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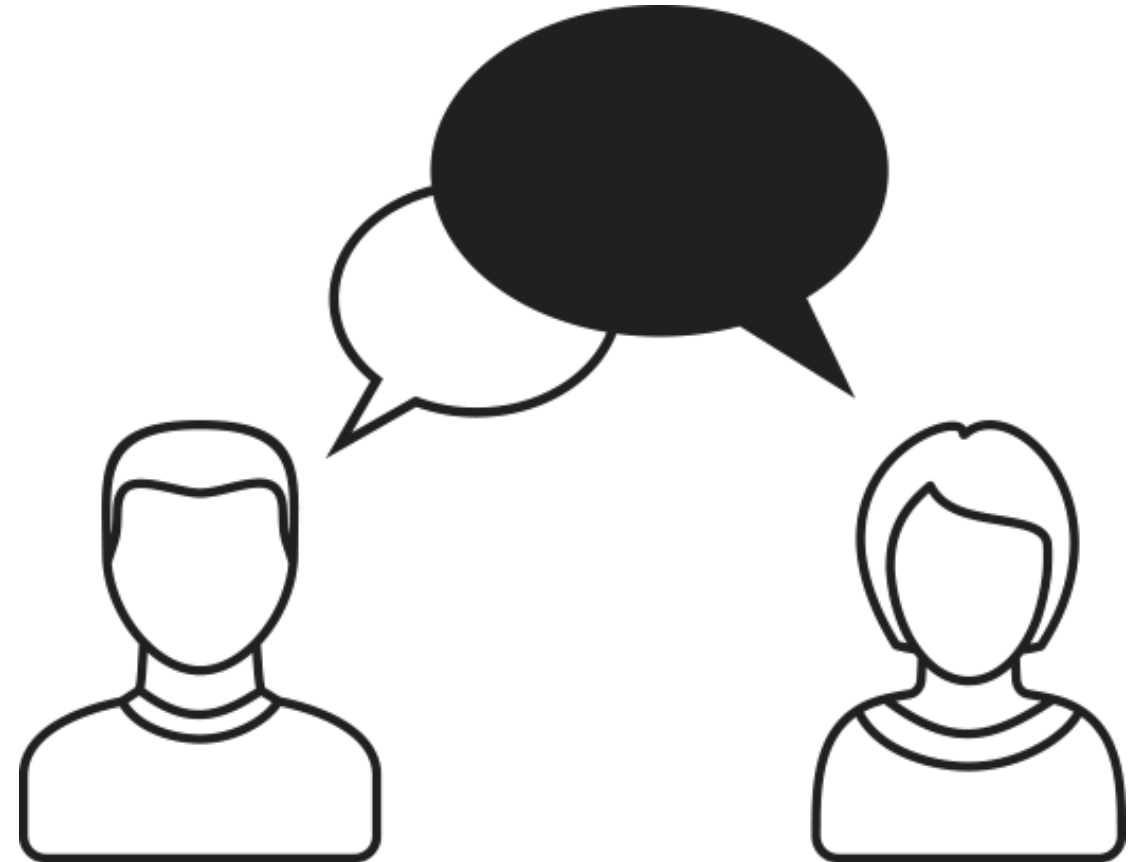
Jaspersoft Studio | Advanced

Your Guides: Darren Greer, Nikhil Gadgil



Introductions

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



- Introduction
- Modifying an Out of the Box Report

Part I Agenda

Part I: Introduction

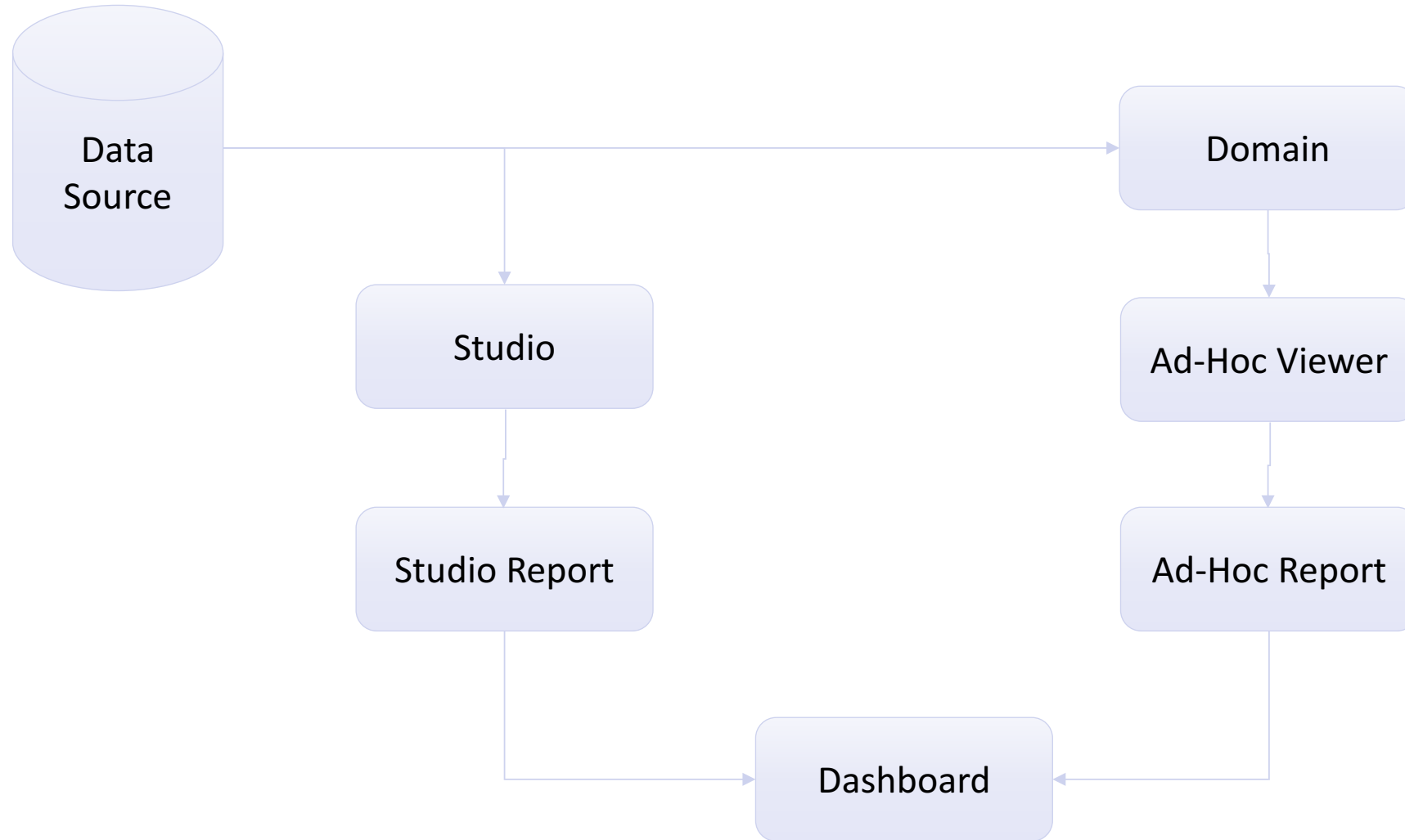
- ✓ Jaspersoft – Overview of the Big Picture

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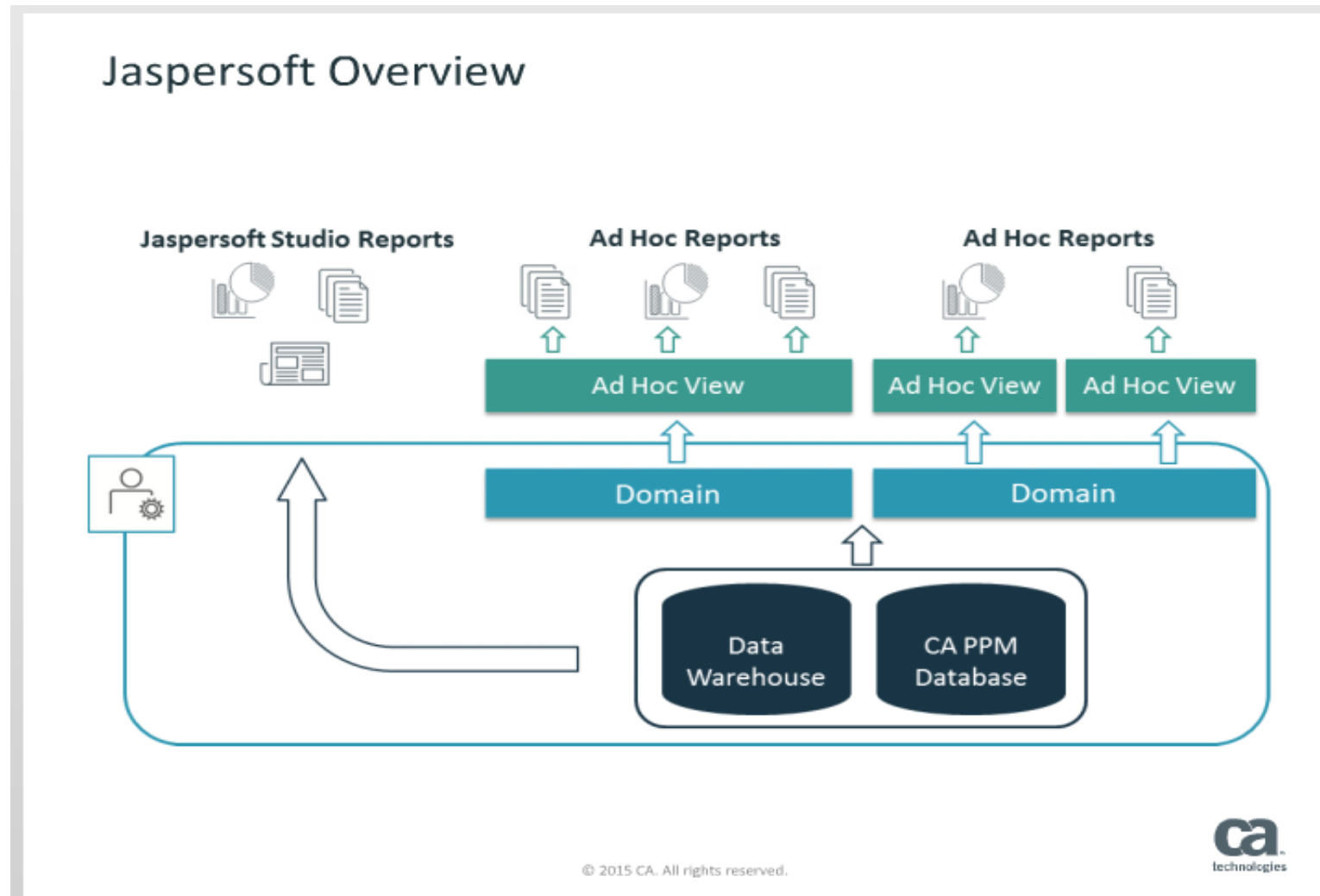
What Is Jaspersoft?

- JasperSoft is a reporting software that takes information from Clarity to provide easy to read, highly interactive reports for users.
- Jaspersoft reporting allows for sorting, filtering, formatting, moving/hiding columns, string searches, zooming in/out which can be saved for future use.
- Jaspersoft comes with pre-formatted Clarity reports or has the ability to do self-service ad-hoc reporting.
- Ad-hoc reports are easy to use with drag and drop capability, crosstab views, tables or charts.
- Reports can be published in PDF, XLS, XLSX, CSV, DOC X, RTF, ODT, ODS, or PPTX

