

NSQL Portlets | Advanced

Your Guides: David Matzdorf and Ben Rimmasch

Introductions

- Take 5 Minutes
- Turn to a Person Near You
- Introduce Yourself
- Business Cards



Agenda

- Multi-Dimensional Portlets
 - NSQL Syntax
 - Creating a sample portlet
 - Limitations
 - Common errors and best practices
- Hierarchical Portlets
 - NSQL Syntax
 - Creating a sample portlet
 - Limitations and best practices
- Questions

Multi-Dimensional Portlets

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Let Rego be your guide.

Multi-Dimensional Portlets

- What does multi-dimensional look like?



Single Dimension

Dimension 1

Sample Single Dimension Portlet					
Project	Resource	Task	Slice Date▲	Cost	Hours
Project 1	Resource 1	Task 1	1/1/15	100	2
Project 1	Resource 1	Task 2	1/1/15	150	3
Project 1	Resource 1	Task 3	1/1/15	200	4
Project 1	Resource 2	Task 1	1/1/15	150	3
Project 1	Resource 2	Task 2	1/1/15	200	4
Project 1	Resource 2	Task 3	1/1/15	250	5
Project 1	Resource 3	Task 1	1/1/15	200	4
Project 1	Resource 3	Task 2	1/1/15	250	5
Project 1	Resource 3	Task 3	1/1/15	300	6
Project 2	Resource 1	Task 1	1/1/15	100	2

Two Dimensions

Dimension 2

Dimension 1

Sample Multi-Dimensional Portlet																
Project▲	Resource	Task	Jan 2015		Feb 2015		Mar 2015		Apr 2015		May 2015		Jun 2015		Jul 2015	
			Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
Project 1	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100	2	100
Project 1	Resource 1	Task 2	3	150	3	150	3	150	3	150	3	150	3	150	3	150
Project 1	Resource 1	Task 3	4	200	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 2	Task 1	3	150	3	150	3	150	3	150	3	150	3	150	3	150
Project 1	Resource 2	Task 2	4	200	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 2	Task 3	5	250	5	250	5	250	5	250	5	250	5	250	5	250
Project 1	Resource 3	Task 1	4	200	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 3	Task 2	5	250	5	250	5	250	5	250	5	250	5	250	5	250
Project 1	Resource 3	Task 3	6	300	6	300	6	300	6	300	6	300	6	300	6	300
Project 2	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100	2	100

Multi-Dimensional Portlets: Syntax

• NSQL Syntax

Single Dimension

SELECT @SELECT:**DIM**:USER_DEF:IMPLIED:**ASSIGNMENT**:A.PRID:ID@
 , @SELECT:**DIM_PROP**:USER_DEF:IMPLIED:**ASSIGNMENT**:INVI.ID:PROJECT_ID@

Dimension
Name

Adding Second Dimension

SELECT @SELECT:**DIM**:USER_DEF:IMPLIED:**ASSIGNMENT**:A.PRID:ID@
 , @SELECT:**DIM_PROP**:USER_DEF:IMPLIED:**ASSIGNMENT**:INVI.ID:PROJECT_ID@
 , @SELECT:**DIM**:USER_DEF:IMPLIED:**TIMEPERIOD**:ETC.SLICE_DATE:SLICE_DATE_ID@
 , @SELECT:**DIM_PROP**:USER_DEF:IMPLIED:**TIMEPERIOD**:TO_CHAR(ETC.SLICE_DATE, 'YYYY-MM-DD'):SLICE_DATE@
 , @SELECT:**METRIC**:USER_DEF:IMPLIED:**ETC**:SLICE:ETC@

- Dimension Column
- Dimension Property

Y-Axis ↑

	DIM2	DIM2	DIM2
DIM1	METRIC	METRIC	
DIM1	METRIC		METRIC
DIM1		METRIC	
DIM1	METRIC		METRIC

→ X-Axis

DIM1 = ASSIGNMENT
 DIM2 = TIMEPERIOD (timescaled)
 METRIC = ETC

Multi-Dimensional Portlets: Syntax

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- Example Multi-Dimensional Query

```
SELECT @SELECT:DIM:USER_DEF:IMPLIED:ASSIGNMENT:A.PRID:ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.CODE:PROJECT_CODE@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.NAME:PROJECT_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:T.PRNAME:TASK_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:SRMR.FULL_NAME:RESOURCE_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:A.PRSTART:ASSIGNMENT_START@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:A.PRFINISH:ASSIGNMENT_FINISH@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:SUM(ETC.SLICE) OVER (PARTITION BY A.PRID):ETC_TOTAL@

, @SELECT:DIM:USER_DEF:IMPLIED:TIMEPERIOD:ETC.SLICE_DATE:SLICE_DATE_ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:TIMEPERIOD:TO_CHAR(ETC.SLICE_DATE, 'YYYY-MM-DD'):SLICE_DATE@
, @SELECT:METRIC:USER_DEF:IMPLIED:ETC.SLICE:ETC@
FROM INV_INVESTMENTS INVI
JOIN PRTASK T ON INVI.ID = T.PRPROJECTID
JOIN PRASSIGNMENT A ON T.PRID = A.PRTASKID
JOIN SRM_RESOURCES SRMR ON A.PRRESOURCEID = SRMR.ID
JOIN PRJ_BLB_SLICES ETC ON A.PRID = ETC.PRJ_OBJECT_ID
WHERE 1=1
AND ETC.SLICE_REQUEST_ID = (SELECT SR.ID FROM PRJ_BLB_SLICEREQUESTS SR WHERE SR.REQUEST_NAME= @WHERE:PARAM:USER_DEF:STRING:SLICE BY STRING@ || 'RESOURCEESTCURVE')
AND ETC.SLICE_DATE BETWEEN @WHERE:PARAM:USER_DEF:DATE:START_DATE@ AND @WHERE:PARAM:USER_DEF:DATE:FINISH_DATE@
AND @FILTER@
```

← 1st Dimension (Y-Axis)

← 2nd Dimension (X-Axis)

Multi-Dimensional Portlets

The Goal !



