

RITEC

Confidential



RR I-TEC

RR I-TEC Classroom Notes

By Ram Reddy

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Version 1.0

RR I-TEC

Contents

1. Data Warehouse Concepts	7
2. Obiee11g components	22
3. Administration tool:	22
3.1 Hands on 1: Physical Layer	22
3.2 Hands on 2 BMM layer	29
3.3 Hands on 3: Creating Presentation Layer	32
3.4 Hands on 4: Testing RPD	34
3.4.1 Checking repository for consistency:	34
3.4.2 Loading repository	35
3.4.3 Log level	39
3.5 Hands on 5: Adding Multiple Sources	40
3.6 Hands on 6: Calculations	43
3.6.1 Creating calculation based on logical columns	43
3.6.2 Creating calculation based on physical columns	43
3.6.3 Calculation by using calculation wizard	44
3.7 Hands on 7: Creating Dimensional Hierarchies	47
3.8 Hands on 7.1: Level Based Measures	52
4. Analytics	53
4.1 Hands on 8: Creating Web Catalog and Reports	53
4.2 Hands on 9: Working with Analysis	56
4.3 Hands on 2: Working with Filters	64
4.4 Hands on 3: Advanced Features of Analysis	71
4.5 Hands on 4: Building Views	74
5. Hands on 7: Dashboards	84
5.1 Dashboard prompts	85
5.2 Dashboard objects	89
5. Oracle BI Delivers	92
6. Specialist level	96
6.1 Hands on 8: Aggregate Tables	96
6.2 Hands on 9: Partitions and Fragments	99

6.2.1	Value based partitioning	100
6.2.2	Modeling Fat Based Partition	102
6.3 Hands on 10: Variables		108
6.3.1	Repository variables:	108
6.3.2	Session variables:	112
6.3.3	Presentation Variable	119
6.4 Hands on 11: Modeling Time Series Data		122
6.5 Hands on 12: Configuring Many to Many Relationships		125
6.5.1	Modeling a Bridge Table	125
6.5.2	Modeling a Helper Table	132
6.6 Hands on 13: Setting Implicit Fact Column		141
6.7 Hands on 14 Security		143
6.7.1	Authentication	143
6.7.2	Authorization:	145
6.8 Hands on 15: Cache Management		150
6.9 Hands on 16: Usage Tracking		160
6.10 Hands on 17: Multi User Development Environment		164
6.11 Opaque View / Select Table		166
6.12 Alias		167
7. OBIEE 11G advanced new features:		168
7.1 Parent Child Hierarchies		168
7.2 Unbalanced Hierarchies (Ragged and Skipped)		173
7.3 Actions Links		174
7.4 Reusability Action Links		179
7.5 Master Detail Report		180
7.6 Develop a Report Using Hierarchy Object		183
7.7 Condition		183
8. Migration		183
9. Deployment:		187
10. KPI (Key Performance Indicator)		189
10.1 KPI Watch List		190
10.2 Score Card		190
10.3 ID Column		190
11. ORACLE BI FOR MS OFFICE		191

12. INFORMATICA 9	193
12.1 INFORMATICA Introduction	193
12.2 INFORMATICA 9 Installation	194
12.2.1 Server Installation	194
12.2.2 Client Installation	199
12.3 Informatica Administration Console	203
12.4 Repository Manager	208
12.5 Configuring RRITEC Database	209
12.5.1 Configuring source database	209
12.5.2 Configuring Target database	209
12.6 Hands on 01_Source_Target_Import	210
12.6.1 Exercise 1: Import a Source Schema	210
12.6.2 Exercise 2: Import a Target Schema	219
12.7 Handson 02_Creating_mapping	222
12.7.1 Exercise 1: Create a Mapping	223
12.8 Hands on 03: Creating Workflow	230
12.8.1 Exercise 1: Create a Workflow	231
12.8.2 Exercise 2: Create source and targt database connections	234
12.8.3 Exercise 3: Create a Task and Run the Workflow	235
12.8.4 Exercise 4: Monitor the Workflow	239
12.9 Hands on 04: Flat file Filter	241
12.9.1 Exercise 1: Import Source and Target	243
12.9.2 Exercise 2: Create the Mapping	246
12.9.3 Exercise 3: Create and Run the Workflow	250
13. DAC	251
13.1 DAC Introduction	251
13.2 DAC Installation	251
13.3 DAC Configuration	264
13.4 Development Activities	270
13.4.1 Creating Tasks	270

13.4.2	Creating Task Groups	272
13.4.3	Creating Subject Area	272
13.4.4	Creating Execution plan	273
13.4.5	Scheduling	274
13.4.6	Configuring Email	274
13.4.7	Deployment	276
14.	OBIA	277
14.1	OBIA Introduction	277
14.2	Main components of OBIA	277
14.3	CONFIGURATION	278

RRITEC

1. Data Warehouse Concepts

Data

1. Any meaningful information is called as data
2. Data is two types
 1. Transactional Data
 2. Analytical Data

Transactional Data

1. Is run time data or day to day data
2. is current and detail
3. Is useful to **run** the business
4. Is stored in **OLTP**(On Line Transaction Processing)
5. Source of transactional data is Applications
6. Example: ATM Transactions , Share market transactions..etc

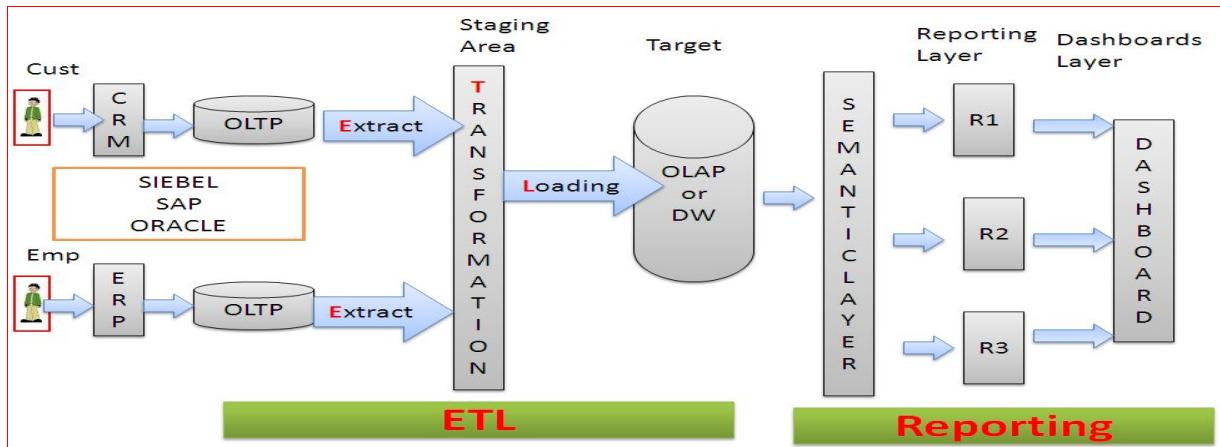
Transaction Example Diagram :



Analytical Data

1. is useful to **ANALYSE** the business
2. is Historical and summarized
3. Is stored in **OLAP**(On Line Analytical Processing) or DW(Data Warehouse)
4. Source of Analytical data is OLTP

DW Architecture



DW Tools

1. DW tools are divided into two types. some of those tools are

ETL	Reporting
Informatica	OBIEE
Data Stage	BI Publisher
Abintio	Cognos
SSIS	SAP-BO
ODI	DOMO
OWB	Qlick View
BODI	MSTR

OBIA

1. OBIA stands for Oracle Business Intelligence Applications.
2. OBIA is a predefined work of ETL and Reporting.
3. OBIA some of the important plug-ins are

1. SDE(**S**ource **D**ependent **E**xtraction) → OLTP TO STAGING AREA
2. SIL(**S**ource **I**ndependent **L**oading) → Staging Area to DW
3. DAC(**D**ata **W**arehouse **A**dministration **C**onsole) → Scheduling tool of ETLs(SDE & SIL)
4. OBAW(**O**racle **B**usiness **A**nalytic **W**arehouse) → data model(set of tables around 950)
5. Pre build Semantic layer → RPD
6. Pre build Reports & Pre build Dashboards → Web Catalog

OBIEE 11G components

1. Administration tool → Semantic layer
2. Answers(10g) or Analysis (11G) → Reports
3. Dashboard → Dashboards
4. Delivers → scheduling reports
5. Job Manager → To monitor scheduled reports
6. Catalog Manager → Deploy (Dev to Test or Test to Prod)
7. ODBC Client → to write and execute SQL
8. System Management (10G) or EM(11G) → To integrate and monitor server performance
9. WLS(11g) or IIS(10g) or OC4J (10g) → Web Server
10. Console → Security
11. BI publisher → pixel formatting reports

OLTP Vs OLAP

OLTP	OLAP
1. Is useful to store Transactional data	1. Is useful to store Analytical data
2. Is useful to run the business	2. Is useful to Analyze the business
3. The nature of data is current and Detail	3. The nature of data is historical and summarized
4. OLTP Supports CRUD(Create , Partially read, update and delete)	4. OLAP supports only read
5. It is a application oriented DB	5. It is subject oriented DB
6. It is volatile	6. It is nonvolatile
7. In OLTP data storage time is fixed	7. In OLAP data storage time is variant
8. OLTP DB are isolated as Applications	8. OLAP is integrated as per subject area

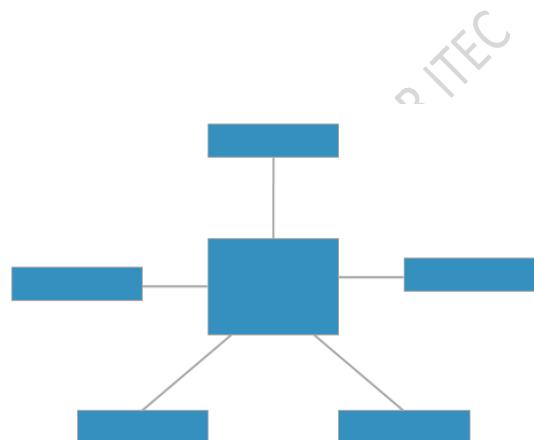
9. No of users are more(customers + emp)	9. No of users are less (MM+HM)
10. In OLTP we will use normalizes schema	10. In OLAP we will use Denormalized Schema

Transactional Vs Analytical Systems (Continued)

1. Transactional schema optimized for **Partial read/write**—multiple joins

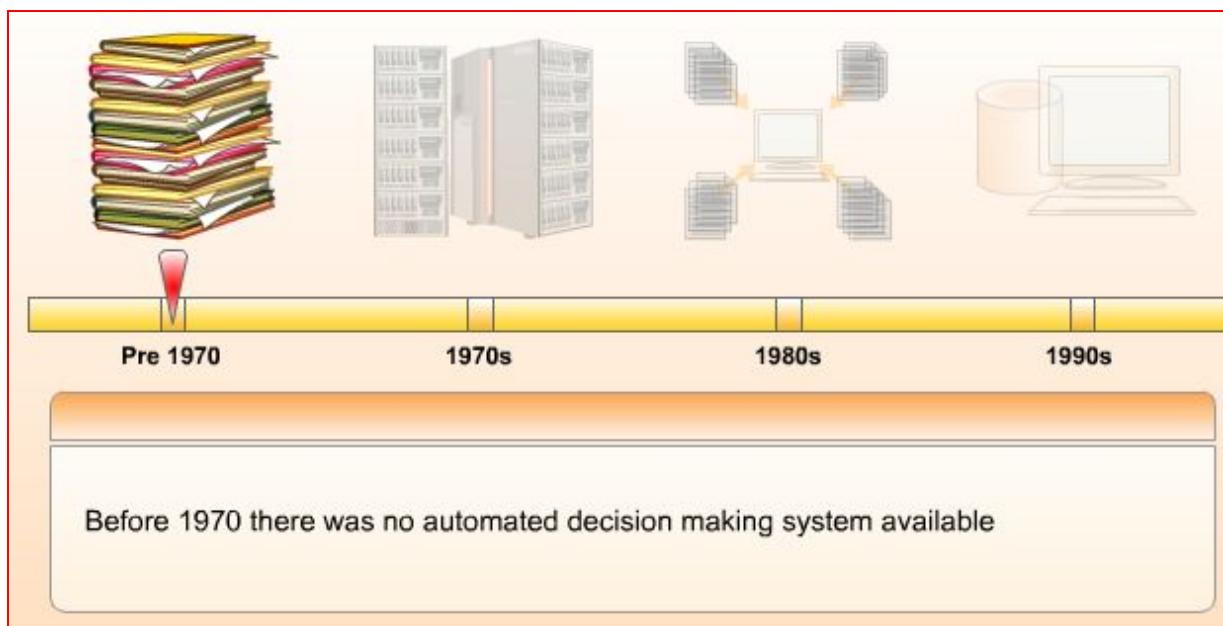
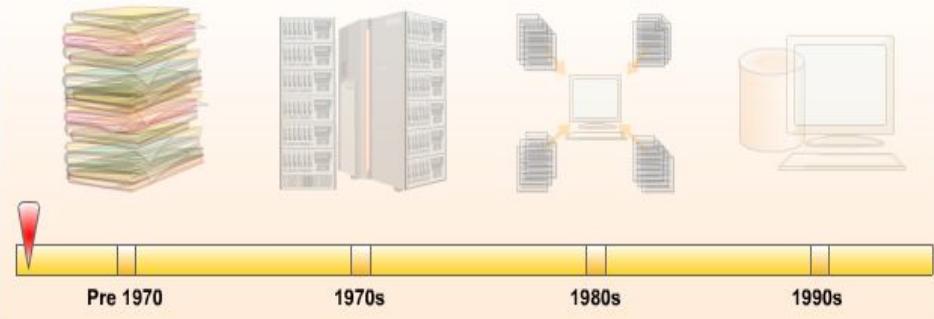


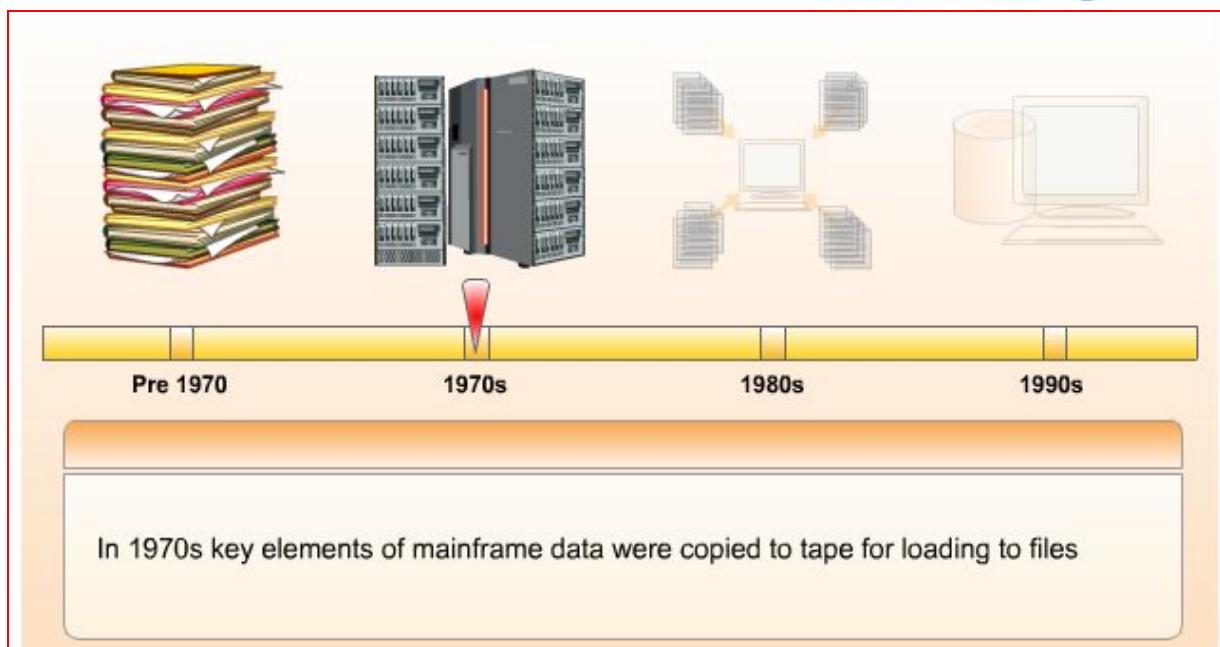
2. Analytics schema optimized for **querying large datasets**—few joins

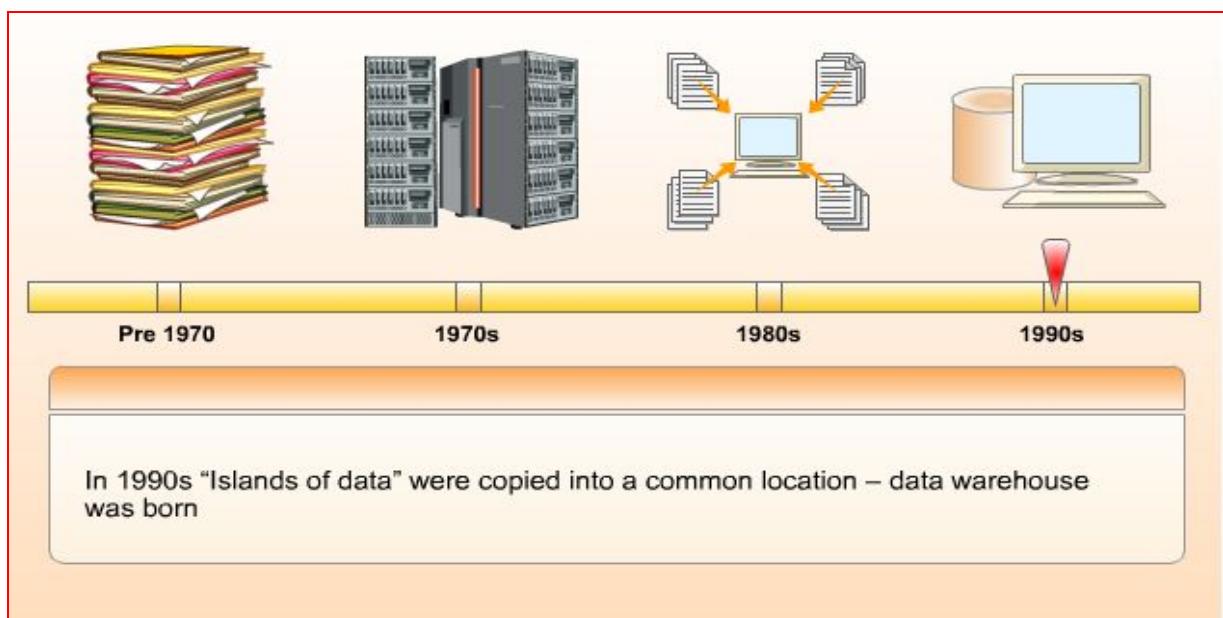
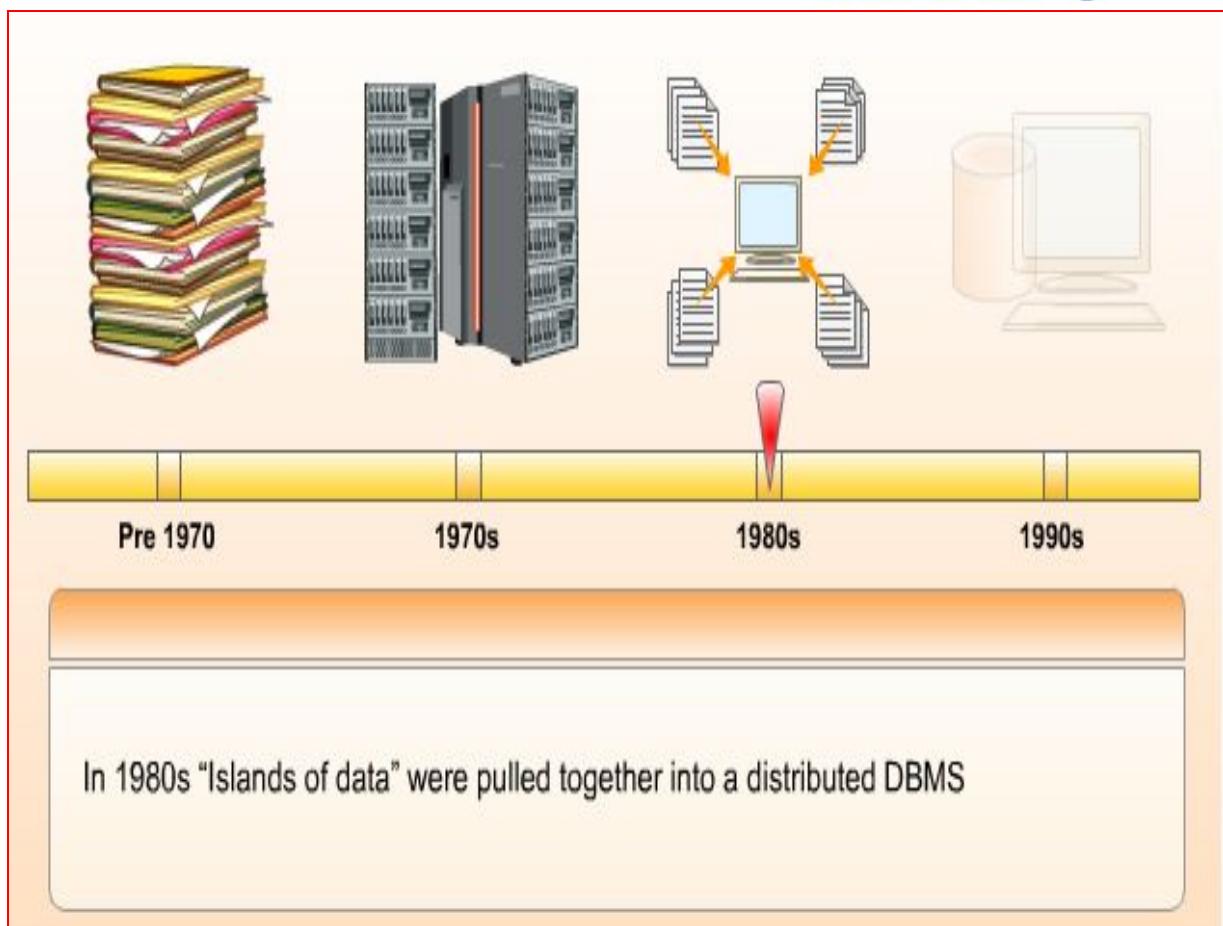


History of Data Warehousing

How did data warehousing come into existence? Take a brief look at the history of data warehousing to understand its evolution.







Data Warehouse Definitions

Bill Inmon:

Subject-oriented, integrated, time-variant and non-volatile collection of data

Ralph Kimball:

Transaction data specifically structured for query and analysis

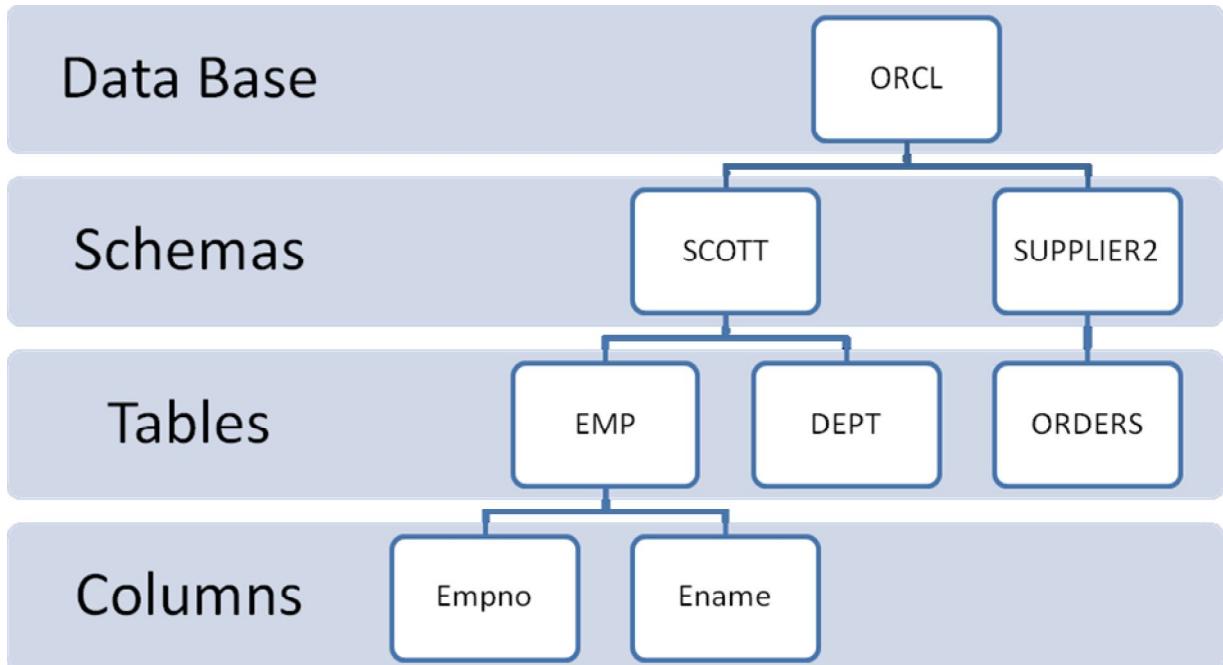
Conceptually:

"Secondhand" data that originates in other corporate applications, or some external data source

Formally:

Stand-alone repository of information, integrated from several, heterogeneous operational databases

Data Warehouse or Database Main Objects



Columns:

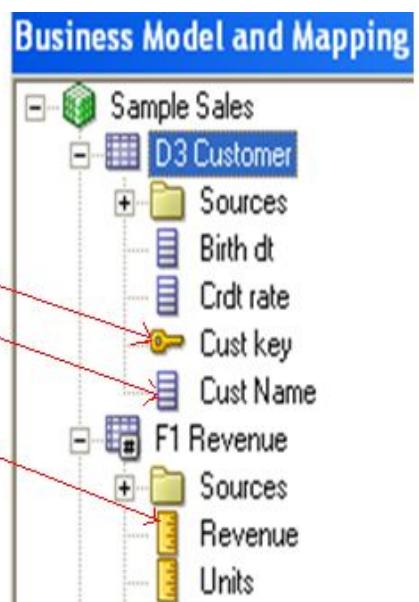
- 1. Key
- 2. String or Desc
- 3. Measure

After summarization a numeric

Column is given valid valid information

Then it is called measure column else it

Is called as key column.



Tables

1. Dimension Table
2. Fact table

✓ if a table contains at least one measure column then it is called as fact table else it is called as dimension table

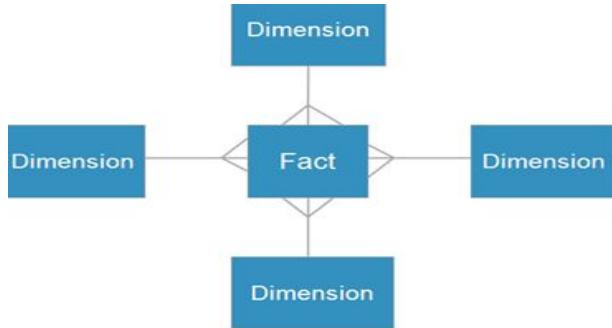


Schemas

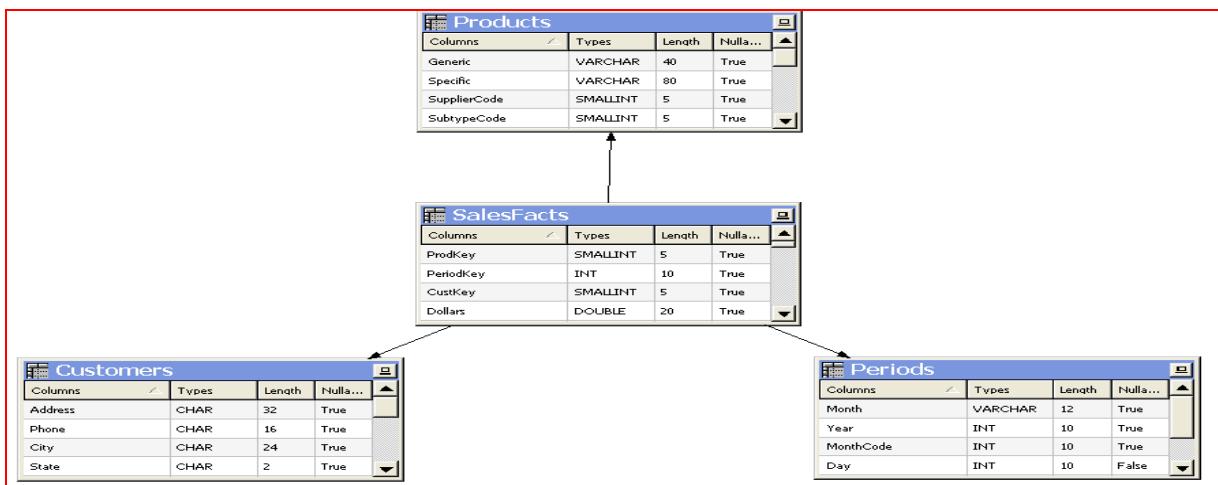
1. A group of tables are called as schema
 1. Star
 2. Snow Flake
 3. Constellation or mixed

1. Star Schema

1. Organizes data into a central fact table with surrounding dimension tables
2. Each dimension row has many associated fact rows
3. Dimension tables do not directly relate to each other
4. All Dimension Tables are de normalized
5. Optimized to read data
6. User friendly ,easy to understand
7. In OBIEE BMM layer only Star schemas are used

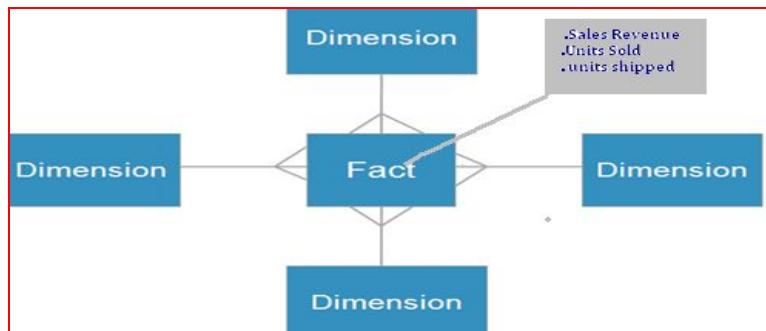


Star Schema diagram taken from OBIEE Tool



Star schema fact

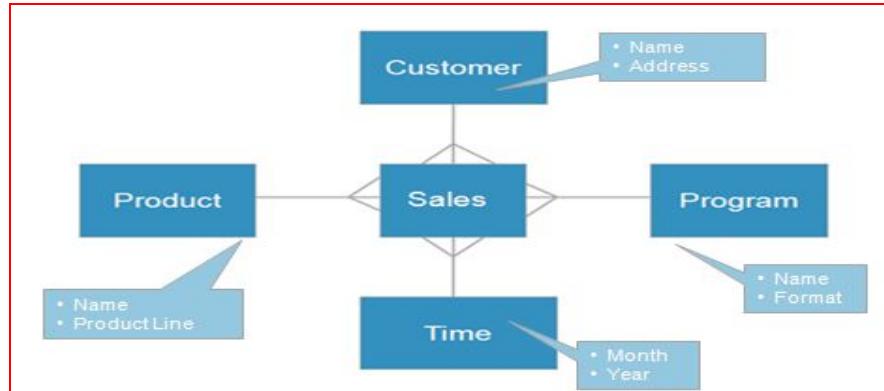
1. Contains business measures or metrics
2. Data is often **numerical**
3. Is the central table in the star



Star Schema Dimension

1. Contains **attributes or characteristics** about the business

2. Data is often **descriptive (alphanumeric)**
3. Qualifies the fact data



Star Schema with Sample Data

Example: Star Schema

- **Sales fact table with dimension tables and relationships**

CUSTOMER DIMENSION		
ROW_WID	CUST_NAME	OTHER
17023	A.K.Parker	...
17054	Betta Builders	...
17056	Cost Cutter Stores	...

PRODUCT DIMENSION		
ROW_WID	PROD_NAME	OTHER
12091	Widget	...
12093	Super Widget	...
12095	Lite Widget	...

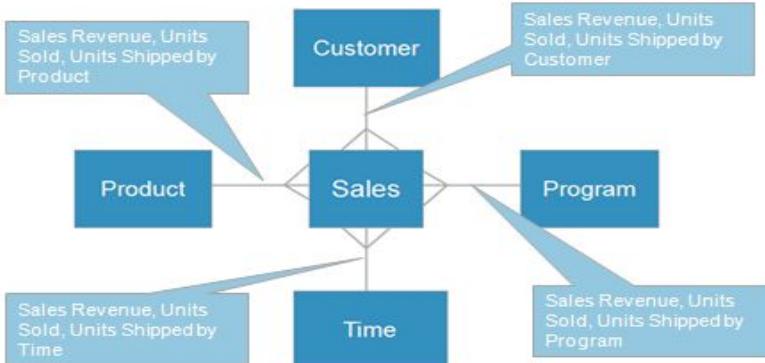
SALES FACT							
ROW_WID	CUST_ID	PER_ID	PROD_ID	QTY_ORDERED	QTY_SHIPPED	AMT	
1	17023	26031	12093	5	4	100	
2	17054	26031	12091	15	10	50	
3	17023	26033	12091	5	3	20	

PERIOD DIMENSION		
ROW_WID	DATE	OTHER
26031	1/1/2004	...
26033	2/1/2004	...
26075	3/1/2004	...

Star Schema user friendly and easy to understand

User Friendly

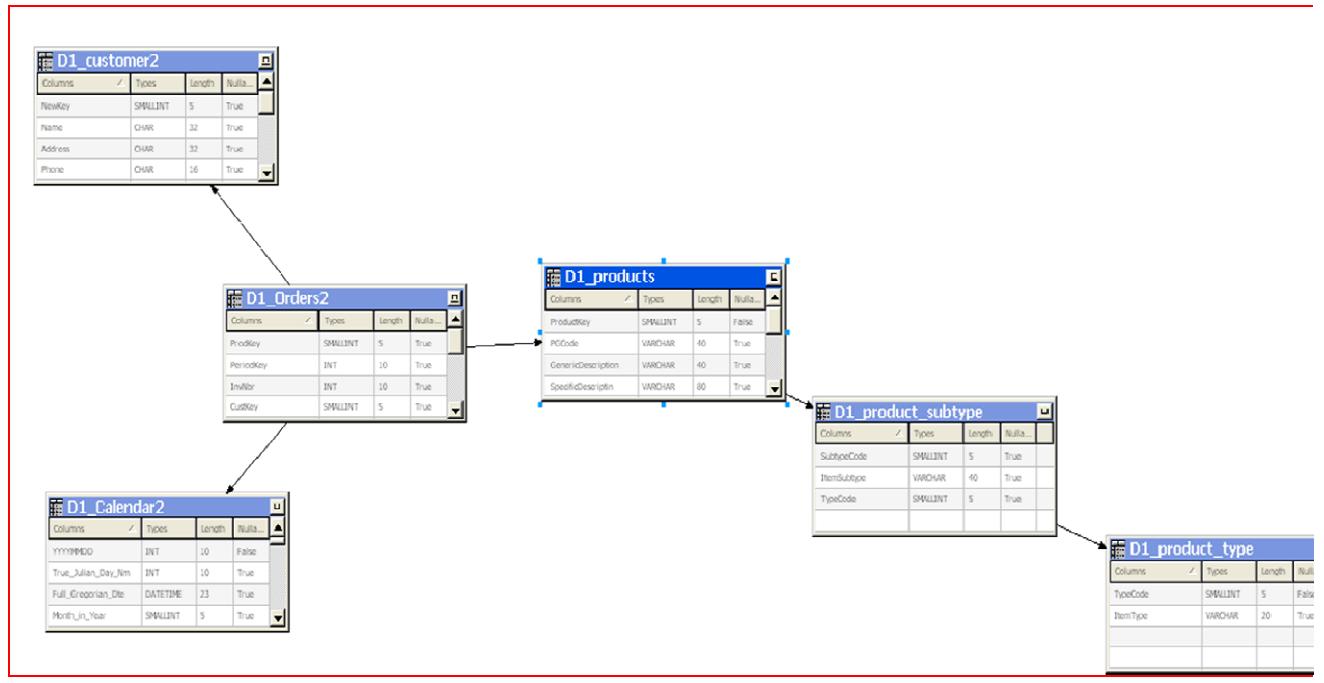
- Models the way users think about data
- Enables data to be understood and analyzed



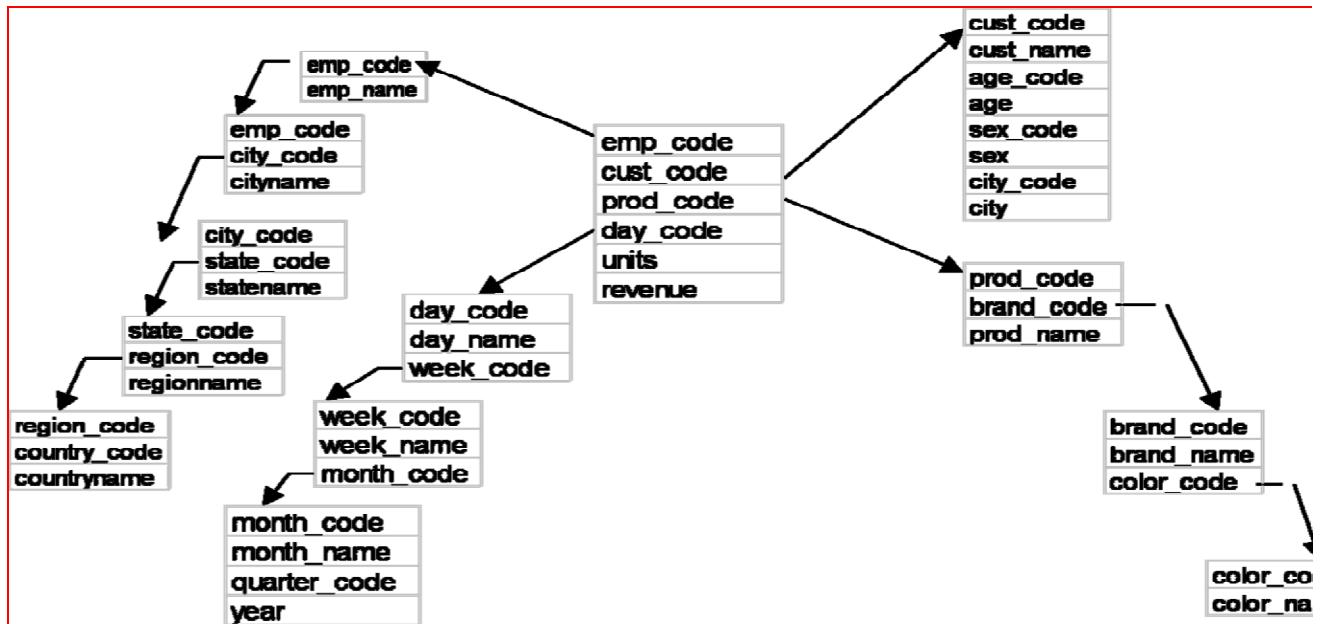
Snow Flake Schema

1. Normalized tables are used
2. Is also called as extended star schema
3. Two dimensional tables will be directly joined
4. Like star schema ,it has only one fact table

Snow Flake Schema diagram from OBIEE tool

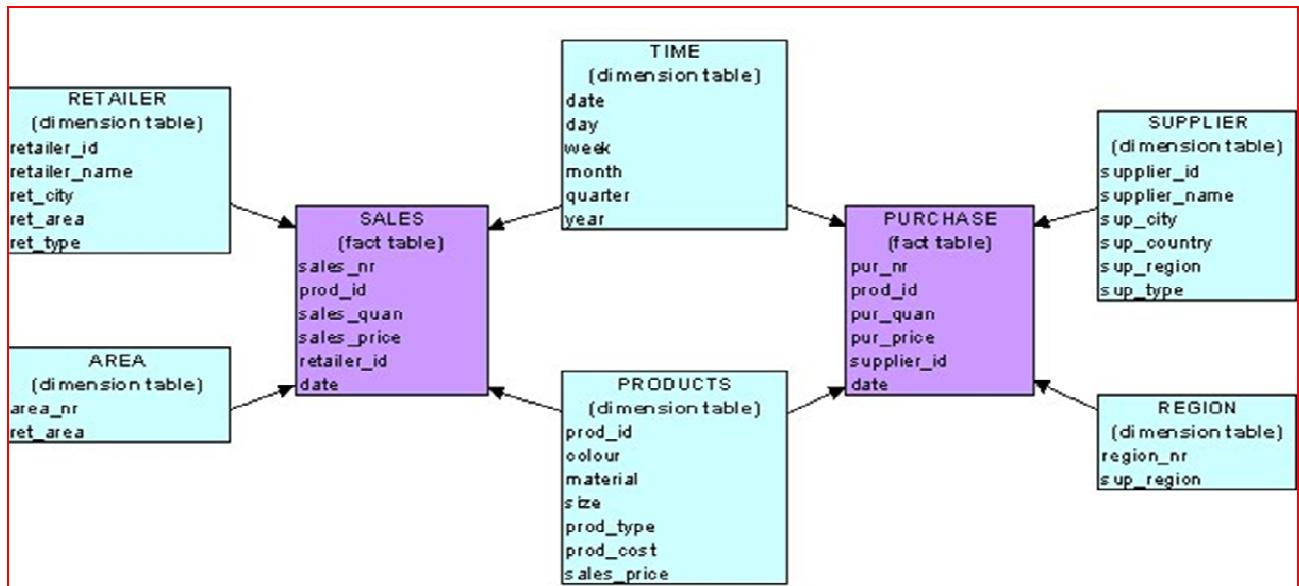


Snow Flake Schema detail diagram



Mixed Schema

1. It contains more than one fact with some common dimensions (Conformed Dimensions)
2. It is combination of **some stars** or **some snows** or both



Conformed Dimensions

1. A dimension table is shared by two or more facts then it is called as conformed dimension
2. OBIA data model created using conformed dimensions

History of OBIEE

1. NQS company developed a tool called as **NQS tool**
2. Siebel organizations acquired NQS company and renamed NQS tool as **Siebel Analytics**
3. In the year of 2006 oracle organization acquired SIEBEL and renamed Siebel Analytics as **OBIEE 10G**

OBIEE 10G versions

1. OBIEE 10.1.3.3.0
2. OBIEE 10.1.3.3.1
3. OBIEE 10.1.3.3.2
4. OBIEE 10.1.3.3.3
5. OBIEE 10.1.3.4.0
6. OBIEE 10.1.3.4.1
7. OBIEE 10.1.3.4.2

OBIEE 11G versions

1. OBIEE 11.1.1.3
2. OBIEE 11.1.1.5
3. OBIEE 11.1.1.6
4. OBIEE 11.1.1.7

Types of components

1. **Windows based** or thick or non browser based clients
 1. Administration tool
 2. Catalog manager
 3. Job manager
 4. Start bi services...etc
2. **Web based** or thin or browser based clients
 1. Console
 2. EM
 3. Analytics
 4. BI publisher
 5. Real Time Decisions

2. Obiee11g components

1. Administration tool → Semantic layer.
2. Analysis(11g) → Reports
3. Dashboards → dashboards
4. Delivers → Scheduling reports
5. Job manager → To monitor scheduled report.
6. Catalog manager → Deployment (develop to testing or testing to production)
7. Enterprise manager (EM)(11g) → To integrate and monitor server
8. Web logic server WLS (11g) → It is a web server to access reports globally
9. BI publisher → to develop pixel formatting and standard reports.

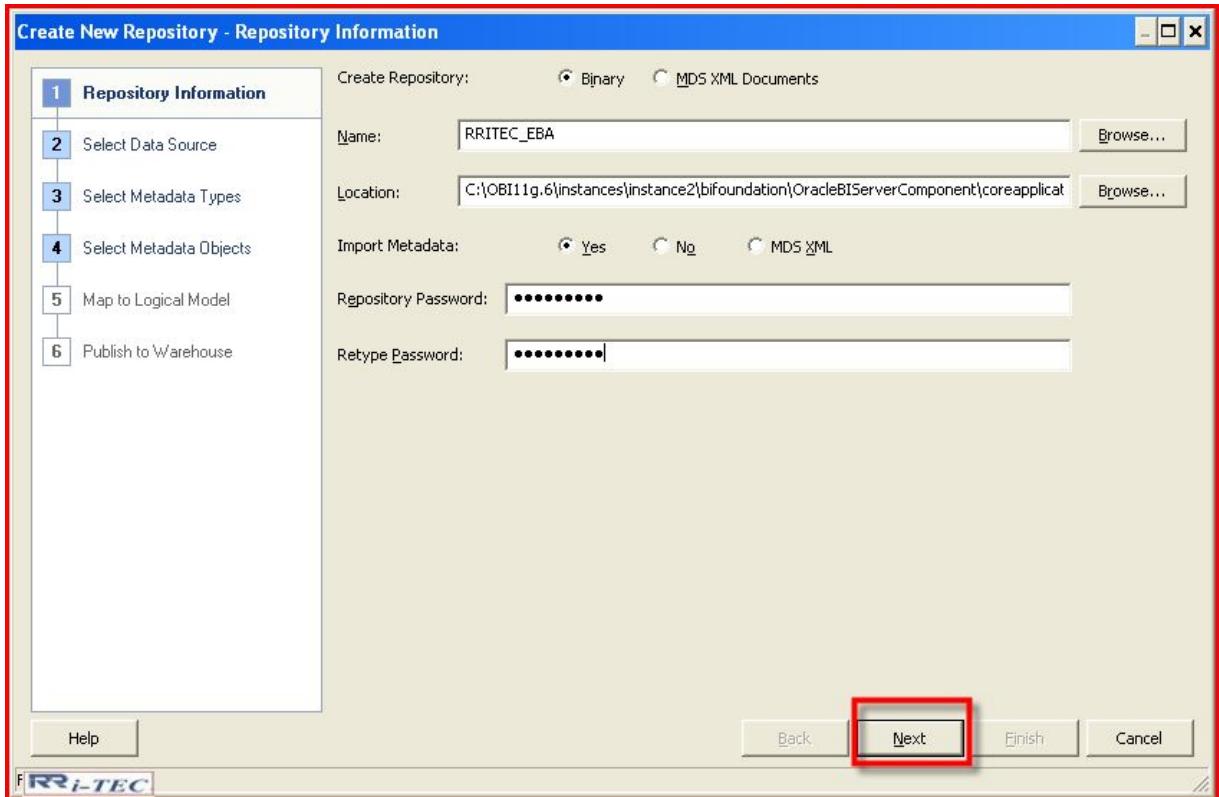
3. Administration tool:

1. Administration tool is useful to develop the **semantic layer**.
2. Semantic layer in OBIEE is called as repository file or RPD file.
3. The extension of repository file is **.rpd**
4. Semantic layer is also called as metadata layer.
→ Data about data is called meta data
→ Examples of Meta data: Table Names, View names, Stored Procedure names, Column names, column data types, column size ...etc
5. Semantic layer in SAPBO is called as universe.
6. Semantic layer in cognos is called as .cpf (cognos project file) or model.
In creating rpd we have three steps.
 1. Creating **physical** layer.
 2. Creating **BMM** layer.
 3. Creating **presentation** layer

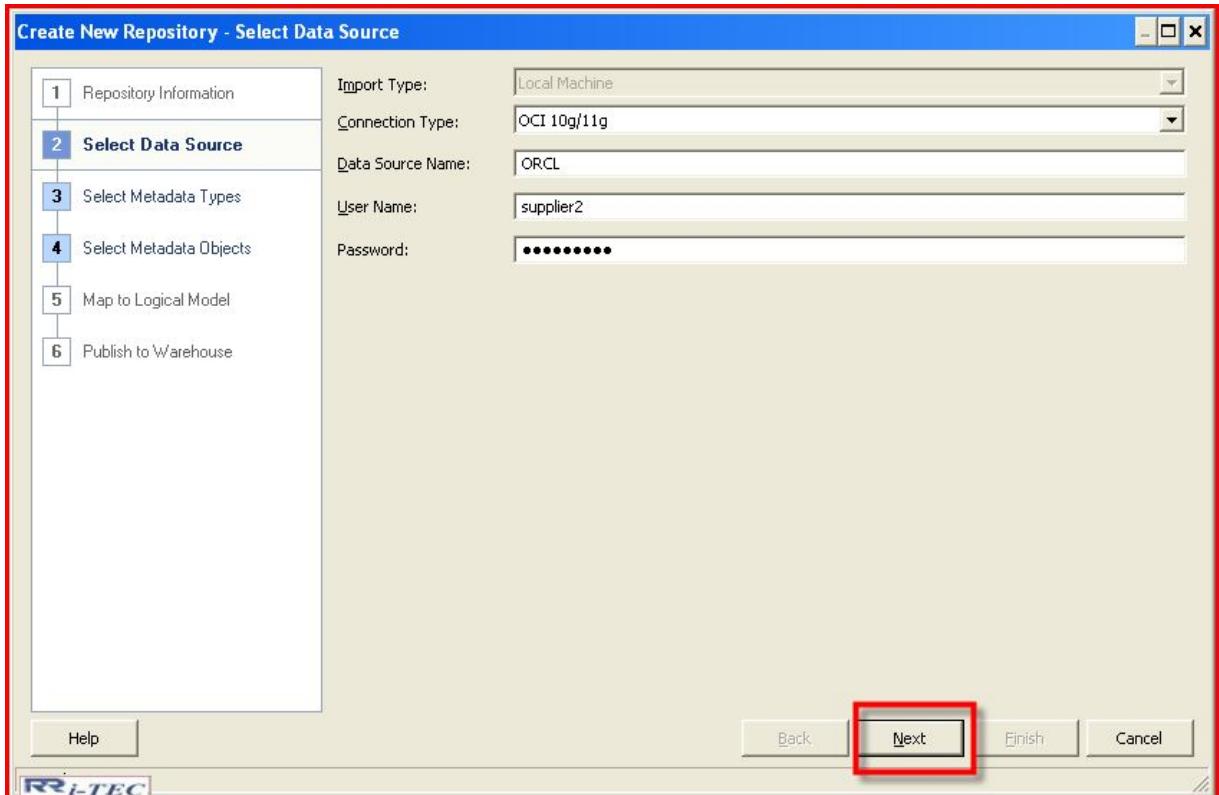
3.1 Hands on 1: Physical Layer

STEP 1: creating RPD file and importing metadata

1. Start → all programs → oracle business intelligence → BI administration
2. Go to file menu → new repository.
3. Name : RRITEC_EBA
4. Repository password: RRitec123
5. Retype password: RRitec123(minimum length should be 8 characters)
6. Click on next



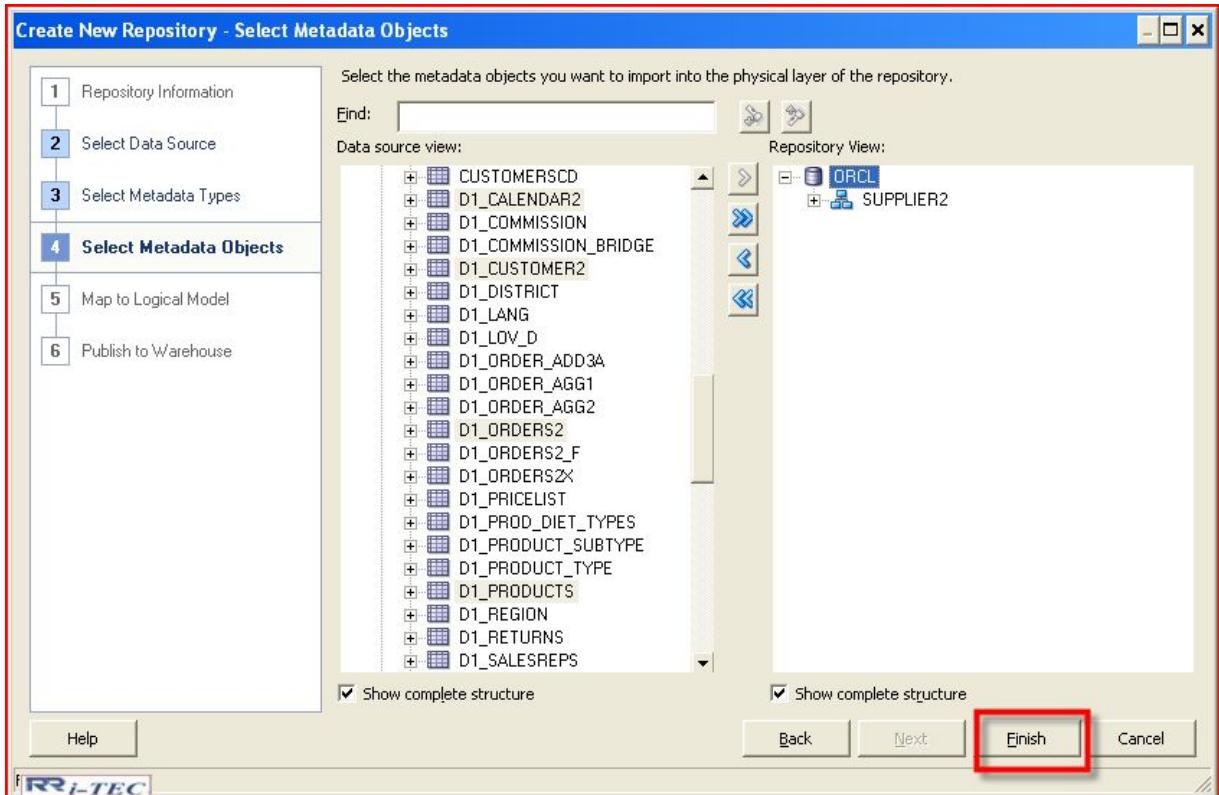
- select Connection type: OCI 10g/11g (native connection of oracle data base)
- Data source name: ORCL
- User name: supplier2
- Password: supplier2
- Click on next



- Select tables, keys, foreign keys

<input checked="" type="checkbox"/> Tables	<input type="checkbox"/> System tables
<input checked="" type="checkbox"/> Keys	<input type="checkbox"/> Aliases
<input checked="" type="checkbox"/> Foreign Keys	<input type="checkbox"/> Synonyms
	<input type="checkbox"/> Views

- Click on next
- Expand supplier2 select
D1_CALENDAR2,D1_CUSTOMER2,D1_ORDERS2,D1_PRODUCTS.
- Click on import selected (>).
- Name the connection pool as RRITEC_CP
- Click on ok
- Click On finish.



Step2 : Creating keys and joins

- **Constraints:** mainly we have 3 types of constraints.
 - I. Unique constraints → eg: emp no.
 - II. Not null constraints → eg: salary.
 - III. Check constraints → eg: phone number.
 - **Keys:** we have three types of keys
 1. Primary key
 2. Foreign key
 3. Composite key
1. **Primary key:** unique + not null constraint is called as primary key.
Eg: Empno in emp table, deptno in dept table.
 2. **Foreign key:** reference of primary key is called as foreign key.
Eg: deptno in emp table
 3. **Composite key:** if we need two or more columns to uniquely identify record then it is called as composite keys.
Eg: product no + product color.

Joins:

A relationship is called as join. In database we have mainly 5 joins.

1. Equi join >>>>> Foreign Key
2. Non equi join>>>>Complex
3. Outer join(left, right, full) >>>>> Logical join in BMM layer
4. Self join. >>>>> Alias (in Physical Layer)
5. Cross join. >>>> **not supported by any BI tool**

OBIEE (11G) Joins:

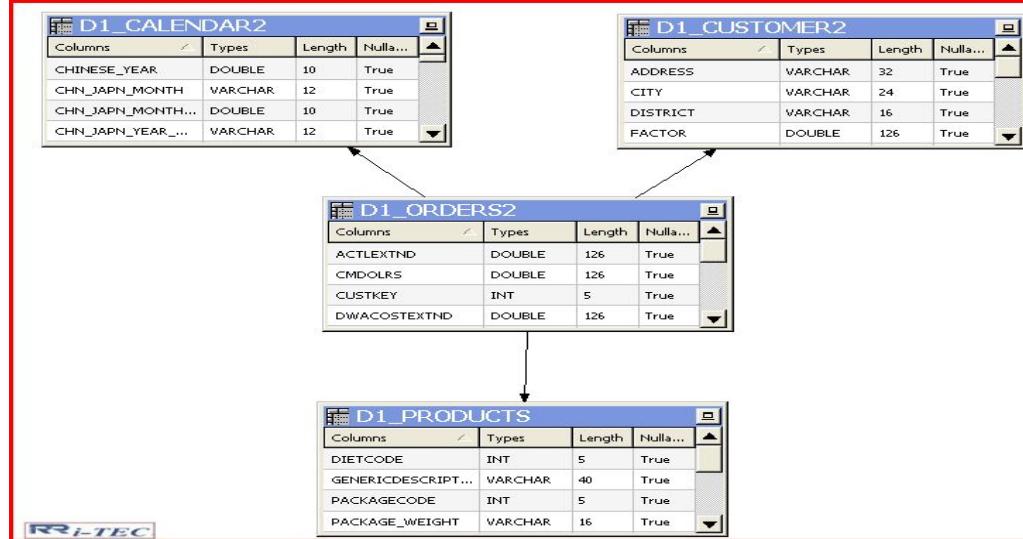
In OBIEE (11G) we have three types of joins.

1. Foreign Key join
 - a. Equivalent to Equi join
 - b. Accepts only = operator
 - c. Most used join in physical layer
2. Complex Join
 - a. Equivalent to Non Equi join
 - b. Accepts all operators like (=,<>,=>,=.....etc)
 - c. Less used join in Physical layer
3. Logical join : BMM layer Join is called as logical join (in OBIEE 10G it is also called as complex join)

Process to create joins:

In physical layer select **supplier2** schema object click on physical diagram → objects and all joins → click on new join

- Drag and drop from D1_orders table to calendar select **yyyymmdd** and **period key** click on ok.
- Drag and drop from Orders table to customers. Select **new key** from customers and select **custkey** from orders.
- Drag and drop orders table to products. Select **product key** from products and select **prod key** from orders.
- Click on collapse all. Click on auto layout notice that we created **star schema**. Close physical diagram window.



Note1: Is OBIEE supports multiple databases?

Yes OBIEE has no limitation, to prove this import excel meta data into rpd

Step 1: Creating MS EXCEL Data base

1. Open ms-excel.
2. Create a file

Product	Price
Lux	10
Rin	20

- Select all the cells name it as **products**. Similarly create one more table with the name of **Sales** .

Year	Sales
2001	100
2002	200

- Save it into E drive with the name of RRITEC.

Step 2: Creating ODBC connection

- Go to start → control panel → administration tools → data source (ODBC) → system DSN → Add

- Select Microsoft excel driver → finish.
- Give data source name : RRITEC_excel
- Click on select workbook → select E drive , select required file → double click
- Click on ok. Again ok. Again ok.

Step 3: Importing Meta data

- Open administration tool.
- Go to file menu → open → offline
- Select RRITEC.rpd → open
- Provide pwd as RRitec123
- Go to file menu → import metadata
- select connection type: ODBC 3.5
- DSN :RRITEC_excel
- Click on next again next
- Select two tables(products, sales)
- Click on import
- Click on finish

Note2: Can we access all the tables of a database using one connection pool.

Yes. but we need to take care below points

1. To access all the schemas of DB we should have all schemas permissions to connection pool user.
2. In connection pool properties we need to enable **Required fully qualified names.**
3. In connection pool select **shared logon**

Note3: To create automatic joins we need to have

- 1) In DB level foreign key relationship
- 2) While you are importing you should enable **foreign key** options.

Note4: Update Physical Layer

It is useful to synchronize RPD metadata with DB metadata

Tools→Utilities→Update Physical Layer

Note5: Remove unused objects from physical layer

It will remove objects, which we did not use in BMM layer

Tools→Utilities→ Remove unused objects from physical layer

This utility cannot track columns

3.2 Hands on 2 BMM layer

1. It is also called as logical layer (or) business layer.
2. In this layer we will convert Data base technical terminology into business terminology
Eg: **ACTLEXTND** column into **Dollars**.
3. BMM layer contains 'n' number of business models.
4. Each business model called as subject area or data mart.
5. In development of BMM layer we have below steps.
 1. Creating business model
 2. Creating logical tables and logical columns
 3. Creating logical joins.
 4. Renaming logical tables and logical columns
 5. Defining measures.

Step 1: Creating Business Model

1. Right click in BMM layer → new business model
2. Name it as **sales** → click on ok

Step 2: Creating logical tables and Logical columns

1. Right click on **sales** business model → **new object** → **logical table**.
2. Name it as **Dim1 periods**.
3. Click on **ok**.
4. Drag and drop
Year,Monthcode,month,month_in_year,Day_name,YYYYMMDD columns
from **D1_calendar2** physical table onto **Dim1 periods**.
5. Similarly create below three tables and map it
6. Dim 2 Customers → **Region ,district,salesrep,name,newkey** from table
D1_customers2
7. Dim3 Products → drag and drop physical table **D1_products**
8. Fact Sales →
ACTLEXTND,UNITORDERED,UNITSHIPPED,NETWEIGHTSHIPPED from
table **D1_orders2**

Note: Wherever you drag and drop physical table then automatically logical column will be created. More we will discuss in hands on 6 calculations

Step 3: Creating logical joins

1. Logical join is useful to define **driving table**.
2. Logical join is useful to define Inner Join, Left Outer Join, Right Outer Join and Full Outer Join

3. Logical join is useful to define cardinality. more used cardinality is **one to many** and never used cardinality is **Many to Many** and By default cardinality is 0,1 → n
4. Logical join is useful to identify dimension tables and fact tables.
5. Logical join allows Oracle BI Server to make the best decision about the exact physical SQL to generate based on the logical query path

Process:

1. Right click on Business model **Sales** → business model diagram → whole diagram.
2. Click on new join.
3. Drag and drop **Fact Sales** onto **Dim1 periods**
4. Click on ok.
5. Similarly create below joins
 - o Fact Sales to Dim2 customers
 - o Fact Sales to Dim3 products.
6. Close business model diagram.

Step 4: Renaming columns:

1. Go to **tools** → **Utilities** → **Rename Wizard** → **Execute** → select **Sales** Business Model → Click on **Add hierarchy** → Click on **next** → again **next**.
2. select **All text lower case** → add
3. Select **First letter of each word capital** → add
4. Select Change **each occurrence of '-' into a space** → add.
5. Click on next and click on finish.
6. Save it and click on No.

Step 5: Defining measures

Each and every measure should associated with one aggregation rule

Table Source Data :

Deptno	Empno	Sal
10	101	1000
10	102	2000
20	103	500
20	104	1000

If we are not mentioning the sal as measure column the output is like this.

Deptno	Sal
10	1000
10	2000
20	500
20	1000

If we mention the Sal column as Measure (Sal is measure and is associated with aggregate rule sum) then output is

Deptno	Sal
10	3000
20	1500

Process:

1. In the BMM layer expand sales fact table double click on **dollars** column → select **aggregation** tab → select aggregation rule as **sum** → Click on **ok**.
2. Similarly provide aggregation rule for unit orders and units shipped columns .

Note1: one business model may map to multiple data bases.

Note2: one logical Table may map to multiple LTS

Note3: One logical tables source may map to multiple physical tables

Note4: one logical column may map to 'n' number of physical columns.

3.3 Hands on 3: Creating Presentation Layer

1. Presentation layer is the only layer visible to end users (Report Developer or clients).
2. In presentation layer we have 4 types of objects.
 1. Subject area.
 2. Presentation table.
 3. Presentation columns.
 4. Hierarchy object.
3. Subject area in 11g is called as presentation catalog in 10g.
4. Hierarchy object is newly introduced in 11g
5. Single Subject Area must be populated with content from a single business model; cannot span business models.
6. Multiple Subject Area can reference the same business model.

Step 1: Creating Subject Area

1. Right click on **presentation** layer → new **subject area** → name it as **supplier sales** → click on **ok**.
2. From sales business model select all the tables drag and drop on to **supplier sales..**
3. Similarly create one more subject area with the name of **supplier sales DM**. drag and drop **periods**, **products** and **salesfacts** tables.

Step 2: Reorder Columns

1. Double click on sales presentation tables.
2. Click on columns.
3. Select dollars ,unitord, unitship.
4. Click on up arrow mark and make sure these are in first,second and third positions respectively

Step 3 : Reorder Tables

1. Double click on supplier sales subject area.

2. Select sales fact table and make sure it is available in bottom.

Step 4 : Create Nested folders (or) nested tables

- Prefix the name of the presentation folder to be nested with a **hyphen and a space or** type -> in description of table
- Place it after the folder in which it nests.

Process:

- Double click on **supplier sales** subject area.
- Click on presentation tables tab.
- Click on add (+).
- Name it as **keys** and in the description type -> **stores key columns** and click on ok.
- Again click on add (+).
- Name it as - **measures** (prefix the table name with hyphen and a space)
- Click on ok
- Make sure these two tables are available under sales fact tables .

3.4 Hands on 4: Testing RPD

3.4.1 Checking repository for consistency:

It is useful to check entire RPD, mainly it will check below points

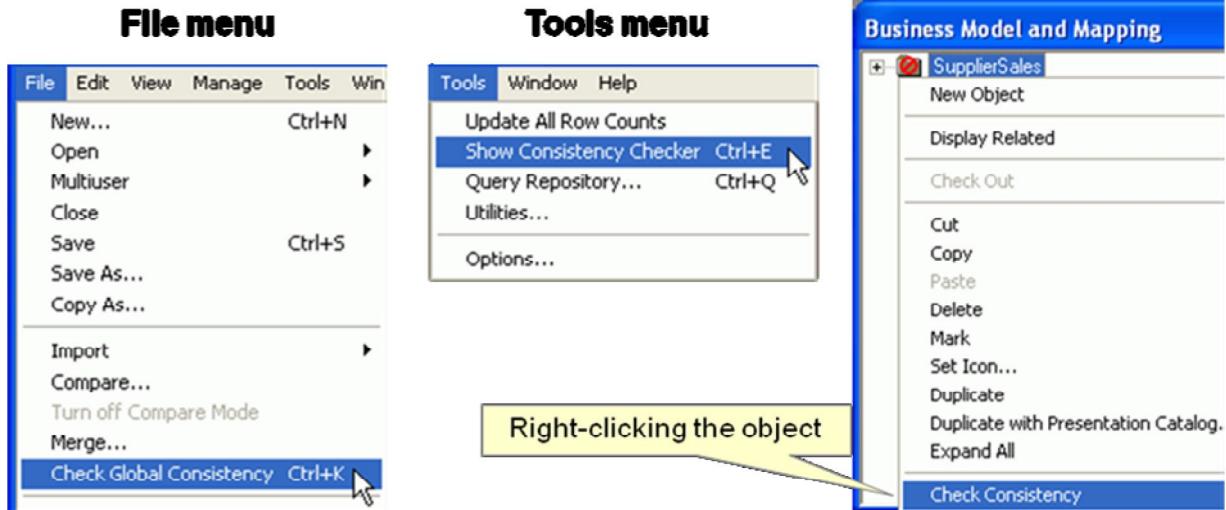
1. All logical columns are mapped directly or indirectly to one or more physical columns.
 - a. In online mode we can see error “ **Transactional Updated failed** ”
2. All logical dimension tables have a logical key.
3. All logical tables have a logical join relationship to another logical table.
4. There are at least two logical tables in the business model:
a logical fact table and a logical dimension table. Both can map to the same physical table.
5. There are no circular logical join relationships.
6. A Subject Area exists for the business model

Consistency Check Manager

1. Displays consistency check messages
 - a. Errors: Must be fixed to make the repository consistent
 - b. Warnings: Condition that may or may not be an error
 - We must make sure there are no **errors** and if possible debug **warnings**.
- Note:** Till 11.1.1.5 version it used to display best practices in 11.1.1.6 it is internally taken care

Process:

Do by using any one way



Servers in OBIEE 11G:

1. Oracle BI server:
 1. It is a main server.
 2. It controls all data security rules.
 3. RPD will be loaded in this server .
2. Oracle BI presentation server:
 1. It is used to develop **reports**, dashboards, key performance indicator (KPI), score cards etc...
3. Oracle BI Java host:
 1. It is used to display charts (graphs.)
4. Oracle BI scheduler:
 1. It is used to schedule reports (Agents).
5. Oracle BI cluster controller:
 1. It is useful to integrate 'n' number of servers.(OBIS,OBIPS,OBIJH)
6. Web logic:
 1. It is web server useful to access reports and dashboards globally.

➤ Above 1 to 5 servers are integrate in OPMNCTL (oracle process management network control).

3.4.2 Loading repository

In loading repository into oracle BI server we have below six steps.

1. Close RPD.
2. Start the web logic server alone or all OBI severs.
3. Configure RPD in EM (Enterprise manager).
4. Start or restart oracle BI server.
5. Confirm RPD loaded or not by checking log file.
6. Confirm RPD loaded or not by developing report.

Step 1 : Close RPD

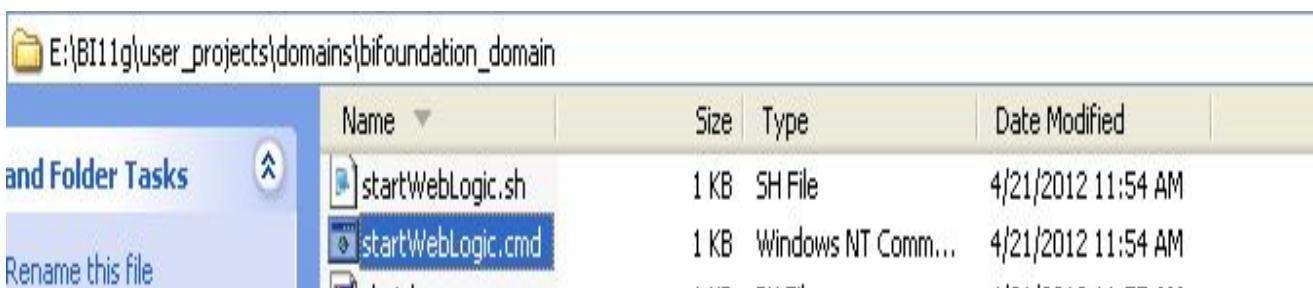
1. It is not mandatory in OBIEE 11g, where as in 10g it is mandatory.
2. In 10g RPD opened and if we load RPD in Oracle BI Server then we can not open RPD in online mode with write permissions (it opens only read only mode)

Process:

Go to **file** menu of Administration tool → click on **close**.

Step 2: Start the web logic server alone or All OBI servers

Go to path BI11g/user_projects/domains/bifoundation_domain/startweblogic.cmd



OR

Start → all programs → oracle business intelligence → start BI services.

Provide user name : web logic.

