



SLICE_REQUEST_ID	PRJ_OBJECT_ID	SLICE_DATE	SLICE	CREATED_DATE
55558	5028144	2019-12-16	00.00.00	2018-09-26 16.15.59
55558	5028099	2019-12-23	00.00.00	2018-09-26 16.15.59
55558	5028148	2019-11-18	00.00.00	2018-09-26 16.15.59
55558	5028120	2019-07-08	00.00.00	2018-09-26 16.15.59
55558	5028131	2019-05-27	00.00.00	2018-09-26 16.15.59
55558	5028054	2019-09-09	00.00.00	2018-09-26 16.15.59
310	5028141	2019-10-01	00.00.00	2019-02-08 13.50.48
55558	5028149	2019-12-09	00.00.00	2018-09-26 16.15.59
55558	5028095	2019-12-09	00.00.00	2018-09-26 16.15.59
55558	5028060	2020-01-13	00.00.00	2018-09-26 16.15.59
55558	5028076	2019-10-14	00.00.00	2019-02-08 13.45.12
55558	5028036	2019-08-12	00.00.00	2018-09-26 16.15.59
55558	5028054	2019-08-26	00.00.00	2018-09-26 16.15.59
55558	5028033	2019-09-30	00.00.00	2018-09-26 16.15.59
55558	5028069	2020-01-13	00.00.00	2018-09-26 16.15.59
10	5028096	2019-12-31	00.00.00	2018-09-26 16.16.04
10	5028067	2020-02-10	00.00.00	2018-09-26 16.16.04
10	5028069	2020-03-01	00.00.00	2018-09-26 16.16.04
10	5028088	2019-12-18	00.00.00	2018-09-26 16.16.03
10	5028031	2019-11-06	00.00.00	2018-09-26 16.16.03
10	5028051	2019-08-16	00.00.00	2018-09-26 16.16.04
10	5028054	2019-10-29	00.00.00	2018-09-26 16.16.03
10	5028011	2019-09-19	00.00.00	2018-09-26 16.16.03
10	5028013	2020-01-13	00.00.00	2018-09-26 16.16.03
10	5028079	2019-11-18	00.00.00	2018-09-26 16.16.03
10	5028043	2019-10-04	00.00.00	2018-09-26 16.16.04
10	5028052	2019-09-20	00.00.00	2018-09-26 16.16.04
10	5028088	2019-11-30	00.00.00	2018-09-26 16.16.04
10	5028042	2019-11-27	00.00.00	2018-09-26 16.16.03
10	5028039	2019-08-05	00.00.00	2018-09-26 16.16.03
10	5028073	2019-10-17	00.00.00	2018-09-26 16.16.04
10	5028083	2019-12-08	00.00.00	2018-09-26 16.16.04
10	5028037	2019-10-22	00.00.00	2018-09-26 16.16.03
10	5028060	2019-12-07	00.00.00	2018-09-26 16.16.04
10	5028072	2019-12-14	00.00.00	2018-09-26 16.16.04
10	5028081	2019-10-19	00.00.00	2018-09-26 16.16.04
10	5028057	2019-07-27	00.00.00	2018-09-26 16.16.04
10	5028053	2019-07-31	00.00.00	2018-09-26 16.16.04
10	5028086	2019-09-19	00.00.00	2018-09-26 16.16.04

Navigating around the Clarity PPM data model

Pemari Consulting Ltd

Andrew Litton

2007 - TODAY

About Me

I have been working in the Project Management Software consulting business since 1993, starting with Artemis, and then onto ABT, Niku and through it's rebranding to today and Clarity PPM.



Session Agenda

Navigating around the Clarity PPM data model



Schema Basics

Common Tables

Basic Reporting



Schema Basics

Navigating around the Clarity PPM data model

How to access the database schema

SaaS Users

- Can use the Jaspersoft Studio Professional CA JDBC Adapter
 - Downloadable from the Support site with Jaspersoft Studio
- Tools such as SQuirreLSQL work with the Driver
- You need to create a Report Developer user directly within Advanced Reporting with role ROLE_ADMINISTRATOR
- Can access the PPM transactional and data warehouse schemas
- Limited to 1000 rows and read only

Schema Basics

- The PPM transaction database schema - approx. 1000 tables
 - The PPM DWH database schema – approx. 200 tables
 - plus, Views, Studio configured object tables, etc
 - Schema documentation is available from docops.ca.com
-
- **So, we cannot cover everything!**

Schema Basics

Naming

Naming of tables 'sort of' follow rules:

<COMPONENT>[_<SUB_COMPONENT>_]<DESCRIPTION>

- **COMPONENT** such as CMN for Common or, PFM for Portfolios
- **SUB_COMPONENT** such as SEC for Security, OBS – as it says.
- **DESCRIPTION** the content of the table, such as USERS, TASKS

Schema Basics

ALMOST all tables will have the following automatically populated columns:

- **ID** or **PRID** Primary key column
- **CREATED_DATE** the date the record was created
- **CREATED_BY** the user id of the user who created the record
- **LAST_UPDATED_DATE** the date the record was last updated
- **LAST_UPDATED_BY** the user id of the user who last updated the record

