

In this section, you will enable data capture for all report groups except "Internal Searches" and "Engage."

To enable data capture for General, Content, and User Information Reports
Tag the pages on which the assets are displayed. Use the following code:

```html
<%-- Analytics Image tag
   Data capture code for asset uses and user information
--%>
<ics:if condition='"true".equalsIgnoreCase(ics.GetProperty("analytics.enabled", "futuretense_xcel.ini", true))'>
  <ics:if condition='ics.GetVar("packedargs") != null'>
    <render:unpackarg unpack="recid" remove="true" packed='"ics.GetVar("packedargs")"' outvar="packedargs"/>

  </ics:if>
  <render:callelement elementname="Analytics/AddAnalyticsImgTag">
    <render:argument name="c" value='ics.GetVar("c")'/>
    <render:argument name="cid" value='ics.GetVar("cid")'/>
    <render:argument name="site" value='ics.GetVar("site")'/>
    <render:argument name="pagename" value='ics.GetVar("childpagename")'/>
    <render:argument name="recid" value='ics.GetVar("recid")'/>
  </render:callelement>
</ics:if>

Parameters

- **c:**
  Type of asset being visited

- **cid:**
  ID of an asset of a given type

- **site:**
  Name of the content management site hosting the page

- **pagename:**
  Name of the page being visited

- **pageurl:**
  URL of the page being visited
Enabling Data Capture

For each page request, the FatWire/Analytics/AddAnalyticsImgTag invokes the sensor servlet in Analytics to capture data on visitors browsing the page. The data includes visitors' geographic locations, IP addresses, browsing technologies, and session parameters. The remaining code captures usage information on WebCenter Sites assets displayed on the same page. The captured data is later processed statistically. The statistics are then available for "General Information" reports, "Content Information" reports, and "User Information" reports.

6.1.2 Enabling Data Capture for the "Internal Searches" Report

Enable data capture for "Internal Searches" report by calling the HTML img tag on every page where search data must be captured. Pass the following parameters:

```html
<img style="display:none;"
    height="1"
    width="1"
    border="0"
    src="<%=statisticsUrl%>?siteName=<%= ics.GetVar("site")%>
    &objType=SEARCH
    &query=<SQL_query>
    &objID=1
    &directhits=<number_of_results>
    &maxscore=<relevance_score>
    &sessionID=<%=sessionId%>
    alt="pixel" />
```

Parameters

- **src**
  
  URL of the data capture servlet for Analytics. The URL is configured in the analytics.datacaptureurl property, in futuretense.ini. Get the URL as follows:

```html
<property:get param="analytics.datacaptureurl" inifile="futuretense.ini"
```
Enabling Data Capture

If your pages contain Engage assets and you wish to enable data capture, continue with Section 6.1.3, "Enabling Data Capture for Engage Reports." Otherwise, you have completed configuring Analytics. Test the system by following the steps in Section 6.2, "Testing Your Analytics Installation."

6.1.3 Enabling Data Capture for Engage Reports

Engage assets include recommendations, recommended assets (advertised in the recommendations), and segments to which the recommendations are made. Before starting the steps in this section, familiarize yourself with their general flow by

varname="datacaptureurl"/>
<% String statisticsUrl
    ics.GetVar("datacaptureurl");%>

■ siteName
   Name of the content management site where the query is entered.

■ objType
   Object name for the internal SQL query. The value must be SEARCH.

■ query
   The query that is entered in the search field.

■ objID
   A random value (pass a value of "1").

■ directhits
   Number of results returned by the search query.

■ maxscore
   (Optional) the relevance score of the most relevant result.
   For example, 88.0 for a result that is 88% relevant to the keywords entered.

■ sessionID
   Browser session ID.

Example:
The following example shows how the img tag could look after the variables are replaced:

   <img
style="display:none;"
height="1"
width="1"
border="0"
src="http://10.120.12.68:7001/analytics/statistics
?siteName=FirstSiteII
&objType=SEARCH
&query=Select * from Activities
&objID=1
&directhits=10
&maxscore=88.0
&sessionID=5E7B9B22F84F0FAB0E68108089AA1609"
alt="pixel"
/>
Enabling Data Capture

referring to the steps in Figure 6–1. The same figure provides examples of Engage assets and their counterpart objects RecAsked and RecListed.

**Note:** Data capture on segments is implicit via the `segID` parameter in the `img` tag, used to enable data capture.

---

**Figure 6–1 Definitions of Engage Assets**

1. Recommendation (its object name is `RecAsked`)
   You enable data capture for a recommendation by coding its element with the HTML `img` tag, as shown in step 1 on page 83.

2. List of recommended assets (the list's object name is `RecListed`)
   You enable data capture for a list by coding its element with the HTML `img` tag, as shown in step 2 on page 83.

3. Recommended asset
   You enable data capture for a recommended asset by coding its JSP with data capture code, as shown in step 3 on page 87.

**Note:** To complete the steps below, you must have a thorough understanding of recommendations and segments, as well as experience with Java and JSP.
To enable data capture on Engage assets

1. Enable data capture on each recommendation (for an example of a recommendation, see Figure 6–1):
   a. Add the lines below to the recommendation’s element:

   ```
   <%@ taglib prefix="property" uri="futuretense_cs/property.tld"%>
   <%@ page import="java.util.*, java.text.*, java.io.*"%>
   <%@ page import="at.onetoone.esa.tools.*"%>
   
   Note: The at.onetoone.esa.tools files are located in analyticcs.jar.
   
   b. Insert the HTML img tag below into the recommendation’s element. The img tag will capture the ID and name of the recommendation as soon as the page is displayed to the visitor.

   Note: If you are using the FirstSite II sample site, add the img tag to ElementCatalog/AdvCols/FSIIDetail.

   ```javascript```
   pixelreccalled = new Image();
   pixelreccalled.src = "<%=statisticsUrl%>?siteName="><%= ics.GetVar("site")%>
   &objType=RecAsked&objID=""><%=ics.GetVar("cid")%>
   &objName=""><%=ics.GetVar("reconame")%>
   &segID=""><%=segmentidlist%>
   &sessionID=""><%=sessionID%>
   &Referer=""><%= referer %>
   &size=""><%=screenResolution%>
   
   </script>
   <noscript>
   <img style="display:none;"
   height="1"
   width="1"
   src="<%=statisticsUrl%>?siteName=""><%= ics.GetVar("site")%>
   &objType=RecAsked
   &objID=""><%=ics.GetVar("cid")%>
   &objName=""><%=ics.GetVar("reconame")%>
   &segID=""><%=segmentidlist%>
   &sessionID=""><%=sessionID%>
   &Referer=""><%= referer %>
   &size=""><%=screenResolution%>
   alt="pixel" />
   </noscript>

Parameters

- src
URL of the data capture servlet for Analytics. The URL is configured in the `analytics:datacaptureurl` property, in `futuretense.ini`. Get the URL as follows:

```xml
<property:get param="analytics.datacaptureurl" inifile='futuretense.ini'
varname="datacaptureurl"/>
```

```java
String statisticsUrl=
    ics.GetVar("datacaptureurl");
```

- **siteName**
  Name of the content management site where the recommendation is displayed.

- **objType**
  Object name for the displayed recommendation. The value must be RecAsked. (For an example of a recommendation, see the first step in Figure 6–1.) The objType is used to identify Engage assets (recommendations and segments), capture data on the assets, and create reports in the "Engage" report group.

- **objID**
  Asset ID of the recommendation.

- **objName**
  Name of the recommendation.

- **segID**
  Either a comma-separated list of IDs of the segments to which the visitor belongs, or 0 if the visitor does not belong to a segment.

- **sessionID**
  Browser session ID.

- **size**
  Browser screen resolution.

**Example**

The following example shows how the `img` tag could look after the variables are replaced:

```html
<img style="display:none;"
    height="1"
    width="1"
    src="http://etravel.fatwire.com:80/analytics/statistics
    ?siteName=FirstSiteII
    &objType=RecAsked&objID=1120593564193
    &objName=FSIIItemOfTheWeek
    &segID=0
    &sessionID=B28822803C3843B8CC
    &size=1280x1024"
    alt="pixel"/>
```

2. Enable data capture on each recommendation's list of recommended assets (for an example of such a list, see Figure 6–1).
This step requires you to first encode three parameters, then insert the HTML `img` tag into the same recommendation element as in the previous step, but pass parameters which are specific to the list of recommended assets. Do the following:

a. **Encode the parameters** `objListName`, `objListID`, and `objListType` as follows, using the Base64 file located in `analyticscs.jar`:

   ```java
   String objListNameValue = Base64.encodeBytes(<comma-separated list of asset names in the recommendation>.getBytes(), Base64.DONT_BREAK_LINES);
   String objListIDValue = Base64.encodeBytes(<comma-separated list of asset IDs in the recommendation>.getBytes(), Base64.DONT_BREAK_LINES);
   String objListTypeValue = Base64.encodeBytes(<comma-separated list of asset types in the recommendation>.getBytes(), Base64.DONT_BREAK_LINES);
   
   b. **Insert the HTML `img` tag with the following parameters into the JSP:**

   ```html
   <script type="text/javascript">
   imagereclisted = new Image();
   imagereclisted.src = "<%=statisticsUrl%>?siteName=<% = ics.GetVar(\"site\")%> &objType=RecListed &objID=<% = ics.GetVar(\"cid\")%> &objName=<% = ics.GetVar(\"reconame\")%> &objListID=<% = objListIDValue%> &objListName=<% = objListNameValue%> &objListType=<% = objListTypeValue%> &segID=<% = segmentidlist%> &sessionID=<% = sessionId%> &size=<% = screenResolution%>"; 
   </script>
   <noscript>
   <img style="display:none;" height="1" width="1" src="<%=statisticsUrl%>?siteName=<% = ics.GetVar(\"site\")%> &objType=RecListed &objID=<% = ics.GetVar(\"cid\")%> &objName=<% = ics.GetVar(\"reconame\")%> &objListID=<% = objListIDValue%> &objListName=<% = objListNameValue%> &objListType=<% = objListTypeValue%> &segID=<% = segmentidlist%> &sessionID=<% = sessionId%> &size=<% = screenResolution%>" alt="pixel" />
   </noscript>
   
   **Note:** If you are using the FirstSite II sample site, add the `img` tag to `ElementCatalog\AdvCols\FSIIDetail`. For example code, see `FSIIDetail.jsp` (in the following directory: `FatWire Analytics\examples\FirstSiteII\ElementCatalog\AdvCols`).
Parameters

* src

URL of the data capture servlet for Analytics. The URL is configured in the `analytics.datacaptureurl` property, in `futuretense.ini`. Get the URL as follows:

```xml
<property:get param="analytics.datacaptureurl" inifile="futuretense.ini" varname="datacaptureurl"/>
```

```java
String statisticsUrl = ics.GetVar("datacaptureurl");
```

* siteName

Name of the content management site where the recommendation is listed.

* objType

Object name for the list of recommended assets. The value must be `RecListed`. (For an example of a list of recommended assets, see the second step in Figure 6-1.) The `objType` is used to identify Engage assets (recommendations and segments), capture data on the assets, and create reports in the “Engage” report group.

* objID

Asset ID of the recommendation.

* objName

Name of the recommendation.

* objListName

Comma-separated list of asset names in the recommendation. The value for this parameter is the value that was encoded in the previous step.

* objListType

Comma-separated list of asset types in the recommendation. The value for this parameter is the value that was encoded in the previous step.

* segID

Either a comma-separated list of IDs of the segments to which the visitor belongs, or 0 if the visitor does not belong to a segment.

* sessionID

Browser session ID.

* size

The browser screen resolution.

Example:

The following example shows how the `<img>` tag could look after the variables are replaced:

```html
<img style="display:none;" height="1" width="1" src="http://etravel.fatwire.com:80/analytics/statistics
```
c. Add the recid parameter to the element that generates the links which make up the list of recommended assets (each link points from the recommendation to a recommended asset). Also, add the recid parameter to the pagecriteria variable for the element's SiteCatalog entry.

**Note:** recid is the ID of the recommendation to which an asset belongs. For example code, see FSIISummary.jsp for Product_C (in the following directory: FatWire Analytics\examples\FirstSiteII\ElementCatalog\Product_C).

3. Enable data capture on each recommended asset (for an example of a recommended asset, see Figure 6–1):

a. If the data capture code from Section 6.1.1, "Enabling Data Capture for General, Content, and User Information Reports" does not exist in the recommended asset's JSP, add the code.

**Note:** Data capture code can exist on a page displaying an Engage asset if that page was already coded for data capture on WebCenter Sites assets.

b. Pass the recid parameter to the data capture element "FatWire/Analytics/AddAnalyticsImgTag" by inserting the following line into the data capture code in Section 6.1.1, "Enabling Data Capture for General, Content, and User Information Reports":

