### ORACLE<sup>®</sup> Cloud

# **SAP BusinessObjects**

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

August 2018

Erick Carlson SAP Solution Architect N.A. SAP on Oracle Team erick.carlson@oracle.com





# Table of Contents

- 1 Introduction
- 2 SAP BusinessObjects Server Oracle Client Setup
- Windows Desktop Oracle Client Setup
- 4 Creating and Publishing a SAP BusinessObjects Universe
- 5 Report Creation with Crystal Reports
- 6 Report Creation with Web Intelligence
- 7 References

## 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

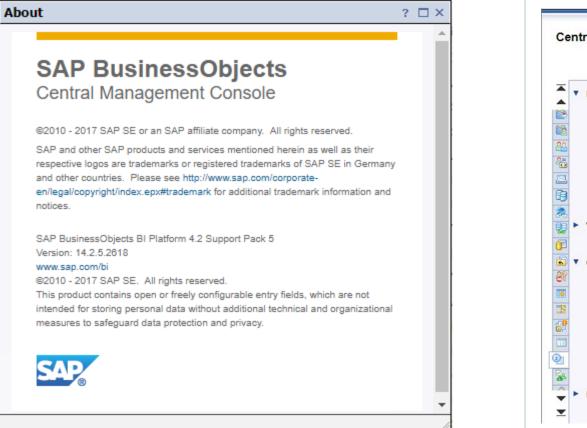


## System Information SAP BusinessObjects Server host details:

bodadm@ bodadm@		echo -e \\n `hostname` \\t `cat /etc/oracle-release` \\t `uname -r` \\n
and loss will	Oracle Linux	Server release 7.5 4.1.12-124.17.1.el7uek.x86_64
bodadm@ bodadm@		echo -e \\n `whoami` \\t \$BOBJEVERSION \\t \$BOBJ_HOME \\n
bodadm	XI 4.0	/usr/sap/BOD/sap_bobj
bodadm@ <b></b> bodadm@ <b></b>		echo -e \\n \$ORACLE_SID \\t \$ORACLE_HOME \\t \$TNS_ADMIN \\n
bod /oracle,	/BOD/12201	/oracle/BOD/12201/network/admin
bodadm@ese lass red	ll:sap_bobj \$	



## System Information SAP BusinessObjects Server details:



Settings	▼ Welcome: Administrator   Preferences   Help ▼   Log
Properties	
Data Source:	bod
Database Name: Database User Nan	Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production ne: bobjcms
Auditing:	Enabled
View Global System	Metrics
View Global System	Metrics
	Metrics
	Metrics
	Metrics
	MetricscentralManagementServer (oraclevcn.com:6400)
Cluster	
Cluster CMS Name: Cluster Name:	CentralManagementServer (
Cluster	.CentralManagementServer (oraclevcn.com:6400)
Cluster CMS Name: Cluster Name:	CentralManagementServer (
Cluster CMS Name: Cluster Name:	CentralManagementServer (

# 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

bodadm@:bodadm \$	
bodadm@:bodadm \$ whoami	
bodadm	
bodadm@:bodadm \$ cd \$TNS_ADMIN	
bodadm@:admin \$ pwd	
/oracle/BOD/12201/network/admin	
bodadm@:admin \$	
bodadm@l:admin \$ 11 -1	
total 16	
-rw-rw 1 oracle oinstall 343 Jun 21 02:36 listener.ora	
drwxrwxr-x 2 oracle oinstall 64 Jun 20 16:17 samples	
-rw-rw-r 1 oracle oinstall 1441 Aug 28 2015 shrept.lst	
-rw-rw 1 oracle oinstall 180 Jul 12 15:48 sqlnet.ora	
-rw-rw 1 oracle oinstall 456 Jul 12 15:49 tnsnames.ora	
bodadm@mmffmmrfl: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.

	bodadm@l:admin \$ bodadm@l:admin \$ cat sqlnet.ora # sqlnet.ora Network Configuration File: /oracle/BOD/12201/network/admin/sqlnet.ora # Generated by Oracle configuration tools.
a	NAMES.DIRECTORY_PATH= (TNSNAMES, ONAMES, HOSTNAME)
	bodadm@===================================



# 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.

```
oodadm@_____:admin $ cat tnsnames.ora
           tnsnames.ora Network Configuration File: /oracle/BOD/12201/network/admin/tnsnames.ora
          Generated by Oracle configuration tools.
   BOD =
             (DESCRIPTION =
                      (ADDRESS = (PROTOCOL = TCP)(HOST = 1528))
                      (CONNECT_DATA =
                               (SERVER = DEDICATED)
                               (SERVICE_NAME = bod _____)
                    )
   LISTENER_BOD =
           (ADDRESS = (PROTOCOL = TCP)(HOST = TCP)(HO
bodadm@_____:admin $
```

# 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.

bodadm@l:admin \$ tnsping bod
TNS Ping Utility for Linux: Version 12.2.0.1.0 - Production on 12-JUL-2018 15:53:45
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 = TCP)(HOST = <b>endowerll.public.com</b> )(oraclevcn.com)(PORT = 1528)) (CONNECT_DATA = (SERVER = DEDICATED) (SERVICE_NAME = bod.enthelledimet))) OK (0 msec) bodadm@mainl:admin \$
ORACLE'

# 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.

bodadm@:admin \$
<pre>bodadm@</pre>
Archive: /home/bodadm/wallet_ADWCbobj.zip
inflating: wallet_ADWCbobj/cwallet.sso
inflating: wallet_ADWCbobj/ewallet.p12
inflating: wallet_ADWCbobj/keystore.jks
inflating: wallet_ADWCbobj/ojdbc.properties
inflating: wallet_ADWCbobj/sglnet.ora
inflating: wallet_ADWCbobj/tnsnames.ora
inflating: wallet_ADWCbobj/truststore.jks
bodadm@liadmin \$
bodadm@:admin \$ ls -1 wallet_ADWCbobj/
total 36
-rw-rr 1 bodadm sapsys 6661 May 1 22:56 cwallet.sso
-rw-rr 1 bodadm sapsys 6616 May 1 22:56 ewallet.p12
-rw-rr 1 bodadm sapsys 3241 May 1 22:56 keystore.jks
-rw-rr 1 bodadm sapsys 87 May 1 22:56 ojdbc.properties
-rw-rr 1 bodadm sapsys 114 May 1 22:56 sqlnet.ora
-rw-rr 1 bodadm sapsys 1031 Jul 12 10:50 thshames.ora
-rw-rr 1 bodadm sapsys 3336 May 1 22:56 truststore.jks
bodadm@:admin \$

# 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.

bodadm@ <b></b> ll:admin \$
bodadm@iadmin \$ cat wallet_ADWCbobj/sqlnet.ora >> sqlnet.ora bodadm@iadmin \$
bodadm@:admin \$ cat sqlnet.ora
<pre># sqlnet.ora Network Configuration File: /oracle/BOD/12201/network/admin/sqlnet.ora # Generated by Oracle configuration tools.</pre>
NAMES.DIRECTORY_PATH= (TNSNAMES, ONAMES, HOSTNAME)

WALLET\_LOCATION = (SOURCE = (METHOD = file) (METHOD\_DATA = (DIRECTORY="?/network/admin"))) SSL\_SERVER\_DN\_MATCH=yes

bodadm@\_\_\_\_l.admin \$

# 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/wall et\_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						
~						
$\sim$						
~ ~						



# 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.

e e	bodadm@:admin \$ bodadm@:admin \$ cat wallet_ADWCbobj/tnsnames.ora >> tnsnames.ora bodadm@:admin \$ [
	<pre>(CONNECT_DATA =    (SERVER = DEDICATED)    (SERVICE_NAME = bodnet) )</pre>
ra	LISTENER_BOD = (ADDRESS = (PROTOCOL = TCP)(HOST = = = = = = = = = = = = = = = = = = =
<pre>(ADDRESS = (PROTOCOL = TCP)(HOST =oracle.oraclevcn.com)(PORT = 1528)) ADWCbobj_high = (description= (address=(protocol=tcps)(port=1522)(host=adwc.uscom-east-1.oraclecloud.com))( onnect_data=(service_name=</pre>	
	ADWCbobj_low = (description= (address=(protocol=tcps)(port=1522)(host=adwc.uscom-east-1.oraclecloud.com))(co nnect_data=(service_name=1.01.01.01.01.01.01.00.00.01.00.01.00.01.00.00
	ADWCbobj_medium = (description= (address=(protocol=tcps)(port=1522)(host=adwc.uscom-east-1.oraclecloud.com)) (connect_data=(service_name=
	"CN=adwc.uscom-east-1.oraclecloud.com,OU=Oracle BMCS US,O=Oracle Corporation,L=Redwood City,ST=Calif ornia,C=US")) )
	bodadm@r i 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@definition \$ 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.com))(connect\_data=(service\_name= definition = low.adwc.oracleCloud.com))(security=(ssl\_server\_cert\_dn= CN=adwc.uscom-east-1.oraclecloud.com,oU=Oracle BMCS US,0=Oracle Corporation,L=Redwood City,ST=Californi
a,C=US)))
OK (340 msec)
bodadm@definition = ladmin \$

# 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.

bodadm@:admin \$ tnsping ADWCbobj_low
TNS Ping Utility for Linux: Version 12.2.0.1.0 - Production on 12-JUL-2018 16:08:59
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= _dn= CN=adwc.uscom-east-1.oraclecloud.com,0U=Oracle BMCS US,0=Oracle Corporation,L=Redwood City,ST=Californi a,C=US))) TNS-12560: TNS:protocol adapter error bodadm@======1::admin \$

# 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@ <b></b> admin \$ bodadm@ <b></b> admin \$ sqlplus <b>L</b> @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@: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 "<u>SAP BusinessObjects Server – Oracle Client Setup</u>" 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.

(C) 2016 M	icrosoft Cor	poration.	All rights reserved.				
C:\Users\le	≥c0fwl≻cd %T	NS_ADMIN%					
:\app\clie	ent\product\	18.0.0\cl	ient32\network\admin>dir				
	drive C is						
Volume Ser	rial Number	is 90DD-8	66B				
Directory	of C:\app\c	lient\pro	duct\18.0.0\client32\net	work\admin			
27/12/2010	04:16 PM	<dir></dir>					
	04:16 PM						
	06:25 PM		sample				
	01:52 PM		643 sqlnet.ora				
	06:31 PM						
			1,465 tnsnames.ora				
07/11/2018	01:50 PM	<dir></dir>	wallet ADWCbobj				
	3 File(	s)	2,570 bytes				
	4 Dir(s	) 214,04	6,781,440 bytes free				



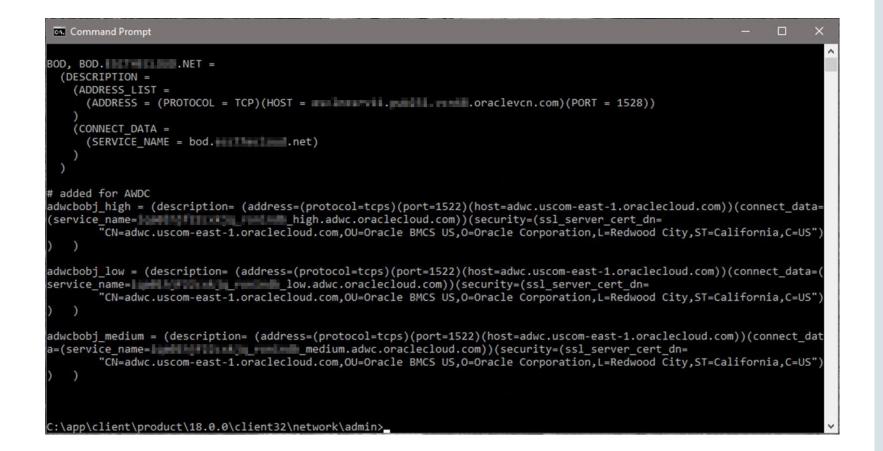
# Windows Desktop – Oracle Client Setup Update the sqlnet.ora file

- 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/wall et\_ADWCbobj"

Command Prompt	—	×
C:\app\client\product\18.0.0\client32\network\admin≻type sqlnet.ora # sqlnet.ora Network Configuration File: C:\app\client\product\12.2.0\client32\NETWORK\ADMIN\sqlnet.ora # Generated by Oracle configuration tools.		
# This file is actually generated by netca. But if customers choose to # install "Software Only", this file wont exist and without the native # authentication, they will not be able to connect to the database on NT.		
SQLNET.AUTHENTICATION_SERVICES= (NTS)		
NAMES.DIRECTORY_PATH= (TNSNAMES, EZCONNECT)		
ADR_BASE = C:\app\client		
# added for ADWC WALLET_LOCATION = (SOURCE = (METHOD = file) (METHOD_DATA = (DIRECTORY="?/network/admin/wallet_ADWCbobj"))) SSL_SERVER_DN_MATCH=yes		
C:\app\client\product\18.0.0\client32\network\admin>		
		~

# 

- 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.