Schema Basics

Studio Configured Objects

ODF_CA_<Object ID>

Object: Agile Burn Down - *Properties*

* OBJECT NAME
Agile Burn Down

OBJECT ID
agileburndown

PROPERTIES ATTRIBUTES LINKING ACTIONS VIEWS AUDIT TRAIL ACCESS TO THIS OBJECT ▾

Object: Agile Burn Down - *Attributes*

ATTRIBUTE NAME ACTIVE
Active

ATTRIBUTE DISPLAY
All Attributes

FILTER SHOW ALL CLEAR

<input type="checkbox"/>	Attribute	Description	Active	Virtual	Data Type	Default	Database Table	Database Column
<input type="checkbox"/>	Created By		✓	✓	String		odf_ca_agileburndown	
<input type="checkbox"/>	Created Date		✓	✓	Date		odf_ca_agileburndown	
<input type="checkbox"/>	Day		✓		Date		odf_ca_agileburndown	day
<input type="checkbox"/>	Estimation Accuracy		✓		Number		odf_ca_agileburndown	estimation_accuracy

Schema Basics

Studio seeded Objects

[PROPERTIES](#)
[ATTRIBUTES](#)
[LINKING](#)
[ACTIONS](#)
[VIEWS](#)
[AUDIT TRAIL](#)
[ACCESS TO THIS OBJECT](#)

Object: Project - Attributes

ATTRIBUTE NAME: _____
 PARTITION: **System**
 ATTRIBUTE DISPLAY: **All Attributes**
 ACTIVE: **Active**
 DATA WAREHOUSE: **All**
 DATA WAREHOUSE TRENDING: **All**

[FILTER](#)
[SHOW ALL](#)
[CLEAR](#)

<input type="checkbox"/>	Attribute	Partition	Partition Association Mode	Description	Active	Virtual	Data Warehouse	Data Warehouse Trending	Data Type	Default
	% Complete	System	Partition, ancestors and descendants	Percent Complete	✓				Percent	0.00%
	% Complete Calculation Method	System	Partition, ancestors and descendants	Percent Complete Calculation Method	✓				Lookup - Number	Manual
	% Done By Agile Plan Estimate	System	Partition, ancestors and descendants	% Done By Agile Plan Estimate	✓		✓		Percent	
	% Done by Story Count	System	Partition, ancestors and descendants	% Done By Story Count	✓		✓		Percent	

Database Table	Database Column
INV_PROJECTS	percent_complete
INV_PROJECTS	percent_calc_mode
odf_ca_project	agl_pctdon_plest
odf_ca_project	agl_pctdon_stc

Common Tables

Navigating around the Clarity PPM data model

Lookups

- Lookup definition and values are stored in the CMN_LOOKUP* tables
- Use view **CMN_LOOKUPS_V** for lookups
- Multi-valued lookup attribute values stored in table **ODF_MULTI_VALUED_LOOKUPS**
 - Can link to CMN_LOOKUPS or Dynamic lookup source table

```
SELECT U.USER_NAME, U.ID, L.NAME
FROM CMN_SEC_USERS U
JOIN CMN_LOOKUPS_V L
  ON U.USER_STATUS_ID = L.ID
  AND L.LOOKUP_TYPE = 'SEC_USER_STATUS'
  AND L.LANGUAGE_CODE = 'en'
```

	USER_NAME	ID	NAME
1	admin		1 Active
2	scheduler		7 Active
3	monitor_admin		9 Active
4	csk.admin	5001000	Active
5	rm	5002000	Active
6	akumar	5003000	Active
7	sevans	5003001	Active
8	mgoldman	5003002	Active
9	rgupta	5003003	Active
10	ericjohnson	5003004	Active

TimeSlices

- Time related data, i.e. Daily Time-entries, Allocations, Financial plan detail values stored are as binary data, i.e. in IMAGE or BLOB columns
- TimeSlice tables contain this data in a reportable format pre aggregated by periods such as Weeks, Months, Quarters and Years
- The TimeSlicer job updates these TimeSlice tables
- Most TimeSlice tables start PRJ_BLB_*
 - Others are ODF_SL_* or ODF_SSL_*

TimeSlices

- Look in Administration/Time Slices for available Time Sliced data and ability to add new slices