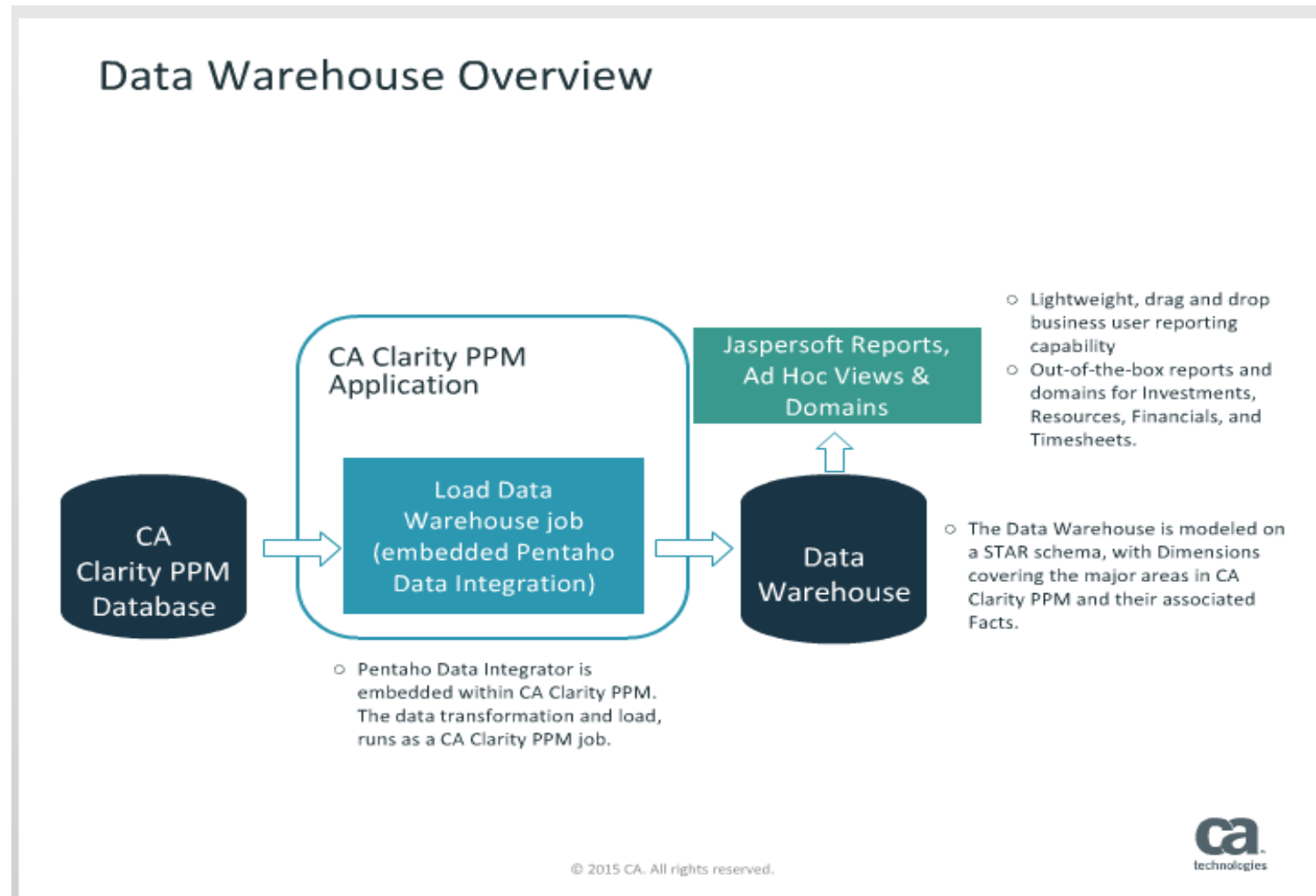
Overview - The Big Picture



CA Jaspersoft Overview

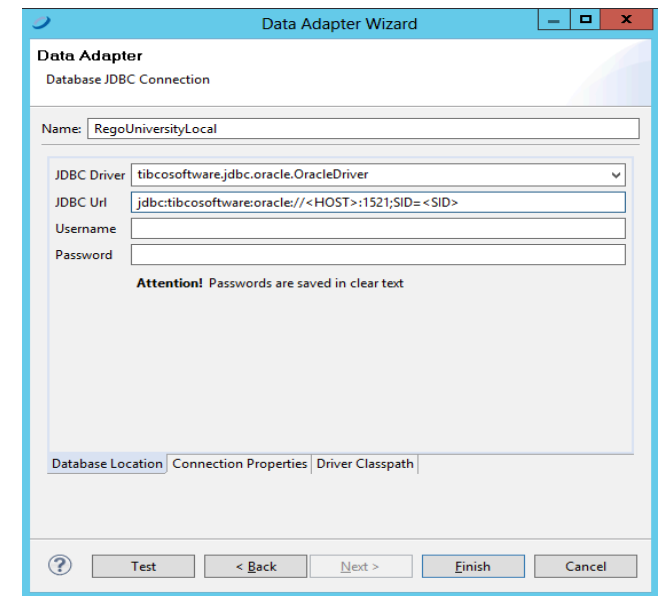
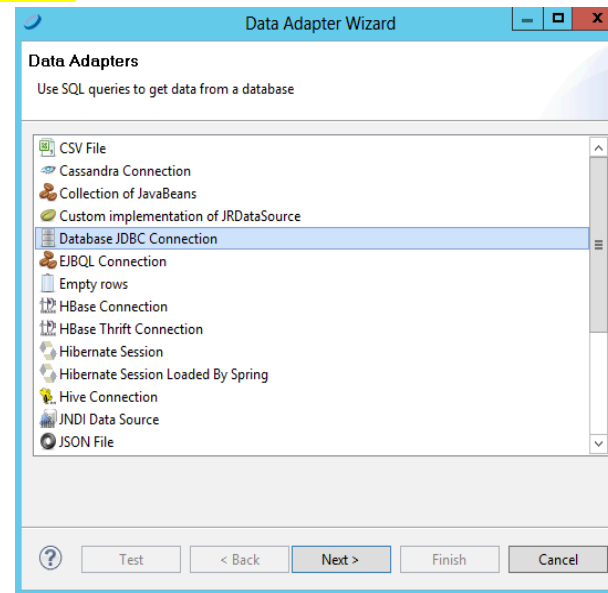


CA Data Warehouse Overview



Jaspersoft Studio – Data Adapter

- In this exercise we'll create a new Data Adapter, which we will connect to an existing Clarity 14.2+ Oracle instance
- From the “Repository Explorer” right-click on Data Adapters, and select “Create Data Adapter”, then select “Database JDBC Connection”
- Give it a meaningful Name, then select “tibcosoftware.jdbc.oracle.OracleDriver” for the JDBC Driver
- Use the following information for the URL, Username and Password:
- Url: `jdbc:tibcosoftware:oracle://54.215.229.225:1521;SID=clarity`
- CA PPM DB User: `ro_user`
- CA PPM DB Pass: `dbxistRhTr759`
- CA DWH DB User: `ro_dwh_user`
- CA DWH DB Pass: `ghdtGfelmcn67`
- Verify using “Test”
- Click “Finish”



Jaspersoft Studio – Repository Connection

- At this stage, having connected a Data Adapter to a Clarity Database, one can begin development locally
- To validate your locally developed report against the Jaspersoft Server, you must first connect your Studio environment to a Jaspersoft Server
- Within the “Repository Explorer” right-click on “Servers” and select “Create JasperReports Server Connection” and name the connection appropriately
- For this session, we’ll use the following information to connect to Rego development server:
 - URL: <http://regou06.dev.regoconsulting.net:8089/reportservice/>
 - Organization: **rego**
 - Username: **jasper_dev**
 - Password: **Clarity1**

Server profile wizard

JasperReports Server Access Configuration
Configure server connection

Name: RegoUniversityServer

URL: <http://clarity09.dev.regoconsulting.net:8089/reportservice/>

Account

Organization: [Empty]

User: regou

Password: [Masked]

Advanced Settings

Test Connection Finish Cancel

Advanced Reporting - Connection

- In addition to the repository and data adapter connection, we'll need to ensure we have connectivity to the Advanced Reporting section of CA PPM
- The URL to the Rego University CA PPM instance is:
 - <http://regou06.dev.regoconsulting.net:8082/niku/nu>
- 100 users have been created for the purposes of these training classes:
 - User Accounts: `jasper_adhoc_01 – jasper_adhoc_100`
 - Passwod: `niku2000`
- Work with your instructor to choose which user account to use, in order to avoid conflicting development with other class members

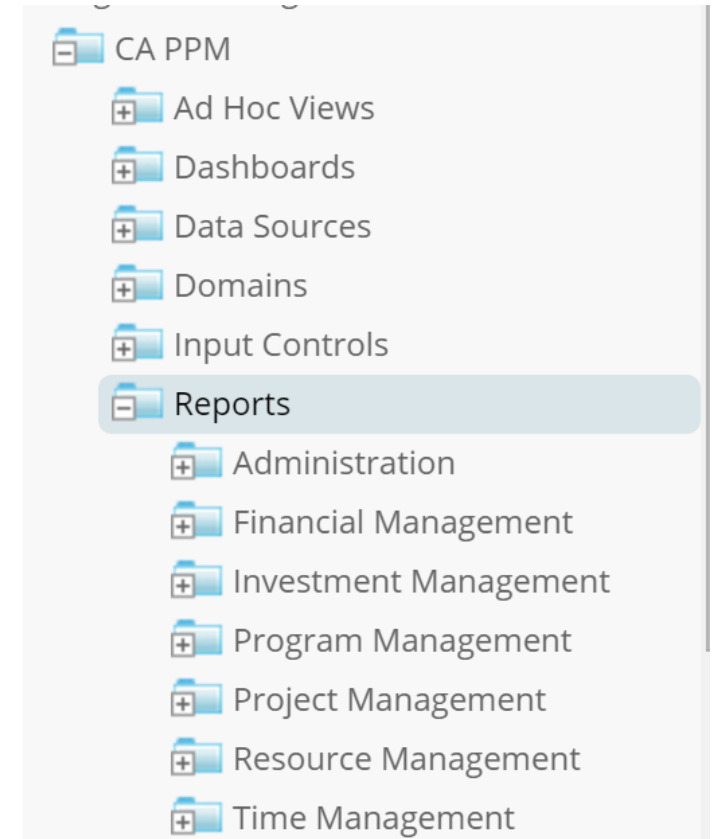
Part I: Copying An Out Of The Box Report

- ✓ Copy the Report
- ✓ Modify the Report
- ✓ Add a Sub Report
- ✓ Publish the Report

Out Of The Box Reports

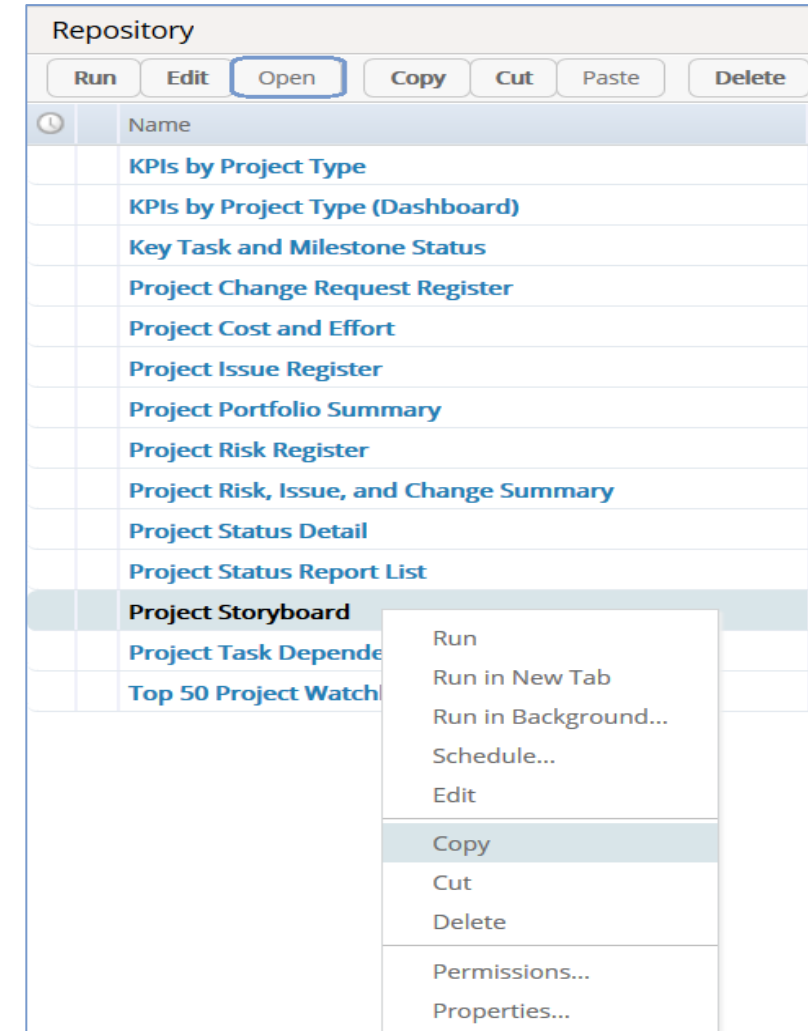
CA PPM OOTB Reports

- CA PPM provides a large amount of high quality reports out of the box. These reports are all separated into various categories.
 - Resource Management
 - Project Management
 - Time Management
 - Portfolio Management
- These reports are also excellent examples of how to do something in jaspersoft studio. Each report contains functions, frames, sub reports and graphs.
- Reports are located under the CA PPM Folder -> Reports



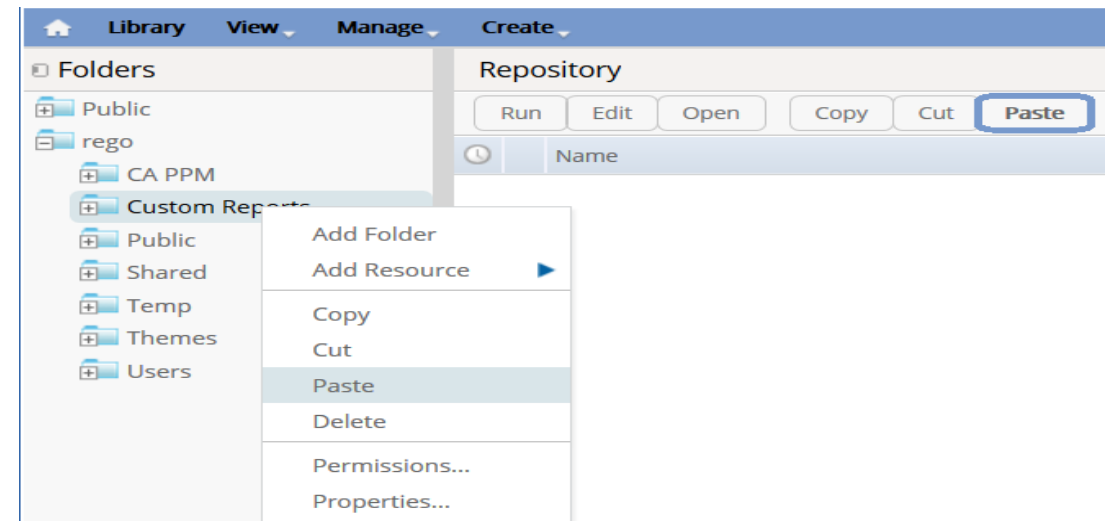
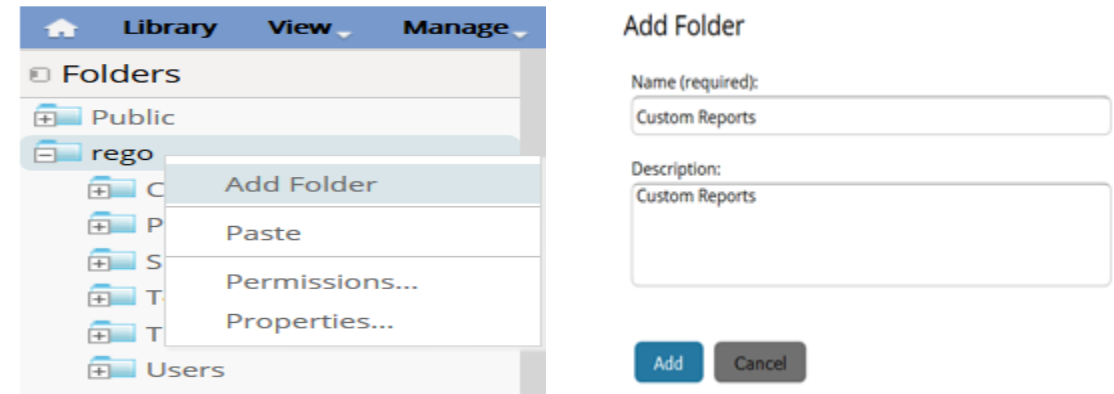
Copy An OOTB Report

- When a developer needs to modify or edit an out of the box report it is best practice to copy the report and put it into a folder outside of the CA PPM structure. The reason we do this is because during an upgrade or troubleshooting CA may have to refresh their CA PPM folder, and you will lose your saved reports and items.
- An admin can copy a report by navigating to the Advanced Reporting link in Clarity.
- Clicking on the View -> Repository link.
- Within the repository navigate to the report you want to edit.
- Right Click on the report and click the Copy function.
 - Note: You can select the report and click the copy button on the top toolbar as well.