Command Prompt	-	>
:\app\client\product\18.0.0\client32\network\admin>tnsping ADWCbobj_low		
NS Ping Utility for 32-bit Windows: Version 18.0.0.0.0 - Production on 12-JUL-2018 16:18:36		
opyright (c) 1997, 2018, Oracle. All rights reserved.		
sed parameter files: :\app\client\product\18.0.0\client32\network\admin\sqlnet.ora		
<pre>sed TNSNAMES adapter to resolve the alias ttempting to contact (description= (address=(protocol=tcps)(port=1522)(host=adwc.uscom-east-1.oracleclo data=(service_name=</pre>		
:\app\client\product\18.0.0\client32\network\admin>_		



# 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.

<pre>\app\client\product\18.0.0\client32\network\admin&gt;sqlplus@ADWCbobj_low U*Plus: Release 18.0.0.0.0 Production on Thu Jul 12 16:19:13 2018 rsion 18.2.0.0.0 pyright (c) 1982, 2018, Oracle. All rights reserved. ter password: st Successful login time: Thu Jul 12 2018 16:10:34 +00:00 nnected to: acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production U&gt; exit sconnected from Oracle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production</pre>	L*Plus: Release 18.0.0.0.0 Production on Thu Jul 12 16:19:13 2018 rsion 18.2.0.0.0 pyright (c) 1982, 2018, Oracle. All rights reserved. ter password: st Successful login time: Thu Jul 12 2018 16:10:34 +00:00 nnected to: acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production L> exit	
rsion 18.2.0.0.0 pyright (c) 1982, 2018, Oracle. All rights reserved. ter password: st Successful login time: Thu Jul 12 2018 16:10:34 +00:00 nnected to: acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production	rsion 18.2.0.0.0 pyright (c) 1982, 2018, Oracle. All rights reserved. ter password: st Successful login time: Thu Jul 12 2018 16:10:34 +00:00 nnected to: acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production L> exit	
ter password: st Successful login time: Thu Jul 12 2018 16:10:34 +00:00 nnected to: acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production L> exit	ter password: st Successful login time: Thu Jul 12 2018 16:10:34 +00:00 nnected to: acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production L> exit	
st Successful login time: Thu Jul 12 2018 16:10:34 +00:00 nnected to: acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production L> exit	st Successful login time: Thu Jul 12 2018 16:10:34 +00:00 nnected to: acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production L> exit	
acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production	acle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production	
	Sconnected from oracle bacabase 18c Enterprise Edition Release 12.2.0.1.0 - 04bit Production	
\app\client\product\18.0.0\client32\network\admin>_	\app\client\product\18.0.0\client32\network\admin>_	



# 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.



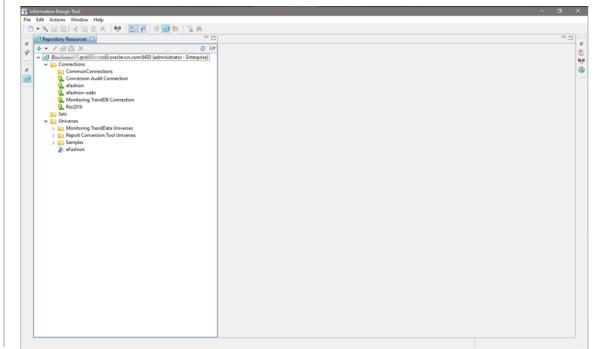
## Information Design Tool Repository Resources: Open Session

Y Information Design Tool		- 0 ×
File Edit Actions Window Help		
🗅 • 🗞 🗟 🕂 🖄 🏛 🔺 🖬 🖄 🔺 👘 🖉 🐿 🚡 M		
all Repository Resources 12	° 0	
	Q: 0+	<i>e</i> 12
	54)	84
8		**
đ	S Open Session	, en la companya de l
	System Concorr.6400	
	User Name administrator	
	Password	
	Authentication Enterprise	
	Description	
	v	
	OK Cancel	
	OK Cancel	

- 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.

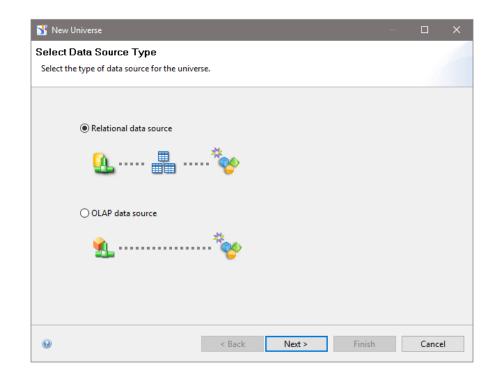


## Information Design Tool New Universe: Project Name & Data Source Type

					$\times$
he project.					
ADWCbobj_via_OCl					
C:/Users/lec0fwl/.busines	sobjects/bimodel	er_14/workspace			
	< Back	Next >	Finish	Cance	el
	ADWCbobj_via_OCI	ADWCbobj_via_OC(	ADWCbobj_via_OC  C:/Users/lec0fwl/.businessobjects/bimodeler_14/workspace	ADWCbobj_via_OC  C:/Users/lec0fwl/.businessobjects/bimodeler_14/workspace	he project. ADWCbobj_via_OC  C:/Users/lec0fwl/.businessobjects/bimodeler_14/workspace

- 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

<table-of-contents> New Universe</table-of-contents>				-	
New Relational C Enter a name for the			9	L	····**
🥑 Resource Name	ADWCbobj_via_OCI				
Description					^
					~
9		< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel

 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.

S New Universe	- D X
Database Middleware Driver Selection	
Select the driver for your database middleware.	
Hierarchical List     O Flat List	
Search pattern	≜↓ <del>▼</del> ⊕∔ ⊝†
> EX IBM	^
> D Ingres	
> 🖸 Microsoft	
V D Oracle	
> O MySQL 5	
> Oracle 11	
Oracle 12     Oracle 12     Oracle 12     Oracle 12c Release 2	
✓ U Oracle 12c Release 2 IDBC Drivers	
G ODBC Drivers	
Oracle FRS	×
The selected driver is: Oracle 12c Release 2 (Oracle Client)	
e < <u>B</u> ack <u>Next</u> > <u>Finish</u>	Cancel

## Information Design Tool New Universe: Relational Connection Credentials

S New Relational Connec	tion	—		×
Parameters for Oracl	e 12c Release 2 Connection (1/3)			
Authentication Mode	Use specified username and password			~
User Name	Taylant.			
Password	•••••			
Service	ADWCbobj_low			~
		de Te	st Connec }	ction
0	< <u>B</u> ack <u>N</u> ext > <u>F</u> inis	h	Canco	el

- 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.

Name	Value
BusinessObjects Configuration	
Version	3.3.0.0
Build	14.2.5.2618
Network Layer	Oracle OCI
DBMS Engine	Oracle 12c Release 2
Language	en
Charset	CP1252
Library	C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\dataAccess\connectionServer\drivers\lib32\dbd_oci.dll
SBO	C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\dataAccess\connectionServer\oracle\oracle.sbo
RSS	C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\dataAccess\connectionServer\oracle\oracle.rss
PRM	C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\dataAccess\connectionServer\oracle\oracle.prm
Strategies	C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\dataAccess\connectionServer\oracle\oracle.stg
Middleware and DBMS Configuration	
Driver architecture	32
Charset	CP1252
DBMS name	Oracle
DBMS version	Oracle Database 18c Enterprise Edition Release 12.2.0.1.0 - 64bit Production

## Information Design Tool New Universe: Relational Connection Parameters

S New Relational Connection	-		×
Parameters for Oracle 12	c Release 2 Connection (2/3)		
Connection Pool Mode	Keep the connection active for		~
Pool Timeout	10 Minutes		
Array Fetch Size			
Array Bind Size	32767 🔹		
Login Timeout	600 Seconds		
Maximum Parallel Queries	4		
Θ	< Back Next > Einish	Cance	
¥	S BOCK MEETS TUIDI	cance	

• No changes were made to these default values.

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

Custom Parameters		
Name Hint ConnectInit	Value	
Add Parameter Delete Parar	neter	

## Information Design Tool New Universe: New Data Foundation

<table-of-contents> New Universe</table-of-contents>					- 0	×
New Data Founda Enter a name for the			(	<u>)</u>		*
🤣 Resource Name	ADWCbobj_via_OCI					
_						~
Θ		< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Car	ncel

 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.

<table-of-contents> New Universe</table-of-contents>	-	
Select Tables to Insert		
Select the tables you want to ins	ert and the detection options to use.	
<b>8</b> \ ∀ ▼		🔎 🖯 t 👸
> [] ADWCbobj_via_OCI		
🗌 🔐 Detect joins 📃 🢡	» Detect cardinalities	Uncheck All
🗌 🎖 💡 Detect keys 📃 🔮	Detect row counts	
0	< Back Next > Finish	Cancel
	screenshot 1	

## Information Design Tool New Universe: Data Foundation Table Selection & Business Layer

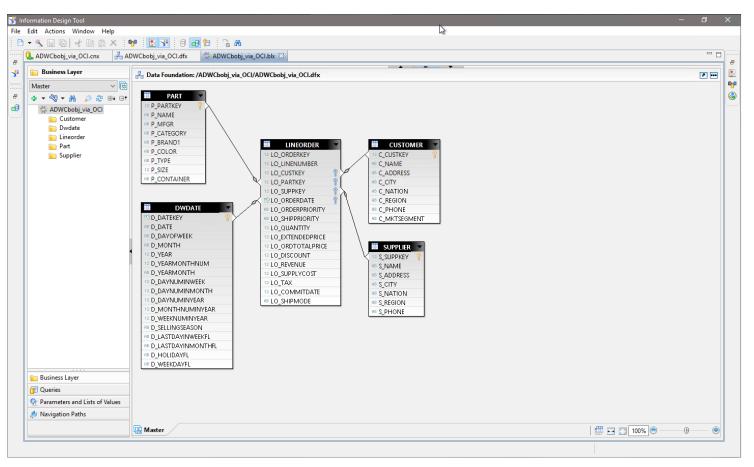
S New Universe	
Select Tables to Insert	
Select the tables you want to insert and the detection options to use.	
	🔎 🖯 t 💐
SSB CUSTOMER DWDATE MILINEORDER MILINEORDER MILINEORDER SUPPLIER SUPPLIER SYSUMF SYSBACKUP SYSBACKUP SYSDG SYSKM	~
✓       ∯n Detect joins       ✓       ♀       Petect cardinalities         ✓       ♀       ♥       Detect keys       ✓       ♀          ♥       Detect keys       ✓       ♀       ♥	<u>Uncheck All</u>
	Cancel
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\_ocl) and a meaningful Description (if desired) for the New Relational Business Layer.

