



## Data Integration Platform Cloud Hands-on Lab

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## HOL6278 - Operational Data Stores, Enterprise Data Warehouses, and Data Marts in the Cloud

The rapid adoption of enterprise cloud-based solutions brings with it a new set of challenges. However, the age-old goal of maximizing value from data does not change. Join this hands-on lab to learn how Oracle Data Integration Platform Cloud powered by Oracle Data Integrator, Oracle Enterprise Data Quality solutions, and Oracle GoldenGate ensures your data solution is built from the ground up on a foundation of best-of-breed data integration, big data integration, data governance, data management, and data automation technologies. Explore the opportunities of developing next-generation operational data stores, enterprise data warehouses, and data marts in cloud using Oracle Data Integration Platform Cloud.

The following lessons will walk us through various steps that are needed to create Data Integration Platform Cloud connections, a Data Preparation task, an ODI Execution Task, and run Jobs to prepare and load data into a target data warehouse.

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## Overview

### Time to Complete

Perform all tasks – 60 Minutes

### Prerequisites

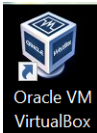
Before you begin this tutorial, you should

- Have a general understanding of RDBMS and data integration concepts
- Have a general understanding of ETL and data synchronization concepts

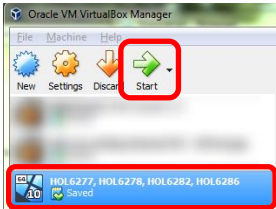
## Task 0: Preparation Steps

For this lab, the Data Integration Platform Cloud and the sources and targets are contained within one environment for simplicity. This environment is hosted in the Cloud. All user interactions with Data Integration Platform Cloud will be through a browser (Chrome) and VNC Client (TigerVNC) installed in a VirtualBox image on your machine.

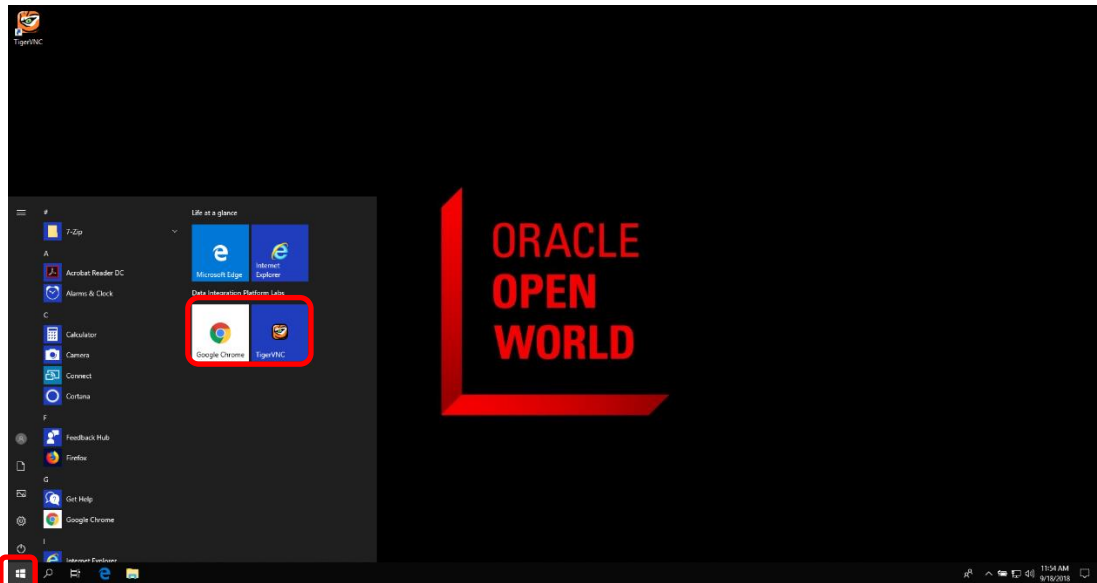
1. Log into your machine and open up Oracle VM VirtualBox from the Desktop



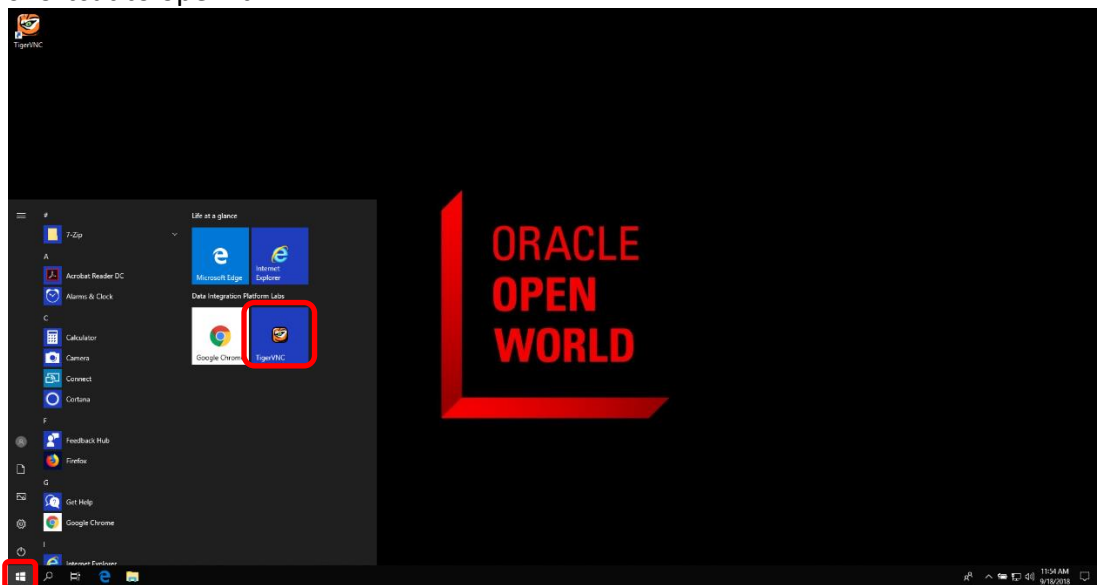
2. Click on HOL6277, HOL6278, HOL6282, HOL6286 and click on Start



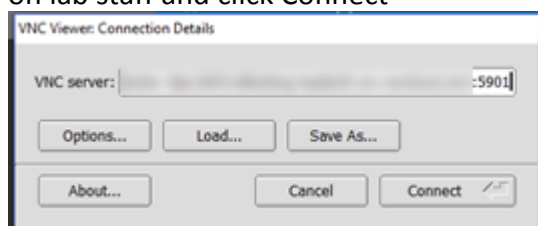
- When the VirtualBox Image is started, you will be logged into a Windows 10 machine. The Start Menu contains shortcuts to access Chrome and TigerVNC that will be used throughout this lab



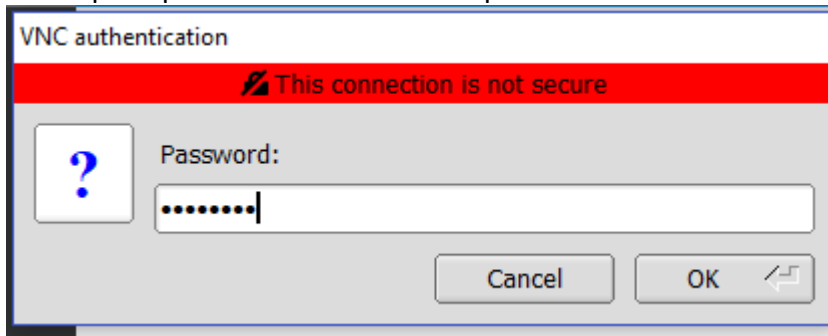
3. A URL will be assigned to you by the hands-on lab staff, make a note of it as it will be your environment for the entire lab:
  - a. <hostname>:8001/dicloud (URL for Chrome)
  - b. <hostname>:5901 (URL for TigerVNC)
4. We will start with connecting to the DIPC host and starting a DIPC Agent.  
Open the Windows 10 Start menu running in the VirtualBox VM and click on TigerVNC shortcut to open it