Paste An OOTB Report

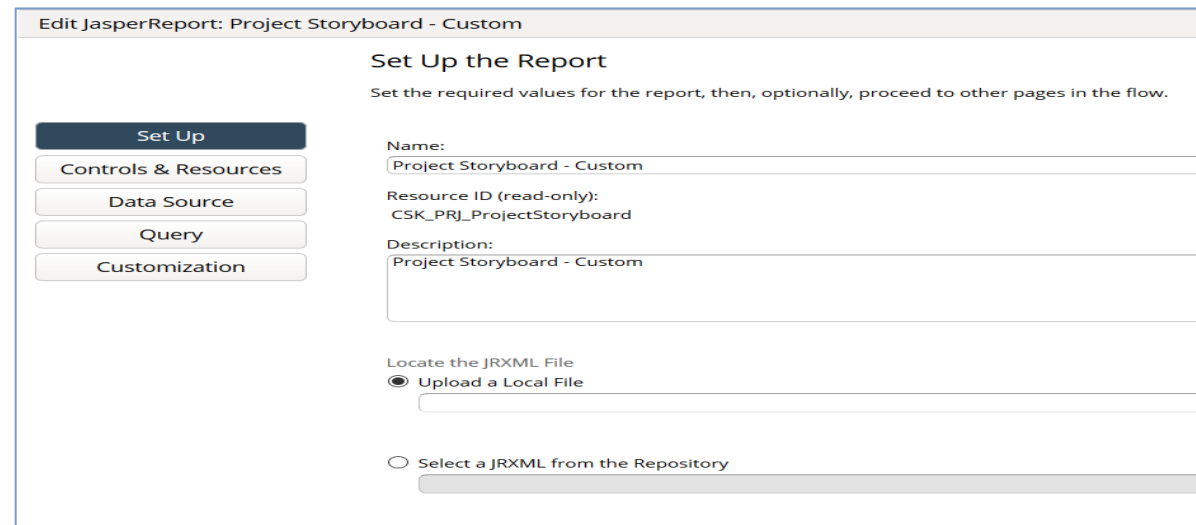
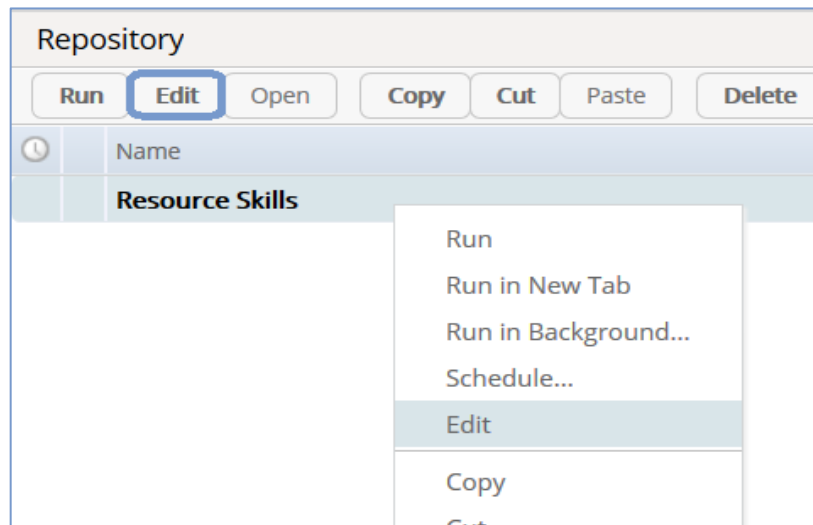
- Within your Repository, navigate to outside of the CA PPM folder and create a folder for Custom Reports.
- Right Click on the Organization folder and select 'Add Folder'
- Name the new folder as 'Custom Reports' and click 'Add'
- Once the folder is created, paste the earlier copied report by selecting the 'Custom Report' folder and clicking the button 'Paste' on the top toolbar.



Rename An OOTB Report

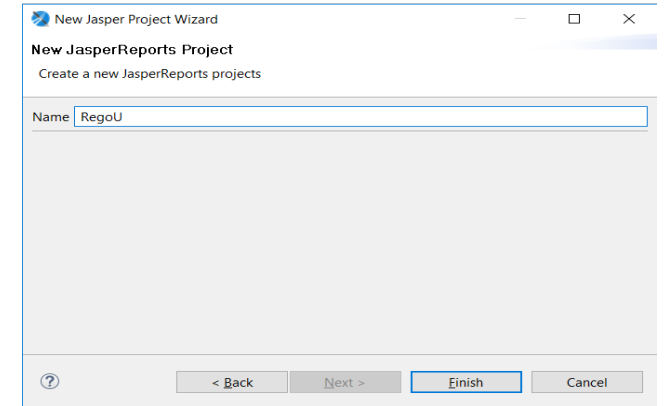
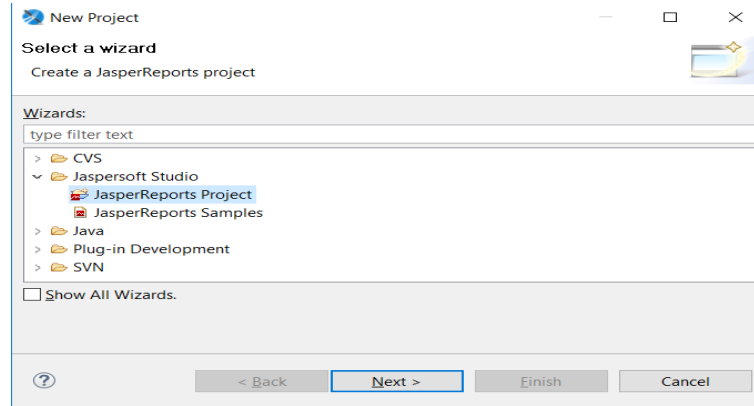
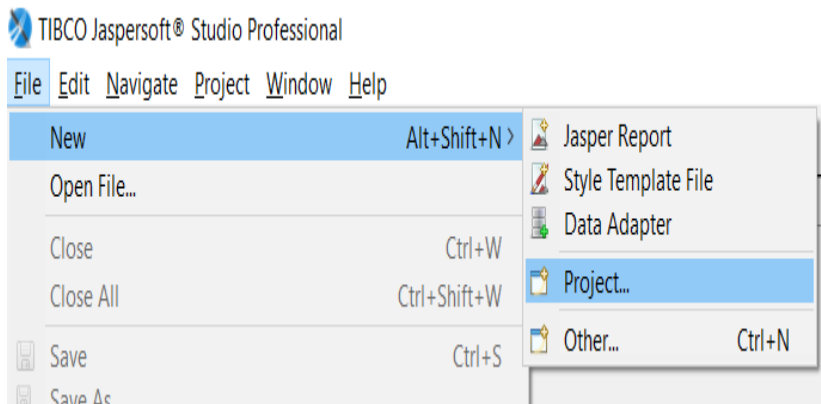
- Once the copy of OOTB report is available in custom report, change the Report's name to completely remove the internal link between the two reports.
- To rename the report, right click the report and select 'Edit'
- Update the Name of the report and click 'Submit'

Exercise: Copy an OOTB Report.



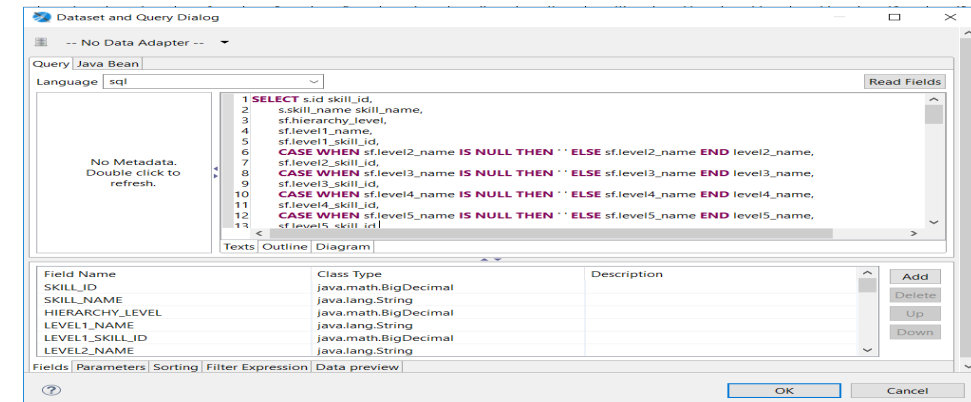
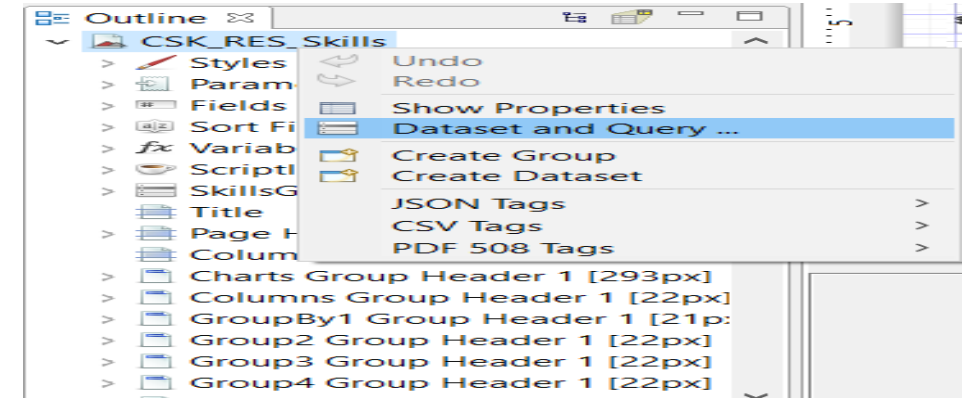
Open The OOTB Report In Studio

- Now that the report has been copied over and is located outside of the CA PPM folder we can edit it in studio.
- First we have to make a jaspersoft project to hold the JRXML from the OOTB report.
- In jaspersoft studio click 'New → Project' under File tab to create a new project.
- On next window select 'Jaspersoft Studio → JasperReports Project' and give a name to your new project and click Finish.



Modify The OOTB Report In Studio

- The report JRXML is open in Studio and available to edit. You can modify, delete, any object on the report.
- The user also has access to the Data Set and Query that is being used in the report. As long as you know how to modify the query without testing it you can.
- To access the report Query, right click on report name in 'Outline' section and select 'Dataset and Query'.
- Report definitions like Query, Fields, Parameters and sort order can be viewed or edited from 'Dataset and Query' dialog box.
- Out of the Box reports cannot be previewed via Studio even when the environment is On Premise. These reports utilize the parameters of logged in users and other various input controls stored on the sever. It also uses functions for formatting that cannot be interpreted without being ran from jaspersoft server.

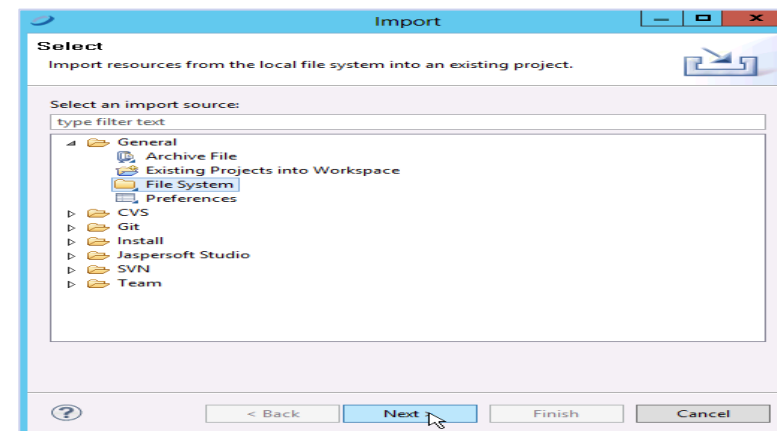
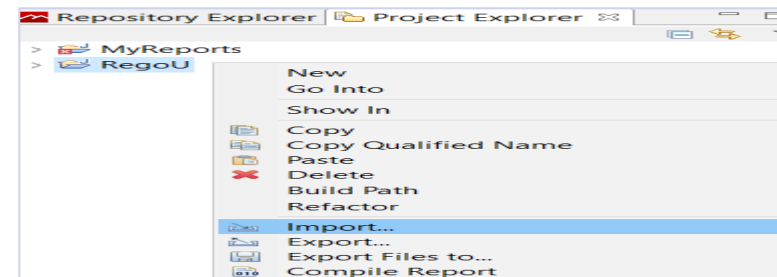
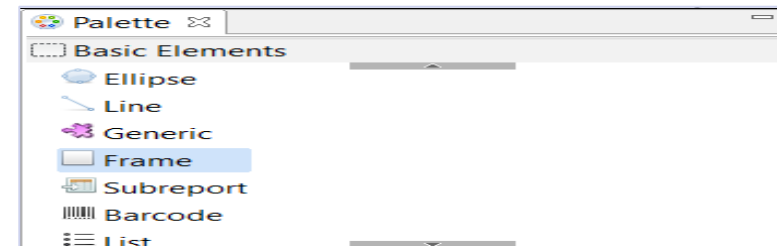


Modify The OOTB Report In Studio – Cont'd

- Exercise: Modify the report's object. Remove Frames and Graphs as you please.
- Extra Credit: Modify the sql and add a new custom field to the report.