Time Slices

<input type="checkbox"/>	ID	Time Slice	Rollover Interval	From	Slice Period	Number of Periods	Item
<input type="checkbox"/>	1	DAILYRESOURCEAVAILCURVE	Monthly	01/03/18	Daily	975	Availability
<input type="checkbox"/>	2	DAILYRESOURCEACTCURVE	Monthly	01/03/18	Daily	470	Actuals
<input type="checkbox"/>	3	DAILYRESOURCEESTCURVE	Monthly	01/03/18	Daily	975	Estimates
<input type="checkbox"/>	4	MONTHLYRESOURCEACTCURVE	Quarterly	01/07/16	Monthly	72	Actuals
<input type="checkbox"/>	5	MONTHLYRESOURCEESTCURVE	Quarterly	01/07/16	Monthly	72	Estimates
<input type="checkbox"/>	6	MONTHLYRESOURCEALLOCCURVE	Quarterly	01/07/16	Monthly	72	Allocation
<input type="checkbox"/>	7	MONTHLYRESOURCEAVAILCURVE	Quarterly	01/07/16	Monthly	72	Availability
<input type="checkbox"/>	10	DAILYRESOURCEALLOCCURVE	Monthly	01/03/18	Daily	975	Allocation
<input type="checkbox"/>	11	DAILYRESOURCEBASECURVE	Monthly	01/03/18	Daily	975	Baseline
<input type="checkbox"/>	164	DAILY_INVESTMENT_ESTIMATES	Monthly	01/03/18	Daily	975	Investment Estimates
<input type="checkbox"/>	165	WEEKLY_INVESTMENT_ESTIMATES	Monthly	19/02/18	Weekly	130	Investment Estimates
<input type="checkbox"/>	166	MONTHLY_INVESTMENT_ESTIMATES	Monthly	01/03/18	Monthly	36	Investment Estimates

- The data displayed above is found in table **PRJ_BLB_SLICEREQUESTS** plus those slices hidden from the view along with the name of the table that contains the actual data.

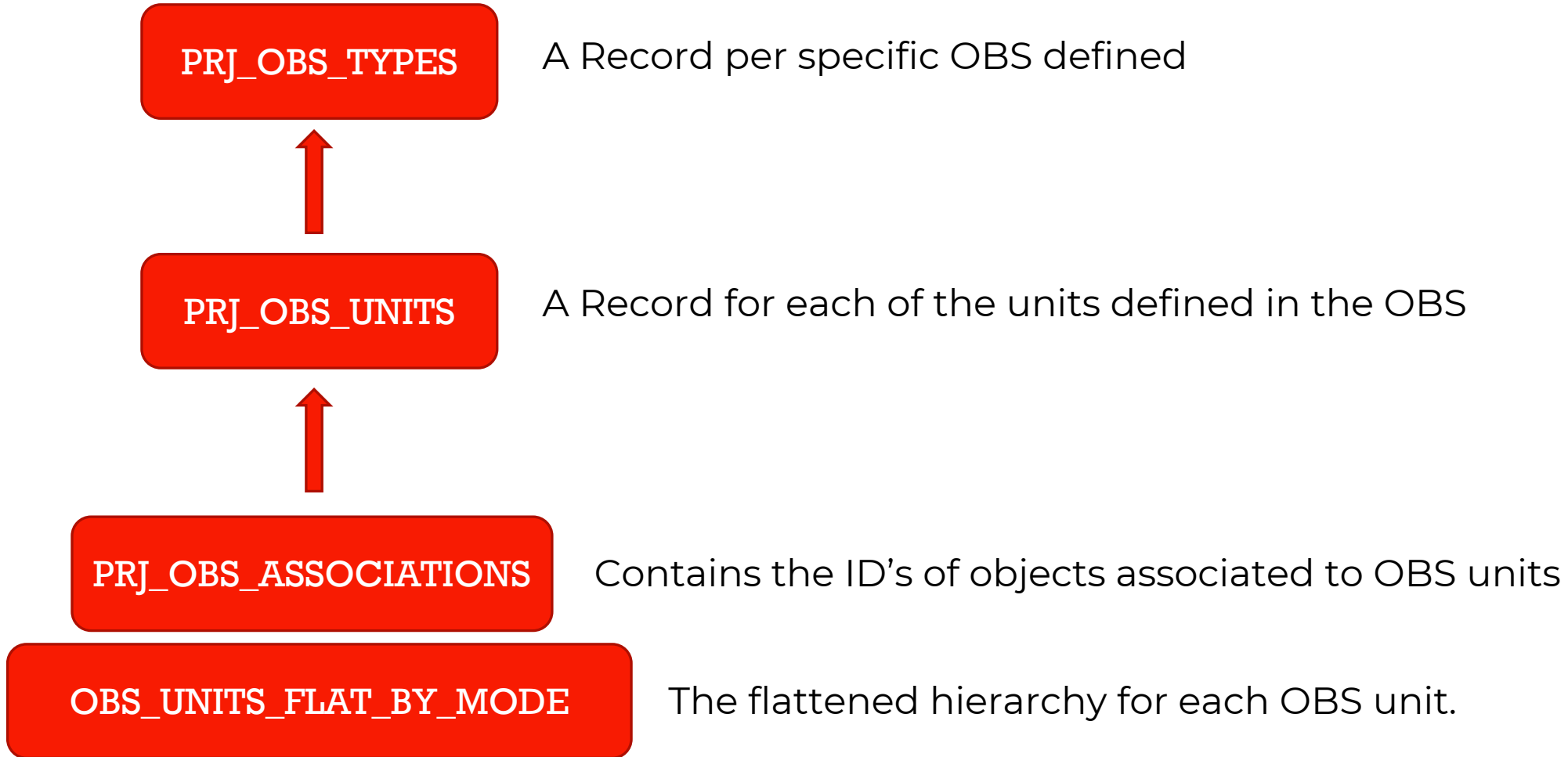
TimeSlices

- Largest table is normally **PRJ_BLB_SLICES**
- Is it normally **huge** when compared to most other tables in the database
- An example reading the Monthly availability for a single resource:

```
SELECT *  
FROM PRJ_BLB_SLICES  
WHERE SLICE_REQUEST_ID = 7 --slice request 7  
AND PRJ_OBJECT_ID = 1 --admin resource id
```

