ORACLE Cloud

SAP BusinessObjects

Connecting to the Oracle Autonomous Data Warehouse Cloud Service using an Oracle Wallet

August 2018

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Introduction

This guide will demonstrate the steps necessary to connect SAP BusinessObjects (SAP BO) to an Oracle Autonomous Data Warehouse Cloud (ADWC) for reporting. The primary focus is to validate the ability to use Oracle Wallet, required by ADWC, to make a secure connection to an Oracle Database. This guide illustrations how to create a simple SAP BO Universe relying on the Oracle Call Interface (OCI), not to be confused with Oracle Cloud Infrastructure (OCI), as the driver for the connection. This document is by no means is the only way to achieve connectivity to ADWC from SAP BO, it is just one example.

This walkthrough is not intended to be a detailed SAP BO reporting guide. The reporting examples simply demonstrate how to create very basic reports utilizing Crystal Reports and Web Intelligence.

Basic Skills

This guide relies on some basic skills necessary to configure the Oracle Client and use of SAP BO. This guide should provide the details needed to successfully complete the entire process of connecting SAP BusinessObjects to Oracle Autonomous Data Warehouse Cloud.

Required skills and tool knowledge:

- Connecting to Linux a host and the ability to transfer files. (i.e. `ssh` & `scp`)
- Navigating in a Linux server environment and a Windows desktop.
- Oracle Client concepts (`ORACLE_HOME` & `TNS_ADMIN`) and tools (`sqlplus` & `tnsping`).
- Oracle Database query understanding. (i.e. tables, columns & SQL)
- Use of text editors on both Linux and Windows. (i.e. `vi` & `notepad`)

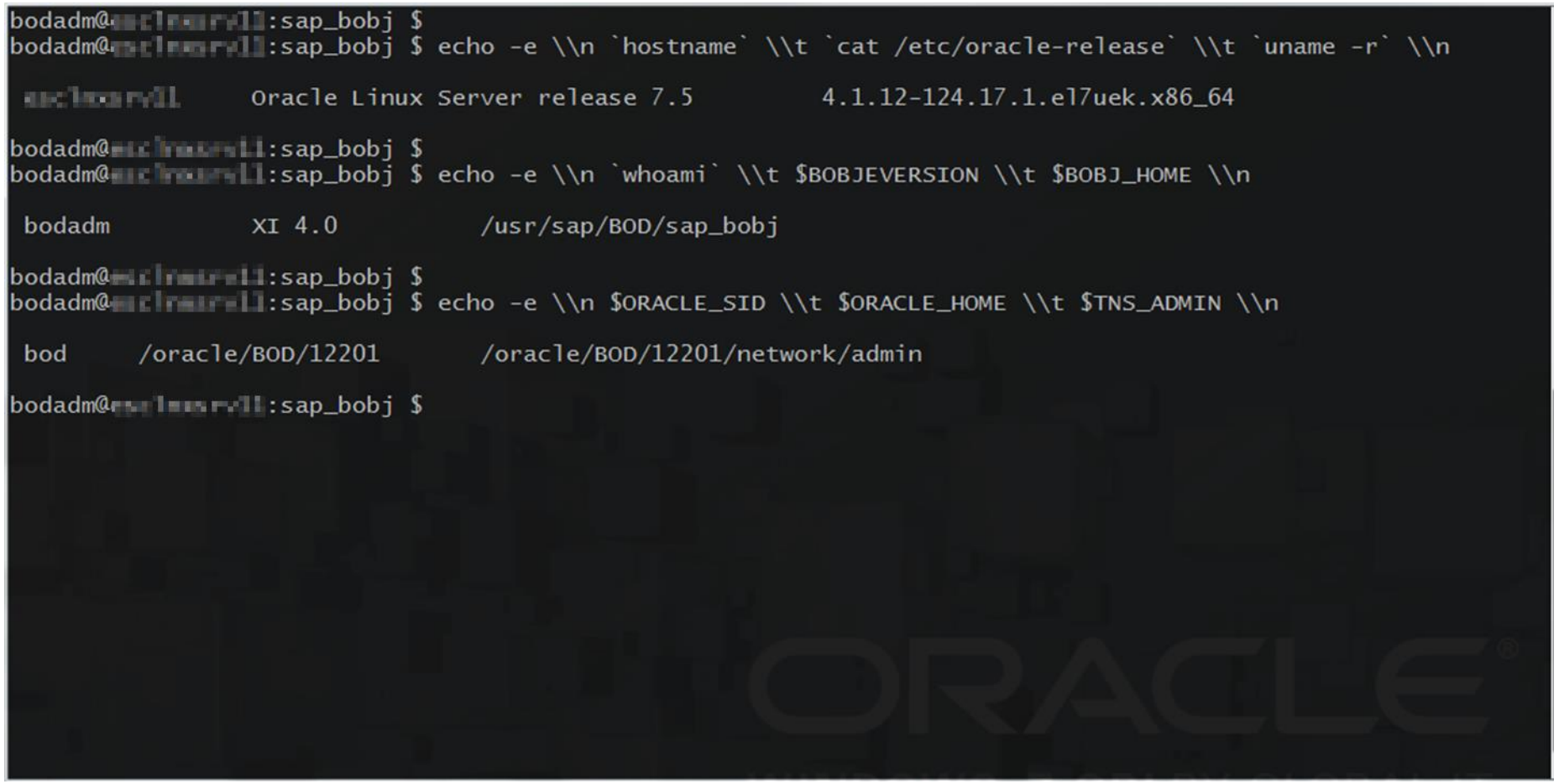
Pre-Requirements

There are certain requirements necessary for this guide to be successful and are listed below:

- SAP BusinessObjects Server and application login credentials.
  - Access to the Central Management Console (`http://<hostname>:8080/BOE/CMC`).
  - Access to the BI Launch Pad (`http://<hostname>:8080/BOE/BI`).
  - A Windows desktop with client development tools for SAP BusinessObjects.
- SAP BusinessObjects Sever administrator operating system access.
- An Oracle 12.2+ Client installed on SAP BusinessObjects server and Windows desktop.
- ADWC Oracle Wallet and login credentials.
  https://docs.oracle.com/en/cloud/paas/autonomous-data-warehouse-cloud/user/connect-download-wallet.html#GUID-B06202D2-0597-41AA-9481-3B174F75D4B1

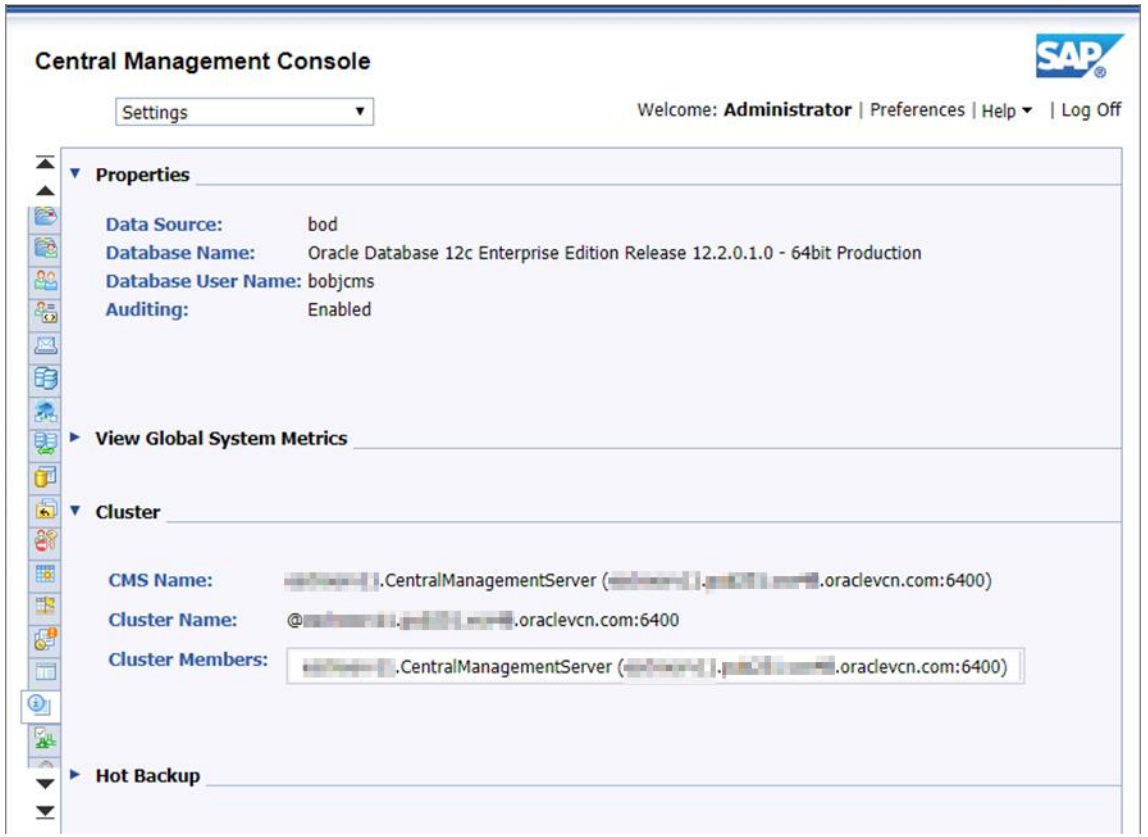
System Information

SAP BusinessObjects Server host details:



System Information

SAP BusinessObjects Server details:



SAP BusinessObjects Server – Oracle Client Setup

This section will walkthrough the essential configuration to enable the Oracle Client on the SAP BO Server to communicate with a Oracle Autonomous Data Warehouse Cloud database. This section is very detailed.

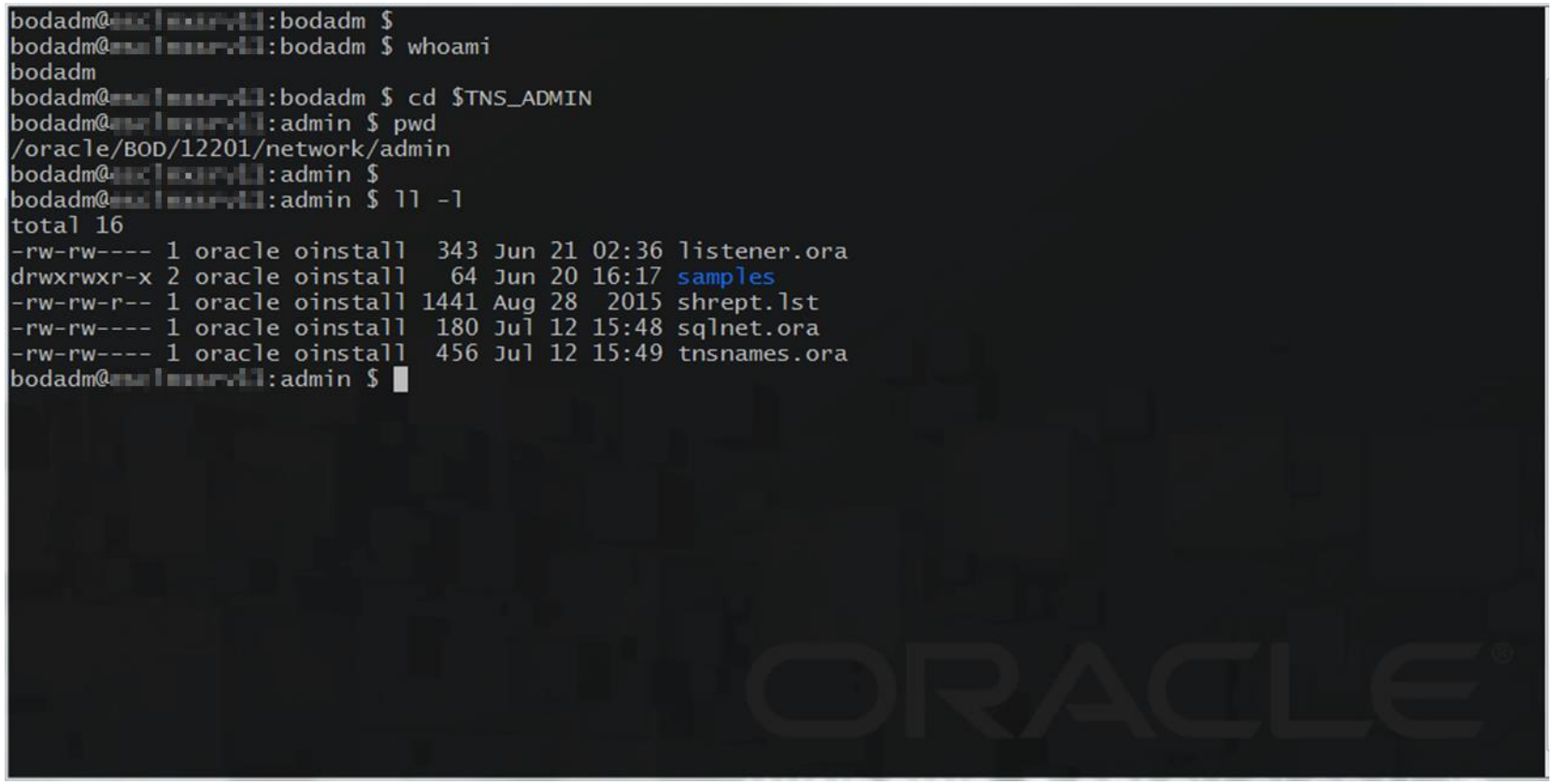
The following requirements are needed.

- SAP BusinessObjects Server shell access via the admin user.
- The Oracle 12.2+ Client access for admin user.
- Oracle ADWC credentials and Oracle Wallet.

SAP BusinessObjects Server – Oracle Client Setup

Locate the SAP BO local Oracle Client `TNS_ADMIN` directory

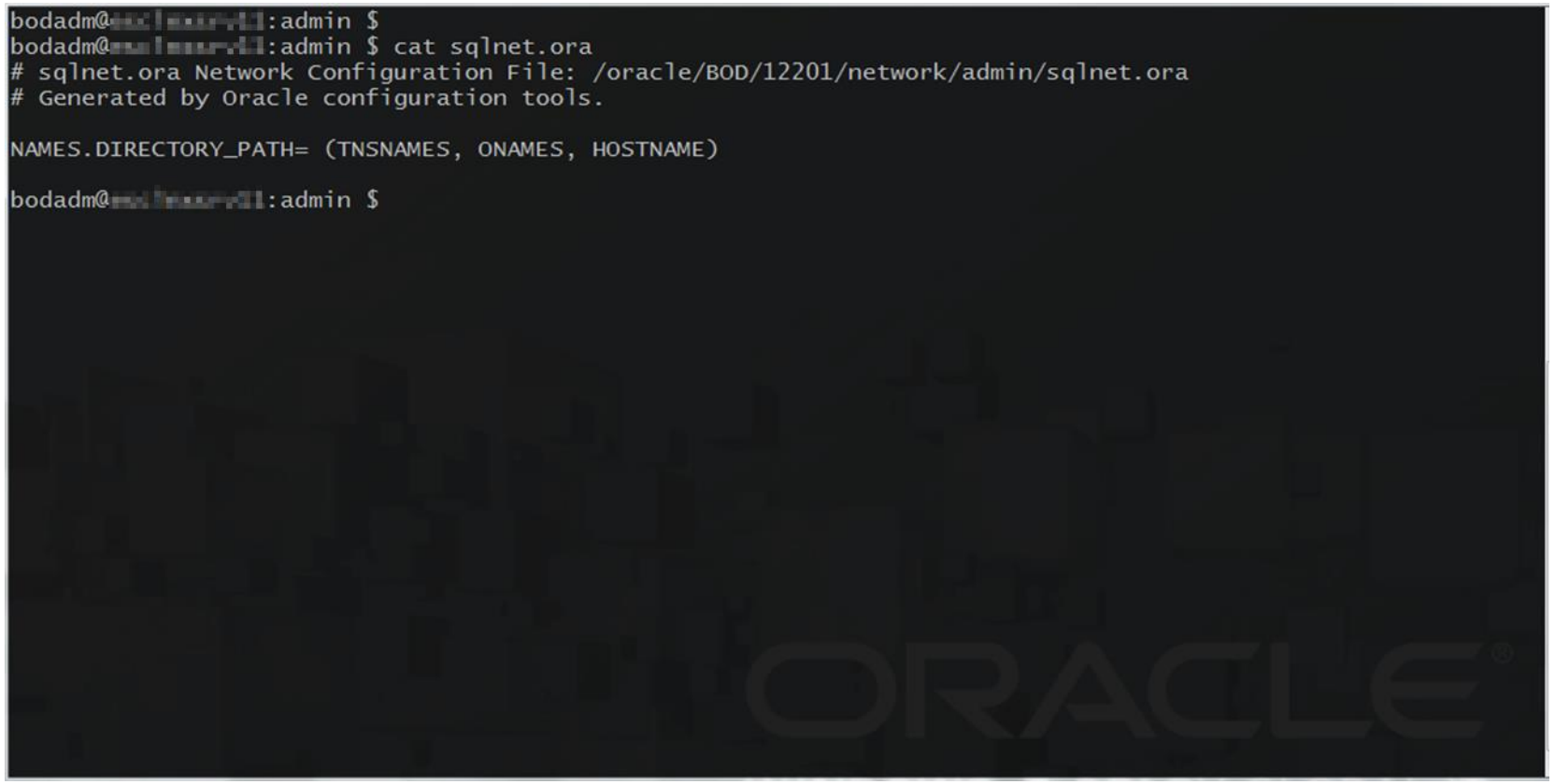
- Log into the SAP BO server as the SAP BO admin user, in this example the user name is: `bodadm`
- Navigate to active Oracle Client `TNS_ADMIN` directory. In this example, the SAP BO server is using the Oracle Database TNS_ADMIN directory: `/oracle/BOD/12201/network/admin`



SAP BusinessObjects Server – Oracle Client Setup

Validate `sqlnet.ora` file

- Display the contents of the existing `sqlnet.ora` file.
- In this example, the `sqlnet.ora` file is rather simple with only one parameter set.



SAP BusinessObjects Server – Oracle Client Setup

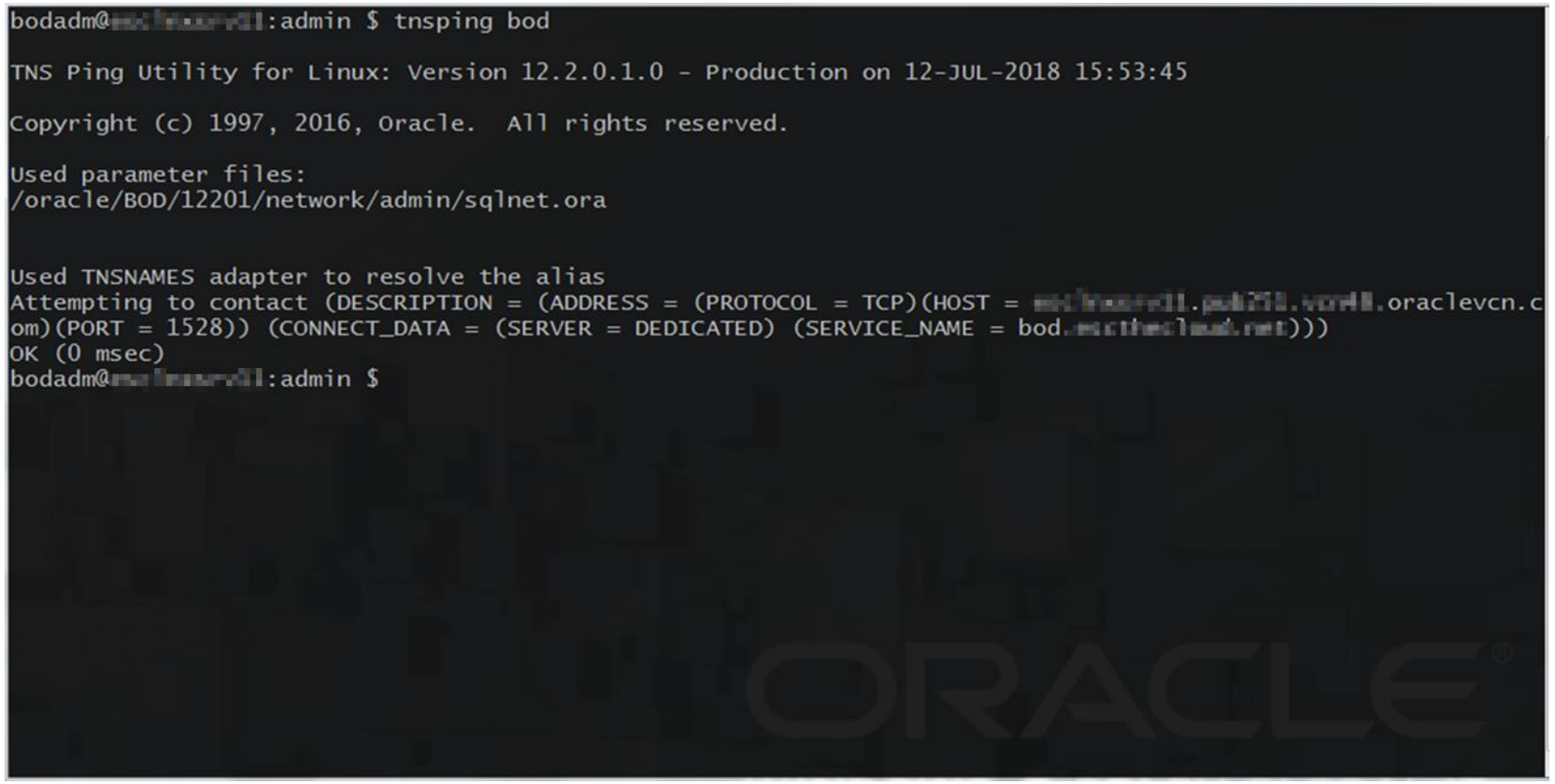
Validate `tnsnames.ora` file

- Display the contents of the existing `tnsnames.ora` file.
- In this example, the `tnsnames.ora` file contains one database alias and listener.
- The listener is defined in the example `tnsnames.ora` file because this file is also used by the Oracle Database and not required by an Oracle Client only setup.

SAP BusinessObjects Server – Oracle Client Setup

Validate the SAP BO local Oracle Client functionality

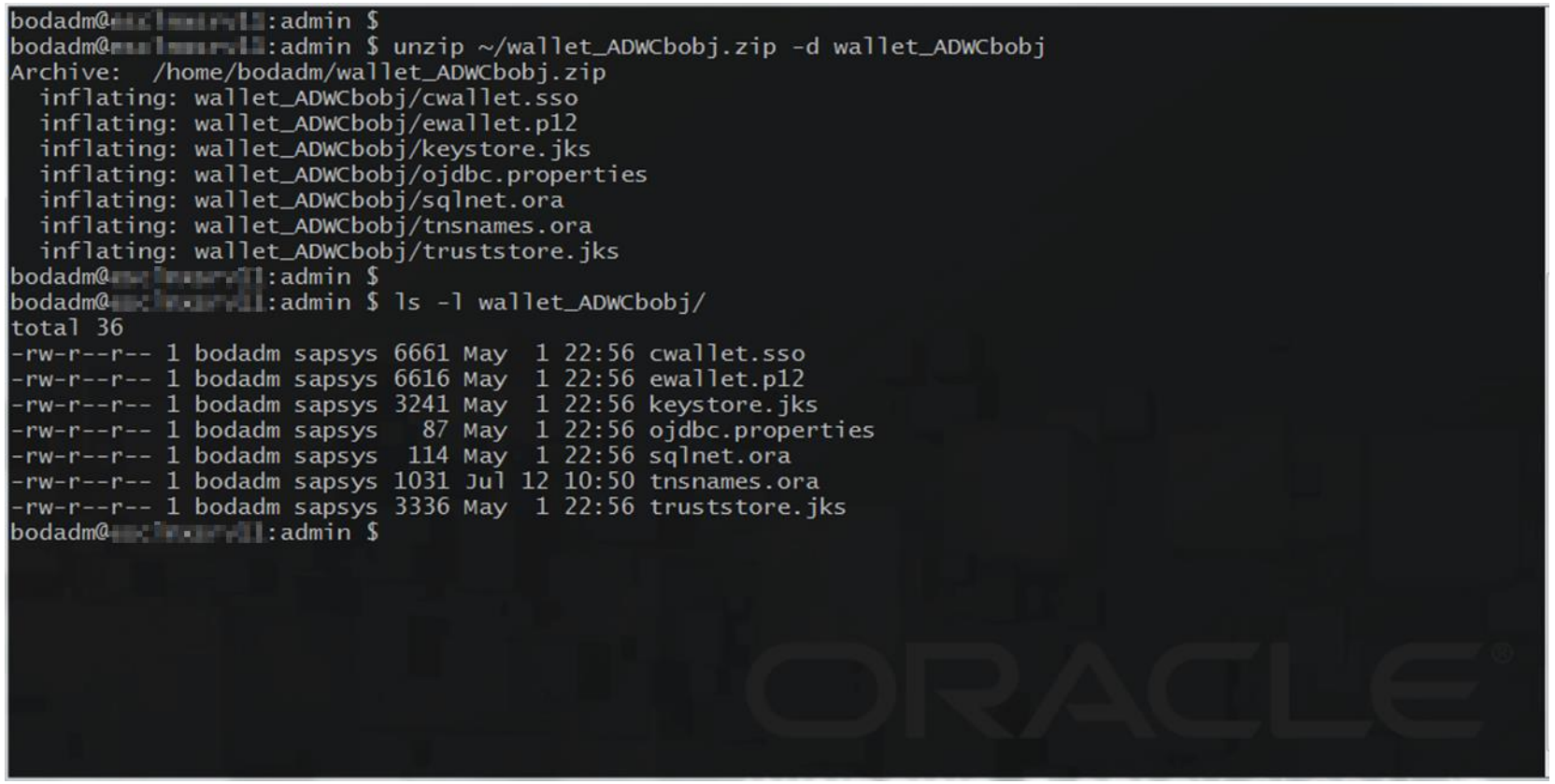
- Validate the Oracle Client is able to communicate with the SAP BO Oracle Database or another Oracle Database by using the `tnsping` command.
- In this example `tnsping bod` retuned `OK (0 msec)`.
- This was a successful connection test that completed in 0 milliseconds.
- This can be expected because the Oracle database is located on the same host.



SAP BusinessObjects Server – Oracle Client Setup

Extract the contents of ADWC Oracle Wallet

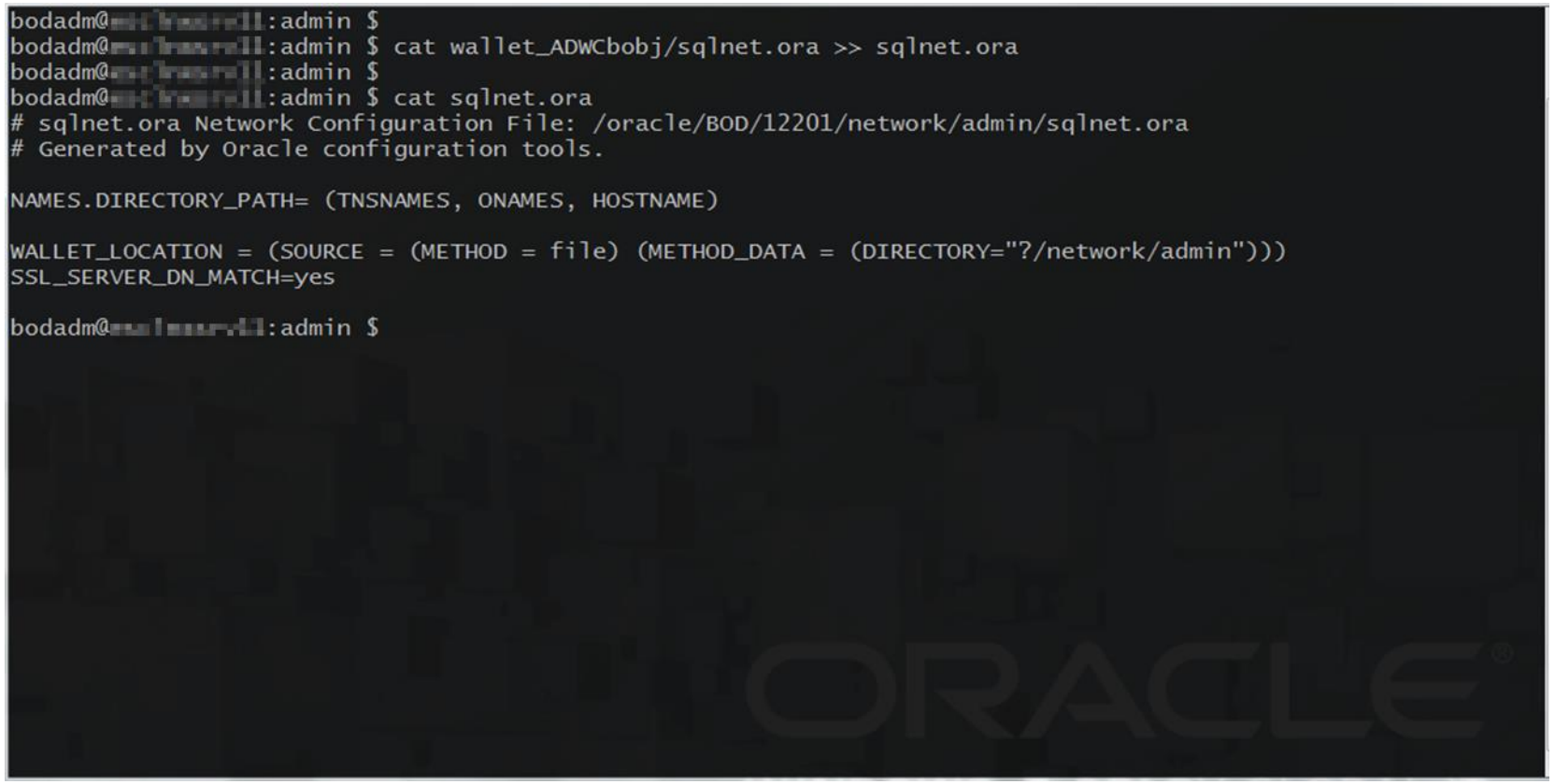
- Copy the required ADWC Oracle Wallet to the SAP BO server in a location accessible to the SAP BO admin user.
- In this example, SCP was used to copy `wallet_ADWCbobj.zip` to SAP BO admin (`bodadm`) user's home directory.
- Extract the contents of the Oracle Wallet to a subdirectory in the `TNS_ADMIN` location.
- In this example, the command `unzip ~/wallet_ADWCbobj.zip -d wallet_ADWCbobj` extracted the contents of the zip file in to the directory `wallet_ADWCbobj`.