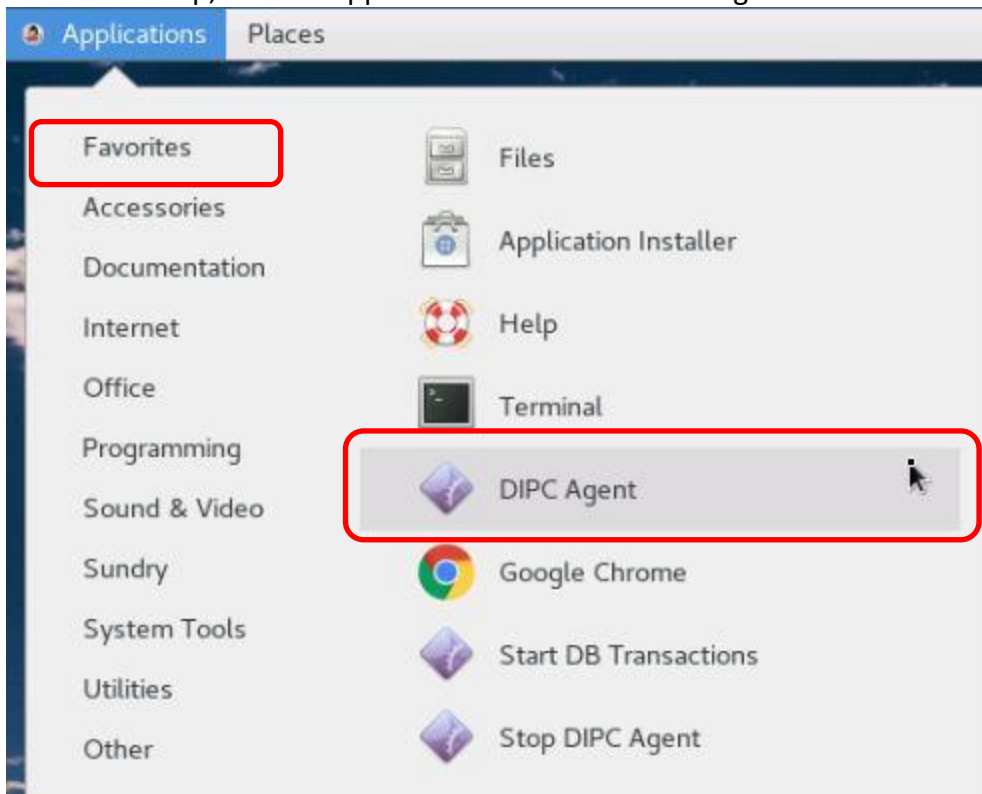
5. In the TigerVNC window enter the URL (<hostname>:5901) given to you by the hands-on lab staff and click Connect



6. When prompted enter welcome1 as password



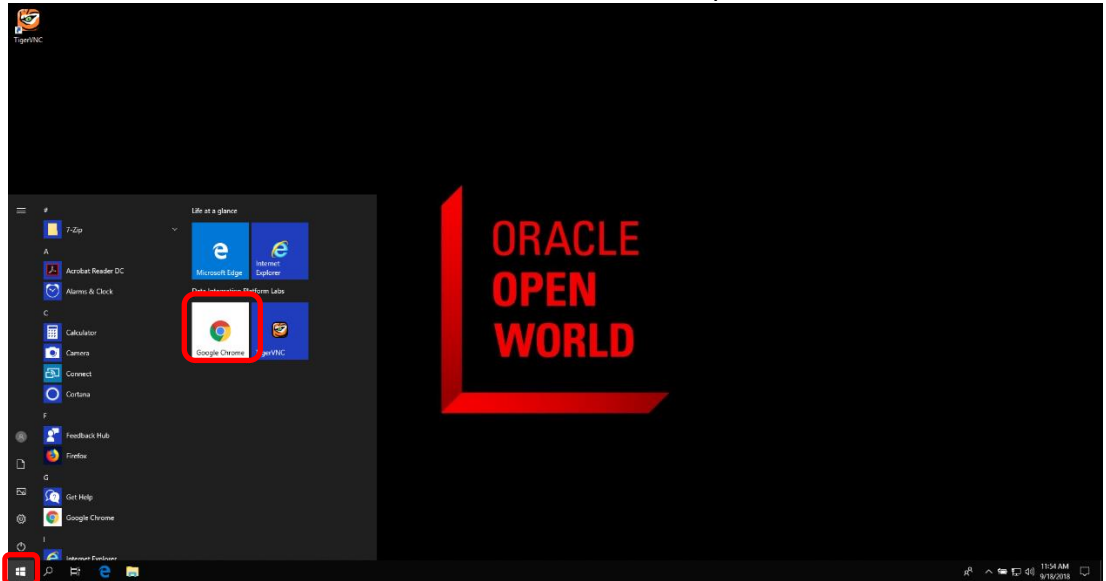
7. On the Desktop, click on Applications then select DIPC Agent under Favorites



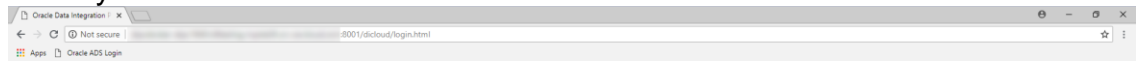
8. A window will appear and will track the DIPC Agent startup. An Agent will be used by DIPC to access the different sources and targets, it will be fully started in a minute or so  
**DO NOT CLOSE THIS WINDOW, you can minimize it if needed**
9. Log into Data Integration Platform Cloud