	SLICE_REQUEST_ID	PRJ_OBJECT_ID	SLICE_DATE	SLICE	CREATED_DATE
1	7	1	2016-07-01 00.00.00	168	2014-10-01 00.00.01
2	7	1	2016-08-01 00.00.00	184	2014-11-01 00.00.13
3	7	1	2020-08-01 00.00.00	168	2017-07-01 00.00.16
4	7	1	2016-09-01 00.00.00	176	2014-12-02 14.20.29
5	7	1	2016-10-01 00.00.00	168	2015-01-01 00.02.33
6	7	1	2016-11-01 00.00.00	176	2015-02-01 00.02.05
7	7	1	2016-12-01 00.00.00	176	2015-03-01 00.01.00
8	7	1	2017-01-01 00.00.00	176	2015-03-13 13.23.24
9	7	1	2017-02-01 00.00.00	160	2015-03-13 13.23.24
10	7	1	2017-03-01 00.00.00	184	2015-03-13 13.23.24
11	7	1	2017-04-01 00.00.00	160	2015-03-13 13.23.24
12	7	1	2017-05-01 00.00.00	184	2015-03-13 13.23.24

OBS



OBS: Example 1

OBS: Resource Pool - OBS U

<input type="checkbox"/>	Top
<input type="checkbox"/>	- All Groups
<input type="checkbox"/>	+ Agile Teams
<input type="checkbox"/>	Business Transformation
<input type="checkbox"/>	+ External
<input type="checkbox"/>	+ Internal
<input type="checkbox"/>	+ New Product Development
<input type="checkbox"/>	NPN
<input type="checkbox"/>	PPM UX
<input type="checkbox"/>	Professional Services
<input type="checkbox"/>	- External
<input type="checkbox"/>	Offshore Development
<input type="checkbox"/>	Onshore Development

```
SELECT OU.NAME, OUF.LINKED_UNIT_ID, OUB.NAME
FROM PRJ_OBS_TYPES OT
JOIN PRJ_OBS_UNITS OU ON OT.ID = OU.TYPE_ID
JOIN OBS_UNITS_FLAT_BY_MODE OUF ON OU.ID = OUF.UNIT_ID
JOIN PRJ_OBS_UNITS OUB ON OUF.LINKED_UNIT_ID = OUB.ID
WHERE OT.NAME = 'Resource Pool'
AND OU.UNIQUE_NAME = 'External'
AND OUF.UNIT_MODE = 'OBS_UNIT_AND_CHILDREN'
```

	NAME	LINKED_UNIT_ID	NAME_1
1	External	5001016	External
2	External	5002002	Offshore Development
3	External	5002003	Onshore Development

OBS: Example 2

```
SELECT OUB.NAME, R.UNIQUE_NAME, R.FULL_NAME
FROM PRJ_OBS_TYPES OT
JOIN PRJ_OBS_UNITS OU ON OT.ID = OU.TYPE_ID
JOIN OBS_UNITS_FLAT_BY_MODE OUF ON OU.ID = OUF.UNIT_ID
JOIN PRJ_OBS_UNITS OUB ON OUF.LINKED_UNIT_ID = OUB.ID
JOIN PRJ_OBS_ASSOCIATIONS OA
  ON OUF.LINKED_UNIT_ID = OA.UNIT_ID
  AND OA.TABLE_NAME = 'SRM_RESOURCES'
JOIN SRM_RESOURCES R ON OA.RECORD_ID = R.ID
WHERE OT.NAME = 'Resource Pool'
  AND OU.UNIQUE_NAME = 'External'
  AND OUF.UNIT_MODE = 'OBS_UNIT_AND_CHILDREN'
```

	NAME	UNIQUE_NAME	FULL_NAME
1	Offshore Development	arunKumar	Kumar, Arun
2	Offshore Development	rakeshGupta	Gupta, Rakesh
3	Offshore Development	saiKrishna	Krishna, Sai
4	Offshore Development	deepakPatel	Patel, Deepak
5	Offshore Development	sanjayKhan	Khan, Sanjay
6	Offshore Development	artKingsley	Kingsley, Art
7	Onshore Development	seanEvans	Evans, Sean

Basic Reporting

Navigating around the Clarity PPM data model

Basic Reporting

- Common Basic Reporting areas:
 - Investments/Projects
 - Resources
 - Timesheets

< Apr 8 - Apr 14 Apr 15 - Apr 21 Apr 22 - Apr 28 >

OPEN OPEN OPEN

HOURS 40.00/40.00

	Charge Code	Input Type Code	Mon. 8	Tue. 9
<input type="checkbox"/> WORK <input type="checkbox"/> WORK			8.00	8.00
Application Security Audit (PR1046)				
Application Security Audit (-rmw) 1			8.00	8.00