SAP BusinessObjects Server – Oracle Client Setup

Update `sqlnet.ora` file

- Add the contents of the Oracle Wallet's `sqlnet.ora` file to the `TNS_ADMIN sqlnet.ora` file.
- In this example, the `cat` command was first used to merge the two files together.
  `cat wallet_ADWCbobj/sqlnet.ora >> sqlnet.ora`
- Next the `cat` command was used to verify the contents of the updated file.
  `cat sqlnet.ora`
- Two parameters are added to the existing `sqlnet.ora` file, `WALLET_LOCATION` and `SSL_SERVER_DN_MATCH`.



SAP BusinessObjects Server – Oracle Client Setup

Modify updated `sqlnet.ora` file

- The `DIRECTORY` value of the parameter `WALLET_LOCATION` in the updated `sqlnet.ora` file needs adjusted to reflect the path of the extracted Oracle Wallet files.
- In this example, `vi` was used to modify the `sqlnet.ora` file to add `/wallet_ADWCbobj` after `/admin` to be: `DIRECTORY="?/network/admin/wallet_ADWCbobj"`

before modification

```
# sqlnet.ora Network Configuration File: /oracle/BOD/12201/network/admin/sqlnet.ora
# Generated by Oracle configuration tools.

NAMES.DIRECTORY_PATH= (TNSNAMES, ONAMES, HOSTNAME)

WALLET_LOCATION = (SOURCE = (METHOD = file) (METHOD_DATA = (DIRECTORY="?/network/admin")))
SSL_SERVER_DN_MATCH=yes
~
~
~
~
~
~
```

after modification

```
# sqlnet.ora Network Configuration File: /oracle/BOD/12201/network/admin/sqlnet.ora
# Generated by Oracle configuration tools.

NAMES.DIRECTORY_PATH= (TNSNAMES, ONAMES, HOSTNAME)

WALLET_LOCATION = (SOURCE = (METHOD = file) (METHOD_DATA = (DIRECTORY="?/network/admin/wallet_ADWCbobj")))
SSL_SERVER_DN_MATCH=yes
~
~
~
~
~
~
```

SAP BusinessObjects Server – Oracle Client Setup

Update `tnsnames.ora` file

- Add the contents of the Oracle Wallet's `tnsnames.ora` file to the `TNS_ADMIN tnsnames.ora` file.
- In this example, the `cat` command was first used to merge the two files together.
  `cat wallet_ADWCbobj/tnsnames.ora >> tnsnames.ora`
- Next the `cat` command was used to verify the contents of the updated file.
  `cat tnsnames.ora`
- Three database aliases are added to the `tnsnames.ora` file for the ADWC database.

```
bodadm@[redacted]:admin $
bodadm@[redacted]:admin $ cat wallet_ADWCbobj/tnsnames.ora >> tnsnames.ora
bodadm@[redacted]:admin $
```

```
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = bod.[redacted].net)
    )
  )

LISTENER_BOD =
  (ADDRESS = (PROTOCOL = TCP)(HOST = [redacted].oraclevcn.com)(PORT = 1528))

ADWCbobj_high = (description= (address=(protocol=tcps)(port=1522)(host=adwc.uscom-east-1.oraclecloud.com))(c
onnect_data=(service_name=[redacted]_high.adwc.oraclecloud.com))(security=(ssl_server_cert_dn=
        "CN=adwc.uscom-east-1.oraclecloud.com,OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=Calif
ornia,C=US"))    )

ADWCbobj_low = (description= (address=(protocol=tcps)(port=1522)(host=adwc.uscom-east-1.oraclecloud.com))(co
nnect_data=(service_name=[redacted]_low.adwc.oraclecloud.com))(security=(ssl_server_cert_dn=
        "CN=adwc.uscom-east-1.oraclecloud.com,OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=Calif
ornia,C=US"))    )

ADWCbobj_medium = (description= (address=(protocol=tcps)(port=1522)(host=adwc.uscom-east-1.oraclecloud.com))
(connect_data=(service_name=[redacted]_medium.adwc.oraclecloud.com))(security=(ssl_server_cert_
dn=
        "CN=adwc.uscom-east-1.oraclecloud.com,OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=Calif
ornia,C=US"))    )

bodadm@[redacted]:admin $
```

SAP BusinessObjects Server – Oracle Client Setup

Verify ADWC connectivity

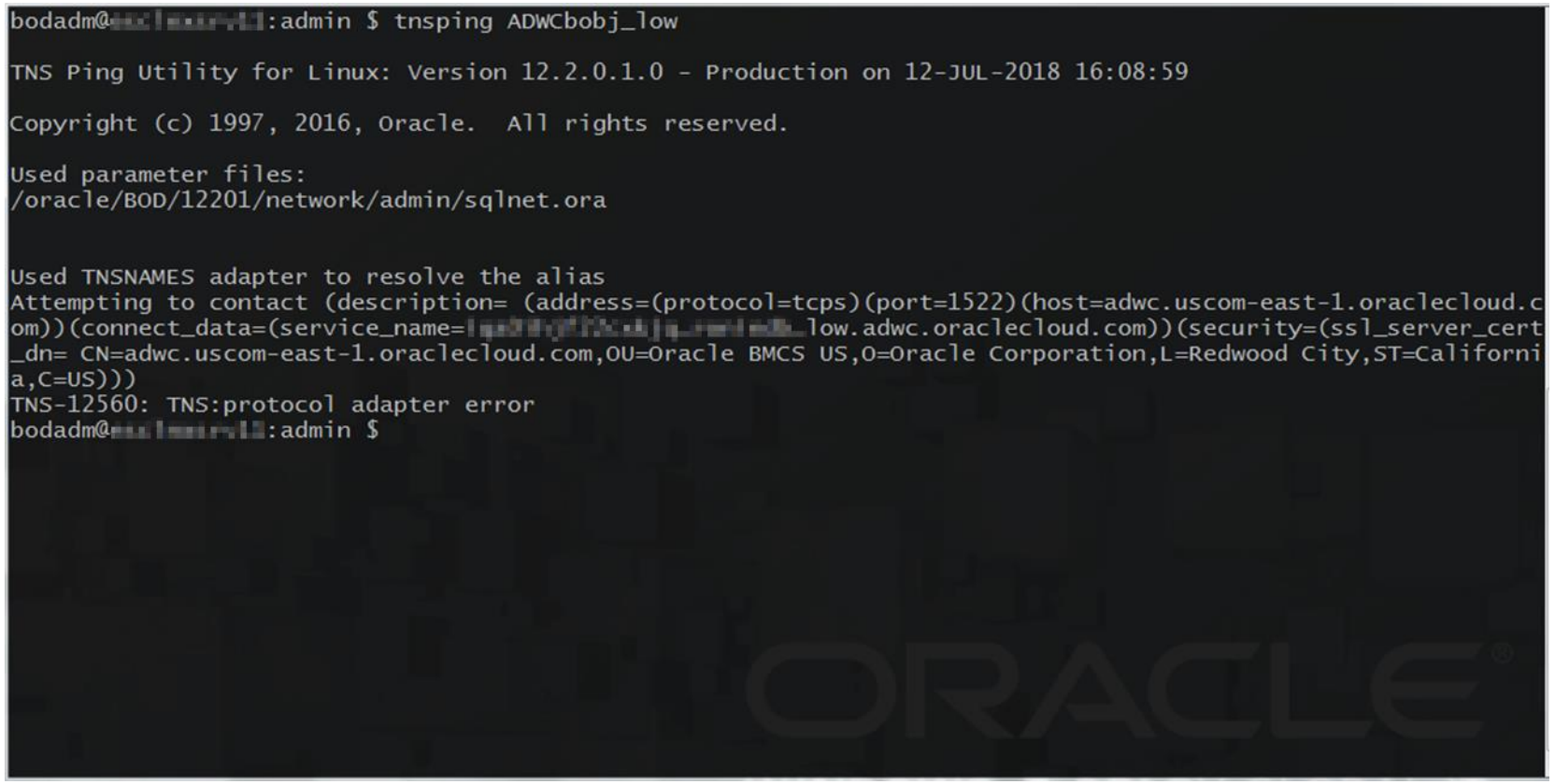
- Validate the Oracle Client is able to communicate with an ADWC database using the `tnsping` command.
- In this example `tnsping ADWCbobj_low` retuned `OK (340 msec).`
- This was a successful connection test that completed in 340 milliseconds.

```
bodadm@[redacted]:admin $ tnsping ADWCbobj_low

TNS Ping Utility for Linux: Version 12.2.0.1.0 - Production on 12-JUL-2018 16:07:59

Copyright (c) 1997, 2016, Oracle.  All rights reserved.

Used parameter files:
/oracle/BOD/12201/network/admin/sqlnet.ora


Used TNSNAMES adapter to resolve the alias
Attempting to contact (description= (address=(protocol=tcps)(port=1522)(host=adwc.uscom-east-1.oraclecloud.c
om))(connect_data=(service_name=[redacted]_low.adwc.oraclecloud.com))(security=(ssl_server_cert
_dn= CN=adwc.uscom-east-1.oraclecloud.com,OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=Californi
a,C=US)))
OK (340 msec)
bodadm@[redacted]:admin $
```

SAP BusinessObjects Server – Oracle Client Setup

Example of failed ADWC connectivity

- Here is an example of what a failed Oracle Client connection attempt to an ADWC database using the `tnsping` command would look like.
- In this example `tnsping ADWCbobj_low` retuned `TNS-12560: TNS:protocol adapter error`.
- The cause for this failure was a deliberate removal of the `cwallet.sso` file form the Oracle Wallet directory in order to showcase a failure.



SAP BusinessObjects Server – Oracle Client Setup

Validate ADWC login

- Finally validate the ability to login to the ADWC database via the `sqlplus` command.
- In this example, the command `sqlplus <user>@ADWCbobj_low` was issued, followed by the password. A successful connection to the database was established.

```
bodadm@[redacted]:admin $
bodadm@[redacted]:admin $ sqlplus [redacted]@ADWCbobj_low

SQL*Plus: Release 12.2.0.1.0 Production on Thu Jul 12 16:10:27 2018

Copyright (c) 1982, 2016, Oracle.  All rights reserved.

Enter password:
Last Successful login time: Wed Jul 11 2018 20:37:05 +00:00

Connected to:
Oracle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production

SQL> exit
Disconnected from Oracle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production
bodadm@[redacted]:admin $
```

Windows Desktop – Oracle Client Setup

This section will documents configuration to enable a Windows desktop to communicate with an Oracle Autonomous Data Warehouse Cloud database. This section is not as detailed as the previous because the steps are very similar. Please refer back to section "SAP BusinessObjects Server – Oracle Client Setup" for details.

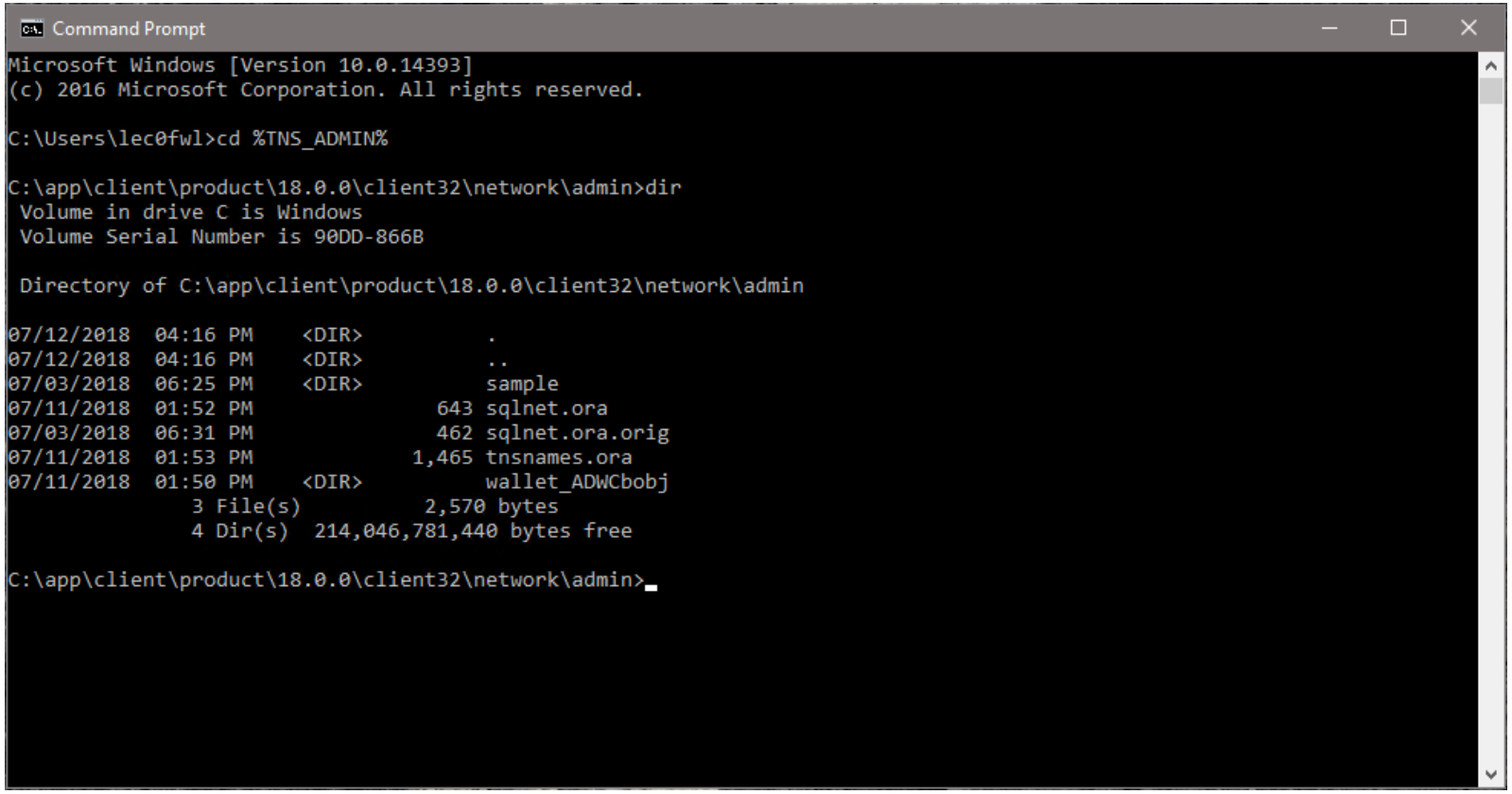
The following requirements are needed.

- A Windows desktop with Oracle 12.2+ Client access.
- Oracle ADWC credentials and Oracle Wallet.

Windows Desktop – Oracle Client Setup

Locate the Windows Desktop Oracle Client `TNS_ADMIN` directory

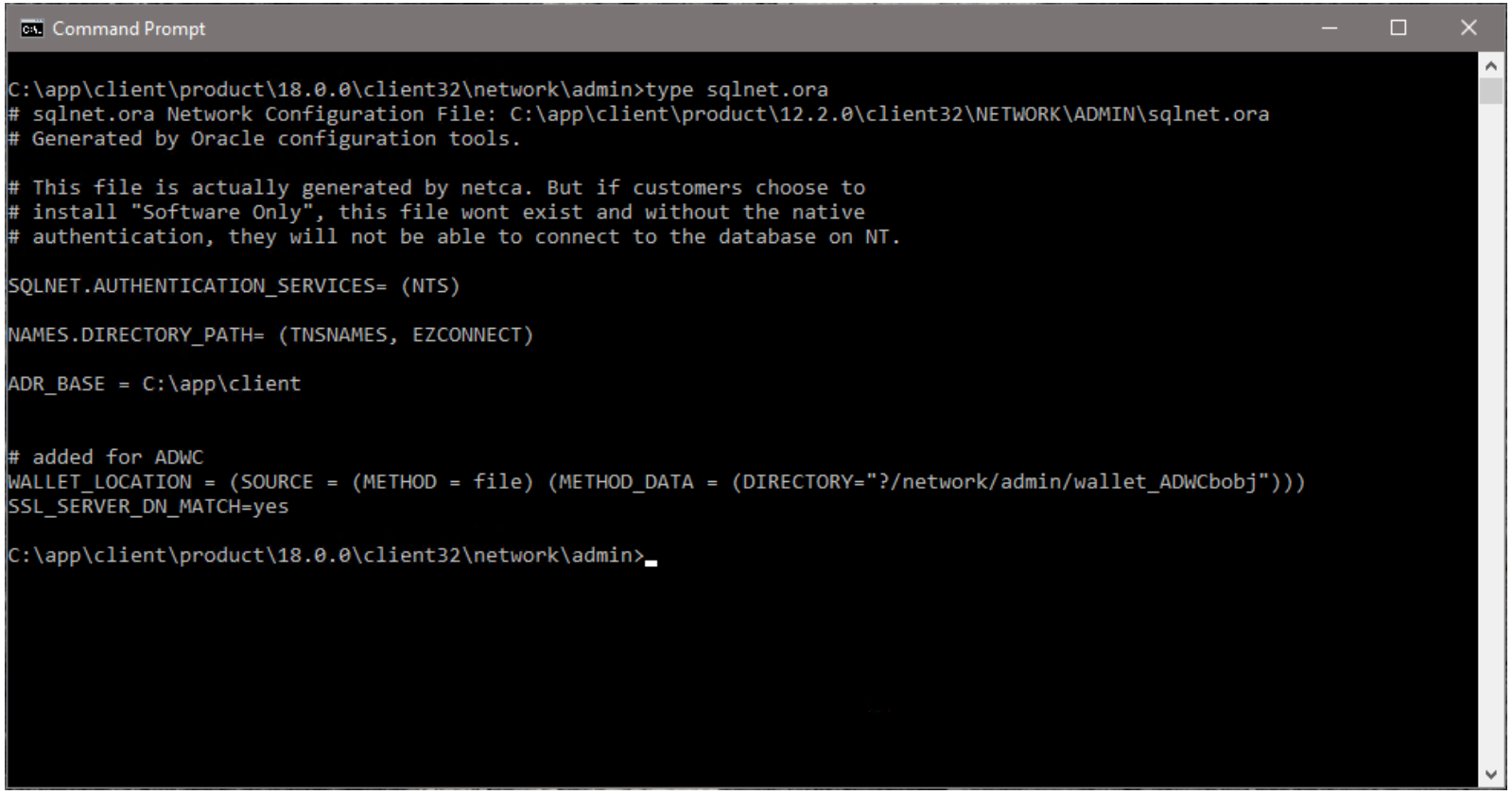
- This may be a difficult step because the `TNS_ADMIN` environment value is not set by default during the Oracle Client installation.
- The default location is derived from the `ORACLE_HOME` as: `%ORACLE_HOME%\network\admin`
- Extract the contents of the Oracle Wallet to a subdirectory in the `TNS_ADMIN` location.



Windows Desktop – Oracle Client Setup

Update the `sqlnet.ora` file

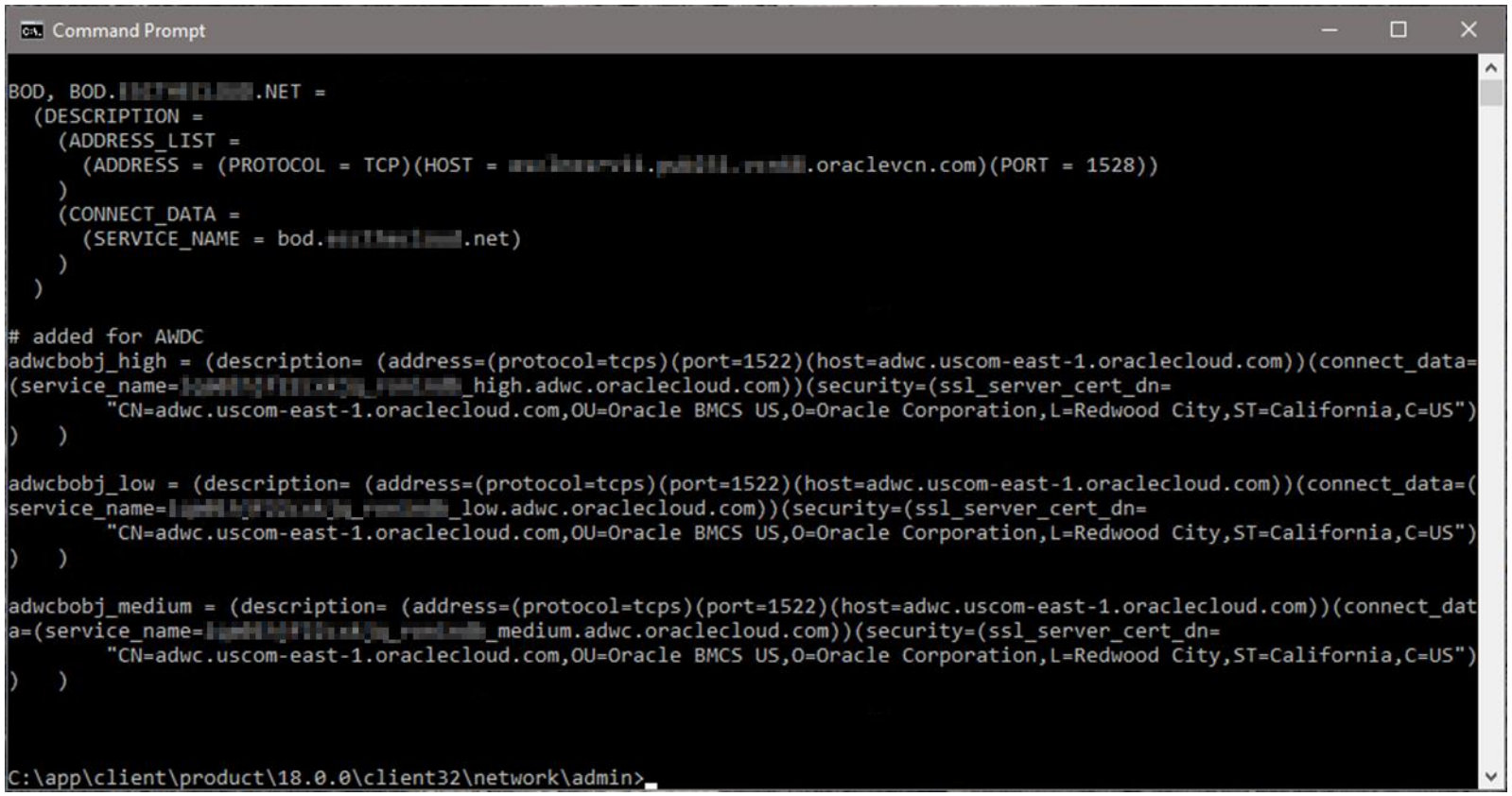
- Update the `TNS_ADMIN` `sqlnet.ora` file with the contents of the Oracle Wallet's `sqlnet.ora` file.
- This is similar to the SAP BO Server setup above.
- The `DIRECTORY` value of the `WALLET_LOCATION` parameter needs updated to reflect the location of the Oracle Wallet.
- The updated parameter for this example: `DIRECTORY="?/network/admin/wallet_ADWCbobj"`



Windows Desktop – Oracle Client Setup

Update the `tnsnames.ora` file

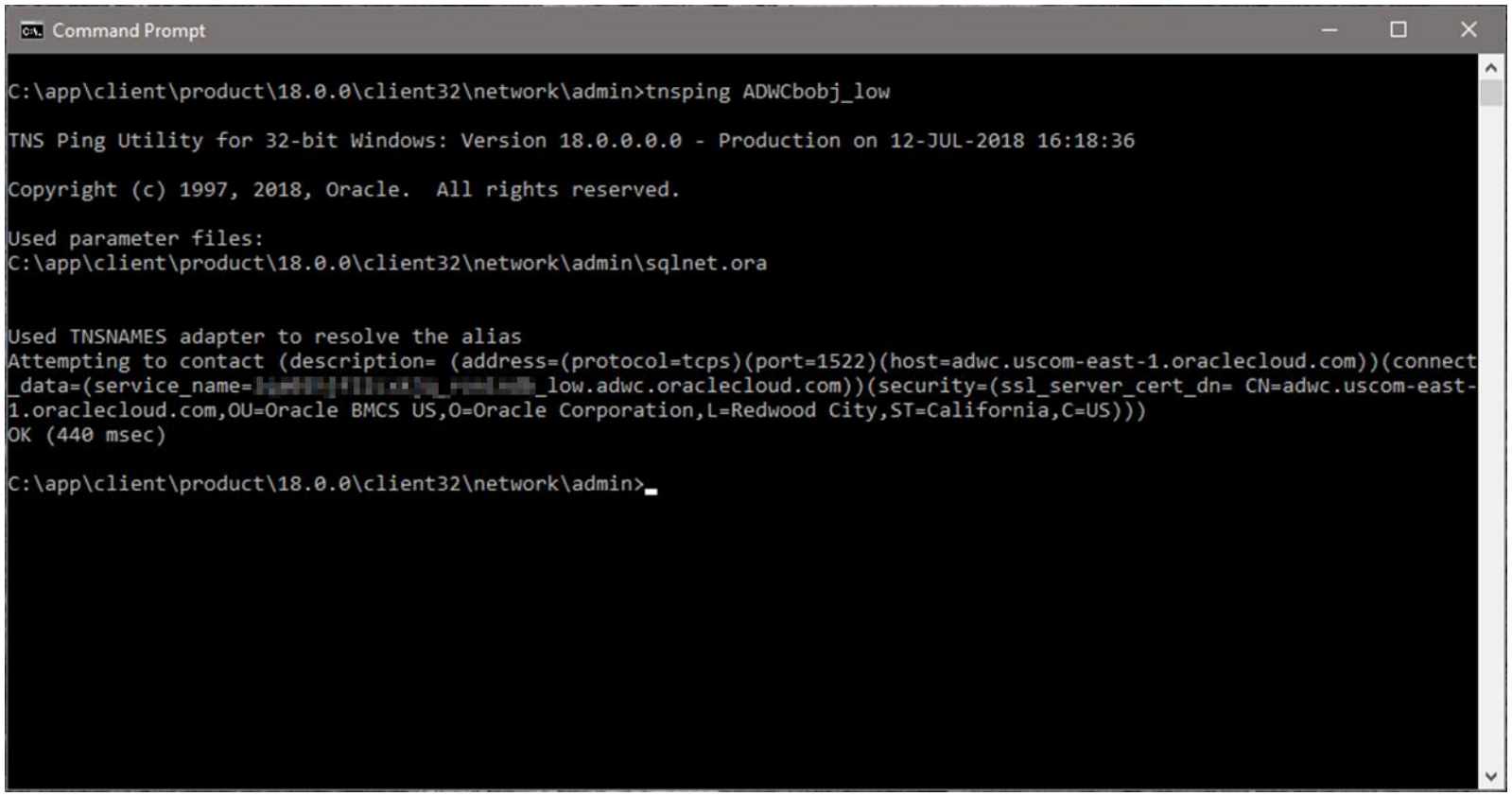
- Update the `TNS_ADMIN` `tnsnames.ora` file with the contents of the Oracle Wallet's `tnsnames.ora` file.
- This is similar to the SAP BO Server setup above and the updated `tnsnames.ora` file should now have the additional ADWC database aliases.



Windows Desktop – Oracle Client Setup

Verify ADWC connectivity

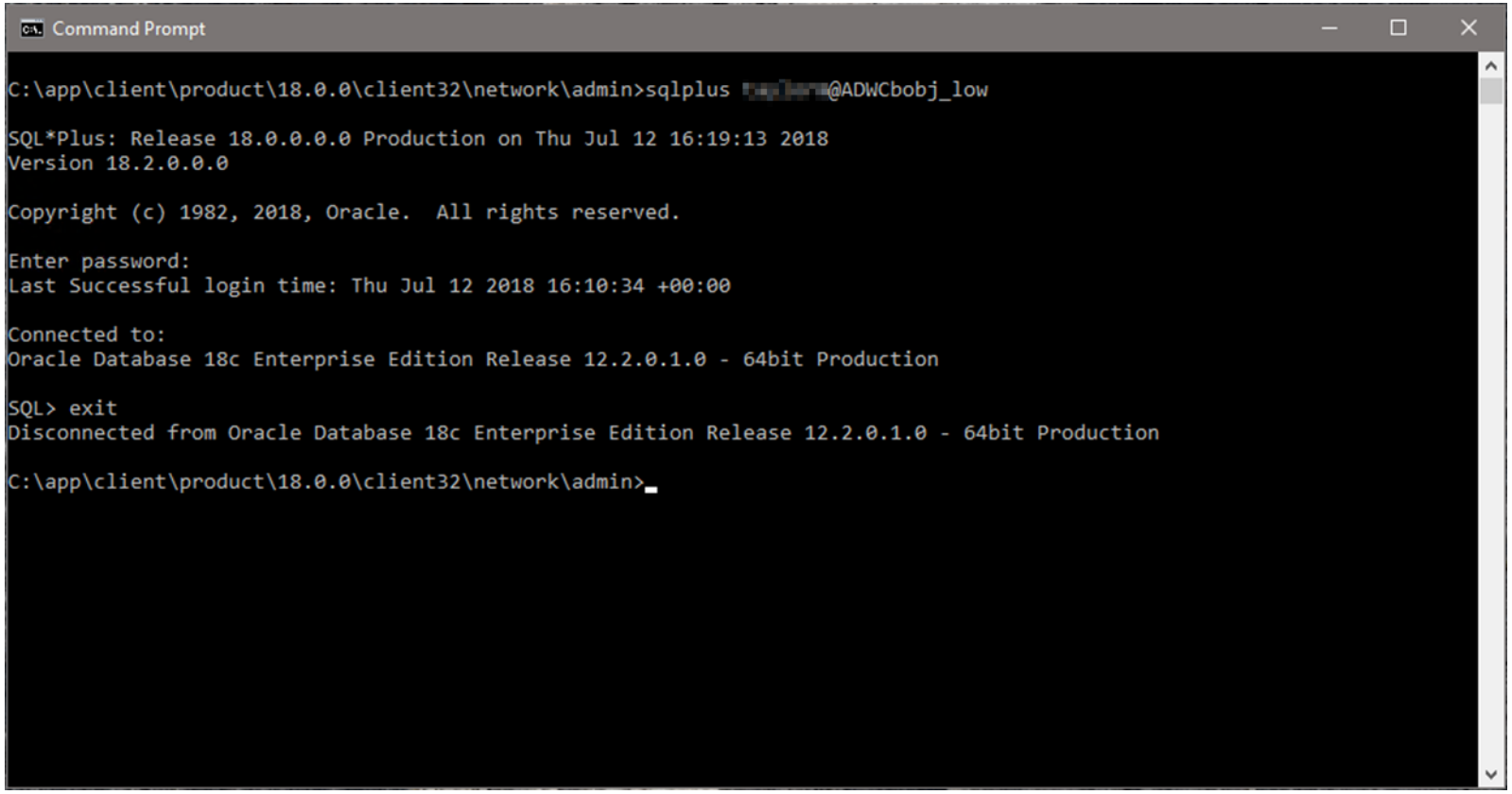
- Validate the Oracle Client is able to communicate with an ADWC database using the `tnsping` command.
- In this example `tnsping ADWCbobj_low` retuned `OK (440 msec).`
- This was a successful connection test that completed in 440 milliseconds.



