

Oracle Health Insurance Back Office

Configuring the Remote Data Connector (RDC) for BI Cloud Service (BICS)

Version 1.0

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CHANGE HISTORY

Release	Version	Changes
10.17.1.4.0	1.0	<ul style="list-style-type: none">• Creation (cta13682.doc)

RELATED DOCUMENTS

A reference in the text (**doc[x]**) is a reference to another document about a subject that is related to this document.

Below is a list of related documents:

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1 Introduction

The BICS Remote Data Connector (RDC) was released in March 2016. It allows reports and analyses in BI Cloud Service (BICS) to directly connect to an On-Premise Oracle Database. When a report is run, a SQL request is generated by BICS and sent to the on-premise Weblogic server. Weblogic sends that request to the on-premise database, and then compresses the results before returning those to BICS where it is displayed. This gives customers with large on-premise data sets the ability to use BI Cloud Service without having to push all of that data to the cloud.

This guide is used to setup the RDC for an Oracle Health Insurance Back Office environment. The official Oracle RDC software and documentation, including a getting started guide, can be found here:

<http://www.oracle.com/technetwork/middleware/bicloud/downloads/index.html>

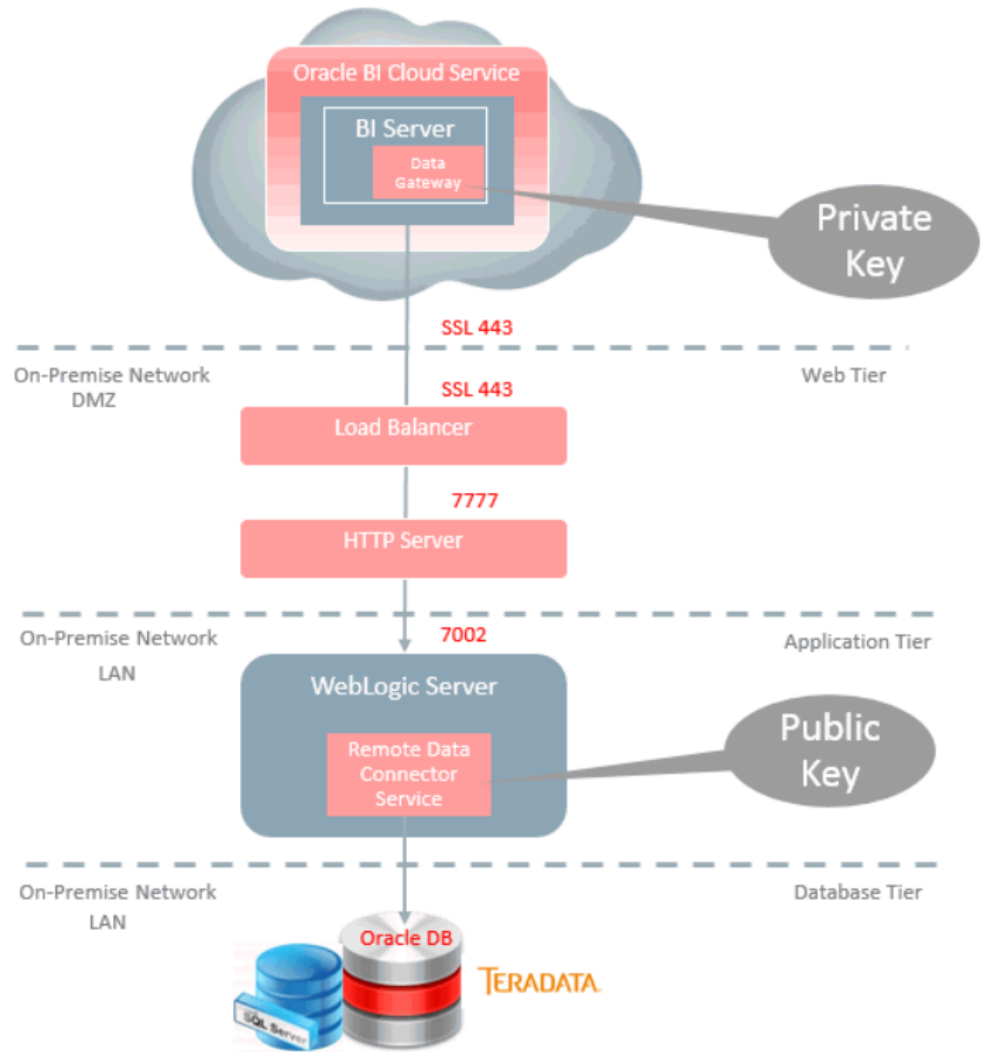
1.1 Prerequisites

Before you set up Oracle BI Cloud Service Remote Data Connector, make sure that your environment meets these requirements:

- Weblogic server running in the On-Premise environment. Several instructions on the Oracle Health Insurance Back Office library can be found which will help you on how to install a weblogic server;
- Obtain the public IP and domain name;
- Download the Oracle BI Cloud Service Remote Data Connector WAR file (obi-remotedataconnector.war) from OTN;
- Configure your load balancer or HTTP server for SSL communication. Knowledge of networking, security and firewalls is preferable. The On-Premise weblogic server needs to be accessible externally, and the port defined in the RPD connection needs to correctly route to the weblogic server port;
- Download and install Oracle Business Intelligence Developer Client Tool;
- OHI_BAC_USER is created in the OHIBO and OHIDM database (M-5008);
- The BI Admin tool used to create the RPD must be 12c. Prior versions do not offer the JDBC (JNDI) Data Source option that is required for this process.

1.2 Architecture

Each Oracle BI Cloud Service instance is provisioned with a unique private key. A public key is available for download from Oracle BI Cloud Service 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 Oracle BI 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.



2 Configure Weblogic

This chapter describes the installation of the RDC application into weblogic.

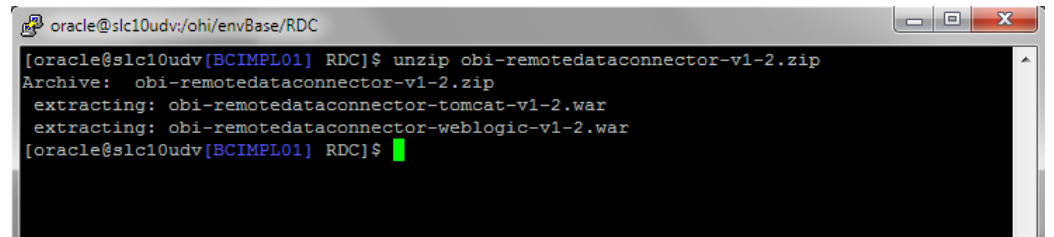
2.1 Deploy war file

1. Download the War file application to be installed into Weblogic and save to a file location that is accessible to the server where Weblogic is running.