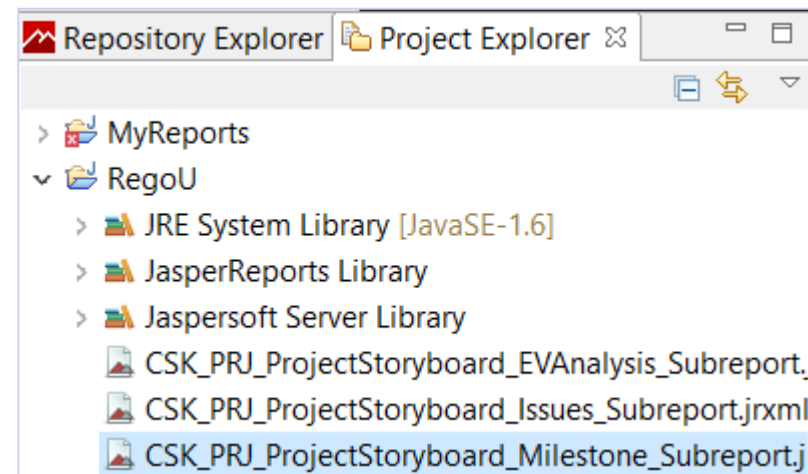
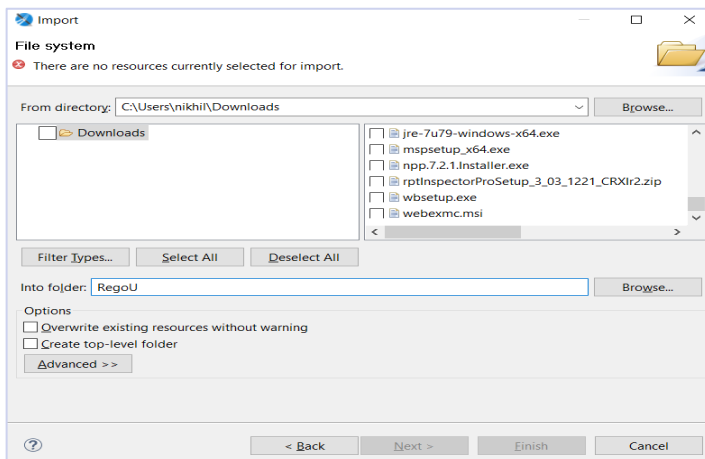
Adding sub report to OOTB Report in Studio

- Next, we'll focus on adding a sub-report, which pulls in the milestones for each project
- To start, we'll add a one more frame to the Group footer band – Select 'Frame' element from 'Palette' and drop it on the group footer section below the existing frames.
- A pre-developed report has been made available at the following location – Download this to your PC:
 - http://jaspersoft.regoconsulting.com/2017/RegoU_Jaspersoft_Advanced_Risks_Issues.jrxml
- Right-click on your project folder within the Project Explorer View and click "Import"
- Next, select "File System" under "General" – Click Next



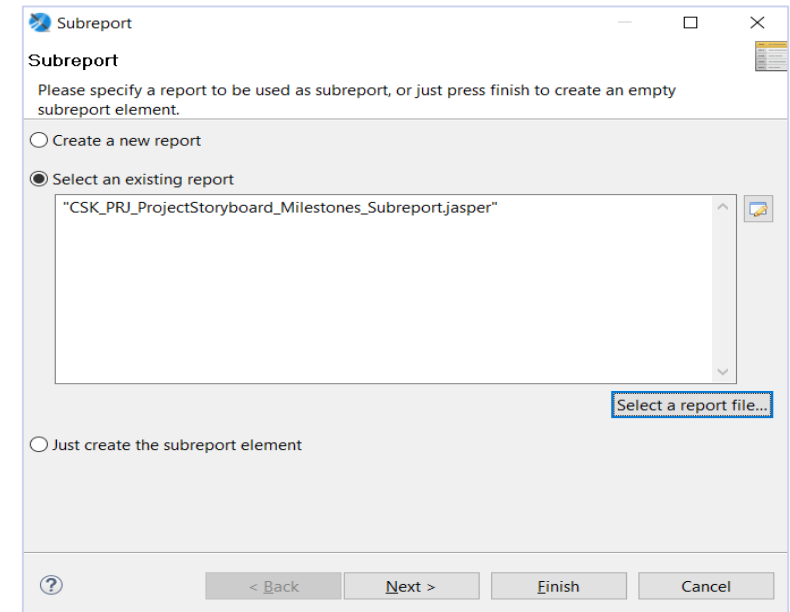
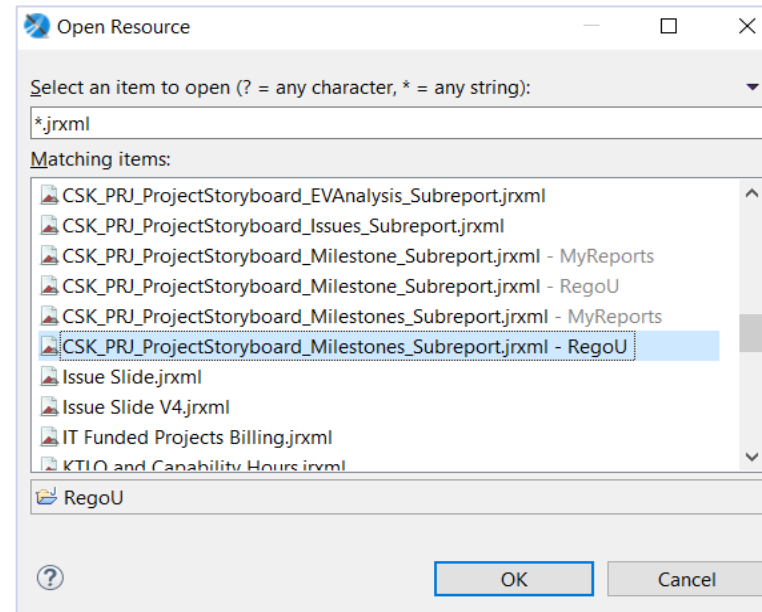
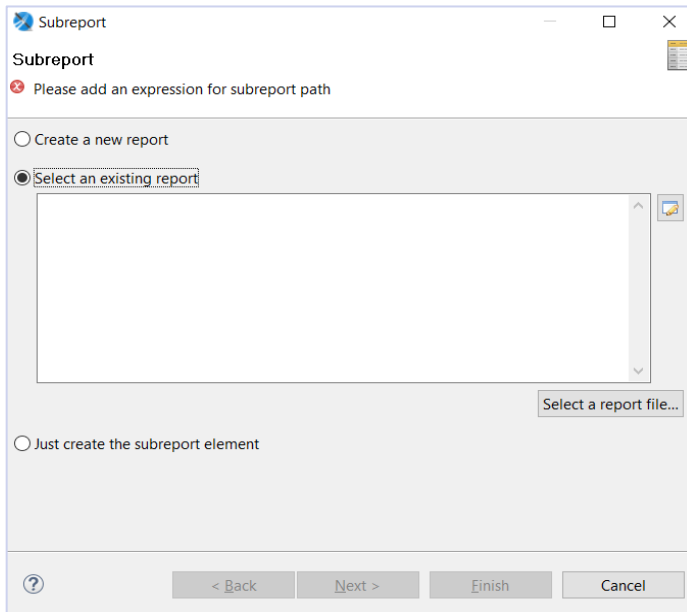
Adding sub report to OOTB Report in Studio

- Click “Browse” and then browse and select the location of the downloaded jrxml file
- Next, in the right pane, check the box for the jrxml file
- Then, click “Finish”
- The jrxml file should now be imported to your project



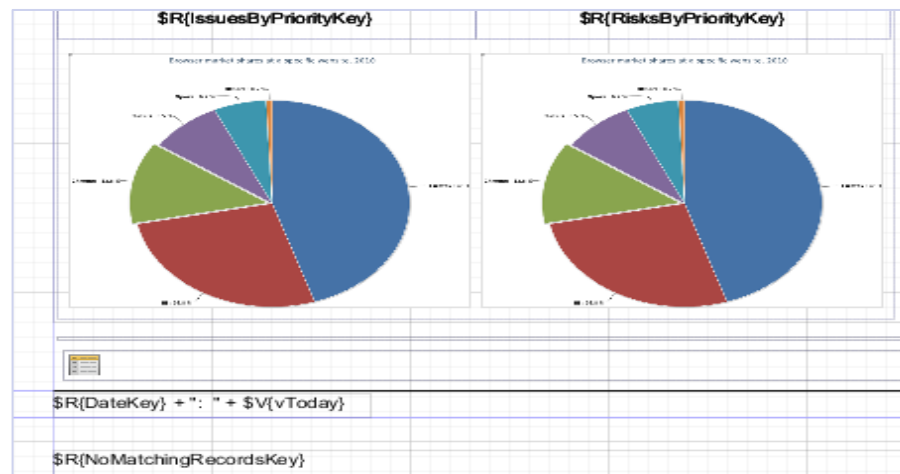
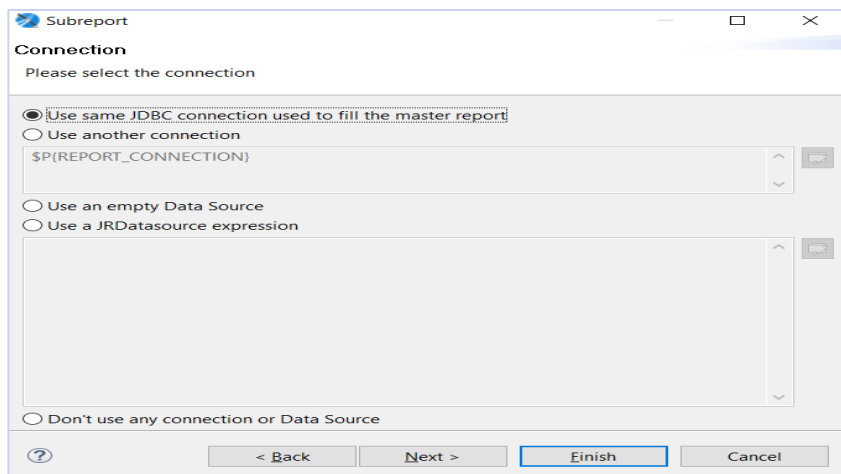
Adding sub report to OOTB Report in Studio

- Now, we'll add the subreport to the new Frame on Group Footer band – Drag the Subreport component from the Palette view, into the new Frame
- On the next window, click “Select a report file...”
- Next, select the Risks and Issues report file, and click “Ok” – Click “Finish”



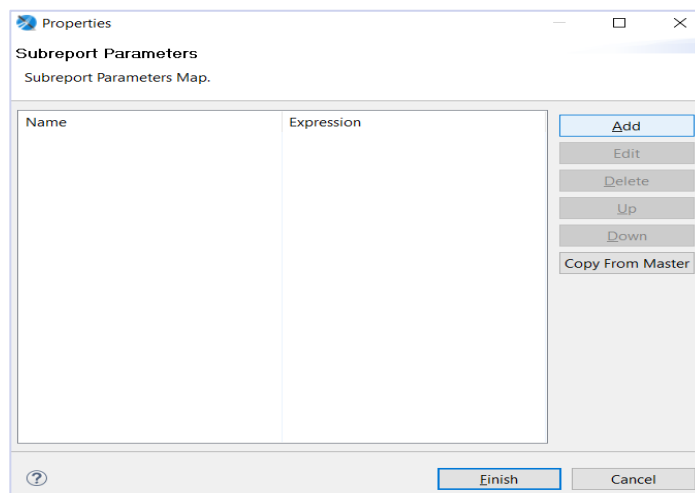
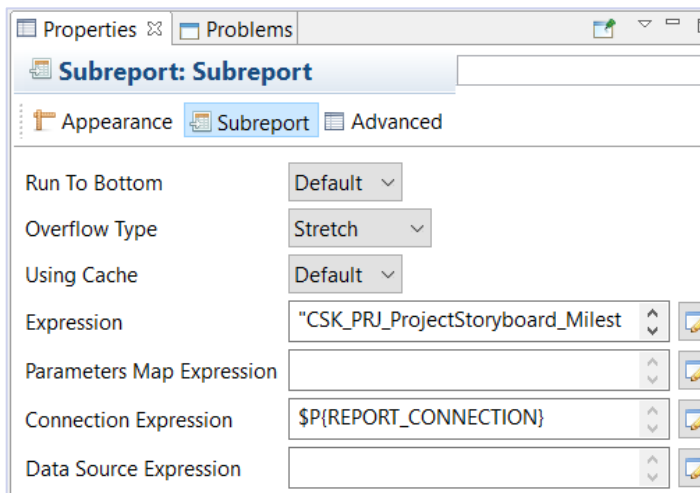
Adding sub report to OOTB Report in Studio

- On the next window select 'Use same JDBC connection used to fill the master report' so that sub report use the same data source as master project .
- Resize the subreport object to the full width and height of the Frame
- Then, resize the band height to fit