We are going to build a portlet that displays ETC by Tasks over time (timescaled)

Overview: Rahul Test Tab

ETC by Tasks Over Time

Start Date: 1/1/2017 Time Scaled Value: Monthly

Finish Date: 6/30/2017

Filter Save Filter Clear

Project Code	Project Name	Resource	Task	Assignment Finish	Assignment Start	ETC Total	2017-01-01 ETC (Hours)	2017-02-01 ETC (Hours)	2017-03-01 ETC (Hours)	2017-04-01 ETC (Hours)	2017-05-01 ETC (Hours)	2017-06-01 ETC (Hours)
APP01	Bat Signal	Alfred, Al	Bat Signal	12/29/17	2/29/16	910	154	140	161	140	161	
APP01	Bat Signal	Dolak, Jerry	Bat Signal	12/29/17	10/5/15	1,040	176	160	184	160	184	
APP01	Bat Signal	Wuenstel, Chris	Bat Signal	12/29/17	2/23/15	1,040	176	160	184	160	184	
ID1015	RA Test Idea	Agrawal, Rahul	RA Test Idea	12/29/17	1/1/16	520	88	80	92	80	92	
ID1015	RA Test Idea	Almeida, Joe	RA Test Idea	12/29/17	1/1/16	208	35.2	32	36.8	32	36.8	
ID1015	RA Test Idea	America, Captain	RA Test Idea	12/29/17	1/1/16	832	140.8	128	147.2	128	147.2	



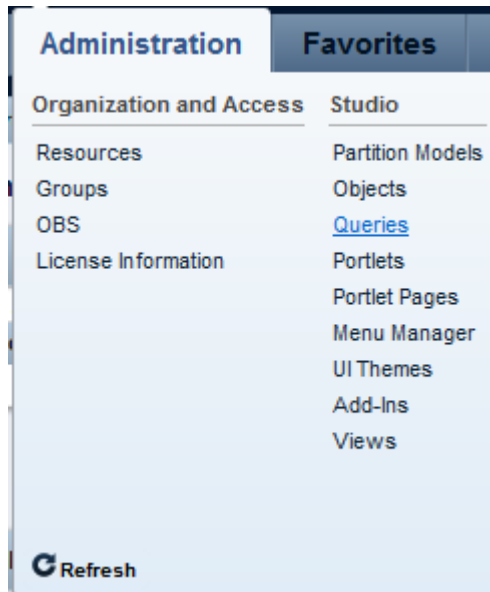
Let's begin !

Multi-Dimensional Portlets: Query

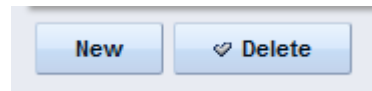
9

- Create Query

1) Administration -> Queries

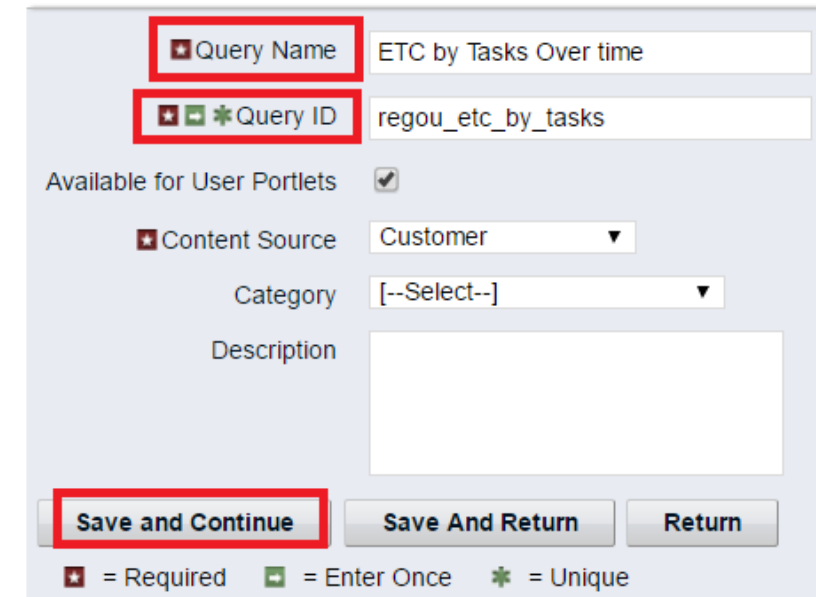


2) Click New



3) Enter Query Name and Query ID, click Save and Continue

Query Properties: General

A screenshot of the 'Query Properties: General' form. The 'Query Name' field contains 'ETC by Tasks Over time' and the 'Query ID' field contains 'regou_etc_by_tasks'. The 'Available for User Portlets' checkbox is checked. The 'Content Source' dropdown is set to 'Customer', and the 'Category' dropdown is set to '--Select--'. The 'Description' field is empty. At the bottom, the 'Save and Continue' button is highlighted. A legend at the bottom indicates: a red square with a plus sign for 'Required', a green square with a plus sign for 'Enter Once', and an asterisk for 'Unique'.

Multi-Dimensional Portlets: Query

- Populate NSQL

4) Remove the default query and paste your query. Click Save and Continue

Query: ETC by Tasks Over Time - NSQL

Use this template to create your Niku SQL statement.

