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Jaspersoft | Beginner

Your Guides

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Part I: Introduction

Agenda

- Introduction
- Configuration Basics
- Security Basics
- Installing Jaspersoft Studio
- Interface Introduction
- Data Adapter Setup
- Server Connection Setup

Introductions

- Take 5 Minutes

- Turn to a Person Near You

- Introduce Yourself

- Business Cards

Questions?

Agenda

- Introduction
- Configuration Basics
- Security Basics
- Installing Jaspersoft Studio
- Interface Introduction
- Data Adapter Setup
- Server Connection Setup

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Part I: Introduction

✓ Jaspersoft Overview – 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, 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 can do self-service ad-hoc reporting.

- Ad-hoc views 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

- Reports can be run on demand, scheduled and delivered via email or embedded within an HTML frame within Clarity.
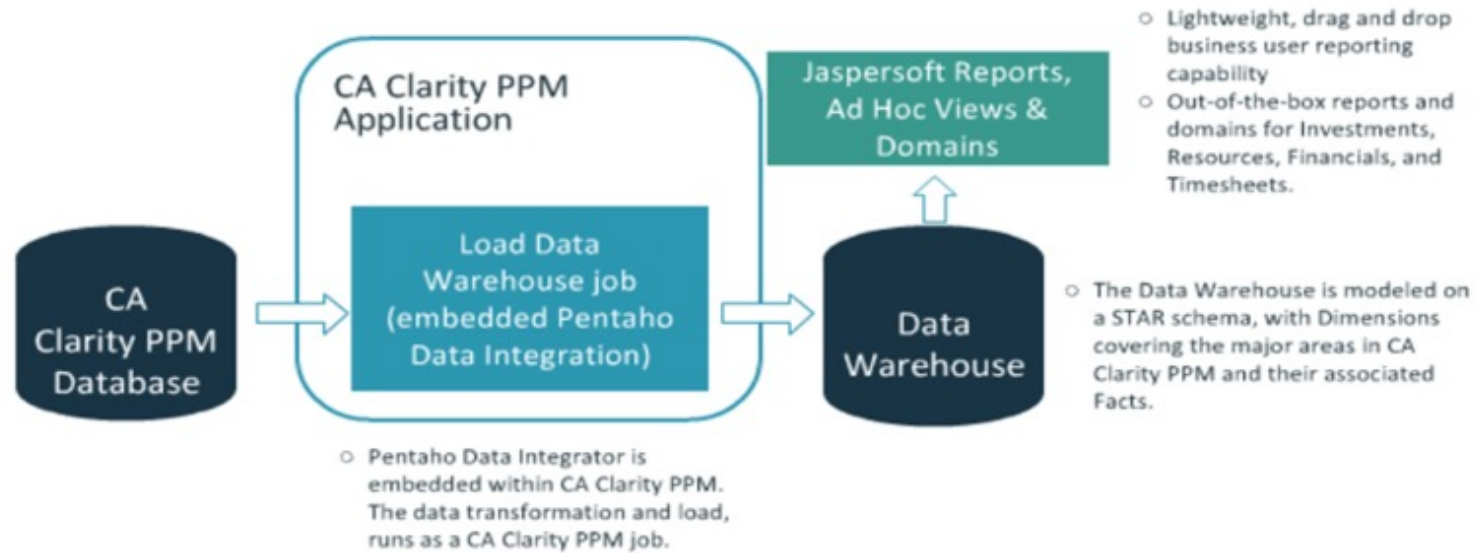
Overview - The Big Picture
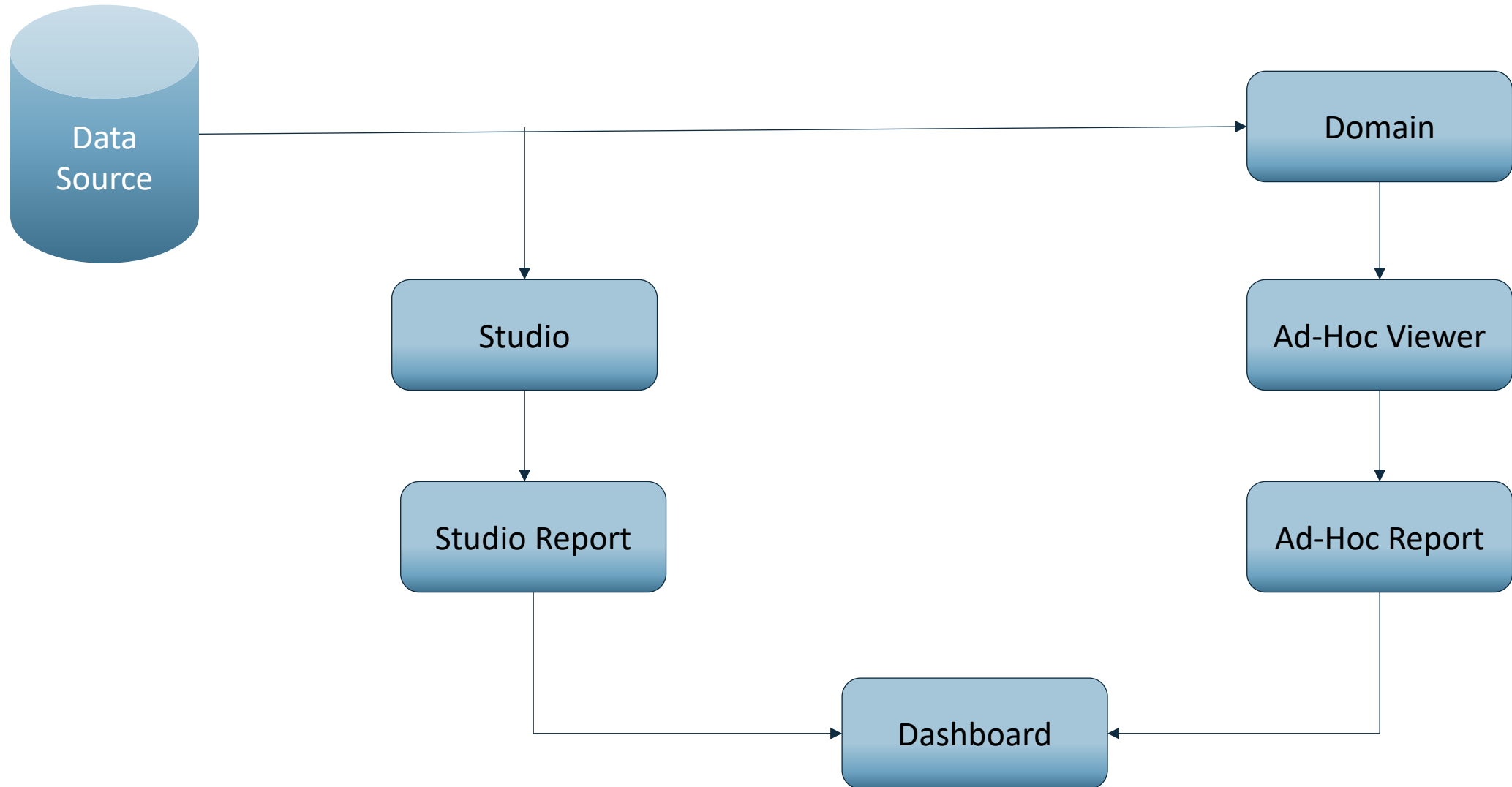
Clarity Jaspersoft Overview
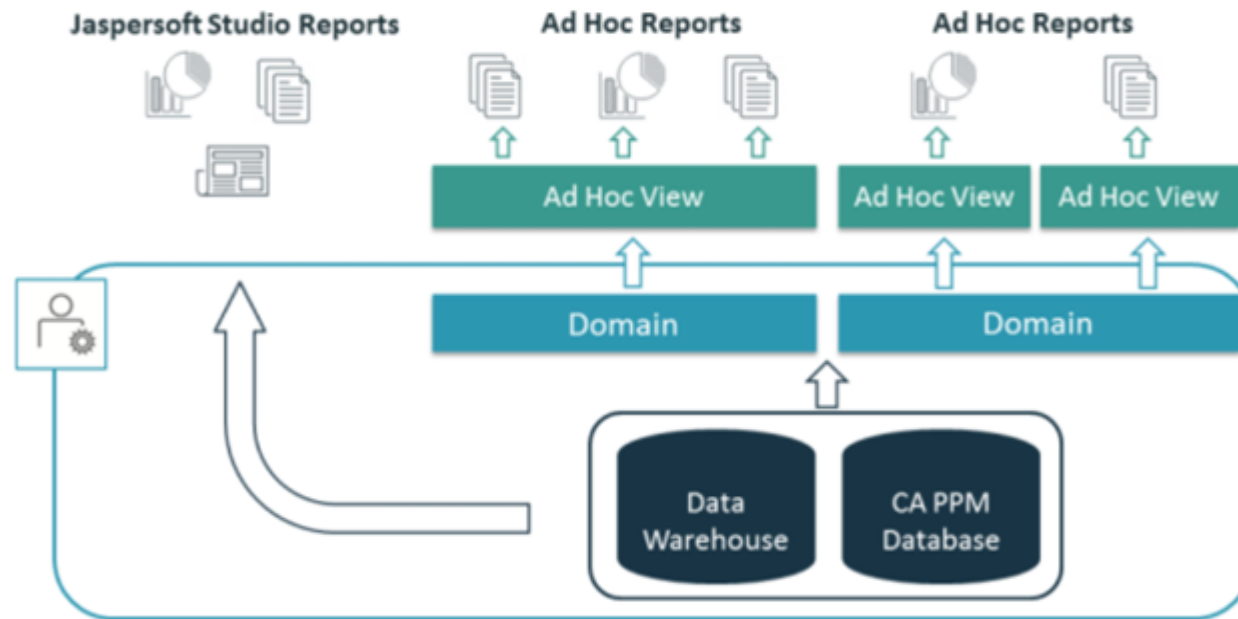
Clarity Data Warehouse Overview
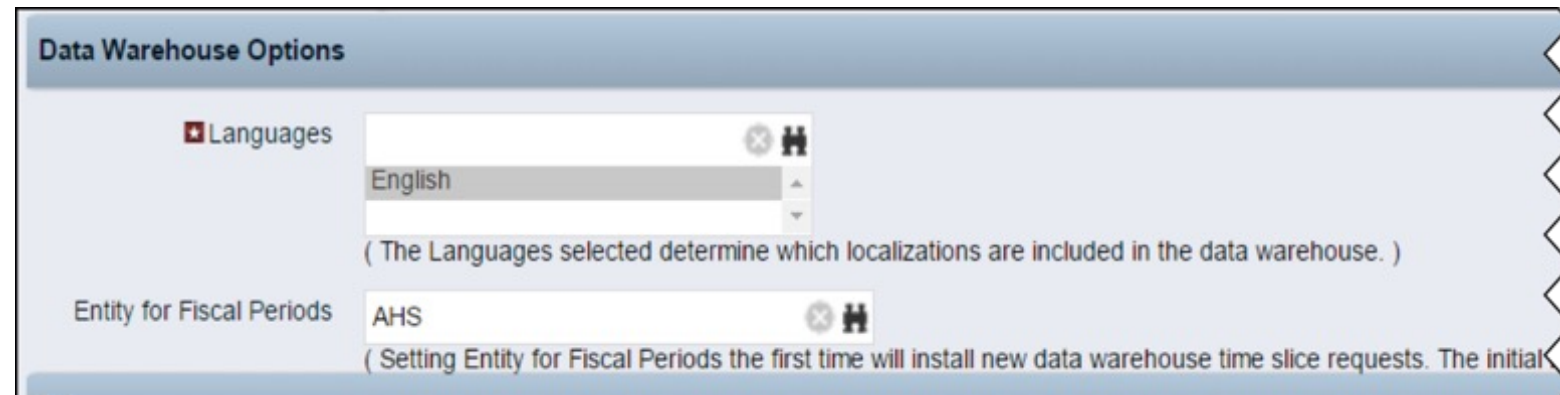
Part I:
Configuring Basics

✓ Initial Setup Parameters

✓ Dynamic Query Lookups

✓ Job Automation

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Jaspersoft Configuration Considerations

Data Warehouse Options

- For the Jaspersoft Data Warehouse jobs to run, you must specify the Data Warehouse language and Fiscal Time period entity. To set these values, navigate to Administration > General Settings > System Options. Specify the language and financial period entity in the corresponding fields (this is typically English and the name of your entity). If you do not set these values, your Load Data Warehouse jobs will fail.

Jaspersoft Configuration Considerations (Cont.)

Custom Attributes

- One of the key advantages of Jaspersoft over Business Objects is the ability to add custom attributes to the Domain without needing to modify the universe. However, to add the custom attribute, you need to check the new Include in the Data Warehouse box on the attribute's property. If you do not check this box, the attribute is not added to the domain.

Jaspersoft Configuration Considerations (Cont.)

Dynamic Query Lookup

- If including a lookup which uses a Dynamic Query, you must ensure that your query includes the column LAST_UPDATED_DATE. If not included, the option to include in the data warehouse will be greyed out. While not required, you should also include a filter for LANGUAGE.

- Example:

```
SELECT  @SELECT:a.name:country_name@,
       @SELECT:c.currency_code:currency_code@,
       @SELECT:c.currency_code || ' (' || c.currency_symbol || ')':currency_name@,
@SELECT:c.LAST_UPDATED_DATE:LAST_UPDATED_DATE@,
@SELECT:LANG.LANGUAGE_CODE:LANGUAGE_CODE@,
@SELECT:LANG.ID:LANGUAGE_ID@
FROM   cmn_countries b,
       cmn_captions_nls a,
       cmn_currencies c,
CMN_LANGUAGES LANG
WHERE   a.table_name = 'CMN_COUNTRIES'
AND    @FILTER@
AND    a.pk_id = b.id
AND    a.language_code = @WHERE:PARAM:LANGUAGE@
AND    b.currency_id = c.id
AND    LANG.LANGUAGE_CODE=a.LANGUAGE_CODE
```

Jaspersoft Automation / Jobs

Automation

There are three new jobs Jaspersoft jobs that you will need to schedule for Jaspersoft to work correctly. They are:

- Create and Update Jaspersoft Users Job

- Load Data Warehouse Job

- Load Data Warehouse Access Rights Job

Job Scheduling and Best Practices

Create and Update Jaspersoft Users Job

Create and Update Jaspersoft Users job does the following:

- Creates users in Jaspersoft for active Clarity users

- Assigns Jaspersoft roles based on granted Clarity Advanced Reporting rights

- Updates users in Jaspersoft that are inactivated or locked in Clarity

Recommended Schedule

- Optimum scheduling may depend on frequency of user changes within your environment, but nightly run appears to be a good scheduling solution

Job Scheduling and Best Practices

Synchronize Jaspersoft Roles Job

- This job ensures that users of Clarity groups that have advance reporting rights and exist in Jaspersoft are matched to the corresponding roles in Jaspersoft. This job is driven by Clarity groups.

- In Clarity, assign Advanced Reporting access rights to each report user. Without rights, those users are not synchronized with Jaspersoft roles.

- Add the report users to groups in Clarity and verify that the groups are active.

- Select the Allow Jaspersoft Role Synchronization check box on the System Options page.

- To ensure all Clarity users exist in Jaspersoft, run the Create and Update Jaspersoft Users job before you run the Synchronize Jaspersoft Roles job. The Clarity access group ID is the same as the role name in Jaspersoft.

