IBM Cognos Real-time Monitoring
Version 10.2.1

Installation and Configuration Guide

IBM
Note
Before using this information and the product it supports, read the information in "Notices" on page 109.

Product Information
This document applies to IBM Cognos Business Intelligence Version 10.2.1 and may also apply to subsequent releases.

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Introduction

This document is intended for use with IBM® Cognos® Real-time Monitoring, which is an operational business intelligence solution that delivers self-service, interactive dashboards; ad hoc query, reporting, and analysis; and built-in task and exception management to support your organization’s continuous monitoring agenda.

This guide contains instructions for installing, upgrading, and configuring Real-time Monitoring.

Audience

To use this guide, you should be familiar with
- reporting concepts
- scorecarding concepts
- database concepts
- security issues
- basic Microsoft Windows and UNIX operating system administration concepts
- the existing server environment and security infrastructure in your organization
- working knowledge of application servers, web servers, and directory providers

Finding information

To find IBM Cognos product documentation on the web, including all translated documentation, access one of the IBM Cognos Information Centers (http://pic.dhe.ibm.com/infocenter/cogic/v1r0m0/index.jsp). Release Notes are published directly to Information Centers, and include links to the latest technnotes and APARs.

You can also read PDF versions of the product release notes and installation guides directly from IBM Cognos product disks.

Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products. This product has accessibility features when it is integrated with IBM Cognos Workspace. This product supports keyboard navigation and screen reader support when metrics are viewed in Cognos Workspace. For information on accessibility features when the product is used with IBM Cognos Workspace, see the accessibility section in the IBM Cognos Real-time Monitoring Dashboard User Guide. If not integrated with IBM Cognos Workspace, only the installation program has accessibility features. For information on the installation program accessibility features, see Appendix A, “Accessibility features,” on page 101.

IBM Cognos HTML documentation has accessibility features. PDF documents are supplemental and, as such, include no added accessibility features.
Samples

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Forward-looking statements

This documentation describes the current functionality of the product. References to items that are not currently available may be included. No implication of any future availability should be inferred. Any such references are not a commitment, promise, or legal obligation to deliver any material, code, or functionality. The development, release, and timing of features or functionality remain at the sole discretion of IBM.
Chapter 1. How do I install and configure the Real-time Monitoring application?

This guide provides instruction on how to install and configure IBM Cognos Real-time Monitoring.

You can install Real-time Monitoring on an IBM WebSphere® Application Server, an Oracle WebLogic Application Server, or a JBoss Application Server, with either IBM HTTP Server, Apache HTTP Server, or Microsoft Internet Information Server (IIS) configured to serve static web content.

If you are already using IBM Cognos Real-time Monitoring and want to update your environment with a more recent version, review the information in Chapter 5, “Upgrading from a previous version or re-installing Real-time Monitoring,” on page 25 instead of this checklist.

1. “Reviewing the release notes.”
   - “Components used by Real-time Monitoring” on page 3.
   - “Real-time Monitoring architecture” on page 5.
   - “Memory requirements” on page 6.
   - “Configuring web browsers” on page 9.
   - “Reviewing supported environments” on page 11.
   - “Verifying system requirements” on page 11.
   - “Preparing the databases” on page 13.
   - “Setting up active-passive failover” on page 13.
   - Chapter 6, “Installing Real-time Monitoring on an IBM WebSphere Application Server,” on page 27.
7. Chapter 11, “Troubleshooting your installation,” on page 89.

Reviewing the release notes

Before determining your requirements and planning for the installation of IBM Cognos Real-time Monitoring, you should review the release notes.

The release notes provide you with information about what issues were resolved in the current release. You should also review the release notes for known and open issues and associated workarounds. For the most current version of the release notes, go to the IBM Cognos Customer Center (http://www.ibm.com/software/data/cognos/customercenter).
Chapter 2. Planning to install Real-time Monitoring

Before you install IBM Cognos Real-time Monitoring and configure your application server, you must understand the minimum basic requirements for software and hardware. You must also consider memory sizing.

Components used by Real-time Monitoring

This section describes the server and database components used by IBM Cognos Real-time Monitoring.

IBM Cognos Real-time Monitoring is a web-based application for modeling and displaying real-time key performance indicators (KPIs). It provides the server functionality for processing streaming events and performing real-time aggregation and alerting.

Real-time Monitoring includes a server and a modeling tool, which is called Real-time Monitoring Workbench.

Real-time Monitoring integrates easily into your existing infrastructure by using resources that are in your environment. Some of these existing resources are required, such as:

- A database schema for the metadata, operational data, and geography coding data.
- An application server.
- A web server.

Other resources are optional, such as a security provider for authentication.

Server components

IBM Cognos Real-time Monitoring has both web tier components and application tier components.

Web tier components

Web communications in Real-time Monitoring is through the web server. Static content, such as JavaScript libraries, HTML files, and images can reside on a web server installed on the same computer where the application server resides or on a web server installed on a separate computer. To access the static content, you must configure a web server. For integration of Real-time Monitoring with IBM Cognos Workspace, the Real-time Monitoring static content must reside on the same web server that hosts IBM Cognos Business Intelligence.

Application tier components

The Real-time Monitoring applications tier contains the Real-time Monitoring servers. An application server is required to install Real-time Monitoring Server. Real-time Monitoring Server executes the requests coming from the client machine forwarded by the web server. The application tier is logically divided into the following components:

- IBM Cognos Real-time Monitoring Workbench
Real-time Monitoring Workbench is the modeling tool for creating and managing business-related metadata for use in Real-time Monitoring analysis and key performance indicators (KPIs). Metadata is stored in a persistent database storage and is accessed by the Real-time Monitoring Query Engine for analysis and the Real-time Monitoring Dashboard for visualization.

- IBM Cognos Real-time Monitoring Dashboard
  Real-time Monitoring Dashboard is a visualization tool which provides a unified view of the real-time KPIs and alert viewer.
  Dashboard objects, which are assembled in a dashboard, poll the views and cubes at scheduled intervals to update themselves.

- IBM Cognos Real-time Monitoring Query Engine
  Real-time Monitoring Query Engine is a streaming technology data store that is instrumental in executing and computing queries in real time as new data is acquired by the Real-time Monitoring agent framework. The data is computed incrementally as data flows through the engine. This is different than a traditional database where the computations are executed on-demand. The Real-time Monitoring model is subscribed in the following manner:
  data streams > views
  views > views
  views + lookup tables > views
  lookup tables > dimensions
  views + dimensions > cubes
  Data is stored in memory and are updated incrementally as more data is acquired from the agent framework and streamed into Real-time Monitoring objects.

**Managing application data - database components**

IBM Cognos Real-time Monitoring application uses data stored in several databases.

It includes the following:

- Metadata schema (required)
  Real-time Monitoring Model definitions, such as definitions of agents, data streams, lookup tables, views, cubes, dashboard objects, dashboards, and alerts are stored in this schema.

- Operational schema (required)
  Real-time Monitoring fetch and store functionality uses this schema to store the fetched data from the lookup tables.

- Geography schema (required)
  Real-time Monitoring uses this schema to cache geography coding coordinates, such as latitude and longitude coordinates for regions, and to provide hints and modifications to resolve abbreviations of geographical locations, such as AZ, which can be interpreted as Arizona or Azerbaijian.

- Data schema (optional)
  The data used to populate the key performance indicators (KPIs) are typically stored in one or more of these existing databases.

**Optional server components**

IBM Cognos Real-time Monitoring can also be configured with optional server components, including a security provider that you can use for user authentication.
Security provider for authentication

By default, Real-time Monitoring supports internal database authentication, where users, roles, and role-user mapping information are stored in the metadata schema. Optionally it can be configured to connect to directory providers like Lightweight Directory Access Protocol (LDAP), Active Directory Service (ADS), and IBM Tivoli® Directory Services. Real-time Monitoring can also be configured to connect to an IBM Cognos Business Intelligence 10.1 or 8.4 server.

Real-time Monitoring architecture

Before you install IBM Cognos Real-time Monitoring, familiarize yourself with the system architecture.

You must configure web browsers to work with Real-time Monitoring. You must run the installer on the application server and, if installed on a separate computer, on the web server to enable it to function with the application server. Real-time Monitoring accesses data through a database server, such as DB2®, SQL Server, Oracle, MySQL, or Postgres. Optionally, you can configure Real-time Monitoring to work with an authentication directory provider. The following diagram shows the Real-time Monitoring architecture:
Memory requirements

You can estimate the basic cost of memory sizing by looking at the data sources and the kind of analysis that you are planning.

Memory sizing can be a complex process because there are multiple variables to consider that lead to more complex correlations. The main factors that contribute to memory usage are as follows:

- Request frequency
- Data size
- Data complexity
- Structures used

Analysis in IBM Cognos Real-time Monitoring relies on the use of views and cubes that you build to store and analyze data and the dashboard objects that you create to monitor data.
Memory costs

There are two ways to bring data from external data sources into IBM Cognos Real-time Monitoring: defining data streams and creating lookup tables.

The following sections describe the objects and the memory costs associated with the various objects in Real-time Monitoring.

**Data Streams**

To process data streams, memory is allocated then released after the data is processed.

Because they use memory as data is processed, data streams do not have a fixed memory requirement. Memory consumption fluctuates based on the amount of data and the frequency of data refresh.

**Cost**

The memory cost for data streams equates to the size of the raw data coming into the system as a result of data being loaded over a certain time interval. Memory, which is needed to process data streams in real or near-real time, is allocated then released.

**Lookup Tables**

Lookup tables increase the memory requirement if pre-fetch is used. Pre-fetch improves performance because lookup table data is cached in memory, however, performance comes at the expense of memory.

Although other look-up modes that result in smaller memory requirements are available, you must consider the cost of smaller memory requirements versus performance.

**Cost**

The memory cost for look-up tables equates to the cost of the size of the raw data brought into the system as look-up table data. The memory for cubes and views for analysis adds to the total cost after you have access to the data (which could either be passing through in the case of data streams, or be held in memory in the case of pre-fetch lookup data).

**Views**

Views may consume small amounts of memory or large amounts of memory depending on how many rows of data must be maintained.

Real-time Monitoring has the following classification of views:

- **Stateless views**, which do not maintain aggregated data.
  - Stateless views keep only the latest rowset in memory, unless the “Maintain in view” is set which can increase the number of rowsets stored. A rowset may contain more than one row of data.

- **Stateful views**, which store aggregated data, and often stored across a time or event-framed window.
  - Stateful views store the aggregated information and some historical rows of data which may be necessary to recalculate aggregations. By reducing the number of unique groups and time-windows, your can reduce the amount of memory needed to store the data.
Cost

The cost analysis for views may be somewhat difficult to perform up-front if you do not know the views that will need to be created. The final footprint in memory depends on how you group data and which attributes are used. The more granular your attributes are, the more data required (which is still less than raw data as it gets aggregated based on the grouping defined), and hence the more memory required. You will need to analyze the raw data, its characteristics, and how it will be used in order to get an estimate.

Cubes

Depending upon the granularity of their dimensions, cubes can require a large amount of memory.

For example, a cube with a time dimension or time window that has granularity to the second requires more memory than one that has granularity to the minute. To reduce the memory footprint, you must reduce either the amount of data or the granularity. The reduction in memory that can be achieved will vary based on specific current needs, however, you must also consider future needs when you set memory for cubes.

Cost

The memory cost analysis for cubes is similar to stateful views. The base lattice view that holds all data for a given cube can become very large, depending on the granularity of dimensional attributes. Perform some sampling, if possible, of the fact (transactional) data to see which unique grouping combinations are present in the data.

Windows (frequency)

IBM Cognos Real-time Monitoring incorporates the concept of windows when referring to streaming data.

Windows can be defined in terms of the number of events in time (for example, a seven-day window or a one-hour window). To perform operational analysis or monitoring you must know the time frame of your analysis.

Using time-windows increase the memory required as individual rows are held by IBM Cognos Real-time Monitoring. The memory footprint increases based on the size and granularity of the window. (Granularity applies only to time windows.) Windows are created as part of the creation process for views or cubes. By reducing the number of unique window groups, for example by truncating the time stamp to the minute, you can reduce the number of groups that must be stored in memory. An optimization algorithm was implemented so that aggregation occurs within a time group instead of storing "individual rows" as described in this section.

Cost

You can approximate the memory cost for windows by looking at window size and granularity. The memory cost for event-based windows is easier to calculate because you will know exactly how many events will be held in memory, and the number of groups calculated from views and cubes. Time-based windows are calculated based on the number of unique groups in that window and the size of the window. Another factor is the type of window: sliding or tumbling. A sliding window may have an approximate fixed cost after it is full. The memory cost for
tumbling windows grows and shrinks as the window tumbles and fills again.

**Additional memory considerations for Real-time Monitoring**

The memory costs need to be further adjusted to take into account the work performed by the Real-time Monitoring users.

Most of the Real-time Monitoring memory costs are fixed costs because result sets and data are held in memory. Although this can be reduced, it is still necessary to hold some data in memory. Some memory costs are transient because memory usage may increase or decrease as needed for processing data based on workload.

For example, users may create dashboards or perform ad hoc analysis that results in queries that run on the server. The server strategy is to cache these queries, keeping them in memory or having them expire after a certain length of time.

A good way to estimate sizing is to initially estimate your costs for fixed memory. Then add the costs related to dashboards and ad hoc analysis on underlying cubes. This memory cost varies based on the number of simultaneous users and their activities. Additionally, Real-time Monitoring makes use of memory garbage collection, which requires additional memory in order to work properly. The optimal memory required for the Java™ process for optimal use is roughly twice the memory required to store the data.

**Configuring web browsers**

IBM Cognos Real-time Monitoring Workbench and IBM Cognos Real-time Monitoring Dashboard can be used in Internet Explorer web browsers. Additionally, Firefox is supported when Real-time Monitoring objects are displayed within IBM Cognos Workspace. Both Cognos Real-time Monitoring Workbench and Real-time Monitoring Dashboard use similar browser configurations.

The following table shows the browser settings that must be enabled.

*Table 1. Browser settings for IBM Cognos Real-time Monitoring*

<table>
<thead>
<tr>
<th>Browser</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Explorer</td>
<td>• Allow Cookies&lt;br&gt;• Allow pop-ups&lt;br&gt;• Active Scripting&lt;br&gt;• Allow META REFRESH&lt;br&gt;• Run ActiveX controls and plug-ins&lt;br&gt;• Script ActiveX controllers marked safe for scripting&lt;br&gt;• Binary and script behaviors&lt;br&gt;• Allow programmatic clipboard access&lt;br&gt;• Allow script-initiated windows without size or position constraints&lt;br&gt;Performance is optimized when Real-time Monitoring Server is in the &quot;Local Intranet&quot; zone in the security settings.</td>
</tr>
<tr>
<td>Firefox (supported when Real-time Monitoring objects are displayed within IBM Cognos Workspace)</td>
<td>• Allow Cookies&lt;br&gt;• Enable Java™&lt;br&gt;• Enable JavaScript&lt;br&gt;• Load Images</td>
</tr>
</tbody>
</table>
Real-time Monitoring requires the Adobe Flash Player browser plugin to display the Real-time Monitoring application user interfaces.

Real-time Monitoring uses the following cookies to store user information.

*Table 2. Cookies used by IBM Cognos Real-time Monitoring*

<table>
<thead>
<tr>
<th>Cookie</th>
<th>Type</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>cam_passport</td>
<td>Session Temporary</td>
<td>Contains a unique user session identifier that is valid for the duration of the browser session. Depending on the configuration, there may be more than one cam_passport or sessionid cookie. Each cookie is located in a different directory.</td>
</tr>
<tr>
<td>sessionid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ObiOpenURL</td>
<td>Session Temporary</td>
<td>Contains the path of dialog boxes needed for various user actions.</td>
</tr>
<tr>
<td>dbUser</td>
<td>Persistent</td>
<td>Contains the name of the user in the dashboard across browser sessions, when the <strong>Remember my user name on this computer</strong> checkbox is set on the dashboard login page.</td>
</tr>
<tr>
<td>wbUser</td>
<td>Persistent</td>
<td>Contains the name of the user in a workbench across browser sessions, when the <strong>Remember my user name on this computer</strong> check box is set on the workbench login page.</td>
</tr>
<tr>
<td>cognos_sso</td>
<td>Session Temporary</td>
<td>Contains a unique user session identifier for single sign-on with BI, valid for the duration of the browser session.</td>
</tr>
<tr>
<td>loginErrorKey</td>
<td>Session Temporary</td>
<td>Contains a message key to any errors related to login.</td>
</tr>
</tbody>
</table>

After upgrading or installing new software, restart the web browser and advise users to clear their browser cache. For example, to clear the browser cache in Internet Explorer, from the **Tools** menu, click **Internet Options**, and then click **Delete**.
Chapter 3. Preparing to install Real-time Monitoring

Before installing IBM Cognos Real-time Monitoring on an application server, such as IBM WebSphere, Oracle WebLogic, or JBoss there is some preparatory work to complete.

You must perform the following tasks:
1. Review supported environments.
2. Verify system requirements.
3. Prepare the databases.
4. Consider application server clusters and active-passive failover.

Reviewing supported environments

To ensure IBM Cognos Real-time Monitoring works properly, apply all minimum required operating system patches and use only the versions of other software that are supported for Real-time Monitoring.

To review an up-to-date list of environments that are supported by IBM Cognos Business Intelligence products, including information on operating systems, patches, browsers, web servers, directory servers, database servers, and application servers, see the [IBM Software Compatibility reports](http://www.ibm.com/support/docview.wss?uid=swg27037784).

Verifying system requirements

Verify you have the system requirements to install and run IBM Cognos Real-time Monitoring components on one computer.

Use the following tables to check the minimum hardware and software requirements. Additional resources might be required for distributed or production environments. Real-time Monitoring is a network-intensive application with rapidly refreshing data that requires a good network connection and CPU to run efficiently on the client.

Hardware Requirements

*Table 3. Real-time Monitoring hardware requirements*

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>Microsoft Windows 64-bit Server</td>
</tr>
<tr>
<td></td>
<td>UNIX 64-bit Server</td>
</tr>
<tr>
<td></td>
<td>Linux 64-bit Server</td>
</tr>
<tr>
<td></td>
<td>Linux on IBM System z(^\circ) 64-bit Server</td>
</tr>
<tr>
<td>RAM</td>
<td>Minimum: 16 GB</td>
</tr>
</tbody>
</table>
### Table 3. Real-time Monitoring hardware requirements (continued)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system specifications</td>
<td>File descriptor limit set to 2048 on UNIX and Linux operating systems.</td>
</tr>
<tr>
<td>Disk space</td>
<td>A minimum of 20 GB of free space is required after installation of the software. Preferably this should be in a RAID 5 configuration.</td>
</tr>
<tr>
<td></td>
<td>For all databases, the size will increase over time. Ensure that you have sufficient disk space for future requirements.</td>
</tr>
</tbody>
</table>

### Software Requirements

#### Table 4. Real-time Monitoring software requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web server</td>
<td>A web server must be installed and started. Options include Apache HTTP Server, IBM HTTP Server or, Microsoft IIS Server.</td>
</tr>
<tr>
<td>Java Runtime Environment (JRE)</td>
<td>An IBM version of the JRE is installed with IBM WebSphere Application Server.</td>
</tr>
<tr>
<td></td>
<td>For WebLogic and JBoss, the Java SE HotSpot JRE is recommended. Real-time Monitoring requires the Java 5 or later JRE and JDK.</td>
</tr>
<tr>
<td></td>
<td>Use the JRE that is installed with the application server you are using, if that version of the JRE is supported in Real-time Monitoring.</td>
</tr>
<tr>
<td>Database</td>
<td>You must have one of the following databases available to store IBM Cognos data in a production environment:</td>
</tr>
<tr>
<td></td>
<td>• IBM DB2</td>
</tr>
<tr>
<td></td>
<td>• Oracle</td>
</tr>
<tr>
<td></td>
<td>• Microsoft SQL Server</td>
</tr>
<tr>
<td></td>
<td>• MySQL</td>
</tr>
<tr>
<td></td>
<td>• PostgreSQL</td>
</tr>
<tr>
<td></td>
<td>TCP/IP connectivity is required for all database types.</td>
</tr>
<tr>
<td>Application server</td>
<td>IBM WebSphere, Oracle WebLogic, or JBoss</td>
</tr>
</tbody>
</table>
Preparing the databases

IBM Cognos Real-time Monitoring uses several databases to store information, such as metadata about objects that have been created within the system. Databases may also be used as data sources.

Obtain Java Database Connectivity (JDBC) drivers prior to configuring new databases for use with Real-time Monitoring. You should use the appropriate JDBC drivers provided by the application server vendor or the database vendor.

Create dedicated databases for metadata, operational data, and geography data. In addition, create a dedicated user account for these databases, where the user has the ability to create tables and query tables.

Setting up active-passive failover

IBM Cognos Real-time Monitoring can be configured to run with active-passive failover so that only one instance of Real-time Monitoring is running at a time. If the primary instance fails, the secondary instance can be started.

This configuration involves setting up two nodes, identically, but only starting one of them. The two nodes should have the same configuration for the metadata database and all other databases using Java Naming and Directory Interface (JNDI). The checkpoint and recovery log directory should be in a location that both nodes of the application server can reach in the same way. When the primary server goes offline, the secondary server is brought online using the same metadata database, and recovering from the same checkpoint and recovery log files.

Real-time Monitoring failover is implemented at the database level and at the file sharing level and is not dependent on any cluster semantics.

Active-passive failover can be accomplished by following the steps provided below during deployment.

Procedure

1. Configure a second instance of Real-time Monitoring on a secondary computer. This is the passive instance.
2. Configure the Real-time Monitoring metadata so that it is accessible from both the active and passive instances of Real-time Monitoring.
3. Configure a shared file server for checkpoints and recovery logs.
4. Configure URL access for users of Real-time Monitoring through a load balancer or proxy that can detect the application server’s state on a continuous basis.

   If the active instance of Real-time Monitoring fails, the passive instance can be brought up to service Real-time Monitoring requests. The load balancer you configured will direct traffic to the currently running instance. In the event of a failover, users must log in to the system again.
Chapter 4. Installing and configuring application servers

You must run the installer on the server used for the application server environment and then prepare log settings and set system properties.

If your web server environment also resides on the same computer as the application server, install the web server files. If the web server resides on a different computer, deselect the web server files option and run the installer separately on the web server.

This section assumes you acquired the product CD or that you downloaded the appropriate install package and that you have administrative rights on the server on which you are installing IBM Cognos Real-time Monitoring.

Installing Real-time Monitoring application server components

To install IBM Cognos Real-time Monitoring server components, run the installation wizard from the install package or product CD.

For a complete installation, you must install components on your server and then configure them to work in your environment. Typically, you run the IBM Cognos Real-time Monitoring installer in interactive mode. This means that in a graphical user interface (GUI) the installer prompts you to provide information and must be run from an X Window System workstation, an X terminal, or a PC or other system with X server software installed. To run an interactive-mode installation, the console attached to your computer must support a Java-based graphical user interface.

For systems running in a Linux on IBM System z environment there is a requirement (optional software requirement) that you must have X windows software capable of rendering a graphical user interface (that way you get the motif libraries that you need). You must enable the remote host to direct its output to the local display. You also have to set the DISPLAY environment variable. For example, type export DISPLAY=host_name:display_number.

Procedure

1. Do one of the following based on your environment:
   - On the Microsoft Windows operating system, in the win64 directory of the downloaded package, double-click the issetup.exe file and follow the installation wizard instructions.
   - On a UNIX or Linux operating system, in the directory that is appropriate for your operating system, type ./issetup and follow the installation wizard instructions.