## Data Integration Platform Cloud: Hands-on Lab

- a. Go back to Windows 10, click on the Start menu and open Chrome



- b. Go to your <hostname>:8001/dicloud



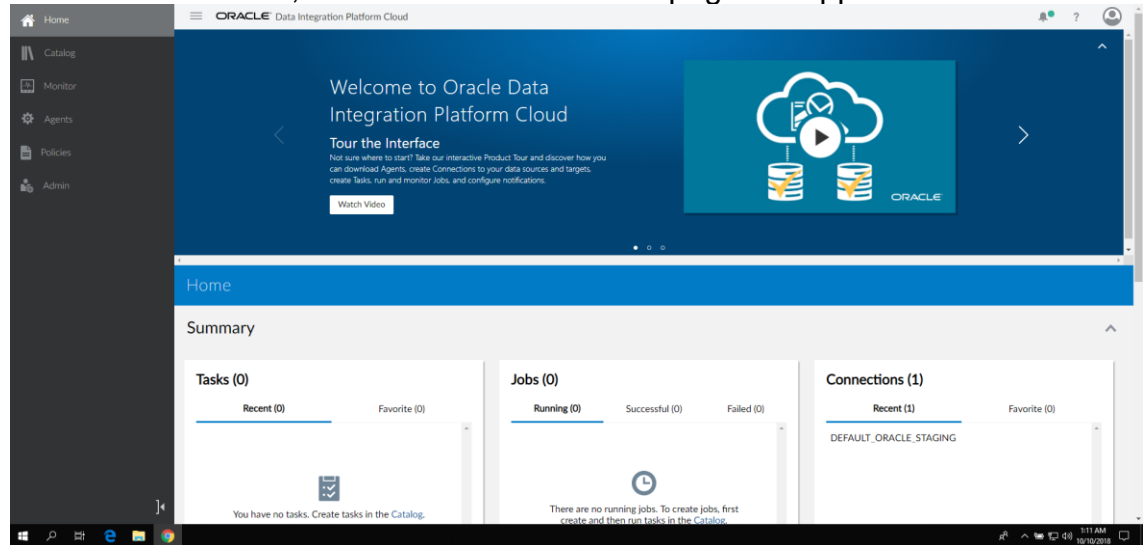
ORACLE Data Integration Platform Cloud

Username \*

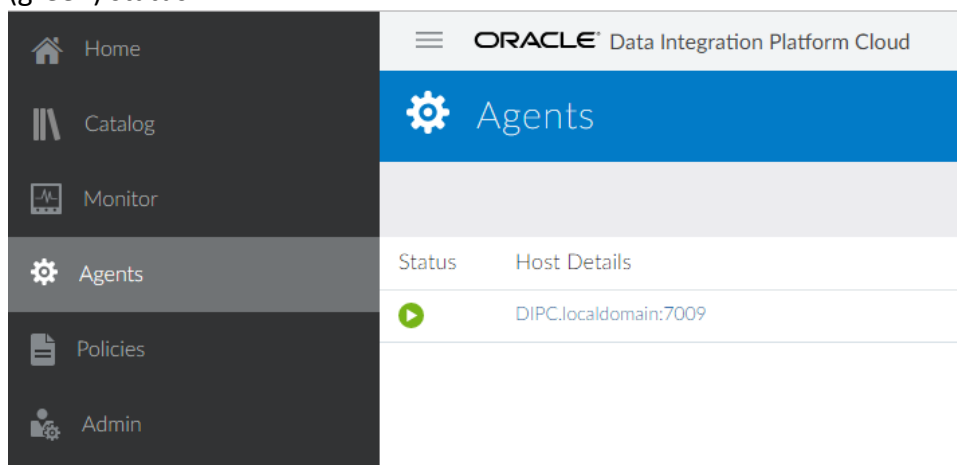
Password \*

- c. Login with **weblogic/welcome1**

After a few seconds, the DIPC Console Home page will appear –

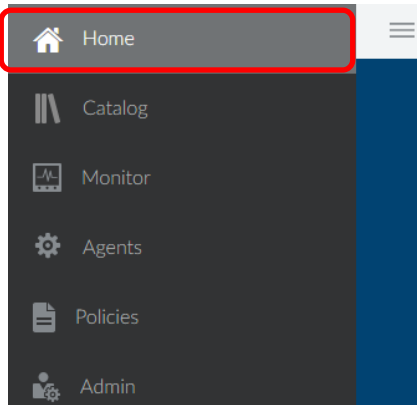


10. Click on Agents to display the list of Agents available in this environment. The Agent (DIPC.localdomain:7009) we just started will be displayed and should be in Running (green) status



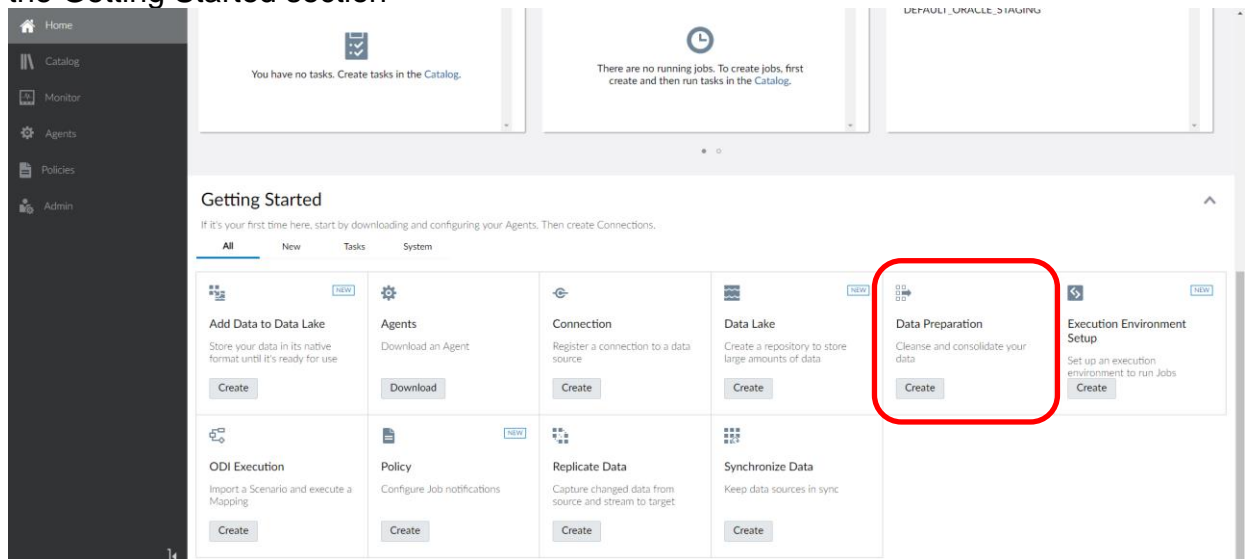
### Task 1: Prepare External Website Data

1. Click Home in the left-hand navigation bar to go back to the Home page



## Data Integration Platform Cloud: Hands-on Lab

2. Scroll to the bottom of the page and click on Create under Data Preparation in the Getting Started section



3. In the Create Data Preparation Task screen enter the following information

The screenshot displays the 'Create Data Preparation Task' form. The form is divided into three main sections: General Information, Source Configuration, and Target Configuration. The General Information section includes fields for Name, Identifier, and Description. The Source Configuration section includes dropdowns for Connection and Schema, and a button for Data Entity. The Target Configuration section includes dropdowns for Connection and Schema, and a field for Data Entity. The form is titled 'Create Data Preparation Task' and has 'Cancel' and 'Save & Transform' buttons at the top right.

- a. Name: PrepWebData
- b. Description – Prep External Website Data



4. For Source Configuration click the add new connection button 

### General Information

Name \*

Identifier \*

Description

### Source Configuration

Connection \*  

Schema \*

Data Entity \*

Connection

General Information

Name \*

Identifier \*


Description

Agent \*

Type \*

Connection Settings

Directory \*



- Name: LocalFileStore
- Identifier: use default
- Description: Local File Store
- Agent: DIPC.localdomain:7009
- Type: File
- Directory: /tmp

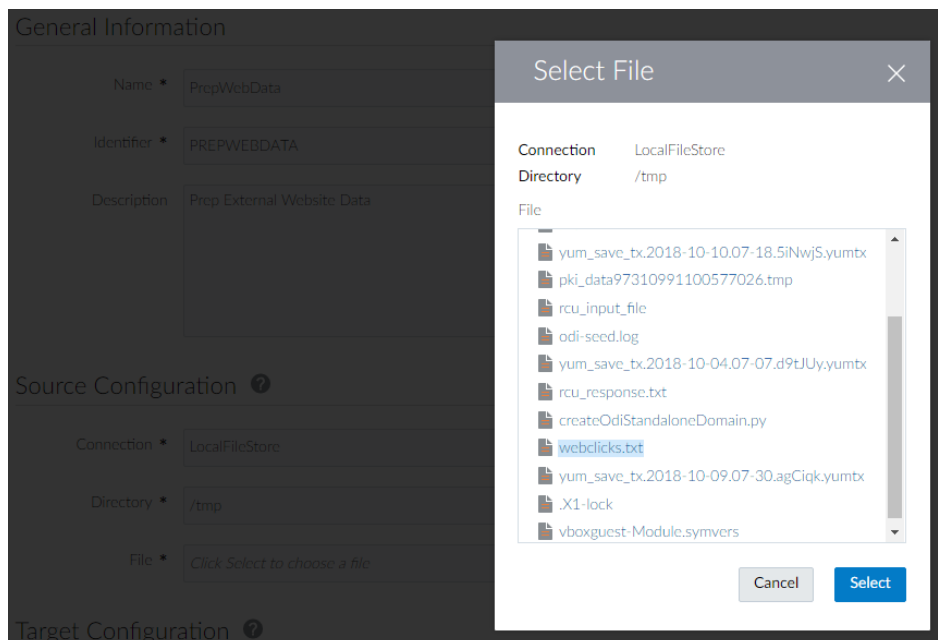
5. Review Connections settings.
6. Click Test Connection – Review for Errors.
  - a. Click Save if successful
7. Now click on Select... next to File, scroll down in the list and pick webclicks.txt then click Select

Source Configuration ?

Connection \* LocalFileStore +

Directory \* /tmp Select... ?

File \* webclicks.txt **Select...** Options



8. Next click on Options next to the File row

### Source Configuration ?

Connection \* LocalFileStore +

Directory \* /tmp Select... ?

File \* webclicks.txt Select... **Options**

Uncheck Header > Enable. Click OK

Identifier \* PREPWEBCDATA

Description Prep External Website Data

Source Configuration ?

