

Oracle® Cloud

Getting Started with Remote Data Connector for Oracle Analytics Cloud



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Connecting Oracle Analytics Cloud to a Remote Data Source

To enable secure access to data in an on-premises environment from Oracle Analytics Cloud, you deploy and configure Remote Data Connector.

- [Audience](#)
- [About Remote Data Connector](#)
- [Prerequisites](#)
- [Configure Secure Access to On-Premises Data](#)
- [Setting Up Remote Data Connector With Apache Tomcat](#)

Audience

The intended audience for these instructions is administrators who want to set up Remote Data Connector to enable secure access from the cloud to on-premises relational data sources for analysis.

About Remote Data Connector

Remote Data Connector (Remote Data Connector) enables secure connection to on-premises data sources for analysis in the cloud.

Remote Data Connector works with the BI Server Data Gateway running in the Oracle Cloud environment to provide secure access to on-premises data using private/public key pairs and SSL communication.

Supported Data Sources

Remote Data Connector supports these on-premises database types:

- DB2
- Oracle
- Oracle OLAP
- SQL Server
- Teradata

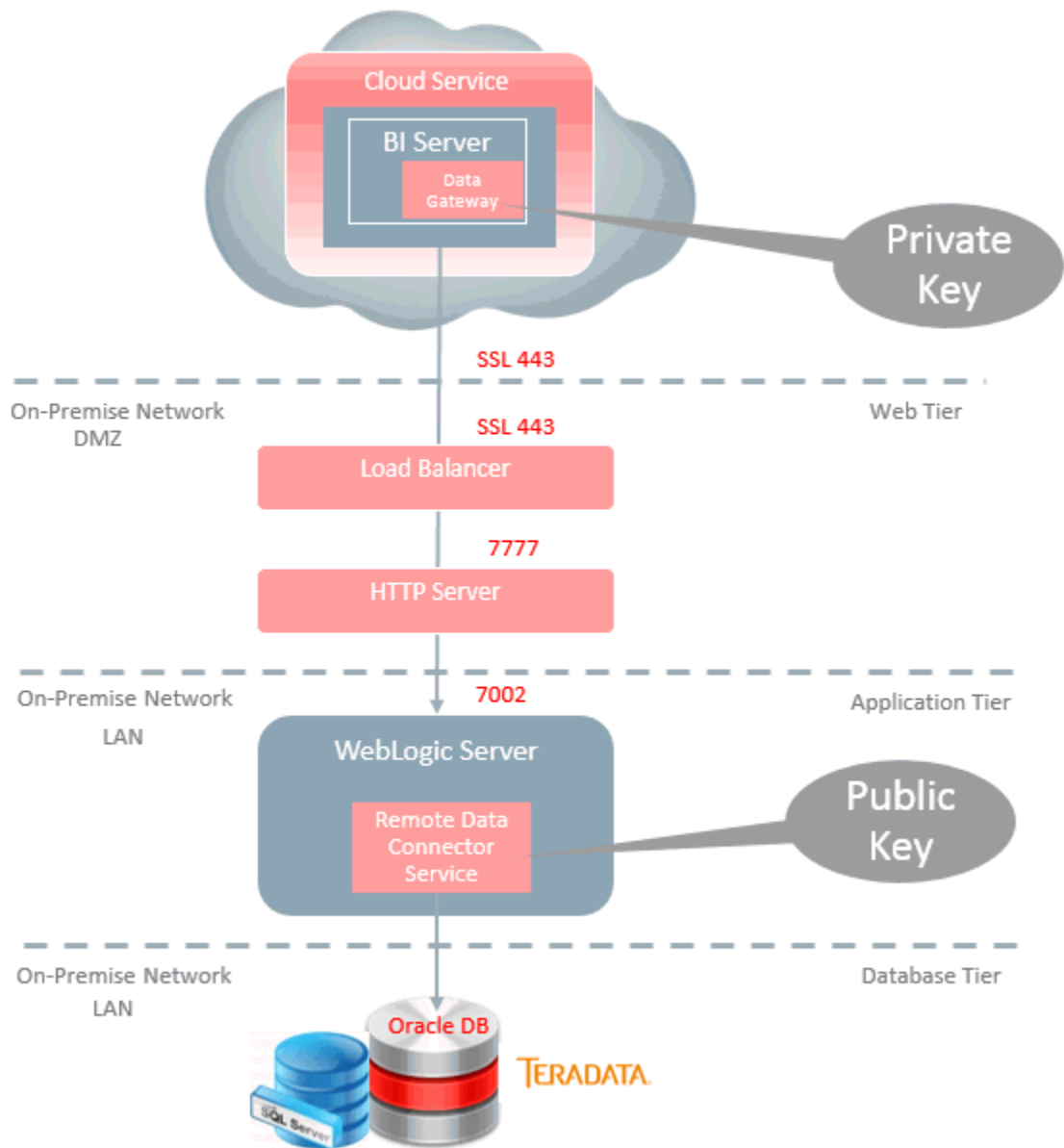
Supported Web Servers

- Oracle Weblogic Server (follow the steps in [Configure Secure Access to On-Premises Data Using WebLogic Server](#)).
- Apache Tomcat (follow the steps in [Setting Up Remote Data Connector With Apache Tomcat](#)).

Architecture

Each Cloud service instance is provisioned with a unique private key. A public key is available for download from Console. This public key when deployed on-premises in Remote Data Connector enables Remote Data Connector to verify the authenticity of a query received from a BI Server in the cloud service. SSL configured on-premises at a Load Balancer or HTTP servers provides secure access to on-premises data.

This diagram shows a typical on-premises network architecture. Contact your network administrator for additional details about your network configuration.



Prerequisites

Make sure that your on-premises environment meets these requirements.

- Java Development Kit (JDK) version 7 or greater.

Configure Secure Access to On-Premises Data Using WebLogic Server

Use Remote Data Connector (RDC) to connect to an on-premises database from the cloud.

1. Download Remote Data Connector and Developer Client Tool (see [Download Remote Data Connector and Developer Client Tool](#)).
2. Deploy the Remote Data Connector WAR file and install Developer Client Tool (see [Deploy the Remote Data Connector WAR File](#)).
3. Add the JDBC data source (see [Configure Your On-Premises Database as a JDBC Data Source](#)).
4. Download and deploy the public key (see [Download and Deploy the Public Key for your Cloud Service](#)).
5. Make Remote Data Connector Available to Oracle Analytics Cloud (see [Make Remote Data Connector Available to your service](#)).