Windows Desktop – Oracle Client Setup

Validate ADWC login

- Finally validate the ability to login to the ADWC database via the `sqlplus` command.
- In this example, the command `sqlplus <user>@ADWCbobj_low` `nsping ADWCbobj_low` was issued, followed by the password. A successful connection to the database was established.



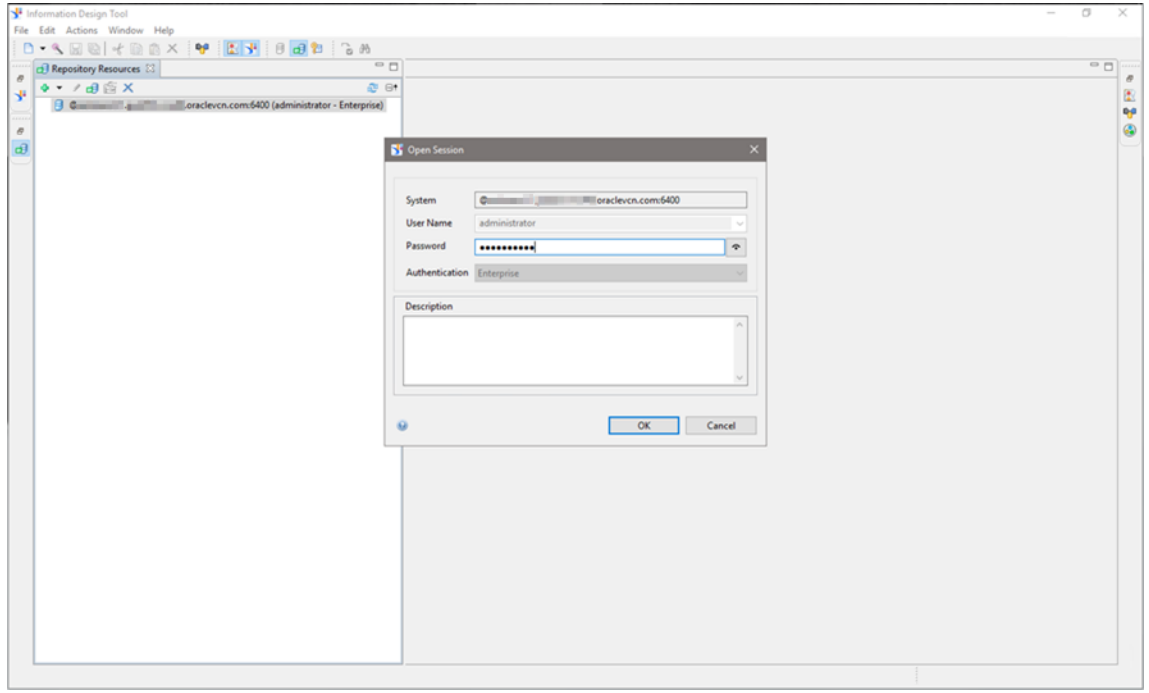
Creating and Publishing a SAP BusinessObjects Universe

This is the longest segment of document. It goes through the process of creating a connection to the ADWC, building a Universe with queries and publishing to the SAP BO Server. By no means is this section designed to be a complete guide to SAP BO's, only a basic "to get started" reference. There are numerous ways to achieve the same objective and many other detailed guides documenting SAP BO reporting.

The following requirements are needed.

- SAP BusinessObjects application login credentials.
- Access to the Central Management Console (`http://<hostname>:8080/BOE/CMC`).
- Access to the BI Launch Pad (`http://<hostname>:8080/BOE/BI`).
- A Windows desktop with client development tools for SAP BusinessObjects.
- Oracle ADWC credentials.

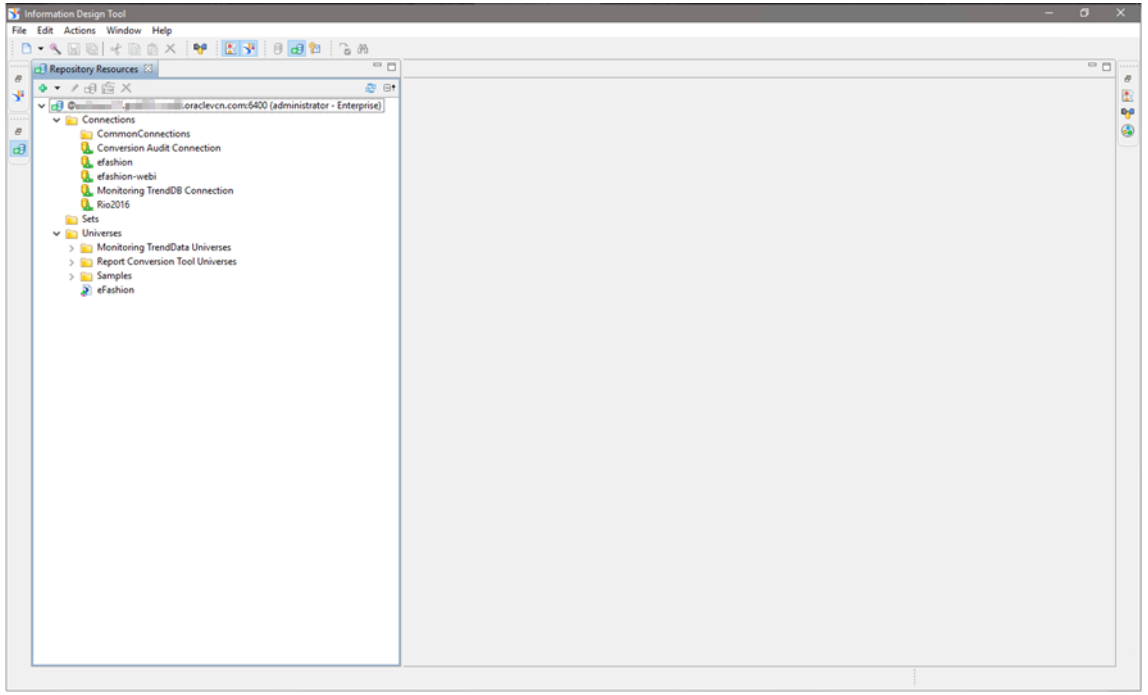
Information Design Tool
Repository Resources: Open Session



- Open the Repository Resources tab (located under the Windows menu).
- Insert a new or Open a previous session to the SAP BO Server. In this example:

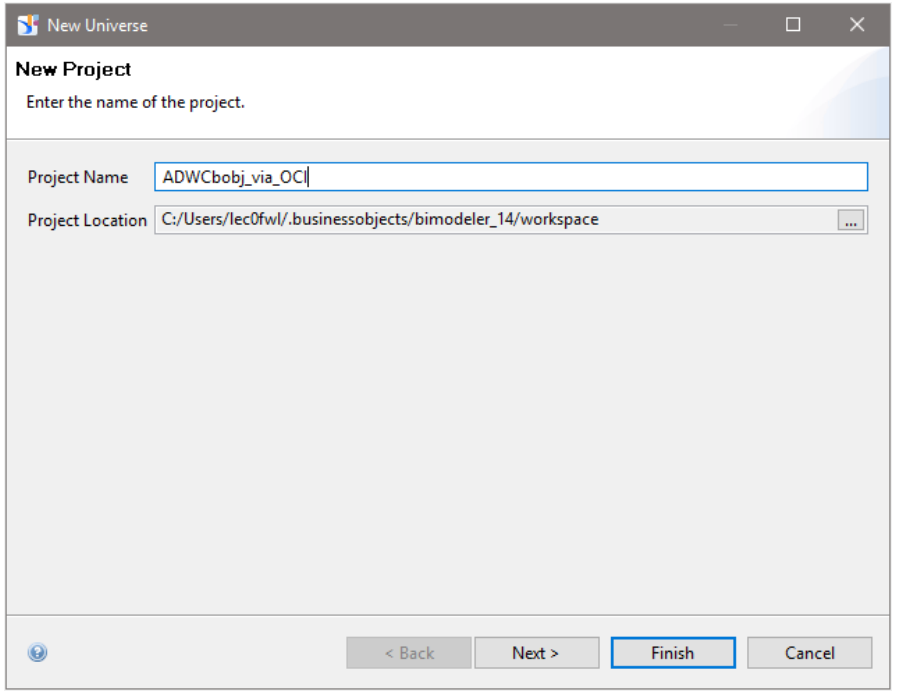
  **********.**********.oraclevcn.com:6400.

- Provide the appropriate User Name, Password, Authentication type, and Description (if desired).
- Once connected, you are able to browse the existing Connections and Universes.



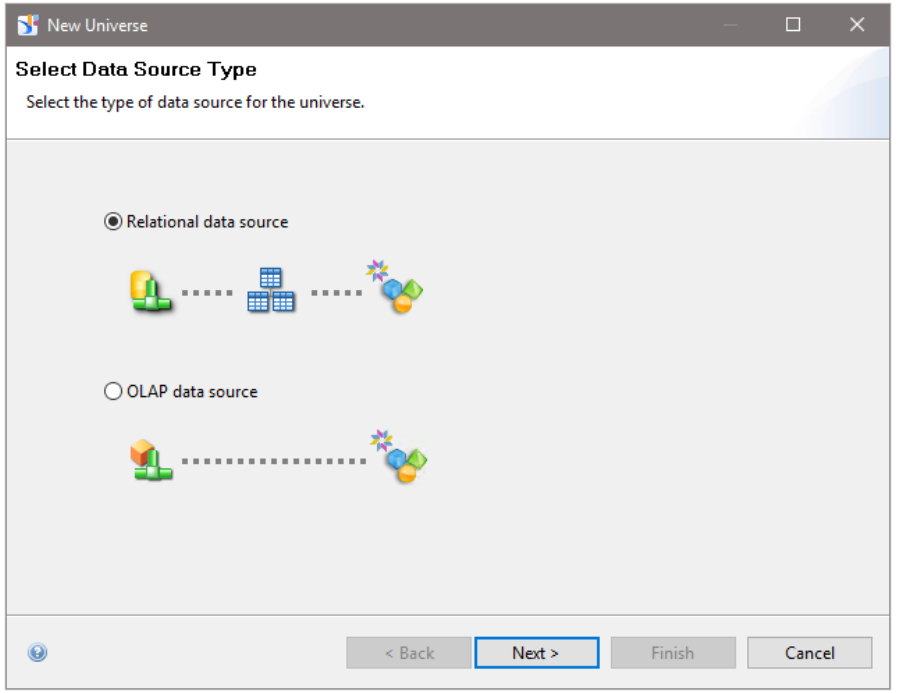
Information Design Tool

New Universe: Project Name & Data Source Type

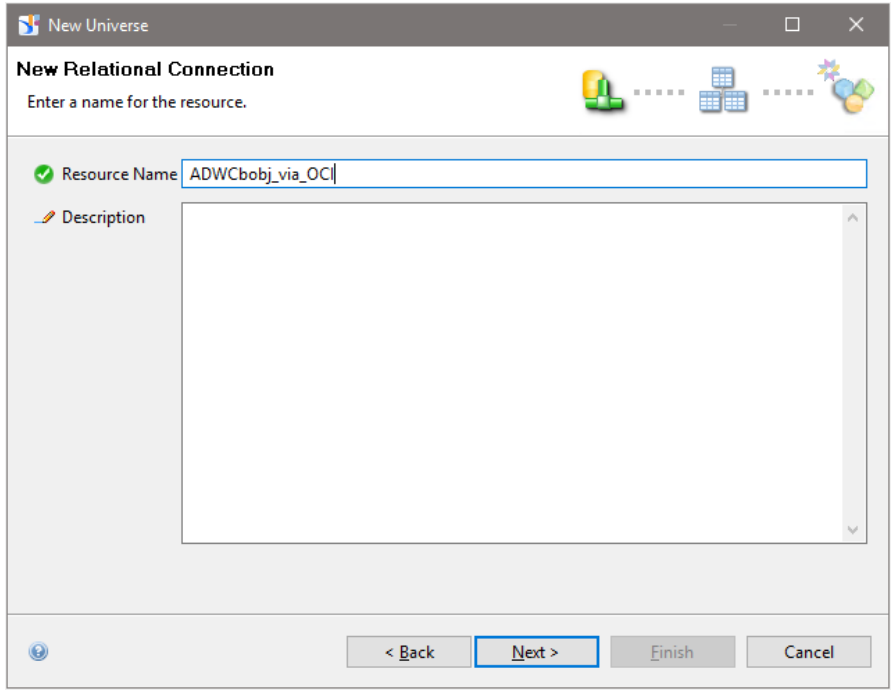


- Create a New Universe (located under the File menu) by creating a new Project.
- Provide a Project Name (i.e. `ADWCbobj_via_OCI`), Project Location and press Next to continue.

- The Data Source should be of type Relational and then proceed by pressing Next.

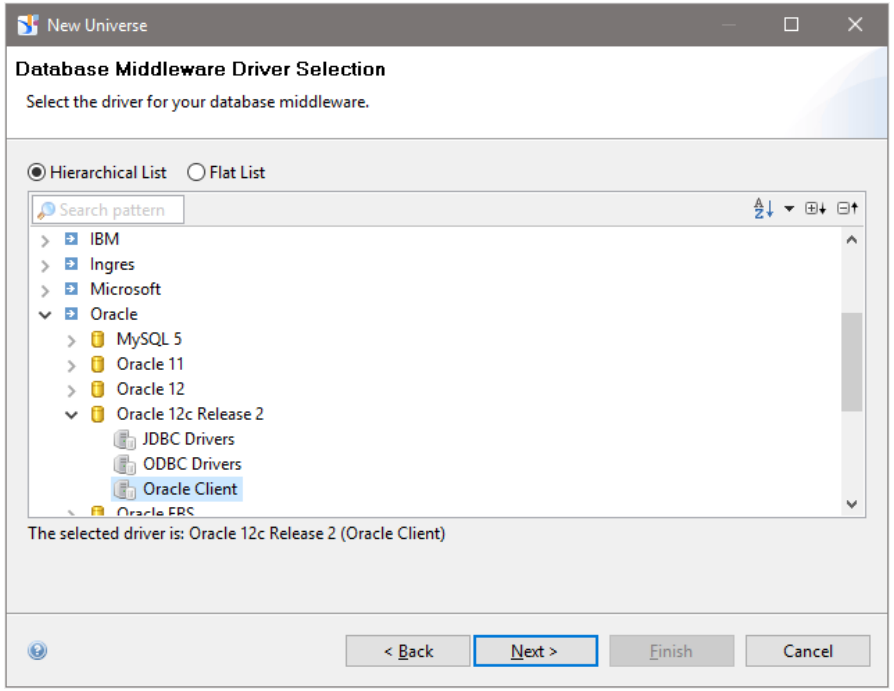


Information Design Tool
New Universe: New Relational Connection



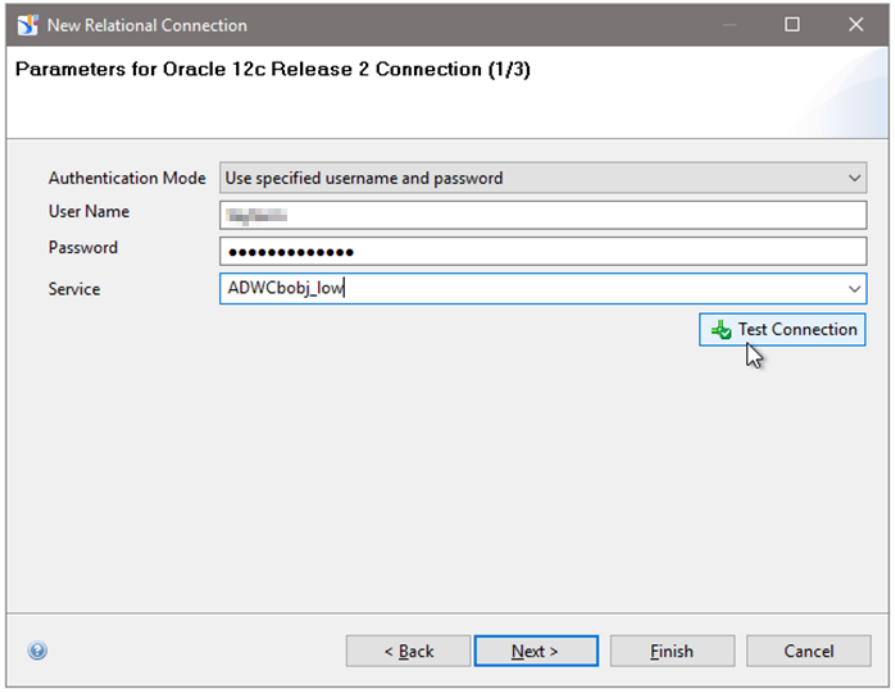
- Provide a Resource Name (i.e. `ADWCbobj_via_OCI`), a meaningful Description (if desired) for t he New Relational Connection and press Next.

- Navigate the Driver Selection tree to Oracle -> Oracle 12c Release 2. Select the Oracle Client driver and continue by pressing Next.



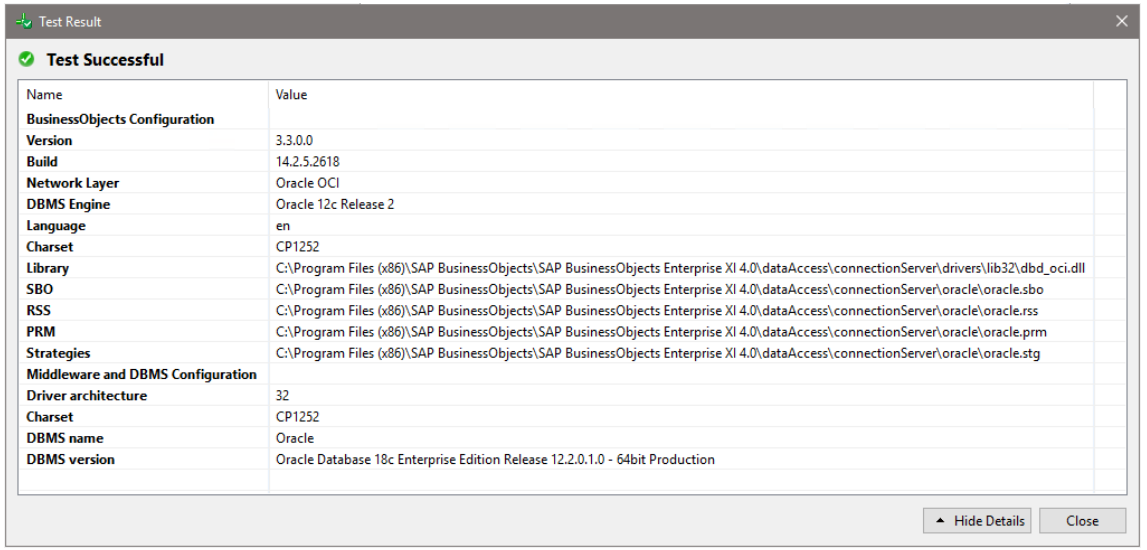
Information Design Tool

New Universe: Relational Connection Credentials



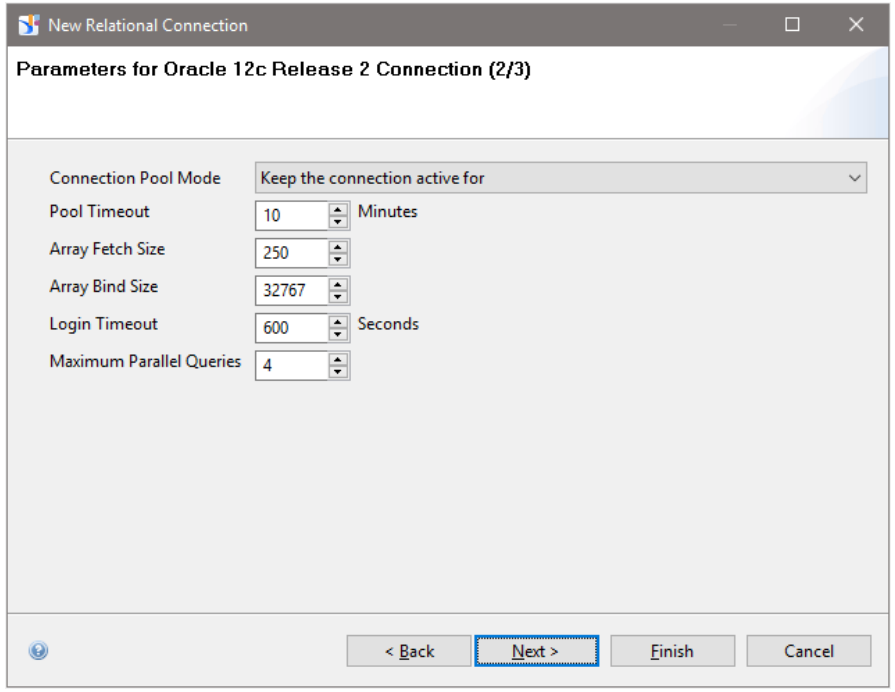
- Select the appropriate Authentication Mode, User Name and Password for the target ADWC Database.
- Type in the appropriate database alias from the client `tnsnames.ora` file (the drop down selection may be empty or not display the desired alias).

- Press the Test Connection button followed by Show Details to display the connection information.
- Pressing the Close button will continue to the next step.



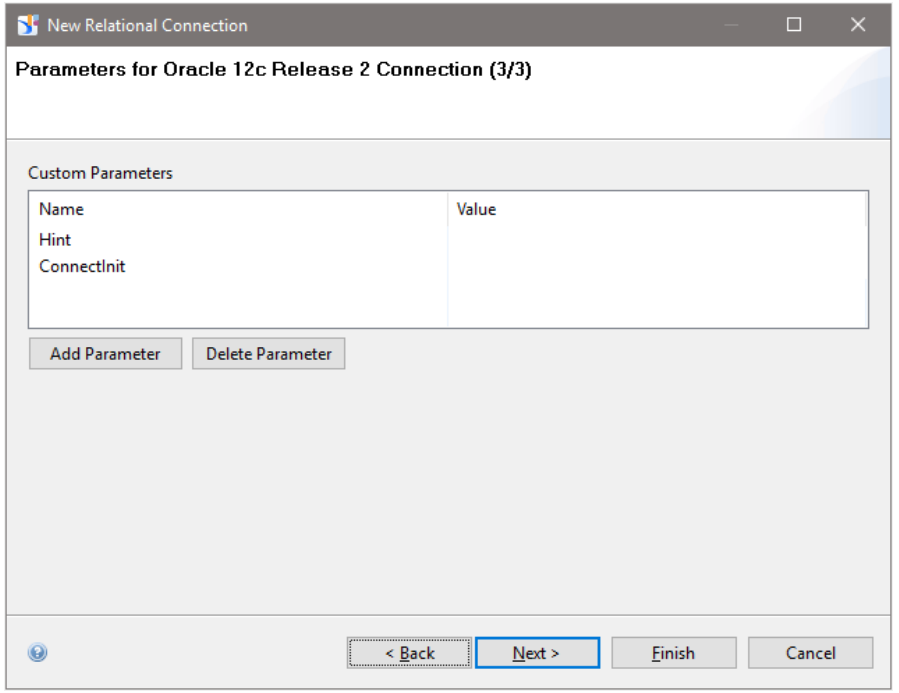
Information Design Tool

New Universe: Relational Connection Parameters

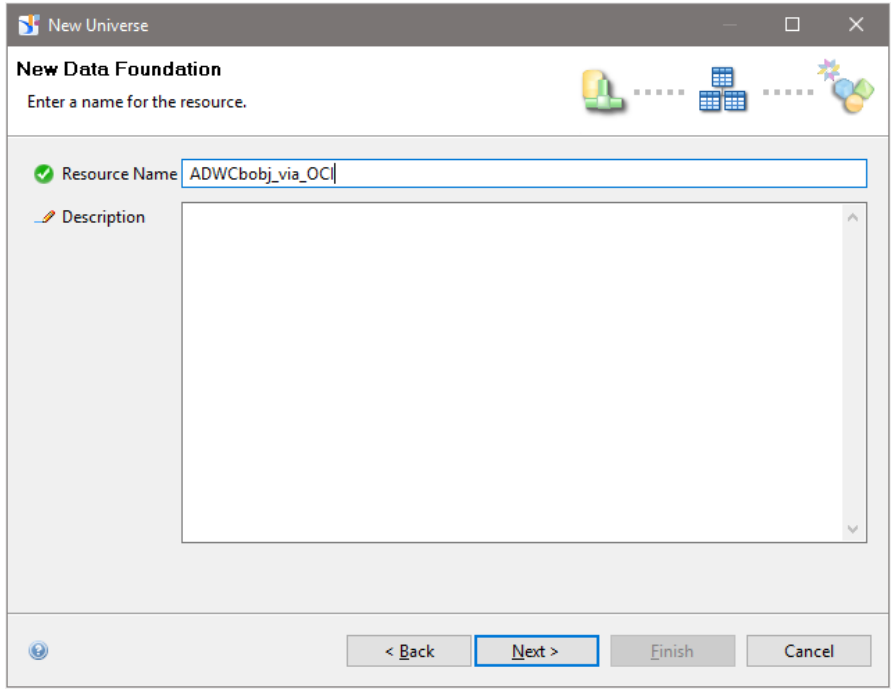


- No changes were made to these default values.

- Change or add parameters as needed or preferred and press Next to continue on.

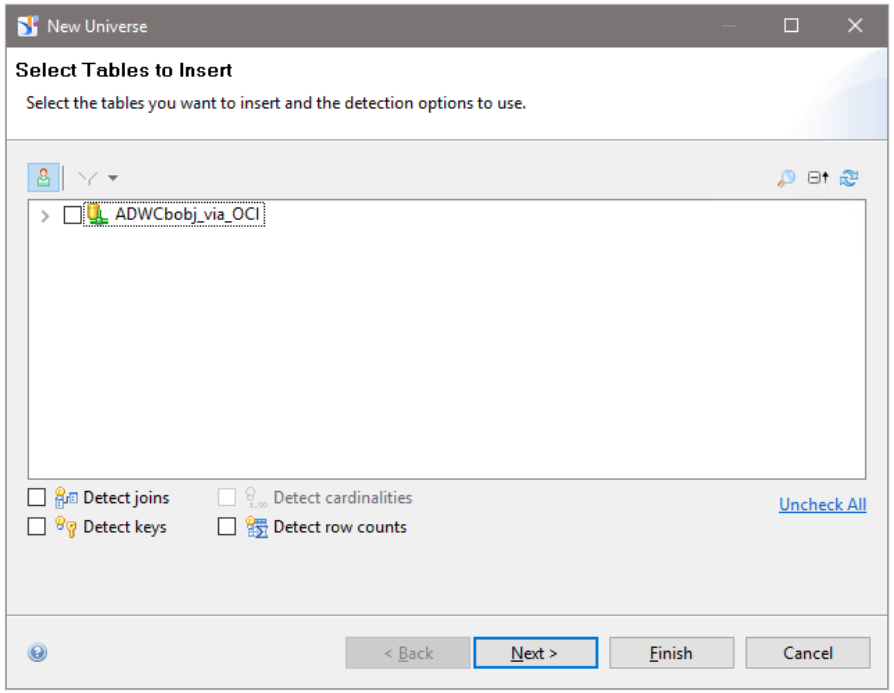


Information Design Tool
New Universe: New Data Foundation



- Provide a Resource Name (i.e. `ADWCbobj_via_OCI`), a meaningful Description (if desired) for the New Data Foundation and press Next to begin database table selection.

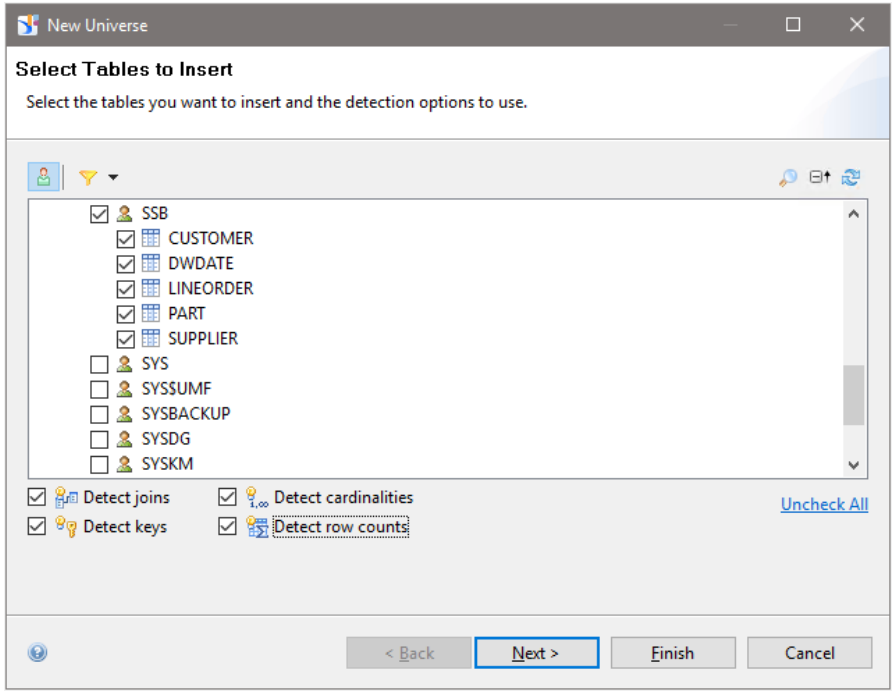
- Navigate the newly created Relational Connection to select the tables to be included in the New Universe.
- Review the below screenshot_1 and screenshot_2 on the following page before continuing.



screenshot_1

Information Design Tool

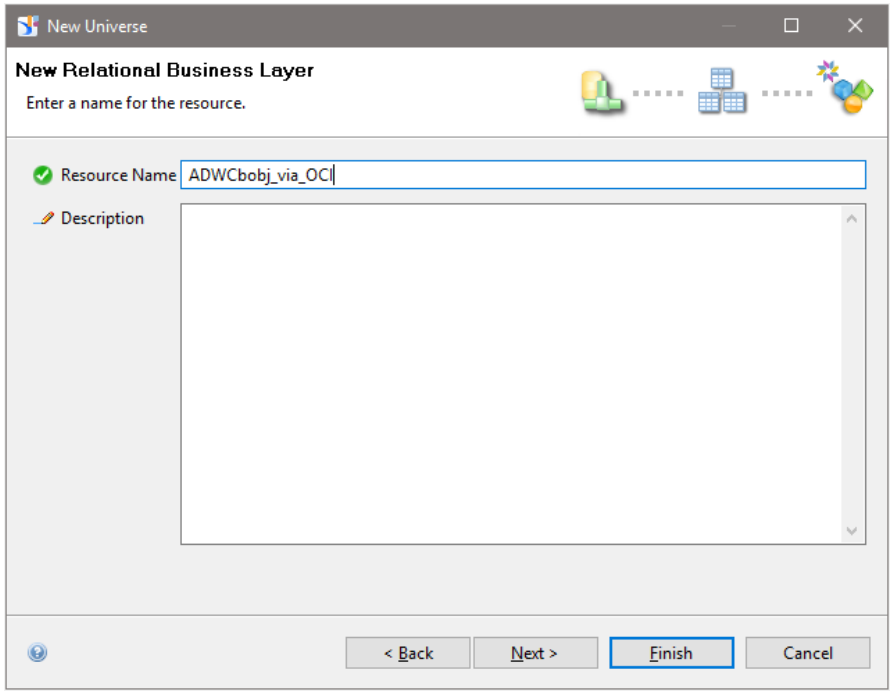
New Universe: Data Foundation Table Selection & Business Layer



screenshot_2

- After selecting all the sought after tables for the Universe, choose any or all of the Detect check boxes to allow the Information Design Tool to discover relationships about the tables and press Next.