Connection \* LocalFileStore

Directory \* /tmp

File \* webclicks.txt Select... Options

**Source File Options** X

Encoding UTF-8

Delimiter Comma

Text Qualifier

**Header ☐ Enable**

First Data Row 1

Cancel OK

9. In Target Configuration, click on Create button to create a new Oracle Connection

### Target Configuration ?

Connection \* Select a target connection +

Schema \* Select a target schema

Data Entity \* Enter a name ?

a. Enter the following information

- Name: Sync Target
- Identifier: use default
- Description: Target Schema
- Agent: DIPC.localdomain:7009
- Type: Oracle Database
- Hostname: DIPC
- Port: 1521
- Username: DIPC\_TGT
- Password: welcome1
- Service Name: orclpdb.us.oracle.com
- Schema: DIPC\_TGT

- CDB Connection: leave blank

Connection

Name \* Sync Target

Identifier \* SYNC\_TARGET

Description Target Schema

Agent \* DIPC.localdomain:7009

Type \* Oracle Database

Connection Settings

Hostname \* DIPC

Port \* 1521

Username \* DIPC\_TGT

Password \* .....

Service \* ☒ Service Name \* orclpdb.us.oracle.com  
☐ SID

Schema Name DIPC\_TGT [Default]

CDB Connection Associate CDB for a PDB to support Replication as Source

? Test Connection Cancel Save

- b. Click Test Connection, Review for errors
  - c. Click Save
10. Enter WEBCLICKS next to Data Entity under Target Configuration
- Connection: Sync Target
  - Schema: DIPC\_TGT
  - Data Entity: WEBCLICKS

## < Create Data Preparation Task

### General Information

Name \* PrepWebData

Identifier \* PREPWEBDATA

Description Prep External Website Data

### Source Configuration ?

Connection \* LocalFileStore +

Directory \* /tmp Select... ?

File \* webclicks.txt Select... Options

### Target Configuration ?

Connection \* Sync Target +

Schema \* DIPC\_TGT

Data Entity \* WEBCLICKS ?

#### 11. Click Save & Transform

< Create Data Preparation Task Cancel **Save & Transform**

General Information

Name \* PrepWebData


#### 12. The following screen will appear as the file is being parsed and profiled

< Transform PrepWebData Cancel Save Save & Run

Configuration Edit

Name	PrepWebData
Source	webclicks.txt
Target	WEBCLICKS
Transforms	

You don't have any transforms.



Your configuration for this task is being processed.  
The Transformation Creation tool appears when the process is finished.  
You can visit the Jobs page to monitor this process.

## 13. Once finished the data preparation screen will appear

The screenshot shows the 'Transform PrepWebData' interface. The 'Metadata' tab is active, displaying a table of columns:

Column	Type	Sample Values
COLUMN1	VARCI IAR2	1, 26, 45, 47, 55, 5
COLUMN2	VARCI IAR2	101, 301, 302, 305,
COLUMN3	VARCI IAR2	Michaud, Robert, Mar
COLUMN4	VARCI IAR2	Peter, Joe, Jean, Ma
COLUMN5	VARCI IAR2	shoes.html, homepage
COLUMN6	VARCI IAR2	null, housewares.htm
COLUMN7	VARCI IAR2	3/12/18

The right-hand side shows the 'Data Profile' with the following statistics:

- Total Rows: 140
- Total Columns: 7
- Column Profile:
  - Name: COLUMN1
  - Detected Type: VARCI IAR2
  - Minimum Value: 1
  - Maximum Value: 99
  - Average Length: 4
  - Distinct Values: 140
  - Null Values: 0
  - Null Data Percent: 0%

## 14. Begin prepping/transforming the file

- The profiling process has captured advanced profiling information as the flat file was ingested. Click each column to review the profiling results in the right hand data profile drawer.
- There are also two views in which data can be prepared and transformed. To view the data view, click the Data tab

The screenshot shows the 'Transform PrepWebData' interface with the 'Data' tab selected. The 'Data' tab is highlighted with a red box. The right-hand side shows the 'Data Profile' for the selected column:

- Total Rows in Sample: 140
- Total Columns: 7
- Column Profile:
  - Name: COLUMN1
  - Detected Type: VARCI IAR2
  - Minimum Value: 1
  - Maximum Value: 99
  - Average Length: 4
  - Distinct Values: 140
  - Null Values: 0
  - Null Data Percent: 0%

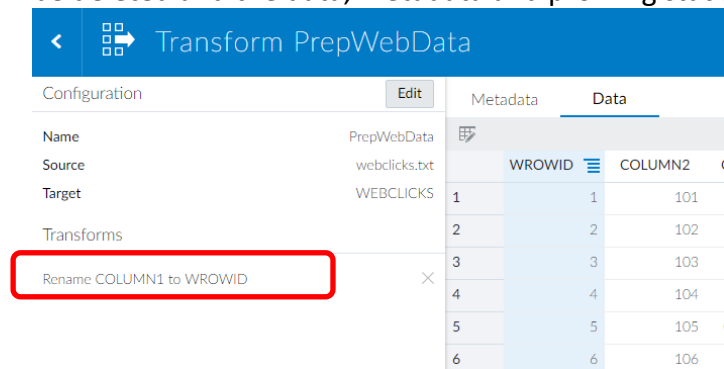
## 15. To transform data click the menu bar on the column

The screenshot shows the column menu bar for 'COLUMN1'. The menu bar is highlighted with a red box, and a dropdown menu is open showing the following options:

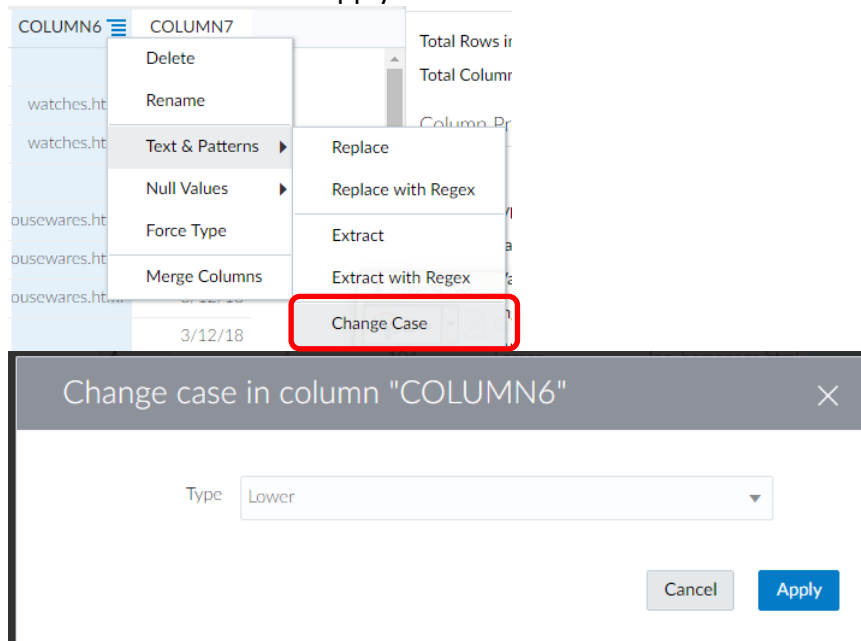
- Delete
- Rename
- Text & Patterns
- Null Values
- Force Type
- Merge Columns

## 16. For Column 1 rename the column into WROWID

17. Click Apply. Clicking apply updates, the data, metadata and profiling statistics. Also note the transform is saved and displayed in the left-hand drawer. This transform can be deleted and the data, metadata and profiling statistics will be updated accordingly.