 Password:RRitec123.(RRitec is optional)

Note: After installation first time if we start then only it will ask user name and password

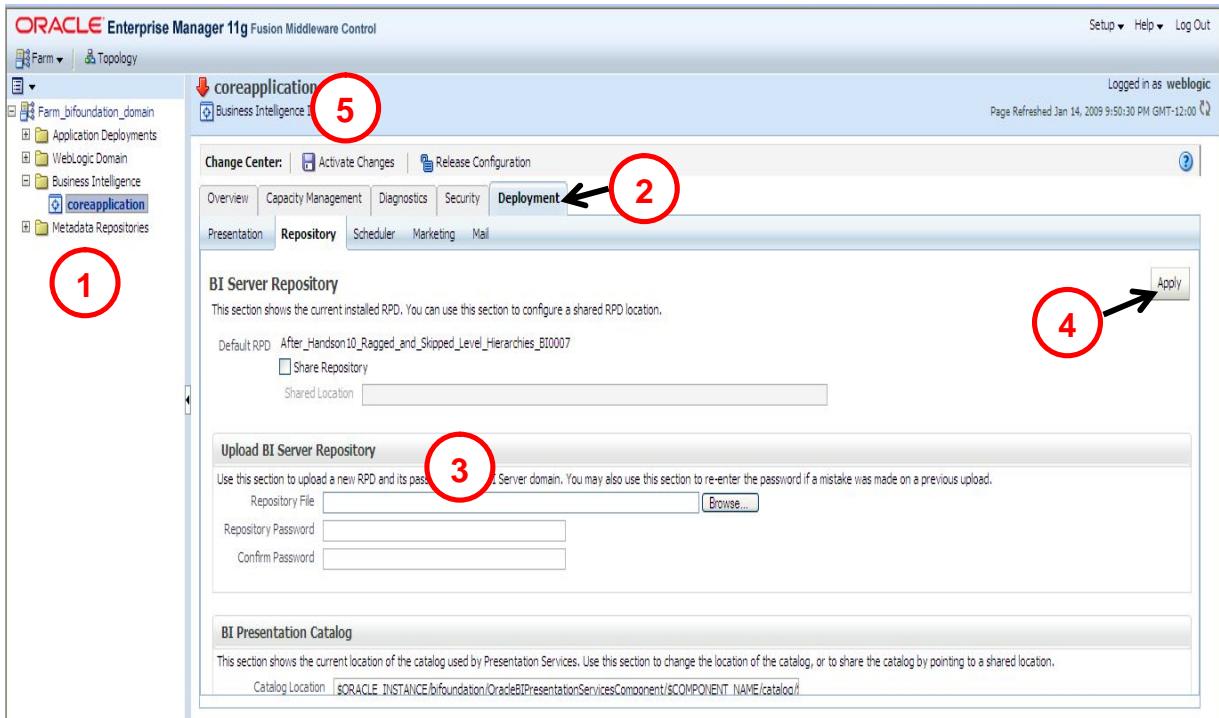
Step 3 : Configure RPD in EM (Enterprise manager)

Open internet explorer type: <http://localhost:7001/em>

Provide user name: web logic

Pass word: RRitec123.

1. Click on login.
2. Click on business intelligence → core application → Deployment → repository → lock and edit configuration → close → click on repository file **browse** → Select **RRITEC.rpd** → open → Repository password:RRitec123 → Confirm password:RRitec123 → Click on **apply**.
3. Click on **activate changes**



Step 4: Start or Restart oracle BI server

Method 1: Using EM

1. Click on **capacity management** → **availability**
2. Select BI servers → Click on restart selected → yes → after sometime close.

Method 2: Using Command prompt

1. Start → Run → cmd
2. Type **cd E:/BI11g/instances/instances1/bin** → enter.
3. To see all the commands of opmnctl type **opmnctl** → Enter.
4. To stop the oracle BI server type
opmnctl stopproc ias-component=coreapplication_obis1
5. To start the oracle bi server replace **stopproc** in above command with **startproc**

```

E:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

E:\Documents and Settings\RRITEC>F:
F:>cd F:\BI11g\instances\instance2\bin
F:\BI11g\instances\instance2\bin>opmnctl status
Processes in Instance: instance2
+-----+-----+-----+-----+
|ias-component| process-type | pid | status |
+-----+-----+-----+-----+
|coreapplication_obiccs1| OracleBI ClusterCo~| 4544 | Alive |
|coreapplication_obisch1| OracleBI Scheduler~| 5848 | Alive |
|coreapplication_obijs1| OracleBI JavaHostC~| 1868 | Alive |
|coreapplication_obips1| OracleBI Presentat~| 4396 | Alive |
|coreapplication_obis1| OracleBI ServerCom~| 660 | Alive |

F:\BI11g\instances\instance2\bin>opmnctl stopproc ias-component=coreapplication_
obis1
opmnctl stopproc: stopping opmn managed processes...
F:\BI11g\instances\instance2\bin>opmnctl startproc ias-component=coreapplication_
obis1
opmnctl startproc: starting opmn managed processes...
F:\BI11g\instances\instance2\bin>_

```

Step 5 :Confirm RPD loaded or not by checking log file

1. Go to below path
BI11g\instances\instance1\diagnostics\logs\OracleBI Server Component\core application_obis1
2. Open **Nq server.log** file observe our rpd name in the bottom of the notepad

Step 6 :Confirm RPD loaded or not by developing a report

1. Open Internet Explorer
2. Type URL <http://localhost:7001/analytics> press **enter**
User id: web logic.
Password: RRitec123.
3. Click on new → analysis → select subject area **supplier sales**
4. From subject area pane double click on **year, dollars** columns
5. Click on **results**.

Note1:

1. Whenever we click in activate changes in backend RPD Xerox copy will be created in repository folder. this process is called as version control of RPD
2. In Nqsconfig.ini file RPD name will be modified.
3. we can find **Nqsconfig.ini** file in below path
E:/bi11g/instances/instance1/config/oracle BI server component/core application_obis1.

3.4.3 Log level

1. Oracle BI Server provides a facility for logging query activity at the **individual user level**
2. By Default log level is **0**
3. Log levels are available from **0 to 7**.
4. In production we use '0' i.e., **No log level**. This process is useful to improve the performance of environment by reducing log creation work of oracle BI server.
5. In development and testing environments we use log level '**2**'.
6. The query log file is named **Nq query.log** and is located in the directory Bi11g/instances/instance1/diagnostics/logs/oracle-bi server-component/coreapplication-obis1.

Log level 1 vs log level 2:

Log level 1	Log level 2
<ol style="list-style-type: none"> 1. User name, session id & request id for each query. 2. Sql for the request using business model names. 3. Query status (success, failure, termination or timeout.) 4. Elapsed times for query compilation, execution, query cache & backend database processing. 	<ol style="list-style-type: none"> 1. All items for level 1,plus those mentioned below. 2. Repository name, business model name, subject area name. 3. Sql for the request using physical data source syntax. 4. Queries issued against the cache. 5. Number of rows returned from physical database 6. Number of rows returned to client or report

Modifying rpd in online mode:

1. Check out.
2. Modify metadata.
3. Check in.
4. Save rpd.
5. Use **copy as** option to override original rpd (Optional)
6. Reload server metadata.

OFFLINE	ONLINE
<ol style="list-style-type: none"> 1. It is recommended for Development 2. Before implementing MUDE only one user can work in offline 	<ol style="list-style-type: none"> 1. It is recommended for Enhancement 2. N number of Users can work on RPD in online mode but they need to work on different objects

3.5 Hands on 5: Adding Multiple Sources

1. Add physical tables to an LTS or LT.
2. If data is not duplicated then that **physical table** can add to **LTS** or **LT** (As a best practice add to **LTS**).
3. If data is duplicated then we need to add **physical table** to **LT**. In this case we need to define content logical level. (It is used in aggregate tables and partition tables chapters)

Note: To add Physical table to LTS, the adding physical table and existing physical table of LTS must have direct join.

Process:

Step 1: Import below tables into physical layer.

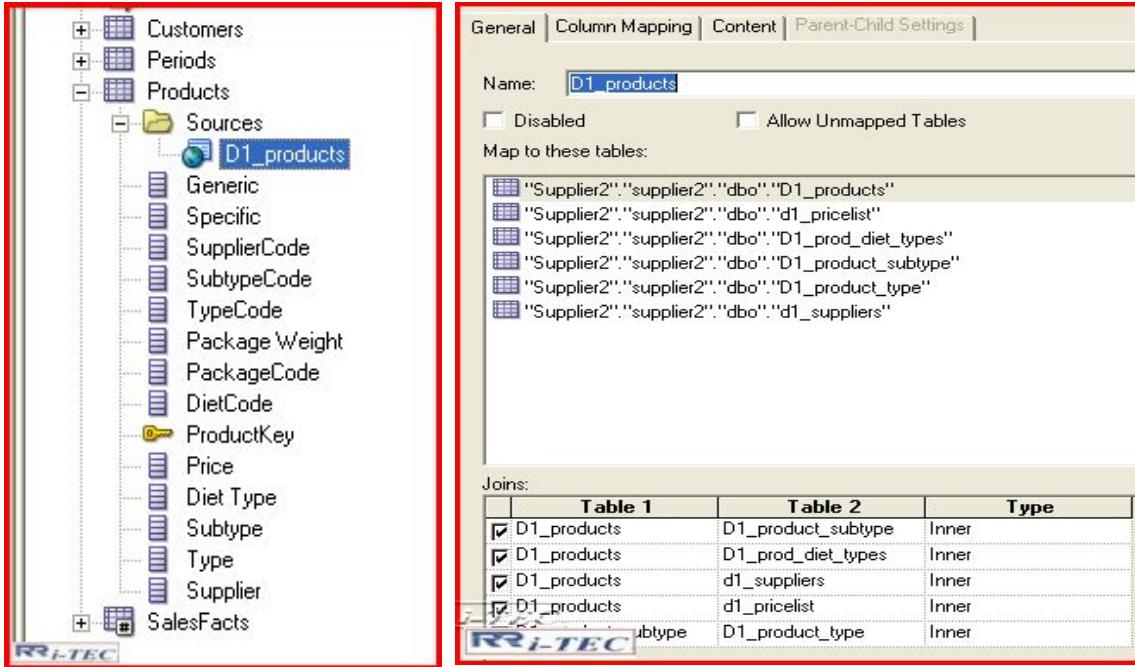
1. D1_PRICELIST.
2. D1_PROD_DIET_TYPES.
3. D1_PROD_SUBTYPE.
4. D1_PRODUCT_TYPE.
5. D1_SUPPLIERS.

Step2 : Create joins as per below.

1. D1_products.suppliercode = D1_suppliers.suppliercode.
2. D1_products.productkey = D1_pricelist.productkey.
3. D1_products.dietcode = D1_prod_diet_type.dietcode.
4. D1_products.subtypecode = D1_productstype subtypecode.
5. D1_product_subtype.typecode = D1_producttype.typecode.

Step 3 : Mapping multiple sources to an LTS.

1. Drag and drop D1_PROD_SUBTYPE physical table onto D1_Product LTS.
2. Similarly drag and drop
D1_PRICELIST,D1_PROD_DIET_TYPES,D1_PRODUCT_TYPE,D1_SUPPLIERS.



The screenshot shows a data mapping interface with two main sections:

- Left Panel (Schema Browser):**
 - Customers
 - Periods
 - Products
 - Sources
 - D1_products
 - Generic
 - Specific
 - SupplierCode
 - SubtypeCode
 - TypeCode
 - Package Weight
 - PackageCode
 - DietCode
 - ProductKey
 - Price
 - Diet Type
 - Subtype
 - Type
 - Supplier
 - SalesFacts

Step 4 :

Drag and drop newly added 5 columns onto products presentation table.

3.6 Hands on 6: Calculations

In OBIEE we can do calculations in 3 ways.

1. Creating calculation based on **logical columns**.
2. Creating calculation based on **physical columns**.
3. Creating calculations by using **calculation wizard**.

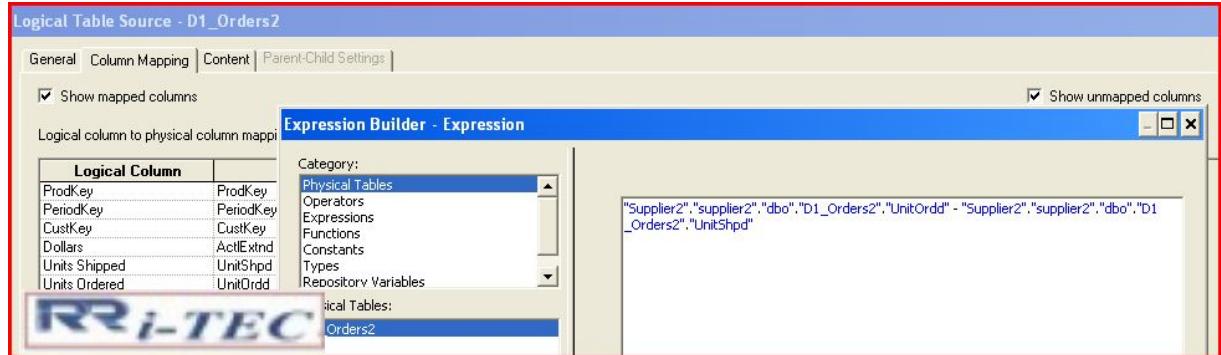
3.6.1 Creating calculation based on logical columns

1. Open RPD in online mode.
2. Right click on BMM layer **sales** fact table → Click on **New object** → logical column.
3. Name it as **Cuts**.
4. Click on **column source** tab.
5. Select radio button **Derived from existing columns using an expression**.
6. Click on **edit expression**  Select category → **logical tables**.
Logical table → **sales**
Columns → double click on **unitord** column → type **Minus(-)** → double click on **unitship** columns.
7. Click on **ok** → again **ok**.
8. Drag and drop into presentation layer **sales** presentation table.

3.6.2 Creating calculation based on physical columns

1. Expand sales logical table
2. Double click on **D1_orders2 LTS** → Go to **Column Mapping Tab**
3. Click on add new column.
4. Name it as **Cutsp**.
5. Click on **ok**.
6. Click on **edit expression**.
7. Double click on **unitord** → type **minus (-)** → double click on **unitship**.

- Click on **ok** → again **ok**.



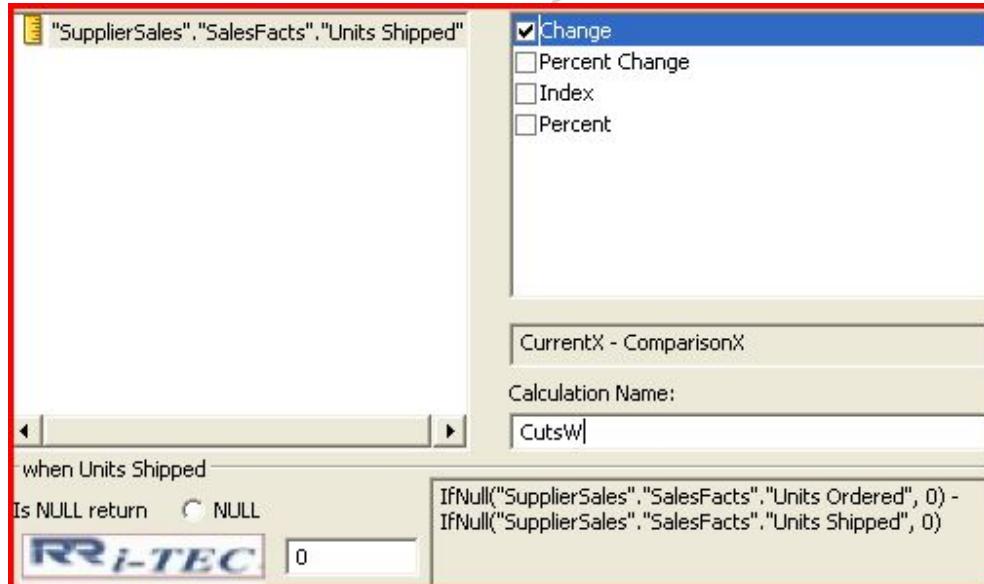
- Double click on **cutsp** → **aggregation** tab → **sum**

- Click on **ok**.

- Drag and drop onto presentation layer **sales table**.

3.6.3 Calculation by using calculation wizard

- Right click on **unitord** → click on **calculation wizard** → **next**.
- Select **unitship** → **next**.
- Disable **percentage change**.
- Rename it as **CutsW**.



- Click on **next** → click on **Finish**.
- Drag and drop into presentation layer **sales table**.
- Check in changes.
- Reload server metadata.

Testing :

Develop a report with year, month code, unitord, unitship, cuts, cutsp ,cutsw & observe the output.

Notes:

1. In logical calculations pre aggregation will take place
2. In Physical calculations post aggregation will take place
3. As a best practice use logical columns in calculations ,because logical columns are reusable
4. Calculation Wizard is useful to handle **NULL** values and **DIVIDE WITH ZERO** error
5. Calculation wizard is useful to calculate percentages easily.
6. Any Complex Calculation ,please ask ETL team to create in their ETL mappings
7. If Calculation is simple and reusable then create in RPD BMM layer
8. If Calculation is simple and not reusable then create in report
9. By Default number of rows from database 65001

Exercise 1: Subtracting two date columns

Step 1: Create a table and insert data as for below

```
create table emp_date_diff (empno number(10),ename varchar2(20),hiredate
date ,regndate date )
```

	EMPNO	ENAME	HIREDATE	REGNDATE
1	101	RR	01-JAN-12	01-MAR-12

Step 2: Incorporate this table into RPD

1. Import emp_date_diff into physical layer
2. Double click on emp_date_diff and mark **empno** as **primerkey**

Physical Table - EMP_DATE_DIFF			
General Columns Keys Foreign Keys			
Key Name	Columns	Type	Description
Emp key	EMPNO	DATE	ITEC

3. Create a business model with the name of date_diff
4. Drag and drop emp_date_diff table onto business model
5. Duplicate table emp_date_diff
6. Create logical join between emp_date_diff and emp_date_diff#1
7. Drag and drop date _diff business model into presentation layer
8. right click on logical table emp_date_diff → new object → logical column
→ name it as **No of working days** → click on **column source** tab
→ develop below expression

Derived from existing columns using an expression

```
TimeStampDiff(SQL_TSI_DAY, "DATE_DIFF"."EMP_DATE_DIFF"."REGNDATE",
"DATE_DIFF"."EMP_DATE_DIFF"."HIREDATE")
```

9. Drag and drop **No of working days** logical column onto presentation table **emp_date_diff** → check in → reload server meta data
10. Develop below report and observe output

Table				
EMPNO	ENAME	HIREDATE	REGNDATE	No of working days
101	RR	1/1/2012 12:00:00 AM	3/1/2012 12:00:00 AM	-60

11. Similarly please calculate no of working months, weeks, quarters and years

Exercise 2: Add two date columns

Similar to above please do this by using function **TimeStampAdd**

Calculate last working day

Exercise 3: Converting one data type into another data type

Hint : use CAST function

3.7 Hands on 7: Creating Dimensional Hierarchies

Hierarchies are 3 three types.

1. Level based hierarchies.
2. Parent child hierarchies (11g new features)
3. Unbalanced hierarchies (11g new features)

Level based hierarchies:

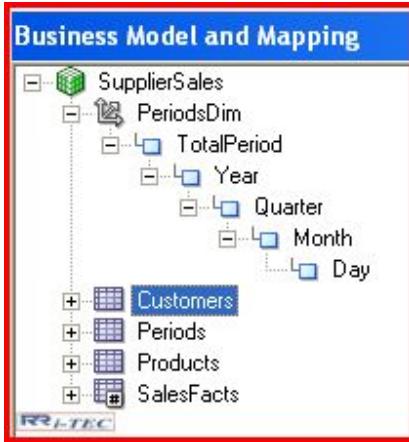
1. One to many relationship among columns is called as level based hierarchies.

Eg:

1. Time hierarchies
Year → quarter → month → day.
2. Customer hierarchies
Region → district → sales rep → customer
3. Product hierarchies
Type → subtype → generic → specific.

Step 1: Creating time hierarchy Levels

1. Right click on **period** dimension table → create logical dimension → dimension with level based hierarchy → expand periods dimension → rename period detail as **day level**.
2. Right click on **day level** → new object → parent level → type: **month** → click on **ok**.
3. Right click on **month level** → new object → parent level → **quarter** → click on **ok**.
4. Right click on **quarter** → new object → parent level → **year** → ok.



Step 2: Calculating quarter column

1. Right click on **period** dimension table → new object → logical column → name it as **quarter**.
2. Click on **columns source tab** → select **derived from existing column using an expression**.
3. Click on **edit expression** 
4. Develop below expression.

```
CASE
WHEN "B191 sales"."01 dim time"."Month in year" < 4 THEN 'Q1'
WHEN "B191 sales"."01 dim time"."Month in year" < 7 THEN 'Q2'
WHEN "B191 sales"."01 dim time"."Month in year" < 10 THEN 'Q3'
ELSE
'Q4'
END
```

5. Click on ok → again ok.

Step 3: Mapping columns to hierarchy Levels

1. From **day level** drag and drop **year** column onto **year level**.
2. From **periods dimension table** drag and drop **quarter** onto **quarter level**.
3. From **day level** drag and drop **month ,month code** onto **month level**.
4. In day level delete all columns except **yyyymmdd ,day_name**.

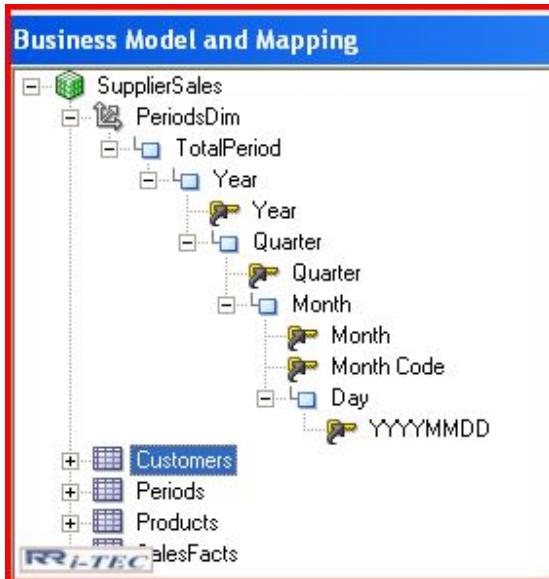
Step 4: Defining Logical Keys

Each and every level must contains a key column,it is required to identify unique values in that level

1. Right click on year level → year column → new logical level key → click on ok.
2. Right click on quarter column → new logical level key → click on ok.
3. Right click on month code → new logical level key → click on ok.
4. Click on save.

Step 5: Defining Content level

1. Expand periods
2. Double click on D1_calendar logical table source → Click on **content** → set logical level as **day level**
3. Click on ok.
4. Expand sales → double click on D1_orders2 logical table source → Click on **content** →logical level as day level → ok.
5. Drag and drop quarter column into presentation layer **periods** presentation table



Step 6: Testing

1. Load RPD into oracle BI server.
2. Develop a report with year , dollars column.
3. Click on year →column properties → then interaction → select primary interaction as drill → click on ok → click on results → click on 1998 → Click On Quarter → click on month.

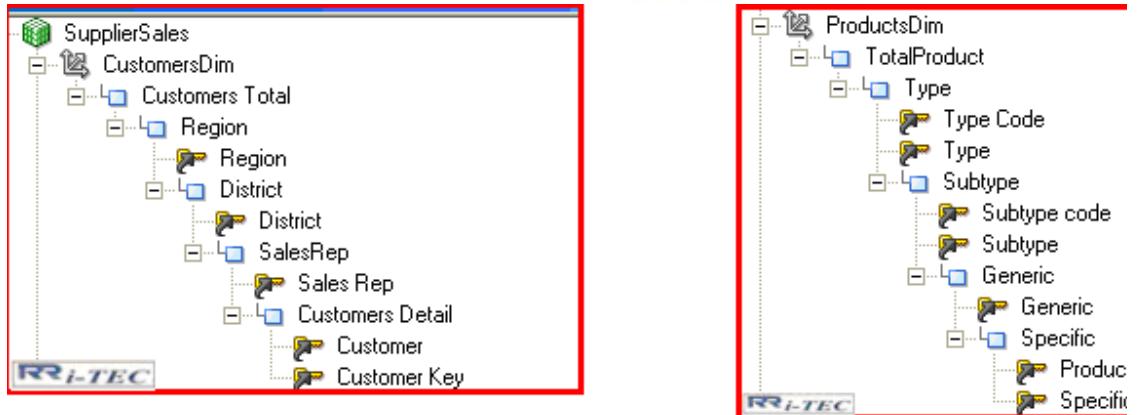
Note : Similarly create product & customer hierarchy with below levels as shown in screen shot and test by developing reports .

Customer hierarchies

Region → district → sales rep → customer

Product hierarchies

Type → subtype → generic → specific.



Hierarchies are useful to

1. Drill down.
2. Drill up.
3. Drill across (or) drill by.
4. Level based measures.
5. Aggregate navigation.
6. Time series measures.

1. Drill down

1. Navigating from high level to low level is called as drilldown.
2. Above testing process we can consider as drill down.(year → quarter → month → day)

2. Drill up

1. Navigating from low level to high level is called as drill up (Day → Month → Quarter → Year)

Process:

1. Open RPD in online mode → double click on day level → preferred drill path → click on add → select month level → click on ok.
2. Check in changes & reload server metadata.
3. Develop a report with yymmdd , dollars.
4. Click on yymmdd → column properties → interaction → under value → primary interaction as drill → click on ok.
5. In results click on any one number. and observe month data.

3. Drill across:

1. Navigating from one hierarchy to another hierarchy is called as drill across.
Eg: Day → Region (drill across)

Process:

1. Go to Rpd → double click on day level remove month column → click on add → select region → click on **select** → check in.
2. Reload server metadata.
3. Develop a report with yymmdd , dollars.
4. Click on yymmdd → column properties → interaction →primary interaction as drill → click on ok → click on results.
5. Click on any value & observe the output.

4. Making two or more columns as target:

1. Go to RPD → double click on day level → keys →select primary key → edit → select two columns(Day and YYYYMMDD) → enable use for display → click on ok again ok → check in → reload server metadata → test your work.

5. Number of Elements at this Level

- a. As per the documents this value equivalent distinct values of column mapped with that level. But Maintaining this rule is difficult hence we will make sure from top level to bottom level it is in increasing order
- b. We can populate this property automatically by using Estimate levels (Possible only RPD in online mode)
- c. Default value is **1**
- d. Grand Total Level number of elements value is always 1
- e. IF same content logical level available then this property is useful To pick proper aggregate table

3.8 Hands on 7.1: Level Based Measures (LBM)

1. If a measure column is calculated on one particular level then it is called as level based measure.
2. Level based measures are useful to calculate **share or percentages**.

Step 1: Creating Level Based Measure

1. Open RPD in online mode → Right click on sales fact tables → new object → logical column → total revenue → column source → select derived from existing column using expression → click on edit expression → double click on dollars column → click on ok → again ok → drag and drop total revenue onto customer dimension → customer total level → drag and drop total revenue into presentation table .

Step 2: Understanding or testing Level Based Measure

1. Go to reporting end and develop a report with region ,dollars , total revenue.
2. Click on results. Notice that total revenue and dollars column displaying same value for all the rows that mean it is calculating at the level of total customers.

Step 3: Using Level Based Measure in Share Calculations

1. Right click on sales fact table → New object → logical column → name it as **share** → click on **column source** tab → select derived from existing column using an expression → Edit expression → double click on dollars column → double click on (/) divided by → double click on total revenue * 100 → click on ok → again ok.
2. Drag and drop share into sales presentation table → check in changes.

Step 4: Testing

1. Reload server metadata. In above report (developed in step2) add one more column **share** → observe the result.

Step 5: some more exercises

- 1) Calculate district share with in region
- 2) Calculate Itemsubtype share within item type
- 3) Calculate Itemtype share
- 4) Calculate Quarter share with in year
- 5) Can we map a measure column with multiple levels of a hierarchy : NO

02 OBIEE Learner Level

4. Analytics

Analytics is a **web based** component. It is useful to access.

1. Web catalog.
2. Analysis.
3. Dash boards.
4. KPI
5. KPI Watch List
6. Score Cards
7. Administration portal.
8. BI publisher....etc

4.1 Hands on 8: Creating Web Catalog and Reports

Web Catalog:

1. It is a container (or) pre defined folder structure.
2. It is useful to store reports, dash boards, KPIs, Score cards , user profiles etc...
3. Web catalog also called as BI presentation catalog

Creating Web Catalog :

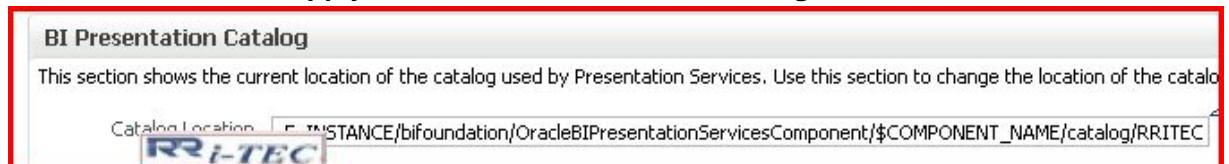
Web Catalog is managed by **Oracle BI Presentation Server**

In creating web catalog we have below steps.

1. Configure EM.
2. Restart oracle BI presentation server
3. Confirm catalog in catalog folder.

Step 1 : Configure EM

1. Under **BI Presentation Catalog**
2. Go to End of the catalog location path → after **catalog**/ type **RRITEC**
 → Click on **Apply** → click on **activate changes** → click on **Close**.



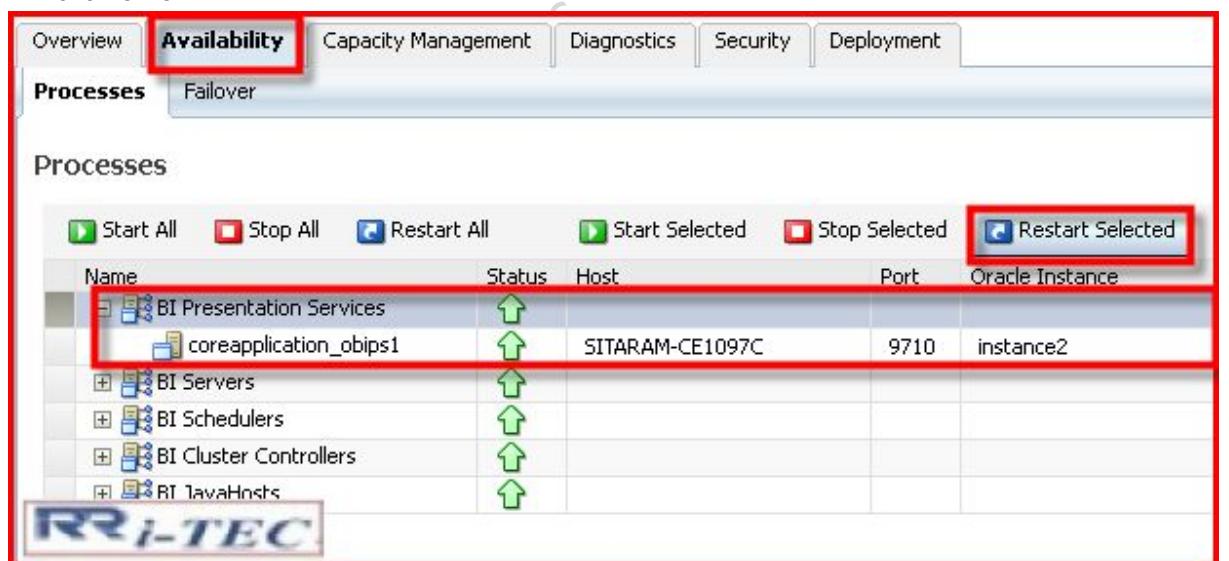
BI Presentation Catalog

This section shows the current location of the catalog used by Presentation Services. Use this section to change the location of the catalog.

Catalog Location: INSTANCE/bifoundation/OracleBIPresentationServicesComponent/\$COMPONENT_NAME/catalog/RRITEC

Step 2 : Restart oracle BI presentation server

1. Go to Availability→select Oracle BI Presentation Server → Click on restart → click on ok.



Name	Status	Host	Port	Oracle Instance
BI Presentation Services	Up	SITARAM-CE1097C	9710	instance2
coreapplication_obips1	Up			
BI Servers	Up			
BI Schedulers	Up			
BI Cluster Controllers	Up			
BI JavaHosts	Up			

Step 3 : Confirm catalog in catalog folder

1. Navigate to below folder.
 E://BI11g/instances/instance1/bifoundation/oracleBI presentation component/coreapplication_obis1/catalog.

C:\OB11g.6\instances\instance2\bifoundation\OracleBIPresentationServicesComponent\coreapplication_obips1\catalog				
	Name	Size	Type	Date Modified
and Folder Tasks	MurthyCat		File Folder	8/29/2012 9:13 AM
	RRITEC		File Folder	12/5/2012 8:18 PM
Make a new folder	SampleAppLite		File Folder	8/7/2012 12:56 PM

Note:

- Whenever we started oracle BI presentation server it will read **instanceconfig.xml** file & it picks the catalog name from file & verifies it is available in catalog folder (or) not. If catalog is available with same name then it will load else it will create new one .
- The Log File of Oracle BI Presentation server is **SAWLOG0** and it is available in below path
- Our current log is available bottom of **sawlog0.log**

C:\BI11g\instances\instance1\diagnostics\logs\OracleBIPresentationServicesCo mponent\coreapplication_obips1

4. catalog contains three folders
 - **Shared** folder or **Public** folder
 - **Users** or **My folders** or **personal** folders
 - **System**

C:\BI11g\instances\instance1\bifoundation\OracleBIPresentationServicesComponent\coreapplication_obips1\catalog\SampleAppLite\root				
	Name	Size	Type	Date Modified
and Folder Tasks	shared		File Folder	6/9/2012 3:43 PM
	system		File Folder	6/9/2012 3:25 PM
Make a new folder	users		File Folder	6/9/2012 3:43 PM
Publish this folder to the Web	shared.atr	1 KB	ATR File	6/9/2012 3:25 PM
Share this folder	system.atr	1 KB	ATR File	6/9/2012 3:43 PM
RRI-TEC	users.atr	1 KB	ATR File	6/9/2012 3:25 PM

1. Shared Folder:

1. This folder is useful to share reports or dashboards or KPIs..etc to end users or business users .

2. My Folder:

1. This folder is personal folder .it will be created for each and every user separately with the name of user when ever **first time** he signed into analytics
2. If a user save a report in this folder that cannot be accessed by any other user .
3. These folders are useful to save partially developed reports

3. System:

1. It is useful to store system level properties.
2. This folder is not accessible from analytics page .

Hands on 3

DDR

Step 1: Creating User

Note:

1. Filters will be stored in a sub folder called as **_filters**.
2. Dashboards will be stored in a sub folder called as **_Portal**.
3. Conditions will be stored in a sub folder called as **_conditions**(up to 11.1.1.5 it is true)
4. In analytics only two folders visible those are shared folders and my folders(known as USERS)



Analysis:

1. In OBIEE 10g analysis is called as **answers**.
2. It is useful to create reports.
3. Reports in OBIEE 10G are called as **Requests**.
4. Reports in OBIEE 11G are called as **Analysis**.
5. Reports in SAP-BO are called as **Documents**.

Developing a simple report:

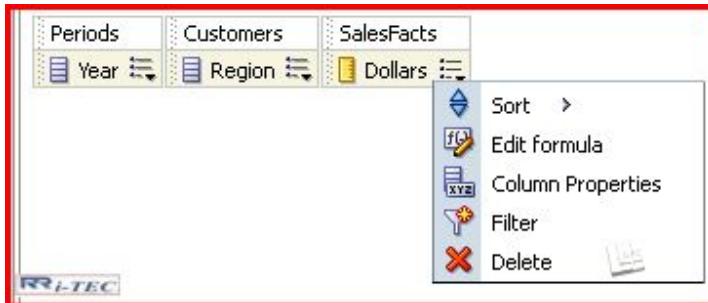
1. Open analytics → click on new → analysis → select subject area **sales** → click on any column → click on results → save it.

Settings environment for learner level of OBIEE :

1. Load RR ITEC **reports_dashboards.Rpd** into oracle BI server. In learner level in all handsons we will use this **RPD**
2. LABCOPY>>>LAB DATA>>>RPDs>> reports_dashboards.Rpd

4.2 Hands on 9: Working with Analysis

1. Develop a report with columns year, region, dollars. Place cursor on any column & observe below properties .



1. Column properties.
2. Edit formula.
3. Filters.
4. Sorting.
5. Delete.

1. Column properties:

✓ column properties are useful to set below options.



1. Style
2. Column format.
3. Data format.
4. Conditional format.
5. Interaction.
6. Write back

1. Style:

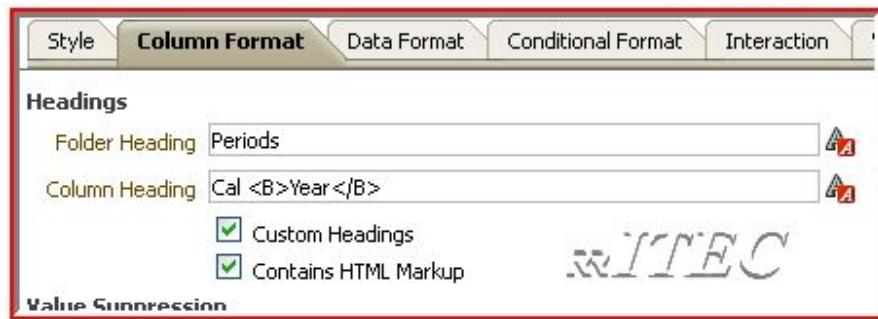
It is useful to format data like **font, cell,borders**

2. Column Format

Useful to change headings ,hide columns and suppress values

Headings

1. We can customize table and column titles
2. In OBI 11G Partially title formatting is possible by taking help of HTML tags



Hide columns:

It is useful to hide unnecessary columns

Scenario: Customer want to see month column as per calendar sorting (ex jan>>Feb>>mar.....etc)

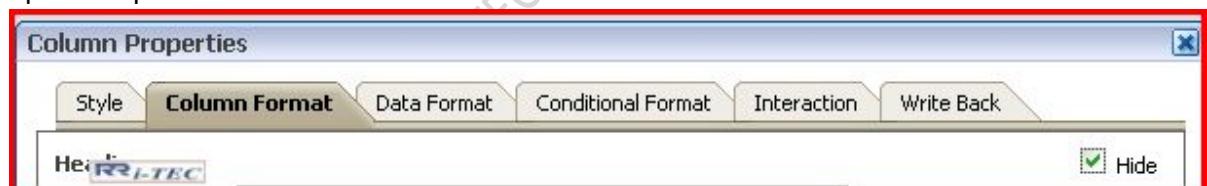
Case 1: If requirement is in only one report

Step1 : Develop a report as per below

Periods	SalesFacts		
Year	MonthCode	Month	Dollars
1998	January	Jan	3568665.30
	February	Feb	3884407.10
	March	Mar	3975734.13
	April	Apr	3907254.58
	May	May	4061556.57
	June	Jun	3994530.88
	July	Jul	4054411.49
	August	Aug	4242611.11
	September	Sep	3810262.95
	October	Oct	4596371.88
	November	Nov	3655168.88
	December	Dec	3997616.39
1999	January	Jan	4302118.96
	February	Feb	3965119.69
	March	Mar	4321029.73
	April	Apr	2699933.47

Step2: Enabling Hide option on monthcode

Click on **monthcode** column properties → Click on column format → Enable hide option as per below → click on OK



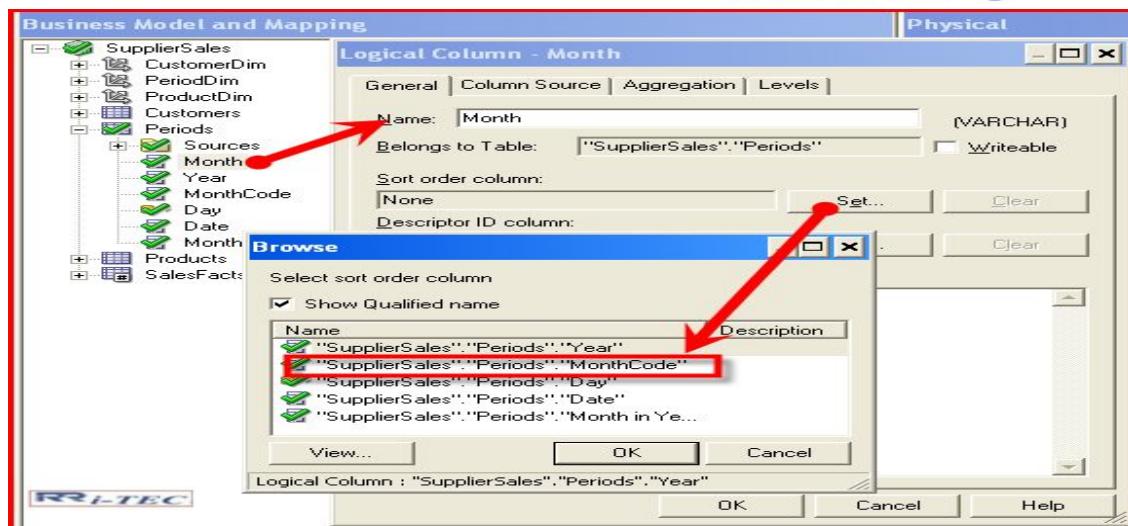
Step3: Testing

Click on results and observe output

Year	Month	Dollars
1998	January	3568665.30
	February	3884407.10
	March	3975734.13
	April	3907254.58
	May	4061556.57
	June	3994530.88
	July	4054411.49
	August	4242611.11
	September	3810262.95
	October	4596371.88
	November	3655168.88
	December	3997616.39
1999	January	4302118.96
	February	3965119.69
	March	4321029.73
	April	2699933.47

Case 2: If requirement is in all reports, then we can configure in RPD

Step1: Open RPD in online mode → expand Periods logical table → double click on **month** column → In General tab → Click on **Set** → Select Monthcode column



Click on OK → again OK >> checkin changes >> reload server metadata

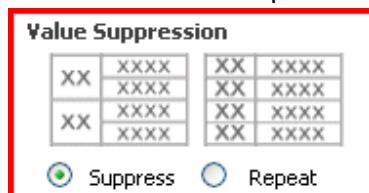
Step 2: Testing

Develop below report and observe output

Year	Month	Dollars
1998	January	3568665.30
1998	February	3884407.10
1998	March	3975734.13
1998	April	3907254.58
1998	May	4061556.57
1998	June	3994530.88
1998	July	4054411.49
1998	August	4242611.11
1998	September	3810262.95
1998	October	4596371.88
1998	November	3655168.88
1998	December	3997616.39
1999	January	4302118.96
1999	February	3965119.69
1999	March	4321029.73
1999	April	2699933.47

Suppress:

It is useful to hide duplicate values in report .



3. Data Format:

It is useful to convert one format of data into another format

Step1: Develop report as per below

Step2: Click on → column properties → data format
→ select as per below and observe output

Year	Month	Dollars	Change Dollars Month Ago
1998	February	3884407.10	\$315,742
	March	3975734.13	\$91,327
	April	3907254.58	(\$68,480)
	May	4061556.57	\$154,302
	June	3994530.88	(\$67,026)
	July	4054411.49	\$59,881
	August	4242611.11	\$188,200
	September	3810262.95	(\$432,348)
	October	4596371.88	\$786,109
	November	3655168.88	(\$941,203)
	December	3997616.39	\$342,448
1999	January	3568665.30	(\$428,951)

NOTE : If this formatting is required for all existing reports and upcoming reports then in **data format** tab click on **save as system wide default**

4. Conditional format:

- ✓ It is useful to format data based on some condition.

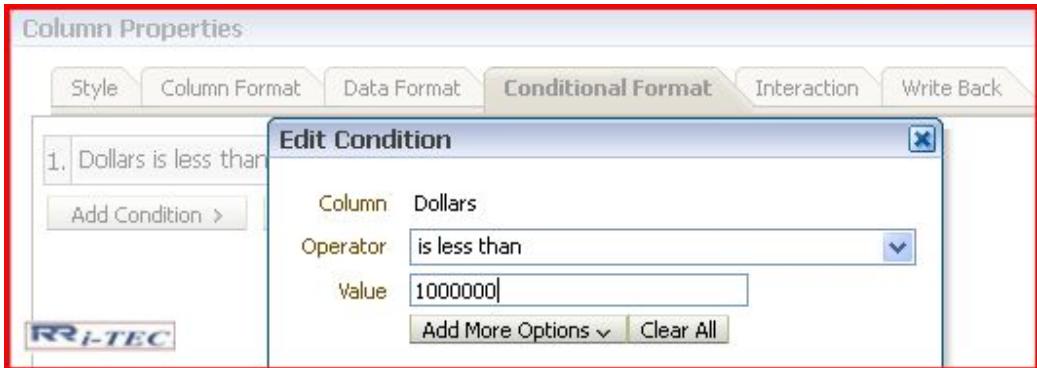
Process:

Step 1: Develop a report as per below

Step 2: Applying conditional format

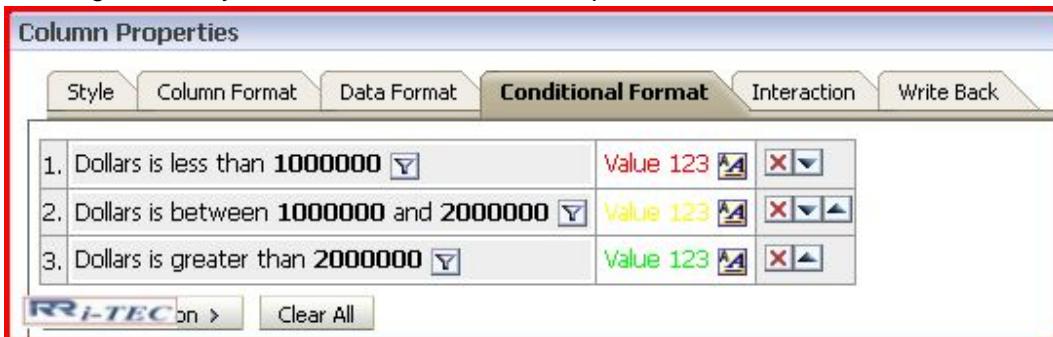
Click on dollars → column properties → condition format →

Condition 1: add condition → click on dollars → select operator as **is less than** → value as **1000000** → click on ok → select foreground color as **Red** → click on **ok** → again **ok**



Condition 2: add condition → click on dollars → select operator as **is between** → values are **1000000 ,2000000** → click on ok → select foreground color as **yellow** → click on **ok** → again **ok**

Condition 3: add condition → click on dollars → select operator as **is greater than** → value as **2000000** → click on ok → select foreground color as **Green** → click on **ok** → again **ok** → your conditions should be as per below



Click on **ok** → click on **results**.

Step 3: Testing

Your result should be as per below

Year	Region	Type	Dollars
1998	West	Condiments	2804200.70
1998	East	Condiments	2776296.83
1998	West	Poultry	2528729.68
1998	East	Poultry	1942034.52
1998	East	Cheese	1679851.34
1998	West	Cheese	1650255.22
1998	West	Beef	1715766.25
1998	Central	Cheese	1623017.97
1998	East	Vegetable	1622281.44
1998	East	Baking	1536151.09
1998	East	Beverage	1516450.80
1998	West	Baking	1432534.63
1998	East	Non-food	1430700.76
1998	Central	Condiments	1414541.24
1998	West	Beef	1399120.02
1998	West	Vegetable	1396266.57
1998	West	Pork	1330005.58
1998	West	Non-food	1304100.58
1998	West	Beverage	1297300.62
1998	Central	Poultry	977969.67
1998	East	Seafood	899248.26
1999	West	Poultry	862136.68
1999	West	Condiments	840481.55
1999	East	Condiments	838814.99
1998	East	Dessert	792447.45

5. Interaction

Will discuss in Advanced OBI 11g

6. Write Back

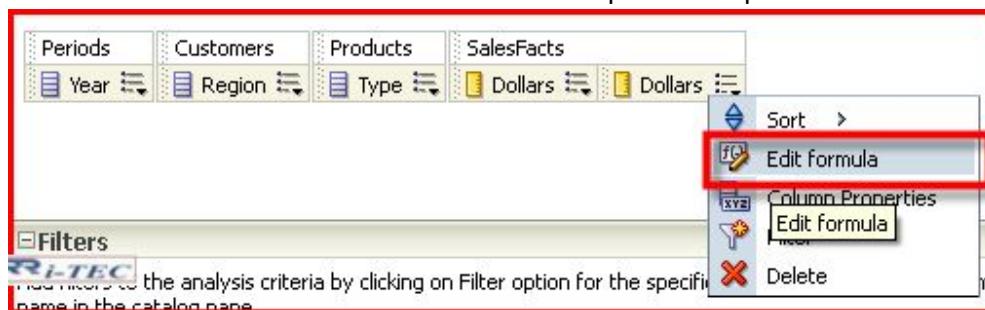
Will discuss in Advanced OBI 11g

2. Edit formula:

- It is useful to create any report level calculations.

Process:

- In above report(conditional format practice) click on criteria → add one more **Dollars** column → click on **Edit formula** develop below expression.



- Rename Second **Dollars** column as **Tax** and type below expression

```
CASE WHEN "SalesFacts"."Dollars"<1000000 THEN "SalesFacts"."Dollars" * 0.1
WHEN ("SalesFacts"."Dollars">>=1000000 AND "SalesFacts"."Dollars"<=2000000
) THEN "SalesFacts"."Dollars" * 0.2
ELSE
"SalesFacts"."Dollars" * 0.3
END
```

The screenshot shows the 'Edit Column Formula' dialog. The 'Column Formula' tab is active. The formula field contains the provided CASE statement. The 'Available' section on the left shows subject areas like SupplierSales, Periods, and SalesFacts.

- Click on **ok**
- Click on **results**

Year	Region	Type	Dollars	Tax
1998	Central	Baking	13983969.98	4195190.99
		Beef	6352148.29	1905644.49
		Beverage	3349650.97	1004895.29
		Bread	467791.62	46779.16
		Cereal	846601.32	84660.13
		Cheese	3246035.94	973810.78
		Condiments	36785890.43	11035767.13
		Dessert	5542175.54	1662652.66
		EntrTe	786549.93	78654.99
		Grains	10217.34	1021.73
		Lamb	10039.44	1003.94
		Non-food	38708015.10	11612404.53
		Pasta	26348.35	2634.84
		Pork	2939489.04	881846.71
		Poultry	5867818.02	1760345.41
		Rice	92626.32	9262.63
		Seafood	1066497.06	213299.41
		Snacks	1599962.56	319992.51
		Soup	148720.75	14872.07
		Vegetable	4541579.99	1362474.00
	East	Baking	29224870.74	8767461.22
		Beef	13991200.20	4197360.06
		Total	0000750.00	2220427.44

Bins:

1. Are useful to combine values for the column into sets.
2. Bins are useful to group the data

Process:

- 1) Develop a report as per below

- 2) Click on first **type** column → **edit formula** → click on **bins** → develop **bins** as per below → Click on ok



3) Click on **result**

Type	Type	Dollars
All Likes	Baking	93584695.30
	Cereal	5236285.63
	Condiments	236733156.27
	Entrée	5422964.85
	Frozen	521.28
	Grains	118136.82
	Non-food	263726090.93
	Pasta	147409.32
	Poultry	43214049.90
	Snacks	10379883.50
Indian Food	Lamb	143105.68
	Pork	20225348.78
	Rice	815664.06
	Seafood	5430027.66
	Vegetable	29915474.44
USA FOOD	Beef	49082159.97
	Beverage	26387856.33
	Bread	4736230.33
	Cheese	14270690.45
	Dessert	48584523.60
	Soup	826004.57

4.3 Hands on 2: Working with Filters

Filter:

1. Filter is useful to restrict the data in OBIEE
2. Is a condition created with following elements
 1. Port or column
 2. Operator
 3. Value

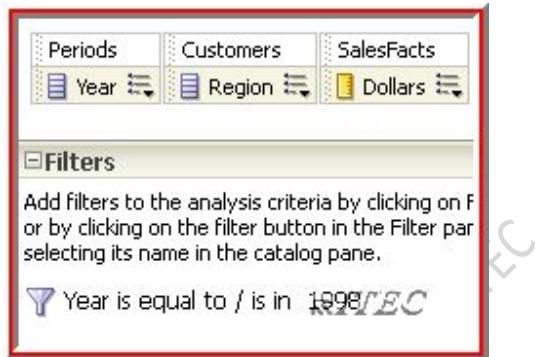
Example Deptno = 10

3. We can develop filters in below ways.

1. Creating filter with using criteria column.
2. Creating filter using subject area column.
3. Use a **saved filter** in a report (reusability purpose).
4. Use one report output as filter in another report.
5. Using variables.
6. Using SQL expression.
7. Using group filters.
8. Add a column filter prompt to a request.
9. Add an image filter prompt to a request.
10. Add a Variable filter prompt to a request.

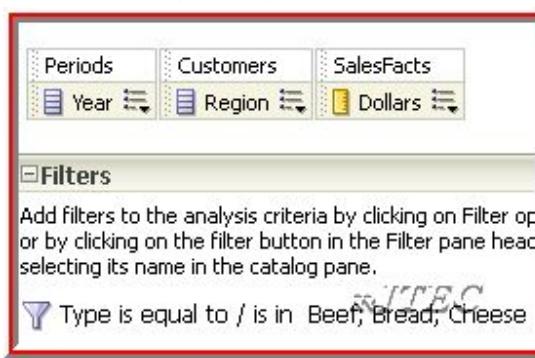
1) Creating filter using criteria column:

1. Develop a report with 3 columns year, region, and dollars. Click on year filter type value as **1998**. Click on ok & click on Results.



2) Creating filter using subject area column:

1. In the above report delete year filter.
2. Click on **filter button** in filter pane → click on **more columns** → expand **product** → select **Product type** Column → click on down arrow mark of value → select beef, bread, cheese. → click on **ok** → click on **results**.

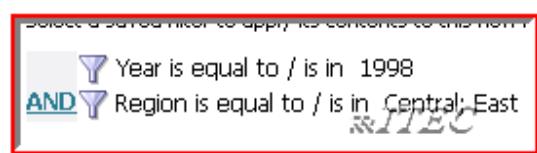


3) Use a saved filter in a report

If we need to use a filter in multiple reports then as a best practice save that filter and use in all reports.

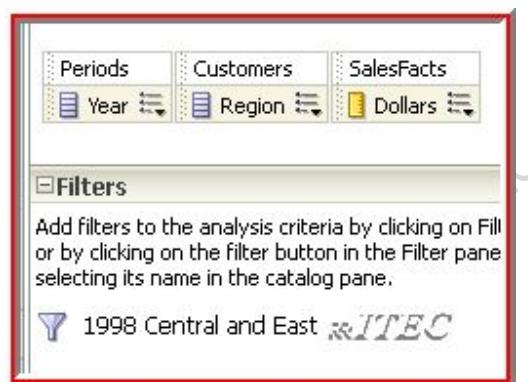
Step 1: Creating saved filter

1. Click on **new** → click on **filter** → click on **supplier sales** → from subject area pane click on **year** → type **1998** → click on **ok** → from subject area pane click on **region** → from drop down select **central & east** → click on **ok** → click on **save** → select any **folder** → Name filter as **1998 central & east filters** → click on **ok**.



Step 2: Using saved filter

2. Click on **new** → **analysis** → **supplier sales** → double click on year, region, dollars → navigate to our saved filter → select it & click on (+) add → click on **ok** → click on results.



3.

4) Using one report output as filter in another report

Requirement : Show always current month data of database

Step 1: Calculating Current Month from Database

1. Develop a report with **month code** column
2. Click on **month code** column → click on **edit formula** → type **max("periods", "month code")** → click on **ok**
3. Click on **save** → Select any folder → name it as **current _month** → click on **ok**.

Step 2: Develop another report

1. Develop another report with columns year, month code, region, dollars
2. Click on month code filter → select operator as **is based on result of another analysis** → click on saved analysis **browse** → select our **current_month** report → click on **ok** → again **ok** → click on **results**.

The screenshot shows the Analysis Studio interface with the 'Filters' pane open. At the top, there are four dimensions: Periods, Customers, SalesFacts, and a custom dimension. Below them are four filters: Year, Month Code, Region, and Dollars. The 'Filters' section contains a descriptive text about adding filters and a specific filter entry:

Add Filters to the analysis criteria by clicking on Filter option for the specific dimension or by clicking on the filter button in the Filter pane header. Add a save operation by selecting its name in the catalog pane.

Month Code is equal to any MAX(Month Code) in Database_current_month

Exercise: Develop a report with columns year ,monthcode,region and dollars and show only max month corresponding data from each year

Year	Month Code	Region	Dollars
1998.00	199812.00	Central	\$844,307
		East	\$1,631,861
		West	\$1,521,448
1999.00	199904.00	Central	\$611,819
		East	\$997,098
		West	\$1,091,017

Hint : Add Year column in current month report

Exercise: Get max dollars district from each region

5) Using variables

1. Develop a report with year, month code, region, dollars
2. Click on month filter → click on **add more options** → Select **repository variables** → type repository variables as **current_month** → click on **ok** → click on **results**.

6) Using SQL expression:

4. It is equivalent to database **sub query** concept.
5. Develop a report year, month code, month, region, dollars → click on region filter → click on add more options → **sql expression** → develop below expression
 - i) Select "supplier sales" "customers" "region" from "supplier sales" where "supplier sales" "customers" "region" = "central"
6. Click on **ok** → click on **results**.

Convert this filter to SQL

It is useful to customize where clause by using SQL syntax or functions

Process

Develop a report with year ,region,dollars → click on region filter → select convert this filter to sql → click on OK→develop expression

UPPER("Customers"."Region") = 'EAST' → click on OK→click on result

The screenshot shows the 'Filters' pane of the Analysis Services interface. It contains three columns: 'Periods', 'Customers', and 'SalesFacts'. Under 'Customers', there are filters for 'Year' (set to 'Year'), 'Region' (set to 'Region'), and 'Dollars' (set to 'Dollars'). Below these is a section titled 'Filters' with the following text: 'Add filters to the analysis criteria by clicking on Filter or by clicking on the filter button in the Filter pane header. Selecting its name in the catalog pane.' At the bottom of the pane is a query: `UPPER("Customers"."Region") = 'EAST'`.

7) Using a group filters:

7. Develop a report with year, region, type, dollars. Develop below three filters
 - 1) year = 1998.
 - 2) Region = central
 - 3) type =beef , bread.
8. Click on first AND operator → observe that is changed as OR & 1st & 2nd filters(year, region) are now called as group filter. If you want ungroup click on 2nd filter → edit filter group → click on **ungroup**.

The screenshot shows the 'Filters' pane of the Analysis Services interface. It contains four columns: 'Dim1 time', 'Dim3 customers', 'Dim2 products', and 'Actual Columns'. Under 'Dim3 customers', there are filters for 'Year' (set to 'Year'), 'Region' (set to 'Region'), and 'ITEMTYPE' (set to 'ITEMTYPE'). Under 'Actual Columns', there is a filter for 'Dollars' (set to 'Dollars'). Below these is a section titled 'Filters' with the following text: 'Add filters to the analysis criteria by clicking on Filter option for the specific column or by clicking on the filter button in the Filter pane header. Add a saved filter by selecting its name in the catalog pane.' At the bottom of the pane are three filter entries separated by OR operators: `Year is equal to / is in 1998`, `Region is equal to / is in Central`, and `ITEMTYPE is equal to / is in Beef, Bread`.

8) Add a column filter prompt to a request:

1. User friendly filter or run time filter or Dynamic filter is called as **prompt**.

Process:

1. Develop a report with region, sales district, dollars
2. Click on prompts → click on new → column prompt → region → click on ok
3. Again click on new → column prompt → sales district → click on **option** and expand→ select limited values by region → click on ok → click on preview → select central → Select District →click on ok.

9) Add an image filter prompt to a request:

1. Whenever we are running the report, image will be displayed. If you click on any part of the image then that part corresponding data will be displayed.

Process:

- 1) Develop a report with column region, district, and dollars.
- 2) From **RRitec lab data** folder copy **USAmap.jpg** into **E:/inetpub/wwwroot**(OS installed drive)
- 3) Click on **Prompts** tab → Click on **new** → image prompt type image URL as <http://localhost/usamap.jpg>
- 4) From lab data folder → double click on **usamap.txt** file → copy entire code.
- 5) Paste it into html image map → click on **extract image map** from html → Type as per below

a. Area title	columns	value
b. Select central	“customers”. “Region”	Central
c. Select east	“customers”. “Region”	East
d. Select west	“customers”. “Region”	West

 → ok .

10) Presentation Variable Prompt

1. Presentation Variable is useful to capture “User Response”
2. In Variable Prompt, we will use only Presentation Variable.
3. **Presentation Variable syntax:** @ {<variable name>} {<value>} {<format>}
 - a. Here <value> and <format> are optional.
 - b. **Variable Name** is the name of the Presentation Variable and it is case sensitive
 - c. **Value** is by default value
 - d. **Format** is to convert one format to other format

Procedure:

1. Develop a Report with columns Region, District, Dollars
2. Click on Prompts
3. Click on **New** → Variable Prompt → Name it as **V_USER_SELECTION** → click on **OK**.
4. Go to the Criteria → Click on Region Filter → Click on add more options → Presentation Variable → Type Variable Expression as V_USER_SELECTION → Click on OK
5. Click on District Filter → add more options → Presentation Variable → Type Variable Expression as V_USER_SELECTION → Click on OK
6. Click on the **and** operator in the Filter pane and change it as **or** operator.
7. Click on Prompts → Click on the Filter → Type Gulf in the text box
8. Click on **OK** and Observe Gulf Data

Exercise : Search region or district data

Step 1: Develop a report with region,district and dollars

Step2 : Create variable prompt

Click on **prompts** → click on **new** → select **variable prompt** → name it as **PV_USER_SELECTION**

Prompt Label	Type	Prompt For	Description	Required	New Column
Page 1	Page				
PV_USER_SELECTION	Variable value				RRITEC <input type="checkbox"/>

Step3: using variable prompt as filter

In the criteria tab of the report click on region column filter → select **convert this filter to sql** → click on **OK** → develop expression → click on **ok**

UPPER("Customers"."Region")=UPPER ('@{PV_USER_SELECTION}') OR
UPPER("Customers"."Sales District")=UPPER ('@{PV_USER_SELECTION}')

Step 4: Testing

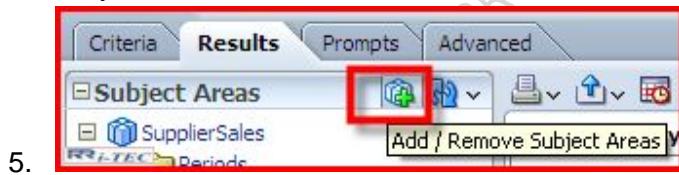
Click on the **prompts** tab of the report → click on **preview** → type **gulf** → observe output

Note : None of the projects are using report level prompt these three prompts delivered as part of syllabus .Report level prompts are just for testing purpose only . In project if you need prompt then we will go for **DASHBOARD PROMPTS**

4.4 Hands on 3: Advanced Features of Analysis

Combining the similar request

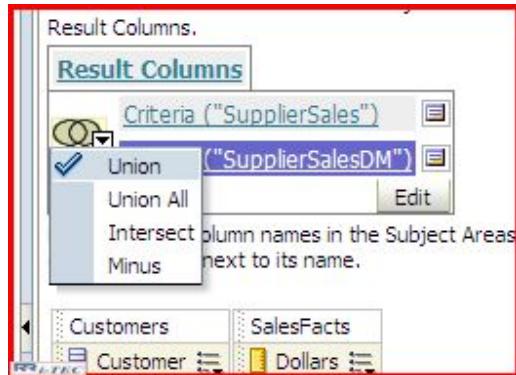
1. In this concept we will use below set operators like.
 1. Union.
 2. Union all.
 3. Intersect.
 4. Minus.
2. To work with set of operators we need to make sure.
 - i. No. of columns in two requests must be same.
 - ii. Corresponding columns data types must be same.
 - iii. **Union** will not provide duplicates.
 - iv. **Union all** will provide duplicates.
3. In this concept we can develop a report from two different criterias which are coming from different subject areas or same subject area.
4. In OBIEE 10G to combine two subject areas this is the only way ,where as in 11G we can use this concept or we can use add subject area option (but these subject area must build from same business model)



5. **Process:**

From subject area pane click on customers, dollars → click on **dollars** column filter → select operator is between → value 5000 & 15000 → click on ok → click on **combine results** → select **supplier sales DM** subject area→ click on customer, dollars → click on **dollars** column filter →select is between operator → value :10000,20000 → ok → results

Testing: Click on criteria change set operator as per requirement and observe output



Direct database request:

1. Executing a report directly from data base is called as DDR
2. As a normal user (member of BI Authors group) to develop DDR report then we need to get two privileges from administrator (BI Administrators).
 1. Edit direct database request.
 2. Execute direct database request in **RPD** and **web catalog**.
3. DDR reports not recommended in any project due to below disadvantages
 - i. RPD Security rules will not be applicable
 - ii. Performance.
 - iii. Need SQL experts to develop these reports

Process:

Step 1: Creating a user

- 1) Open Console <http://localhost:7001/console>
- 2) UN : weblogic and PW : RRitec123
- 3) Click on **login**
- 4) Click on **Security Realms** → Click on **myrealm**



- 5) Click on **users and groups** tab → Click on **users** tab → Click on **New**
 1. **Name** : RRITECDDR
 2. **Password** : RRitec123
 3. **Conform Password** : RRitec123

- 6) Click on **OK**

Step 2: Assigning to **BIAuthor** Group to get **developer** permissions

- 1) Click on **users and groups** tab → Click on **users** tab
- 2) Click on user **RRITECDDR**
- 3) Click on **groups** tab
- 4) Select **BIAuthors** group
- 5) Click on >
- 6) Click on **Save**

Step 3: Assigning DDR required privileges to RRITECDDR

- 1) Login to Analytics as **weblogic** user

- 2) Click on **Administration**
- 3) Click on **Edit Direct Database Analysis** **BI Administrator Role**
- 4) Click on **+**
- 5) Select **List as users** → Click on search → Select **RRITECDDR** → Click on **Move**
- 6) Click on **OK** → Again Click on **OK**
- 7) Similarly provide other privilege

Answers	Enter XML and Logical SQL	BI Author Role
	Edit Direct Database Analysis	BI Administrator Role, RRITECDDR
	Create Analysis From Simple SQL	BI Administrator Role
	Create Advanced Filters and Set Operations	BI Author Role
	Save Filters	BI Author Role
	Execute Direct Database Analysis	BI Administrator Role, RRITECDDR
	Get Data	BI Author Role

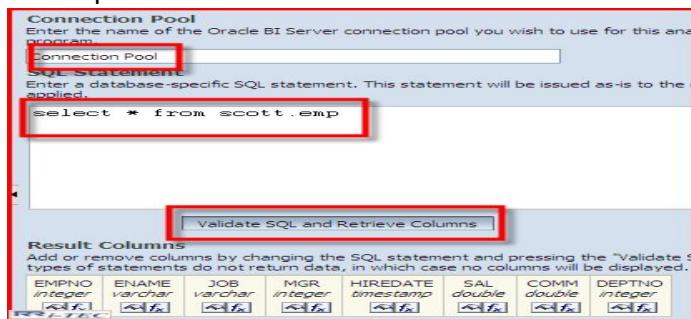
Step 4: Providing executing DDR privileges to RRITECDDR in RPD

- 1) Open RPD in online mode → go to **manage** → **identity** → **actions** → set online user filter → type * → click on ok → double click on RRITECDDR user → click on permissions → **query limits** tab → change **Execute direct database request** as **allow** → click on ok → click on ok → Check in → reload server metadata

User/Application Role Permissions - RRITECDDR							
Object Permissions		Data Filters		Query Limits			
Database	Restrict	Status Max Rows	Max Rows	Status Max Time	Max Time (Minutes)	Populate Privilege	Execute Direct Database Requests
RRITEC	Ignore	100000	Ignore	10	Ignore	Allow	Allow

Step 5: Creating DDR report

- 1) Login to **Analytics** as a **RRITECDDR** user → Click on new → analysis → click on **create direct database request** → provide connection pool name as **connection pool** (RPD physical layer connection pool name) → type sql statement as → select * from scott.emp
- 2) Click on **validate sql & retrieve columns** → click on results and observe the output.



4.5 Hands on 4: Building Views

1. View is a template
2. View is useful to present data as per business requirement.
3. Title & table are called as by default views.
4. Views will be integrated in **compound layout**.
5. We have **17** types of views those are

1) Title	10) Column selector.
2) Table.	11) View selector.
3) Pivot table.	12) Legend.
4) Graph.	13) Narrative.
5) Gauge.	14) Ticker.
6) Funnel.	15) Static text.
7) Map (new in 11g).	16) Logical SQL
8) Filters.	17) No Results
9) Selection Steps(new in 11.1.1.6)	

1. Title

- 1) It is useful to display
 1. name of the report
 2. logo of the client
 3. Run date & time of report.
- 2) We must copy image of client in below location
BI116g\Oracle_BI1\bifoundation\web\app\res\s_blafp\images
- 3) syntax for logo **Fmap:images/the name of image.jpg**
 where fmap =:**\BI116g\Oracle_BI1\bifoundation\web\app\res\s_blafp\images**

2. Table

- 1) Table is useful to project data in **2 D** format (rows * columns)
- 2) In OBI 11g **Table prompts ,sections** and **excluded** are newly introduced
- 3) Can create **Subtotals, grand totals, alternate row colors** and the **maximum number of rows per page**.

Process:

- 1) Develop a report year, month code, region, type, and dollars. Click on results.
- 2) Click on table edit  drag and drop **region** into table prompts, **type** into sections.
- 3) Click on year “sigma” symbol → select **after** → click on columns & measures “sigma” symbol → click **after** → click **done**.



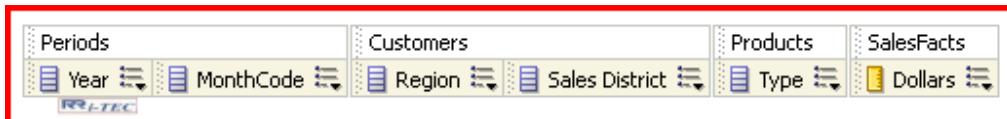
3. Pivot table

- 1) Provide the ability to rotate rows, columns, and section headings to obtain different perspectives of the same data
- 2) In Pivot Table 6 parts are available those are
 1. Pivot Table Prompts
 2. Sections
 3. Excluded

4. Rows
5. Columns
6. Measures

Process

- 1) Develop a report with columns year, month code, region, sales district, type, dollars click on results



Periods	Customers	Products	SalesFacts
Year	Region	Sales District	Type
MonthCode			Dollars

- 2) Click on new view → click on pivot table → delete table  → click on pivot table  → drag and drop **region** into **table prompts** → **District** into **sections** → **month code** into **excluded** → **type** into **columns**

Duplicate layer

- 1) Click on Dollars duplicate layer
- 2) Click on 2nd dollars **more options** → **format heading** name as **market share** → again click on **more options** → **show data as** → **percent of** → **row** → Drop **Measure Labels** under **products** → click on **done** → observe output

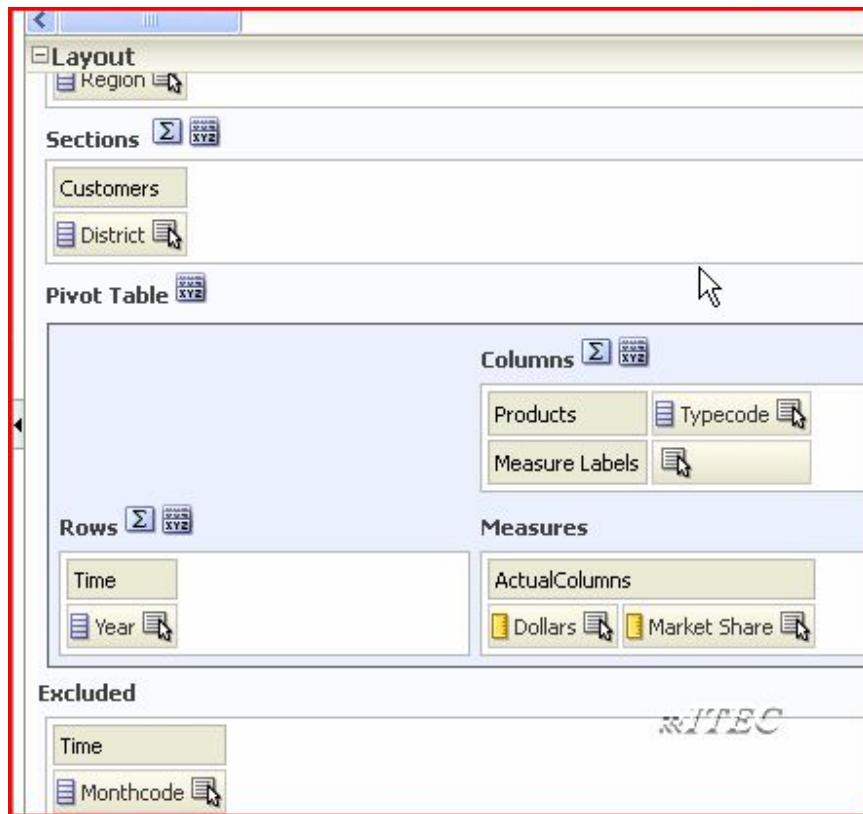


Table Vs Pivot Table

Table	Pivot table
It is 2D format template (rows and Columns)	It is 3D format
We cannot inter change rows and columns	Can be interchanged
Duplicate layer option not available	Duplicate layer option is available

4.Graph

- 1) Easy and quick to understand data by any language or illiterate people

Process:

- 1) Develop a report with region, district, year, type, dollars. → Click on results
- 2) Click on new view → click on graph → bar → default vertical → click on edit graph → drag and drop region into graph prompts, drag & drop sales district into section & enable **display as slider**, drag & drop year into legend → click on done & observe output.