<table-of-contents> New Universe</table-of-contents>				—	
New Relational B Enter a name for the				<u>).</u>	**
🥑 Resource Name	ADWCbobj_via_OCl				
🥒 Description					^
					~
0		< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel

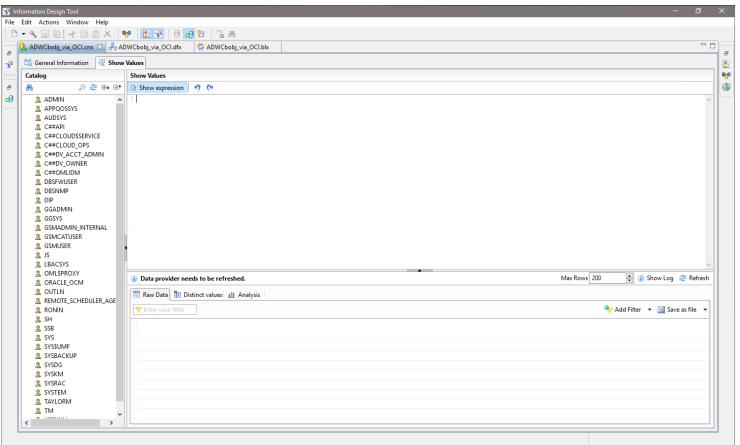
# Information Design Tool Universe Business Layer

- 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: <u>https://docs.oracle.com/en/cloud/paas/autonomous-data-</u> <u>warehouse-cloud/user/sample-queries.html#GUID-</u> <u>431A16E8-4C4D-4786-BE5C-30029AC1EFD8</u>

	P 🗷 👎 🖶 🎏 A	
ADWCbobj_via_OCl.cnx 🛛 📲 AD	WCbobj_via_OCI.dfx 🛛 🔆 ADWCbobj_via_OCI.blx	
🖁 General Information 🛛 🍕 Show	/alues	
Catalog	Show Values	
೫ 🔎 🎘 ⊕+ ⊖†	🗈 Show expression 🦃 🍽	
ADMIN     ADMIN     APPQOSSYS     AUDSYS     C##API     C##CLOUDSSERVICE     C##CLOUD_OPS     C##CLOUD_OPS     C##DV_ACCT_ADMIN     C##DV_ACCT_ADMIN     C##DV_ACMLIDM     DBSFWUSER     DBSNNP     DIP     DGSMADMIN_INTERNAL     GGMADMIN_A     GGSYS     GSMUSER     JS     LBACSYS	SELECT         dvdate, hier.member_name as time,         part_hier.p_name,         part_hier.p_color,         lo_greenue,         lo_greenue,         lo_supplycost,         lo_revenue,         lo_revenue,         dvdate_hier.d_vearmonth = 'Aug1996'         AND dvdate_hier.d_vayofweek = 'Friday '         AND dvdate_hier.game = 'DAY'         AND dvdate_hier.game = 'DAY'         AND botts_hier.game = 'PART'         ORRE BY         dvdate_hier.game, inc.game,         Joresenue,         dvdate_hier.d_vearmonth = 'Aug1996'         dvdate_hier.d_vearmonth = 'Aug1996'         dvdate_hier.d_ovforweek = 'Friday '         AND part_hier.jevel_name = 'DAY'         AND part_hier.jevel_name = 'PART'         ORDER BY         dvdate_hier.d_vier.groder         dvdate_hier.d_vier.groder	
A OMLSPROXY A ORACLE_OCM	③ Data provider needs to be refreshed.	Max Rows 200 📑 🚯 Show Log 😂 Refresh
& OUTLN	🕅 Raw Data 🗓 Distinct values 👖 Analysis	Refre
REMOTE_SCHEDULER_AGE		
SH	There your filter	💝 Add Filter 🔻 🔚 Save as file 🔻
SSB		
SYS		
SYS\$UMF		
SYSBACKUP		
SYSDG		
SYSKM		
SYSRAC		
SYSTEM		
A TAYLORM		
& TM		

### Information Design Tool Universe Connection: SQL Test

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

dit Actions Window Help										
			20							
	🕈 🔝 🛃 🖯									
ADWCbobj_via_OCI.cnx 🛛 👫 A	DWCbobj_via_OCI.dfx	ADWCb	obj_via_OCI.blx							- [
造 General Information 🛛 🥰 Show	v Values									
Catalog	Show Values									
M 🔎 🔁 🕀 🖬	Show expression	1 17 (°								
ADMIN     APPQOSSYS     AUDSYS     C##CLOUDSSERVICE     C##CLOUDSSERVICE     C##CLOUD_OPS     C##CLOUD_OPS     C##DV_ACCT_ADMIN     C##DV_ACCT_ADMIN     C##DV_ACUT_ADMIN     DBSNWDSER     DBSNMP	1 SELECT 2 dwdate_hier.me 3 part_hier.memb 4 part_hier.p.colo 6 lo_quantity, 10_revenue, 8 lo_supplycost, 9 lo_revenue - lo_1 6 FROM ssb.ssb_av 11 HIERARCHIES ( 2 dwdate_hier, 13 part_hier) 4 WHERE	ie, r, supplycost <mark>as</mark> pro								A .
DIP     GGADMIN     GGADMIN     GGYS     GSMADMIN_INTERNAL     GSMCATUSER     GSMUSER     JS     IS     LBACSYS	15 dwdate_hier.d_y 16 AND dwdate_hie 17 AND dwdate_hie 18 AND part_hier.le		'Friday ' DAY' T'							
GGADMIN GGSYS GSMADMIN_INTERNAL GSMADMIN_INTERNAL GSMUSER GSMUSER LBACSYS GNLSPROXY	15 dwdate_hier.d_y 16 AND dwdate_hii 17 AND dwdate_hii 18 AND part_hier.le 19 AND part_hier.le 20 ORDER BY 21 dwdate_hier.hier	er.d_dayofweek = er.level_name = 'E evel_name = 'PAR color in ('ivory',' r_order, rder	'Friday ' DAY' T'			_		Max Rows 200	🛊 🚯 Show Log	y ₴ Refresh
GGADMIN GGSYS GSMADMIN_INTERNAL GSMADMIN_INTERNAL GSMUSER JS LBACSYS OMLSPROXY GORACLE_OCM	15 dwdate_hier.d.y 16 AND dwdate_hi 17 AND dwdate_hi 18 AND part_hier.le 19 AND part_hier.le 20 ORDER BY 21 dwdate_hier.hier_or 20 200 rows (1143	er.d_dayofweek = er.level_name = '[ evel_name = 'PAR color in ('ivory',' r_order, der 87 ms)	' Friday ' DAY' T' 'coral')					Max Rows 200	🔹 🚯 Show Log	v 2 ॡ Refresh
GGADMIN GGSYS GSMADMIN_INTERNAL GSMCATUSER GSMUSER JS LBACSYS OMLSPROXY OMLSPROXY GORACLE_OCM OLUN	15 dwdate_hier.d_y 16 AND dwdate_hi 17 AND dwdate_hi 18 AND part_hier.p 20 ORDER BY 21 dwdate_hier.hier 22 part_hier.hier.or	er.d_dayofweek = er.level_name = '[ evel_name = 'PAR color in ('ivory',' r_order, der 87 ms)	' Friday ' DAY' T' 'coral')					Max Rows 200	🔹 🚯 Show Log	v 1 æ Refresh
GGADMIN GGSYS GSMADMIN_INTERNAL GSMADMIN_INTERNAL GSMUSER JS LBACSYS MUSER GMUSER GMU	15 dwdate_hier.d.y 16 AND dwdate_hi 17 AND dwdate_hi 18 AND part_hier.le 19 AND part_hier.le 20 ORDER BY 21 dwdate_hier.hier_or 20 ant_hier.hier_or	er.d_dayofweek = er.level_name = '' evel_name = ''PAR _color in ('ivory',' r_order, der 87 ms) Distinct values	: Friday ' DAY T' coral')						🗘 🚯 Show Log	
GGADMIN GGSVS GSNADMIN_INTERNAL GSNADMIN_INTERNAL GSNUSER GSNUSER JJS LBACSVS GOMLSPROXY GORACLE_OCM GOULTN REMOTE_SCHEDULER_AGE REMOTE_SCHEDULER_AGE GSNIN	15 dwdate_hierd.yy 16 AND dwdate_hii 17 AND dwdate_hii 18 AND part_hier.per 20 ORDER BY 21 dwdate_hier.hier.or 22 dwdate_hier.hier.or 23 dwdate_hier.hier.or 24 dwdate_hier.hier.or 25 dwdate_hier.hier.or 26 dwdate_hier.hier.or 27 dwdate_hier.hier.or 28 dwdate_hier.hier.or 29 dwdate_hier.hier.or 20 dwdate_hier.or 20 dwdate_hier.hier.or 20 dwdate_hier.hier.or 20 dwdate_hier.hier.or 20 dwdate_hier.hier.or 20 dwdate_hier.or 20 dwdate_hie	er.d_dayofiweek = er.devel_name = (1) evel_name = PAR color in ('ivory',' r_order, der 37 ms) Distinct values j Filtered row	i Friday ' DAY T' Coral')  II Analysis  vs: 200/200					*		
GGADMIN GGSV5 GSMOSER	15 dwdate hierd. y 16 AND dwdate hii 17 AND dwdate hii 18 AND part hier. 20 ORDER BY 21 dwdate hier.hie 22 part_hier.port 14 dwdate hier.hie 22 ant_hier.port 14 dwdate hier.hie 22 ant_hier.port 14 dwdate hier.hie 23 dwdate hier.hie 24 dwdate hier.hie 25 dwdate hier.hie 26 dwdate hier.hie 27 dwdate hier.hie 28 dwdate hier.hie 29 dwdate hier.hie 20 orows (1143 19 Raw Data 19 19 Raw Data 19 10 dwdate hier.hie 10 dwdate hier.hie 20 dwdate hier.hier.hier.hier.hier.hier.hier.hier.	er.d.dayofweek = er.level_name = ' evel_name = 'PAR _color in ('ivory',' r_order, der 37 ms) Distinct values   r Filtered row #8 PART	iFriday         DAY           Coral')         Ti           III Analysis         NS: 200/200           re         P_NAME	RE P_COLOR	12 LO_QUANTITY	12 LO_REVENUE	12 LO_SUPPLYCOST	12 PROFIT		
GGADMIN GGSVS GSMADMIN_INTERNAL GSMCATUSER GSMCATUSER JS JS LBACSVS ORACLE_OCM ORACLE_OCM OUTLN REMOTE_SCHEDULER_AGE RONIN SH SSB SSS	15 dwdate hierd. yy 16 AND dwdate hii 17 AND dwdate hii 18 AND part hier. 19 AND part hier. 20 ORDER BY 21 dwdate hier.hier 22 part hier.hier or 10 200 rows (1142 11 Raw Data 12 Enter your filte 18 TIME Augest 1, 1996	er.d.dayofweek = er.level_name = '[ vevl_name = 'PAR _color in ('ivory',' r_order, der 37 ms) Distinct values   r Filtered row # PART 8	: Friday         DAY           DAY         Construction           (T'         Construction           (T)         Construction           <	ivory	38	3174368	12 LO_SUPPLYCOST 54480	12 PROFIT 3119888		
GGADMIN GGSYS GSMUSER GSMUSER GSMUSER GJS LBACSYS OMJSPROXY OMJSPROXY OMJSPROXY ORACLE_OCM OUTLN REMOTE_SCHEDULER_AGE REMOTE_SCHEDULER_AGE SH SSB SSB SSB SSB SSSB SSSUMF	15 dwdate_hierd.ty 16 AND dwdate_hi 17 AND dwdate_hi 18 AND part.hier.hi 20 ORDER BY 21 dwdate_hier.hier.or 22 art_hier.por 20 COO's Ant	erd, dayofweek = erl, evel_name = '' evel_name = 'PAR _color in ('ivory',' r_order, der <b>37 ms)</b> Distinct values 1 Filtered row R8 PART 8 447	Ili Analysis  VI Analysis  Line	ivory coral	38 40	3174368 5179558	12 LO_SUPPLYCOST 54480 161692	12 PROFIT 3119888 5017866		
GGADMIN GGSYS GSMADMIN_INTERNAL GSMUSER GSMUSER JS GMUSER JS GMUSPROXY COMLSPROXY COMLS	15 dwdate_hierd.yy 16 AND dwdate_hii 17 AND dwdate_hii 18 AND part_hier.hii 20 ORDER BY 21 dwdate_hiier.hier.ori 22 dwdate_hiier.hier.ori 23 dwdate_hiier.hier.ori 24 dwdate_hiier.hii 25 dwdate_hiier.hii 26 dwdate_hiir.hii 27 dwdate_hiir.hii 28 dwdate_hiir.hii 29 dwdate_hiir.hii 20 dwdate_hiir.hiir.hii 20 dwdate_hiir.hii 20 dwdate_hiir.hii 20 dwda	er.d_dayofweek = er.d_dayofweek = er.level_name = 'PAR color in ('ivory',' r_order, der <b>37 ms)</b> Distinct values   j r	III Analysis III Analysis VS: 200/200 Re P_NAME Khaki cream Iemon chiffon magenta turquoise	ivory coral ivory	38 40 92	3174368 5179558 16477534	12 LO_SUPPLYCOST 54480 161692 569695	12 PROFIT 3119888 5017866 15907839		
GGADMIN GGSYS GSMOADMIN_INTERNAL GSMCATUSER GSMUSER GSMUSER JS LBACSYS GNLSPROXY ORACLE_OCM OUTLN REMOTE_SCHEDULER_AGE RONIN SH SSH SSB SVSUMF SVSUMF SVSUMF SVSUMF SVSUMF SVSUMF SVSUMF SVSUMF	15 dwdate hierd.y 16 AND dwdate hii 17 AND dwdate hii 18 AND part hier.he 20 ORDER BY 21 dwdate hier.hie 22 part_hier.port 14 dwdate hier.hie 22 part_hier.port 14 dwdate hier.hie 22 part_hier.port 14 dwdate hier.hie 22 part_hier.port 14 dwdate hier.hie 24 dwdate hier.hie 25 dwdate hier.hie 26 dwdate hier.hie 27 dwdate hier.hie 28 dwdate hier.hie 29 dwdate hier.hie 20 dwdate hier.hier.hier.hier.hier.hier.hier.hier.	er.d_dayofweek = er.d_dayofweek = er.level_name = 'PAR _color in ('ivory',' der <b>37 ms)</b> Distinct values ] r Filtered row no PART 8 447 998 1390	III Analysis III Analysis VS: 200/200 R0 P_NAME Khaki cream Iemon chiffon magenta turquoise medium peru	ivory coral ivory coral	38 40 92 36	3174368 5179558 16477534 4330030	12 LO_SUPPLYCOST 54480 161692 569695 154966	* 12 PROFIT 3119888 5017866 15907839 4175064		
GGADMIN GGSYS GSMUSER	AND dwdate, hii ch.gy     AND dwdate, hii AND part, hiic.H     AND part, hiic.P     AND part, hiic.P     AND part, hiic.N     And	er.d. dayofweek = er.level_name = 'PAR _color in ('ivory',' r_order, der <b>37 ms)</b> Distinct values / j r Filtered row #8 PART 8 447 998 1390 1413	III Analysis III Analysis III Analysis VI: 200/200 RO P_NAME Khaki cream Iemon chiffon magenta turquoise medium peru thistle medium	ivory coral ivory coral coral	38 40 92 36 153	3174368 5179558 16477534 4330030 18746115	12 LO_SUPPLYCOST 54480 161692 569695 154966 315456	12 PROFIT 3119888 5017866 15907839 4175064 18430659		
GGADMIN GGSYS GSMADMIN_INTERNAL GSMUSER GSMUSER JS GMUSPROXY OMLSPROXY OMLSPROXY GOUTUN REMOTE_SCHEDULER_AGE REMOTE_SCHEDULER_AGE SSB SSS SSS SSS SSS SSS SSS SSSS SSSS	15 dwdate_hierd.ty 16 AND dwdate_hi 18 AND part_hier.he 19 AND part_hier.pe 20 ORDER BY 21 dwdate_hier.hie 22 art_hier.pe 23 dwdate_hier.hier.or 24 dwdate_hier.hier 25 part_hier.pe 26 TIME 27 Enter your filte 28 TIME Augest 1, 1996 Augest 1, 1996 Augest 1, 1996 Augest 1, 1996 Augest 1, 1996 Augest 1, 1996	er.d_dayofweek = er.d_dayofweek = er.level_name = 'PAR _color in ('ivory',' r_order, der 37 ms) Distinct values   j r	II Analysis II Analysis II Analysis II Analysis II Analysis III Analysis III Analysis III Analysis IIII Analysis IIIII Analysis IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	ivory coral ivory coral	38 40 92 36 153 15	3174368 5179558 16477534 4330030 18746115 2369407	12 LO_SUPPLYCOST 54480 161692 569695 154966 315456 104149	12 PROFIT 3119888 5017866 15907839 4175064 18430659 2265258		
GGADMIN GGSYS GSMOSER	AND dwdate, hii ch.gy     AND dwdate, hii AND part, hiic.H     AND part, hiic.P     AND part, hiic.P     AND part, hiic.N     And	er.d_dayofweek = er.d_dayofweek = er.level_name = 'PAR _color in ('ivory',' r_order, der <b>37 ms)</b> Distinct values   r Filtered row & PART & 8 447 998 1390 1413 1834 2205	III Analysis III Analysis III Analysis VI: 200/200 RO P_NAME Khaki cream Iemon chiffon magenta turquoise medium peru thistle medium	ivory coral ivory coral coral	38 40 92 36 153 15 118	3174368 5179558 16477534 4330030 18746115 2369407 12190271	12 LO_SUPPLYCOST 54480 161692 569695 154966 315456 104149 265728	12 PROFIT 3119888 5017866 15907839 4175064 18430659 2265258 11924543		
GGADMIN GGSYS GSMUSER GSMUSE GSM	15 dwdate_hierd.ty 16 AND dwdate_hi 18 AND part_hier.he 19 AND part_hier.pe 20 ORDER BY 21 dwdate_hier.hie 22 art_hier.pe 23 dwdate_hier.hier.or 24 dwdate_hier.hier 25 part_hier.pe 26 TIME 27 Enter your filte 28 TIME Augest 1, 1996 Augest 1, 1996 Augest 1, 1996 Augest 1, 1996 Augest 1, 1996 Augest 1, 1996	er.d_dayofweek = er.d_dayofweek = er.level_name = 'PAR _color in ('ivory',' r_order, der 37 ms) Distinct values   j r	II Analysis II Analysis II Analysis II Analysis II Analysis III Analysis III Analysis III Analysis IIII Analysis IIIII Analysis IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	ivory coral ivory coral coral coral	38 40 92 36 153 15	3174368 5179558 16477534 4330030 18746115 2369407	12 LO_SUPPLYCOST 54480 161692 569695 154966 315456 104149	12 PROFIT 3119888 5017866 15907839 4175064 18430659 2265258		
GGADMIN GGSVS GSMCATUSER GSMCATUSER GSMCATUSER GSMCSER JJS LBACSVS OMLSPROXY ORACLE_OCM OUTLN RRMOTE_SCHEDULER_AGE RONIN SH SSB SVS SVS SVS SVS SVS SVS SVS SVS SVS	15 dwdate_hierd.yy     16 AND dwdate_hii     17 AND dwdate_hii     18 AND part_hier.hi     19 AND part_hier.hi     20 ORDER BY     21 dwdate_hier.hie:     22 part_hier.hier.or     10 200 rows (114:     111 AND Part_hier.hi     111     111 AND Part_hier.hi     111     1	er.d_dayofweek = er.d_dayofweek = er.level_name = 'PAR _color in ('ivory',' r_order, der <b>37 ms)</b> Distinct values   r Filtered row & PART & 8 447 998 1390 1413 1834 2205	It Analysis         It Analysis         vs: 200/200         re         P_NAME         khaki cream         lemon chiffon         magenta turquoise         medium peru         thiste medium         violet tan         purple coral	ivory coral ivory coral coral coral ivory	38 40 92 36 153 15 118	3174368 5179558 16477534 4330030 18746115 2369407 12190271	12 LO_SUPPLYCOST 54480 161692 569695 154966 315456 104149 265728	12 PROFIT 3119888 5017866 15907839 4175064 18430659 2265258 11924543		