Investment Data

- INV_INVESTMENTS

Core Investment table, common for all investments and investment extensions

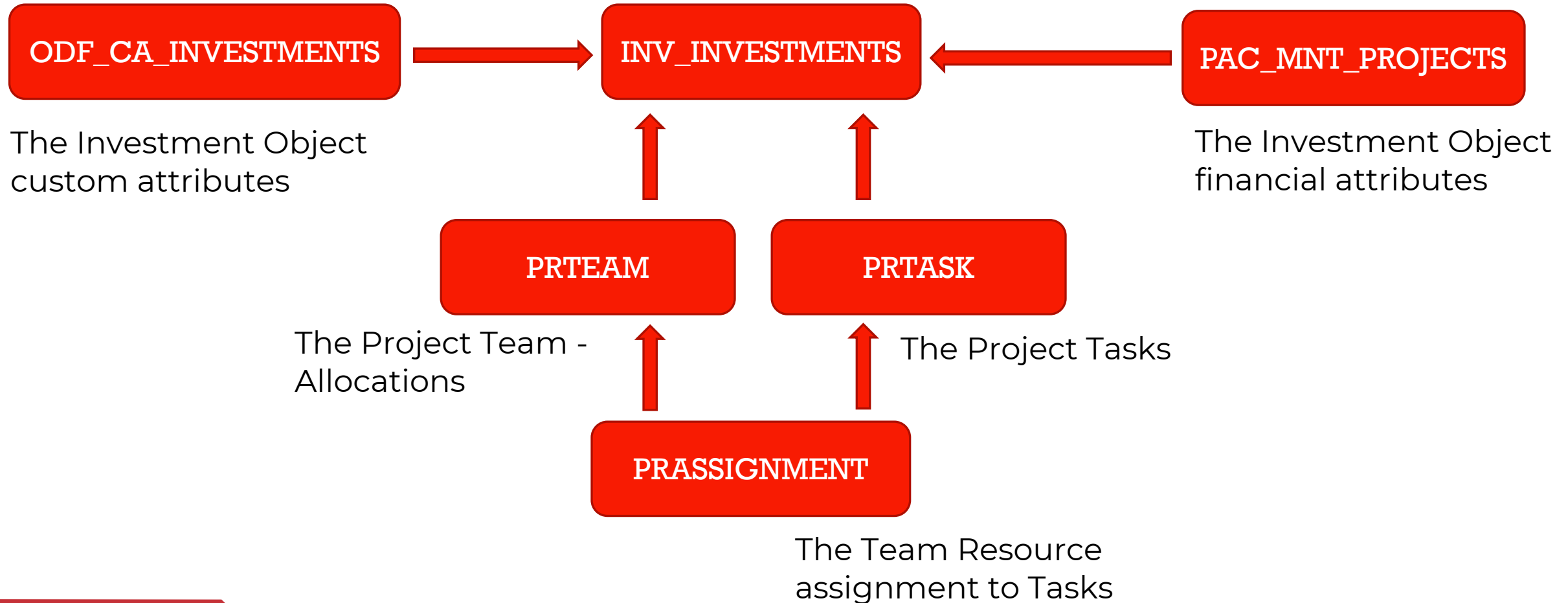
- INV_APPLICATIONS
- INV_ASSETS
- INV_IDEAS
- INV_OTHERS
- INV_PRODUCTS
- INV_PROJECTS
- INV_SERVICES

All join via ID except INV_PROJECTS so:

```
FROM INV_INVESTMENTS I  
JOIN INV_ASSETS A ON I.ID=A.ID
```

```
FROM INV_INVESTMENTS I  
JOIN INV_PROJECTS P ON I.ID=P.PRID
```

Investment Data



Investment Data: Examples

```
SELECT I.CODE,  
       I.NAME,  
       I.ODF_OBJECT_CODE,  
       FP.CLASS,  
       P.PRASOF,  
       OP.PARTITION_CODE  
FROM INV_INVESTMENTS I  
JOIN INV_PROJECTS P ON P.PRID = I.ID  
JOIN PAC_MNT_PROJECTS FP ON FP.ID = I.ID  
JOIN ODF_CA_PROJECT OP ON P.PRID = OP.ID  
WHERE I.IS_ACTIVE = 1  
      AND I.ODF_OBJECT_CODE = 'project'  
      AND P.IS_TEMPLATE = 0
```

```
SELECT I.CODE,  
       I.NAME,  
       T.PREEXTERNALID,  
       T.PRNAME,  
       T.PRSTART,  
       T.PRFINISH  
FROM INV_INVESTMENTS I  
JOIN PRTASK T ON I.ID = T.PRPROJECTID  
WHERE I.CODE = 'PR1001'
```