5.Gauge chart:

- 1) It is nothing but **Speedo meter**. It is designed to compare one dimension with one measure.

Process:

- 1) Develop a report with region, dollars.
- 2) Click on results → click on new gauge default (dial) → observe output.

6.Funnel chart:

- 1) It is useful to compare **one dimension with two measures** & those two measures must be **actual** versus **targets**.

Process:

- 1) Develop a report with region, unit shipped, units ordered → click on results
- 2) click on new view → funnel (default (standards)) → under settings → click on high values properties click on custom value→ 97.6 type → click on low value properties → custom values → type 97 → click on done→observe output

8.Filters:

- 1) It is useful to capture criteria filter conditions automatically.

Process:

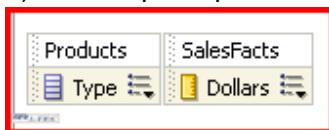
- 1) Develop a report with year, region, and dollars.
- 2) Click on create filter → more columns → expand products → select type → click on ok select beef, bread, cheese → click on ok → click on results
- 3) Click on new view → click on filters drag and drop filter view between title & table

9.Selection Steps:

- 1) It is useful to do custom calculations.
- 2) It is a new feature in OBIEE 11.1.1.6

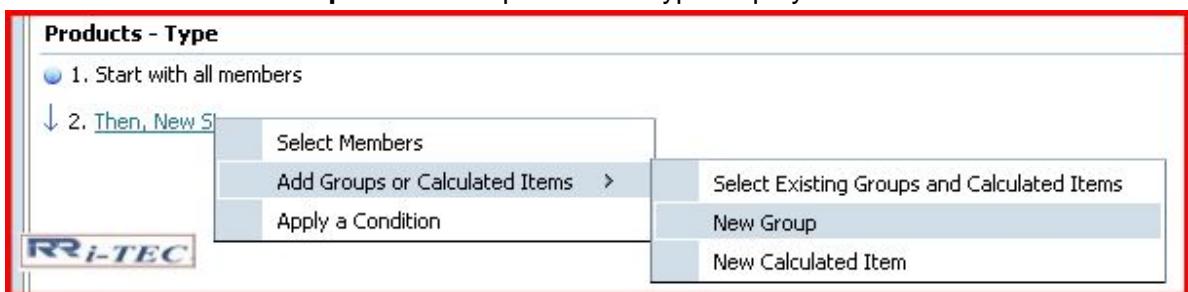
Process:

- 1) Develop a report.

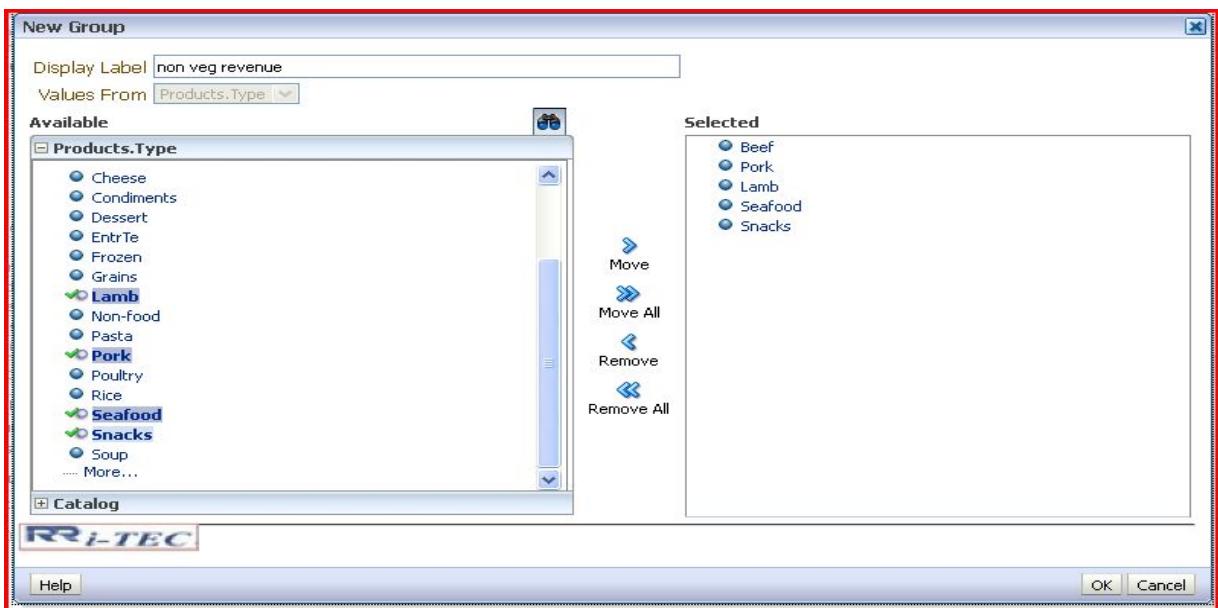


- 2) Click on results

- 3) Select selection steps → expand it → under **products – Type** click on **then new step** → select as per below → type display label as no



- 4) Type display label as non veg Revenue → select Beef,Pork,Lamb,Seafood and Snacks → click on  → Click on **ok**



- 5) Observe output
 6) Click on **new view add selection steps** --> Click on **non veg revenue of selection steps** and observe output

7)

10. Columns selector

- It is useful to select **columns dynamically** and column selector will affect all the views of compound layout.

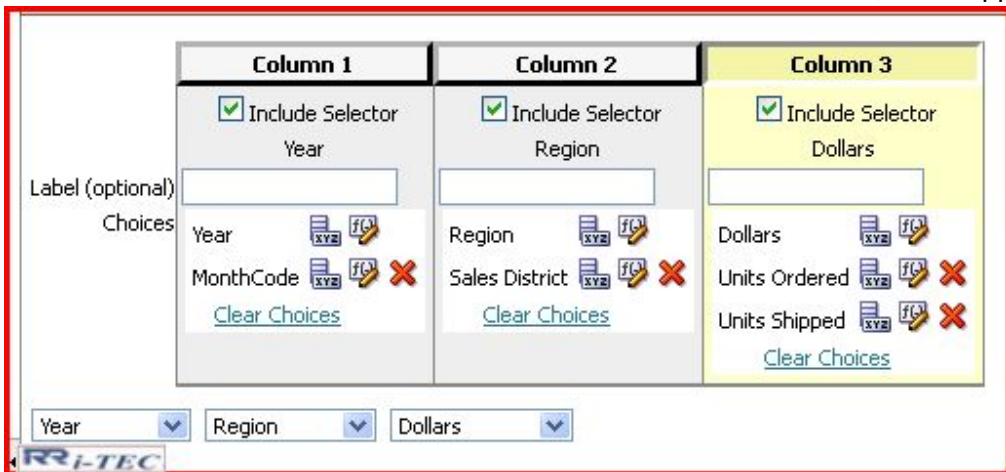
Process:

- Develop a report with year, region, dollars



- click on results

- click on new view → other views → column selector → column selector edit
- select column1 → double click on month code → select column2 → double click on sales district → select column3 → double click on unit ordered, unit shipped



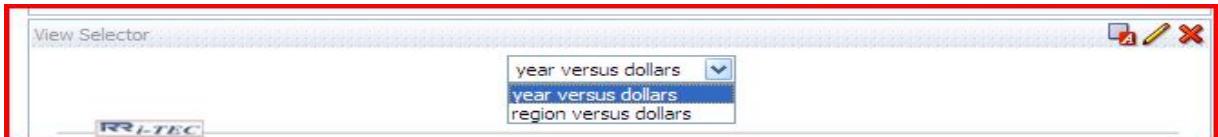
- click on done
- Drag and drop column selector between title & table → select sales district → Observe output.

11. View selector:

- It is useful to select **views dynamically**.
- View selector is useful to integrate other views

Process:

- In the above report click on new view → graph → pie → again click on new view → graph → pie
- Click on second graph edit. Drag and drop year into excluded → drag drop region on to Slices → Click on done
- Click on new view → view selector → click on edit view selector → Select graph1, graph2 → Click on arrow mark
- Click on Graph1 edit → Click on rename → name it as year versus dollars → click on ok.
- Similarly rename graph2 as region versus dollars → click on done → Observe output.



12. Legend

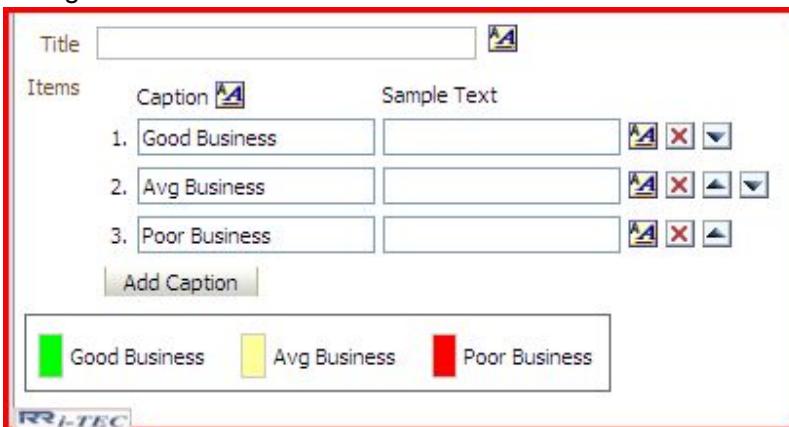
1. It is useful to decode **color coding or acronyms**.
 - a. Example : OBIA=Oracle Business Intelligence Applications and Color RED=Poor Business

Process:

1. Develop a report with year, region, type, and dollars.



2. Do conditional formatting as per below.
 - i. Dollars < 10,00,000 then red color.
 - ii. Dollars between 10,00,000 & 20,00,000 then yellow.
 - iii. Dollars > 20,00,000 then green
3. Click on results → Click on new view → click on legend.
4. Click on edit legend → type good → click on format text → select background color green
5. Click on add caption Add Caption → type avg → click on format text → select background color yellow
6. Click on add caption Add Caption → type poor → click on format text → select background color red



7. Click on done → Drag and drop legend view between title & table.

13.Narrative:

1. It is useful to design paragraph reports.

Process:

1. Develop a report with year, unit ordered, unit shipped → click on results → click on new view → narrative → click on edit narrative → In the Narrative part → type as per below.

The year @1 orders @2 shipment is @3 [br/] → line break → click on done.

Exercise : Develop a report to capture data refresh date

Year	Region	Dollars
1998.00	Central	9717408.31
	East	18989128.06
	West	19042054.91
1999.00	Central	3201753.24
	East	5988252.63
	West	6098195.94

Date Refresh Date by ETL team is : **19990420.00**

14.Ticker:

1. Ticker is useful to scroll information on a report.

Process:

1. In the above report click on new view → ticker.

15.Static text:

1. It is useful to provide some comments in report. In the above report click on new view → static text → click on edit static text → type welcome to RRitec → click on done.

16.Logical SQL:

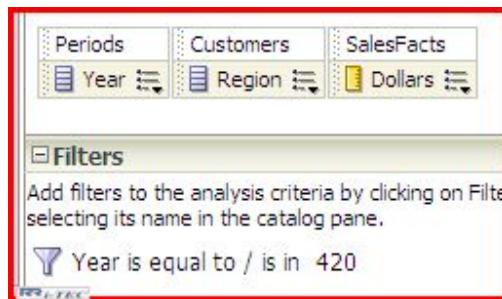
1. It is only for developer purpose ,business user can not understand this logical SQL.

17.No Results :

1. It is useful to display some custom message when ever report has **no result**

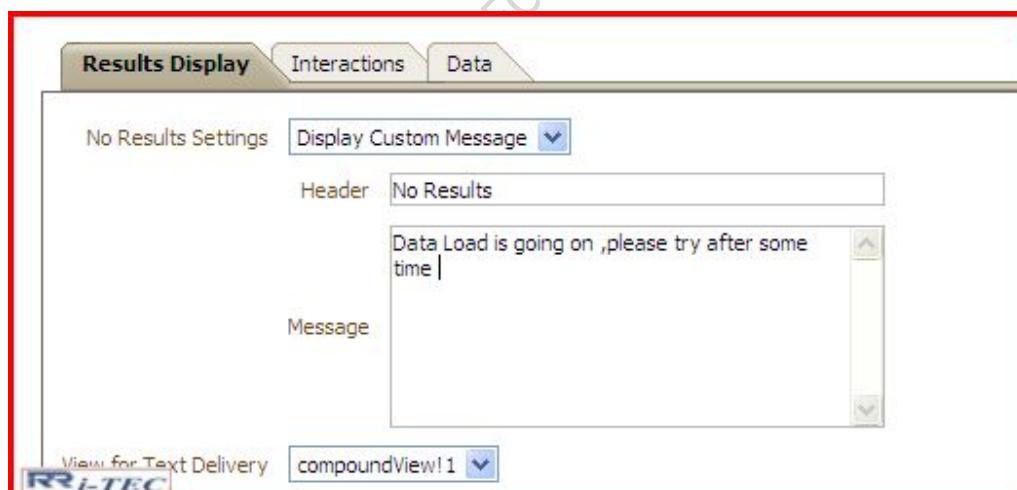
Process:

1. Develop a report with year ,region and dollars
2. click on year filter and create condition **year=420**



3. Click on results
4. click on edit analysis properties 
5. Select as per below and type below matter

No Results Settings : Display Custom Message



6. Click on **OK** → Observe output

5. Hands on 7: Dashboards

1. Dash board is a template it is useful to integrate 'n' no. of reports , Dashboard prompts and dashboard objects.
2. End users (client (or) customers) will like to see only dash boards.
Dash boards are two types.
 - 1) My dashboard.
 - 2) Shared dashboard.

My dashboard:

- i. It is a personalized view of the data.
- ii. My dashboard will be created automatically whenever one user is created.
- iii. We can access my dashboard by clicking **dashboard → my dashboard**.

Shared dashboard:

- i. Shared dashboard is a public or corporate dashboard.
- ii. It can be accessed by any user in the world but they need to have valid permissions.

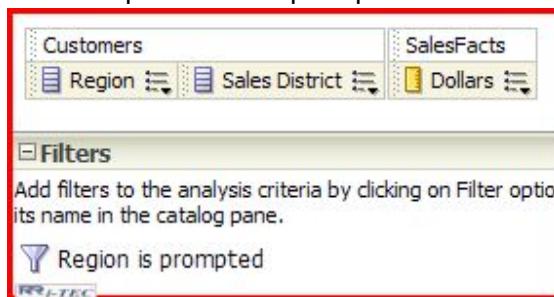
Creating shared dashboards:

Step1: Creating Shared Dashboard

1. Go to new → click on dashboard → provide name as
RRITEC_DASHBOARD
2. Select location as shared folders/RRITEC/dashboards
3. select add content later → click on ok.

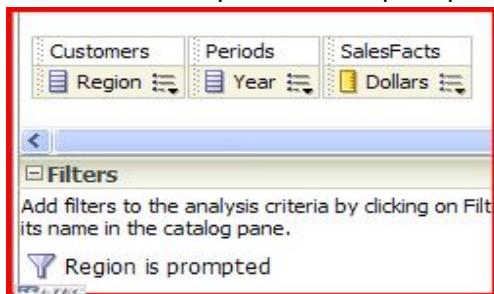
Step2: Creating a report

Develop a analysis with below columns region, district, dollars & click on region filters → select operator as is prompted → click on save & name it as R1.



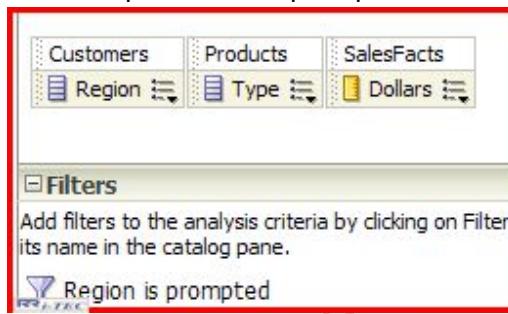
Step3: Create one more report

Develop a analysis with below columns region, year, dollars & click on region filters → select operator as is prompted → click on save & name it as R2.



Step4: Create one more report

Develop a analysis with below columns region, type, dollars & click on region filters → select operator as is prompted → click on save & name it as R3.



Step5: Integrating reports into dashboards

1. click on **dashboards** → click on **RRITEC_DASHBOARD** → click on **Edit** → under catalog expand **shared folders** → drag and drop R1 & R2 into work area save it
2. Click on add dashboard page, name it as page2 → click on ok → From shared folders RRITEC drag and drop R3, click on save, click on Run.

5.1 Dashboard prompts

1. These are useful to filter dashboard data as per client requirements.
2. These are dashboard level user friendly filters.
3. These are four types.
 1. Column prompt.
 2. Image prompt.
 3. Variable prompt.
 4. Currency prompt.

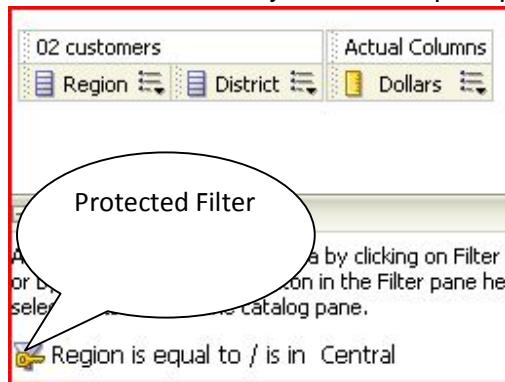
1. Column prompt:

1. Click on new → dashboard prompt → click on supplier sales → click on new → column prompt → select region → ok → again ok → click on save → select RRITEC folder Name it as region prompt → click on ok.

Integrating dashboard prompt into dashboard:

1. Click on dashboards → RRITEC_DASHBOARD → page options → edit dashboard → shared folders → RRITEC → drag and drop region prompt on top of sections → click on save → click on run.
2. In dashboard prompt select central → click on apply & observe the result in page1 & page2.
3. Page 1 and Page2 reports are effecting . If you want to affect dashboard prompt only for one page then click on dashboard prompt properties → scope → page → click on save → click on run
4. Select east → click on apply. Notice that page1 is effected but page2 is not effected.

Note : Protected filter is useful to develop constant filters in report. These filters will not be affected by dashboard prompt .



2. Image prompts:

- 1) It is a new in OBI 11G

Step1: Develop a report

- 1) Develop a report with column region, district, and dollars.
- 2) Click on region filter and select operator as is prompted
- 3) Save it as image_source_report

Step2: Develop a Image Prompt

- 1) From RRitec lab data folder copy USAmap.jpg into E:/inetpub/wwwroot(OS installed drive)

- 2) Click on new → Dashboard Prompt → Select subject area **Suppliersales** → Click on new → Image Prompt



- 3) Image URL : <http://localhost/usamap.jpg>
 4) From **RRitec lab data** folder → double click on **usamap.txt** file → copy entire code.
 Paste it into html image map → click on **extract image map** from html

→ Type as per below

Area title	columns	value
a. Select central	"customers"."Region"	Central
b. Select east	"customers". "Region"	East
c. Select west	"customers". "Region"	West

→ ok .

- 5) Save it as Image_promt

Step3: Integrating Report and image prompt

- 1) In above RRITEC_DASHBOARD create a new dashboard page
- 2) Drag and drop above report and prompt → click on save → run
- 3) Click on any part of image and observe corresponding result

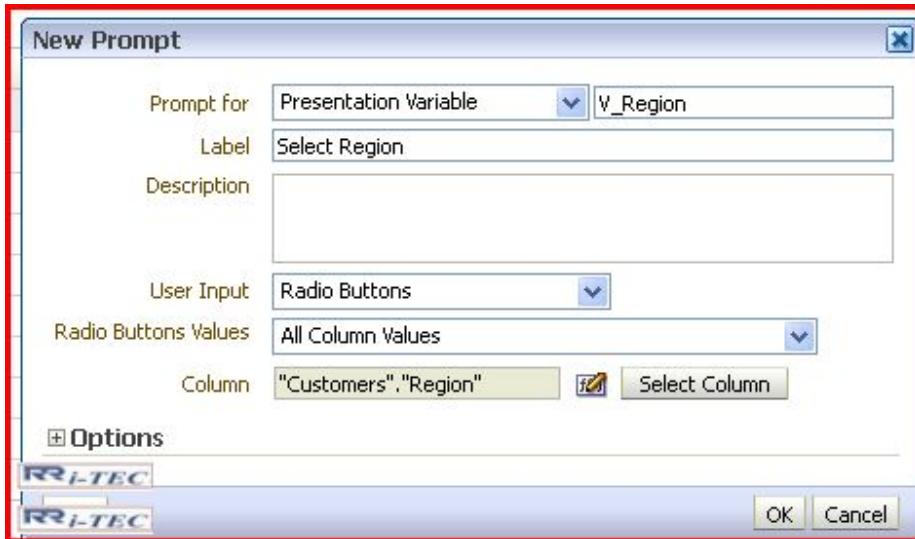
Note : Image Prompt values can not store or capture in presentation variable

3. Variable prompt:

- 1) It is useful to store user response in one variable & we can call this variable in any **calculations, filters, views**(Title,narrative,ticker..etc) etc.
- 2) This variable is called as presentation variable.
- 3) It is a new in OBI 11G

Step1: Develop a Variable Prompt

- 1) Click on **new** → click on **dashboard prompt** → Select **supplier sales** subject area → click on **new** → select **variable prompt** → give the name as **v_region** → label as **select region** → user input as **radio buttons** → radio button value as **all column values** → click on select column → expand **customers** → select **region** → click on **ok** → again **ok** → click on **save** → select **shared folder /RRITEC** path and name it as **region variable prompt** → click on **ok**



Step2: Develop a Report

- 1) Develop a report with column region, district, and dollars.
- 2) click on region filter → select operator as is equal is in → click on add more options → select presentation variable → variable expression **v_region**(case sensitive) default value: **Central** → click on **ok** → click on **results**
- 3) Click on **title** view → Click on **edit** → type **region: {@{v_region}{central}}**
- 4) Save it as **Variable_source_report**

Step3: Integrating Report and Variable prompt

- 1) Click on **dashboard** → Select **RRITEC_DASHBOARD** → click edit dashboard
-
- 2) Create a new page and name it as **PV_page** → drag and drop → region variable prompt into **PV_page**
 - 2) Drag and drop above report **Variable_source_report**
 - 3) Click on save → Click on run → select **East** → click on apply → observe result.

5.2 Dashboard objects

- 1) Dashboard object is useful to organize reports,KPI,Score Cards or dashboard prompts.
- 2) We have below dashboard objects.
 1. Column.
 2. Section.
 3. Link or image.
 4. Embedded Content.
 5. Text.
 6. Folder.
 7. Alert section.
 8. Action link.
 9. Action link menu.

1. Column:

- 1) Column is a biggest object in dashboard page
- 2) It is useful to organize reports vertically or horizontally with in dashboard page
- 3) With Column Object we will get Collapse or expand button

2. Section:

- 1) Section is a biggest object in column
- 2) It is useful to organize reports vertically or horizontally with in the column
- 3) We can provide **permissions** at section level
- 4) We can show or hide sections based on **condition**
 - a. **Example :** If one particular report contains at least one record then only show the section
 - b. IN 10G we will do this functionality by using **GUDIDED NAVIGATON**

Process to conditionally hiding or showing sections

Step 1: Develop a negative business report with columns customer name,salesrep,region, district ,dollars →put filter on dollars as lessthan zero

D3 Customers

NEWKEY	Customer Name	SALESREP	DISTRICT	REGION	Dollars

Filters

Add filters to the analysis criteria by clicking on Filter option for the specific column in the Selected Columns pane, or by click on the filter button in the Filter pane header. Add a saved filter by clicking on add button after selecting its name in the cat pane.

Dollars is less than 0

Step 2 : Integrating in dashboard

Create a dashboard → Drag and drop above report into work area

Step 3: Implementing conditional hiding

Click on section properties → condition → select Analysis → click on browse → select above report → click on ok → test the results by running dashboard .

3. Link or image

- 1) It is useful to navigate from
 - a. One Dashboard to another dashboard
 - b. One Dashboard to another report
 - c. One Dashboard to another webpage

Process:

- 1) Create a new dashboard or use existing dashboard
- 2) Drag and drop **link or image** dashboard object into dashboard
- 3) Click on link or image properties → click on browse → select any one report
- 4) In the images type **fmap:images/report-bad-percentage.jpg** where
fmap=E:/bi11g/instance/instance1/bifoundation/oracle BI presentation server component/core application_obips1/analytics res/s-mobile style/Images.
- 5) Click on **ok** → click on **save** → Click on **run** → click on **image** → Observe report →click on **return**.

NOTE : the syntax of URL : <http://google.com>

4. Embedded content:

- 1) It is useful to insert one webpage into another webpage.
- 2) It is useful to get latest information from any website to dashboard.

Process:

- 1) Drag and drop embedded content → dashboard object into work area → click on embedded content properties.
- 2) Type <http://localhost:7001/console/login/loginform.jsp>
- 3) click ok → save → Run

5. Text:

- 1) It is useful to provide some comment lines in dashboard
- 2) It also accepts scripts(Java script) and Scripts are useful to get some extra functionalties in dashboard

Process:

Drag and drop text object into dashboard → type welcome to RR ITEC (Information Technology Education Center) → preview → ok.

Create clear button in dashboard page

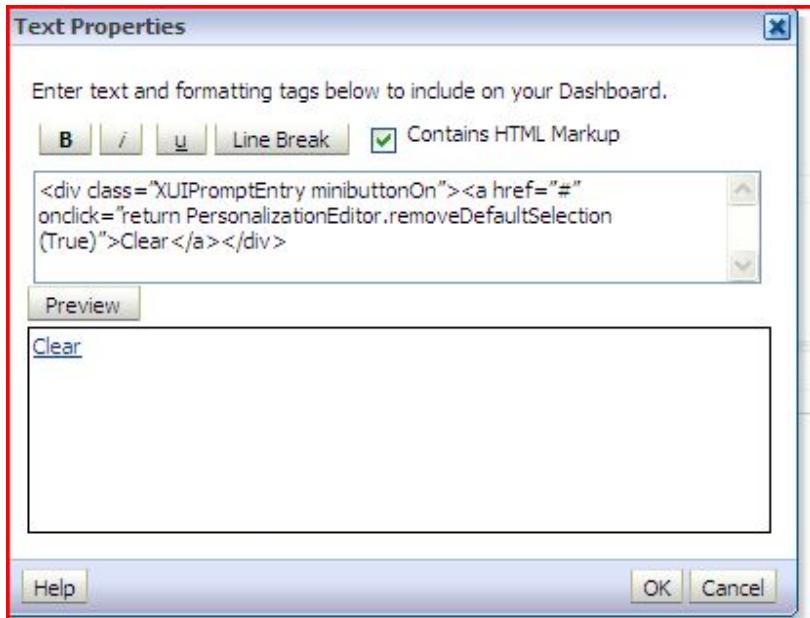
(IN 11G this functionality will come default ,IN 10g we can do using below process)

Drag and drop text dashboard object into dashboard page beside any dashboard prompt

Edit text dashboard object → write below code

```
<div class="XUIPromptEntry minibuttonOn"><a href="#" onclick="return PersonalizationEditor.removeDefaultSelection(false)">Clear</a></div>
```

Enable contains HTML markup → click on preview → click on ok



6. Folder:

- 1) It is useful to present saved content in a dashboard.
- 2) It is useful to business users to access reports & dashboards easily.

Process:

Drag and drop folder object below text object → click on folder properties → browse → select shared folders → RRITEC → ok → save → run.

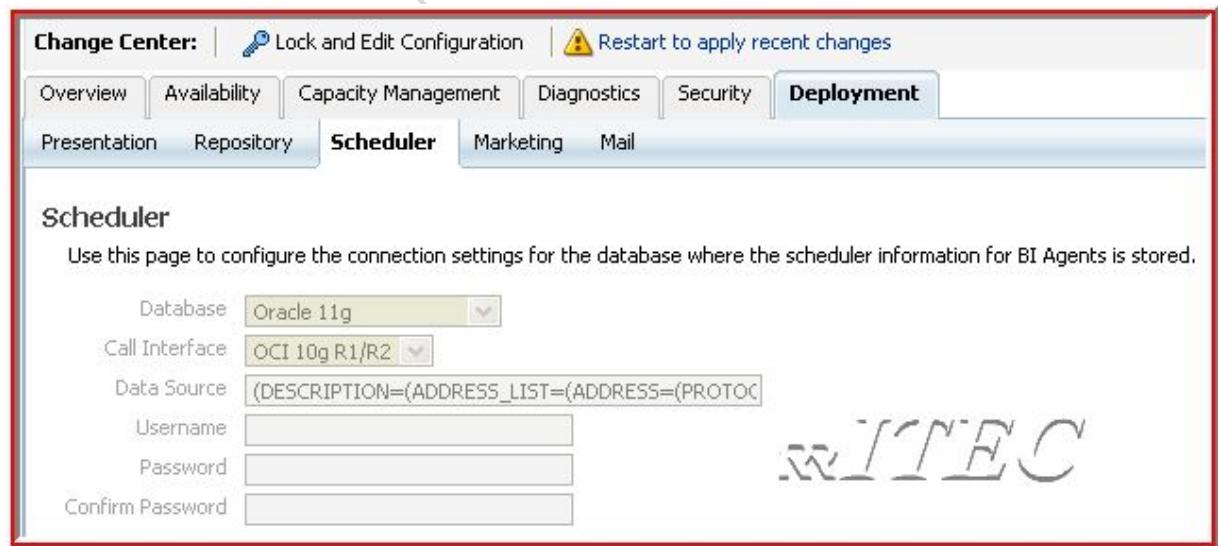
Note: Alert ,Action link and Action link menu will be discussed in rest of the chapters

5. Oracle BI Delivers

- 1) Oracle BI delivers are useful to create schedules (or) Agents.
- 2) Automates Business Intelligence
- 3) Creates alerts based on Business Intelligence results
- 4) Detects specific results and immediately notifies the appropriate person or group through Web, wireless, mobile, and voice communications channels.
- 5) Agent in 11G was called as IBOT in 10G

1. Configuring scheduler tables:

- 1) In 11g configuring of **Oracle BI Scheduler Server** will be done with the installation
Of OBI 11g product [in 10g it was manual process]
- 2) Scheduler tables by default created in a schema **DEV_BIPLATFORM** with installation of **RCU**(Repository Creation Utility)
- 3) Scheduler tables are
 1. S_NQ_JOB
 2. S_NQ_JOB_PARAM
 3. S_NQ_INSTANCE
 4. S_NQ_ERR_MSG
2. Scheduler tables schema configured in EM. To observe navigate **Deployment →Scheduler**



The screenshot shows the Oracle BI Scheduler configuration interface in the Enterprise Manager (EM). The top navigation bar has tabs for Change Center, Lock and Edit Configuration, and Restart to apply recent changes. Below the tabs are several navigation links: Overview, Availability, Capacity Management, Diagnostics, Security, Deployment (which is highlighted in blue), Presentation, Repository, Scheduler (which is also highlighted in blue), Marketing, and Mail. The main content area is titled 'Scheduler' and contains the following configuration details:

- Database: Oracle 11g
- Call Interface: OCI 10g R1/R2
- Data Source: (DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=192.168.1.10)(PORT=1521))(CONNECT_DATA=(SERVICE_NAME=DEV_BIPLATFORM)))
- Username: (empty field)
- Password: (empty field)
- Confirm Password: (empty field)

2. Creating delivery device:

- 1) Device will be created by each & every user his own
- 2) As a developer we need to give KT(Knowledge Transaction) to business users

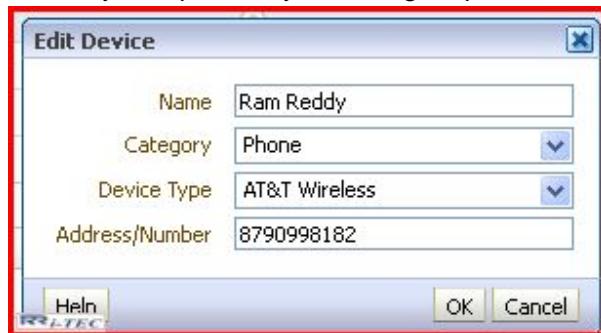
- 3) Example of Devices Email ,Phone ,Pager ...etc

Process:

- 1) Login to **Analytics** by using **weblogic** user
- 2) Click on **weblogic** → click on **my account** → click on **delivery options** → Click on Create Device → name : **RRITEC** → Device Type : **HTML**
Email→Adress/Number dwramreddy@gmail.com → Click on **ok**



- 3) Similarly add phone by selecting as per below.



3. Creating delivery Profile:

- 1) Determine which device receives content
- 2) Examples
 - a. **Office profile** that delivers content to Web Browser and office email
 - b. **“On the Road”** profile that delivers content to a pager or PDA depending on priority

Process:

Click on web logic → my account → delivery options → delivery profile → create delivery report → name it as **office Profile** → select mail id as high priority, phone number as normal priority . Similarly create another profile(On Road).

4. Agent:

- 1) In OBIEE 10G it was called as **IBOT**
- 2) It is useful to **schedule** a report
- 3) It is useful to generate **alerts**.
- 4) Agents can be created in three ways
 - a. By using Scheduled Time
 - b. By using Scheduled Time and Condition
 - c. Chain Of Agents

Process

Method 1: Develop a Agent based on Scheduled Time

Step 1: Develop a report

- 1) Develop a report with columns year, region, and dollars.
- 2) Click on save → Select sharedfolder/RRITEC folder → name it as **agent report** → click on ok

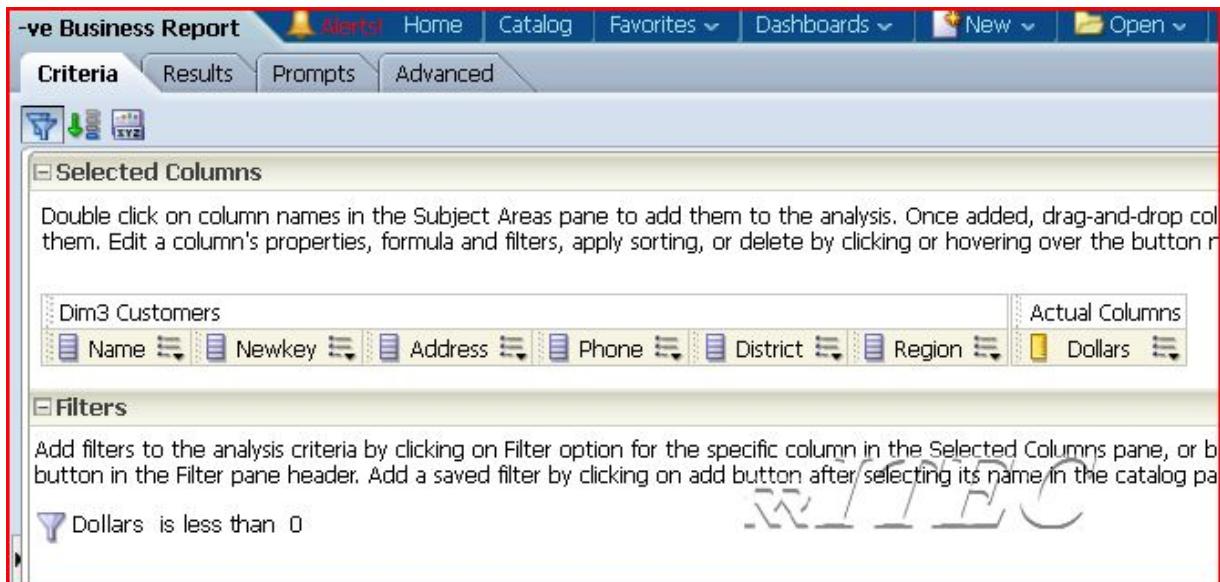
Step 2: Create Agent based on Scheduled Time

- 1) click on **new** → under **Actionable Intelligence** → click on **Agent** → click on **schedule** tab → select frequency as **once** → click on select **date & time** → give 2 mins forward from current time → select **delivery content** tab → select **analysis** → click on **browse** → select **agent report** → click on **ok** → Save into **Shared Folder/RRITEC** folder with the name of **first agent**
- 2) After 2 mins → Click on home → click on alerts → observe our **first agent** → click on it observe output.

Method 2 : Develop Agent based on time and condition

Requirement: send a report of -ve business Customers on daily basis

Step 1 : Develop Report as shown below



Step 2 : Develop Agent based on time and condition

1. Go to **New** → Click on **agent** → Click on **Condition** tab → select **use a condition** radio button → Click on **Browse** → Select **-ve business report** (developed in STEP 1) → Select **true if row count as is greater than value as 0** → Click on **ok**
2. Click on **Delivery Content** tab → Click on **Content browse** → Select **-ve business report** (developed in STEP 1)
3. Go to **Schedule** tab → Select **frequency** as **once** → Click on start → set **time 2 mins forward from the current time** → Click on **save as RRITEC_TIME_CONDITION_AGENT**
4. After 2 mins observe **alert** button beside **home**

Method 3: Chain of Agents

Running one agent after another agent is called as chain of IBOFs or Agents

Process

Goto **Actions** tab of AGENT → Invoke Agent → select another agent

5. Alerts dashboards object:

It is useful to capture all active alerts.

Process:

- 1) Click on **Dashboard** link → click on **RRITEC_DASHBOARD** → page options → edit dashboard → drag and drop alert section in the 1st position of the column → click on save → click on run observe our first agent.

6. Job manager:

- 1) It is windows based component.
- 2) It is useful to monitor the status of agents.

Process:

- 1) Start → All programs → Oracle Business Intelligence → Job Manager.
- 2) Go to file menu → open scheduler connection → provide administrator name as web logic → password:RRitec123 → Click on **ok**
- 3) Select web logic user & observe all our agents & their status conditions.

6. Specialist level

6.1 Hands on 8: Aggregate Tables

1. Aggregate tables are useful to improve the performance of queries.
2. Data in fact and dimension sources is stored at the lowest level of detail.
3. Data often needs to be rolled up or summarized during analysis.
4. Based on the amount of data, performing calculations at the time of the query can be resource intensive and can delay results to the user.
5. Level of detail is called as **granularity**. It is equivalent to **Content logical level** in OBIEE.

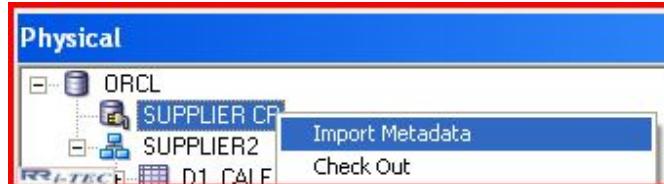
Specialist level training environment setup

1. End of the practitioner level whatever RPD is available please load that one or get from RRITEC/LabCopy and load into Oracle BI Server
2. In Labcopy it is available with the name of **ABC after 08 dimension hierarchies**

Process of Aggregate Tables:

Step1: importing tables:

1. Right click on **supplier cp** Connection pool → Click on **import metadata**



2. Click on **next** → Expand **supplier2** → select **d1_order_agg1**, **d1_salesrep**, **months** → Click on **import (>)** → Click on **finish**.

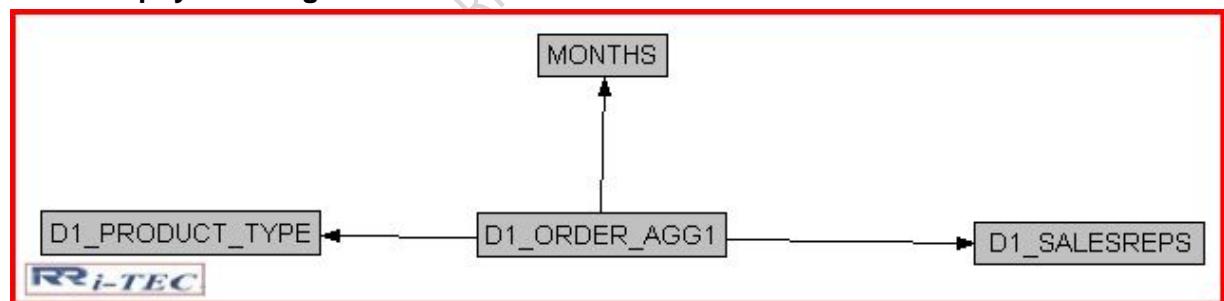
Step2: providing physical joins:

1. Select **D1_ORDER_AGG1**, **MONTHS**, **D1_SALESREPS** and **D1_PRODUCT_TYPE** tables → Click on **physical diagram** → Click on **new join** → drag and drop from **D1_ORDER_AGG1** to **D1_PRODUCT_TYPE** → select **type code & type key** → click on **ok**

Expression:
 "ORCL"."SUPPLIER2"."D1_PRODUCT_TYPE"."TYPECODE" = "ORCL"."SUPPLIER2"."D1_ORDER_AGG1"."TYPEKEY"

Similarly provide below joins.

2. "ORCL"."SUPPLIER2"."D1_SALESREPS"."SALESREP" = "ORCL"."SUPPLIER2"."D1_ORDER_AGG1"."REPKEY"
3. "ORCL"."SUPPLIER2"."MONTHS"."MONTHCODE" = "ORCL"."SUPPLIER2"."D1_ORDER_AGG1"."PERKEY"
4. Close **physical diagram**.



Step3: Map Physical Columns to Logical Columns:

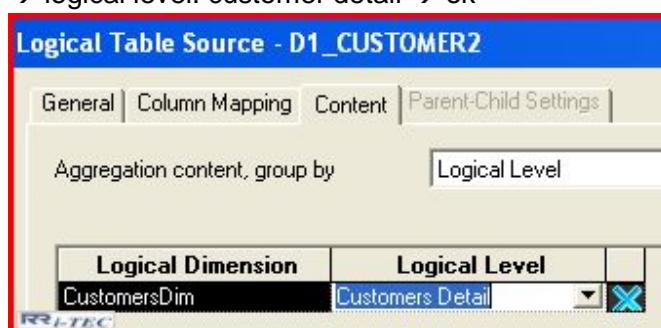
1. Drag and drop physical columns to logical column.
2. D1_SALESREPS.DISTRICT → CUSTOMERS.DISTRICT.
3. D1_SALESREPS.REGION → CUSTOMERS.REGION.
4. D1_SALESREPS.SALESREP → CUSTOMERS.SALESREP.
5. MONTH.MONTHINYEAR → PERIODS.MONTHINYEAR.
6. MONTH.MONTHCODE → PERIODS.MONTHCODE.
7. MONTH.MONTHNAME → PERIODS.NAME

8. MONTH.QUARTER → PERIODS.QUARTER.
9. MONTH.YEAR → PERIODS.YEAR.

10. D1_ORDER_ AGG1.ACTLEXTND → SALESFACTS.DOLLARS
11. D1_ORDER_ AGG1.UNITORD → SALESFACTS.UNITORD
12. D1_ORDER_ AGG1.UNITSHPD → SALESFACTS.UNITSHPD

Step 4: defining content level:

1. Defining customers logical table → double click on D1_customer2 → content tab → logical level: customer detail → ok



2. Double click on D1_salesrep LTS → Click on content tab → Select logical level sales rep → ok.



Similarly set below logical levels

3. D1_CALENDAR2 logical level as day
4. MONTH logical level as month
5. D1_PRODUCTS logical level as specific
6. TYPE logical level as type
7. D1_ORDERS2 logical level as customer detail, day, specific
8. D1_ORDER_ AGG1 logical level as sales rep, month, type

Step5: deleting multiple keys of different levels

1. Double click on customer → select sales rep key & delete.
2. Double click on periods → delete month code key → ok.

Step6: Testing

1. **Check in** into oracle BI server → set weblogic user log level as 2
2. Develop a report with year, and dollars → observe output → observe the log
physical query → The physical query developed using **aggregate tables**.
3. Similarly develop another report year, quarter, and dollars → Observe **Physical query**
4. year, quarter, month, dollars → Observe **Physical query**
5. year, quarter, month, day, dollars → Observe **Physical query**

6.2 Hands on 9: Partitions and Fragments

1. Splitting one large table into 'n' no. of smaller tables is called as partitions.
2. We can do table partition logically or physically. If we do logically then there is no change required either ETL or reporting end.
3. Partitions are 4 types
 1. Fact based.
 2. Value based.
 3. Level based.
 4. Complex.
4. Partitions are useful to improve the performance of environment.

6.2.1 Value based partitioning

Process:

Step1: Creating Partition Tables:

- 1) Log into database with supplier2 username and password → type

```
CREATE TABLE RRITEC_CUST1 AS SELECT * FROM D1_CUSTOMER2
WHERE SUBSTR(NAME, 1,1) < 'N'
```

```
SELECT MIN(SUBSTR(NAME,1,1)), MAX(SUBSTR(NAME,1,1)) FROM
RRITEC_CUST1
```

```
CREATE TABLE RRITEC_CUST2 AS SELECT * FROM D1_CUSTOMER2
WHERE SUBSTR(NAME, 1,1) >= 'N'
```

```
Select MIN(SUBSTR(NAME,1,1)), Max(SUBSTR(NAME,1,1)) FROM
RRITEC_CUST2
```

```

CREATE TABLE RRITEC_CUST1 AS
SELECT * FROM D1_CUSTOMER2 WHERE SUBSTR(NAME, 1,1) < 'N'

Select MIN(SUBSTR(NAME,1,1)), Max(SUBSTR(NAME,1,1)) FROM RRITEC_CUST1

CREATE TABLE RRITEC_CUST2 AS
SELECT * FROM D1_CUSTOMER2 WHERE SUBSTR(NAME, 1,1) >= 'N'

Select MIN(SUBSTR(NAME,1,1)), Max(SUBSTR(NAME,1,1)) FROM RRITEC_CUST2

```

Results:

MIN(SUBSTR(NAME,1,1))	MAX(SUBSTR(NAME,1,1))
1 N	Z

Step 2: import metadata

- 1) Right click on connection pool → import metadata → next
- 2) Expand **supplier2** schema → select RRITEC_CUST1, RRITEC_CUST2 → Click on **import(>)** → click on **finish**.

Step 3: Creating Physical Joins

- 3) Select RRITEC_CUST1, RRITEC_CUST2, D1_ORDERS2 → click on physical diagram → click on new join → drag & drop D1_ORDERS2 to RRITEC_CUST1 → select new key and cust key → click ok.
- 4) Similarly create another join between D1_ORDERS2 to RRITEC_CUST2.
- 5) Close the physical diagram.

Step 4: map physical columns to logical columns

- 1) Drag and drop **RRITEC_CUST1.ADDRESS** (physical column) on **CUSTOMERS.ADDRESS** (logical column).
- 2) Similarly map all **RRITEC_CUST1 & RRITEC_CUST2** columns to **CUSTOMERS** logical table columns.

Step 5: Disable D1_CUSTOMER2 Logical Table Source

- 1) Expand customers logical table → Double click on **D1_CUSTOMER2 LTS** → click on general tab → select **disabled** → click on **ok**.

Step 6: Defining Content Fragmentation

- 1) Double click on RRITEC_CUST1 LTS → click on **content** tab → under **fragmentation content** → click on **edit expression**  → select customers table → double click on **customer** column type **< 'N'** → click on **ok** → **Enable this source should be combined with other source at this level** → **Enable distinct value** → assign logical level as **customer detail** → click on **ok**.
- 2) Double click on **RRITEC_CUST2 LTS** → click on **content** tab → logical level **customer detail** → click on fragmentation content → edit → select customers table → double click on customers → type **>'N'** → click on **ok** → **Enable this source should be combined with other source at this level** → **Enable distinct value** → Click on **ok**.

Step 7: Testing

Test Case 1: Execute SQL against RRITEC_CUST1 table

- 1) Load RPD into OBIS → develop a report with columns customer, dollars
- 2) Create a filter on customer column as **customer <'C'** → click on **result** → observe output & Physical SQL.

Conclusion:

- 1) Query is executed against **RRITEC_CUST1** table.

Test Case 2: Execute SQL against RRITEC_CUST2 table

- 1) In the above report change the filter condition as **>X** → click on **result** → observe output & Physical SQL.

Conclusion:

Query is executed against **RRITEC_CUST2**.

Test Case 3: Execute SQL against RRITEC_CUST1 and RRITEC_CUST1 table

- 1) In the above report **remove the filter** & run it → observe output & sql.

Conclusion:

Query is executed against the **RRITEC_CUST1** and **RRITEC_CUST2**.

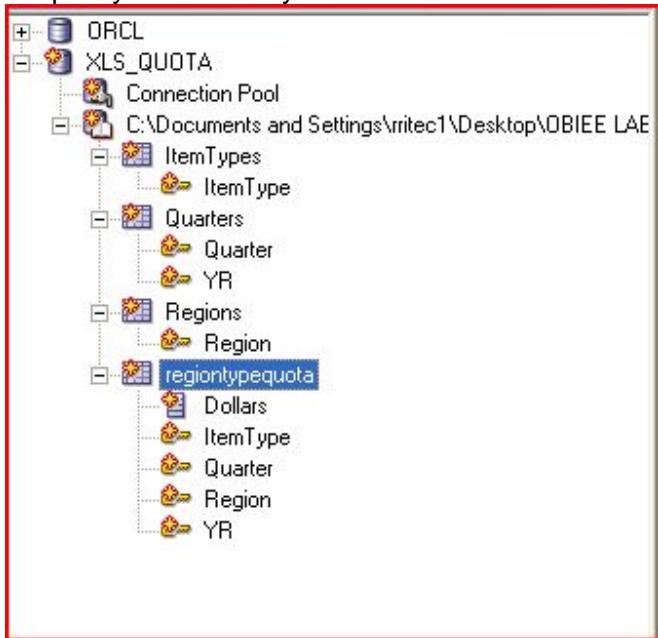
6.2.2 Modeling Fat Based Partition

1. Create an ODBC data source for an Excel spreadsheet.
 - a. Double-click **Data Sources (ODBC)** on your desktop to open the ODBC Data Source Administrator.
 - b. Click the **System DSN** tab.
 - c. Click **Add**.
 - d. Select the **Microsoft Excel Driver** and click **Finish**.
 - e. Enter **xls_quota** as the data source name.
 - f. Click **Select Workbook**.
 - g. Navigate to **D:\Labs** and select the **quota.xls** workbook.
 - h. Click **OK**.
 - i. Click **OK** to close the ODBC Microsoft Excel Setup dialog box.
 - j. Click **OK** to close the ODBC Data Source Administrator.
2. Import the **xls_quota** data source into the ABC repository.
 - a. Return to the ABC repository, which should still be open in online mode.
 - b. Select **File > Importmetadata**.
 - c. Select the **xls_quota** data source, and enter **weblogic** as the username; no password is needed.
 - d. Click **next**. Again next ,The **Import** dialog box opens.
 - e. Expand **E:\Labs\quota**.

- f. Select and import the following tables:
- Item Types**
 - Quarters**
 - Regions**
 - regiontypequota**
- g. Click on finish.
3. Because Excel has limited data types, check or change the data types to conform to existing data types for the relevant fields. Expand the physical tables and double-click the physical columns to open the properties dialog box.
- | | |
|------------------|-------------------|
| ItemType: | VARCHAR 20 |
| Quarter: | DOUBLE |
| YR: | DOUBLE |
| Region | CHAR 16 |
| Dollars: | DOUBLE |

4. Specify joins and keys.

- a. For each table, double-click the table, click the **Keys** tab, and use the **New** button to specify the table keys as follows:



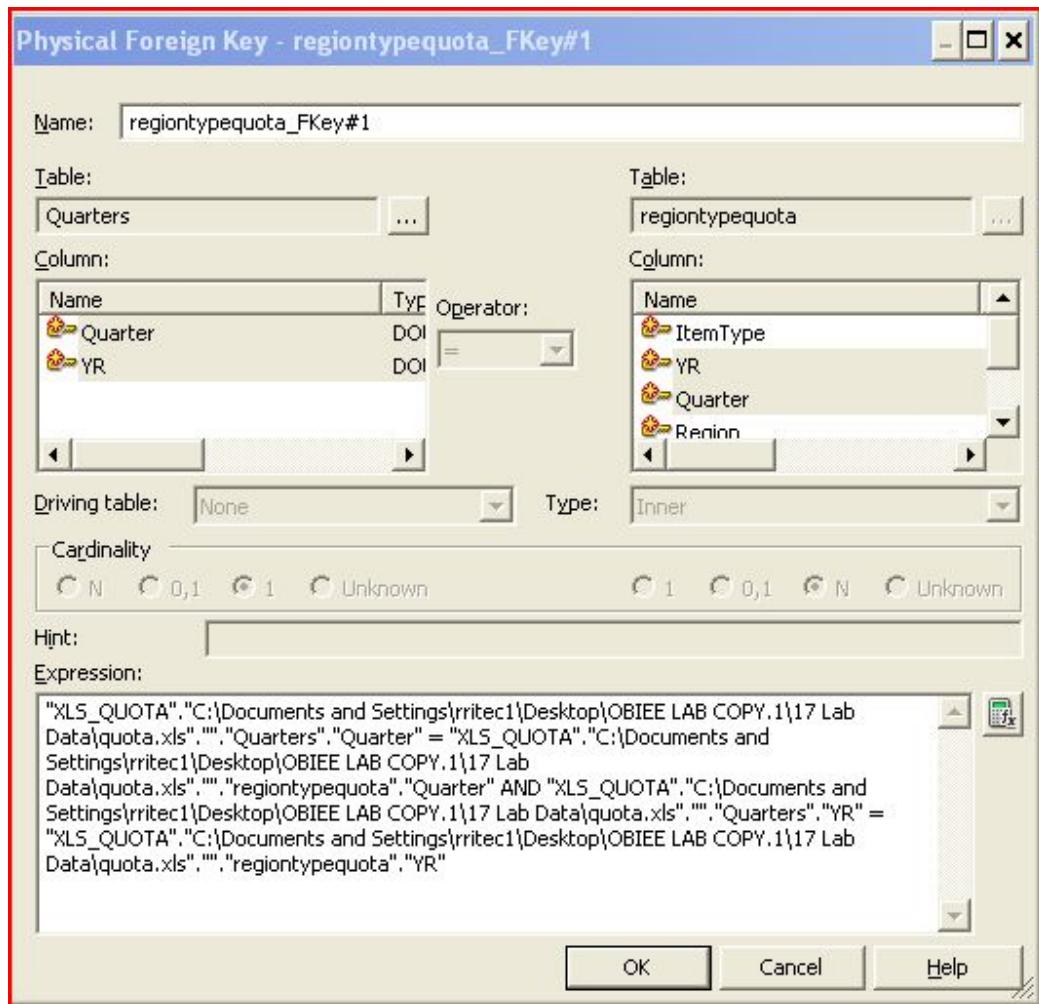
- b. Use the Physical Table Diagram to specify the following New join :

ItemTypes.ItemType = regiontypequota.ItemType

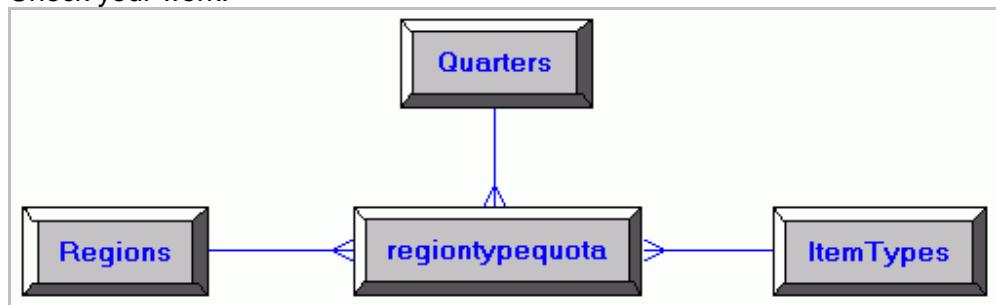
Regions.Region = regiontypequota.Region

Quarters.YR = regiontypequota.YR AND Quarters."Quarter" = regiontypequota."Quarter"

Hint: Press and hold [Ctrl] and create the multicolumn join for the Quarters columns or enter the join expression in the Expression edit field:



c. Check your work:

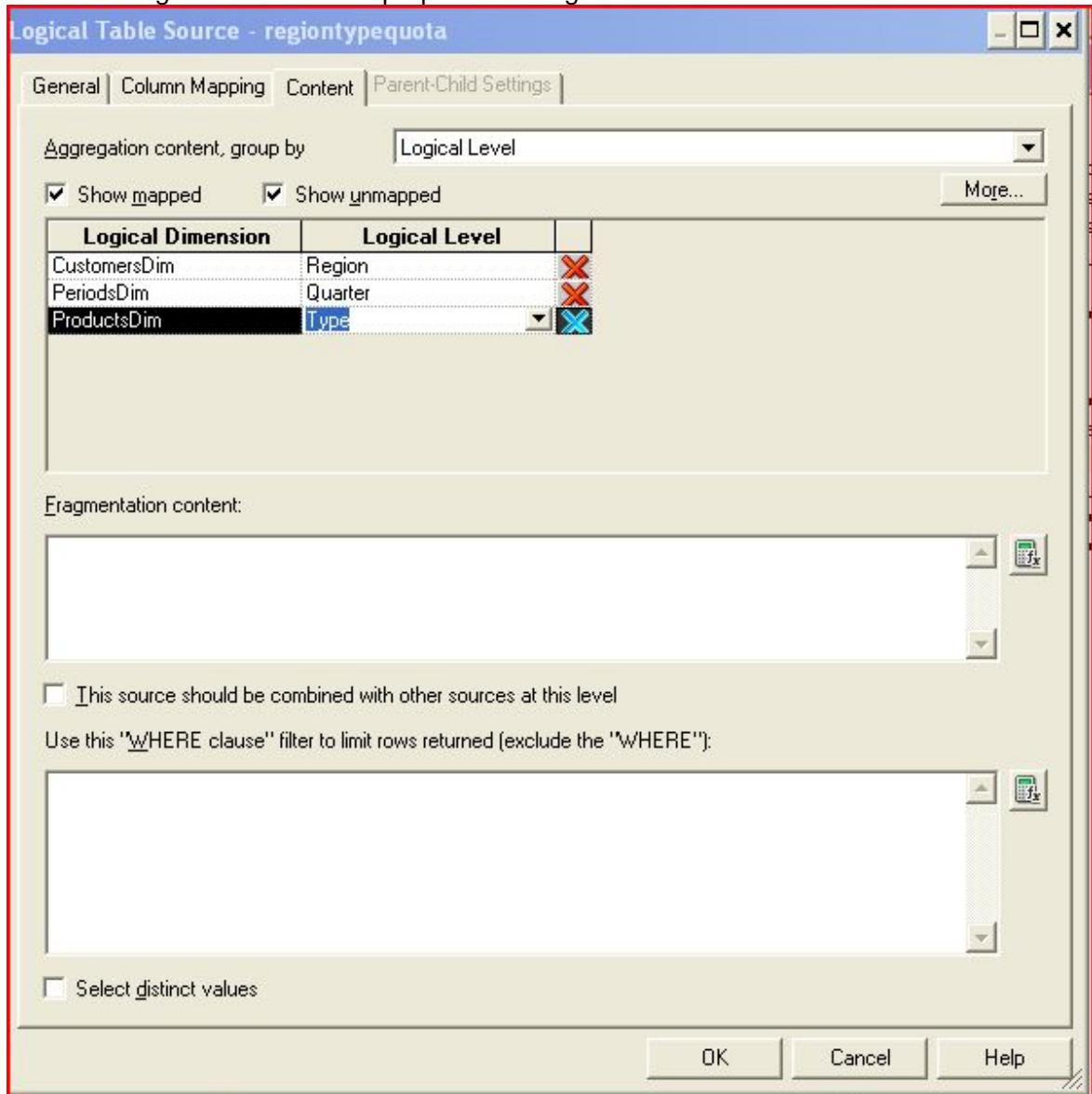


d. Close the Physical Diagram.

5. Create a new measure for quotas.

- Create a new logical column in the SalesFacts table and name it **Quota**.
- Set the aggregation rule to **SUM**.

6. Create a new logical table source for SalesFacts by dragging the **Dollars** physical column from the **regiontypequota** physical table onto the Quota logical column that was just created. This automatically creates a new **regiontypequota** logical table source.
7. Specify the content for the new **regiontypequota** logical table source on the Content tab of the Logical Table Source properties dialog box:



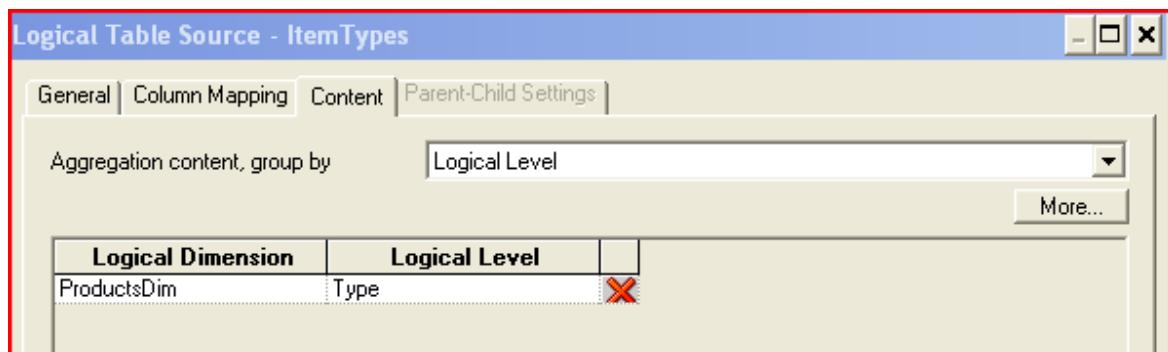
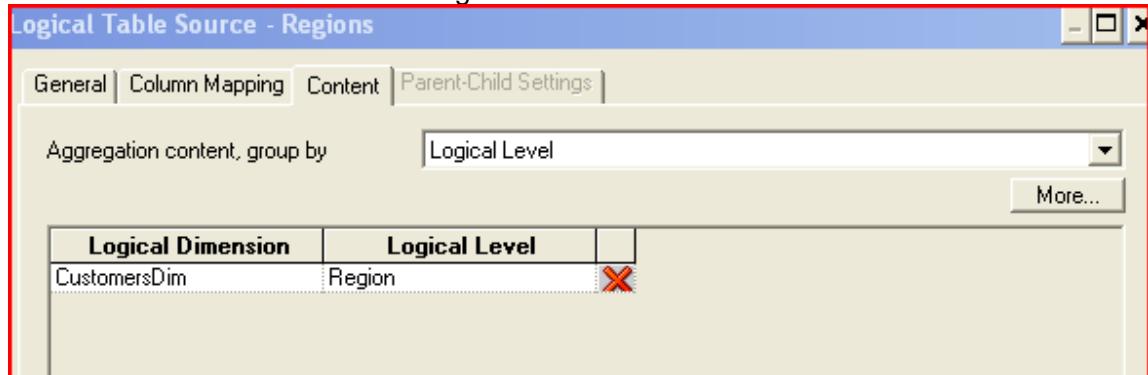
8. Create new logical table sources for the dimension tables.
 - a. Drag the **YR** physical column from the **Quarters** physical table onto the **Year** logical column in the **Periods** logical table. This automatically creates a new **Quarters** logical table source for the Periods logical table.

- b. Repeat the steps for the following columns:

<u>Physical Table.Column</u>		<u>Logical Table.Column</u>
Quarters.Quarter	into	Periods.Quarter
Regions.Region	into	Customers.Region
ItemTypes.ItemType	into	Products.Type

This automatically creates a **Regions** logical table source for the Customers logical table and an **ItemTypes** logical table source for the Products logical table.

9. Specify the content level for the **Quarters**, **Regions**, and **ItemTypes** logical table sources. Use the screenshots as a guide.



It is best practice to set the aggregation level of these dimension sources. You specify the content of a dimension table source in terms of the hierarchy of that dimension only. The content of a fact table source is specified in terms of the content of all dimensions.

10. Drag the **Quota** logical column into the **SalesFacts** presentation table.
11. Check in changes.
12. Check consistency. If you get a warning that the features in database xls_quota do not match the defaults, you can ignore the warning for the purposes of this practice. If you want to prevent the warning message from appearing, click **Options > Warnings > Database**, and disable **Check Features Match Default**. Fix any other errors or warnings before you proceed.
13. Close the Consistency Check Manager.
14. Save the repository and leave it open for the next practice.
15. Develop a report with columns year ,quarter,region,type,dollars,targets →Click on Results→Observe output and back end SQLs

6.3 Hands on 10: Variables

- 1) Variables are useful to handle dynamic scenarios we have 4 types of variables.
 1. Repository variables.
 2. Session variables.
 3. Presentation variables.
 4. Request variables.
- 2) Repository variables and session variables will be defined in RPD & can be used in RPD & web catalog calculations and filters.
- 3) Presentation variables & request variables will be defined in dashboard prompt & can be utilized only in web catalog calculations and filters.

6.3.1 Repository variables:

- 1) These variables also called as **Oracle BI Server** variables.
- 2) Repository variable values will be updated whenever server is **restarted or started** and based on **schedule**.
- 3) Syntax **VALUEOF(Variablename)**
- 4) Repository variables are 2 types.
 - i. Static.
 - ii. Dynamic.

Static:

- 1) If you want to use a constant value in 'n' no. of places then we will go for static variables.
Eg: Database name, username of connection pools
- 2) Static variable values are initialized in the Static Repository Variable dialog box

Scenario 1: If we have 'N' number of connection pools pointing to same database or same schema then whenever we deploy dev to test we need to change all connection pools database names and schema names .

Process:

Step 1: Creating Database name and Schema name variables

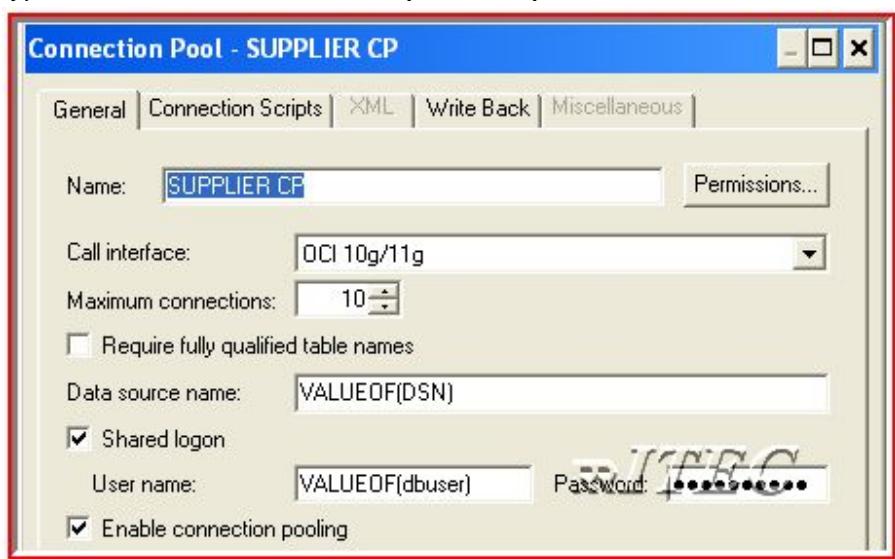
1. Open RPD online mode → Go to **manage** menu → click on **variables** → select **static** → in work area **right click** → new repository variable → name it as **DSN** → Default initialize as '**ORCL**' → click on **ok**.
2. Similarly create **DBUSER** variable & provide value as **supplier2** close variable manager

Name	Descri...	Default Initializer
DSN		'ORCL'
DBUSER		RRITEC

3.

Step 2: Utilizing Database name and Schema name variables

1. Double click on connection pool.
2. type Data source name as **VALUEOF(DSN)**
3. type User name as: **VALUEOF(DBUSER)**

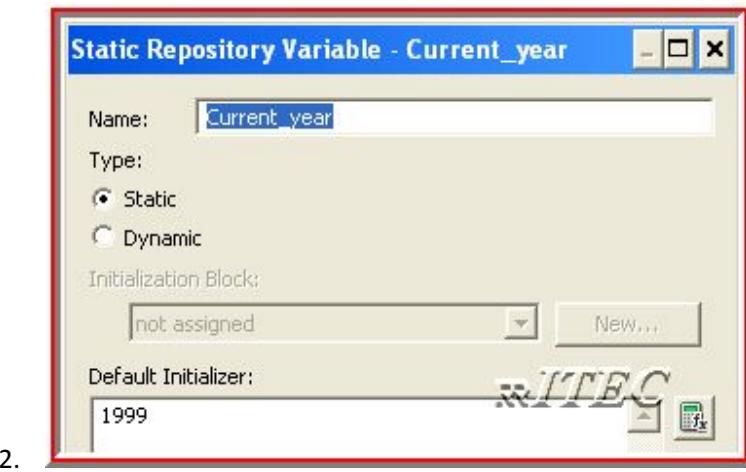


4.

Scenario 2: Create a static variable to filter data for current year

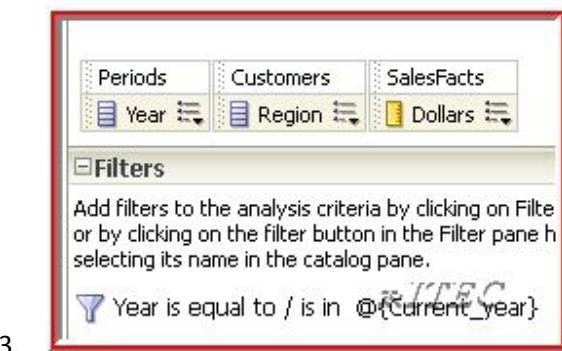
Step 1: Creating Variable and storing current year value

1. Go to **manage** menu → select **variable** → select **static** → right click in work area → select new repository variable → name it as **CURRENT_YEAR** → Default initialize : **'1999'** → click on **ok** → Click on **check in** → Click on **reload server metadata**.



Step 2: Utilizing variable in report to filter data

1. Develop a report with year, region, and dollars.
2. Click on **year** column filter → Click on **add more options** → click on **repository variable** → provide name as **CURRENT_YEAR** → Click on **Results**.



Dynamic Repository Variables:

1. These variables will be associated with **initialization block**.
2. A **SQL query** is called as initialization block.
3. These initialization blocks will be executed with oracle BI server **refresh** and based on the **schedule** of initialization block.
4. Schedule option is available only for dynamic repository variable initialization blocks.

Scenario: Handling partitions & fragmentation content condition dynamically.

Process:

Step1: creating initialization block and Variables

1. Open RPD in online mode → go to **manage** → click on **variables** → go to **action** menu → click on **new** → click on **repository** → click on **initialization block** → name it as **IB_PF** → click on **Edit data source** → Type below query
SELECT MIN (SUBSTR (NAME, 1, 1)) FROM RRITECCUST2
2. Click on **ok**
3. Click on connection pool **browse** → select **supplier cp** connection pool → click on **select** → click on **test** → click on **ok** → click on **close & ok**.
4. Click on **edit data target** → click on **new** → name it as **V_PF** → provide default initialize as 'A' → click on **ok** → again **ok** → click on **test** → click on **ok** → click on **close** → click on **ok** → close variable manager.