2. In the Installation Location page, specify the IBM Cognos location and click Next.
   For example, the default on a server running the Microsoft Windows operating system is C:\Program Files\ibm\cognos\c10_64.
   If you do not use the default installation directory, use a directory name that contains only ASCII characters. Some web servers do not support non-ASCII characters in directory names.
3. In the **Component Selection** page, choose whether to install both the application and the web server files, or only the application server files. The default is to install both sets of files on the application server.
   - If the application server and the web server physically reside on the same computer, click **Next**.
   - If the web server resides on a different computer from the application server, expand **IBM Cognos Real-time Monitoring**, deselect **Real-time Monitoring Web Server Files** and click **Next**.

4. Complete the steps in the installation wizard and click **Finish**.

**Results**

You are now ready to set the initial startup parameters. For more information, see "Setting the initial startup parameters."

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### Setting the initial startup parameters

Set the logging level to enable debugging.

The preferred setting is to enable low-level logging that records basic debugging information for the DDL Dispatch, which records information when requests are made to save objects. When this setting is enabled, if an anomaly occurs, such as a system crash, the log file contains the definitions that were saved. This enables you to recreate the metadata even in the event of a problem.

Logging of debugging information can also help IBM Cognos support personnel to debug your system in the event that they are called in to support your installation of IBM Cognos Real-time Monitoring. By default, logging is turned on.

**Note:** All spaces in property names must be escaped with a back slash (\) character. For all operating systems, including the Microsoft Windows operating system, use forward slashes in your path names instead of backslashes to eliminate the potential need to escape them. For example: `Additional\Log4j\Properties=C:/Program Files/ibm/cognos/c10_64/realtime/configuration/log4j.properties`.

**Procedure**

1. To ensure that logging is turned on, open the log4j.properties file, which is located in the `c10_location/realtime/configuration` directory and ensure that the following entry is made:

   ```properties
   com.cognos.obi.metadata.DDLDispatch=com.cognos.obi.settings.DbgLow
   ```

2. After viewing the log4j.properties file, edit the realtime.properties file, also located in the `c10_location/realtime/configuration` directory, to ensure that the location of the log4j.properties file is accurately recorded there.

   Locate the following entry and ensure that it is not commented out:

   ```properties
   Additional\Log4j\Properties=<path>
   ```

   where `<path>` is the absolute path of the log4j.properties file that controls the appenders, formatting, and levels for IBM Cognos Real-time Monitoring.

   For example, on a server running the Microsoft Windows operating system, enter `Additional\Log4j\Properties=C:/Program Files/ibm/cognos/c10_64/realtime/configuration/log4j.properties`.
For example, on a server running the Linux operating system, enter
Additional\Log4j\Properties=/opt/ibm/cognos/c10_64/realtime/configuration/log4j.properties

For detailed instructions on editing the realtime.properties file and setting logging levels as well as other startup properties, see "Setting system properties during startup."

3. To set the path for where the log file should be written, ensure that the following entry is not commented out and has a valid path.
Logging\Directory=<path>
where <path> is the absolute path of the directory where you want the log files written.

For example, on a server running the Microsoft Windows operating system, enter Logging\Directory=c:/Program Files/ibm/cognos/c10_64/realtime/logs
For example, on a server running the Linux operating system, enter Logging\Directory=/opt/ibm/cognos/c10_64/realtime/logs

4. To set the path for where the recovery log file should be written, ensure that the following entry is not commented out and has a valid path.
Recovery\Log\Directory=<path>
where <path> is the absolute path of the directory where you want the recovery logs written.

For example, on a server running the Microsoft Windows operating system, enter Recovery\Log\Directory=c:/Program Files/ibm/cognos/c10_64/realtime/checkpoints
For example, on a server running the Linux operating system, enter Recovery\Log\Directory=/opt/ibm/cognos/c10_64/realtime/checkpoints

5. To use a prefix for the log file names, ensure that the following entry is not commented out and has a prefix.
Log\File\Prefix=<prefix>
where <prefix> is the prefix that you want prepended to the log files. For example:
Log\File\Prefix=rtm
This will output the logs as rtm_detailed.log, rtm.log, and so on.

Results
The logging level and other log parameters are set. The logging level is in effect until the file is changed either by editing the file manually or by using the user interface controls to reset the logging level. To turn logging off by editing the file, replace the debugging level with the following entry:
com.cognos.obi.metadata.DDLDispatch=com.cognos.obi.settings.Inherit

The file is only read when the server is first started. Any modifications to the file require that the application be restarted in the application server.

Setting system properties during startup
Before you install and deploy IBM Cognos Real-time Monitoring on an application server, you must edit the realtime.properties file that specifies system properties.

The file is located in the c10_location/realtime/configuration directory. These properties are required for Real-time Monitoring to run properly. Only one
property entry is mandatory for the first boot-up of Real-time Monitoring. All
other property entries are optional. However, without the optional property entries,
Real-time Monitoring Workbench displays the **First Time Setup** web page dialog
to set additional system properties.

The path to the property files can be relative or absolute. Because it is more
precise, the absolute path is preferred and is used in the steps throughout this
topic. However, setting properties can work well with relative paths. To use
relative paths, you must determine the base directory for the relative paths. Using
the relative path makes the application more portable between operating systems.
Provide a path, such as `/opt/ibm/cognos/c10_64/configuration/keystores/` that
can be created on both Microsoft Windows and Linux operating systems.

Properties defined in the text file will override the properties that were set using
the system settings of Real-time Monitoring Workbench. Properties defined in the
text file will overwrite properties set using the system settings of Real-time
Monitoring Workbench when the server is restarted. Set only those properties in
the text file that you will not wish to change later in Real-time Monitoring
Workbench.

For a complete description of all system properties, see the Managing system
administration section of the IBM Cognos Real-time Monitoring Workbench *User
Guide*.

**Note:** All spaces in property names must be escaped with a back slash (`\`) character. For all operating systems, including the Microsoft Windows operating system, use forward slashes in your path names instead of backslashes to eliminate the potential need to escape them. For example: `Admin\ Keystore\ Location=c:/Program Files/ibm/cognos/c10_64/realtime/configuration/ keystore/admin.jks`.

### Procedure

1. Edit the `realtime.properties` file, which is located in the `c10_location/realtime/
   configuration` directory.
   
   This file sets the system properties during the server start-up process. For JBoss
   and Oracle WebLogic, you must specify the location of your properties file
   (`realtime.properties`) in the script used to run the application server. (For JBoss
   you must edit `run.bat` on the Microsoft Windows operating system or `run.sh` on
   the UNIX operating system. For WebLogic you must edit `startWebLogic.cmd` on
   the Microsoft Windows operating system or `startWebLogic.sh` the UNIX
   operating system.) For IBM WebSphere, you must specify the location of the
   properties file using the IBM WebSphere Administrative Console.

2. Set the following mandatory property.
   
   `Admin\ Keystore\ Location=<path>`

   where `<path>` is the absolute path of `admin.jks` on the server file system. This is
   the keystore used to encrypt the admin user's password.

   For example, on a server running the Microsoft Windows operating system,
   enter `Admin\ Keystore\ Location=c:/Program Files/ibm/cognos/c10_64/
   realtime/configuration/keystore/admin.jks`

   For example, on a server running the Linux operating system, enter `Admin\ 
   Keystore\ Location=/opt/ibm/cognos/c10_64/realtime/configuration/
   keystore/admin.jks`

3. Optionally, set the following required properties. If these are not set now, they
   can be set from Real-time Monitoring Workbench after the server is started.
- SMTP\ Host=<host_ip>
  where <host_ip> is the host IP or name of the SMTP server used for sending alerts through IBM Cognos Real-time Monitoring. For example:
  SMTP\ Host=localhost
- SMTP\ From\ Address=<email_address>
  where <email_address> is the email address that will be used for the IBM Cognos Real-time Monitoring email alert messages of the user who will be sending email through the SMTP client. The address can be the email account for an admin user. For example:
  SMTP\ From\ Address=rtmadmin@localhost
- SMTP\ User=<smtp_user>
  where <smtp_user> is a username accepted by the SMTP Server if it requires authentication. If SMTP authentication is not enabled, this property is not used, but it should still be set.
  SMTP\ Password=<smtp_password> provides the password for this user.
- Keystore\ Location=<path>
  where <path> is the absolute path to user_sample.jks on the server file system.
  For example, on a server running the Microsoft Windows operating system, enter
  Keystore\ Location=c:/Program Files/ibm/cognos/c10_64/realtime/configuration/keystore/user_sample.jks
  For example, on a server running the Linux operating system, enter
  Keystore\ Location=/opt/ibm/cognos/c10_64/realtime/configuration/keystore/user_sample.jks
  The user_sample.jks keystore is used to encrypt the passwords of all users except the rtmadmin user.

  **Important**: If you have users that were created when a different keystore was set, do not remove the keystore from the old location. The keystore location that was used previously must be found at the same file path when that user logs in again. During the next login, after authenticating with the old keystore, the password will be stored in the current keystore file.

- Keystore\ Password =<pwd>
  where <pwd> is the password for the user keystore. It is 8deb5102f8. For example:
  Keystore\ Password=8deb5102f8
- User\ PrivateKey\ Password=<pwd>
  where <pwd> is the private key password for user encryption. It is 8deb5102f8. For example:
  User\ PrivateKey\ Password=8deb5102f8

**Results**

After you have finished setting system properties, you must specify the location of your properties as a JVM argument on each application server. For detailed information on how to reference the realtime.properties file for your particular application server, see the following:

- "Modifying the Java virtual machine settings on WebSphere" on page 29 for the IBM WebSphere Application Server.
- "Modifying the Java virtual machine settings" on page 46 for the Oracle WebLogic Application Server.
Installing fix packs

IBM provides interim maintenance packages that contain updates to one or more components in your IBM Cognos product. If a fix pack is available when you are installing or upgrading your product, you must install it after you install the IBM Cognos components.

If a fix pack becomes available after your IBM Cognos product has been deployed, you must stop the service, install the fix pack in the same location as the IBM Cognos components, and then start the service.

Fix packs are cumulative. When you install the latest fix pack, it includes updates from all the previous fix packs. Fix packs are available for download from IBM Support at [http://www.ibm.com/support/us/en/](http://www.ibm.com/support/us/en/)

**Note:** Fix packs are not standalone installations. You must install them on computers that have IBM Cognos components installed. Install the fix packs that are appropriate for your product version.

**Note:** Fix packs are not standalone installations. You must install them on computers that have IBM Cognos components installed. Install the fix packs that are appropriate for your product version.

**Installing Windows fix packs**

Use the following steps to install IBM Cognos Real-time Monitoring fix packs on Windows operating systems.

**Before you begin**

Before you install the fix pack:

1. As an optional but recommended step, backup your Real-time Monitoring metadata and configuration:
   a. Start the IBM Cognos Real-time Monitoring Workbench using a user ID with administrator privileges.
   b. From the Administration Console tab, click the **System Settings** button.
   c. From the configure drop-down menu, select **Checkpoint Configuration**.
   d. Click the **Run Checkpoint Now** button.
   e. Go to the Administration Console tab and click the **Import/Export** button.
   f. In the Import/Export Window, select the **Export metadata to a JAR file** (download) operation.
   g. Set the export options to **Custom Export** and select all available options.
   h. Click **OK**. You will be prompted for a location to download the file on your computer.

   **Note:** Ensure that pop-ups are not blocked.

2. Stop the Real-time Monitoring application:
   a. Stop and undeploy Real-time Monitoring. The steps will vary depending on the type of application server:
• See “Uninstalling from the IBM WebSphere Application Server” on page 42.
• See “Uninstalling from the Oracle WebLogic Application Server” on page 57.
• See “Uninstalling from the JBoss Application Server” on page 73.

b. Stop the application server. For detailed information, refer to the documentation for the application server that you are using.
c. Stop the web server. For detailed information, refer to the documentation for the web server that you are using.

3. As an optional but recommended step, backup the content of the original RTM install directory. This directory includes the static content.

4. As an optional but recommended step, backup the operational, geography, and metadata databases. For detailed information, refer to the product documentation for the database product that you are using.

Procedure
1. Insert the fix pack disk for the Windows operating system or go to the location where you downloaded and extracted the files.
2. On the disk or in the download location, go to the win32 directory and double-click the issetup.exe file.
3. Follow the directions in the installation wizard, installing in the same location as your existing Cognos Real-time Monitoring product.
   The issetup program prompts you to allow the fix pack to create a backup copy in the installation folder before copying new files.
4. Deploy the new version of the Real-time Monitoring EAR file (Realtime.ear, Realtime-weblogic.ear, or Realtime-jboss5.ear), according to the instructions for your application server.
   • See “Deploying Real-time Monitoring on an IBM WebSphere Application Server” on page 38.
   • See “Deploying Real-time Monitoring on an Oracle WebLogic Application Server” on page 54.
   • See “Deploying Real-time Monitoring on a JBoss Application Server” on page 69.
5. Ensure that the web server is pointing to the webcontent directory or copy the webcontent directory to the location that is used by the web server.

What to do next

Verify that the fix pack was installed successfully:
1. Restart the web server. For detailed information, refer to the documentation for the web server that you are using.
2. Restart the application server and the Real-time Monitoring application. For detailed information, refer to the documentation for the application server that you are using.
3. Log in to Real-time Monitoring Workbench and verify that all the previous objects still exist and are enabled. For more information, refer to Chapter 11, “Troubleshooting your installation,” on page 89.
4. Log in to Real-time Monitoring Dashboard and verify that all dashboards are available.
5. If Cognos Business Intelligence (BI) 10.1 was integrated with Real-time Monitoring, confirm that you can see BI dashboard objects. For more
information, refer to the “Configuring the system for integration with Cognos Workspace” topic in the Real-time Monitoring Workbench User Guide.

If Cognos BI was integrated with Cognos Real-time Monitoring, upgrade Cognos BI to the same fix pack level.

**Installing UNIX and Linux fix packs**

Use the following steps to install the IBM Cognos Real-time Monitoring fix packs on UNIX and Linux operating systems.

**Before you begin**

Before you install the fix pack:

1. As an optional but recommended step, backup your Real-time Monitoring metadata and configuration:
   a. Start the IBM Cognos Real-time Monitoring Workbench using a user ID with administrator privileges.
   b. From the Administration Console tab, click the System Settings button.
   c. From the configure drop-down menu, select Checkpoint Configuration.
   d. Click the Run Checkpoint Now button.
   e. Go to the Administration Console tab and click the Import/Export button.
   f. In the Import/Export Window, select the Export metadata to a JAR file (download) operation.
   g. Set the export options to Custom Export and select all available options.
   h. Click OK. You will be prompted for a location to download the file on your computer.

   **Note:** Ensure that pop-ups are not blocked.

2. Stop the Real-time Monitoring application:
   a. Stop and undeploy Real-time Monitoring. The steps will vary depending on the type of application server:
      - See “Uninstalling from the IBM WebSphere Application Server” on page 42.
      - See “Uninstalling from the Oracle WebLogic Application Server” on page 57.
      - See “Uninstalling from the JBoss Application Server” on page 73.
   b. Stop the application server. For detailed information, refer to the documentation for the application server that you are using.
   c. Stop the web server. For detailed information, refer to the documentation for the web server that you are using.

3. As an optional but recommended step, backup the content of the original RTM install directory. This directory includes the static content.

4. As an optional but recommended step, backup the operational, geography, and metadata databases. For detailed information, refer to the product documentation for the database product that you are using.

**Procedure**

1. If using a disk, mount the fix pack disk that is appropriate for your UNIX or Linux operating system, using Rock Ridge file extensions.

   **Important:** To mount the IBM Cognos disk on HP-UX, do the following:
• Add the pfs_mount directory in your path.
  For example,
  
  PATH=/usr/sbin/:$PATH
  export PATH

• To start the required NFS daemons and run the daemons in the background,
  type bg pfs_mountd and then type bg pfsd.

• To mount the drive, type
  
  pfs_mount -t rrip <device> <mount_dir> -o xlat=unix

  For example,
  
  pfs_mount -t rrip /dev/dsk/c0t2d0 /cdrom -o xlat=unix

  You can now install or copy files as a non-root user using an IBM Cognos
disk from this drive.

• When the installation is complete, type pfs_umount /cdrom and kill the pfsd
  and pfs_mountd daemons to unmount the disk.

2. If using a download, go to the location where you downloaded and extracted
   the fix pack files.

3. To start the installation wizard, type
   ./issetup

4. Follow the directions in the installation wizard to install to the same location as
   your existing Cognos Real-time Monitoring product.
   The issetup program prompts you to allow the fix pack to create a backup copy
   in the installation folder before copying new files.

5. Deploy the new version of the Real-time Monitoring EAR file (Realtime.ear,
   Realtime-weblogic.ear, or Realtime-jboss5.ear), according to the instructions
   for your application server.

   • See “Deploying Real-time Monitoring on an IBM WebSphere Application
     Server” on page 38.
   • See “Deploying Real-time Monitoring on an Oracle WebLogic Application
     Server” on page 54.
   • See “Deploying Real-time Monitoring on a JBoss Application Server” on page
     69.

What to do next

Verify that the fix pack was installed successfully:

1. Restart the web server. For detailed information, refer to the documentation for
   the web server that you are using.

2. Restart the application server and the Real-time Monitoring application. For
   detailed information, refer to the documentation for the application server that
   you are using.

3. Log in to Real-time Monitoring Workbench and verify that all the previous
   objects still exist and are enabled. For more information, refer to Chapter 11,
   “Troubleshooting your installation,” on page 89.

4. Log in to Real-time Monitoring Dashboard and verify that all dashboards are
   available.

5. If Cognos Business Intelligence (BI) 10.1 was integrated with Real-time
   Monitoring, confirm that you can see BI dashboard objects. For more
   information, refer to the “Configuring the system for integration with Cognos
   Workspace” topic in the Real-time Monitoring Workbench User Guide.
If Cognos BI was integrated with Cognos Real-time Monitoring, upgrade Cognos BI to the same fix pack level.
Chapter 5. Upgrading from a previous version or re-installing Real-time Monitoring

This section describes how to upgrade to a new version of IBM Cognos Real-time Monitoring. These steps also apply to upgrading from Cognos Now! version 4.5.2.2 to Real-time Monitoring.

Note: To prepare for any issues that you might encounter during the upgrade, read the release notes prior to upgrading.

Before you begin

Before starting an upgrade, back up all your metadata and the geography and operational databases. Also write down or take a screen capture of the datasource configurations and authentication provider configuration.

Procedure

1. Log in to IBM Cognos Real-time Monitoring Workbench.
2. Export the Real-time Monitoring metadata using the Import/Export feature as described in the IBM Cognos Real-time Monitoring Workbench User Guide.
3. Record the existing system settings that you want to reuse. To display the system settings, click the System Settings button.
4. Stop Real-time Monitoring.
5. Delete the tables from the metadata database.
   The operational and geography databases from previous versions may continue to be used. To leave your previous metadata database intact, create and specify a different database schema when setting up the new version, however, do not delete the context database or any other custom database.
6. Perform the steps for uninstalling IBM Cognos Real-time Monitoring as described for each application server. You must uninstall only the EAR file. If you cannot run the uninstaller because you are uninstalling an earlier version of the software, you can manually delete the application files.
   - See “Uninstalling from the IBM WebSphere Application Server” on page 42.
   - See “Uninstalling from the Oracle WebLogic Application Server” on page 57.
   - See “Uninstalling from the JBoss Application Server” on page 73.
7. Run the Real-time Monitoring installer.
   For more information, see Chapter 4, “Installing and configuring application servers,” on page 15.
8. Deploy the new version of the EAR file for IBM Cognos Real-time Monitoring on your application server:
   - See “Deploying Real-time Monitoring on an IBM WebSphere Application Server” on page 38.
   - See “Deploying Real-time Monitoring on an Oracle WebLogic Application Server” on page 54.
   - See “Deploying Real-time Monitoring on a JBoss Application Server” on page 69.
Note: It is not necessary to configure the datasource connections in the application server. You can use the connections that were configured prior to the installation. If you did not delete the existing metadata tables, change the datasource connection for the metadata to a different database schema. Previous versions of the metadata schema are not compatible with the new version.


Note: You may need to reconfigure the initial settings as described in the section “Configuring Real-time Monitoring in IBM Cognos Real-time Monitoring Workbench” on page 85.

10. If the users exist in a Lightweight Directory Access Protocol (LDAP) server, Active Directory Service (ADS) server, or IBM Tivoli Directory Server you must use those systems to synchronize all your users, roles, and role memberships.

11. Import the metadata you exported in the first step of this procedure. Use the Import/Export feature in IBM Cognos Real-time Monitoring Workbench as described in the IBM Cognos Real-time Monitoring Workbench User Guide.

12. To verify the installation, log in to Real-time Monitoring as rtmadmin.
Chapter 6. Installing Real-time Monitoring on an IBM WebSphere Application Server

This section describes how to install, deploy, and uninstall IBM Cognos Real-time Monitoring on an IBM WebSphere Application Server.

Installing and deploying Real-time Monitoring on an IBM WebSphere Application Server

IBM Cognos Real-time Monitoring can be installed and deployed on an IBM WebSphere Application Server.

You must already have run the Real-time Monitoring installer on the application server. For more information, see “Installing Real-time Monitoring application server components” on page 15.

Reviewing and verifying the requirements for IBM WebSphere

This section describes the requirements for installing and deploying IBM Cognos Real-time Monitoring on an IBM WebSphere Application Server.

This section assumes that you are familiar with IBM WebSphere. Specifically, you must know how to do the following:

- Use the IBM WebSphere Administrative Console.
- Create a dedicated server scope.
- Set a classpath.
- Configure a new JDBC provider.

Installation of the IBM WebSphere Application Server

Install the appropriate, supported IBM WebSphere Application Server as specified in the IBM Cognos Customer Center.

For more information, see “Reviewing supported environments” on page 11.

Java Database Connectivity drivers

Install the correct Java Database Connectivity (JDBC) driver for your metadata database.

The following are the different databases you can use for metadata tables.

- IBM DB2
- SQL Server 2000 with SP3 or later
- SQL Server 2005
- SQL Server 2008
- MySQL 5.0 or later
- PostgreSQL
- Oracle 9.2 or later

You can access databases other than the ones listed above as long as a Type 4 Driver exists for the database that you intend to use. However, only the databases listed above are certified.
Refer to the following web sites to determine the appropriate database driver for your database. Type 4 Drivers are preferred for IBM Cognos Real-time Monitoring. Get the client JDBC driver from the database server installation or vendor that you plan to access:

- For IBM WebSphere 6.0, refer to http://www.ibm.com/support/docview.wss?&uid=swg27007298
- For IBM WebSphere 6.1, refer to http://www.ibm.com/support/docview.wss?&uid=swg27007642
- For IBM WebSphere 7.1, refer to http://www.ibm.com/support/docview.wss?&uid=swg27012369

Choose the appropriate operating system and see the JDBC drivers section.

**Preliminary setup of Real-time Monitoring on WebSphere**

Review the following requirements, recommendations, and limitations to consider in order to successfully install and deploy IBM Cognos Real-time Monitoring on the IBM WebSphere Application Server.

Create a dedicated server instance in the IBM WebSphere Application Server for the IBM Cognos Real-time Monitoring installation. Detailed instructions for creating a new server instance can be found at the locations listed in the following table.

**Table 5. Additional IBM WebSphere Application Server information**

<table>
<thead>
<tr>
<th>Version</th>
<th>Link to Online Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/Select">http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/Select</a> WebSphere Application Server &gt; Setting up the application serving environment &gt; Creating and deleting profiles</td>
</tr>
<tr>
<td>6.1</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/Select">http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/Select</a> WebSphere Application Server &gt; Setting up the application serving environment &gt; Creating and deleting profiles</td>
</tr>
<tr>
<td>7.0</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/Select">http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/Select</a> WebSphere Application Server &gt; Setting up the application serving environment &gt; Managing profiles</td>
</tr>
</tbody>
</table>

If you are using either the Network Deployment or Extended Deployment versions of the IBM WebSphere Application Server, you must create a dedicated server scope for deploying Real-time Monitoring. All Real-time Monitoring installation activities should take place within the scope of this server.