Resource Data

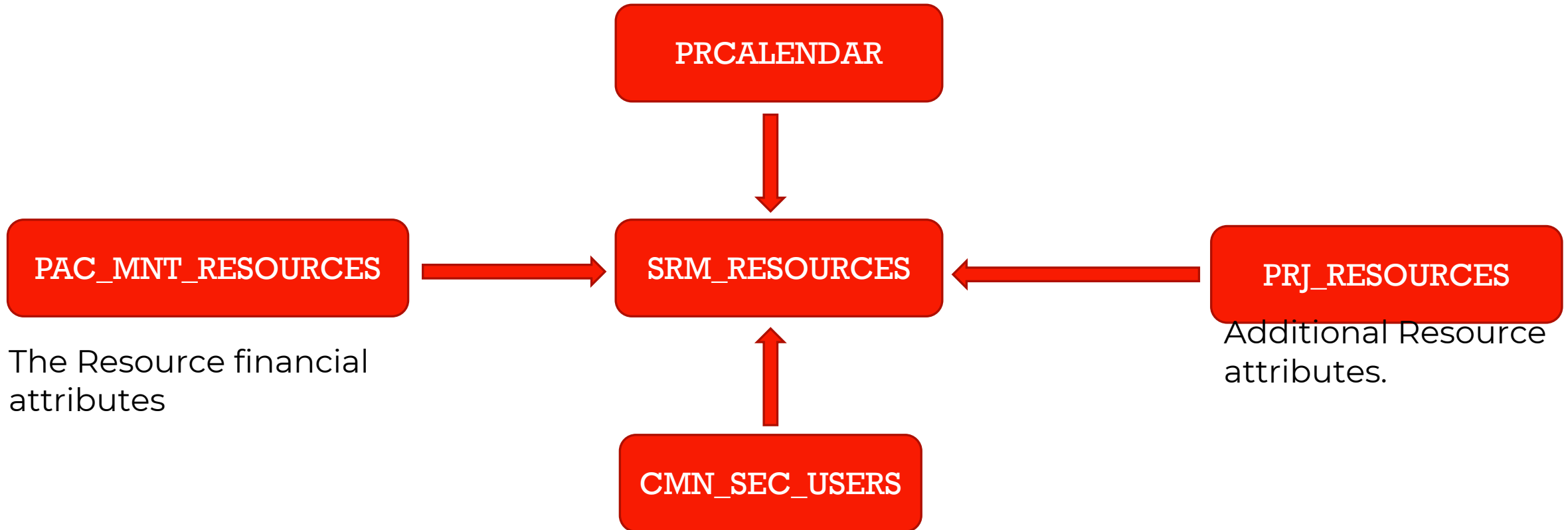
- SRM_RESOURCES

Core Resource table. Resources are added to Teams, Timesheets, etc

- CMN_SEC_USERS

Core User table, only use when you are looking at logon/security information or who created/updated a record

Resource Data



A user can only be associated with one resource.

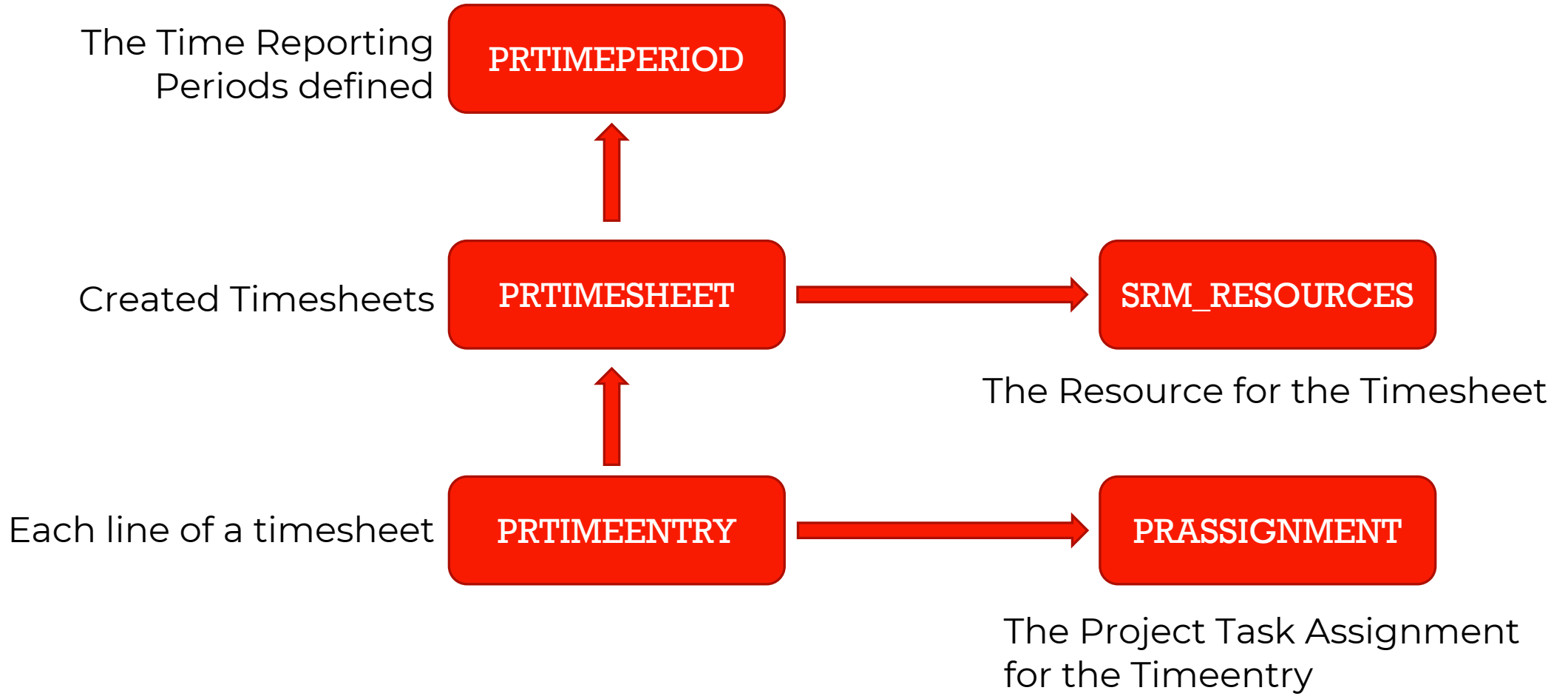
CMN_SEC_USERS.ID = SRM_RESOURCES.USER_ID