■ NSQL

```
SELECT @SELECT:DIM:USER_DEF:IMPLIED:ASSIGNMENT:A.PRID:ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.CODE:PROJECT_CODE@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.NAME:PROJECT_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:T.PRNAME:TASK_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:SRMR.FULL_NAME:RESOURCE_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:A.PRSTART:ASSIGNMENT_START@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:A.PRFINISH:ASSIGNMENT_FINISH@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:SUM(ETC.SLICE) OVER (PARTITION BY A.PRID):ETC_TOTAL@
, @SELECT:DIM:USER_DEF:IMPLIED:TIMEPERIOD:ETC.SLICE DATE:SLICE_DATE_ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:TIMEPERIOD:TO_CHAR(ETC.SLICE_DATE, 'YYYY-MM-DD'):SLICE_DATE@
, @SELECT:METRIC:USER_DEF:IMPLIED:ETC.SLICE:ETC@
FROM INV_INVESTMENTS INVI
JOIN PRTASK T ON INVI.ID = T.PRPROJECTID
JOIN PRASSIGNMENT A ON T.PRID = A.PRTASKID
JOIN SRM_RESOURCES SRMR ON A.PRRSOURCEID = SRMR.ID
JOIN PRJ_BLB_SLICES ETC ON A.PRID = ETC.PRJ_OBJECT_ID
WHERE 1=1
AND ETC.SLICE_REQUEST_ID = (SELECT SR.ID FROM PRJ_BLB_SLICEREQUESTS SR WHERE SR.REQUEST_NAME= @WHERE:PRJ_BLB_SLICEREQUESTS.REQUEST_NAME@)
AND ETC.SLICE_DATE BETWEEN @WHERE:PARAM:USER_DEF:DATE:START_DATE@ AND @WHERE:PARAM:USER_DEF:DATE:FINISH_DATE@
AND @FILTER@
```

Preview

Save and Continue

Save And Return

Return

■ = Required

Multi-Dimensional Portlets: Query

- Review Attributes

Query: ETC by Tasks Over Time - *Attributes*

Attributes							
Name	ID	Attribute Class	Data Type	Extended Data Type	Required	Lookup	
etc	etc	Metric	Numeric	Numeric			
TIMEPERIOD							
↳ slice_date_id	slice_date_id	Dimension Key	Date	Date			
↳ slice_date	slice_date	Dimension Property	String	String			
ASSIGNMENT							
↳ id	id	Dimension Key	Numeric	Numeric			
↳ project_code	project_code	Dimension Property	String	String			
↳ project_name	project_name	Dimension Property	String	String			
↳ task_name	task_name	Dimension Property	String	String			
↳ resource_name	resource_name	Dimension Property	String	String			
↳ assignment_start	assignment_start	Dimension Property	Date	Date			
↳ assignment_finish	assignment_finish	Dimension Property	Date	Date			
↳ etc_total	etc_total	Dimension Property	Numeric	Numeric			

Metric →

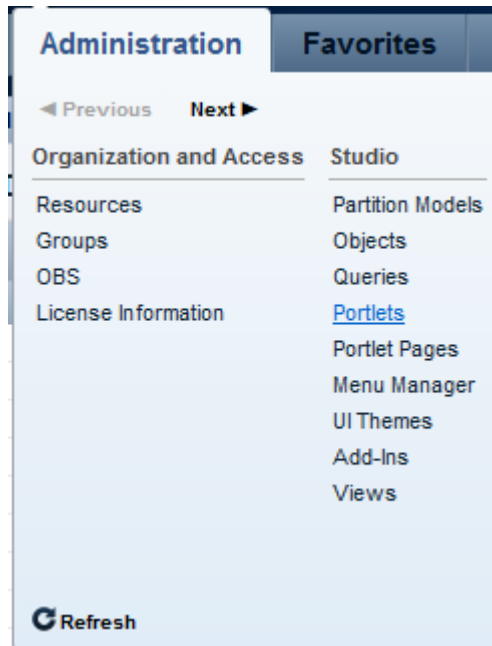
2nd Dimension →

1st Dimension →

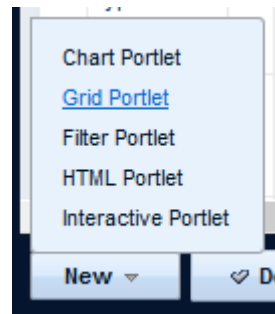
Multi-Dimensional Portlets: Portlet

- Create Portlet

1) Administration -> Portlets



2) New -> Grid Portlet



3) Enter Portlet Name and ID, browse for NSQL Query as Data Provider

4) Click Next

Grid Portlet: General

General

Portlet Name: ETC by Tasks Over Time

Portlet ID: regou_etc_by_tasks_portlet

Content Source: Customer

Category: Administration

Description:

Instance Type: General

Data Provider: ETC by Tasks Over Time

Number of Dimensions: 2

Number of Metrics: 1

Next Cancel

Legend:
 [Red square] = Required
 [Green square] = Enter Once
 [Green asterisk] = Unique

Multi-Dimensional Portlets: Portlet

• Configure Portlet

1) Select Dimension for the Y Axis

Portlet: ETC by Tasks Over Time - Y Axis

2) Click Finish and Open

Portlet: ETC by Tasks Over Time - Finish

3) Click on Layout

The selected fields
will appear on Y-Axis

Select Metric(s)

X-Axis column
grouping

Select the field
to be displayed
as header

Multi-Dimensional Portlets: Portlet

- Configure Portlet
 - Select the columns to use for sorting

Always sort
on Date first

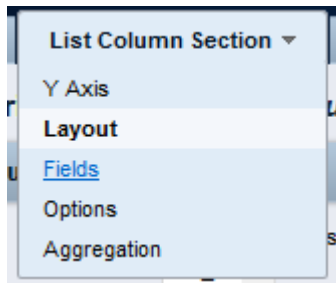
Use slice_date_id,
NOT
slice_date(label)

Column Sorting				
Sort By	Column	Direction		
		Ascending	Descending	
First Field	slice_date_id ▼	☒	☐	
Second Field	project_name ▼	☒	☐	
Third Field	resource_name ▼	☒	☐	
Fourth Field	task_name ▼	☒	☐	
* = required				

Multi-Dimensional Portlets: Portlet

• Configure Portlet

1) Click on Fields and update labels



Portlet: ETC by Tasks Over Time - List Column Fields

Show: All Display: Selected Go

Column Label	Attribute	Data Type	Display Type
Assignment Finish	assignment_finish	Date	Date Text
Assignment Start	assignment_start	Date	Date Text
ETC (Hours)	etc	Number	Number
ETC Total	etc_total	Number	Number
Project Code	project_code	String	Text
Project Name	project_name	String	Text
Resource	resource_name	String	Text
Task	task_name	String	Text