You must locate the Realtime.ear file, which is located in the `c10_location/realtime/bin64` directory, to the server. It will be used during the deployment.

**Note:** If you are using IBM WebSphere Application Server version 7 or higher, the log4j file and the JAXB package that are shipped with WebSphere are not compatible with Real-time Monitoring. To avoid issues caused by this incompatibility, you must copy the following JAR files, which are located in the `c10_location/realtime/bin64` directory, to the endorsed directory on the application server: log4j-1.2.7.jar, jaxb-api.jar, jaxb-impl.jar, jaxb-xjc.jar, and jaxb1-impl.jar. If the
endorsed directory does not exist on the application server, you must create it. The
endorsed directory might be found in the following location:
- On Windows operating systems: C:\Program Files\ibm\WebSphere\AppServer\java\jre\lib\endorsed
- On UNIX or Linux operating systems: /opt/IBM/WebSphere/AppServer/java/jre/lib/endorsed

Modifying the Java virtual machine settings on WebSphere

This section describes how to modify the Java virtual machine (JVM) settings through the IBM WebSphere Application Server Administrative Console.

Using the IBM WebSphere Administrative Console, in the Generic JVM arguments box, you must type each of the required JVM arguments, which must be separated by a space. Because WebSphere has specific settings for Initial Heap and Max Heap, you should enter the -Xms and -Xmx values in those specific fields. Detailed instructions for setting the JVM parameters can be found at the location in the following table.

Table 6. Links to additional information for setting the JVM parameters

<table>
<thead>
<tr>
<th>Version</th>
<th>Link to Online Documentation</th>
</tr>
</thead>
</table>
| 6.0     | http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0  
         | Select WebSphere Application Server > Setting up the application serving environment > Administering Application Servers > Configuring the JVM. |
| 6.1     | http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1  
         | Select WebSphere Application Server > Setting up the application serving environment > Administering Application Servers > Configuring the JVM. |
| 7.0     | http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0  
         | Select WebSphere Application Server > Setting up the application serving environment > Administering Application Servers > Configuring the JVM. |

Specific settings pertain to allocation of RAM. To prevent attempts to reallocate memory, -Xms and -Xmx must be set to the same value: the minimum and maximum amount of memory to allocate to the Real-time Monitoring server. For a server with 16 GB RAM, the preferred setting is a minimum of 12 GB. Generally, a number that is roughly 3/4 of the total RAM is preferred.

Set -Xmx and -Xmx to the same value. The number should be 1/4 of the size chosen for -Xms.

The following table provides examples of the parameter values to use based on a memory size of 16 GB and 32 GB.
Table 7. JVM parameter values examples

<table>
<thead>
<tr>
<th>Memory</th>
<th>Parameter Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 GB</td>
<td>-Xms12288M</td>
</tr>
<tr>
<td></td>
<td>-Xmx12288M</td>
</tr>
<tr>
<td></td>
<td>-Xmns3072M</td>
</tr>
<tr>
<td></td>
<td>-Xmnx3072M</td>
</tr>
<tr>
<td>32 GB</td>
<td>-Xms24576M</td>
</tr>
<tr>
<td></td>
<td>-Xmx24576M</td>
</tr>
<tr>
<td></td>
<td>-Xmns6144M</td>
</tr>
<tr>
<td></td>
<td>-Xmnx6144M</td>
</tr>
</tbody>
</table>

You must also specify Garbage Collection settings. The -Xgcthreads8 entry should be the same as the number of processor cores available. For example, if there are two dual-core processors, enter -Xgcthreads4. If there are 4 dual-core processors, or 2 quad-core processors, enter -Xgcthreads8.

The -verbose:sizes and -verbose:gc settings are useful in determining garbage collection issues while running. All should be set. The last setting should point to the log directory, for example:

-verbosegclog:"c:/program files/ibm/cognos/c10_64/realtime/logs"

If there is a space in the path, you must quote the entire parameter. Use forward slashes instead of backslashes in the path name.

**Procedure**

1. Start the IBM WebSphere Administrative Console.
2. Include the obiProperties.jar found in the c10_location/realtime/bin64 directory to the classpath of the Java virtual machine.
   - For example, on a server running the Windows operating system, enter:
     c:/program files/ibm/cognos/c10_64/realtime/bin64/obiProperties.jar
   - On a server running the AIX®, Solaris, or Linux operating system, enter:
     /opt/ibm/cognos/c10_64/realtime/bin64/obiProperties.jar
3. If you are using either the Network Deployment or Extended Deployment versions of the IBM WebSphere Application Server, add following values to the classpath of the Java virtual machine before creating the web service agents:
   - c10_location/realtime/bin64/wsd14j.jar
   - c10_location/realtime/bin64/wsif.jar
   - WebSphere_install_location/optionalLibraries/Apache/Struts/1.2.9/commons-logging.jar
4. Set the JVM parameters for optimum memory and garbage collection (GC). Sample JVM parameters for running Real-time Monitoring on IBM Java for WebSphere are recommended as follows:
   -Xms24576M
Note: Type the -Xms entry in the Initial Heap box. Type the -Xmx entry in the Max Heap box. Do not repeat these entries in the Generic JVM Arguments box.

5. Ensure that the com.cognos.obi.bootstrap.envpropname property is set to BOOTPROPS and that the JVM property BOOTPROPS points to the realtime.properties file you edited during your preparation for installation.
   -DBOOTPROPS=<c10_location>/realtime/configuration/realtime.properties
   -Dcom.cognos.obi.bootstrap.envpropname=BOOTPROPS
   <c10_location> specifies the location of the realtime.properties file that contains the bootstrap properties.

6. Set the file encoding type to UTF8.
   -Dfile.encoding=utf8

7. Optionally, set the property anonymousaccessenabled to true to enable anonymous login. Set this property to false to disable anonymous login. When this property is enabled, the log-in screen shows the link Log in as Anonymous user.
   -Danonymousaccessenabled=true
   With anonymous login enabled, you can automatically log in to IBM Cognos Real-time Monitoring Dashboard or IBM Cognos Real-time Monitoring Workbench without specifying a user name and password by using the following URL:
   http://servername/cognos/realtime/landing/landingpage.htm
   This enables you to choose the application. If you configured the server to use a port that is different from the default, you may need to specify the port.

8. Optionally, if outbound http connections such as to web services or geography coding services are required to go through a proxy server from your server environment, add the following JVM property to the start-up script so that the Java connectivity layer uses the proxy server for all outbound calls.
   -Dhttp.proxyHost=<fully qualified server name of http proxy>
   -Dhttp.proxyPort=<http proxy port number>
   -Dhttps.proxyHost=<fully qualified server name of https proxy>
   -Dhttps.proxyPort=<https proxy server port>

   Note: Proxy servers that require authentication are not supported.

9. Save the new configuration.

10. Optionally, set the language and locale parameters as described in "Setting language and locale parameters for Real-time Monitoring on the WebSphere Application Server" on page 32.
You only need to perform this step if you want to initialize the metadata in a locale other than the default server locale.

11. Save the changes.
12. Restart the IBM WebSphere Application Server.

Setting language and locale parameters for Real-time Monitoring on the WebSphere Application Server

You can set optional parameters for the metadata database, including language, country or region, and collation strength.

The defaults are based on the locale settings of the server. You should set these defaults prior to starting the application server for the first time. These parameters are added to the start script for the application server and use the following basic format:

-Dcom.cognos.obi.property.[PARAMETER]=[VALUE]

Each parameter is described in the table below. This table is followed by specific procedures for setting the parameters in the application server configuration.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCALE_LANGUAGE</td>
<td>The two-character ISO language code for the server. For example, to set the language parameter to Portuguese, you would add the following command: -Dcom.cognos.obi.property.LOCALE_LANGUAGE=PT Note: Prefix the setting with the -D command.</td>
</tr>
<tr>
<td>LOCALE_REGION</td>
<td>The two-character ISO country or region code for the server. For example, to set the country or region parameter to Brazil, you would add the following command: -Dcom.cognos.obi.property.LOCALE_REGION=BR</td>
</tr>
<tr>
<td>LOCALE_COLLATION</td>
<td>Set to true or false to indicate whether to perform locale-sensitive string comparisons. (Default is false.)</td>
</tr>
<tr>
<td>COLLATE_STRENGTH</td>
<td>Specifies the level of collation strength; that is, the extent to which the non-English characters are compared and collated: primary, secondary, tertiary, or identical. Primary is the least discriminating; identical is the most discriminating. (Default is tertiary.) For more information about collation parameters, see the Java documentation at: <a href="http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html">http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html</a> Note: This setting is functional only if LOCALE_COLLATION is set to true.</td>
</tr>
</tbody>
</table>
Table 8. Optional parameter settings for WebSphere Application Server metadata database (continued)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLATE_DECOMPOSITION</td>
<td>Specifies one of the following collation decomposition modes: none, canonical, or full. (Default is canonical.) For more information about collation parameters, see the Java documentation at: <a href="http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html">http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html</a> Note: This setting is functional only if LOCALE_COLLATION is set to true.</td>
</tr>
</tbody>
</table>

Procedure

1. On the IBM WebSphere Administrative Console, navigate to Generic JVM Arguments.
2. Add parameter settings using the following syntax:
   
   ```
   com.cognos.obi.property.[PARAMETER]=[VALUE]
   ```
   
   Note: Delimit multiple settings with a space. Prefix each setting with the -D command.
3. Save the changes.
4. Restart the WebSphere Application server.

Results

The changes to the JVM properties are set.

Creating and configuring the metadata connection on WebSphere

This section covers the tasks that you will need to perform to configure the metadata connection on an IBM WebSphere Application Server. The database store must already exist.

Creating a Java Authentication and Authorization Service (JAAS) alias for all databases

By creating an authentication alias that conforms to the dedicated user account for the database, you can eliminate any need to configure custom properties for these parameters later.

This alias will be referenced in the configuration.

Procedure

1. Start the IBM WebSphere Application Server and open the IBM WebSphere Administrative Console.
2. Create a new JAAS alias with the following values and then click OK.

   Table 9. JAAS alias values
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alias</td>
<td>Any value. This will be used to configure a JDBC provider.</td>
</tr>
<tr>
<td>User ID</td>
<td>Valid user ID for the selected database.</td>
</tr>
</tbody>
</table>
Table 9. JAAS alias values (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password</td>
<td>Valid password for the user ID.</td>
</tr>
<tr>
<td>Description</td>
<td>Optional text description.</td>
</tr>
</tbody>
</table>

Results

The new alias now appears in the list.

Configuring a new Java Database Connectivity provider

In the IBM WebSphere Administrative Console, you must configure a new Java Database Connectivity (JDBC) provider.

Detailed instructions for creating a new JDBC provider can be found at the locations in the following table.

Table 10. Links to additional information about JDBC providers

<table>
<thead>
<tr>
<th>Version</th>
<th>Link to Online Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0">http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0</a></td>
</tr>
<tr>
<td>6.1</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1">http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1</a></td>
</tr>
<tr>
<td>7.0</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0">http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0</a></td>
</tr>
</tbody>
</table>

Procedure

1. Select a supported database type and the JDBC Provider as indicated in the following table:

Table 11. JDBC Provider supported

<table>
<thead>
<tr>
<th>Database</th>
<th>JDBC Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>DB2 Universal JDBC Driver Provider</td>
</tr>
<tr>
<td>Microsoft SQL Server</td>
<td>IBM WebSphere embedded Connect JDBC driver for Microsoft SQL Server</td>
</tr>
<tr>
<td>Microsoft SQL Server(WAS 7)</td>
<td>Microsoft SQL Server JDBC Driver</td>
</tr>
<tr>
<td>MySQL</td>
<td>Select User-defined JDBC provider, then specify the implementation class name for MySQL: com.mysql.jdbc.jdbc2.optional.MysqlConnectionPoolDataSource</td>
</tr>
<tr>
<td>PostgreSQL</td>
<td>Select User-defined JDBC provider, then specify the implementation class name for PostgreSQL: org.postgresql.jdbc2.optional.ConnectionPool</td>
</tr>
</tbody>
</table>
Table 11. JDBC Provider supported (continued)

<table>
<thead>
<tr>
<th>Database</th>
<th>JDBC Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle</td>
<td>Oracle JDBC Driver</td>
</tr>
</tbody>
</table>

2. From the implementation type options, select Connection pool data source.

3. When defining the Classpath setting, use the following settings as appropriate, substituting real values for [FILE_PATH]:

Table 12. Classpath settings for supported databases

<table>
<thead>
<tr>
<th>Database</th>
<th>Add to Classpath setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>[FILE_PATH]/db2jcc.jar</td>
</tr>
<tr>
<td></td>
<td>[FILE_PATH]/db2jcc_license_cu.jar</td>
</tr>
<tr>
<td></td>
<td>For WebSphere Network Deployment Version 7.0 and DB2 ESE 9.7, use db2jcc4.jar.</td>
</tr>
<tr>
<td>Microsoft SQL Server 2005 and 2008 (IBM WebSphere 7)</td>
<td>Set the class path setting to sqljdbc4.jar. (Works with JDK1.6 only)</td>
</tr>
<tr>
<td>Microsoft SQL Server 2005 (IBM WebSphere 6.1.x only)</td>
<td>For Microsoft SQL Server 2005, leave the default native drivers intact: sqlserver.jar, base.jar, and, util.jar.</td>
</tr>
<tr>
<td>Microsoft SQL Server 2000</td>
<td>file location/mssqlserver.jar</td>
</tr>
<tr>
<td></td>
<td>file location/msbase.jar</td>
</tr>
<tr>
<td></td>
<td>file location/msutil.jar</td>
</tr>
<tr>
<td></td>
<td>Make sure that any other entries for the same JARs are deleted.</td>
</tr>
<tr>
<td>MySQL 5.0 or later</td>
<td>file location/mysql-connector-java-{version}-bin.jar</td>
</tr>
<tr>
<td>PostgreSQL</td>
<td>file location/postgresql-{version}.jdbc3.jar</td>
</tr>
<tr>
<td>Oracle</td>
<td>file location/ojdbc4.jar (For Oracle 10g.)</td>
</tr>
<tr>
<td></td>
<td>file location/ojdbc6.jar (For Oracle 11g. Works with JDK1.6 only.)</td>
</tr>
</tbody>
</table>

4. For DB2 (Type 2) and Oracle (Type 2) thick clients, set the native library path to point to the installation client.

5. Save the new provider configuration.

You can now configure the data source, as described in the "Defining the IBM WebSphere data source."

Defining the IBM WebSphere data source

This section describes how to define the data source for the new Java Database Connectivity (JDBC) provider configuration.

Detailed instructions can be found at the locations in the following table.
Table 13. Links to additional information about JDBC

<table>
<thead>
<tr>
<th>Version</th>
<th>Link to online documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0">http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0</a></td>
</tr>
<tr>
<td></td>
<td>Select WebSphere Application Server and search for the topic on Configuring a JDBC provider and data source</td>
</tr>
<tr>
<td>6.1</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1">http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1</a></td>
</tr>
<tr>
<td></td>
<td>Select WebSphere Application Server and search for the topic on Configuring a JDBC provider and data source</td>
</tr>
<tr>
<td>7.0</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0">http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0</a></td>
</tr>
<tr>
<td></td>
<td>Select WebSphere Application Server and search for the topic on Configuring a JDBC provider and data source</td>
</tr>
</tbody>
</table>

Procedure

1. Complete the specified settings as follows:

Table 14. JDBC data source settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>com.cognos.obi.metadata.metaDatasource</td>
</tr>
<tr>
<td>JNDI Name</td>
<td>com.cognos.obi.metadata.metaDatasource</td>
</tr>
<tr>
<td>Container managed</td>
<td>Clear check box</td>
</tr>
<tr>
<td>persistence</td>
<td></td>
</tr>
<tr>
<td>Oracle 10g only</td>
<td>For Oracle, specify the following Datasource Helper Class name: Choose Oracle10g data store helper</td>
</tr>
<tr>
<td>Oracle 11g</td>
<td>Choose Oracle11g data store helper (only supported on WAS7.x)</td>
</tr>
<tr>
<td>Microsoft SQL Server</td>
<td>For Microsoft SQL server, use the selected default value: Microsoft SQL Server Datastore Helper</td>
</tr>
<tr>
<td>Component-managed</td>
<td></td>
</tr>
<tr>
<td>Authentication Alias</td>
<td>Select the value you created in “Creating a Java Authentication and Authorization Service (JAAS) alias for all databases” on page 33.</td>
</tr>
</tbody>
</table>

2. Configure the properties for the metadata data source com.cognos.obi.metadata.metaDatasource as described in the following table.

Table 15. Metadata data source properties settings

<table>
<thead>
<tr>
<th>Database Type</th>
<th>Default/Custom Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 (Type 4)</td>
<td>serverName</td>
<td>Enter the host name or IP address of the computer running the database.</td>
</tr>
</tbody>
</table>
Table 15. Metadata data source properties settings (continued)

<table>
<thead>
<tr>
<th>Database Type</th>
<th>Default/Custom Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>portNumber</td>
<td>Enter the number of the port on which DB2 is running. (Typically 50000, although your configuration might differ.)</td>
</tr>
<tr>
<td></td>
<td>databaseName</td>
<td>Enter the database name.</td>
</tr>
<tr>
<td>Microsoft SQL Server</td>
<td>serverName</td>
<td>Enter the host name or IP address of the computer running the database.</td>
</tr>
<tr>
<td>(2000, 2005, and 2008)</td>
<td>portNumber</td>
<td>Enter the port number that Microsoft SQL Server is running from. (Typically 1433, although your configuration might differ.)</td>
</tr>
<tr>
<td></td>
<td>databaseName</td>
<td>Enter the database name.</td>
</tr>
<tr>
<td></td>
<td>selectMethod</td>
<td>Optionally, for the selectMethod choose &quot;cursor&quot;.</td>
</tr>
<tr>
<td>MySQL 50 or later</td>
<td>URL</td>
<td>jdbc:mysql://[hostname]:[port]/[schemaname]</td>
</tr>
<tr>
<td>PostgreSQL</td>
<td>URL</td>
<td>jdbc:postgresql://[dbhost]:[port]/[dbname]</td>
</tr>
<tr>
<td>Oracle</td>
<td>URL</td>
<td>Thin driver: jdbc:oracle:thin:@[host name]:[port]:[SID]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For example: jdbc:oracle:thin:@orclhost:1521:orcl</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thick (OCI) driver: jdbc:oracle:oci:@[tnsalias]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For example: jdbc:oracle:oci:@RTMtns</td>
</tr>
<tr>
<td></td>
<td>driverType</td>
<td>Enter &quot;thin&quot; or &quot;oci&quot; as appropriate.</td>
</tr>
</tbody>
</table>

3. Click **OK** to save the new provider configuration.
4. Test the new connection.

**Defining data sources on WebSphere**

For your installation, you must define the following two data sources: a data source for geography maps and an operational data source.

Optionally, you can define data sources for Java Database Connectivity (JDBC) agents.

**Defining the data source for geography maps**

You must define a geography data source for geography maps.

To set up support for geography maps, follow the steps for creating a data source with the IBM WebSphere Application Server as described in the section, "Creating..."
Defining an operational data source
An operational data source is a database repository that you use to store and persist lookup data.

To set up your operational data source, follow the same steps as when creating a metadata source. However, you must specify the name and Java Naming and Directory Interface (JNDI) name as `com.cognos.obi.operational`. To create a data source, follow the procedure described in "Creating and configuring the metadata connection on WebSphere" on page 33.

Defining additional optional data sources
For every Java Database Connectivity (JDBC) agent (for example, for accessing data stream or lookup table data) that you create in IBM Cognos Real-time Monitoring Workbench, create a data source in the IBM WebSphere installation.

Using Java Naming and Directory Interface (JNDI) with Connection Pools is the preferable way to connect to JDBC data sources. The JNDI name specified here is used from Real-time Monitoring Workbench when configuring a JDBC Agent. If a Connection Pool driver is not available, an alternative is to specify a URL-based connection from the Real-time Monitoring Workbench. The Java Naming and Directory Interface (JNDI) name must be unique for each data source. To create a data source, follow the procedure described in "Creating and configuring the metadata connection on WebSphere" on page 33.

Deploying Real-time Monitoring on an IBM WebSphere Application Server
This section describes the process of deploying IBM Cognos Real-time Monitoring on the application server.

For more information about deploying applications on an IBM WebSphere Application Server, refer to the following table.

Table 16. Links to additional information about deploying applications on an IBM WebSphere Application Server

<table>
<thead>
<tr>
<th>Version</th>
<th>Link to Online Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/Select">http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/Select</a> WebSphere Application Server and search for the topic on Installing J2EE application files.</td>
</tr>
<tr>
<td>6.1</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/Select">http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/Select</a> WebSphere Application Server and search for the topic on Installing J2EE application files.</td>
</tr>
<tr>
<td>7.0</td>
<td><a href="http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/Select">http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/Select</a> WebSphere Application Server and search for the topic on Installing Enterprise application files.</td>
</tr>
</tbody>
</table>
Procedure

1. Start the IBM WebSphere Application Server, if it is not currently running, and open the IBM WebSphere Administrative Console.

2. Expand the Applications node and click Enterprise Applications. This action displays the Enterprise Applications page.

3. Click the Install button.

4. Choose c10_location/realtime/bin64/Realtime.ear from the installation media or disk.
   where c10_location is the location that IBM Cognos Real-time Monitoring was installed.

5. Click Next.

6. When preparing for the application installation page to display, select the Generate Default Bindings option, and click Next.

7. To keep the default values for all the remaining steps, you can jump to the final step and click Finish.

   IBM WebSphere installs IBM Cognos Real-time Monitoring.

   After you have confirmed deployment, configure your web server to handle static content. For information about configuring static content, see Chapter 9, "Installing, configuring, and uninstalling Real-time Monitoring web server files," on page 75.

8. Start IBM Cognos Real-time Monitoring on the IBM WebSphere Application Server.

   After configuring the IBM WebSphere Application Server and deploying Real-time Monitoring, you must start Real-time Monitoring directly in the application server.

Configuring the application server to handle dynamic content

This section describes how to configure your application server to handle dynamic content.

However, before you can configure dynamic content, you must first configure the static content as described in Chapter 9, "Installing, configuring, and uninstalling Real-time Monitoring web server files," on page 75.

You need to configure the application server to handle dynamic content because the web server plug-in is used to forward requests from the web server to the IBM WebSphere Application Server. The web server plug-in is installed on the web server computer. However, the configuration file (plugin-cfg.xml) for the plug-in is generated through the WebSphere Application Server then moved to the appropriate location on the web server. For more information about the plugin-cfg.xml file, refer to the following topic: http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/topic/com.ibm.websphere.express.doc/info/exp/ae/ rswv_plugincfg.html.

Note: To handle dynamic content, you need to perform these additional steps only on the IBM WebSphere Application Server. These steps are not required on the JBoss Application Server and the Oracle WebLogic Application Server.

Procedure

1. Make sure you have deployed the EAR file on your IBM WebSphere Application Server.
2. Go to the administrative console of the IBM WebSphere Application Server and select Environment. Click **Update Global Web server Plug-in configuration**. The IBM WebSphere Application Server updates the plug-in file to enable the web server to serve static content. The web server can now pass dynamic URIs for servlets and JSPs back to IBM WebSphere.

3. Copy the plug-in configuration file to the remote web server. The configuration file is `<WAS_HOME>/profiles/<profileName>/config/cells/plugin-cfg.xml`.

   **Note:** If your web server is installed on the same computer as your application server, specify the location of the plugin-cfg.xml file in the realtime.conf file. See **Chapter 9, “Installing, configuring, and uninstalling Real-time Monitoring web server files,” on page 75** for more information about the realtime.conf file.