#### 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.

	formation Design										-	ð	×
	Edit Actions												
	• 🕲 🖬 🖉	of		d 🔁 🚡									
	🛃 Local Projects	×		\$ 7 8	obj_via_OCl.blx							- 6	
	*			,> ⊕∔ ⊟†									
믿	🗸 🏐 ADWCbo												•
	ADWC	bobj	j_via_OCI.blx										
- -			Open		I								
-			New Data Foundation		ne,								
		D	Сору	Ctrl+C									
		Ē		Ctrl+V									
		×		Culty									
		~	Move										
			Rename	F2	fit								
				12									
		2											
		*	Test Connection										
		8	Refresh	F5	1996' 'Friday'								
			Save As		DAY'								
		4	Print		T' coral')								
			Check Integrity		colury								
		*0	Show Local Dependencies										
		4	Publish Connection to a Repository									~	
			Open in Windows Explorer	3					I	Max Rows 200	🗦 🚯 Show Log 🛛 휞	Refresh	
			Properties	Alt+Enter	1 Analysis								
					vs: 200/200					· · · · · · · · · · · · · · · · · · ·	Add Filter 🔻 🔚 Save as	file 🔻	
					AB P_NAME	AB P_COLOR	12 LO_QUANTITY	12 LO_REVENUE	12 LO_SUPPLYCOST	12 PROFIT		^	
					khaki cream	ivory	38	3174368	54480	3119888			
					lemon chiffon	coral	40	5179558	161692	5017866			
					magenta turquoise	ivory	92	16477534	569695	15907839			
					medium peru	coral	36	4330030	154966	4175064		- 11	
					thistle medium	coral	153	18746115	315456	18430659			
					violet tan	coral	15	2369407	104149	2265258			
					purple coral	ivory	118	12190271	265728	11924543			
					chartreuse peach	coral	26	3379718	79585	3300133			
					mint hot	ivory	97	8526960	163980	8362980			
					hlanched black	corol	60	6511205	227056	6772520			
	DWChobi via OC		WCbobj_via_OCI.cnx										-
** '		.,	in coop_na_o energy							1			

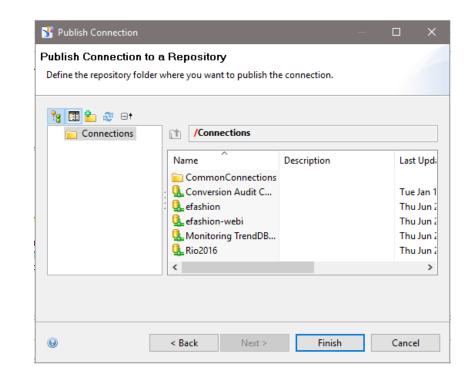


#### Information Design Tool Universe Connection: Publish

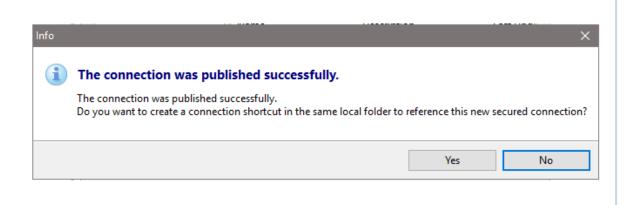
<table-of-contents> Publish Connect</table-of-contents>	ion — 🗖	×
Publish Connect	ion to a Repository	
Open a session on t	he repository where you want to publish the connection.	
Sessions 📑 @•	.oraclevcn.com:6400 (administrator - Enterprise	) ~
System	@oraclevcn.com:6400	
User Name	administrator	~
Password	••••••	÷
Authentication	Enterprise	$\sim$
	Conne	ct
0	< Back Next > Finish Cance	:

• Provide the required Password for the current Session.