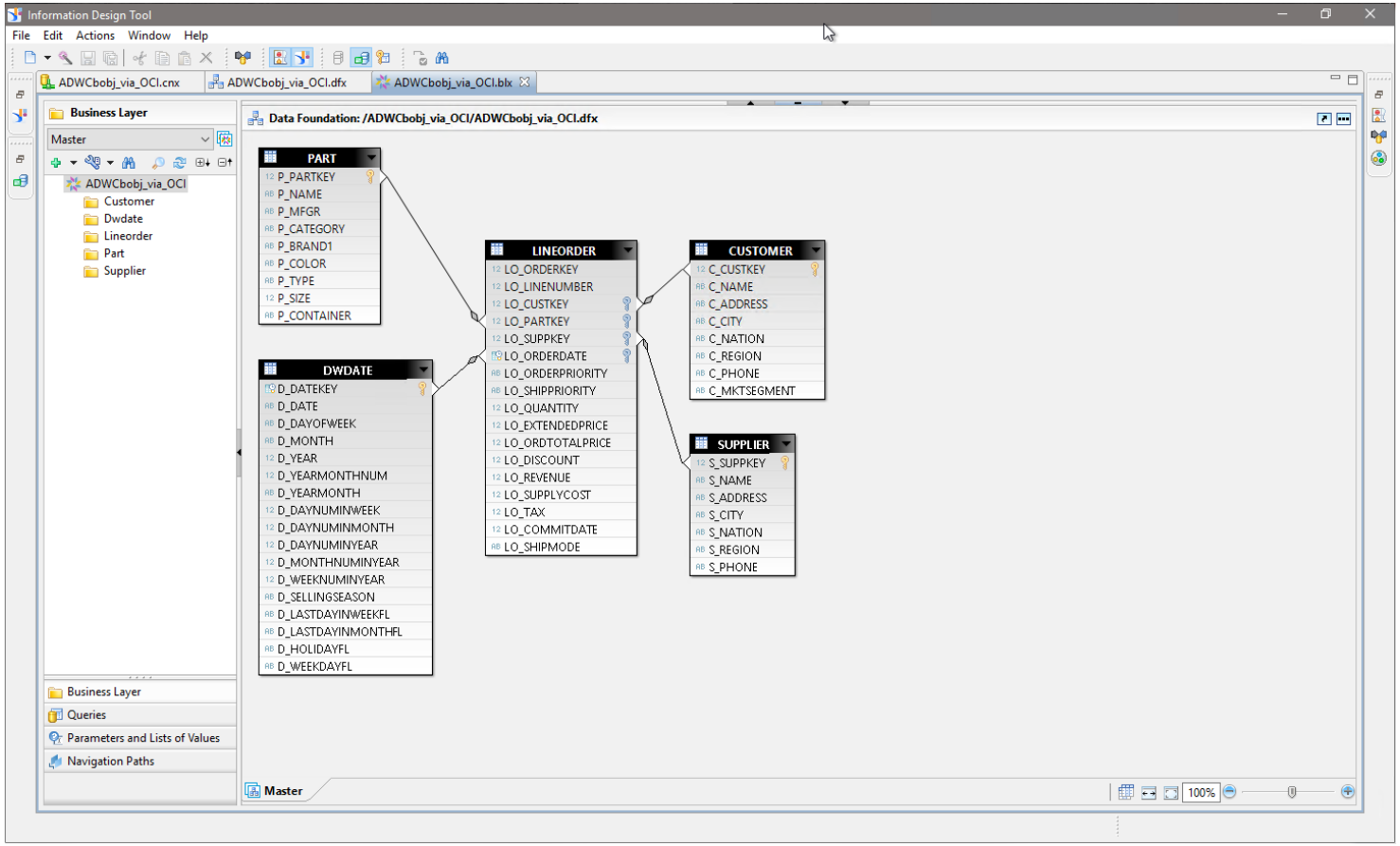
- The final step of the wizard is to provide a Resource Name (i.e. `ADWCbobj_via_OCI`) and a meaningful Description (if desired) for the New Relational Business Layer.



Information Design Tool

Universe Business Layer

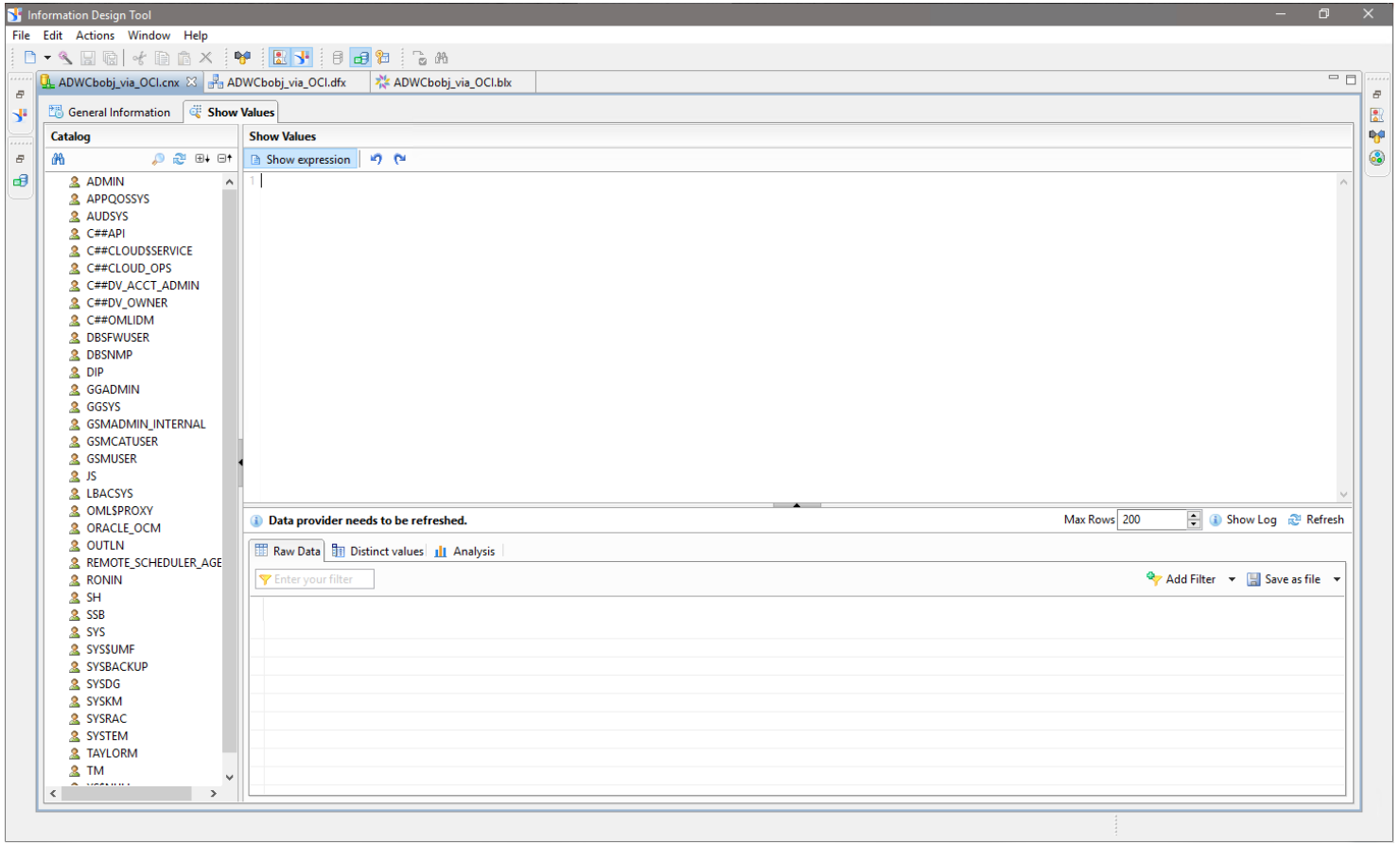
- After completing the Wizard the Business Layer (identified by the .blx file type in the tab name) is displayed.
- The Business Layer displays the Data Foundation (identified by the .dfx file type) showing the previously included tables and relationships.
- This completes the initial Universe creation.



Information Design Tool

Universe Connection: SQL Test

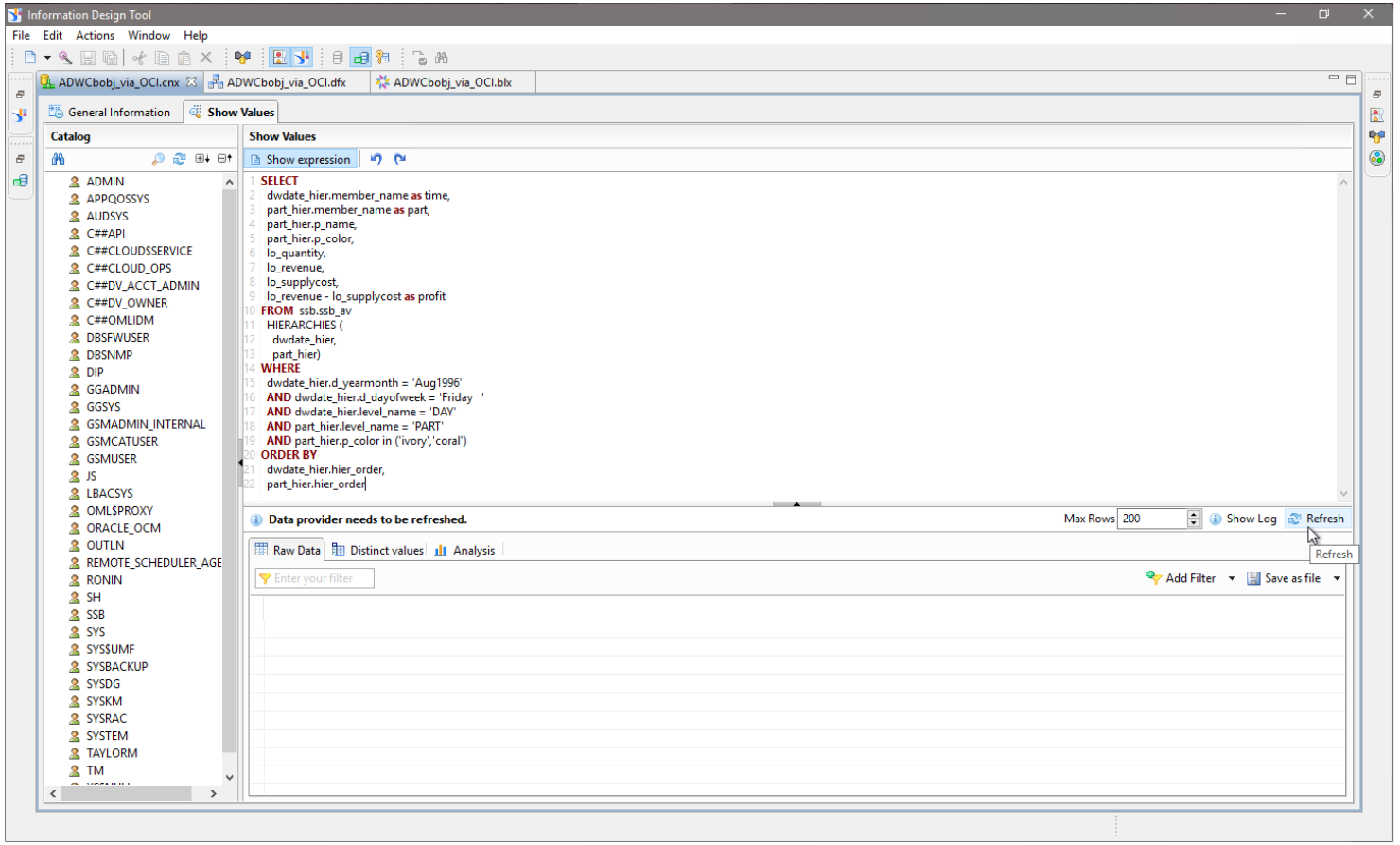
- After successfully completing the New Universe wizard, the locally created connection should be published to the SAP BO Server.
- Before publishing the connection a SQL query can be entered to validate the connection, if desired.
- Click on the Connection tab (identified by the .cnx file type in the tab name) and then the Show Values sub tab.



Information Design Tool

Universe Connection: SQL Test

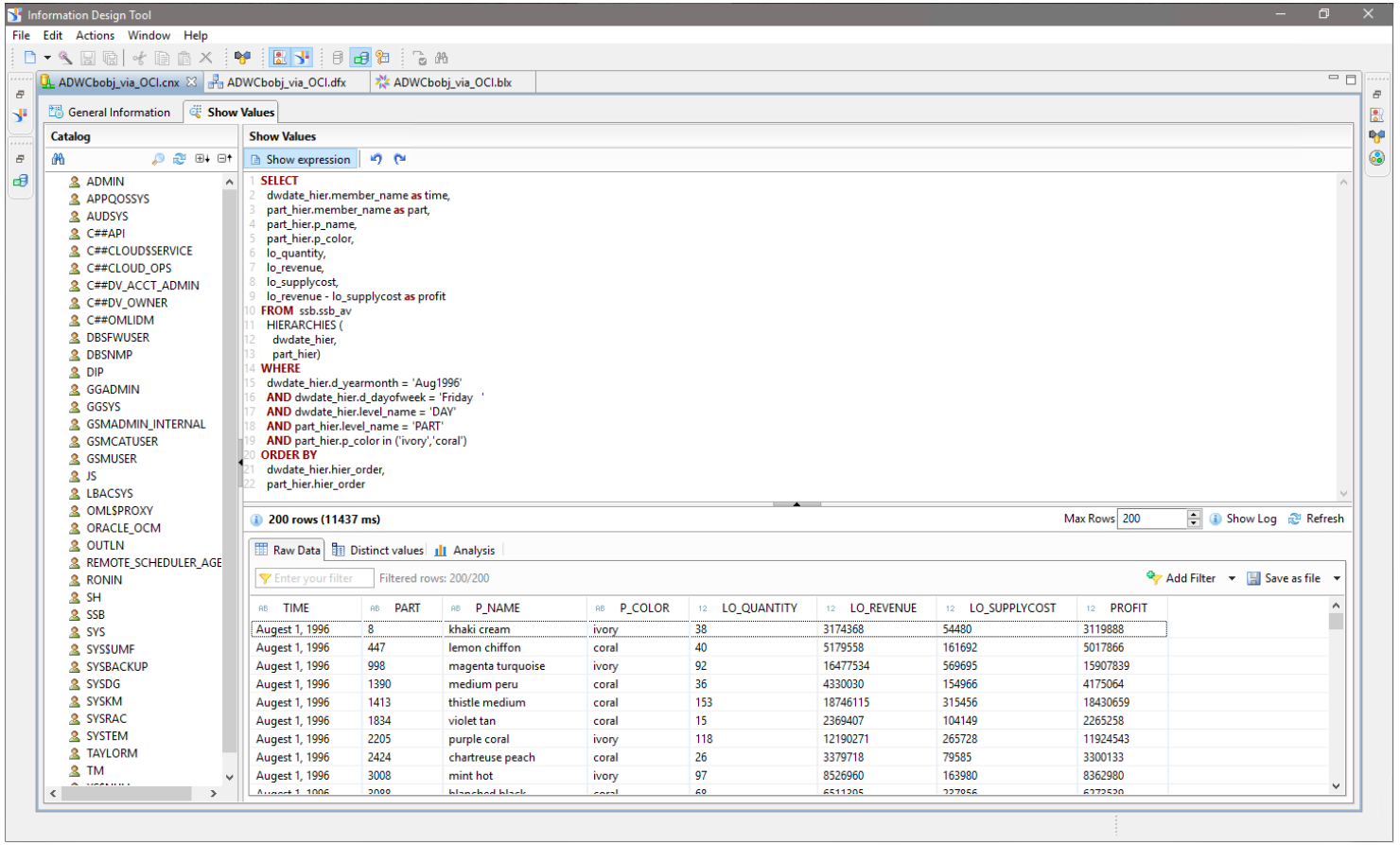
- Type or paste the chosen SQL query in to the Show Expression text box.
- Do not place a semicolon at the end of the query.
- Press the Refresh button to execute the Query.
- In this test: the query used was copied from ADWC Star Schema Benchmark Analytic Views documentation.
- For more information goto: https://docs.oracle.com/en/cloud/paas/autonomous-data-warehouse-cloud/user/sample-queries.html#GUID-431A16E8-4C4D-4786-BE5C-30029AC1EFD8



Information Design Tool

Universe Connection: SQL Test

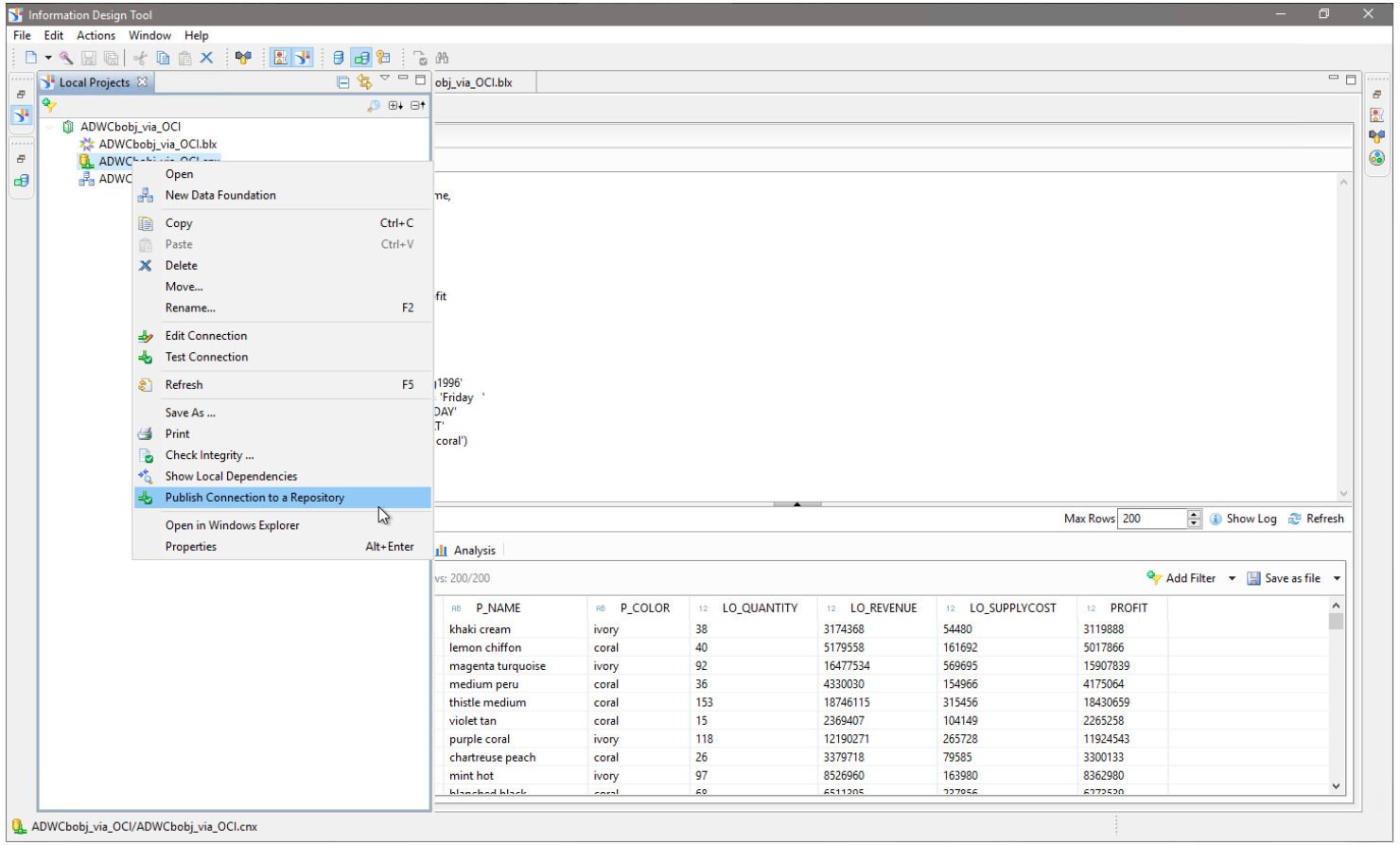
- The query's results will be displayed in the Raw Data tab.



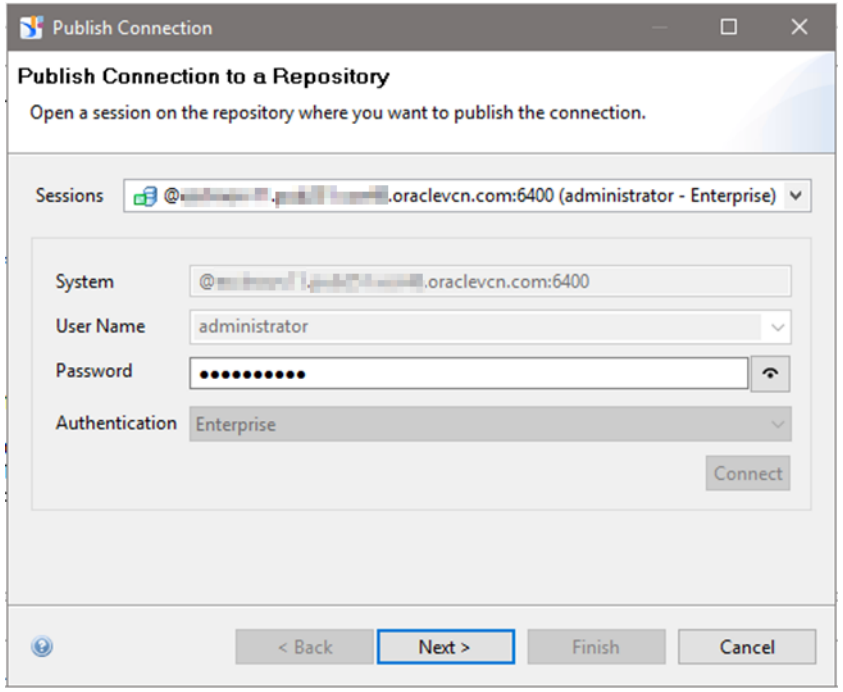
Information Design Tool

Universe Connection: Publish

- To publish the local connection to the SAP BO server, first navigate to the Local Projects tab (located under the Windows menu).
- If not already, Expand the active Local Project (`ADWCbobj_via_OCI`).
- Right click on the local connection (.cnx) and select Publish Connection to a Repository.

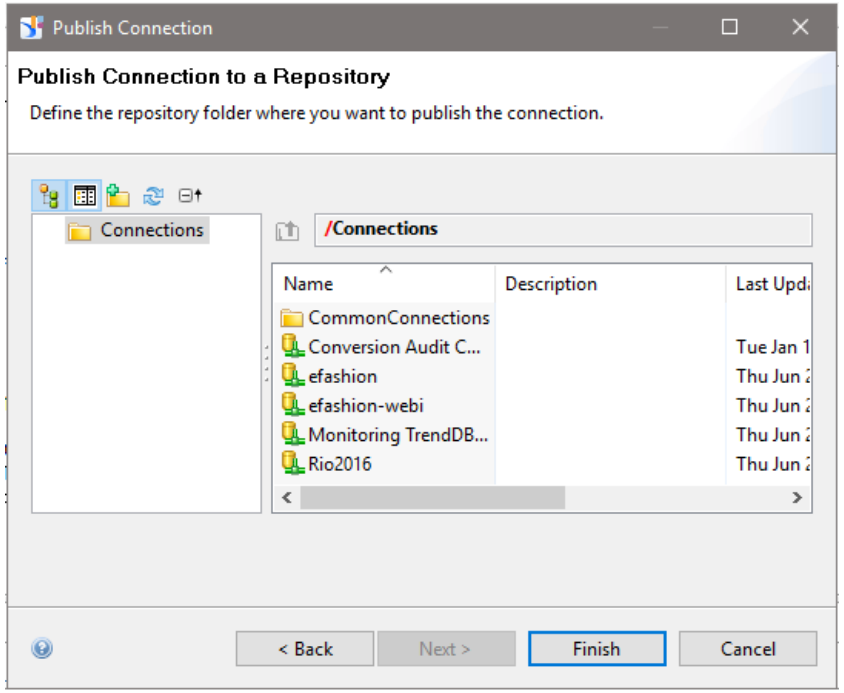


Information Design Tool
Universe Connection: Publish

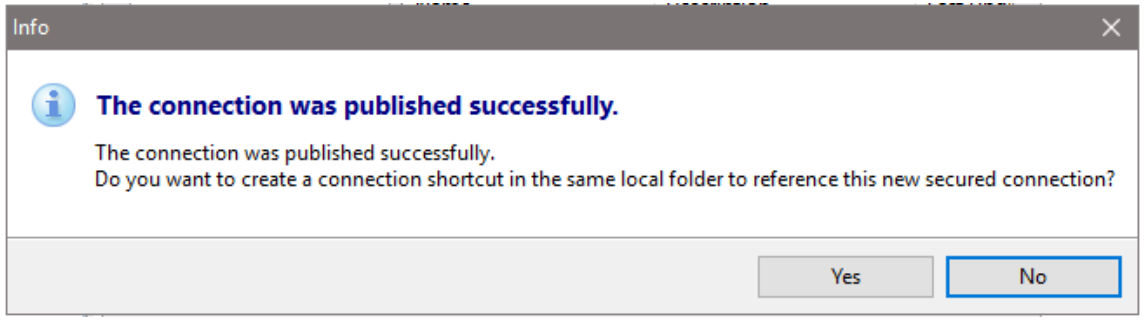


- Provide the required Password for the current Session.

- Select a folder to store the connection on the SAP BO server.

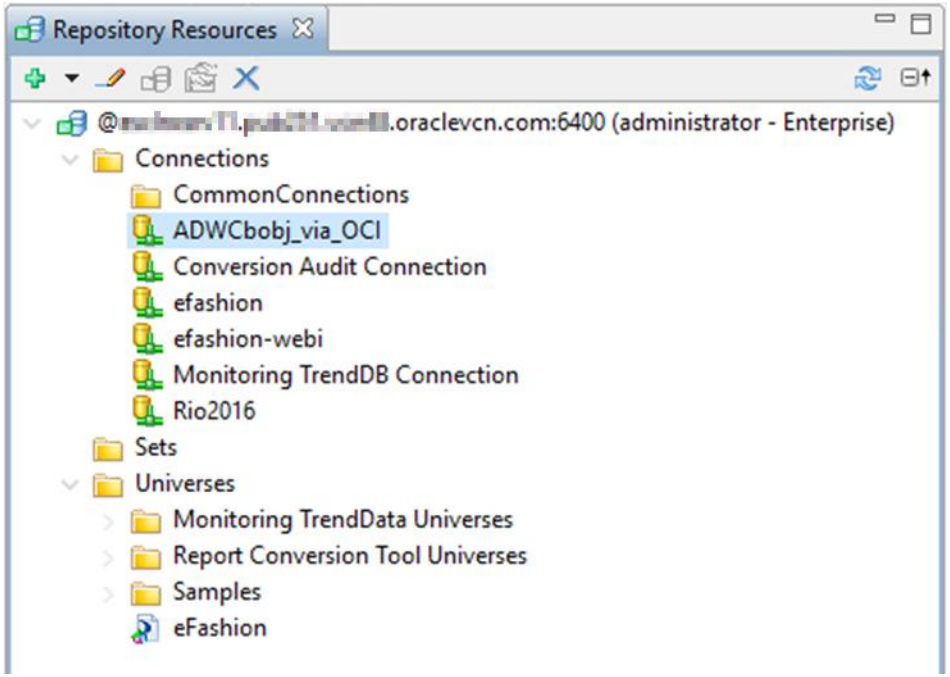


Information Design Tool
Universe Connection: Publish



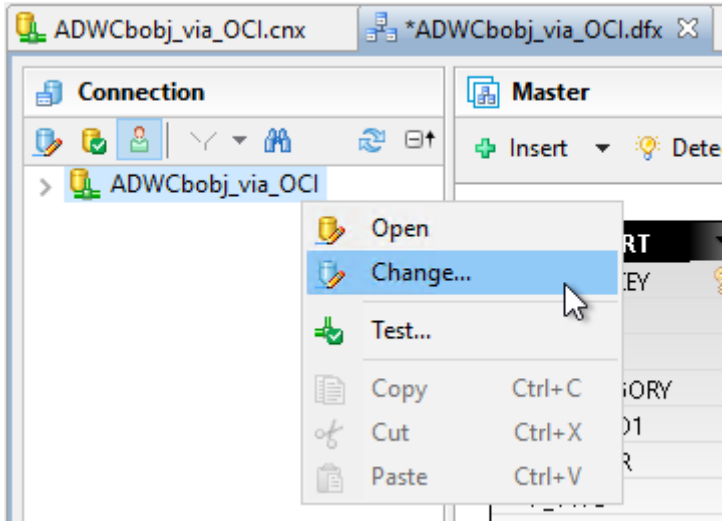
- Select Yes to create a shortcut to the published connection in the Local Project.

- Verify the newly published connection is visible under the Repository Resources tab.



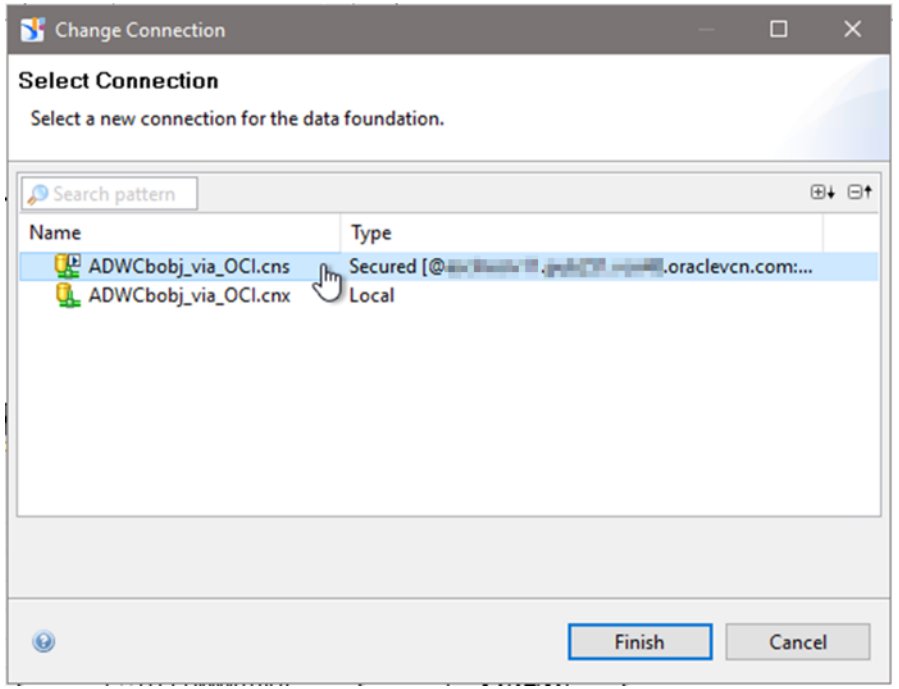
Information Design Tool

Universe Connection: Data Foundation Connection



- Change the local connection in the Data Foundation to use the new published connection.
- On the Data Foundation tab, right click on the connection and select Change.