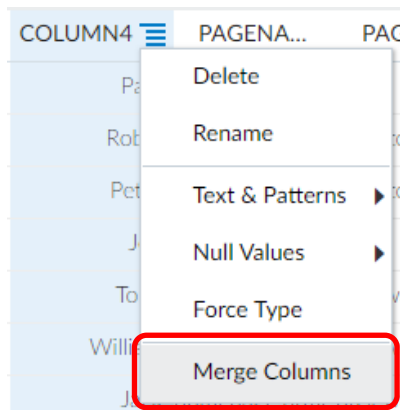


18. Add the following column transforms
- Column 2: Rename into CUSTID
  - Column 5: Rename into PAGENAME
  - Column 6: transform Shoes.html to shoes.html using Text & Patterns > Change Case to Lower and click Apply



Then rename COLUMN6 into PAGEREFFERRER

- Column 7: Rename into VISITDATE
- Merge COLUMN3 and COLUMN4 to create a new CUST\_NAME column  
Click on COLUMN4 menu and select Merge Columns



Select COLUMN3 under Available Columns on the left and click on > then enter CUST\_NAME in the Name field. Leave Delimiter set to Space and click Apply

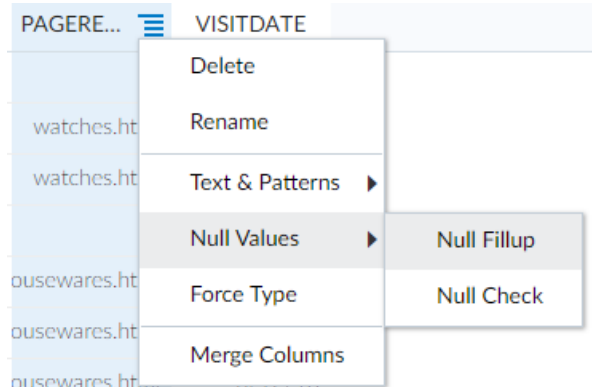
A screenshot of the 'Merge columns' dialog box. The dialog has a title bar 'Merge columns' with a close button. It contains two main sections: 'Available Columns' on the left and 'Selected Columns' on the right. The 'Available Columns' list includes WROWID, CUSTID, PAGENAME, PAGEREFFERRER, and VISITDATE. A red rectangle highlights this list. Between the lists are four buttons: '>', '>>', '<', and '<<'. The '>' button is highlighted with a red rectangle. The 'Selected Columns' list currently contains COLUMN4 and COLUMN3. Below these lists is a 'Merge Column' section with four fields: 'Name \*' (containing 'CUST\_NAME'), 'Delimiter' (set to 'Space'), 'Prefix' (empty), and 'Suffix' (empty). At the bottom right are 'Cancel' and 'Apply' buttons.

- f. Delete COLUMN3 and COLUMN4 (click menu item and select Delete then Yes, Delete)

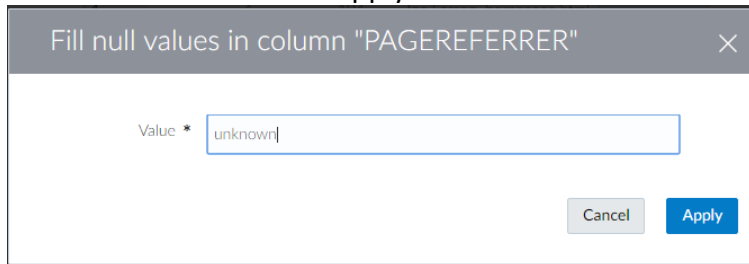


## Data Integration Platform Cloud: Hands-on Lab

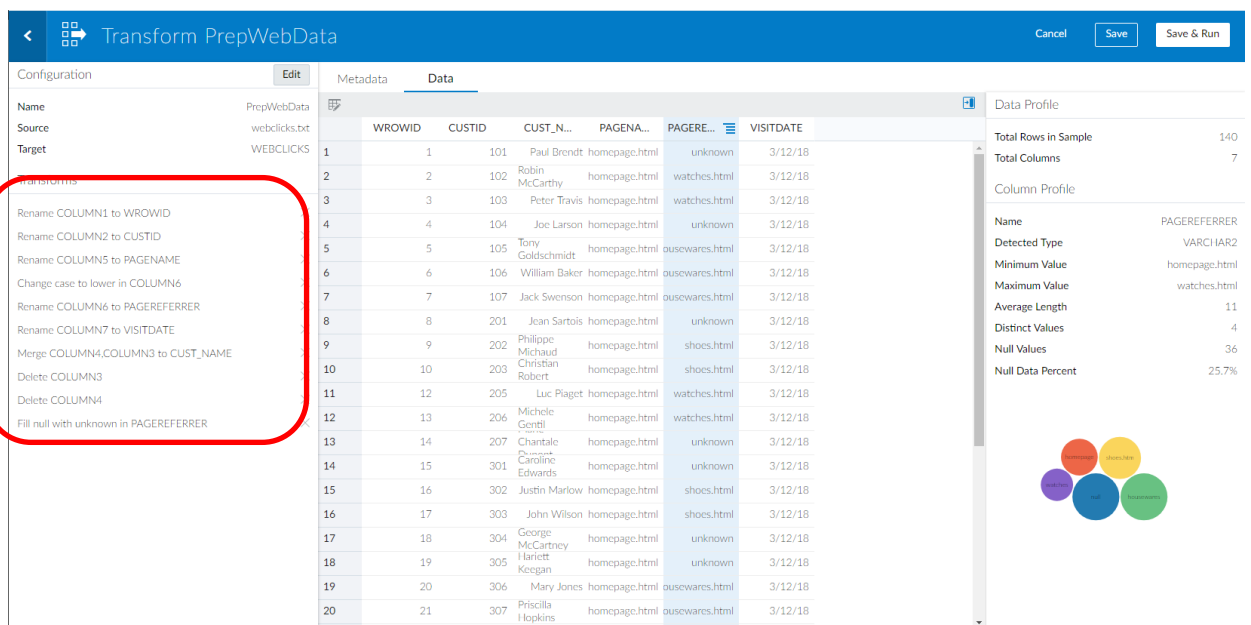
- g. PAGEREFFERRER: Click on menu then select Null Values > Null Fillup



Enter unknown and click Apply



### 19. Review Transforms and Data



	WROWID	CUSTID	CUST_N...	PAGENA...	PAGERE...	VISITDATE
1	1	101	Paul Brendt	homepage.html	unknown	3/12/18
2	2	102	Robin McCarthy	homepage.html	watches.html	3/12/18
3	3	103	Peter Travis	homepage.html	watches.html	3/12/18
4	4	104	Joe Larson	homepage.html	unknown	3/12/18
5	5	105	Tony Goldschmidt	homepage.html	ousewares.html	3/12/18
6	6	106	William Baker	homepage.html	ousewares.html	3/12/18
7	7	107	Jack Swenson	homepage.html	ousewares.html	3/12/18
8	8	201	Jean Sartois	homepage.html	unknown	3/12/18
9	9	202	Philippe Michaud	homepage.html	shoes.html	3/12/18
10	10	203	Christian Robert	homepage.html	shoes.html	3/12/18
11	12	205	Luc Piaget	homepage.html	watches.html	3/12/18
12	13	206	Michele Gentil	homepage.html	watches.html	3/12/18
13	14	207	Chantale	homepage.html	unknown	3/12/18
14	15	301	Caroline Edwards	homepage.html	unknown	3/12/18
15	16	302	Justin Marlow	homepage.html	shoes.html	3/12/18
16	17	303	John Wilson	homepage.html	shoes.html	3/12/18
17	18	304	George McCartney	homepage.html	unknown	3/12/18
18	19	305	Harriett Keegan	homepage.html	unknown	3/12/18
19	20	306	Mary Jones	homepage.html	ousewares.html	3/12/18
20	21	307	Priscilla Hopkins	homepage.html	ousewares.html	3/12/18