This War file is available on OTN and is called 'BICS Remote Data Connector'

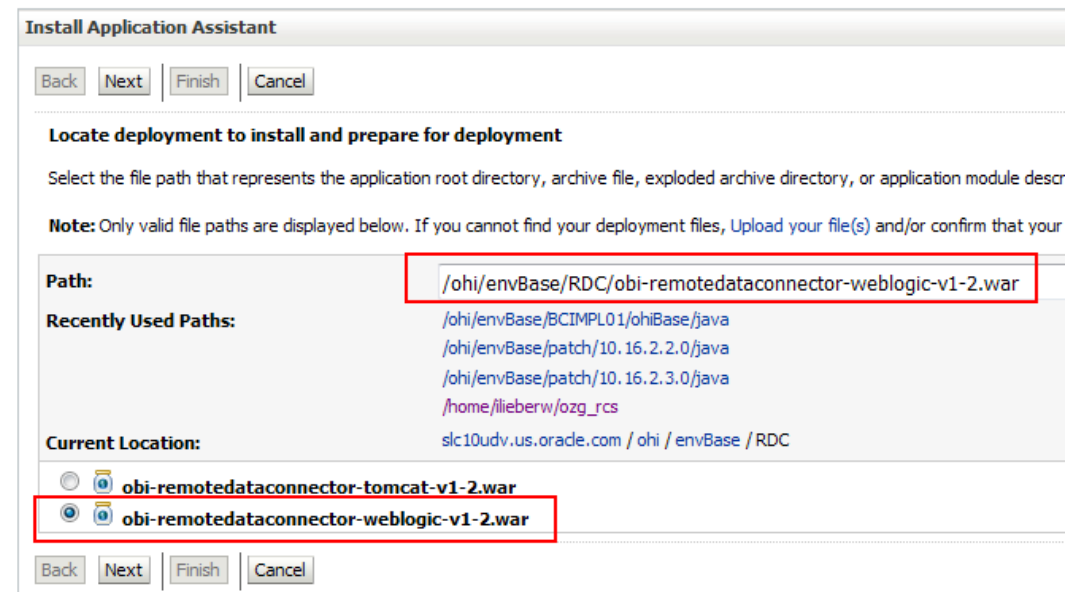
<http://www.oracle.com/technetwork/middleware/bicloud/downloads/index.html>

2. Copy the downloaded .zip file to the weblogic server and unzip. In the examples version 1.2 is used.



```
oracle@slc10udv:/ohi/envBase/RDC
[oracle@slc10udv[BCIMPL01] RDC]$ unzip obi-remotedataconnector-v1-2.zip
Archive:  obi-remotedataconnector-v1-2.zip
  extracting: obi-remotedataconnector-tomcat-v1-2.war
  extracting: obi-remotedataconnector-weblogic-v1-2.war
[oracle@slc10udv[BCIMPL01] RDC]$
```

3. Log in to Weblogic. Navigate to "Deployments" > "Install". Select the obi-remotedataconnector-weblogic-v1-2.war file. Hit 'Next' to continue.



4. Select 'Install this deployment as an application'. Hit 'Next' to continue.

Install Application Assistant

Back Next Finish Cancel

Choose installation type and scope

Select if the deployment should be installed as an application or library. Also decide the scope of this deployment.

The application and its components will be targeted to the same locations. This is the most common usage.

Install this deployment as an application

Application libraries are deployments that are available for other deployments to share. Libraries should be available

Install this deployment as a library

Select a scope in which you want to install the deployment.

Scope: Global ▾

Back Next Finish Cancel

5. Select the target managed server. In the example MS_SVLIMPL01 is used. Hit 'Next' to continue.

Install Application Assistant

Back Next Finish Cancel

Select deployment targets

Select the servers and/or clusters to which you want to deploy this application. (You can reconfigure deployment targets later).

Available targets for obi-remotedataconnector-weblogic-v1-2 :

Servers
<input type="checkbox"/> AdminServer
<input checked="" type="checkbox"/> MS_SVLIMPL01

Back Next Finish Cancel

6. Make sure 'DD only' and Use the defaults defined by the deployment's targets' is selected and hit 'Finish'.

Install Application Assistant

Back Next Finish Cancel

Optional Settings

You can modify these settings or accept the defaults.

* Indicates required fields

General

What do you want to name this deployment?

* **Name:**

Security

What security model do you want to use with this application?

DD Only: Use only roles and policies that are defined in the deployment descriptors.

Custom Roles: Use roles that are defined in the Administration Console; use policies that are defined in the deployment descriptor.

Custom Roles and Policies: Use only roles and policies that are defined in the Administration Console.

Advanced: Use a custom model that you have configured on the realm's configuration page.

7. Activate the changes if the weblogic server is in 'Production' mode.

ORACLE WebLogic Server Administration Console 12c

Home Log Out Preferences Record Help

Home > Summary of Deployments

Messages

- ✓ The deployment has been successfully installed.
- ✓ You must also activate the pending changes to commit this, and other updates, to the active system.

Summary of Deployments

Change Center

View changes and restarts

Pending changes exist. They must be activated to take effect.

Activate Changes

Undo All Changes

8. Start the deployment.

Summary of Deployments

Configuration **Control** Monitoring

This page displays the list of Java EE applications and standalone application modules installed to this domain.

You can start and stop applications and modules from the domain by selecting the checkbox next to the application name and then using the controls on this page.

Customize this table

Deployments

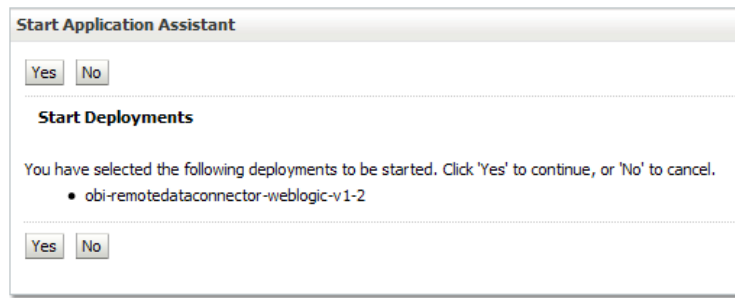
Start Stop

<input type="checkbox"/> Name	State
<input type="checkbox"/> HSL_POL (v4.15)	Active
<input type="checkbox"/> HSL_REL (v4.8)	Active
<input checked="" type="checkbox"/> obi-remotedataconnector-weblogic-v1-2	Prepared
<input type="checkbox"/> SIC_OOZWEBSERVICEJ	Active
<input type="checkbox"/> SIC_OOZWEBSERVICES	Active
<input type="checkbox"/> state-management-provider-memory-rar	Active
<input type="checkbox"/> SVLBOWS (v4.374)	Active

Start Stop

Servicing all requests

Servicing only administration requests



- The Remote Desktop Connector has metadata security built in. To fully verify the application is working, and to connect to it through the BI Admin tool, this security will need to be temporarily disabled. Shutdown the Weblogic Server, and then in the same command shell or shell script used to start weblogic – set this variable:

```
export DISABLE_RDC_METADATA_SECURITY=1
```

Then re-start the Weblogic admin or managed server (depending on where you deployed the .war file).