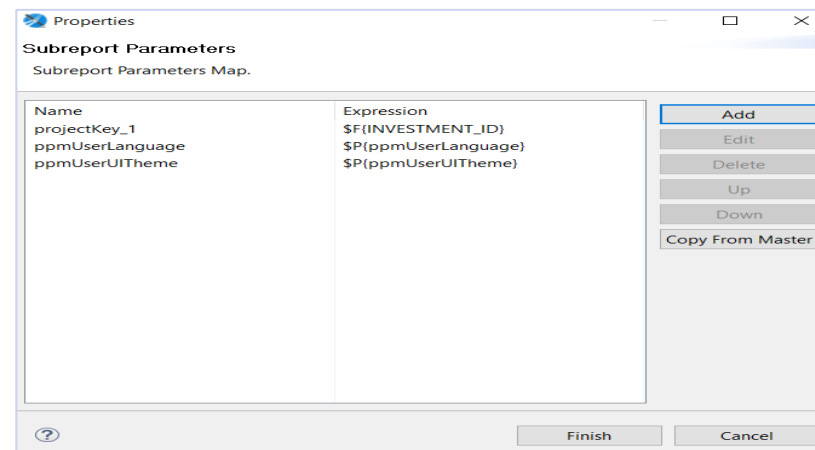
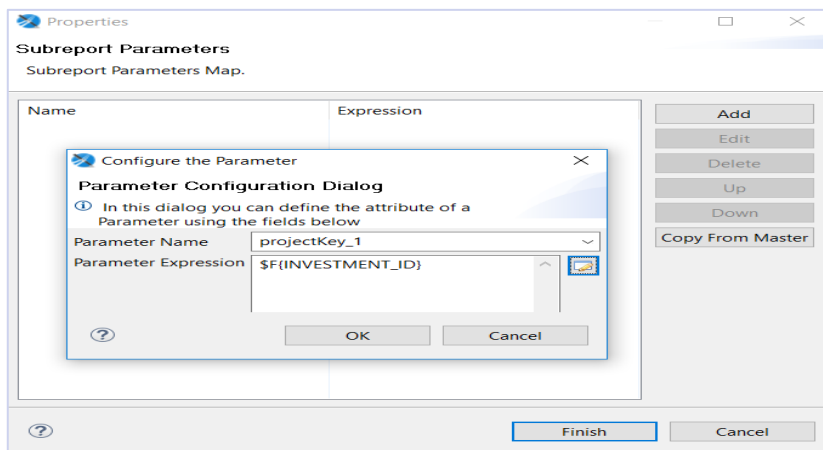
Adding sub report to OOTB Report in Studio

- The provided Subreport expects following parameter “projectKey_1”, “ppmUserLanguage” and “ppmUserUITheme”, which we’ll now focus on
- Select the Subreport in the design view, then, in Properties open the “Subreport” sub-menu – Click “Parameters”
- On the Parameters screen, click “Add”



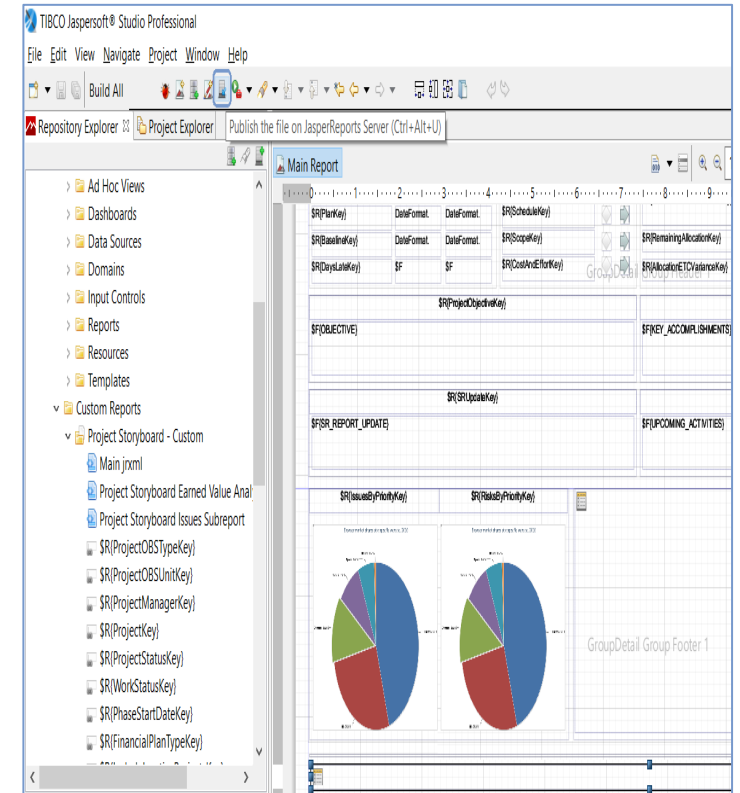
Adding sub report to OOTB Report in Studio

- Change the “Name” to “projectKey_1”. Next, click on the “...” for the Expression Editor
- We’ll be passing the “INVESTMENT_KEY” field, so double-click the “INVESTMENT_KEY” in the “Fields” menu. Click “Finish”
- As you can see, we’re now passing “ $\$F\{INVESTMENT_KEY\}$ ” as “projectKey_1” to the Sub report.
- Repeat the process for remaining two parameters, with a difference that parameter $\$P\{ppmUserLanguage\}$ and $\$P\{ppmUserUITheme\}$ from main report are passed as ‘ppmUserLanguage’ and ‘ppmUserUITheme’ to the subreport
- Now the updated OOTB report can be published on Clarity as explained earlier.



Redeploy The OOTB Report In Studio

- Since the JRXML contains the design of the report, by publishing the new jrxml to the report unit, replacing the old jrxml, you can update the report.
- Once editing the OOTB report is complete, save the jrxml file on Jaspersoft Studio and redeploy the report on Clarity using 'Publish' icon
- Using this method you can change the subreport jrxmls.
- If you wanted to add a new sub report from one OOTB report and put it into another, you can do that as well. Just make sure the expression for the sub report points to the new one in the report.
- Exercise: Add a sub report from another OOTB report into your current one.



Questions?



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Let Rego be your guide.

- Secondary Data Sets
- Setting Colors on Charts
- Using Domain as the Data Source
- Cross Tabs

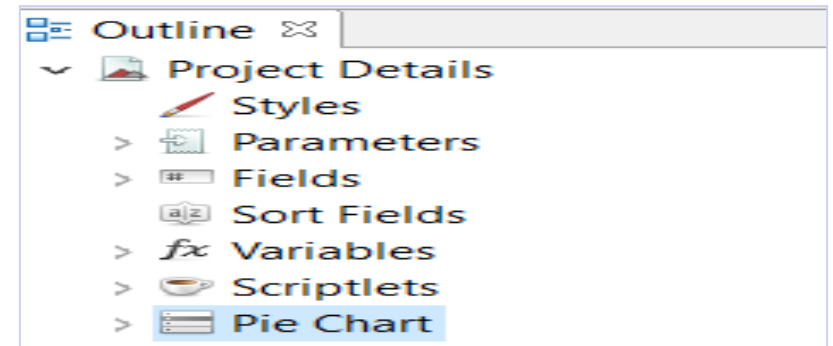
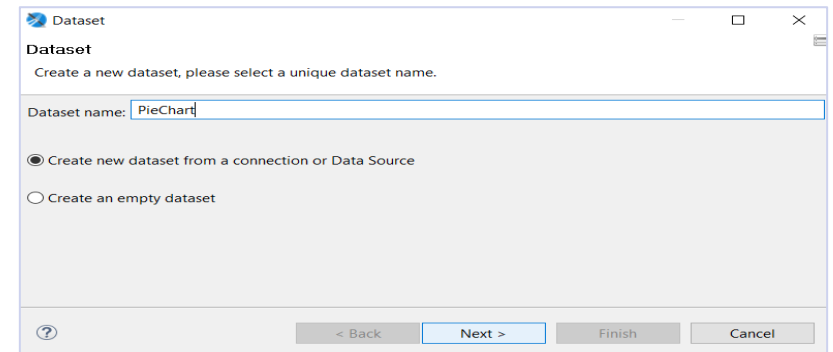
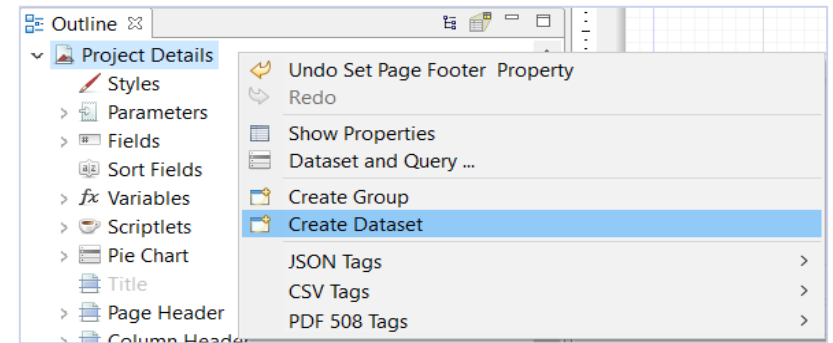
Part II Agenda

Part II: Secondary Data Sets

- ✓ Create a Secondary Data Set
- ✓ Filter the secondary data set based on a value from the main report

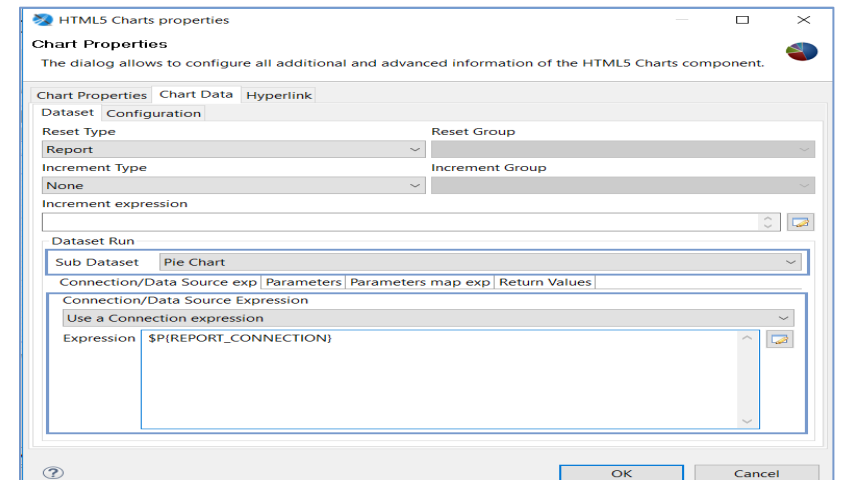
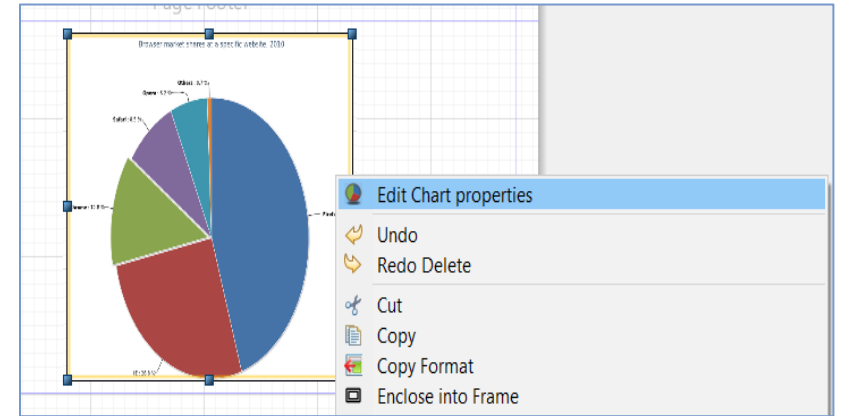
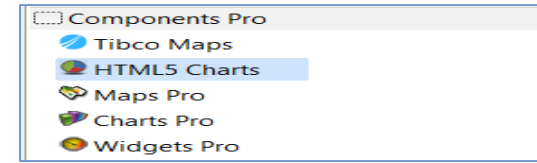
Creating A Secondary Data Set

- Creating a secondary data set allows a user to contain values that a chart or table outside of the main report's query.
- Charts and Tables can utilize other data sets.
- Filter a secondary data set based on the first is also possible.
- To create a secondary data set follow the steps below.
 1. Navigate to the outline tab in studio.
 2. Right Click on the Report name.
 3. Select Create Data Set
 4. Name the Data Set
 5. Select the appropriate Database JDBC DataSource
 6. Paste this query into the SQL window:
 7. http://jaspersoft.regoconsulting.com/2017/RegoU_Jaspersoft_Advanced_Query_FinancialPie.txt
 8. Click "Finish"
 9. In the Outline you should now see the secondary data set with the name given. Treat this as you treat the query you use in the main report.