**Results**

After you have confirmed deployment, configure your web server to handle static content. For information about configuring static content, see **Chapter 9, “Installing, configuring, and uninstalling Real-time Monitoring web server files,” on page 75**.

---

### Testing Real-time Monitoring after installing on IBM WebSphere Application Server

After you install IBM Cognos Real-time Monitoring on the application server and the web server, you may test your installation by installing and using the samples that are packaged with the product.

**Procedure**

1. **Validate that the static and dynamic content is properly configured.** See **“Verifying the configuration for static and dynamic content” on page 82.**

2. Optionally, load the samples. See **“Loading Real-time Monitoring samples on the IBM WebSphere Application Server.”**

3. Start the Real-time Monitoring Workbench and import the sample metadata. See **“Importing sample metadata to Real-time Monitoring” on page 41.**

---

### Loading Real-time Monitoring samples on the IBM WebSphere Application Server

Load data onto the IBM WebSphere Application Server to check that the application is working.

The `c10_location/realtime/webcontent/samples/sdk/callback/callbackDemo/data` directory contains the Derby database schema which will have the call center demo tables, data, and triggers. This demo requires the Apache Derby 10.5.3 driver. For information on downloading an updated Apache Derby driver, see: 

http://db.apache.org/derby/derby_downloads.html

The `c10_location/realtime/webcontent/samples/sdk/callback/callbackDemo/metadata` directory contains an export of the object model used for the call center demo; it is database independent.

**Procedure**

1. Locate the sample files in the `c10_location/realtime/webcontent/samples/sdk` directory.
2. Copy the `c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/data/ccdemo` database to the following directory on the IBM WebSphere Application Server:

   ```
   WebSphere install location/AppServer/derby/databases
   ```

3. Copy the updated `derby.jar` file you downloaded from the Apache support site to the `derby/lib` directory, such as `WebSphere install location/AppServer/derby/lib` directory.

4. Using the IBM WebSphere Administrative Console, create a data source with the following general properties.

   **Table 17. Real-time Monitoring samples data source properties on the IBM WebSphere Application Server**

<table>
<thead>
<tr>
<th>General property</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope cells:</td>
<td>cells: <code>machine name</code> Node01 Cells: <code>machine name</code> Node01 Servers: server1</td>
</tr>
<tr>
<td>Name</td>
<td>com.cognos.obi.demo.ccdemo</td>
</tr>
<tr>
<td>JNDI name</td>
<td>com.cognos.obi.demo.ccdemo</td>
</tr>
<tr>
<td>Provider</td>
<td>Derby JDBC Provider</td>
</tr>
<tr>
<td>Database Name</td>
<td><code>WebSphere install location/AppServer/derby/databases/ccdemo</code></td>
</tr>
</tbody>
</table>

   Ensure that you select *Derby data store helper* as the data store helper class.

5. Test the connection and save your work.

6. Restart the IBM WebSphere Application Server.

**Results**

After preparing the sample data sources, you can import the sample metadata.

**Importing sample metadata to Real-time Monitoring**

Using the IBM Cognos Real-time Monitoring Workbench, import the sample metadata.

**Procedure**

1. Start Real-time Monitoring.
2. Import the `export.jar` from the `c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/metadata` directory using Real-time Monitoring Workbench import capability.

   For more information about importing metadata, see the importing metadata section in the IBM Cognos Real-time Monitoring Workbench *User Guide*.

**Uninstalling Real-time Monitoring from the IBM WebSphere Application Server**

Before uninstalling IBM Cognos Real-time Monitoring, decide if you need to back up any portion of the application metadata or databases. This is especially important if you have keystore files saved with user passwords.

Back up keystore files to maintain user IDs and passwords. Run the uninstall program that was installed as part of the installation process. Also, manually delete
and undeploy components and files of the Real-time Monitoring application that reside in various locations on the application server and web server, such as log files and directories.

**Procedure**
1. Optionally, back up the metadata associated with IBM Cognos Real-time Monitoring.
2. Uninstall from the IBM WebSphere Application Server.
3. Run the IBM Cognos Real-time Monitoring uninstall program.
4. Uninstall the database.

**Backing up Real-time Monitoring metadata**
Prior to uninstalling, you may want to back up the metadata associated with IBM Cognos Real-time Monitoring.

For some upgrades, it may be necessary to restore from a set of backup files rather than update the software. If you are upgrading, please read the upgrade instructions prior to shutting down and uninstalling the previous version. For more information, see Chapter 5, “Upgrading from a previous version or re-installing Real-time Monitoring,” on page 25.

**Procedure**
1. Log in to IBM Cognos Real-time Monitoring Workbench.
2. Use the Export feature as described in the topics on exporting metadata in the IBM Cognos Real-time Monitoring Workbench *User Guide*.
3. Log out of the IBM Cognos Real-time Monitoring Workbench.

**Uninstalling from the IBM WebSphere Application Server**
This section describes how to uninstall IBM Cognos Real-time Monitoring from the IBM WebSphere Application Server.

**Procedure**
1. From the IBM WebSphere Administrative Console, uninstall the IBM Cognos Real-time Monitoring application.
2. From the IBM WebSphere Administrative Console, remove the server instance on which Real-time Monitoring was running.

**Running the Real-time Monitoring uninstall program**
Run the uninstall program to remove IBM Cognos Real-time Monitoring from the application server or the web server, if the web server was installed on a different computer.

**Procedure**
1. Start the uninstaller.
2. Choose the language to use for the uninstaller and click *Next*.
3. Select *IBM Cognos Real-time Monitoring* and click *Next*.
4. When the uninstaller has completed, click *Finish*. 
Results

All program files are deleted. The Real-time Monitoring log files that remain in the
\texttt{c10\_location/instlog} and \texttt{c10\_location/uninstall} directories can be safely deleted.

Uninstalling the database

To uninstall the databases, you must delete the file store and metadata tables.

Procedure

1. Open the recovery log directory and checkpoint directory, then delete the file
store *.dat and \texttt{DEFAULTRECOVERYLOGGER\_} *.
2. Delete the tables for the metadata database by doing the following:
   - Access the database or database schema used for the IBM Cognos Real-time
     Monitoring metadata database.
   - Delete the tables for the metadata database. The tables to delete are:
     \texttt{METADATA\_OBJECTS}, \texttt{ALLOCATED\_UID}, and \texttt{UNCOMMITTED\_TID}.
3. Delete the geography and operational databases.
Chapter 7. Installing Real-time Monitoring on an Oracle WebLogic Application Server

This section describes how to install and deploy IBM Cognos Real-time Monitoring using an Oracle WebLogic Application Server.

Installing and deploying Real-time Monitoring on an Oracle WebLogic Application Server

IBM Cognos Real-time Monitoring can be installed and deployed on an Oracle WebLogic Application Server.

You must already have run the Real-time Monitoring installer on the application server. For more information, see “Installing Real-time Monitoring application server components” on page 15.

Reviewing and verifying requirements for Oracle WebLogic

This section describes the requirements for deploying IBM Cognos Real-time Monitoring on an Oracle WebLogic Application Server.

This section assumes that you are familiar with Oracle WebLogic. You must know how to do the following:
• Start and stop the Oracle WebLogic Application Server.
• Set the CLASSPATH and JAVA_HOME variables.
• Create a Java Database Connectivity (JDBC) database connection.

Installation of the Oracle WebLogic Application Server

Install the appropriate, supported Oracle WebLogic Application Server as specified in the IBM Cognos Customer Center.

For more information, see “Reviewing supported environments” on page 11.

Java Database Connectivity drivers

Install the correct Java Database Connectivity (JDBC) driver for your database.

The following are the different databases you can use for metadata, data sources, or lookup tables.
• IBM DB2
• Microsoft SQL Server 2000 with SP3 or later
• Microsoft SQL Server 2005
• Microsoft SQL Server 2008
• MySQL 5.0 or later
• PostgreSQL
• Oracle 9.2 or later

You can access databases other than the ones listed above as long as a Type 4 Driver exists for the database that you intend to use. However, only the databases listed above are certified.
Refer to the following URLs to determine the appropriate database driver for your database. Type 4 Drivers are preferred for IBM Cognos Real-time Monitoring. Get the client JDBC driver from the database server that you plan to access:

- http://download.oracle.com/docs/cd/E13222_01/wls/docs100/jdbc_drivers/usedriver.htm

**Locating required files**

To successfully install and deploy IBM Cognos Real-time Monitoring on an Oracle WebLogic Application Server, you must have the required files.

You need the following:

- A domain available on the Oracle WebLogic Application Server.
  This is the name you will need in the procedure described in the section, "Creating the Java Database Connectivity metadata connection pool" on page 52, when identifying the BEA WebLogic Domain Location.
- Realtime-weblogic.ear for Oracle WebLogic 9.x or greater.
  The EAR file is provided on the IBM Cognos Real-time Monitoring installation media. The EAR file is located in the $c10_location/realtime/bin64 directory.

**Modifying the Java virtual machine settings**

This section describes how to modify the Java virtual machine (JVM) settings by editing the start scripts. It assumes that you are using a Java SE HotSpot JVM version 1.5.

Specific settings pertain to allocation of RAM. To prevent attempts to reallocate memory, `-Xms` and `-Xmx` must be set to the same value: the minimum and maximum amount of memory to allocate to the Real-time Monitoring server. For a server with 16 GB RAM, the preferred setting is a minimum of 12 GB. Generally, a number that is roughly 3/4 of the total RAM is preferred.

Set `-XX:NewSize` and `-XX:MaxNewSize` to the same value. The number should be 1/4 of the size chosen for `-Xms`.

The following table provides examples of the parameter values to use based on a memory size of 16 GB and 32 GB.

<table>
<thead>
<tr>
<th>Memory</th>
<th>Parameter Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 GB</td>
<td><code>-Xms12288M</code></td>
</tr>
<tr>
<td></td>
<td><code>-Xmx12288M</code></td>
</tr>
<tr>
<td></td>
<td><code>-XX:NewSize=3072M</code></td>
</tr>
<tr>
<td></td>
<td><code>-XX:MaxNewSize=3072M</code></td>
</tr>
</tbody>
</table>
Table 18. JVM parameter values examples (continued)

<table>
<thead>
<tr>
<th>Memory</th>
<th>Parameter Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 GB</td>
<td>-Xms24576M</td>
</tr>
<tr>
<td></td>
<td>-Xmx24576M</td>
</tr>
<tr>
<td></td>
<td>-XX:NewSize=6144M</td>
</tr>
<tr>
<td></td>
<td>-XX:MaxNewSize=6144M</td>
</tr>
</tbody>
</table>

You must also specify Garbage Collection settings. The `-XX:ParallelGCThreads` entry should be the same as the number of processor cores available. For example, if there are two dual-core processors, enter:

`-XX:ParallelGCThreads=4`

If there are 4 dual-core processors, or 2 quad-core processors, enter:

`-XX:ParallelGCThreads=8`

The `-verbose:gc` and `-Dsun.rmi.dgc.client.gcInterval` settings are useful in determining garbage collection issues while running. All should be set. The last setting should point to the log directory, for example:

`-Xloggc:"c:/program files/ibm/cognos/c10_64/realtime/logs"`

If there is a space in the path, you must quote the entire parameter. Use forward slashes instead of backslashes in the path name.

**Procedure**

1. If running, shut down the Oracle WebLogic Application Server by doing the following:
   - In the Oracle WebLogic Application Server Console, open **Servers**.
   - Select the server. This should be the same server domain created for this installation and deployment.
   - In the resulting page, select the **Control** tab.
   - Click **Shutdown of this server**.

2. Locate the Oracle WebLogic start script and open it in a text editor (startWebLogic.cmd on the Microsoft Windows operating system and startWebLogic.sh on the UNIX operating system).
   - For Oracle WebLogic Server 9.x or higher, the start script is in the `<domain_home>/bin` directory.

3. To include the obiProperties.jar and log4j-1.2.7.jar files, which are found in the `c10_location/realtime/bin64/` directory, in the startWebLogic.cmd file or startWebLogic.sh file, set the following in the classpath settings.
   - On a server running the Microsoft Windows operating system:
     ```
     set CLASSPATH=c:/program files/ibm/cognos/c10_64/realtime/bin64/obiProperties.jar;c:/program files/ibm/cognos/c10_64/realtime/bin64/log4j-1.2.7.jar;%CLASSPATH%
     ```
   - On a server running the AIX, Solaris, or Linux operating system:
     ```
     CLASSPATH=/opt/ibm/cognos/c10_64/realtime/bin64/obiProperties.jar:/opt/ibm/cognos/c10_64/realtime/bin64/log4j-1.2.7.jar:$CLASSPATH
     ```
4. Locate and modify the JAVA_HOME setting to the directory of your JAVA JDK home directory and make sure the modified version points to the current Java SE HotSpot JDK location.
   - The default setting is JRockit.
   - The recommended setting is for the Java SE HotSpot JDK.

5. Set the JVM parameters for optimum memory and garbage collection (GC). Sample JVM parameters for running Real-time Monitoring are recommended as follows (for the Java SE HotSpot JVM version 1.5):
   -server
   -Xms24576M
   -Xmx24576M
   -XX:NewSize=6144M
   -XX:MaxNewSize=6144M
   -XX:PermSize=256M
   -XX:MaxPermSize=256M
   -XX:ThreadStackSize=300
   -XX:MaxTenuringThreshold=0
   -XX:SurvivorRatio=128
   -XX:+UseTLAB
   -verbose:gc
   -Dsun.rmi.dgc.client.gcInterval=600000
   -Xloggc:<location of the GC logs>
   -XX:-UsePerfData
   -XX:+PrintVMOptions
   -XX:+TraceClassUnloading
   -XX:+DisableExplicitGC
   -XX:+CMSParallelRemarkEnabled
   -XX:+PrintGCDetails
   -XX:+PrintGCTimeStamps
   -XX:+UseParNewGC
   -XX:+UseConcMarkSweepGC
   -XX:ParallelGCThreads=<number of cpus>
   -XX:CMSMarkStackSize=BM
   -XX:CMSMarkStackSizeMax=32M
   -XX:+UseCMSCompactAtFullCollection
   -XX:CMSFullGCsBeforeCompaction=0
   -XX:+ParallelRefProcEnabled
   -XX:+CMSClassUnloadingEnabled
   -XX:+CMSPermGenSweepingEnabled
   -XX:+CMSIncrementalMode
   -XX:+CMSIncrementalPacing
   -XX:+CMSIncrementalDutyCycleMin=0
   -XX:+CMSIncrementalDutyCycle=10
   -XX:+UseCMSInitiatingOccupancyOnly

6. Make sure JAVA_OPTIONS for the com.cognos.obi.bootstrap.envproppname property is set to BOOTPROPS and that the JVM property BOOTPROPS points to the realtime.properties file you edited during your preparation for installation as described in “Setting system properties during startup” on page 17.
On a server running the Microsoft Windows operating system:

```
set JAVA_OPTIONS=%JAVA_OPTIONS% "-DBOOTPROPS=<bootstrap_file>
set JAVA_OPTIONS=%JAVA_OPTIONS% 
-Dcom.cognos.obi.bootstrap.envpropname=BOOTPROPS
```

where `<bootstrap_file>` specifies the location of the realtime.properties file that contains the bootstrap properties.

On a server running the AIX, Solaris, or Linux operating system:

```
JAVA_OPTIONS="$JAVA_OPTIONS -DBOOTPROPS=<bootstrap_file>
JAVA_OPTIONS="$JAVA_OPTIONS
-Dcom.cognos.obi.bootstrap.envpropname=BOOTPROPS"
```

where `<bootstrap_file>` specifies the location of the realtime.properties file that contains the bootstrap properties.

7. Set the file encoding type to UTF8.

On a server running the Microsoft Windows operating system:

```
set JAVA_OPTIONS=%JAVA_OPTIONS% 
-Dfile.encoding=utf8
```

On a server running the AIX, Solaris, or Linux operating system:

```
JAVA_OPTIONS="$JAVA_OPTIONS 
-Dfile.encoding=utf8"
```

8. Optionally, set the property anonymousaccessenabled to true to enable anonymous login. Set this property to false to disable anonymous login. When this property is enabled, the log-in screen shows the link **Log in as Anonymous user**.

On a server running the Microsoft Windows operating system:

```
set JAVA_OPTIONS=%JAVA_OPTIONS% 
-Danonymousaccessenabled=true
```

On a server running the AIX, Solaris, or Linux operating system:

```
JAVA_OPTIONS="$JAVA_OPTIONS 
-Danonymousaccessenabled=true"
```

With anonymous login enabled, you can automatically log in to IBM Cognos Real-time Monitoring Dashboard or IBM Cognos Real-time Monitoring Workbench without specifying a user name and password by using the URL: http://servername/cognos/realtime/landing/landingpage.htm

This enables you to choose the application.

9. Optionally, if outbound http connections such as to web services or geography coding services are required to go through a proxy server from your server environment, add the following JVM property to the start-up script so that the Java connectivity layer uses the proxy server for all outbound calls.

On a server running the Microsoft Windows operating system:

```
set JAVA_OPTIONS=%JAVA_OPTIONS% 
-Dhttp.proxyHost=<fully qualified server name of http proxy>
set JAVA_OPTIONS=%JAVA_OPTIONS% 
-Dhttp.proxyPort=<http proxy port number>
```

```
set JAVA_OPTIONS=%JAVA_OPTIONS% 
-Dhttps.proxyHost=<fully qualified server name of https proxy>
set JAVA_OPTIONS=%JAVA_OPTIONS% 
-Dhttps.proxyPort=<https proxy server port>
```