Step2: Utilizing initialization block and Variables

1. Expand **customers** logical table → double click on **RRITEC_CUST1** → click on **content** → under **fragmentation and content** click on **edit expression** → replace 'N' with **VALUEOF(V_PF)** → click on **ok** → again **ok**.
2. Similarly change content condition of **RRITEC_CUST2**.
3. **Check in** & reload server meta data

Step3: Testing

1. Do testing same as hands on 9 partitions and fragments '7th' step.

Step 4: Revert the work

1. Disable **RRITEC_CUST1**, **RRITEC_CUST2 LTS**
2. Enable **d1_customer2** table

Exercises:

1. Prove repository variables will not change until server restarted
2. Develop a report to get current year and current month data

Exercise 1: Prove repository variables will not change until server restarted

Step 1: Create required data

1. Open SQL DEVELOPER create below table

Exercise 2: Develop a report to get current year and current month data

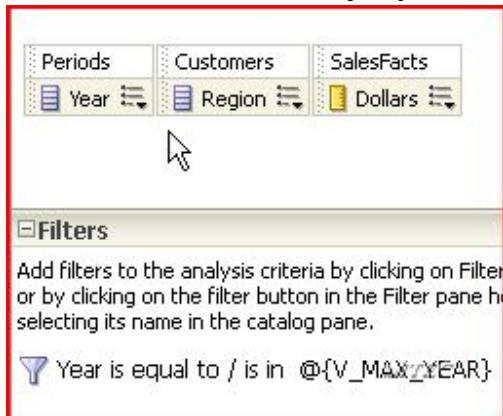
Step1: Create a sql query to get Current year and current month code

1. Select max(year),Max(monthcode) from d1_calendar2

Step2: Use Sql query in initialization block and assign values to variables

2. Go to **Manage** menu → Click on **Variables** → Select **Repository initialization block** → In work area right click and select **initialization block** → Name it as **IB_Current_Year_monthcode** → Click on **Edit Data Source** → Provide **Step1 Sql Query** → Click on **connection Pool browse** → select **Supplier CP** connection Pool → click on **select** → click on **ok**
3. Click on **Edit Data Target** → Click on **New** → provide name as **V_MAX_YEAR** → provide **default value** as **1111** → click on **ok**
4. Similarly create another variable with the name of **v_monthcode** and assign **13** as default value
5. Click on **test** → observe **result** → click on **ok** → **ok**

Step3: use these variables in any report filter



6.3.2 Session variables:

1. Log out – login time is called as session.
2. Any application will support ‘n’ number of sessions.
3. Session variables will be populated separately for each & every session or user.
4. Persist only while a user’s session is active
5. Receive values when users establish their sessions
6. Syntax **VALUEOF(NQ_SESSION.VariableName)**

7. Session variables are two types.
 - i. System.
 - ii. Non system.

System session variables:

1. These are pre defined session variables used by oracle BI server for specific purpose such as **authenticating** users
2. we have below system variables.[**case-sensitive** must be in **CAPITAL**]
 1. USER.
 2. DISPLAY NAME.
 3. GROUP.
 4. WEB GROUP.
 5. LOG LEVEL.
 6. ROLES.
 7. PERMISSIONS.
 8. USER LOCALE.
 9. TIME ZONE.
 10. PORTALPATH
3. These variables are useful in special cases such as authenticating user.
These variables should not use for any other purpose. (as a static variable name or dynamic variable etc)

Using system variable in report column

1. Develop a report with **year**, **year** → click on 1st year **edit formula** → Select and delete **periods**. **year** → click on **variable** → Click on session → type **USER** → click on **ok** → again **ok** → click on **Results** → observe weblogic name displaying → Save it → name it as **system variable understanding**
2. Using console create another user **Ram** and login to analytics and run above report → observe **Ram** name is displaying

Non system session variables:

1. These are **application specific** customized variables.
2. These variables required **Session initialization blocks**
3. Session initialization blocks will be executed when ever **user login** into analytics application

Develop data security using system & non system variables

1. It is useful to hide some of the data based on user login.

Scenario:

1. Develop data security to see customer corresponding region data.

Process:

Step 1: Creating user

1. With the installation of OBIEE 11G by default we will get web logic user . It is an administrator user. The password for **weblogic** is whatever we defined at the time of installation .In RRITEC we gave as RRitec123.
2. In OBIEE 11G LDAP is integrated.
3. LDAP stands for Light weight Direct Access Protocol.
4. LDAP is accessed and managed using **console** application

Process:

1. Open Internet Explorer type <http://localhost:7001/console>
2. Provide username : **weblogic**
3. Password : **RRitec123**
4. Click on **security realms** → click on **my realm** → click on **user and groups** tab→ Click on **users** tab → click on **new** →name it as **Zen**→Password:**RRitec123**→Confirm password:**RRitec123**→Click on **ok**.
5. Similarly create another user with the name of **Wafflers**

Step 2: Creating group

1. Set of users are called as group
2. Click on **groups** tab → click on **new** → name it as **customers** →click on **ok**.

Step 3: Mapping users to group

1. Click on **users** tab → click on **Zen** user →click on **groups** tab→select **customers** → click on **arrows(>)** →click on save → similarity map another user **Wafflers**.

Step 4: Creating a Role and assign group to role

Set of permissions/policies are called as Role.

Process:

1. Open EM → click on **business intelligence** → click on **core applications** → click on **security** → click on **single sign on** → click on **configure & manage application roles** → click on **create**→ provide name as **customer** → click

on **add group** → click on group name arrow mark → select **customers** group → click on **arrow** → click on **ok**.

Step 5: Synchronize roles in admin tool (11.1.1.6)

1. Open above RPD in online mode.
2. Go to **Manage** menu → Click on **Identity** → Go to **Action** menu → Click on **Synchronize Application Roles**

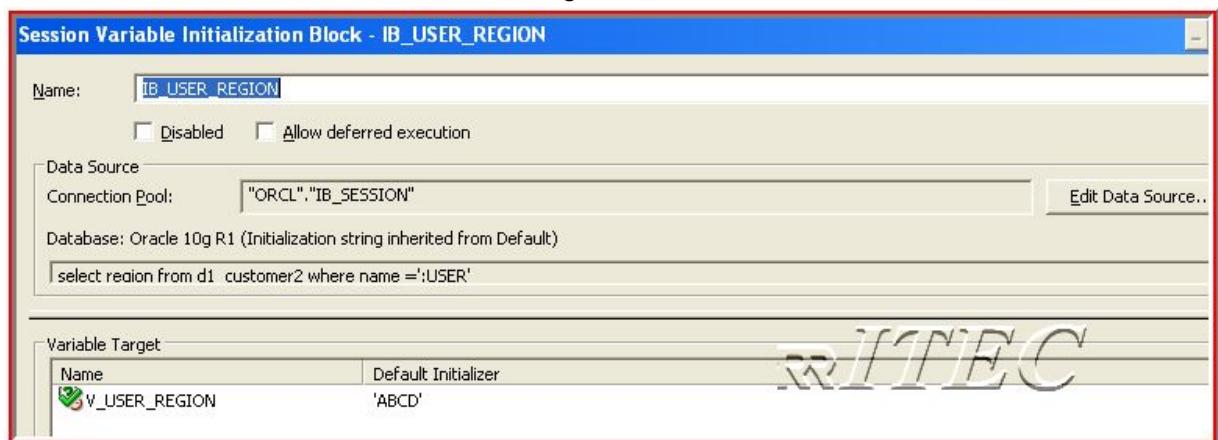
Note : Restart oracle BI server(upto 11.1.1.5) /Synchronize roles in admin tool (11.1.1.6)

Step 6: Create Dedicated connection pool

1. In OBIEE 10G Dedicated connection pool is not required.
2. In physical layer right click on **orcl** database object → click on new object → click on connection pool → name it as **IB_SESSION** → data source name: **orcl**, username: **supplier2**, password: **supplier2** → click on **ok** → again **ok**.

Step 7: Create initialization block and assign values to non system variables

1. Creating non-system variable & initialization block.
2. Go to **Manage** menu → click on **variables** → Click on **action** menu → click on **new session** variable → name it as **V_USER_REGION** → type default initialization: 'A' → click on **new** → name it as **IB_USER_REGION** → Edit **data source** → type below SQL
SELECT REGION FROM D1_CUSTOMER2 WHERE NAME =':USER'
→ click on connection pool **browse** → select **IB_SESSION** connection pool → click on **select** → click on **ok** → again **ok**.



Step 8: Create a data filter on role

1. Go to **Manage** menu → Click on **identity** → select **BI repository** → Click on **application roles** tab → double click on **customers** → click on **permission** → click on **data filters** → Click on **add** → expand **supplier sales** → select **customers** → click on **select** → click on **ok** → Under data filter → click your mouse → click on **edit expression** → select **customer** table → double click on **region** → type = select **session variables** → double click on **V_USER_REGION** → click on **ok** → again **ok** → Click on **close**.



Step9: Testing

1. Login to analytics as a **web logic** user develop report with **region, district, dollars** click on save with the name of **data security**. Reload server metadata. Logout
2. login with Zen user, navigate to above saved report & observe output.
3. Similarly login with Waffler user & navigate to above report & observe output.

Note:

1. Data security can be applied on presentation layer objects (or) BMM layer objects.

Row wise initialization

- 1) Are used to retrieve and initialization a list of values to a non system session variables.
- 2) Returns list of values separated by colon ,
Ex: CA: TEXAS
- 3) Used for implementing data security when one user normally belongs to more than one group.

Process:

Step1: Creating required data,

- 1) login to data base using **supplier2** user and execute below statements

```
CREATE TABLE USER_MULTI_GROUP (CITY VARCHAR2 (20), SALESREP
VARCHAR2 (20), SALES NUMBER (10, 2)).
```

```

INSERT INTO USER_MULTI_GROUP VALUES ('CA','MARC', 30000);
INSERT INTO USER_MULTI_GROUP VALUES ('TEXAS','MARC', 10000);
INSERT INTO USER_MULTI_GROUP VALUES ('NEWYORK','SCOTT', 20000)
INSERT INTO USER_MULTI_GROUP VALUES ('DALLAS','JOHN', 5000);
COMMIT;

```

Step 2: Incorporating USER_MULTI_GROUP TABLE IN RPD

- 1) Open our RPD in online mode → import USER_MULTI_GROUP table into physical layer.
- 2) Create new business model in BMM layer with the name of **Row_wise_IB** → click on **ok**
- 3) Drag and drop USER_MULTI_GROUP into business model **Row_wise_IB**.
- 4) Right click on table USER_MULTI_GROUP click on **duplicate**, right click on Business Model → click on business model diagram → whole diagram → Click on new join connect both the tables → Close business model diagram
- 5) Drag and drop **Row_wise_IB** business model into presentation layer → delete USER_MULTI_GROUP #1.
- 6) In BMM layer USER_MULTI_GROUP #1 double click on it, click on keys tab → name it as **salesrep_city_key** → Select key columns **city & salesrep** → In primary key dropdown select **salesrep_city_key** key.
- 7) Click on checkin → save rpd

Step 3: Creating required users

- 1) Open console login as web logic user.
- 2) Click on **Security realm** → Click on **my realm** → Click on **users and group** tab.
- 3) Click on **users** tab → click on **new** → name it as **MARC** → password and conform password as **RRitec123** → click on **ok**.
- 4) Similarly create another 2 users **scott , john**.

Step 4: Creating Group

- 1) Click on **groups** tab → Click on **new** → name it as **ROW_WISE_GROUP** → click on **ok**.

Step 6: Assign users & group

- 1) Click on **users** tab → click on **JOHN** → click on **groups** → select **ROW_WISE_GROUP** → click on **move (>)** → Click on **save**
- 2) Similarly map another 2 users **scott , MARC.**

Step 7: Creating Role and assigning Group

- 1) Open **EM** → Click on **security** tab → Click on **single sign on** → click on **configure manage application roles** → click on **create** → name it as **ROW_WISE_ROLE** → click on **add** → select type as **group** → click on search symbol → select **ROW_WISE_GROUP** → click on **ok**.

Step 8: Synchronize role

- 1) Open RPD in online mode → Click on **manage** → Click on **identify** → Click on **action** → click on **synchronize application roles**.

Note: in case of 11.1.1.5 we need to restart OBI server to get new roles into RPD.

Step 9: Create dedicate connection pool

- 1) From 11g onwards for session variables initialization blocks we need dedicated connection pool. This process introduced to improve the performance.
- 2) In above exercise we already created **IB_SESSION** connection pool .we can utilize same

Step 10: create row wise IB

- 1) Click on **Manage** → Click on **variables** → Click on **action** → Click on **new** → Click on **session** → Click on **Intilization block**



- 2) Name it as **IB_MULTI_USER_GROUP** → click on **edit data source** → type below SQL

```
SELECT 'USER_MULTI_GROUP', CITY
```

FROM USER_MULTI_GROUP WHERE SALESREP =':USER'

- 3) Click on **browse** → double click on **IB_SESSION** connection pool → Click on **ok** → Click on **edit data target** → enable **row-wise-initialization** option → disable **user caching** → click on **ok** → again **ok** → close variable management → check in changes.

Step11: create a data filter on role

- 1) Click on **Manage** → Click on **identity** → Click on **BI repository** → Click on **application roles** → double click on **ROW_WISE_ROLE** → click on **permissions** → click on **data filters** tab → click on **add** → Expand **Row_wise_IB** business model → select **USER_MULTI_GROUP TABLE** → click on **select** → click on **edit expression** → develop **CITY= VALUE OF(NQ-SESSION.user_multi_group)** → Click on **ok** → again **ok** → again **ok** → close **identity manager** → **check in changes**.

Step12: test your work

Login to analytics → with the user web logic → develop a report on row_wise_IB subject area → save this report in shared folders.

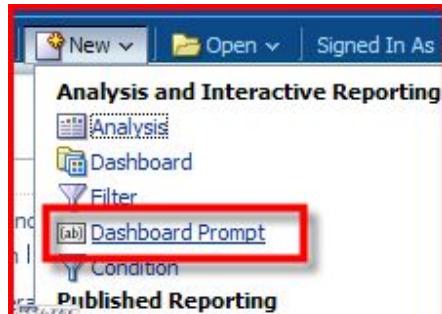
Logout & login as MARC user → click on catalog → go to your saved report → click on open → as belongs to 2 cities manager is able to see CA & TEXAS.

6.3.3 Presentation Variable

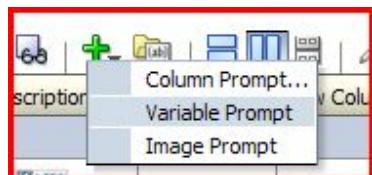
1. Presentation Variable is useful to capture “User Response”
2. In Variable Prompt, we will use only Presentation Variable.
3. **Presentation Variable syntax:** @ {<variable name>} {<value>} {<format>}
 - i. Here <value> and <format> are optional.
 - ii. **Variable Name** is the name of the Presentation Variable,
 - iii. **Value** is by default value
 - iv. **Format** is to convert one format to other format

Procedure:

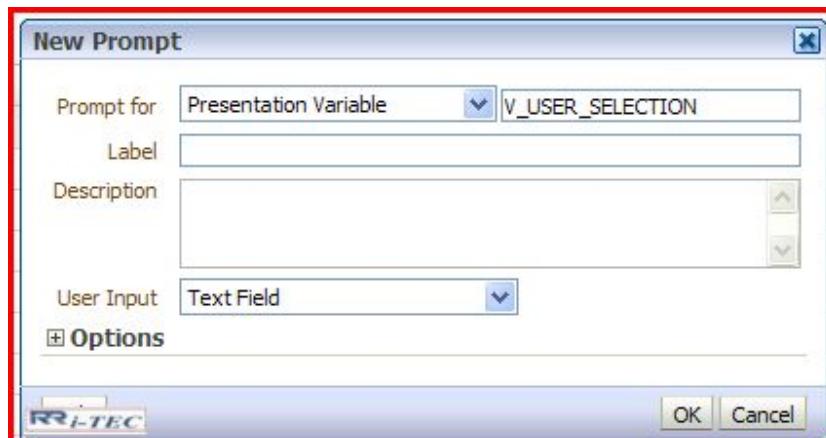
1. Click on **New** → Click on **Dashboard Prompt**



2. Click on **New** → Click on **Variable Prompt**



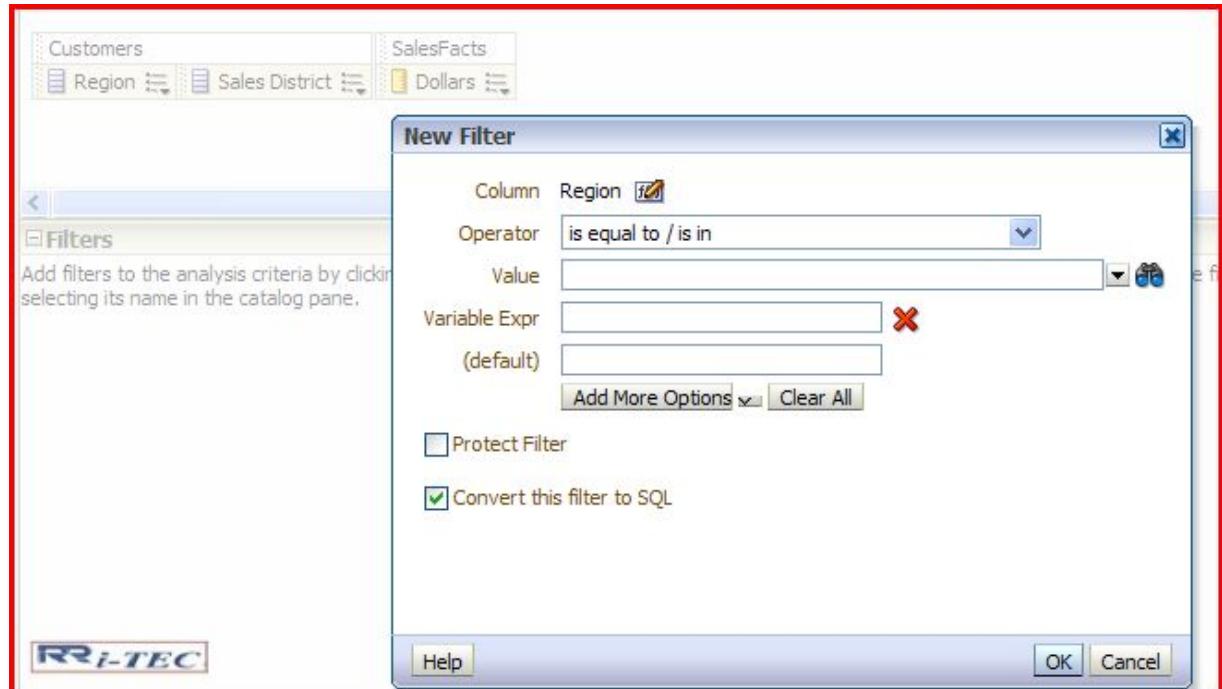
3. Name it as **V_USER_SELECTION** → click on **OK**.



4. Click on **Save** → Select **shared folder/rritec folder** → Name it as **PV_PROMPT**

Step2: Creating a Report by using Variable Dashboard Prompt

1. Develop a Report with columns **Region, District and Dollars**
2. In the **Criteria** → Click on **Region Filter** → Click on **add more options** → Click on **Presentation Variable** → Select **Convert this filter to SQL** → Click on **OK**



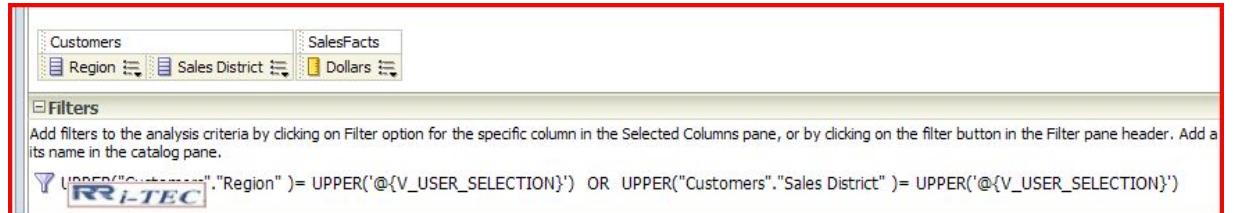
3. Type below Expression

UPPER("Customers"."Region")= UPPER('@{V_USER_SELECTION}')

OR

UPPER("Customers"."Sales District")= UPPER('@{V_USER_SELECTION}')

4. Click on OK



5. Click on Save → Select shared folder/rritec folder → Name it as PV_REPORT

Step 3: Integrating above prompt and report in dashboard

1. Click on NEW → Click on dashboard → Name it as PV_DASHBOARD → Drag and drop PV_PROMPT and PV_REPORT → Click on save → Click on RUN

Step 4: Testing

1. Type **gulf** in the text box → Click on OK → Observe Result
2. Type **east** in the text box → Click on OK → Observe Result

6.3.4 Request Variable

1. It is useful to override session variable values
2. The name of request variable must be same as session variable
3. Request variable we will define using dashboard prompt
4. It is useful to send values from report to RPD

6.4 Hands on 11: Modeling Time Series Data

- 1) Time series functions are useful to calculate performance of business by comparing historical data with current data.
- 2) Time series functions are 3 types.
 1. Ago.
 2. ToDate.
 3. Period rolling [new feature in OBIEE 11G]
- 3) **Ago function**
 - i) Calculates aggregated value as of some time period shifted from the current time
 - ii) Example : 1 month Ago sales ,1 year ago sales , 3 months ago sales
 - iii) Syntax Ago(<<Measure>>, <<Level>>, <<Number of Periods>>)
- 4) **ToDate function**
 - i) Aggregates a measure attribute from the beginning of a specified time period to the currently displayed time
 - ii) Example : YTD (Year Till Date) , QTD (Quarter Till Date)etc
 - iii) Syntax ToDate(<<Measure>>, <<Level>>)
- 5) **PeriodRolling function**
 - i) This function computes the aggregate of a measure over the period starting **x** units of time and ending **y** units of time from the current time.
 - ii) Syntax PeriodRolling(<<Measure>>, <<Starting Period Offset>>, <<Ending Period Offset>>)

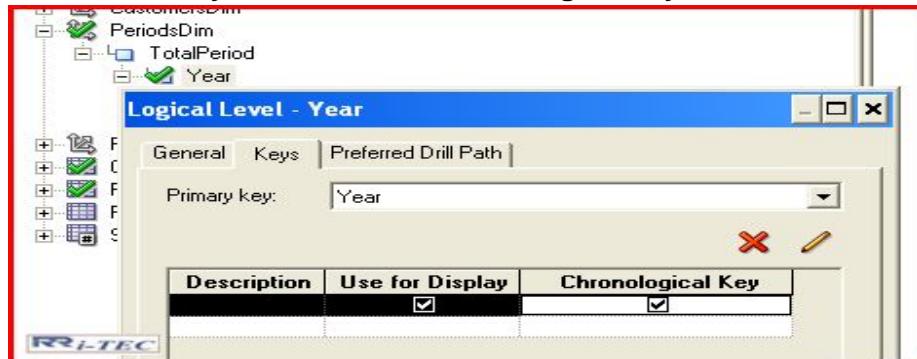
Process:

Step 1: Define time dimension and chronological keys

- 1) Open RPD in **online mode** → double click on **periods** dimension → enable **time**.



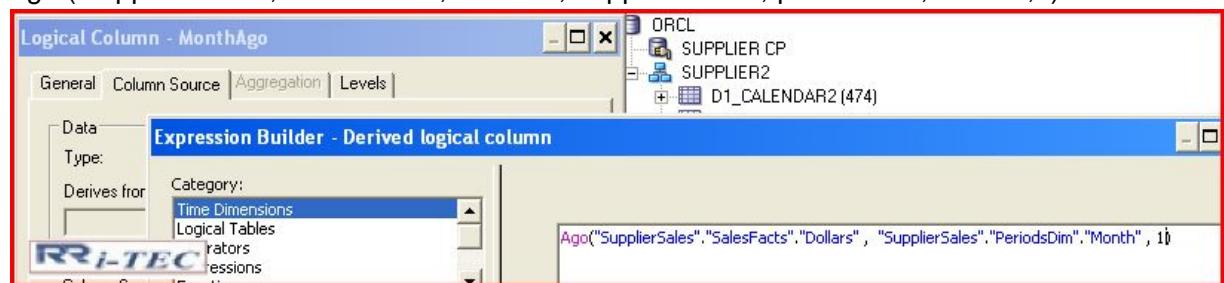
- 2) Double click on **year** level enable **chronological key**.



- 3) Similarly enable chronological key for all the levels(Quarter , month and day)
 4) **Chronological key** is a primary key, it is useful to identify time values uniquely .

Step 2: Create the Ago measure

- 1) Right click on **sales facts** → click on **new object** → click on **logical column** → name it as **month ago** → Click on **column source** tab → Select **derived from existing column using expression** → click on **edit** → develop the below expression
 ago ("supplier sales", "sales facts", "dollars","supplier sales","perioddim ","month",1).



- 2) Click **ok** → again **ok**.

Step 3: Calculating Variance

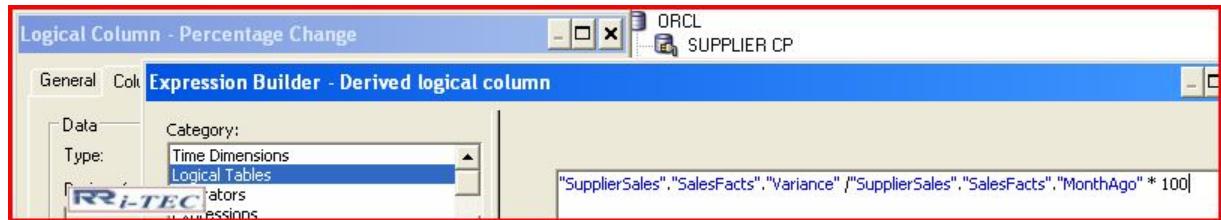
- 1) Right click on **sales facts** → click on **new object** → click on **logical column** → name it as **Variance** → Click on **column source** tab → Select **derived from existing column using expression** → click on **edit** → develop the below expression
"SupplierSales"."SalesFacts"."Dollars" - "SupplierSales"."SalesFacts"."MonthAgo"



Step 4: Calculating Percentage change

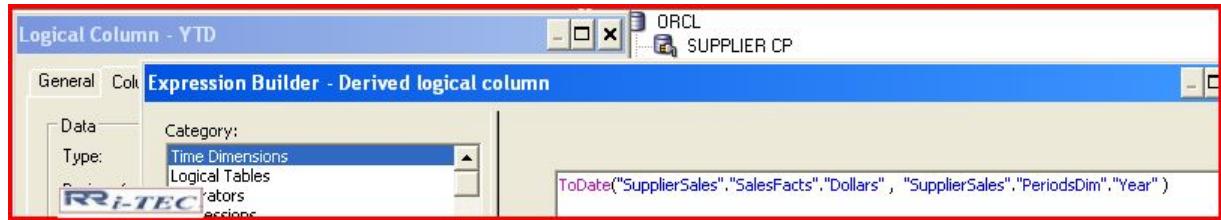
- 1) Right click on **sales facts** → click on **new object** → click on **logical column** → name it as **Percentage change** → Click on **column source** tab → Select **derived from existing column using expression** → click on **edit** → develop the below expression

"Suppliersales"."salesfacts"."Variance"/"suppliersales"."salesfacts"."monthago" * 100.



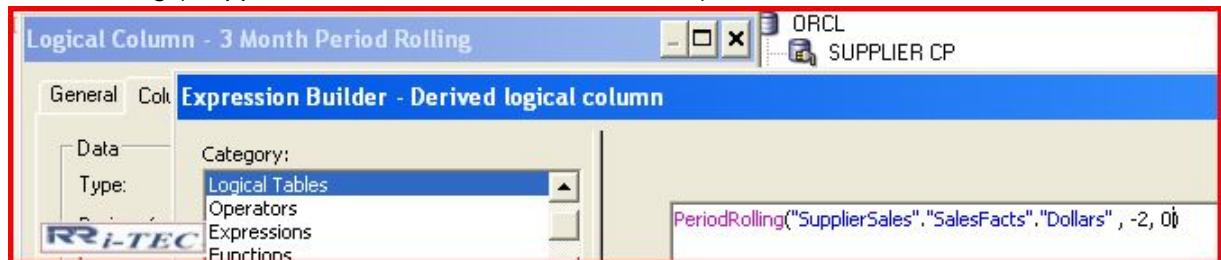
Step 5: Calculating YTD(Year Till Date)

- 1) Right click on **sales facts** → click on **new object** → click on **logical column** → name it as **YTD** → Click on **column source** tab → Select **derived from existing column using expression** → click on **edit** → develop the below expression
Todate("suppliersales"."salesfacts"."dollars"."suppliersales"."periodsdim"."year")



Step 6: Calculating 3 Month period rolling

- 1) Right click on **sales facts** → click on **new object** → click on **logical column** → name it as **3 Month Period Rolling** → Click on **column source** tab → Select **derived from existing column using expression** → click on **edit** → develop the below expression
Periodrolling("suppliersales","salesfacts"."dollars", -2,0).



- 2) **Drag** and drop above into presentation layer sales facts
- 3) Click on **check in** → reload server metadata.

Step 7: Testing

- 1) Develop a report with **year, monthcode, dollars, month ago, variance, percentage, YTD and 3 months period rolling**
- 2) Observe output

6.5 Hands on 12: Configuring Many to Many Relationships

- 1) **Bridge table & helper table** are useful to resolve many to many relationships.
- 2) No BI tool supports many to many relationships.

6.5.1 Modeling a Bridge Table

Goals To configure a bridge table for commission data

Scenario An ABC sales representative may participate in many deals that pay commission. Additionally, each deal may include many sales

representatives so that each sales representative receives a percentage of the commission. You need to model this many-to-many relationship in the repository.

There is a D1_COMMISSION fact table with commissions paid per invoice. D1_COMMISION_BRIDGE is the bridge table used to create a many-to-many relationship between the D1_COMMISSION fact table and the D1_SALESREP dimension table. D1_COMMISION_BRIDGE includes a weight factor to calculate the weighted distribution of commissions among sales teams. You import the tables and model them in the repository.

Time	15–20 minutes
------	---------------

Instructions

1. Import commission tables into the repository.
 - a. Open RPD in online mode
 - b. Select right click on **connection pool** > **Import metadata** > click on **next**.
 - c. Expand **SUPPLIER2** and select **D1_COMMISSION** and **D1_COMMISION_BRIDGE**
 - d. **Click on import selected**.
 - e. Ensure that **Tables** are selected and click **next**.
 - f. When import completes, click **finish**.
 - g. In the Physical layer, expand **ORCL** > **SUPPLIER2** and ensure that the two tables were imported.
 - h. Check in changes.
 - i. Save the repository.
 - j. Update row counts on each table to check connectivity. Both tables should return **38** rows.
 - k. View data for **D1_COMMISSION**. Note that COMM_KEY 1111 has two rows, each with a commission amount of \$22,000 for a total commission amount of \$44,000. This is an example of a situation where commissions may be paid in installments; for example, 50% of the commission is paid when the item is ordered, and the other 50% is paid when the item is paid for. Note that CUST_KEY 1118 is associated with these two rows. You use this information to check your work in Answers later in this practice.
 - l. View data for **D1_COMMISION_BRIDGE**. Note that Alan Ziff shares commission with Andrew Taylor for COMM_KEY 1111. Each earns 50% of the commission (0.5 weight factor). Since the total commission for COMM_KEY 1111 is \$44,000, each sales representative earns \$22,000 for this deal. You use this information to check your work in Answers later in this practice.
16. Define the physical keys.
 - a. Double-click **D1_COMMISSION**.
 - b. Click the **Keys** tab.

- c. Click **New**.
 - d. Enter **D1_COMMISION_Key** as the key name.
 - e. Select **COMM_KEY**, **CUST_KEY**, and **PERIOD_KEY**.
 - f. Click **OK**.
 - g. Click **OK** to close the Physical Table dialog box.
 - h. Repeat the steps to create a key named **D1_COMMISION_BRIDGE_Key** for the **D1_COMMISION_BRIDGE** table with the columns **COMM_KEY** and **SALESREP**.
 - i. Check in changes and save the repository.
17. Create the physical joins.
- a. Select the **D1_COMMISION**, **D1_COMMISION_BRIDGE**, **D1_CUSTOMER2**, **D1_CALENDAR2** and **D1_SALESREP** tables.
 - b. Right-click any one of the highlighted tables and select **Physical Diagram > Selected Object(s) Only**.
 - c. Create the following foreign key joins. Click **Yes** when prompted to create a matching table key:
- ```

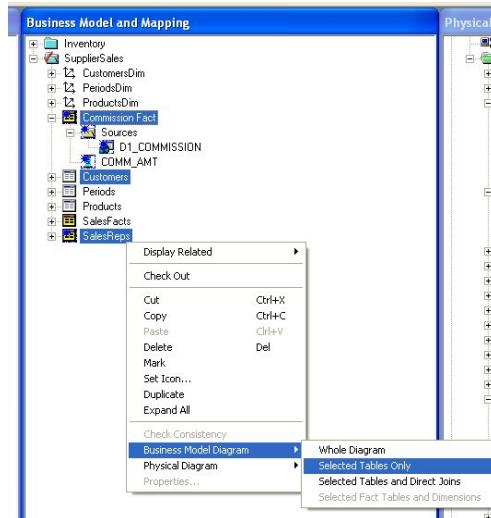
D1_CUSTOMER2.NEWKEY = D1_COMMISION.CUST_KEY
D1_SALESREPS.SALESREP = D1_COMMISION_BRIDGE.SALESREP
D1_COMMISION.COMM_KEY = D1_COMMISION_BRIDGE.COMM_KEY
D1_CALENDAR2.YYYYMMDD=D1_COMMISION.PERIODKEY

```
- 
- ```

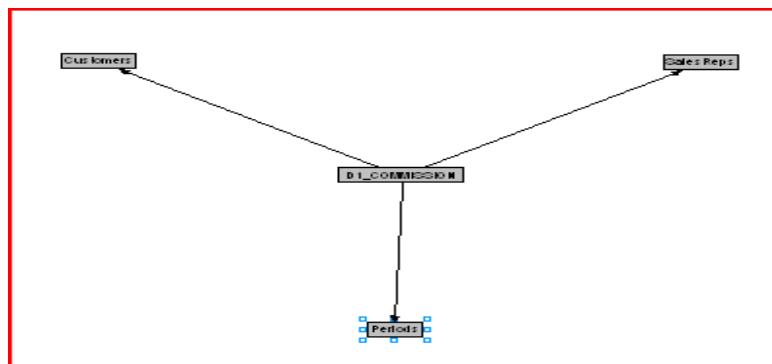
graph TD
    D1_SALESREPS[D1_SALESREPS] --> D1_COMMISION_BRIDGE[D1_COMMISION_BRIDGE]
    D1_COMMISION_BRIDGE --> D1_COMMISION[D1_COMMISION]
    D1_COMMISION --> D1_CALENDAR2[D1_CALENDAR2]

```
- d. Close the Physical Diagram window.
 - e. Check in changes.
 - f. Save the repository.
18. Create the logical model.
- a. Right-click the **SupplierSales** business model and select **New Object > Logical Table**.
 - b. Name the logical table **Commission Fact** and click **OK**.
 - c. From the Physical layer, drag **D1_COMMISION.COMM_AMT** to Commission Fact in the BMM layer.
 - d. Drag **D1_SALESREPS** from the Physical layer onto the **SupplierSales** business model in the Business Model and Mapping layer.
 - e. Rename the **D1_SALESREPS** logical table to **SalesReps**.
 - f. Select the **Commission Fact**, **Customers**, and **SalesRep** logical tables.

- g. Right-click any of the highlighted tables and select **Business Model Diagram > Selected Tables Only**.



- h. Create logical joins from the **Customers** and **SalesRep** logical tables to **Commission Fact**.

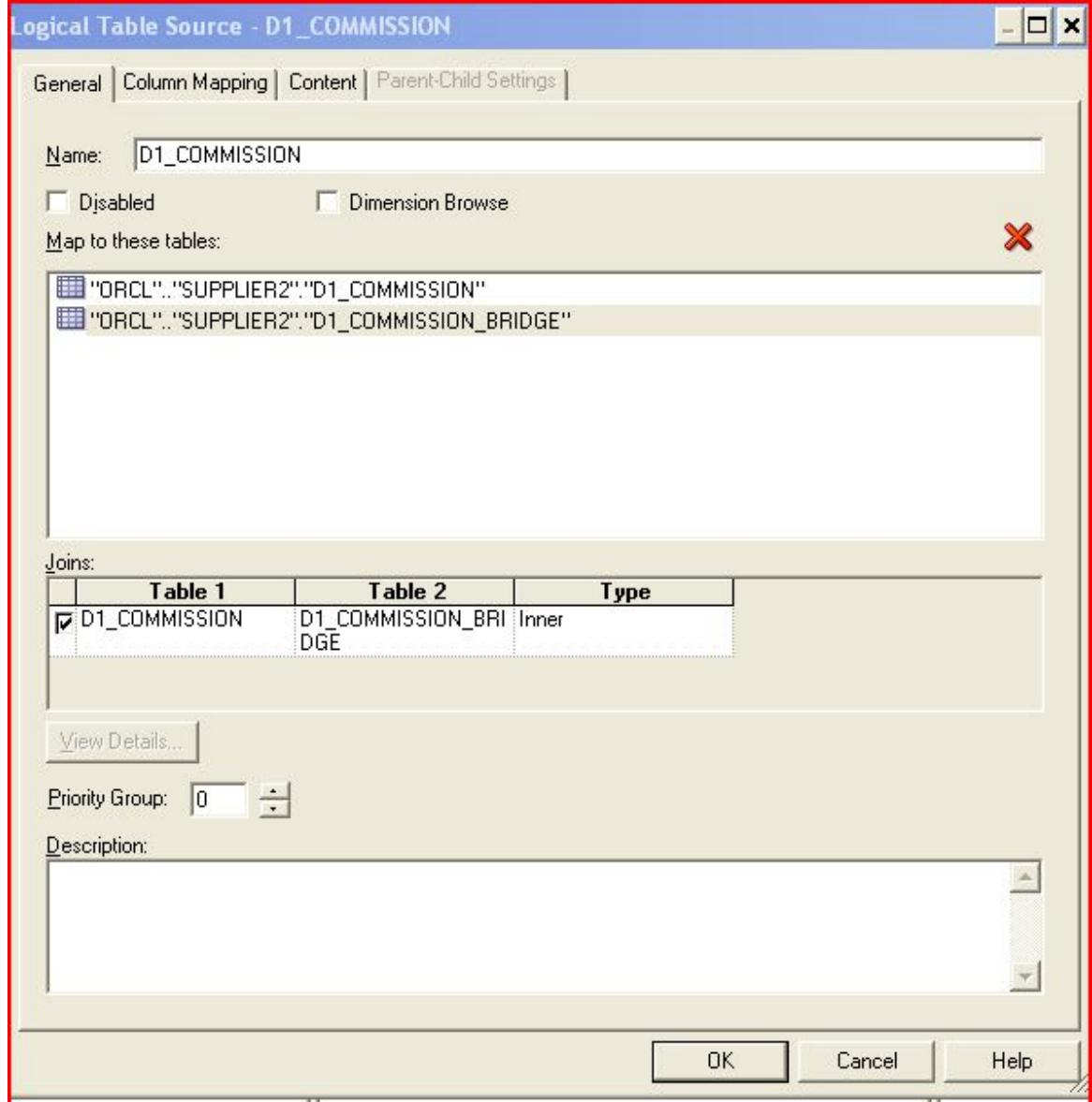


- i. Close the **Logical Table Diagram**.
j. Check in changes.
k. Do not check global consistency.
l. Save the repository.

19. Map the bridge table to the fact logical table source.

- Expand **Commission Fact > Sources** and ensure that there is a **D1_COMMISSION** logical table source.
- Double-click the **D1_COMMISSION** logical table source.
- Click the **General** tab.

- d. Click **Add** and map to the **D1_COMMISSION_BRIDGE** table.

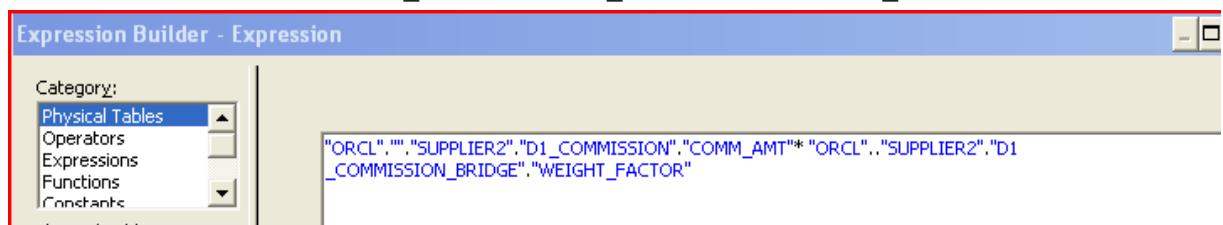


- e. Click **OK** to close the **Logical Table Source** dialog box.

20. Create a calculation measure using commission and weight factor physical columns.
- Rename the **COMM_AMT** logical column to **Commission**
 - .
 - Double-click the **Commission** logical column.
 - Click the **Data Type** tab.
 - Double-click the **D1_COMMISSION** logical table source.
 - Click the **Column Mapping** tab.
 - Click the ellipsis button for the Commission logical column to open Expression Builder.



- h. Build the following expression:
 "ORCL"."SUPPLIER2"."D1_COMMISION"."COMM_AMT" *
 "ORCL"."SUPPLIER2"."D1_COMMISION_BRIDGE"."WEIGHT_FACTOR"



- i. Close Expression Builder and the Logical Table Source dialog box.
 - j. Click the Aggregation tab and set the aggregation rule to SUM.
 - k. Click OK to close the Logical Column dialog box.
 - l. Check in changes.
 - m. Check consistency.
 - n. Save the repository.
21. Map objects to the Presentation layer.
- a. Drag the SalesReps and Commission Fact tables onto SupplierSales in the Presentation layer.
 - b. For testing purposes, drag Customers.CustomerKey onto the Customers presentation table.
 - c. Check in changes.
 - d. Check consistency.
 - e. Save the repository.
22. Check your work.
- a. Log in to Analytics as weblogic with password RRitec123.
 - b. Click New→Analysis→select subject area SupplierSales.
 - c. Reload server metadata.
 - d. Create a query with Customers.Customer and CommissionFact.Commission.

- e. Click **Results**. The results show total commissions by customer.

Customer	Commission
Arlo Dee	50000.00
B L T's Cobblefish	12800.00
Big River Grille & Brewing	9000.00
Billy's Hickory-Pit Bar-B-Q	1800.00
Caesar's Frozen Custard	11600.00
Demos' Steak & Spaghetti House	12000.00
Felix	68000.00
Half-Shell Restaurant	47800.00
Heaping Bowl & Brew	48600.00
Il Gargano Italian Trattoria	56000.00
Little Sichuan Restaurant	49000.00
Mayflower Cuisinier	44000.00
Rice Bowl	38680.00
Royal Lunch	46000.00
Tom's Famous Recipe Chicken	9600.00

- f. Click **Customers.CustomerKey** to add it to the results. Note that **Mayflower Cuisinier** is the customer associated with customer key 1118. Recall that earlier in the practice you examined the source data to determine that the total commission associated with customer key 1118 is equal to \$44,000.
- g. Click **SalesRep.SALESREP** to add it to the results. The results show commission earned by each sales representative calculated by the weight factor in the bridge table.
- h. Click the **All Pages** button and ensure that Alan Ziff shares commission with Andrew Taylor for Mayflower Cuisinier. Each earned \$22,000, 50% of the total commission, which matches the source data you examined earlier in this practice.

Customer	SALESREP	Commission
Mayflower Cuisinier	ALAN ZIFF	22000.00
	ANDREW TAYLOR	22000.00

- i. Check the log file to ensure that the **D1_COMMISION** fact table and **D1_COMMISION_BRIDGE** bridge table were both accessed.

```

select T115.NAME as c1,
       T115.NEWKEY as c2,
       T881.SALESREP as c3,
       sum(T1600.COMM_AMT * T1606.WEIGHT_FACTOR) as c4
  from
    D1_SALESREPS T881,
    D1_CUSTOMER2 T115,
    D1_COMMISION T1600,
    D1_COMMISION_BRIDGE T1606
 where  ( T115.NEWKEY = T1600.CUST_KEY and T881.SALESREP
 group by T115.NEWKEY, T115.NAME, T881.SALESREP
 order by c1, c2, c3

```

- j. Close the **Session Monitor**, **Session Management**, and **Oracle BI Presentation Services Administration** pages.
k. Log out of Oracle BI Presentation Services.
l. Leave the Oracle BI Administration Tool open for the next practice.

6.5.2 Modeling a Helper Table

Goals To model a helper table in Oracle BI and validate its configuration

Scenario Requirements have been gathered indicating that sales deals are executed and owned at different levels within the organization. The management wants to know which managers are responsible for what sales and product returns per their sales representatives' efforts. The data warehouse team has created a helper table to support the requirement and you model this table in the Oracle BI repository.

Time 40–50 minutes

Instructions

1. Import the D1_RETURNS, W_POSITION_D, and W_POSITION_H tables into the repository.
 - a. Return to the ABC repository, which should still be open in online mode.
 - b. Select Connection pool > **Import metadata**.
 - c. Click on next.
 - d. Expand the **SUPPLIER2** schema and select the **D1_RETURNS**, **W_POSITION_D**, and **W_POSITION_H** tables.
 - e. Ensure that **Tables** is selected and click **Import**.
 - f. When import completes, click on finish.
 - g. Check in changes.
 - h. Save the repository.

2. Check connectivity and view data.
 - a. To check connectivity, update row counts for the **D1 RETURNS**, **W POSITION D**, and **W POSITION H** tables. **D1 RETURNS** should return **263** rows, **W POSITION D** should return **7** rows, and **W POSITION H** should return **11** rows.
 - b. View data for the **W POSITION D** table. This table includes the position ID and position name for seven employees.

POSITION	POSTN_ID	SALESREP
VP of Sales	1	ALAN ZIFF
Sales Manager 1	2	ANDREW TAYLOR
Sales Manager 2	3	ANNE WILLIAMS
Sales Rep 1	4	ANN JOHNSON
Sales Rep 2	5	BARBARA JENSEN
Sales Rep 3	6	BETTY NEWER
Sales Rep 4	7	ANNE WILLIAMS

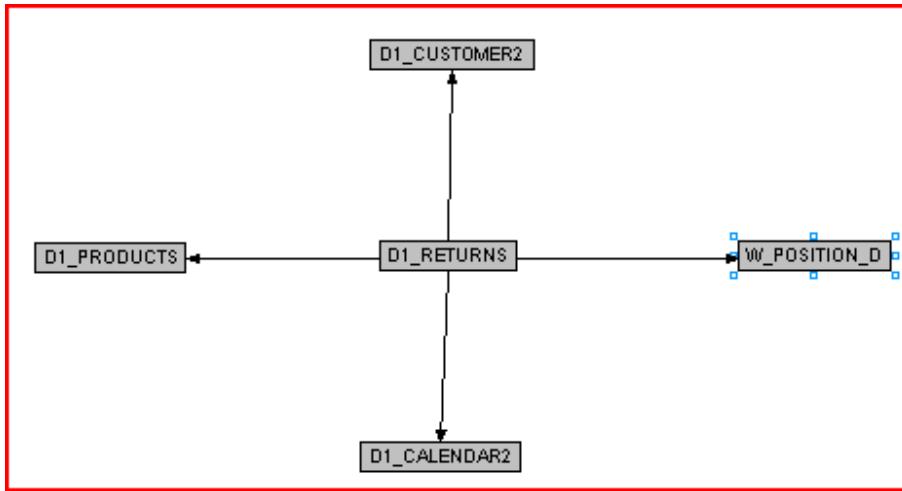
- c. View data for the **W POSITION H** table. This helper table includes the position ID, subposition ID, and position gap for the same seven employees.

GAP	POSITION	POSTN_ID	SALESREP	SUB_ID	SUB_SALESREP
0	VP of Sales	1	ALAN ZIFF	1	ALAN ZIFF
1	VP of Sales	1	ALAN ZIFF	2	ANDREW TAYLOR
2	VP of Sales	1	ALAN ZIFF	4	ANN JOHNSON
2	VP of Sales	1	ALAN ZIFF	5	BARBARA JENSEN
1	Sales Manager 1	2	ANDREW TAYLOR	4	ANN JOHNSON
1	Sales Manager 1	2	ANDREW TAYLOR	5	BARBARA JENSEN
1	VP of Sales	1	ALAN ZIFF	3	ANNE WILLIAMS
2	VP of Sales	1	ALAN ZIFF	6	BETTY NEWER
2	VP of Sales	1	ALAN ZIFF	7	ANNE WILLIAMS
1	Sales Manager 2	3	ANNE WILLIAMS	6	BETTY NEWER
1	Sales Manager 2	3	ANNE WILLIAMS	7	ANNE WILLIAMS

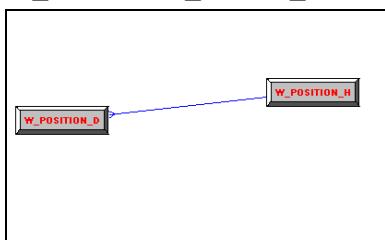
- d. View data for the **D1 RETURNS** table. This fact table contains product return data. Note that return data is associated only with position IDs 4, 5, 6, and 7. You use this information to check your model when you run queries in Answers later in this practice.
- e. Check in changes.
- f. Save the repository.

3. Create physical joins.
 - a. Select the **D1 CUSTOMER2**, **D1 PRODUCTS**, **D1 RETURNS**, and **W POSITION D** physical tables.
 - b. Right-click any one of the highlighted tables and select **Physical Diagram > Selected Object(s) Only**.
 - c. Create the following foreign key joins. Click **Yes** when asked to create a matching table key.

D1 CUSTOMER2.NEWKEY = D1 RETURNS.CUSTKEY
D1 PRODUCTS.PRODUCTKEY = D1 RETURNS.PRODKEY
D1 CALENDAR2.YYYYDDMM = D1 RETURNS.PERIODKEY
W POSITION D.POSTN_ID = D1 RETURNS.POSTN_ID

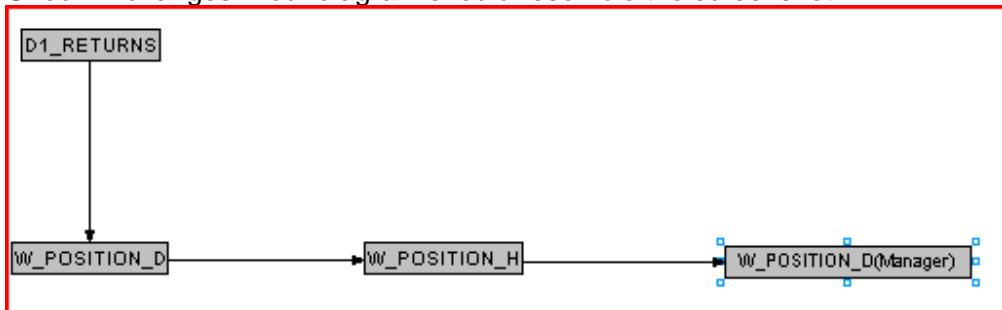


- d. Close the Physical Diagram.
4. Create an alias of the Position dimension table to support the business requirements. The Position table includes records for employees and managers. You need to create an alias of the Position table to report on both at the same time. In this step, you create an alias for W_POSITION_D named W_POSITION_D (Manager).
- a. Right-click **W_POSITION_D** and select **New Object > Alias**.
 - b. Click the **General** tab, and name the table **W_POSITION_D (Manager)**. Click **OK**.
 - c. Check in changes and save the repository.
5. Create a foreign key join from the W_POSITION_H helper table to the W_POSITION_D dimension table. This joins the subordinate position ID in the helper table to the position ID in the Position dimension table.
- a. Select the **W_POSITION_H** and **W_POSITION_D** tables.
 - b. Right-click either of the highlighted tables and select **Physical Diagram > Selected Object(s) Only**.
 - c. Create the following foreign key join:
W_POSITION_H.SUB_ID = W_POSITION_D.POSTN_ID

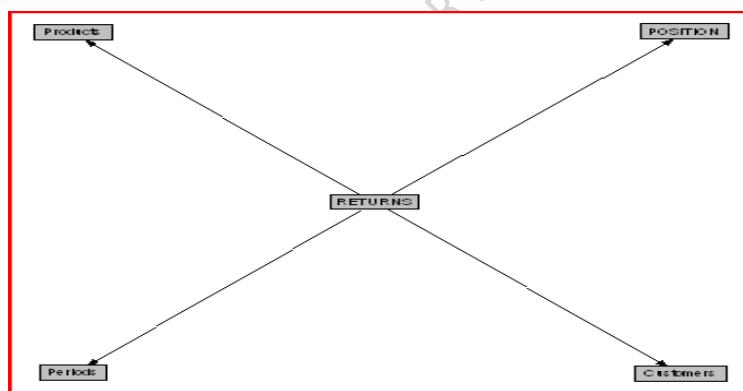
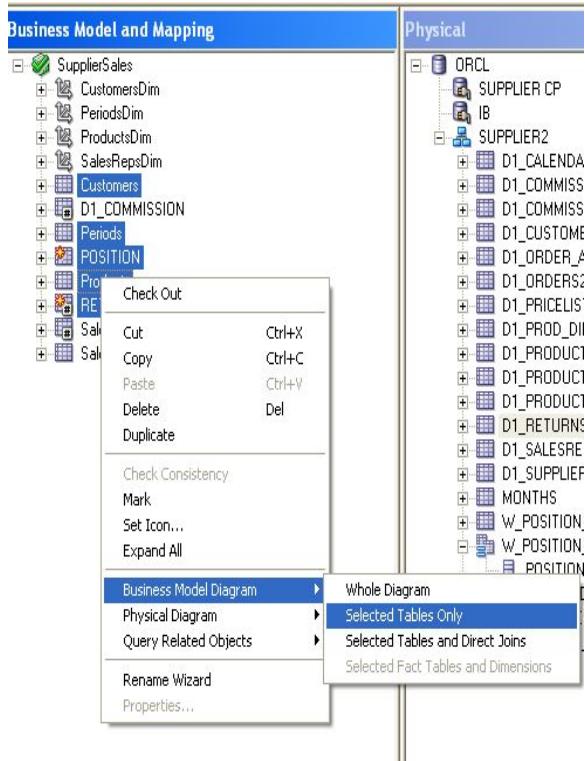


- d. Click **OK**.

6. Create a foreign key join from the W_POSITION_D (Manager) alias to the W_POSITION_H helper table. This joins the position ID of the manager in the manager alias table to the position ID in the position dimension table.
 - a. Resize the Physical Diagram window so that the Physical layer is visible.
 - b. Select the **D1_RETURNS** and **W_POSITION_D (Manager)** tables.
 - c. Right-click either of the highlighted tables and select **Physical Diagram > Selected Object(s) Only** to add the tables to the physical diagram.
 - d. Create the following foreign key join:
`"W_POSITION_D (Manager)".POSTN_ID = W_POSITION_H.POSTN_ID`
 - e. Click **OK**.
 - f. Click **Yes** when asked to create a matching table key.
 - g. Check in changes. Your diagram should resemble the screenshot:



- h. Close the Physical Diagram window.
 - i. Check in changes and save the repository.
7. Add objects to the Business Model and Mapping layer and create logical joins.
 - a. Drag **D1_RETURNS** to the **SupplierSales** business model in the Business Model and Mapping layer.
 - b. Rename **D1_RETURNS** to **Returns**.
 - c. Drag **W_POSITION_D** to the **SupplierSales** business model in the Business Model and Mapping layer.
 - d. Rename the **W_POSITION_D** table **Position**.
 - e. Create logical joins from **Customers**, **Position**, and **Products**, **Periods** to **Returns**.



- f. Close **Logical Diagram**
- g. Expand the **Position** logical table.
- h. Rename the **SALESREP** column **Employee Name**.
- i. Rename the **POSITION** column **Employee Position**.
- j. Rename the **POSTN_ID** column **Employee ID**.
- k. Drag **W_POSITION_D (Manager)** to the **Position** logical table to add a new logical table source and columns.
- l. Rename the **SALESREP** column **Manager Name**.
- m. Rename the **POSITION** column **Manager Position**.

- n. Rename the **POSTN_ID** column **Manager ID**.
- 8. Map the W_POSITION_D (Manager) logical table source to the W_POSITION_H table.
 - a. Expand **Position > Sources** and open the **W_POSITION_D (Manager)** logical table source.
 - b. If necessary, click the **General** tab.
 - c. Click **Add**.
 - d. In the Browse window, in the right pane, double-click the **W_POSITION_H** physical table to add it to the **W_POSITION_D (Manager)** logical table source.
 - e. Leave the Logical Table Source dialog box open for the next step.
- 9. Create column mappings.
 - a. Click the **Column Mapping** tab.
 - b. Click  **New Column**.
 - c. Enter **Positional Hierarchy Gap** as the column name.
 - d. If necessary, select the **Show unmapped columns** check box.
 - e. Click the **Column Source** then click **ok**, in the expression click  then select **Gap** like "**ORCL"."SUPPLIER2"."W_POSITION_H"."GAP**"
 - f. **Click ok.**
 - g. Map the **Manager Name** logical column to "**ORCL"."SUPPLIER2"."W_POSITION_H"."SALESREP**".
Hint: Delete the existing formula in Expression Builder.
 - h. Map the **Manager Position** logical column to "**ORCL"."SUPPLIER2"."W_POSITION_H"."POSITION**".
 - i. Leave the **Manager ID** logical column as-is, mapped to "**ORCL"."SUPPLIER2"."W_POSITION_D (Manager)". "POSTN_ID**".
 - j. Click **OK** to close the Logical Table Source dialog box.
 - k. Check in changes.
 - l. Check consistency.
 - m. Save the repository.
- 10. Create a position dimension hierarchy.
 - a. Right-click **PositionDim** and select **create logical dimension→dimension with level based hierarchy**.
 - b. Drag the **Positional Hierarchy Gap** columns from the Positions logical table to the **Position Detail** level of the hierarchy.
 - c. Double-click the **Position Detail** level and click the **Keys** tab of the Logical Level dialog box.
 - d. In the Logical Level Key dialog box, select the check boxes for **Employee ID** and **Positional Hierarchy Gap**.
 - e. Deselect the **Use for drilldown** check box.

- f. Click **OK**.
 - g. Click **OK**.
11. Create a new measure for the Returns fact table.
- a. Right-click **Returns** and select **New Object > Logical Column**.
 - b. Enter **# of Returns** as the column name.
 - c. Click the **Column Source** tab.
 - d. Double-click the **D1 RETURNS** logical table source. If necessary, select **Show all logical sources**.
 - e. Make sure that **Show unmapped columns** is selected.
 - f. Click the  button next to the **# of Returns** logical column to open Expression Builder.
 - g. Select **Physical Tables > D1 RETURNS** and then double-click the **RETURNS** physical column to add it to the expression.
 - h. Click **OK** to close Expression Builder.
 - i. Click **OK** to close the Logical Table Source dialog box.
 - j. Click the **Aggregation** tab.
 - k. Change the default aggregation rule to **Count**.
 - l. Click **OK**.
12. Assign the detail level of the dimension hierarchies to the fact logical table source.
- a. Expand **Returns > Sources**.
 - b. Double-click the **D1 RETURNS** logical table source.
 - c. In the Logical Source dialog box, click the **Content** tab.
 - d. Set the following logical levels:
CustomersDim: Customers Detail
PositionDim: Position Detail
ProductsDim: Specific
PeriodsDim:Day.
 - e. Click **OK** to close the Logical Table Source dialog box.
 - f. Expand **Position > Sources**.
 - g. Set the **PositionDim** logical level to **Position Detail** for both logical table sources.
 - h. Check in changes.
 - i. Check consistency.
 - j. If the repository is consistent, save the repository.
13. Build the Presentation layer.
- a. Drag the **Position** and **Returns** logical tables to the **SupplierSales** presentation catalog.
 - b. Delete all presentation columns except **# of Returns** from the Returns presentation table.
 - c. Check in changes and check for consistency.
 - d. Save the repository.

14. Test your work.

- a. Log in to Oracle BI Presentation Services as **weblogic** with RRitec123 as the password.
- b. Click NEW→Analysis.
- c. Select the **SupplierSales** subject area.
- d. Reload server metadata.
- e. Create and execute the following request:
Position.Employee Name, Position.Employee ID, Returns.# of Returns.
- f. Note that **# of Returns** data is associated only with employee position IDs **4, 5, 6, and 7**. As you saw earlier when you examined the source data, only these four employees are directly associated with returns.

Employee Name	Employee ID	#ofReturns
ANN JOHNSON	4	66
ANNE WILLIAMS	7	65
BARBARA JENSEN	5	66
BETTY NEWER	6	66

- g. Check the query log. Note that the **W_POSITION_H** helper table is not accessed.

```

select T2821.SALESREP as c1,
       T2821.POSTN_ID as c2,
       count(T2862.RETURNs) as c3
  from
    W_POSITION_D T2821,
    D1_RETURNs T2862
 where  ( T2821.POSTN_ID = T2862.POSTN_ID )
 group by T2821.POSTN_ID, T2821.SALESREP
 order by c1, c2
  
```

- h. Click the Criteria tab.
- i. Add **Manager Name** and **Manager Position** to the request and reorder the columns so that Manager Name and Manager Position appear as follows:

Selected Columns

Double click on column names in the Subject Areas pane to add them to the analysis. Once added, drag-and-drop columns to re-order, formula and filters, apply sorting, or delete by clicking or hovering over the button next to its name.

POSITION	RETURNS			
Manager Name	Manager Position	Employee Name	Employee ID	#ofReturns

j. Click **Results**.

Manager Name	Manager Position	Employee Name	Employee ID	#ofReturns
ALAN ZIFF	VP of Sales	ANN JOHNSON	4	66
		ANNE WILLIAMS	7	65
		BARBARA JENSEN	5	66
		BETTY NEWER	6	66
ANDREW TAYLOR	Sales Manager 1	ANN JOHNSON	4	66
		BARBARA JENSEN	5	66
ANNE WILLIAMS	Sales Manager 2	ANNE WILLIAMS	7	65
		BETTY NEWER	6	66

Note: The # of Returns data for all four employees roll up to Alan Ziff, VP of Sales. The # of Returns data for direct reports roll up to their respective sales managers. Also, data for Anne Williams appears in two positions, as both a sales manager and an employee.

k. Check the query log. Note that the **W_POSITION_H** helper table is accessed.

```

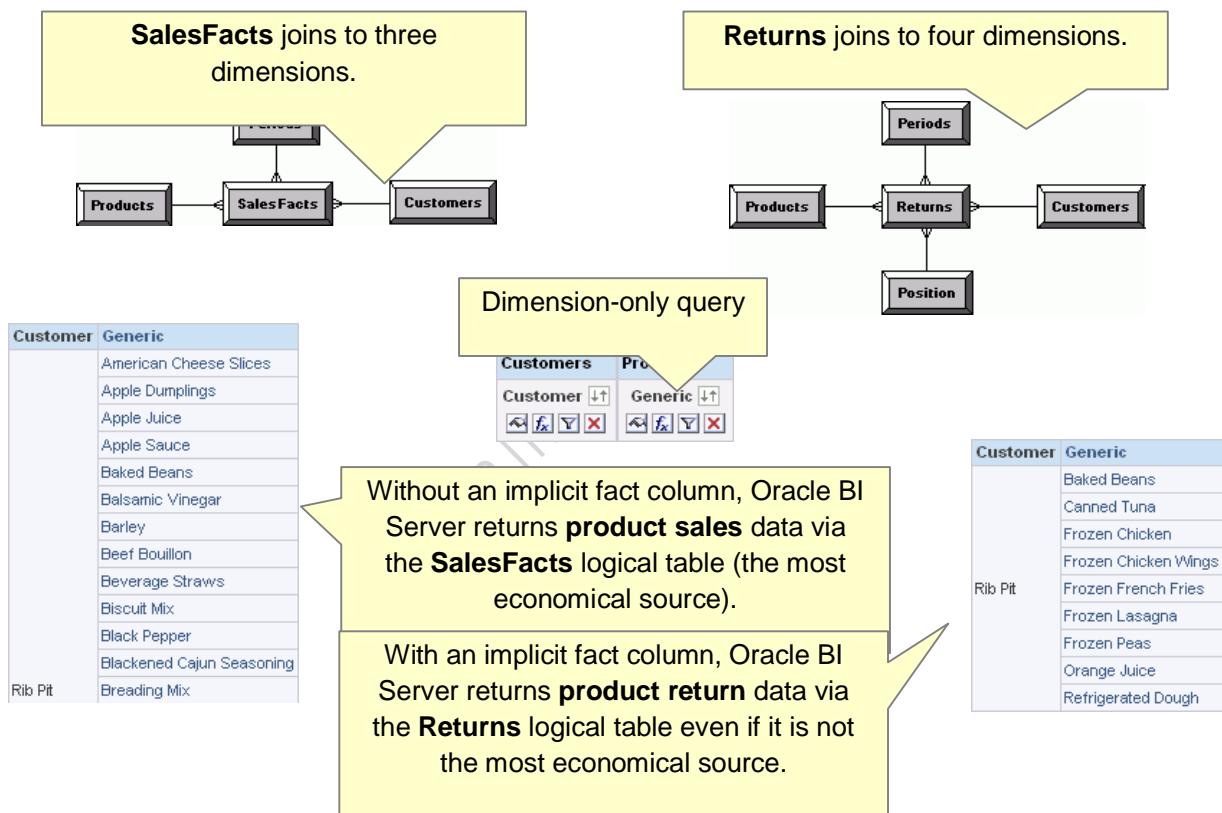
select T2825.SALESREP as c1,
       T2825.POSITION as c2,
       T2821.SALESREP as c3,
       T2821.POSTN_ID as c4,
       count(T2862.RETURNs) as c5
  from
    W_POSITION_H T2825,
    W_POSITION_D T2821,
    D1_RETURNs T2862
 where  ( T2821.POSTN_ID = T2825.SUB_ID and T2821.POSTN_ID = T2862.POSTN_ID )
 group by T2821.POSTN_ID, T2821.SALESREP, T2825.SALESREP, T2825.POSITION
 order by c1, c2, c3, c4
  
```

- l. Click **Customers.Customer** to add the column to the results and see returns by sales representative by customer.
- m. Log out of Answers.
- n. Leave the Administration Tool open for the next practice.

6.6 Hands on 13: Setting Implicit Fact Column

- Implicit fact column is useful to forcibly execute a dimension only query from non economical fact table.
- Oracle BI server decides **economical source** based on **no. of joins** and **level of joins** of a fact table.

Example



Process:

Step 1: Observing By Default execution order

- Develop a report using customer & generic columns
- Create filter on customer column as Ribpit
- Click on Result
- Notice that we got huge amt of data
- From log file, Notice that it is executed from **salesfacts(D1_ORDERS2)** fact table

6.

The screenshot shows the Oracle BI Analysis workspace. At the top, there are two dimension panes: 'Customers' and 'Products'. Below them is a 'Filters' section with the following text: 'Add Filters to the analysis criteria by clicking on the filter button in the Filter pane or by clicking on the filter button in the Filter pane and selecting its name in the catalog pane.' A specific filter is highlighted: 'Customer is equal to / is in Rib Pit'. A red box surrounds this entire section. Below the filters is a table view showing data from the 'Generic' dimension. The table has two columns: 'Customer' and 'Generic'. The 'Customer' column contains 'Rib Pit', and the 'Generic' column lists various products: American Cheese Slices, Apple Dumplings, Apple Juice, Apple Sauce, Baked Beans, Balsamic Vinegar, Barley, Beef Bouillon, Beverage Straws, Biscuit Mix, Black Pepper, Blackened Cajun Seasoning, Breading Mix, Breakfast Sausage Links, Brown Sugar, Butter, Can Liners, Canadian Bacon, Canned Beef, and Canned Tuna. A red arrow points from the bottom of the 'Filters' section down to the table.

Customer	Generic
Rib Pit	American Cheese Slices Apple Dumplings Apple Juice Apple Sauce Baked Beans Balsamic Vinegar Barley Beef Bouillon Beverage Straws Biscuit Mix Black Pepper Blackened Cajun Seasoning Breading Mix Breakfast Sausage Links Brown Sugar Butter Can Liners Canadian Bacon Canned Beef Canned Tuna

Step 2: Customer Requirement

1. My client is more interested to analyze returns, so he asked for all dimension only queries, data needs to fetch from returns table.

Step 3: Configuring to execute dimension only queries using returns fact table

1. Open RPD in online mode → double click on **supplier sales** subject area → In **General** tab → click on **set** → expand **returns** Presentation table → select **returns** column → click on **ok** → again **ok**.
2. Check in & reload server metadata
3. Clean Oracle BI Presentation server and Oracle BI server caches
4. Run above report.
5. Notice that we got less no. of reports
6. From log file notice that it is executed from **returns** table.

The screenshot shows a table structure in Oracle BI Publisher. The table has two columns: 'Customer' and 'Item'. The 'Customer' column contains 'Rib Pit' and 'Generic'. The 'Item' column contains a list of food items: Baked Beans, Canned Tuna, Frozen Chicken, Frozen Chicken Wings, Frozen French Fries, Frozen Lasagna, Frozen Peas, Orange Juice, and Refrigerated Dough.

Customer	Item
Rib Pit	Baked Beans
	Canned Tuna
	Frozen Chicken
	Frozen Chicken Wings
	Frozen French Fries
	Frozen Lasagna
	Frozen Peas
	Orange Juice
	Refrigerated Dough

6.7 Hands on 14 Security

In OBIEE security can be divided into 2 types.

1. Authentication.
2. Authorization.

6.7.1 Authentication

1. Authentication is a process by which a system verifies (with a user ID and password) that a user has necessary permissions and authorizations to log on and access data
2. Simple words Validating username & password is called as authentication.
 - a. Eg: **Analytics** application username, password validation.RRITEC Website
3. **Oracle BI Server** authenticates each connection request that it receives.
4. Authentications are 2 types.
 1. LDAP.
 2. EXTERNAL TABLE.

1. LDAP (Light weight Directory Access Protocol):

- 1) LDAP is integrated part of OBIEE 11G.
- 2) Can be accessed using console (<http://localhost:7001/console>)
- 3) Creating users & groups in LDAP already completed in **Hands on 10 Variables**.

2. External table authentication:

- 1) Validating the username and password against External Table is called as External table Authentication.

- 2) In any project first priority goes to LDAP authentication. If customer rejects LDAP then we will go for External tables.

Process:

Step 1: Creating External table

1. Observe the SECURITYTABLE data, which is already created in **RR ITEC Supplier2** schema.

Select * from securitytable

Step 2: Creating Dedicated Connection Pool

1. Open RPD in online mode → In physical layer right click on **ORCL** database → Click on **new object** → Click on **connection Pool** → Name it as **IB_Authentication** → Data Source name : **ORCL** → username and passwords as **supplier2** → Click on **ok** → **check in changes**

Step 3: Create Session Initialization Block

1. Go to **manage** menu → Click on **Variables** → Click on **session** → Click on **Initialization blocks**
2. Right click in work area → Click on **New initialization block** → name it as **IB_Authentication** → Click on **Edit Data Source** → develop **sql query**

```
SELECT USERNAME, SALESREP, GRP FROM SECURITYTABLE
WHERE USERNAME=':USER' AND PWD=':PASSWORD'
```

NOTE : USERNAME CAPTURING IS MANADATORY .USER AND PASSWORD MUST BE IN CAPS

3. Click on connection pool **browse** → select **IB_Authentication** connection Pool → select → ok → Edit **Data Target** → Click on **new** → name it as **USER** → Click on ok → Click on ok
4. Similarly create variables DISPLAYNAME and GROUP → check in changes

Step 4: Testing

1. Open Analytics → login as AZIFF → password: az → sign In

Creating user in webcatalog ;

1. LDAP user automatically appears in web catalog
2. External table user will be created when ever user first time login into analytics application

Creating Catalog groups

- 1) It is useful to group 'n' number of users in web catalog.
- 2) The catalog group name & console group name should be same (it's a best practice)
- 3) The catalog group is useful if we want to provide permissions on 'n' no. of users
- 4) We can map 'n' no. of users to group & we can provide permission on catalog group instead of on each individual user .

Process:

Login as web logic user → go to **administration** → Click on manage catalog groups → click on create a **new catalog group**, name it as **customers** → list as **ALL** → **search** → select any users & click on move → click on **ok**.

6.7.2 Authorization:

1. Once a user login to application ,what can he access controlled by Authorization
2. Authorization enforced into two types
 1. Object level.
 2. Data level (or) row level (Already completed in **Variable** chapter)

1. Object level:

1. Object level security can be divided into 2 types.
 1. RPD level objects.
 2. Presentation catalog or web catalog objects.