New Delete Save Save And Return Return

2) Click on Filter Layout and select filters

Portlet: ETC by Tasks Over Time - List Filter Layout

Layout

Available	Selected (Left Column)	Selected (Right Column)
assignment_finish assignment_start etc etc_total id project_code project_name resource_name slice_date slice_date_id	param_start_date param_finish_date	param_slice_by_string

Add Field Move Field Move Field

3) Click on Filter Fields and update labels

Portlet: ETC by Tasks Over Time - List Filter Fields

Display: Selected

Filter Label	Column	Data Type	Display Type	Required in Filter	Read only in Filter	Filter Default
Finish Date	param_finish_date	Date	Date			
Time Scaled Value	param_slice_by_string	Lookup - String	Pull-Down			Monthly
Start Date	param_start_date	Date	Date			

Save Save And Return Return

Multi-Dimensional Portlets: Portlet

- Set Filter Defaults

Portlet: ETC by Tasks Over Time - List Filter Fields

Display: Selected ▼	
Filter Label	Column
Finish Date	param_finish_date
Time Scaled Value	param_slice_by_string
Start Date	param_start_date

Portlet: ETC by Tasks Over Time - Filter Field Properties

Attribute: param_start_date

☒ Filter Label: Start Date

Data Type: Date

Display Type: Date ▼

Filter Default: ☒ Rolling Date: Start of Current Quarter ▼

☐ Specific Date:

Required in Filter: ☒

Hidden in Filter: ☐ (In order to make a filter field hidden a Filter Default must be selected)

Read-Only in Filter: ☐ (In order to make a filter field read only a Filter Default must be selected)

Hint:

Tooltip:

Save Save And Return Return

Portlet: ETC by Tasks Over Time - Filter Field Properties

Attribute: param_finish_date

☒ Filter Label: Finish Date

Data Type: Date

Display Type: Date ▼

Filter Default: ☒ Rolling Date: End of Next Quarter ▼

☐ Specific Date:

Required in Filter: ☒

Hidden in Filter: ☐ (In order to make a filter field hidden a Filter Default must be selected)

Read-Only in Filter: ☐ (In order to make a filter field read only a Filter Default must be selected)

Hint:

Tooltip:

Save Save And Return Return

☒ = Required

Portlet: ETC by Tasks Over Time - Filter Field Properties

Attribute: param_slice_by_string

☒ Filter Label: Time Scaled Value

Data Type: Lookup - String

Display Type: Pull-Down ▼

Lookup: Slice By (String)

Filter Default: Monthly

Required in Filter: ☐

Hidden in Filter: ☐ (In order to make a filter field hidden a Filter Default must be selected)

Read-Only in Filter: ☐ (In order to make a filter field read only a Filter Default must be selected)

Hint:

Tooltip:

Save Save And Return Return

☒ = Required

Portlet is now ready but don't forget to add to a page.

Multi-Dimensional Portlets: Portlet

- Final Result



Overview: Rahul Test Tab

ETC by Tasks Over Time

Start Date: 1/1/2017

Finish Date: 6/30/2017

Time Scaled Value: Monthly

Filter Save Filter Clear

Project Code	Project Name	Resource	Task	Assignment Finish	Assignment Start	ETC Total	2017-01-01 ETC (Hours)	2017-02-01 ETC (Hours)	2017-03-01 ETC (Hours)	2017-04-01 ETC (Hours)	2017-05-01 ETC (Hours)	2017-06-01 ETC (Hours)
APP01	Bat Signal	Alfred, Al	Bat Signal	12/29/17	2/29/16	910	154	140	161	140	161	
APP01	Bat Signal	Dolak, Jerry	Bat Signal	12/29/17	10/5/15	1,040	176	160	184	160	184	
APP01	Bat Signal	Wuenstel, Chris	Bat Signal	12/29/17	2/23/15	1,040	176	160	184	160	184	
ID1015	RA Test Idea	Agrawal, Rahul	RA Test Idea	12/29/17	1/1/16	520	88	80	92	80	92	
ID1015	RA Test Idea	Almeida, Joe	RA Test Idea	12/29/17	1/1/16	208	35.2	32	36.8	32	36.8	
ID1015	RA Test Idea	America, Captain	RA Test Idea	12/29/17	1/1/16	832	140.8	128	147.2	128	147.2	

Multi-Dimensional Portlets: 3+ Dimensions

- Portlet with additional dimension

Dimension 2 (Months) Dimension 3 (Charge Code)

Sample 3 Dimensional Portlet ▼

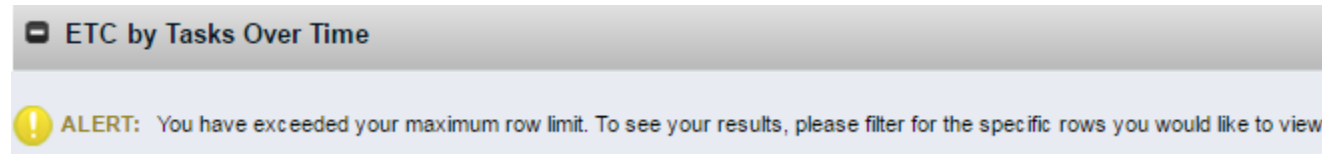
			Jan 2015				Feb 2015				Mar 2015			
			Cap		Exp		Cap		Exp		Cap		Exp	
Project	Resource	Task	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
Project 1	Resource 1	Task 2	3	150	3	150	3	150	3	150	3	150	3	150
Project 1	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100
Project 1	Resource 1	Task 3	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 2	Task 1	3	150	3	150	3	150	3	150	3	150	3	150
Project 1	Resource 2	Task 2	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 2	Task 3	5	250	5	250	5	250	5	250	5	250	5	250
Project 1	Resource 3	Task 2	5	250	5	250	5	250	5	250	5	250	5	250
Project 1	Resource 3	Task 1	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 3	Task 3	6	300	6	300	6	300	6	300	6	300	6	300
Project 2	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100
Project 2	Resource 1	Task 2	3	150	3	150	3	150	3	150	3	150	3	150
Project 2	Resource 1	Task 3	4	200	4	200	4	200	4	200	4	200	4	200
Project 2	Resource 2	Task 1	3	150	3	150	3	150	3	150	3	150	3	150
Project 2	Resource 2	Task 2	4	200	4	200	4	200	4	200	4	200	4	200
Project 2	Resource 2	Task 3	5	250	5	250	5	250	5	250	5	250	5	250
Project 2	Resource 3	Task 1	4	200	4	200	4	200	4	200	4	200	4	200
Project 2	Resource 3	Task 2	5	250	5	250	5	250	5	250	5	250	5	250
Project 2	Resource 3	Task 3	6	300	6	300	6	300	6	300	6	300	6	300
Project 3	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100
Project 3	Resource 1	Task 2	3	150	3	150	3	150	3	150	3	150	3	150