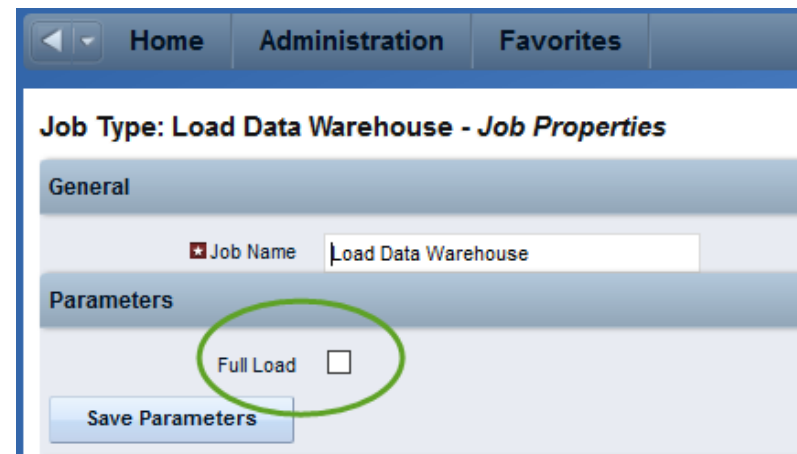# Job Scheduling and Best Practices (Cont.)

Load Data Warehouse Job

The Load Data Warehouse job does the following:

- Extracts data from the Clarity database

- Transforms the extracted data into a de-normalized format

- Loads the de-normalized data into the Clarity Data Warehouse

Recommended Schedule

- Clarity support recommends running the (full) load once daily after hours, and (lite) incrementally every hour

Job Scheduling and Best Practices (Cont.)

Load Data Warehouse Access Rights Job

The Load Data Warehouse Access Rights job does the following:

- Extracts access rights for investments and resources from the Clarity database

- Loads the extracted data into the Clarity Data Warehouse

Recommended Schedule

- Nightly – After Hours

Part I:
Security Basics

- ✓ Security Basics
- ✓ Groups / Roles
- ✓ Domain Security
- ✓ Folder Security

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Security Basics

Security within the Jaspersoft Server can be separated into two sections:

- Jaspersoft Server Authentication/Authorization
- Clarity Authentication/Authorization

Jaspersoft Server Authentication/Authorization:

- Any user within Jaspersoft Server is given a role of "ROLE_USER" by default, which gives them basic rights to view reports.

- To develop and deploy reports to the server, a user account with a role of "REPORT_DESIGNER" is required

- Other roles, which are self-explanatory, include:
  - ROLE_DOMAIN_DESIGNER
  - ROLE_ADHOC_DESIGNER
  - ROLE_DASHBOARD_DESIGNER
  - ROLE_DATASOURCE_DESIGNER
  - ROLE_ADMINISTRATOR
  - ROLE_SUPERUSER

Security Basics (Cont.)

CA PPM 14.2+ Installation and Configuration will create several roles within Jaspersoft Server, which correlate to roles within Clarity, which include:

Clarity PPM Right	Description	Notes
Advanced Reporting - Ad Hoc Create	Allows resource to navigate to the Advanced Reporting page and create Ad Hoc Views. Resource is assigned the following Jaspersoft roles: ROLE_USER and ROLE_ADHOC_DESIGNER.	Needed to allow Ad Hoc reporting. Note that without the domain access user will not be able to create.
Advanced Reporting - Administer	Allows resource to navigate to the Advanced Reporting page and administer Advanced Reporting. Resource is assigned the following Jaspersoft roles: ROLE_USER and ROLE_ADMINISTRATOR.	By default, this is the Clarity Administrator
Advanced Reporting - Dashboard Create	Allows resource to navigate to the Advanced Reporting page and create Dashboards. Resource is assigned the following Jaspersoft roles: ROLE_USER and ROLE_DASHBOARD_DESIGNER.	To create a dashboard, users need reports to add to the dashboard and to create those reports they will need domain access too.
Advanced Reporting - Data Source Create	Allows resource to navigate to the Advanced Reporting page and create Data Sources. Resource is assigned the following Jaspersoft roles: ROLE_USER and ROLE_DATASOURCE_DESIGNER.	By default, this is set to the admin account. This is for advanced users who will be creating new data sources.
Advanced Reporting - Domain Create	Allows resource to navigate to the Advanced Reporting page and create Domains. Resource is assigned the following Jaspersoft roles: ROLE_USER and ROLE_DOMAIN_DESIGNER.	By default, this is set to the admin account. This is for advanced users who will be creating new domains.
Advanced Reporting - Navigate	Allows resource to navigate to the Advanced Reporting page. Resource is assigned Jaspersoft role as ROLE_USER.	By default, all users inherit this right but without Clarity rights to accompany, the user cannot navigate
Advanced Reporting - Report Create	Allows resource to navigate to the Advanced Reporting page and create Reports. Resource is assigned the following Jaspersoft roles: ROLE_USER and ROLE_REPORT_DESIGNER.	To create reports, users will need domain access too

Security Basics (Cont.)

As an example, granting project managers (via the PM group) the following rights within Clarity:

- Advanced Reporting - Ad Hoc Create

- Advanced Reporting - Dashboard Create

- Advanced Reporting – Navigate

Would show them the following when accessing advanced reporting.
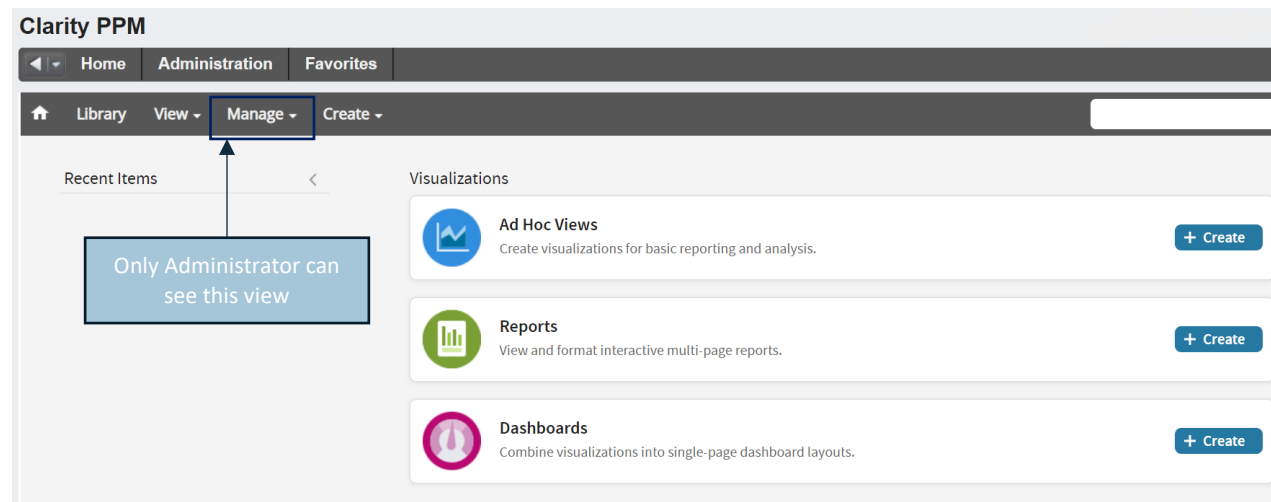
Security Basics – Domain Security

The following roles are in Advanced Reporting, but do not link back to Clarity groups. The Advance Reporting administrator will have to grant these roles to every user manually in Jaspersoft.

Domain	Right
Investment Management	CSK_ROLE_INVESTMENT_MANAGEMENT
Project Management	CSK_ROLE_PROJECT_MANAGEMENT
Program Management	CSK_ROLE_PROGRAM_MANAGEMENT
Idea Management	CSK_ROLE_IDEA_MANAGEMENT
Application Management	CSK_ROLE_APPLICATION_MANAGEMENT
Custom Master Objects	CSK_ROLE_CUSTOM_MASTER_OBJECTS
Financial Management	CSK_ROLE_FINANCIAL_MANAGEMENT
Resource Management	CSK_ROLE_RESOURCE_MANAGEMENT
All Domains	CSK_ROLE_ALL_REPORTS_DOMAINS

Security Basics – Domain Security

To give project managers access to all domains, add them to *CSK_ROLEALL_REPORTS_DOMAINS.* The following table shows the difference between the two roles.
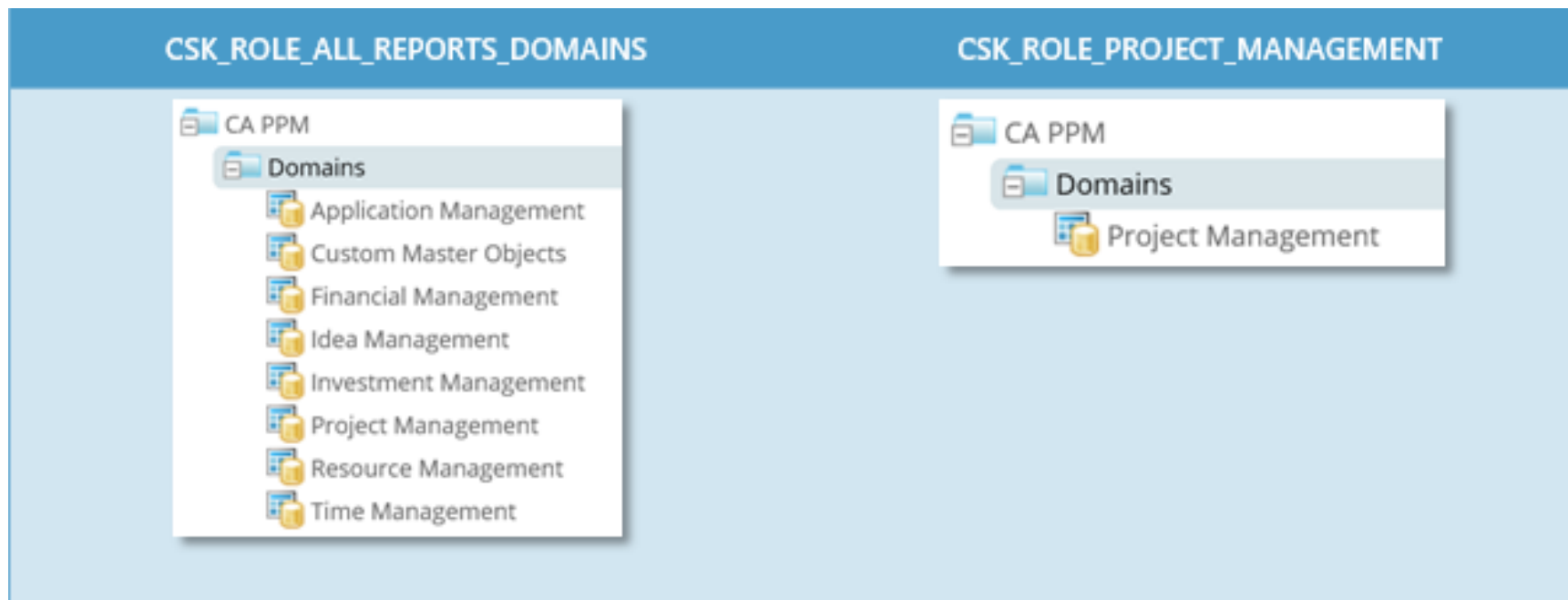
Security Basics – Folder Security

- Jaspersoft stores Views, Ad Hoc Reports, Dashboards, Data Sources, Domains, Input Controls, Reports, and Templates in the Jaspersoft Repository using a folder structure. This lets you organize reports, data sources, etc. and control access using permissions.

- Out of the Box, the Jaspersoft Repository has two primary folders:
  - Public
    - Houses several report templates
  - Organization
    - Clarity – Contains all components provided by Clarity, which includes Data Sources, Ad Hoc Views, Dashboards, Domains, Input Controls, Reports, Resources and Templates
    - Shared – Content available to multiple users
    - Users – Separate folders for each user within the Jaspersoft Server
    - Temp – Temporary files/reports

- Additional folders, sub-folders can be created by administrators, based on the needs of the organization

- Additional security roles can be created by administrators, based on the needs of the organization

Part I:
Installing Jaspersoft Studio

✓ Software Download

✓ Installation Overview

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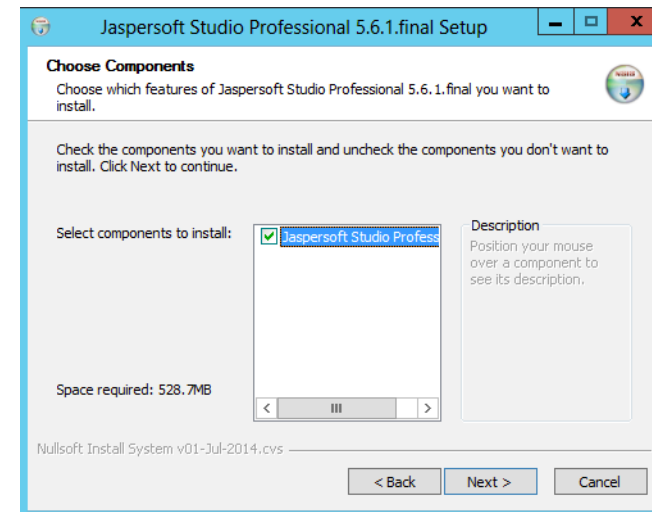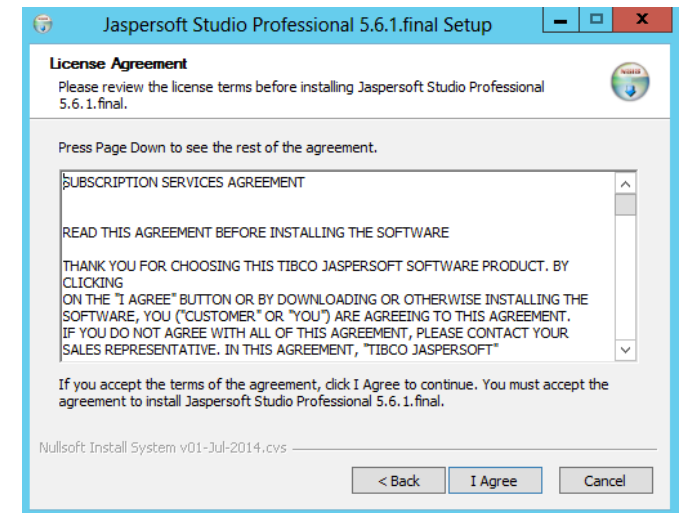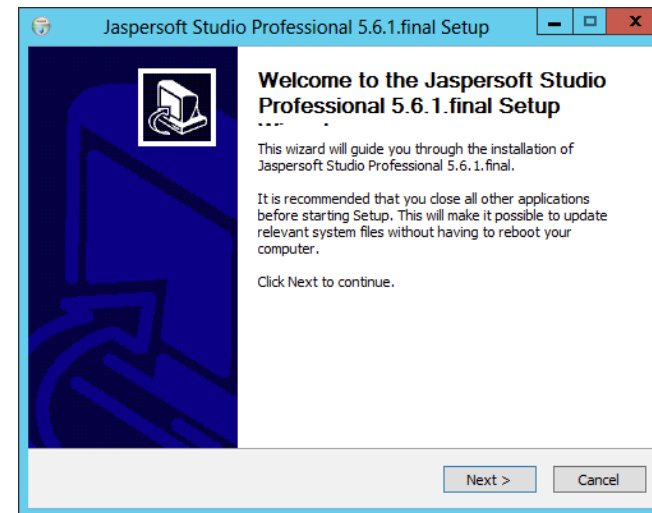
Jaspersoft Studio Installation

- Jaspersoft Studio can be downloaded directly from the Broadcom support site [Clarity Advanced Reporting and Database Schema Index](#)

- Navigate to the version of PPM that you are using and download the applicable compatible version of Jaspersoft Studio. Versions 14.3+ will support the latest version of **Jaspersoft Studio Professional 7.1**
    - Download the appropriate version for your desktop platform

- The trial version should remain licensed for 30 days, after which, you'll need to install the Clarity provided version from your Clarity Support Download Center

- This Techdocs link also provides database schemas and ERD diagrams:
    - Clarity Oracle Database Schema
    - Clarity MSSQL Database Schema
    - Data Warehouse Oracle Database Schema
    - Data Warehouse MSSQL Database Schema
    - Data Warehouse ERD Diagram