Resource Data

```
SELECT R.FULL_NAME, R.UNIQUE_NAME, U.USER_NAME, P.PRISOPEN,  
  RR.FULL_NAME ROLE, TC.PRNAME TYPECODE, C.HOURS_PER_DAY  
FROM SRM_RESOURCES R  
JOIN CMN_SEC_USERS U ON R.USER_ID = U.ID  
JOIN PRJ_RESOURCES P ON R.ID = P.PRID  
JOIN PRCALENDAR C ON P.PRCALENDARID = C.PRID  
JOIN SRM_RESOURCES RR ON P.PRPRIMARYROLEID = RR.ID  
JOIN PRTYPECODE TC ON P.PRTYPECODEID = TC.PRID  
WHERE P.PRISROLE = 0
```

	⚡ FULL_NAME	⚡ UNIQUE_NAME	⚡ USER_NAME	⚡ PRISOPEN	⚡ ROLE	⚡ TYPECODE	⚡ HOURS_PER_DAY
1	Miller, Randy	randyMiller	rmiller	1	DBA	Billable	8
2	Carmen, Ed	edCarmen	exec	1	DBA	Billable	8
3	Ives, Blair	blairIves	bives	1	DBA	Billable	8
4	Krishna, Sai	saiKrishna	skrishna	1	Test Engineer	Billable	8
5	Sampson, Mike	mikeSampson	msampson	1	Test Engineer	Billable	8
6	Lewis, Nicole	nicoleLewis	nlewis	1	Test Engineer	Billable	8
7	Turner, Bruce	bruceTurner	bturner	1	Test Engineer	Billable	8

Timesheet Data



Timesheet Data

```
SELECT
  R.UNIQUE_NAME, R.FULL_NAME, TP.PRSTART, I.NAME,
  T.PRNAME, TE.PRACTSUM
FROM PRTIMEPERIOD TP
JOIN PRTIMESHEET TS ON TP.PRID = TS.PRTIMEPERIODID
JOIN PRTIMEENTRY TE ON TS.PRID = TE.PRTIMESHEETID
JOIN SRM_RESOURCES R ON TS.PRRESOURCEID = R.ID
JOIN PRASSIGNMENT A ON TE.PRASSIGNMENTID = A.PRID
JOIN PRTASK T ON A.PRTASKID = T.PRID
JOIN INV_INVESTMENTS I ON T.PRPROJECTID = I.ID
WHERE R.UNIQUE_NAME = 'admin'
AND TP.PRSTART >= TO_DATE('2019-03-25', 'YYYY-MM-DD')
```

UNIQUE_NAME	FULL_NAME	PRSTART	NAME	PRNAME	PRACTSUM
admin	Administrator, System	2019-03-25 00.00.00	Application Security Audit	Application Security Audit	21600
admin	Administrator, System	2019-04-01 00.00.00	Application Security Audit	Application Security Audit	1152000
admin	Administrator, System	2019-04-08 00.00.00	Application Security Audit	Application Security Audit	144000

Timesheet Data

```

SELECT
  R.UNIQUE_NAME, R.FULL_NAME, TP.PRSTART, I.NAME, T.PRNAME,
  S.SLICE_DATE, S.SLICE
FROM PRTIMEPERIOD TP
JOIN PRTIMESHEET TS ON TP.PRID = TS.PRTIMEPERIODID
JOIN PRTIMEENTRY TE ON TS.PRID = TE.PRTIMESHEETID
JOIN SRM_RESOURCES R ON TS.PRRESOURCEID = R.ID
JOIN PRASSIGNMENT A ON TE.PRASSIGNMENTID = A.PRID
JOIN PRTASK T ON A.PRTASKID = T.PRID
JOIN INV_INVESTMENTS I ON T.PRPROJECTID = I.ID
JOIN PRJ_BLB_SLICES S ON TE.PRID = S.PRJ_OBJECT_ID AND S.SLICE_REQUEST_ID = 55555
WHERE R.UNIQUE_NAME = 'admin'
  AND TP.PRSTART >= TO_DATE('2019-03-25', 'YYYY-MM-DD')
  