1. RPD level objects

1. We can control below objects from presentation layer of RPD.
 1. Subject area.
 2. Presentation table.
 3. Presentation column.
 4. Hierarchy object.

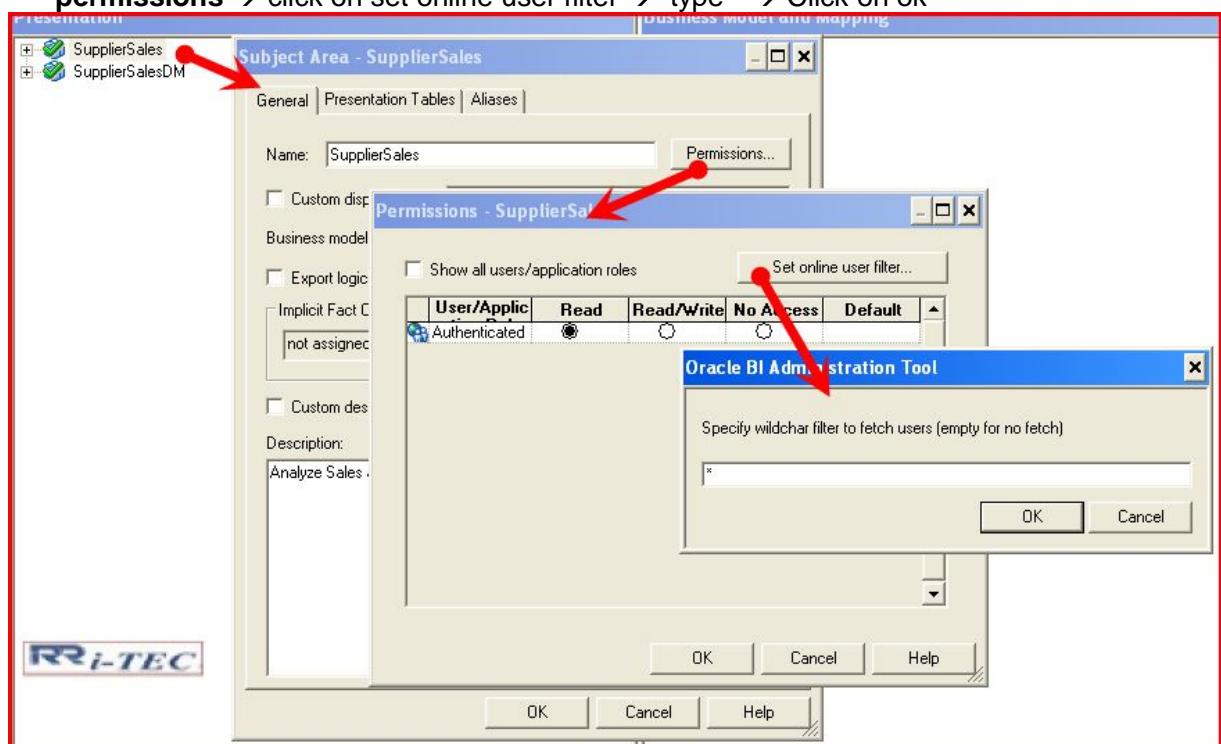
Process:

Step 1: Create users

1. Create two users with the name of **RRREP** and **RRDM**
2. These two users by default mapped with BI Consumers group ,hence can read all objects
3. Map these two users to BI Authors Group

Step 2: Providing Security on RPD objects

1. Open RPD in online mode → double click on subject area (or) presentation table (or) presentation column (or) hierarchy object → In **general** tab click on **permissions** → click on set online user filter → type * → Click on ok



2. Select **RRDM** → Enable radio button **no access** → click on **ok** → again **ok** → **check in changes** → **save**.
3. Open analytics → login as web logic → reload server metadata → logout
4. Login as **RRDM** → click on **new** → click on **analysis** → observe that objects are hided

Note: Subject area object level permission can also provide by using below navigation Administration → Manage Privileges → Opposite to subject area click on it. Select users and provide permissions.

2. Presentation catalog (or) web catalog objects

1. We can control below objects of web catalog.
 1. Folder.
 2. Dashboard.

3. Dashboard page.
4. **Section.**
5. Report.
6. Saved filter
7. KPI
8. KPI Watch List
9. Scorecard.....etc
2. In OBIEE 11G we have 6 types of permission.
 1. No access.
 2. Open [read + traverse]
 3. Modify [read + delete + write+rename+ traverse]
 4. Traverse.
 5. Full control [modify + permission]
 6. Custom (new in OBIEE 11G)

Providing permissions at the level of folder (or) dashboard (or) dashboard page (or) report (or) saved filter...etc

1. Login to analytics as **weblogic** user → develop a report with columns **region, dollars** → Click on **results** → click on **save** → select **shared folders** → click on **new folder** → name it as **object level** → Click on **ok** → Name report as **Object_R1** → Click on **ok**
2. Click on **catalog** → Expand **shared folders** → expand **object level** folder → click on **Object_r1** report **more option** → Click on **permissions** → click on **add user/role** → type **RRREP** → in the list select **users** → click on **search** → select **RRREP** → click on **move** → In set **permissions** to drop down → select required permissions as **No Access** → click on **ok** → again **ok** → sign out & sign in as **RRREP**
3. Notice that **RRREP** user not able to see report **Object_r1**

Note: Similarly we can provide permissions on any object (dashboard, folder ...etc)

Section level permission:

Open any **dashboard** → click on **section properties** → click on **permission** → From here follow steps as per above

Exercise : Develop a dashboard with two sections and configure section level permissions ,in such a way each user will able to see his own section.

Privileges:

It can control inbuilt options of **OBIEE** tool using privileges.

Step 1: Creating a user RRITEC1 and assign to BI Authors group

- 1) Create a user RRITEC1
- 2) Map RRITEC1 user to BI Authors group
- 3) Login to Analytics application and observe that all options (analysis, dashboard ...etc) are available

Step 2: Denying Analysis option to RRITEC1 user

- 1) Login to analytics as **web logic** user → Click on **administration** → Click on **manage privileges** → click on **access to answers** → click on '+' → type RRITEC1 → list select **all** → click on **move** → click on **denied** → **ok** → logout & login as **RRITEC1**.
- 2) Notice that **analysis** is not available.

Providing Permissions to External DB groups

OR

Mapping External Table groups with Application Roles

Process :

Step 1: Creating a role

1. Login EM(enterprise manager) → navigate to **security** tab
2. click on configure & Manage Roles → click on **create** → Name as **SalesRep**(it must same as group name in external table)

Step 2: Mapping this Role to BI Author role

1. Select BI Author Role → Click on **Edit** → Click on **Add**
2. Select **SalesRep** → Click on **ok** → Click on **ok**

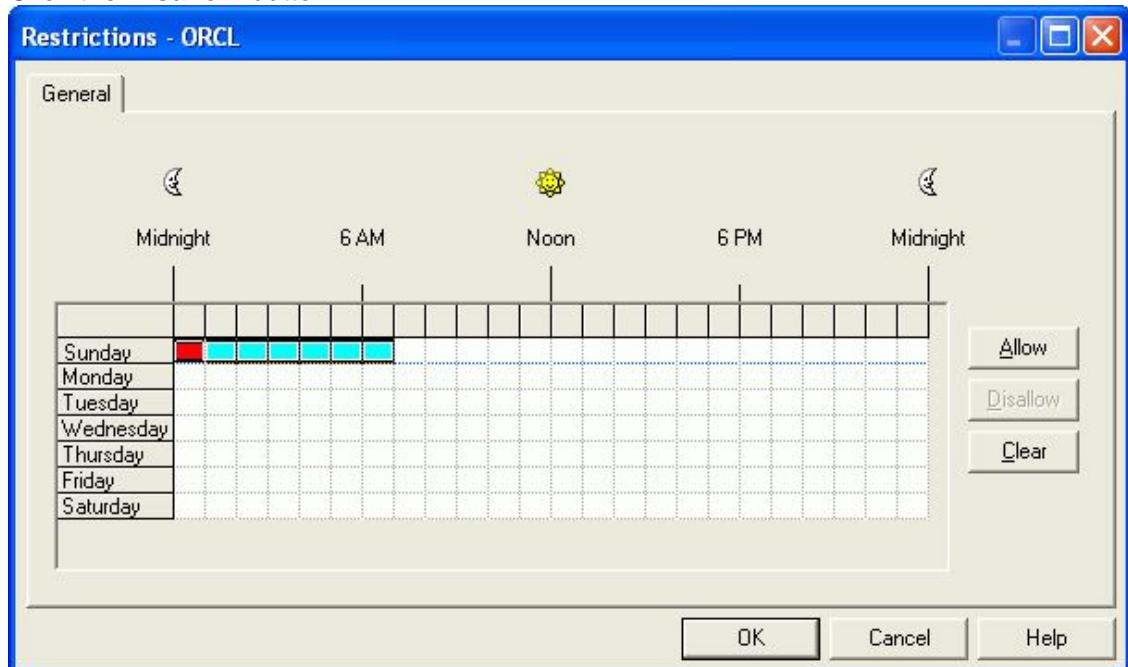
Step 3: Testing

1. Login to analytics → username: GSITH → password:gs
2. Click on **My account** → Click on **Roles & Catalog Groups**
3. observe that **SalesRep** role automatically mapped to this user

Setting Query Limits and Timing Restrictions

1. Start the **Oracle BI Server** service and open the ABC repository in online mode. Log in as **Weblogic** with password **RRitec123**.
2. Disallow queries that may consume too many system resources by setting query limits for the user or group
 - a. Open the RPD in online mode
 - b. Go to manage → Identity Manager.
 - c. Double-click on RRREP user

- d. Click the **Permissions** button.
 - e. Click the **Query Limits** tab.
 - f. Locate the **ORCL** database and change its **Max Rows** value to **5**. This specifies the maximum number of rows each query can retrieve from the ORCL database for user RRREP
 - g. In the Status Max Rows column, select **Enable** from the drop-down list.
 - h. In the Max Time (Minutes) column, change the value to **1**. This specifies the maximum time a query can run on the ORCL database.
 - i. In the Status Max Time column, select **Enable** from the drop-down list.
3. Restrict the time period for which users can access specified repository resources from midnight Sunday to 7:00 AM Sunday:
- a. Click the button in the Restrict column of the ORCL database.
 - b. Highlight the blocks from Sunday at midnight to 7 AM Sunday. **Hint:** With the first block selected, press **[Shift]** and select the **7 AM** block, or click the first box and drag to the 7 AM block.
 - c. Click the **Disallow** button.



If a time period is not highlighted, the access rights remain unchanged. If access is allowed or disallowed explicitly to one or more groups, the user is granted the least restrictive access for the time periods that are defined.

- d. Click **OK** to close the Restrictions dialog box.
- e. Click **OK** to close the User/Group Permissions dialog box.
- f. Click **OK** to close the Group dialog box.
- g. Close Identity Manager.
- h. Check in changes.
- i. Save the repository.

4. Log in to Oracle BI as **Weblogic** and register your changes on the server by reloading the server metadata.
5. Ensure that the changes you made to the maximum number of rows allowed per query work correctly.
 - a. Log in to Oracle BI as **RRREP** .
 - b. Click the **Analysis** link.
 - c. Click the **SupplierSales** subject area.
 - d. Select **Customers.Customer, SalesFacts.Dollars**, and click **Results**.
 - e. Click the Dollars filter → select operator as **is in top** → **value as 5** → click **Results**.

6.8 Hands on 15: Cache Management

- 1) In OBIEE we have two types of caches

1. Oracle BI **Presentation Server Cache**
2. Oracle BI **Server Cache**

1. Oracle BI Presentation Server Cache

- 1) It is a temporary cache , it will be stored in below location
C:\OBI11g.6\instances\instance2\tmp\OracleBIPresentationServicesComponent\coreapplication_obips1\sawrptcache
- 2) It will be unique per particular **user and session**
- 3) If we click report refresh button it will not read **OBIPS** cache
- 4) To Skip Oracle BI presentation Server cache at report level go to Advanced tab→Enable Bypass Oracle BI Presentation Services Cache
- 5) If you want to disable OBI PS Cache for entire environment change INSTANCECONFIG.XML file

2. Oracle BI Server Cache

- 1) In OBIEE 11g cache parameters are managed using **EM**.
 - 2) EM will change **nqsoconfig.INI** file parameters.
 - 3) In Nqsoconfig file ENABLE = 'YES' then cache is enabled else cache is disabled.
 - 4) By default **OBIS** cache files will be stored in below path
 - 5) E:/bi11g/instances/instance1/bifoundation/oracleBIservcomponenets/coreapplication-obis1/cache.
 - 6) Oracle BI server cache will not be deleted with OBI server start or restart
- Note:** The Report order of execution is
1. Oracle BI Presentation server cache

2. Oracle BI server cache
3. database

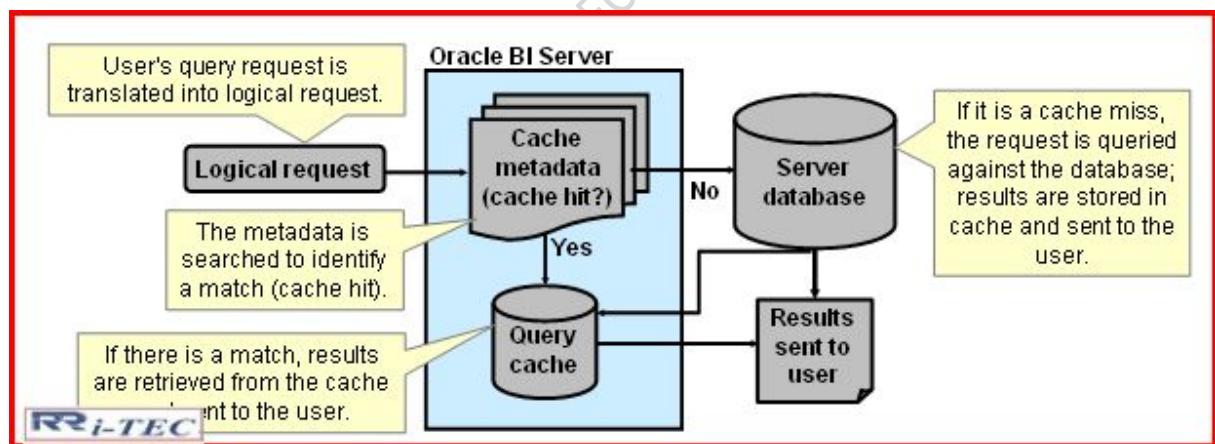
Advantage of cache:

- 1) Saves the results of queries in cache files
- 2) Enables Oracle BI Server to satisfy subsequent query requests without having to access back-end databases
- 3) Less network traffic.
- 4) Improves **performance**

Disadvantage of cache:

- 1) There is a chance to get **stale** data.
- 2) Hard disk memory is wasted.
- 3) Maintenance of cache by admin.

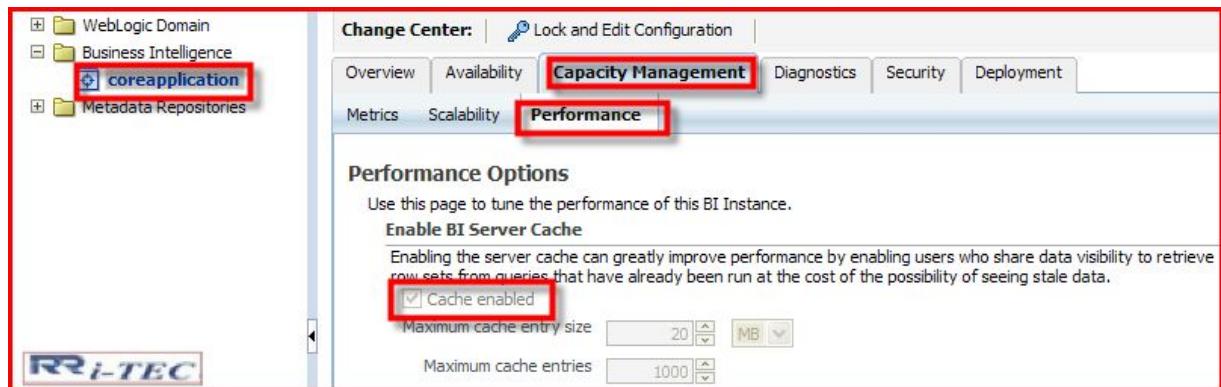
Cache architecture:



Report logical SQL will be compared with cache database logical SQLs, if anything is matching then corresponding cache output will be shown to the user else it will execute from the db.

Enabling cache:

- 1) Open EM → Click on **Capacity Management** → Click on **performance** → Click on Lock & Edit Configuration → Select Cache **Enabled**



- 2) Click on Apply → Click on activate changes (observe NQSConfig.ini file Enable parameter) → Click on close → Click on Availability → Restart oracle BI server.
- 3) Run any a report with columns customers and dollars → go to the cache location → observe a file is created.
- 4) Open RPD in online mode → go to manage → cache → observe all the parameters.
- 5) Sign out from analysis
- 6) Sign in with any other user (RRREP) → password : RRitec123 → run a report with columns customer and dollars → Go to RPD → Go to **manage** → go to **cache** → notice that **usecount** is updated to '1'.

Stale data:

- 1) Old data is called as stale data.
- 2) For example
 - we ran a report with two columns customer and dollars @10AM then cache created
 - At 11Am two more customers **added** to customer table
 - we ran a report @11:30 then this report will execute from **cache** . hence we will not able to see two customers added @11Am

Purging:

- 1) Cleaning cache files is called as purging.
- 2) We have four types of purging.
 1. Manual.
 2. Persistency time.
 3. Event pooling table.
 4. ODBC functions.

1. Manual:

- 1) After enabling cache → run any one report and make sure cache is created
- 2) Open RPD in online mode → go to **manage** menu → Click on **cache** → right click on the Cache entry → click on **purge** → Click on **ok** → Click on **close**.
- 3) We can purge cache of specific user or we can purge specific physical table
- 4) We can use this method in development and testing environment

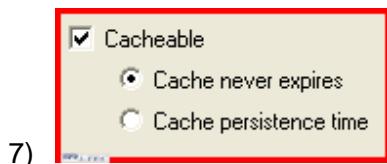
Note: As human interaction is required ,hence we will not use this method

2. Persistency:

It is useful to purge cache based on fixed time. To provide this setting we need to know accurately the tables refresh frequency.

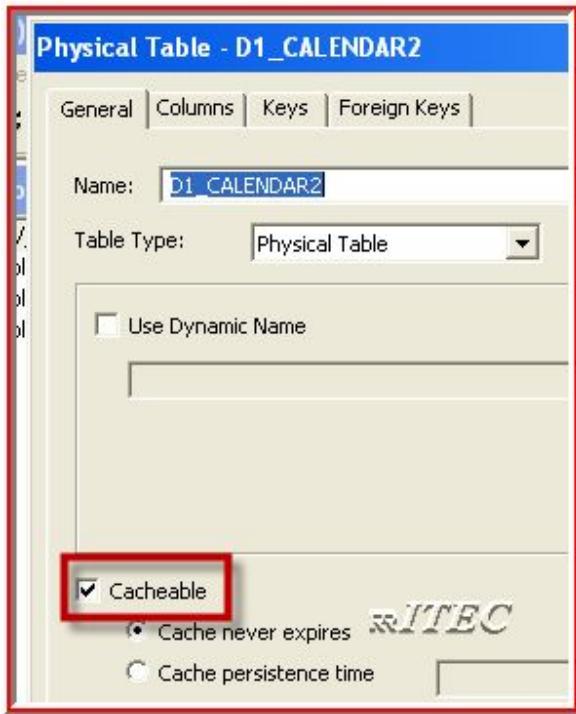
Process:

- 1) Open RPD in online mode → double click on **D1_PRODUCTS** physical table
- 2) Go to **general** tab → select **cache persistence time** → type 2 mins → Click on **ok**
- 3) Check in → save → reload server metadata
- 4) Develop a report with **specific** columns & notice that cache is created
- 5) After 2 mins automatically cache will be purged.
- 6) Once we observe result revert your work by selecting D1_PRODUCTS table as cacheable



Note 1: we can control cache at table level

In physical layer double click on any table → general tab enable/disable cache.



By default all tables will be cacheable and it never expires.

Note 2: If we develop a report with two tables and out of these two tables one is cacheable another is not cacheable then the resultant report cache will not be created.

3. Event Pooling Table (EPT)

Step1: creating event pooling table

1. Login to DB as **supplier2** user

```
DROP TABLE S_NQ_EPT

CREATE TABLE S_NQ_EPT AS SELECT * FROM
DEV_BIPLATFORM.S_NQ_EPT WHERE 1=2.

SELECT * FROM S_NQ_EPT.
```

Step2: Creating a trigger

1. Create below trigger to monitor D1_PRODUCTS and insert records into S_NQ_EPT table whenever some change (insert,update,delete) occurred in D1_PRODUCTS table data

2. Open SQLPLUS → login as supplier2 user → copy and paste below code and make sure trigger is created

```

CREATE OR REPLACE TRIGGER EVENT_TABLE_UPDATE_TRIGGER
AFTER
INSERT OR UPDATE OR DELETE ON D1_PRODUCTS
FOR EACH ROW
BEGIN
INSERT INTO S_NQ_EPT
(UPDATE_TYPE, UPDATE_TS, TABLE_NAME) VALUES (1,SYSDATE, '
D1_PRODUCTS');

END ;
/

```

3. Confirm trigger is working or not by executing below statement.

Update D1_PRODUCTS set GENERICDESCRIPTION = 'Potato Chip'
where GENERICDESCRIPTION = 'Potato Chips'

4. Make sure some records inserted in S_NQ_EPT table

Select * from S_NQ_EPT

Step 3: Configuring EPT table

1. Import table S_NQ_EPT in physical layer

In physical layer right click on supplier2 → connection pool → import metadata → import s_nq_ept table → finish.

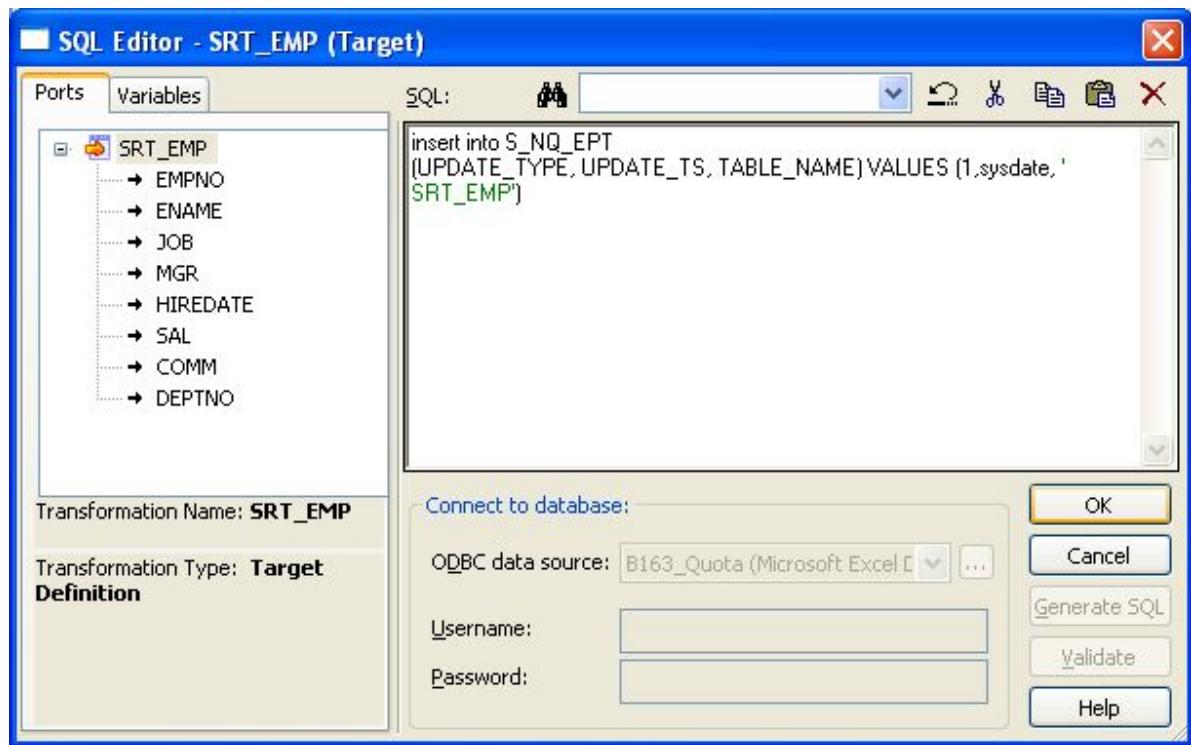
2. Defining table S_NQ_EPT as **event pooling table**

Go to **tools** menu → **utilities** → select **oracle BI event tables** → execute → select **s_nq_ept** → Click on > → provide pooling frequency as **2 mins**(Minimum recommended is 60 Mins ,only in training room we can provide 2 mins) → ok → check in changes → ok.

Step 4: Testing

1. Clear all caches if any due to previous exercise
2. Truncate table S_NQ_EPT
3. Develop a report with specific description column & make sure cache is created.
4. Update some data in D1_PRODUCTS, then after 2 mins(pooling frequencies) → cache will be cleaned

Note : If database administrator not happy to create triggers then we can incorporate insert statement in target table **post sql** of ETL tools (for example see informatica screenshot)



4. ODBC functions (programmatically purging)

1. The Oracle BI Server provides ODBC-extension functions for the Oracle BI Administrator to use for purging cache entries.
2. Some of these functions are particularly useful for embedding in an Extract, Transform, and Load (ETL) task.
3. For example,

1. After a nightly ETL is performed, all Oracle BI Server cache can be purged.
2. If only the fact table was modified, only cache related to that table can be purged.
3. In some cases, you might need to purge the cache entries associated with a specific database.
4. We have four types of ODBC functions, those are useful to purge cache programmatically & those functions can be used in ETL tool Post load sql or in DAC as a sql script .
 1. SA purge all cache.
 2. SA purge cache by db.
 3. SA purge cache by table.
 4. SA purge cache by query.
5. It is **accurate method** to purge the cache. Normally these functions will be executed by ETL team using their post load option.

1. SAPurgeAllCache. Purges all cache entries.

Call SAPurgeAllCache();

2. SAPurgeCacheByDatabase. Purges all cache entries associated with a specific physical database name. A record is returned as a result of calling any of the ODBC procedures to purge the cache. This function takes one parameter that represents the physical database name and the parameter cannot be null. The following shows the syntax of this call:

Call SAPurgeCacheByDatabase('DBName');

3. SAPurgeCacheByTable. Purges all cache entries associated with a specified physical table name (fully qualified) for the repository to which the client has connected. This function takes up to four parameters representing the four components (database, catalog, schema and table name proper) of a fully qualified physical table name. For example, you might have a table with the fully qualified name of DBName.CatName.SchName.TabName. To purge the cache entries associated with this table in the physical layer of the Oracle BI repository, execute the following call in a script

Call SAPurgeCacheByTable('DBName', 'CatName', 'SchName', 'TabName');

4. SAPurgeCacheByQuery. Purges a cache entry that exactly matches a specified query. For example, using the following query, you would have a query cache entry that

retrieves the names of all employees earning more than \$100,000: select last name, first name from employee where salary > 100000;

The following call purges the cache entry associated with this query:

```
Call SAPurgeCacheByQuery('select lastname,firstname from employee where salary > 100000');
```

Process for understanding:

Develop a report → make sure cache is created → Go to **administration** option in analytics → under maintenance & trouble shooting → Click on issue sql

Maintenance and Troubleshooting

Manage Device Types

Create, edit, view or delete Device Types.

Toggle Maintenance Mode

Maintenance Mode is currently off.

Reload Files and Metadata

Reload XML message files, refresh server metadata, and clear caches.

Issue SQL

Type SQL directly to Oracle BI Server.

Type call SAPURGEALLCACHE() → Click on issue sql → go & see in cache folder. → Cache is removed.

RESULT_CODE	RESULT_MESSAGE
1	[59118] Operation SAPurgeAllCache succeeded!

Note : These ODBC functions normally called from below interfaces

- 1) Informatica Post SQL
- 2) Calling Batch File in DAC
- 3) Even We can create informatica command task and we can call these functions

Seeding:

1. Inserting cache into cache folder is called as seeding.
2. Seeding is the process of pre populating the cache with queries that are known to generate cache hits.
3. Helps improve query performance
 - Use queries that heavily consume database processing and are likely to be reused.
4. Is performed by running prebuilt queries during off hours or immediately after purging. These are two types
 - **Manually** in Answers
 - **Automatically** using Oracle BI Delivers to schedule queries to run at a specified time

1. Manual seeding

Navigate to the report in the catalog → click on that report → then automatically cache will be created.

2. Automatically by using schedule or AGENT :

1. Log in to analytics → develop a report with region , dollars → save → name: seeding report
2. Go to **new** → Click on **agent** → Click on **schedule** tab → **frequency** : once → **date & time** set 2 min. forward from current time.
3. Click on **delivery content** tab → select **content** as analysis → Click on **browse** → select **seeding report** (saved in first step)
4. Click on **destinations** tab → select **oracle BI server cache** → save → name: seed agent
5. After 2 mins go to cache folder & notice that a cache file is available.

6.9 Hands on 16: Usage Tracking

1. By default user logs will be created in NQ query log file.
2. If we want to insert these logs into a database table then we need to go for usage tracking.
3. Once data is loaded into usage tracking table(S_NQ_ACCT) then we can develop user friendly report .

Process:

Step 1: Creating table

1. Usage tracking table will be created in DEV_BIPLATFORM automatically with the installation of OBIEE RCU installation
2. Login to database with **supplier2** user
3. Execute below SQL
4. DROP TABLE S_NQ_ACCT
5. CREATE TABLE S_NQ_ACCT AS SELECT * FROM DEV_BIPLATFORM.S_NQ_ACCT WHERE 1=2
6. SELECT * FROM S_NQ_ACCT

Step 2: Importing table into RPD

1. Open RPD in **offline** mode
2. Right click in **Physical layer** →click on **new database** → Name it as **UT_DB**→ Select database as **Oracle 11g** →Click on **connection pools** tab→Click on **add**→ Name it as **UT_CP** → Data source name : **ORCL** → Username :

- supplier2** → password → **supplier2** → Click on **OK** → type **supplier2** password
 → Click on **Ok** → Again **OK**
3. Right Click on connectionpool **UT_CP** → Click on **import** → follow wizard and import **S_NQ_ACCT** table
 4. Double click on **S_NQ_ACCT** table → click on **Keys** tab → name it as **UT_KEY**
 → select **ID** column → Click on **ok**

Step 3: Creating business model

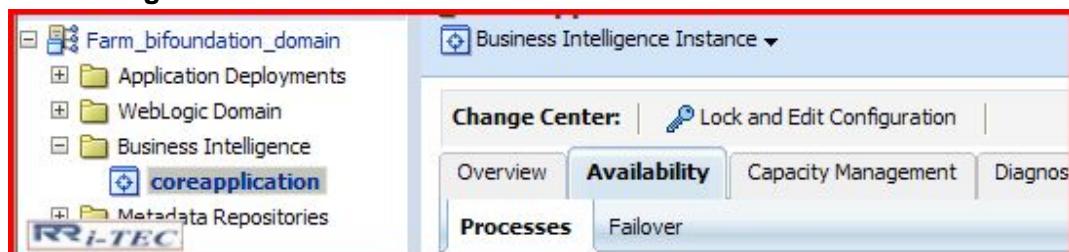
1. Right click in BMM layer → new business model → name it as **UT**
2. Drag and drop **s_nq_acct** table onto **UT** business model → Right click on **S_NQ_ACCT** table → click on **duplicate** → Right click **UT** business model → select business model diagram → whole diagram → join both the tables.

Step 4: creating subject area

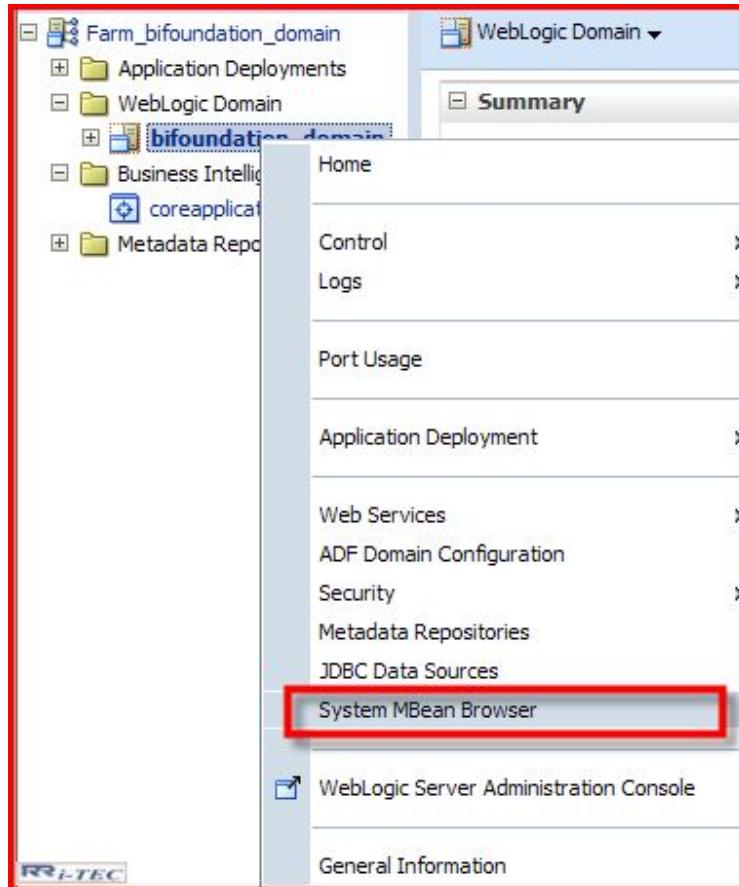
1. Drag and drop **UT** business model into presentation layer → in presentation layer delete duplicate table and keep only original table
2. Save RPD

Step5: Set Usage tracking parameters

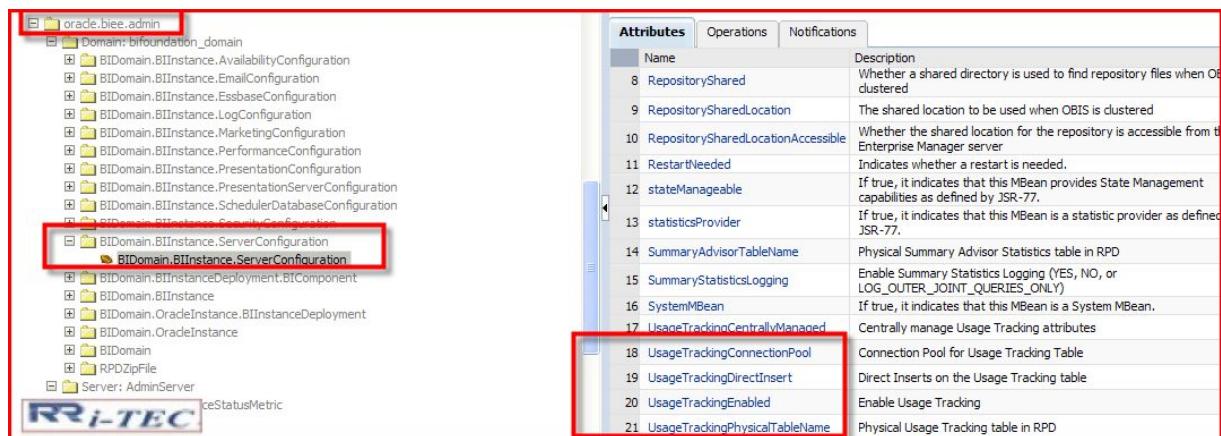
1. Upto 11.1.1.5 version setting these parameters is manual process
2. From 11.1.1.6 we need to configure by using EM
3. Login to EM as weblogic user
4. Expand Business Intelligence → Select Coreapplication → Click on **Lock and Edit Configuration** → Click on **Ok**



5. Expand **Weblogic Domain** → Right click on **bifoundatio_domain** → Click on **system Mbean Browser**



6. Expand Application Defined Mbeans → Expand Oracle.biee.admin → Expand Domain:bifoundation_domain → Expand BIDomain.BIInstance.serverconfiguration → Click on BIDomain.BIInstance.serverconfiguration → Right side observe usage tracking parameters



Name	Description
8 RepositoryShared	Whether a shared directory is used to find repository files when OBIS is clustered
9 RepositorySharedLocation	The shared location to be used when OBIS is clustered
10 RepositorySharedLocationAccessible	Whether the shared location for the repository is accessible from the Enterprise Manager server
11 RestartNeeded	Indicates whether a restart is needed.
12 stateManageable	If true, it indicates that this MBean provides State Management capabilities as defined by JSR-77.
13 statisticsProvider	If true, it indicates that this MBean is a statistic provider as defined JSR-77.
14 SummaryAdvisorTableName	Physical Summary Advisor Statistics table in RPD
15 SummaryStatisticsLogging	Enable Summary Statistics Logging (YES, NO, or LOG_OUTER_JOIN_QUIRIES_ONLY)
16 SystemMBean	If true, it indicates that this MBean is a System MBean.
17 UsageTrackingCentrallyManaged	Centrally manage Usage Tracking attributes
18 UsageTrackingConnectionPool	Connection Pool for Usage Tracking Table
19 UsageTrackingDirectInsert	Direct Inserts on the Usage Tracking table
20 UsageTrackingEnabled	Enable Usage Tracking
21 UsageTrackingPhysicalTableName	Physical Usage Tracking table in RPD

1. Configuring **ENABLE** parameter
Click on **20 Usage TrackingEnabled** → Select **value** as **true** → Click on **apply** → Click on **return**
2. Configuring **DIRECTINSERT** parameter
Click on **19 Usage TrackingDirectInsert** → Select **value** as **true** → Click on **apply** → Click on **return**
3. Configuring **Connectionpool** parameter
Click on **18 Usage TrackingConnectionpool** → Provide “**UT_DB”.”**UT_CP**” → Click on **apply** → Click on **return****
4. Configuring **PhysicalTableName** parameter
Click on **21 Usage TrackingPhysicalTableName** → Provide “**UT_DB”.”
supplier2”.”S_NQ_ACCT” → Click on **apply** → Click on **return****
7. Click on Business Intelligence → Coreapplication → Click on **Activate Changes**

Step 6: Load RPD in OBIS

1. Point above RPD in EM and restart OBIS
2. Open RPD in online mode
3. Set weblogic user log level as **2**
4. close RPD.

Step 7: Testing:

1. Develop any report & run it.
2. Go to database type **SELECT * FROM S_NQ_ACCT**, notice one or more records are available
3. Develop another report using UT subject area then we find some data.

6.10 Hands on 17: Multi User Development Environment

1. By default only one user can work on RPD file in offline mode.
2. If multi users need to work on same RPD file in offline mode then we needs to implement MUDE.

Setup of MUDE

We have 3 steps

1. Creating projects.
2. Copy RPD into shared path & rename RPD.
3. Define multi user directions.

Step 1: Creating Projects

1. A piece of RPD is called as project.
2. RPD will be divided into projects based on Business Model or subject area.
3. On one project two or more members can work.

Process:

1. Open RPD in offline mode → Go to **manage** menu → Click on **projects** → Click on **action** menu → Click on **new project** → name it as **sales** → Expand Business Models → expand subject area **supplier sales** → select **sales fact** → Click on **add** → expand **presentation** → select **supplier sales** → Click on **add** → Click on **ok**
2. Similarly if you need create another projects
3. Click on **save** → Close RPD

Step 2: Creating a shared folder and moving RPD into shared folder

1. Create a shared folder in C:\Documents and Settings\All Users\Documents with the name of **SHARED_RPD**
2. Copy above RPD from repositories folder to C:\Documents and Settings\All Users\Documents\ SHARED_RPD
3. Rename RPD in **shared_rpd** folder as **shared.rpd**

Step 3: Define Multi user directory

1. Go to administrator tool → **tools** menu → Click on **options** → Click on **MultiUser**

2. Click on **browse** and point it to C:\Documents and Settings\All Users\Documents\SHARED_RPD → provide some name as RRITEC(we can provide any name) → Click on ok

Using MUDE Environment :

In using we have below steps.

- 1) Check out.
- 2) Change metadata.
- 3) Publish.
- 4) Move RPD from shared folder to repository folder.
- 5) Test.

Step 1: Check out

1. Open **administration tool** → go to **file** menu → go to **multi user** → Click on **check out** → repository password:**RRitec123** → Click on **ok** → name it as **USER1RPD** → save
2. open another instance of **administration tool** → go to **multi user** → Click on **check out** → password: **RRitec123**→ name it as **USER2RPD** → save.

Step 2: Change Metadata

1. In **USER1RPD** → Right click on **sales facts** fact table → click on **new object** → Click on **logical column** → name it as **user1_column** → click on column source → select **Derived from existing columns using an expression** → type 1 → Click on **ok**
2. Drag and drop into presentation layer **sales facts** → save.
3. In **USER2RPD** → Right click on **sales facts** fact table → click on **new object** → Click on **logical column** → name it as **user2_column** → click on column source → select **Derived from existing columns using an expression** → type 2 → Click on **ok**
4. Drag and drop into presentation layer **sales facts** → save.

Step 3: Publish

1. In **USER1RPD** → Go to **file** menu → Click on **multi user** → Click on **publish to network**
2. In **USER2RPD** → Go to **file** menu → Click on **multi user** → Click on **publish to network**

Step 4: Move RPD from shared folder to repository folder

1. Copy RPD from shared folder C:\Documents and Settings\All Users\Documents\SHARED_RPD to repository folder C:\OBI11g.6\instances\instance2\bifoundation\OracleBIServerComponent\coreapplication_obis1\repository

Step 5: Testing

1. Open RPD in offline mode & observe changes.

Note : If two users created same column in same logical table with same formula then what will happens in merging process

Ans : It will create duplicate columns example dummy and dummy#1

Note 2: Can you compare two different RPDs

Yes (File→Compare)

Note 3: Can you merge two Different RPDs

Yes (File→Merge)

6.11 Opaque View / Select Table

1. A SQL query or select statement is called as opaque view.
2. If we need a new table then go for physical table (or) materialized view. In worst situation go for opaque view.
3. Opaque views are not supported by non relational db.(example MS Excel ,XML ,ESSBASE ...etc)

Step 1: Creating a opaque view

Open any RPD in offline mode → Right click on supplier2 schema → new physical table → name: RRITEC_OPAQUE_VIEW → select table type as **select** → type sql

“SELECT YEAR FROM D1_CALENDAR2”

go to columns tab → Click on **add** → name it as **year**(exactly same name of sql query output) → data type: **integer** → Click on ok → again ok → Right click on RRITEC_OPAQUE_VIEW → click on **view data** → observe output.

Step 2: Deploying view:

1. Without deploying view into database , if we use opaque view in reports then oracle BI server needs to create **complex queries**.To avoid complex queries oracle recommended to deploy each and every opaque view into database.

Process:

1. Go to database → login as supplier2 → SELECT * FROM TAB WHERE TABTYPE='VIEW' → execute (F9) observe that our opaque view is not available
2. Go to RPD → save →Right click on RRITEC_OPAQUE_VIEW →Click on **deploy view** → Click on **ok** → Click on close
3. Go to database → login as supplier2 → SELECT * FROM TAB WHERE TABTYPE='VIEW' → execute (F9) observe that our opaque view is available

Step 3: Undeploying view:

1. Removing view from database is called as undeploying
2. Right click on RRITEC_OPAQUE_VIEW → click on undeploy view → click on **yes**

6.12 Alias

1. A **virtual** physical table (or) reference of physical table is called as alias.
2. On one physical table we can create 'n' no. of aliases.
3. Whatever changes occurred in physical table that will immediately reflect in alias (except Key definitions)

Create alias

1. In physical layer Right click on **D1_PRODUCTS** → Click on **new** → Click on **object** → click on **alias** → name it as **products** →Click on **ok**
2. Right click on **D1_PRODUCTS** → new object → physical column → name: ABC → OK
3. Notice that in alias table it is automatically created. This is proving if we do any change in original table that change automatically reflect in alias.

Advantages

1. Alias is useful to rename physical layer objects.
2. Creating self joins

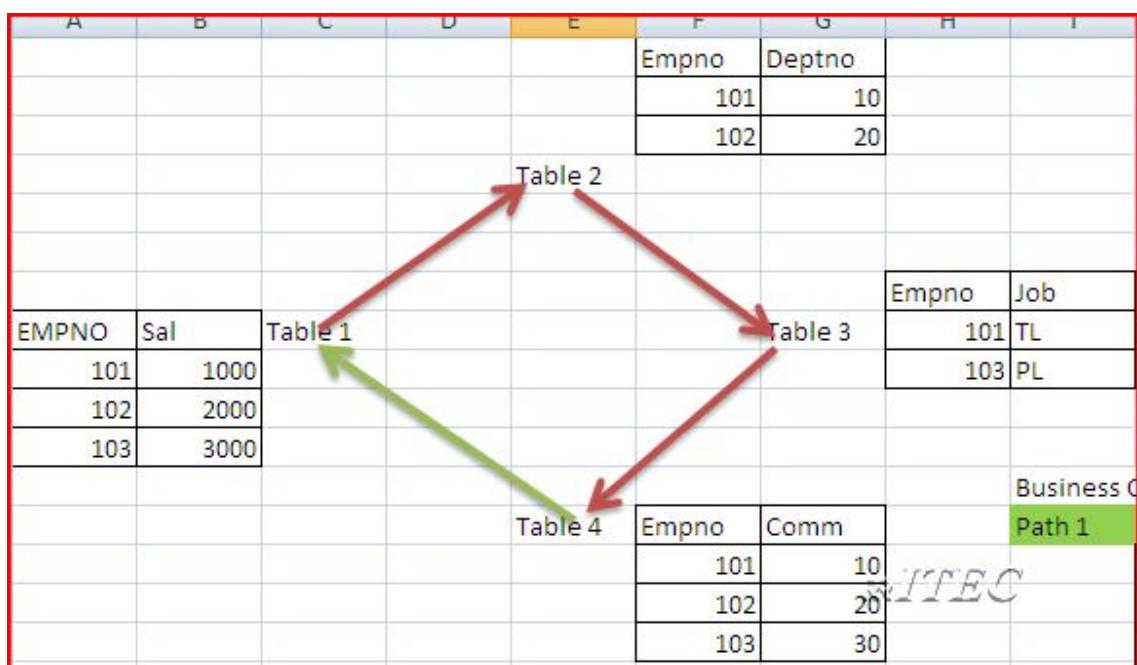
3. Avoiding closed paths.

Self join:

1. Create a new RPD by importing emp, dept tables
2. Right click on emp → new object → alias → name it as EMP(MAMAGER) → ok
3. select scott schema → physical diagram → Click on **join** → drag and drop from EMP(MAMAGER) to emp → select manger columns and empno columns → click on ok → close physical diagram.

Close path or circular join or Loop:

Some set of tables are joined based on some column in forming a closed path then we can eliminate using alias.



7. OBIEE 11G Advanced New Features

7.1 Parent Child Hierarchies

1. Also called as value based hierarchy
2. One to many relationship among data is called as parent child hierarchy.
3. This kind of hierarchy is required for employees or team based hierarchies.

4. In parent child hierarchy we will have only two levels(One is Total and other one is Detail)

Process:

Step 1: Setting the environment

1. From RRITEC lab copy folder (LAB COPY\13 Lab Data\RPDS) copy NF_ABC_After08_Level Based . rpd into OBI 11g repository folder.
2. Open the rpd in offline mode.

Step2: Importing & creating physical joins

1. Right click on connection pool → import metadata → import tables

SAMP_EMPL_D_VH
SAMP_EMPL_PARENT_CHILD_MAP
SAMP_EMPL_POSTN_D

2. Create the following aliases for the tables

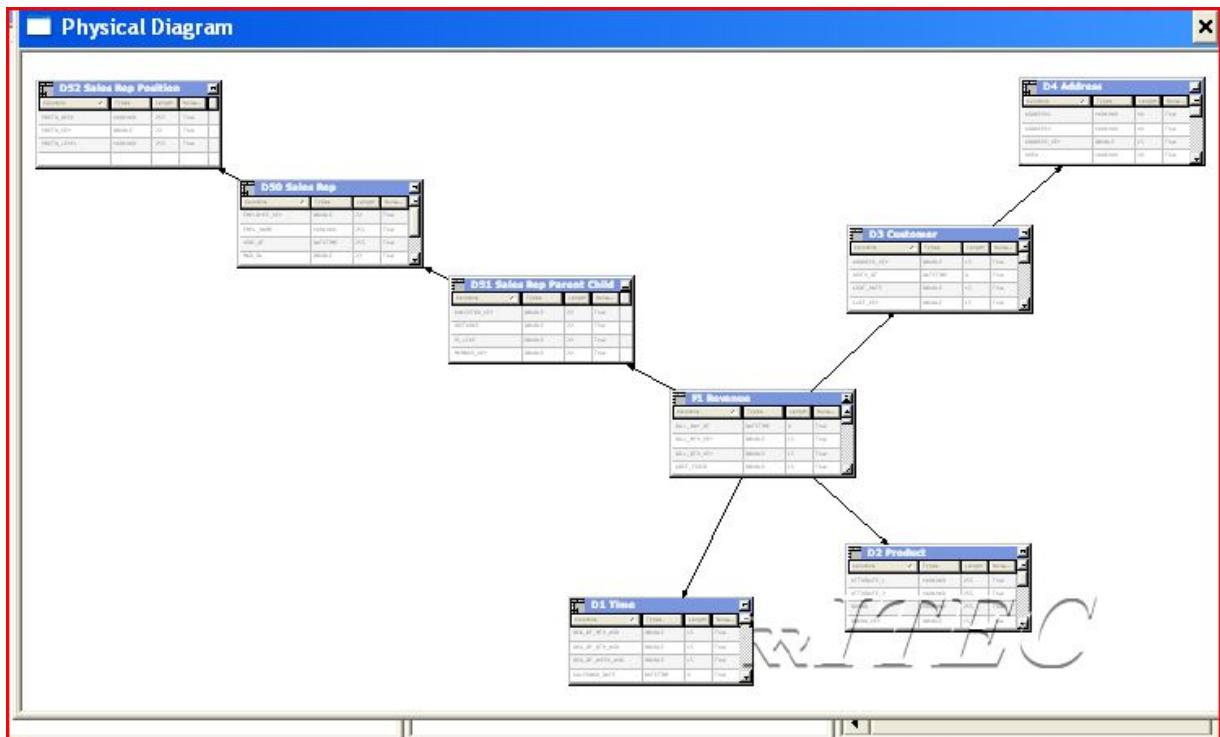
Table	Alias
SAMP_EMPL_D_VH	D50 Sales Rep
SAMP_EMPL_PARENT_CHILD_MAP	D51 Sales Rep Parent Child
SAMP_EMPL_POSTN_D	D52 Sales Rep Position

3. Use the Physical Diagram to create the following physical joins for the alias tables:

"orcl"."BISAMPLE"."D52 Sales Rep Position"."POSTN_KEY" =
"orcl"."BISAMPLE"."D50 Sales Rep"."POSTN_KEY"

"orcl"."BISAMPLE"."D50 Sales Rep"."EMPLOYEE_KEY" = "orcl"."BISAMPLE"."D51 Sales Rep Parent Child"."ANCESTOR_KEY"

"orcl"."BISAMPLE"."D51 Sales Rep Parent Child"."MEMBER_KEY" =
"orcl"."BISAMPLE"."F1 Revenue"."EMPL_KEY"



Step 3: Creating Logical Table

1. Drag and drop **D50 Sales Rep** on to business model **sample sales**
2. From physical layer drag & drop **distance**, **Is_Leaf**, **position desc**, **posin lvl** onto **D50 Sales Rep LTS**
3. create logical join between **F1 REVENUE** & **D50 Sales Rep**

Step 4: Creating Parent Child Hierarchy

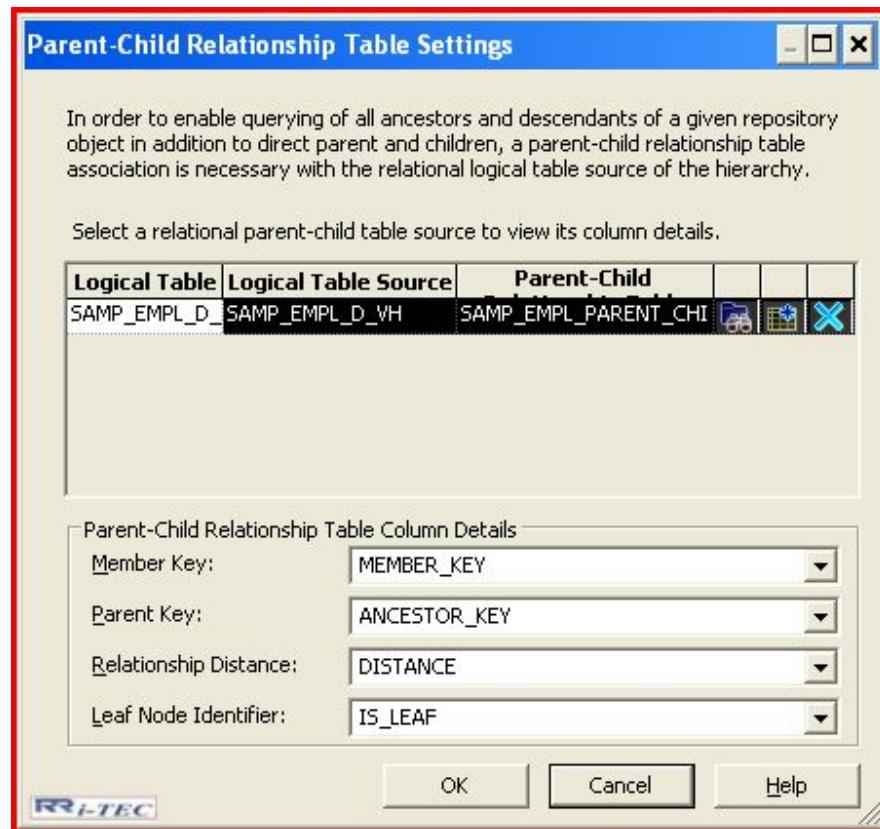
1. Right click on **D50 Sales Rep** → create logical dimension → click on **parent child hierarchy**
2. Select member key as **emp key** (already selected) → select parent column (browse) → disable show qualified names → select **MGR-ID** → ok
3. Click on **parent child settings** → click on select parent child relationship table & select columns as per below.

Member key: MEMBER-KEY

Parent key: ANCESTOR-KEY

Relationship distance: DISTANCE.

Leaf node identifier: IS-LEAF



4. Click on **ok** → again **ok**
5. Expand the hierarchy → delete all the columns except **employee name** and **employee key**
6. Double click on detail level → disable **use for display** for **EMPL_KEY**
7. Create one more key with the name of the **emp name** → select column as **employee name** → enable **use for display** → click ok.

Key Name	Columns	Description	Use for Display	Parent
EMPL_KEY	EMPLOYEE_KEY		<input type="checkbox"/>	MGR_ID
Emp Name	EMPL_NAME		<input checked="" type="checkbox"/>	

8. Drag and drop **D50 Sales Rep** into presentation layer
9. Expand Revenue fact table in BMM layer → double click on LTS REVENUE → Go to content tab → select **D50 Sales Rep** logical level as detail → ok.

Step 5: load RPD into oracle BI server and test the parent child hierarchy

1. Load RPD into OBIS
2. Develop a report using hierarchy object **D50 Sales Rep Dim, POSIN DESC, REVENUE** → observe output.

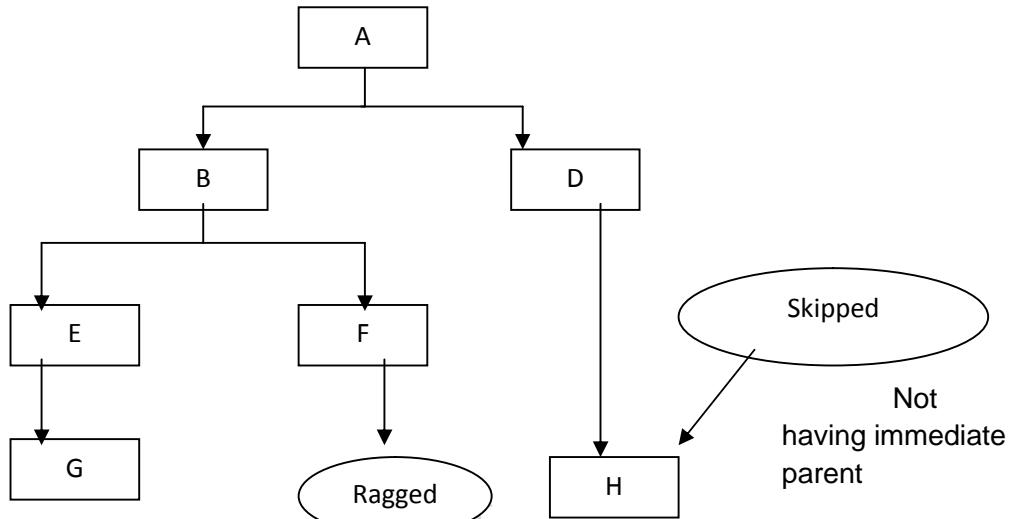
Note: In OBI 10G we used to manage this concept by de normalizing the position table .In our above example we can de normalize as per below and we can create Level Based hierarchy .

Key	Level1 Key	Level1	Level2 Key	Level2	Level3 Key	Level3	Level4 Key	Level4
1	27	Mich	25	Monica	19	James	1	Fred
6	27	Mich	25	Monica	19	James	6	Jean

This table number of level columns must be equivalent to number of positions in organization. Hence this table metadata(number of columns) changes from organization to organization

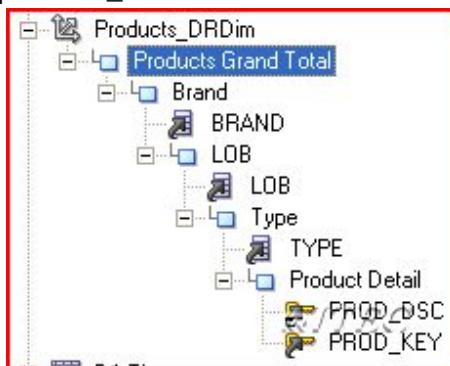
7.2 Unbalanced Hierarchies (Ragged and Skipped)

1. Level based hierarchies may have skip levels or ragged hierarchies.
2. Skip levels are when members may not have an immediate parent.
3. Ragged hierarchies are when leaf members are not all at the same level.
4. New feature in OBIEE 11G.



Process:

1. Open above RPD in online mode → import SAMP_PRODUCTS_DR table
2. Create alias on SAMP_PRODUCTS_DR and name it as Products_DR
3. Create join between revenue & products_DR based on product key
4. Drag and drop products_DR into business model
5. Create logical join between PRODUCTS_DR & F1 Revenue.
6. Right click on products_DR → create **level based hierarchy** as per below.



7. Drag and drop products_DR into presentation layer
8. Double click on products_drdim hierarchy → select **ragged & skipped**

9. Expand revenue fact table → go to revenue fact table LTS → confirm content logical level of products_DR as prod detail.
10. Check in
11. develop a report with product-DR hierarchy object and revenue → Click on results
12. Expand A-Band 2 & observe output

Revenue	
Products(Ragged and SKIPPED)Dim	
<input type="checkbox"/> Grand Total	50000000.00
<input type="checkbox"/> A - Brand 1	21934764.41
<input checked="" type="checkbox"/> B - LOB 1	15181655.11
<input type="checkbox"/> B - LOB 2	6753109.30
D - Product 6	3013044.65
D - Product 7	3740064.65
<input checked="" type="checkbox"/> A - Brand 2	11683720.75
<input type="checkbox"/> A - Brand 3	14697023.69
D - Product 16	3959690.83
D - Product 17	3993962.32
<input type="checkbox"/> B - LOB 4	6743370.54
<input type="checkbox"/> C - Type 5	487556.74
	487556.74
<input checked="" type="checkbox"/> C - Type 6	6255813.80
<input type="checkbox"/> A - Brand 4	1684491.15
	1684491.15

Note:

1. In 10G all missing levels values will be populated with parent values
2. We will educate customer by saying when ever parent and child values are same, that means there is no child.

7.3 Actions Links

These are useful to navigate from OBI report to

- 1) Another OBI report/dashboard.
- 2) Any webpage.
- 3) EBS system.
- 4) Web service.
- 5) Java method.
- 6) Browser script.
- 7) HTTP request.

Process:

Step 1: Setting the environment

1. Sampleapple RPD and sampleapple catalog will be installed with the installation of OBIEE 11G
2. Load sampleapple RPD and sample apple catalog into OBIS and OBIPS respectively
3. Sample apple RPD by default password is **Admin123**

Step 2: Navigating from report to web page

Exercise1 :

1. Develop a report with columns **per name year, product, revenue**

Time	Products	Base Facts
Per Name Year	Product	Revenue

2. Click on **product** column properties
3. Click on **interaction** tab
4. Under **value** select **Primary interaction** as **action link**
5. Click on add action link  → type **link text** as **Live Stock Price** → Click on **create new action**  → Click on **navigate to a web page** → type URL <http://finance.yahoo.com/935=ORCL> → Click on **Define parameters** → Click on **ok**

Column Properties

Style Column Format Data Format Conditional Format **Interaction** Write Back

Column Heading
Primary Interaction Default (Drill) ▾

Value
Primary Interaction Action Links ▾

Action Links

Link Text	Action	Show Link
Live Stock Price	Navigate - http://finance.yahoo.com/935=ORCL	Always Enabled

RR ITEC display in a popup if only one action link is available at runtime

- Click on **ok** → Click on **results** → click on any **product** → Click on **Live Stock Price** → type **ORCL** → Click on **execute**

Exercise2 :

Step1 : Create required data

```
create table SP (COMANY_name varchar2(20),dollars number (10))
```

Columns		Data	Constraints	Grants	Statistics	Triggers
1	COMANY_NAME	2	DOLLARS			
1 ORCL		10				
2 MSFT		20				

Step 2: Import into RPD

The Oracle Database Navigator interface shows the following schema structure:

- Connection pool: orcl
 - Supplier2
 - SP
 - COMANY_NAME
 - DOLLARS
- Sample App Lite Data
- Custom DD (User-defined)

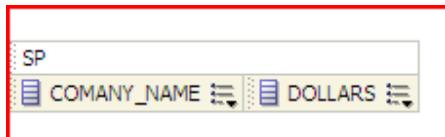
Step 3 : create Business model



Step 4 : Drag into Presentation layer

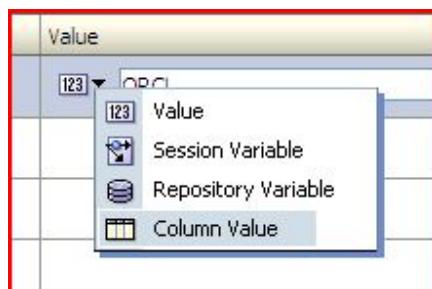


Step 5 : Develop Report

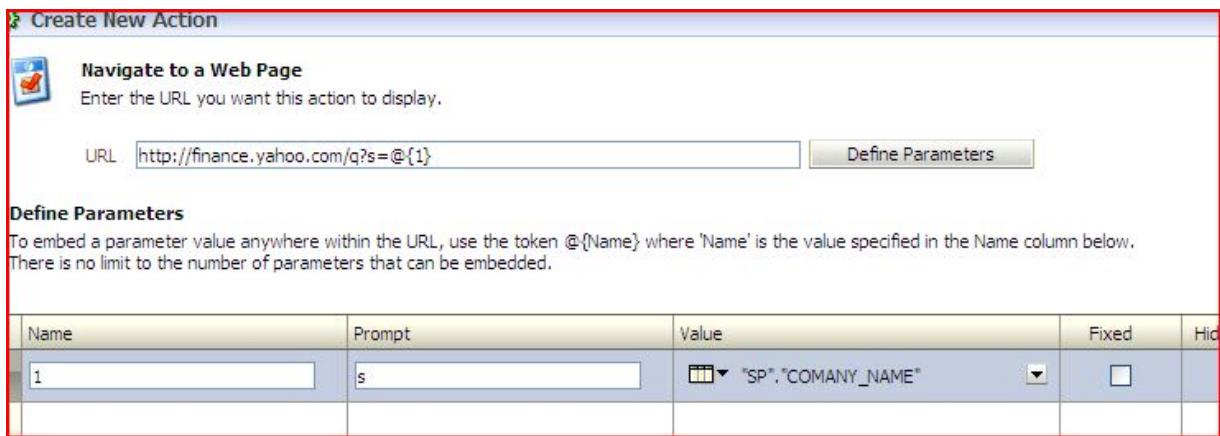


Step 6: Configure Action link

1. Click on **Company_name** Column Properties → Go to **interaction** tab → Under **value** select **Action links**→ click on **new Action link** → Again click on **new action** → select **Navigate to web page** → type URL
<http://finance.yahoo.com/q?s=ORCL> →Click on **Define Parameters**
2. Under value select **column value**



3. Then select column name as company_Name



4. Ok→ok→ok

5.

Navigating from one report to another report (DRILL THROUGH)

Step1: develop a child report

1. Develop a report with columns as per below screen shot
2. Click on **Per Name year** Column → Click on **filter** → select operator as **is prompted** → Click on **ok**
3. Click on **Product** Column → Click on **filter** → select operator as **is prompted** → Click on **ok**
4. Click on **save** → name it as **child report**

Step2: creating master report

1. Develop a report with columns **Per Name Year, product, revenue**

2. Click on **Revenue** column properties
3. Click on **interaction** tab
4. Under **value** select **Primary interaction** as **action link**
5. Click on add action link  → type **link text** as **Child Report** → Click on  → Click on **create new action**  → Click on **navigate to BI content** → select **child report** → Click on **ok** → Click on **ok** → Click on **ok**



6. Click on **ok** → Click on **results** → click on any **revenue** value → **Child Report** → observe output.

7.4 Reusability Action Links

If we want to use one action link in many reports then we can develop reusable action link

Process:

1. Click on **new** → Click on **action** → Click on **navigate to BI content** →
2. select our **child report** (developed in previous lab) → **save** action name as **child report action link**

Calling action link in any report:

1. Develop a report with **per name year, product, revenue** columns
7. Click on **Revenue** column properties
8. Click on **interaction** tab

2. Under **value** select **Primary interaction** as **action link**
3. Click on add action link → type **link text** as **Child Report** → Click on
4. select previously saved action link → ok → ok → ok.

Note : Action link and action link menu are dashboard objects ,which are useful to create action links with in dashboard

7.5 Master Detail Report

Goal: Create Analyses, Master-Detail linking and Custom Groups.

Solution: Create an Analyses report with pivot table, bar graph. Format and Modify the compound layout components for master detail linking and add Selection steps for grouping data.

Process:

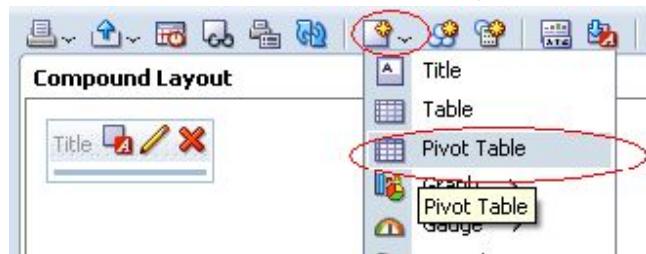
1. Select the following columns from the Sample Sales Lite Subject area.

Products	Time	Offices	Base Facts
LOB	Per Name Year	Organization	Revenue

2. Click on the **Results** tab visible on top left corner. Remove the Table view

By clicking on the icon

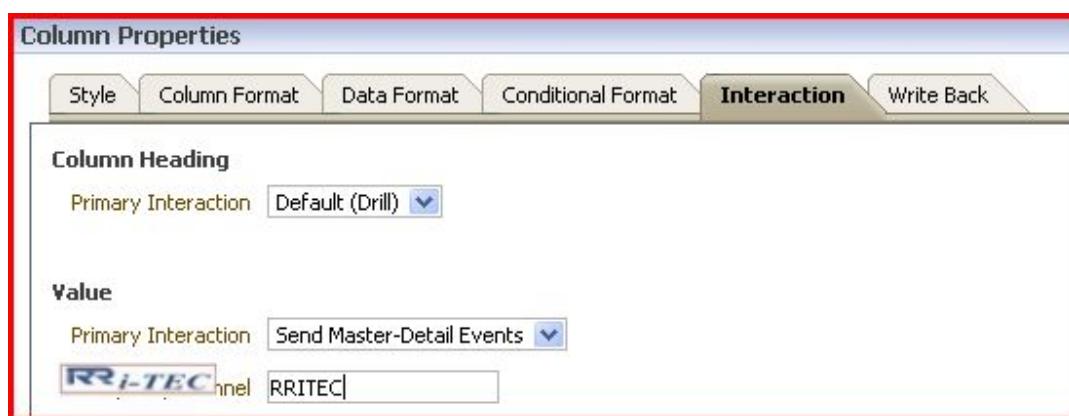
3. Add a **pivot** view to the compound layout as shown in the below image.



4. Click on the **Edit** icon (pencil) to modify the pivot table
5. Under the layout section drag **LOB** from **Rows** to **Column** area
6. Click on the sum icon on the Rows area and select after to display grand total.

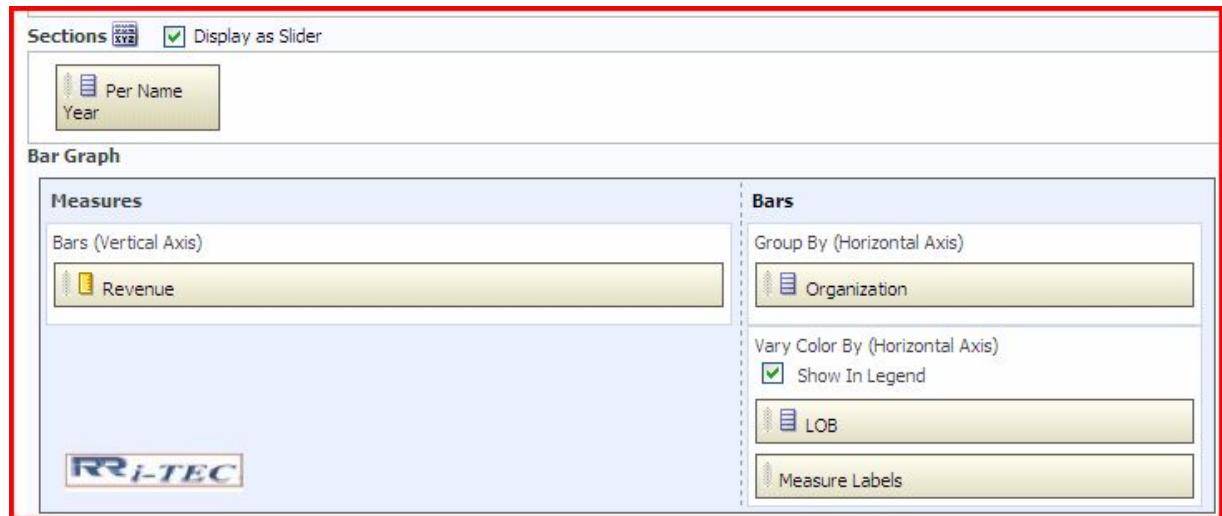


7. Click **Done**
8. Click on Criteria tab , select the **Per Name Year** properties and choose column properties
9. Select the Interaction tab, For **Value** choose **Send Master Detail** , Enter **RRITEC** for channel→ Click on **OK**

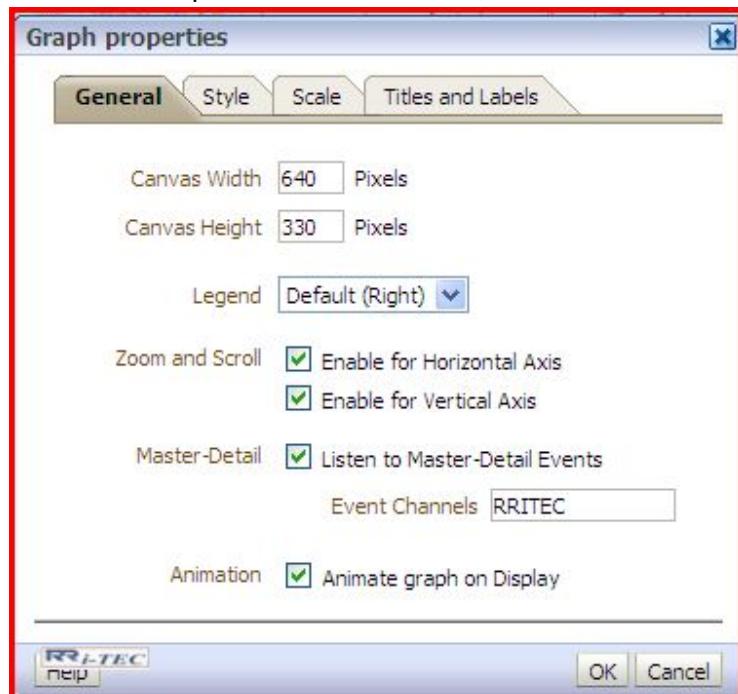


10. Click on the **Results** tab, Add a **Bar (graph)** view to the compound layout
11. Click on **Edit** icon (pencil) to modify the **graph** view
12. Under layout section, Drag **Per Name Year** to Sections area and select Display as slider. Drag the **LOB** on top of Vary Colors By (Horizontal axis). Your Layout should be similar to the below image.