Jaspersoft Studio Installation

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    - Data Warehouse MSSQL Database Schema
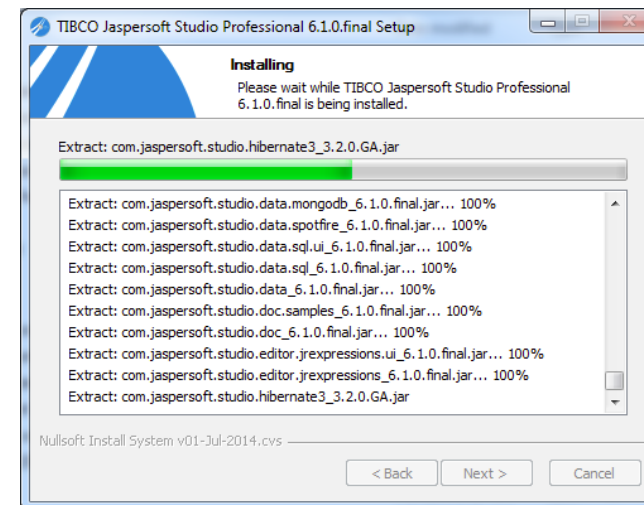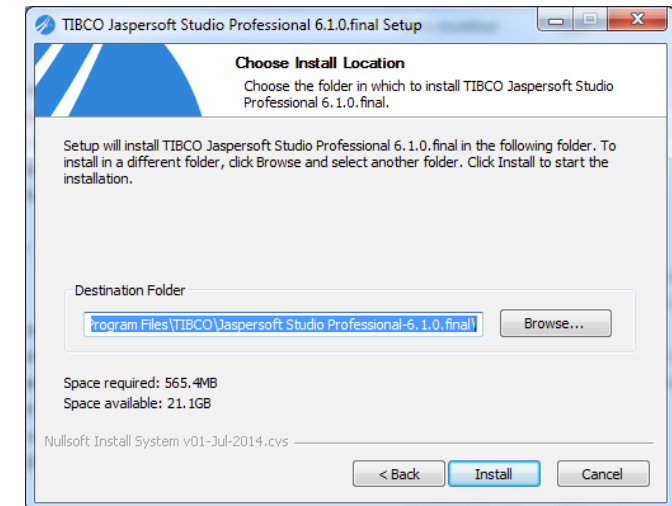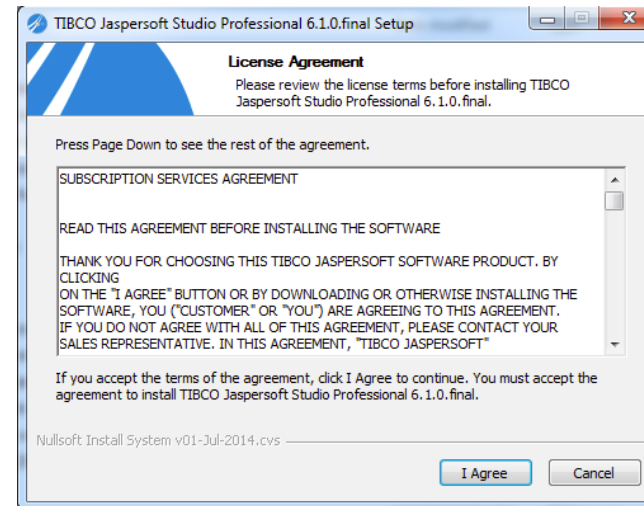   - Data Warehouse ERD Diagram

Jaspersoft Studio Installation – 5.6.1

- The Studio installation should progress like any software install for your platform, and the defaults can be used for the base installation:
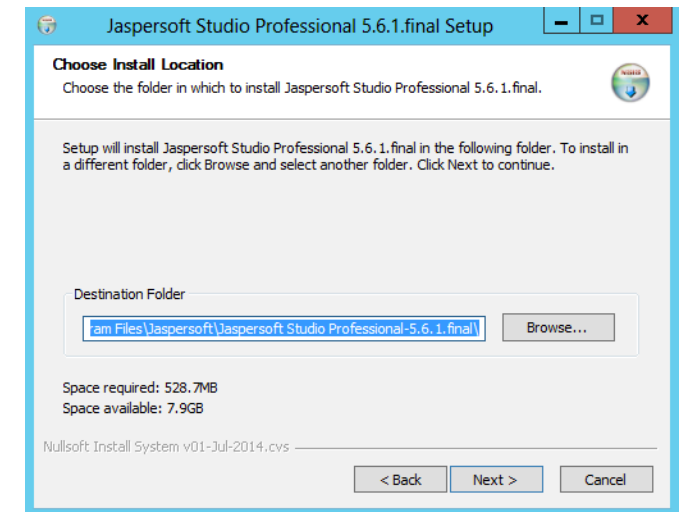
Jaspersoft Studio Installation – 6.1.0

- The Studio installation should progress like any software install for your platform, and the defaults can be used for the base installation:
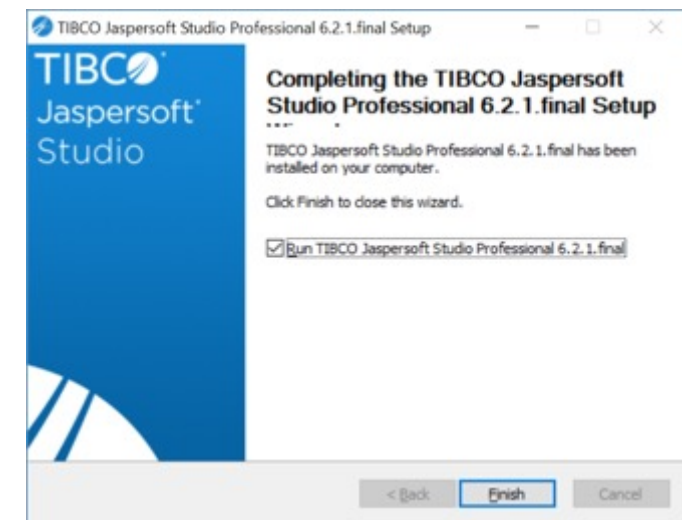
Jaspersoft Studio Installation – 6.2.1

- The Studio installation should progress like any software install for your platform, and the defaults can be used for the base installation:
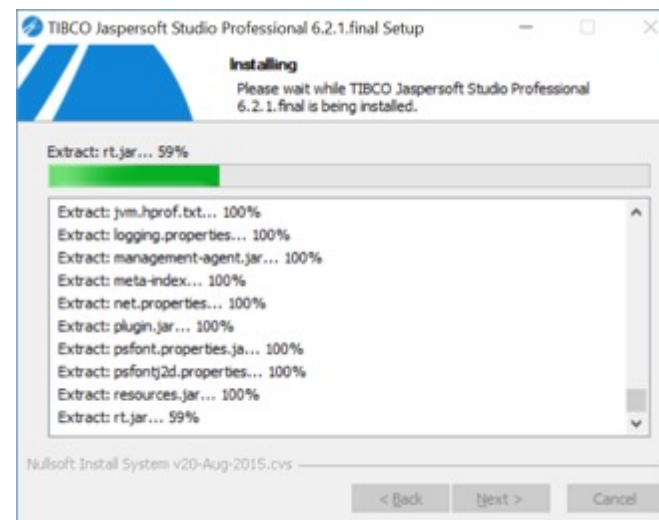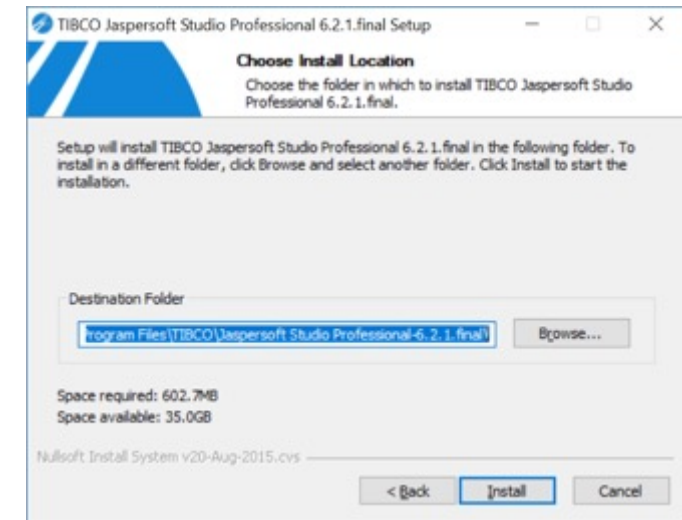
Jaspersoft Studio Installation – 7.1.0

- The Studio installation should progress like any software install for your platform, and the defaults can be used for the base installation:
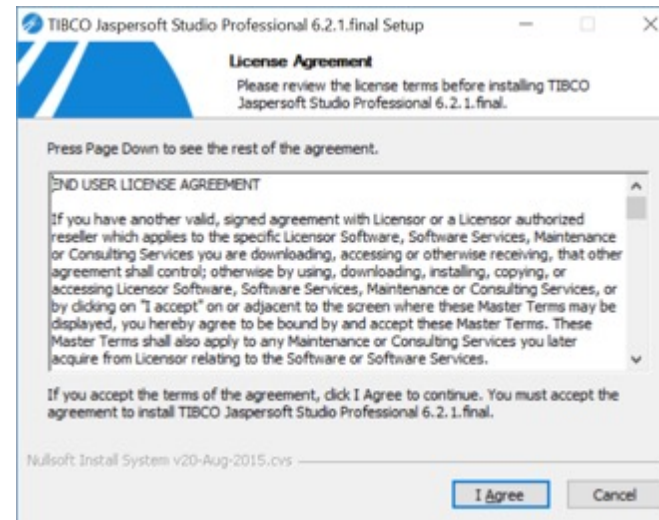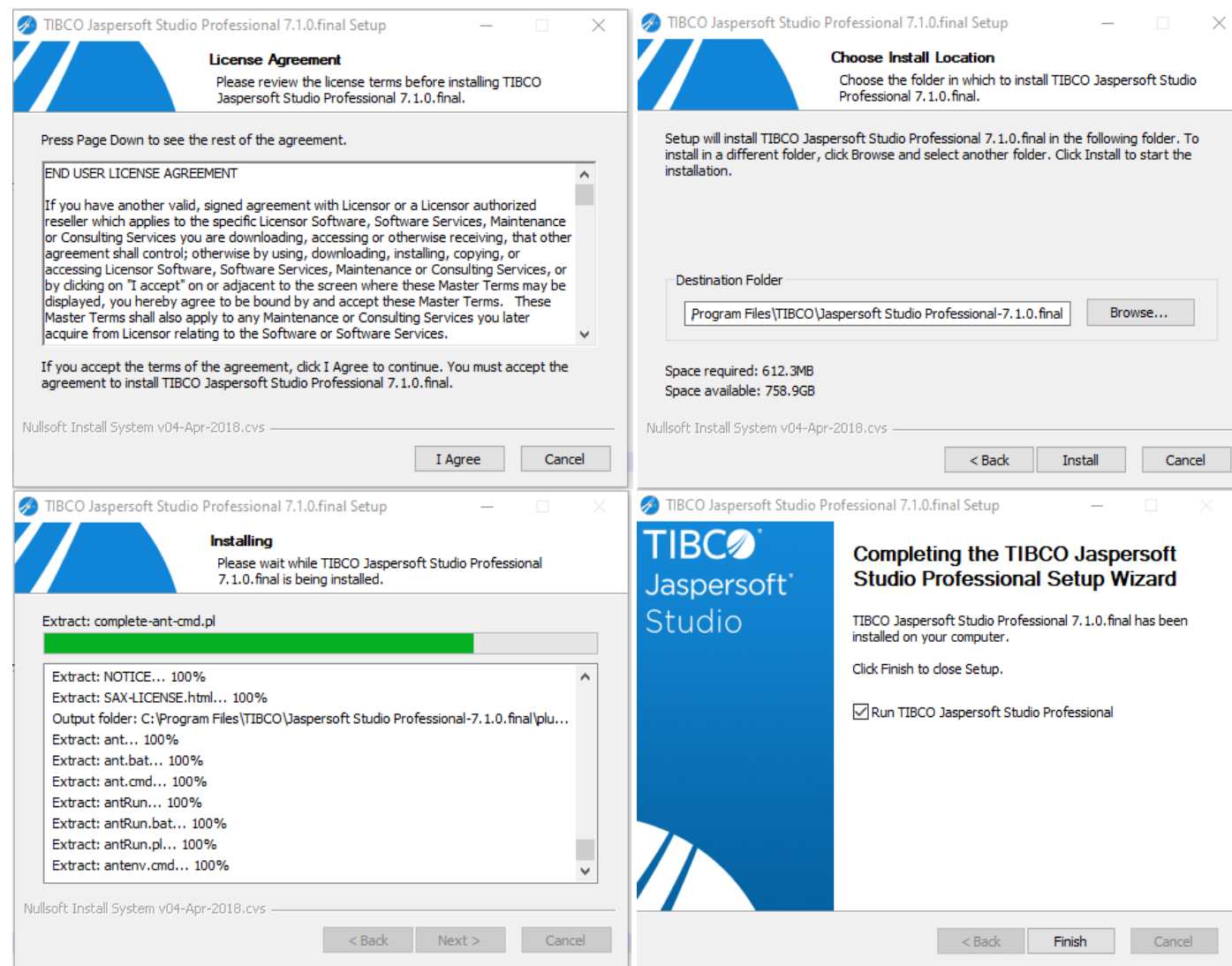
Jaspersoft Studio Interface

- After completion of the Studio software installation, launch the application

- The Studio software is built on top of the Eclipse platform, those with eclipse experience should feel right at home

- There are 7 panels in which you'll spend most of your report development time:

  - Repository Explorer

  - Project Explorer

  - Outline

  - Palette

  - Properties

  - Report Design

  - Report State
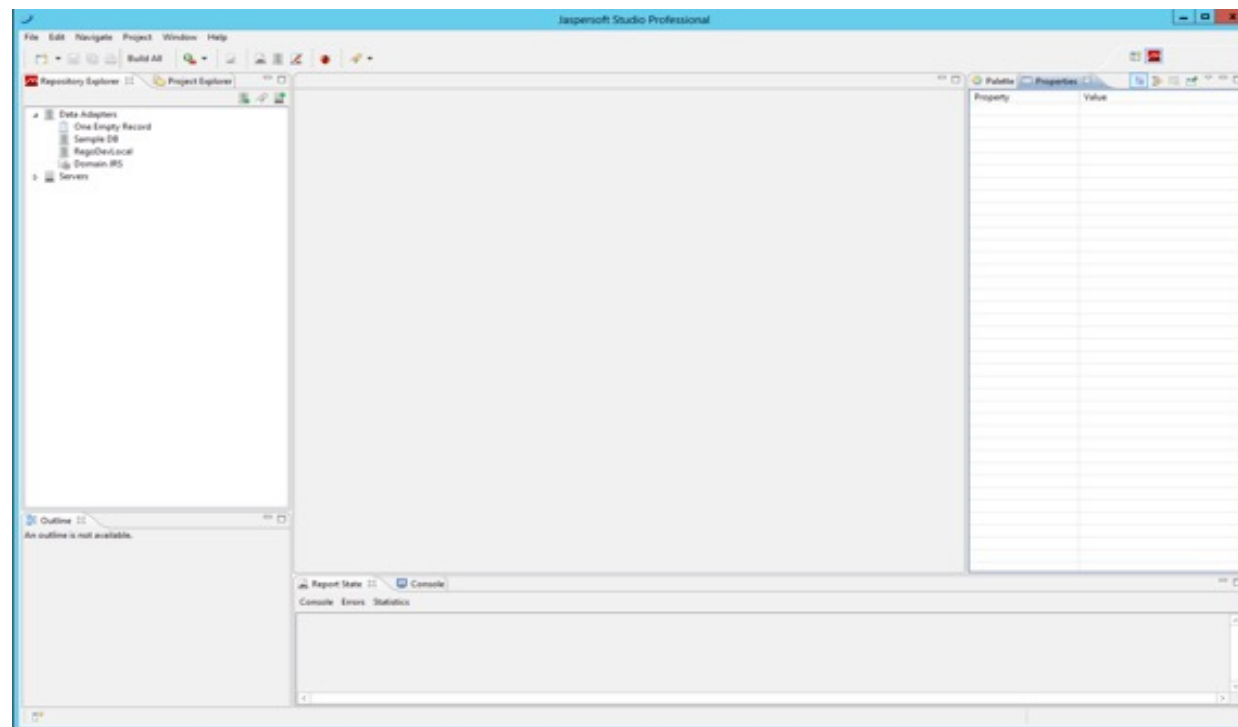
Jaspersoft Studio Interface (Cont.)