- To confirm the Remote Desktop Connector was installed correctly, navigate to this path:

“`http://<weblogic-server>:<weblogic-managed server-port>/obiee/javads?status`”.

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"/>
    <Connector name="JDBC (BIJDBC)" uuid="b41b07f5-7c55-4adf-8c51-ebe9a23b37f4" version="12.1"/>
  </Cartridge>
</Cartridges>
- <ConfigSources>
  - <DataSrcServer/>
    #DataSrcServer/src/jdbc-only-serviceprocessor.properties oracle.bi.datasource.service.DatasourceServiceProcessor
  </DataSrcServer/>
  <ServiceProperties>
  </ServiceProperties>
  - <CartridgeProperties>
    #DataSrcServer/src/jdbc-only-cartridges.properties jdbc=oracle.bi.datasource.jdbc.JDBCCartridge
  </CartridgeProperties>
</ConfigSources>
</JavaDSServer>
```

If you see this message, the security was not disabled in the previous step.

Error 401--Unauthorized

From RFC 2068 *Hypertext Transfer Protocol -- HTTP/1.1*:

10.4.2 401 Unauthorized

The request requires user authentication. The response MUST include a WWW-Authenticate header field (section 14.46) resource. The client MAY repeat the request with a suitable Authorization header field (section 14.8). If the request is rejected with this status, the user SHOULD be prompted to provide a user name and password. If the 401 response contains the challenge, the user SHOULD repeat the request with the appropriate authentication credentials. If the 401 response contains the entity that was given in the challenge, the user SHOULD be prompted to provide a user name and password. HTTP access authentication is explained in section 11.

2.2 Create data source

Multiple data sources can be setup. Use the following process for each and use a unique name. The connection to each data source would then be defined in the RPD connection.

1. Within the WebLogic Administration Console, expand 'Services' and 'Data Sources' and select 'New' to create a new data source. If running in production mode, press 'Lock&Edit' first.



2. Select 'Generic Data Source' in the options:



3. Enter a Name for the Data Source and a JNDI Name, and the database type. In the initial release of the RDC tool, 'Oracle' is the only supported Database type. In future releases this will be expanded to other vendors. Note - the JNDI Name forms part of the URL used to access the data source, so try to avoid spaces and other characters that may cause problems with the URL. Hit 'Next' to continue.