S



13. Click on the **graph** properties
14. Check zoom options for X and Y axis, enter **RRITEC** for event channel.



15. Click **OK** and click **done**.
16. Click on the preview icon, to confirm the master-detail events. Click on the year column values from the pivot table and below graph should display the corresponding year and their results.

7.6 Develop a Report Using Hierarchy Object

STEP 1: Develop a report using time hierarchy, product hierarchy, office hierarchy, revenue → results → expand it & observe output.

7.7 Condition

If we want to use a condition in many places then we can create condition object , save into catalog and use in **Agents**.

Process:

New → condition → select analysis → browse → select any one report → select is greater than 20 → save → give some name → ok.

We can call this condition in agents → new → agent → condition → browse → select saved condition.

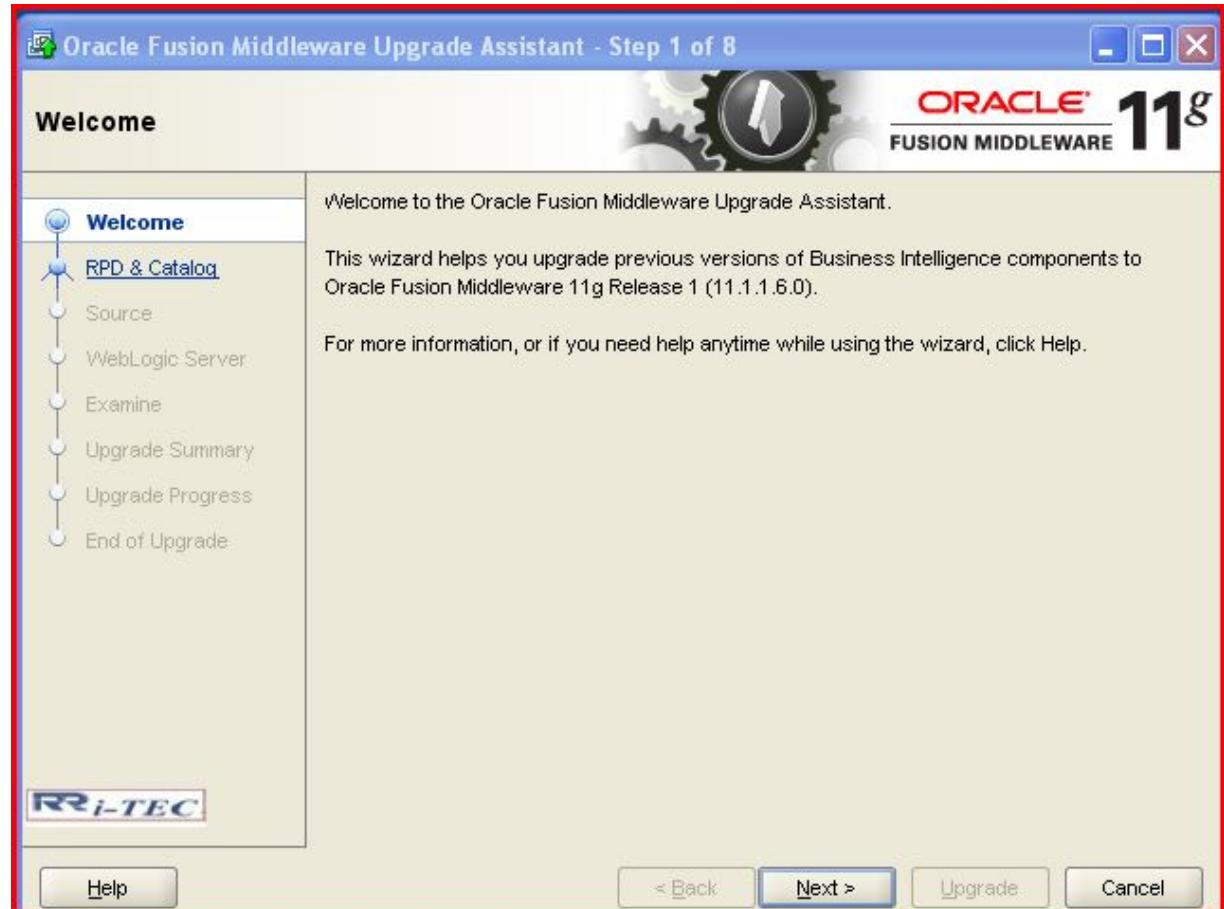
8. Migration

1. **Upgrade Assistant** is a wizard useful to migrate from OBI 10G to 11G
2. Upgrade Assistant wizard **migrates**
 1. RPD
 2. RPD users and Groups into WLS LDAP
 3. Presentation Services Web Catalog
 4. Scheduler Schema (Delivers)
 5. BI Publisher Repository
 6. BI Publisher Scheduler Schema
3. Upgrade Assistant wizard **cannot migrate**
 1. Configuration files
 2. Custom style sheets
 3. JavaScript

Process:

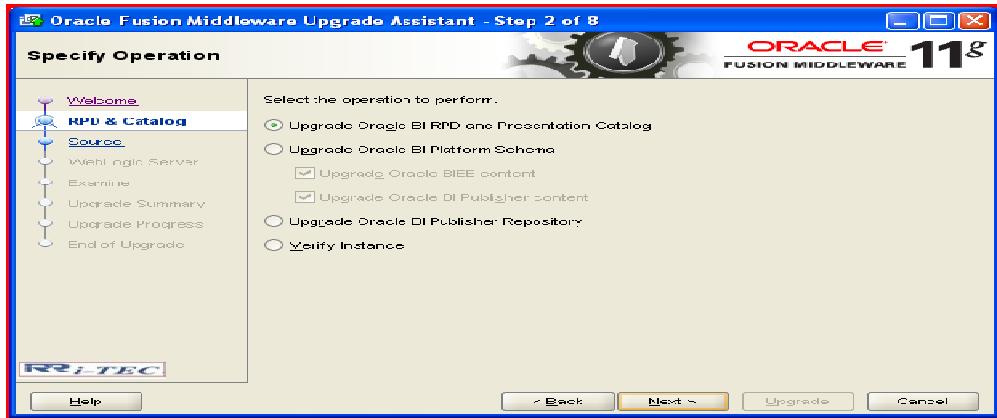
Step 1:

- 1) Take back up of OBI 10G & 11G RPDS & web catalogs.
- 2) In E drive create a folder with the name of **Migration**
- 3) Go to RR ITEC labcopy labdata folder copy paint.rpd and paint web catalog and paste in **migration** folder
- 4) Go to OBIEE 11G installed drive → BI 11g → oracle B11 → bin → double click on '**UA.bat**' (before clicking make sure all the OBI servers must be in running position)

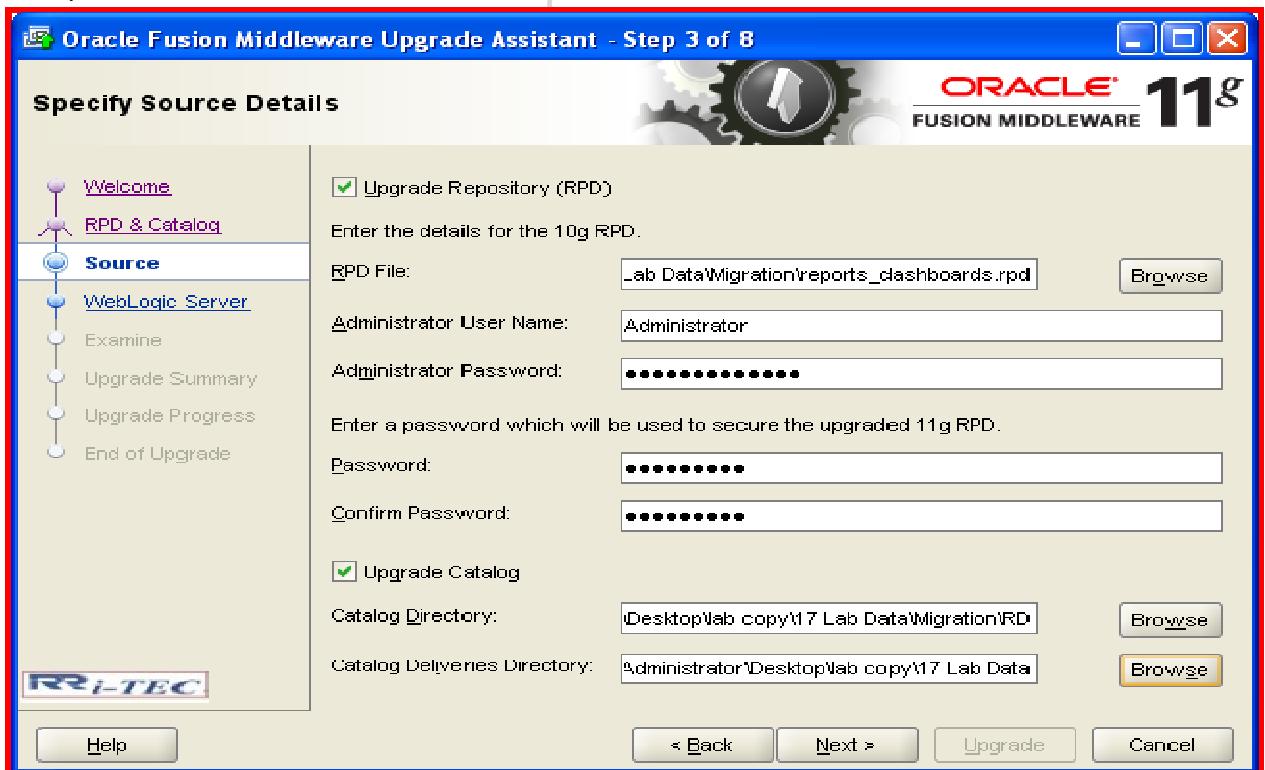


- 5) Click on **next**

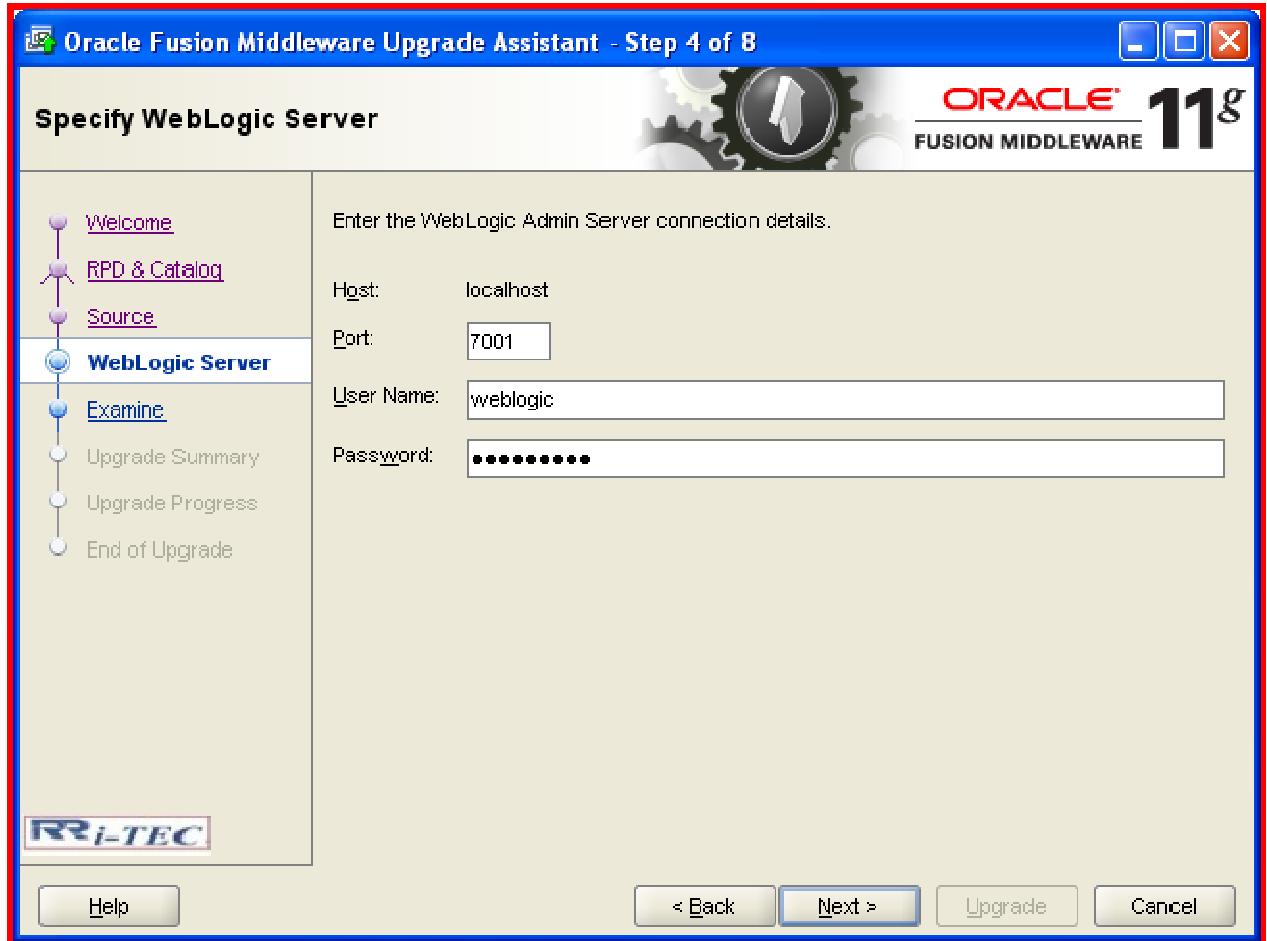
- 6) select upgrade oracle BI RPD and presentation catalog → Click on next



- 7) Enable upgrade repository(RPD) → Click on **browse** → point to **Labcopy\labdata folder \migration folder \reports_dashboards.rpd**→provide 10 g username & password as **administrator** → Provide any password & confirm password: example **RRitec123** → enable upgrade catalog → click on catalog directory browse → point to **Labcopy\labdata folder \migration\RD catalog** →Click on deliveries directory **browse** → Point it to some location → open → **next**



- 8) Type port no as **7001** → username: **weblogic** → password as **RRitec123** → **next**



- 9) Again **next** → Click on **upgrade** → Click on **next** → Click on **close**.

Testing:

- 10) open administration tool → go to file menu → open online → password: Rritec123 → observe that reports_dashboard RPD is opened.
- 11) Open analytics → log in as web logic → new → analysis(observe) →catalog & notice that our reports & dashboards came into picture.

9. Deployment:

- 1) Copying RPD or web catalog from one environment to another environment is called as deployment
- 2) In Any project we will maintain three types of environments
 - a. Development
 - b. SIT(system Integration and Testing) or testing
 - c. Production
- 3) Deployment examples
 - a. copying components (rpd and catalog) from dev to test
 - b. copying components (rpd and catalog) from test to prod.

Deployment Components

- 1) RPD
- 2) Web Catalog

1. RPD Deployment

- 1) Take backup of RPD from source and target environments
- 2) Stop target environment oracle BI server
- 3) Copy RPD from source repository folder and paste in target repository folder
- 4) Configure EM by pointing to new RPD
- 5) Start target environment oracle BI server
- 6) Reload Server meta data from Analytics web page.
- 7) Change Connection Pool Database name ,username and passwords .

2. WEB Catalog Deployment

- 1) First time deployment
- 2) Second time onwards deployment

1. First time Web Catalog deployment

- 1) Backup of source catalog
- 2) Copy catalog from source catalog folder and paste in target catalog folder
- 3) Configure EM
- 4) Start or restart oracle BI presentation server
- 5) Test for some of the reports and dashboards using Analytics

2. Second time Web Catalog deployment

- 1) Backup of source and target catalog
- 2) Use **catalog manager** to deploy partially

Catalog Manager

- 1) It is a window based client using catalog manager we can deploy web catalog in two ways.
 1. Offline.
 2. Online.

Offline catalog deployment:

- 1) Open catalog manager.
Start → all programs → oracle business intelligence → catalog manager.
- 2) File menu → open catalog.
- 3) Type: offline.
- 4) Path: E:/BI11g/instances/instance1/bifoundation/oracle BI presentation services component/core application-obips1/catalog/B150 → ok
- 5) Similarly open another instance of catalog manager & open B149 catalog in offline mode.
- 6) Expand folders & select whatever you want to deploy → Right click → Click on **copy** → **paste** into another catalog required folder.
- 7) Start target **oracle BI presentation server**.

Online catalog deployment:

First two steps are same as above.

- i. type: online.
- ii. URL: <http://localhost:7001/analysis/saw.dll?>
- iii. UN: web logic
- iv. Password: RRitec123
- v. Similarly open another instance of catalog manager in online mode.
- vi. Copy & paste.

Note : Deploying catalog is recommended in offline mode

Some advantages of catalog manager

1. Deployment as per above.
2. Back up of web catalog.
3. Permissions.

4. Web catalog documentation.

Backup:

Open catalog in catalog manager either in offline or online mode → select whatever reports we want → file menu → archive → point to desktop & give name as B147 → ok.

Some reason by mistake if we delete any of the reports. We can restore from our archive file.

File menu → un archive → point to B147 folder → ok → ok.

Permissions:

Right click on any object in the catalog manager → click on permissions → change whatever way we want → ok.

Web catalog documentation:

Select catalog Root/main folder → tools menu → create report → select all the columns by pressing shift → (>) → ok → select excel format → ok → ok.

RPD documentation:

Go to tools menu in admin tool → utilities → repository documentation.

10. KPI (Key Performance Indicator)

1. It's a new feature in OBI 11g.
2. KPI's are defined using analytics web page.
3. KPI requires measures like **actual & targets**. & also it requires **threshold conditions** to define good or bad performance.
4. KPI's can be dimensionalized
For eg: Time wise KPI
Product wise KPI.
Customer wise KPI.

Environment setup:

Load **sample applite RPD & sample applite web catalog** into servers → start the services.

Process:

New → KPI → sample sales lite → general properties → actual value: revenue → target value: target revenue → dimensionality → add → select time hierarchy objects → ok → click on finish → select any folder → name: revenue KPI → ok → similarly create quantity KPI → catalog → navigate to saved KPI's → open → observe output.

10.1 KPI Watch List

1. It allow the user to gather KPI's for monitoring.
2. Can include multiple copies of the same KPI with different pinning.
3. Point of view can be altered to analyze via dimensions.
4. Actions can be created.
5. KPI's can be launched as analysis, comments can be added.

Process:

New → KPI watch list → drag and drop saved revenue KPI into KPI watch list → click on ok → similarly drag and drop quality KPI → save → name: revenue & quantity watch → go to catalog & observe output of watch list → change some values & observe KPI's values.

10.2 Score Card

These are useful to organize KPI's into hierarchy or strategies.

Process:

Go to new → score card → name: REV quantity score card → new objective → name: revenue & quantity → save → from catalog drag and drop revenue KPI & quantity KPI into objectives & KPI's → select revenue & quantity objective → click on strategy tree → observe output.

10.3 ID Column

ID column is useful to improve **performance** of report by passing description column corresponding id to SQL query .

Step1: configure RPD → open RPD in ONLINE → Expand products logical table → double click on products logical column → click on Description ID column SET → select product number → ok → ok → check in changes.

Step2: develop a report with columns products, revenue and click on products filter → select 'isprompted' → save

Step3: creating dashboard prompt using product column

New dashboard prompt → samplesaleslite → click on column prompt → select product → ok → expand options → select Enable user to select by code column → ok → save

Step4: integrating into dashboard → drag and drop IDPROMT & IDreport → save → RUN → select V5x_flipphone → click on Apply → see result.

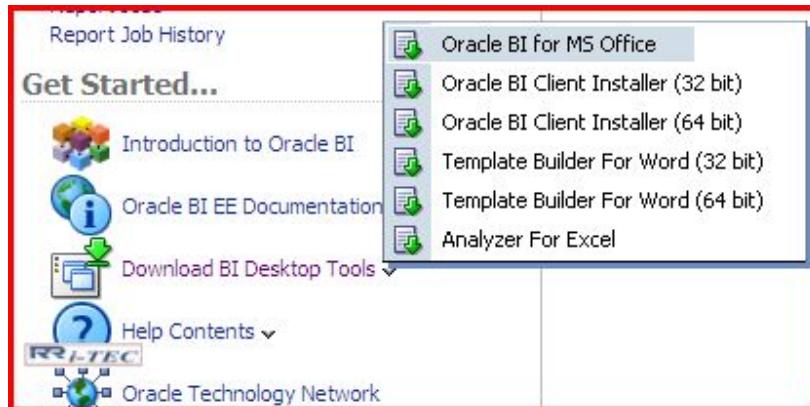
11. ORACLE BI FOR MS OFFICE

Key features of Oracle Business Intelligence for Microsoft PowerPoint:

1. View live, refreshable data from the Oracle Business Intelligence Server.
 - a. Insert BI tables, pivot tables and graphs into PowerPoint or Excel as refreshable, editable objects.
 - b. Apply PowerPoint or excel formatting to BI data; formats are retained when you refresh.
2. Copy and paste BI analyses from Oracle BI Answers or Oracle BI Interactive Dashboards to PowerPoint or excel . The data, metadata, and view layout are copied.
3. Secure BI Data from Oracle BI objects in PowerPoint or excel so that users must log in to view the data. Secured objects can be refreshed.

Installation

1. login to **Analytics**
2. Under **Get Started** → Click on **Download BI Desktop Tools** → Click on **Oracle BI for MS Office**

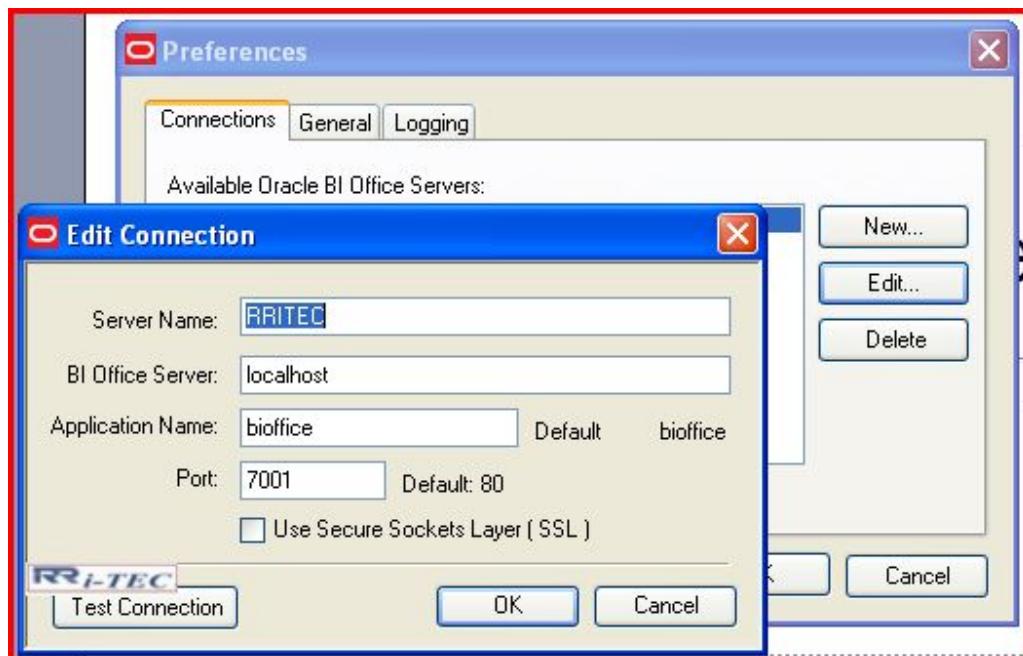


3. Click on **Run** the executable that you have downloaded and follow the wizard to complete the installation

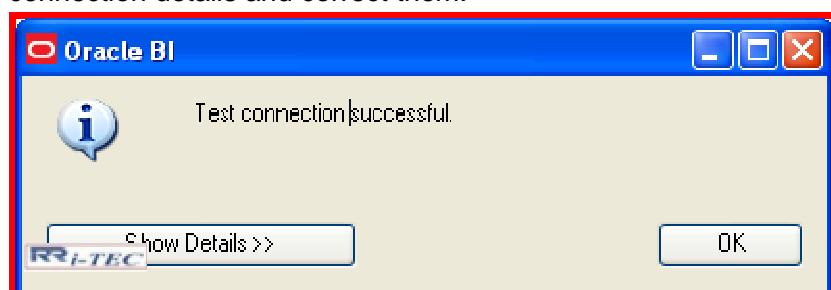
Configuration

1. Open Microsoft **Power point** or Microsoft **Excel**
2. In the Menu bar click on **OracleBI→Preference**
3. In Preferences window →select Connections tab→select New

4. In the New Connection window, fill the following fields
 Server Name: Give any name (e.g. RRITEC)
 BI Office Server: Enter the URL for the BI Office Server (e.g. RRITEC). You can enter “localhost” if the BI Office Server is installed on your local machine.
 Application Name: **bioffice** (default)
 Port: **7001**

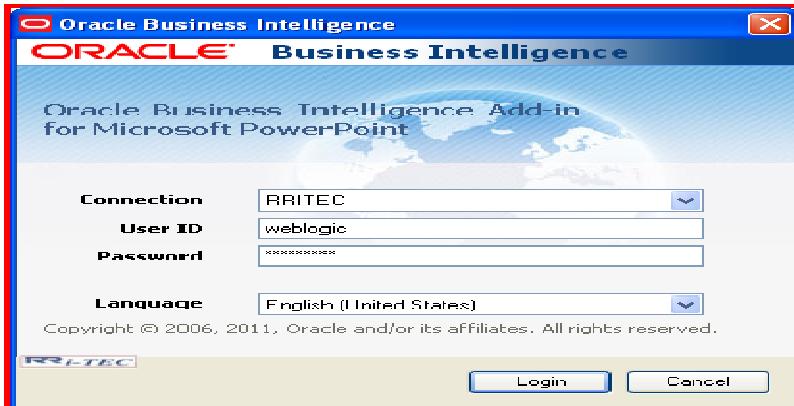


5. Click on Test connection. It should show the following screen, if not check the connection details and correct them.



Note: This does not test the connection between the BI Office Server and Presentation Services.

6. Click on **Oracle BI** Menu→Click **Login** to login to Presentation Services using the appropriate username(**weblogic**) and password(**RRitec123**)



7. You will get the error “**Login failed. Please check the username, password and Oracle BI Office server availability**” It is because in the bioffice.xml (C:\OBI11g\user_projects\domains\bifoundation_domain\servers\AdminServer\tmp\WL_user\bioffice_11.1.1\hsq62b\war\WEB-INF) SawBaseUrl is pointing to **9704** port. Change it to **7001** and then save the file. Restart the all services from **EM** (<http://rritec:7001/em>) and try login again, it should work.
8. Once you are logged in, you will see the BI Catalog on the right pane of Microsoft Power point.
9. Double click on any report table/pivot table/graph



12. INFORMATICA 9

12.1 INFORMATICA Introduction

1. Informatica is an ETL tool (or) Integration tool
2. It is useful to Extract different Heterogeneous Sources (like Sibel, Sales force, Oracle Apps, PeopleSoft, Mainframe) Transform as Analytical data (Aggregating data, cleaning data...) and Load into DW.
3. In Informatica latest version is INFORMAICA 9.0.1 (HOT FIX 2)
4. The earlier famous versions of informatica 8.6, 8.1, 8.0, 7.1, 6.0...
5. In Informatica we have mainly following components.
 1. Informatica Administration console
 2. Informatica Repository Manager

3. Informatica Designer
4. Informatica workflow Manager
5. Workflow Monitor

12.2 INFORMATICA 9 Installation

12.2.1 Server Installation

Step 1 : Double click on install.exe

1.

Step 2 : Installation wizard Starts. Choose the installation type → Click Next.

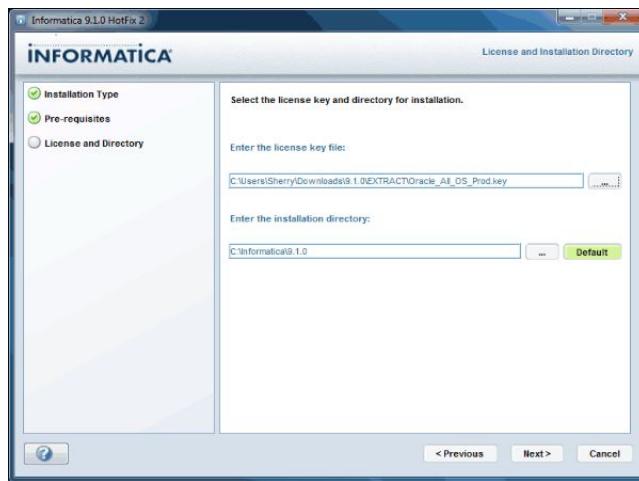


Step : 3 Installation Pre-requisites will be shown before the installation starts as below.

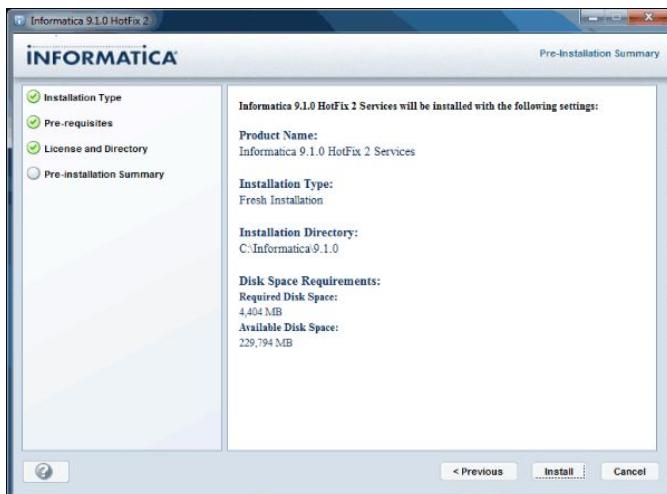
Click Next.



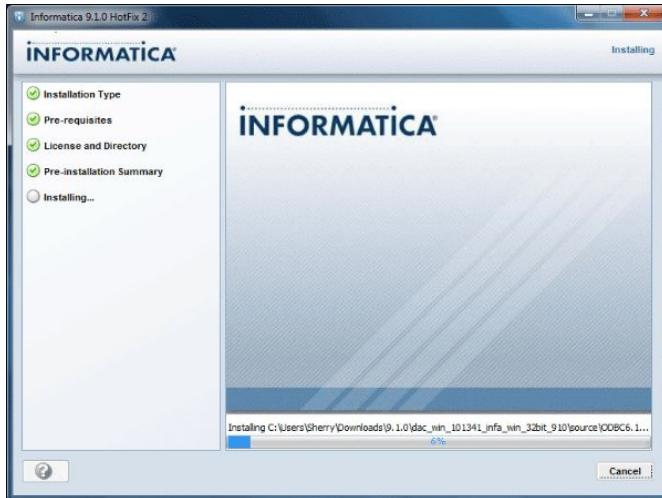
Step 4 : Enter the license key → Click Next



Step 5 : Pre-installation summery will give the items installed during the installation process based on the license key →Click **Next**



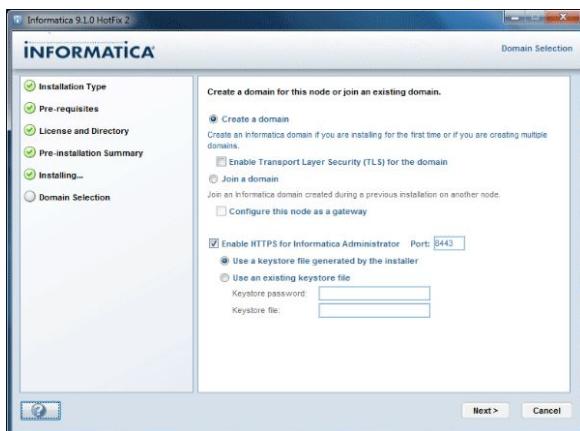
Step 6 : Installation Begins. It takes couple of minutes to finish. Soon after completion of this step, Configuring Domain window opens. Continue the steps from Domain Configuration.



Step 6:

- Choose “Create a Domain” radio button.
- Check “Enable HTTPS for Informatica Administrator”
- Leave the Port number as it is and choose “Use a keystore file generated by the installer”

Click **Next**.

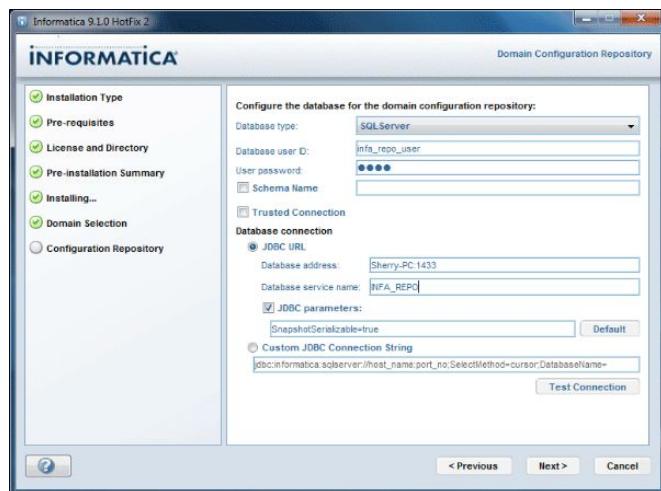


Step 7: Provide the Repository database details as below

- Database Type : Choose your Repository database (Oracle/SQL Server/Sybase)
- Database user ID : Database user ID to connect database.
- User Password : Password.

- Schema Name : If Schema name is not provided default schema will be used.
- Database Address and Port : Machine on which database is installed and default port number.
- Database Service Name : Database Name.

Below image shows the configuration using SQL Server.
Click **Next**.

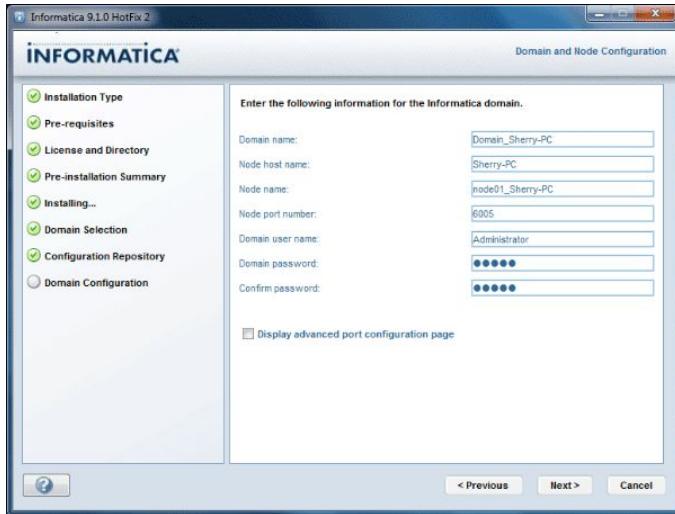


Step 8:

You can give the Domain details, Admin user details now.

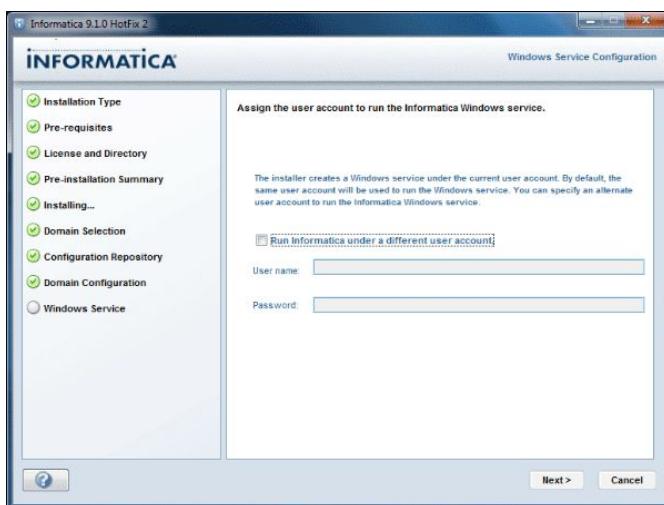
- Domain Name : Name of your Domain.
- Node Host Name : Machine name on which Informatica Server is running.
- Node Name : Name of the Node.
- Node Port Number : Leave the default port Number.
- Domain user name : This is the Administrator user
- Domain password : Administrator password

Note : Remember your Admin User ID, Password to log on to Admin Console later in the installation.



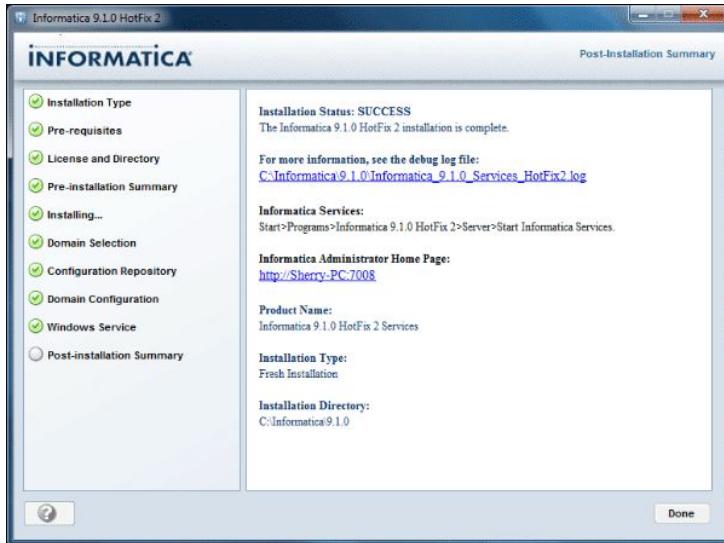
Step 9

Use the default configuration and Click **Next**.



Step : 5

Installation is complete and you get the post-installation summary. You get a link to the installation log file and a link to Admin console → Click **Done**.

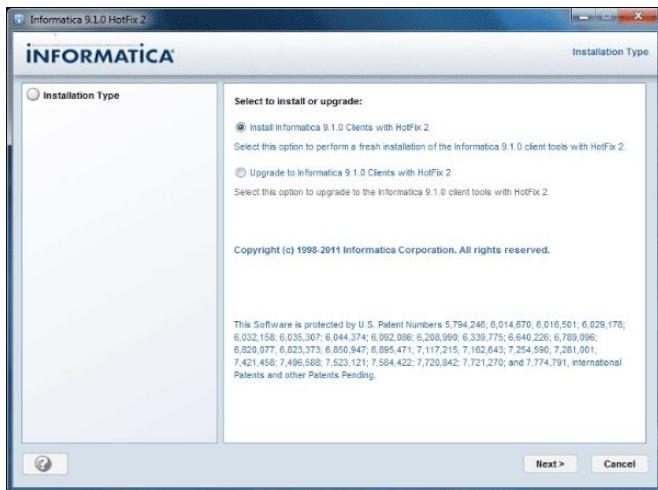


12.2.2 Client Installation

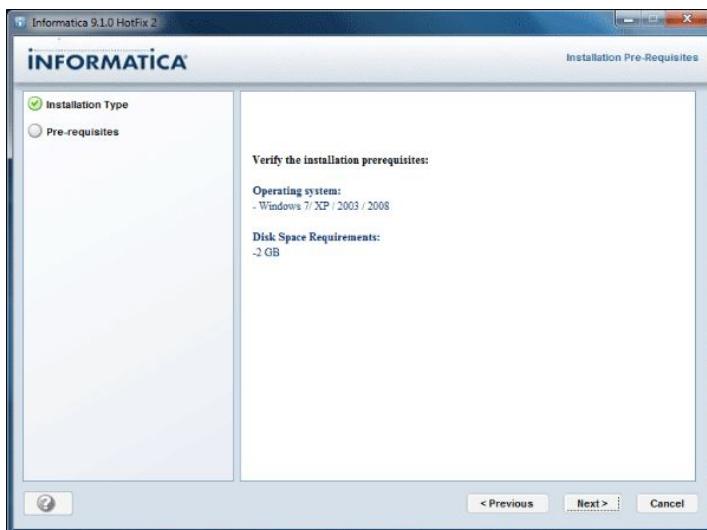
Step 1 : Click on the install.bat → On Installation wizard Starts Click **Start**.



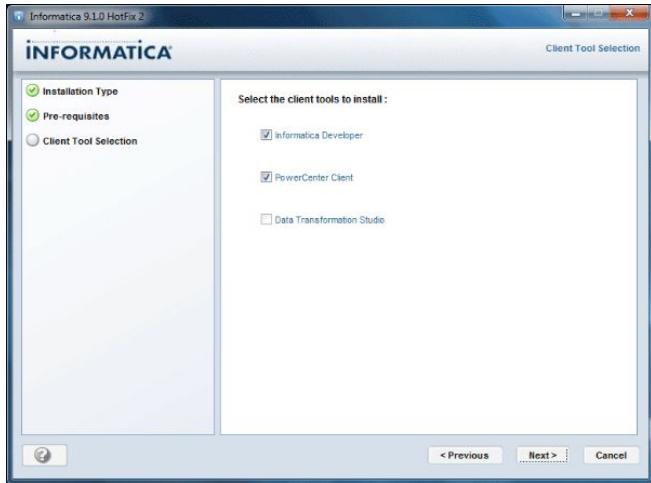
Step 2 : Choose the installation type as in the below image → Click **Next**.



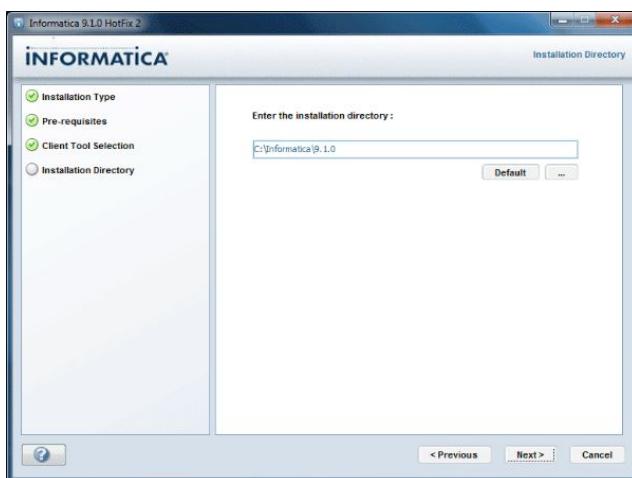
Step 3: On Installation Pre-requisites window Click **Next**.



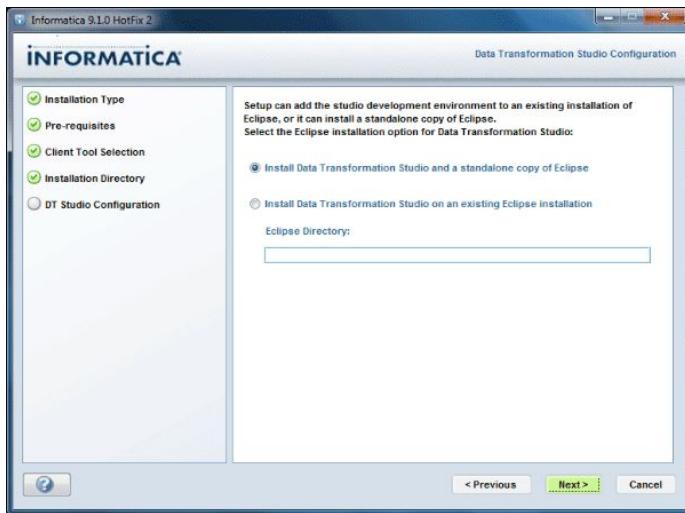
Step 5: Choose the client tools you need. Only PowerCenter Client is mandatory.
Click **Next**.



Step 6 : Choose the client installation directory → Click **Next**.



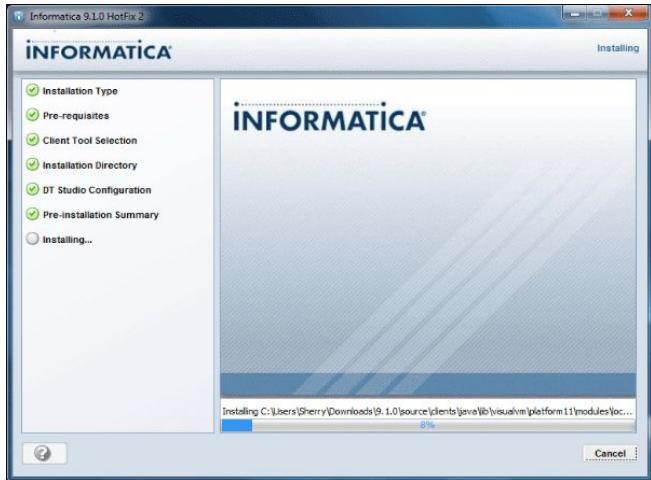
Step 7: You can choose the type of Eclipse installation in this step. This window will be available if you choose to install “Informatica Developer” or “Data Transformation Studio” → Click **Next**.



Step 8: Pre-installation summary will give the items installed during the installation process → Click **Next**.



Step 9: Installation Begins. It takes one or two minutes to complete this step.



Step 10: Installation is complete and you get the post-installation summary.



12.3 Informatica Administration Console

It is a web based component from 8.6 versions onwards

It is used to handle all admin activities

Administrator is going to work only on this component

Admin Activities:

1. Creating Repository Services
2. Creating Integration services
3. Creating Users
4. Creating Groups
5. Providing Permissions

Creating Repository Services:

1. Repository service is a storage location of informatica source ,target ,mapping,task ,workflow ...etc information .
2. This information all together will store in database schema with the help of **511** tables

Step1: Starting Informatica Server.

1. Start → all programs → Control panel → Administrative tools → Services → select Informatica 9.0.1 → Right Click → click on start

Step2: open Informatica Administration Home page

1. Start → all programs → Informatica → Server → Informatica Administration Home page
2. Provide username : Administrator → Password: Administrator

Step3: Creating Repository Schema in Database.

1. Open SQL PLUS → Type / as sysdba press enter
2. Create a user by executing below commands
 - a. Create user ITECINFA identified by RRitec123;
 - b. Grant DBA to ITECINFA;
 - c. Conn ITECINFA@ORCL
 - d. Password RRitec123
 - e. Select count (*) from tab;

```
SQL> Create user ITECINFA identified by RRitec123;
User created.

SQL>          Grant DBA to ITECINFA;

Grant succeeded.

SQL> conn ITECINFA@orcl
Enter password:
Connected.
SQL> select * from tab;
no rows selected

SQL>
```

3. Please Note that no tables are available in this schema.

Step 4 : Configuring Repository Services in Admin Console

1. Open Informatica Administration Home page → Provide username and password as **Administrator** → Click on **login**

Username: Administrator

Password: *****

Log In

2. Under domain navigator select domain **Domain_rritec**
3. Go to Action → new → Click on **Power Center Repository Service**
4. Provide below information
 - a. Name : RRITEC_RS
 - b. select license and Node from Dropdown → click **Next**

Specify the properties for this new PowerCenter Repository Service.

Name *	RRITEC_REPO
Description	
Location *	Domain_admin
License	901_License_admin_48541
Node *	node01_admin

5. Provide below database information create in step 3
 - a. Database type: Oracle
 - b. Username: ITECINFA
 - c. Password: RRitec123
 - d. Connection String: ORCL
6. Select 2nd radio button (i.e. No content....) → click on **Finish**

Specify the database properties for this new PowerCenter Repository Service.

Database Type *	Oracle
Username *	ITECINFA
Password *	*****
Connection String *	orcl
Code Page *	MS Windows Latin 1 (ANSI), superset of Latin1
Tablespace Name	

Specify the creation options for the new PowerCenter Repository Service.

Content exists under specified connection string. Do not create new content.
 No content exists under specified connection string. Create new content.

Create as Global Repository (May not be reverted to local)
 Enable version control (A versioned repository cannot be unversioned)

- Once Process is completed SQL PLUS execute "Select Count (*) form tab" and notice that **511** tables are created.

Step 5 : Changing Operating Mode from exclusive to normal

- Select **RRITEC_REP** repository → click on repository properties **Edit** → Change operating mode from **exclusive** to **normal** → Click on **Ok** → Restart repository service by click on **OK**

Operating Mode *	Normal
Security Audit Trail *	Normal
<input type="checkbox"/> Global Repository	Exclusive
<input type="checkbox"/> Version Control	

Creating Integration services :

- Integration services are useful to Read Metadata from Repository Services & Execute corresponding Workflows.

Process:

- Select **Domain_rritec** → go to **Action** menu → Click on **new** → Click on **Power Center Integration services**
 - Name : RRITEC_INT
 - select License and Node from dropdown → click **Next**

Specify the properties for this new PowerCenter Integration Service.

Name *	RRITEC_INT
Description	
Location *	Domain_admin
License	901_License_admin_46541
Node *	node01_admin

2. Provide repository information as for below

- a. Select Repository Service : RRITEC_REP
- b. Username : Administrator
- c. Password : Administrator
- d. Data Movement Mode : ASCII

3. Click on **Finish**

Specify the PowerCenter Repository Service and its login credentials.

PowerCenter Repository Service	RRITEC_REP
Username *	Administrator
Password *	*****
Select the data movement mode.	
Data Movement Mode *	ASCII

12.4 Repository Manager

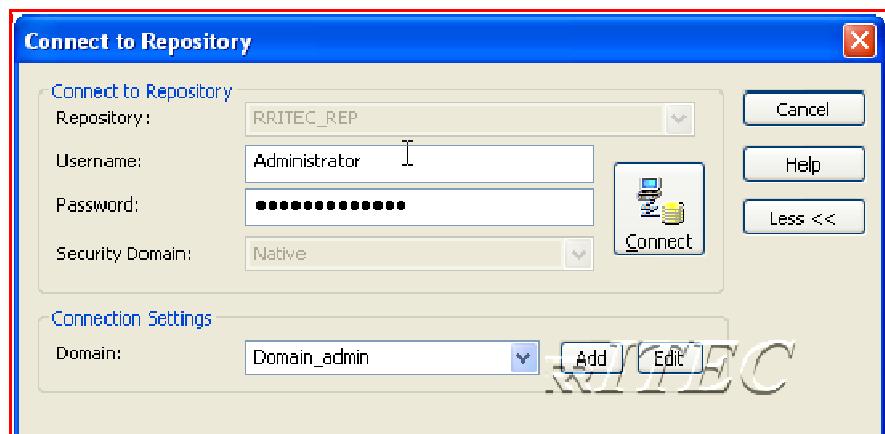
1. Repository manager is Window based component
2. We can do below activities
 - a. Add Repositories to client
 - b. Create folders
 - c. Deploy from one server to another server ...etc

Adding Repository

1. Start → all programs → Informatica → Client → Power Center Client → Power Center Repository Manager → click on **ok**
2. Go to Repository **menu** → click on **Add Repository** → provide
 - a. Repository name: **RRITEC_REP**
 - b. Username: **Administrator** → Click on **ok**



3. Right click on **RRITEC_REP** repository → Click on **Connect** → provide
 - a. Username: Administrator
 - b. Domain: Domain_rritec
 - c. Password: Administrator → Click on **connect**



Create folder

1. Select **RRITEC_REPO** Repository → Go to **folder** menu → Click on **Create** → name it as **RRITEC** → Click on **ok** → Again **ok**



12.5 Configuring RRITEC Database

12.5.1 Configuring source database

Step 1: Creating user SDBU and load tables into SDBU schema

1. Open SQL PLUS → Type / as sysdba press enter
2. Create a user by executing below commands
 - a. Create user **SDBU** identified by RRitec123;
 - b. Grant DBA to SDBU;
 - c. Conn **SDBU@ORCL**
 - d. Password RRitec123
 - e. Select count (*) from tab;
3. Go to RRITEC labcopy labdata folder and take full path of driver and execute as for below

```
SQL> conn sdbu@orcl
Enter password:
Connected.
SQL> @C:\Lab_Copy\Lab_Data\source.sql;
```

12.5.2 Configuring Target database

Step 1: Creating user TDBU and load tables into TDBU schema

4. Open SQL PLUS → Type / as sysdba press enter
5. Create a user by executing below commands
 - a. Create user **TDBU** identified by RRitec123;
 - b. Grant DBA to TDBU;
 - c. Conn **TDBU@ORCL**

- d. Password RRitec123
- e. Select count (*) from tab;
- 6. Go to RRITEC labcopy labdata folder and take full path of driver and execute as for below

```
Connected.
SQL> EC:\Lab Copy\Lab Data\target.sql; -
```

12.6 Hands on 01_Source_Target_Import

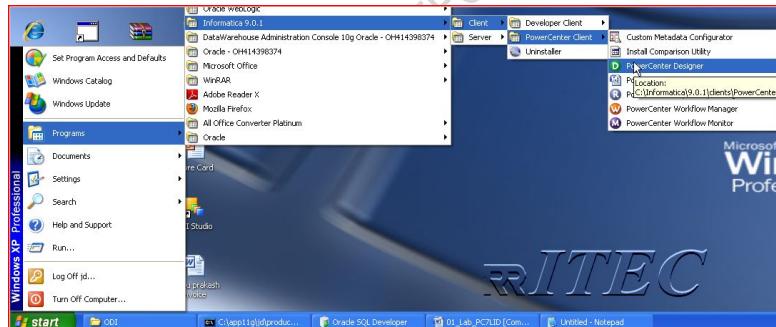
The exercises in this lab are designed to walk the student through the process of creating source & target definitions by importing metadata from a relational database table.

12.6.1 Exercise 1: Import a Source Schema

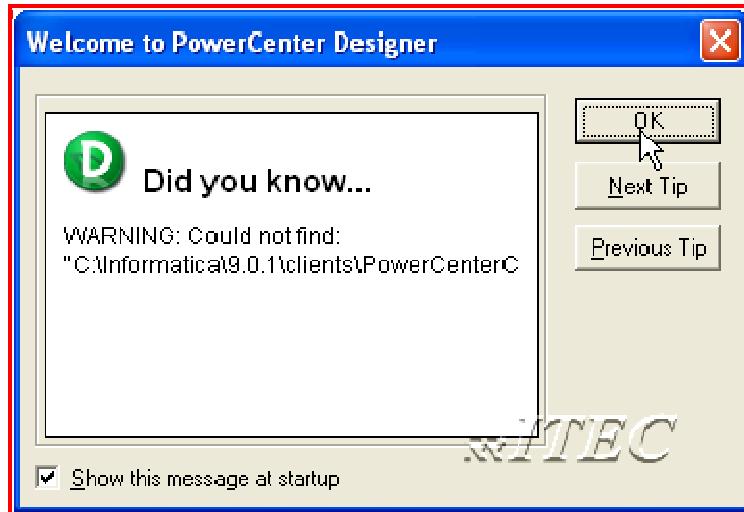
This exercise walks the student through the process of creating a source definition from the **EMPLOYEE** table.

Step 1. Start the PowerCenter Designer.

1. Select **Start → Programs → Informatica 9.0.1 → Client → Power Center Client → Power Center Designer.**

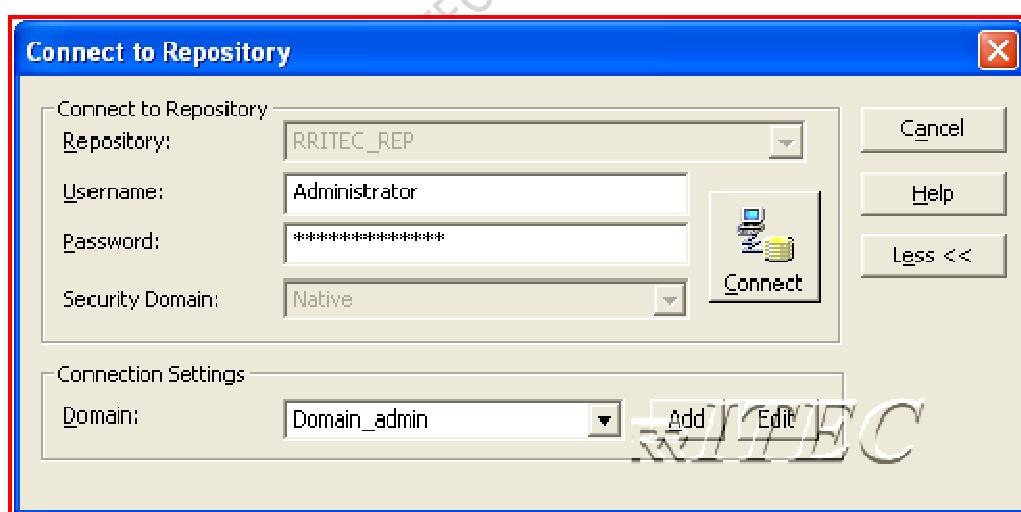


2. Click on **OK**



Step 2. Connect to the repository.

1. Select the **RRITEC_REPO** repository.
2. Right Click on **Repository RRITEC_REPO | Connect**.
3. The **Connect to Repository** dialog box appears:



4. Enter the username and password--
username: Administrator
password: Administrator
5. Click the **Connect** button.

Step 3. Open the folder

Note that there is a difference between an “expanded” folder and an “open” folder – even though they both appear the same in the Navigator window.

Before PowerCenter objects can be added, deleted or modified, a folder must be explicitly opened.

1. Right-click on the **RRITEC** folder and select **Open**.
2. When a folder is opened for the first time, the Source Analyzer tool will be opened in the workspace.

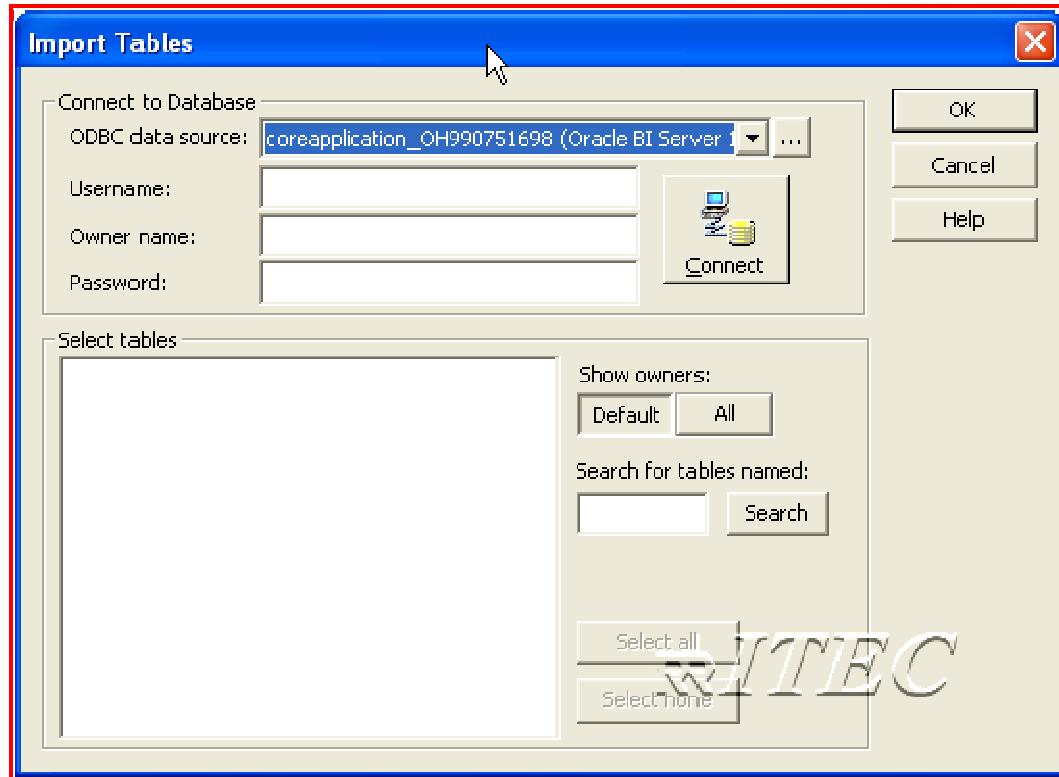
Step 4. Open the Source Analyzer.

1. The Workbook View allows easy navigation among open folders. If the Source Analyzer is not already open, select **Tools | Source Analyzer**, or click the **Source Analyzer**  button in the toolbar.
2. The Source Analyzer window opens by default maximized and with workbook tabs. If your setting are different then do manual or ignore below two steps
 - a. Maximize the Source Analyzer window by clicking on the maximize window  button.
 - b. Create workbook tabs at the bottom of the workspace by selecting **View → Workbook**.

Step 5. Import the source definition.

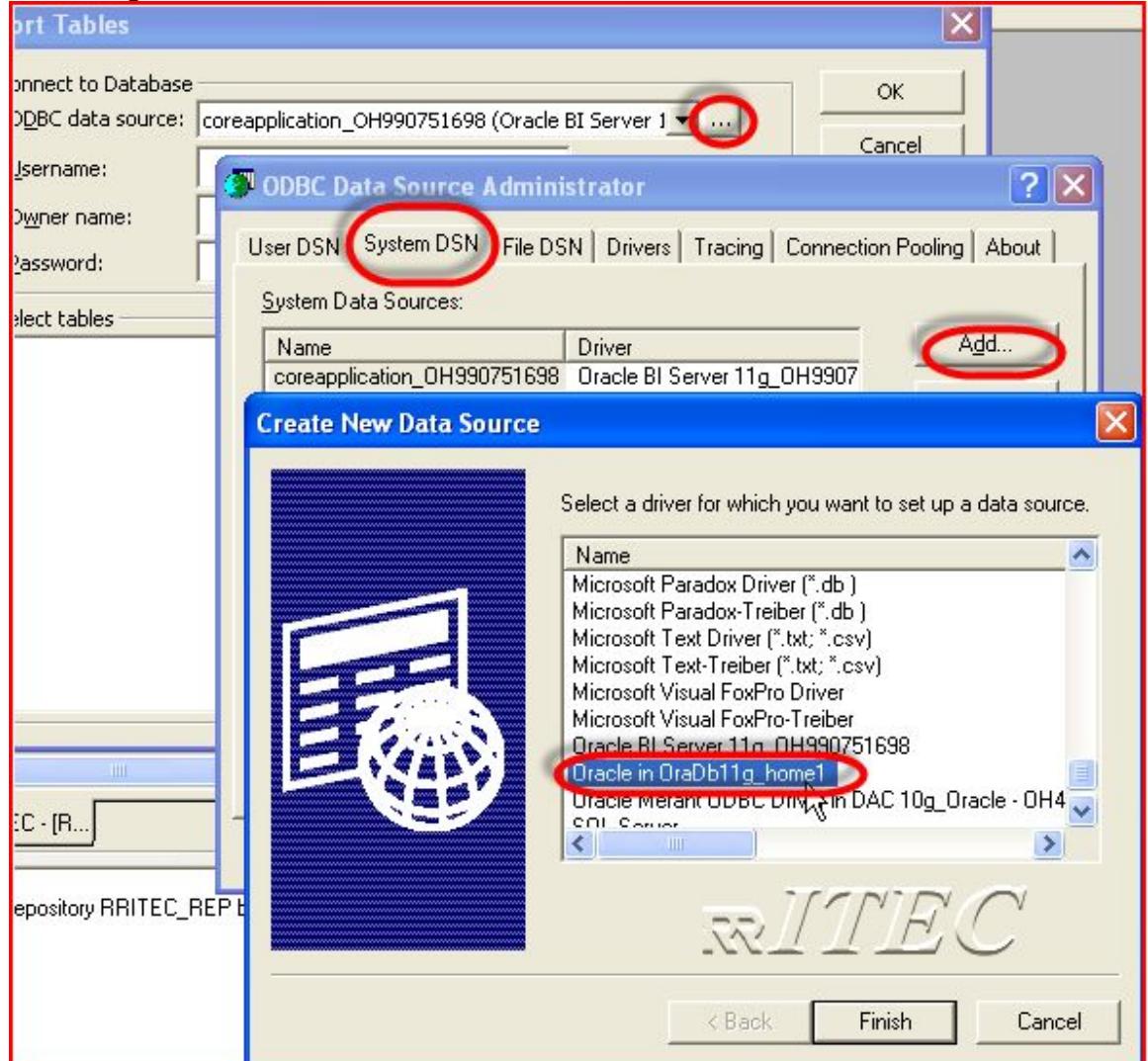
A PowerCenter source definition defines the structure, or schema, of source data to be read by the PowerCenter Server. For a relational source, this includes information about each of the columns – including key designation, data type, precision and scale.

1. Select **Sources | Import from Database**.
2. The **Import Tables** dialog box appears.



3. Click on **ODBC Data Source** → Click on **System DSN tab** → Add
→ Oracle in

oraDB11g_home1



4. **Finish → Provide below information**

Data Source Name :RRITEC_SOURCE

TNS Service Name: ORCL

User ID :sdbu

5. Click on **OK→OK**

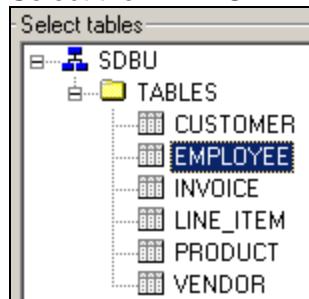
6. From Drop down of **ODBC Data Source** select **RRITEC_SOURCE**

The **database** user and password are **NOT** the same as the **PowerCenter repository** user and password.

7. Note that the **Owner name** field defaults to the username that was entered.
Enter the database username and password

username: **sdbu**
owner: **SDBU**
password: **Rritec123**

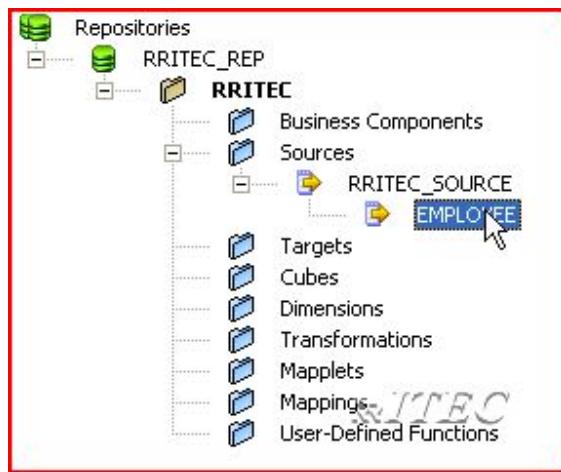
8. Click the **Connect** button.
9. Once the **Connect** button changes to read **Re-connect**, a direct connection to the source database has been established.
10. In the Select Tables window, expand the database owner name (**SDBU**).
11. Expand the **TABLES** node.
12. Select the **EMPLOYEE** table:



13. Click the **OK** button.
14. The new source table definition now appears in the Source Analyzer workspace:

Name	Datatype
EMPLOYEE_...	number(p,s)
FIRST_NAME	varchar2
LAST_NAME	varchar2
DATE_HIRED	date
TYPE_CODE	varchar2

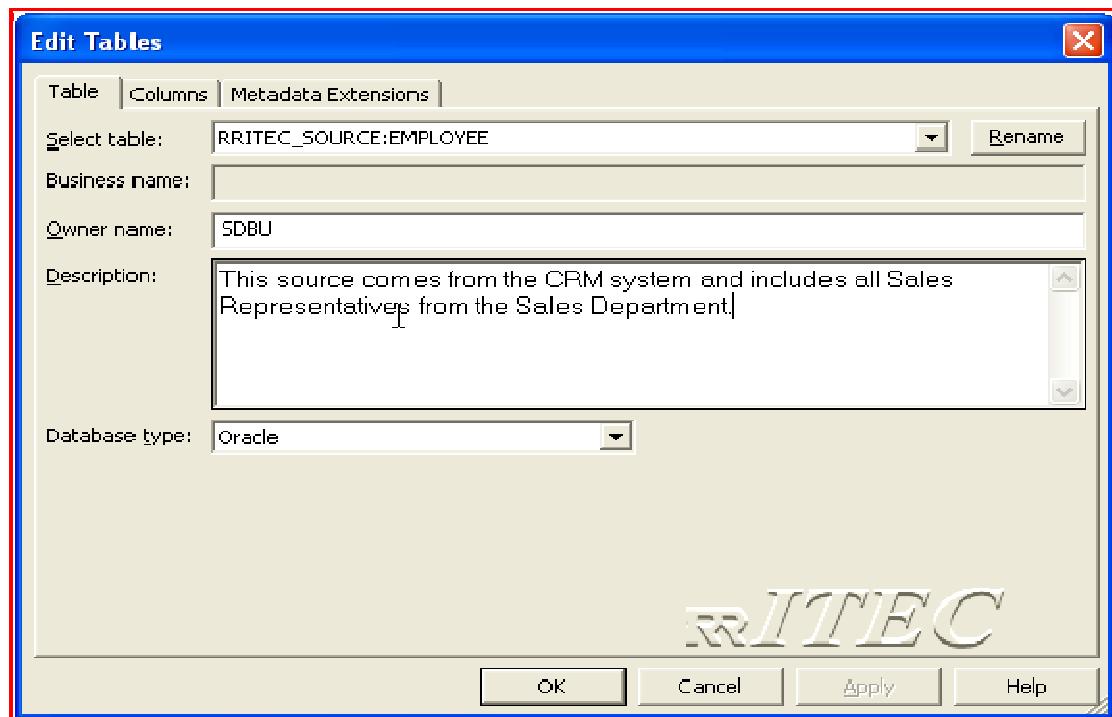
15. Note that the **EMPLOYEE** source definition is also added to the **Sources** node in the Navigator window:



Step 6. Edit the source definition.

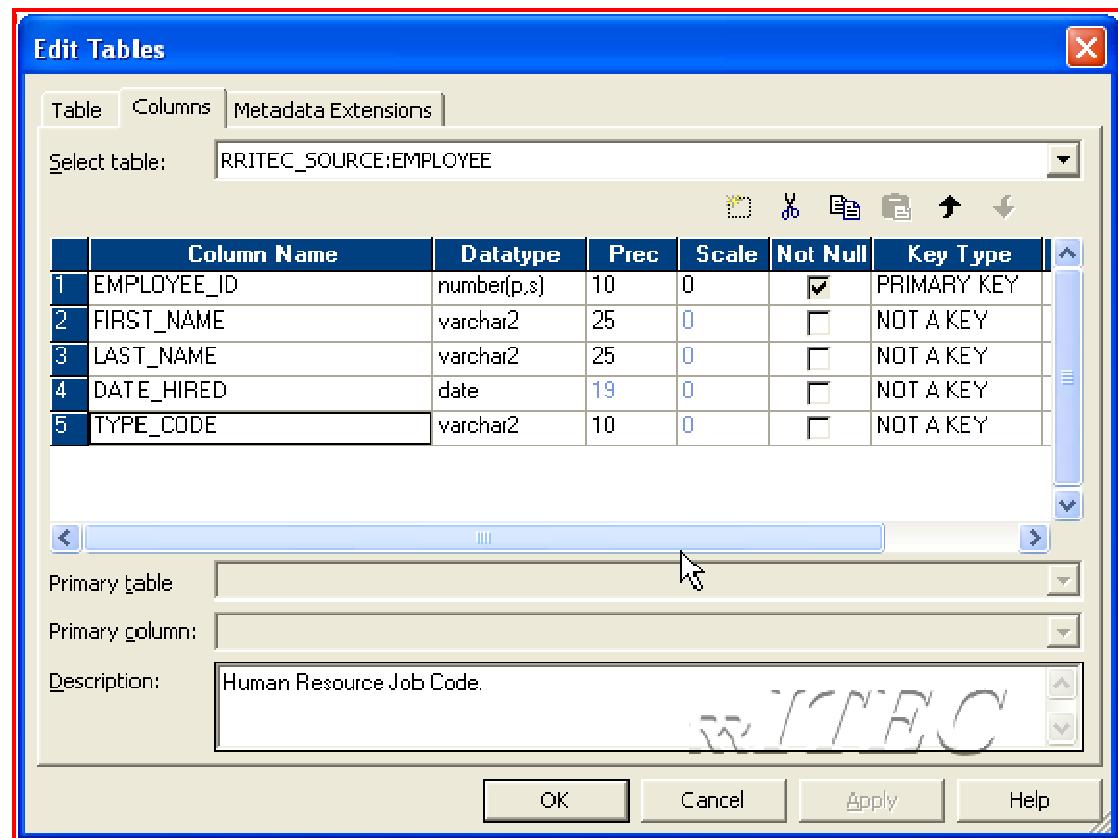
1. In the Source Analyzer workspace, double-click on the header of the **EMPLOYEE** source definition.
2. The **Edit Tables** dialog box appears.
3. In the **Table** tab, **Description** field, enter the following text:

This source comes from the CRM system and includes all Sales Representatives from the Sales Department.