```javascript
<render:argument name="recid" value='<%=ics.GetVar("recid")%>'/>
```

This enables Analytics to record which Engage asset has been selected.

4. At this point, you have enabled data capture for each recommendation, its list of recommended assets, and its individual recommended assets. You have also implicitly enabled data capture for segments, via the segID parameter in the img tags.

Continue to the next step to test your installation.

### 6.2 Testing Your Analytics Installation

You can test your code by testing your Analytics installation either on your own or with the help of the WebCenter Sites administrator and other users.
To test your Analytics installation

1. Go to the web site and visit the pages you have tagged for data capture.

2. Allow the data analysis jobs to finish processing the captured data.

   **Note:** The data analysis jobs process data that was captured within the past 24 hours. Bear in mind that a data analysis job is a resource-intensive process that can take a significant amount of time to complete, depending on the amount of raw data that was captured.

3. Generate all the reports that users will be generating. For descriptions of the reports and instructions on generating them, see the Oracle Fusion Middleware WebCenter Sites: Analytics User’s Guide.

Assuming a successful outcome, you are now ready to use Analytics.
This appendix contains the following sections:

- Section 7.1, "L3 Tables"
- Section 7.2, "HELP Tables"
- Section 7.3, "System Configuration and Maintenance Tables"
- Section 7.4, "Database Indexes"

### 7.1 L3 Tables

Level 3 database tables store statistically processed, aggregated data. When aggregated in advance, the data becomes available on demand at report generation time.

Table names indicate which type of data is stored. For example:

- The table named **L3_DATEXSITEXCITYXCOUNT** stores *daily* data for a site that is browsed by visitors from a given city.

- The table named **L3_WEEKXSITEXCITYXCOUNT** stores the same type of data as **L3_DATEXSITEXCITYXCOUNT**, but for the given week (that is, **L3_WEEKXSITEXCITYXCOUNT** stores *weekly* data for a site that is browsed by visitors from a given city).

- The table named **L3_MONTHXSITEXCITYXCOUNT** stores the same type of data as **L3_DATEXSITEXCITYXCOUNT**, but for the given month (that is, **L3_MONTHXSITEXCITYXCOUNT** stores *monthly* data for a site that is browsed by visitors from a given city).

---

**Note:** The term *object impression* is used throughout this reference. An object impression is a single invocation of the sensor servlet. An object impression can also be thought of as a "snapshot" of raw site visitor data that is captured for analysis. For more information about object impressions, see the *Oracle Fusion Middleware WebCenter Sites: Analytics Administrator’s Guide*.

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- Section 7.1.1, "CS_L3DATEXSITEXOBJXCOUNT"
- Section 7.1.2, "L3_DATEXSITEXCITYXCOUNT"
- Section 7.1.3, "L3_WEEKXSITEXCITYXCOUNT"
- Section 7.1.4, "L3_MONTHXSITEXCITYXCOUNT"
Section 7.1.5, "L3_DATEXSITEXDLXMIMEXCOUNT"
Section 7.1.6, "L3_DATEXSITEXGROUPXOICOUNT"
Section 7.1.7, "L3_DATEXSITEXGROUPXSESCOUNT"
Section 7.1.8, "L3_DATEXSITEXGROUPXVISCOUNT"
Section 7.1.9, "L3_WEEKXSITEXGROUPXVISCOUNT"
Section 7.1.10, "L3_MONTHXSITEXGROUPXVISCOUNT"
Section 7.1.11, "L3_DATEXSITEXREGIONXCOUNT"
Section 7.1.12, "L3_WEEKXSITEXREGIONXCOUNT"
Section 7.1.13, "L3_MONTHXSITEXREGIONXCOUNT"
Section 7.1.14, "L3_DATEXSITEXJS"
Section 7.1.15, "L3_DATEXSITEXOBJECTXDURATION"
Section 7.1.16, "L3_DATEXSITEXBROWSERXCOUNT"
Section 7.1.17, "L3_DATEXSITEXCOUNTRYXCOUNT"
Section 7.1.18, "L3_WEEKXSITEXCOUNTRYXCOUNT"
Section 7.1.19, "L3_MONTHXSITEXCOUNTRYXCOUNT"
Section 7.1.20, "L3_DATEXSITEXENTRYIDXCOUNT"
Section 7.1.21, "L3_DATEXSITEXEXITIDXCOUNT"
Section 7.1.22, "L3_DATEXSITEXHOSTNAMEXCOUNT"
Section 7.1.23, "L3_DATEXSITEXINTERNALSEARCH"
Section 7.1.24, "L3_DATEXSITEXIPXCOUNT"
Section 7.1.25, "L3_DATEXSITEXISPXCOUNT"
Section 7.1.26, "L3_WEEKXSITEXISPXCOUNT"
Section 7.1.27, "L3_MONTHXSITEXISPXCOUNT"
Section 7.1.28, "L3_DATEXSITEXOBJECTTYPEXCOUNT"
Section 7.1.29, "L3_DATEXSITEXOBJECTXCOUNT"
Section 7.1.30, "L3_AUDIT_TRAIL"
Section 7.1.31, "L3_DATEXSITEXOPTYPEXCOUNT"
Section 7.1.32, "L3_WEEKXSITEXOPTYPEXCOUNT"
Section 7.1.33, "L3_MONTHXSITEXOPTYPEXCOUNT"
Section 7.1.34, "L3_DATEXSITEXOSXCOUNT"
Section 7.1.35, "L3_DATEXSITEXREFERERXCOUNT"
Section 7.1.36, "L3_DATEXSITEXSCREENRESXCOUNT"
Section 7.1.37, "L3_DATEXSITEXSESSION"
Section 7.1.38, "L3_DATEXSITEXSESSIONXQUANTIL"
Section 7.1.39, "L3_DATEXSITEXSEXKEYWORDXCOUNT"
Section 7.1.40, "L3_DATEXSITEXVISITORXCOUNT"
Section 7.1.41, "L3_WEEKXSITEXVISITORXCOUNT"
7.1.1 CS_L3DATEXSITEXOBJXCOUNT

This table stores data for the chart in the "Clickstream" report. It stores the number of clicks that were made from one object to another on a specific date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table to reference the date of the data.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>OBJECTFROMID</td>
<td>NUMBER</td>
<td>From which object.</td>
</tr>
<tr>
<td>OBJECTTOID</td>
<td>NUMBER</td>
<td>To which object.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of clicks.</td>
</tr>
</tbody>
</table>

7.1.2 L3_DATEXSITEXCITYXCOUNT

Reserved for internal use. This table stores the number of object impressions, sessions, and visitors from a specific city on a specific day. See Section 7.2.1, "HELP_CITY" for more information.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>CITYID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_CITY table.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions for the day, for the site, for the city.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors for the day, for the site, for the city.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions for the day, for the site, for the city.</td>
</tr>
</tbody>
</table>

7.1.3 L3_WEEKXSITEXCITYXCOUNT

Reserved for internal use. This table stores the number of object impressions, sessions, and visitors from a specific city on a specific week. See Section 7.2.1, "HELP_CITY" for more information.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>CITYID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_CITY table.</td>
</tr>
</tbody>
</table>
7.1.4 L3_MONTHXSITEXCITYXCOUNT

Reserved for internal use. This table stores the number of object impressions, sessions, and visitors from a specific city on a specific month. See the HELP_CITY table for more information.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>CITYID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_CITY table.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions for the month, site, and city.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors for the month, site, and city.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions for the month, site, and city.</td>
</tr>
</tbody>
</table>

7.1.5 L3_DATEXSITEXDLX MIMEXCOUNT

This table stores the number of object impressions for the given object and its MIME type.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>OBJECTID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the L2_OBJECT table.</td>
</tr>
<tr>
<td>MIMETYPE</td>
<td>VARCHAR2 (32 BYTE)</td>
<td>The MIME type.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of object impressions for the day, for the site, and for the object with that MIME type.</td>
</tr>
</tbody>
</table>

7.1.6 L3_DATEXSITEXGROUPXOICOUNT

This table stores how often a group was visited (number of object impressions).
### 7.1.7 L3_DATEXSITEXGROUPXSESCOUNT
This table stores how often a group was visited (number of sessions).

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>GROUPID</td>
<td>NUMBER</td>
<td>Foreign key to the L2_GROUP table.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions.</td>
</tr>
</tbody>
</table>

### 7.1.8 L3_DATEXSITEXGROUPXVISCOUNT
This table stores the number of visitors a group receives on a daily basis.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>GROUPID</td>
<td>NUMBER</td>
<td>Foreign key to the L2_GROUP table.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors.</td>
</tr>
</tbody>
</table>

### 7.1.9 L3_WEEKXSITEXGROUPXVISCOUNT
This table stores the number of visitors a group receives on a weekly basis.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>GROUPID</td>
<td>NUMBER</td>
<td>Foreign key to the L2_GROUP table.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors.</td>
</tr>
</tbody>
</table>

### 7.1.10 L3_MONTHXSITEXGROUPXVISCOUNT
This table stores the number of visitors a group receives on a monthly basis.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>GROUPID</td>
<td>NUMBER</td>
<td>Foreign key to the L2_GROUP table.</td>
</tr>
</tbody>
</table>