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

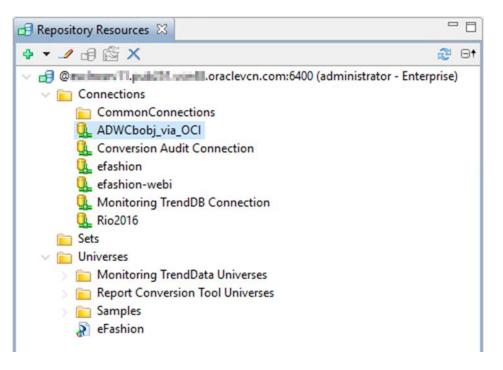


#### Information Design Tool Universe Connection: Publish



• 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.

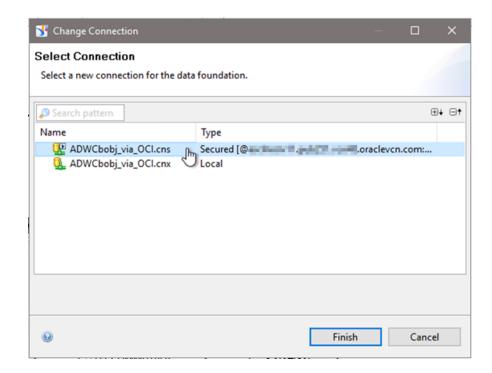


#### Information Design Tool Universe Connection: Data Foundation Connection

🔔 ADWCbobj_via_OCI.cnx			WCbobj_via_OCI.dfx 🛛	
Connection			🖪 Master	
🕒 🔂 🕹 🖂 🔻 🕅		<b>∂</b> ⊡†	💠 Insert 🔻 💡 Dete	2
> 0 ADWCbobj_via_OCI				
1	3	Open	RT	-
3	1	Change		Ş
-	5	Test	63	
	Đ	Сору	Ctrl+C iORY	
0	t	Cut	Ctrl+X )1	
0	Ē	Paste	Ctrl+V	
			· - · · -	

- 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.

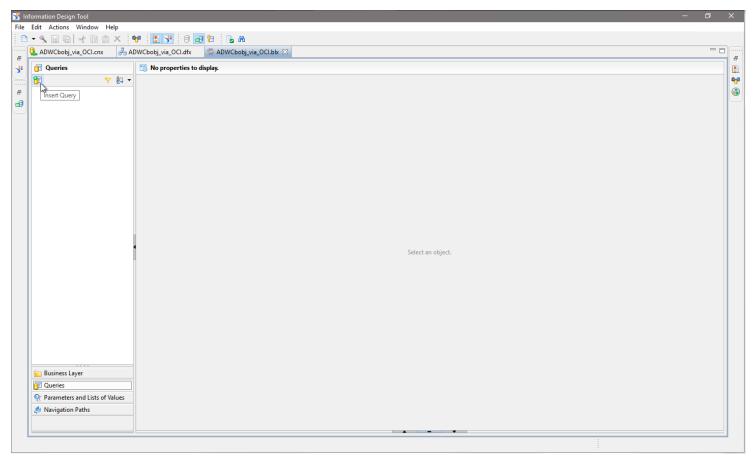
• Select the newly published connection (.cns) and press Finish to switch the connection.



# 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.

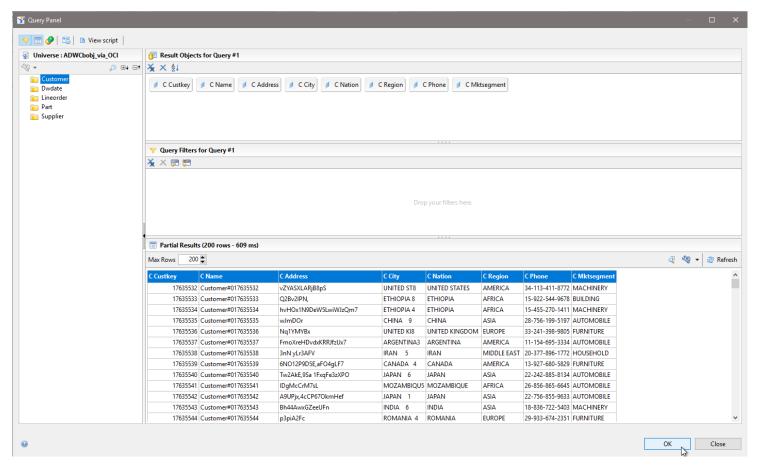




# Information Design Tool

#### **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

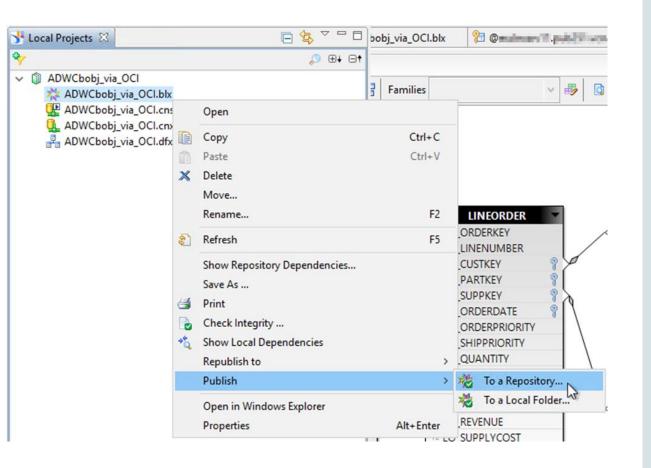
- One last step would be to provide a meaningful name to the new query.
- In this example it was named Query Customer.

<table-of-contents> Inform</table-of-contents>	ation Design Tool			- 0	×
	Actions Window Help				
	s 🛛 🕼 🖌 🗅 🗳 🖄		l 🛃 😰 🖟 🦝		
····· 🔒	ADWCbobj_via_OCI.cnx	ADWCbobj_via_OCl.d	ix 🔆 *ADWCbobj_via_OCI.blx 🛛 🖳 ADWCbobj_via_OCI.cns	- 0	
y 💷	Queries	ਗ਼ Query: Query	Customer		8
筐		<u>≹↓</u> ▼ Name	Query Customer	Hidden	3
	Query	Description	μμαγ		$\sim$
<b>e</b>		Description			
			🔂 Edit Query		
			Result Objects for Query #1		
			🔰 C Custkey 🔰 C Name 🔰 C Address 🔰 C City 🔰 C Nation 🦸 C Region 🦸 C Phone 🦸 C Mktsegment		
			Query Filters for Query #1		
<b></b>	Business Layer				
	Queries				
	Parameters and Lists of Valu	ues			
	Navigation Paths				
					1



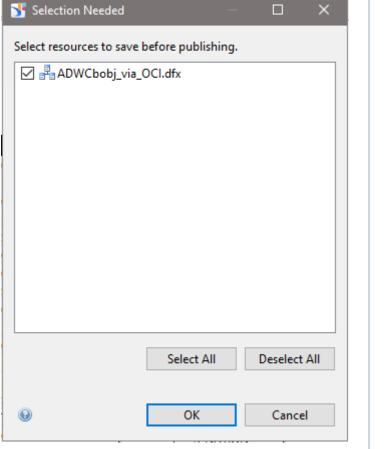
### Information Design Tool Universe: Publish

- 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.

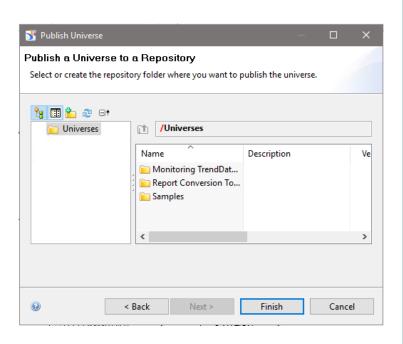


• Choose any desired Integrity Checks.

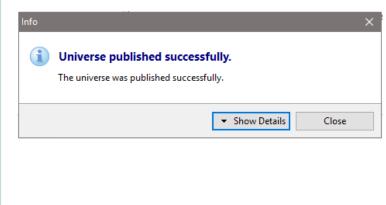
🧏 Publish Universe			—		×
Publish a Universe to a Re Check Universe Integrity	epository				-
Select rules and click the Check Int	egrity button to start	the integrity	check.		
<ul> <li>Connections and I </li> <li>Check Connections</li> <li>Check Depend</li> <li>Tables</li> <li>Check Alias Tal</li> <li>Check Calculat</li> <li>Check Derived</li> <li>Check Table Pr </li> <li></li> </ul>	Description	Resource	Object		
Check all / Uncheck all			2	Check In	tegrity
e < Back	Next >	Finis	h	Cance	el



#### 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.

đ	Rep	pository Resources 🖂	- 0
ф	•	〃 由 酋	🔁 🖯
~	ð	@oraclevcn.com:6400 (administrator - Ente	erprise)
	$\sim$	Connections	
		CommonConnections	
		🖺 ADWCbobj_via_OCI	
		🖺 Conversion Audit Connection	
		🛄 efashion	
		🛄 efashion-webi	
		🗓 Monitoring TrendDB Connection	
		🔔 Rio2016	
		📄 Sets	
	$\sim$	🛅 Universes	
		> 💼 Monitoring TrendData Universes	
		> 💼 Report Conversion Tool Universes	
		> 💼 Samples	
		😵 ADWCbobj_via_OCI.unx	
		a eFashion	

#### Center Management Console Published Connection Verification

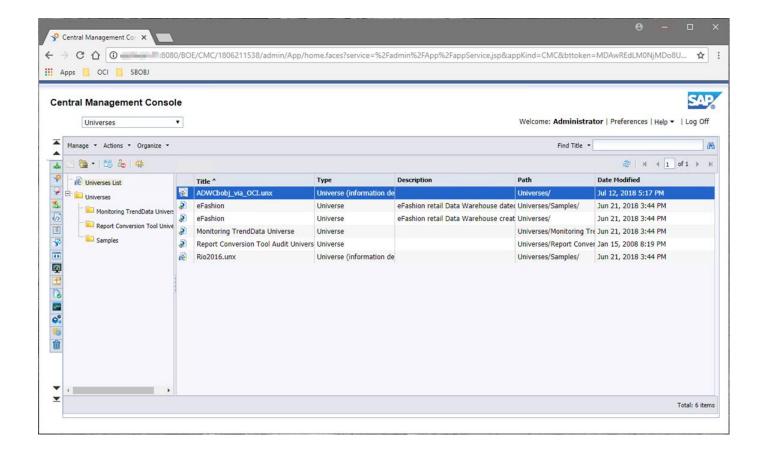
- After a connection is published to the SAP BO server it should be visible via the CMC.
- Login in to the CMC and go to the Connections view to see all published connections to validate.

ntral Management Co	nsole					
Connections	۲				Welcome: Admini	strator   Preferences   Help 👻   L
Manage • Organize •					Find Tit	le •
🖄 🛅 •   🖽 🚣						🎯 🕅 🖣 🔟 of 1
Connections List		Title *	Туре	Description	Path	Date Modified
Connections	<b>e</b> .	ADWCbobj_via_OCI	Relational Connection		Connections/	Jul 12, 2018 5:17 PM
CommonConnections		Conversion Audit Connection	Relational Connection		Connections/	Jan 15, 2008 7:53 PM
- commonconnections		efashion	Relational Connection		Connections/	Jun 21, 2018 3:44 PM
		efashion-webi	Relational Connection		Connections/	Jun 21, 2018 3:44 PM
		Monitoring TrendDB Connection	Relational Connection		Connections/	Jun 21, 2018 3:44 PM
		Rio2016	Relational Connection		Connections/	Jun 21, 2018 3:44 PM
	-					



#### 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.

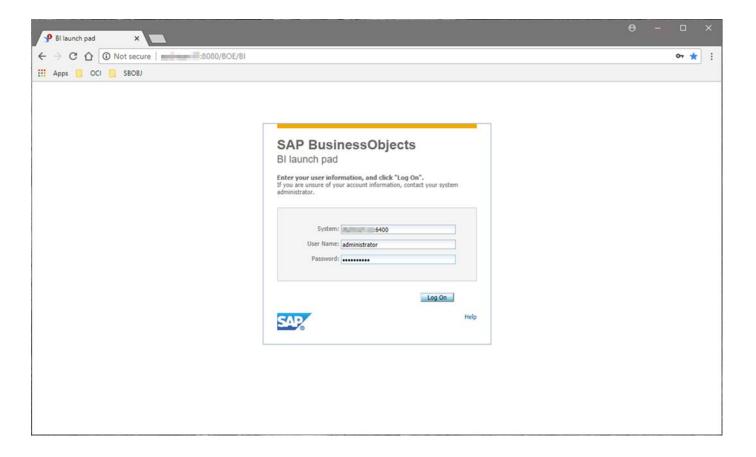
The following requirements are needed.