Create a New JDBC Data Source

Back Next Finish Cancel

JDBC Data Source Properties

The following properties will be used to identify your new JDBC data source.

* Indicates required fields

What would you like to name your new JDBC data source?

* Name: JDBC Data Source BICS BCIMPL01

What scope do you want to create your data source in ?

Scope: Global

What JNDI name would you like to assign to your new JDBC Data Source?

JNDI Name: jdbc/DSBCIMPL01_BICS

What database type would you like to select?

Database Type: Oracle

Back Next Finish Cancel

4. For the Database Driver select the appropriate driver for the On-Premise Oracle Database. In the initial release, the following options are currently supported:

- Oracle's Driver (Thin) for Instance Connections;
- Oracle's Driver (Thin) for RAC Service-Instance Connections;
- Oracle's Driver (Thin) for Service Connections;

In this case the 'Oracle's Driver (Thin) for Service Connections' is selected.

Create a New JDBC Data Source

Back Next Finish Cancel

JDBC Data Source Properties

The following properties will be used to identify your new JDBC data source.

Database Type: Oracle

What database driver would you like to use to create database connections? Note: * indicates that the driver is explicitly supported by Oracle WebLogic Server.

Database Driver:

- *Oracle's Driver (Thin) for Service connections; Versions:Any
- *Oracle's Driver (Thin XA) for Application Continuity; Versions:Any
- *Oracle's Driver (Thin XA) for Instance connections; Versions:Any
- *Oracle's Driver (Thin XA) for RAC Service-Instance connections; Versions:Any
- *Oracle's Driver (Thin XA) for Service connections; Versions:Any
- *Oracle's Driver (Thin) for Application Continuity; Versions:Any
- *Oracle's Driver (Thin) for Instance connections; Versions:Any
- *Oracle's Driver (Thin) for RAC Service-Instance connections; Versions:Any
- *Oracle's Driver (Thin) for Service connections; Versions:Any
- *Oracle's Driver (Thin) for pooled instance connections; Versions:Any
- DataDirect's Oracle Driver (Type 4 XA) Versions:Any
- DataDirect's Oracle Driver (Type 4) Versions:Any
- Other

Back Next Finish Cancel

5. Keep the default options for the 'Supports Global Transactions' and 'One-Phase Commit' and hit 'Next'.