### 7.1.11 L3_DATEXSITEXREGIONXCOUNT

Reserved for internal use. This table stores the number of object impressions, sessions, and visitors that occur daily for each region.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>REGIONID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_REGION table.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions from that region on the site for the day.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors from that region on the site for the day.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions from that region on the site for the day.</td>
</tr>
</tbody>
</table>

### 7.1.12 L3_WEEKXSITEXREGIONXCOUNT

Reserved for internal use. This table stores the number of object impressions, sessions, and visitors that occur weekly for each region.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>REGIONID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_REGION table.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions from that region on the site for the week.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors from that region on the site for the week.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions from that region, on the site for the week.</td>
</tr>
</tbody>
</table>

### 7.1.13 L3_MONTHXSITEXREGIONXCOUNT

Reserved for internal use. This table stores the number of object impressions, sessions, and visitors that occur monthly for each region.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
</tbody>
</table>
### L3_DATEXSITEXJS
This table stores the number of clients that use JavaScript.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>VALUE</td>
<td>NUMBER</td>
<td>This stores either true or false.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of object impressions with that VALUE.</td>
</tr>
</tbody>
</table>

### L3_DATEXSITEXOBJECTXDURATION
This table stores the length of time that users view an object.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>OBJECTID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the L2_OBJECT table.</td>
</tr>
<tr>
<td>DURATION</td>
<td>NUMBER</td>
<td>Number of seconds until the user called another page.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of data rows from which the duration is calculated.</td>
</tr>
</tbody>
</table>

### L3_DATEXSITEXBROWSERXCOUNT
This table stores the number of sessions a type of browser has completed.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>BROWSERID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the L2_BROWSER table.</td>
</tr>
</tbody>
</table>
### 7.1.17 L3_DATEXSITEXCOUNTRYXCOUNT

This table stores aggregated data for each country, for the given date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>COUNTRYID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the HELP_COUNTRY table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of sessions for this site, on this date.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions for this site, on this date.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors for this site, on this date.</td>
</tr>
</tbody>
</table>

### 7.1.18 L3_WEEKXSITEXCOUNTRYXCOUNT

This table stores aggregated data for each country, for the given week.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>COUNTRYID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the HELP_COUNTRY table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of sessions for this site, within this week.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions for this site, within this week.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors for this site, within this week.</td>
</tr>
</tbody>
</table>

### 7.1.19 L3_MONTHXSITEXCOUNTRYXCOUNT

This table stores aggregated data for each country, for the given month.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>COUNTRYID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the HELP_COUNTRY table.</td>
</tr>
</tbody>
</table>
7.1.20 **L3_DATEXSITEXENTRYIDXCOUNT**

This table stores entry page data for the given date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>OBJECTID</td>
<td>NUMBER</td>
<td>Foreign key to the L2_OBJECT table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>How often this object was used as an entry page.</td>
</tr>
</tbody>
</table>

7.1.21 **L3_DATEXSITEXEXITIDXCOUNT**

This table stores exit page data for the given date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>OBJECTID</td>
<td>NUMBER</td>
<td>Foreign key to the L2_OBJECT table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>How often this object was used as an exit page.</td>
</tr>
</tbody>
</table>

7.1.22 **L3_DATEXSITEXHOSTNAMEXCOUNT**

This table stores the number of sessions for the given host name on the given date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>HOSTNAME</td>
<td>VARCHAR2 (64 BYTE)</td>
<td>Name of the host.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of sessions for this host.</td>
</tr>
</tbody>
</table>

7.1.23 **L3_DATEXSITEXINTERNALSEARCH**

This table stores aggregated data of internal searches for the given date.
### L3 Tables

#### 7.1.24 L3_DATEXSITEXIPXCOUNT

This table stores the number of sessions for the given IP address and date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>QUERY</td>
<td>VARCHAR2 (2049 BYTE)</td>
<td>Query string that was searched.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>How often the query was searched.</td>
</tr>
<tr>
<td>AVGHITS</td>
<td>NUMBER</td>
<td>Average number of search results.</td>
</tr>
<tr>
<td>MAXHITS</td>
<td>NUMBER</td>
<td>Maximum number of search results.</td>
</tr>
<tr>
<td>MINHITS</td>
<td>NUMBER</td>
<td>Minimum number of search results.</td>
</tr>
<tr>
<td>AVGMAXSCORE</td>
<td>NUMBER</td>
<td>Average maximum score.</td>
</tr>
<tr>
<td>MINSCORE</td>
<td>NUMBER</td>
<td>Minimum score.</td>
</tr>
<tr>
<td>MAXSCORE</td>
<td>NUMBER</td>
<td>Maximum score.</td>
</tr>
<tr>
<td>OBJECTTYPEID</td>
<td>NUMBER</td>
<td>Foreign key to L2_OBJECTTYPE of the query.</td>
</tr>
</tbody>
</table>

#### 7.1.25 L3_DATEXSITEXISPXCOUNT

This table stores for each ISP daily the number of object impressions, sessions and visitors.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER(6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>ISPID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_ISP table.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions for that ISP on that site on that day.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors for that ISP on that site on that day.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions for that ISP on that site on that day.</td>
</tr>
</tbody>
</table>
7.1.26 **L3_WEEKXSITEXISPXCOUNT**

This table stores for each ISP weekly the number of object impressions, sessions and visitors.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER(6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>ISPID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_ISP table.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions for that ISP on that site on that week.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors for that ISP on that site on that week.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions for that ISP on that site on that week.</td>
</tr>
</tbody>
</table>

7.1.27 **L3_MONTHXSITEXISPXCOUNT**

This table stores for each ISP monthly the number of object impressions, sessions and visitors.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER(6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>ISPID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_ISP table.</td>
</tr>
<tr>
<td>OICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions for that ISP on that site on that month.</td>
</tr>
<tr>
<td>VISCOUNT</td>
<td>NUMBER</td>
<td>Number of visitors for that ISP on that site on that month.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions for that ISP on that site on that month.</td>
</tr>
</tbody>
</table>

7.1.28 **L3_DATEXSITEXOBJECTTYPEXCOUNT**

This table stores aggregated data for each object type for the given date and hour.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER(6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>OBJECTTYPEID</td>
<td>NUMBER(12)</td>
<td>Foreign key to the L2_OBJECTTYPE table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of object impressions of that object type for the site, for the day in that hour.</td>
</tr>
</tbody>
</table>
### L3 Tables

#### 7.1.29 L3_DATEXSITEXOBJECTXCOUNT

This table stores aggregated data for each object, for the given date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>OBJECTID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the L2_OBJECT table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of object impressions.</td>
</tr>
</tbody>
</table>

#### 7.1.30 L3_AUDIT_TRAIL

This table provides audit trail tracking of asset modifications.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key in the HELP_DATES table.</td>
</tr>
<tr>
<td>OBJECTID</td>
<td>NUMBER</td>