**Data Profile**

Total Rows in Sample: 140  
Total Columns: 7

**Column Profile**

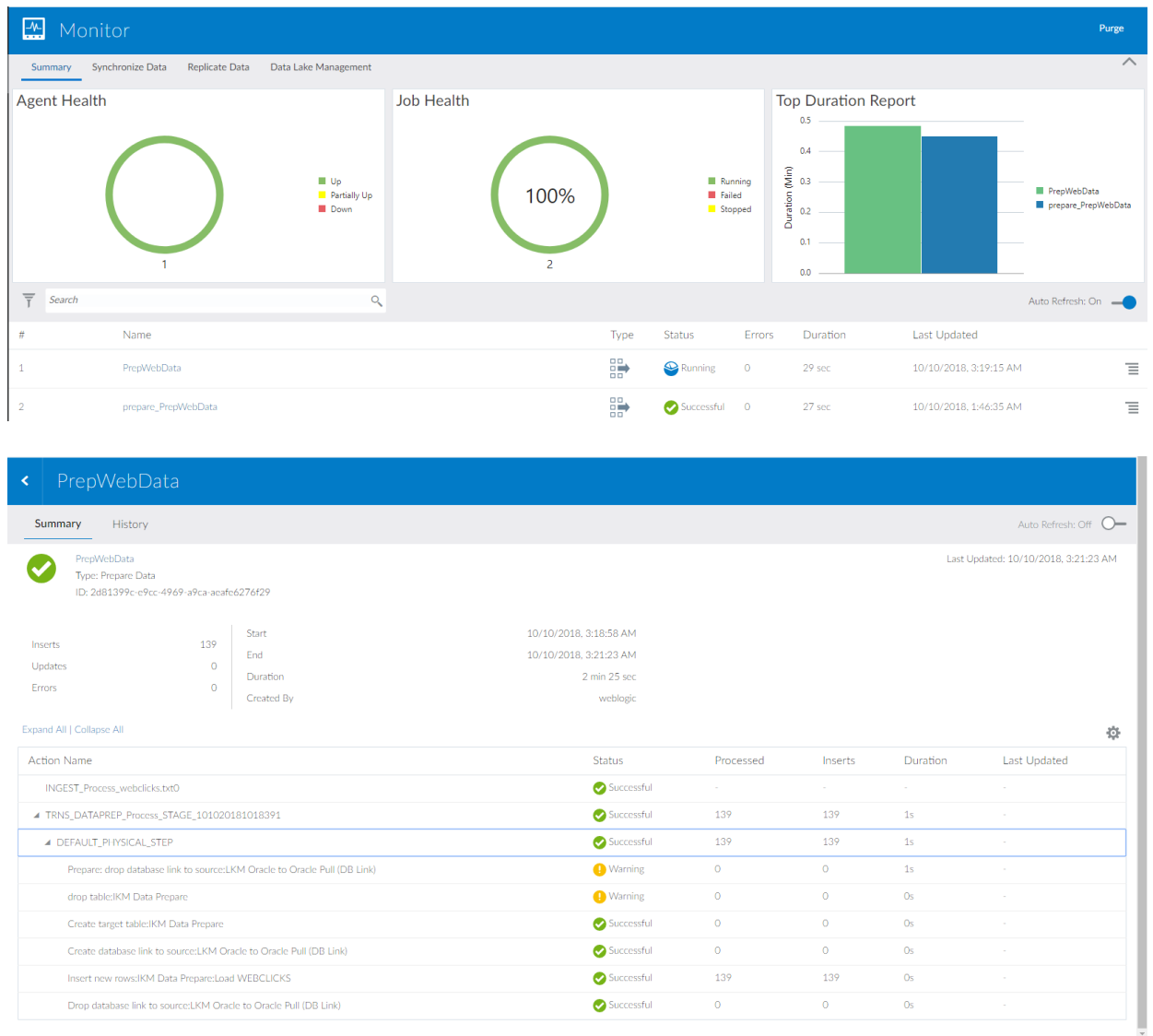
Name: PAGEREFFERRER  
Detected Type: VARCHAR2  
Minimum Value: homepage.html  
Maximum Value: watches.html  
Average Length: 11  
Distinct Values: 4  
Null Values: 36  
Null Data Percent: 25.7%

### 20. Click Save & Run



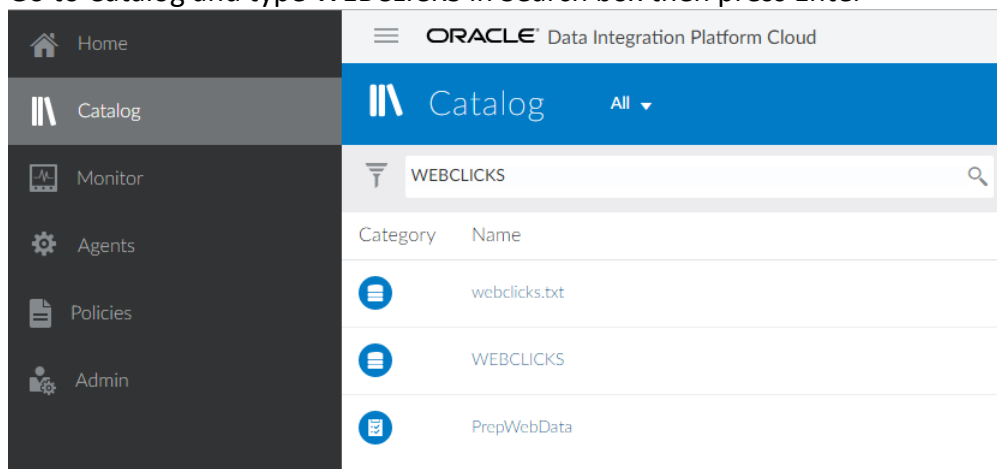
### 21. Review Job Execution

## Data Integration Platform Cloud: Hands-on Lab



22. [Optional] Go to Catalog and use Search functionality to find WEBCLICKS and review the prepared data.

Go to Catalog and type WEBCLICKS in Search box then press Enter



23. [Optional] Click on WEBCLICKS to open it up then on Data tab to view the data prepared by DIPC

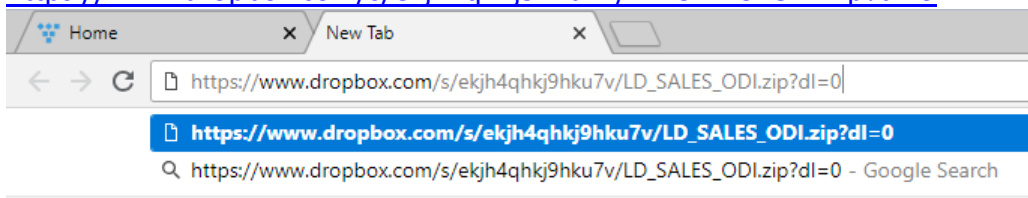
WEBCLICKS						Refresh Data Profile	Delete	Edit
Summary	Attributes	Data	History					
WROWID	CUSTID	CUST_NAME	PAGENAME	PAGEREFERRER	VISITDATE			
2	102	Robin McCarthy	homepage.html	watches.html	3/12/18			
3	103	Peter Travis	homepage.html	watches.html	3/12/18			
4	104	Joe Larson	homepage.html	unknown	3/12/18			
5	105	Tony Goldschmidt	homepage.html	housewares.html	3/12/18			
6	106	William Baker	homepage.html	housewares.html	3/12/18			
7	107	Jack Swenson	homepage.html	housewares.html	3/12/18			
8	201	Joan Sartoio	homepage.html	unknown	3/12/18			
9	202	Philippe Michaud	homepage.html	shoes.html	3/12/18			

## Task 2: Create ODI Execution Task

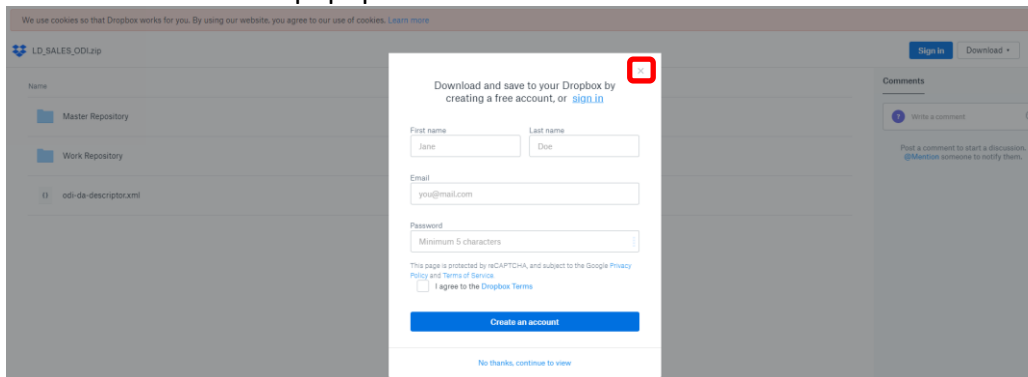
1. First, we will download a deployment archive previously created in Oracle Data Integrator (ODI).