The screenshot shows the 'Create a New JDBC Data Source' dialog box, specifically the 'Transaction Options' section. At the top, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel'. Below the buttons, the text reads: 'You have selected non-XA JDBC driver to create database connection in your new data source.' The main question is 'Does this data source support global transactions? If yes, please choose the transaction protocol for :'. There are three radio button options: 'Supports Global Transactions' (which is checked and highlighted with a red box), 'Logging Last Resource', and 'Emulate Two-Phase Commit'. Below these, there is a fourth option, 'One-Phase Commit', which is also highlighted with a red box. At the bottom, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel', with the 'Next' button highlighted by a red box.

6. Enter the appropriate values for the On-Premise Oracle Database. Use the ohi_bac_user as the 'database user name'. Hit 'Next' to continue.

The screenshot shows the 'Create a New JDBC Data Source' dialog box, specifically the 'Connection Properties' section. At the top, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel'. Below the buttons, the text reads: 'Define Connection Properties.' The main question is 'What is the name of the database you would like to connect to?'. The 'Database Name' field contains 'bcimpl01'. The next question is 'What is the name or IP address of the database server?'. The 'Host Name' field contains 'slc10udv.us.oracle.com'. The next question is 'What is the port on the database server used to connect to the database?'. The 'Port' field contains '1521'. The next question is 'What database account user name do you want to use to create database connections?'. The 'Database User Name' field contains 'ohi_bac_user'. The next question is 'What is the database account password to use to create database connections?'. The 'Password' and 'Confirm Password' fields are filled with dots. At the bottom, there is a section for 'Additional Connection Properties' with a label 'oracle.jdbc.DRCPConnectionClass:' and an empty text box. At the very bottom, there are four buttons: 'Back', 'Next', 'Finish', and 'Cancel'.

7. Make sure the configuration is correct, then 'Test Connection'. If the connection is successful, click 'Next'

Messages
✔ Connection test succeeded.

Create a New JDBC Data Source

Test Configuration | Back | Next | Finish | Cancel

Test Database Connection
Test the database availability and the connection properties you provided.

What is the full package name of JDBC driver class used to create database connections in the connection pool?