<td>Asset identifier.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key in the SITE table.</td>
</tr>
<tr>
<td>CSUSERID</td>
<td>VARCHAR2(255)</td>
<td>User name of the WebCenter Sites user.</td>
</tr>
<tr>
<td>OPTYPE</td>
<td>VARCHAR2(255)</td>
<td>Type of operation: CREATE</td>
</tr>
<tr>
<td>TIMESTAMP</td>
<td>DATE</td>
<td>When the modification occurred.</td>
</tr>
</tbody>
</table>

#### 7.1.31 L3_DATEXSITEXOPTYPEXCOUNT

This table stores the number of daily asset modifications.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key in the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key in the SITE table.</td>
</tr>
<tr>
<td>OPTYPE</td>
<td>VARCHAR2(255)</td>
<td>Type of operation: CREATE</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of incidents.</td>
</tr>
</tbody>
</table>

#### 7.1.32 L3_WEEKXSITEXOPTYPEXCOUNT

This table stores the number of weekly asset modifications.
7.1.33 L3_MONTHXSITEXOPTYPEXCOUNT
This table stores the number of monthly asset modifications.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key in the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key in the SITE table.</td>
</tr>
<tr>
<td>OPTYPE</td>
<td>VARCHAR2(255)</td>
<td>Type of operation: CREATE</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of incidents.</td>
</tr>
</tbody>
</table>

7.1.34 L3_DATEXSITEXOSXCOUNT
This table stores the number of sessions for each operating system, for the given date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>OSID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the L2_OS table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of sessions for the operating system.</td>
</tr>
</tbody>
</table>

7.1.35 L3_DATEXSITEXREFERERXCOUNT
This table stores the number of sessions for each referrer URL, for the given date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>REFERER</td>
<td>VARCHAR2 (500 BYTE)</td>
<td>The referrer URL.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of sessions from the referrer URL.</td>
</tr>
</tbody>
</table>

7.1.36 L3_DATEXSITEXSCREENRESXCOUNT
This table stores the number of sessions for each screen resolution, for the given date.
### 7.1.37 L3_DATEXSITEXSESSION

This table stores session information for each site, for the given date.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>SCREENRESOLUTIONID</td>
<td>NUMBER (12)</td>
<td>Screen resolution as a single number VVVVHHHH, where VVVV is vertical resolution, and HHHH is horizontal resolution.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of sessions with that screen resolution.</td>
</tr>
</tbody>
</table>

### 7.1.38 L3_DATEXSITEXSESSIONXQUANTIL

This table stores session information based on quantile.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions included in the line.</td>
</tr>
<tr>
<td>DURATIONQUANTIL</td>
<td>NUMBER</td>
<td>- Null for sessions without a valid session ID.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0 for sessions with a length of 0 seconds.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 1 for sessions between 1 and 30 seconds.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 30 for sessions between 30 and 120 seconds.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 120 for sessions between 120 and 300 seconds.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 300 for sessions between 300 and 900 seconds.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 900 for sessions between 900 and 1800 seconds.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 1800 for sessions between 1,800 and 3,600 seconds.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 3600 for sessions between 3,600 and 86,400 seconds.</td>
</tr>
<tr>
<td>QUANTILCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions in the quantile.</td>
</tr>
<tr>
<td>PICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions in the quantile.</td>
</tr>
<tr>
<td>Column Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>SUM</td>
<td>NUMBER</td>
<td>Number of sessions.</td>
</tr>
<tr>
<td>AVG</td>
<td>NUMBER</td>
<td>Average duration of these sessions.</td>
</tr>
<tr>
<td>QUAN0</td>
<td>NUMBER</td>
<td>Number of sessions with a length of '0'.</td>
</tr>
<tr>
<td>QUAN0AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
<tr>
<td>QUAN1</td>
<td>NUMBER</td>
<td>Number of sessions with a length between 1 and 30 seconds.</td>
</tr>
<tr>
<td>QUAN1AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
<tr>
<td>QUAN30</td>
<td>NUMBER</td>
<td>Number of sessions with a length between 31 and 120 seconds (2 minutes)</td>
</tr>
<tr>
<td>QUAN30AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
<tr>
<td>QUAN120</td>
<td>NUMBER</td>
<td>Number of sessions with a length between 121 and 300 seconds (5 minutes)</td>
</tr>
<tr>
<td>QUAN120AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
<tr>
<td>QUAN300</td>
<td>NUMBER</td>
<td>Number of sessions with a length between 301 and 900 seconds (15 minutes)</td>
</tr>
<tr>
<td>QUAN300AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
<tr>
<td>QUAN900</td>
<td>NUMBER</td>
<td>Number of sessions with a length between 901 and 1800 seconds (30 minutes)</td>
</tr>
<tr>
<td>QUAN900AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
<tr>
<td>QUAN1800</td>
<td>NUMBER</td>
<td>Number of sessions with a length between 1801 and 3600 seconds (one hour)</td>
</tr>
<tr>
<td>QUAN1800AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
<tr>
<td>QUAN3600</td>
<td>NUMBER</td>
<td>Number of sessions with a length between 3601 and 86400 seconds (one week)</td>
</tr>
<tr>
<td>QUAN3600AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
<tr>
<td>QUAN86400</td>
<td>NUMBER</td>
<td>Number of sessions with a length exceeding 86400 seconds (more than one week)</td>
</tr>
<tr>
<td>QUAN86400AVG</td>
<td>NUMBER</td>
<td>Average duration of all sessions from this quantile.</td>
</tr>
</tbody>
</table>
7.1.39 L3_DATEXSITEXSEXKEYWORDXCOUNT
This table stores the daily number of sessions that start with a given keyword.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>SEARCHENGINEID</td>
<td>NUMBER</td>
<td>Foreign key to the L2_SEARCHENGINE table.</td>
</tr>
<tr>
<td>KEYWORD</td>
<td>VARCHAR2 (128 BYTE)</td>
<td>The search phrase.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of sessions started with the referrer and the phrase from the search engine.</td>
</tr>
</tbody>
</table>

7.1.40 L3_DATEXSITEXVISITORXCOUNT
This table stores the daily number of sessions for each visitor.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of visitors to the site for the day.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions for the site for the day.</td>
</tr>
<tr>
<td>PICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions on the site for the day.</td>
</tr>
<tr>
<td>NEW</td>
<td>NUMBER</td>
<td>Number of new visitors on the site for the day.</td>
</tr>
</tbody>
</table>

7.1.41 L3_WEEKXSITEXVISITORXCOUNT
This table stores the weekly number of sessions for each visitor.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the SITE table.</td>
</tr>
</tbody>
</table>
### 7.1.42 L3_MONTHXSITEXVISITORXCOUNT

This table stores the monthly number of sessions for each visitor.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>COUNT</td>
<td>NUMBER</td>
<td>Number of visitors on the site for the month.</td>
</tr>
<tr>
<td>SESCOUNT</td>
<td>NUMBER</td>
<td>Number of sessions on the site for the month.</td>
</tr>
<tr>
<td>PICOUNT</td>
<td>NUMBER</td>
<td>Number of object impressions on the site for the month.</td>
</tr>
<tr>
<td>NEW</td>
<td>NUMBER</td>
<td>Number of new visitors on the site for the month.</td>
</tr>
</tbody>
</table>

### 7.1.43 REC_L3_RECXCOUNT

This table stores the number of recommendations that were displayed and clicked on a given day.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>RECID</td>
<td>NUMBER (6)</td>
<td>Foreign key to the REC_RECOMMENDATION table.</td>
</tr>
<tr>
<td>VIEWCOUNT</td>
<td>NUMBER (12)</td>
<td>Number of times the recommendation was displayed.</td>
</tr>
<tr>
<td>CLICKCOUNT</td>
<td>NUMBER (12)</td>
<td>Number of times the recommendation was clicked.</td>
</tr>
</tbody>
</table>

### 7.1.44 REC_L3_RECXSEGXCOUNT

This table stores the number of recommendations that were displayed and clicked by a given segment on a given day.
7.1.45 **REC_L3_RECXSEGXOBJXCOUNT**

This table stores the number of times an object was accessed on a given day by a specific segment of a specific recommendation.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>RECID</td>
<td>NUMBER(6)</td>
<td>Foreign key to the REC_RECOMMENDATION table.</td>
</tr>
<tr>
<td>SEGID</td>
<td>NUMBER(6)</td>
<td>Foreign key to the REC_SEGMENT table.</td>
</tr>
<tr>
<td>VIEWCOUNT</td>
<td>NUMBER(12)</td>
<td>Number of times the recommendation was displayed by that segment.</td>
</tr>
<tr>
<td>CLICKCOUNT</td>
<td>NUMBER(12)</td>