- 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.

P Bl launch pad	×			Θ - □	
← → C ☆ ③ Not s	ecure   8080/BOE/BI			07 <b>7</b>	۲ :
Apps 🛄 OCI 🛄 SB	OBJ				
SAP		Welcome: Administrator   Applications - Preferences He	elp menu 🗸 🕴 Log off		P
Home Documents					
	▼ My Recently Viewed Documents	▼ 0 unread messages in My Inbox	▼ My Applications		
	ADWC test 1	No unread messages			
		See more	<b>&gt;&gt;</b>		
	My Recently Run Documents     ADWC test 1	10 or more Unread Alerts      Secimsv11 Watch Caution Event      Web Intelligence Services Watch Caution Event      Promotion Management Services Watch Caution Event      Core Services Watch Caution Event      Connectivity Services Watch Caution Event      Data Federation Services Watch Caution Event      Analysis Services Watch Caution Event      Consolidated Health Watch Caution Event      Enterprise Nodes Watch Caution Event      Service Categories Watch Caution Event      Service Categories Watch Caution Event	Cryst P	al Reports for Enterprise	
javascript:void(null);		See more			



## BI Launch Pad Crystal Reports

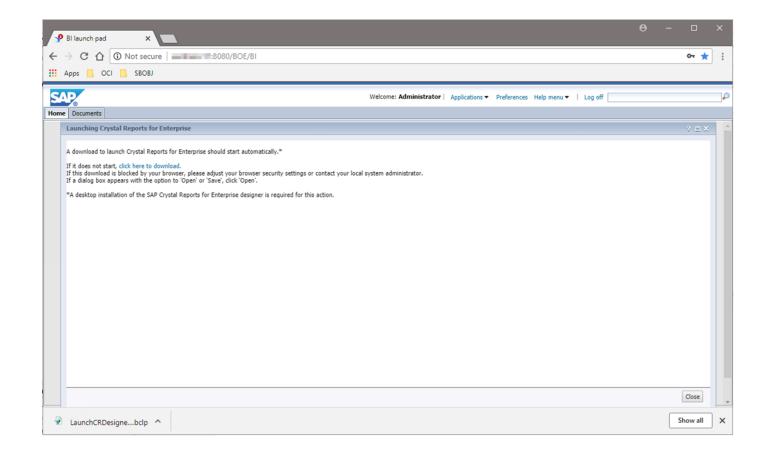
• In Chrome this typically prompts to download a file of type .bclp.

🥜 Bi la	unch pad	×					θ - □	
		ot secure	3080/BOE/BI				07	* :
A dow If it d If this If a d	3	Image: Source As         Organize       New fold         Image: Git       Image: Amage: A	Name         ^ <ul></ul>	bclp bclp bclp bclp bclp clp	>       Image: Ima	2es Help menu ▼   Log off	2	
							Clos	ie Ø



# BI Launch Pad Crystal Reports

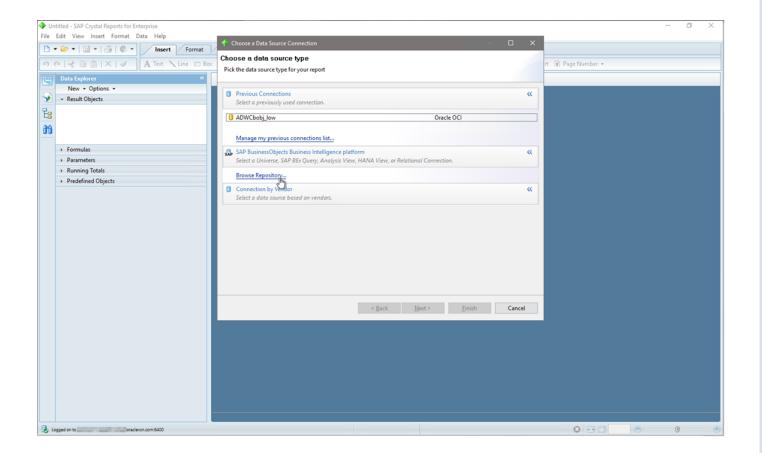
- Follow the directions displayed in the BI Launch Pad window.
- Typically one can simply click on the file name displayed in the browser footer. This will launch the file via the associated application.





#### 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

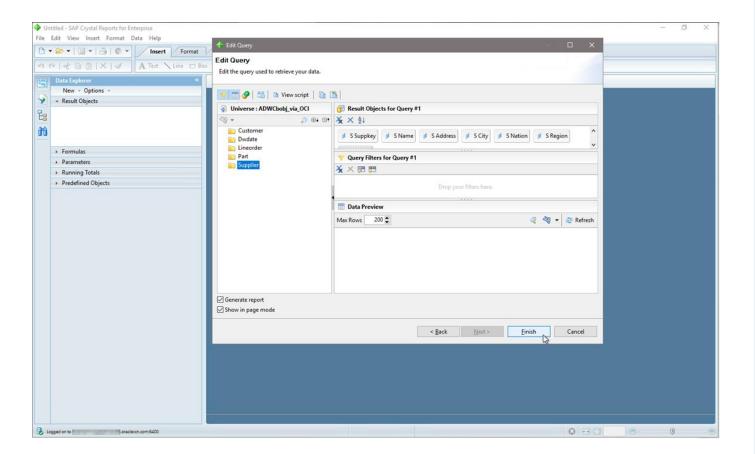
- Locate the sought after universe and click next.
- In this example, the universe ADWCbobj\_via\_OCI was used.

4 U	ntitled - SAP Crystal Reports for Enterprise					_	67	$\times$
File	Edit View Insert Format Data Help				-			
D	• 🖢 • 🔛 • 📇 💿 • Insert Format	New Data Source Connection		– 🗆 X				
10	🕫 😽 🕼 🗶 🧭 🔺 Text 🔪 Line 🗆 Box		ess Intelligence platform Server '	.oraclevcn.c				
		Choose a data source for your report.						
100	Data Explorer 《				-			_
	New • Options •	Logged on as: Administrator						
2								
E		Data Source Type: 🌟 Universe	~	8				
ð ti		Folders	Name	Date Created				
		Universes	🔆 ADWCbobj_via_OCI.unx	7/12/18 5:17:28 PM GMT+00:00				
	Formulas	Monitoring TrendData Universe Report Conversion Tool Univer						
	Parameters	Samples						
	Running Totals	compile						
	Predefined Objects							
		< >						
					-			
			< <u>B</u> a	ck Next > Einish Cancel	1			
					4			
	Looped on to			0		)	0	- (4)



#### 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

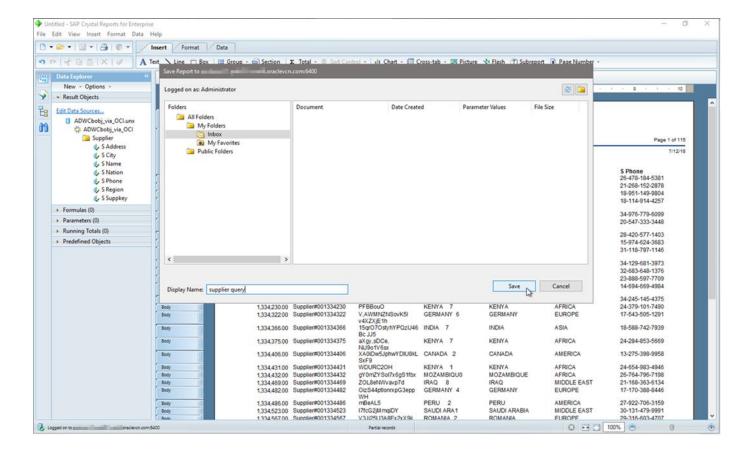
- Crystal Reports will autogenerate a simple report from the query.
- Customize the report and save.

Edit View Insert Format Data Help		4					
🔹 🖙 🕶 🔚 🕶 🖓 🛛 😨 🕶 🖉 Insert 🖉 F	ormat Data						
C   < □ □   ×   < A Text \ Line	🗆 Box   🔚 Group 🗸	🖨 Section   Σ Total • 🖨 Sort Control -   🥼 Ch	art 🔹 🔝 Cross-tab 👻 🔜	Picture 🔥 Flash 🗇	🕽 Subreport 🔋 Page Nun	nber 🕶	
Data Explorer	Structure	Page 00 H 🕞 1 of 52+ 👔 H	1 an -				
New - Options -		1	3 4 4			7	
Result Objects							
	_						
Edit Data Sources	Report Header						
ADWCbobj_via_OCI	Page Header						
🔁 Supplier	r age measur						
V S Address		74044					
🗸 S City		7/12/18					
🕵 S Name		and the second sec					
👃 S Nation		S Suppkey S Name	S Address	S City	S Nation	S Region	S Phone
s Phone	Body	499,764.00 Supplier#000499764 499,861.00 Supplier#000499861	GLoK62VIf61LV1C 0Z.tR3AR90	IRAQ 9	MOZAMBIQUE IRAQ	AFRICA MIDDLE EAST	26-478-184-5381 21-268-152-2878
📣 S Region	Body Body	499,861.00 Supplier#000499861 499,865.00 Supplier#000499865	tY8 p7,21x1	INDIA 3	INDIA	ASIA	18-951-149-9804
👃 S Suppkey	Body	499,911.00 Supplier#000499911	ic1tiKV6	INDIA 8	INDIA	ASIA	18-114-914-4257
Formulas (0)		433,311.00 Cupplicities 11	2dlHkoPVP5yWR3	integra o	in tool i		10 114 014 420
	Body	500,003.00 Supplier#000500003	5Ep1nhfOP	UNITED STO	UNITED STATES	AMERICA	34-976-779-6099
Parameters (0)	Body	1,333,868.00 Supplier#001333868	zE0CYJ wrf,ed71Z7s	IRAN 0	IRAN	MIDDLE EAST	20-547-333-3448
<ul> <li>Running Totals (0)</li> </ul>	Body	1,333,890.00 Supplier#001333890	bP5 UAI4vu	CHINA 2	CHINA	ASIA	28-420-577-1403
Predefined Objects	Body	1,333,909.00 Supplier#001333909	Y8xEAIr	ETHIOPIA 1	ETHIOPIA	AFRICA	15-974-624-3683
	Body	1,333,931.00 Supplier#001333931	DS2BDFXuWu3UbXm UMNmnEv	VIETNAM 8	VIETNAM	ASIA	31-118-797-1146
	Body	1,333,959.00 Supplier#001333959	11IIGIErzg4K4M8rlzif	UNITED ST4	UNITED STATES	AMERICA	34-129-681-3973
	Body	1,334,061.00 Supplier#001334061	47MS7UZS166S kmLU		RUSSIA	EUROPE	32-683-648-1376
	Body	1,334,111.00 Supplier#001334111	6SdwSQY2ol	JORDAN 7	JORDAN	MIDDLE EAST	23-888-597-7709
	Body	1,334,150.00 Supplier#001334150	TJG2YJ0P2	EGYPT 1	EGYPT	MIDDLE EAST	14-694-669-4984
	Body	1.334.178.00 Supplier#001334178	Zx8bw6Bjlb M8eMzf5xSi9aDaMRi	UNITED ST5	UNITED STATES	AMERICA	34-245-145-4375
	Body	1,334,230.00 Supplier#001334230	PFBBouO	KENYA 7	KENYA	AFRICA	24-379-101-7490
	Body	1,334,322.00 Supplier#001334322	V,AWMNZNSovK5I v4XZXjE1h	GERMANY 6	GERMANY	EUROPE	17-543-505-1291
	Body	1,334,366.00 Supplier#001334366	15qr070styhYPQzU46 Bc JJ5	INDIA 7	INDIA	ASIA	18-588-742-7939
	Body	1,334,375.00 Supplier#001334375	aXgy,sDCe, NU9o1V6sx	KENYA 7	KENYA	AFRICA	24-284-853-5669
	Body	1,334,406.00 Supplier#001334406	XA0iDw5JphwYDlU8kL SxF9		CANADA	AMERICA	13-275-398-9958
	Body	1,334,431.00 Supplier#001334431	WDURC20H	KENYA 1	KENYA	AFRICA	24-654-983-4946
	Body	1,334,432.00 Supplier#001334432	gY0mZYSol7x6gS1fbx	MOZAMBIQUO	MOZAMBIQUE	AFRICA	26-764-796-7198
	Body	1,334,469.00 Supplier#001334469	ZOL8eNWvavp7d	IRAQ 8	IRAQ GERMANY	MIDDLE EAST EUROPE	21-168-363-6134 17-170-388-8446
	Body	1,334,482.00 Supplier#001334482	OizS44ptIonrxpG3epp WH	GERMANY 4	GERMANT	EUROPE	17-170-388-8446
	Body	1,334,486.00 Supplier#001334486	mBeAL5	PERU 2	PERU	AMERICA	27-922-706-3159
		133452300 Supplier#001334523	17fcG2iMmaiDV	SALIDI ARA1	SALIDI ARABIA	MIDDLE FAST	30-131-470-0001