(Note that this driver class must be in the classpath of any server to which it is deployed.)

Driver Class Name: oracle.jdbc.OracleDriver

What is the URL of the database to connect to? The format of the URL varies by JDBC driver.

URL: jdbc:oracle:thin:@//slc10udv.us.oracle.com:1521/bcimj

What database account user name do you want to use to create database connections?

Database User Name: ohi_bac_user

What is the database account password to use to create database connections?
(Note: for secure password management, enter the password in the Password field instead of the Properties field below)

Password: [REDACTED]

Confirm Password: [REDACTED]

What are the properties to pass to the JDBC driver when creating database connections?

8. On the final configuration screen, select the Target to deploy the JDBC data source. In this case we use the MS_SVLIMPL01 managed server. Hit 'Finish' to complete the configuration.

Create a New JDBC Data Source

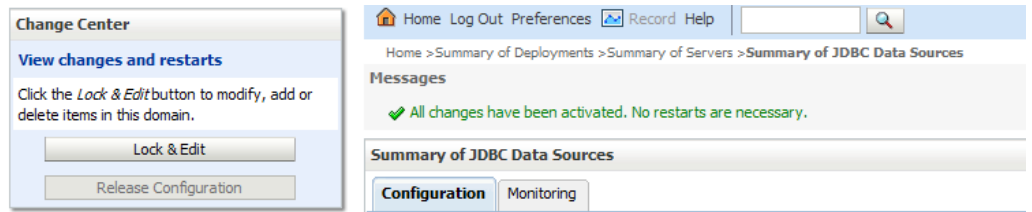
Back | Next | Finish | Cancel

Select Targets
You can select one or more targets to deploy your new JDBC data source. If you don't select

Servers	
<input type="checkbox"/>	AdminServer
<input checked="" type="checkbox"/>	MS_SVLIMPL01

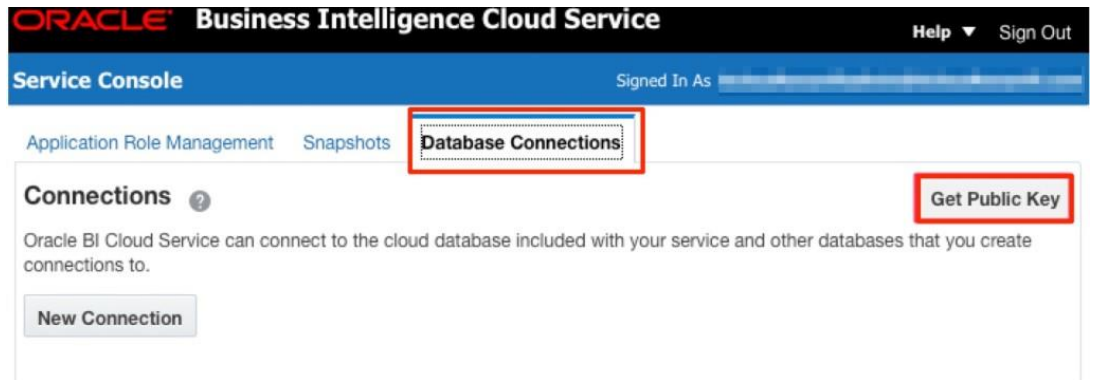
Back | Next | Finish | Cancel

9. Activate the changes if the weblogic server is in 'Production' mode.



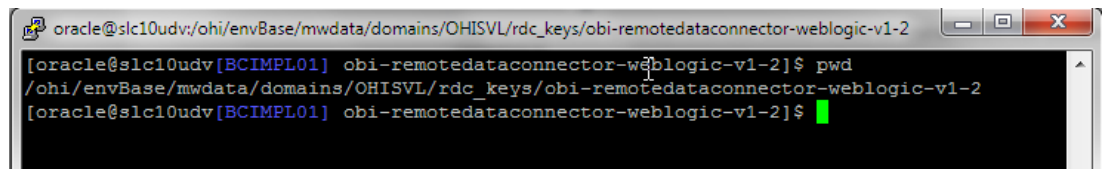
2.3 Download and deploy public key

Within the Service Console for BICS, Select the 'Database Connections' tab, and then 'Get Public Key'.



Save the key on the weblogic server in the following path:
`$DOMAIN_HOME/rdc_keys/<deployment_name>`

The `<deployment_name>` is 'obi-remotedataconnector' by default. In our example, the path is `/ohi/envBase/mwdata/domains/OHISVL/rdc_keys/obi-remotedataconnector-weblogic-v1-2`.



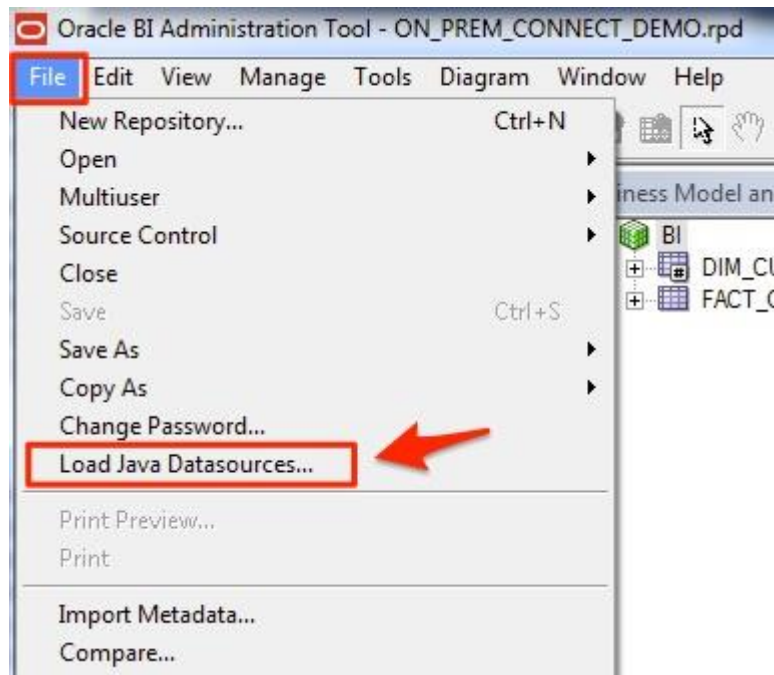
The name of the 'pem' file is not important. The tool will read all 'pem' files in the directory. If a single on-premise weblogic server is being used for multiple BICS instances (for instance a 'Dev' and 'Production'), then both of the 'pem' keys should be saved here. As long as the file type is left as '.pem', then they will both be read and used, no matter what the file is renamed to.

3 Setup RPD

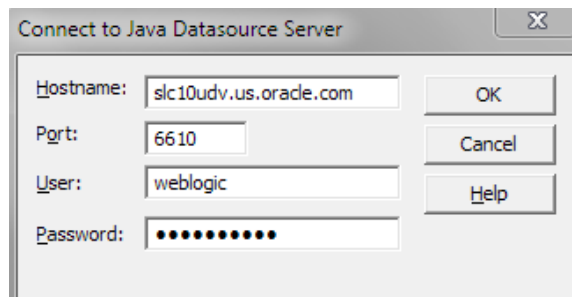
This chapter describes the setup of the RPD and publish the file to BICS.

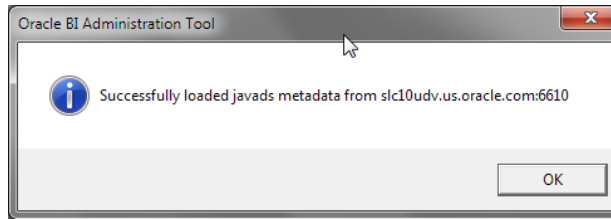
3.1 Setup RPD connection