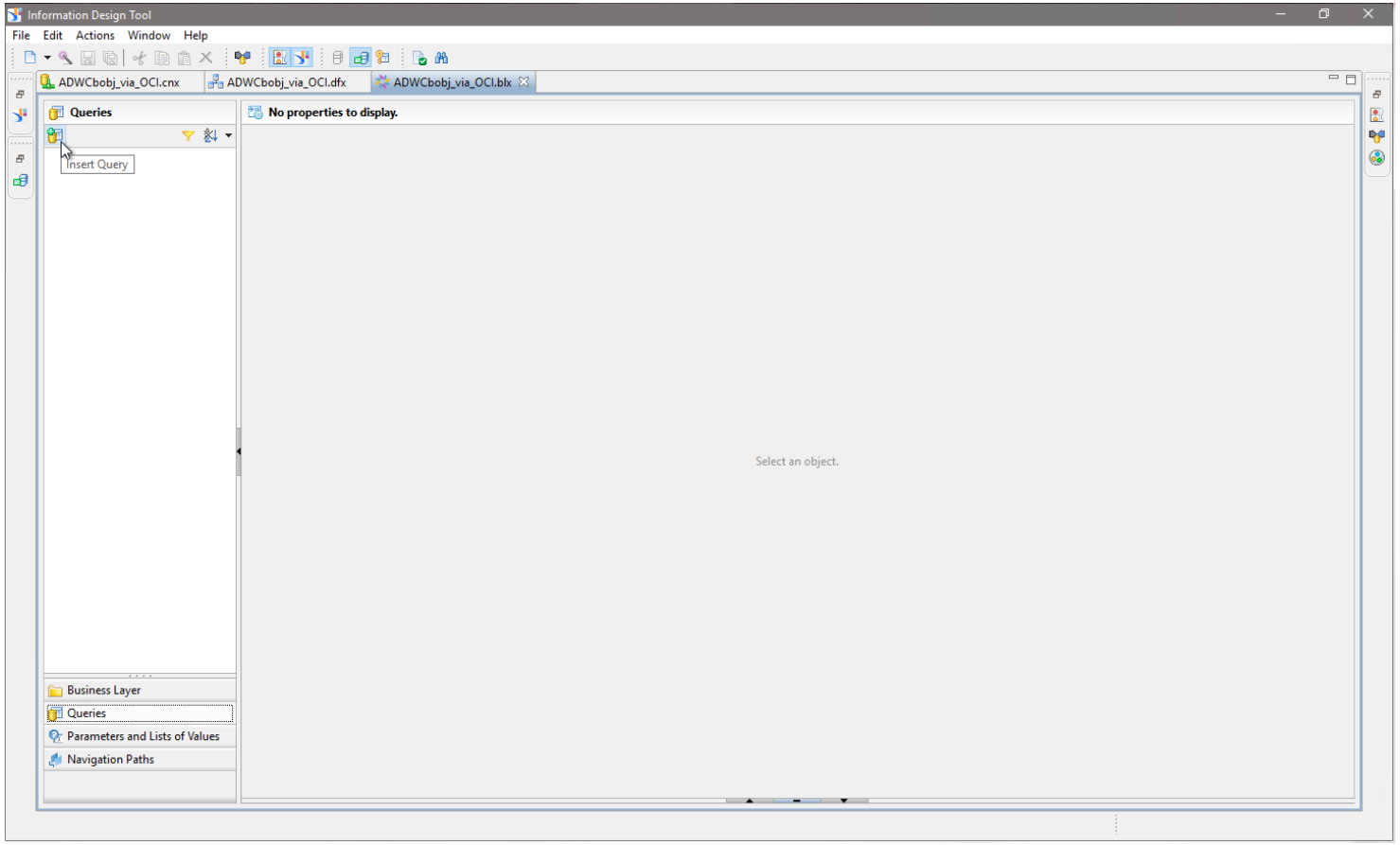
- Select the newly published connection (.cns) and press Finish to switch the connection.



Information Design Tool

Universe Business Layer: Query

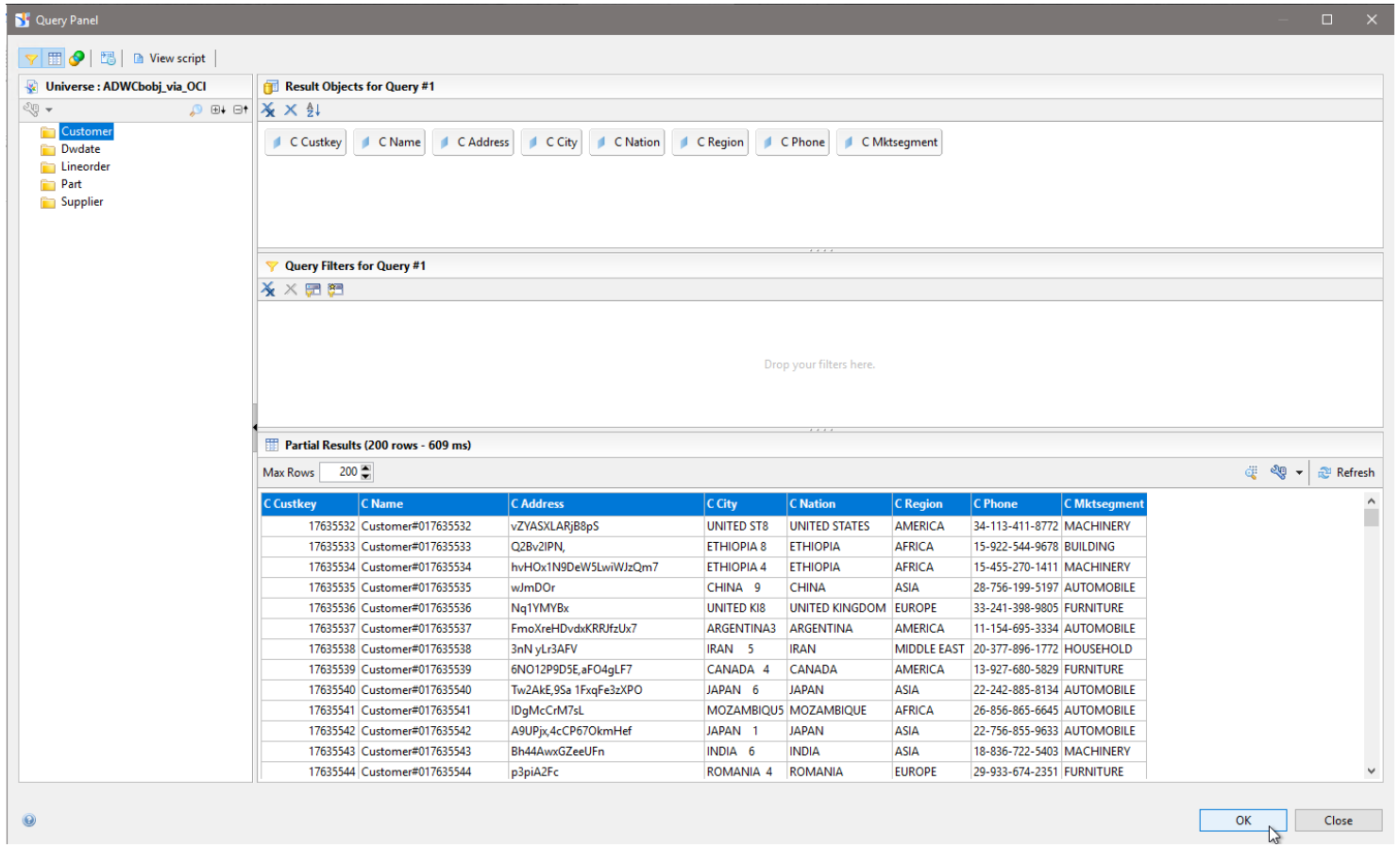
- The next step would be to add a query to the Universe's Business Layer.
- Select the Queries section on the Business Layer tab and press the Insert Query button.



Information Design Tool

Universe Business Layer: Query

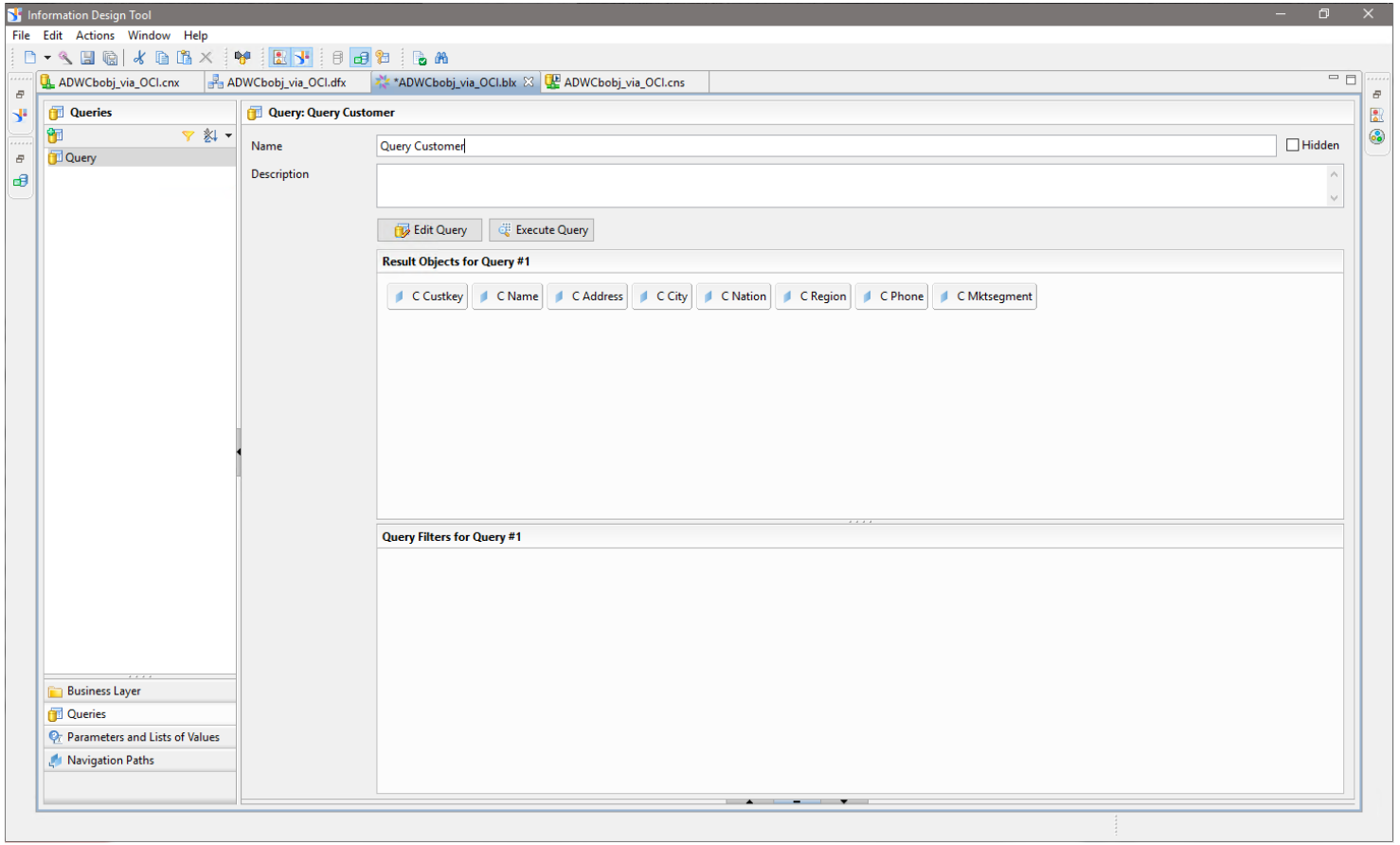
- Drag columns or entire tables to Result Objects section to start building a query.
- Where clause can be added and Ranking in the Query Filters section.
- Pressing the Refresh button updates the results of the query.
- In the example the enter Customer table was used with no filters.
- When the desired query is complete, press OK.



Information Design Tool

Universe Business Layer: Query

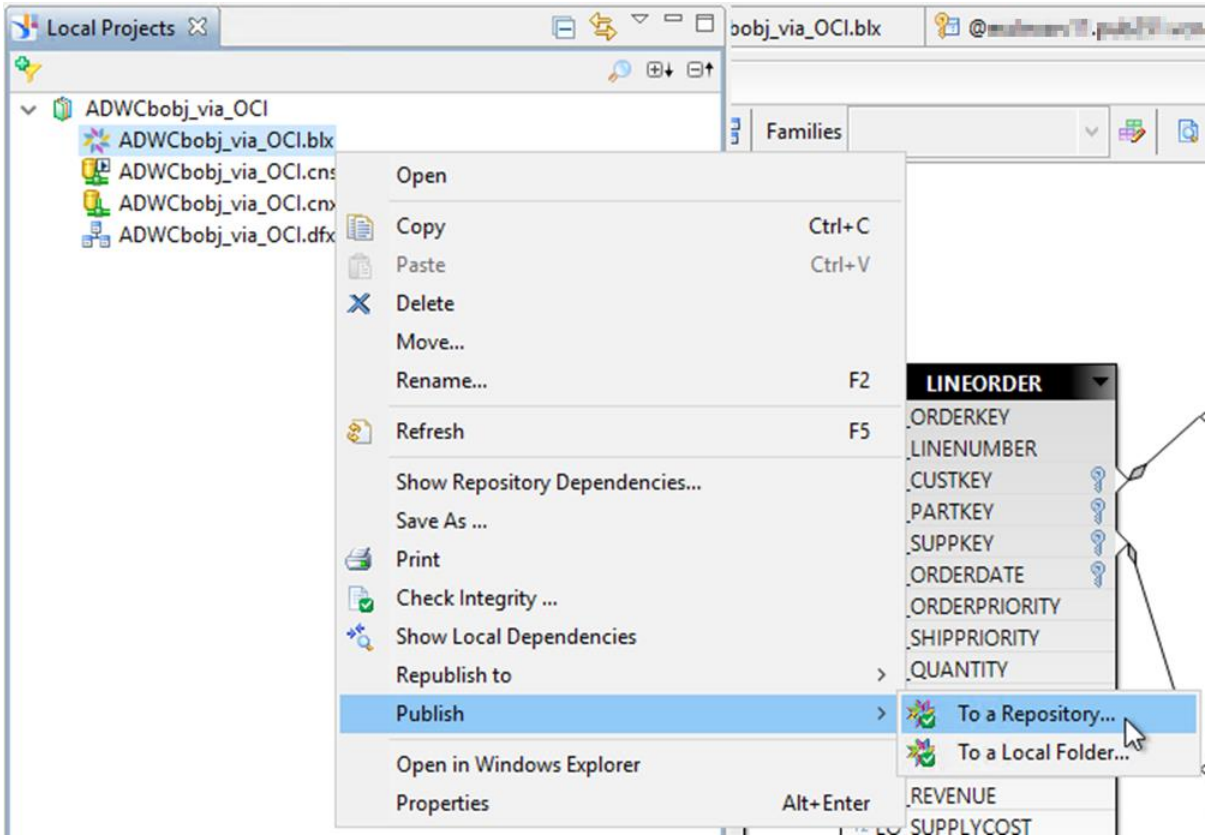
- One last step would be to provide a meaningful name to the new query.
- In this example it was named `Query Customer`.



Information Design Tool

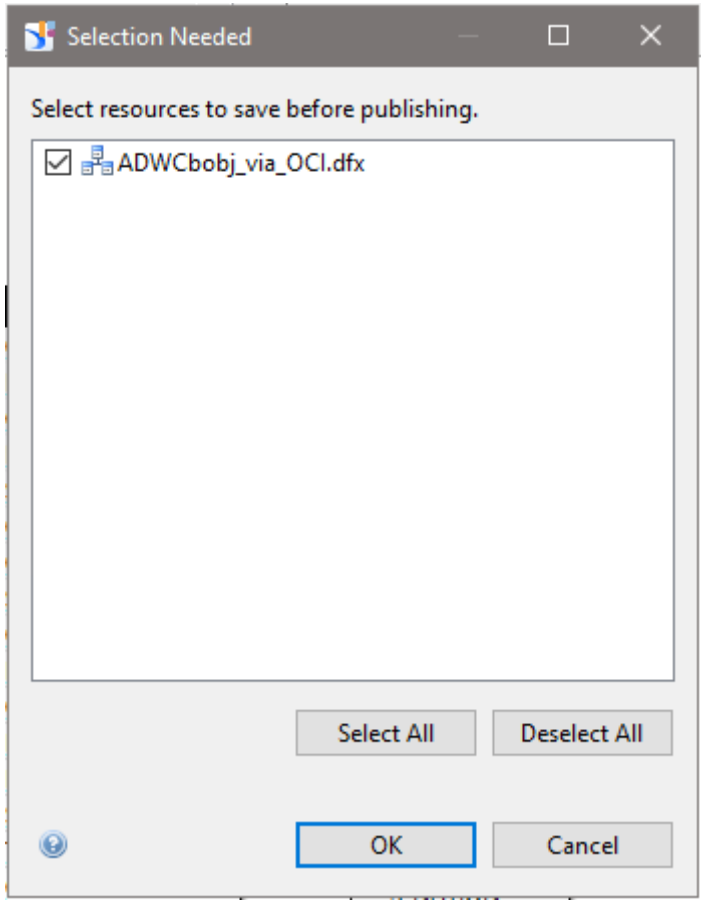
Universe: Publish

- To publish a local Universe to the SAP BO server, navigate back to the Local Projects tab.
- If not already, Expand the active Local Project (`ADWCbobj_via_OCI`).
- Go back to the Local Projects tab and right click on the Business Layer (.blx).
- Select To a Repository under the Publish menu entry.

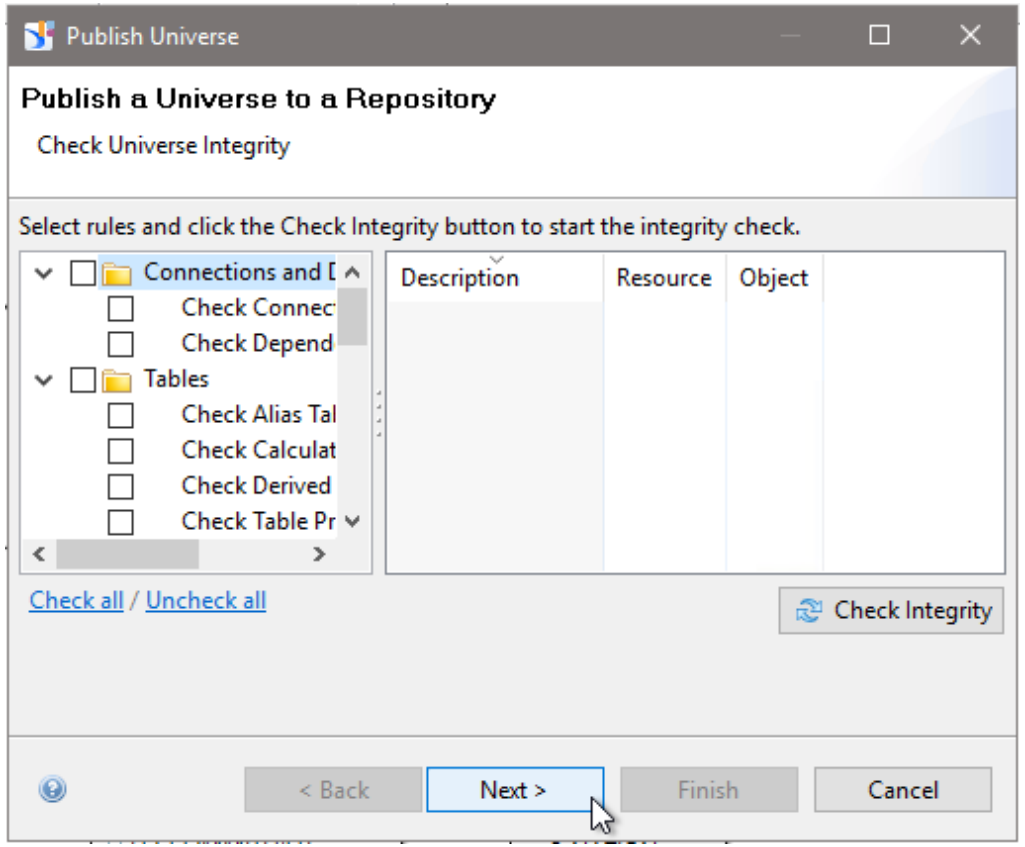


Information Design Tool
Universe: Publish

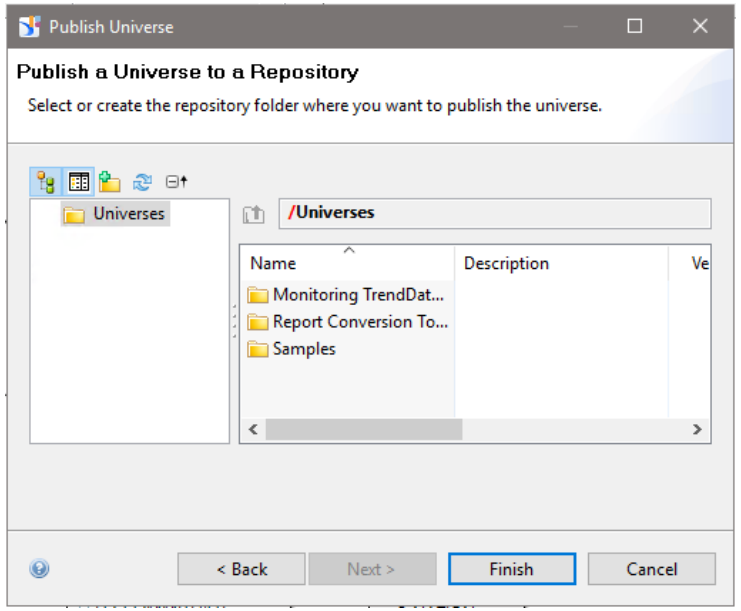
- Select any resource needing to be saved prior to publishing the universe.



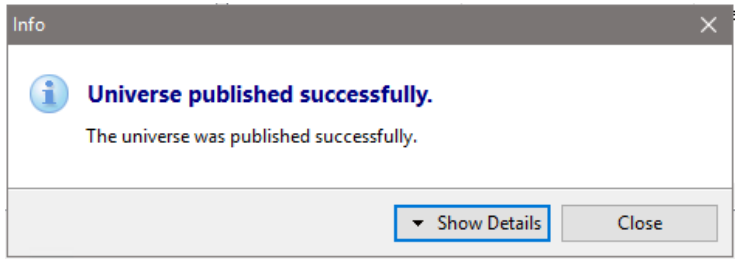
- Choose any desired Integrity Checks.



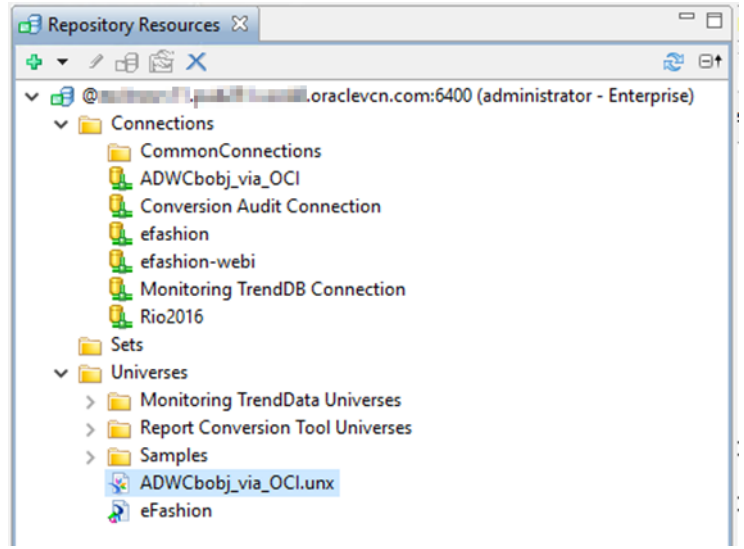
Information Design Tool
Universe: Publish



- Select a folder to store the Universe on the SAP BO server.



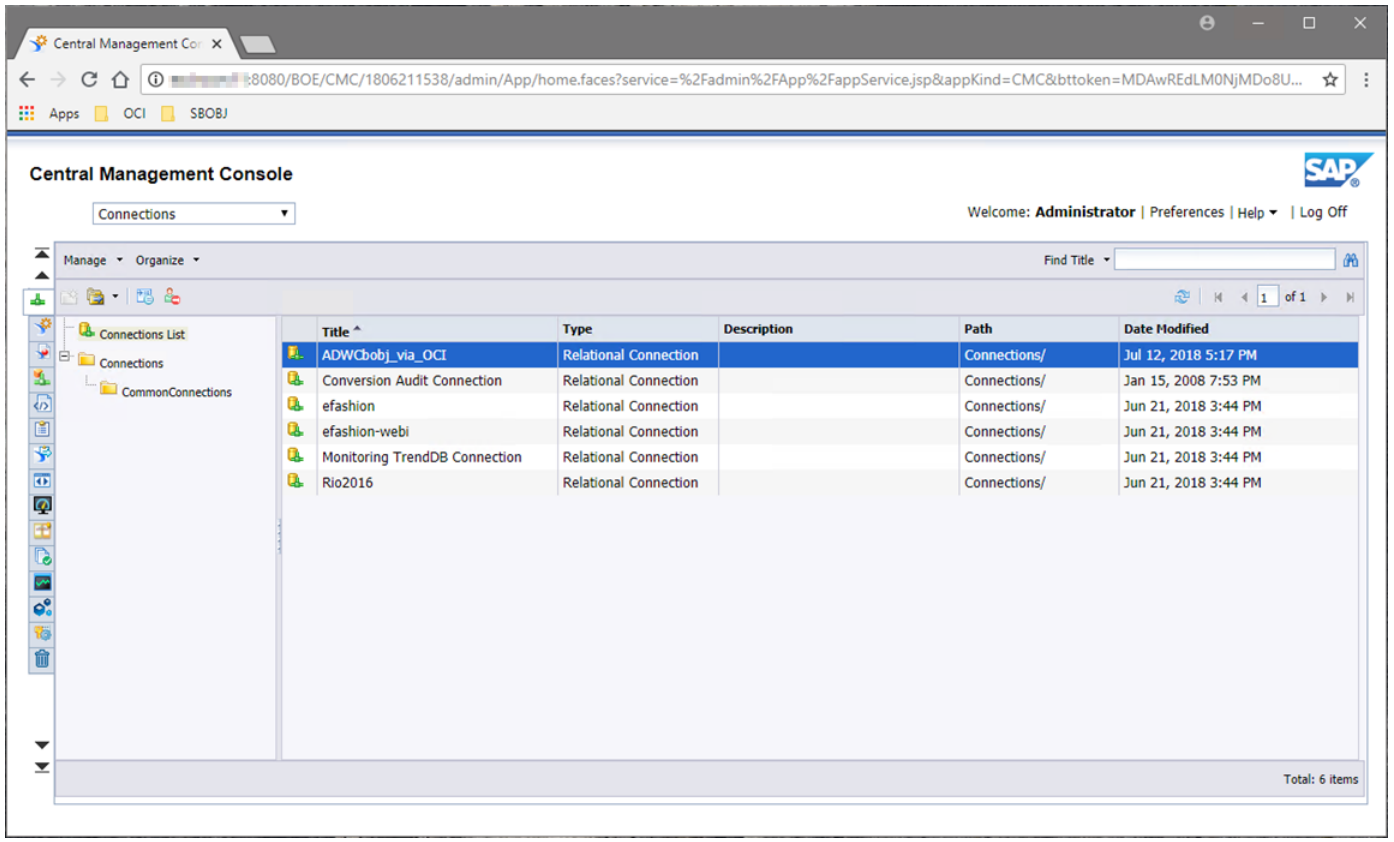
- Verify the newly published Universe is visible under the Repository Resources Tab.



Center Management Console

Published Connection Verification

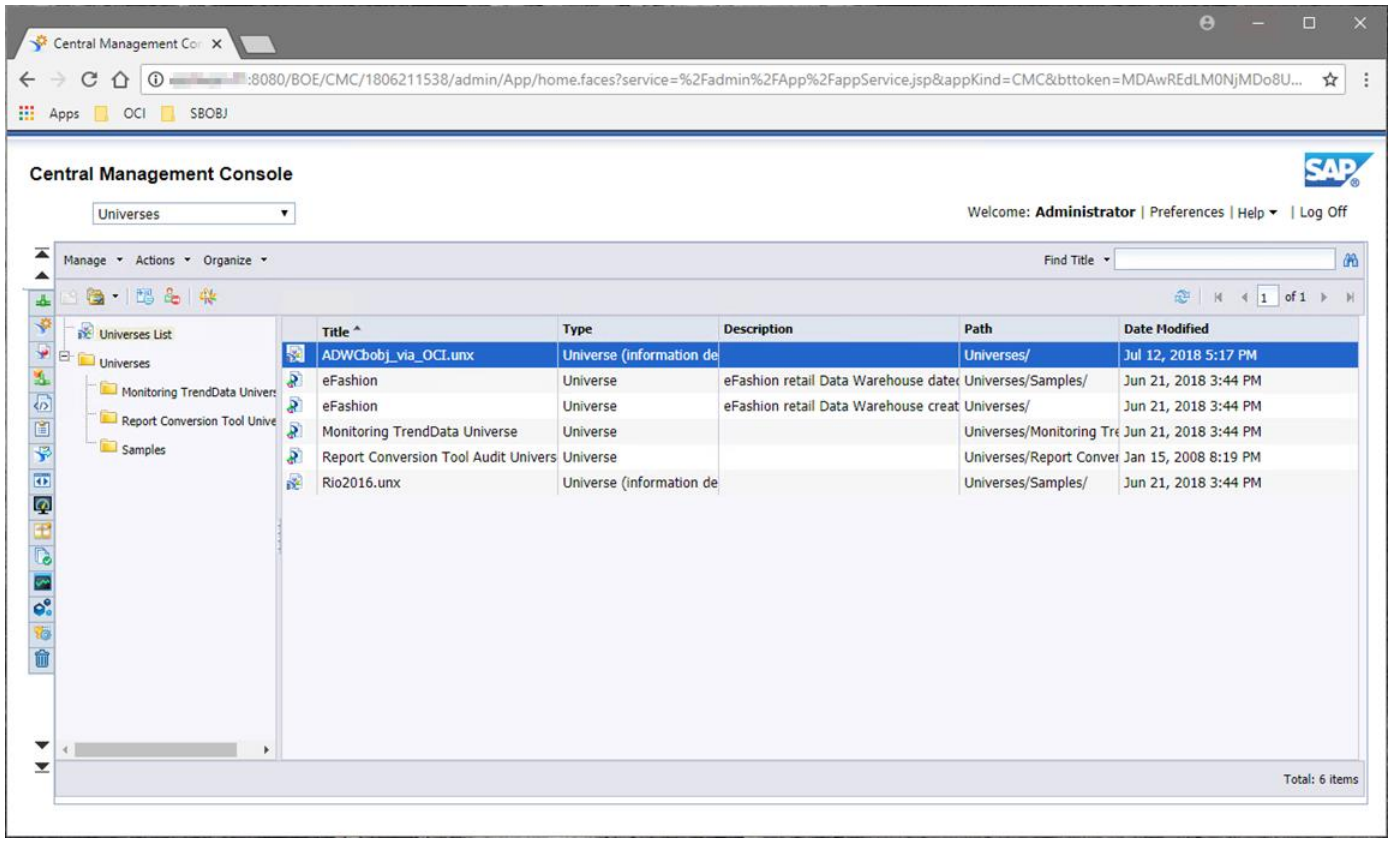
- After a connection is published to the SAP BO server it should be visible via the CMC.
- Login in to the CMC and go to the Connections view to see all published connections to validate.