- **Repository Explorer**
  Used to view and create Data Adapters, connect to and browse Jaspersoft Servers
- **Project Explorer**
  This is your project folder structure, where you will create, and maintain your various reporting projects
- **Report Design**
  The design view will be used for development, and initial testing of your reports
- **Outline**
  This view will give you a hierarchical view of your report, providing an easy-to-read structural view of your report
- **Palette**
  Drag and Drop components that can be included within your report
- **Properties**
  Much time will be spent here tweaking individual settings of various reporting components
- **Report State**
  During development, this view will provide error reports used for debugging

Part I:
Connecting to Data & Repository Sources

✓ Data Adapter Connection

✓ Repository Connection

✓ Interface Overview

✓ Bonus – DBeaver Database Tool

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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"
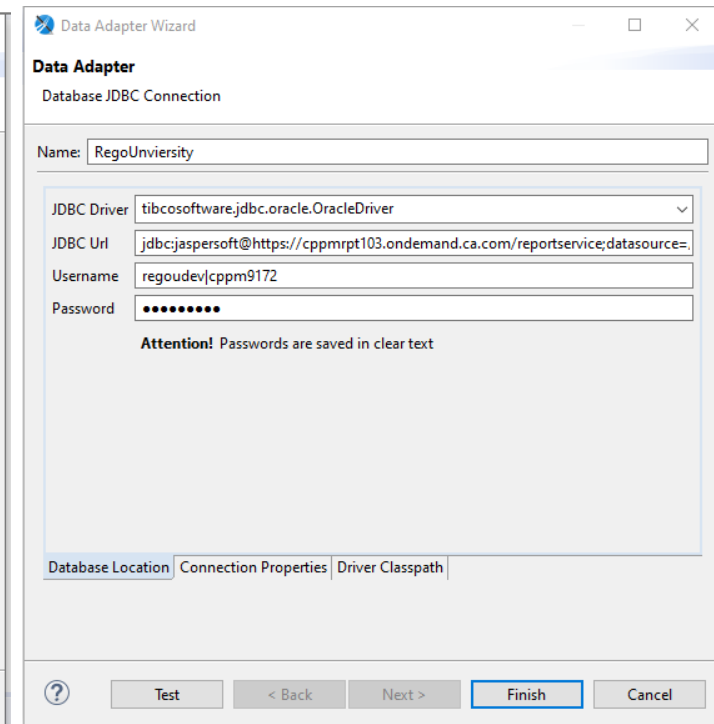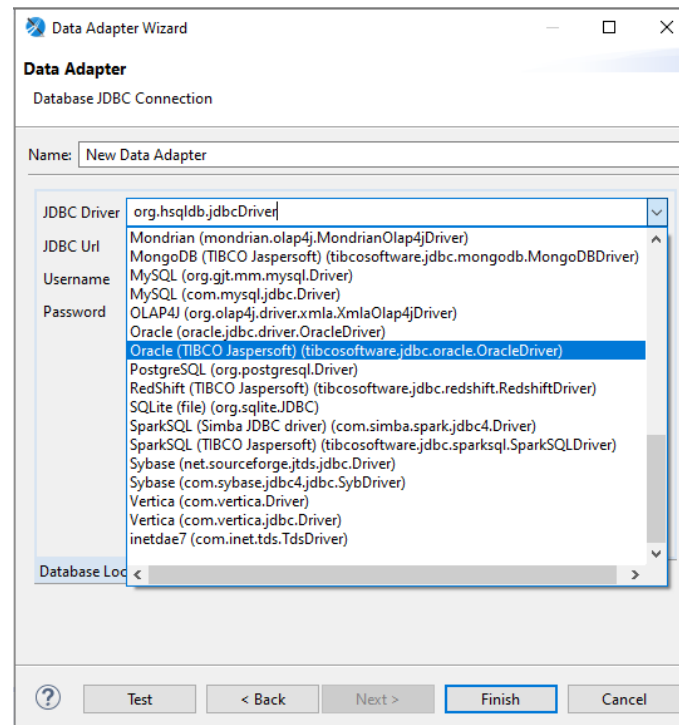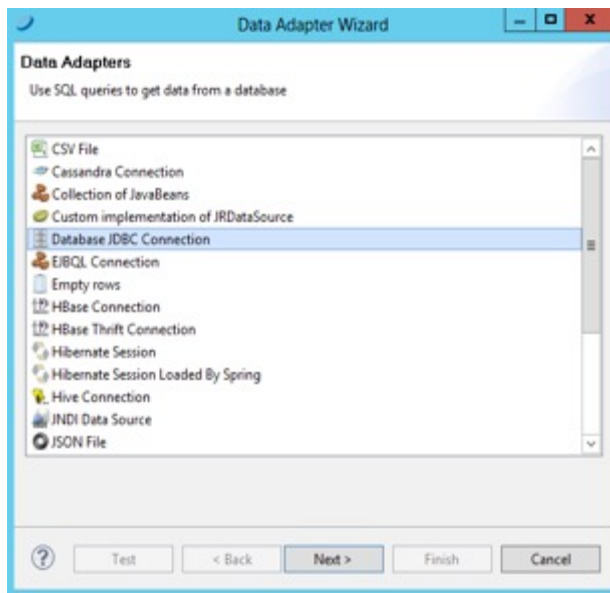
Jaspersoft Studio – Data Adapter

- Enter the credentials appropriate to your organization

- Example:
  - JDBC Driver: com.jaspersoft.jdbc.driver.JasperDriver
  - JDBC Url: jdbc:jaspersoft@http://regou02.trng.regoconsulting.net:8089/reportservice;datasource=/ca_ppm/data_sources/CA_PPM_BEAN;pagesize=100
  - Username: regodev|rego
  - Password : ******

- Navigate to Driver Classpath and select the drivers that were downloaded with your Jaspersoft Studio installation file:
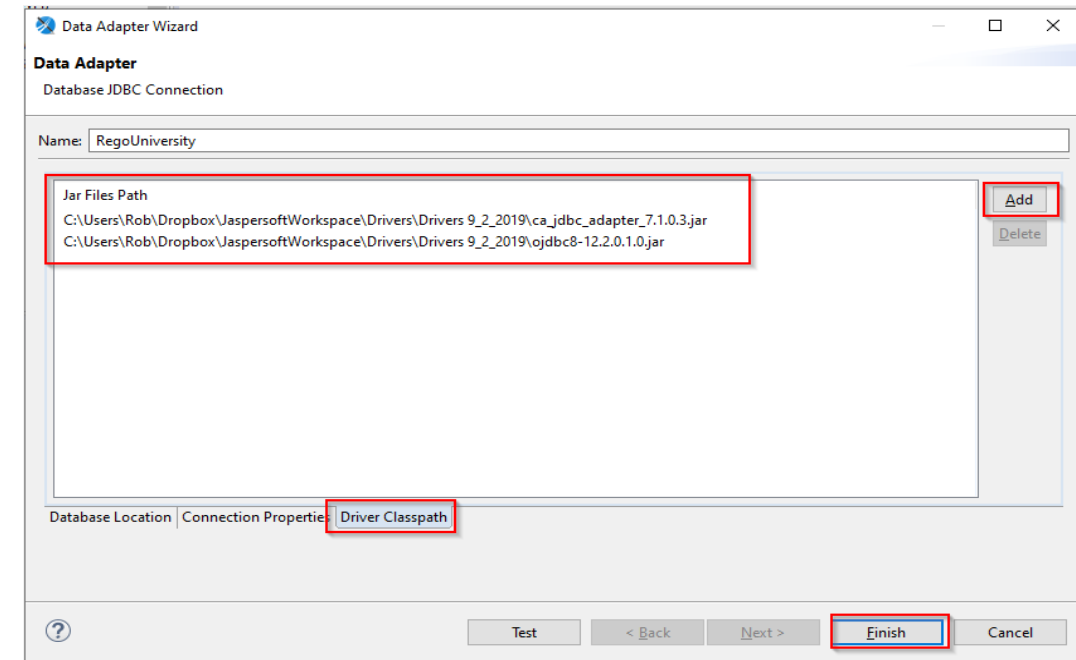
Jaspersoft Studio – Repository Connection

- 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, you are supposed to use your organizations' server credentials.

- Example:
  - URL: http://regou02.trng.regoconsulting.net:8089/reportservice/
  - Organization: rego
  - User: regodev
  - Password: *****
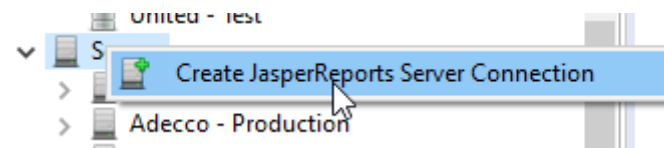
Jaspersoft Studio – Connect to On Demand

- You can connect Jasper Studio (Jaspersoft 6.2.1_5.2.1.x or higher) to client Clarity transactional or data warehouse database without a VPN connection using Clarity JDBC Adapter.

Here is how you do it:

➢ Install the adapter:

- Exit any instance of Jasper Studio that is running.

- Create folder "drivers" at your Jaspersoft workspace location. (Click File in Jasper Studio and select Switch Workspace to find workspace location)

- Copy the contents of ca_jdbc_adapter_6.4.2.2.zip to "drivers" folder

- Contents should include ca_jdbc_adapter_6.4.2.2.jar, jdbc\ojdbc8-12.2.0.1.0.jar

- Reopen the Jasper Studio

➢ Create a Clarity JDBC Adapter Connection:

- From the "Repository Explorer" right-click on Data Adapters, and select "Create Data Adapter", then select "Database JDBC Connection"

Jaspersoft Studio – Connect to On Demand

- Give it a meaningful Name, then select "com.jaspersoft.jdbc.driver.JasperDriver" for the JDBC Driver

- **URL** :
jdbc:jaspersoft@<report_service_url>/reportservice;datasource=/ca_ppm/data_sources/<bean_name>;pagesize=500
  <report_service_url> is available in System Options-Advanced Reporting.
    <bean_name> is CA_PPM_BEAN (Transactional DB) or CA_PPM_DWH_BEAN (DWH DB)

- **Username**: <USERNAME>|<ORGANIZATION_ID>

  Username: report developer user created in Advance Reporting. Organization Id is available in System Options-Advanced Reporting.

- **Password** : report developer user password

- Click the Driver Classpath tab, Add the CA JDBC jar files . Click Test to Verify and Click Finish
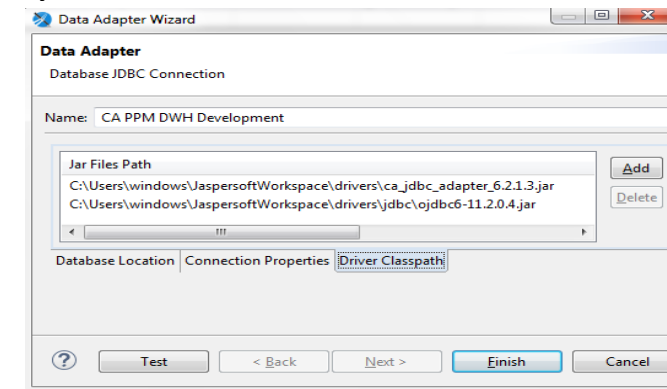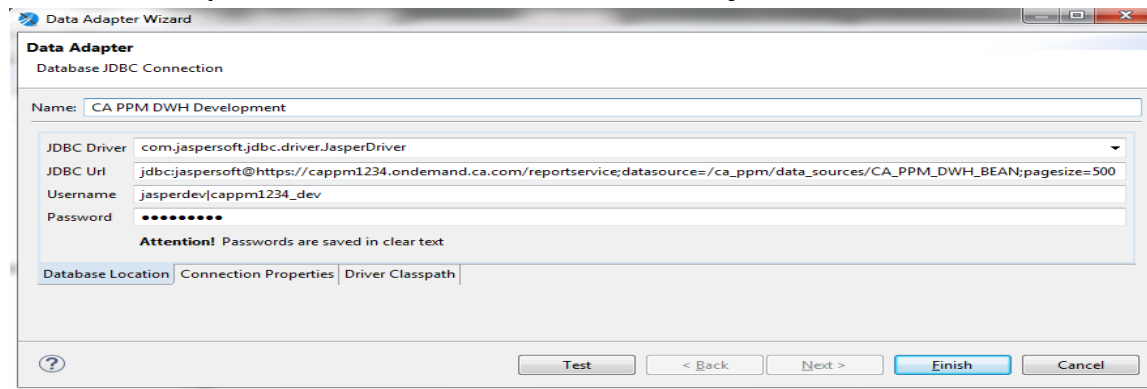
Bonus – DBeaver Database Tool

- Now that we have Jaspersoft Studio and the JDBC drivers installed we can utilize drive to connect to the Clarity Transactional and DataWarehouse databases.

- Dbeaver Community is a free, multi-platform database tool that can be configured to utilize the provide JDBC driver.

- To download navigate to https://dbeaver.io/download/ - the free version should be all that you need.

- Having the ability to write and test queries outside of Jaspersoft Studio allows you to work more efficiently.

Download

Community Edition 21.2.0

Released on August 30, 2021 (Milestones).
It is free and open source (license).
Also you can get it from the GitHub mirror.

Installer Language ✕

Please select a language.

English ⌄

OK   Cancel

DBeaver Community 21.2.0 (x86_64) Setup — ☐ ✕

Welcome to DBeaver Community Setup

Setup will guide you through the installation of DBeaver Community.

It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.

Click Next to continue.

{DBeaver}

Next >   Cancel

DBeaver Community 21.2.0 (x86_64) Setup — ☐ ✕

License Agreement
Please review the license terms before installing DBeaver Community.

Press Page Down to see the rest of the agreement.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install DBeaver Community.

Universal Database Manager

< Back   I Agree   Cancel

Bonus – DBeaver Database Tool

- Once installed navigate to Database>Driver Manager and click New
- Enter the following:
  - **Driver name**:   CA PPM
  - **Driver Type**:   Generic
  - **Class Name**:   com.jaspersoft.jdbc.driver.JasperDriver

- Next we will need to attach the JDBC drivers

  - Click Add File and attach the same drivers from the Jaspersoft Studio installation.

- Once you have created the Driver you can now create the connection(s) for each environment.