1. Download the Oracle Business Intelligence Developer Client Tool
<http://www.oracle.com/technetwork/middleware/bicloud/downloads/index.html>
2. Open the 12c Admin Tool but **Do NOT Open the Existing On-Premise RPD**. Under the 'File' menu, select 'Load Java Datasources'. If this option is not available, the Admin Tool is not the correct version.

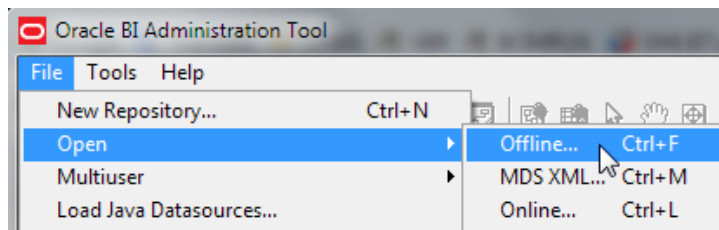
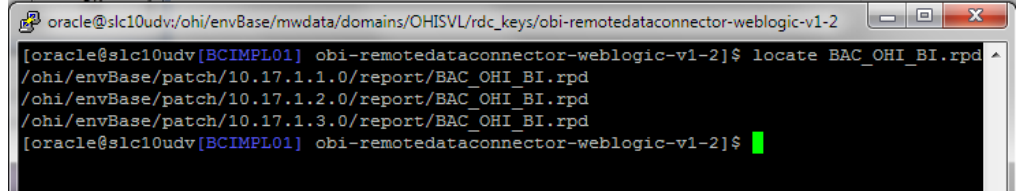


3. Enter the Host Name / IP address, port, and user that can connect to the weblogic server where the RDC was installed. NOTE - this hostname or IP does not need to be available externally. This is just used to load the Java Datasource in the RPD for this step.
In this example, the port of the managed server is used.

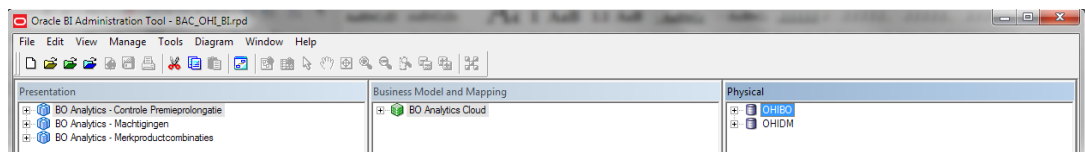
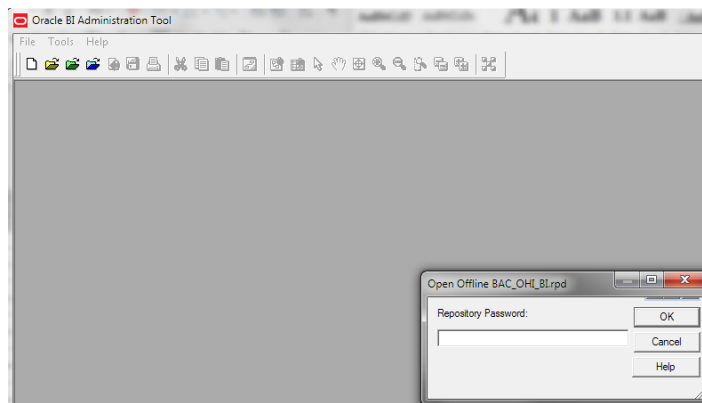




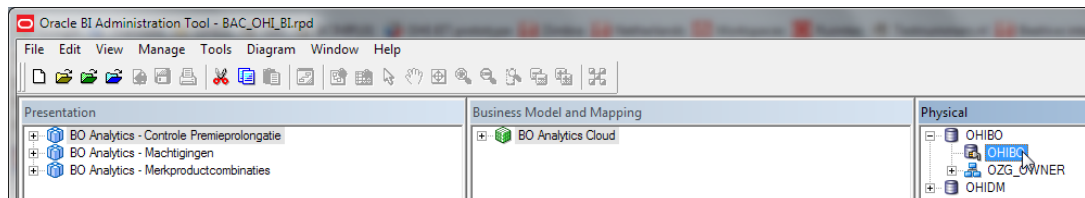
4. Open the RPD file which is delivered in the patch directory of OHI Back Office.



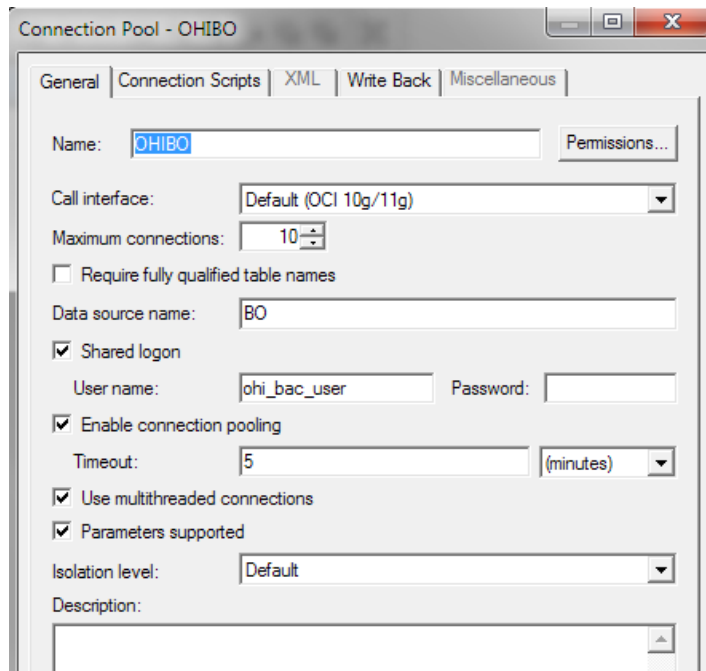
Enter the password.



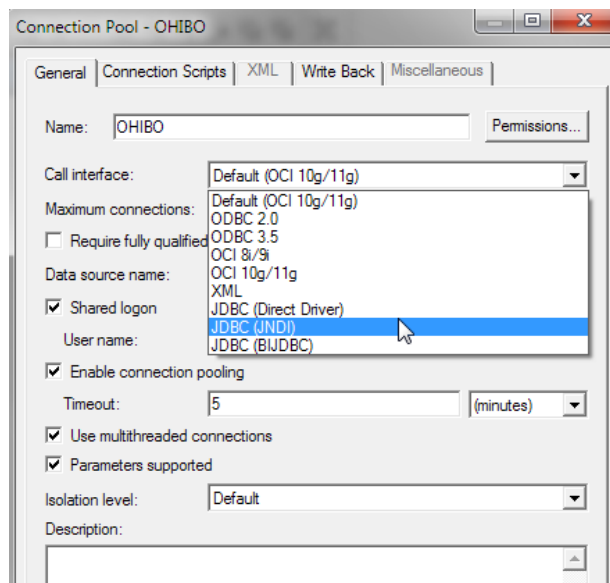
5. Click on the OHIBO physical environment



6. The connection pool setup is opened.



Change the 'Call interface' to JDBC (JNDI).



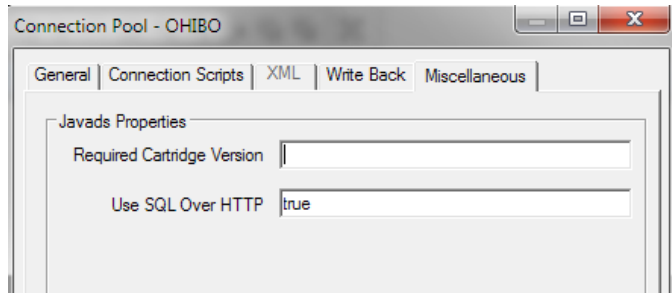
Change the datasource name to:

http://<server>:<port>/obiee/javads/DSBCIMPL01_BICS

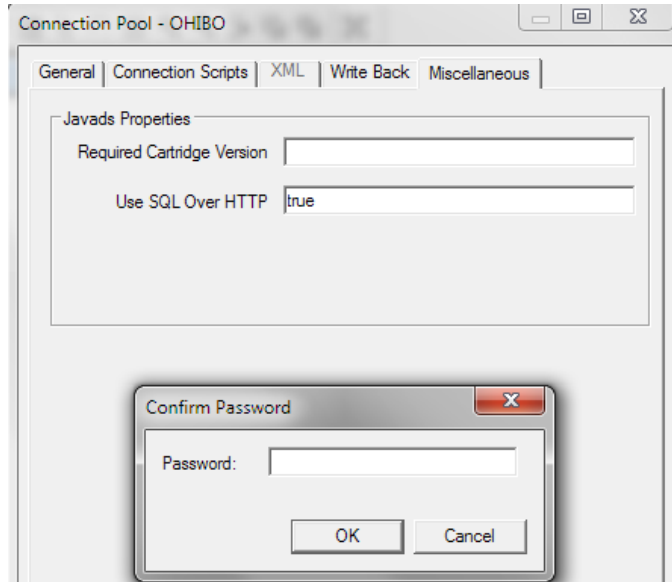
In our example we use:

http://slc10udv.us.oracle.com:6610/obiee/javads/DSBCIMPL01_BICS

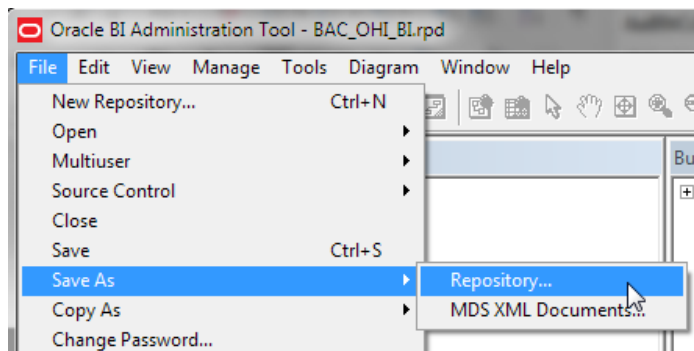
Click on the miscellaneous tab. Empty the 'Required Cartridge version' and set 'Use SQL Over HTTP' to 'true'.



Hit Ok. A password is asked again. This is the password of the Weblogic administrator. Usually Weblogic.



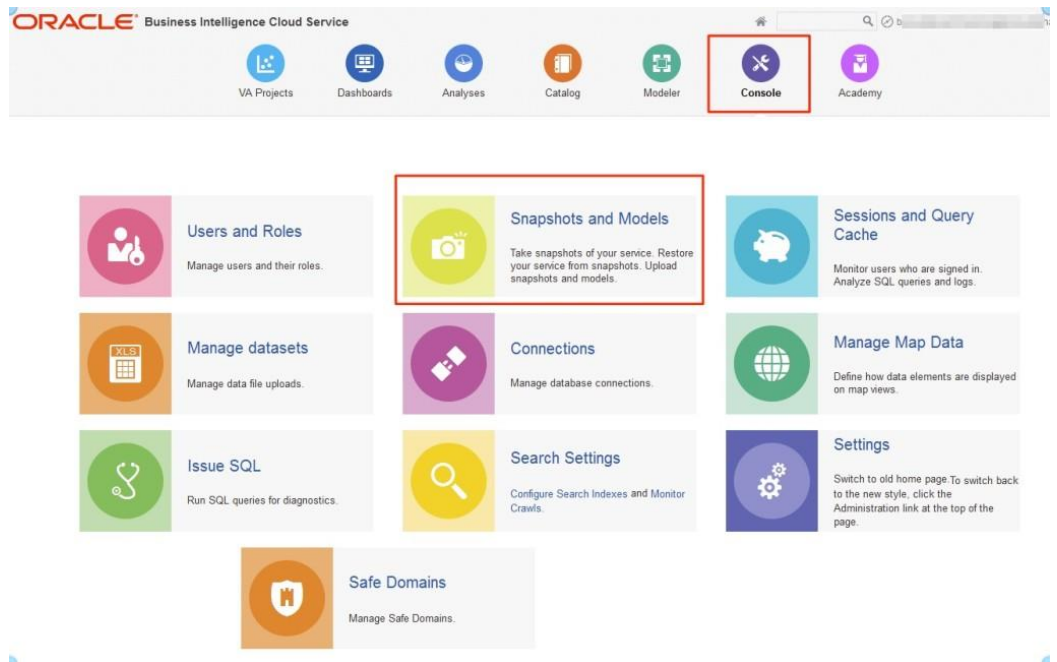
7. Save the file locally.



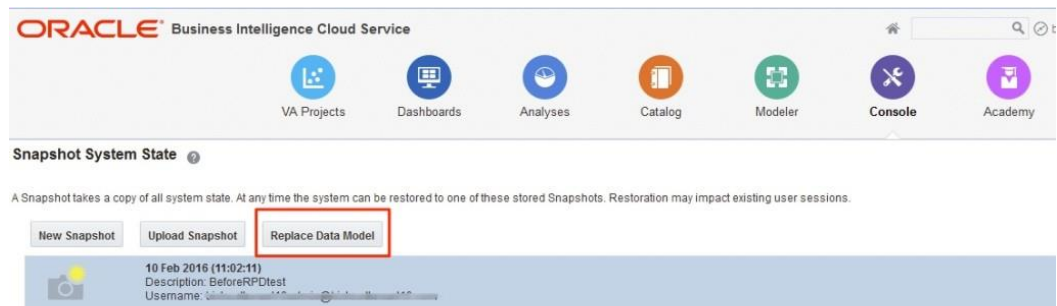
3.2 Import RPD in BICS

In order to upload the RPD file to BICS. Follow these steps:

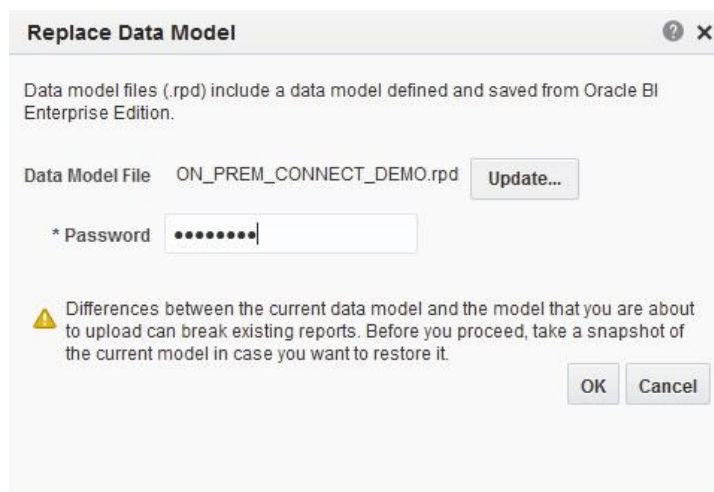
1. In the BI Cloud Service Console, select 'Snapshots and Models'



2. Select the 'Replace Data Model' option



3. Browse to the RPD and enter the Repository password. Then click 'OK'.



4 Setup catalog

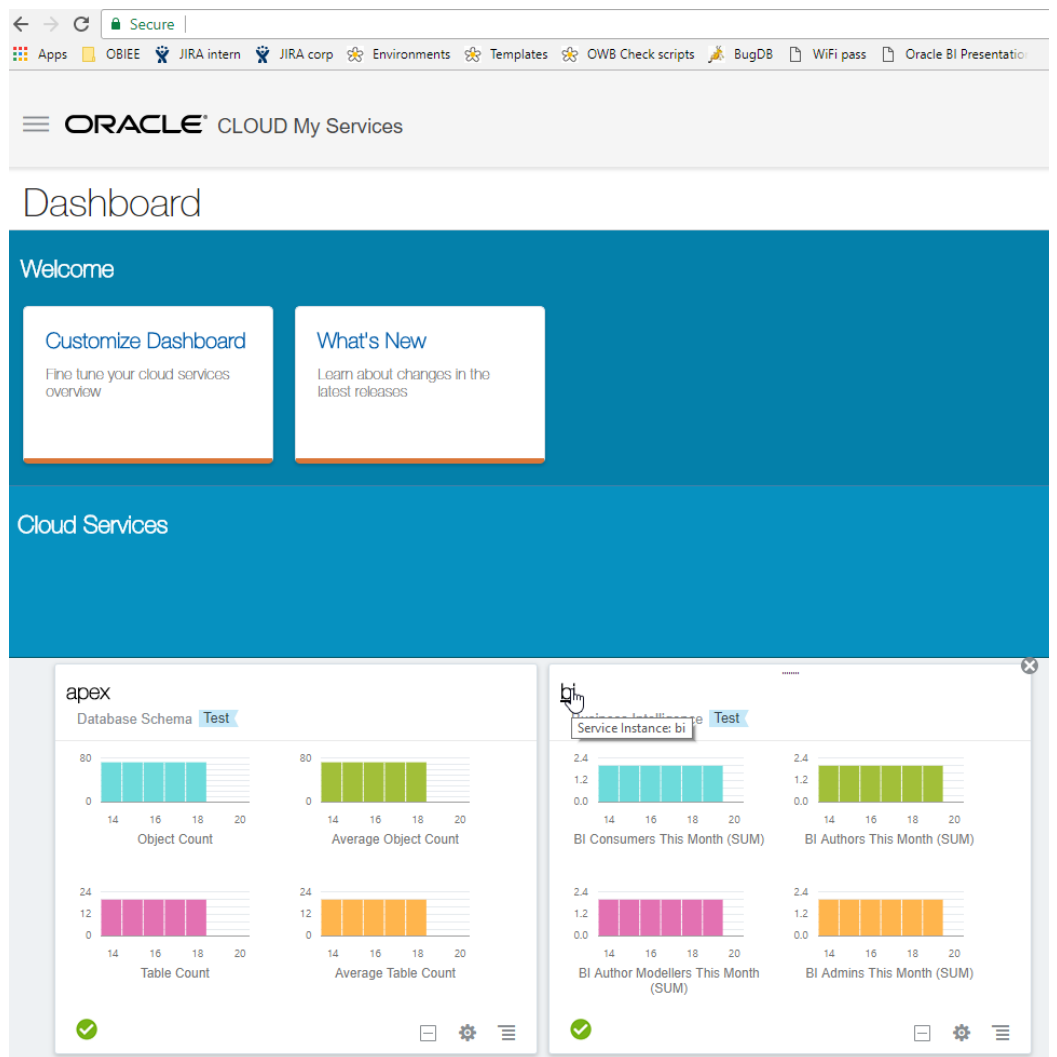
This chapter describes the setup of the catalog file to BICS.

4.1 Upload catalog

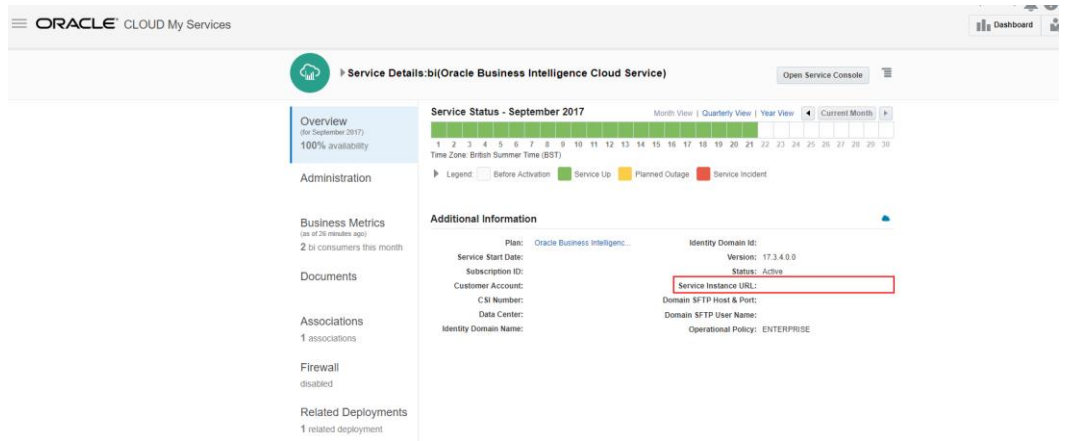
1. Copy the catalog file, which is delivered in the patch directory of OHI Back Office, to a local directory.