```

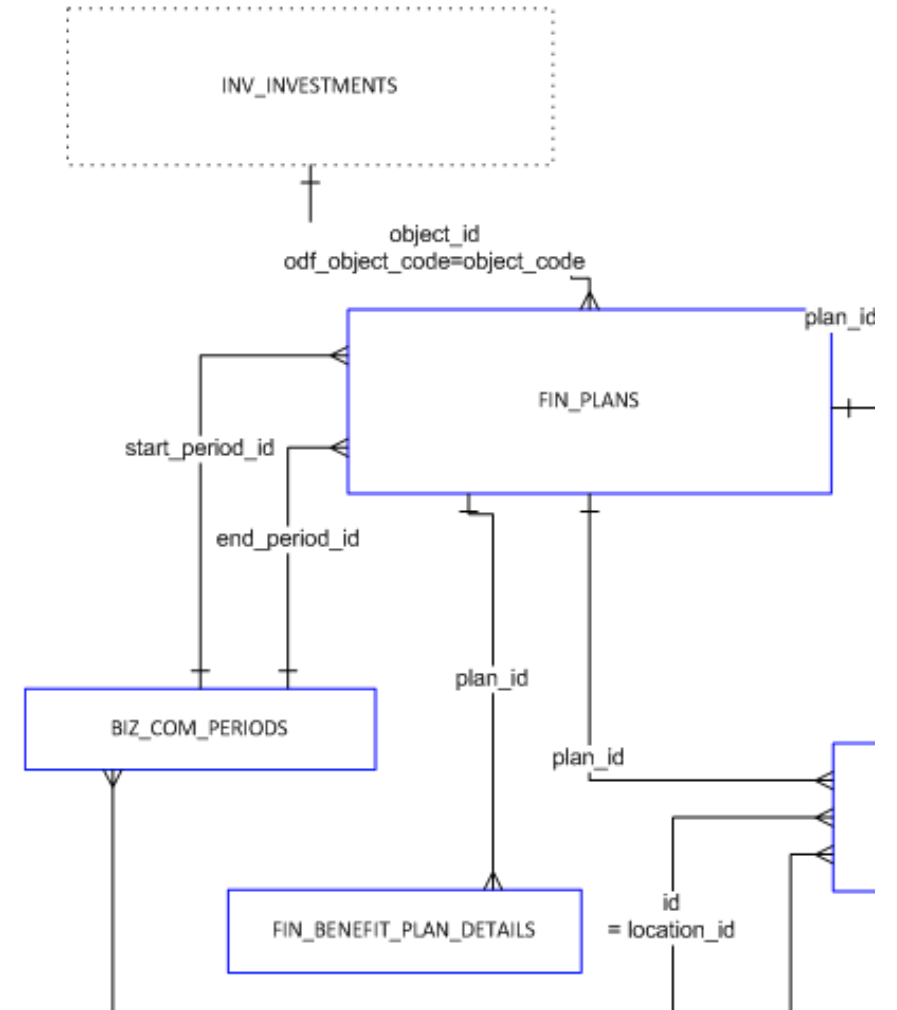
	FULL_NAME	PRSTART	NAME	PRNAME	SLICE_DATE	SLICE
1	Administrator, System	2019-03-25 00.00.00	Application Security Audit	Application Security Audit	2019-03-25 00.00.00	6
2	Administrator, System	2019-04-01 00.00.00	Application Security Audit	Application Security Audit	2019-04-01 00.00.00	64
3	Administrator, System	2019-04-01 00.00.00	Application Security Audit	Application Security Audit	2019-04-02 00.00.00	64
4	Administrator, System	2019-04-01 00.00.00	Application Security Audit	Application Security Audit	2019-04-03 00.00.00	64
5	Administrator, System	2019-04-01 00.00.00	Application Security Audit	Application Security Audit	2019-04-04 00.00.00	64
6	Administrator, System	2019-04-01 00.00.00	Application Security Audit	Application Security Audit	2019-04-05 00.00.00	64
7	Administrator, System	2019-04-08 00.00.00	Application Security Audit	Application Security Audit	2019-04-08 00.00.00	8
8	Administrator, System	2019-04-08 00.00.00	Application Security Audit	Application Security Audit	2019-04-09 00.00.00	8
9	Administrator, System	2019-04-08 00.00.00	Application Security Audit	Application Security Audit	2019-04-10 00.00.00	8
10	Administrator, System	2019-04-08 00.00.00	Application Security Audit	Application Security Audit	2019-04-11 00.00.00	8
11	Administrator, System	2019-04-08 00.00.00	Application Security Audit	Application Security Audit	2019-04-12 00.00.00	8

Where Next

DocOps – Look at the Clarity PPM Entity Relationship Diagrams in the Reference section

Also download the CA PPM Advanced Reporting and Database Schema Index

Use a SQL tool to browse the database Schema – also look at the views – ODF_*



Navigating around the Clarity PPM data model

Questions?

Thank you for attending

Navigating around the Clarity PPM data model



Phone

+44



Email

ppmacademy@pemari.com



Website

www.pemari.com



**Let us know how we can
improve!
Don't forget to fill out the
feedback forms!**