Note that the Description field can be used to add a description for each column. To associate a description with a particular column, highlight the column and enter a description in the Description field.

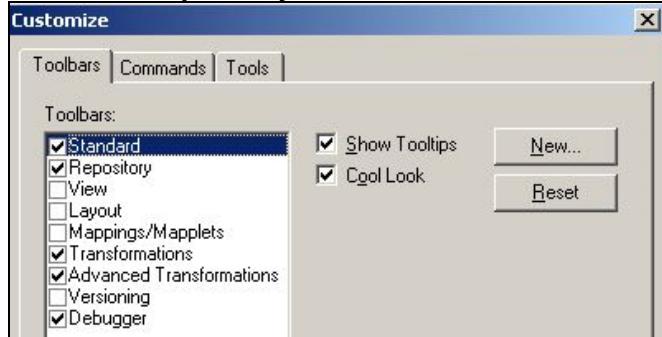
4. Select the **Columns** tab.
5. Select **TYPE_CODE**.
6. In the **Description** field (at the bottom of the dialog box), enter the following text: **Human Resource Job Code** → Click **Apply**.



Step 7. Save all work.

1. Add the **Repository toolbar** to the PowerCenter client by selecting **Tools** | **Customize**.
2. The **Customize** dialog box appears.

3. Check the **Repository** checkbox on the **Toolbars** tab:



4. Click **OK**.

5. The new toolbar appears at the top right of the Designer window:



Note that all work must be manually saved in the PowerCenter Designer. Additionally, work can only be saved in one folder at a time. The Save command will save the contents of the folder that is currently active in the workspace.

While working in the PowerCenter Designer, save often to avoid losing any changes!

Save all work by selecting **Repository | Save** or by typing **Ctrl-S**.

6. In the output window's **Save** tab, scroll up for a message confirming your work is saved.

Step 8. Clear the workspace.

1. Right-click anywhere in the workspace and select **Clear All**.
2. To view a source definition in the workspace, select the source definition in the Navigator window, then drag and drop it into the Workspace window.

12.6.2 Exercise 2: Import a Target Schema

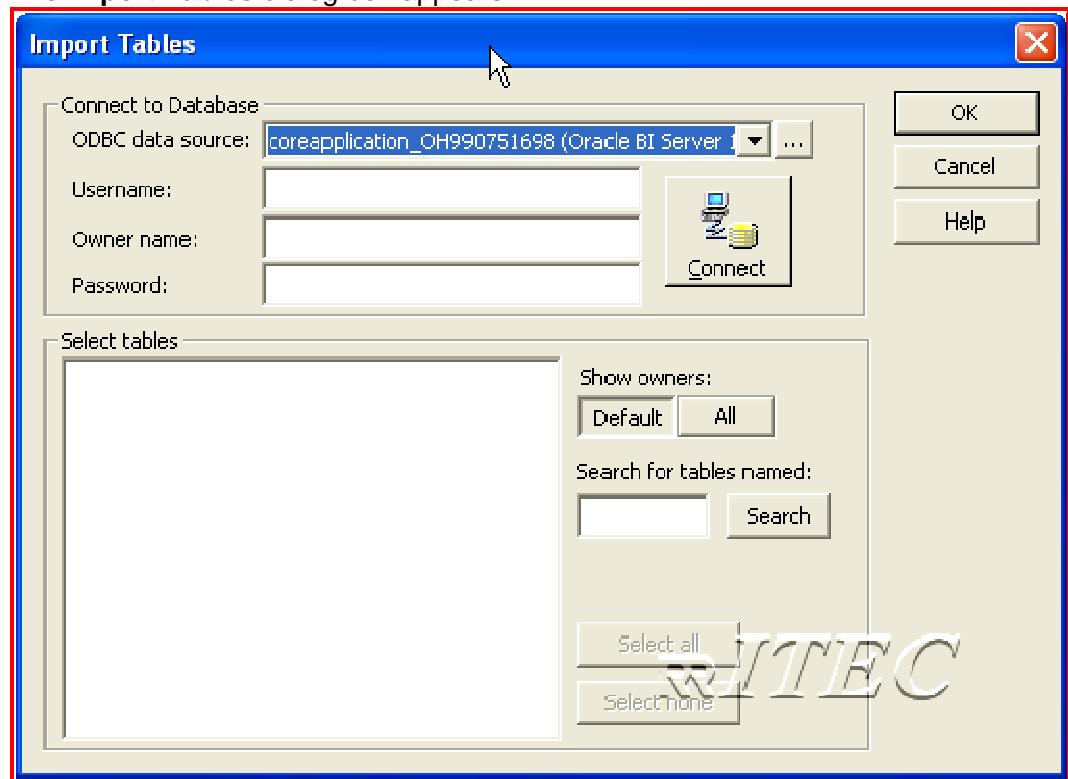
In this exercise, the student will import a target definition for the relational database table, **ODS_EMPLOYEE**.

Step 1. Open the Warehouse Designer.

Select **Tools | Warehouse Designer**, or click the Warehouse Designer  button in the toolbar.

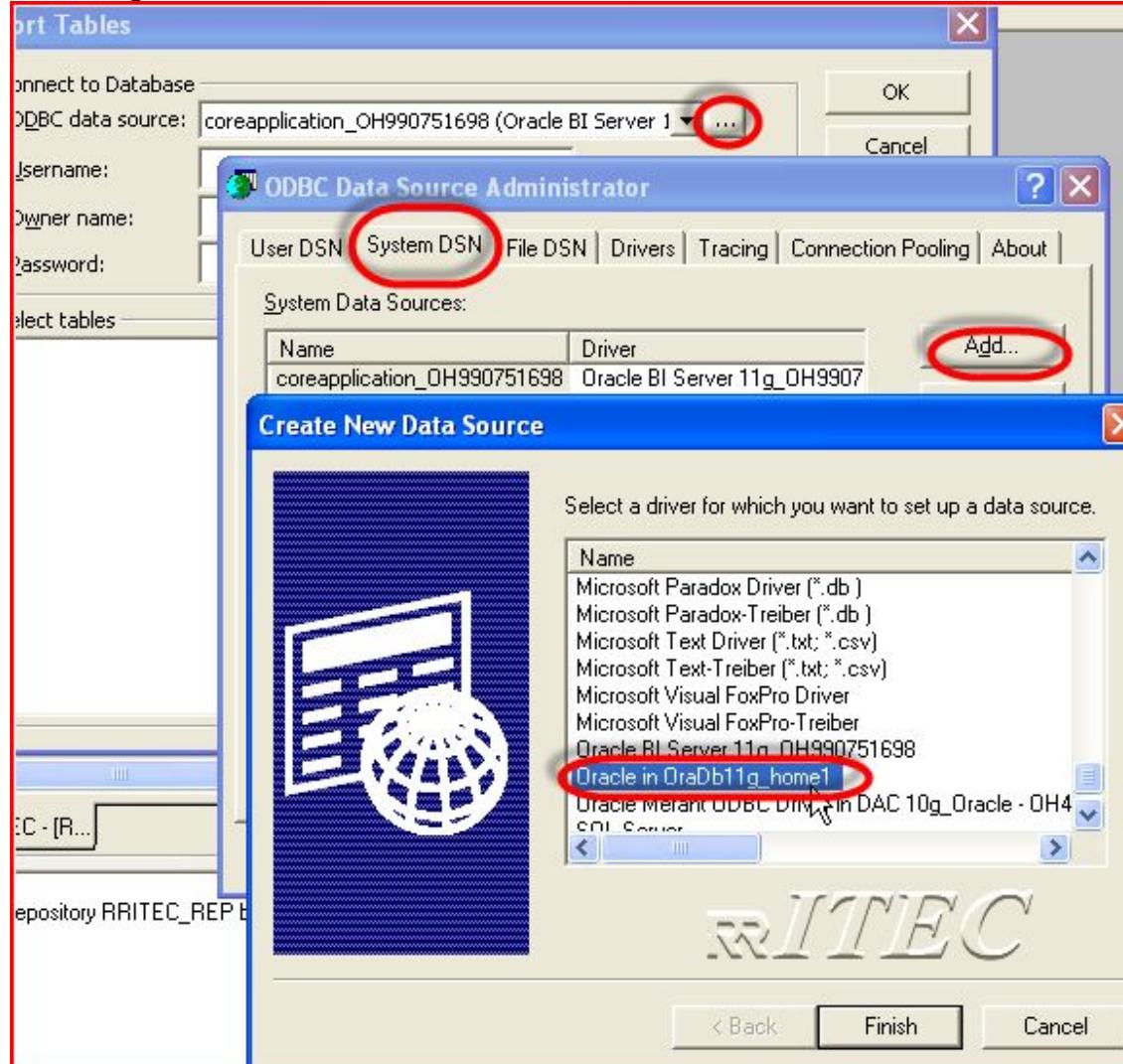
Step 2. Import the structure of the ODS_EMPLOYEE table.

1. Select **Targets | Import from Database...**
2. The **Import Tables** dialog box appears.



3. Click on **ODBC Data Source**  → Click on **System DSN tab** → **Add** → **Oracle** in

oraDB11g_home1



4. Finish → Provide below information

Data Source Name :RRITEC_TARGET

TNS Service Name: ORCL

User ID :tdbu

5. Click on OK→OK

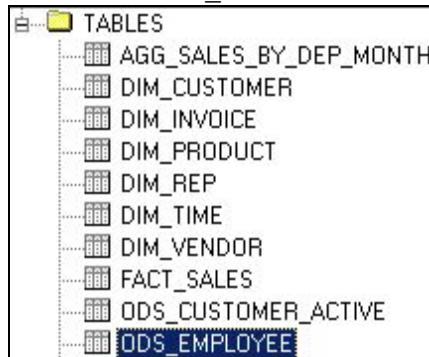
6. From Drop down of ODBC Data Source select RRITEC_TARGET

7. Enter the database username and password:

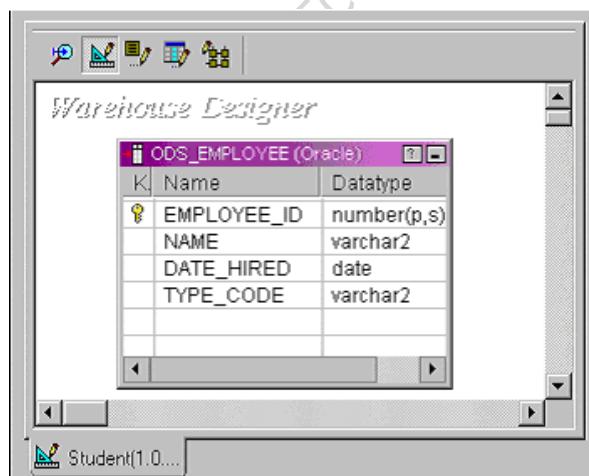
username: tdbu
owner: TDBU

password: Rritec123

8. Click on **Connect**.
9. Expand the database owner name.
10. Expand the **TABLES** node.
11. Select the **ODS_EMPLOYEE** table:



12. Click the **OK** button.
13. The new target table definition now appears in the Warehouse Designer workspace:



14. Note that the **EMPLOYEE** target definition is also added to the **Targets** folder in the Navigator window:



Step 3. Save the target definition.

1. Save all work by selecting **Repository | Save** or by typing **Ctrl-S**.

12.7 Handson 02_Creating_mapping

Lab at a Glance

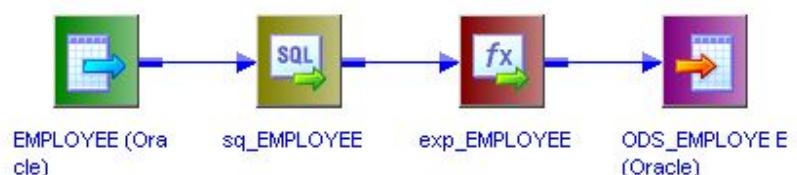
The exercises in this lab are designed to familiarize the student with the process of creating a mapping. The student will also learn to navigate within the Mapping Designer tool.

Objectives

After completing the lab, the student will be able to:

- Open the Mapping Designer tool.
- Create a new mapping.
- Create an expression transformation.
- Link sources, transformations, and targets within a mapping.
- Modify and add ports to an expression transformation.
- Validate a mapping.

The completed mapping should look like this:



Exercises

12.7.1 Exercise 1: Create a Mapping

In this exercise, the student will create a mapping that represents the data flow between the **EMPLOYEE** source and the **ODS_EMPLOYEE** target.

A mapping represents the dataflow between sources and targets. The instructions defined in the mapping tell the Informatica Server how to read, transform and write the data.

Step 1. Open the Mapping Designer tool.

3. In the Navigator window, select the **RRITEC** folder

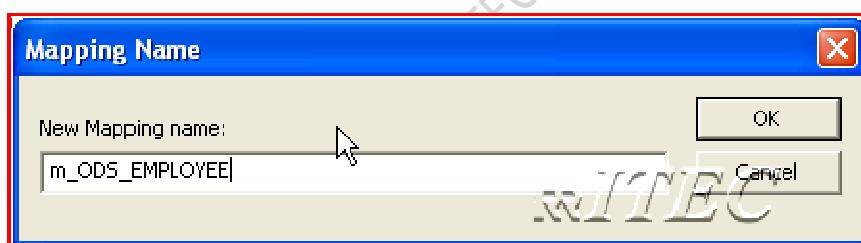
4. Select **Tools | Mapping Designer**, or click the **Mapping Designer**  button in the toolbar.

Step 2. Create a new mapping.

1. Select **Mappings | Create**.

2. The **Mapping Name** dialog box appears.

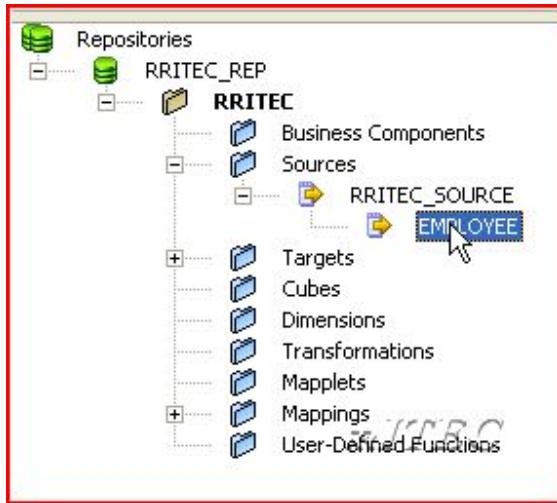
3. Enter **m_ODS_EMPLOYEE** for the **New Mapping name**



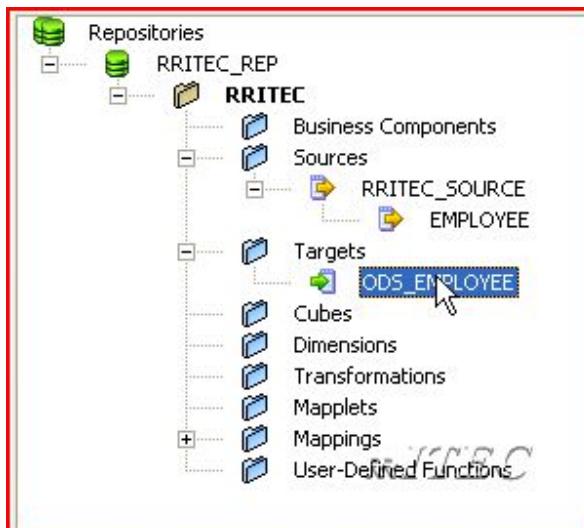
4. Click the **OK** button.

Step 3. Add source and target definitions.

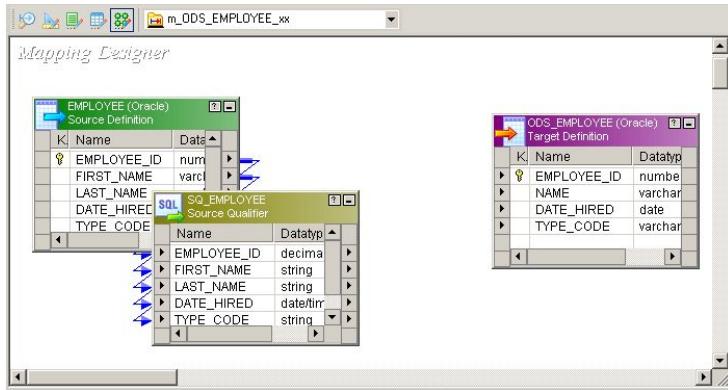
1. In the Navigator window, expand the **Sources** and **RRITEC_SOURCE** nodes and locate the **EMPLOYEE** source definition:



2. Drag-and-drop the **EMPLOYEE** source definition to the far left side of the workspace.
3. In the Navigator window, expand the **Targets** node and locate the **ODS_EMPLOYEE** target definition:



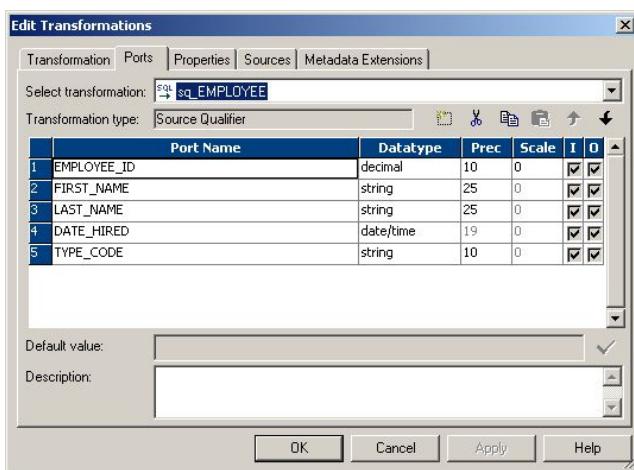
4. Drag-and-drop the **ODS_EMPLOYEE** target definition to the far right side of the workspace.
5. The workspace should look as follows:



Note that an object called **SQ_EMPLOYEE** is automatically added to the mapping above. This transformation object is called the Source Qualifier and is required with all relational and flat file sources. It was created automatically when an instance of the **EMPLOYEE** source definition was added to the mapping.

Step 4. Rename and examine the source qualifier transformation.

1. Edit **SQ_EMPLOYEE** by double-clicking on the header.
2. The **Edit Transformations** dialog box appears.
3. Click the **Rename** button.
4. Enter **sq_EMPLOYEE** in the **Transformation Name** field.
5. Click **OK**.
6. Click **Apply**.
7. Click on the **Ports** tab to view the port names, datatypes, precisions and scales:



8. Click the **OK** button to close the dialog box.

Step 5. Create an expression transformation.

1. If the toolbar is not visible, activate it by selecting **Tools | Customize**, then select the **Transformations** checkbox
2. Before the target is loaded, the FIRST_NAME and LAST_NAME ports for each row must be concatenated. This concatenation can be done in an Expression transformation.
3. Locate the **Transformation** toolbar.



4. The default location is at the top of the Designer.
5. Click on the vertical bar at the beginning of the toolbar and drag the toolbar to the center of the Designer workspace.
6. In order to give yourself more room to work, you may wish to toggle off the navigator window. You can do this by selecting **View – Navigator** from the menu or by clicking the “x” in the upper-right corner of the navigator.
7. Click on the **Expression Transformation** button in the toolbar.
8. Move the pointer in the workspace to the right of the **sq_EMPLOYEE** source qualifier. In the workspace, the cursor appears as crosshairs + Left-click the mouse. An Expression transformation is created.

An alternative method is : select **Transformations – Create** from the menu and then choose **Expression** as the transformation type. In this method, you name the transformation at the time you create it.

Step 6. Link the Source Qualifier to the Expression transformation.

1. In the **sq_EMPLOYEE** source qualifier, hold down the Ctrl key and select the following ports:
 - **EMPLOYEE_ID**
 - **FIRST_NAME**
 - **LAST_NAME**
 - **DATE_HIRED**
 - **TYPE_CODE**
2. Drag the ports to an empty line of the expression transformation object and release the mouse button.

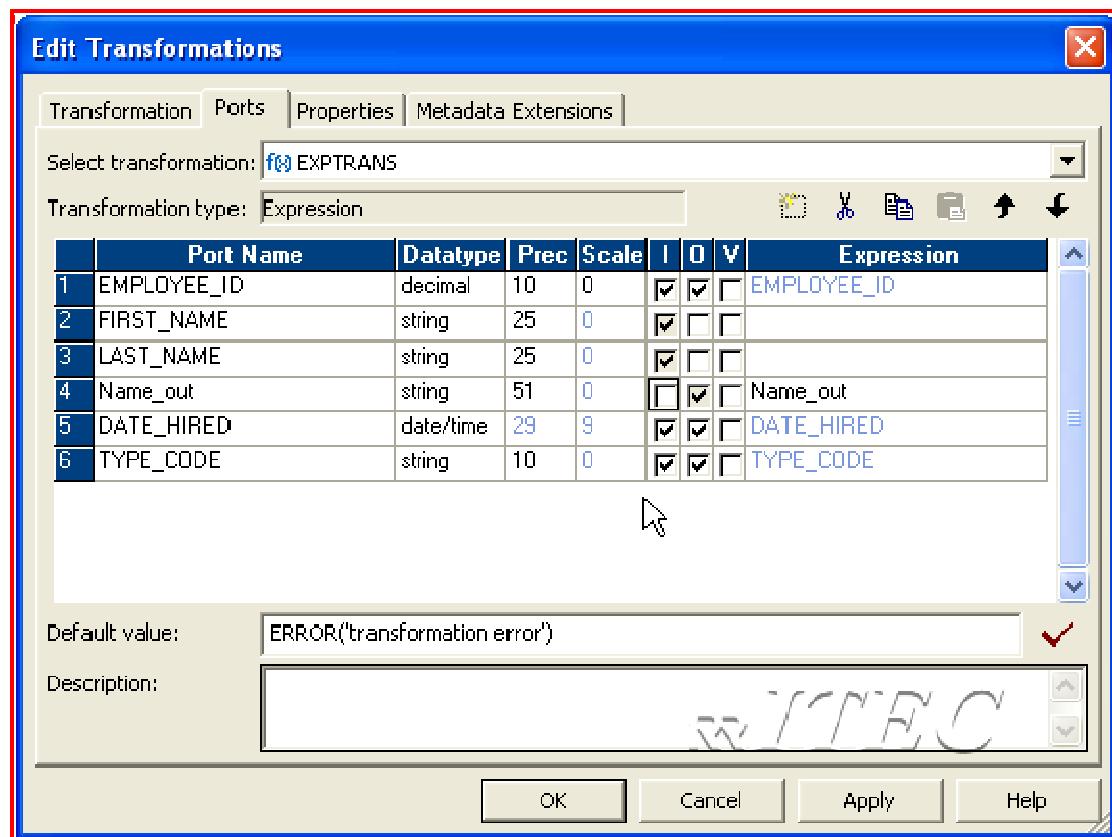
Step 7. Rename the Expression transformation.

1. Double-click on the header of the Expression transformation.

2. Click the **Rename** button.
3. Rename the transformation to exp_ODS_EMPLOYEE.

Step 8. Modify/add ports to the Expression transformation.

1. Select the **Ports** tab.
2. Disable the output ports for **FIRST_NAME** and **LAST_NAME** by removing the checkmark in the **O** (output) column. This will define the port as input only.
3. Click on the **LAST_NAME** column.
4. Click on the **Add** button to add a new port.
5. Name the new port **NAME_out**.
6. Verify the **data type** is **string** and increase the **precision** to 51.
7. Disable the input port for **NAME_out** by removing the checkmark in the **I** (input) column. This will define the port as output only:

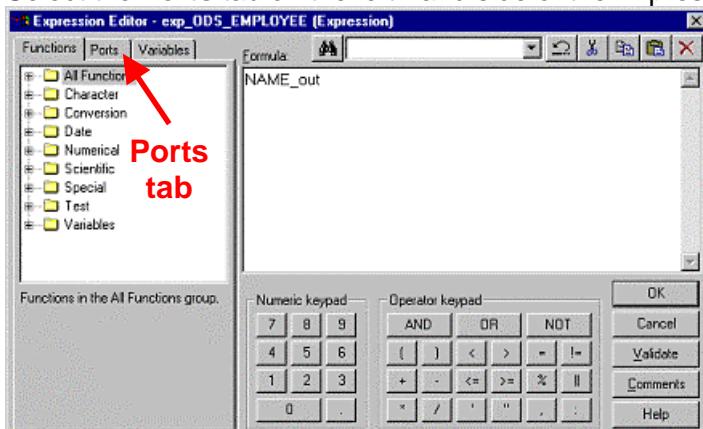


Step 9. Create an expression formula.

- 1) Note that a formula can also be typed in manually, if the names of the functions and ports are known. Click in the **Expression** column of the **NAME_out** port and notice the arrow that appears at the far right:

	Port Name	Dataty...	Prec	Scale	I	O	V	Expression
1	EMPLOYEE_ID	decimal	10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EMPLOYEE_ID
2	FIRST_NAME	string	25	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	LAST_NAME	string	25	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	NAME_out	string	51	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NAME_out
5	DATE_HIRED	date/time	19	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DATE_HIRED
6	TYPE_CODE	string	10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TYPE_CODE

- 2) Click on the arrow.
- 3) The **Expression Editor** dialog box appears.
- 4) Delete the text, NAME_out, in the **Formula** field.
- 5) Select the **Ports** tab on the left-hand side of the Expression Editor dialog box.



- 6) Double-click on the port **FIRST_NAME**. Note that it is added to the **Formula** field.
- 7) Click on the double-pipe button in the **Operator keypad**. The concatenation operator is added to the formula.
- 8) Click on the single-quote button.
- 9) Press the **spacebar** once and click the single-quote button again. This will cause a space to be placed after the **FIRST_NAME** in the formula.
- 10) Click on the double-pipe button again.
- 11) Double-click on **LAST_NAME**. The concatenation formula is complete, and should look like this:
FIRST_NAME||"||LAST_NAME
- 12) Click Validate.

13) Upon successful parsing of the formula, the **Expression parsed successfully** message will appear.

14) Click **OK**.

	Port Name	Datatype	Prec	Scale	I	O	V	Expression
1	EMPLOYEE_ID	decimal	10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EMPLOYEE_ID
2	FIRST_NAME	string	25	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	LAST_NAME	string	25	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Name_out	string	51	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	FIRST_NAME '' LAST_NAME
5	DATE_HIRED	date/time	29	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DATE_HIRED
6	TYPE_CODE	string	10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TYPE_CODE

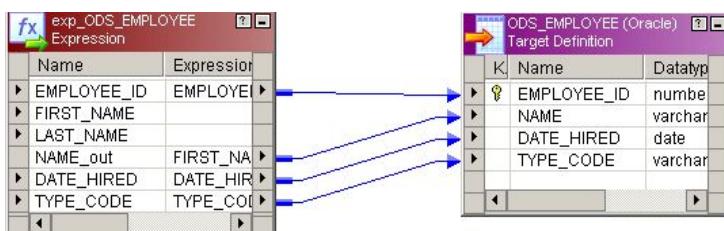
15) Click **OK** to close the **Edit Transformation** dialog box.

16) Save the repository.

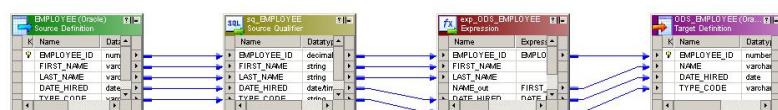
Using the **||** string operator instead of CONCAT improves Informatica Server performance in processing the formula.

Step 10. Link the target definition.

1. Click on the following ports in **exp_ODS_EMPLOYEE** and drag them onto **ODS_EMPLOYEE** to link the ports:
 - **EMPLOYEE_ID** → **EMPLOYEE_ID**
 - **NAME_out** → **NAME**
 - **DATE_HIRED** → **DATE_HIRED**
 - **TYPE_CODE** → **TYPE_CODE**

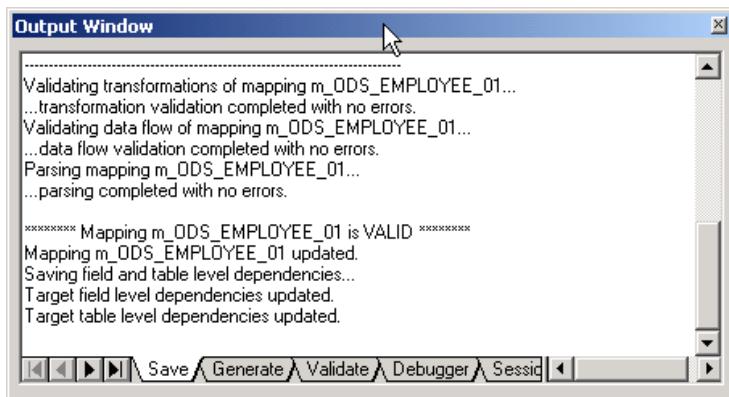


2. The mapping is now complete. Right-click in the workspace and select **Arrange All** – the mapping should look like the following:



Step 11. Validate the mapping.

1. **Save (CTRL+ S)** the repository.
2. Every time a repository is saved, mapping validation checks are performed.
3. Click on the **Save** tab in the Output window.
4. Expand the Output window and scroll up until the validation test details are visible:



5. Verify that there are no errors.

12.8 Hands on 03: Creating Workflow

The exercises in this lab familiarize the student with the process of creating a simple workflow with a **start task** and **session task**. This workflow will essentially define a run-time version of the mapping created in the previous lab. The exercises will also familiarize the student with the process of starting and monitoring a workflow.

Objectives

After completing the lab, the student will be able to:

- Use the Workflow Manager.
- Create a new workflow.
- Create and edit session tasks.
- Link tasks within a workflow.
- Validate a workflow.
- Start a workflow.
- Use the Workflow Monitor to monitor a workflow.

- View session information and the session log after a workflow has run.

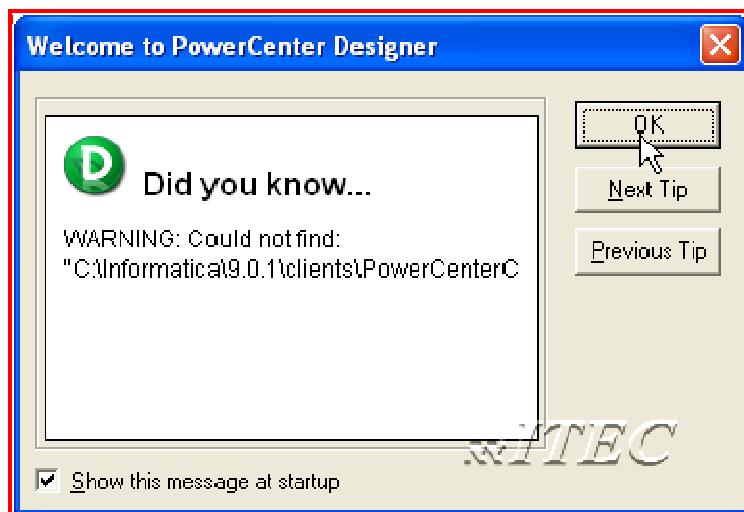
Exercises

12.8.1 Exercise 1: Create a Workflow

In this exercise, the student will create a new workflow.

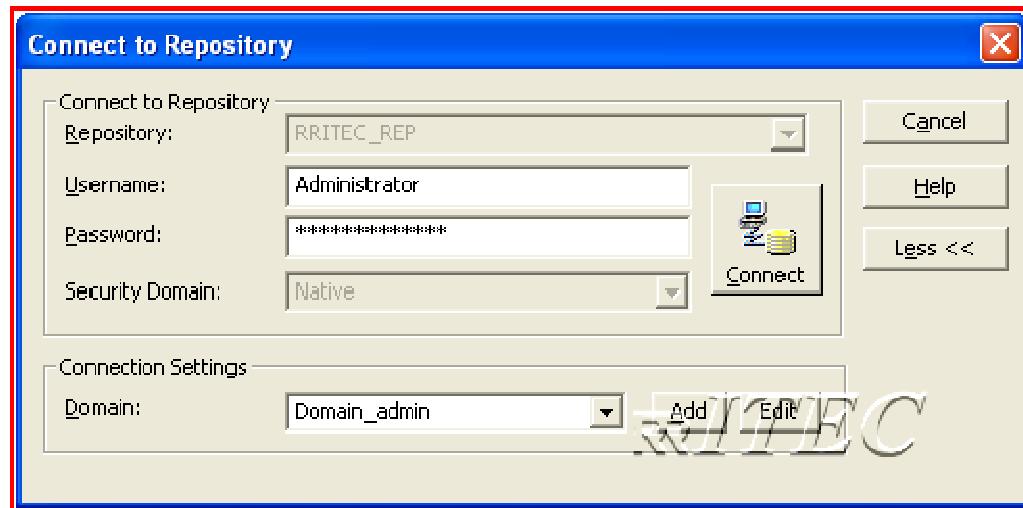
Step 1. Start the Workflow Manager.

1. Select **Start → Programs → Informatica 9.0.1 → Client → Power Center Client → Power Center Workflow Manager.**
2. Click on **OK**



Step 2. Connect to the repository.

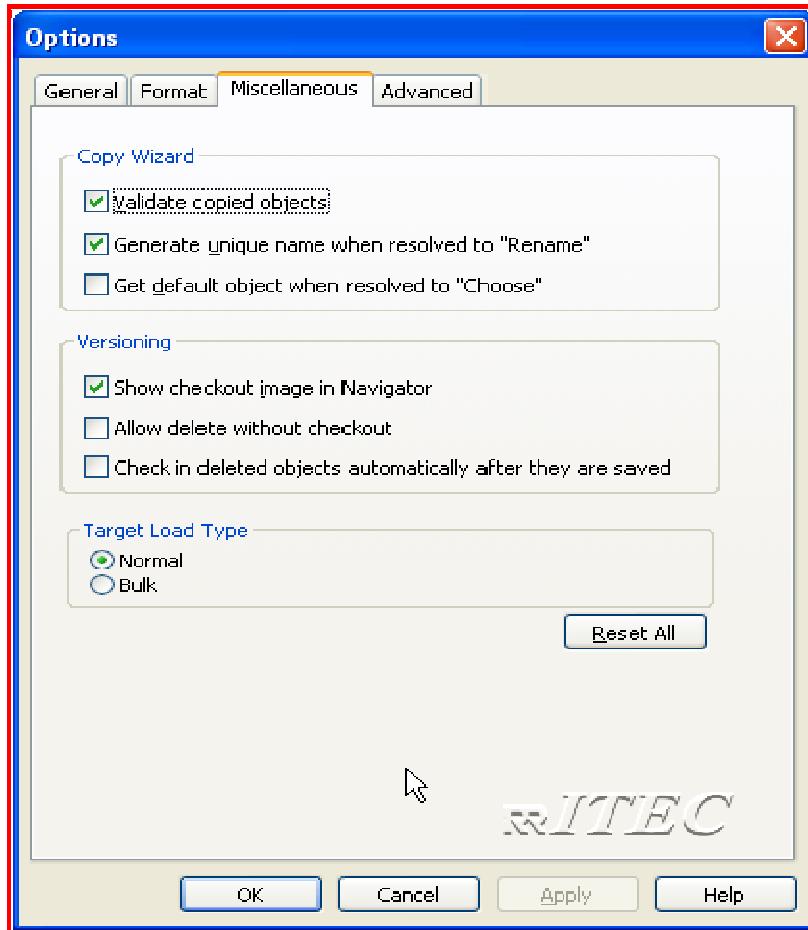
6. Select the **RRITEC_REPO** repository.
7. Right Click on **Repository RRITEC_REPO | Connect**.
8. The **Connect to Repository** dialog box appears:



9. Enter the username and password--
username: Administrator
password: Administrator
10. Click the **Connect** button.
11. Right-click on the **RRITEC** folder and select **Open**.
12. Open the Workflow Designer by selecting **Tools | Workflow Designer** or click the **Workflow Designer** button above the workspace.

Step 3. Set the default target load type

1. Select **Tools | Options, Miscellaneous** tab, and set the default target load type for all sessions to **Normal**.



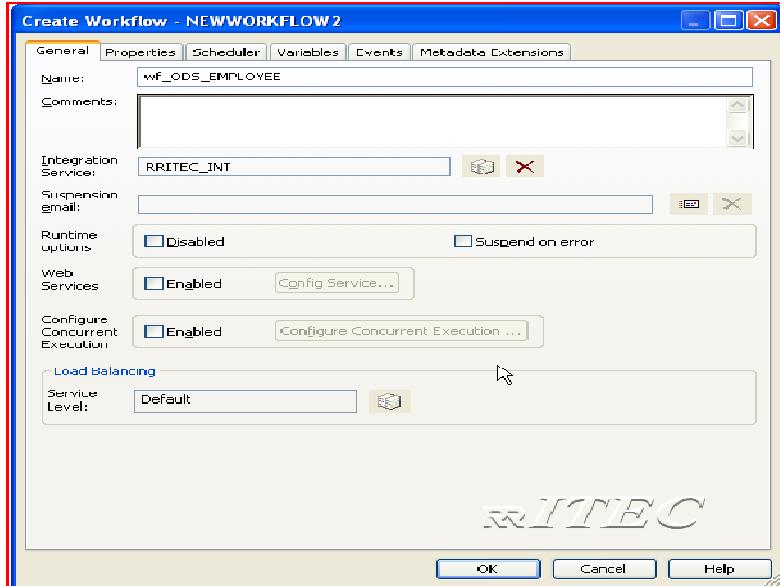
2. Click **OK**.

Step 4. Create a new workflow.

A workflow is a set of instructions that tells the Informatica Server how to execute tasks. Every workflow contains a start task, which represents the beginning of the workflow.

1. Select **Workflows | Create**.
2. The **Create Workflow** dialog box appears.

3. On the **General** tab, enter **wf_ODS_EMPLOYEE** in the **Name** field.



4. Click **OK**.
5. The **Start** task appears in the Workflow Designer workspace:

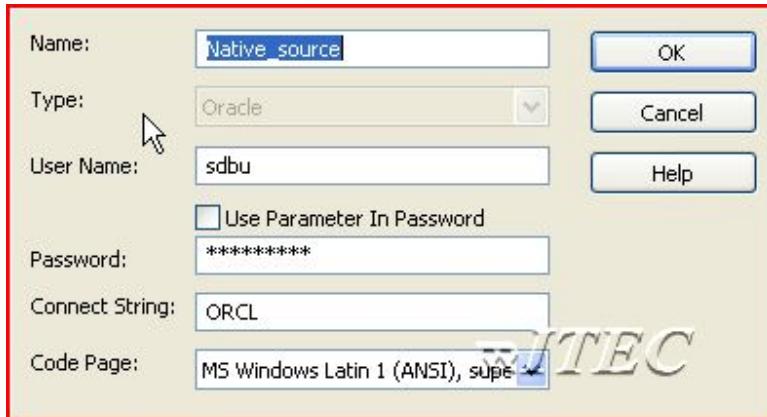


6. Save the repository.

12.8.2 Exercise 2: Create source and targt database connections

Creating Source connection :

1. Go to **Connection** menu → Click on **Relational** → Click on **new** → Select **oracle** → click on **OK** →
 - **Name** : **Native_source**
 - **Username** : **sdbu**
 - **Password** : **Rritec123**
 - **Connect String** : **ORCL**



2. Click on **ok** → click on **close**

Creating Target connection :

1. Go to **Connection** menu → Click on **Relational** → Click on **new** → Select **oracle** → click on **OK** →

- Name : Native_target
- Username : tdbu
- Password : Rritec123
- Connect String : ORCL



2. Click on **ok** → click on **close**

12.8.3 Exercise 3: Create a Task and Run the Workflow

In this exercise, the student will create a session task.

Step 1. Create a session task.

Session tasks represent mappings for the Informatica Server to run. The Informatica Server uses the instructions configured in the session to move data from a source to a target.

1. Note that each session task is associated with a single mapping. Click on the  button on the **Task** toolbar.



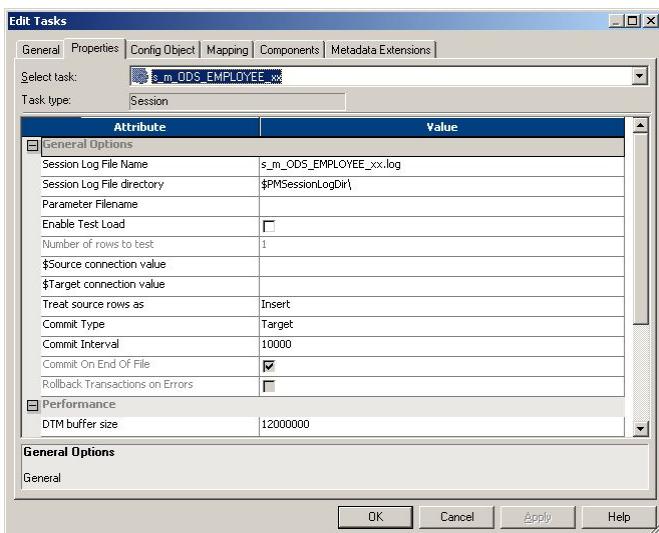
This appears by default at the top right of the Designer window and may be part hidden. Click on the vertical bar at the left of the toolbar to drag it to another position.

2. Move the pointer into the workspace and click → The **Mappings** dialog box appears → Select the mapping **m_ODS_EMPLOYEE** → Click **OK**.
3. The session task **s_m_ODS_EMPLOYEE** appears in the workspace.
4. **Save** the repository.

Note : We also can create using navigation Tasks →Create → provide name m_ODS_EMPLOYEE →Create → Select the mapping m_ODS_EMPLOYEE → Click OK

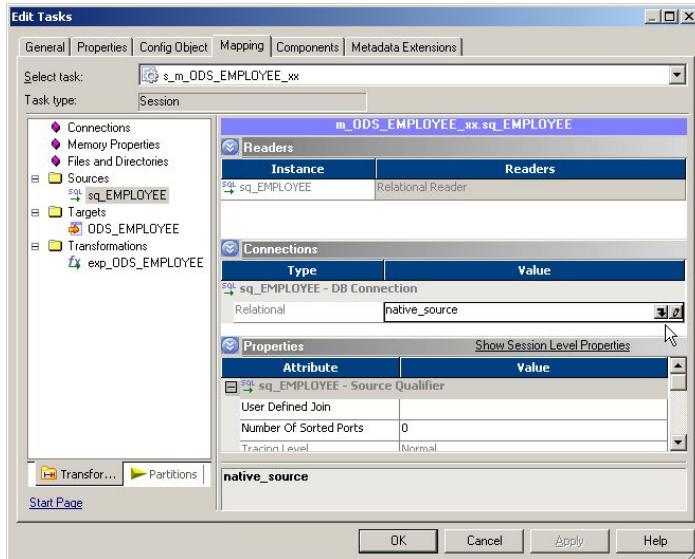
Step 2. Edit the session task's properties

1. Double-click on the **s_m_ODS_EMPLOYEE** session task. The **Edit Tasks** dialog appears → Select the **Properties** tab

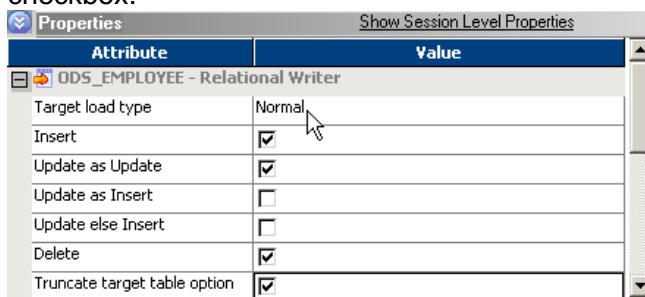


2. Note that the default **Session Log File Name**, **s_m_ODS_EMPLOYEE.log**, and the default **Session Log File directory**, **\$PMSessionLogDir**, may be overridden, but we will use the defaults for this lab.
3. Select the **Mapping** tab.
4. In the Navigator window, select the source **sq_EMPLOYEE**.

In the **Connections** section, click on the down arrow , select **native_source** and click **OK**.



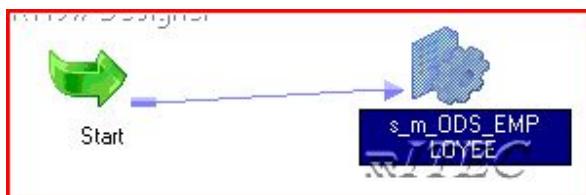
5. In the Navigator window, select the target **ODS_EMPLOYEE**.
6. In the **Connections** section, click on the down arrow , select **native_target** and click **OK**.
7. In the **Properties** section, the **Target load type** should be defaulted to **Normal**.
8. Scroll down (if necessary) and check the **Truncate target table option** checkbox.



9. Click **OK** to close the **Edit Tasks** dialog box.
10. **Save** the repository.

Step 3. Link the workflow tasks.

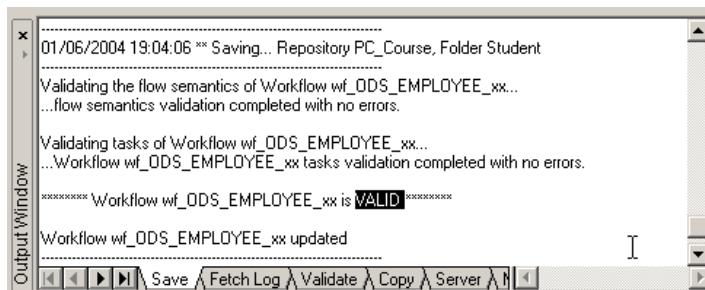
1. Click the **Link**  button on the Task toolbar.
2. Left-click and drag the cursor between the **Start** task and the **s_m_ODS_EMPLOYEE** task:



3. Toggle off the 'link mode' by clicking again on the **Link** button, or single click on one of the objects.

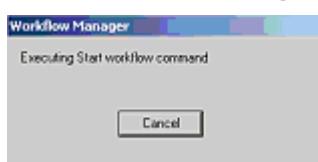
Step 4. Validate the workflow.

1. In order for a workflow to be valid, all tasks must be linked. **Save** the repository.
2. Locate the **Save** tab in the **Output Window** at the bottom of the Workflow Manager and view the results of the validation check:



Step 5. Start the workflow.

1. Select **Workflows | Start workflow**, or right-click in the workspace and select **Start Workflow**.
2. The **Workflow Manager** dialog box appears:



12.8.4 Exercise 4: Monitor the Workflow

Step 1. Navigate in Workflow Monitor.

You may wish to maximize the window for readability.

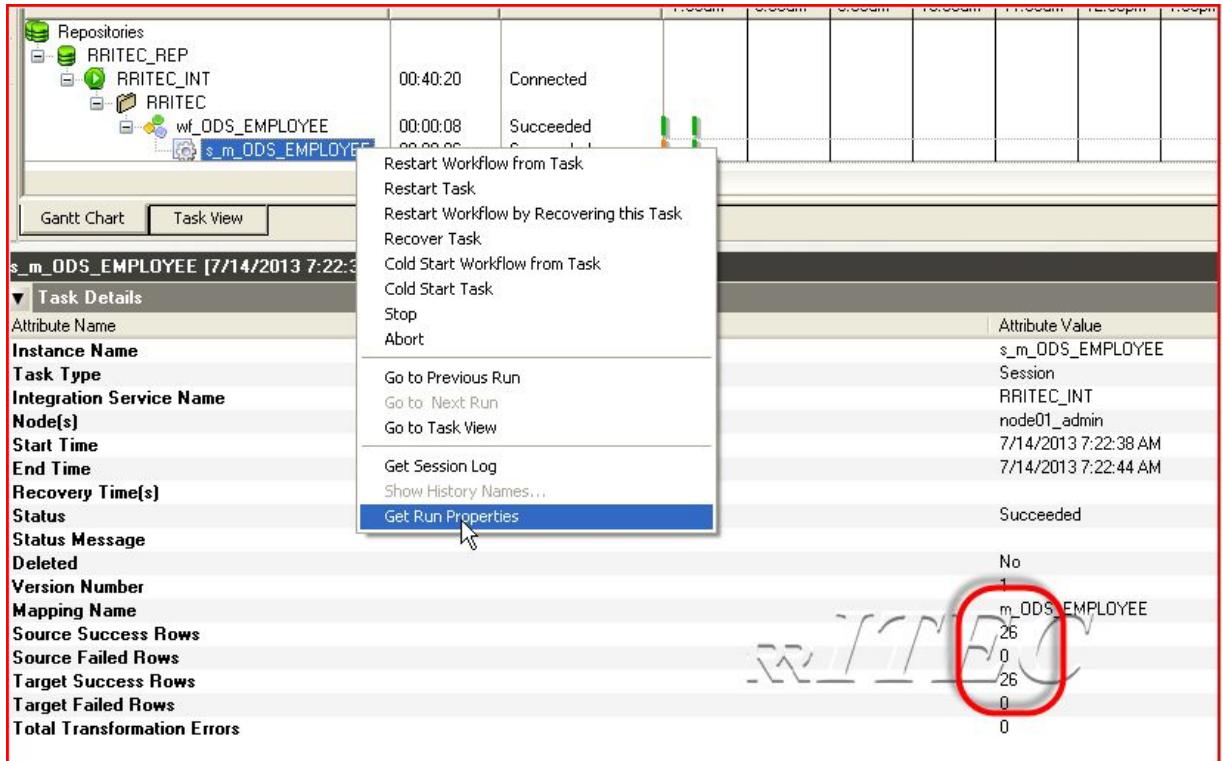
1. A workflow will show a Succeeded status if it starts up and complete successfully, in and of itself. There may be several tasks within the workflow and each will succeed or fail but the workflow itself will can complete successfully. One of the only reasons a workflow will fail is when the Server cannot write the workflow log. The Workflow Monitor window opens automatically when a workflow is started and automatically logs into the repository, displaying the workflow status.
2. The Workflow Monitor has two tabs – Gant Chart and Task View. Look at the **Task View**.



3. Notice the two objects:
wf_ODS_EMPLOYEE (workflow)
s_m_ODS_EMPLOYEE (session task)
4. The **Status** column shows the session status:
 - **Succeeded** indicates that the Informatica Server was able to successfully complete a workflow or task.
 - **Failed** indicates that the Informatica Server could not complete the workflow or task due to a fatal processing error.

Step 2. View the session properties.

1. Session properties provide detailed information about processing, such as the number of rows loaded into the target by a session task. Locate the **s_m_ODS_EMPLOYEE** session task under the **Workflow Run** column
2. Right click on **s_m_ODS_EMPLOYEE** session → click on **get run properties** → Observe **source success rows** and **target success rows**

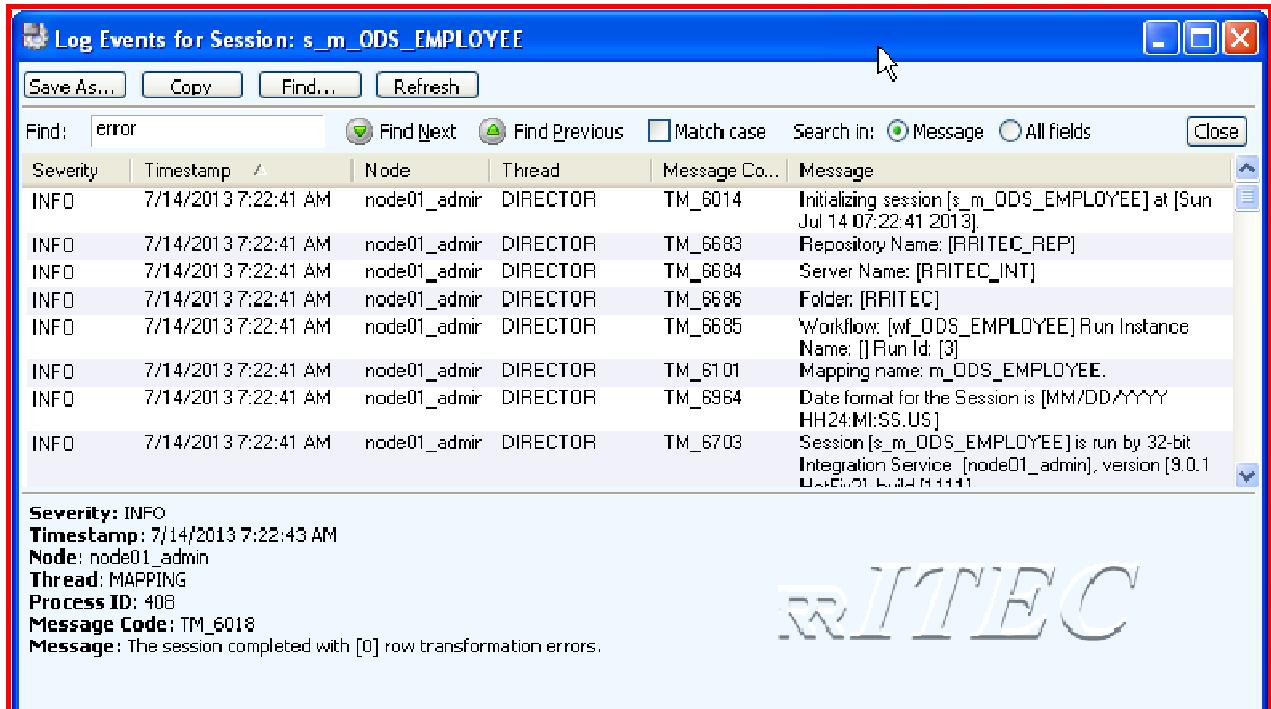


Step 4. View the session log.

The session log is copied (via ftp) from the Informatica Server machine, and displayed on the client machine as TmpSessionLog_x.

If errors have occurred, review the session log to determine what the problem is. Test and rerun as necessary.

1. Right-click on the session in the **Task Name** column (**Time** window) and select **Get Session Log**, or by clicking on the **Session Log** button.
2. The session log is displayed:



12.9 Hands on 04: Flat file Filter

Lab at a Glance

The exercises in this lab are designed to walk the student through the process of importing and analyzing a flat file source using the Flat File Wizard. The student will also learn how to use the Filter transformation.

Objectives

After completing the lab, the student will be able to:

- Use the Flat File wizard.
- Create a Filter transformation.

Summary

In this lab, the student will create a mapping (and associated workflow) to extract data from a flat file that contains date records.

An example of data from the flat file follows:

```

DATE, DAY_OF_WEEK, QUARTER
01-Jan-1995, Sunday, 1995-1
02-Jan-1995, Monday, 1995-1
03-Jan-1995, Tuesday, 1995-1
04-Jan-1995, wednesday, 1995-1
05-Jan-1995, Thursday, 1995-1
06-Jan-1995, Friday, 1995-1
07-Jan-1995, Saturday, 1995-1
08-Jan-1995, Sunday, 1995-1
09-Jan-1995, Monday, 1995-1

```

The mapping must transform the data and load it into a target table as follows:

DATE_ID	DAY_OF_WEEK	MONTH	QUARTER	YEAR
12/4/1999 0:0:0	Saturday	Dec	4	1999
12/5/1999 0:0:0	Sunday	Dec	4	1999
12/6/1999 0:0:0	Monday	Dec	4	1999
12/7/1999 0:0:0	Tuesday	Dec	4	1999
12/8/1999 0:0:0	Wednesday	Dec	4	1999
12/9/1999 0:0:0	Thursday	Dec	4	1999
12/10/1999 0:0:0	Friday	Dec	4	1999
12/11/1999 0:0:0	Saturday	Dec	4	1999
12/12/1999 0:0:0	Sunday	Dec	4	1999
12/13/1999 0:0:0	Monday	Dec	4	1999

In addition, the mapping must filter the data for only those dates after 12/04/1999.

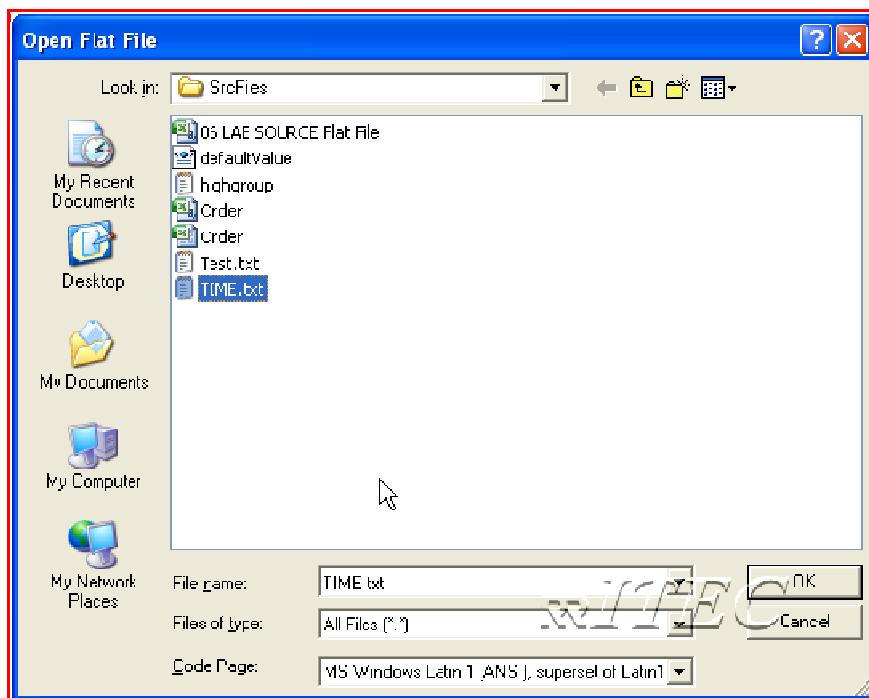
The final mapping should look as follows:



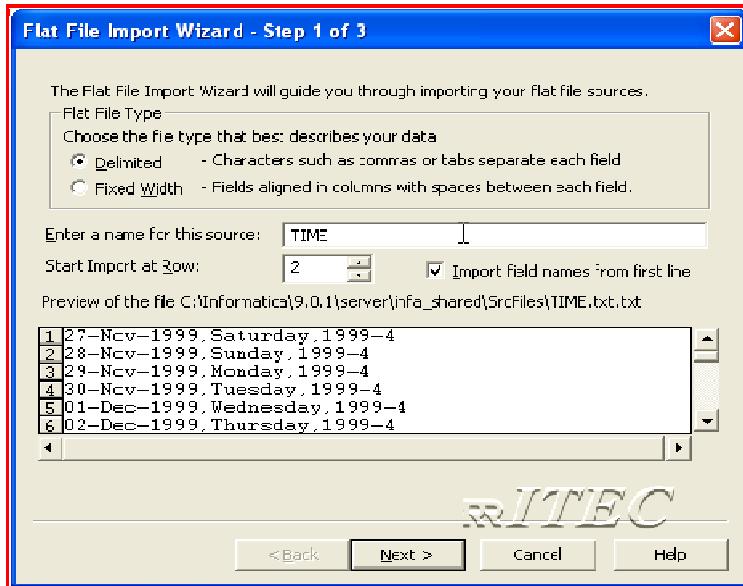
12.9.1 Exercise 1: Import Source and Target

Step 1. Import the file

5. Go to RRITEC LabCopy/LabData folder copy TIME.txt file and paste in Informatica\9.0.1\server\infa_shared\SrcFiles
6. In the Designer, open the **Source Analyzer** by clicking the Source Analyzer button or by selecting **Tools | Source Analyzer**
7. Select **Sources | Import From File**.
8. The **Open Flat File** dialog box appears → Change the **Files of type:** to **All Files (*.*)** → Locate the directory where the flat file resides – typically **Informatica\9.0.1\server\infa_shared\SrcFiles**
9. Select the flat file **TIME.txt** → Click **OK**.



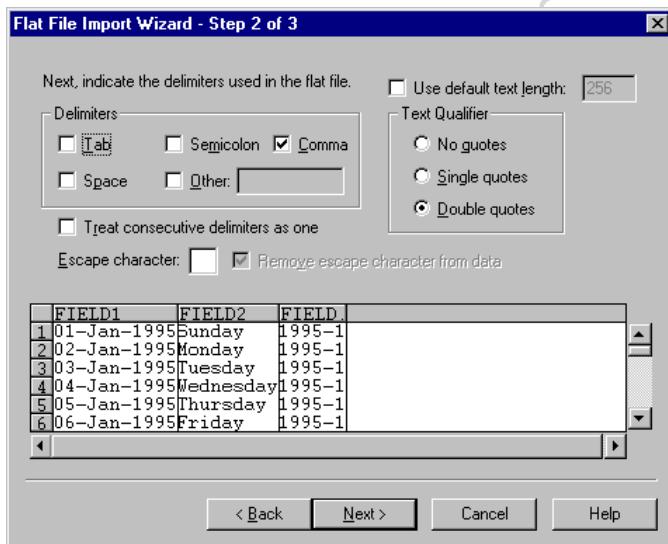
10. The **Flat File Import Wizard** appears.
11. Ensure the **Delimited** radio button is selected (default).
12. Select the **Import field names from first line** checkbox.



13. Click **Next**.

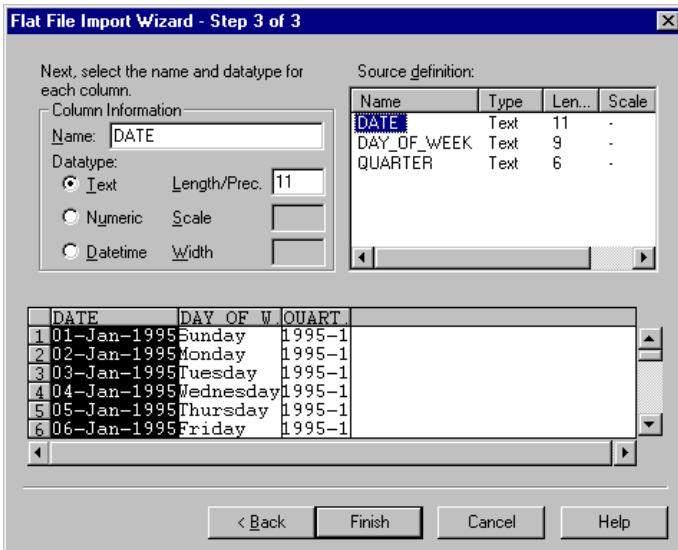
14. Make sure the **Comma** checkbox is selected under **Delimiters**.

15. Make sure the **Double Quotes** radio button is selected under **Text Qualifier**.



16. Click **Next**

17. By importing the field names from the first line, the port names have already been created. No other modifications are necessary.



18. Click **Finish**.

19. The source definition should look as follows:

K.	Name	Datatype	L...
	DATE	string	11
	DAY_OF_WEEK	string	9
	QUARTER	string	6

20. Save the repository.

The first row in the TIME.txt file contains the column names. When this option is checked, the import automatically starts at row 2 and assumes that future extracts will start at row 2.

The wizard makes a best guess at the data type, length and width of the columns based on the data read from the first 500 rows.

Step 2. Import the target table

1. Open the Target Designer by clicking the **Target Designer**  button on the toolbar.
2. Select **Targets | Import From Database**.
 - a. ODBC Data Source : RRITEC_TARGET

- b. Username : TDBU
- c. Owner : TDBU
- d. Password : RRitec123

3. Click on Connect
4. Expand the **TDBU** schema and **TABLES** node.
5. Select **ODS_TIME** → Click **OK** → The **ODS_TIME** target table should look as follows:

K.	Name	Datatype
	DATE_ID	date
	DAY_OF_WEEK	varchar2
	MONTH	varchar2
	QUARTER	varchar2
	YEAR	varchar2

6. Save the repository.

12.9.2 Exercise 2: Create the Mapping

Step 1. Create a mapping.

1. Open the Mapping Designer by clicking on the Mapping Designer button
2. Create a new mapping called m_ODS_TIME

Step 2. Add source and target transformations.

1. From the **FlatFile** category under the **Sources** node, drag-and-drop the **TIME** source definition into the **Mapping Designer** workspace.
2. From the **Targets** node, drag-and-drop **ODS_TIME** into the **Mapping Designer** workspace.

Step 3. Create an Expression transformation.

1. Create a new Expression transformation.
2. Select all ports within the **sq_TIME** source qualifier, then drag-and-drop them onto the Expression transformation.
3. Double-click on the header of the Expression transformation.
4. The **Edit Transformations** dialog appears.
5. Click the **Rename** button.
6. Enter **exp_ODS_TIME** in the **Transformation Name** field and click the **OK** button.
7. Click on the **Ports** tab.

8. Highlight the third port, **QUARTER**, then add the following ports by clicking the **Add Port** button:

- DATE_ID, Datatype=date/time, Prec=29(default), Port Type=Output Only
- MONTH_out, Datatype=string, Prec=3, Port Type=Output Only
- QUARTER_out, Datatype=string, Prec=2, Port Type=Output Only
- YEAR_out, Datatype=string, Prec=4, Port Type=Output Only

An expression will be needed for each of the above ports to derive the values. Open the Expression Editor and add expressions for each port as follows:

- DATE_ID → TO_DATE(DATE,'DD-MON-YYYY')
- MONTH_out → SUBSTR(DATE,4,3)
- QUARTER_out → SUBSTR(QUARTER,6,1)
- YEAR_out → SUBSTR(QUARTER,1,4)

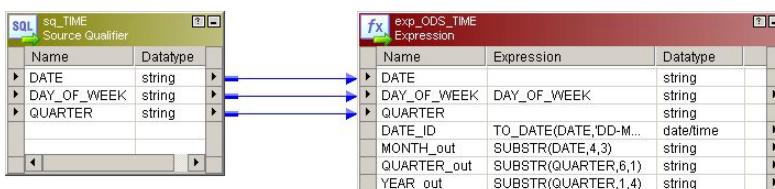
9. Change the ports, **DATE** and **QUARTER**, to input only ports.

10. The **Ports** tab of the **exp_ODS_TIME** expression should look as follows:

	Port Name	Datatype	Prec	Scale	I	O	V	Expression
1	DATE	string	11	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	DAY_OF_WEEK	string	9	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DAY_OF_WEEK
3	QUARTER	string	6	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	DATE_ID	date/time	19	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TO_DATE(DATE, 'DD-M...
5	MONTH_out	string	3	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SUBSTR(DATE, 4, 3)
6	QUARTER_out	string	2	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SUBSTR(QUARTER, 6, 1)
7	YEAR_out	string	4	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SUBSTR(QUARTER, 1, 4)

11. Click the **OK** button.

12. The expression transformation should look as follows:



Step 4. Create a Filter transformation.

1. Click on the **Filter Transformation** button on the **Transformation** toolbar.
2. Click and drag the pointer (which appears as crosshairs + in the workspace) to the right of the **exp_ODS_TIME** expression.
3. Drag and drop the following ports in the order specified from **exp_ODS_TIME** to the **FILTRANS** window:
 - DATE_ID

- **DAY_OF_WEEK**
- **MONTH_out**
- **QUARTER_out**
- **YEAR_out**

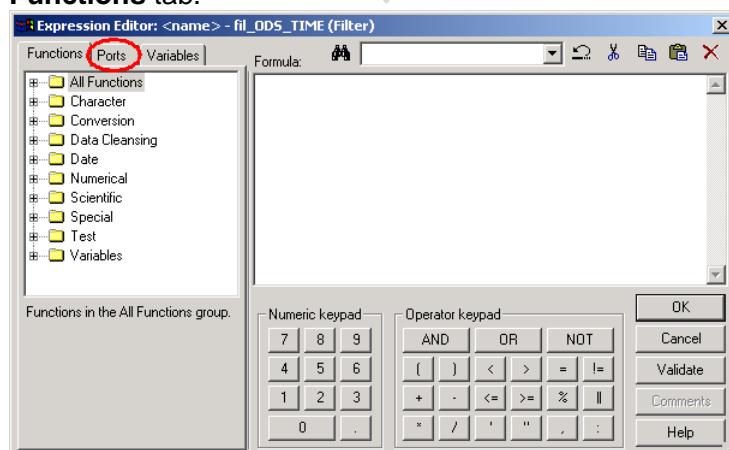
4. Double-click on the Filter transformation.
5. The **Edit Transformations** dialog box appears.
6. Click the **Rename** button and enter fil_ODS_TIME.
7. Click on the **Ports** tab and rename the following ports:

- MONTH_out = MONTH
- QUARTER_out = QUARTER
- YEAR_out = YEAR

8. Click on the **Properties** tab.
9. Click on the down arrow to edit the **Filter Condition**:

Transformation Attribute	Value
Filter Condition	TRUE
Tracing Level	Normal

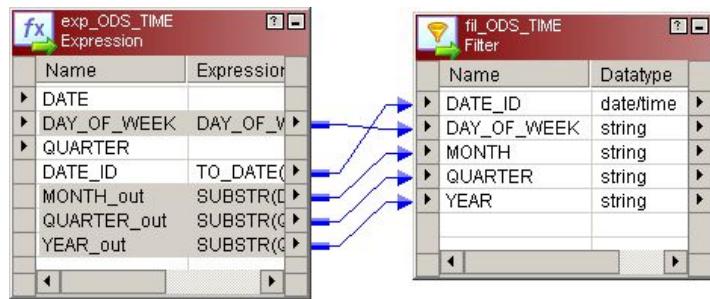
10. To define a new filter condition, remove the default text, **TRUE**.
11. Open the Expression Editor and click on the **Ports** tab to the right of the **Functions** tab.



12. Double-click on **DATE_ID**.
13. Click the greater than or equals \geq button on the operator keypad.
14. Click the **Functions** tab, expand the **Conversion** folder and double-click on **To_Date**.
15. To complete the expression, type '12/04/1999', 'MM/DD/YYYY' between the parentheses. The final expression should look as follows:

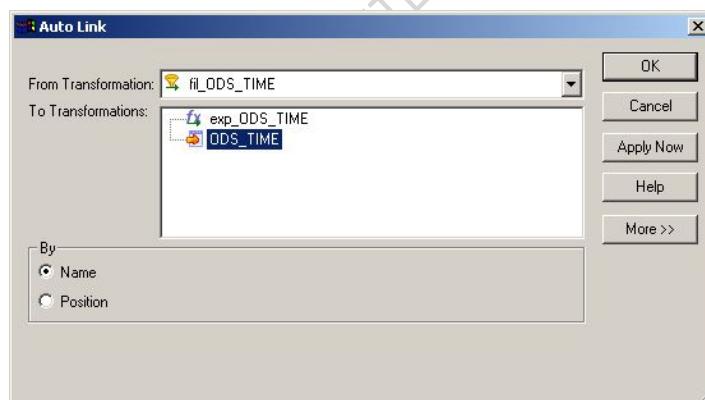
DATE_ID >= **TO_DATE('12/04/1999', 'MM/DD/YYYY')**

16. Click on the **Validate** button to validate the filter condition.
17. Click **OK** twice to save changes.
18. The Filter transformation should look as follows:

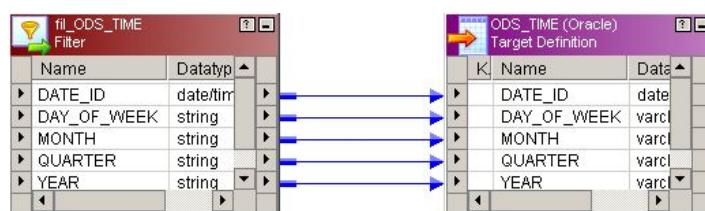


Step 5. Link the Target transformation.