- Go to **Database>Driver Manager** and select the new **Clarity PPM** connection type that we just created.
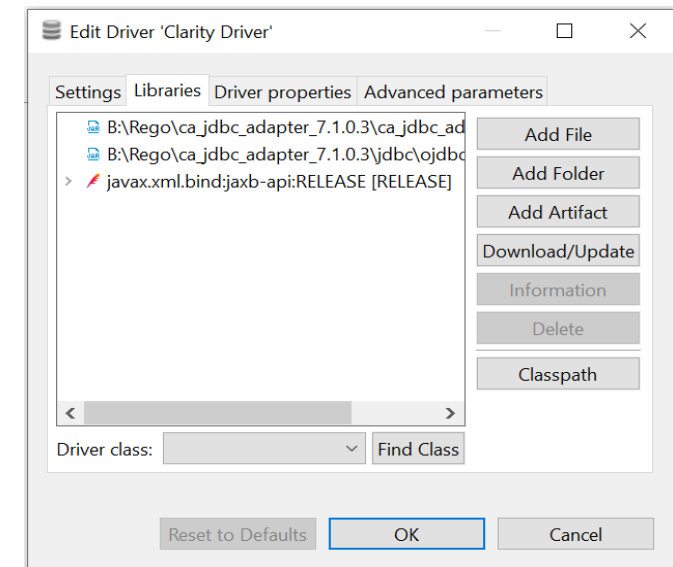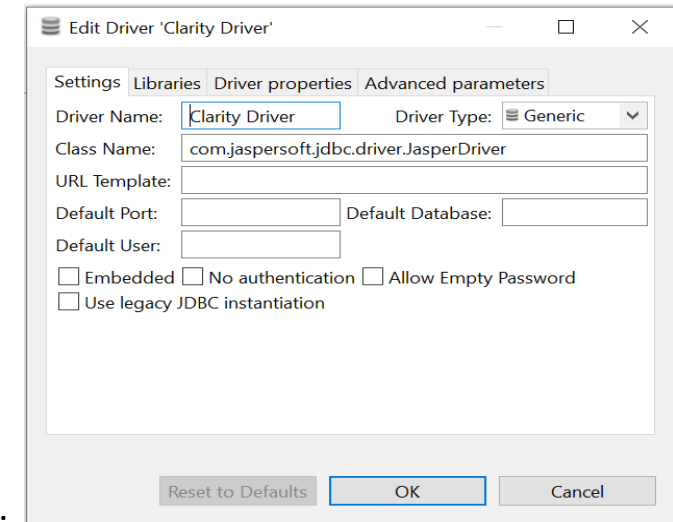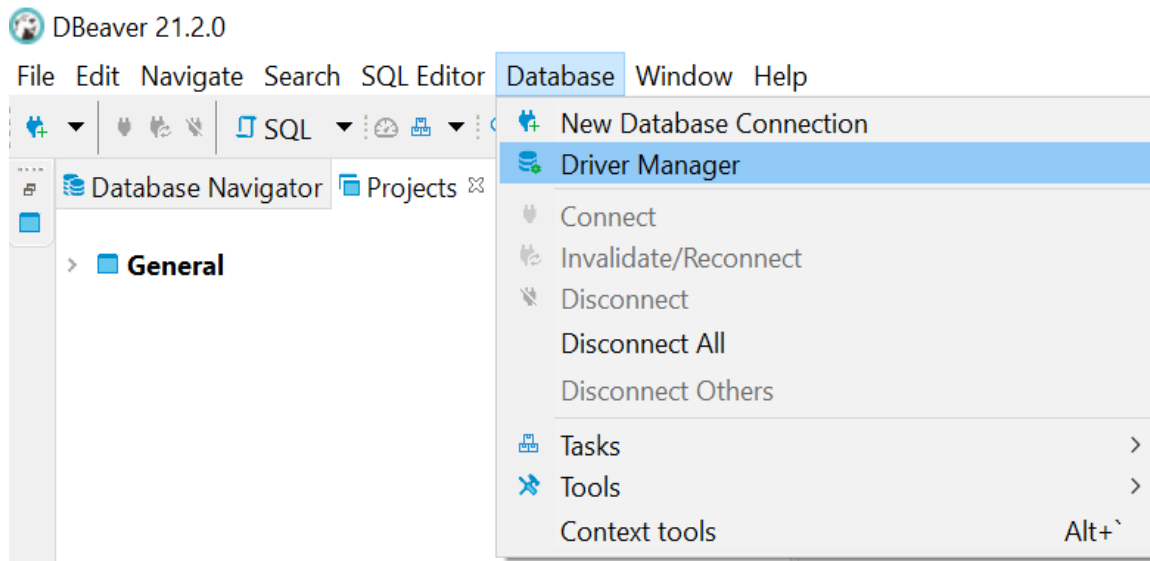
Bonus – DBeaver Database Tool

- Once you have created the Driver you can now create the connection(s) for each environment.

- Go to **Database>New Database Connection** and select the new Clarity PPM connection type that we just created.

- Use the same URL, username and password as in the Jaspersoft setup to create the connection:
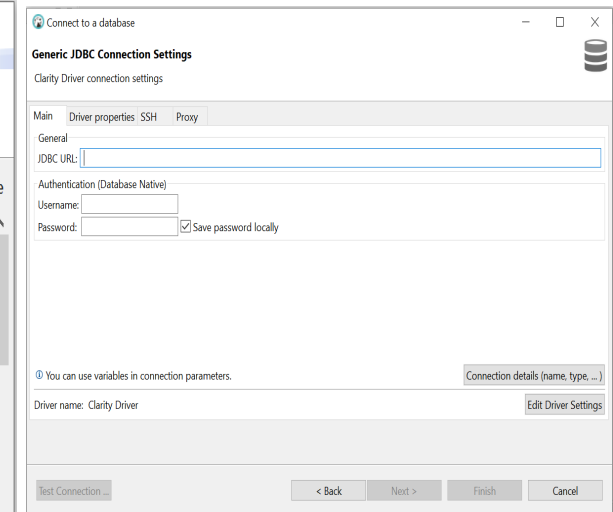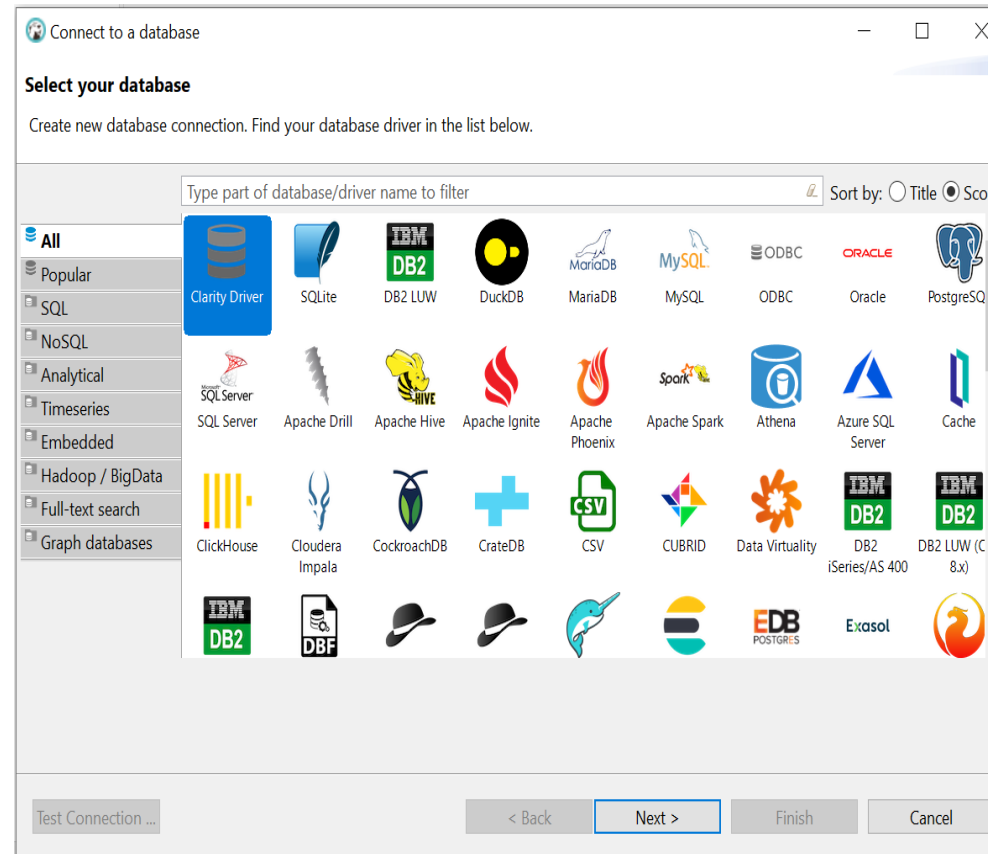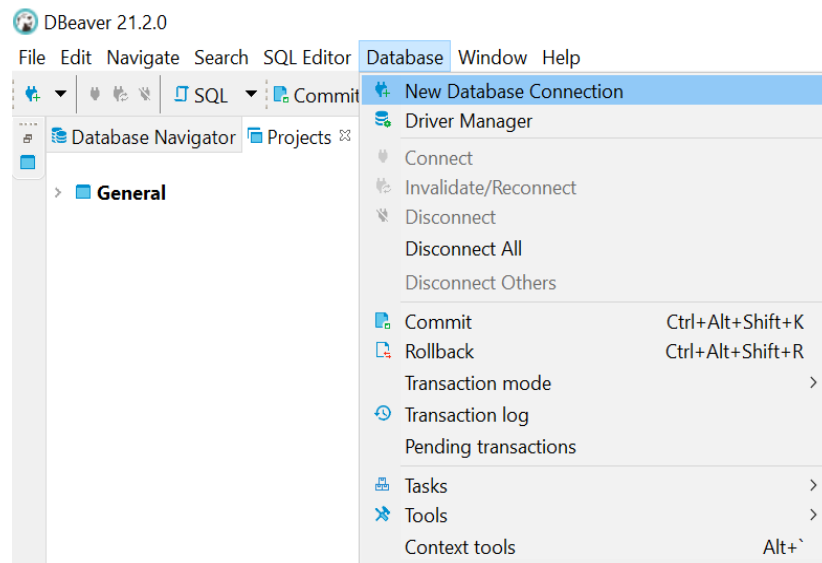
Bonus – DBeaver Database Tool

- Once you have created the Driver you can now create the connection(s) for each environment.

- Go to **Database>New Connection** and select the new Clarity PPM connection type that we just created.

- Use the same URL, username and password as in the Jaspersoft setup to create the connection:

Part I: Conclusion – Interface Live Demo

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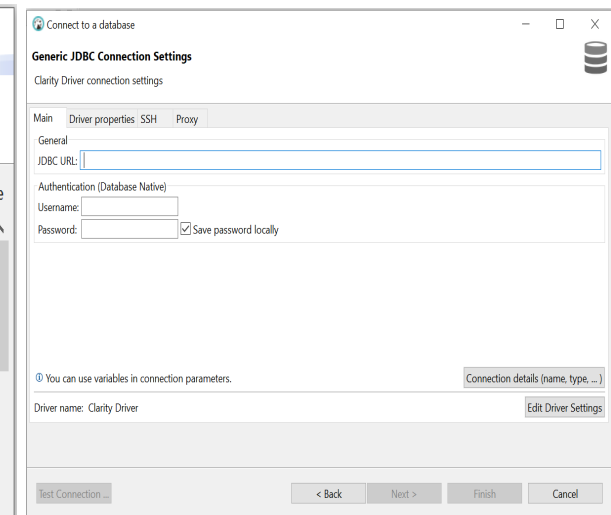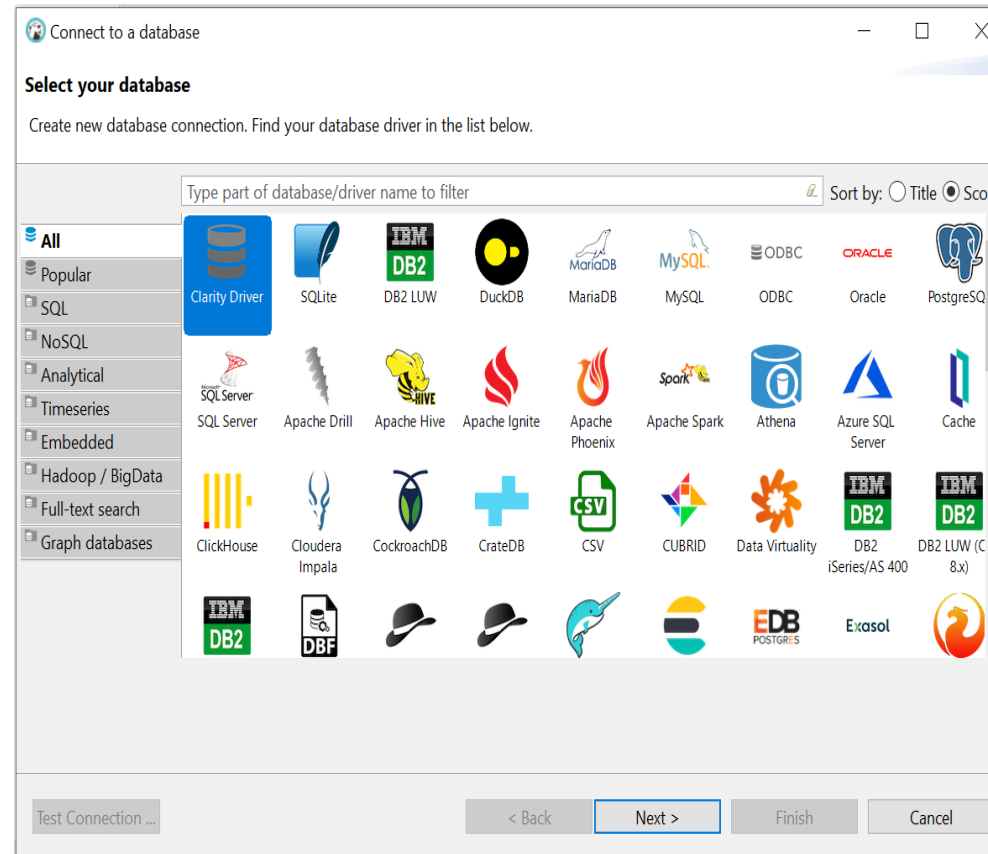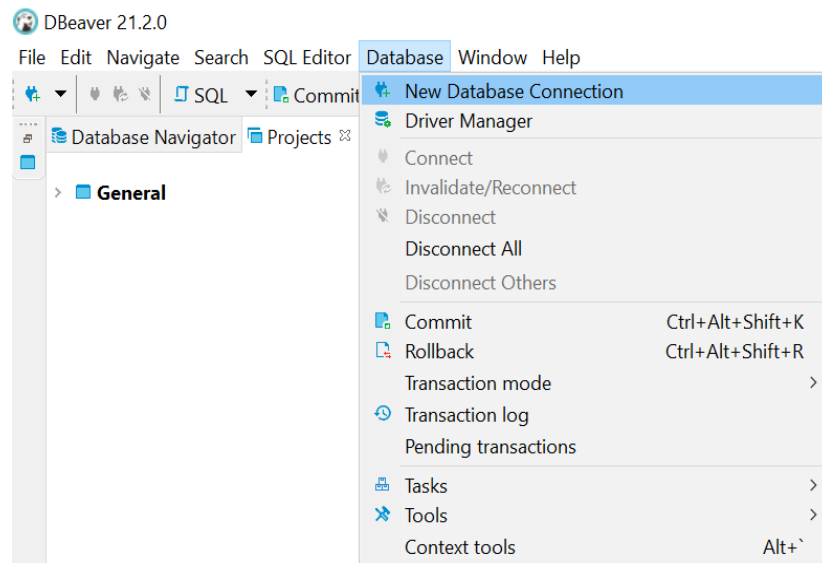
Part II: Agenda

Creating a Report

- Project Creation

- Report Creation

- Query Setup

- Field Creation

Basic Report Objects

✓ Static Text

✓ Text Field

✓ Frames

✓ Shapes

✓ Breaks

Report Preview

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Part II:
Project Creation

✓ Creating your first project

✓ Add fields to your Report

✓ Preview your Report

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Creating The Project

- You should now have an installation of Jaspersoft Studio, a Data Adapter connected to a Clarity database, and a Jaspersoft Server connection for deployment

- Start by creating a new Project, within the "Project Explorer" tab, by clicking on "File -> New -> Other", then select "JasperReports Project" and click "Next"