Center Management Console

Published Universe Verification

- After a universe is published to the SAP BO server it should be visible via the CMC.
- Login in to the CMC and go to the Universes view to see all published universes to validate.



Report Creation with Crystal Reports

At this point the guide is dependent on the success of all the previous sections. Crystal Reports will use the published Universe to build a basic report utilizing the ADWC connection.

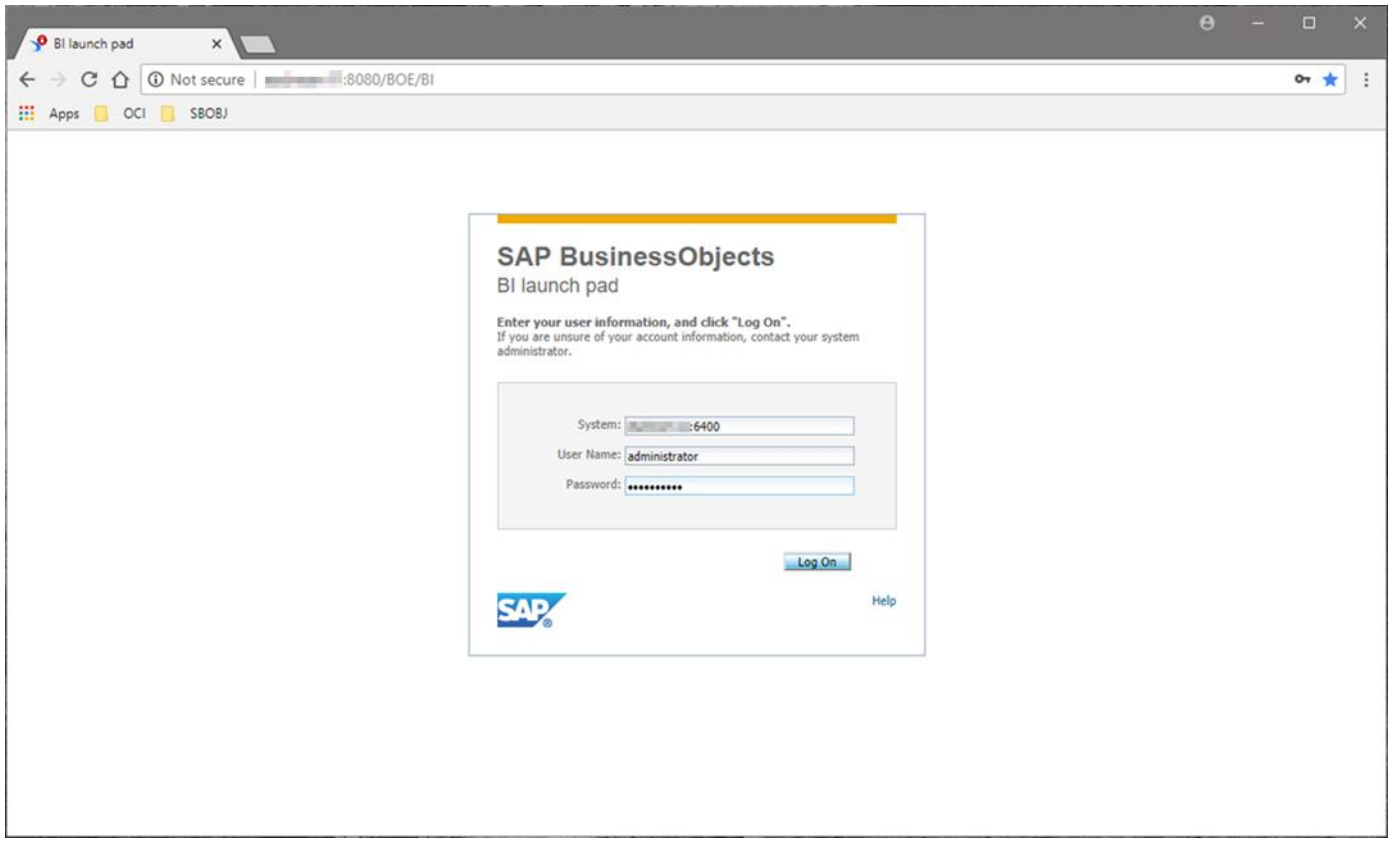
The following requirements are needed.

- SAP BusinessObjects application login credentials.
- Access to the Central Management Console (`http://<hostname>:8080/BOE/CMC`).
- Access to the BI Launch Pad (`http://<hostname>:8080/BOE/BI`).
- A Windows desktop with client development tools for SAP BusinessObjects.

BI Launch Pad

Report Creation

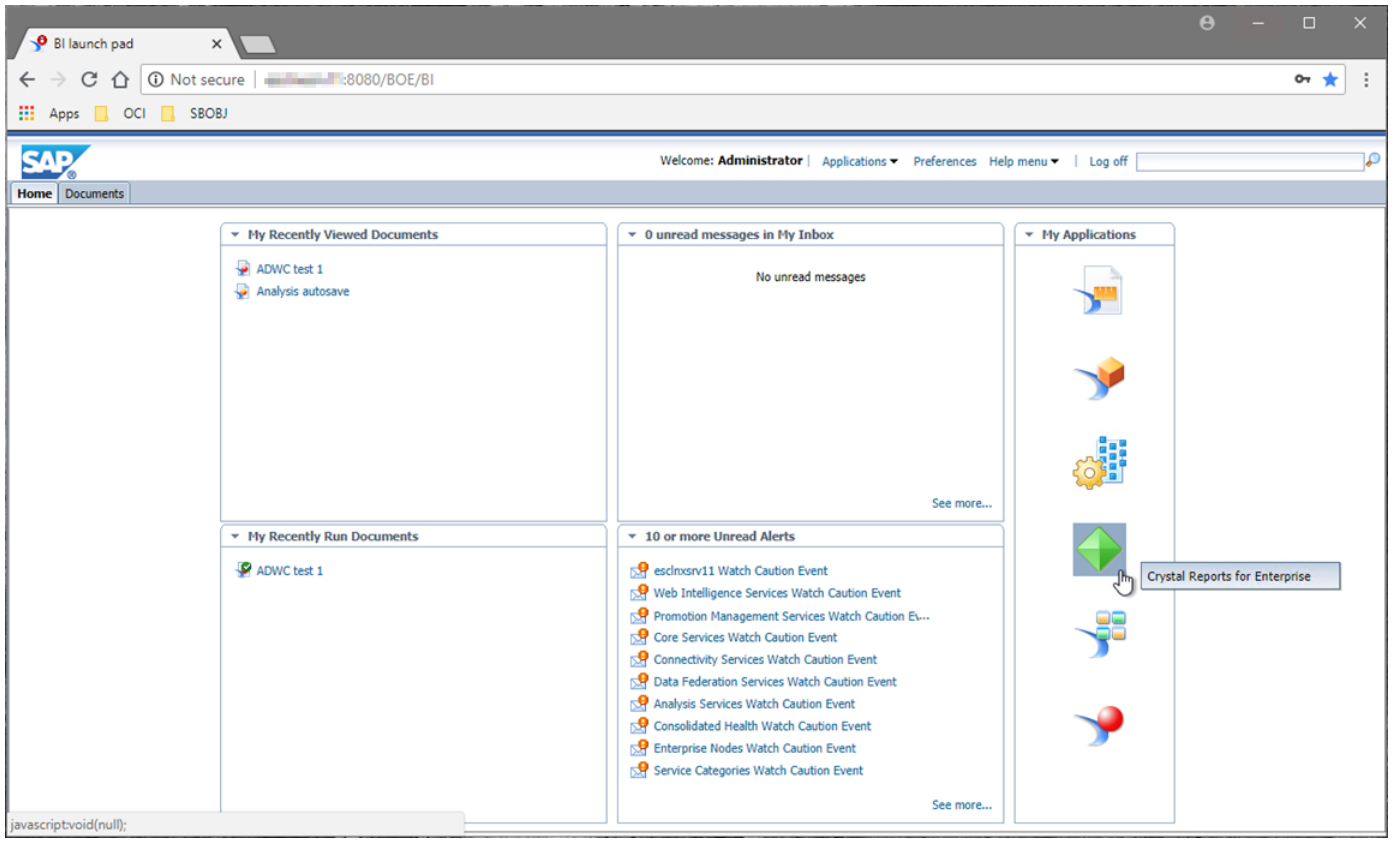
- Login in to BI Launch Pad.



BI Launch Pad

Crystal Reports

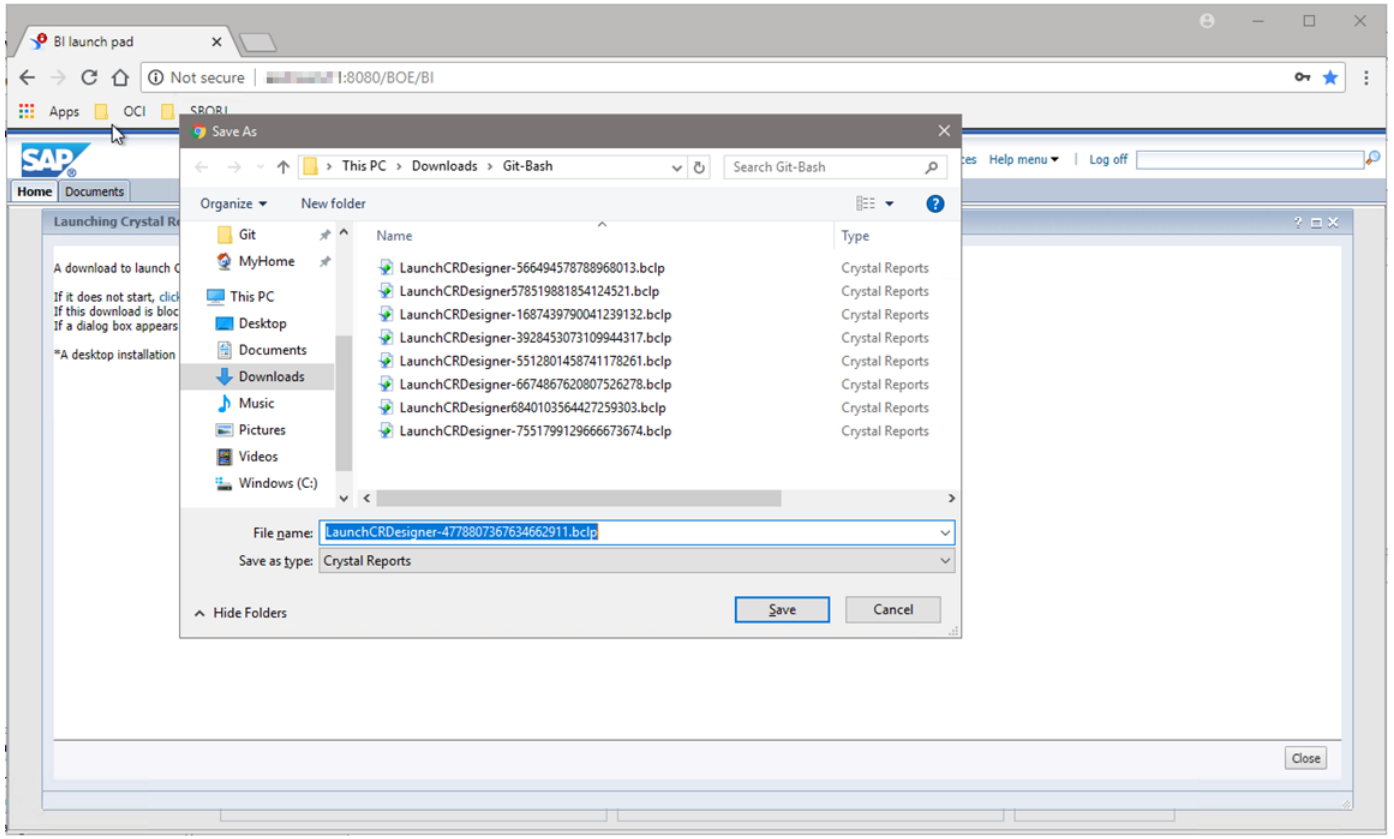
- Select the Crystal Reports designer application.



BI Launch Pad

Crystal Reports

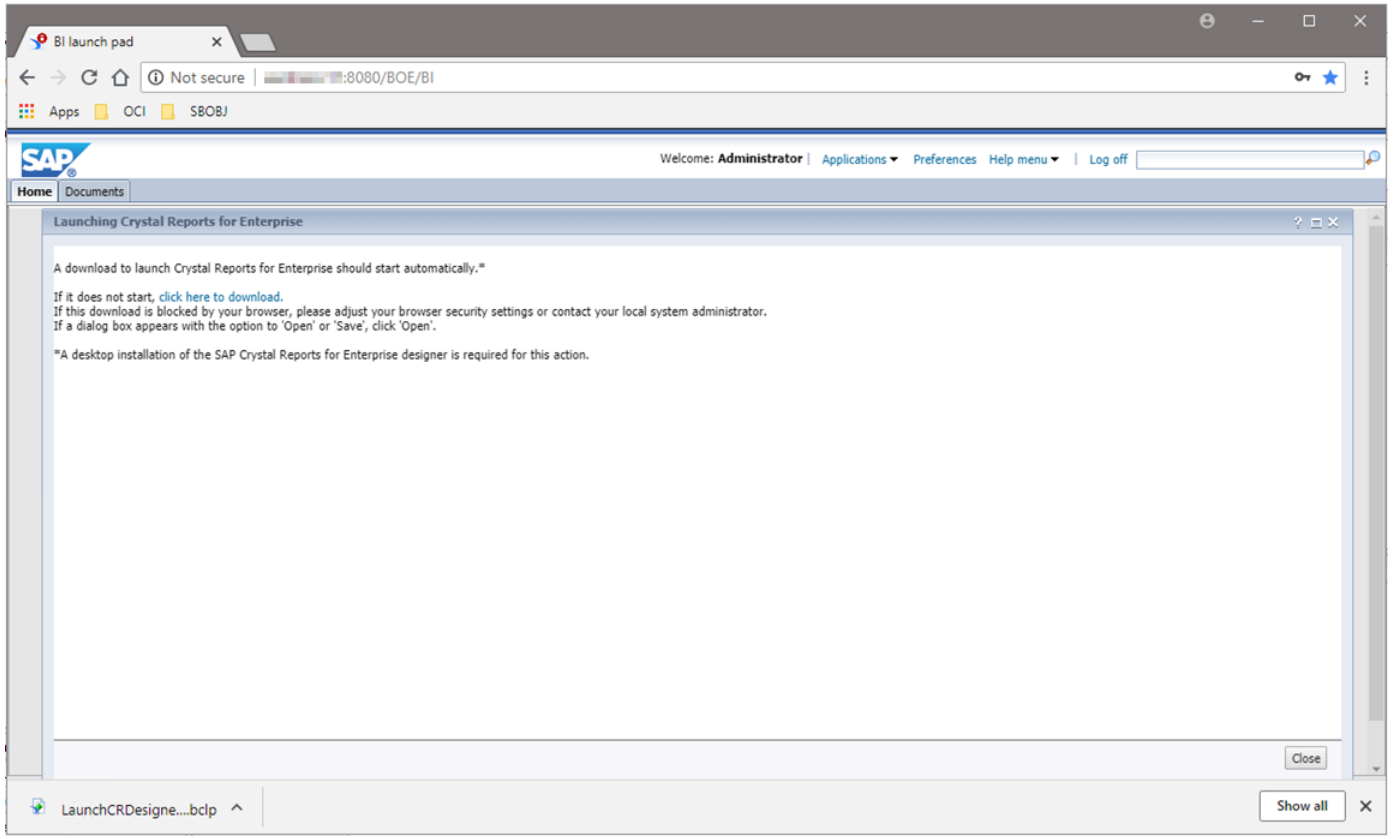
- In Chrome this typically prompts to download a file of type .bclp.



BI Launch Pad

Crystal Reports

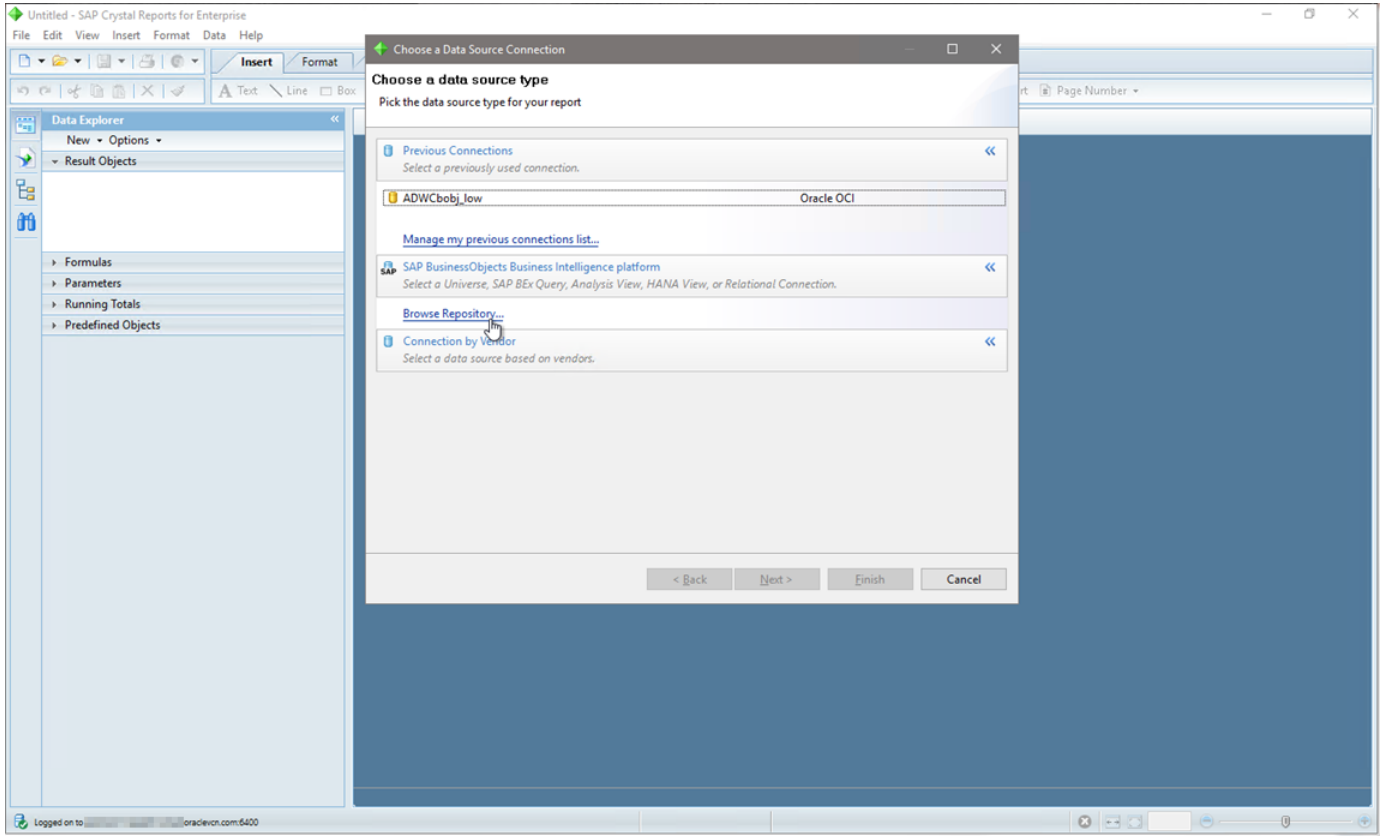
- Follow the directions displayed in the BI Launch Pad window.
- Typically one can simply click on the file name displayed in the browser footer. This will launch the file via the associated application.



BI Launch Pad

Crystal Reports: Create Report

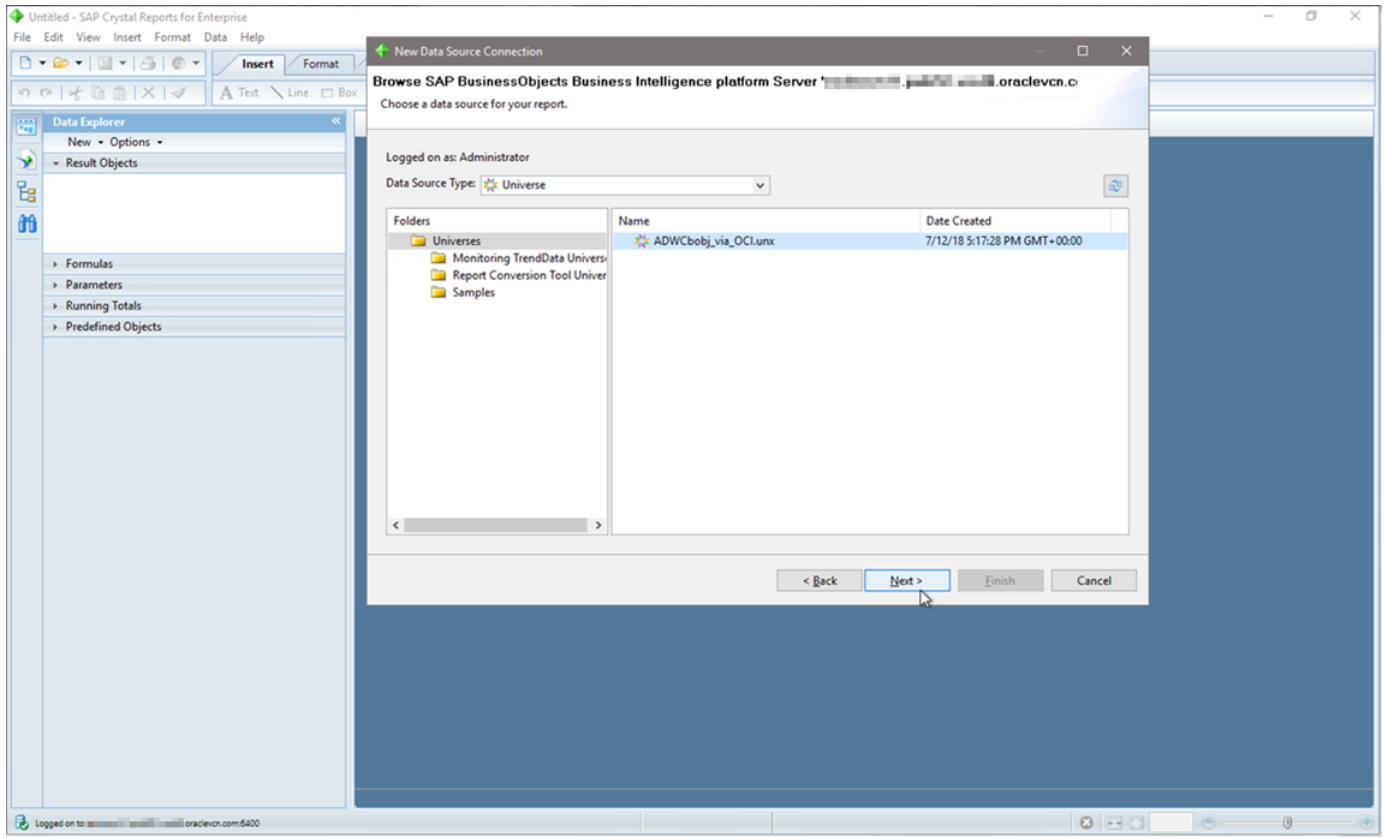
- To create a new report derived from a previously published universe, click on the Browse Repository… link.
- Reports can also be created by manually entering the necessary connection information. This can be achieved by selecting Connection by Vendor.



BI Launch Pad

Crystal Reports: Create Report

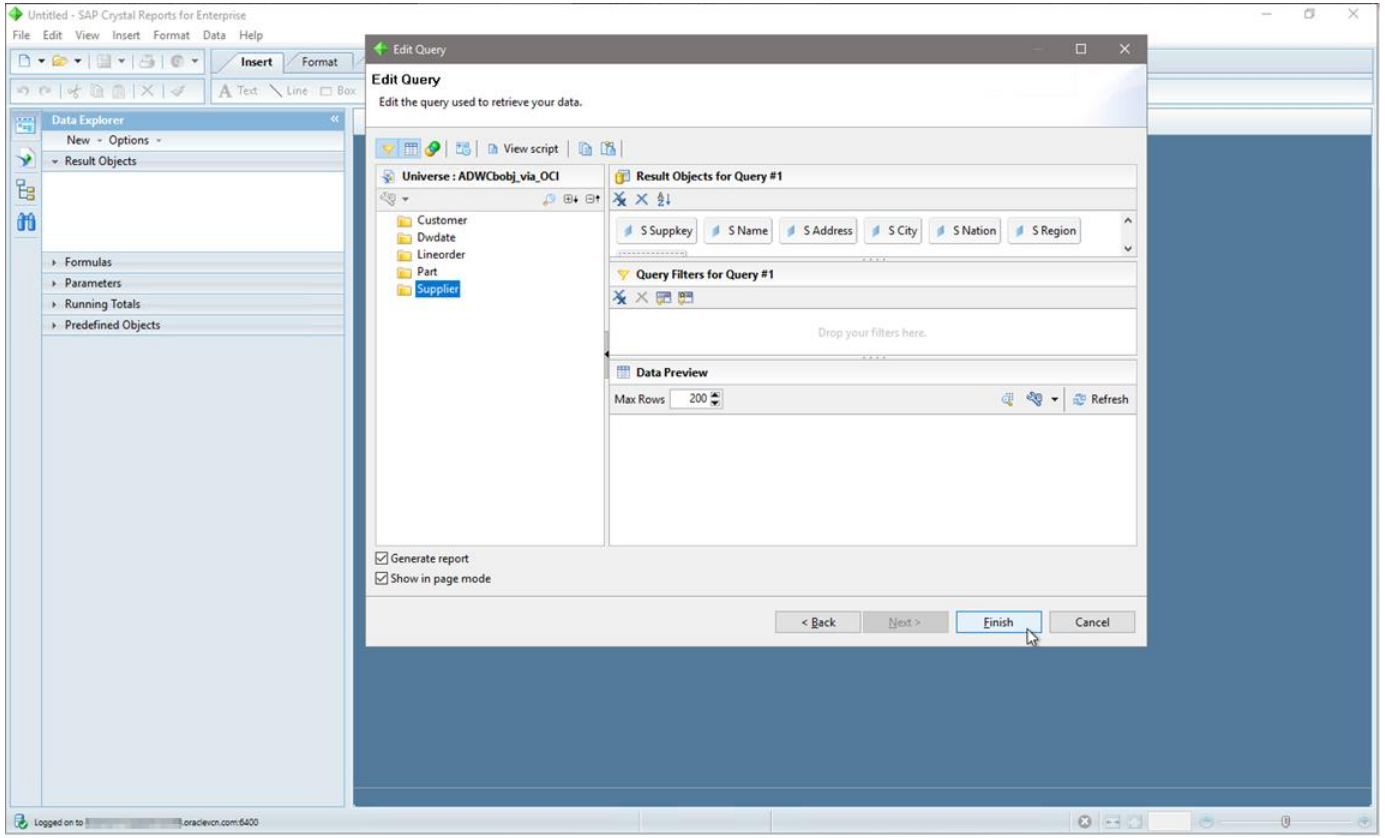
- Locate the sought after universe and click next.
- In this example, the universe `ADWCbobj_via_OCI` was used.