Open up a new tab in Chrome and go to

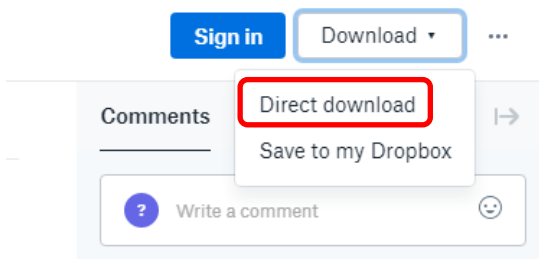
[https://www.dropbox.com/s/ekjh4qhkj9hku7v/LD\\_SALES\\_ODI.zip?dl=0](https://www.dropbox.com/s/ekjh4qhkj9hku7v/LD_SALES_ODI.zip?dl=0)



Click on x to close the popup

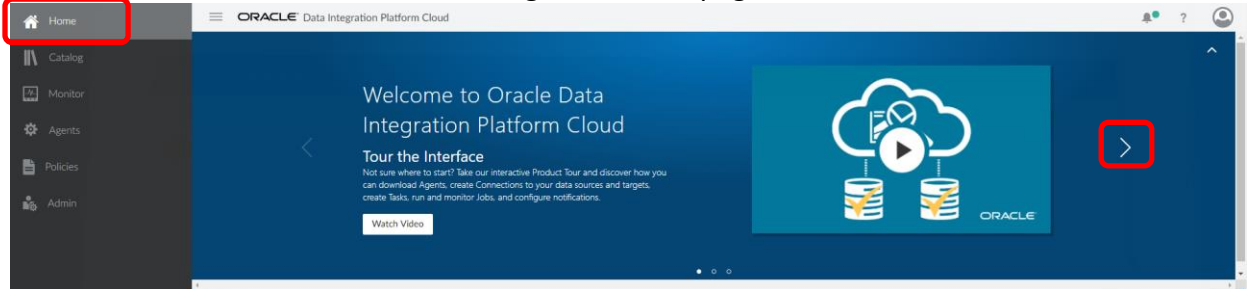


Then click Download and select Direct Download

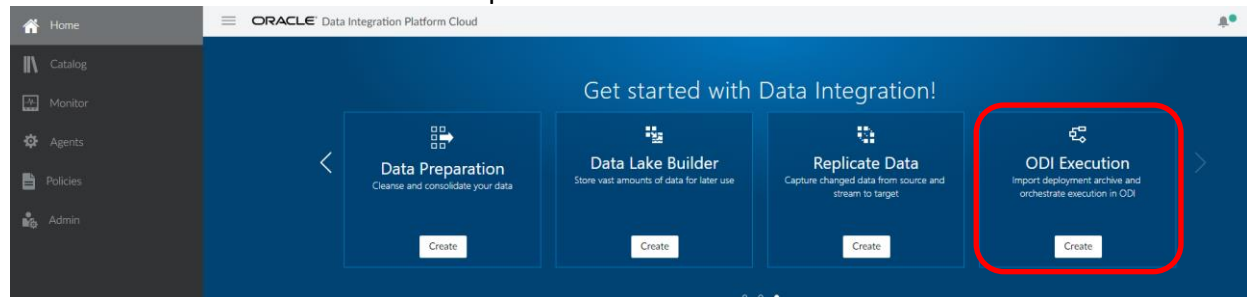


## Data Integration Platform Cloud: Hands-on Lab

2. Go back to the DIPC tab in Chrome and go the Home page



3. Click > twice in the carousel at the top to find the ODI Execution Task then click Create



4. Enter

- Name: Load Sales DW
- Description: Execute ODI Scenario to load OLTP data into DW



### General Information

Name \*

Identifier \*

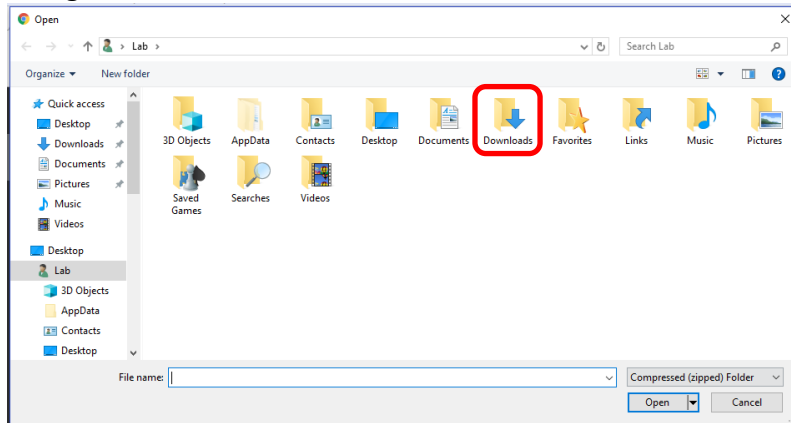
Description

### Connections ?

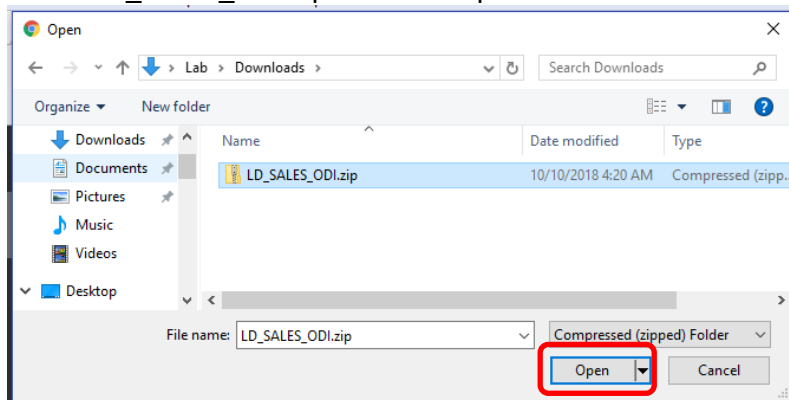
Scenario Name \*

5. Under Connections click on Import to import a deployment archive created in ODI Studio that contains the Scenario we want to execute

a. Navigate to Downloads



b. Select LD\_SALES\_ODI.zip and click Open



c. Click on the Scenario Name drop-down and select LD\_TRG\_SALES 001

Connections ?

Scenario Name \*   ?

This scenario joins SRC\_ORDERS and SRC\_ORDER\_LINES, aggregates the data, filters for ORDERS with Status of 'CLO' as well as performs an incremental update (insert new rows or update existing rows when needed). So only rows that have a status of 'CLO' (closed), will be loaded to the target Sales DW.

6. In the Connection table pick the following Connections and Schemas:

- a. ODI\_DEMO\_TRG:
  - i. Connection: Sync Target
  - ii. Schema: ODI\_TGT
- b. ODI\_DEMO\_SRC
  - i. Connection: Sync Target
  - ii. Schema: DIPC\_TGT

## Data Integration Platform Cloud: Hands-on Lab

< Create ODI Execution Task Cancel Save Save & Run

General Information

Name \* Load Sales DW

Identifier \* LOAD\_SALES\_DW

Description Execute ODI Scenario to load OLTP data into DW

Connections ?

Scenario Name \* LD\_TRG\_SALES\_001 Import ?

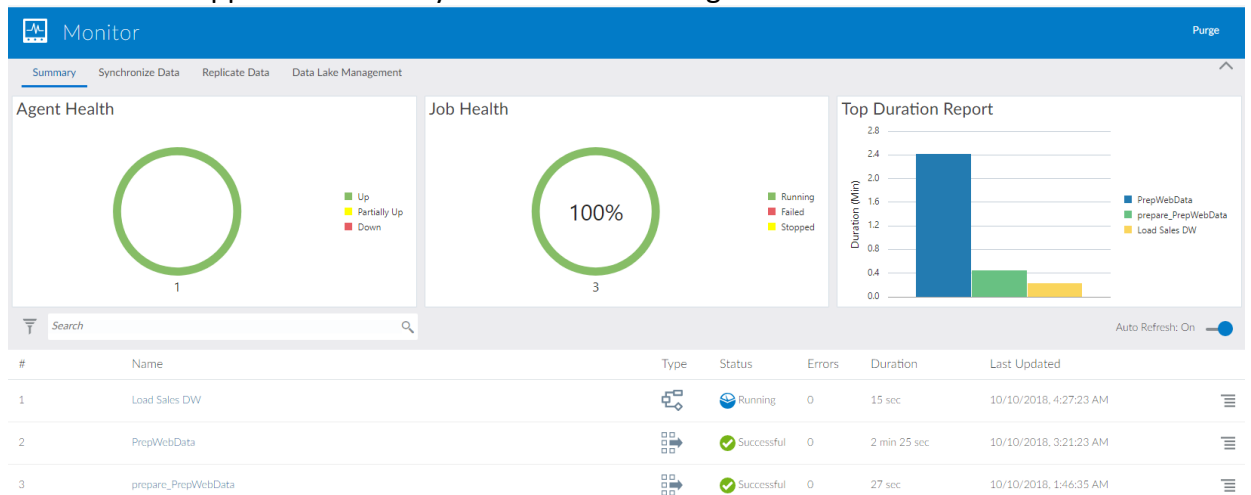
#	Logical Schema	Connection	Schema
1	ODI_DEMO_TRG	Sync Target	ODI_TGT
2	ODI_DEMO_SRC	Sync Target	DIPC_TGT