Dimension 1

Multi-Dimensional Portlets: Limitations

- Limitations

- Row Limit Governor – 50,000 rows
 - 10 rows of projects with 12 months of data = 120 rows



- Sorting Limitations

- Sort on the Date first

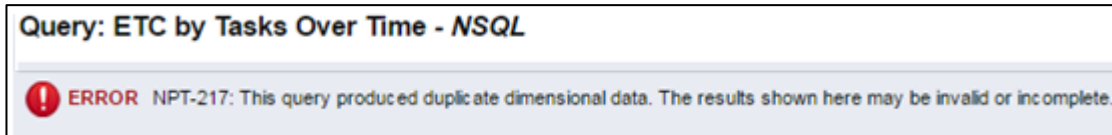


ETC by Tasks Over Time									
Project Code	Project Name	Resource	Task	Assignment Finish	Assignment Start	ETC Total	2017-02-01 ETC (Hours)	2017-01-01 ETC (Hours)	2017-05-01 ETC (Hours)
PRJ0009	Save the World	Alfred, Al	Save the World	9/28/17	2/29/16	1,664.251206	256.0	281.6	294.4
ID1015	RA Test Idea	Almeida, Joe	RA Test Idea	12/29/17	1/1/16	208	32.0	35.2	36.8
ID1015	RA Test Idea	America, Captain	RA Test Idea	12/29/17	1/1/16	832	128.0	140.8	147.2

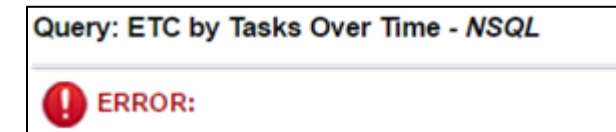
Multi-Dimensional Portlets: Common Errors

- Common Errors Seen

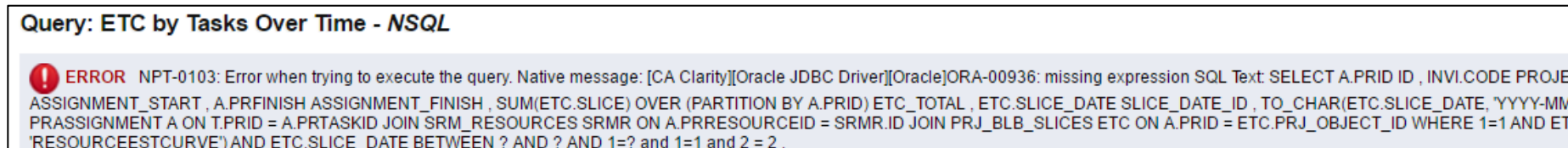
- Duplicate Dimensional Data



- Null Dimensional Key



- ERROR



Possible causes:

- A field listed in the SELECT or WHERE clause does not specify the table name. Because the field name appears in multiple tables, the table name must precede the field name.
- A comma after the last @SELECT statement.
- A comma after the last table listed in the FROM clause.
- Incorrect table name

Multi-Dimensional Portlets: Best Practices

- Limit number of dimensions
 - Use additional metrics if possible
- Always sort on dates first
- Return rows for each cell
- Use Export to Excel (Data Only)
- Keep the [Data Columns] as the last field in the column layout
- Format Fields to specify column widths or disallow word wrapping to alleviate formatting issues

Hierarchical Portlets

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Hierarchical Portlets

- Sample portlet with three levels

Project > Task > Resource Hierarchy 

Name ▲	Start	Finish	Actuals
+ Bat Cave Re-Design	8/27/12	3/2/15	200.00
+ Batman Program	1/1/12	7/22/16	0.00
- Big Bang Theory Superhero Contest	10/29/12	2/23/15	380.00
+ Big Bang Theory Superhero Contest	10/29/12	2/23/15	241.00
+ Child	12/23/14	12/23/14	0.00
+ Deployment Complete	8/21/14	8/21/14	0.00
+ Release Planning	8/21/14	8/21/14	0.00
+ RSVP to Halloween Party	6/27/13	6/27/13	0.00
+ Sabatoge Other Teams Costumes	7/13/13	7/13/13	0.00
+ Sew Costumes	5/22/13	5/26/14	12.00
- Team Costume Planning	10/30/12	2/16/15	142.00
■ Banner, Bruce	4/8/14	2/16/15	12.00
■ Ironman, Irony	10/30/12	8/12/13	109.00
■ Kent, Clark	6/10/13	6/21/13	0.00
■ Lantern, Green	4/1/13	6/14/13	21.00

Projects (points to Bat Cave Re-Design, Batman Program, Big Bang Theory Superhero Contest)

Tasks (points to Big Bang Theory Superhero Contest, Child, Deployment Complete, Release Planning, RSVP to Halloween Party, Sabatoge Other Teams Costumes, Sew Costumes, Team Costume Planning)

Resources (points to Banner, Bruce, Ironman, Irony, Kent, Clark, Lantern, Green)

Hierarchical Portlets: Syntax

- New NSQL Constructs
 - hg_has_children
 - Dimension Property
 - Unique for all rows in the dimension (can be null)
 - Indicates whether the row has children and shows the [+] icon for expanding
 - Null Values indicate no children and will not have a [+] icon
 - hg_row_id
 - Parameter
 - When [+] icon is clicked, the id stored in hg_has_children for that row is passed into the query as this parameter
 - Upon initial run, this parameter is passed as null
 - hg_all_rows
 - Parameter
 - Used during Export to Excel
 - Value = 1 when exporting, null otherwise
 - Note: This construct may impact performance