  **Be careful not to create a new generic Java project

- Name your project appropriately, such as "Training Project - <Initials>", to avoid conflicts during deployment
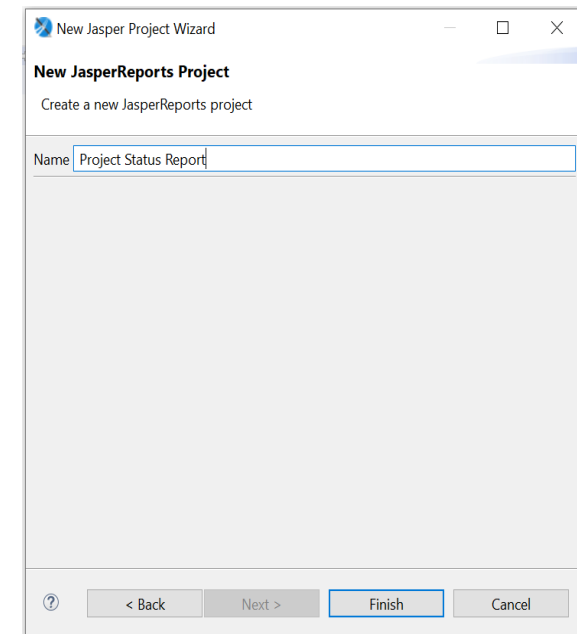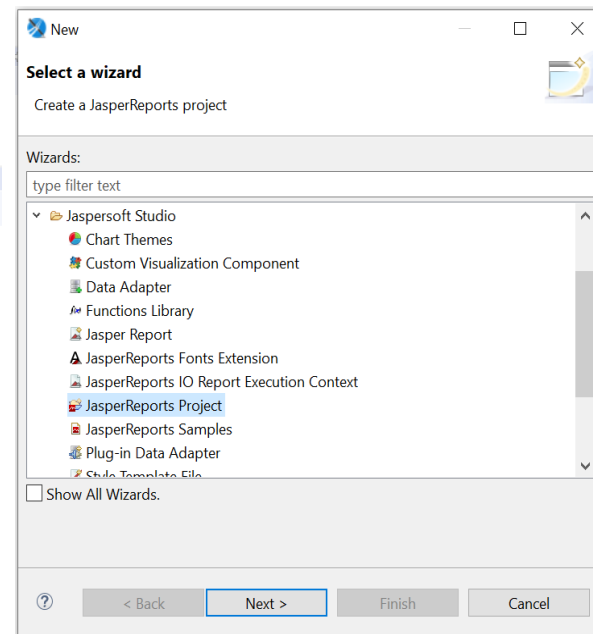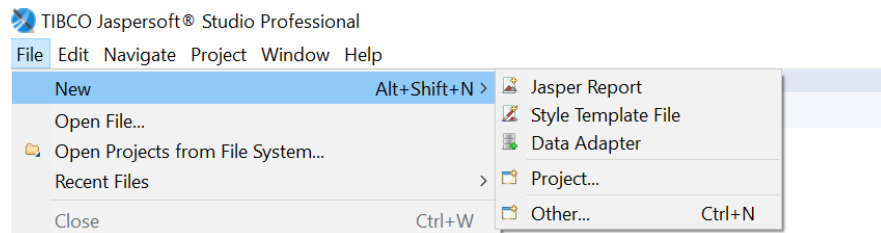
Creating The Project

- Since the Jaspersoft project has been created, you can now create the report (Jrxml file).

- Start by navigating to the Project Explorer. Right click the Project Folder you just created and select New -> Jasper Report

- Select the template you want the report to be based on. Templates determine Size and default items and formatting based on the one chosen. Click Next.

- Select the project folder you just created. Click Next.

- Next select the Data Adapter to be used to test this report with.

- Click Finish.
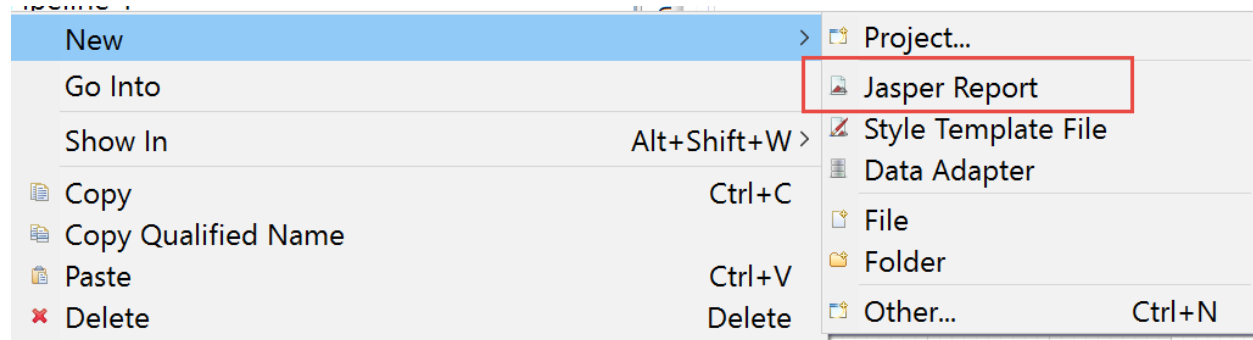
Data Setup

- The query can be setup in two ways:
  1. Create a query using SQL to get the data we need to put into the report.
  2. Create a domain to get the data we need to put into the report. (This is covered in the advanced)

- Navigate to the Outline tab.

- Right click on the Report (This will be the name of the jrxml).

- This will bring up the Dataset and Query interface.
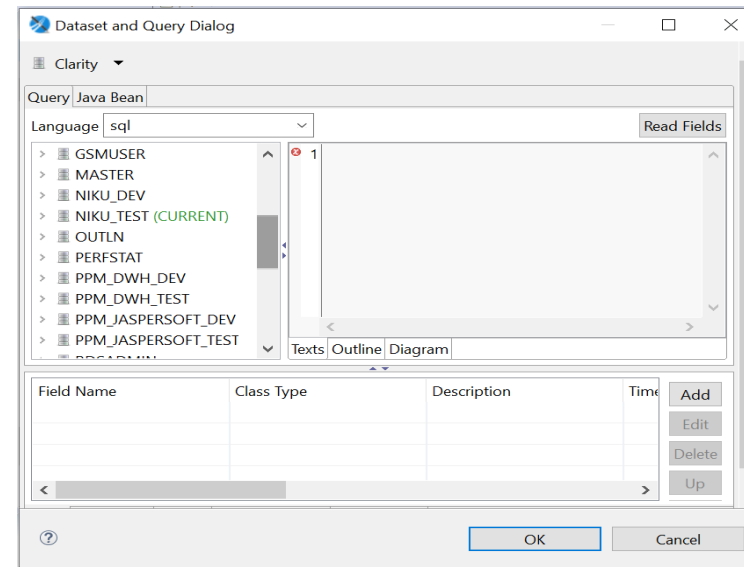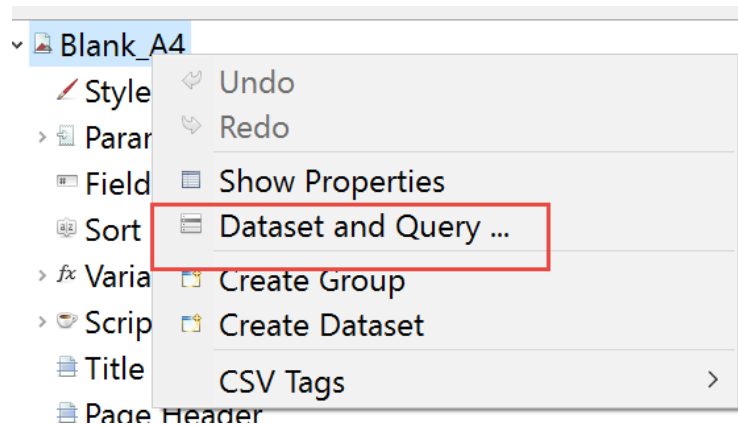
Field Creation

- Now that we have the Dataset and Query interface up, we can input our query.

- Once we have put our query in the dialogue, click the Read Fields button.
 - Note: This will only read fields if you have access to the database.

- Steps to manually create fields.
  1. Click the Add button.
  2. Name the field the exact alias name as in the query. (This includes caps)
  3. Change the Class Type to the appropriate data type.

- Data Types
  - Java.lang.String (All Strings)
  - Java.math.BigDecimal (Numbers with decimals) : Convert this to java.lang.Double
  - Java.lang.Boolean (Boolean type)
  - Java.util.collection (Use this for multi value field separated via commas)
  - Java.util.date (Date Type)
  - Java.lang.integer (Numbers without decimals)

Report Design
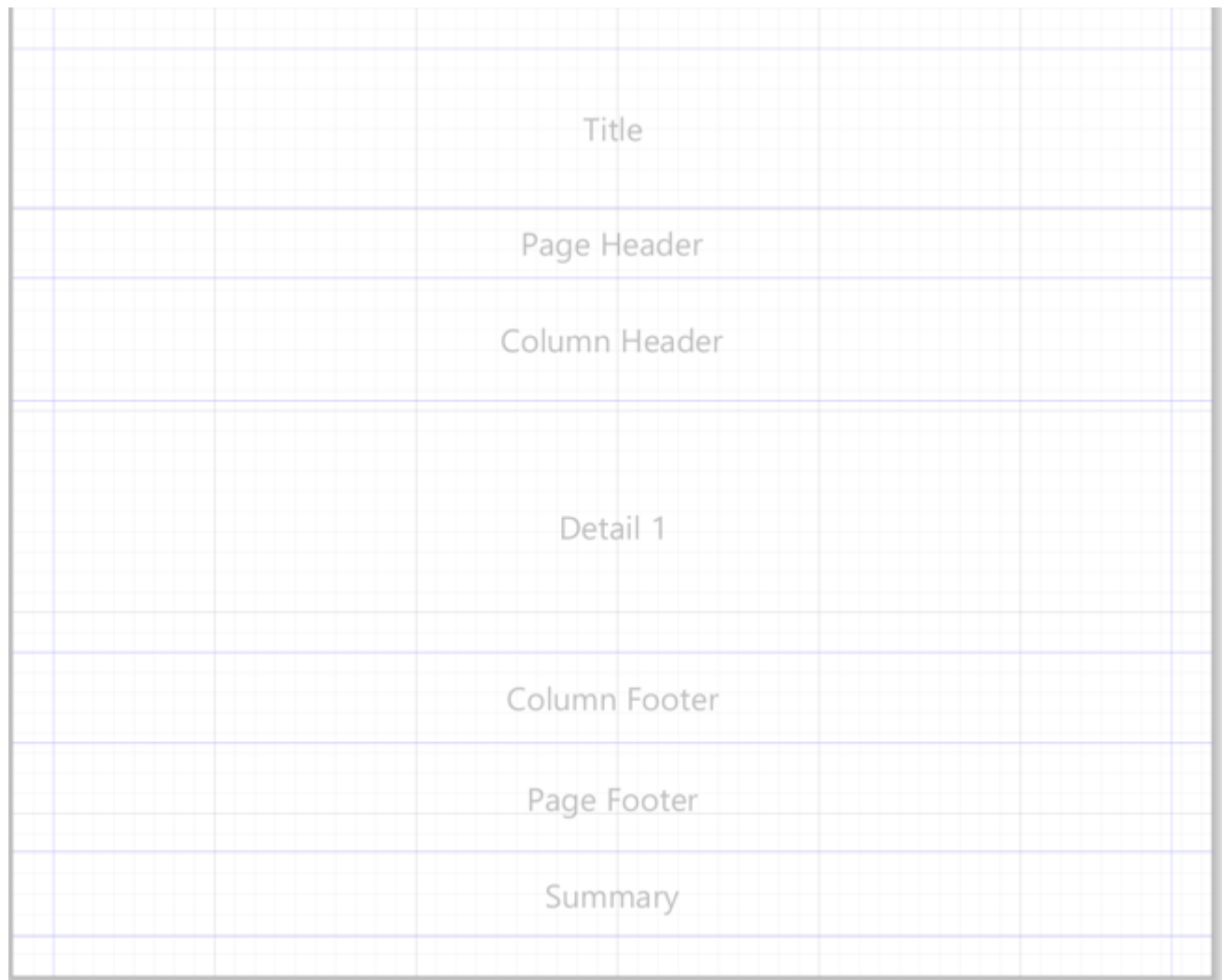
Title: First section of the report.

Page Header: Repeated on each page at the top.

Column Header: The header for the Detail below.

Detail: The data for each row in your query.

Column Footer: The footer for the Detail above.

Page Footer: Repeated on each page on the bottom.

Summary: The last section of the report.

Basic Report Objects

- To add objects to your report, navigate to the Outline tab and check the elements in the Palette tab.

- The following objects are available.
  - Static Text: Object which allows you to put permanent text on the report.
  - Text Field: Object which lets you utilize, fields, parameters, and Java functions with the expression editor.
  - Image: Object which lets you reference an image stored in the Repository.
  - Break: Object which creates a new page for the contents put after.
  - Rectangle: Object which lets you create a clip art of a rectangle.
  - Frame: Object which can size itself to the contents inside. It also allows to keep grouping objects in a report to move together.

Basic Report Objects: Static Text

- The static Text Object allows you to put permanent unchanging text on a report. In our example, let's add the Static Text object into the Title Band.

Static Text Title

- Exercise: Add Static Text to your report.

Basic Report Objects: Text Field

- The Text Field is a dynamic field you can place on a report. The text field is unique in that it lets the user pull in fields, parameters, and implement Java functions to these values using an expression editor.

- Exercise: Add a text field that modifies the "Is Active" field to be a yes or no versus a 1 or 0.
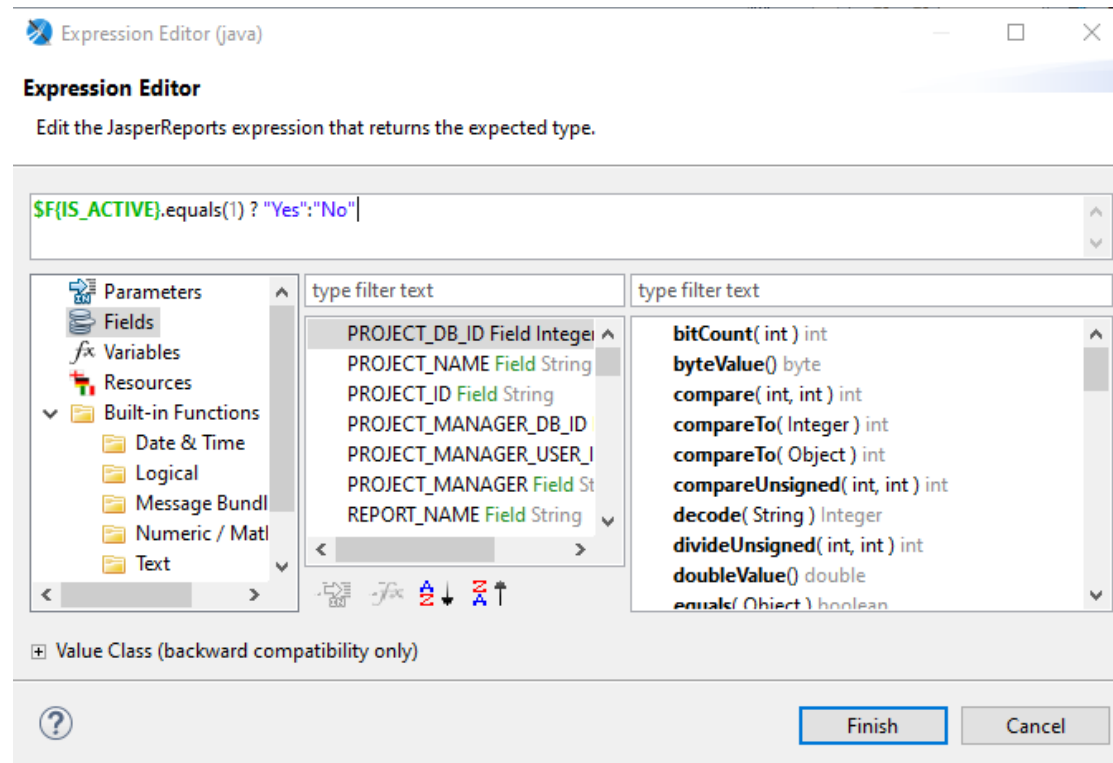
Basic Report Objects: Shapes

- In Jaspersoft studio there are 3 shapes that can be added to a report.
  - Line
  - Rectangle
  - Ellipse

- Each shape can have its size, direction, and color changed via the appearance tab.

- Exercise: Add a line to separate two area of a report.

- Exercise: Add a rectangle to the report and change the color.