<td>Number of times the recommendation was clicked by that segment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATEID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_DATES table.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>RECID</td>
<td>NUMBER(6)</td>
<td>Foreign key to the REC_RECOMMENDATION table.</td>
</tr>
<tr>
<td>SEGID</td>
<td>NUMBER(6)</td>
<td>Foreign key to the REC_SEGMENT table.</td>
</tr>
<tr>
<td>OBJID</td>
<td>NUMBER(24)</td>
<td>Foreign key to the L2_OBJECT table.</td>
</tr>
<tr>
<td>OBJVIEWEDCOUNT</td>
<td>NUMBER(12)</td>
<td>How often the object was displayed during a recommendation list.</td>
</tr>
<tr>
<td>OBJCLICKEDCOUNT</td>
<td>NUMBER(12)</td>
<td>How often the object was clicked during a recommendation list.</td>
</tr>
</tbody>
</table>

7.2 **HELP Tables**

Tables in this section store static data that is used by various jobs and reports. The tables are populated at installation time.

- Section 7.2.1, "HELP_CITY"
- Section 7.2.2, "HELP_REGION"
- Section 7.2.3, "HELP_COUNTRY"
- Section 7.2.4, "HELP_DATES"
- Section 7.2.5, "HELP_HOURS"
- Section 7.2.6, "HELP_ISP"
### 7.2.1 HELP_CITY

Reserved for internal use.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (64)</td>
<td>Name of the city.</td>
</tr>
<tr>
<td>REGIONID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_REGION table.</td>
</tr>
<tr>
<td>COUNTRYID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_COUNTRY table.</td>
</tr>
</tbody>
</table>

### 7.2.2 HELP_REGION

Reserved for internal use.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (128 BYTE)</td>
<td>Name of the region.</td>
</tr>
<tr>
<td>COUNTRYID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_COUNTRY table.</td>
</tr>
<tr>
<td>REGIONCODE</td>
<td>VARCHAR2 (2)</td>
<td>Foreign key to the HELP_REGION table.</td>
</tr>
</tbody>
</table>

### 7.2.3 HELP_COUNTRY

This table stores detailed information about countries.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>CODE</td>
<td>VARCHAR2 (5 BYTE)</td>
<td>Two-letter country code.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (50 BYTE)</td>
<td>Country name</td>
</tr>
<tr>
<td>COUNTRY</td>
<td>VARCHAR2 (50)</td>
<td>This column is not used.</td>
</tr>
<tr>
<td>POPULATION</td>
<td>NUMBER (14)</td>
<td>Population of the country.</td>
</tr>
</tbody>
</table>

### 7.2.4 HELPDATES

This table has one entry for each day. It is used and referenced for performance reasons.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>DAT</td>
<td>DATE</td>
<td>The date (midnight).</td>
</tr>
<tr>
<td>STRDAT</td>
<td>VARCHAR2 (10 BYTE)</td>
<td>The date as yyyy-mm-dd string.</td>
</tr>
</tbody>
</table>
7.2.5 HELP_HOURS

This table has one entry for hour (00–23). It is used and referenced for performance reasons.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUR</td>
<td>NUMBER</td>
<td>The hour (0-based).</td>
</tr>
<tr>
<td>STRHOUR</td>
<td>VARCHAR2 (2 BYTE)</td>
<td>A String representing an hour (any value between 00 and 23).</td>
</tr>
</tbody>
</table>

7.2.6 HELP_ISP

This table stores all available ISP in the Internet Service Provider report.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>Primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2(255)</td>
<td>Name of the ISP.</td>
</tr>
</tbody>
</table>

7.3 System Configuration and Maintenance Tables

Tables in this section are used to configure and maintain the system.

- Section 7.3.1, "ACCESSRIGHT"
- Section 7.3.2, "BROWSERGROUP"
- Section 7.3.3, "BROWSERIDENTIFICATION"
- Section 7.3.4, "IP2COUNTRYCITY_BLOCKS"
- Section 7.3.5, "IP2ISP_BLOCKS"
- Section 7.3.6, "IPQUICKLIST"
- Section 7.3.7, "ESAUSER"
- Section 7.3.8, "IP2COUNTRY"
- Section 7.3.9, "OBJECTTYPEGROUP"
- Section 7.3.10, "SETTING"
- Section 7.3.11, "OSGROUP"
- Section 7.3.12, "OSIDENTIFICATION"
- Section 7.3.13, "REC_RECOMMENDATION"
- Section 7.3.14, "REC_SEGMENT"
- Section 7.3.15, "REPORT"
- Section 7.3.16, "REPORT2REPORTGROUP"
- Section 7.3.17, "REPORTGROUP"
- Section 7.3.18, "REPORTPARAMETER"
- Section 7.3.19, "SEARCHENGINEGROUP"
- Section 7.3.20, "SEARCHENGINEIDENT"
- Section 7.3.21, "SITE"
7.3.1 ACCESSRIGHT
This table defines access rights. A user gains access when one of its user groups has access to reports on the site.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>SITE</td>
<td>NUMBER (12)</td>
<td>Foreign key to the SITE table.</td>
</tr>
<tr>
<td>REPORT</td>
<td>NUMBER (12)</td>
<td>Foreign key to the REPORT table.</td>
</tr>
<tr>
<td>USERGROUP</td>
<td>NUMBER (12)</td>
<td>Foreign key to the USERGROUP table.</td>
</tr>
</tbody>
</table>

7.3.2 BROWSERGROUP
This table stores the names of browser groups. For example, group "Internet Explorer" includes Internet Explorer 6 and 7. Each browser is individually listed in the L2_BROWSER table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (64 BYTE)</td>
<td>Name of the group.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Legal values:</strong> Any value up to 64 characters.</td>
</tr>
</tbody>
</table>
### 7.3.3 BROWSERIDENTIFICATION

This table is used to identify browsers based on the browser’s agent string. If the agent string contains the pattern of an entry for this table, then the agent is assigned to the browser. If an agent string matches more than one record of this table, the record with the highest priority is taken.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>INTEGER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>BROWSERID</td>
<td>INTEGER</td>
<td>Foreign key to an [L2_BROWSER] record which assigns the agent to a browser if the pattern applies.</td>
</tr>
<tr>
<td>PATTERN</td>
<td>VARCHAR2 (50 BYTE)</td>
<td>The pattern to identify the browser with.</td>
</tr>
<tr>
<td>PRIORITY</td>
<td>INTEGER</td>
<td>The priority to use if an agent string applies to more than one record.</td>
</tr>
</tbody>
</table>

### 7.3.4 IP2COUNTRYCITY_BLOCKS

*Reserved for internal use.* This table stores information related to an IP address.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPFROM</td>
<td>NUMBER</td>
<td>Limit this information for addresses above this value.</td>
</tr>
<tr>
<td>IPTO</td>
<td>NUMBER</td>
<td>Limit this information for addresses below this value.</td>
</tr>
<tr>
<td>LOCATIONID</td>
<td>NUMBER</td>
<td>This column is not used.</td>
</tr>
<tr>
<td>COUNTRYID</td>
<td>NUMBER</td>
<td>Foreign key to a [HELP_COUNTRY] record for a given IP address.</td>
</tr>
<tr>
<td>CITYID</td>
<td>NUMBER</td>
<td>Foreign key to a [HELP_CITY] record for a given IP address.</td>
</tr>
<tr>
<td>REGIONID</td>
<td>NUMBER</td>
<td>Foreign key to a [HELP_CITY] record for a given IP address.</td>
</tr>
<tr>
<td>ISPID</td>
<td>NUMBER</td>
<td>Used for custom report development only.</td>
</tr>
</tbody>
</table>

### 7.3.5 IP2ISP_BLOCKS

This tables stores information related to an IP address.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPFROM</td>
<td>NUMBER</td>
<td>Limit this information for addresses above this value.</td>
</tr>
<tr>
<td>IPTO</td>
<td>NUMBER</td>
<td>Limit this information for addresses below this value.</td>
</tr>
<tr>
<td>ISPID</td>
<td>NUMBER</td>
<td>Foreign key to a [HELP_ISP] record to which the IP address belongs.</td>
</tr>
<tr>
<td>ISPNAME</td>
<td>VARCHAR2(255)</td>
<td>Internet Service Provider name.</td>
</tr>
</tbody>
</table>
7.3.6 IPQUICKLIST

This table caches information calculated from the IP2COUNTRYCITY_BLOCKS table for fast access.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP</td>
<td>NUMBER</td>
<td>The IP address the information is related to.</td>
</tr>
<tr>
<td>ISPID</td>
<td>NUMBER</td>
<td>Used for custom report development only.</td>
</tr>
<tr>
<td>REGIONID</td>
<td>NUMBER</td>
<td>Foreign key to a HELP_REGION record that the IP address belongs to.</td>
</tr>
<tr>
<td>CITYID</td>
<td>NUMBER</td>
<td>Foreign key to a HELP_CITY record that the IP address belongs to.</td>
</tr>
<tr>
<td>COUNTRYID</td>
<td>NUMBER</td>
<td>Foreign key to a HELP_COUNTRY record that the IP address belongs to.</td>
</tr>
</tbody>
</table>

7.3.7 ESAUSER

This table stores all valid users who are able to log in to Analytics.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>USERNAME</td>
<td>VARCHAR2 (255 BYTE)</td>
<td>The username to log in.</td>
</tr>
<tr>
<td>FIRSTNAME</td>
<td>VARCHAR2 (255 BYTE)</td>
<td>First name of the user.</td>
</tr>
<tr>
<td>LASTNAME</td>
<td>VARCHAR2 (255 BYTE)</td>
<td>Last name of the user.</td>
</tr>
<tr>
<td>PASSWORD</td>
<td>VARCHAR2 (255 BYTE)</td>
<td>Password of the user (md5hash).</td>
</tr>
<tr>
<td>DISABLED</td>
<td>NUMBER</td>
<td>Specifies whether the user account is disabled.</td>
</tr>
<tr>
<td>DELETED</td>
<td>NUMBER</td>
<td>Disables the account.</td>
</tr>
<tr>
<td>ISADMIN</td>
<td>NUMBER</td>
<td>Defines if the user is able to use the administrator's interface. Use 1 to allow this.</td>
</tr>
<tr>
<td>DEFAULTSITEID</td>
<td>NUMBER</td>
<td>Foreign key to a SITE record to use when the user logs in.</td>
</tr>