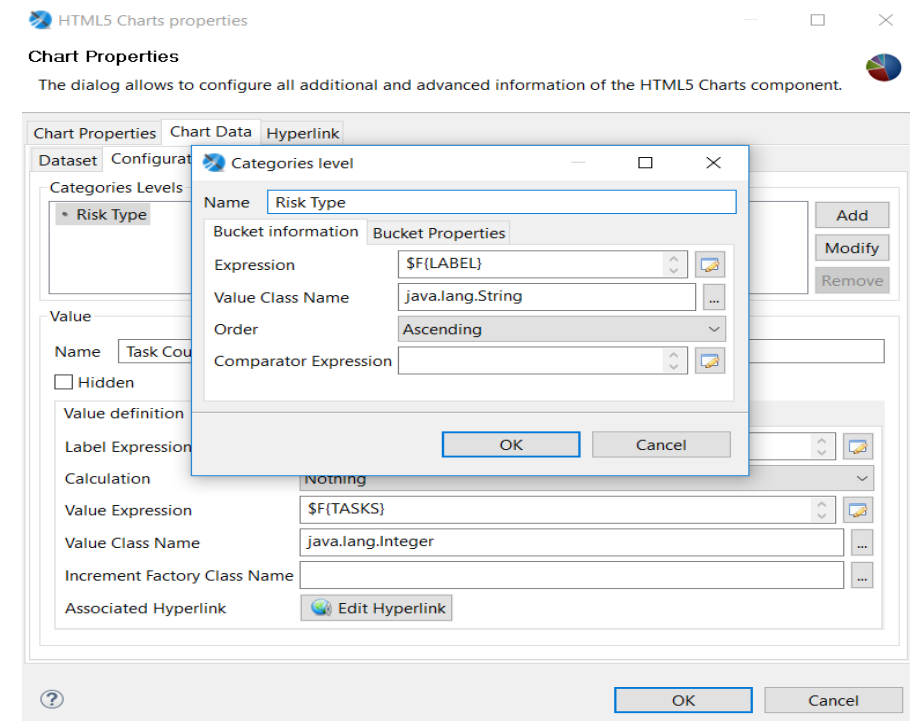
Using A Secondary Data Set

- Charts and tables can have a different data source chosen when creating. This allows for the user to get summary data using a sub query that may contain additional rules or data.
 1. In the report, bring over the Chart object.
 2. Select the chart type and click Next.
 3. Next, Right-click on the chart and edit the chart properties
 4. On the Chart Data tab, select our new Dataset from the “Sub Dataset” menu
 5. Next, Select “Use a Connection expression”, which should default to the report connection: `$P{REPORT_CONNECTION}`



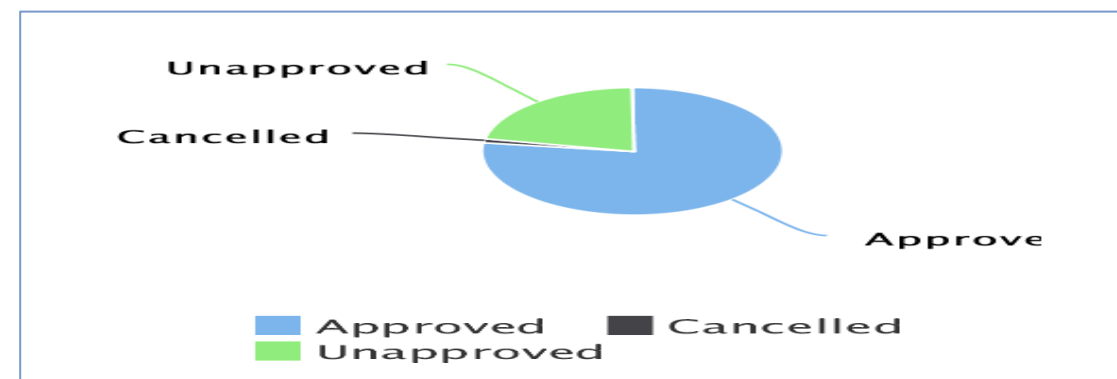
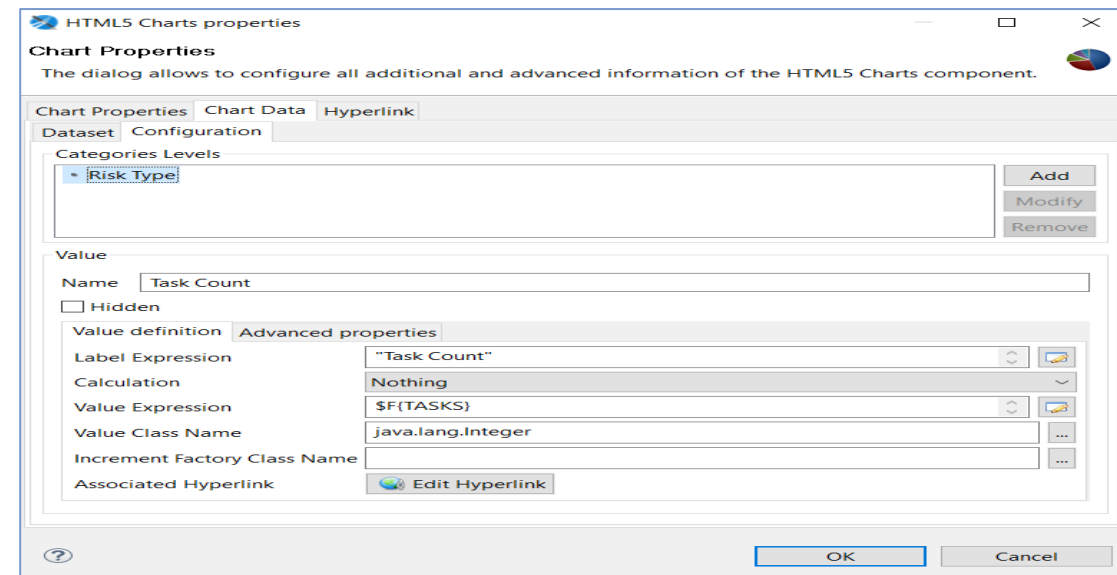
Using A Secondary Data Set – Cont'd

- Next, we will configure the chart to display the data from the query
- On the Chart Data tab, open the “Configuration” sub-tab
- Select the “Level1” category – Click “Modify”
- Change Name to “Risk Type”
- Change Expression to `$(LABEL)`
- Leave Value Class Name “`java.lang.String`”
- Click “Ok”



Using A Secondary Data Set – Cont'd

- Back in the Configuration tab, adjust the Value:
- Change Name to “Task Count”
- Change Label Expression to “Project Count” (With quotes)
- Change Calculation to “Count”
- Change Value Expression to $\$F\{INVESTMENT_KEY\}$
- Leave Value Class Name “java.lang.Integer”
- Click “Ok”
- Preview your report to validate

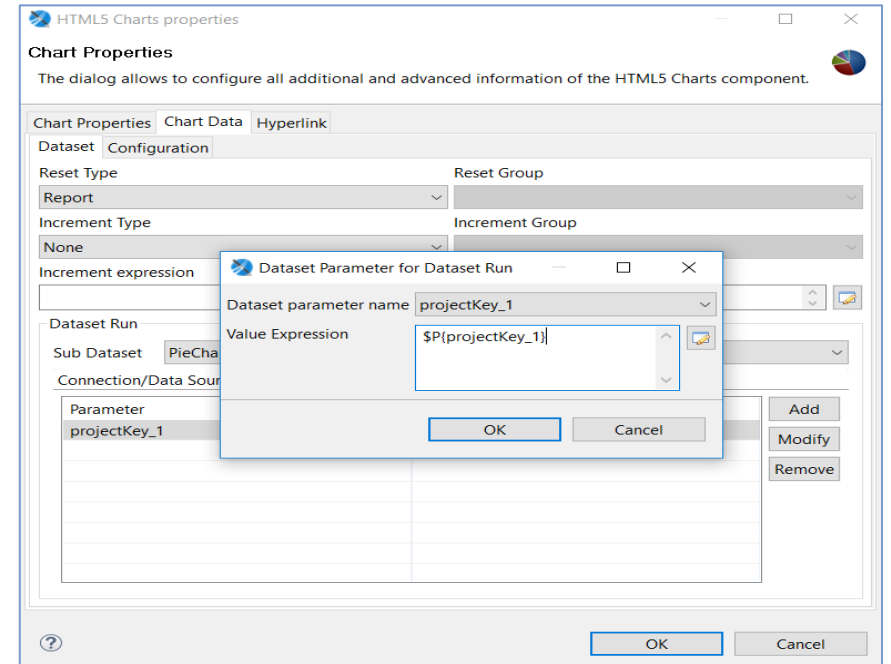
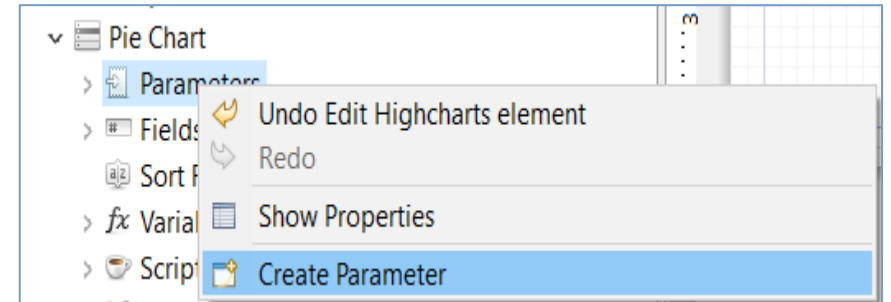


Filtering The Secondary Set

- The secondary set can take a value from the master report and use that as a parameter to filter on. This can be useful when doing subsets of data for charts and tables.

The following steps are for using a secondary data source with a chart.

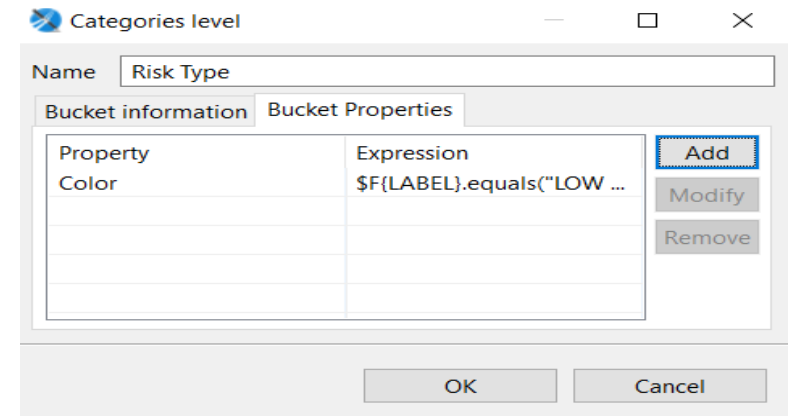
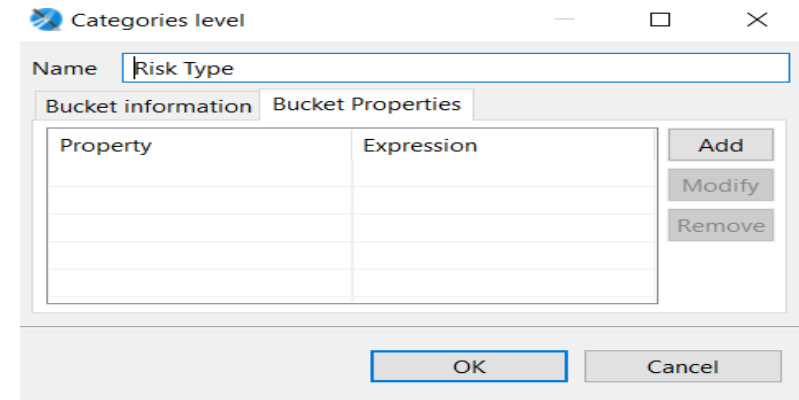
- In the outline find the secondary data source and create a parameter to be used.
- Navigate back to the outline and select the chart on the report.
- Double click to get the chart wizard to reappear.
Note: If you have not added a chart or table already, please add one to get to this wizard.
- Next to the dataset is the Parameters and Parameters Map.
- Select the Parameters link.
- In the list, click the Add button.
- Find the parameter from the secondary set that will be used to connect to the master report.
- Next in the expression editor choose the field or parameter to link to.
- Click Ok.



Setting Colors On Charts

- Setting the colors based on the category value must be done via the advanced properties bucket. Follow the steps below.
 1. Edit Chart Properties
 2. Chart Data tab
 3. Configuration tab
 4. Click on Category Level
 5. Click Modify button
 6. Go to Bucket Properties tab.
 7. Click Add.
 8. Name the property color and give it an expression to define the color of the slice. Example below.

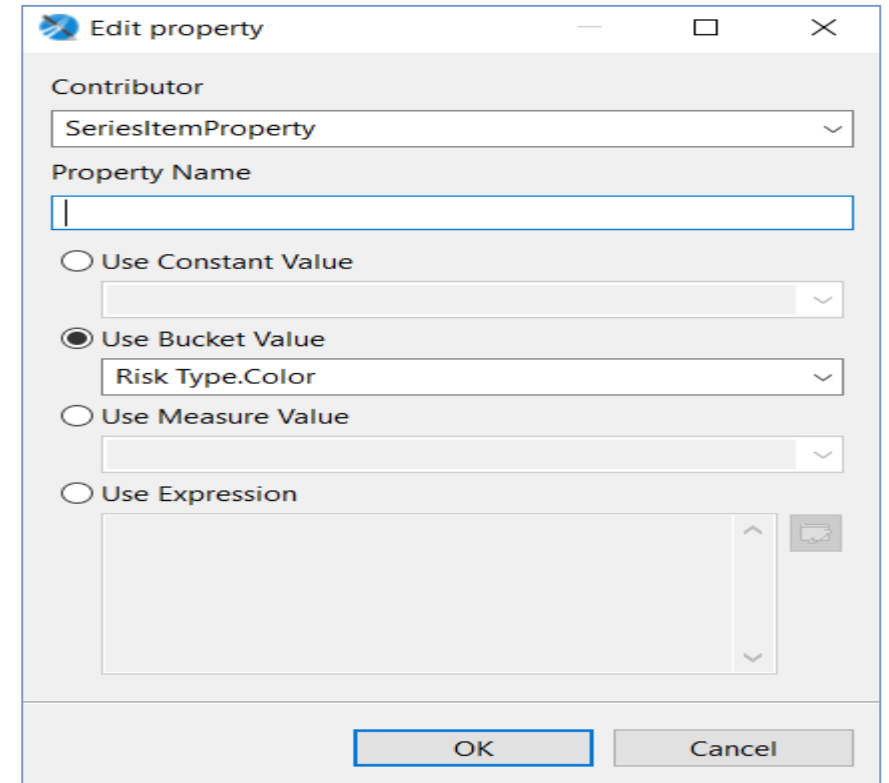
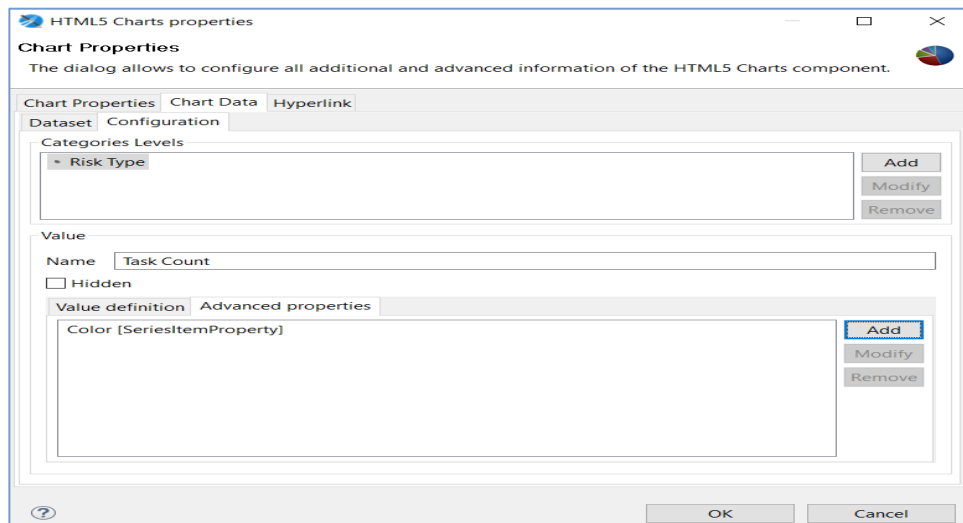
$\text{\$F\{LABEL\}.equals("LOW RISK") ? "#9CCB19" : \text{\$F\{LABEL\}.equals("MEDIUM RISK") ? "#FCB514" : \text{\$F\{LABEL\}.equals("HIGH RISK") ? "#B22222" : "#E8EBF2"}$



Setting Colors On Charts

Once the bucket property has been created.