1. Right-click in the workspace and select **Autolink...**
2. Select **fil_ODS_TIME** in the **From Transformation** field and **ODS_TIME** in the **To Transformations** field.
3. Make sure that the **Name** radio button is selected in the **By** field:

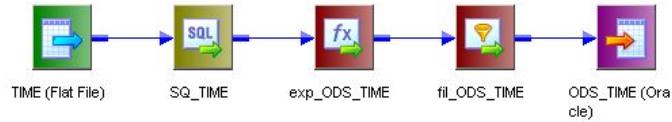


4. Click **OK**.
5. All ports should be linked between these two transformations:



6. Validate the mapping by selecting **Mapping |Validate**.
7. Remember to check the **Validate** tab in the Output window for the results.

8. Save the repository.
9. The completed mapping should look as follows:



12.9.3 Exercise 3: Create and Run the Workflow

In this exercise, the student will create a workflow to run and test the new mapping.

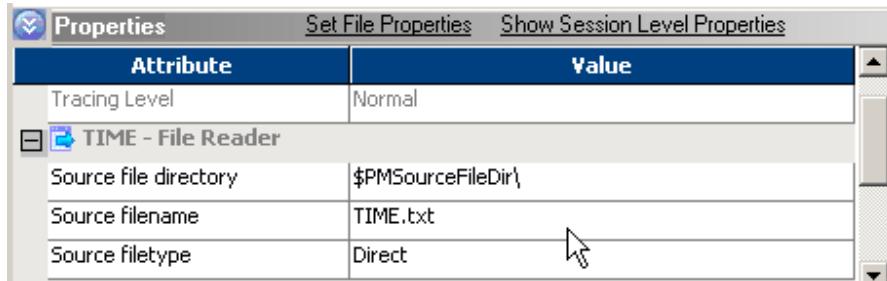
Step 1. Start the Workflow Manager.

Open the Workflow Manager → Connect to the repository → Open the RRITEC folder.

Step 2. Create a workflow.

1. Select **Workflows | Create** to create a new workflow.
2. Name the workflow wf_ODS_TIME
3. Create a session task for the **m_ODS_TIME** mapping called s_m_ODS_TIME
4. Double-click on the session task. The **Edit Tasks** dialog box appears.
 - Select the **Mapping** tab.
 - In the Navigator window, select the source SQ_TIME.

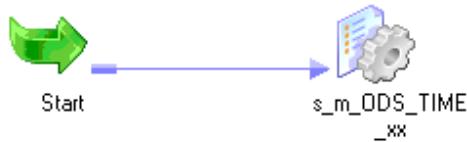
Under **Properties, TIME – File Reader, Source filename**, enter TIME.txt.



- In the Navigator window, select the target ODS_TIME.
 - Under **Connections**, click on the down arrow , select **native_target** and click **OK**.
 - Under **Properties**, the **Target load type** should be defaulted to **Normal**. Scroll down to select the **Truncate target table option**.
- Click **OK** to close the **Edit Tasks** dialog box.

Save the repository.

Link **Start** to **s_m_ODS_TIME_xx**.



Save, validate and start the workflow.

Monitor and review the results for **s_m_ODS_TIME** in the Workflow Monitor.

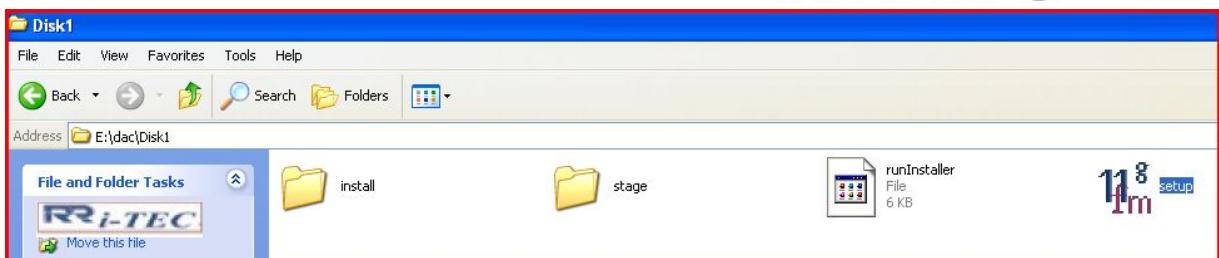
13. DAC

13.1 DAC Introduction

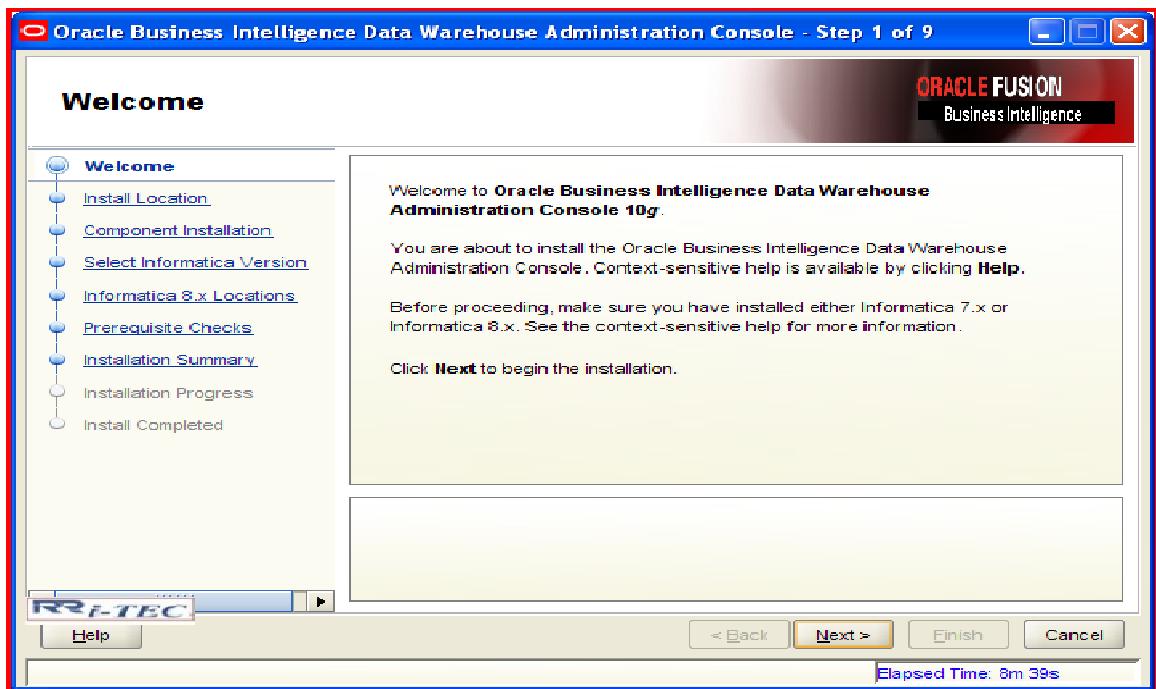
1. Is a centralized console to design, configure and execute ETL for loading the Oracle Business Analytics Warehouse
2. Single command and control point for the OBAW
3. Provides a framework for managing the entire life cycle of OBAW implementations
4. Provides an 'easy-to-use' interface for deploying, defining, administering and monitoring of Data warehouse processes
5. Simplifies ETL customization and execution
 1. Define ETL subject areas and execution plans
 2. Automate configuration of ETL for full and incremental load of subject areas
 3. Automatic index management
 4. Prioritize and load balance ETL workflow execution
 5. Compile historical tracking of diagnostic ETL logs
 6. Provide restart of ETL execution from point of failure
 7. Update database statistics on OBAW tables and indexes
6. DAC present version is 11G

13.2 DAC Installation

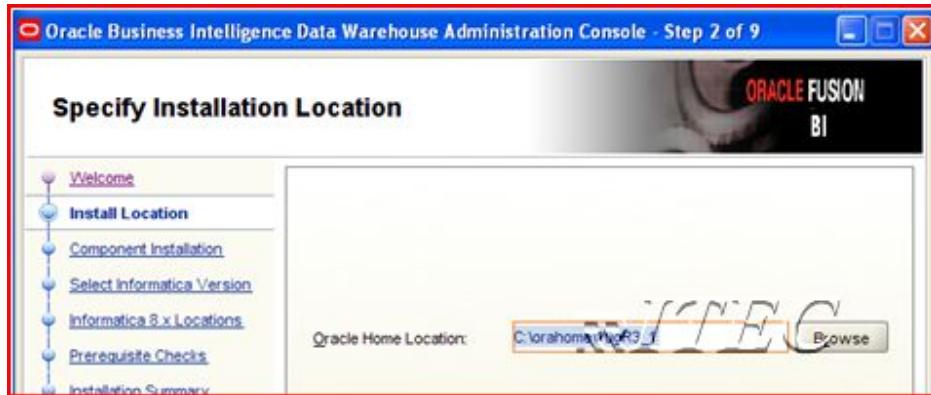
1. Download software from oracle website
<http://www.oracle.com/technetwork/middleware/bi-enterprise-edition/downloads/bi-downloads-1525270.html>
2. In downloaded software navigate to below location and double click on 11G



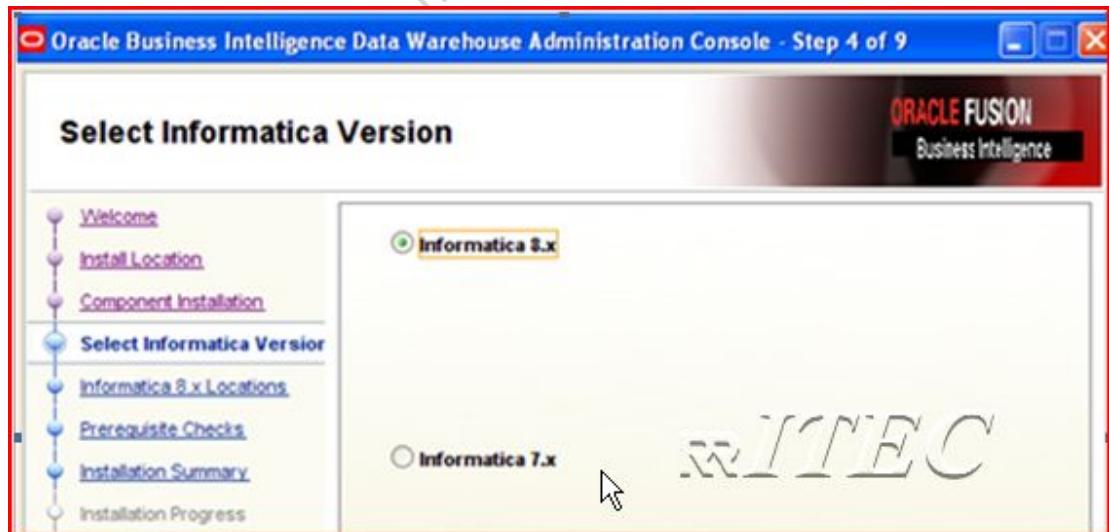
3. In Welcome screen click on **NEXT**



4. Provide installation location **C:\orahome\10gR3_1** → Click on **Next**



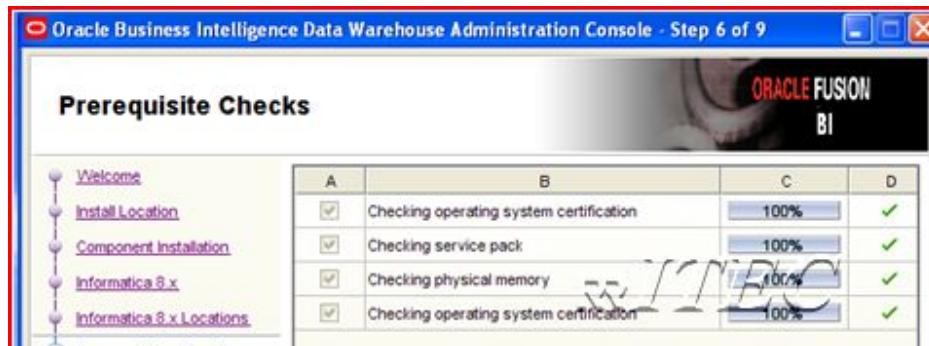
5. Select **Informatica 8.x** → Click on **Next**



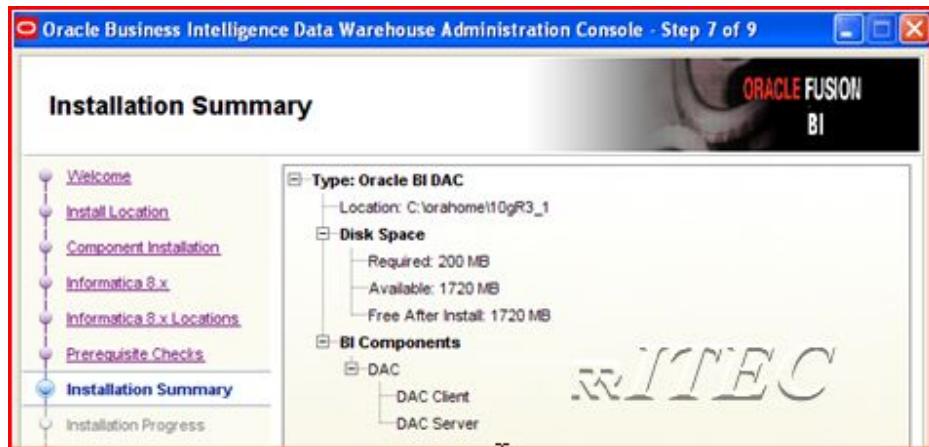
6. Provide paths Informatica PowerCenter : **C:\Informatica\9.0.1\server** →
Informatica Domain File : **C:\Informatica\9.0.1\domains.infa** → Click on **Next**



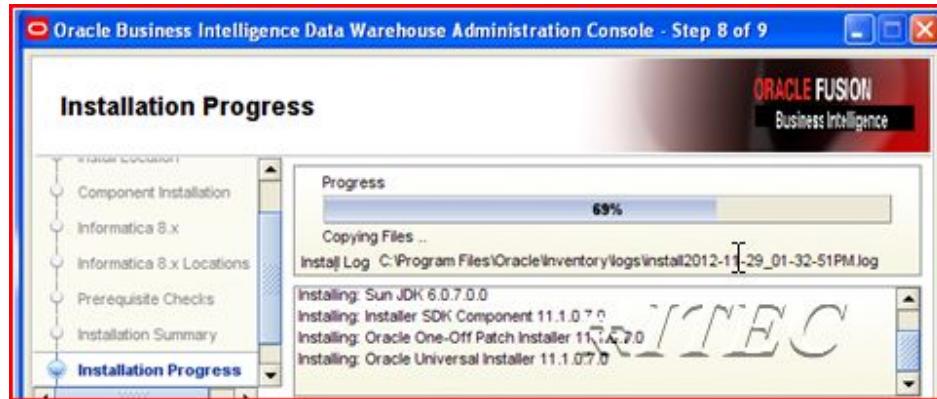
7. In Prerequisites window → Click on **Next**



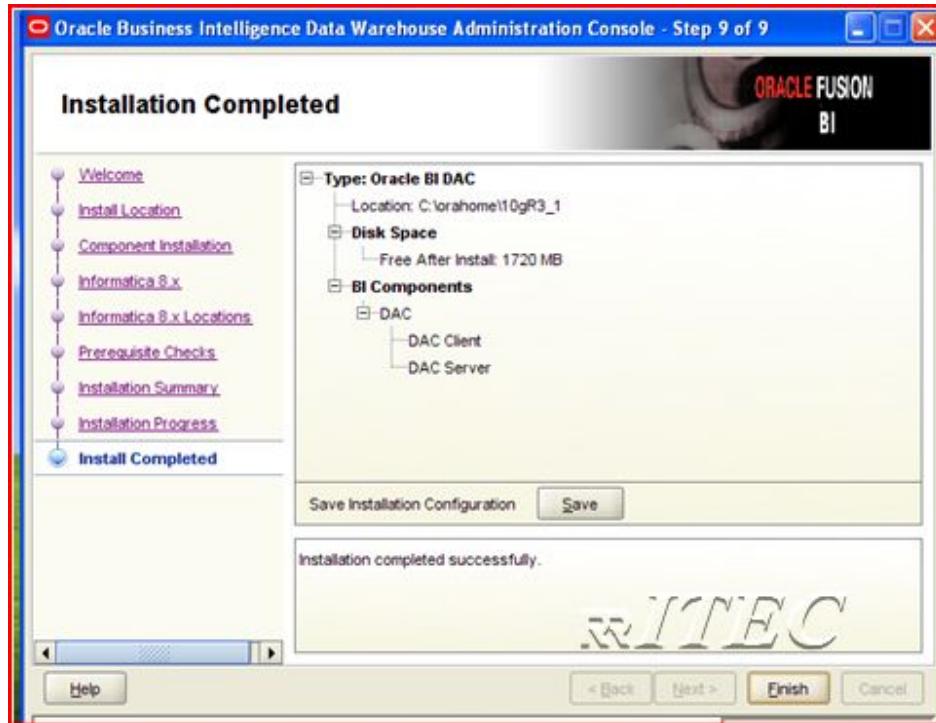
8. In Installation Summary Window → Click on **Next**



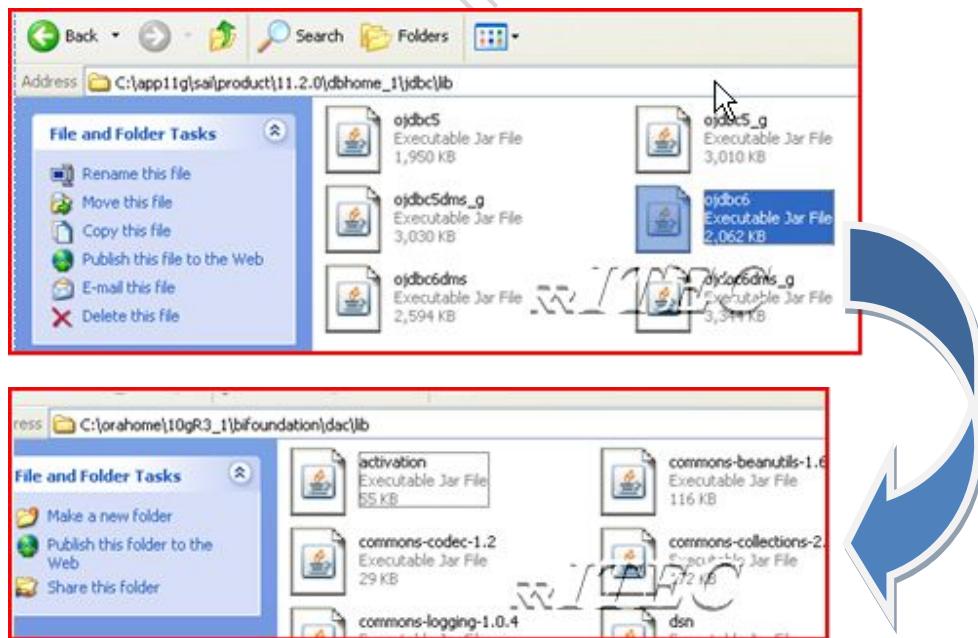
9. In Installation Summary Window → Click on **Next**



10. In **Installation Completed** Window → Click on **Finish**

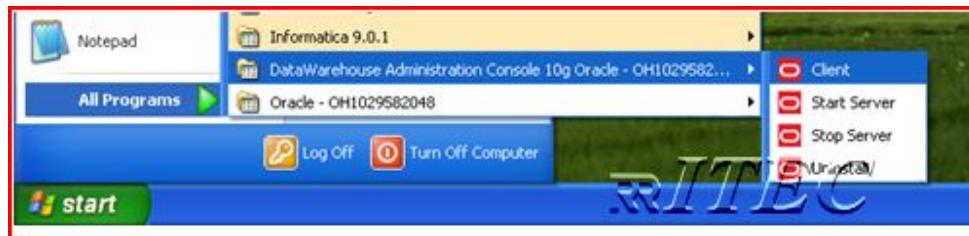


11. Copy OJDBC6 file from oracle to DAC

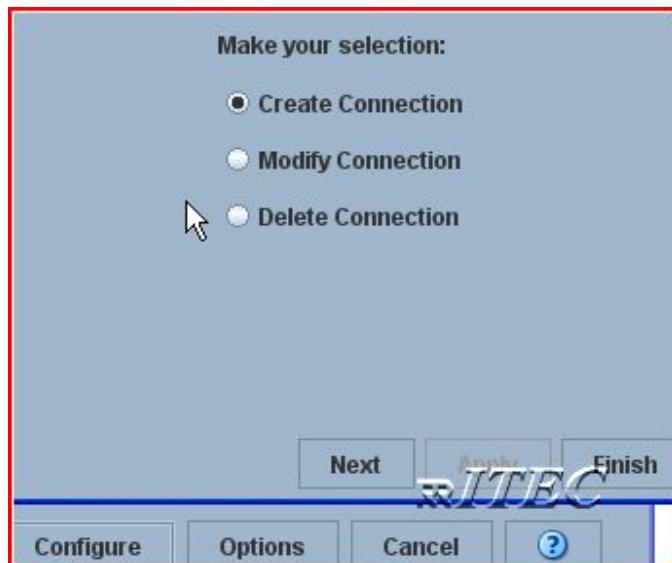


Creating DAC Connection

12. Open **DAC Client**



13. Click on **Configure** → Select **Create Connection**



14. Creating user **DAC**

7. Open SQL PLUS → Type / as sysdba press enter
8. Create a user by executing below commands
 - a. Create user **DAC** identified by RRitec123;
 - b. Grant DBA to DAC;
 - c. Conn **DAC@ORCL**
 - d. Password **dac**
 - e. Select count (*) from tab;

15. Provide Name : **DAC** → TNS Name → **ORCL**



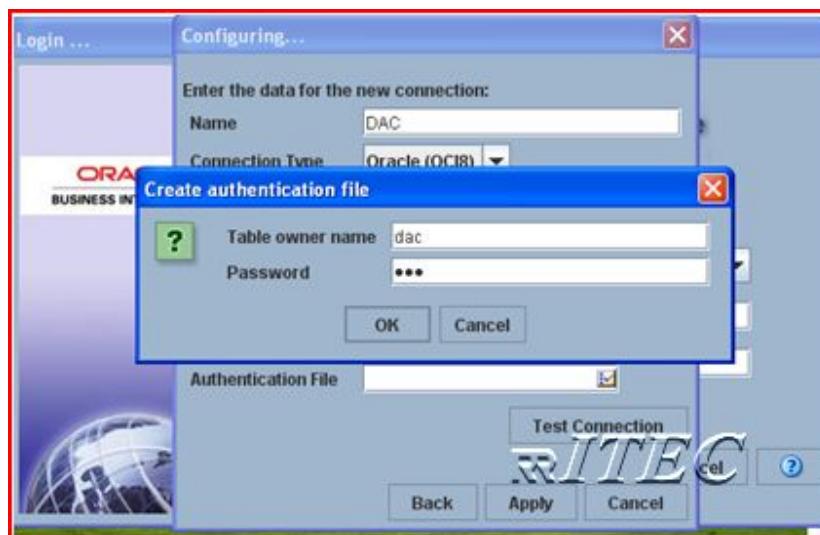
16. Click on **Authentication File** → From drop down select **Create authentication file** → Click on **OK**



17. Again click on **OK** → Name it as **DAC.con**



18. Click on **OK** → Provide Table Owner Name : **dac** and password : **dac** → Click on **OK**



19. Click on **Test Connection** → Click on **ok**



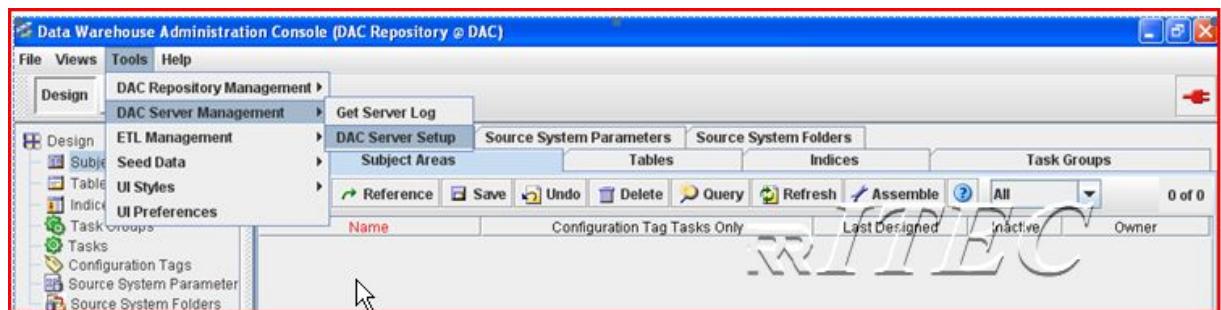
20. Click on **Login** → do not provide anything in **table space** → Click on **Yes**



21. Provide username : **dac** → password : **dac** → Conform Password : **dac**



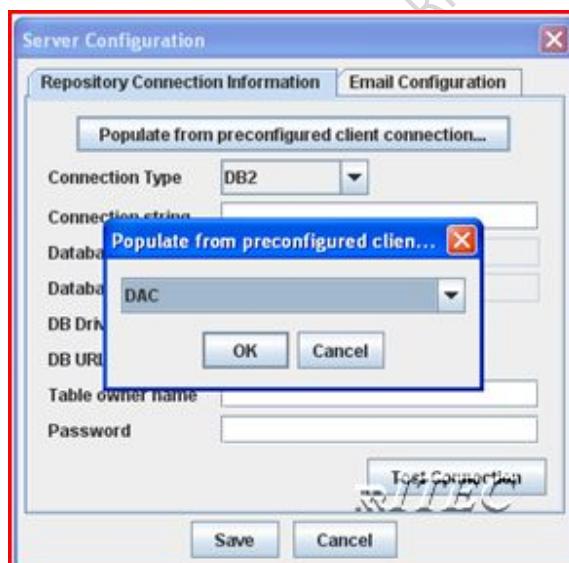
22. Go to **Tools** menu → Click on **DAC Server Management** → Click on **DAC Server Setup**



23. Click on Yes



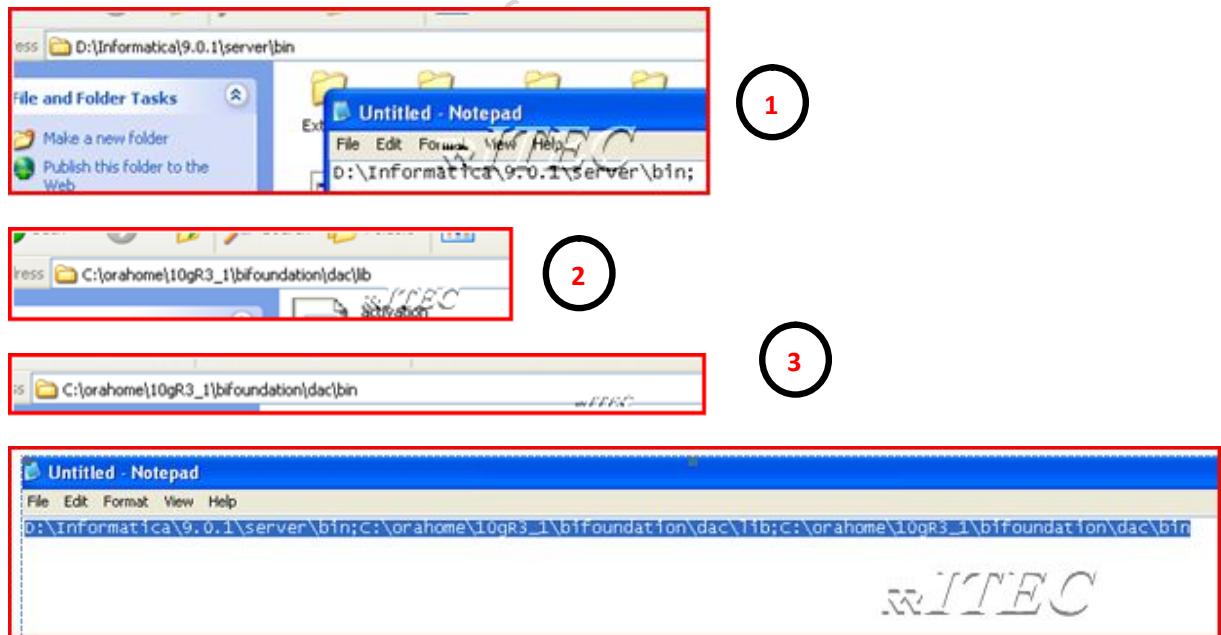
24. Click on **Populate from preconfigured client connection** → Click on OK



25. Click on **Test Connection** → Click on **Save**

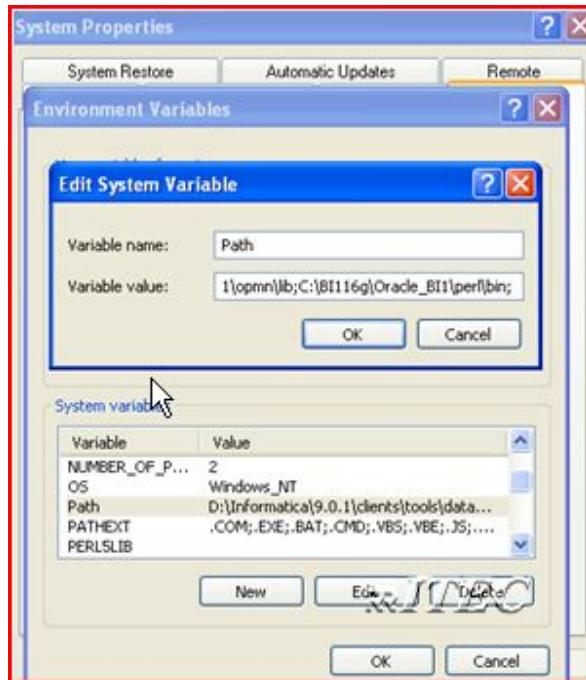


26. Copy below paths → Right click on **my computer** → Click on **Advanced tab** → Click on **Environment Variables**



D:\Informatica\9.0.1\server\bin;C:\orahome\10gR3_1\bifoundation\dac\lib;C:\orahome\10gR3_1\bifoundation\dac\bin

27. Double click on Path variable → End of the path type ; → provide entire above path→ Click on **OK** → Again **OK**



28. Start Dac Server



13.3 DAC Configuration

Step1: Sign in to DAC

1. Start → All program → DAC → Client → provide below login information

1. Connection : **dac**
2. User name : **dac**
3. Password : **dac**

Step2: Creating Container

1. In DAC repository we may create **n** number of containers but always best practice is create only one container.
2. Container is useful to store DAC metadata (Task Names, Task Groups , subject area, execution plans etc...)

Process:

1. Go to file menu → Click on new Source system container → provide id as **rritec123** and name as **rritec** → select **create empty new container** → Click on **ok**

Step3: Configure Database.

1. Click on **Setup** tab → double click on **Physical data sources** → click on **New** → provide below information

1. Name : **ORCL_SDBU**
2. Type : **Source**
3. Connection type : **Oracle (oci8)**
4. TNS name : **ORCL**
5. Table owner : **SDBU**
6. Table owner password : **RRitec123**
7. Dependency priority : **1**
8. Data source number : **1521**

2. Click on **save** → **ok**

Name	Type	Connection Type	Connection String	Table Owner	Max
ORCL_SDBU	Source	Oracle (OCI8)	orcl	sdbu	

Edit Description Refresh Dates Parallel Indexes Index Spaces Analyze Frequencies

*** Name:** ORCL_SDBU *** Type:** Source *** Connection Type:** Oracle (OCI8)

TNS Name: orcl **Table Owner:** sdbu **Table Owner Password:**
 * * * * *

Max Num Connections: 10 **DB Host:** **Port:**

*** Dependency Priority:** 1 *** Data Source Number:** 1521 **Default Index Space:**

*** Num Parallel Indexes Per Table:** 1 **JDBC Driver (Optional):** **URL (Optional):**

3. Similarly another connection with name **ORCL_TDBU**

- a. Name : **ORCL_TDBU**
- b. Type : **Warehouse**
- c. Connection type : **Oracle (oci8)**
- d. TNS name : **ORCL**
- e. Table owner : **TDBU**
- f. Table owner password : **RRitec123**
- g. Dependency priority : **1**

h. Data source number : 1521

The screenshot shows the Informatica Repository Server configuration interface. The main window displays a list of data sources:

Name	Type	Connection Type	Connection String	Table Owner	Max Num Conn
ORCL_SDBU	Source	Oracle (OCI8)	orcl	sdbu	
ORCL_TDBU	Warehouse	Oracle (OCI8)	oRCL	tdbu	

A new connection dialog is open, showing the following configuration:

- Name:** ORCL_TDBU
- Type:** Warehouse
- Connection Type:** Oracle (OCI8)
- TNS Name:** oRCL
- Table Owner:** tdbu
- Table Owner Password:** (redacted)
- Max Num Connections:** 10
- DB Host:** (empty)
- Port:** (empty)
- Dependency Priority:** 1
- Data Source Number:** 1521
- Default Index Space:** (empty)
- Num Parallel Indexes Per Table:** 1
- JDBC Driver (Optional):** (checkbox checked)
- URL (Optional):** (redacted)

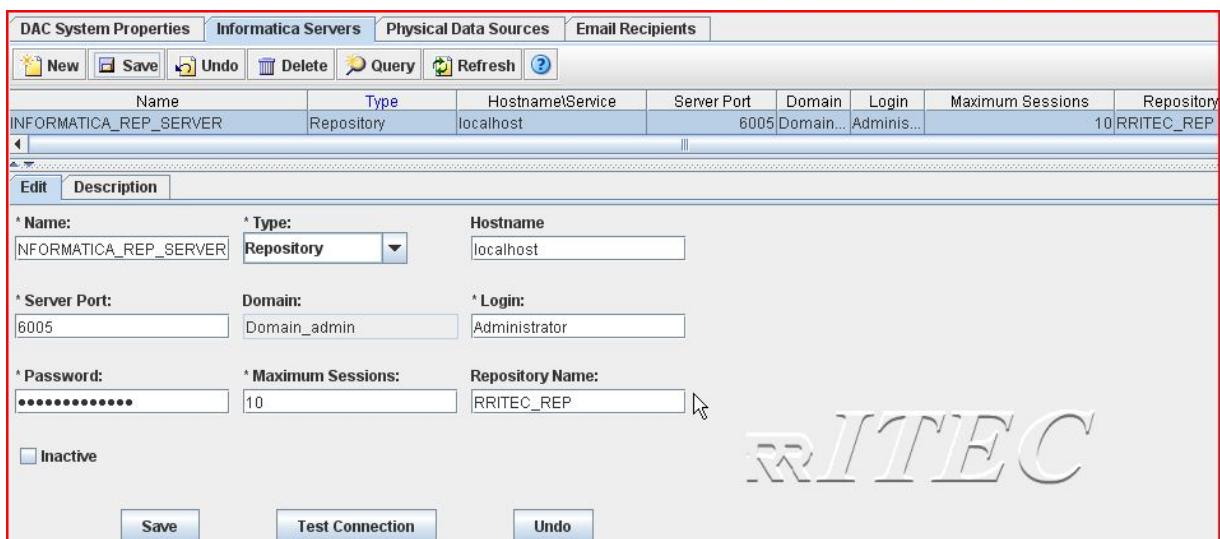
At the bottom are buttons for **Save**, **Test Connection**, and **Undo**.

Step4: Configure Informatica Repository Server.

1. Click on **Setup** tab → double click on **Informatica Server** → Click on **new** →

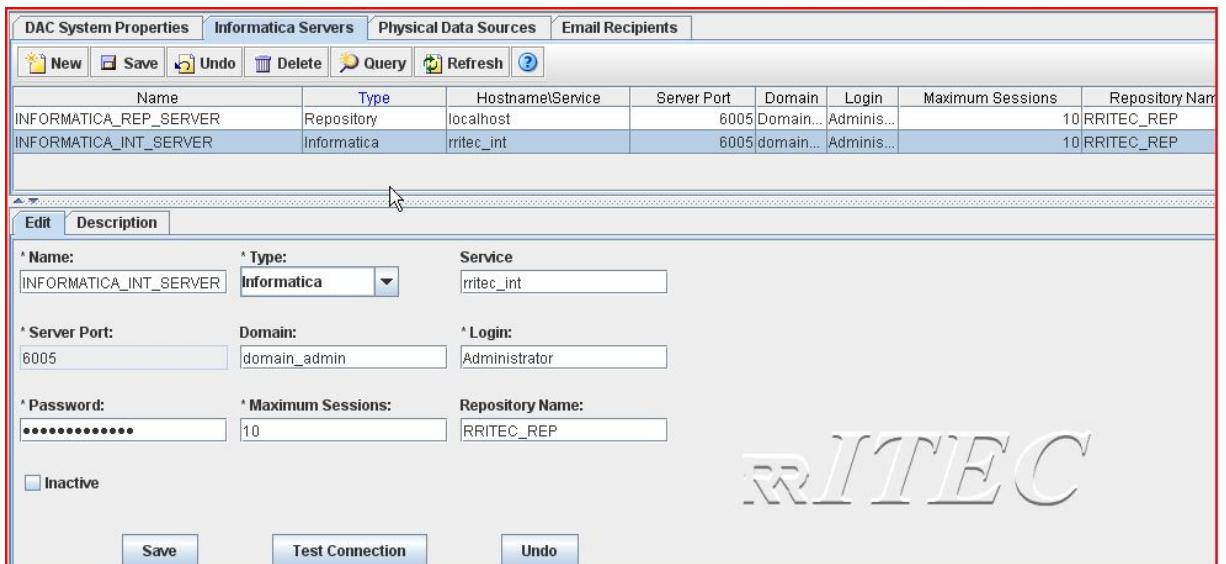
1. Name : INFORMATICA_REP_SERVER
2. Type : Repository
3. Hostname : local host
4. Server port : 6005
5. Domain : Domain_rritec
6. Login : Administrator
7. Password : Administrator

8. Repository name : RRITEC_REPO (open Informatica Admin console and name as per the console repository name)
2. Click on **save** → Click on **test connection** → Click on **ok**.



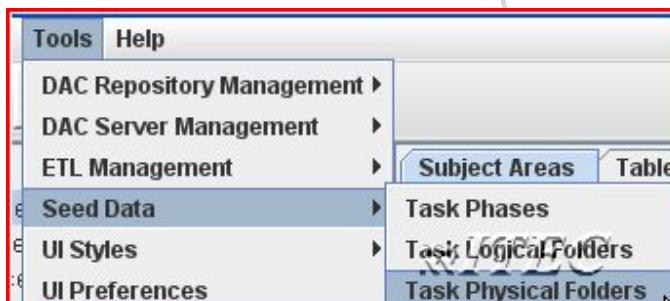
Step5: Configure Informatica Integration services.

1. Click on Setup → Informatica Services → go to new
 1. Name : INFORMATICA_INT_SERVER
 2. Type : Informatica
 3. Services : RRITEC_INT
 4. Domain : Domain_rritec
 5. Login : Administrator
 6. Password : Administrator
 7. Repository name : RRITEC_REPO (open Informatica Admin console and name as per the console)
2. Click on **save** → Click on **test connection** → Click on **ok**.



Step6: Configuring Informatica physical folder.

1. This name should be same as Informatica folder name
2. Go to **Tools** menu → Click on **Seed Data** → Click on **Task Physical Folder**



3. Click on **New** → Name it as **RRITEC** → click on **save** → Click on **Close**.

Step7: Creating Logical Folders.

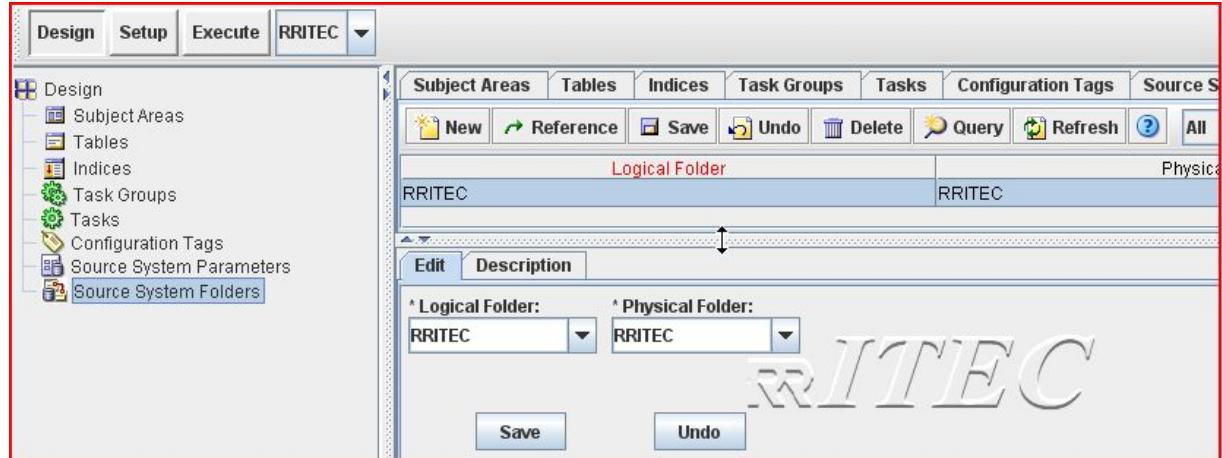
1. Go to **tools** menu → Click on **Seed data** → Click on **Task Logical Folder**
2. Click on **New** → Name it as **RRITEC** → Click on **save** → Click on **close**.

Step8: Mapping Logical folder And Physical folder.

1. Go to **Design** tab → double click on **Source System Folders** → select **New** → **Select**

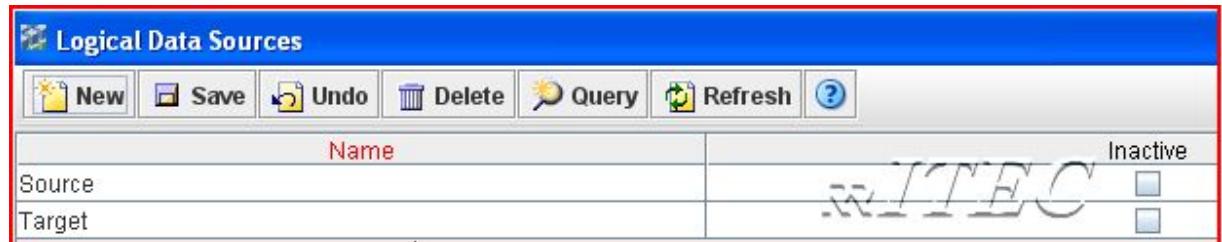
Logical folder as **RRITEC** → Select Physical folder as **RRITEC**

2. Click on **Save**.



Step 9: Creating Logical Data Sources

1. Go to **Tools** menu → Click on **Seed data** → Click on **Logical Data Source**
2. Click on **New** → Name it as **source** → Click on **Save**
3. Again click on **New** → Name it as **target** → Click on **Save** → Click on Close.



Step 10: creating Task Phases.

1. Task phase is useful for Priority of Tasks (workflows)
2. Go to **Tools** menu → Click on **Seed Data** → Click on **Task Phases**.
3. Click on **New** → Name it as **General** → Click on **Save** → Click on **Close**.

Task Phases										0 of 3	
		New	Save	Undo	Delete	Query	Refresh	?			
	Name								Priority		
Pre SQL									1		
General									2		
Post SQL									3		

13.4 Development Activities

1. Creating Tasks
2. Creating Task Group
3. Creating Subject Area
4. Creating Execution Plans
5. Creating Schedules
6. Exporting & Importing(Deployment)

13.4.1 Creating Tasks

1. It is a lowest object in DAC
2. In DAC task is equal to Informatica a work flow
3. In one task we can map minimum one work flow and max is 2.

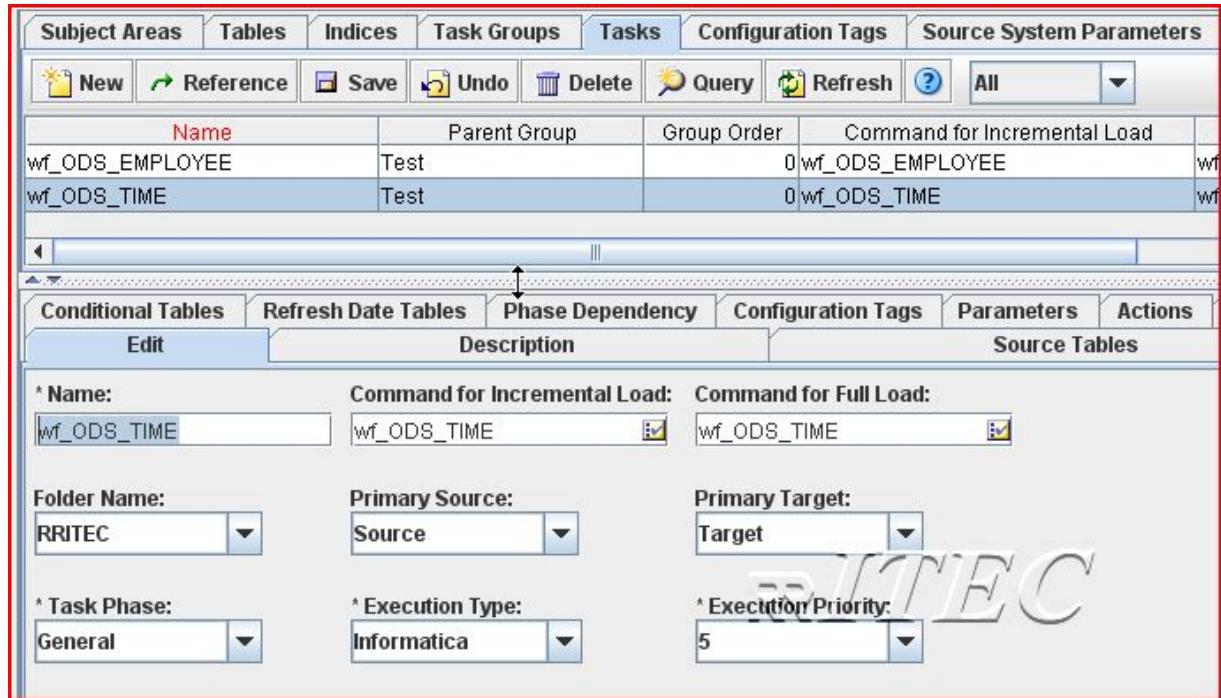
Process:

1. Open DAC client and provide user name and password as dac.
2. Click on **Design** tab → double click on **Task** → Click on **New** → provide below information

1. Name	:	wf_ODS_EMPLOYEE
2. Command for incremental load	:	wf_ODS_EMPLOYEE
3. Command for Full load	:	wf_ODS_EMPLOYEE
4. Folder name	:	RRITEC
5. Primary source	:	source
6. Primary target	:	target
7. Task phase	:	General
8. Execution type	:	Informatica

Subject Areas	Tables	Indices	Task Groups	Tasks	Configuration Tags	Source System Parameters																														
New	Reference	Save	Undo	Delete	Query	Refresh																														
Name		Parent Group		Group Order	Command for Incremental Load																															
wf_ODS_EMPLOYEE		Test		0	wf_ODS_EMPLOYEE																															
<table border="1"> <thead> <tr> <th>Conditional Tables</th> <th>Refresh Date Tables</th> <th>Phase Dependency</th> <th>Configuration Tags</th> <th>Parameters</th> <th>Actions</th> </tr> </thead> <tbody> <tr> <td>Edit</td> <td colspan="2">Description</td> <td colspan="3">Source Tables</td> </tr> <tr> <td>* Name: wf_ODS_EMPLOYEE</td> <td colspan="2">Command for Incremental Load: wf_ODS_EMPLOYEE</td> <td colspan="3">Command for Full Load: wf_ODS_EMPLOYEE</td> </tr> <tr> <td>Folder Name: RRITEC</td> <td>Primary Source: Source</td> <td>Primary Target: Target</td> </tr> <tr> <td>* Task Phase: General</td> <td>* Execution Type: Informatica</td> <td>* Execution Priority: 5</td> </tr> <tr> <td><input type="checkbox"/> Build Image</td> <td><input type="checkbox"/> Continue On Error</td> <td><input type="checkbox"/> Inactive</td> </tr> <tr> <td colspan="3"> <input type="button" value="Save"/> <input type="button" value="Undo"/> </td> </tr> </tbody> </table>							Conditional Tables	Refresh Date Tables	Phase Dependency	Configuration Tags	Parameters	Actions	Edit	Description		Source Tables			* Name: wf_ODS_EMPLOYEE	Command for Incremental Load: wf_ODS_EMPLOYEE		Command for Full Load: wf_ODS_EMPLOYEE			Folder Name: RRITEC	Primary Source: Source	Primary Target: Target	* Task Phase: General	* Execution Type: Informatica	* Execution Priority: 5	<input type="checkbox"/> Build Image	<input type="checkbox"/> Continue On Error	<input type="checkbox"/> Inactive	<input type="button" value="Save"/> <input type="button" value="Undo"/>		
Conditional Tables	Refresh Date Tables	Phase Dependency	Configuration Tags	Parameters	Actions																															
Edit	Description		Source Tables																																	
* Name: wf_ODS_EMPLOYEE	Command for Incremental Load: wf_ODS_EMPLOYEE		Command for Full Load: wf_ODS_EMPLOYEE																																	
Folder Name: RRITEC	Primary Source: Source	Primary Target: Target																																		
* Task Phase: General	* Execution Type: Informatica	* Execution Priority: 5																																		
<input type="checkbox"/> Build Image	<input type="checkbox"/> Continue On Error	<input type="checkbox"/> Inactive																																		
<input type="button" value="Save"/> <input type="button" value="Undo"/>																																				

3. Click on **Save**.
4. Right click on Task **wf_ODS_EMPLOYEE** → Click on Synchronize Task → Click on ok → Click on ok.
5. Similarly create one more task with name of **wf_ODS_TIME** and use workflow as **wf_ODS_TIME**



13.4.2 Creating Task Groups

1. Task group is mainly used to integrate n number of tasks.
2. In Task group we will configure dependency order of the task. This dependency order will be shown as Depth in Execution plan.
3. Dependency order smallest to highest will be running , If dependency order is same for 2 Tasks then both will run parallel.

Process:

1. Click on **Design** tab → double click on **Task Groups** → Click on **new** →
Name: **RRITEC_TASKGROUP** → Click on **Save**.
2. Click on Child task → click on **Add/Remove** → Select **wf_ODS_EMPLOYEE** and **wf_ODS_TIME** → Click on **Add** → Click on **ok**
3. Under dependency order give 1 and 2 → Click on **ok** → Click on **Save**.

13.4.3 Creating Subject Area

1. A Subject area is equal to Business area or Data mart. **OR**
2. A group of Tasks and Task groups are called as Subject area.

Ex: Loyalty, Marketing, Sales, Finance....

Process:

1. Click on **Design** tab → Double click on **Subject area** → Click on **new** → Name: RRITEC_SA → Click on **Save**.
2. Click on Child task → click **Add/Remove** → select **wf_ODS_EMPLOYEE**, **wf_ODS_TIME** and **RRITEC_TASKGROUP**
3. Click on **Add** → Click on **ok** → Click on **Save**.
4. Right click on Subject area → click on Assemble → Click on **ok** → Click on **Accept** → Click on **ok** → Click on **Save**.

13.4.4 Creating Execution plan

1. It is used to integrate **n** number of Subject areas.

Process:

1. Click on **Execute Tab** → Click on **Execution Plans** → Click on **new** → Name: RRITEC_EP → Click on **Save**.
2. Click on **Subject Areas** tab → Click on **Add/Remove** → select RRITEC_SA → Click on **Add** → Click on **ok** → Click on **Save**
3. Click on **Parameters** tab → Click on **Generate** → Click on **ok**

Type	Name	Value
Data Source	source	ORCL_SDBU
Data Source	target	ORCL_TDBU
Folder	RRITEC	RRITEC

4. Click on **Save**.
5. Right click on **Execution plan** → click on **Build** → Click on **ok**

Running Execution plan:

1. Start the DAC server (start → all programs → DAC → Start Server).

Icon	Description
	DAC client cannot establish a connection to the DAC server.
	DAC client is connected to the server, and the server is idle.
	DAC client is connected to a server that is running an ETL process.

2. Select RRITEC_EP execution plan → click on **Run now** → click on **Yes** → Click on **ok**
3. Go to **Informatica Workflow monitor** → connect to our Repository RRITEC_REPO → Open Folder RRITEC → observe that workflows are running.

Note: At a time only one Execution plan can run in DAC.

13.4.5 Scheduling

1. Click on Execute tab → click Scheduler → Click on new
2. Provide name as RRITEC_SC → select Execution plan as RRITEC_EP
3. Select Run only once → give Start date as 2 min forward from current time → save

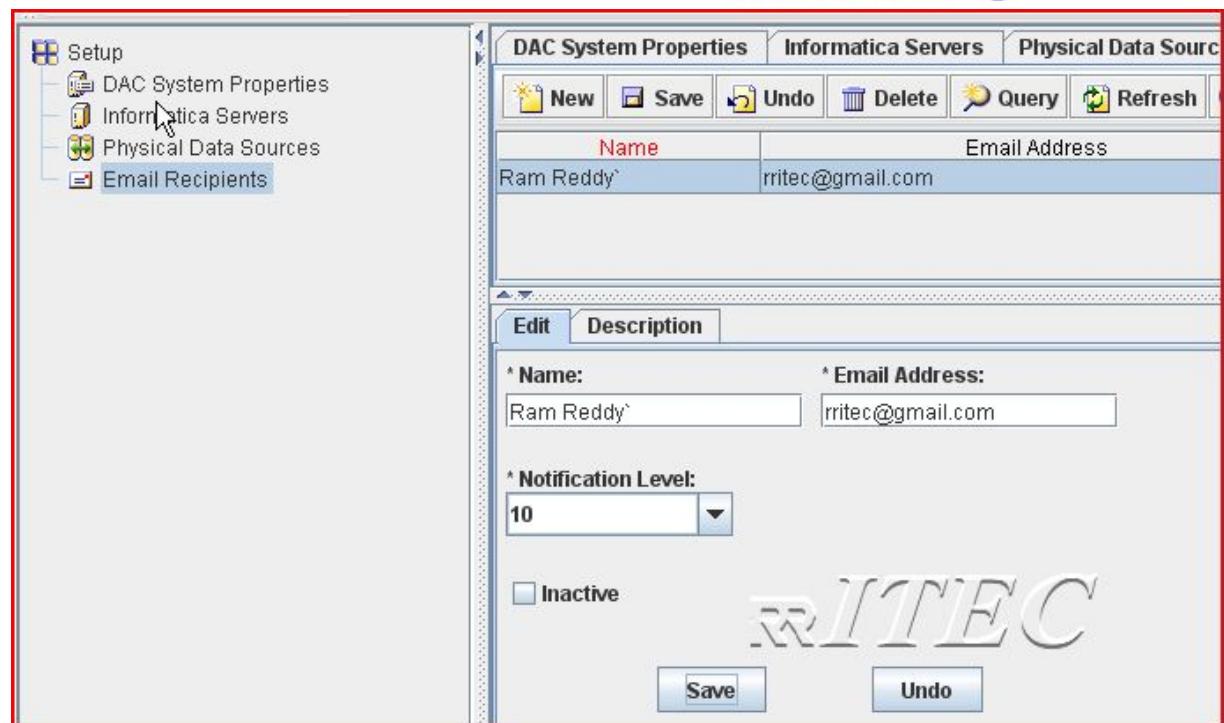
Note: The Execution time may delay 10 – 60 sec.

13.4.6 Configuring Email

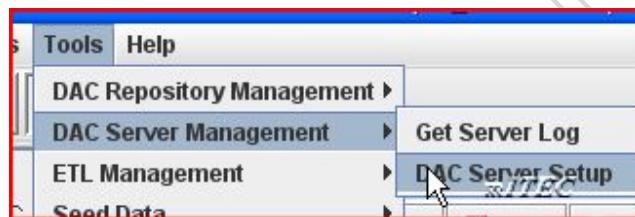
1. Any change in the server status will be mailed to corresponding users.

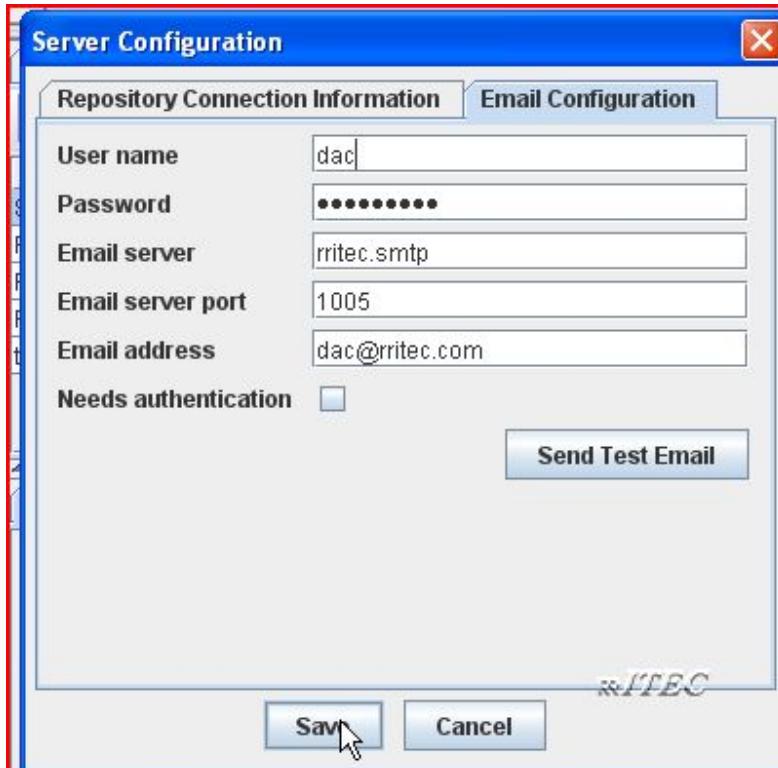
Process:

1. Click **Setup** tab → E-mail Recipients → Click on **new** → Click on provide
 - a. Name : Ram Reddy
 - b. E-mail : rtec@gmail.com
2. Click on **Save**.



Configuring SMTP Server:





13.4.7 Deployment

1. Copying DAC Repository from one environment to another environment is called as Deployment.

Method 1: Data Base Move.

1. DAC total work will be saved in backend schema what we configured (in RRITEC it is DAC USER).

Method 2: Using DAC client

Step1 : Exporting DAC Metadata (Taking Back up of DAC Repository)

1. Go to Tools menu → DAC Repository Management → Export
2. Select Rritec container → click on Change Import & Export folder → select Desktop → create new folder and name it as DAC_BACKUP → select it and click ok → Select all the options under Categories → under Application list select Rritec → click ok → ok.

(After few min.. Export process will be completed).

Step2: Importing

1. Once we exported in Development environment that we can import into testing server
2. Go to Tools menu → DAC Repository Management → Import → Select DAC_BACKUP folder → ok.

14. OBIA

14.1 OBIA Introduction

1. OBIA stands for Oracle Business Intelligence Applications Or Oracle BI Apps
2. Current version of OBIA is OBIA 11G(11.1.1.7) (OBIEE 11.1.1.7 G + ODI 11g)
3. Previous to this OBIA 7.9.6.4 (OBIEE 11.1.1.7 G + Informatica 9)
4. OBIA is a predefined work of ODI,Informatica,DAC and OBIEE
5. OBIA 7.9.6.3 we need to use with OBIEE 11.1.1.6 and Informatica 9
6. OBIA 11/7.9.6.4/3 are compatible with informatica 9th version, DAC 11g/10G and OBIEE 11G.
7. Previous to this we have 7.9.6.2 it is compatible with informatica 8th /7th versions, DAC 10G or DAC 7th version and OBIEE 10G.

14.2 Main components of OBIA

1. Informatica ETL (SDE, SIL, PLP)
2. DAC repository (useful to schedule informatica ETL)
3. OBAW (predefined model)
4. RPD
5. Web Catalog

OBIA end-to-end solutions are available in 5 flavors.

1. Source System as oracle APPS

2. Source System as JD Edwards
3. Source Application as Siebel
4. Source Application as PeopleSoft
5. Source Application as Universal (for any source apps)

14.3 CONFIGURATION

STEP1: Configuring Informatica Repository

Creating a user:

1. Connect to SQL developer using supplier2 user → type
2. Create user BIA_RS identified by RRitec123
3. Grant DBA to BIA_RS
4. Connect to BIA_RS
5. Type SELECT * FROM TAB
6. Notice that no tables are available

Creating informatica empty repository

Step1

Go to Informatica Administrator home page -> Provide

User name: administrator

Password: administrator

Select Domain_RRitec -> click on Action -> New -> power center repository service

Name it as BIA_RS. Select license and node from dropdown -> click on next

New PowerCenter Repository Service - Step 1 of 2

Specify the properties for this new PowerCenter Repository Service.

Name *	BIA_RS
Description	
Location *	Domain_rritec
License	901_License_rritec_48541 <input checked="" type="checkbox"/>
Node *	node01_rritec <input checked="" type="checkbox"/>

Select DB type as oracle -> give Username & password as BIA_RS & RRitec123 -> Connection string as ORCL -> Select First radio button (content exists under..) -> Click on finish.

New PowerCenter Repository Service - Step 2 of 2

Specify the database properties for this new PowerCenter Repository Service.

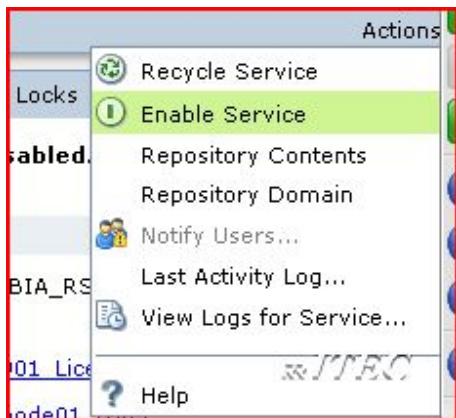
Database Type *	Oracle
Username *	BIA_RS
Password *	*****
Connection String *	orcl
Code Page *	MS Windows Latin 1 (ANSI), superset of Latin1
Tablespace Name	

Specify the creation options for the new PowerCenter Repository Service.

Content exists under specified connection string. Do not create new content.
 No content exists under specified connection string. Create new content.

Create as Global Repository (May not be reverted to local)
 Enable version control (A versioned repository cannot be unversioned)
 Enable the PowerCenter Repository Service

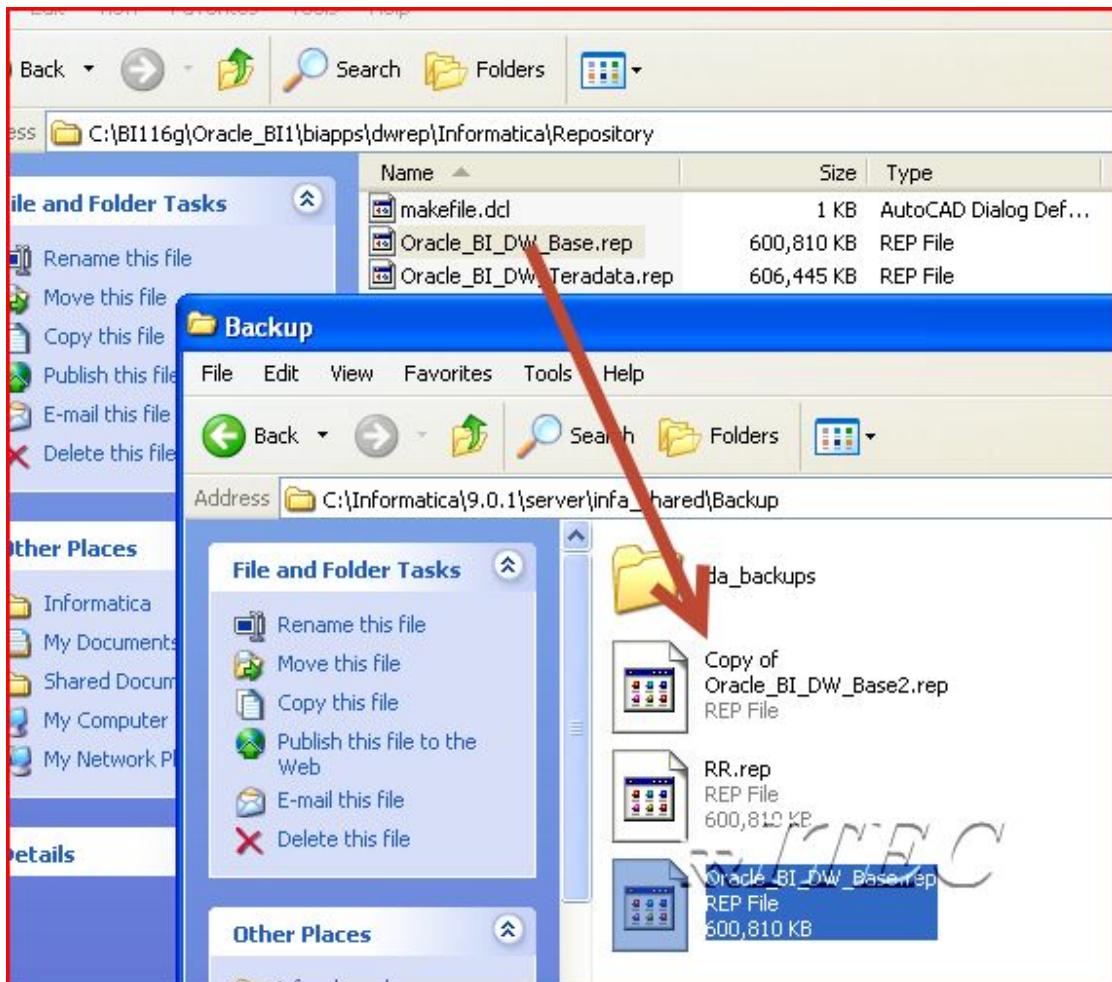
Select BIA_RS go to actions →enable service.



Step2 Importing OBIA repository Content

Copy BI_DW_BASE.REP file from

c:\bi116g\oracle_bi11\biapps\dwrep\informatica\repository to
c:\informatica\9.0.1\server\infa_shared\backup



Select BIA_RS Repository go to Action -> Repository content-> Restore

Select backup file name as ORACLE_BI_DW_BASE REP -> Select Restore as new

Click on ok -> again ok.

Go to sql developer -> connect to BIA_RS and observe that 511 tables are created.

Change Repository operating mode from **exclusive** to **Normal**

Creating Integration Service:

Select domain_RRitec -> go to action -> new -> power center integration service.

Provide name as BIA_RS -> Select license and node from dropdown -> click on next

Select repository service as BIA_RS -> username & password as administrator -> Click on finish.

Adding BIA_RS repository to Informatica clients

1. All programs -> Informatica -> Client -> power center client -> power center designer.
2. Go to repository menu -> click on Add -> name it as BIA_RS -> user name as administrator click on ok.
3. Right click on BIA_RS -> click on Connect -> Select domain from dropdown -> provide user name& password as a administrator -> Click on connect

Configuring Sample Universal Files

Copy Source files from

c:\bi116g\oracle.bi\biapps\dwrep\informatica\srcfiles

to

c:\informatica\9.0.1\server\infa_shared\srcfiles

Similarly copy all files from **Sample universal source files** to **srcfiles**

And also copy **Ikp** files into **Ikp** file folder

While copying if it is asking to override click yes to all

Create Target Connection

Open work flow manager -> right click on SDE_UNIVERSAL_ADAPTOR -> click on Open

Go to connections menu -> New -> select connection type as Oracle

Click on **New** → name it as **DATAWAREHOUSE**-> username & password as **superdw1** & **RRitec123** connection string as **orcl** -> click **ok** -> click on **close**.

STEP2: Configuring DAC Repository

Open DAC ->go to Tools menu->DAC repository management -> Click on Import

Change Import/Export folder and point to

c:\bi116g\oracle.bi\biapps\dwrep\dac_metadata\dac_client\export

Select **universal application** click on ok.

DAC configuration after import

Click on Setup tab -> DAC system properties -> select DAC server host as local host ->

Click on physical data sources -> select DW connection -> provide

Name: DWH

Type: warehouse

Connection type: oracle (oci8)

TNs name :(orcl)

Table owner: superdw1

Table owner password: RRitec123

Datasourcename: 1521

Dependency priority: 10

Click on Test connection -> click on ok.

Informatica Repository Services

Click on Informatica Servers tab -> select Informatica_rep_server -> change

Hostname: local host

Server port: 6005

Domain: domain_RRitec

Login: administrator

Password: administrator

Repository name: BIA_RS

Click on save -> click on Test connection.

Configuring Informatica Integration server

Select informatica_dw_server

Service name: BIA_RS

Domain: domain_rritec

Login: administrator

Password: administrator

Repository name: BIA_RS

Click on Save -> Test connection -> click ok.

STEP3: Creating a copy of universal container

Go to file menu -> new source system container -> give id as RRitec123 -> Name as RRitec. Select 2nd radio button (select existing container...) -> select universal -> click on ok

STEP3: Configuring OBAW (or) Creating OBAW

Creating user:

Login to SQL developer as asupplier2 user -> type bellow commands

Create user superdw1 identified by RRitec123 -> F9

Grant DBA to superdw1 -> F9

Right click on connections -> new Connection -> provide as

Connection name: Superdw1

Username: superdw1

Password: RRitec123

Click on Test -> Connect

Type Select* from tab -> F9

Notice that we don't have any tables in schema.

Note: If we get any errors regarding SSE_ROLE (we can find it in log C:\orahome\logr3_1\bifoundation\dac10g\config)

Create role SSE_ROLE

Creating ODBC connection

Creating OBAW Tables

Open DAC and login as

Connection: dac

Name: dac

Password: dac

Go to tools menu->ETL management->configure->select target & source as oracle ->Click ok. Select create/upgrade DW tables -> click on Next -> provide

Table owner: superdw1

Password: RRitec123

ODBC Data Source: OBIA_DW

Click on Start-> Finish

Post Check

Connect to DB using superdw1 user and type select count (*) from tab and observe 933 tables created.

Types of Tables

Out of these 933 tables half of the tables are staging tables remaining half are DW tables which we are going to use input for RPD.

Main tables

Dimension tables ends with _d

Fact tables ends with _f

Aggregate tables ends with _a

Staging tables ends with _ds or _fs

Helper tables ends with _dhs

Hierarchy tables ends with _h

Running HR Analytics

Select RRitec container from start -> all programs ->start DAC server -> select execution plans tab. click on run. Click on ok. Click on current run .click on tasks.

STEP4: Configuring RPD & Catalog

Copy Enterprise Business Analytics.rpd from

c:\bi116g\oracle_bi111\biapps\repository ->to

D:\OBI\instances\instance1\bifoundation\OracleBIServerComponent\coreapplication_obi
s1\repository.

Changing connection pool parameters

Open administrator tool -> open Enterprise Business Analytics.rpd in offline mode ->

Password as Admin123.

Go to Manage -> click on variables -> select Static Variable ->

Double click on OLAP_DSN->. Change default initialize as ORCL -> click on ok.

Double click on OLAP_USER -> Change username as superdw1-> click ok -> close Manager.

Expand oracle DWH in physical layer -> double click on oracle DWH connection pool type password as RRitec123 -> Click on ok -> again Password as RRitec123->click ok.

Similarly change all DWH connection pool password save it & close.

Catalog copying

Go to C:\bi116g\oracle_bi111\biapps\catalog -> right click on EBA.zip -> click on extract here. Once extraction completed rename Enterprise Business Analytics (EBA) folder as EBA.

Copy it and paste into

D:\OBI\instances\instance1\bifoundation\OracleBIServerComponent\coreapplication_obi
s1\catalogs

Loading rpd & catalog

Open Enterprise Manager -> login as web logic as user -> Go to Deployment tab -> click on

Lock & edit configuration -> click on Browse -> select Enterprise Business Analytics.rpd

Provide password as admin123 -> conform password as Admin123 -> Under BI presentation catalog->

at the end of catalog type EBA -> click on Apply ->click on Activate changes ->



Go to Availability tab -> restart oracle BI server, oracle BI presentation server.

RR ITEC