</tbody>
</table>

7.3.8 IP2COUNTRY

This table stores the IP to country mappings.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPFROM</td>
<td>NUMBER (16)</td>
<td>The start IP address of the mapping.</td>
</tr>
<tr>
<td>IPTO</td>
<td>NUMBER (16)</td>
<td>The end IP address of the mapping.</td>
</tr>
<tr>
<td>REGISTRY</td>
<td>VARCHAR2 (16 BYTE)</td>
<td>Reserved for internal use.</td>
</tr>
</tbody>
</table>
### 7.3.9 OBJECTTYPEGROUP

This table defines object type groups.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (64 BYTE)</td>
<td>Name of the object type group.</td>
</tr>
</tbody>
</table>

### 7.3.10 SETTING

This table stores various settings in a key=value schema, which are used by database jobs or other parts of the application.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td>VARCHAR2 (255 BYTE)</td>
<td>Name of the setting.</td>
</tr>
<tr>
<td>VALUE</td>
<td>VARCHAR2 (255 BYTE)</td>
<td>Value of the setting.</td>
</tr>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
</tbody>
</table>

### 7.3.11 OSGROUP

This table stores the names of operating system groups. For example, group "Windows NT" contains Windows NT4, 2000, and XP. Each operating system is individually listed in the L2_OS table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (64 BYTE)</td>
<td>Name of the group.</td>
</tr>
<tr>
<td>ICONPATH</td>
<td>VARCHAR2 (64 BYTE)</td>
<td>Name and path of the icon shown in the &quot;Operating Systems&quot; report. This path is appended to the IMGPATH parameter which is defined in the global.xml configuration file.</td>
</tr>
</tbody>
</table>

### 7.3.12 OSIDENTIFICATION

This table is used to identify operating systems based on the browser's agent string. If the agent string contains the pattern of an entry in this table, the agent is assigned to the operating system. If an agent string matches more than one record in this table, the record with the highest priority is taken.
## 7.3.13 REC_RECOMMENDATION

This table defines all recommendations for the Engage reports.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>INTEGER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (125 BYTE)</td>
<td>Name of the recommendation.</td>
</tr>
<tr>
<td>DELETED</td>
<td>NUMBER (1)</td>
<td>Marks the record as deleted. ('0' = false, '1' = true).</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the SITE table to match this recommendation to a site.</td>
</tr>
<tr>
<td>RECOMMENDATIONID</td>
<td>VARCHAR2 (21 BYTE)</td>
<td>The WebCenter Sites recommendation asset ID of this recommendation.</td>
</tr>
<tr>
<td>DISABLED</td>
<td>NUMBER (1)</td>
<td>Must be set to '0'. Reserved for internal use.</td>
</tr>
</tbody>
</table>

## 7.3.14 REC_SEGMENT

This table defines all segments for the Engage reports.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (6)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (124 BYTE)</td>
<td>Name of the segment.</td>
</tr>
<tr>
<td>DELETED</td>
<td>NUMBER (1)</td>
<td>Mark this record as deleted. ('0' = False, '1' = True).</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (12)</td>
<td>Foreign key to the SITE table, to match this segment to a site.</td>
</tr>
<tr>
<td>SEGMENTID</td>
<td>VARCHAR2 (21 BYTE)</td>
<td>The WebCenter Sites segment asset ID of this segment.</td>
</tr>
<tr>
<td>DISABLED</td>
<td>NUMBER (1)</td>
<td>Must be set to '0'. Reserved for internal use.</td>
</tr>
</tbody>
</table>

## 7.3.15 REPORT

Reports are defined in this table (one line per report).
7.3.16 REPORT2REPORTGROUP

This table stores the assignment of a report to its group in the report selection panel.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>REPORT</td>
<td>NUMBER (12)</td>
<td>Foreign key to the REPORT table.</td>
</tr>
<tr>
<td>REPORTGROUP</td>
<td>NUMBER (12)</td>
<td>Foreign key to the REPORTGROUP record.</td>
</tr>
</tbody>
</table>

7.3.17 REPORTGROUP

This table defines the report groups that are available in the report selection panel.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (32 BYTE)</td>
<td>Name of the group.</td>
</tr>
<tr>
<td>PRIORITY</td>
<td>NUMBER</td>
<td>The priority of the group. If a report is assigned to more than one group, then the group with the highest priority is used by default.</td>
</tr>
</tbody>
</table>

7.3.18 REPORTPARAMETER

This table stores additional parameters to a report in a key=value schema.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (128 BYTE)</td>
<td>Name of the parameter.</td>
</tr>
<tr>
<td>VALUE</td>
<td>VARCHAR2 (128 BYTE)</td>
<td>Value of the parameter.</td>
</tr>
<tr>
<td>REPORTID</td>
<td>NUMBER</td>
<td>Foreign key to a REPORT record.</td>
</tr>
</tbody>
</table>

7.3.19 SEARCHENGINEGROUP

This table stores the names of search engine groups (for example, group "Google" contains google.com/.ca/.de). Each search engine is individually listed in the L2_SEARCHENGINE table.

---

**Column Name** | **Type** | **Description** |
---|---|---|
ID | NUMBER (12) | The primary key. |
NAME | VARCHAR2 (256 BYTE) | Name of the report. |
CONFIGPATH | VARCHAR2 (256 BYTE) | This points to the XML configuration file of the report that is relative to the REPORT_INSTDIR parameter in the global.xml configuration file. |

---

**Column Name** | **Type** | **Description** |
---|---|---|
ID | NUMBER (12) | The primary key. |
REPORT | NUMBER (12) | Foreign key to the REPORT table. |
REPORTGROUP | NUMBER (12) | Foreign key to the REPORTGROUP record. |

---

**Column Name** | **Type** | **Description** |
---|---|---|
ID | NUMBER (12) | The primary key. |
NAME | VARCHAR2 (32 BYTE) | Name of the group. |
PRIORITY | NUMBER | The priority of the group. If a report is assigned to more than one group, then the group with the highest priority is used by default. |

---

**Column Name** | **Type** | **Description** |
---|---|---|
ID | NUMBER | The primary key. |
NAME | VARCHAR2 (128 BYTE) | Name of the parameter. |
VALUE | VARCHAR2 (128 BYTE) | Value of the parameter. |
REPORTID | NUMBER | Foreign key to a REPORT record. |
### 7.3.20 SEARCHENGINEIDENT

This table is used to identify search engine referrers. If the referrer contains the pattern of an entry for this table, the session is assigned to the search engine. If a referrer’s string matches more than one record in this table, the record with the highest priority is taken.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>SEARCHENGINEID</td>
<td>INTEGER</td>
<td>Foreign key to an L2_SEARCHENGINE record for the search engine to which the session is assigned, if the pattern applies.</td>
</tr>
<tr>
<td>PRIORITY</td>
<td>INTEGER</td>
<td>The priority to use if a referrer string applies to more than one record.</td>
</tr>
<tr>
<td>PATTERN</td>
<td>VARCHAR2 (50 BYTE)</td>
<td>The pattern to identify the search engine.</td>
</tr>
</tbody>
</table>

### 7.3.21 SITE

This table stores all registered sites.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (64 BYTE)</td>
<td>Name of the site written exactly as collected from the image tag.</td>
</tr>
<tr>
<td>LINK</td>
<td>VARCHAR2 (256 BYTE)</td>
<td>URL of the site starting with http://. This URL will be used to link to the site from Analytics and to identify the internal referrer.</td>
</tr>
<tr>
<td>SCREENX</td>
<td>NUMBER</td>
<td>The screen width that the site is designed for. This is used for the &quot;Screen Resolution&quot; report.</td>
</tr>
<tr>
<td>SITEGROUPID</td>
<td>NUMBER</td>
<td>This column is used for custom reports only.</td>
</tr>
<tr>
<td>COUNTRYID</td>
<td>NUMBER</td>
<td>Foreign key to the HELP_COUNTRY record for the site.</td>
</tr>
</tbody>
</table>
### 7.3.22 SITEOBJECTTYPEGROUP
This table defines which object types are part of which object type group. This setting is site specific.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to a SITE record.</td>
</tr>
<tr>
<td>OBJECTTYPEGROUPID</td>
<td>NUMBER</td>
<td>Foreign key to the OBJECTTYPEGROUP table.</td>
</tr>
<tr>
<td>OBJECTTYPEID</td>
<td>NUMBER</td>
<td>Foreign key to an L2_OBJECTTYPE record.</td>
</tr>
<tr>
<td>ENABLE</td>
<td>NUMBER (1)</td>
<td>This defines if the performance indicator is enabled: '0' for false, '1' for true.</td>
</tr>
</tbody>
</table>

### 7.3.23 SITEGROUP
This table is used by custom reports only.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (64 BYTE)</td>
<td>Name of the site group.</td>
</tr>
</tbody>
</table>

### 7.3.24 PI_SITEXOBJECTTYPE
This table defines whether the performance indicator is enabled for a site's object type.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (21)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER (21)</td>
<td>Foreign key to a SITE record.</td>
</tr>
<tr>
<td>OBJECTTYPEID</td>
<td>NUMBER (12)</td>
<td>Foreign key to an L2_OBJECTTYPE record.</td>
</tr>
<tr>
<td>ENABLE</td>
<td>NUMBER (1)</td>
<td>This defines if the performance indicator is enabled: '0' for false, '1' for true.</td>
</tr>
</tbody>
</table>