On a server running the AIX, Solaris, or Linux operating system:

```
JAVA_OPTIONS="$JAVA_OPTIONS -Dhttp.proxyHost=<fully qualified server name of http proxy>
JAVA_OPTIONS="$JAVA_OPTIONS -Dhttp.proxyPort=<http proxy port number>" ```
JAVA_OPTIONS="\$JAVA_OPTIONS -Dhttps.proxyHost=<fully qualified server name of https proxy>"
JAVA_OPTIONS="\$JAVA_OPTIONS -Dhttps.proxyPort=<https proxy server port>"

Note: Proxy servers that require authentication are not supported.

10. Optionally, set the language and locale parameters as described in "Setting language and locale parameters on an Oracle WebLogic Application Server."
You only need to perform this step if you want to initialize the metadata in a locale other than the default server locale.

11. Save and close the start script file.

Setting language and locale parameters on an Oracle WebLogic Application Server
You can set optional parameters for the metadata database, including language, country or region, and collation strength.

The defaults are based on the locale settings of the server. Set these defaults prior to starting the application server for the first time. These parameters are added to the start script for the application server and use the following basic format:

-Dcom.cognos.obi.property.[PARAMETER]=[VALUE]

Each parameter is described in the table below. This table is followed by specific procedures for setting the parameters in the application server configuration.

Table 19. Optional parameter settings for Oracle WebLogic Application Server metadata database

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCALE_LANGUAGE</td>
<td>The ISO two-character language code for the server.</td>
</tr>
<tr>
<td></td>
<td>For example, to set the LANGUAGE parameter to Portuguese, you would add the following command:</td>
</tr>
<tr>
<td></td>
<td>On a server running the Microsoft Windows operating system:</td>
</tr>
<tr>
<td></td>
<td>set JAVA_OPTIONS=%JAVA_OPTIONS%</td>
</tr>
<tr>
<td></td>
<td>&quot;-Dcom.cognos.obi.property.LOCALE_LANGUAGE=PT&quot;</td>
</tr>
<tr>
<td></td>
<td>On a server running the AIX, Solaris, or Linux operating system:</td>
</tr>
<tr>
<td></td>
<td>JAVA_OPTIONS=&quot;$JAVA_OPTIONS&quot;</td>
</tr>
<tr>
<td></td>
<td>-Dcom.cognos.obi.property.LOCALE_LANGUAGE=PT&quot;</td>
</tr>
</tbody>
</table>
Table 19. Optional parameter settings for Oracle WebLogic Application Server metadata database (continued)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| LOCALE_REGION   | The ISO two-character country or region code for the server. For example, to set the country or region parameter to Brazil, you would add the following command: On a server running the Microsoft Windows operating system: 
  `set JAVA_OPTIONS=%JAVA_OPTIONS% 
  "-Dcom.cognos.obi.property.LOCALE_REGION=BR"` 
  On a server running the AIX, Solaris, or Linux operating system: 
  `JAVA_OPTIONS="$JAVA_OPTIONS 
  -Dcom.cognos.obi.property.LOCALE_REGION=BR"` |
| LOCALE_COLLATION| Set to true or false to indicate whether to perform locale-sensitive string comparisons. (Default is false.) |
| COLLATE_STRENGTH| Specifies the level of collation strength; that is, the extent to which the non-English characters are compared and collated: primary, secondary, tertiary, or identical. Primary is the least discriminating; identical is the most discriminating. (Default is tertiary.) For more information about collation parameters, see the Java documentation at: 
  [http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html](http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html) 
  **Note:** This setting is functional only if LOCALE_COLLATION is set to true. |
| COLLATE_DECOMPOSITION| Specifies one of the following collation decomposition modes: none, canonical, or full. (Default is canonical.) For more information about collation parameters, see the Java documentation at: [http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html](http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html) 
  **Note:** This setting is functional only if LOCALE_COLLATION is set to true. |

**Procedure**

1. Locate the JAVA_OPTIONS environment variable in the startWebLogic.cmd or startWebLogic.sh file.
2. Add parameter settings using the following syntax: 
   `com.cognos.obi.property.[PARAMETER]=VALUE`

   **Note:** Delimit multiple settings with a space. Prefix each setting with the `-D` command.
3. Save and close the run script.
Creating and configuring the metadata connection

This section describes how to create the required Java Database Connectivity (JDBC) connection pool and metadata data source in the BEA WebLogic Console.

Configuring Oracle WebLogic 9.x and later

For Oracle WebLogic 9.x or later, there is only one step: creating the data source along with the connection pool settings.

Refer to the following URLs for the Oracle WebLogic procedure to configure the metadata data source with connection pool settings:

- For Oracle WebLogic 9.2 go to http://download.oracle.com/docs/cd/E13222_01/wls/docs92/ConsoleHelp/taskhelp/jdbc/jdbc_datasources/CreateDataSources.html
- For Oracle WebLogic 10gR3 go to http://download.oracle.com/docs/cd/E12840_01/wls/docs103/ConsoleHelp/taskhelp/jdbc/jdbc_datasources/CreateDataSources.html

Creating the Java Database Connectivity metadata connection pool:

This section describes the settings required for creating the required Java Database Connectivity (JDBC) metadata connection pool in the BEA WebLogic Console.

Refer to the following URL for the Oracle WebLogic procedure to configure the metadata connection pool:

http://download.oracle.com/docs/cd/E13222_01/wls/docs92/index.html

Procedure

1. Select one of the databases supported by IBM Cognos Real-time Monitoring.
   - DB2
   - Microsoft SQL Server
   - MySQL
   - PostgreSQL
   - Oracle
   When you select a database type, the database driver field dynamically displays the driver options for the selected database.

2. Select the driver from the database driver field.
   - For DB2, select IBM’s DB2 Driver (Type 2) or IBM’s DB2 Driver (Type 4) as appropriate.
   - For Microsoft SQL Server 2000 and 2005, select Oracle WebLogic’s Microsoft SQL Server Driver (Type 4).
   - For Microsoft SQL Server 2008, choose the driver to be Others and specify the classpath for sqljdbc4.jar and the credentials for connecting to SQL Server 2008.
   - For MySQL, select MySQL’s Driver (Type 4) Version; Using com.mysql.jdbc.Driver.
   - For PostgreSQL, select PostgreSQL Driver (Type 4) Version.
   - For Oracle thin client, select Oracle’s Driver (Thin) versions 9.0.1, 9.2.0, 10, 11 (Oracle WebLogic 10gR3 only).
   - For Oracle thick (OCI) client, select Oracle’s Driver (OCI) versions 9.0.1, 9.2.0, 10, 11 (Oracle WebLogic 10gR3 only).
Results

After deployment, you must modify the connection configuration, as described in "Increasing the maximum capacity of the Java Database Connectivity metadata connection pool."

Creating the metadata connection:

This section describes the settings required for creating the required JDBC metadata data source in the BEA WebLogic Console.

Refer to the following URL for the Oracle WebLogic procedure to configure the metadata data source:

http://download.oracle.com/docs/cd/E13222_01/wls/docs92/index.html

Procedure

1. For the Name value, enter com.cognos.obi.metadata.metaDatasource.
2. For the JNDI Name, enter com.cognos.obi.metadata.metaDatasource.
3. Clear the Support Global Transactions check box.
4. For Pool Name, select the name of the connection pool that you created in the procedure described under "Creating the Java Database Connectivity metadata connection pool" on page 52.

Increasing the maximum capacity of the Java Database Connectivity metadata connection pool

After deploying the configured connection pool, you must modify the connection configuration by increasing the maximum capacity.

Procedure

1. In the Java Database Connectivity (JDBC) metadata connection pool settings, change the Maximum Capacity setting to 20.

   Note: You can accept the defaults for the remaining settings.

2. In the Advanced Options section, click Show.
3. Check Test Reserved Connections.
4. Save your settings.
5. Test the connection pool and make sure the test completes successfully.

   The JDBC connection pool has now been successfully completed.

Defining data sources on WebLogic

For your installation, you must define the following two data sources: a data source for geography maps and an operational data source.

Optionally, you can define data sources for Java Database Connectivity (JDBC) agents.

Defining the data source for geography maps for Real-time Monitoring on an Oracle WebLogic Application Server

You must define a geography data source for geography maps.

To set up support for geography maps, follow the steps for creating a data source with the Oracle WebLogic Application Server Console as described in the section,
Creating and configuring the metadata connection” on page 52. However, you must specify the name and Java Naming and Directory Interface (JNDI) name as com.cognos.obi.geo.geoDatasource.

Defining an operational data source for Real-time Monitoring on an Oracle WebLogic Application Server

An operational data source is a database repository that you use to store and persist lookup data.

To set up your operational data source, follow the same steps as for creating a metadata source. However, you must specify the name and Java Naming and Directory Interface (JNDI) name as com.cognos.obi.operational. To create a data source, follow the procedure described in “Creating and configuring the metadata connection” on page 52.

Defining additional optional data sources for Real-time Monitoring on an Oracle WebLogic Application Server

For every Java Database Connectivity (JDBC) agent (for example, for accessing data stream or lookup table data) that you create in IBM Cognos Real-time Monitoring Workbench, you should create a data source in the Oracle WebLogic installation.

Using Java Naming and Directory Interface (JNDI) with Connection Pools is the preferable way to connect to JDBC data sources. The JNDI name specified here is used from Real-time Monitoring Workbench when configuring a JDBC Agent. If a Connection Pool driver is not available, an alternative is to specify a URL-based connection from the Real-time Monitoring Workbench. The Java Naming and Directory Interface (JNDI) name must be unique for each data source. To create a data source, follow the procedure described in “Creating and configuring the metadata connection” on page 52.

Deploying Real-time Monitoring on an Oracle WebLogic Application Server

This section describes the process of deploying IBM Cognos Real-time Monitoring on an Oracle WebLogic Application Server.

Procedure

1. Refer to the following URL for instructions on how to deploy the EAR file.
   - For Oracle WebLogic 10gR3, refer to http://download.oracle.com/docs/cd/E13222_01/wls/docs103/ConsoleHelp/taskhelp/deployment/InstallApplicationsAndModules.html

2. During deployment, browse to the Realtime-weblogic.ear on the IBM Cognos Real-time Monitoring installation media. This is the EAR file that you will deploy into the Oracle WebLogic Application Server.
   - To confirm deployment, open a web browser and go to the following web site: http://<host>:<port>/realtime/Controller/RequestInfoAction/ListInfo
     - For example:
       - For local host: http://localhost:7001/realtime/Controller/RequestInfoAction/ListInfo
Results

After you have confirmed deployment, configure your web server to handle static content. For information about configuring static contents, see Chapter 9, “Installing, configuring, and uninstalling Real-time Monitoring web server files,” on page 75.

Testing Real-time Monitoring after installing on Oracle WebLogic Application Server

After you install IBM Cognos Real-time Monitoring on the application server and the web server, you may test your installation by installing and using the samples that are packaged with the product.

Procedure

1. Validate that the static and dynamic content is properly configured. See “Verifying the configuration for static and dynamic content” on page 82.
2. Optionally, load the samples. See “Loading Real-time Monitoring samples on the Oracle WebLogic Application Server.”

Loading Real-time Monitoring samples on the Oracle WebLogic Application Server

Load data to check that the application is working.

The \c10_location\realtime\webcontent\samples\sdk\callcenter\CallCenterDemo\data directory contains the Derby database schema which will have the call center demo tables, data, and triggers. This demo requires the Apache Derby 10.5.3 driver. For information on downloading Apache Derby, see:

http://db.apache.org/derby/derby_downloads.html

The \c10_location\realtime\webcontent\samples\sdk\callcenter\CallCenterDemo\metadata directory contains an export of the object model used for the call center demo, it is database independent.

Procedure

1. Locate the sample files in the \c10_location\realtime\webcontent\samples\sdk directory.
2. Create the /derby/databases directory under the WebLogic install location/wlserver_version number/ directory.
3. Copy the \c10_location\realtime\webcontent\samples\sdk\callcenter\CallCenterDemo\data/ccdemo database to the following directory on the Oracle WebLogic Application Server

   WebLogic install location/wlserver_version number/derby/databases

4. Copy the derby.jar file you downloaded from the Apache support site to the /derby/databases directory, such as WebLogic install location/wlserver_version number/derby/databases directory.
5. Using the BEA WebLogic Console, create a data source with the following general properties.
Table 20. Real-time Monitoring samples data source properties on the Oracle WebLogic Application Server

<table>
<thead>
<tr>
<th>General property</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>com.cognos.obi.demo.ccdemo</td>
</tr>
<tr>
<td>JNDI name</td>
<td>com.cognos.obi.demo.ccdemo</td>
</tr>
<tr>
<td>Database Type</td>
<td>Derby JDBC Provider</td>
</tr>
<tr>
<td>Database Name</td>
<td>WebLogic install location/wlserver_version number/derby/databases/ccdemo</td>
</tr>
</tbody>
</table>

Ensure that you select **Derby data store helper** as the data store helper class.

6. Test the connection and save your work.

**Results**

After preparing the sample data sources, you can import the sample metadata.

**Importing sample metadata to Real-time Monitoring**

Using IBM Cognos Real-time Monitoring Workbench, import the sample metadata.

**Procedure**

1. Start Real-time Monitoring.
2. Import the export.jar from the `c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/metadata` directory using Real-time Monitoring Workbench import capability.
   For more information about importing metadata, see the importing metadata section in the IBM Cognos Real-time Monitoring Workbench User Guide.

**Uninstalling Real-time Monitoring from the Oracle WebLogic Application Server**

Before uninstalling IBM Cognos Real-time Monitoring, decide if you need to back up any portion of the application metadata or databases. This is especially important if you have keystore files saved with user passwords.

Back up keystore files to maintain user IDs and passwords. Run the uninstall program that was installed as part of the installation process. Also, manually delete and undeploy components and files of the Real-time Monitoring application that reside on the application server and web server, such as the log files and directories.

**Procedure**

1. Optionally, back up the metadata associated with IBM Cognos Real-time Monitoring.
2. Uninstall from the Oracle WebLogic Application Server.
3. Run the IBM Cognos Real-time Monitoring uninstall program.
4. Uninstall the database.

**Backing up Real-time Monitoring metadata**

Prior to uninstalling, you may wish to back up the metadata associated with IBM Cognos Real-time Monitoring.
For some upgrades, it may be necessary to restore from a set of backup files rather than update the software. If you are upgrading, please read the upgrade instructions prior to shutting down and uninstalling the previous version. For more information, see Chapter 5, “Upgrading from a previous version or re-installing Real-time Monitoring,” on page 25.

**Procedure**
1. Log in to IBM Cognos Real-time Monitoring Workbench.
2. Use the Export feature as described in the exporting metadata section in the IBM Cognos Real-time Monitoring Workbench User Guide.
3. Log out of IBM Cognos Real-time Monitoring Workbench.

**Uninstalling from the Oracle WebLogic Application Server**
This section describes how to uninstall IBM Cognos Real-time Monitoring from the Oracle WebLogic Application Server.

**Procedure**
1. Start the Oracle WebLogic Application Server if it is not already running.
2. From the Oracle WebLogic Administration Console go to Applications and undeploy the IBM Cognos Real-time Monitoring application.

**Running the Real-time Monitoring uninstall program**
Run the uninstall program to remove IBM Cognos Real-time Monitoring from the application server or the web server, if the web server was installed on a different computer.

**Procedure**
1. Start the uninstaller.
2. Choose the language to use for the uninstaller and click Next.
3. Select IBM Cognos Real-time Monitoring and click Next.
4. When the uninstaller has completed, click Finish.

**Results**
All program files are deleted. The Real-time Monitoring log files that remain in the c10_location/instlog and c10_location/uninstall directories can be safely deleted.

**Uninstalling the database**
To uninstall the databases, you must delete the file store and metadata tables.

**Procedure**
1. Open the recovery log directory and checkpoint directory, then delete the file store *.dat and DEFAULTRECOVERYLOGGER_*.
2. Delete the tables for the metadata database by doing the following:
   - Access the database or database schema used for the IBM Cognos Real-time Monitoring metadata database.
   - Delete the tables for the metadata database. The tables to delete are: METADATA_OBJECTS, ALLOCATED_UID, and UNCOMMITTED_TID.
Chapter 8. Installing Real-time Monitoring on a JBoss Application Server

This section describes how to install and deploy IBM Cognos Real-time Monitoring on a JBoss Application Server.

Installing and deploying Real-time Monitoring on a JBoss Application Server

IBM Cognos Real-time Monitoring can be installed and deployed on a JBoss Application Server.

Before you begin

You must already have run the Real-time Monitoring installer on the application server. For more information, see "Installing Real-time Monitoring application server components" on page 15.

Procedure

1. Review and verify the requirements.
2. Modify the Java virtual machine (JVM) settings.
3. Optionally, set metadata parameters.
4. Create and configure the metadata connection.
5. Define other mandatory and optional data sources.
7. Review the considerations for running Real-time Monitoring on a JBoss Application Server instance.

Reviewing and verifying the requirements for Real-time Monitoring on a JBoss Application Server

This section describes the requirements for installing and deploying IBM Cognos Real-time Monitoring on a JBoss Application Server.

This section assumes you are familiar with the JBoss Application Server. Specifically, you must know how to do the following:

- Start and stop the JBoss Application Server.
- Set CLASSPATH and JAVA_OPTS variables.
- Create and configure a metadata connection.

Installation of the JBoss Application Server

Check the datasheet for the JBoss Enterprise Application Platform before installing the application server.

You can get the datasheet from

http://www.jboss.com/pdf/jb_ent_app_platform_04_07.pdf
Install the appropriate, supported JBoss Application Server as specified in the IBM Cognos Customer Center. For more information, see “Reviewing supported environments” on page 11.

**Java Database Connectivity drivers**

This section describes how to install the correct Java Database Connectivity (JDBC) driver for your metadata.

For more information, see “Creating and configuring the metadata connection” on page 67. The following table lists the JDBC driver files for the different databases you can use for metadata tables. IBM Cognos Real-time Monitoring works with any database with a Type 4 Driver, however, only the databases listed below are supported.

*Table 21. JDBC driver files supported for metadata databases*

<table>
<thead>
<tr>
<th>Metadata Database</th>
<th>JDBC Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 8.2</td>
<td>db2jcc.jar</td>
</tr>
<tr>
<td></td>
<td>db2jcc_license_cu.jar</td>
</tr>
<tr>
<td>Oracle 9.2 or later</td>
<td>Oracle thin driver (ojdbc14.jar)</td>
</tr>
<tr>
<td></td>
<td>ojdbc6.jar (For Oracle 11g. Works with JDK1.6 only)</td>
</tr>
<tr>
<td></td>
<td>Oracle thick driver (OCI)</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> You must use the Oracle 10G JDBC driver for both configurations.</td>
</tr>
<tr>
<td>Microsoft SQL Server 2008</td>
<td>sqljdbc.jar (Works with JDK 1.5 only.)</td>
</tr>
<tr>
<td></td>
<td>sqljdbc4.jar (Works with JDK 1.6 only.)</td>
</tr>
<tr>
<td>Microsoft SQL Server 2005</td>
<td>sqljdbc.jar</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> You must make sure that the version 2000 drivers are not in the class path.</td>
</tr>
<tr>
<td>Microsoft SQL Server 2000</td>
<td>sqljdbc.jar</td>
</tr>
<tr>
<td></td>
<td>Or one of the following drivers: mssqlserver.jar, msbase.jar, or, msutil.jar</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The sqljdbc.jar driver is backward compatible to versions 2000.</td>
</tr>
<tr>
<td>MySQL 5.0 or later</td>
<td>mysql-connector-java-[version]-bin.jar</td>
</tr>
<tr>
<td>PostgreSQL</td>
<td>postgresql-[version].jdbc3.jar</td>
</tr>
</tbody>
</table>

There is an existing Microsoft issue with the sqljdbc.jar driver, which is addressed in the Microsoft Knowledge Base article 917054.

The sqljdbc.jar driver is backward compatible to version 2000. However, if you use the 2005 driver (sqljdbc.jar), you must make sure that the version 2000 drivers are not in the class path.
Modifying the Java virtual machine settings

This section describes how to modify the Java virtual machine (JVM) settings by editing the start scripts. It assumes that you are using a Java SE HotSpot JVM version 1.5.

Specific settings pertain to allocation of RAM. To prevent attempts to reallocate memory, \(-Xms\) and \(-Xmx\) must be set to the same value: the minimum and maximum amount of memory to allocate to the Real-time Monitoring server. For a server with 16 GB RAM, the preferred setting is a minimum of 12 GB. Generally, a number that is roughly 3/4 of the total RAM is preferred.

Set \(-XX:NewSize\) and \(-XX:MaxNewSize\) to the same value. The number should be 1/4 of the size chosen for \(-Xms\).

The following table provides examples of the parameter values to use based on a memory size of 16 GB and 32 GB.

<table>
<thead>
<tr>
<th>Memory</th>
<th>Parameter Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 GB</td>
<td>(-Xms12288M)</td>
</tr>
<tr>
<td></td>
<td>(-Xmx12288M)</td>
</tr>
<tr>
<td></td>
<td>(-XX:NewSize=3072M)</td>
</tr>
<tr>
<td></td>
<td>(-XX:MaxNewSize=3072M)</td>
</tr>
<tr>
<td>32 GB</td>
<td>(-Xms24576M)</td>
</tr>
<tr>
<td></td>
<td>(-Xmx24576M)</td>
</tr>
<tr>
<td></td>
<td>(-XX:NewSize=6144M)</td>
</tr>
<tr>
<td></td>
<td>(-XX:MaxNewSize=6144M)</td>
</tr>
</tbody>
</table>

You must also specify Garbage Collection settings. The \(-XX:ParallelGCThreads\) entry should be the same as the number of processor cores available. For example, if there are two dual-core processors, enter:

\(-XX:ParallelGCThreads=4\)

If there are 4 dual-core processors, or 2 quad-core processors, enter:

\(-XX:ParallelGCThreads=8\)

The \(-verbose:gc\) and \(-Dsun.rmi.dgc.client.gcInterval\) settings are useful in determining garbage collection issues while running. All should be set. The last setting should point to the log directory, for example:

\(-Xloggc:"c:/program files/ibm/cognos/c10_64/realtime/logs"\)

If there is a space in the path, you must quote the entire parameter. Use forward slashes instead of backslashes in the path name.
**Procedure**

1. If the JBoss Application Server is already running, shut down the server.
2. Locate and open the run script that starts the JBoss Application Server. This file is located at:
   - `%JBoss_HOME%\bin\run.bat` (on a server running the Microsoft Windows operating system)
   - `/$JBoss_HOME/bin/run.sh` (on a server running the UNIX operating system)
3. To include the obiProperties.jar file, which is found in the `c10_location/realtme/bin64/` directory, edit the `run.bat` or `run.sh` file to set the following in the classpath settings.
   - On a server running the Microsoft Windows operating system:
     ```
     set JBOSS_CLASSPATH=%JBOSS_CLASSPATH%;C:/Program~1/ibm/cognos/c10_64/realtme/bin64/obiProperties.jar
     ```
   - On a server running the AIX, Solaris, or Linux operating system:
     ```
     JBOSS_CLASSPATH=$JBOSS_CLASSPATH:/opt/ibm/cognos/c10_64/realtme/bin64/obiProperties.jar
     ```
4. Set the environment variables. (For a server running the AIX, Linux, or Solaris operating system use the JDK. The JRE is insufficient.)
   - On a server running the Microsoft Windows operating system:
     Create an environment variable named `JAVA_HOME` that variable points to the JDK installation directory. For example:
     ```
     C:\Program Files\Java\jdk1.5.0_14\n     ```
     To run Java from the command line, add the `jre\bin` directory to your path. For example:
     ```
     C:\Program Files\Java\jdk1.5.0_14\jre\bin
     ```
     To create the environment variable, open the Control Panel from the Start menu (switch to Classic View if necessary), then open the System applet. Select the Advanced Tab, and click on the Environment Variables button. Click the New Button under System Variables to create the `JAVA_HOME` variable.
   - On a server running the AIX, Solaris, or Linux operating system:
     Create an environment variable named `JAVA_HOME` that points to the JDK installation directory. Add `$JAVA_HOME/bin` to the system path to be able to run Java from the command line. For example, on Linux with the bash shell, you can do this by adding the following lines to the `.bashrc` file in your home directory:
     ```
     export JAVA_HOME=<jdk_directory>
     export PATH=$PATH:$JAVA_HOME/bin
     ```
     where `<jdk_directory>` is the JDK installation directory (for example, `/usr/java/jdk1.6.0_07`). You will need to choose the appropriate JDK based on your version of the JBoss Application Server.

For more information about the prerequisites for the JBoss Application Server, refer the following:

5. Make sure JAVA_OPTS for the com.cognos.obi.bootstrap.envpropname property is set to BOOTPROPS and that the JVM property BOOTPROPS points to the realtime.properties file you edited during your preparation for installation as described in “Setting system properties during startup” on page 17.
   - On a server running the Microsoft Windows operating system:
     set JAVA_OPTS=%JAVA_OPTS% "-DBOOTPROPS=<bootstrap_file>
     set JAVA_OPTS=%JAVA_OPTS%
     "-Dcom.cognos.obi.bootstrap.envpropname=BOOTPROPS"
     where <bootstrap_file> specifies the location of the realtime.properties file that contains the bootstrap properties.
   - On a server running the AIX, Solaris, or Linux operating system:
     JAVA_OPTS="$JAVA_OPTS -DBOOTPROPS=<bootstrap_file>
     JAVA_OPTS="$JAVA_OPTS
     -Dcom.cognos.obi.bootstrap.envpropname=BOOTPROPS"
     where <bootstrap_file> specifies the location of the realtime.properties file that contains the bootstrap properties.

6. Set the file encoding type to UTF8 as shown in the following examples:
The following show examples for each operating system:
   - On a server running the Microsoft Windows operating system:
     set JAVA_OPTS=%JAVA_OPTS% "-Dfile.encoding=utf8"
   - On a server running the AIX, Solaris, or Linux operating system:
     JAVA_OPTS="$JAVA_OPTS -Dfile.encoding=utf8"

7. Optionally, set the property anonymousaccessenabled, as shown below, to true to enable anonymous login. Set this property to false to disable anonymous login. When this property is enabled, the login screen shows the link Log in as Anonymous user.
   - On a server running the Microsoft Windows operating system:
     set JAVA_OPTS=%JAVA_OPTS% "-Danonymousaccessenabled=true"
   - On a server running the AIX, Solaris, or Linux operating system:
     JAVA_OPTS="$JAVA_OPTS -Danonymousaccessenabled=true"

With anonymous login enabled, you can automatically log in to IBM Cognos Real-time Monitoring Dashboard or IBM Cognos Real-time Monitoring Workbench without specifying a user name and password by using the URL:
http://servername/cognos/realtime/landing/landingpage.htm
This enables you to choose the application.

8. Optionally, if outbound http connections such as to web services or geography coding services, are required to go through a proxy server from your server environment, add the JVM property to the start-up script so that the Java connectivity layer uses the proxy server for all outbound calls.
The following show examples for each operating system.
   - On a server running the Microsoft Windows operating system:
     set JAVA_OPTS=%JAVA_OPTS% "-Dhttp.proxyHost=<fully qualified server name of http proxy>"
     set JAVA_OPTS=%JAVA_OPTS% "-Dhttp.proxyPort=<http proxy port number>"
     set JAVA_OPTS=%JAVA_OPTS% "-Dhttps.proxyHost=<fully qualified server name of https proxy>"
     set JAVA_OPTS=%JAVA_OPTS% "-Dhttps.proxyPort=<https proxy server port>"
• On a server running the AIX, Solaris, or Linux operating system:

    JAVA_OPTS="$JAVA_OPTS -Dhttp.proxyHost=<fully qualified server name of http proxy>"
    JAVA_OPTS="$JAVA_OPTS -Dhttp.proxyPort=<http proxy port number>"
    JAVA_OPTS="$JAVA_OPTS -Dhttps.proxyHost=<fully qualified server name of https proxy>"
    JAVA_OPTS="$JAVA_OPTS -Dhttps.proxyPort=<https proxy server port>"

    **Note:** Proxy servers that require authentication are not supported.

9. Optionally, add a JAVA_OPTS setting, as shown below, to disable double logging of system output.

    **Note:** This is a work-around to JBoss bug 877974.

• On a server running the Microsoft Windows operating system:

    set JAVA_OPTS=%JAVA_OPTS%
    "-Dorg.jboss.logging.Log4jService.catchSystemOut=false"
    "-Dorg.jboss.logging.Log4jService.catchSystemErr=false"

    **Note:** The above should be entered on a single line.

• On a server running the AIX, Solaris, or Linux operating system:

    JAVA_OPTS="$JAVA_OPTS -Dorg.jboss.logging.Log4jService.catchSystemOut=false"
    JAVA_OPTS="$JAVA_OPTS -Dorg.jboss.logging.Log4jService.catchSystemErr=false"

    **Note:** The above should be entered on a single line.

10. Activate the 64-bit JVM by adding the following line to the JAVA_OPTS setting, as shown below:

    • On a server running the Microsoft Windows operating system:

        set JAVA_OPTS=%JAVA_OPTS%  "-D64"

    • On a server running the AIX, Solaris, or Linux operating system:

        JAVA_OPTS="$JAVA_OPTS -D64"

11. Set the JVM parameters for optimum memory and garbage collection (GC). Sample JVM parameters for running Real-time Monitoring are recommended as follows (for the Java SE HotSpot JVM version 1.5):

    -server
    -Xms24576M
    -Xmx24576M
    -XX:NewSize=6144M
    -XX:MaxNewSize=6144M
    -XX:PermSize=256M
    -XX:MaxPermSize=256M
    -XX:ThreadStackSize=300
    -XX:MaxTenuringThreshold=0
    -XX:SurvivorRatio=128
    -XX:+UseTLAB
    -verbose:gc
    -Dsun.rmi.dgc.client.gcInterval=600000
    -Xloggc:<location of the GC logs>
    -XX:-UsePerfData
-XX:+PrintVMOptions
-XX:+TraceClassUnloading
-XX:+DisableExplicitGC
-XX:+CMSParallelRemarkEnabled
-XX:+PrintGCDetails
-XX:+PrintGCTimeStamps
-XX:+UseParNewGC
-XX:+UseConcMarkSweepGC
-XX:ParallelGCThreads=<number of cpus>
-XX:CMSMarkStackSize=8M
-XX:CMSMarkStackSizeMax=32M
-XX:+UseCMSCompactAtFullCollection
-XX:CMSFullGCsBeforeCompaction=0
-XX:+ParallelRefProcEnabled
-XX:+CMSClassUnloadingEnabled
-XX:+CMSPermGenSweepingEnabled
-XX:+CMSIncrementalMode
-XX:+CMSIncrementalPacing
-XX:CMSIncrementalDutyCycleMin=0
-XX:CMSIncrementalDutyCycle=10
-XX:+UseCMSInitiatingOccupancyOnly

12. Optionally, set the language and locale parameters as described in [Setting language and locale parameters](#). You only need to perform this step if you want to initialize the metadata in a locale other than the default server locale.

13. Save and close the start script file.

**Setting language and locale parameters**

You can set optional parameters for the metadata database, including language, country or region, and collation strength.

The defaults are based on the locale settings of the server. You should set these defaults prior to starting the application server for the first time. These parameters are added to the start script for the application server and use the following basic format:

- \(\text{-Dcom.cognos.obi.property.[PARAMETER]}=[\text{VALUE}]\)

Each parameter is described in the table below. This table is followed by specific procedures for setting the parameters in the application server configuration.
### Table 23. Optional parameter settings for JBoss Application Server metadata database

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOCALE_LANGUAGE</strong></td>
<td>The ISO two-character language code for the server. For example, to set the language parameter to Portuguese, you would add the following command: On a server running the Microsoft Windows operating system: set JAVA_OPTS=%JAVA_OPTS% &quot;-Dcom.cognos.obi.property.LOCALE_LANGUAGE=PT&quot; On a server running the AIX, Solaris, or Linux operating system: JAVA_OPTS=&quot;$JAVA_OPTS -Dcom.cognos.obi.property.LOCALE_LANGUAGE=PT&quot;</td>
</tr>
<tr>
<td><strong>LOCALE_REGION</strong></td>
<td>The ISO two-character country or region code for the server. For example, to set the country or region to Brazil, the settings would be as follows: On a server running the Microsoft Windows operating system: set JAVA_OPTS=%JAVA_OPTS% &quot;-Dcom.cognos.obi.property.LOCALE_REGION=BR&quot; On a server running the AIX, Solaris, or Linux operating system: JAVA_OPTS=&quot;$JAVA_OPTS -Dcom.cognos.obi.property.LOCALE_REGION=BR&quot;</td>