Hierarchical Portlets: Syntax

- NSQL Syntax
 - Unions are commonly used for the various levels
 - Most readable way to organize the query:

```
Parent Query  
UNION  
Child Query
```

- You can have as many child levels as needed

Hierarchical Portlets: Syntax

- Sample NSQL
 - Level 1 (PROJECT)

```
SELECT i.id prid,  
       i.name,  
       i.schedule_start,  
       i.schedule_finish, NVL(ROUND(i.labor_actsum/3600,2),0) actuals,  
       MAX(CASE WHEN t.prid IS NOT NULL THEN i.id ELSE null END) hg_has_children,  
       ROW_NUMBER() OVER(ORDER BY i.name) sort_order  
FROM   inv_investments i  
       LEFT JOIN prtask t ON t.prprojectid = i.id  
WHERE  i.odf_object_code = 'project'  
       AND @WHERE:PARAM:USER_DEF:STRING:hg_row_id@ IS NULL  
GROUP BY i.id, i.name, i.schedule_start, i.schedule_finish, i.labor_actsum
```


Hierarchical Portlets: Syntax

- Sample NSQL
 - Level 2 (TASK)

```
SELECT t.prid,  
       t.pname name,  
       t.prstart schedule_start,  
       t.prfinish schedule_finish,  
       NVL(ROUND(SUM(a.practsum)/3600,2),0) actuals,  
       null hg_has_children,  
       ROW_NUMBER() OVER(PARTITION BY t.prprojectid ORDER BY t.prfinish) sort_order  
FROM   prtask t  
       LEFT JOIN prassignment a ON a.prtaskid = t.prid  
WHERE  (t.prprojectid = @WHERE:PARAM:USER_DEF:STRING:hg_row_id@  
        OR @NVL@(@WHERE:PARAM:USER_DEF:INTEGER:hg_all_rows@,0) = 1)  
GROUP BY t.prid, t.pname, t.prstart, t.prfinish, t.prprojectid
```

Hierarchical Portlets: Syntax

- Sample NSQL
 - Full Query

```
SELECT @SELECT:DIM:USER_DEF:IMPLIED:ACTUALS:t.prid:PRID@,  
       @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.name:NAME@,  
       @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.start_date:START_DATE@,  
       @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.finish_date:FINISH_DATE@,  
       @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.hg_has_children:HG_HAS_CHILDREN@,  
       @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.sort_order:SORT_ORDER@,  
       @SELECT:METRIC:USER_DEF:IMPLIED:t.actuals:ACTUALS@  
  
FROM   (/*PROJECT QUERY*/  
        SELECT ...  
        UNION  
        /*TASK QUERY*/  
        SELECT ...  
        ) t  
WHERE  @FILTER@
```

Hierarchical Portlets

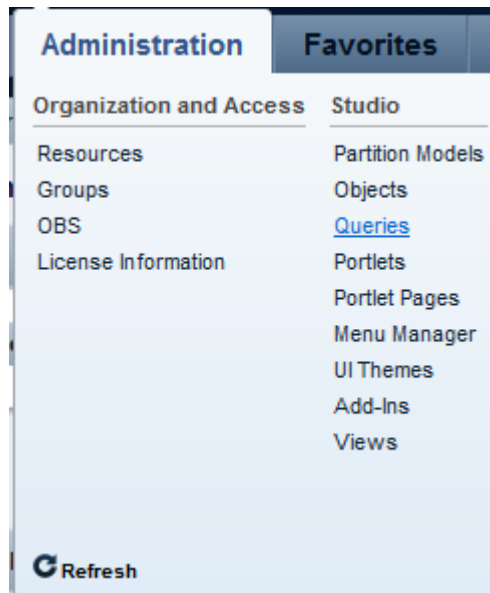
- Let's build a portlet that lists Projects and their associated Tasks

+ Sample Hierarchical ▼ 				
Project / Task	Start	Finish	Actuals	
[-] Project 1	1/1/15	12/10/15	12	
[-] Task 1	1/1/15	1/10/15	1	
[-] Task 2	2/1/15	2/10/15	1	
[-] Task 3	3/1/15	3/10/15	1	
[-] Task 4	4/1/15	4/10/15	1	
[-] Task 5	5/1/15	5/10/15	1	
[-] Task 6	6/1/15	6/10/15	1	
[-] Task 7	7/1/15	7/10/15	1	
[-] Task 8	8/1/15	8/10/15	1	
[-] Task 9	9/1/15	9/10/15	1	
[-] Task 10	10/1/15	10/10/15	1	
[-] Task 11	11/1/15	11/10/15	1	
[-] Task 12	12/1/15	12/10/15	1	
[+] Project 2	1/1/15	12/10/15	24	
[+] Project 3	1/1/15	12/10/15	36	

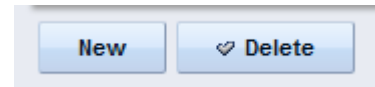
Hierarchical Portlets: Query

- Create Query

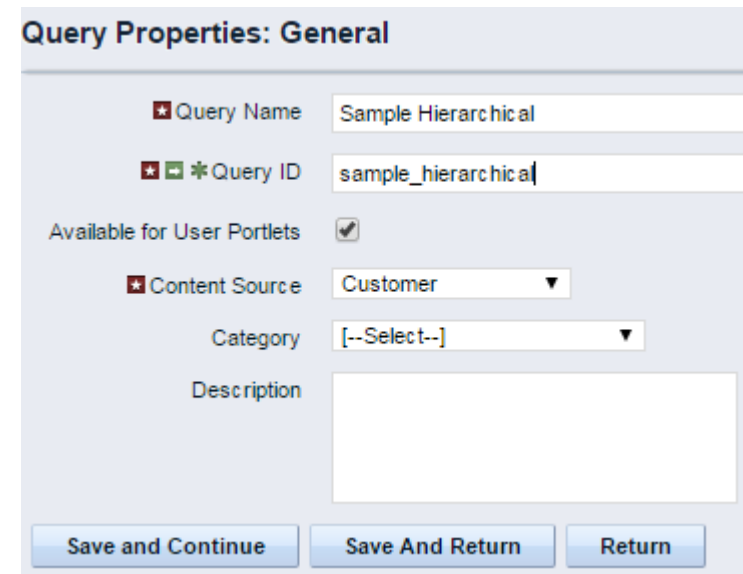
1) Administration -> Queries



2) Click New



3) Enter Query Name and ID, click Save and Continue

A screenshot of the 'Query Properties: General' form. It contains the following fields and controls:

- Query Name:** A text input field containing 'Sample Hierarchical'.
- Query ID:** A text input field containing 'sample_hierarchical'.
- Available for User Portlets:** A checkbox that is checked.
- Content Source:** A dropdown menu with 'Customer' selected.
- Category:** A dropdown menu with '--Select--' selected.
- Description:** A large text area.
- Buttons:** 'Save and Continue', 'Save And Return', and 'Return' at the bottom.

Hierarchical Portlets: Query

- Populate NSQL

- 4) Remove the default query and paste your query.
Click Save and Continue

Query: Sample Hierarchical - NSQL

NSQL

```
SELECT @SELECT:DIM:USER_DEF:IMPLIED:ACTUALS:t.prid:PRID@,  
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.name:NAME@,  
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.schedule_start:SCHEDULE_START@,  
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.schedule_finish:SCHEDULE_FINISH@,  
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.hg_has_children:HG_HAS_CHILDREN@,  
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.sort_order:SORT_ORDER@,  
@SELECT:METRIC:USER_DEF:IMPLIED:t.actuals:ACTUALS@  
FROM (SELECT i.id prid,  
i.name,  
i.schedule_start,  
i.schedule_finish,  
NVL(ROUND(i.labor_actsum/3600,2),0) actuals,  
MAX(CASE WHEN t.prid IS NOT NULL THEN i.id ELSE null END) hg_has_children,  
ROW_NUMBER() OVER(ORDER BY i.name) sort_order  
FROM inv_investments i  
LEFT JOIN prttask t ON t.prprojectid = i.id  
WHERE i.odf_object_code = 'project'  
AND @WHERE:PARAM:USER_DEF:STRING:hg_row_id@ IS NULL  
GROUP BY i.id, i.name, i.schedule_start, i.schedule_finish, i.labor_actsum  
UNION  
SELECT t.prid,  
t.pname name,  
t.prstart schedule_start,  
t.prfinish schedule_finish,  
NVL(ROUND(SUM(a.practsum)/3600,2),0) actuals,  
null hg_has_children,  
ROW_NUMBER() OVER(PARTITION BY t.prprojectid ORDER BY t.prfinish) sort_order  
FROM prttask t  
LEFT JOIN prassignment a ON a.prtaskid = t.prid  
WHERE (t.prprojectid = @WHERE:PARAM:USER_DEF:STRING:hg_row_id@ OR @NVL@(@WHERE:PARAM:USER_
```