- Exercise: Add an ellipse to the report and change the size.
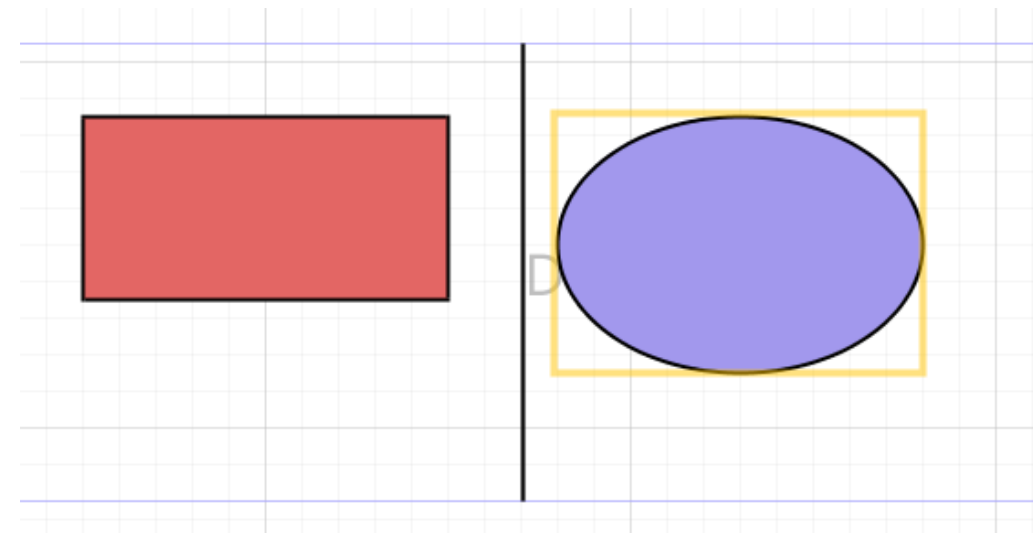
Basic Report Objects: Frames

- A frame allows the user to group objects in a single area. Utilizing frames in your report can keep your report organized and clean.

- A frame can be configured to auto size based on the size of its content. This allows the user to not worry about the text fields over stretching the section in which they are present.

- Example below. If the Objective section has more text than the Accomplishment section, they will remain the same size. This is due to both sections are in the same Frame.

$R{ProjectObjectiveKey}$	$R{KeyAccomplishmentsKey}$
$F{OBJECTIVE}$	$F{KEY_ACCOMPLISHMENTS}$
$R{SRUpdateKey}$	$R{UpcomingActivitiesKey}$
$F{SR_REPORT_UPDATE}$	$F{UPCOMING_ACTIVITIES}$

- Exercise: Create a frame to hold the descriptions and a few field below that section. These fields should auto position to be right below the large text area regardless of how big or small it is.

Basic Report Objects: Breaks

- A break allows the user to separate two sections to always be on the next page or column.

- Use a break to separate sections in a report manually instead of requiring the data to do so.

- Exercise: Separate a section on your report to always be on the next page regardless of the amount of data.

Section 1

Break

Section 2
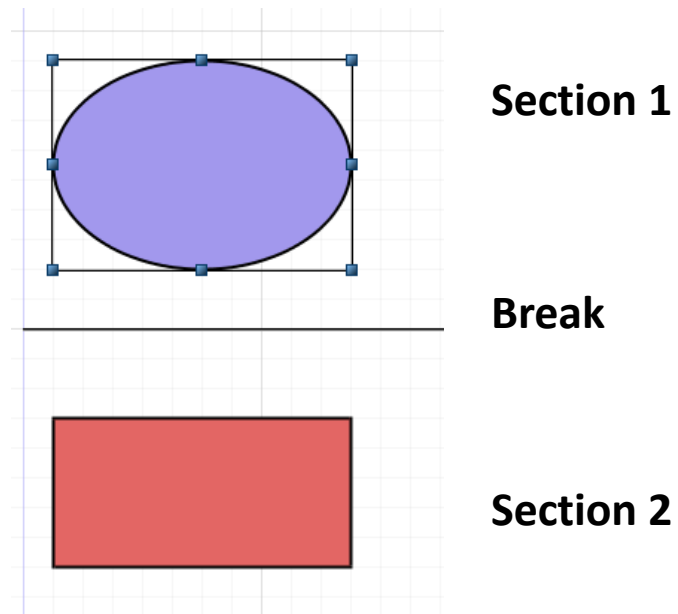
Basic Report Objects: Table

A Table element allows you to organize information in rows and columns. It is extremely powerful component that can replace the usage of sub reports in many situations.

Here is how you add and configure the Table:

- Drag the Table element from Basic element Palette.

- You can either create a table using a new dataset or an existing dataset.

- Create a table using new dataset provides you the option of selecting Dataset name, Data source to use, Put in the required query, Connection type, Table columns and Table layout.
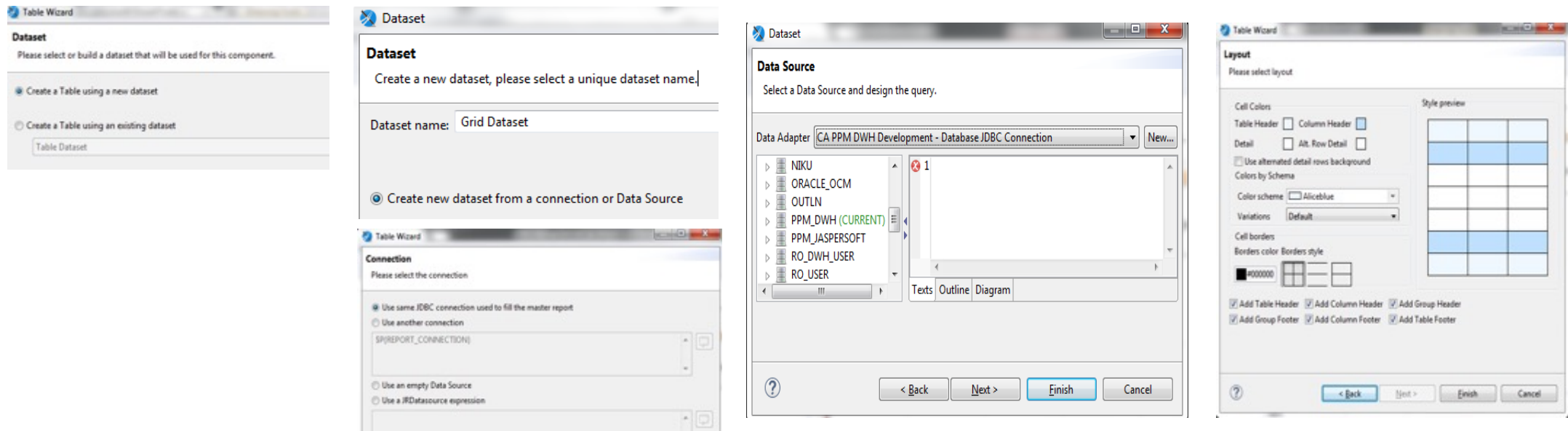
Basic Report Objects: Table (Cont.)

- Creating a table using the existing dataset uses the already available dataset in the report
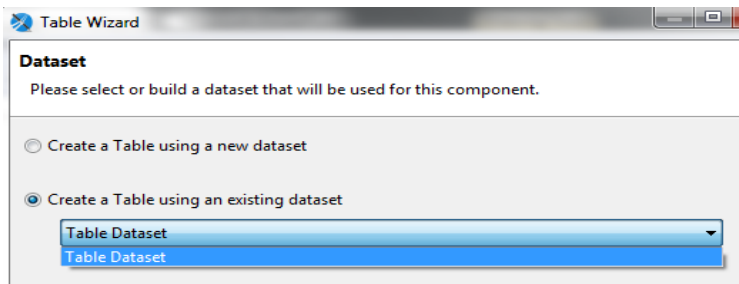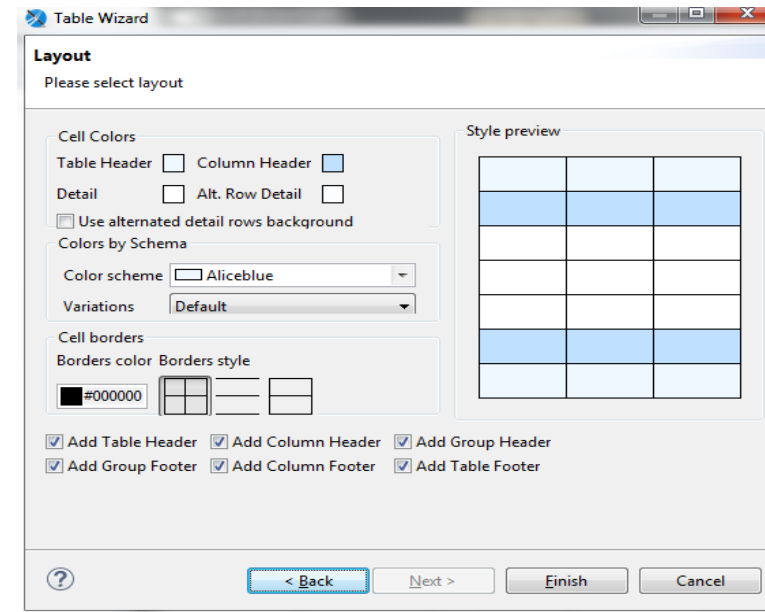

Table Layout:

- Table layout screen provides you the additional features that you can opt for the table.
- User can select the Colors for the Header (Table/Column) and Detail sections. You can also select different colors for the alternating rows.
- User can choose Header/Footer for Table, Column or Group.

Basic Report Objects: Sub Report

- A sub report is a report included inside another report. This allows the creation of very complex layouts with different portions of a single document filled using different data sources and reports

Here is how you add and configure a sub report:

- Drag the subreport element from Basic element Palette

- You can either create a new report or select an existing report

- Create a new report provides you the option of selecting Report template, appropriate File name, Data source to use, Connection type and Parameters used for the report
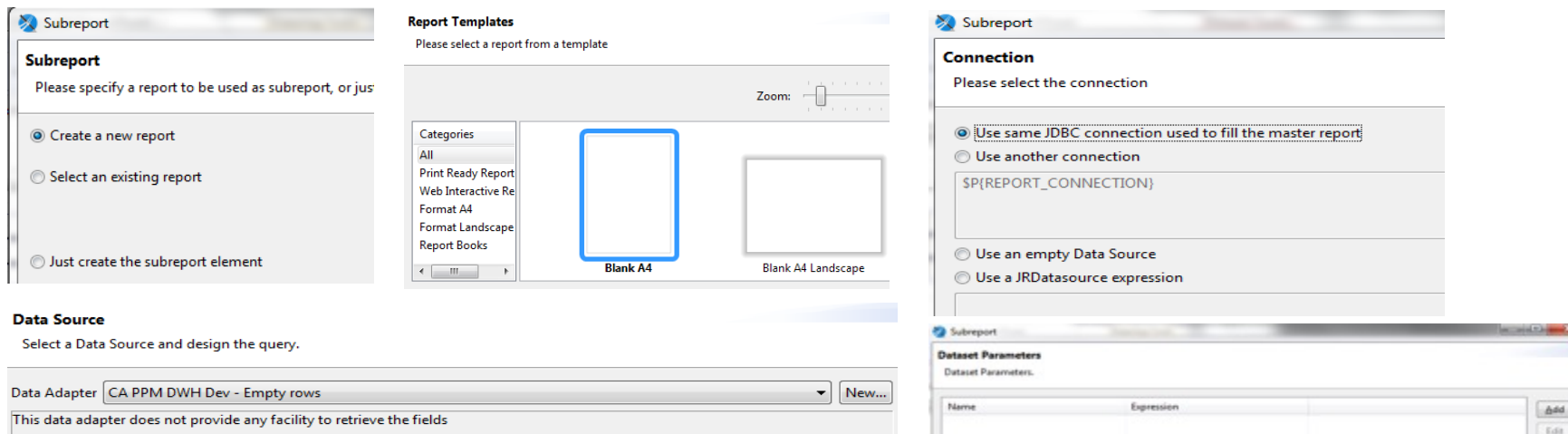
- New report will be created upon completion of above steps.

Basic Report Objects: Sub Report (Cont.)

- Select an existing report provides you the option of selecting already created Jasper report
  - Use expression editor to type in the full path of already created report
 - Use "Select a report file" to select the Subreport

- Upon selecting the Subreport, choose the Connection Type and Parameters for the sub report and click on Finish to embed the sub report

Subreport Parameters:

- Common use of a Subreport parameter is to pass the key of a record printed in the parent report to execute a query in the Subreport.

- To pass parameters from the master report to a sub report, you create a set of parameter name/object pairs that feed the parameters map of the sub report.

- To do this, click the **Edit Parameters** button on the Subreport tab of the Properties view to open the Subreport Parameters dialog. Add in the new Parameter or simply do "Copy from Master" to copy the parameters from the Main report
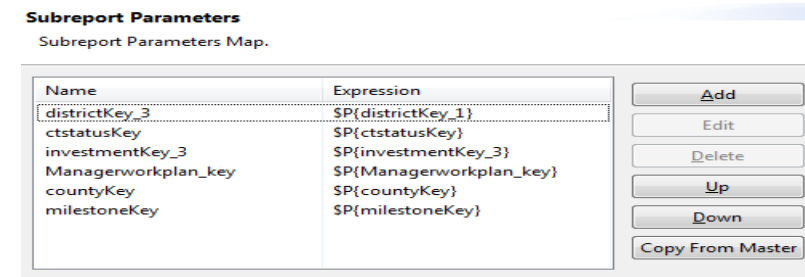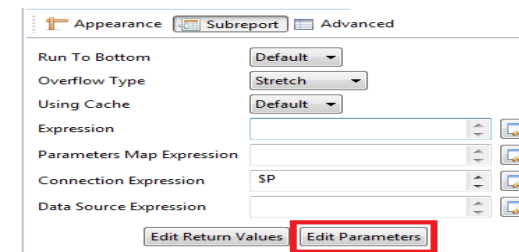
Previewing a Report

- To preview your report inside of Studio you must have a data adapter set. To run the report, navigate to the report Design view.

- Select the Preview tab on the bottom.

- The report will try to run based on the data adapter set on the report.
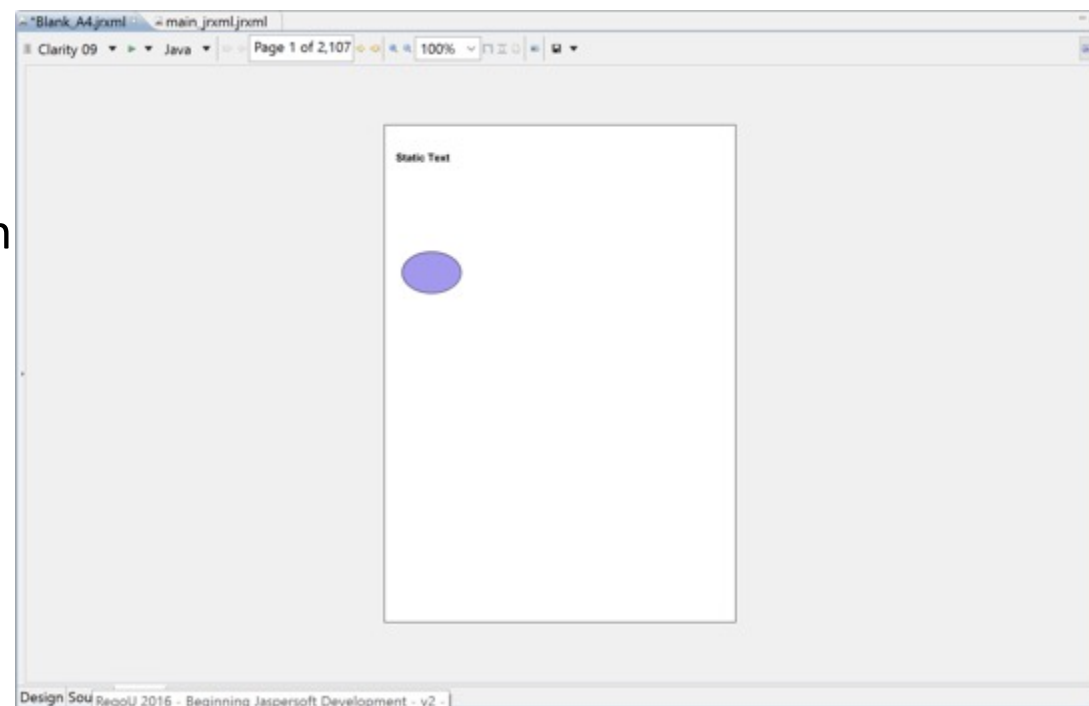
Previewing a Report

- To preview your report inside of Studio you must have a data adapter set. To run the report, navigate to the report Design view.