BI Launch Pad

Crystal Reports: Create Report

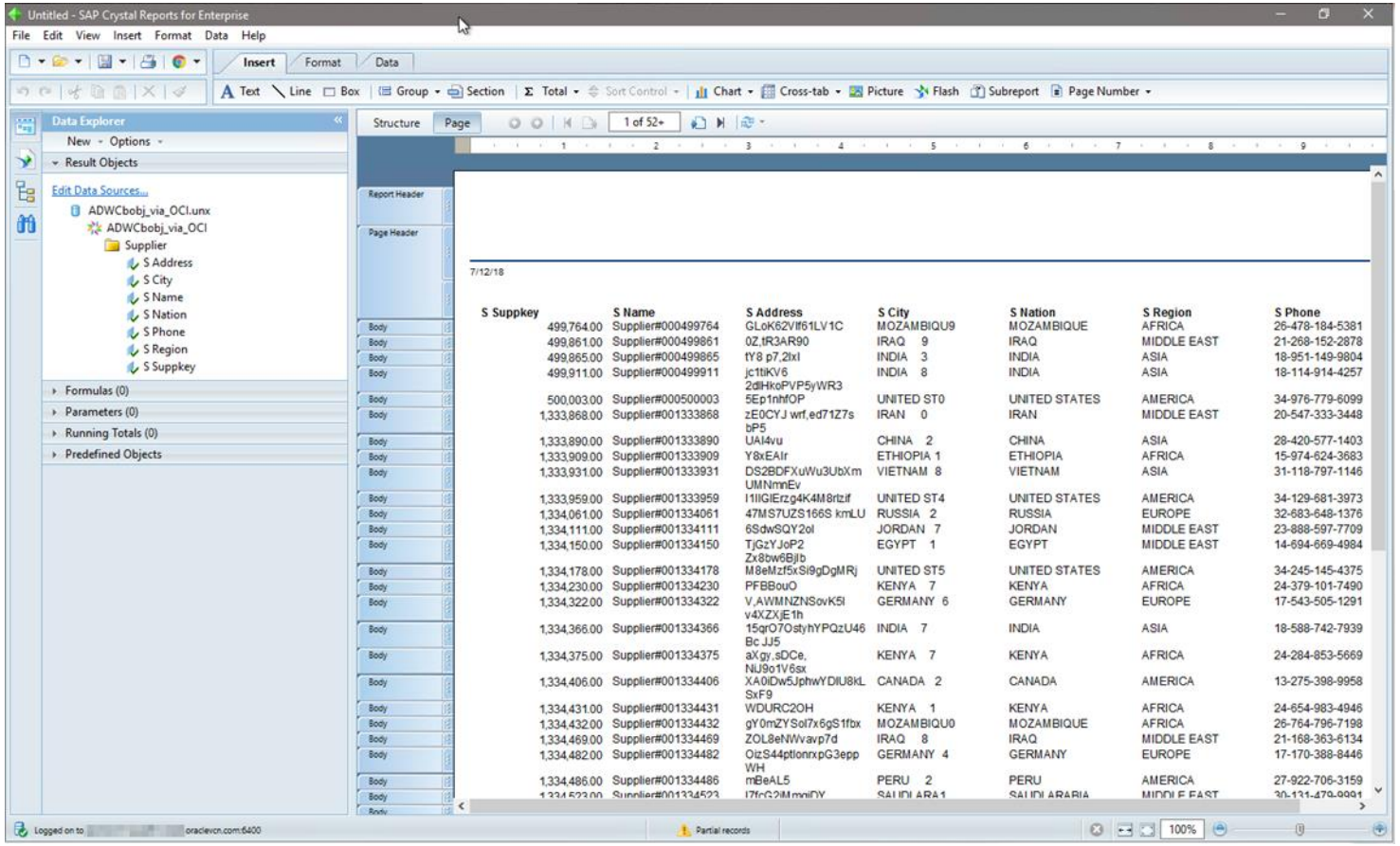
- Choose the tables and columns for the report.
- Add any filters and/or ranking to the query.
- Pressing the Refresh button displays the results of the query.
- Press Finish when complete to enter designer.



BI Launch Pad

Crystal Reports: Designer

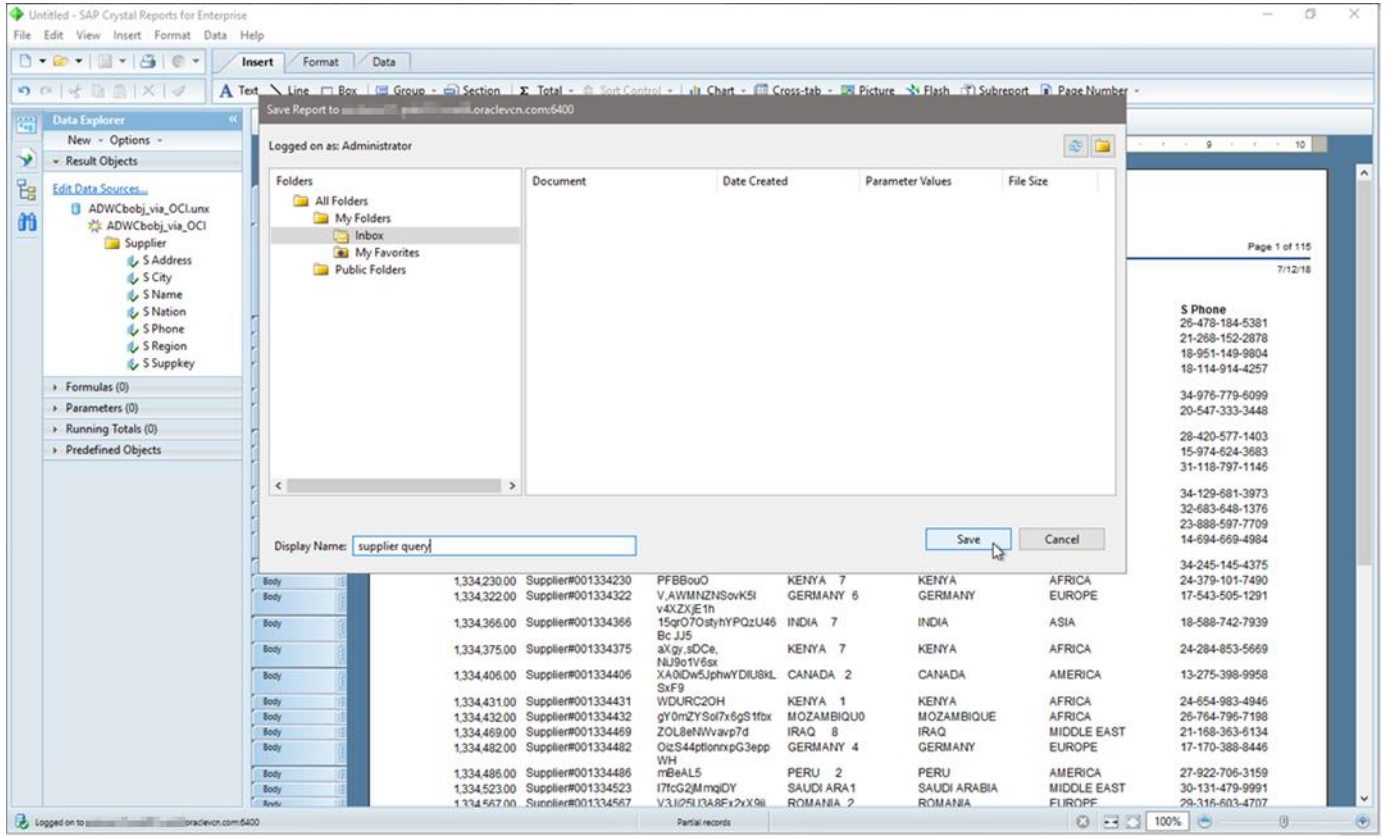
- Crystal Reports will autogenerate a simple report from the query.
- Customize the report and save.



BI Launch Pad

Crystal Reports: Designer

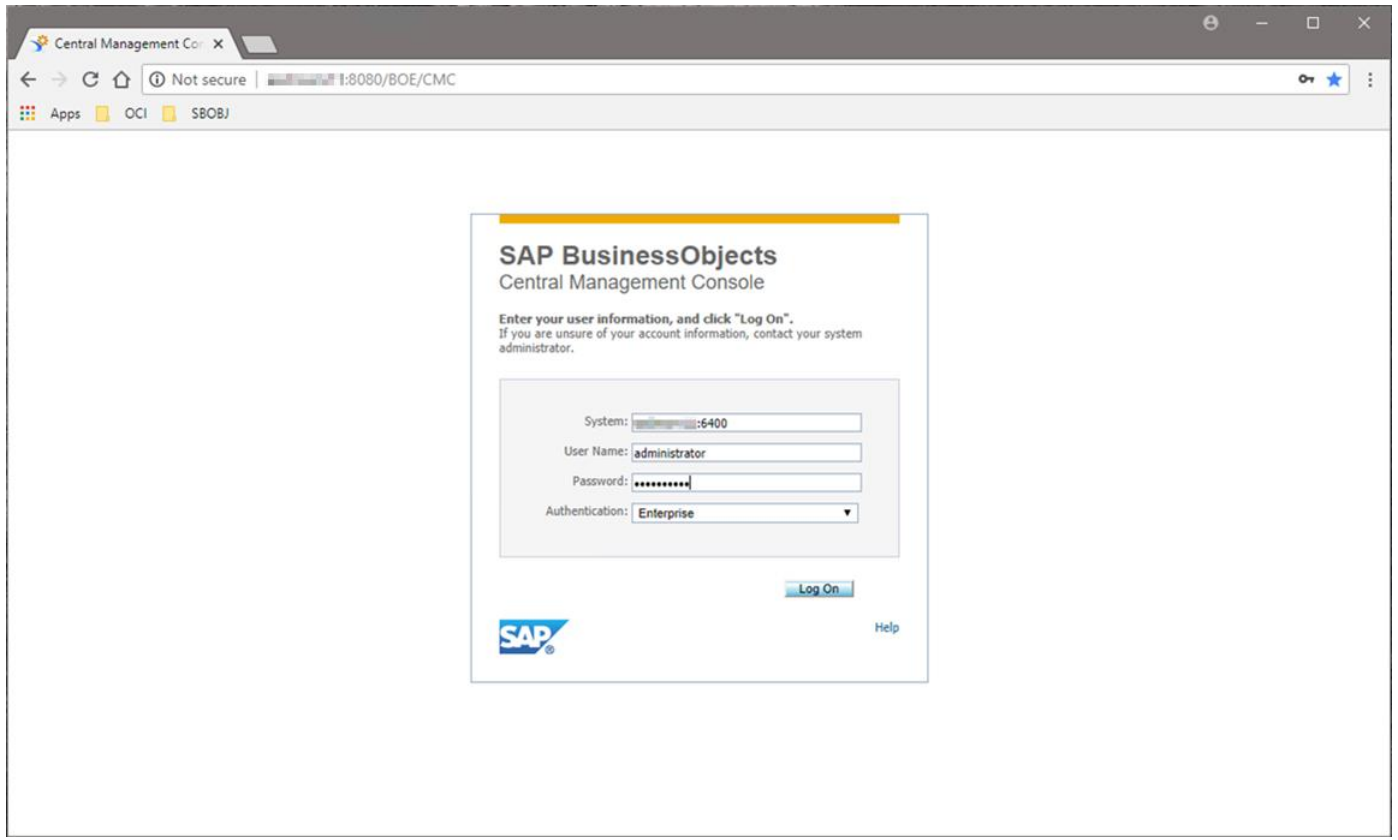
- Saving the report will display Folders located on the SAP BO server.
- Select a location and name for the report.
- For this example, the report was named `Supplier Query` and saved to My Folders -> Inbox.



Central Management Console

View Crystal Report

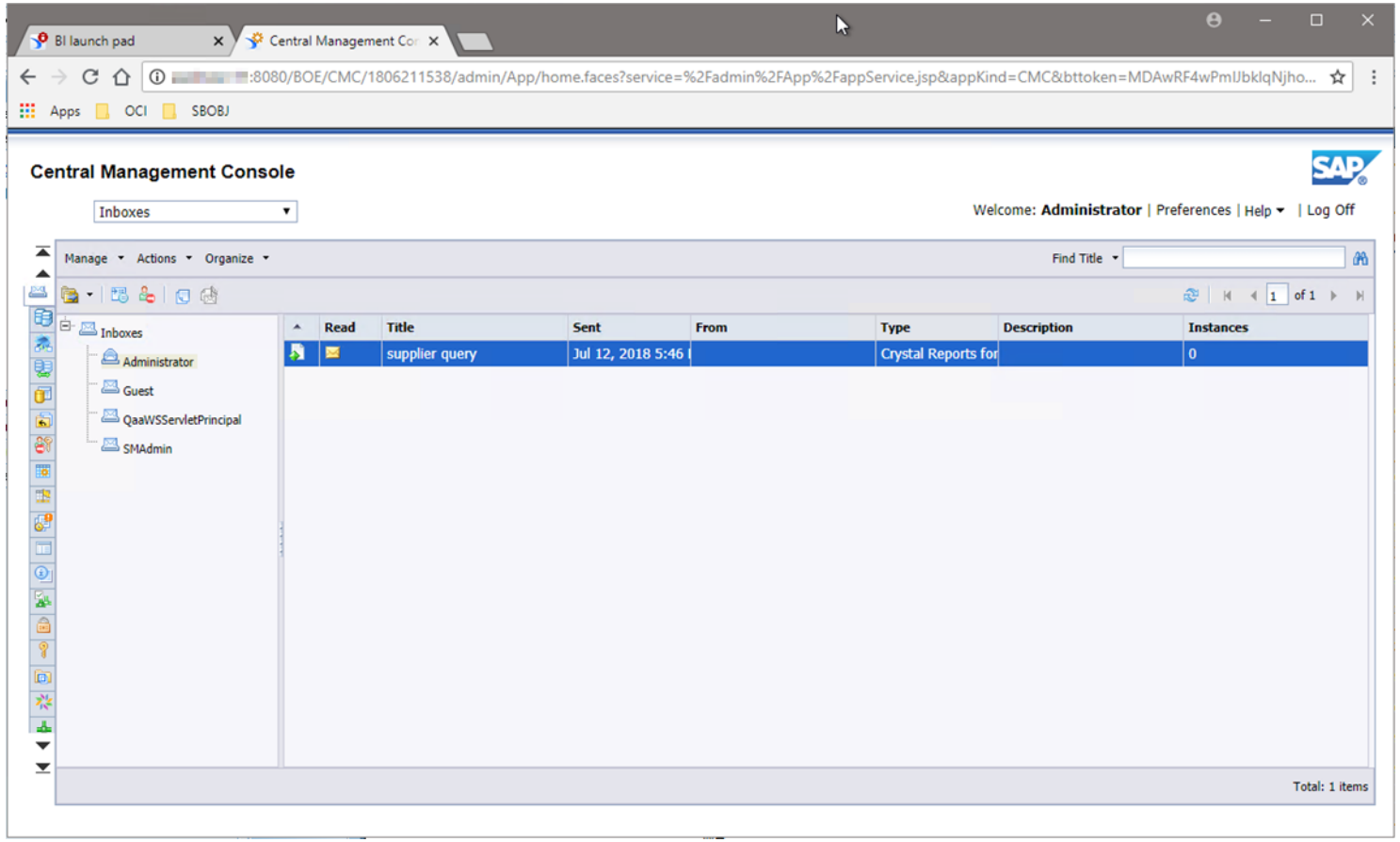
- Login in to the CMC.



Central Management Console

View Crystal Report

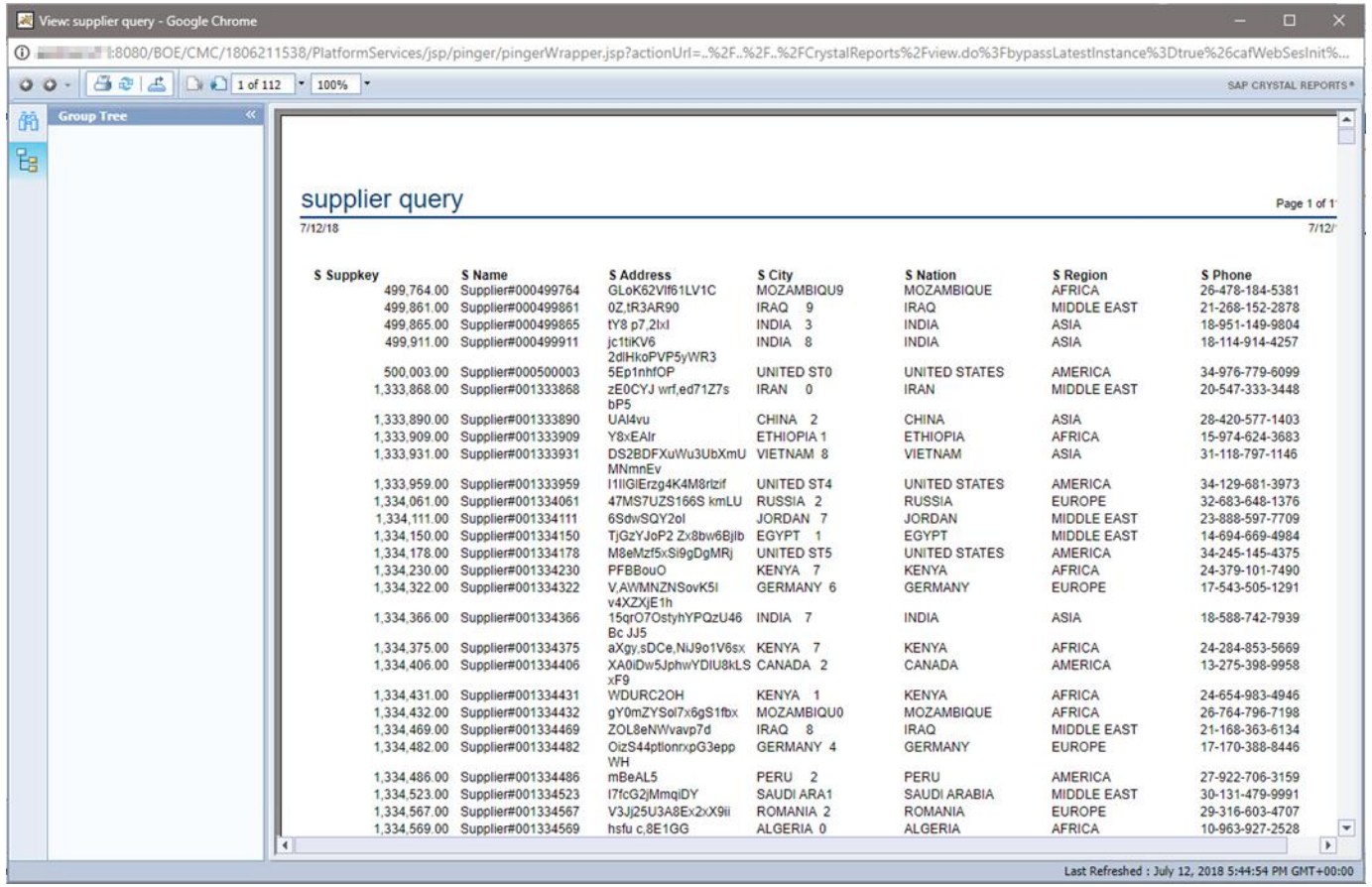
- Login back in to the CMC and navigate to Inboxes.
- Select Administrator and locate the `Supplier Query` Crystal Report



Central Management Console

View Crystal Report

- Double click on the report to view.



S Suppkey	S Name	S Address	S City	S Nation	S Region	S Phone
499,764.00	Supplier#000499764	GLoK62Vlf61LV1C	MOZAMBIQU9	MOZAMBIQUE	AFRICA	26-478-184-5381
499,861.00	Supplier#000499861	0Z,tR3AR90	IRAQ 9	IRAQ	MIDDLE EAST	21-268-152-2878
499,865.00	Supplier#000499865	tY8 p7,2lxl	INDIA 3	INDIA	ASIA	18-951-149-9804
499,911.00	Supplier#000499911	jc1tlKV6 2dlHkoPVP5yWR3	INDIA 8	INDIA	ASIA	18-114-914-4257
500,003.00	Supplier#000500003	5Ep1nhfOP	UNITED ST0	UNITED STATES	AMERICA	34-976-779-6099
1,333,868.00	Supplier#001333868	zE0CYJ wrf,ed71Z7s bP5	IRAN 0	IRAN	MIDDLE EAST	20-547-333-3448
1,333,890.00	Supplier#001333890	UAl4vu	CHINA 2	CHINA	ASIA	28-420-577-1403
1,333,909.00	Supplier#001333909	Y8xEAlr	ETHIOPIA 1	ETHIOPIA	AFRICA	15-974-624-3683
1,333,931.00	Supplier#001333931	DS2BDFXuWu3UbXmU MNmnEv	VIETNAM 8	VIETNAM	ASIA	31-118-797-1146
1,333,959.00	Supplier#001333959	I1IlGlErzg4K4M8rlzif	UNITED ST4	UNITED STATES	AMERICA	34-129-681-3973
1,334,061.00	Supplier#001334061	47MS7UZS166S kmLU	RUSSIA 2	RUSSIA	EUROPE	32-683-648-1376
1,334,111.00	Supplier#001334111	6SdwSQY2ol	JORDAN 7	JORDAN	MIDDLE EAST	23-888-597-7709
1,334,150.00	Supplier#001334150	TjGzYJoP2 Zx8bw6Bjlb	EGYPT 1	EGYPT	MIDDLE EAST	14-694-669-4984
1,334,178.00	Supplier#001334178	M8eMzf5xSi9gDgMRj	UNITED ST5	UNITED STATES	AMERICA	34-245-145-4375
1,334,230.00	Supplier#001334230	PFBBouO	KENYA 7	KENYA	AFRICA	24-379-101-7490
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1,334,366.00	Supplier#001334366	15qrO7OstyhYPQzU46 Bc JJ5	INDIA 7	INDIA	ASIA	18-588-742-7939
1,334,375.00	Supplier#001334375	aXgy,sDCe,NiJ9o1V6sx	KENYA 7	KENYA	AFRICA	24-284-853-5669
1,334,406.00	Supplier#001334406	XA0iDw5JphwYDIU8kLS xF9	CANADA 2	CANADA	AMERICA	13-275-398-9958
1,334,431.00	Supplier#001334431	WDURC2OH	KENYA 1	KENYA	AFRICA	24-654-983-4946
1,334,432.00	Supplier#001334432	gY0mZYSol7x6gS1fbx	MOZAMBIQU0	MOZAMBIQUE	AFRICA	26-764-796-7198
1,334,469.00	Supplier#001334469	ZOL8eNWvavp7d	IRAQ 8	IRAQ	MIDDLE EAST	21-168-363-6134
1,334,482.00	Supplier#001334482	OizS44ptlonrxpG3epp WH	GERMANY 4	GERMANY	EUROPE	17-170-388-8446
1,334,486.00	Supplier#001334486	mBeAL5	PERU 2	PERU	AMERICA	27-922-706-3159
1,334,523.00	Supplier#001334523	l7fcG2jMmqiDY	SAUDI ARA1	SAUDI ARABIA	MIDDLE EAST	30-131-479-9991
1,334,567.00	Supplier#001334567	V3Jj25U3A8Ex2xX9li	ROMANIA 2	ROMANIA	EUROPE	29-316-603-4707
1,334,569.00	Supplier#001334569	hsfu c,8E1GG	ALGERIA 0	ALGERIA	AFRICA	10-963-927-2528

Report Creation with Web Intelligence

This section of guide is also dependent on the success of the previous configuration steps. Web Intelligence will use the published Universe to build a basic report utilizing the ADWC connection.

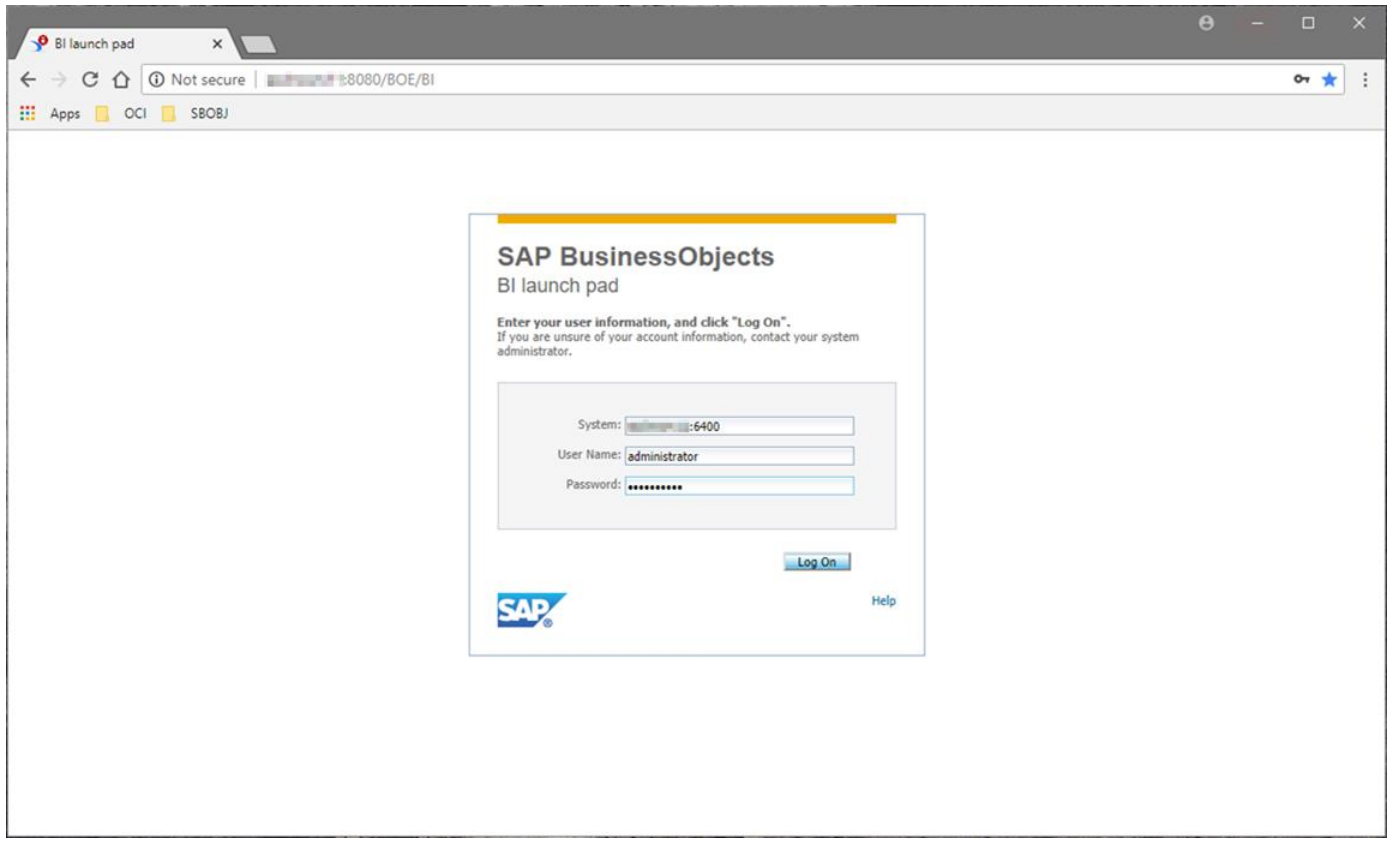
The following requirements are needed.

- SAP BusinessObjects application login credentials.
- Access to the Central Management Console (`http://<hostname>:8080/BOE/CMC`).
- Access to the BI Launch Pad (`http://<hostname>:8080/BOE/BI`).
- A Windows desktop with client development tools for SAP BusinessObjects.

BI Launch Pad

Report Creation

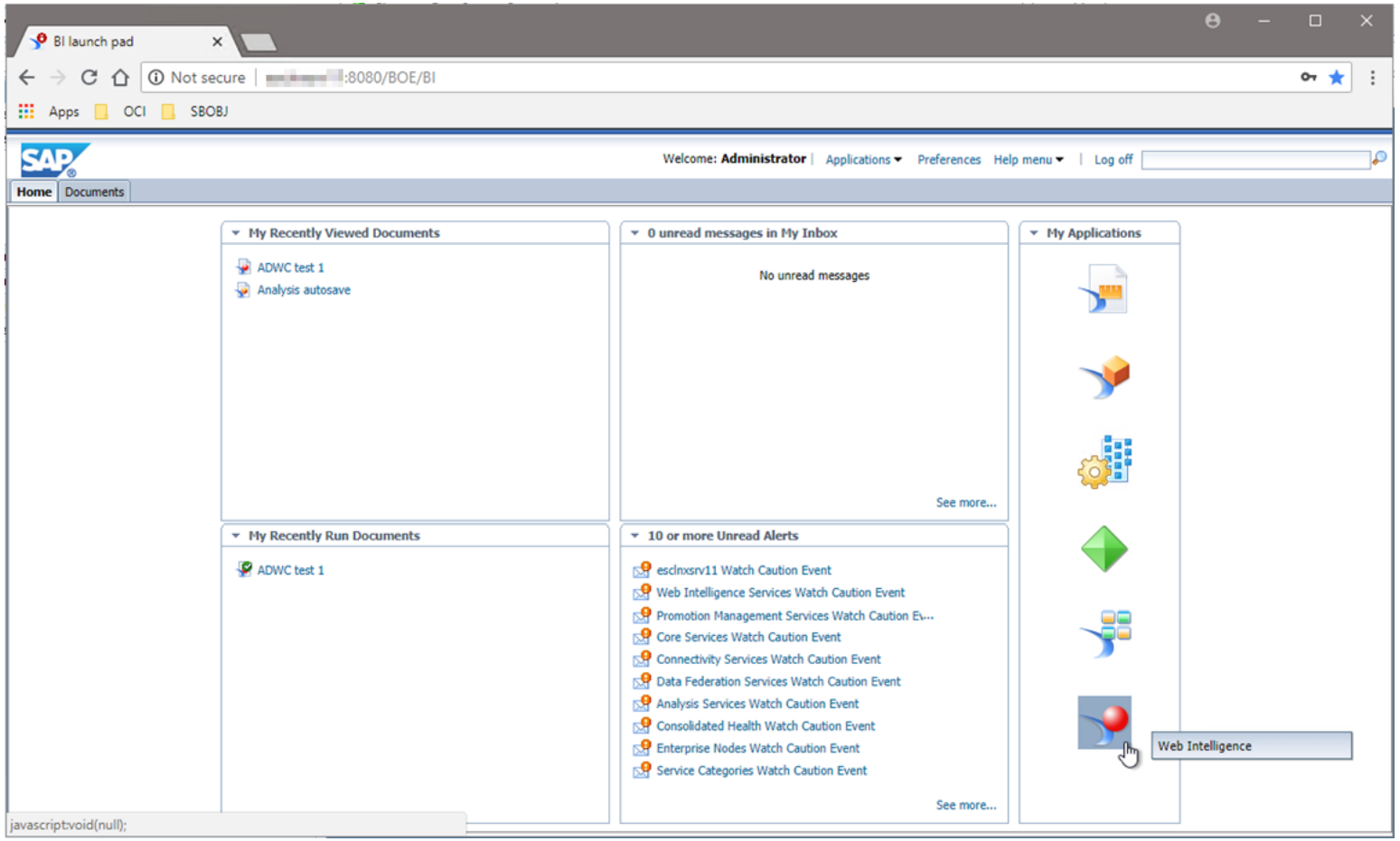
- Login in to BI Launch Pad.