6. Update the data model file connection pool (see [Update the Connection Pool for the Data Model](#)).
7. Test that the URL entered in the **Data source name** of the Connection Pool is accessible through the internet (see [Test Your Data Connection](#)).
8. Upload the data model file to your Cloud Service (see [Upload Your Data Model to the Cloud](#)).

You have now configured secure access to relational data sources.

Download Remote Data Connector and Developer Client Tool

You download Remote Data Connector and Developer Client Tool from Oracle Technology Network (OTN).

1. Navigate to the OTN download page for Oracle Analytics Cloud.
`http://www-content.oracle.com/technetwork/middleware/oac/downloads/index.html`
2. Click **Accept License Agreement**.
3. Click **OAC Remote Data Connector <version>**.
The file `obi-remotedataconnector.war` is downloaded to your system.
4. Click **Developer Client Tool for OAC**.
5. Navigate to the download and click `bi_developer_client<version>.exe` to install Developer Client Tool on a Windows system in the on-premises environment.

Deploy the Remote Data Connector WAR File

You deploy the Remote Data Connector WAR file in WebLogic Server.

1. Log in to Oracle WebLogic Server and, in the Change Center pane, click **Lock & Edit**.
2. In the Domain Structure, select **Deployments**, and display the **Control** pane.
3. In the Deployments list, click **Install**.
4. In the Install Application Assistant, click the **upload your file(s)** link, click the **Choose File** button for the Deployment Archive, and select the `obi-remotedataconnector.war` file you downloaded.
5. Click **Next** twice.
6. Confirm that the **Install this deployment as an application** option is selected and click **Next**.
7. Select the appropriate server target.
8. Click **Next**.
9. Verify the deployment summary.
10. Click **Finish**.

You see a message that indicates that the deployment has been successfully installed.

11. On the left-hand side Change Center pane, click **Activate Changes**.
12. On the right-hand content pane, select the option next to the EAR just deployed.
13. Click **Start**, and select **Servicing all requests** from the drop-down list.
14. In the content pane of the new page, click **Yes**.
15. Temporarily disable Remote Data Connector's Metadata security:

If Node Manager is installed, then in Oracle WebLogic Console navigate to Environment (on the left pane), then Servers. Select the server to which Remote Data Connector was deployed, display the **Server Start** tab, then in the **Arguments** edit box, add:

```
-Doracle.bics.rdc.disable_metadata_security=1
```

Note: If this variable is not set to 1, the status URL (provided in the next step) is blocked. After setting this property, you must restart Oracle WebLogic Server. When Oracle WebLogic Server is started subsequently, it has to be done using Node Manager.