Preview

Save and Continue

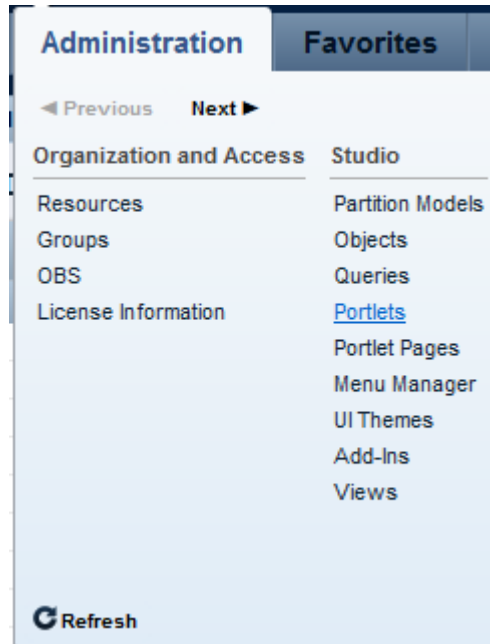
Save And Return

Return

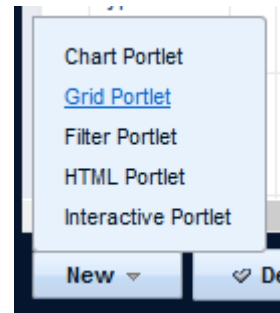
Hierarchical Portlets: Portlet

- Create Portlet

1) Administration -> Portlets

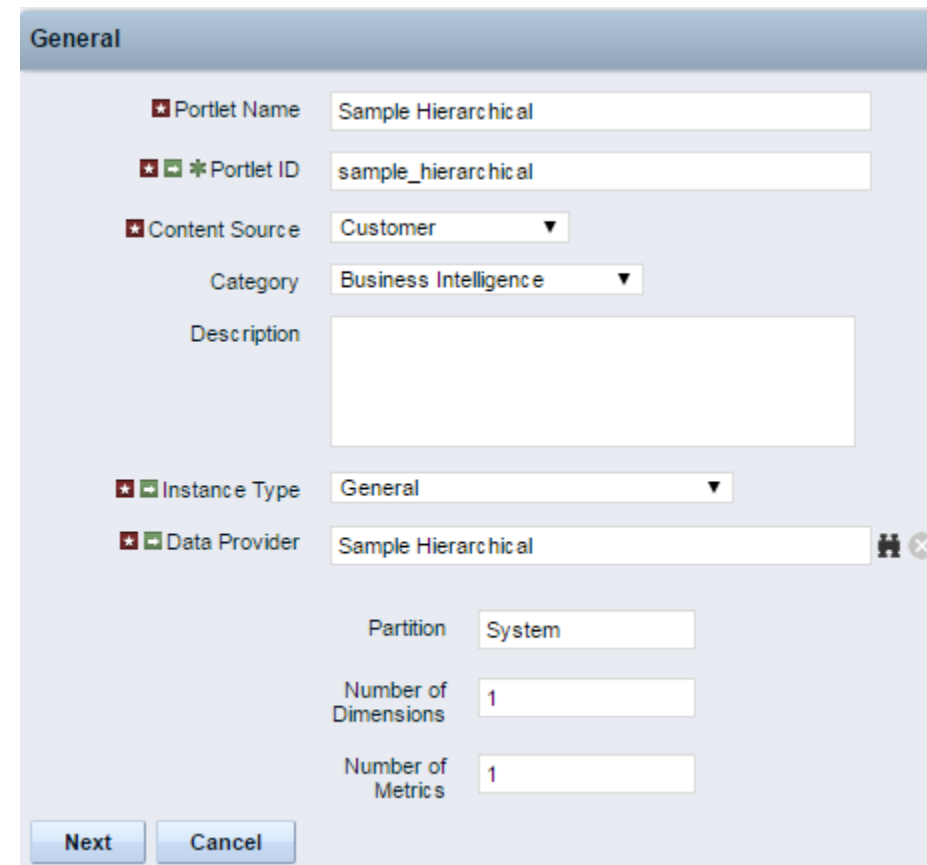


2) Click New -> Grid Portlet



3) Enter Portlet Name and ID, browse for NSQL Query as Data Provider

4) Click Next, then Finish and Open

The screenshot shows the 'General' configuration page for a new portlet. The fields are as follows: Portlet Name is 'Sample Hierarchical'; Portlet ID is 'sample_hierarchical'; Content Source is 'Customer'; Category is 'Business Intelligence'; Description is empty; Instance Type is 'General'; Data Provider is 'Sample Hierarchical' with a browse icon; Partition is 'System'; Number of Dimensions is '1'; and Number of Metrics is '1'. At the bottom are 'Next' and 'Cancel' buttons.

Hierarchical Portlets: Portlet

- Configure Portlet

1) Choose fields for the layout
(do not need to include
“hg_has_children”)

2) Label Fields in a way that
would make sense for all levels

3) Sort using sort_order field
to allow for different sorting
for the different levels

Portlet: Sample Hierarchical - *List Column Layout*

Column Layout

Available Columns

hg_has_children
PK ID
sort_order

Selected Columns

Project / Task
Start
Finish
Actuals

Column Sorting

Sort By	Column	Direction	
		Ascending	Descending
First Field	sort_order ▼	☒	☐
Second Field	[--Select--] ▼	☒	☐
Third Field	[--Select--] ▼	☒	☐
Fourth Field	[--Select--] ▼	☒	☐

Save Save And Return Return

Hierarchical Portlets: Portlet

- Configure Portlet
 - Default is to show only the top level on initial view
 - Option exists to Automatically Expand the list
 - **Use selectively due to potential performance impact**

The screenshot displays the configuration interface for a portlet, specifically the 'Options' tab. The interface includes a sidebar with tabs for 'General', 'List Column Section', 'List Filter Section', and 'Access to this Portlet'. The 'Options' tab is selected, showing various settings for the portlet's display. Key settings include 'Rows per Page' set to 20, 'Highlight Row by Attribute' set to '[--Select--]', 'Display Currency Code in Column' set to 'No', 'Allow Configuration' checked, 'Allow Label Configuration' checked, and 'Automatically Expand' unchecked. The 'Automatically Expand' option is highlighted with a red box. At the bottom, there are buttons for 'Save', 'Save And Return', and 'Return'.

General | List Column Section | List Filter Section | Access to this Portlet

Portlet: San | Options

Display Options

Secondary Value Display: ☒ mouseover only

Rows per Page: 20

Highlight Row by Attribute: [--Select--]
(A row will be highlighted when this attribute is not zero)

Display Currency Code in Column: ☐
(Applies when only a single currency is active)

Filter: ☒ Automatically show results
☐ Do not show results until I filter

Allow Configuration: ☒

Allow Label Configuration: ☒

Automatically Expand: ☐

Save | Save And Return | Return

Hierarchical Portlets: Portlet

- Add to Portlet Page

Sample Hierarchical ▾					⚙
Project / Task	Start	Finish	Actuals		
Project 1	1/1/15	12/10/15	12		
Task 1	1/1/15	1/10/15	1		
Task 2	2/1/15	2/10/15	1		
Task 3	3/1/15	3/10/15	1		
Task 4	4/1/15	4/10/15	1		
Task 5	5/1/15	5/10/15	1		
Task 6	6/1/15	6/10/15	1		
Task 7	7/1/15	7/10/15	1		
Task 8	8/1/15	8/10/15	1		
Task 9	9/1/15	9/10/15	1		
Task 10	10/1/15	10/10/15	1		
Task 11	11/1/15	11/10/15	1		
Task 12	12/1/15	12/10/15	1		
Project 2	1/1/15	12/10/15	24		
Project 3	1/1/15	12/10/15	36		

Hierarchical Portlets: Limitations

- Limitations
 - Filtering
 - Filters applied to each level
 - Implement filters using parameters
 - Export
 - By default, export only exports the highest level
 - When `hg_all_rows` parameter is implemented in query, the export doesn't sort the rows based on the hierarchy
 - Layout
 - All levels must have the same field layout
 - Lower levels implement pagination based on Rows per Page
 - Sorting
 - All levels use the same field sorting
 - One way around this is to have a column for sort order

Hierarchical Portlets: Best Practices

- Best Practices
 - Limit number of filters, and use parameters for these
 - Limit number of levels in the portlet
 - Avoid potential loops in the data
 - Label column headers so that they make sense for all levels
 - Use a sort order column if trying to sort each level differently (ex. Sort Project by name, Sort Tasks by finish date)

Questions?



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- Access your account at pmi.org
- Click on **Certifications**
- Click on **Maintain My Certification**
- Click on **Visit CCR's** button under the **Report PDU's**
- Click on **Report PDU's**
- Click on **Course or Training**
- Class Name = **regoUniversity**
- Course Number = **Session Number**
- Date Started = **Today's Date**
- Date Completed = **Today's Date**
- Hours Completed = **1 PDU per hour of class time**
- Training classes = **Technical**
- Click on **I agree** and **Submit**



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