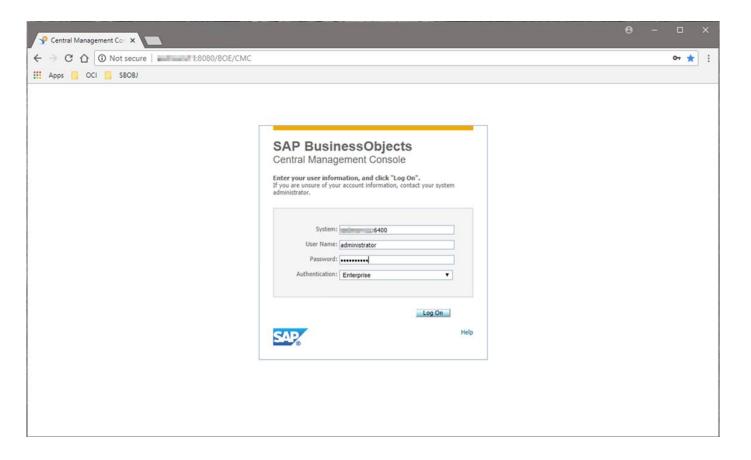
# BI Launch Pad Crystal Reports: Designer

- 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 Manager 8080/BOE/CMC/		p/home.faces?service=%		appService.jsp&appKi	nd=CMC&bttoken=	⊖ – □
entral Management Con	sole T				W	elcome: Administrato	or   Preferences   Help →   Log
Manage • Actions • Organize	•					Find Title 🔹	
🔄 🔹 📇 😓 💽 🖂	A Read	Title	Sent	From	Туре	Description	Image: Second secon
Administrator	<b>A ≅</b>	supplier query	Jul 12, 2018 5:46 I		Crystal Reports fo	pr	0
SMAdmin							
•							



# Central Management Console View Crystal Report

• Double click on the report to view.

🔾 - 🖾 🥶 📥 🗋 🖬 🖬 1 of 112	2 • 100% •						SAP CRYSTAL R	EPORT
Group Tree 《	r							_
	supplier quer	V					0	
		у					Page	
	7/12/18							7/12
	S Suppkey	S Name	S Address	S City	S Nation	S Region	S Phone	
		Supplier#000499764	GLoK62VIf61LV1C	MOZAMBIQU9	MOZAMBIQUE	AFRICA	26-478-184-5381	
	499,861.00	Supplier#000499861	0Z,tR3AR90	IRAQ 9	IRAQ	MIDDLE EAST	21-268-152-2878	
		Supplier#000499865	tY8 p7,2lxl	INDIA 3	INDIA	ASIA	18-951-149-9804	
	499,911.00	Supplier#000499911	jc1tiKV6 2dlHkoPVP5yWR3	INDIA 8	INDIA	ASIA	18-114-914-4257	
	500,003.00	Supplier#000500003	5Ep1nhfOP	UNITED STO	UNITED STATES	AMERICA	34-976-779-6099	
	1,333,868.00	Supplier#001333868	zE0CYJ wrf,ed71Z7s	IRAN 0	IRAN	MIDDLE EAST	20-547-333-3448	
	1,333,890.00	Supplier#001333890	bP5 UAl4vu	CHINA 2	CHINA	ASIA	28-420-577-1403	
	1,333,909.00	Supplier#001333909	Y8xEAIr	ETHIOPIA 1	ETHIOPIA	AFRICA	15-974-624-3683	
	1,333,931.00	Supplier#001333931	DS2BDFXuWu3UbXmU MNmnEv	VIETNAM 8	VIETNAM	ASIA	3 <mark>1-118-797-114</mark> 6	
	1,333,959.00	Supplier#001333959	I1IIGIErzg4K4M8rlzif	UNITED ST4	UNITED STATES	AMERICA	34-129-681-3973	
		Supplier#001334061	47MS7UZS166S kmLU		RUSSIA	EUROPE	32-683-648-1376	
		Supplier#001334111	6SdwSQY2ol	JORDAN 7	JORDAN	MIDDLE EAST	23-888-597-7709	
		Supplier#001334150	TjGzYJoP2 Zx8bw6Bjlb	EGYPT 1	EGYPT	MIDDLE EAST	14-694-669-4984	
		Supplier#001334178	M8eMzf5xSi9gDgMRj	UNITED ST5	UNITED STATES	AMERICA	34-245-145-4375	
		Supplier#001334230	PFBBouO	KENYA 7	KENYA	AFRICA	24-379-101-7490	
	1,334,322.00	Supplier#001334322	V,AWMNZNSovK5I v4XZXjE1h	GERMANY 6	GERMANY	EUROPE	17-543-505-1291	
	1,334,366.00	Supplier#001334366		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		XA0iDw5JphwYDIU8kLS xF9		CANADA	AMERICA	13-275-398-9958	
	1,334,431,00	Supplier#001334431	WDURC2OH	KENYA 1	KENYA	AFRICA	24-654-983-4946	
		Supplier#001334432	gY0mZYSol7x6gS1fbx	MOZAMBIQU0	MOZAMBIQUE	AFRICA	26-764-796-7198	
		Supplier#001334469	ZOL8eNWvavp7d	IRAQ 8	IRAQ	MIDDLE EAST	21-168-363-6134	
	1,334,482.00	Supplier#001334482	OizS44ptionrxpG3epp	GERMANY 4	GERMANY	EUROPE	17-170-388-8446	
	1,334,486.00	Supplier#001334486	WH mBeAL5	PERU 2	PERU	AMERICA	27-922-706-3159	
	1,334,523.00		I7fcG2jMmgiDY	SAUDI ARA1	SAUDI ARABIA	MIDDLE EAST	30-131-479-9991	
		Supplier#001334567	V3Jj25U3A8Ex2xX9ii	ROMANIA 2	ROMANIA	EUROPE	29-316-603-4707	
		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

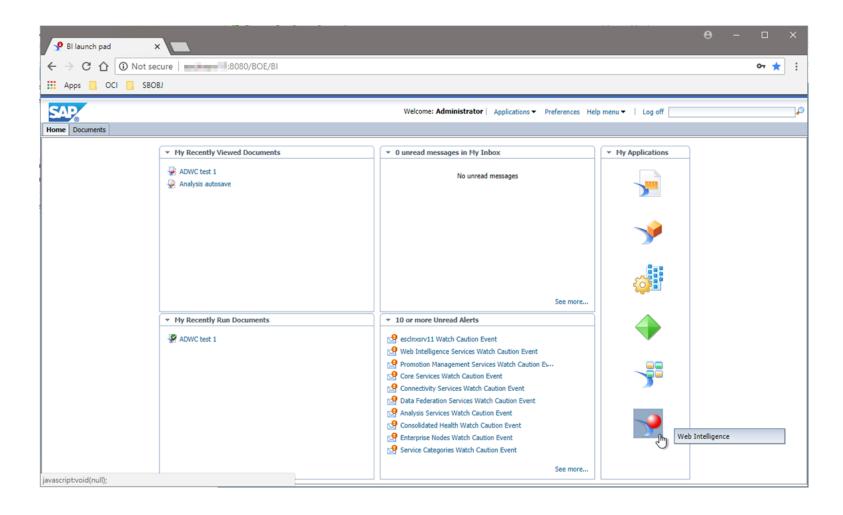
• Login in to BI Launch Pad.

P BI launch pad X			Θ		>	<
← → C ☆ ③ Not secure   ■ ■ 8080/BOE/BI				 07 7	2	:
🔢 Apps 🧾 OCI 📃 SBOBJ						
	SAP BusinessObjects Bi launch pad Itor your user information, and click "Log On". If you are unsure of your account information, contact your system administrator. System:6400 User Name: administrator Password:	Help				



## BI Launch Pad Web Intelligence

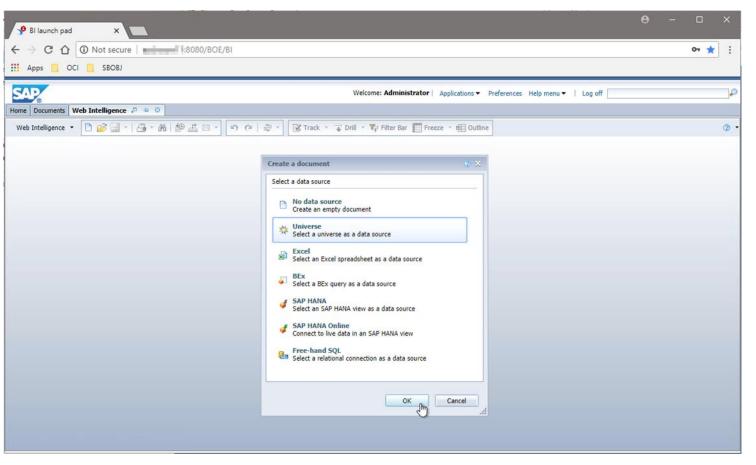
• Select the Web Intelligence application.





#### 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.



#### Web Intelligence: Create Report

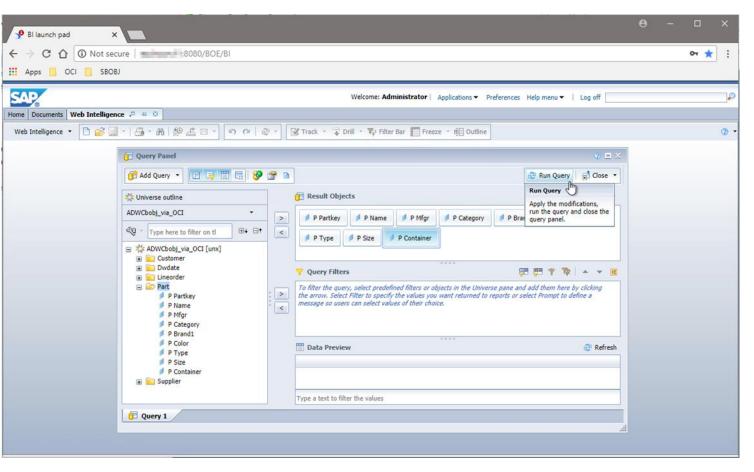
- Highlight a previously published universe and press the OK to continue.
- In this example the ADWCbobj\_via\_OCI universe was selected.