If Node Manager is not installed, then before starting Oracle WebLogic Server (in the same command prompt or script that starts Oracle WebLogic Server), execute one of the following commands to set this environment variable:

On Linux:

```
export DISABLE_RDC_METADATA_SECURITY=1
```

On Windows:

```
set DISABLE_RDC_METADATA_SECURITY=1
```

16. Restart Oracle WebLogic Server.

17. Test the deployment by navigating to `http(s)://<weblogic-server>:<weblogic-port>/obiee/javads?status`.

You should see an XML file. If you see an error "401—Unauthorized", then correct the `.../obiee/javads?status` URL and retry.

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```

▼<JavaDSServer>
  ▼<Services>
    <Service name="oracle.bi.datasource.service.DatasourceService"
      processor="oracle.bi.datasource.service.DatasourceServiceProcessor"/>
  </Services>
  ▼<Cartridges>
    ▼<Cartridge name="JDBC" uuid="fd35144d-26f1-491e-936e-17039604fec6" version="12.1">
      <Connector name="JDBC (Direct Driver)" uuid="5e9ffb28-b5ce-4201-b1a6-8f9f585389ea" version="12.1"/>
      <Connector name="JDBC (JNDI)" uuid="b41b07f5-7c55-4adf-8c51-ebe9a09b37f7" version="12.1"/>
    </Cartridge>
  </Cartridges>
  ▼<ConfigSources>
    ▼<ServiceProperties>
      ▼<![CDATA[
        #DatasrcServer/src/jdbc-only-serviceprocessor.properties
        oracle.bi.datasource.service.DatasourceService=oracle.bi.datasource.service.DatasourceServiceProcessor
      ]]>
    </ServiceProperties>
    ▼<CartridgeProperties>
      ▼<![CDATA[
        #DatasrcServer/src/jdbc-only-cartridges.properties jdbc=oracle.bi.datasource.jdbc.JDBCCartridge
      ]]>
    </CartridgeProperties>
  </ConfigSources>
</JavaDSServer>

```

Configure Your On-Premises Database as a JDBC Data Source

Configure a JDBC data source for your on-premises database.

1. Sign in to Oracle WebLogic Server, navigate to Domain Structure, and select **Services**.
2. In the Summary of Services list, click **Data Sources**, and display the **Configuration** tab.
3. Under **Data Sources**, click **New**, and select **Generic Data Source**.
4. Specify values for the **Name** and **JNDI Name** fields and click **Next**.

To avoid confusion, use the same name. The JNDI Name forms a component of the URL used to access this data source after the setup is complete.



Note:

Make a note of the name that you enter to reuse later when you set the URL for the remote data connection. For example, you might use **mysalesdatasource** as a name for your sales database.

5. In the next screen, for an Oracle database, select **Oracle's Driver (Thin) for Service connections: Versions:Any** in the Database Driver drop-down list and click **Next**.
6. Accept defaults in the next screen and click **Next**.

7. Enter your database connection details in the next screen and click **Next**.
8. In the next screen, click **Test Configuration** to test your database connection.
9. Once you receive the `Connection test succeeded` message, click **Next**.
10. In the Targets tab under the settings, select the target server for the JDBC Data source.
11. Verify that you can see the newly created JDBC Data source in the list of Data Sources.

Download and Deploy the Public Key for your Cloud Service

You download your public key from Oracle Analytics Cloud and deploy it in WebLogic Server.

1. Sign-in to Oracle Analytics Cloud, and click **Console**.
2. Click **Connections**, then click **Get Public Key**.

The key file `oracle_bics_rdc.pem` is downloaded to your local system.

3. Copy the downloaded key file to the Oracle WebLogic Server environment in the `DOMAIN_HOME/rdc_keys/<deployment_name>` folder (by default the deployment name is "obi-remotedataconnector").

When Remote Data Connector is first deployed, it creates a folder `rdc_keys/<deployment_name>`. The `DOMAIN_HOME` path is the directory in which the Oracle WebLogic Server domain is installed.

Make Remote Data Connector Available to your service

With the help of a network administrator give your cloud service access to Remote Data Connector.

1. Configure the load balancer/reverse proxy for SSL communication.
2. Configure the load balancer/reverse proxy to route requests to the HTTP server.
3. Configure the HTTP server to direct requests to Oracle WebLogic Server.
4. Test Remote Data Connector with the public IP address/domain URL, for example `https://<Public IP or Domain Name>:<port>/obiee/javads?status`.