7. Click on Save & Run to execute the Task

< Create ODI Execution Task Cancel Save Save & Run

8. You will be redirected to the Jobs page and you will see a notification that a new Job execution started

9. When the Job appears in the list you can click on it to get more details



## 10. The Job Details contains all the details about the ODI scenario execution

Action Name	Status	Processed	Inserts	Errors	Duration	Last Updated
ODI Execution Task	Successful	188	94	0	0s	-
Physical_STEP	Successful	188	94	0	0s	-
Prepare: drop database link to source:LKM Oracle to Oracle Pull (DB Link)	Successful	0	0	0	0s	-
Create database link to source:LKM Oracle to Oracle Pull (DB Link)	Successful	0	0	0	0s	-
Drop flow table:IKM Oracle Incremental Update	Successful	0	0	0	0s	-
Create flow table I\$:IKM Oracle Incremental Update	Successful	0	0	0	0s	-
Insert flow into I\$ table:IKM Oracle Incremental Update	Successful	94	0	0	0s	-
Create index on flow table:IKM Oracle Incremental Update	Successful	0	0	0	0s	-
Analyze integration table:IKM Oracle Incremental Update	Warning	0	0	0	0s	-

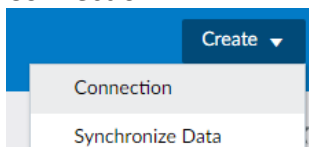
You can click on any Step in the Job Execution to review the code generated by ODI

Action Name	Status	Processed
Update existing rows:IKM Oracle Incremental Update	Successful	0

```

/* DETECTION_STRATEGY = NOT_EXISTS */
update ODI_TGT.TRG_SALES T
set (
  T.FIRST_ORD_ID,
  T.FIRST_ORD_DATE,
  T.LAST_ORD_ID,
  T.LAST_ORD_DATE,
  T.QTY,
  T.AMOUNT,
  T.PROD_AVG_PRICE
) =
(
  select S.FIRST_ORD_ID,
  S.FIRST_ORD_DATE,
  S.LAST_ORD_ID,
  S.LAST_ORD_DATE,
  S.QTY,
  S.AMOUNT,
  S.PROD_AVG_PRICE
  from ODI_TGT.SALES S
  where S.FIRST_ORD_ID < T.FIRST_ORD_ID
)
    
```

## 11. [Optional] Create a connection to ODI\_TGT schema. Go to Catalog and click Create > Connection



## 12. [Optional] Enter the following information:

- Name: Target DW Schema
- Identifier: use default
- Description: Target DW Schema
- Agent: DIPCLocaldomain:7009
- Type: Oracle Database

## Data Integration Platform Cloud: Hands-on Lab

- Subtype: Oracle
- Hostname: DIPC
- Port: 1521
- Username: ODI\_TGT
- Password: welcome1
- Service Name: orclpdb.us.oracle.com
- Schema: ODI\_TGT
- CDB Connection: leave blank

The screenshot shows the 'Connection' dialog box with the following fields and values:

- Name: Target DW Schema
- Identifier: TARGET\_DW\_SCHEMA
- Description: (empty)
- Agent: DIPC.localdomain:7009
- Type: Oracle Database
- Subtype: Oracle

The 'Connection Settings' section includes:




- Hostname: DIPC
- Port: 1521
- Username: ODI\_TGT
- Password: (masked with dots)
- Service: ☒ Service Name (orclpdb.us.oracle.com), ☐ SID
- Schema Name: ODI\_TGT [Default]
- CDB Connection: Associate CDB for a PDB to support Replication as Source

Buttons at the bottom: Test Connection, Cancel, Save.




13. [Optional] Click Test Connection and Save



14. [Optional] Wait a minute or so and you should see new Data Entities appearing in the Catalog. Type TRG\_SALES in the Search box and press Enter

Catalog <span>All ▾</span>			
<input type="text" value="TRG_SALES"/>			
Category	Name	Type	Last Updated
	TRG_SALES	Table	10/10/2018, 1:45:20 AM
	TRG_SALES	Table	10/10/2018, 4:56:49 AM
	Load Sales DW	ODI Execution Task	10/10/2018, 4:27:20 AM

15. [Optional] The Search functionality returns all DIPC objects that are related to TRG\_SALES. Click on the 2<sup>nd</sup> entry that displays Data Entity Namespace: ODI\_TGT when hovering your mouse over the Data Entity icon

Category	Name
	TRG_SALES
	TRG_SALES
	Load Sales DW

16. [Optional] Click on Data tab to view the data loaded by the ODI Execution Task

<

TRG\_SALES

Refresh Data Profile

Delete

Edit

Summary

Attributes

Data

History

Name

TRG\_SALES

Identifier

TRG\_SALES

Resource Name

TRG\_SALES

Description

Type

Table

Namespace

ODI\_TGT

Contact

Popularity

Tags

Add Tags...

17. [Optional] Click on any column or row to view Profiling metrics

<

TRG\_SALES

Refresh Data Profile

Delete

Edit

Summary	Attributes	Data	History							
CUST_ID	PRODUCT_ID	FIRST_ORD_ID	FIRST_ORD_DATE	LAST_ORD_ID	LAST_ORD_DATE	QTY	AMOUNT	PROD_AVG_PRICE	Profile for CUST_ID	X
1002	6	2	1999-02-12 00:00:00.0	2	1999-02-12 00:00:00.0	1932	52164	52164	Total Rows	94
104	12	4	2000-09-12 00:00:00.0	77	2000-09-12 00:00:00.0	5401	151320	30264	Rows with Data	100.00%
302	10	16	2000-03-11 00:00:00.0	16	2000-03-11 00:00:00.0	1768	127296	127296	Rows with No Data	0.00%
302	15	16	2000-03-11 00:00:00.0	16	2000-03-11 00:00:00.0	1593	2867	2867	Distinct Values	33
306	15	20	2000-07-10 00:00:00.0	20	2000-07-10 00:00:00.0	807	1453	1453	Duplicate Values	61
504	14	32	2001-06-12 00:00:00.0	32	2001-06-12 00:00:00.0	1397	22631	22631	Minimum Value	101
506	2	34	2001-03-26 00:00:00.0	34	2001-03-26 00:00:00.0	219	21681	21681	Maximum Value	4403
207	4	46	1999-04-15 00:00:00.0	46	1999-04-15 00:00:00.0	1328	119511	39837	Average Length	4
303	8	58	2000-05-23 00:00:00.0	58	2000-05-23 00:00:00.0	1053	23693	23693	Density	0.53%
404	6	66	2000-05-11 00:00:00.0	66	2000-05-11 00:00:00.0	1006	27162	27162		
406	7	68	1999-02-23 00:00:00.0	68	1999-02-23 00:00:00.0	333	8991	8991		
104	15	72	1990-04-15 00:00:00.0	72	1990-04-15 00:00:00.0	115	207	207		
1055	1	73	2000-05-20 00:00:00.0	73	2000-05-20 00:00:00.0	1909	206172	206172		
1055	11	73	2000-05-20 00:00:00.0	73	2000-05-20 00:00:00.0	443	5981	5981		
105	5	78	2001-05-23 00:00:00.0	78	2001-05-23 00:00:00.0	908	85806	85806		

## Summary

You have now successfully completed the Hands on Lab, and have successfully prepared, loaded and transformed data through Oracle's Data Integration Platform Cloud.