```
oracle@slc10udv:/ohi/envBase/mwdata/domains/OHISVL/rdc_keys/obi-remotedataconnector-weblogic-v1-2
[oracle@slc10udv[BCIMPL01] obi-remotedataconnector-weblogic-v1-2]$ locate BAC_OHI_BI.cat
/ohi/envBase/patch/10.17.1.1.0/report/BAC_OHI_BI.catalog
/ohi/envBase/patch/10.17.1.2.0/report/BAC_OHI_BI.catalog
/ohi/envBase/patch/10.17.1.3.0/report/BAC_OHI_BI.catalog
[oracle@slc10udv[BCIMPL01] obi-remotedataconnector-weblogic-v1-2]$
```

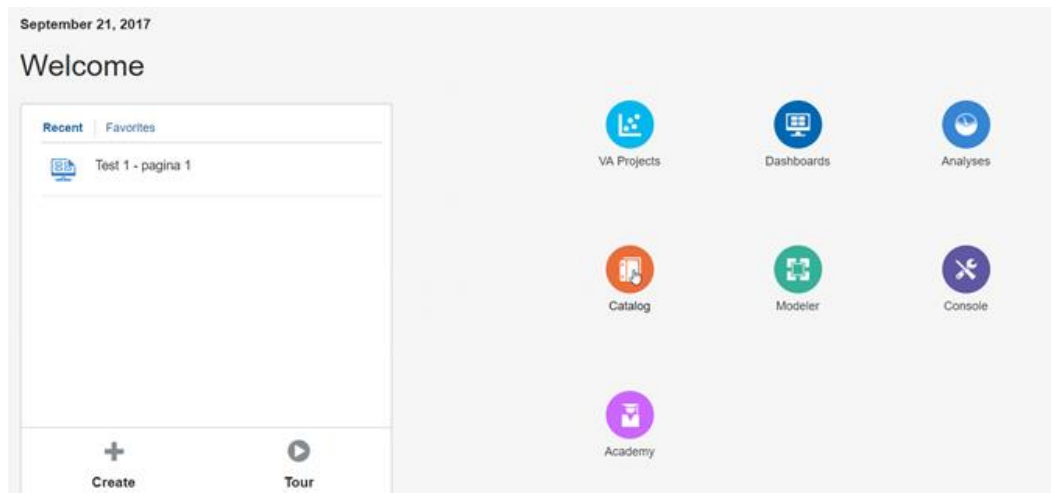
2. Login to BICS. Go to the service instance.



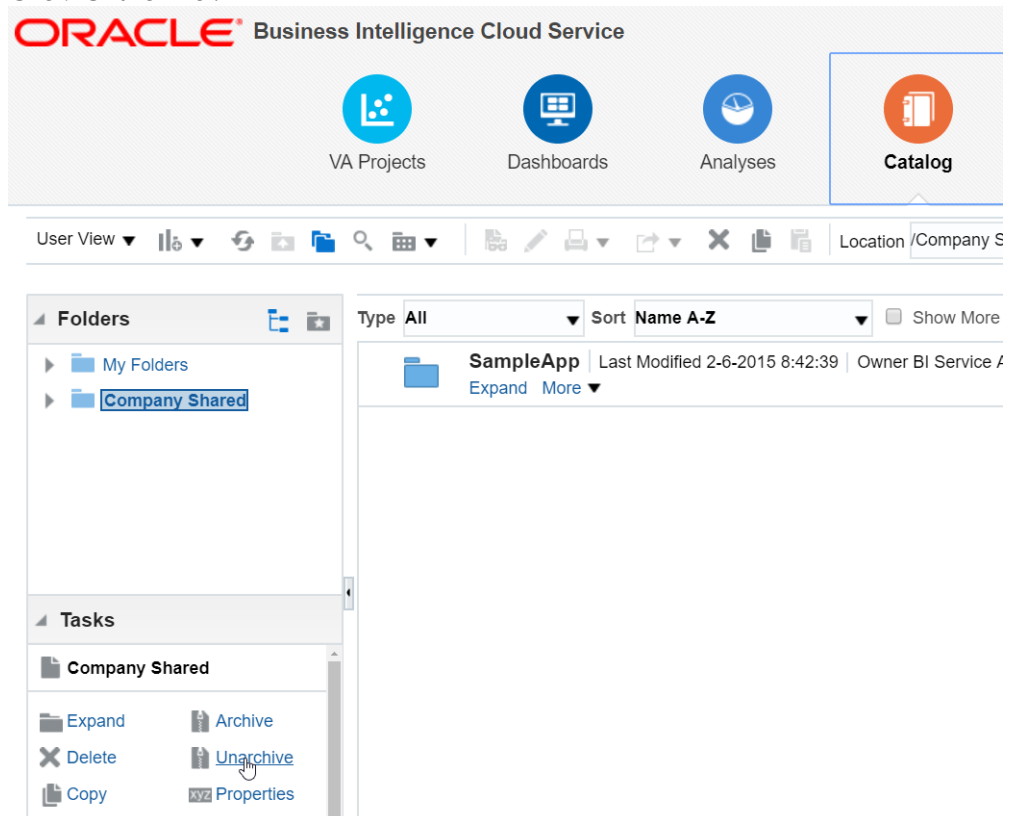
3. Click on the service instance



4. Go to catalog.



5. Select 'Company shared'.
Click 'Unarchive'.



Click 'Upload the catalog'.
Select the locally copied catalog file.

6. Check if the reports are available. Click on dashboards.

5 Appendix A - Information

PLEASE NOTE. The Remote Desktop Tool will not work with customer SSL certificates that include a wildcard character '*' in the Common Name (CN). If HTTPS is being used, and errors are found, then check this is not the cause.

Use this URL: <https://www.sslshopper.com/ssl-checker.html> and in the 'Server Hostname' enter the full https URL being called in RDC, and then check it. If wildcard characters are being used, then a new certificate without these need to be generated.

There is a fix in the works for RDC, but currently this is not in place.