Note: If Remote Data Connector metadata security is not disabled, then this URL fails with the message 401-Unauthorized. To disable Remote Data Connector metadata security, set `oracle.bics.rdc.disable_metadata_security` to 1 or set the `DISABLE_RDC_METADATA_SECURITY` environment variable to 1.

Update the Connection Pool for the Data Model

You use Developer Client Tool to configure a connection for Remote Data Connector.

1. Open Developer Client Tool.
2. In the **File** menu, select **Load Java Datasources**.
3. In the Connect to Java Datasource Server dialog, specify the **Hostname** and the **Port** where Remote Data Connector is running.

4. For **Username**, specify `rdcuser`, and for **Password**, specify `rdcpwd`.
5. Click **OK**.

A message is displayed indicating, "Successfully loaded javads metadata from `https://<Public IP or Domain Name>:<Port>`". If Remote Data Connector metadata security isn't disabled, then this URL fails with the message 401-Unauthorized. To disable Remote Data Connector metadata security, set `oracle.bics.rdc.disable_metadata_security` to 1 or set the `DISABLE_RDC_METADATA_SECURITY` environment variable to 1.
6. Open the data model file BI Metadata Repository in Offline mode.
7. In the Physical layer, double-click the data source, then display the **Connection Pools** tab.
8. Double-click the connection pool to display the Connection Pool dialog.
9. Change the **Call interface** to **JDBC (JNDI)**.
10. In the **Data source name** field, change the value of the Remote Data Connector URL.

The Remote Data Connector URL is the endpoint URL that you created earlier. You must specify the URL in the format: `https://<Public IP or Domain Name>:<port>/obiee/javads/<JNDI connectionname>`. Note that `myjdbcdatasource` was specified in Step 2.
11. Click the **Miscellaneous** tab.

This step is mandatory because the BI Metadata Repository isn't updated unless the **Use SQL over HTTP** variable is set to `true`. This is only saved on switching to this tab.
12. Click **OK**.
13. Save the data model file.

Test Your Data Connection

Before you upload your data model you test the connection.

1. Test that the URL specified as the **Data source name** in the Connection Pool that you specified in Developer Client Tool is accessible through the internet.

Tip: An easy way to test this is to use a smart phone with its mobile data/3G/4G turned on and WiFi turned off, then trying to go to the exact URL that you specified as the **Data source name** value in the previous setup task. If everything is working correctly, then the message "401--Unauthorized" should be displayed. For other errors, please double check the protocol (HTTP/HTTPS), URL and port.

Upload Your Data Model to the Cloud

Deploy your data model by uploading it to the cloud.

1. In your cloud service, navigate to **Console**.
2. Select **Snapshots**.
3. Take a snapshot of the current data model in case you need to restore this version.
4. Click **Replace Data Model**.

5. Click **Browse** and select the data model file (*.rpd) that you want to upload.
6. Enter the password for the file, then click **OK**.

Setting Up Remote Data Connector With Apache Tomcat

To deploy Remote Data Connector with the Apache Tomcat web server, first install and configure Apache Tomcat as described in Apache Tomcat documentation. Then complete the setup by following the steps in this section to configure the Data Source Name (DSN), BI Metadata Repository, and the Remote Data Connector metadata security.

Prerequisites

Before you start, install:

- Apache Tomcat for Windows or Linux Version 7.0.x or later to a maximum of Version 9.0.0.x.
- Client Developer Tool.

You download Client Developer Tool from OTN.

Steps For Setting Up Remote Data Connector With Apache Tomcat

1. Configure the Data Source Name, see [Configuring the Data Source Name](#).
2. Configure metadata security, see [Configuring Metadata Security](#).
3. Configure how Apache Tomcat is deployed, see [Deploying the Remote Data Connector Application](#).
4. Configure the BI Metadata Repository, see [Configuring the BI Metadata Repository](#).

Configuring the Data Source Name (DSN)

When you set up Apache Tomcat, configure the DSN to match the DSN that is specified in the BI Metadata Repository Connection Pool.

1. Create the following Resource under the GlobalNamingResources element (if necessary, create a GlobalNamingResources element), by editing `<Tomcat_installation_directory>/conf/server.xml` as follows:

```
<GlobalNamingResources>
<!-- Editable user database that can also be used by
UserDatabaseRealm to authenticate users
-->
<Resource
name="jdbc/myoracle"
global="jdbc/myoracle"
auth="Container"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.OracleDriver"
url="jdbc:oracle:thin:@biserver-dev.us.oracle.com:1521:orcl"
username="northwind"
password="n"
maxActive="15"
maxIdle="1"
```

```
maxWait="-1" />
</GlobalNamingResources>
```

2. Specify the context, by editing <Tomcat_installation_directory>/conf/context.xml as follows:

```
<Context>
<ResourceLink name="myjdbcdatasource"
global="jdbc/myoracle"
auth="Container"
type="javax.sql.DataSource" />
<!-- Default set of monitored resources -->
<WatchedResource>WEB-INF/web.xml</WatchedResource>
</Context>
```

Configuring Metadata Security

When you set up Apache Tomcat, you must disable metadata security.

1. Disable metadata security in one of the following ways:

- By executing a command in the context of the shell that launches Apache Tomcat.

Set the environment variable `DISABLE_RDC_METADATA_SECURITY` in the context of the shell that launches Tomcat. For example:

(On Linux) `export DISABLE_RDC_METADATA_SECURITY=1`

(Windows) `set DISABLE_RDC_METADATA_SECURITY=1`

- By setting the Java property `oracle.bics.rdc.disable_metadata_security` in the `catalina.sh/bat` file, as shown in the following snippet from the `catalina.sh/bat` file:

```
if [ -z "$LOGGING_MANAGER" ]; then JAVA_OPTS="$JAVA_OPTS -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager" else
JAVA_OPTS="$JAVA_OPTS $LOGGING_MANAGER" fi JAVA_OPTS="$JAVA_OPTS -
Doracle.bics.rdc.disable_metadata_security=1"
```

Note: The final line in the snippet disables metadata security to display the Remote Data Connector application status page and enable connection from Oracle BI Administration Tool to Load Java Datasources.

Deploying the Remote Data Connector Application

When you set up Apache Tomcat, you must deploy the Remote Data Connector Tomcat application WAR file `obi-remotedataconnector-tomcat.war` with the context path:

```
/obiee
```

For example, your Remote Data Connector application's root folder might be:

```
$MY_HOME/webapps/obiee
```

Configuring the BI Metadata Repository

When you set up Apache Tomcat, you configure the BI Metadata Repository and configure a public key.

1. Configure the BI Metadata Repository as follows:
 - a. In Client Developer Tool, navigate to **File**, then **Load Java Datasources**.
If you do not see the **Load Java Datasources** option, upgrade Developer Client Tool.
 - b. In the Connect to Java Datasource Server dialog, specify the hostname, port and username/password of the Tomcat server (including https if you are using a secure transfer protocol).
 - c. When the Java data sources have loaded, open the BI Metadata Repository.
 - d. Navigate to the **Connection Pool** area of the connection that you would like to use remotely.
In the Connection Pool dialog, you will see two new Call Interfaces.
 - e. Select **JDBC (JNDI)**.
 - f. For the Data Source Name, specify:
`http(s)://<server-name>:<port>/obiee/javads/<JNDI connection name>`
For the DSN, specify:
`myjdbcdatasource`
 - g. On the Miscellaneous tab, make sure that the **SQL over HTTP** value is set to `true`.
 - h. Save the metadata repository and deploy it in the BIServer/BICS instance/domain.
2. Download and deploy the public key.
 - a. Log in to Oracle BI Cloud Service.
 - b. Navigate to the Oracle BI Cloud Service Console.
 - c. Click **Connections**.
 - d. Click **Get Public Key** to download the public key.
 - e. When downloading the public key, in the Save dialog, make that sure the name is `oracle_bics_rdc.pem` and save it to your local machine.
 - f. Copy `oracle_bics_rdc.pem` to the Apache Tomcat environment in the folder `$CATALINA_HOME\webapps\obiee\rdc_keys`.

The folder `obiee\rdc_keys` is created by Remote Data Connector the first time it is deployed. If this path does not exist, verify whether Remote Data Connector was deployed with the correct context path. The `CATALINA_HOME` path is the directory in which the Apache Tomcat is installed.