</tr>
<tr>
<td><strong>LOCALE_COLLATION</strong></td>
<td>Set to true or false to indicate whether to perform locale-sensitive string comparisons. (Default is false.)</td>
</tr>
<tr>
<td><strong>COLLATE_STRENGTH</strong></td>
<td>Specifies the level of collation strength; that is, the extent to which the non-English characters are compared and collated: primary, secondary, tertiary, or identical. Primary is the least discriminating; identical is the greatest. (Default is tertiary.) For more information about collation parameters, see the Java documentation at: <a href="http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html">http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html</a>. <strong>Note:</strong> This setting is functional only if LOCALE_COLLATION is set to true.</td>
</tr>
<tr>
<td><strong>COLLATE_DECOMPOSITION</strong></td>
<td>Specifies one of the following collation decomposition modes: none, canonical, or full. (Default is canonical.) For more information about collation parameters, see the Java documentation at: <a href="http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html">http://download.oracle.com/javase/1.5.0/docs/api/java/util/Locale.html</a>. <strong>Note:</strong> This setting is functional only if LOCALE_COLLATION is set to true.</td>
</tr>
</tbody>
</table>
**Procedure**

1. Locate the JAVA_OPTS environment variable in the run.bat or run.sh file.
2. Add parameter settings using the following syntax:
   
   ```
   com.cognos.obi.property.[PARAMETER]=[VALUE]
   ```

   **Note:** Delimit multiple settings with a space. Prefix each setting with the -D command.
3. Save and close the run script. The changes to the JVM properties will take effect the next time the server is restarted.

**Creating and configuring the metadata connection**

In this procedure, you must copy the database driver (or drivers) to the JBoss directory, then create and deploy a metadata source descriptor.

The metadata source descriptor defines the configuration of the database connection, including information such as the URL for the database connection, the user name and associated password, and so on.

**Note:** This descriptor must be a `<no-tx-datasource>` data source. You can find a template for the descriptor file (obi_metadata-ds.xml) in the `c10_location/realtime/configuration/jboss` directory.

**Procedure**

1. Copy the database driver files (for example, ojdbc14.jar for Oracle 10g) to the `/server/default/lib` directory.
2. Set the metadata data source:
   a. Copy the obi_metadata-ds.xml file, which is located in the `c10_location/realtime/configuration/jboss/` directory to the `/server/default/deploy` directory in the JBoss installation.
   b. Open the obi_metadata-ds.xml file in a text editor.
   c. Add the `<use-java-context>` tag immediately after the `<jndi-name>` element and set it as follows:
      
      - For JBoss 4.2.3: set it to false, for example, `<use-java-context>false</use-java-context>`
      - For JBoss 5.1: set it to true, for example, `<use-java-context>true</use-java-context>`
   d. Set the connection-url and driver-class parameters shown in table below, based on the database type.

   **Table 24. Connection-url and driver class parameters settings**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Database</th>
<th>Value format</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;connection-url&gt;</code></td>
<td>DB2</td>
<td><code>jdbc:db2://[host]:[port]/[database name]</code></td>
</tr>
<tr>
<td></td>
<td>Microsoft SQL</td>
<td><code>jdbc:microsoft:sqlserver://[host]:[port];selectMethod=cursor;databaseName=[dbname]</code></td>
</tr>
<tr>
<td></td>
<td>Server 2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microsoft SQL</td>
<td><code>jdbc:sqlserver://[host]:[port];selectMethod=cursor;databaseName=[dbname]</code></td>
</tr>
<tr>
<td></td>
<td>Server 2005</td>
<td></td>
</tr>
</tbody>
</table>
Table 24. Connection-url and driver class parameters settings (continued)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Database</th>
<th>Value format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft SQL Server 2008</td>
<td></td>
<td>jdbc:sqlserver://[host]:[port];selectMethod=cursor;databaseName=[dbname]</td>
</tr>
<tr>
<td>MySQL</td>
<td></td>
<td>jdbc:mysql://[dbhost]:[port]/[dbname]</td>
</tr>
<tr>
<td>PostgreSQL</td>
<td></td>
<td>jdbc:postgresql://[dbhost]:[port]/[dbname]</td>
</tr>
<tr>
<td>Oracle Thin:</td>
<td></td>
<td>thin:jdbc:oracle:thin:@[dbhost]:[dbport]:[dbSID]</td>
</tr>
<tr>
<td>Thick (OCI):</td>
<td></td>
<td>jdbc:oracle:oci:@[tnsalias]</td>
</tr>
<tr>
<td>&lt;driver-class&gt; DB2</td>
<td>com.ibm.db2.jcc.DB2Driver</td>
<td></td>
</tr>
<tr>
<td>Microsoft SQL Server 2000</td>
<td>com.microsoft.jdbc.sqlserver.SQLServerDriver</td>
<td>If you are using the 2000 drivers (msutil.jar, mssqlserver.jar, msbase.jar), specify: com.microsoft.jdbc.sqlserver.SQLServerDriver</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you are using the 2005 driver (sqljdbc.jar), specify:</td>
</tr>
<tr>
<td>Microsoft SQL Server 2005</td>
<td>com.microsoft.sqlserver.jdbc.SQLServerDriver</td>
<td>com.microsoft.sqlserver.jdbc.SQLServerDriver</td>
</tr>
<tr>
<td>Microsoft SQL Server 2008</td>
<td>com.microsoft.sqlserver.jdbc.SQLServerDriver</td>
<td>com.microsoft.sqlserver.jdbc.SQLServerDriver</td>
</tr>
<tr>
<td>MySQL</td>
<td>com.mysql.jdbc.Driver</td>
<td>org.postgresql.Driver</td>
</tr>
<tr>
<td>PostgreSQL</td>
<td></td>
<td>oracle.jdbc.driver.OracleDriver</td>
</tr>
</tbody>
</table>

- Modify the user-name and password parameters. These should match the database settings you specified in the connection-url parameter.

  **Note:** For all databases, you must also specify a user name and password in the appropriate elements in the obi_metadata-ds.xml file.

- Save and close the obi_metadata-ds.xml file.

3. Copy the database driver files (sqljdbc.jar, msbase.jar, mssqlserver.jar, msutil.jar) to the /server/default/lib directory.

**Defining data sources on JBoss**

For your installation, you must define the following two data sources: a data source for geography maps and an operational data source.
Optionally, you can define data sources for Java Database Connectivity (JDBC) agents.

**Defining the data source for geography maps**

You must define a geography data source for geography maps.

To set up support for geography maps, follow the steps for creating a data source with the JBoss Application Server as described in the section, “Creating and configuring the metadata connection” on page 67. However, you must specify the name and Java Naming and Directory Interface (JNDI) name as `com.cognos.obi.geo.geoDatasource`.

**Procedure**

1. Make a copy of the `obi_metadata-ds.xml` file and rename it `obi_geo-ds.xml`.
2. Specify the name and JNDI name as `com.cognos.obi.geo.geoDatasource`.

**Defining an operational data source**

An operational data source is a database repository that you use to store and persist lookup data.

To set up your operational data source, follow the same steps as for creating a metadata source. However, you must specify the name and Java Naming and Directory Interface (JNDI) name as `com.cognos.obi.operational`. To create a data source, follow the procedure described in “Creating and configuring the metadata connection” on page 67.

**Defining generic optional data sources**

For every Java Database Connectivity (JDBC) agent (for example, for accessing data stream or lookup table data) that you create in IBM Cognos Real-time Monitoring Workbench, you should create a data source in the JBoss installation.

Using Java Naming and Directory Interface (JNDI) with Connection Pools is the preferable way to connect to JDBC data sources. The JNDI name specified here is used from Real-time Monitoring Workbench when configuring a JDBC Agent. If a Connection Pool driver is not available, an alternative is to specify a URL-based connection from the Real-time Monitoring Workbench. The Java Naming and Directory Interface (JNDI) name must be unique for each data source. To create a data source, follow the procedure described in “Creating and configuring the metadata connection” on page 67.

**Deploying Real-time Monitoring on a JBoss Application Server**

This section takes you through the JBoss installation process specific to IBM Cognos Real-time Monitoring.

Before proceeding, be sure to complete the set-up steps listed in Chapter 3, “Preparing to install Real-time Monitoring,” on page 11.

**JBoss logging**

In JBoss installations, any message sent to any IBM Cognos Real-time Monitoring log may also be recorded in the JBoss Application Server.log file.

By default, the JBoss Application Server logs all messages published by the Real-time Monitoring servers, in addition to its own messages and those of any other applications running on it. You can turn off the file-logging of Real-time Monitoring messages with the JBoss log4j.xml configuration file.
By default, Real-time Monitoring servers publish messages of Info severity or greater. You can change which messages they publish with the **Administration Console** of the IBM Cognos Real-time Monitoring Workbench. For more information, see the information on logging in the IBM Cognos Real-time Monitoring Workbench User Guide.

**Procedure**

1. Depending on your version of JBoss, edit the jboss-log4j.xml or log4j.xml configuration file located in the JBoss directory server/default/conf/. In that file, scroll down to the following section:

   ```xml
   <root>
     <appender-ref ref="CONSOLE"/>
     <appender-ref ref="FILE"/>
   </root>
   ```

2. Change the `<root>` definition and, in the "Categories" section, add a new category as follows:

   ```xml
   <root>
     <appender-ref ref="CONSOLE"/>
   </root>
   ...
   <category name="org">
     <appender-ref ref="FILE"/>
   </category>
   ```

   This tells the JBoss Application Server to send all messages, such as those messages published by the JBoss Application Server from "org" categories to the console. Messages from "com" categories (such as com.cognos) are not logged to file.

3. Save the changed jboss-log4j.xml or log4j.xml file.

   **Important:** Do not make this change to the log configuration while the application server is running because it will duplicate messages to both the console and file.

**Installing the JBoss Application Server**

To successfully install and deploy IBM Cognos Real-time Monitoring, you must use the EAR file for the JBoss Application Server that you are using.

**Procedure**

1. Go to the `c10_location/realtime/bin64` directory to find the EAR file for the JBoss application server version that you are using:
   - For JBoss 4.2.3: use Realtime.ear
   - For JBoss 5.1: use Realtime-jboss5.ear

2. Copy the appropriate EAR file to the `$JBOS_HOME/server/default/deploy` directory.

**Considerations when deploying Real-time Monitoring on a JBoss Application Server**

This section describes some considerations when deploying IBM Cognos Real-time Monitoring on a JBoss Application Server.
Encrypting the JBoss database password

For security reasons, you might need to encrypt the passwords used to log in to the database.

For information about how to encrypt the database password, refer to the JBoss website:

http://www.jboss.org/community/docs/DOC-9703

Modifying the JBoss Application Server for enhanced performance

The procedure in this section may enhance the overall network performance of the IBM Cognos Real-time Monitoring network.

Note: This procedure requires restarting the JBoss Application Server.

Procedure

1. Locate and open the server.xml file. For version 4.2.x, the file is located in the directory \server\default\deploy\jboss-web.deployer.

2. Locate the block listed under the <!-- A HTTP/1.1 Connector on port 8080 --> heading.

   Note: The specific port number and other settings may vary.
   This block should look like this:
   <!-- A HTTP/1.1 Connector on port 8080 -->
   <Connector port="8080" address="${jboss.bind.address}" maxThreads="400" minSpareThreads="75" maxSpareThreads="100" enableLookups="false" redirectPort="8443" acceptCount="100" connectionTimeout="20000" disableUploadTimeout="true"/>

3. Add the following parameters:
   compression="on"
   socketBuffer="1045576"

4. Save and close the server.xml file.

5. Restart the JBoss Application Server.

Results

After you have confirmed deployment, configure your web server to handle static content. For information about configuring static contents, see Chapter 9, “Installing, configuring, and uninstalling Real-time Monitoring web server files,” on page 75.

Testing Real-time Monitoring after installing on the JBoss Application Server

After you install IBM Cognos Real-time Monitoring on the application server and the web server, you may test your installation by installing and using the samples that are packaged with the product.

Procedure

1. Validate that the static and dynamic content is properly configured. See “Verifying the configuration for static and dynamic content” on page 82.
2. Optionally, load the samples. See "Loading Real-time Monitoring samples on the JBoss Application Server."

3. Start the Real-time Monitoring Workbench and import the sample metadata. See "Importing sample metadata to Real-time Monitoring."

Loading Real-time Monitoring samples on the JBoss Application Server

Load data to check that the application is working.

The `c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/` data directory contains the Derby database schema which will have the call center demo tables, data, and triggers. This demo requires the Apache Derby 10.5.3 driver. For information on downloading Apache Derby, see:

http://db.apache.org/derby/derby_downloads.html

The `c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/` metadata directory contains an export of the object model used for the call center demo; it is database independent.

The `c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/` config directory contains datasource configuration files for setting up the datasource.

Procedure

1. Locate the sample files in the `c10_location/realtime/webcontent/samples/sdk` directory.
2. Create the `/derby/databases` directory under the JBoss install location `/server/` directory.
3. Copy the `c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/data/ccdemo` database to the following directory on the JBoss Application Server `JBoss install location/server/derby/databases`.
4. Copy the `derby.jar` file you downloaded from the Apache support site to `JBoss install location/server/default/lib` directory.
5. Copy the `obi_ccdemo-ds.xml`, which is located in the `c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/config` directory to the `JBoss install location/server/default/deploy` directory in the JBoss installation.
6. Restart the JBoss Application Server.

Results

After preparing the sample data sources, you can import the sample metadata.

Importing sample metadata to Real-time Monitoring

Using the IBM Cognos Real-time Monitoring Workbench, import the sample metadata.

Procedure

1. Start Real-time Monitoring.
2. Import the export.jar from the c10_location/realtime/webcontent/samples/sdk/callcenter/CallCenterDemo/metadata directory using Real-time Monitoring Workbench import capability.

For more information about importing metadata, see the importing metadata section in the IBM Cognos Real-time Monitoring Workbench User Guide.

---

**Uninstalling Real-time Monitoring from the JBoss Application Server**

Before uninstalling IBM Cognos Real-time Monitoring, decide if you need to back up any portion of the application metadata or databases.

This is especially important if you have keystore files saved with user passwords. Back up keystore files to maintain user IDs and passwords. Run the uninstall program that was installed as part of the installation process. Also, manually delete and undeploy components and files of the Real-time Monitoring application that reside in various locations on the application server and web server, such as log files and directories.

**Procedure**

1. Optionally, back up the metadata associated with IBM Cognos Real-time Monitoring.
2. Uninstall from the JBoss Application Server.
3. Run the IBM Cognos Real-time Monitoring uninstall program.
4. Uninstall the database.

**Backing up Real-time Monitoring metadata**

Prior to uninstalling, you may wish to back up the metadata associated with IBM Cognos Real-time Monitoring.

For some upgrades, it may be necessary to restore from a set of backup files rather than update the software. If you are upgrading, please read the upgrade instructions prior to shutting down and uninstalling the previous version. For more information, see Chapter 5, “Upgrading from a previous version or re-installing Real-time Monitoring,” on page 25.

**Procedure**

1. Log in to IBM Cognos Real-time Monitoring Workbench.
2. Use the Export feature as described in the exporting metadata section in the IBM Cognos Real-time Monitoring Workbench User Guide.
3. Log out of IBM Cognos Real-time Monitoring Workbench.

**Uninstalling from the JBoss Application Server**

This section describes how to uninstall IBM Cognos Real-time Monitoring from the JBoss Application Server.

**Procedure**

1. Stop IBM Cognos Real-time Monitoring.
   - ...\%JBOSS_HOME%\bin\shutdown.bat (the Microsoft Windows operating system)
   - .../$JBOSS_HOME/bin/shutdown.sh (the UNIX operating system)
2. Remove the application EAR file from the JBoss deploy directory.
   - For JBoss 4.2.3: <JBOSS_HOME>/server/default/deploy/Realtime.ear
• For JBoss 5.1: `<JBoss_HOME>/server/default/deploy/Realtime-jboss5.ear`

3. Remove the contents of the following JBoss directories:
   `<JBoss_HOME>/server/<config-type>/tmp`
   `<JBoss_HOME>/server/<config-type>/conf/jboss.web`

**Running the Real-time Monitoring uninstall program**

Run the uninstall program to remove IBM Cognos Real-time Monitoring from the application server or the web server, if the web server was installed on a different computer.

**Procedure**

1. Start the uninstaller.
2. Choose the language to use for the uninstaller and click **Next**.
3. Select **IBM Cognos Real-time Monitoring** and click **Next**.
4. When the uninstaller has completed, click **Finish**.

**Results**

All program files are deleted. The Real-time Monitoring log files that remain in the `c10_location/instlog` and `c10_location/uninstall` directories can be safely deleted.

**Uninstalling the database**

To uninstall the databases, you must delete the file store and metadata tables.

**Procedure**

1. Open the recovery log directory and checkpoint directory, then delete the file store `*.dat` and `DEFAULTRECOVERYLOGGER_*`.
2. Delete the tables for the metadata database by doing the following:
   • Access the database or database schema used for the IBM Cognos Real-time Monitoring metadata database.
   • Delete the tables for the metadata database. The tables to delete are: `METADATA_OBJECTS`, `ALLOCATED_UID`, and `UNCOMMITTED_TID`.****
Chapter 9. Installing, configuring, and uninstalling Real-time Monitoring web server files

This section describes how to install, configure, and uninstall IBM Cognos Real-time Monitoring server files.

This section assumes you acquired the product CD or that you downloaded the appropriate install package and that you have administrative rights on the web server to which you are installing the files IBM Cognos Real-time Monitoring needs to function. If the web server is physically on a different computer from the application server, you must run the Real-time Monitoring installer on the server used for the web server environment and then configure that server for static content.

Your web server handles static content and redirects requests for dynamic content. For integration of IBM Cognos Real-time Monitoring with IBM Cognos Workplace, the Real-time Monitoring static content must reside on the same web server that hosts IBM Cognos Business Intelligence.

Installing Real-time Monitoring web server files

To install IBM Cognos Real-time Monitoring server files, run the installation wizard from the install package or product CD.

If the web server is on a different computer from the application server, you must run the installer on the web server. If the web server is on the same computer as the application server, and you ran the installer and included the web server files, you must follow the steps for configuring the web server to point to the webcontent directory, which is installed by following these procedures.

For a complete installation, you must install components on your server and then configure them to work in your environment. Typically, you run the IBM Cognos Real-time Monitoring installer in interactive mode. This means that in a graphical user interface (GUI) the installer prompts you to provide information and must be run from an X Window System workstation, an X terminal, or a PC or other system with X server software installed. To run an interactive-mode installation, the console attached to your computer must support a Java-based graphical user interface.

For systems running in a Linux on IBM System z environment there is a requirement (optional software requirement) that you must have X windows software capable of rendering a graphical user interface (that way you get the motif libraries that you need). You must enable the remote host to direct its output to the local display. You also have to set the DISPLAY environment variable. For example, type export DISPLAY=host_name:display_number.

Procedure

1. Do one of the following based on your environment:
   • On a server running the Microsoft Windows operating system, in the win64 directory of the downloaded package, double-click the issetup.exe file and follow the installation wizard instructions.
On a server running a UNIX or Linux operating system, in the directory that is appropriate for your operating system, type `.isetup` and follow the installation wizard instructions.

2. In the **Installation Location** page, specify the IBM Cognos location and click **Next**.
   For example, the default on a server running the Microsoft Windows operating system is
   ```
   C:\Program Files\ibm\cognos\c10_64
   ```
   If you are installing on a computer that contains other IBM Cognos components, such as IBM Cognos Business Intelligence version 10.1.0, install in the same directory.
   If you do not use the default installation directory, use a directory name that contains only ASCII characters. Some web servers do not support non-ASCII characters in directory names.

3. If you are installing only on the web server, in the **Component Selection** page, expand **IBM Cognos Real-time Monitoring**, deselect **Real-time Monitoring Application Server Files** and click **Next**.

4. Complete the steps in the installation wizard and click **Finish**.

**Results**

The Real-time Monitoring webcontent directory is installed to the web server. You are now ready to configure the web server. For more information, see

- "Configuring an Apache or IBM HTTP Server to handle static content"
- "Configuring Microsoft Internet Information Server to work with Real-time Monitoring installed on a WebSphere Application Server" on page 77
- "Configuring Microsoft Internet Information Server to work with Real-time Monitoring installed on a WebLogic Application Server" on page 79
- "Configuring Microsoft Internet Information Server to work with Real-time Monitoring installed on a JBoss Application Server" on page 80

---

**Configuring an Apache or IBM HTTP Server to handle static content**

This section describes how to configure your Apache HTTP web server or IBM HTTP Server (IHS) to handle static content for IBM Cognos Real-time Monitoring that has been installed on IBM WebSphere Application Server, Oracle WebLogic Application Server, or JBoss Application Server.

These steps assume that you have already installed Apache HTTP web server or IBM HTTP Server (IHS).

As part of this task, you must edit the `realtime.conf` file to update information specific to your configuration. You must edit the file with the URL path to your application server in all of the `ProxyPass` and `ProxyPassReverse` lines.

**Before you begin**

To complete these tasks, you must have access to the webcontent directory that was installed by the IBM Cognos Real-time Monitoring installer. The `realtime.conf` file must be copied into the Apache HTTP web server or IBM HTTP Server (IHS) directory structure. You must have administrative rights to both the application server and the web server. You must know the URL path and port names for the application server, and you must know the location of the `httpd.conf` file, which is
located in the in the `<apache_root>/conf` directory.

**Procedure**

1. Gather the following information so that you can configure your web server to point to the `webcontent` directory you installed and the application server.
   - the location of the `webcontent` directory
   - the URL path of the application server, such as `http://localhost:8001/realtime` or `http://localhost:8080/realtime`

2. On the web server, if the `conf.d` directory does not already exist, you must create the `conf.d` directory at the same level as the `conf` directory.

3. Copy the `realtime.conf` file, which is located in the `c10_location/realtime/configuration` directory, to the `conf.d` directory.

4. Edit the copy of the `realtime.conf` file that you copied into the `conf.d` directory with the following changes:
   - If you are using the IBM WebSphere Application Server, you must append the following entry.
     ```
     WebSpherePluginConfig "<appserver_install_root>\profiles\<profile_name>\config\cells\plugin-cfg.xml"
     ```
   - Change the `Alias` line to point to the location of your webapp directory.
     For example, on the Microsoft Windows operating system, type:
     ```
     Alias /cognos/realtime "C:/Program Files/ibm/cognos/c10_64/realtime/webcontent"
     ```
   - Change the `ProxyPass` and `ProxyPassReverse` entries to reflect your application server location and port.
     Change the IP address and port portion of the URI to correspond to the hostname and port on which the application server is running.

5. Edit the `httpd.conf` file.
   If the `httpd.conf` file does not already contain this entry, you must append the following line within the `httpd.conf` file:
   ```
   Include conf.d/*.conf
   ```

6. Save your changes.

7. Restart the web server.

---

**Configuring Microsoft Internet Information Server to work with Real-time Monitoring installed on a WebSphere Application Server**

IBM Cognos Real-time Monitoring installed on an IBM WebSphere Application Server can be configured to use Microsoft Internet Information Server (IIS) as the web server component.

To configure Microsoft Internet Information Server (IIS) with an IBM WebSphere Application Server, refer to the following information center, which provides detailed steps for performing these tasks:

*Table 25. Links to additional information about configuring IIS with WebSphere Application Server*

<table>
<thead>
<tr>
<th>Version</th>
<th>Link to Online Documentation</th>
</tr>
</thead>
</table>
Table 25. Links to additional information about configuring IIS with WebSphere Application Server (continued)

<table>
<thead>
<tr>
<th>Version</th>
<th>Link to Online Documentation</th>
</tr>
</thead>
</table>

The IBM WebSphere Application Server uses a unique binary plug-in for each supported web server. The plug-in provides information about the application server to the web server, which uses the information to communicate with the application server and run specific applications on the application server.

**Procedure**

1. Install the WebSphere Application Server plug-in on the IIS server.
2. From the WebSphere Application Server Administrative Console, update the global web server plug-in configuration.
3. On the IIS server, create a virtual directory with an alias of `realtime`, with a default installation.
4. Ensure that the virtual directory has read and execute privileges and that the `index.htm` under the **Enable default content pane** appears at the start of the list.
5. Add the Internet Services Application Programming Interface (ISAPI) filter into the IIS configuration.
   
   Enter `iisWASPlugin` for the filter name and browse to the `iisWASPlugin_http.dll`, which is located in the `WebSphere install location/Plugins/bin/IIS_webserver1` folder for the executable.
6. Save your work.
7. To configure the web server to run WebSphere Application Server extensions add a new web service extension with the name of `WASPlugin`.
   
   For the path, browse to the `iisWASPlugin_http.dll` file.
8. Ensure that the **Set extension status to Allowed** check box is selected.
9. In IIS, stop and restart the default web site.
10. If you are using IIS version 7.5 or later, you must do the following to ensure that dashboards are rendered correctly:
    a. Open a Command window with elevated privileges.
    b. Go to the `Windows/System32/inetsvr` directory.
    c. Enter the following command:

       ```cmd
       ```

       If you are not using the Default Web Site, ensure that you change **Default Web Site** in the command to the appropriate name for your website.

**Results**

Real-time Monitoring web server has been configured and you should be able to log in to Real-time Monitoring Workbench to finish the configuration.
Configuring Microsoft Internet Information Server to work with Real-time Monitoring installed on a WebLogic Application Server

IBM Cognos Real-time Monitoring installed on an Oracle WebLogic Application Server can be configured to use Microsoft Internet Information Server (IIS) as the web server component.

Microsoft Internet Information Server (IIS) delivers static content such as web pages to Real-time Monitoring users. To handle dynamic content, IIS uses a proxy to refer requests to the WebLogic Application Server. An IIS plug-in, which you must install on the WebLogic Application Server handles the coordination between IIS and WebLogic.

For detailed instructions, refer to the following site:

http://download.oracle.com/docs/cd/E12840_01/wls/docs103/plugins/isapi.html

As part of the Real-time Monitoring installation process, sample files are installed that help you to get IIS and Oracle WebLogic working together. The following file is located in the c10_location/configuration directory: iisproxy.ini.

Before you begin

Before beginning this task, ensure that you have administrative rights for both the application server and the web server and that you have located the sample file.

Procedure

1. Create a virtual directory in IIS called cognos and point it to the default location for IIS, such as 
c:\inetput\wwwroot

2. To redirect requests to the home page to the Real-time Monitoring home page, edit the properties for both the Default Web Site and the cognos virtual directory. In the Home Directory or Virtual Directory section, choose A redirection to a URL, redirect to /cognos/realtime/, and set the The exact URL entered above and A directory below URL entered check boxes.

3. Create a virtual directory inside the cognos directory called realtime inside the Default Web Site. Its Web Site Content Directory should be c10_location/realtime/webcontent

4. Edit the properties for the realtime virtual directory. In the Documents tab, ensure that the Enable default content page check box is set and that index.htm is the first item in the list.

5. Locate the iisproxy.dll and iisforward.dll files, which are located in the WebLogic install location/server/plugin/win/x64 directory, WebLogic install location/server/plugin/win/64 directory, or WebLogic install location/server/plugin/win/32 directory and copy the files to a directory that is accessible to IIS.

   Ensure that permissions for the iisproxy.dll file include the user that will run IIS, such as IUSR_machine name.

6. Configure proxying:

   • To configure proxying by file extension, use the Internet Information Service Manager to select the web site, set properties for the web site, and configure application settings.
To configure proxying by path, use the Internet Information Service Manager to register the .wlforward as a special file type that will be handled by iisproxy.dll in IIS. This procedure requires that you define a property, WlForwardPath, in iisproxy.ini and that you set the PathTrim parameter to trim the WlForwardPath files extension when required. The iisproxy.ini file provided in the realtime/configuration directory has the correct settings for WlForwardPath. However, if it is not running on the same server as IIS, this file needs to be modified to point to the correct WebLogic server (see step 8).

7. To set configuration parameters, copy and edit the iisproxy.ini file, which is located in the c10_location/realtime/configuration directory to the same location as the iisproxy.dll.

8. If WebLogic is not running on the same server as IIS, or is not running on the default port of 7001, edit the file to define the host and port number that the WebLogic Server hosts uses to handle proxy requests from the Microsoft Internet Information Server Plug-In.

9. Using the IIS Manager console, enable the Plug-In by allowing all unknown ISAPI extensions.

10. Using the IIS Manager console, enable HTTP compression of static and dynamic content.

11. Depending on your security needs or other configuration considerations, you may need to perform the following tasks.
   - Enable basic authorization.
   - Set up perimeter authentication.
   - Enable Secure Sockets Layer (SSL).

12. After you have finished, restart the IIS Admin Service.

13. If you are using IIS version 7.5 or later, you must do the following to ensure that dashboards are rendered correctly:
   a. Open a Command window with elevated privileges.
   b. Go to the Windows/System32/inetsrv directory.
   c. Enter the following command:

```
```

If you are not using the Default Web Site, ensure that you change Default Web Site in the command to the appropriate name for your website.

---

**Configuring Microsoft Internet Information Server to work with Real-time Monitoring installed on a JBoss Application Server**

IBM Cognos Real-time Monitoring installed on a JBoss Application Server can be configured to use Microsoft Internet Information Server (IIS) as the web server component.

These procedures require you to download and install the Apache Tomcat Connector (isapi_redirect.dll) from the Apache Software Foundation. As part of the Real-time Monitoring installation process, sample files are installed that help you to get IIS and JBoss working together. The following files are located in the c10_location/configuration directory: isapi_redirect.properties, rewrite.properties, uriworkermap.properties, and workers.properties.
To configure Microsoft Internet Information Server (IIS) with a JBoss Application Server, refer to the following site:

http://community.jboss.org/wiki/UsingModjk12WithJBossAndIIS

**Before you begin**

Before beginning this task, ensure that you have administrative rights for both the application server and the web server and that you have located the sample files.

**Procedure**

1. From the Apache Software Foundation web site, download isapi_redirect-1.2.28-chunking.dll from the Apache Tomcat Connectors binary releases page. Save it to the c10_location/realtime/configuration directory and rename it to isapi_redirect.dll. From Microsoft Windows Explorer, right-click the file and then click Properties. If the Unblock button appears, click it and then click OK.

   **Note:** version 1.2.30 does not work with Real-time Monitoring.

2. Edit the c10_location/realtime/configuration/isapi_redirect.properties file.

   If the location of the configuration files and the log file, as represented by c10_location, are not accurate, modify the location values for log_file, worker_file, rewrite_rule_file, and worker_mount_file.

3. Edit the c10_location/realtime/configuration/worker.properties file.

4. Open the Internet Administration Services administration application.

5. Create a virtual directory under Default Web Site called jakarta, with Execute permissions only. The Home Directory should be c10_location/realtime/

6. Create a virtual directory in IIS called cognos. Point it to the default location for IIS, such as
c:\inetput\wwwroot

   To redirect requests to the home page to the Real-time Monitoring home page, Edit the properties for both the Default Web Site and the cognos virtual directory. In the Home Directory or Virtual Directory section, choose A redirection to a URL, redirect to /cognos/realtime/, and set the The exact URL entered above and A directory below URL entered check boxes.

7. Create a virtual directory inside the cognos directory called realtime inside the Default Web Site. Its Web Site Content Directory should be c10_location/realtime/webcontent

   Edit the properties for the realtime virtual directory. In the Documents tab, ensure that the Enable default content page check box is set and that index.htm is the first item in the list.

8. Edit the properties for the Default Web Site. Add an ISAPI Filter named Realtime JBoss, with the executable c10_location/realtime/configuration/isapi_redirect.dll

9. Enable HTTP compression for both static and dynamic content in IIS.

10. Restart the IIS Admin service.

11. If you are using IIS version 7.5 or later, you must do the following to ensure that dashboards are rendered correctly:

    a. Open a Command window with elevated privileges.
    b. Go to the Windows/System32/inetrsrv directory.
c. Enter the following command:
```cmd
appcmd.exe set config "Default Web Site/" -section:system.webServer/
httpErrors -existingResponse:PassThrough
```
If you are not using the Default Web Site, ensure that you change `Default Web Site` in the command to the appropriate name for your website.

**Verifying the configuration for static and dynamic content**

After you have configured your servers for static and dynamic content, you should verify the configuration.

Perform the following to verify that your servers are configured correctly.

**Procedure**

In your web browser, enter the following URL:
```
http://web server name:web server port
```

**Results**

The browser should redirect you to the IBM Cognos Real-time Monitoring landing page. If you click **Model My Real-time Data**, you should get a login screen for IBM Cognos Real-time Monitoring.

**Configuring single sign-on for eTrust SiteMinder**

This section describes how to configure single sign-on (SSO) for eTrust SiteMinder.

**Procedure**

1. Configure SiteMinder to have a header variable, such as SM_USER, which holds the name of the user who is logging in.
2. In IBM Cognos Real-time Monitoring synchronize all the users from the same directory provider which SiteMinder is using.
   
   All the user names being passed through the SM_USER header variable need to exist in Real-time Monitoring.
3. Log in to IBM Cognos Real-time Monitoring Workbench and go to **System Settings** under **Administration Console**.
4. In **System Settings**, do the following:
   - Select **User Management and Authentication**
   - Select the **Enable Single Sign-On** check box.
   - Set the **Request Header** to SM_USER.

   **Note:** You need to set the sign-off URL to a URL other than the one used for IBM Cognos Real-time Monitoring Workbench or Dashboard.

**Uninstalling Real-time Monitoring from the web server**

Run the uninstall program to remove IBM Cognos Real-time Monitoring from the web server, if the web server was installed on a different computer.

**Procedure**

1. Start the uninstaller.
2. Choose the language to use for the uninstaller and click **Next**.
3. Select IBM Cognos Real-time Monitoring and click Next.
4. When the uninstaller has completed, click Finish.
5. If this is an Apache HTTP web server or IBM HTTP Server (IHS), you must also remove realtime.conf from the conf.d directory

**Results**

All program files are deleted. The Real-time Monitoring log files that remain in the \texttt{c10\_location/instlog} and \texttt{c10\_location/uninstall} directories can be safely deleted.
Chapter 10. Configuring Real-time Monitoring after installation

This section describes how to configure IBM Cognos Real-time Monitoring after installing the application on the application server and configuring the static content on the web server.

For detailed information on configuring interoperability between Real-time Monitoring and IBM Cognos Workspace, see the configuring interoperability section in the IBM Cognos Real-time Monitoring Workbench User Guide.

Configuring Real-time Monitoring in IBM Cognos Real-time Monitoring Workbench

This section describes how to define settings for IBM Cognos Real-time Monitoring.

Most configuration settings for Real-time Monitoring are performed from the Administration Console in Real-time Monitoring Workbench. After installing and deploying Real-time Monitoring, you need to define a few settings before users can use the product:

- Identify a directory for log files (recovery logger and checkpoint location).
- Enable email by configuring the SMTP (simple mail transfer protocol) connection.
- Specify the user keystore location and password.

All settings are described in the following steps.

There are some settings which are necessary to set up Real-time Monitoring cubes and views as a data source in IBM Cognos Business Intelligence. When publishing a package, ensure that you clear Dynamic Query Mode for both cubes and views. In IBM Cognos Framework Manager this option is set by default.

For views, after you create a query subject on a view, in the Query Subject Definition window, on the Query Information tab, click Options. Then on the SQL Settings tab, in the SQL Type select Cognos, which might be the default.

Procedure

1. Log in to IBM Cognos Real-time Monitoring Workbench.
   Using Microsoft Internet Explorer 6.0 or newer, connect to IBM Cognos Real-time Monitoring Workbench from the application server that is running IBM Cognos Real-time Monitoring:
   http://web server name:web server port/cognos/realtime/landing/landingpage.htm

2. On the login page, enter the user name rtmadmin and the password manager. The first time you log in after installation, a dialog box prompts you to complete several required system settings if they were not configured previously. If start-up properties have been set from a text file, the dialog box does not appear.

3. Click System Settings.

4. Complete the following settings in System Settings:
Table 26. Mandatory Real-time Monitoring system settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Location of Setting in System Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovery Log Directory</td>
<td>Checkpoint Configuration</td>
</tr>
<tr>
<td>Logging Directory</td>
<td>Logging</td>
</tr>
<tr>
<td>SMTP Host</td>
<td>SMTP Configuration. This is the name of the email host that provides the transport. A typical name might look like this: mail.mydomain.com.</td>
</tr>
<tr>
<td>SMTP From Address</td>
<td>SMTP Configuration. This is the address that appears in the From field for all email messages sent by the system.</td>
</tr>
<tr>
<td>SMTP User</td>
<td>SMTP Configuration. This is the user name that the system uses to access the transport.</td>
</tr>
<tr>
<td>Keystore Location</td>
<td>Encryption Configuration. This is the location and name of the user keystore.</td>
</tr>
<tr>
<td>Keystore Password</td>
<td>Encryption Configuration. This is the user keystore password. This password is used to open the keystore. The keystore password for the keystore supplied on the installation media is 8deb5102f8.</td>
</tr>
<tr>
<td>User PrivateKey Password</td>
<td>Encryption Configuration. This is the user private key password. This password is used as a seed to encrypt the user. The keystore password supplied on the installation media is 8deb5102f8.</td>
</tr>
</tbody>
</table>

The SMTP (simple mail transfer protocol) configuration specifies how Real-time Monitoring connects to the mail server that delivers email notifications. The server is external to Real-time Monitoring and is managed by your email system administrator. Contact that administrator to set up an account for Real-time Monitoring, and for details about these configuration settings.

You need administrator and user keystores for password encryption and decryption. You must specify the locations of these keystores. By default both the Admin keystore file, admin.jks, and the user keystore file, user_sample.jks, are located in the c10_location/realtime/configuration/keystore directory. The password for Admin KeyPassword and Admin PrivateKey Password for the admin.jks file is 40fd2442fa. These passwords are used to encrypt the rtmadmin user. The password for the Keystore Password and User PrivateKey Password for the user_sample.jks file is 8deb5102f8. These passwords are used to encrypt the users other than the rtmadmin user.

**Note:** Sample keystores are located in the directory \c10_location\realtime\configuration\keystore, and you are advised to create your own.

5. Click OK.

**Note:** You will not be able to exit the System Settings dialog box until you have completed all settings.

6. To begin working, click Model My Real-time Data.

**Setting up Lightweight Directory Access Protocol settings**

In addition to allowing you to manually create users and user permissions, IBM Cognos Real-time Monitoring enables you to import user information from supported Lightweight Directory Access Protocol (LDAP) providers.
Real-time Monitoring can be integrated with any LDAP provider that supports LDAP Version 3 Protocol. For the list of supported authentication providers, see the IBM Software Compatibility reports (www.ibm.com/support/docview.wss?uid=swg27037784).

IBM Cognos Real-time Monitoring can be set up for scheduled synchronizations with the LDAP server to update the existing users and roles. Manual synchronization is also an option.

**Note:** A "role" in Real-time Monitoring maps to a "group" on the LDAP server. In the synchronization process, Real-time Monitoring adds or updates the users. LDAP groups are converted to roles in Real-time Monitoring. When roles are imported, they retain their LDAP user assignments.

For more information about LDAP, see "Considerations in Lightweight Directory Access Protocol connectivity" and the LDAP section in the IBM Cognos Real-time Monitoring Workbench User Guide.

### Considerations in Lightweight Directory Access Protocol connectivity

This section identifies what you need to consider when using Lightweight Directory Access Protocol connectivity.

- If a user or role is created locally on the IBM Cognos Real-time Monitoring server, and the same user is located in the Lightweight Directory Access Protocol (LDAP) source, then the LDAP user is skipped. There is an exception for the *rtadmin* user only.

- Because permissions are never stored when using Lightweight Directory Access Protocol (LDAP), when roles, users, and role memberships are imported from an external LDAP source, no permissions are imported. The permissions are assigned locally in IBM Cognos Real-time Monitoring Workbench. For more information, see sections that describe permissions in the IBM Cognos Real-time Monitoring Workbench User Guide and IBM Cognos Real-time Monitoring Technical Reference.

- Real-time Monitoring imports a user but none of the groups or roles to which the user is assigned. The user is created and remains unassigned to any roles in Real-time Monitoring.

- If Real-time Monitoring imports a role but has no member users, the role is created, but will not have any members.

- Users that have been manually created in Real-time Monitoring can only be assigned to manually created roles. Also, users synchronized from LDAP can also be assigned to manually created roles. However, roles synchronized from LDAP cannot be assigned to manually created users. Only synchronized users can be assigned to synchronized roles. Such assignments must be made on the LDAP server or Microsoft Activity Directory Server.
Chapter 11. Troubleshooting your installation

This section describes tasks you can perform if you need to troubleshoot your installation.

Troubleshooting a problem

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem.

The first step in the troubleshooting process is to describe the problem completely. Problem descriptions help you and the IBM technical-support representative know where to start to find the cause of the problem. This step includes asking yourself basic questions:

• What are the symptoms of the problem?
• Where does the problem occur?
• When does the problem occur?
• Under which conditions does the problem occur?
• Can the problem be reproduced?

The answers to these questions typically lead to a good description of the problem, which can then lead to a resolution of the problem.

What are the symptoms of the problem?

When starting to describe a problem, the most obvious question is “What is the problem?” This question might seem straightforward; however, you can break it down into several focused questions that create a more descriptive picture of the problem. These questions can include:

• Who, or what, is reporting the problem?
• What are the error codes and messages?
• How does the system fail? For example, is the problem a loop, hang, crash, performance degradation, or incorrect result?

Where does the problem occur?

Determining where the problem originates is not always easy, but it is one of the most important steps in resolving a problem. Many layers of technology can exist between the reporting and failing components. Networks, disks, and drivers are only a few of the components to consider when you are investigating problems.

The following questions help you to isolate the problem layer:

• Is the problem specific to one platform or operating system, or is it common across multiple platforms or operating systems?
• Is the current environment and configuration supported?

If one layer reports the problem, the problem does not necessarily originate in that layer. Part of identifying where a problem originates is understanding the environment in which it exists. Take some time to completely describe the problem.
environment, including the operating system and version, all corresponding software and versions, and the hardware. Confirm that you are running within an environment that is supported; many problems can be traced back to incompatible levels of software that are not intended to run together or have not been fully tested together.

**When does the problem occur?**

Develop a detailed timeline of events leading up to a failure, especially for cases that are one-time occurrences. You can most easily develop a timeline by working backward: Start at the time an error was reported (as precisely as possible, even down to the millisecond), and work backward through the available logs and information. Typically, you need to look only as far as the first suspicious event that you find in a diagnostic log.

To develop a detailed timeline of events, answer these questions:

- Does the problem happen only at a certain time of day or night?
- How often does the problem happen?
- What sequence of events leads up to the time that the problem is reported?
- Does the problem happen after an environment change, such as an upgrade or an installation of software or hardware?

**Under which conditions does the problem occur?**

Knowing which systems and applications are running at the time that a problem occurs is an important part of troubleshooting. These questions about your environment can help you to identify the cause of the problem:

- Does the problem always occur when the same task is being performed?
- Does a certain sequence of events need to occur for the problem to occur?
- Do any other applications fail at the same time?

Answering these types of questions can help you explain the environment in which the problem occurs and correlate any dependencies. Remember that just because multiple problems might have occurred around the same time, the problems are not necessarily related.

**Can the problem be reproduced?**

Problems that you can reproduce are often easier to solve. However, problems that you can reproduce can have a disadvantage. If the problem as a significant business impact, you do not want it to recur. If possible, re-create the problem in a test or development environment, which typically offers you more flexibility and control during your investigation. Answer the following questions:

- Can the problem be re-created on a test system?
- Are multiple users or applications encountering the same type of problem?
- Can the problem be re-created by running a single command, a set of commands, or a particular application?

**Searching knowledge bases**

You can often find solutions to problems by searching IBM knowledge bases. You can optimize your results by using available resources, support tools, and search methods.
About this task

You can find useful information by searching the information center for IBM Cognos, but sometimes you need to look beyond the information center to resolve problems.

Procedure

To search knowledge bases for information that you need, use one or more of the following approaches:

- **Find the content that you need by using the IBM Support Portal (IBM Cognos Business Intelligence Support Portal)**
  The IBM Support Portal is a unified, centralized view of all technical support tools and information for all IBM systems, software, and services. The IBM Support Portal lets you access the IBM electronic support portfolio from one place. You can tailor the pages to focus on the information and resources that you need for problem prevention and faster problem resolution. Familiarize yourself with the IBM Support Portal by viewing the demo videos [https://www.ibm.com/blogs/SPNA/entry/the_ibm_support_portal_videos](https://www.ibm.com/blogs/SPNA/entry/the_ibm_support_portal_videos) about this tool. These videos introduce you to the IBM Support Portal, explore troubleshooting and other resources, and demonstrate how you can tailor the page by moving, adding, and deleting portlets.

- **Search for content about IBM Cognos by using one of the following additional technical resources:**
  - IBM Cognos BI APARs (problem reports)
  - IBM Cognos BI Support website
  - IBM Cognos forums and communities

- **Search for content by using the IBM masthead search.** You can use the IBM masthead search by typing your search string into the Search field at the top of any ibm.com page.

- **Search for content by using any external search engine,** such as Google, Yahoo, or Bing. If you use an external search engine, your results are more likely to include information that is outside the ibm.com domain. However, sometimes you can find useful problem-solving information about IBM products in newsgroups, forums, and blogs that are not on ibm.com.

  **Tip:** Include “IBM” and the name of the product in your search if you are looking for information about an IBM product.

Getting fixes

A product fix might be available to resolve your problem.

Procedure

To find and install fixes:

1. Determine which fix you need [Fix Central](http://www.ibm.com/support/fixcentral/) (opens in new window)
2. Download the fix. Open the download document and follow the link in the “Download package” section.
3. Apply the fix by following the instructions in the “Installation Instructions” section of the download document.
4. Subscribe to receive weekly email notifications about fixes and other IBM Support information.

**Contacting IBM Support**

IBM Support provides access to a variety of IBM resources for help with software questions.

**Before you begin**

After trying to find your answer or solution by using other self-help options such as technote, you can contact IBM Support. Before contacting IBM Support, your company must have an active IBM maintenance contract, and you must be authorized to submit problems to IBM. You should also have the following information at hand:

- Your customer identification number
- Your service request number, if it is an ongoing service request
- The phone number where you can be reached
- The version of the software you use
- The version of the operating environment you use
- A description of what you were doing when the problem occurred
- The exact wording of any error messages that display
- Any steps you took to attempt to solve the problem

For information about the types of available support, see the Support portfolio topic in the *Software Support Handbook* (opens in new window).

**Procedure**

Complete the following steps to contact IBM Support with a problem:

1. Define the problem, gather background information, and determine the severity of the problem. For more information, see the Getting IBM support topic in the *Software Support Handbook*.
2. Gather diagnostic information.
3. Submit the problem to IBM Support in one of the following ways:
   - Using IBM Support Assistant (ISA): Use this feature to open, update, and view an Electronic Service Request with IBM. Any data that has been collected can be attached to the service request. This expedites the analysis and reduces the time to resolution.
   - Online through the IBM Support Portal (opens in new window): You can open, update, and view all your Service Requests from the Service Request portlet on the Service Request page.
   - By phone: For the phone number to call, see the Directory of worldwide contacts (opens in new window) web page.

**Results**

If the problem that you submit is for a software defect or for missing or inaccurate documentation, IBM Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM Support
Web site daily, so that other users who experience the same problem can benefit from the same resolution.

**Exchanging information with IBM**
To diagnose or identify a problem, you might need to provide IBM Support with data and information from your system.

In other cases, IBM Support might provide you with tools or utilities to use for problem determination.

**Sending information to IBM Support**
To reduce the time that it takes to resolve your problem, you can send trace and diagnostic information to IBM Support.

**Procedure**
To submit diagnostic information to IBM Support:
1. Open a problem management record (PMR). You can use the IBM Support Assistant (opens in new window) or the IBM Service Request tool (opens in new window).
2. Collect the diagnostic data that you need. Diagnostic data helps reduce the time that it takes to resolve your PMR. You can collect the diagnostic data manually or automatically.
3. Compress the files by using the TRSMAIN or AMATERSE program. Download the free utility from the IBM to the IBM Cognos BI system and then install the utility using the TSO RECEIVE command.
4. Transfer the files to IBM. You can use one of the following methods to transfer the files to IBM:
   - The Service Request tool (opens in new window)
   - Standard data upload methods: FTP, HTTP
   - Secure data upload methods: FTPS, SFTP, HTTPS
   - Email
     - If you are using an IBM Cognos product and you use ServiceLink / IBMLink to submit PMRs, you can send diagnostic data to IBM Support in an email or by using FTP.
     - All of these data exchange methods are explained on the IBM Support site (opens in new window).

**Receiving information from IBM Support**
Occasionally an IBM technical-support representative might ask you to download diagnostic tools or other files. You can use FTP to download these files.

**Before you begin**
Ensure that your IBM technical-support representative provided you with the preferred server to use for downloading the files and the exact directory and file names to access.

**Procedure**
To download files from IBM Support:
1. Use FTP to connect to the site that your IBM technical-support representative provided and log in as anonymous. Use your email address as the password.
2. Change to the appropriate directory:
   a. Change to the /fromibm directory.
   
   ```
   cd fromibm
   ```
   b. Change to the directory that your IBM technical-support representative provided.
   
   ```
   cd nameofdirectory
   ```
   3. Enable binary mode for your session.
   
   ```
   binary
   ```
   4. Use the `get` command to download the file that your IBM technical-support representative specified.
   
   ```
   get filename.extension
   ```
   5. End your FTP session.
   
   ```
   quit
   ```

### Subscribing to Support updates

To stay informed of important information about the IBM products that you use, you can subscribe to updates.

#### About this task

By subscribing to receive updates, you can receive important technical information and updates for specific Support tools and resources. You can subscribe to updates by using one of two approaches:

**RSS feeds and social media subscriptions**

The following RSS feeds and social media subscriptions are available for IBM Cognos BI:

- RSS feed for a developerWorks® forum
- Subscription to Cognos Support notebook blog
- RSS feed for the Support site for IBM Cognos Business Intelligence

For general information about RSS, including steps for getting started and a list of RSS-enabled IBM web pages, visit the IBM Software Support RSS feeds site.

**My Notifications**

With My Notifications, you can subscribe to Support updates for any IBM product. You can specify that you want to receive daily or weekly email announcements. You can specify what type of information you want to receive, such as publications, hints and tips, product flashes (also known as alerts), downloads, and drivers. My Notifications enables you to customize and categorize the products that you want to be informed about and the delivery methods that best suit your needs.

#### Procedure

To subscribe to Support updates:

1. Subscribe to the Product RSS feeds.

2. To subscribe to My Notifications, begin by going to the IBM Support Portal and clicking My Notifications in the Notifications portlet.

3. If you have already registered for My support, sign in and skip to the next step. If you have not registered, click Register now. Complete the registration form using your email address as your IBM ID and click Submit.
4. Click Edit profile.
5. Click Add products and choose a product category; for example, Software.
6. In the second list, select a product segment; for example, Data & Information Management.
7. In the third list, select a product subsegment, for example, Databases.
8. Select the products that you want to receive updates for.
9. Click Add products.
10. After selecting all products that are of interest to you, click Subscribe to email on the Edit profile tab.
11. Select Please send these documents by weekly email.
12. Update your email address as needed.
13. In the Documents list, select the product category; for example, Software.
14. Select the types of documents that you want to receive information for.
15. Click Update.

Results

Until you modify your RSS feeds and My Notifications preferences, you receive notifications of updates that you have requested. You can modify your preferences when needed (for example, if you stop using one product and begin using another product).

Starting in safe mode

If the IBM Cognos Real-time Monitoring system is at 100% CPU usage, memory is low, or the system is not responding, you may want to start the application in safe mode.

When you start Real-time Monitoring in safe mode, all events, such as data streams and look-up tables are paused. IBM Cognos Real-time Monitoring Dashboard and Workbench display a banner that indicates the system is currently in safe mode. Safe mode is in effect until you set the safemode property to false.

Procedure

1. Stop Real-time Monitoring.
2. Edit the realtime.properties file to include the following line:
   
   Safe\ Mode=true

3. On the application server, restart Real-time Monitoring.

Results

Real-time Monitoring starts in safe mode.

Tip: To turn safe mode off, remove the safe mode entry from the realtime.properties file and restart Real-time Monitoring.
Keystore not found error message appears

When attempting to start IBM Cognos Real-time Monitoring Dashboard or IBM Cognos Real-time Monitoring Workbench, a message appears that states that the keystore is not found.

Check the keystore path to ensure that it is accurate.

Cannot connect to database error message appears in application server console

In the application server console, a message appears stating that it cannot connect to the IBM Cognos Real-time Monitoring database.

Ensure the following:

- The database is running.
- The database is accessible from the application server where Real-time Monitoring is installed.
- The data source has the appropriate connection parameters.

IBM Cognos Real-time Monitoring Dashboard menus and controls appear truncated or do not function properly

As you work in IBM Cognos Real-time Monitoring Dashboard, the controls do not appear properly.

For example, you cannot see all of the selection items if you click the Choose Folder control.

Ensure that your browser settings allow script-initiated windows without size or position constraints. For detailed instructions on setting up browsers, see “Configuring web browsers” on page 9.

Network domain missing on virtual machine image of Real-time Monitoring

IBM Cognos Real-time Monitoring can be run on a virtual machine when you need to test your configuration or develop a training system.

A virtual machine rendition of Real-time Monitoring may not meet all of the requirements, such as having a network domain for cookies that enable single sign-on.

You can substitute an Internet Protocol (IP) address for a network domain when configuring single sign-on on a virtual machine.

Invalid Command: WebSpherePluginConfig

You must have the WebSpherePluginConfig set in the realtime.conf file if you are running Apache as the web server with IBM Cognos WebSphere Application Server.
You may receive an error message stating that there is an invalid command if WebSpherePluginConfig is misspelled or if it is defined by a module that is not included in the server configuration.

To fix this problem, you must comment out or delete the line that has to do with WebSpherePluginConfig.

**Application server error: property not available**

The application server indicates that the servlet started but a property is not available.

This indicates that the obiProperties.jar file was not found in the classpath or was not loaded. If the configuration is set correctly, it may be necessary to restart the application server for the changes to take affect.

**Processing error message appears**

Processing error messages can include problems with network connectivity.

Check for throughput issues.

**Security error message appears**

Security issues can include authentication issues.

Ensure that the authentication provider is running properly.
Chapter 12. Configuring the Java Messaging Service

To use Java Messaging Service (JMS), you must customize the Message Driven Bean (MDB) for your application server.

To customize the MDB, perform the following steps.

Procedure
1. If you do not have ANT on your server, install it.
2. Create a directory named mdb on your server.
3. Locate the directory /samples/cqmd on your installation CD and copy the contents from /samples/cqmd to the mdb directory that you just created.
4. Set the system variables JAVA_HOME and ANT_HOME on your server. The JAVA_HOME variable sets the path for Java. ANT_HOME sets the path for ANT. For example:
   - JAVA_HOME=/usr/java6_64
   - ANT_HOME=/opt/apache-ant-1.7.1
5. In your mdb directory, locate and open the env.properties file.
6. Set the following properties in the env.properties file:
   - jms_jar
     Set this property to the path for the J2EE JAR files from your application server. For example,
     jms_jar=/opt/WebSphere/lib/j2ee.jar
   - JMS.TOPICNAME
     If you are implementing a JMS Topic, set this property to the name of your JMS Topic. For example, JMS.QUEUENAME=Topic111. Make sure that you delete JMS.QUEUENAME from the file if are specifying JMS.TOPICNAME.
   - JMS.QUEUENAME
     If you are implementing a JMS Queue, set this property to the name of your JMS Queue. For example, JMS.QUEUENAME=Queue111. Make sure that you delete JMS.TOPICNAME from the file if are specifying JMS.QUEUENAME.
   - JMS.JNDINAME
     Set JMS.JNDINAME equal to the JNDI name of the queue or topic that the MDB is listening to. For example, JMS.JNDINAME=jms/com.cognos.obi.Queue111.
   - JMS.EVENTNAME
     Set JMS.EVENTNAME to the data stream name that you plan to configured in the IBM Cognos Real-time Monitoring Workbench. For example, JMS.EVENTNAME=event111.
   - APP.INSTANCENAME
     Set APP.INSTANCENAME to the name for your instance of IBM Cognos Real-time Monitoring. For example, APP.INSTANCENAME=cognosrtm.
   - APP.PORT
     Set APP.PORT to the port on your web server where IBM Cognos Real-time Monitoring is running. For example, APP.PORT=80. The default is 80.
   - APP.HOST
Set APP.HOST to the host name for IBM Cognos Real-time Monitoring. For example, APP.HOST=localhost. The default is localhost.

7. Run ant on your mdb directory.
   After ANT completes, you should see an EAR file in the directory mdb/deploy. The EAR file is either jmsmdb_topic_<topicname>.ear or jmsmdb_queue_<queuename>.ear, depending on whether you specified the name of a JMS Topic or a JMS Queue in your env.properties file. For example, if you specified JMS.TOPICNAME=Topic111, ANT creates the file jmsmdb_topic_Topic111.ear. If you specified JMS.QUEUE=Queue111, ANT creates the file jmsmdb_topic_Topic111.ear.

8. Deploy the MDB on your application server.
Appendix A. Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products.

See the IBM Accessibility Center (http://www.ibm.com/able) for more information about the commitment that IBM has to accessibility.

Keyboard Shortcuts for the Installation Wizard

Keyboard shortcuts, or shortcut keys, provide you with an easier and often faster method of navigating and using software.

The installation wizard uses standard Microsoft Windows operating system navigation keys in addition to application-specific keys.

Note: The following keyboard shortcuts are based on US standard keyboards.

The following table lists the keyboard shortcuts that you can use to perform some of the main tasks in the installation wizard on the Windows operating system.

Table 27. List of keyboard shortcuts on a Windows operating system

<table>
<thead>
<tr>
<th>To do this</th>
<th>Press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move to the next field on a page</td>
<td>Tab</td>
</tr>
<tr>
<td>Return to the previous field on a page</td>
<td>Shift+Tab</td>
</tr>
<tr>
<td>Close the installation wizard</td>
<td>Alt+F4</td>
</tr>
<tr>
<td>Move to the next configuration step</td>
<td>Alt+N</td>
</tr>
<tr>
<td>Return to the previous configuration step</td>
<td>Alt+B</td>
</tr>
<tr>
<td>Move to the next selection in a list</td>
<td>Down arrow</td>
</tr>
<tr>
<td>Move to the previous selection in a list</td>
<td>Up arrow</td>
</tr>
</tbody>
</table>

The following table lists the keyboard shortcuts you can use to perform some of the main tasks in the installation wizard on the UNIX or Linux operating system.

Table 28. List of keyboard shortcuts on a UNIX or Linux operating system

<table>
<thead>
<tr>
<th>To do this</th>
<th>Press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move to the next field on a page</td>
<td>Tab</td>
</tr>
<tr>
<td>Return to the previous field on a page</td>
<td>Shift+Tab</td>
</tr>
<tr>
<td>Close the installation wizard</td>
<td>Alt+F4</td>
</tr>
<tr>
<td>Move to the next selection in a list</td>
<td>Down arrow</td>
</tr>
<tr>
<td>Move to the previous selection in a list</td>
<td>Up arrow</td>
</tr>
</tbody>
</table>

The following table lists the keyboard shortcuts you can use to perform some of the main tasks in the License Agreement page of the installation wizard.
Table 29. List of keyboard shortcuts on the License Agreement page

<table>
<thead>
<tr>
<th>To do this</th>
<th>Press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accept the license agreement</td>
<td>Alt+A</td>
</tr>
<tr>
<td>Decline the license agreement</td>
<td>Alt+D</td>
</tr>
<tr>
<td>Quit the installation wizard</td>
<td>Alt+x</td>
</tr>
</tbody>
</table>

The following table lists the keyboard shortcuts you can use to perform some of the main tasks in IBM Cognos Configuration on a Windows operating system.

Table 30. List of keyboard shortcuts for IBM Cognos Configuration on a Windows operating system

<table>
<thead>
<tr>
<th>To do this</th>
<th>Press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save the current configuration</td>
<td>Ctrl+S</td>
</tr>
<tr>
<td>Close IBM Cognos Configuration</td>
<td>Alt+F4</td>
</tr>
<tr>
<td>Rename the selected item</td>
<td>F2</td>
</tr>
<tr>
<td>Display the File menu</td>
<td>Alt+F</td>
</tr>
<tr>
<td>Display the Edit menu</td>
<td>Alt+E</td>
</tr>
<tr>
<td>Display the View menu</td>
<td>Alt+V</td>
</tr>
<tr>
<td>Display the Actions menu</td>
<td>Alt+A</td>
</tr>
<tr>
<td>Display the Help menu</td>
<td>Alt+H</td>
</tr>
</tbody>
</table>

The following table lists the keyboard shortcuts you can use to perform some of the main tasks in IBM Cognos Configuration on a UNIX or Linux operating system.

Table 31. List of keyboard shortcuts for IBM Cognos Configuration on a UNIX or Linux operating system

<table>
<thead>
<tr>
<th>To do this</th>
<th>Press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save the current configuration</td>
<td>Ctrl+S</td>
</tr>
<tr>
<td>Close IBM Cognos Configuration</td>
<td>Alt+F4</td>
</tr>
<tr>
<td>Rename the selected item</td>
<td>F2</td>
</tr>
</tbody>
</table>
Appendix B. Geography map tuning

This appendix explains the geography database schema and how you can improve geocoding accuracy using the database and geocoding software.

Improving geocoder accuracy

To improve the accuracy of the geocoder, you can modify the ABBREVMAP and GEOCODECACHE tables in the geography data source to affect the results.

- **ABBREVMAP**
  The ABBREVMAP table expands abbreviations so they are not ambiguous to the geocoder. The ABBREVMAP table contains ABBREV, EXPANSION, and CATEGORY columns. The system uses the table to expand abbreviations into the full name of a state, province, or country or region. Currently, the table has expansions for US states and Canadian provinces. For each row in the table, the ABBREV column stores the abbreviation, the EXPANSION column contains what the abbreviation should expand to, and the CATEGORY column stores the category to which this abbreviation should apply. Possible values for CATEGORY are city, stateprovince, country, region, and, postal code. Note that the ABBREV and EXPANSION column values are expected to be capitalized without trailing or leading spaces and no more than one single space between words.

- **GEOCODECACHE**
  The GEOCODECACHE table caches the results of the geocoders. The GEOCODECACHE table maps the logical address to the GPS latitude/longitude coordinates that are returned by the geocoder. It contains the ADDRESS, LATITUDE, LONGITUDE, ACCURACY, and LAST_ACCESS columns. The ADDRESS column stores the address. It must be capitalized, and all extraneous spaces must be removed, including spaces around commas. LATITUDE and LONGITUDE are the GPS coordinates. ACCURACY can be any number. However, if the value is 6 or greater, it will be treated as an exact location. LAST_ACCESS is the time in milliseconds since EPOCH. The higher this number, the more likely it will be precached on startup.
  
  If the geocoder that you are using cannot look up a particular address, or the coordinates that you are getting are incorrect, you can prepopulate the GEOCODECACHE table in your geography data source. To prepopulate the table:
  
  - Uppercase all letters in your address, and remove all preceding and trailing spaces (including around commas).
  - Add the required Latitude/Longitude values in the respective columns and use any numbers in the remaining columns.

  You might be able to improve accuracy by adding more abbreviations to the ABBREVMAP table in your geography data source. Ensure that all entries are uppercase, and that you trim all unnecessary spaces.

Extending geography map support

This section describes how to create a geocoder.
You can extend support for Geography Maps by creating your own geocoder. To create a geocoder, you must implement the com.cognos.obi.maps.IGeocoder interface. In System Settings > Geography Maps of IBM Cognos Real-time Monitoring Workbench, you can then type the class name of your custom geocoder and populate the Geocoder Key and URL fields with values needed by your geocoder. Your geocoder can access these values as parameters through the init(url,key) callback that you must implement.

**IGeocoder interface**

You can create your own geocoder by implementing the IGeocoder Java interface (com.cognos.obi.maps.IGeocoder).

This interface requires you to implement two methods: init and geocode.