1. Navigate to the advanced properties for the configuration
2. Click Add
3. Set contributor to "SeriesItemProperty".
4. Name the property Name "color".
5. Check the Use Bucket Property Value radio button
6. Select the Color Bucket property that we setup in the previous slide.



Highcharts API

Once the chart is created you can add various custom properties to control the look and feel of the HTML5 Chart.

1. Navigate to the Chart Properties
2. Click Show Advanced Properties
3. Click Add
4. Open the Highmarks API website: <http://api.highcharts.com/highcharts>
5. To identify the property to name go down the hierarchy and the property name becomes the property identified path.
6. Property value is whatever value is expected.

Show Advanced Properties

Property name

`plotOptions.column.dataLabels.enabled`

Property	Value	
chart.zoomType	"xy"	Add
credits.enabled	false	Modify
credits.href	""	Remove
credits.text	""	
plotOptions.column.dataLabels.enabled	true	
title.text	""	
yAxis.title.text	""	

```
plotOptions: {
  area: { ... }
  arearange: { ... }
  areaspline: { ... }
  areasplinerange: { ... }
  bar: { ... }
  boxplot: { ... }
  bubble: { ... }
  column: {
    allowPointSelect: false
    animation: true
    animationLimit:
    borderColor: "#FFFFFF"
    borderRadius: 0
    borderWidth: 1
    color: undefined
    colorByPoint: false
    colors:
    cropThreshold: 50
    cursor: undefined
  }
  dataLabels: {
```

Part II:
Using Domain As The Data Source

- ✓ Using A Domain as the Data Source

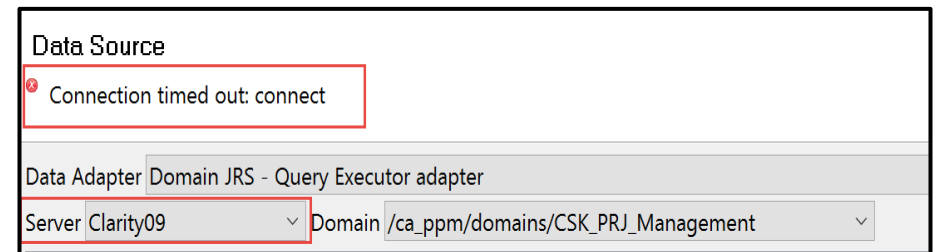
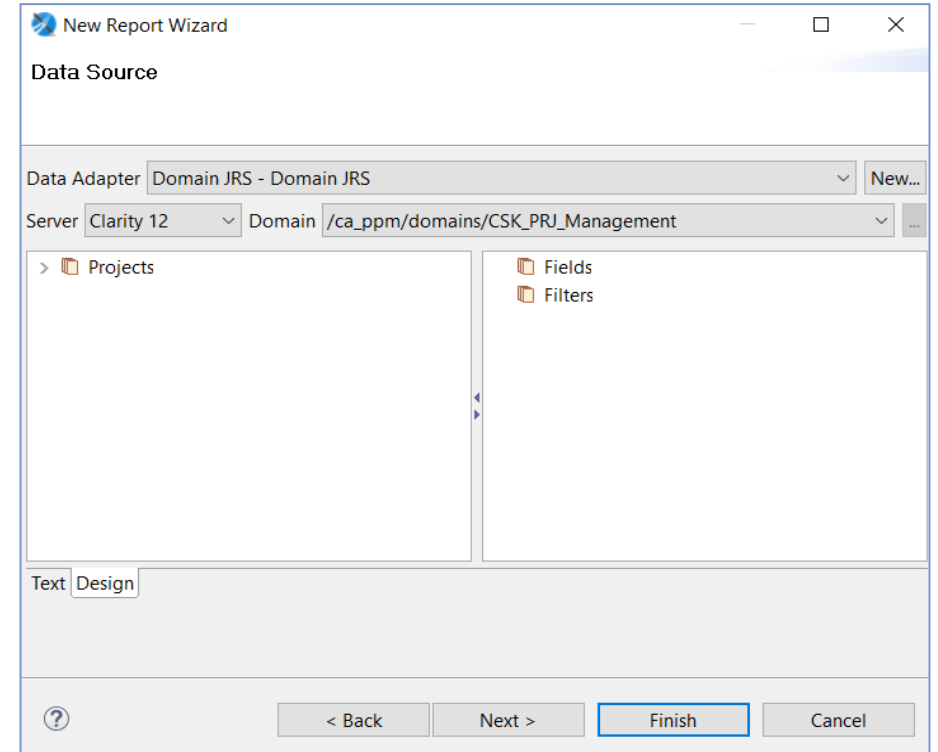
Selecting The Domain

- Using a domain allows the user to have the ability to select the fields available in the domain as their data set. This can be an easy solution to using the direct query in the data set but limits the user from controlling the query and the filtering.

Follow the steps below to use a query as a data source

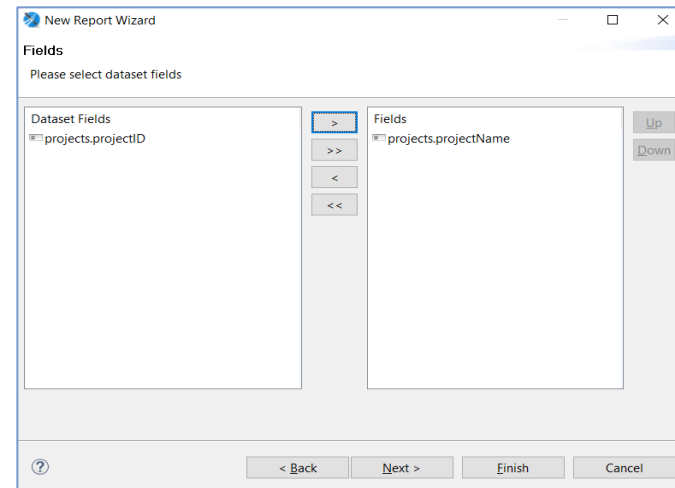
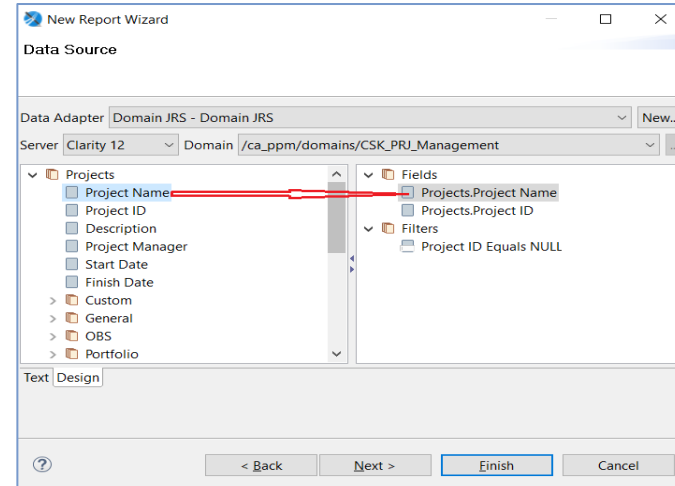
1. When creating a new Jaspersoft Report click “Domain JRS”
2. Next let the developer try to connect to an open repository.
3. If it can’t connect, the next interface will appear allowing you to choose another server to use.
4. In the Domain section, select the domain you will be pulling the fields you want to bring into your report.

Note: You will have to bring over ID’s to use in the filter expression instead of filtering the query.



Selecting The Domain

5. In the left explorer, expand the sets to populate the fields.
6. Click and drag the field to either the Fields of Filter folder on the right explorer
7. Click Next
8. Move the fields you want to bring into your report to the right explorer.
9. Click Next
10. Move the fields you want to group your data by in the report to the right explorer
11. Click Finish



Part II: Creating A Crosstab

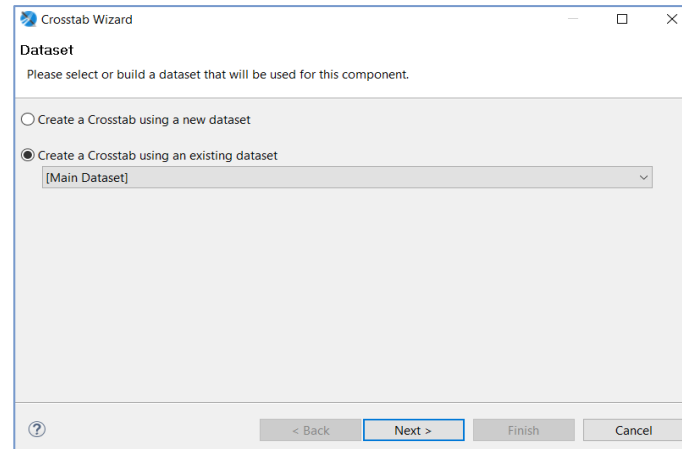
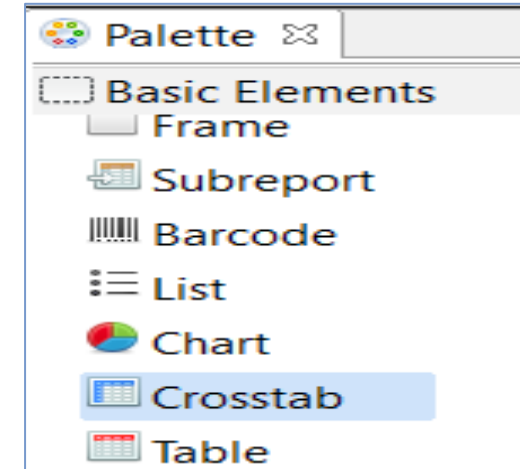
- ✓ How to create a crosstab
- ✓ How to create a Table

Creating A Crosstab

- Crosstabs allow the report designer to create a table that will expand based on the quantity they want their measure to populate from. A common example is Time by Month for a project.

Follow the steps below to create a crosstab

1. From the palette , drag over the Crosstab element
2. Select the dataset that the crosstab will use to be populated
3. Click Next

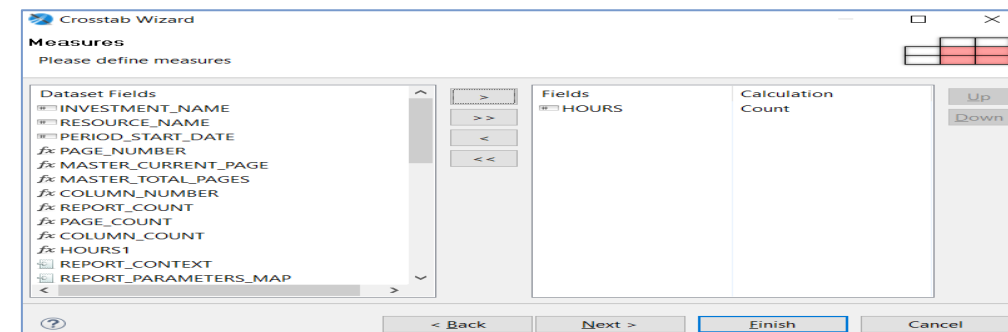
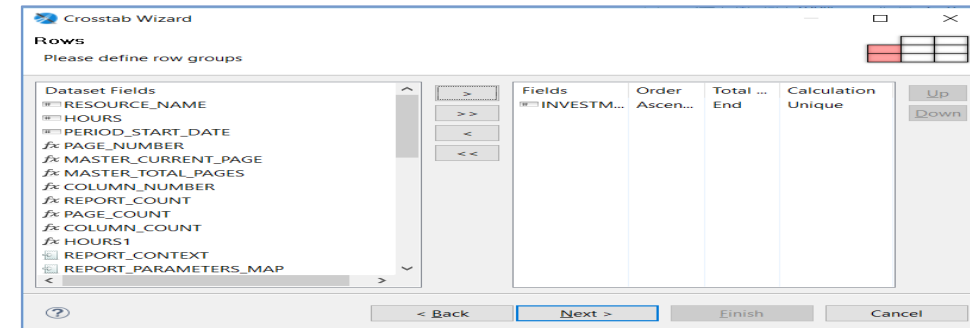
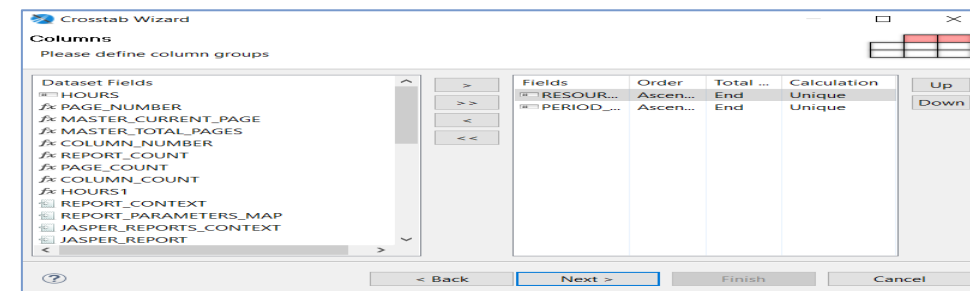