BI Launch Pad

Web Intelligence

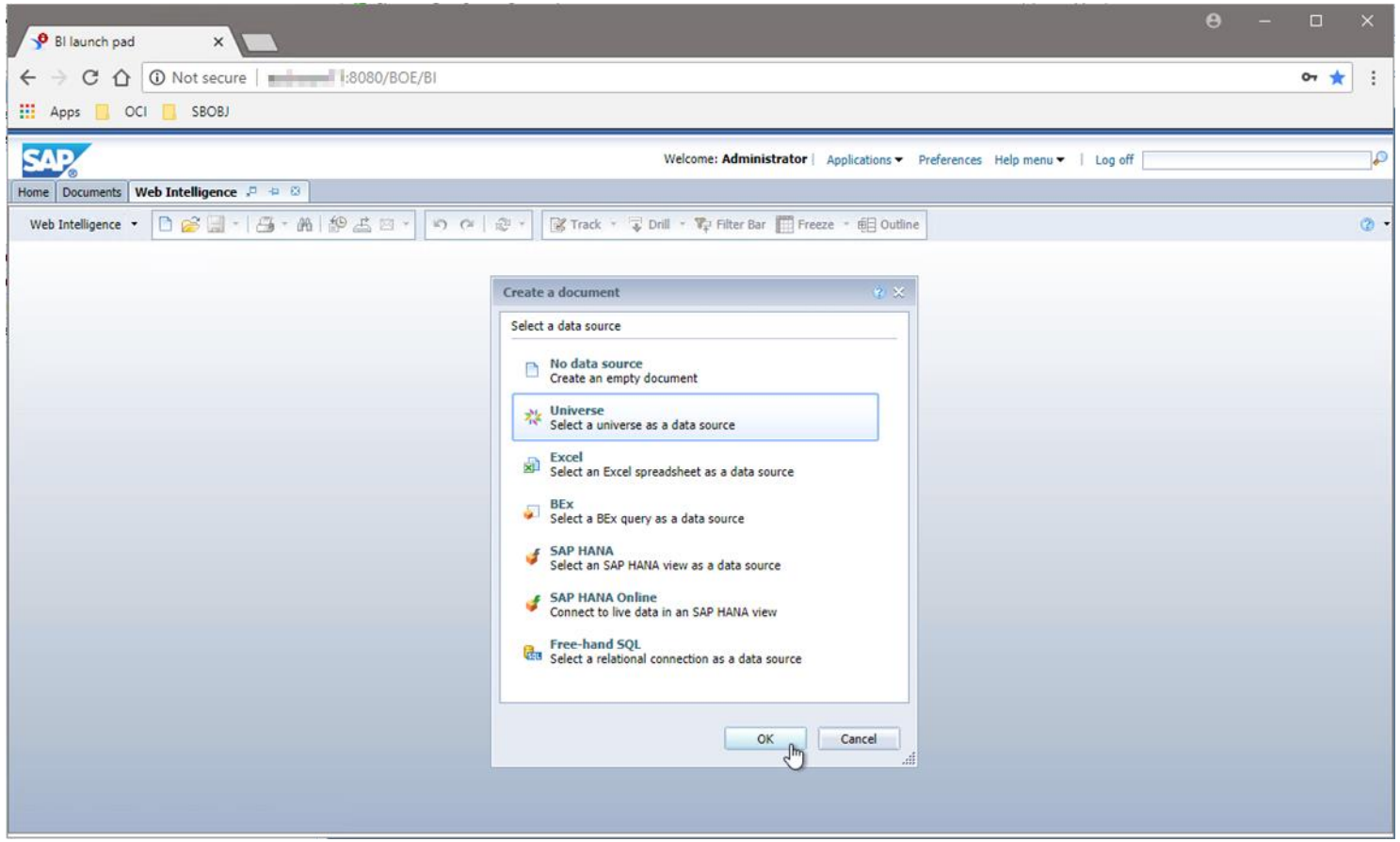
- Select the Web Intelligence application.



BI Launch Pad

Web Intelligence: Create Report

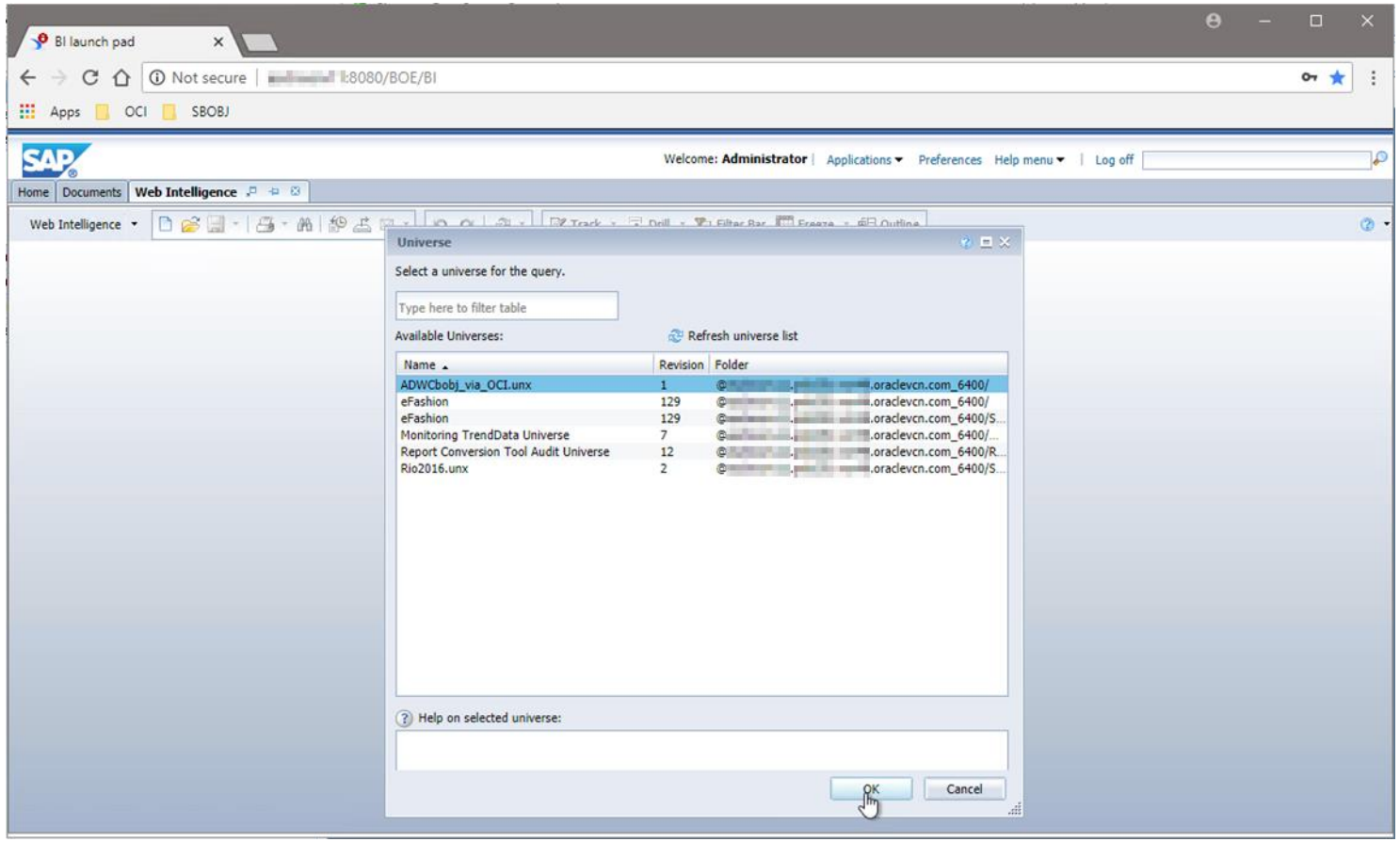
- After the Web Intelligence application launches, press the New button to begin the creation of a new report.
- The Create a document dialog boxes displays several data source choices.
- For this example the Universe option was chosen.
- Another possible choice could be to use Free-Hand SQL. This option requires a published connection SQL.



BI Launch Pad

Web Intelligence: Create Report

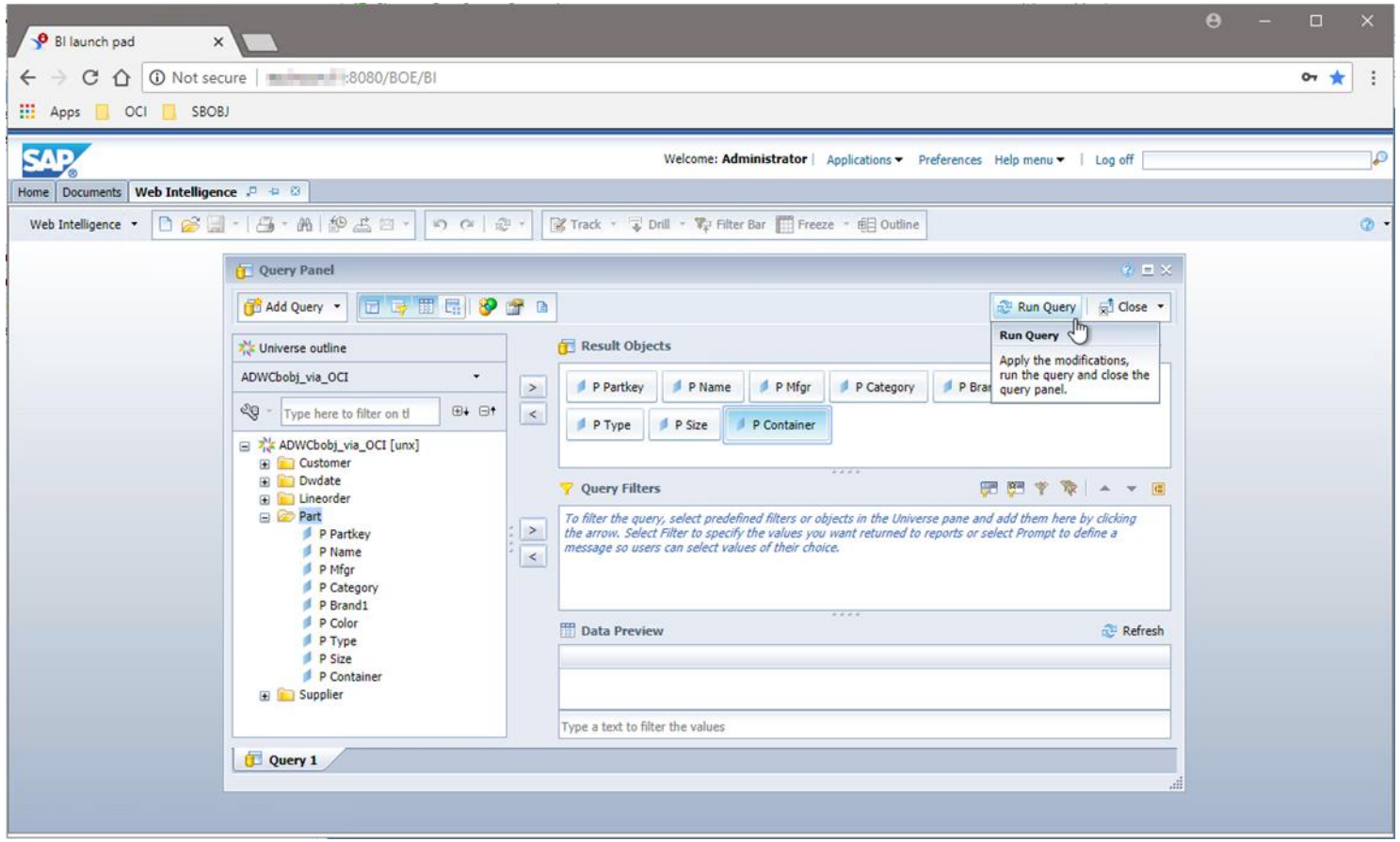
- Highlight a previously published universe and press the OK to continue.
- In this example the `ADWCbobj_via_OCI` universe was selected.



BI Launch Pad

Web Intelligence: Create Report

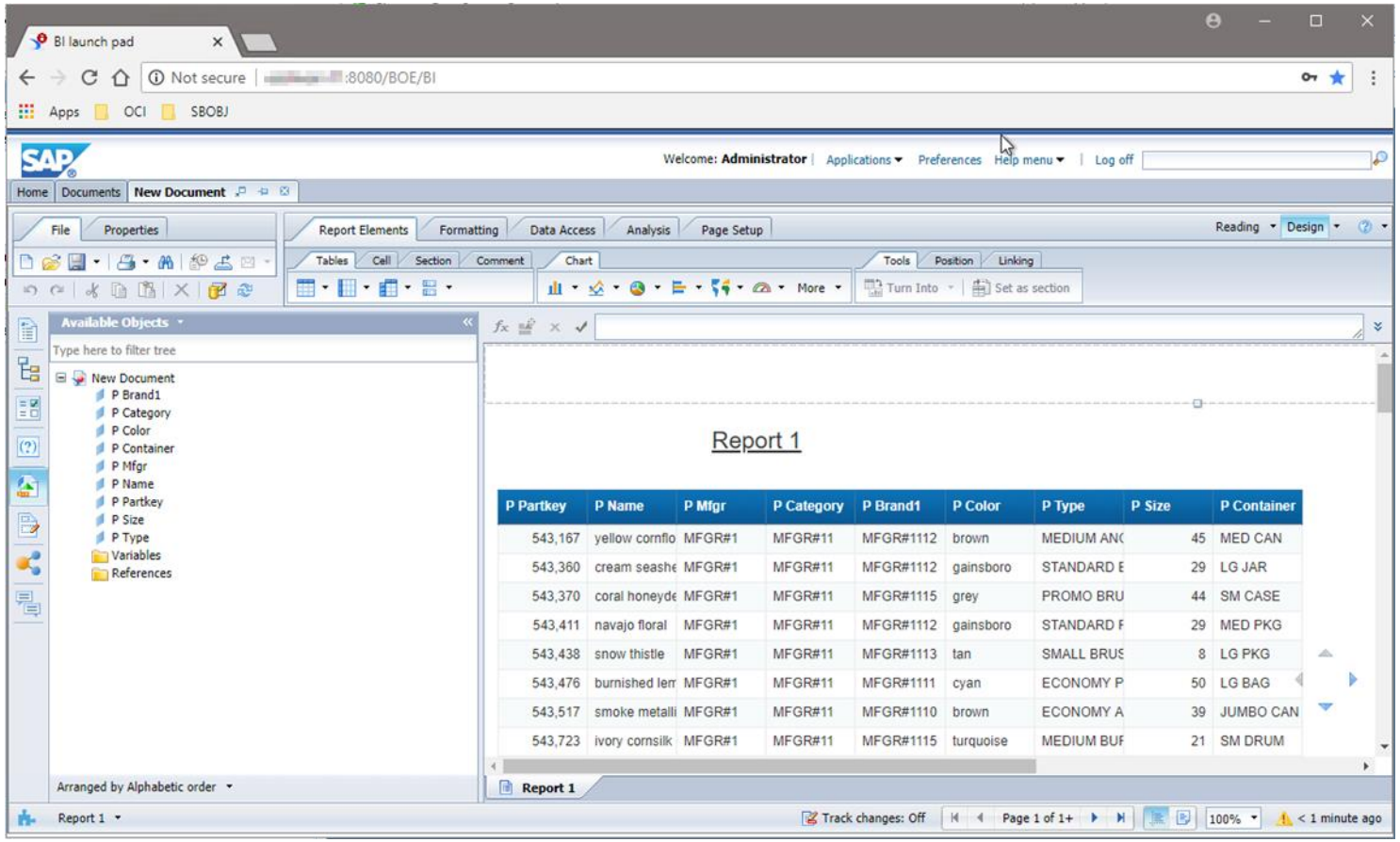
- Choose the tables and columns for the report.
- Add any filters and ranking to the query.
- Pressing the Refresh button displays the results of the query.
- Press the Run Query button when complete to start designing the report.



BI Launch Pad

Web Intelligence: Designer

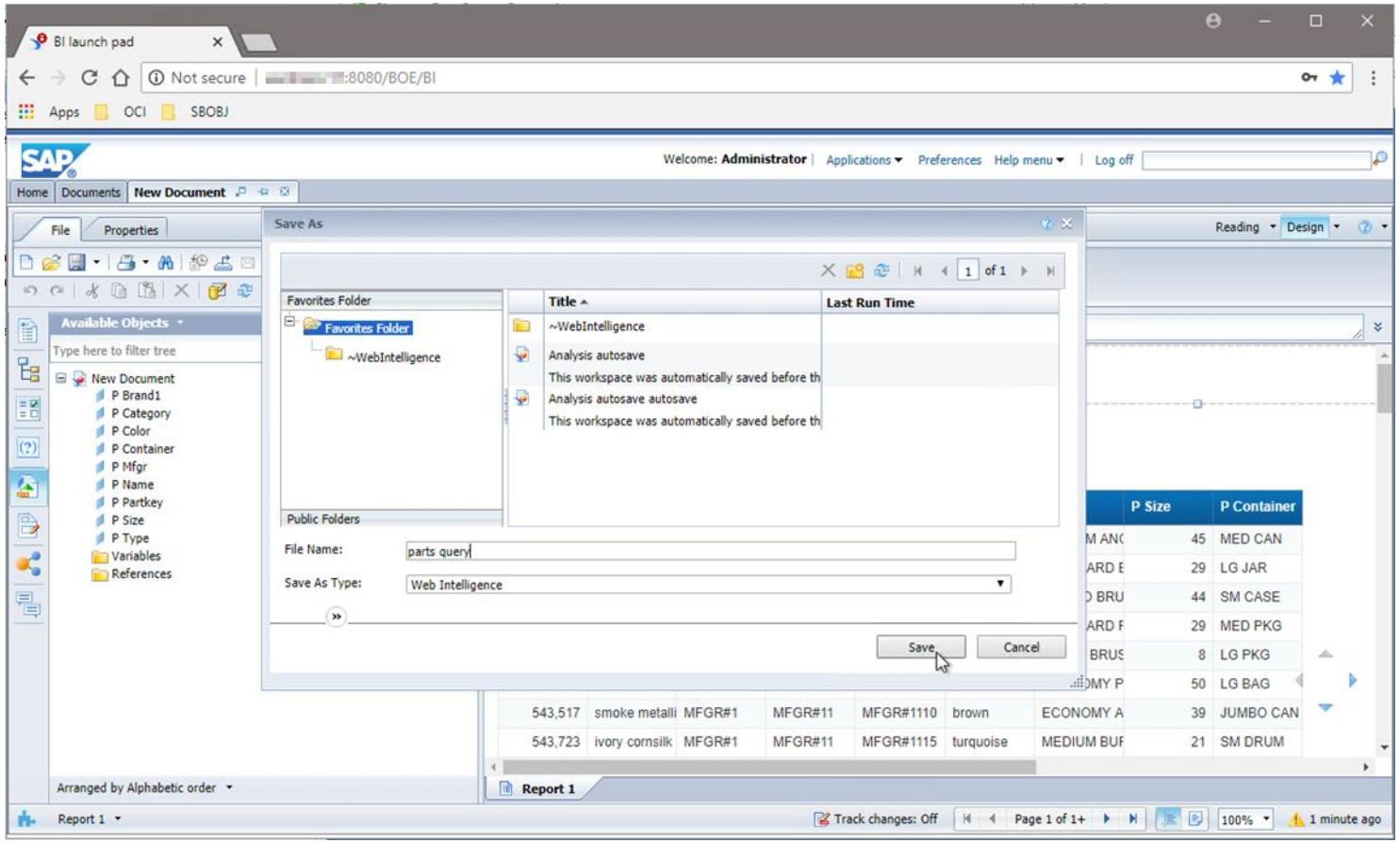
- Web Intelligence will autogenerate a simple report from the query.
- Customize the report and save.



BI Launch Pad

Web Intelligence: Designer

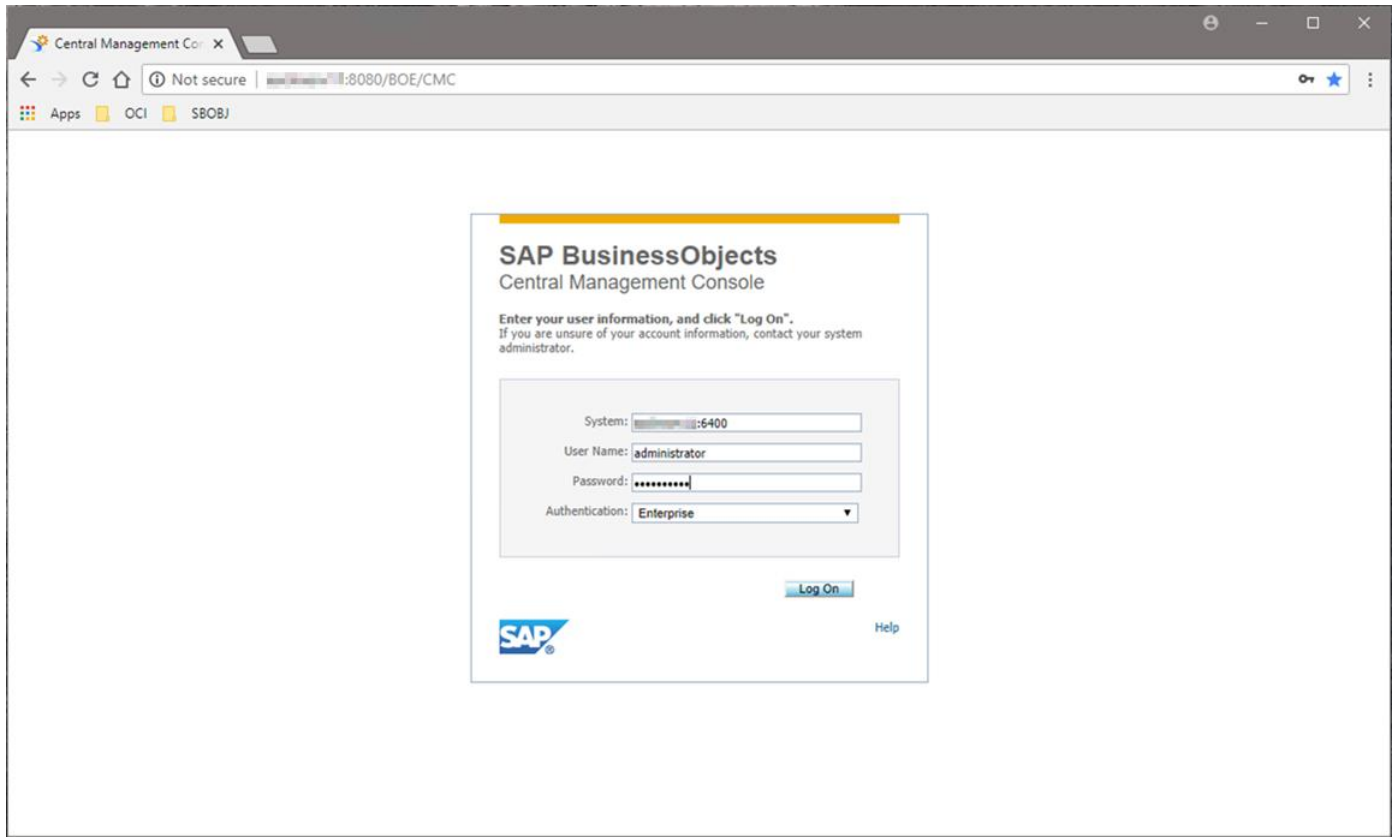
- Provide a name and location for this report.
- For this example, the report was named `parts query` and stored in Favorites Folder.



Central Management Console

View Web Intelligence Report

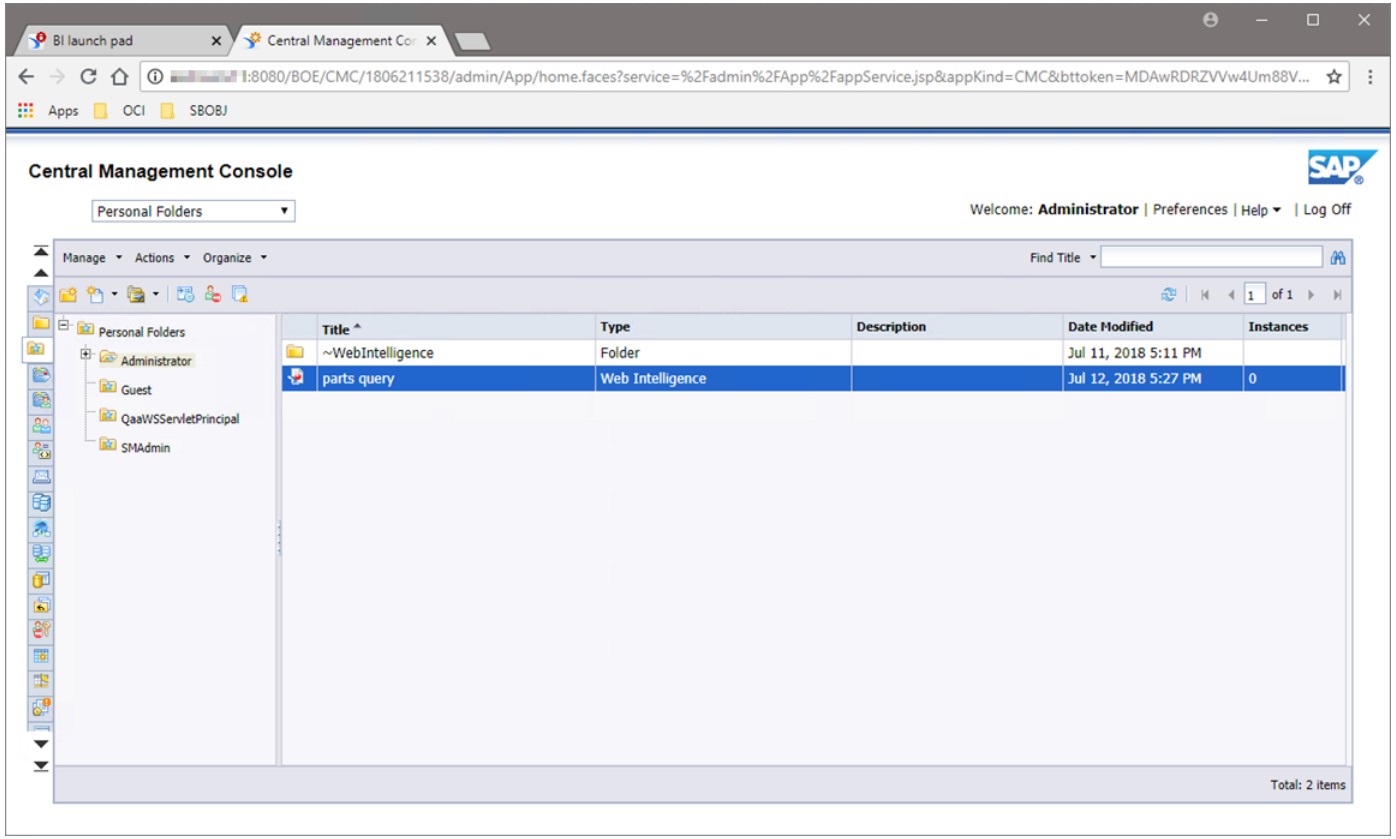
- Login in to the CMC.



Central Management Console

View Web Intelligence Report

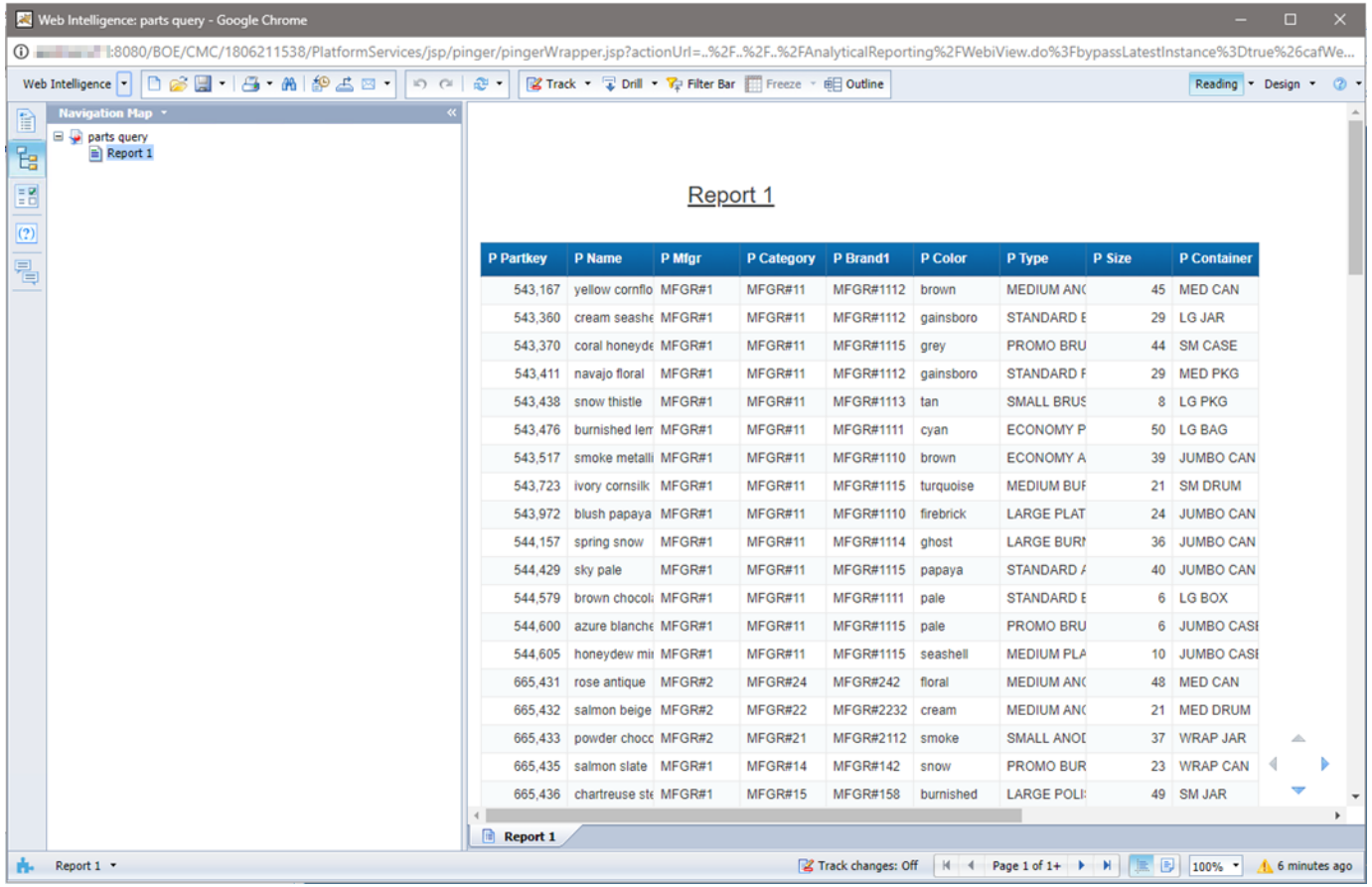
- Log back in to the CMC and navigate to Personal Folders.
- Select Administrator and locate the `parts query` Web Intelligence report.



Central Management Console

View Web Intelligence Report

- Double click on the report to view.



References

This concludes the guide to connecting SAP BusinessObjects to Oracle Autonomous Data Warehouse Cloud.

The following are some useful references:

- Oracle Autonomous Data Warehouse Cloud online documentation:
  https://docs.oracle.com/en/cloud/paas/autonomous-data-warehouse-cloud/index.html
- Oracle Database Online Client Guide
  - For Linux
    https://docs.oracle.com/en/database/oracle/oracle-database/18/lacli/index.html
  - For Windows
    https://docs.oracle.com/en/database/oracle/oracle-database/18/ntcli/index.html
- SAP BusinessObjects 4.2 SP5 online documentation
  https://help.sap.com/viewer/product/SAP_BUSINESSOBJECTS_BUSINESS_INTELLIGENCE_PLATFORM/4.2.5/en-US