P Bl launch pad X			θ		
← → C ☆ ③ Not secure   ■ ■ ■ ■ 18080	/BOE/BI			<del>от</del> 📩	:
SAD		Welcome: Administrator   Applications ▼ Preferences Help menu ▼   Log off			
Home Documents Web Intelligence P + 3	Universe Universe Select a universe for the query. Type here to filter table Available Universes: Name  ADWCboby via OCLunx eFashion eFashion Monitoring TrendData Universe Report Conversion Tool Audit Universe Rio2016.unx (3) Help on selected universe:	Poll - I filter Bar III Franza - dEl Outline      Revision Folder      oradevcn.com_6400/      poll			@ •
		Cancel			



#### 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.





#### Web Intelligence: Designer

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

C 1 INot secure - :8080/BOE/BI										07 ★
Apps 🧧 OCI 📒 SBOBJ										
SAD		We	elcome: Admini	strator   Appli	cations - Prefe	erences Help	menu 🔻 🕴 Log o	ff		
me Documents New Document 🖉 🦇 🖄										
File Properties Report Elements Format	tting Data Acces	s Analysis	Page Setup	1					Reading • De	esign •
🧭 🛄 🔹 📇 🕈 🧌 🌮 📇 🖂 🕞 Tables Cell Section	Comment Charl	:			Tools Po	sition Linkin	9			
∝ & B B × 8 ≈ ■ • ■ • ■ • ■ • ■ •	<u>ılı</u> •	🖉 • 🚳 • 🗦	÷•\$\$•@	🗛 🔹 More 🔹	Turn Into	*   🖆 Set as	s section			
Available Objects •	fx 🖆 × ✓	1								
Type here to filter tree										
	1									
P Brand1									0	
P Brand1 P Category P Color			Deres						]	
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> </ul>			Repo	ort 1					9	
P Brand1     P Category     P Color			Repo	ort 1					]	
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> </ul>	P Partkey	P Name	Repo P. Mfgr	P Category	P Brand1	P Color	Р Туре	P Size	P Container	
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> </ul>		P Name yellow cornflo	P Mfgr		P Brand1 MFGR#1112	P Color brown	P Type MEDIUM ANC	and the second second	P Container MED CAN	
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> <li>P Size</li> </ul>	543,167		P Mfgr MFGR#1	P Category		brown		4		
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> <li>P Size</li> <li>P Type</li> <li>Variables</li> <li>References</li> </ul>	543,167 543,360	yellow cornflo	P Mfgr MFGR#1 MFGR#1	P Category MFGR#11	MFGR#1112	brown	MEDIUM ANC	4	15 MED CAN	
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> <li>P Size</li> <li>P Type</li> <li>Variables</li> <li>References</li> </ul>	543,167 543,360 543,370	yellow cornflo cream seashe	P Mfgr MFGR#1 MFGR#1 MFGR#1	P Category MFGR#11 MFGR#11	MFGR#1112 MFGR#1112	brown gainsboro grey	MEDIUM ANC	2	45 MED CAN 29 LG JAR	
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> <li>P Size</li> <li>P Type</li> <li>Variables</li> <li>References</li> </ul>	543,167 543,360 543,370 543,411	yellow cornflo cream seashe coral honeyde	P Mfgr MFGR#1 MFGR#1 MFGR#1 MFGR#1	P Category MFGR#11 MFGR#11 MFGR#11	MFGR#1112 MFGR#1112 MFGR#1115	brown gainsboro grey gainsboro	MEDIUM AND STANDARD E PROMO BRU	2	45 MED CAN 29 LG JAR 44 SM CASE	~
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> </ul>	543,167 543,360 543,370 543,411 543,438	yellow cornflo cream seashe coral honeyde navajo floral	P Mfgr MFGR#1 MFGR#1 MFGR#1 MFGR#1	P Category MFGR#11 MFGR#11 MFGR#11 MFGR#11	MFGR#1112 MFGR#1112 MFGR#1115 MFGR#1112	brown gainsboro grey gainsboro tan	MEDIUM AND STANDARD E PROMO BRU STANDARD F	4	<ul> <li>MED CAN</li> <li>LG JAR</li> <li>SM CASE</li> <li>MED PKG</li> </ul>	-
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> <li>P Size</li> <li>P Type</li> <li>Variables</li> <li>References</li> </ul>	543,167 543,360 543,370 543,411 543,438 543,476	yellow cornflo cream seashe coral honeyde navajo floral snow thistle	P Mfgr MFGR#1 MFGR#1 MFGR#1 MFGR#1 MFGR#1	P Category MFGR#11 MFGR#11 MFGR#11 MFGR#11 MFGR#11	MFGR#1112 MFGR#1112 MFGR#1115 MFGR#1112 MFGR#1113	brown gainsboro grey gainsboro tan cyan	MEDIUM ANG STANDARD E PROMO BRU STANDARD F SMALL BRUS	4	<ul> <li>MED CAN</li> <li>LG JAR</li> <li>MCASE</li> <li>MED PKG</li> <li>LG PKG</li> </ul>	
<ul> <li>P Brand1</li> <li>P Category</li> <li>P Color</li> <li>P Container</li> <li>P Mfgr</li> <li>P Name</li> <li>P Partkey</li> <li>P Size</li> <li>P Type</li> <li>Variables</li> <li>References</li> </ul>	543,167 543,360 543,370 543,411 543,438 543,476 543,517	yellow cornflo cream seashe coral honeyde navajo floral snow thistle burnished lem	P Mfgr MFGR#1 MFGR#1 MFGR#1 MFGR#1 MFGR#1 MFGR#1	P Category MFGR#11 MFGR#11 MFGR#11 MFGR#11 MFGR#11	MFGR#1112 MFGR#1112 MFGR#1115 MFGR#1112 MFGR#1113 MFGR#1111	brown gainsboro grey gainsboro tan cyan brown	MEDIUM AND STANDARD E PROMO BRU STANDARD F SMALL BRUS ECONOMY P	4	<ul> <li>MED CAN</li> <li>LG JAR</li> <li>SM CASE</li> <li>MED PKG</li> <li>LG PKG</li> <li>LG PKG</li> </ul>	



#### BI Launch Pad Web Intelligence: Designer

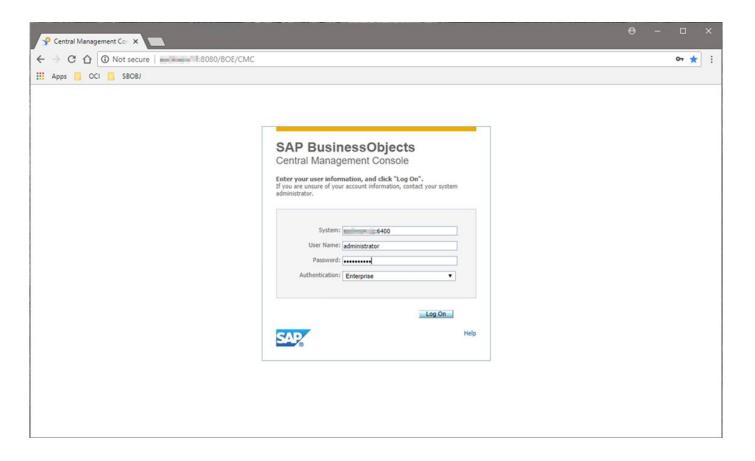
- Provide a name and location for this report.
- For this example, the report was named parts query and stored in Favorites Folder.

	8080/BC	DE/BI									θ		া প ★	× :
Home Documents New Document + 2				Wel	come: Admii	nistrator   )	Applications   Pre	ferences Help r	menu 🔫 🕴 L	.og off				P
File Properties Save	As								<u>e</u> ×		R	Reading • De	sign 💌	<b>•</b>
						>	К 📑 🚳   М	< 1 of 1 →	H H					
Available: Objects • Type here to filter tree  Provement	orites Folder Favorites Folde		Analysi This wo	ntelligence s autosave orkspace was auto s autosave autosar rkspace was auto	ve	ed before th	ast Run Time			P Size	- 0	P Container		*
P Type Variables File	Name: e As Type:	parts query Web Intelligence							AF	ANC RD E BRU	45   29	MED CAN LG JAR SM CASE		
							Save	Can	cel B .rii)M		8 50	MED PKG LG PKG LG BAG		•
				smoke metalli I ivory cornsilk		MFGR#1			MEDIUM			JUMBO CAN SM DRUM		
Arranged by Alphabetic order •		4	Report 1				Track changes: Off	H d P	ne 1 of 1+		<b>[</b> ]	100% •	1 minu	) te ano



#### 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.

entral Management Con	sole		Wel	come: Administrator   Preference	is   Help ▼   Lo
Manage - Actions - Organize				Find Title 👻	
• 🖻 省 • 🖻 • 1 🖽 🖧 🔽				2 K	< 1 of 1 →
🖹 🖹 Personal Folders	Title ^	Туре	Description	Date Modified	Instances
The contract of the second	Control webIntelligence	Folder		Jul 11, 2018 5:11 PM	
Guest	🧟 parts query	Web Intelligence		Jul 12, 2018 5:27 PM	0
A SMAdmin					

## Central Management Console View Web Intelligence Report

• Double click on the report to view.

reb Intelligence 🔹 🗈 🧭 🛄 • 📇 • 🏦 🥙 🚢 🖂 • 🔊 🗠 💰	🛛 🛛 🖉 Trac	ipper.jsp?acti				-			Reading -		
Navigation Map *			Repo	o <u>rt 1</u>							
2 8	P Partkey	P Name	P Mfgr	P Category	P Brand1	P Color	Р Туре	P Size	P Container		
	543,167	yellow cornflo	MFGR#1	MFGR#11	MFGR#1112	brown	MEDIUM ANC	45	MED CAN		
	543,360	cream seashe	MFGR#1	MFGR#11	MFGR#1112	gainsboro	STANDARD E	29	LG JAR		
	543,370	coral honeyde	MFGR#1	MFGR#11	MFGR#1115	grey	PROMO BRU	44	SM CASE		
	543,411	navajo floral	MFGR#1	MFGR#11	MFGR#1112	gainsboro	STANDARD F	29	MED PKG		
	543,438	snow thistle	MFGR#1	MFGR#11	MFGR#1113	tan	SMALL BRUS	8	LG PKG		
	543,476	burnished lerr	MFGR#1	MFGR#11	MFGR#1111	cyan	ECONOMY P	50	LG BAG		
	543,517	smoke metalli	MFGR#1	MFGR#11	MFGR#1110	brown	ECONOMY A	39	JUMBO CAN		
	543,723	ivory cornsilk	MFGR#1	MFGR#11	MFGR#1115	turquoise	MEDIUM BUF	21	SM DRUM		
	543,972	blush papaya	MFGR#1	MFGR#11	MFGR#1110	firebrick	LARGE PLAT	24	JUMBO CAN		
	544,157	spring snow	MFGR#1	MFGR#11	MFGR#1114	ghost	LARGE BURN	36	JUMBO CAN		
	544,429	sky pale	MFGR#1	MFGR#11	MFGR#1115	papaya	STANDARD #	40	JUMBO CAN		
	544,579	brown chocola	MFGR#1	MFGR#11	MFGR#1111	pale	STANDARD E	6	LG BOX		
	544,600	azure blanche	MFGR#1	MFGR#11	MFGR#1115	pale	PROMO BRU		JUMBO CASI		
	544,605	honeydew mir	MFGR#1	MFGR#11	MFGR#1115	seashell	MEDIUM PLA		JUMBO CASI		
		rose antique		MFGR#24	MFGR#242	floral	MEDIUM ANC		MED CAN		
		salmon beige		MFGR#22	MFGR#2232	cream	MEDIUM ANC		MED DRUM		
		powder chocc		MFGR#21	MFGR#2112		SMALL ANO		WRAP JAR	<b>^</b>	
		salmon slate		MFGR#14	MFGR#142	snow	PROMO BUR		WRAP CAN	•	
	665,436	chartreuse ste	MFGR#1	MFGR#15	MFGR#158	burnished	LARGE POLI	49	SM JAR	-	

#### 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: <u>https://docs.oracle.com/en/cloud/paas/autonomous-data-warehouse-cloud/index.html</u>
- 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