Creating A Crosstab

1. Select the column attribute(s) and bring the field(s) over to the right section
 2. Click Next
 3. Select the row attribute(s) and bring the field(s) over to the right section
 4. Click Next
 5. Select the measure attribute(s) and bring the field(s) over to the right section
 6. Click Finish
- Query: [http://jaspersoft.regoconsulting.com/2017/Advanced Queries.txt](http://jaspersoft.regoconsulting.com/2017/Advanced%20Queries.txt)

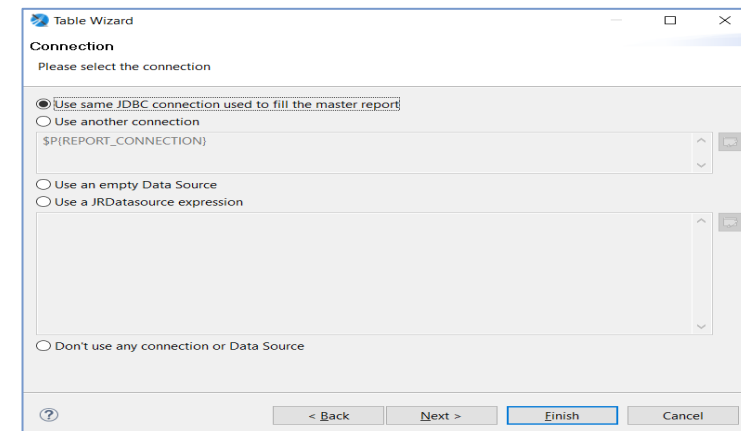
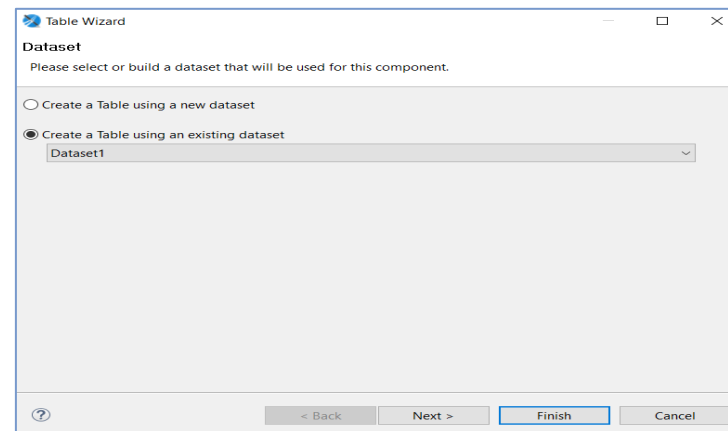
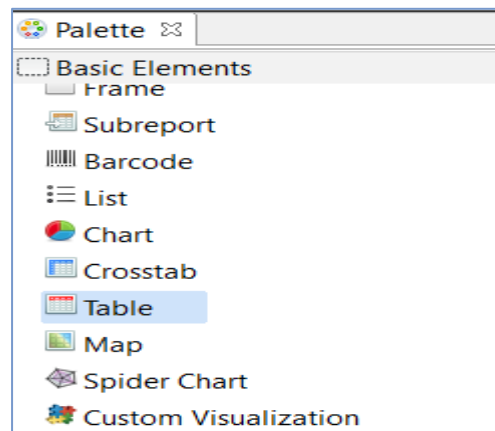
	\$V{INVESTMENT_NAME}	Total	
\$V			
Total			

Summary



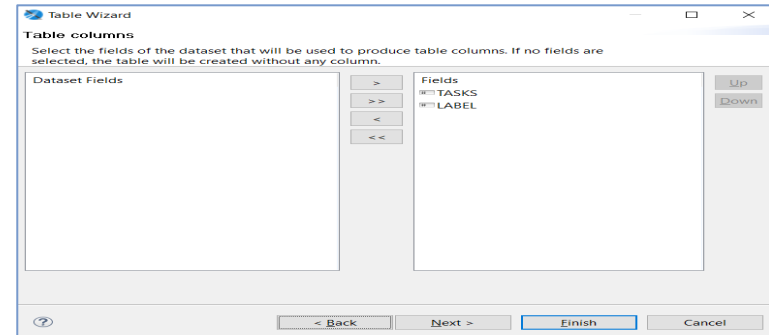
Creating a Table

- Tables can be used to show the summary of the report in table format. For Tables we can choose the report summary, because it is printed at end of the report and can be used to easily view aggregated data.
- Follow the steps to create a Table
 1. From the palette , drag over the Table element
 2. Select the dataset that the crosstab will use to be populated
 3. Click Next
 4. Select 'Use Same JDBC connection used to fill master Report' to set data source for the Table

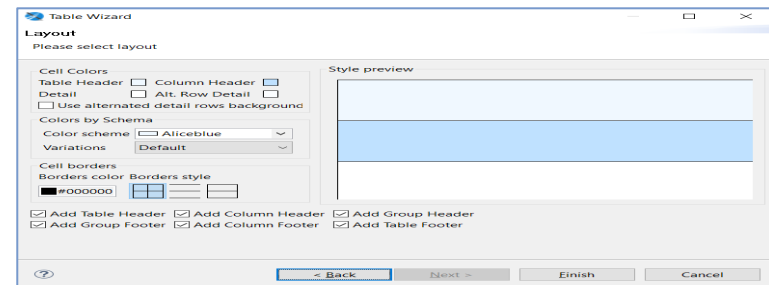


Creating a Table

1. Select the Table Column Fields attribute(s) and bring the field(s) over to the right
2. Click Next
3. Select the layout Color
4. Click Finish



TASKS	LABEL
#{TASKS}	#{LABEL}



Questions?



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Let Rego be your guide.

- Tips and Tricks
 - Markup Language
 - How to set Defaults on parameters
 - Add Jaspersoft to an iFrame

Part III Agenda

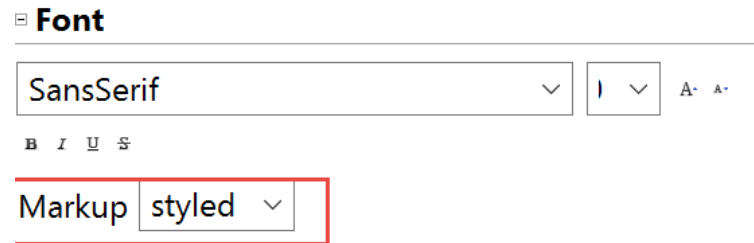
Part III: Markup Language

✓ Demo

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Markup Language

- Markup is a style choice that allows you to apply style inside the expression.
- Ex: <http://community.jaspersoft.com/questions/534014/use-style-text-expression>
- To do this follow the steps.
- Navigate to the properties of the textfield
- Make sure to select the markup language to use.



- Once this is applied you can apply the selected markup in your textfield expression.
 1. Example: I want my field “name” to be bold. I am using the markup “Styled”.
- `<style isBold='true'>` + `$F{NAME}` + `</style>` + " - " + (`$F{SR_UPDATE}` != null ? `$F{SR_UPDATE}` : "No Update")

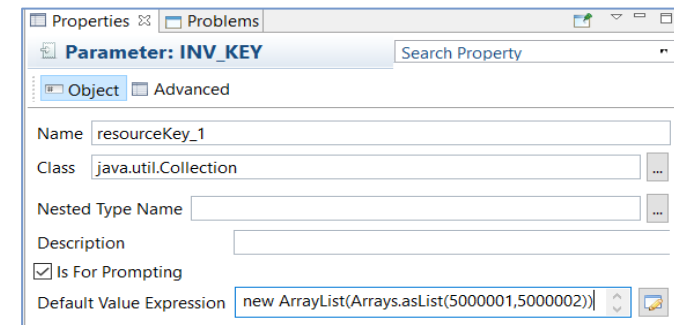
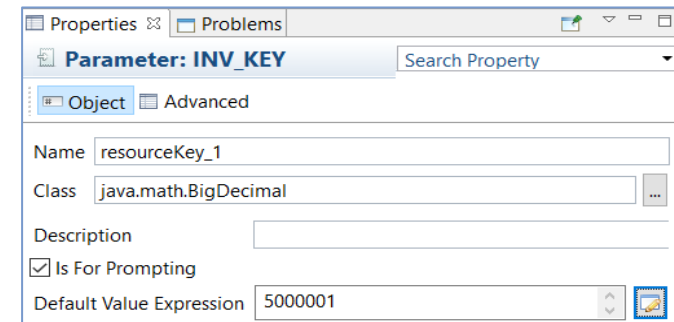
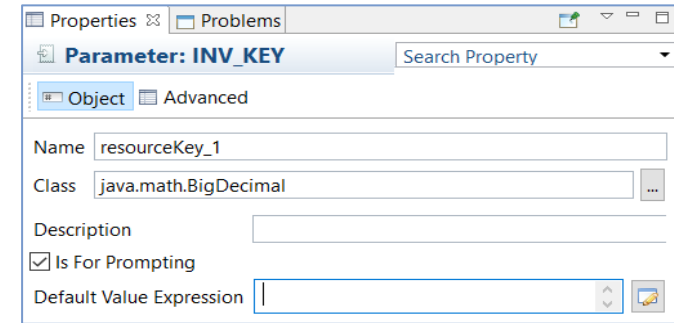
Part III: How To Set Defaults On Parameters

✓ Demo

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How To Set Defaults On Parameters

- Defaults on parameters will auto-fill a value in a particular parameter. Setting up parameters with defaults requires knowing the data values being passed to the report.
- How to set up a single and multi-select value(s) default
 1. Navigate to the outline
 2. Expand the Parameters list
 3. Right click on the parameter
 4. Click Show Properties
 5. Click the expression edit for the Default Value Expression
 6. In the expression for a single value fill out the **value** for the default. This **value** should be the back end value that is being passed from the parameter.
 - Ex. Resource_key vs Resource_name
 7. In the expression for a multi value convert the values into an array list. To do this follow the template below.
 - `new ArrayList(Arrays.asList(VALUE1,VALUE2))`



Part III:
How To Add Jaspersoft To An Iframe

✓ Demo

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How To Setup An Iframe With Jaspersoft

Setting up an Iframe to contain Jaspersoft allows for the user to create visible view for a Jaspersoft report in a tab on an object or page in clarity.

1. Extracting the link parameter (This all goes in an HTML portlet). This method only pulls one parameter, if you need multiple, it would be an easy change:

```
<script>
var str = window.location.href;
var key = "";

vars = str.split("&");
for (var i=0;i<vars.length;i++) {
  var pair = vars[i].split("=");
  if (pair[0] == "id") {
    key = pair[1];
  }
}
</script>
```

2. We can now add the following line inside the "script" tags, after the above code, to update the iFrame source location. In this example, we're linking to a quick project list report, passing the parameter projectKey_1 and updating the iFrame with id "HTMLID":

```
document.getElementById('projectList').src = 'https://cppm1080-
dev.ondemand.ca.com/reportservice/flow.html?_flowId=viewReportFlow&standAlone=true&decorate=no&ParentFolderUri=/users/regiconsulting/repo
rts&reportUnit=/users/regiconsulting/reports/ProjectList&projectKey_1=' + key;
```

3. The iFrame line for the HTML Portlet:

```
<iframe id="HTMLID" width="1024" height="600" src=""></iframe>
```

Note: Not hard coding the iframe size results in poor sizing for the report

Questions?



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Let Rego be your guide.

Appendix

✓ Items of Interest

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Connecting To Jaspersoft Mobile

- To connect to the Jaspersoft Mobile app follow the steps
 1. Tap the TIBCO JasperMobile icon.
 2. Complete the following information and tap Login
 3. Username - The username to log in to CA PPM.
 4. Password - The password to log in to CA PPM.
 5. Server URL The server url that is used to log in to TIBCO JasperMobile.
Example: `https://<PPM Hostname>/ppm/mobile`
 6. Click the "+" button in Server Profiles to add an account in the mobile app to connect to the CA PPM server.
Complete the following information and click Save
 7. Profile name - Specify the name of your profile. You can specify any profile name that you want.
 8. Server address
 9. Organization ID - (Not Required) CA PPM automatically identifies this value based on the Server URL, Username, and Password provided.
 10. Automatically extend the session
 11. Select the added profile and click Login.



Items of Interest

- Use free layout to avoid Jaspersoft Studio reformatting your report
- Use a standard parameter and variable naming conventions
- Maintain the same folder structures locally when developing for easy report migration
- Create multiple detail bands if you have multiple charts
- Frequently build and clean the cache of the project in Studio to avoid inconsistencies and issues
- Maintain a centralized location for report resources such as images, sub-reports, queries, input controls with the JasperServer repository to promote reusability
- Ensure the data warehouse is refreshed regularly, as OOTB Jaspersoft components like reports and input controls are heavily dependent on it

Items of Interest

- There is no known limit to the number of nested subreports
- Layered domains is not possible in Jasper like in Business Objects
- Audit Trail and chargebacks information is not available in OOTB domains
- Report errors will show up on the Jaspersoft Server logs
- Custom date fields can be displayed only in Date format in adhoc reports. Use query in custom domain to get Date in Date Time format
- Multiselect valued parameters can be defined for a subreport

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- Click on **Maintain My Certification**
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- 1 PDU per hour
- 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**



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