```java
void init(String url, String key)
```

The init method is an initialization callback. It is called immediately after the geocoder is constructed, and it is assumed that the geocoder class will have a zero-argument constructor. The arguments represent the parameters “Base URL for GeoCoder” and “Geocoder Key” in the System Settings for Geography Maps. The method parameters are defined as follows:

- **url**
  
  The URL for the geocoder base URL entered in the system settings for Geography Maps in the Administration Console of the Real-time Monitoring Workbench.

- **key**
  
  The geocoder key used in the system settings for Geography Maps in the Administration Console of the Real-time Monitoring Workbench.

```java
GeoPoint geocode(String address) throws VCException
```

The geocode method takes an address and returns a GeoPoint object representing the latitude and longitude of the given address. If the address cannot be geocoded, the geocode method must throw a VCException. Also, geocoders must be re-entrant; that is, thread-safe. For more information about the GeoPoint object, see “GeoPoint class” on page 106.

You can use the geocode method of the IGeocoder interface to return latitude and longitude values for dimension values that the default geocoders cannot handle. For example, you have a Sales Territory dimension with three levels: World, Country or Region, and Local. These levels have the following values:

- **World:** “Asia and Pacific”, “Americas”, “Europe”
- **Country or Region:** “USA and Canada”, “Mexico and Central America”
- **Local:** “New England”, “West Coast”

Because the default Google geocoder does not recognize values such as “West Coast” or “USA and Canada” and cannot provide latitude and longitude coordinates for these, you need a custom geocoder that can provide the correct latitude and longitude for these addresses.

To make sure that addresses are not ambiguous, Real-time Monitoring appends all dimension levels of a higher granularity to the address. For example, “West Coast” can refer to either the west coast of “USA and Canada” or “Mexico and Central America”. Therefore, the address becomes “West Coast,USA and Canada,Americas” to specify the correct address for the west coast of “USA and Canada.” Also,
Real-time Monitoring capitalizes the string and removes any extraneous spaces to cache the results efficiently. Your geocoder should take addresses such as “WEST COAST, USAAND CANADA, AMERICAS” or “MEXICO AND CENTRAL AMERICA, AMERICAS” and return the correct latitude and longitude for that address. Also, Real-time Monitoring expands any abbreviations according to the ABBREVMAP table. For example, the abbreviations for the states California and Oregon are expanded from CA and OR to CALIFORNIA and OREGON.

Dimension levels create the address provided to the geocoder. You can program your custom geocoder in any manner you want to provide the correct longitudes and latitudes for the addresses that you expect it to receive.

Addresses are cached in the in-memory cache and GEOCODECACHE table of the database cache. After the system concatenates, uppercases and removes extra spaces (canonicalization), and expands abbreviations, the geography coordinate is returned. If the address is not in the in-memory cache, the database cache is checked, and the coordinates are returned if the address exists in the database cache. If the address is not in the in-memory cache or database cache, the geocoder processes the address and returns the coordinates. The in-memory cache and GEOCODECACHE table are then updated with the new address if the cache size is non-zero.

You can cause the system to always use the geocoder to return the coordinates by setting the cache size to zero. Setting the cache size to zero causes all requests to bypass the caches. This is useful for mapping moving coordinates and when debugging a custom geocoder.

The database cache stores the address and coordinates in the GEOCODECACHE. However, you can only delete these addresses manually. You can prepopulate the table with your own coordinates if the address that you use matches the address output after concatenation, canonicalization, and the expansion of abbreviations.

The workflow for processing addresses and updating the caches is shown in the following diagram:
After you have created your custom geocoder, you must place it in a JAR file and ensure that it is part of the classpath that Real-time Monitoring is using.

**GeoPoint class**

The GeoPoint class contains longitude and latitude information. A GeoPoint object is returned from the geocode method of the IGeocoder interface.

The constructor for GeoPoint is

```java
GeoPoint(double latitude, double longitude, int accuracy)
```

The GeoPoint class has the getter methods

- `getLatitude`
- `getLongitude`
- `getAccuracy`

```java
double getLatitude()
```

Returns the latitude coordinate in degrees as a double.

```java
double getLongitude()
```
Returns a longitude coordinate in degrees as a double.

int getAccuracy()

Indicates the accuracy of the latitude and longitude coordinates. The higher the value returned, the more accurate the coordinates. If the value is 6 or greater, the coordinates are treated as an exact location.
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