### 7.3.25 USER2USERGROUP
This table stores ESAUSER to USERGROUP relations.
7.3.26 USERGROUP

This table defines user groups.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>ESAUSER</td>
<td>NUMBER (12)</td>
<td>Foreign key to an ESAUSER record.</td>
</tr>
<tr>
<td>USERGROUP</td>
<td>NUMBER (1)</td>
<td>Foreign key to a USERGROUP record.</td>
</tr>
</tbody>
</table>

7.3.27 L2_BROWSER

This table stores information about all known browsers used by the "Browsers" report.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (500 BYTE)</td>
<td>Name of the browser.</td>
</tr>
<tr>
<td>BROWSERGROUPID</td>
<td>NUMBER</td>
<td>Foreign key to the BROWSERGROUP table. Reserved for internal use.</td>
</tr>
<tr>
<td>ICONPATH</td>
<td>VARCHAR2 (64 BYTE)</td>
<td>Image path of the browser.</td>
</tr>
</tbody>
</table>

7.3.28 L2_GROUP

This table is used by custom reports only.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (255 BYTE)</td>
<td>Name of the group.</td>
</tr>
<tr>
<td>PATH</td>
<td>VARCHAR2 (1024 BYTE)</td>
<td>The path string of the group.</td>
</tr>
<tr>
<td>PARENTID</td>
<td>NUMBER</td>
<td>The parent node, which is the foreign key to the L2_GROUP table.</td>
</tr>
<tr>
<td>EDATE</td>
<td>DATE</td>
<td>Date when added.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the SITE table.</td>
</tr>
</tbody>
</table>

7.3.29 L2_OBJECT

This table stores information about all objects (assets). This table is populated on demand by the "normalize" database job.
7.3.30 L2_OBJECTNAMEHISTORY

This table stores the previous names of the L2_OBJECT records.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>OBJECTID</td>
<td>NUMBER (24)</td>
<td>Foreign key to the L2_OBJECT table.</td>
</tr>
<tr>
<td>EDATE</td>
<td>DATE</td>
<td>The timestamp when the name was changed.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (255 BYTE)</td>
<td>The previous value.</td>
</tr>
</tbody>
</table>

7.3.31 L2_OBJECTTYPE

This table stores the names of all object types. These object types are referred to as "asset types" in WebCenter Sites.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (128 BYTE)</td>
<td>Name of the object type.</td>
</tr>
<tr>
<td>DISABLED</td>
<td>NUMBER (1)</td>
<td>This column is not used.</td>
</tr>
<tr>
<td>DELETED</td>
<td>NUMBER (1)</td>
<td>This column is not used.</td>
</tr>
</tbody>
</table>

7.3.32 L2_OS

This table defines the operating systems in the "Operating Systems" report.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (512 BYTE)</td>
<td>Name of the operating system.</td>
</tr>
<tr>
<td>OSGROUPID</td>
<td>NUMBER</td>
<td>Foreign key to the OSGROUP table.</td>
</tr>
</tbody>
</table>
7.3.33 L2_PIOBJECTTYPE

This table defines the sites and object types for which the performance indicator is enabled.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>Foreign key to the site to enable the performance indicator.</td>
</tr>
<tr>
<td>OBJECTTYPEID</td>
<td>NUMBER</td>
<td>Foreign key to the L2_OBJECTTYPE table, to enable the performance indicator.</td>
</tr>
</tbody>
</table>

7.3.34 L2_SEARCHENGINE

This table stores information about search engines that are used by the "External Search Engines" report.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER (12)</td>
<td>The primary key.</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2 (512 BYTE)</td>
<td>Name of the search engine.</td>
</tr>
<tr>
<td>SEARCHENGINEGROUPID</td>
<td>NUMBER</td>
<td>Foreign key to the SEARCHENGINEGROUP table.</td>
</tr>
<tr>
<td>KEY</td>
<td>VARCHAR2 (16 BYTE)</td>
<td>Name of the parameter.</td>
</tr>
</tbody>
</table>

7.3.35 L2_VISITOR

This table stores visitors.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER(12)</td>
<td>Primary key.</td>
</tr>
<tr>
<td>VISITORID</td>
<td>VARCHAR2(1024 BYTE)</td>
<td>Unique visitor identification string.</td>
</tr>
</tbody>
</table>

7.3.36 TASKSTATUSHISTORY

This table is used to maintain information about work packages as they are processed by the Hadoop-jobs scheduler.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDENTIFIER</td>
<td>VARCHAR2(255)</td>
<td>Job name identifier.</td>
</tr>
<tr>
<td>ENDDATE</td>
<td>VARCHAR2(128)</td>
<td>Date and time job ended or failed.</td>
</tr>
<tr>
<td>INTERNALIDENTIFIER</td>
<td>VARCHAR2(255)</td>
<td>Internal Hadoop job ID.</td>
</tr>
<tr>
<td>STARTDATE</td>
<td>VARCHAR2(128)</td>
<td>Date and time job started.</td>
</tr>
<tr>
<td>STATUS</td>
<td>VARCHAR2(128)</td>
<td>Current status of the task.</td>
</tr>
<tr>
<td>TARGET</td>
<td>VARCHAR2(1024)</td>
<td>Target path of output data.</td>
</tr>
<tr>
<td>TYPE</td>
<td>VARCHAR2(128)</td>
<td>Type of job.</td>
</tr>
<tr>
<td>WORKPACKAGEPATH</td>
<td>VARCHAR2(1024)</td>
<td>Work package path.</td>
</tr>
</tbody>
</table>
7.3.37 HDFSAGENTSTATUSHISTORY
This table is used to maintain information about files moved from local file systems to HDFS for analytics processing.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>VARCHAR2(256)</td>
<td>Identifier.</td>
</tr>
<tr>
<td>DESTFILENAME</td>
<td>VARCHAR2(1020)</td>
<td>Output raw work package file on HDFS.</td>
</tr>
<tr>
<td>ENDDATE</td>
<td>VARCHAR2(20)</td>
<td>End date.</td>
</tr>
<tr>
<td>IDENTIFIER</td>
<td>VARCHAR2(128)</td>
<td>Internal identifier.</td>
</tr>
<tr>
<td>FILESIZE</td>
<td>NUMBER</td>
<td>Size of the file.</td>
</tr>
<tr>
<td>SRCFILENAME</td>
<td>VARCHAR2(1020)</td>
<td>Source file taken from local file system.</td>
</tr>
<tr>
<td>STARTDATE</td>
<td>VARCHAR2(20)</td>
<td>Date when transfer started.</td>
</tr>
<tr>
<td>STATUSNR</td>
<td>NUMBER</td>
<td>Internal status code.</td>
</tr>
<tr>
<td>LOGTIMESTAMP</td>
<td>NUMBER</td>
<td>Timestamp when history registered.</td>
</tr>
</tbody>
</table>

7.3.38 DETAILDEFINITION
This table is used to identify URL parameters that can be used by the system. Unlisted parameters are ignored. This table is especially important if you are creating custom reports. You must enter tag-generated URL parameters into this table in order for the parameters to be retained for processing and reporting purposes.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NUMBER(12)</td>
<td>Primary key</td>
</tr>
<tr>
<td>NAME</td>
<td>VARCHAR2(64 BYTE)</td>
<td>Name of the parameter.</td>
</tr>
<tr>
<td>KEY</td>
<td>VARCHAR2(64 BYTE)</td>
<td>This column must have the same value as the name column.</td>
</tr>
<tr>
<td>OBJECTTYPEID</td>
<td>NUMBER</td>
<td>This field is deprecated.</td>
</tr>
<tr>
<td>SITEID</td>
<td>NUMBER</td>
<td>This field is deprecated.</td>
</tr>
<tr>
<td>TYPE</td>
<td>NUMBER</td>
<td>Type of DETAILDEFINITION entry.</td>
</tr>
<tr>
<td>GROUPFUNCTION</td>
<td>NVARCHAR2(12)</td>
<td>Only for L2_SESSIONDET (type 1): the value can be first, to use the first value of the session, last to use the last value, or all to use all values of the session.</td>
</tr>
<tr>
<td>AUTODEF</td>
<td>NUMBER</td>
<td>This field is deprecated.</td>
</tr>
</tbody>
</table>

7.4 Database Indexes
This section lists the Analytics database tables and index names.

<table>
<thead>
<tr>
<th>Database Index Name</th>
<th>Table</th>
<th>Columns</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCESSRIGHT_PK_IDX</td>
<td>ACCESSRIGHT</td>
<td>ID</td>
</tr>
<tr>
<td>Database Index Name</td>
<td>Table</td>
<td>Columns</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>IDX$$_55B10002</td>
<td>ACCESSRIGHT</td>
<td>SITE, REPORT</td>
</tr>
<tr>
<td>BROWSERGROUP_PK_IDX</td>
<td>BROWSERGROUP</td>
<td>ID</td>
</tr>
<tr>
<td>BROWSERIDENTIFICATION_PK_IDX</td>
<td>BROWSERIDENTIFICATION</td>
<td>ID</td>
</tr>
<tr>
<td>PK_USER</td>
<td>ESAUSER</td>
<td>ID</td>
</tr>
<tr>
<td>CITY_COUNTRYID_IDX</td>
<td>HELP_CITY</td>
<td>COUNTRYID</td>
</tr>
<tr>
<td>CITY_ID_IDX</td>
<td>HELP_CITY</td>
<td>ID</td>
</tr>
<tr>
<td>CITY_NAME_IDX</td>
<td>HELP_CITY</td>
<td>NAME</td>
</tr>
<tr>
<td>COUNTRY_CODE_IDX</td>
<td>HELP_COUNTRY</td>
<td>CODE</td>
</tr>
<tr>
<td>COUNTRY_ID_IDX</td>
<td>HELP_COUNTRY</td>
<td>ID</td>
</tr>
<tr>
<td>HELP_DATES_DAT_IDX</td>
<td>HELP_DATES</td>
<td>DAT</td>
</tr>
<tr>
<td>IDX$$_4C6E0002</td>
<td>HELP_DATES</td>
<td>ID</td>
</tr>
<tr>
<td>&lt;AUTO GENERATED VALUE&gt;</td>
<td>HELP_DATES</td>
<td>STRDAT</td>
</tr>
<tr>
<td>REGION_COUNTRYID_CODE_IDX</td>
<td>HELP_REGION</td>
<td>COUNTRYID, REGIONCODE</td>
</tr>
<tr>
<td>REGION_ID_IDX</td>
<td>HELP_REGION</td>
<td>ID</td>
</tr>
<tr>
<td>PK_IPQUICKLIST_IDX</td>
<td>IPQUICKLIST</td>
<td>IP</td>
</tr>
<tr>
<td>IP2COUNTRY_IPFROM_IDX</td>
<td>IP2COUNTRY</td>
<td>IPFROM</td>
</tr>
<tr>
<td>IP2COUNTRY_IPTO_IDX</td>
<td>IP2COUNTRY</td>
<td>IPTO</td>
</tr>
<tr>
<td>PK_IP2COUNTRYCITY_BLOCKS_IDX</td>
<td>IP2COUNTRYCITY_BLOCKS</td>
<td>IPTO, IPFROM</td>
</tr>
<tr>
<td>PK_L2_BROWSER</td>
<td>L2_BROWSER</td>
<td>ID</td>
</tr>
<tr>
<td>GROUP_ID_IDX</td>
<td>L2_GROUP</td>
<td>ID</td>
</tr>
<tr>
<td>L2_OBJECT_NAME_IDX</td>
<td>L2_OBJECT</td>
<td>NAME</td>
</tr>
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