- Select the Preview tab on the bottom.

- The report will try to run based on the data adapter set on the report.

Part II: Conclusion – Interface Live Demo

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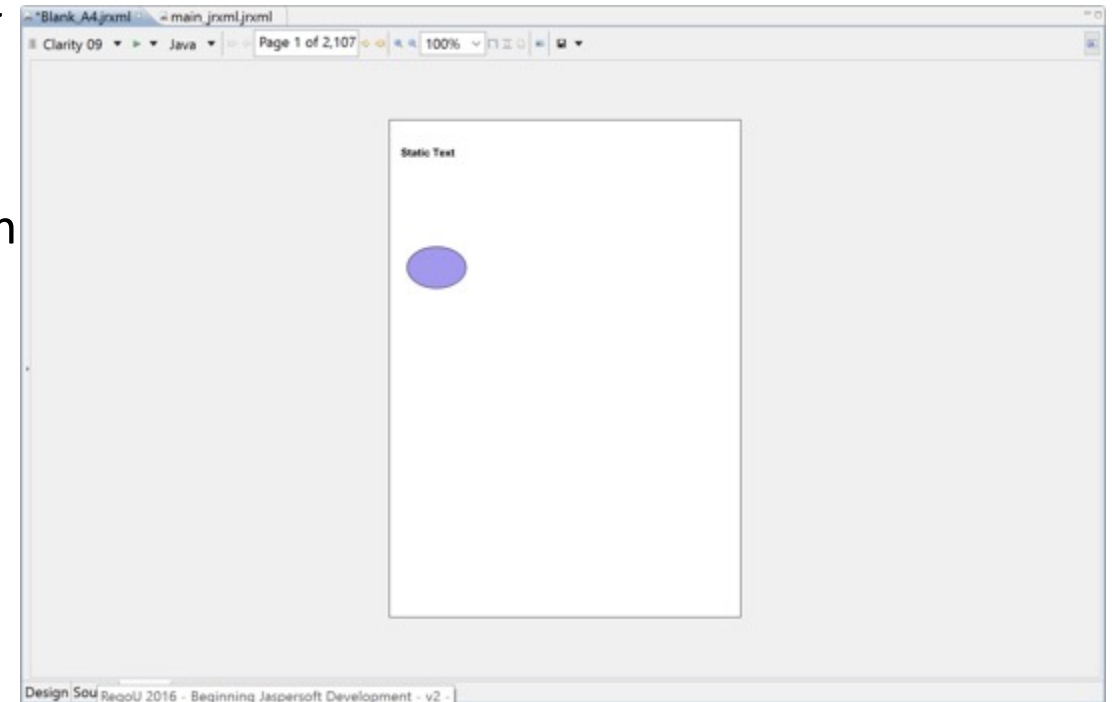
Part III: Agenda

Advanced Concepts

- Group data on a report
- Modifying the order of data in the report
- Appearance properties overview
- Adding an image to your report
- Adding a dynamic image to your report
- Deploy the report to the server

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Part III:
Advanced Concepts

✓ Group details by a field

✓ Modifying the order

✓ Overview of the appearance properties

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Grouping Data

- Grouping data on a report allows the user to have sections on a report based on a certain field or parameter.

- Example: A report needs to see all projects under a certain Project Manager. Instead of a line item for each Investment with the Project Manager on each, it can be grouped.

1. Navigate to the Outline Tab.

2. Right click on the Report (This will be the name of the jrxml).

3. Click the Create Group link.

4. Select a field to group the data by or create an expression

which will group the data.
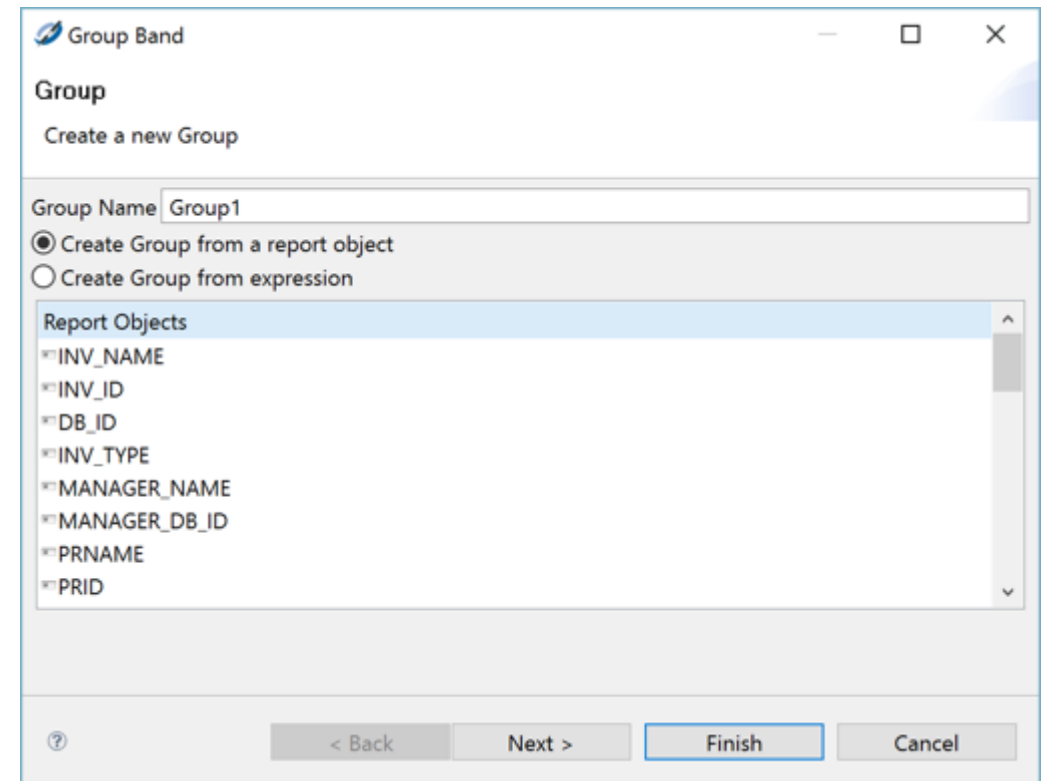
Modifying the Order

- Modifying the order the data comes in can be done in two ways.
    1. Order By in the Query
    2. Create an Order By Field

- To create an Order by Field, navigate to the Outline tab and right click on the Sort Fields element. Select the Field you want to sort on.
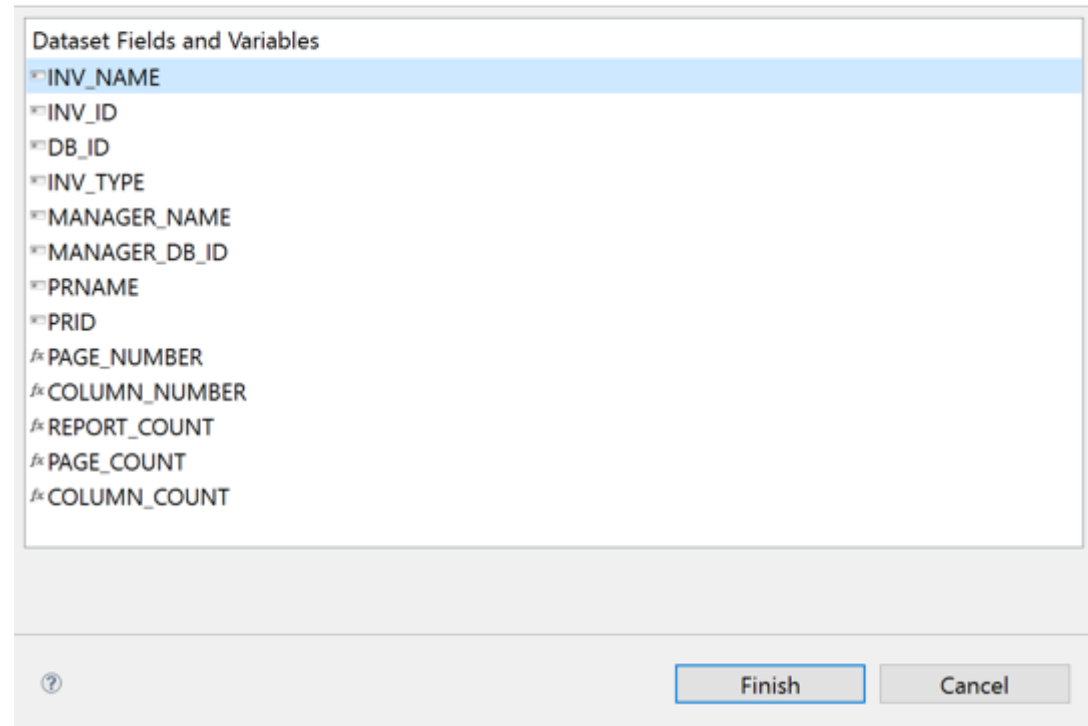
- In the properties of the sort Field, you can select if it goes by ascending or descending.

- Exercise: Modify the order of your report.

Appearance Properties Overview

- The appearance properties can be seen on all objects / elements in the system. It has a generic number of properties that can be changed to modify the appearance of the object.

- To navigate to the appearance properties, right click on the object and select Show Properties.

  - Location: Object position on the report layout.

  - Size: The size of the object.

  - Stretch Type: Determines how the object should act if a section expands.

  - Color: The font color and background color can be set here.

  - Style and Print Details: The style and logic if something should be suppressed is stored here.

  - Print When: The detail overflow which controls if a field goes over the allotted space, it can expand itself. The Print When Expression is a Boolean expression that determines if the object should be visible or not.
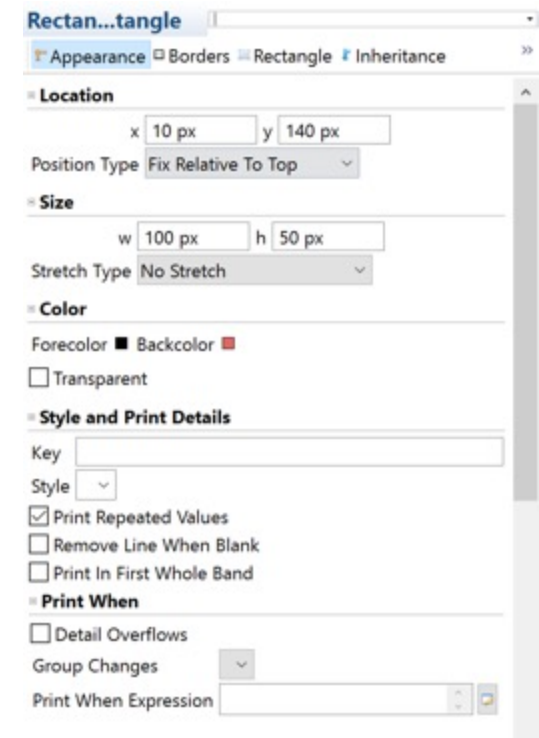
Adding an Image

- The user can add images into their reports using the Image object. The image needs to be a local resource stored in the project to be pulled over.

- Recommended approach is exporting the image into the project explorer and dragging it onto the report. The reason this is recommended is because the expression will auto fill itself with the location of the image file.

To add an image to your project, follow the steps below.

- Right Click on the Project of the report you want the image to display on and select Import.

- In the Import Wizard click the File System option to import from.

- Find the Image in your file system.

- Select the image with a checkbox.

- Confirm the Into Folder is your project report folder.

- Click Finish.

- In the Project Explorer drag over the new image to add to the report.
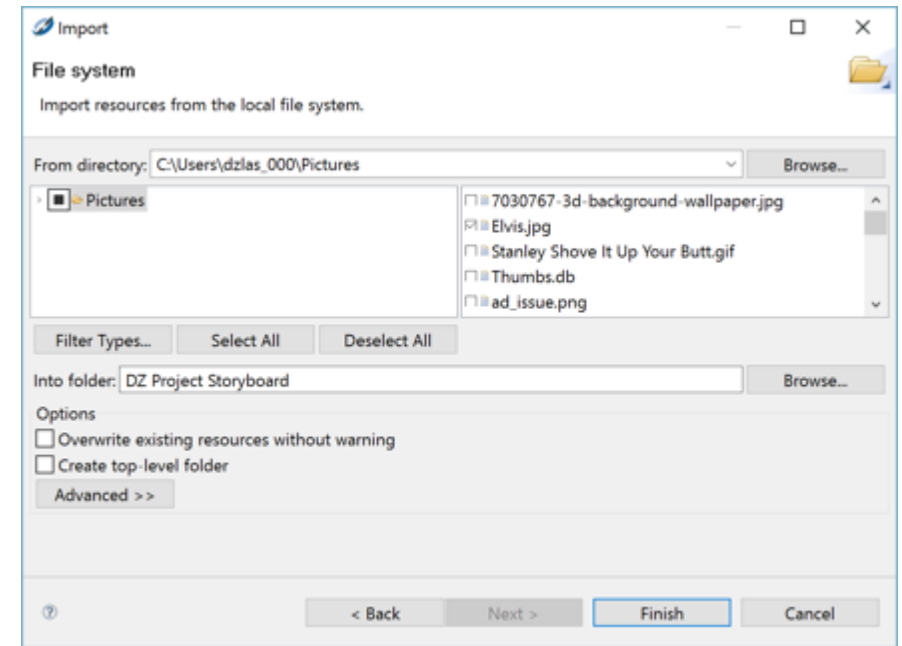
Part III:
Advanced Concepts

✓ Add a dynamic image

✓ Adding an Image to the Repository

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Adding a Dynamic Image

- By adding an image from project explorer, the expression is automatically filled out with the path of the image being used. This path however can be changed based on values in the report.

- Two ways to create dynamic images.
  - Using an expression based on a field to determine the path of the image.
  - Using the print when expression on each image to determine if the image should appear.

- Exercise: Add a checkbox image to the report. Using display only based on a Boolean equation on "Is Active."

- Exercise: Based on the days late, show either the green, yellow, or red status indicator from the resource images.

Adding an Image to Repository

- If an image is going to be used on multiple reports, such as a logo, or a common status indicator, it is best practice to put this into a public folder on the repository.

- Using the repository folder to store the image is also the easiest way to determine the expression to find the image when running the report in Clarity.

- To add the image to the repository and add it to your report, follow the steps below.
    1. Navigate to the Repository and click Add Folder. Name it Custom Images.
    2. On the newly created folder, click Add Resource -> File -> Image.
    3. In the Image, upload the image you want the report to reference.
        Note: First look at the Clarity images to make sure you can use one of their images first.
    4. Once the Image is in the repository, navigate back to Studio.
    5. In the Repository Explorer, navigate to the Image.
    6. Drag the image onto the report.
    7. Check the Expression. Notice it points towards a "repo" folder. If you tried running this in Studio, it would fail, but on the report server it will run correctly.

Adding an Image as Base64 text

You can also embed image as Base64 text in Jasper report. Following are the advantages of it:

- Need not save any image in the repository
- Report loads faster and quicker

- To embed image as Base64 text to your report, follow the steps below.
  1. Download the image to your desktop. Go to Base 64 encoder
  2. Upload the image and click on Encode. Copy the generated Base64 text to notepad
  3. Open the Studio. Import the Base64 package into the report (Report →Source tab→ Add the tag: <import value="org.apache.commons.codec.binary.Base64"/>)
  4. Drag the image element onto the report. Change the image expression as *new ByteArrayInputStream(newBase64().decodeBase64("**<base64text>**".getBytes("UTF-8")))*

<base64text> is the generated Base64 text
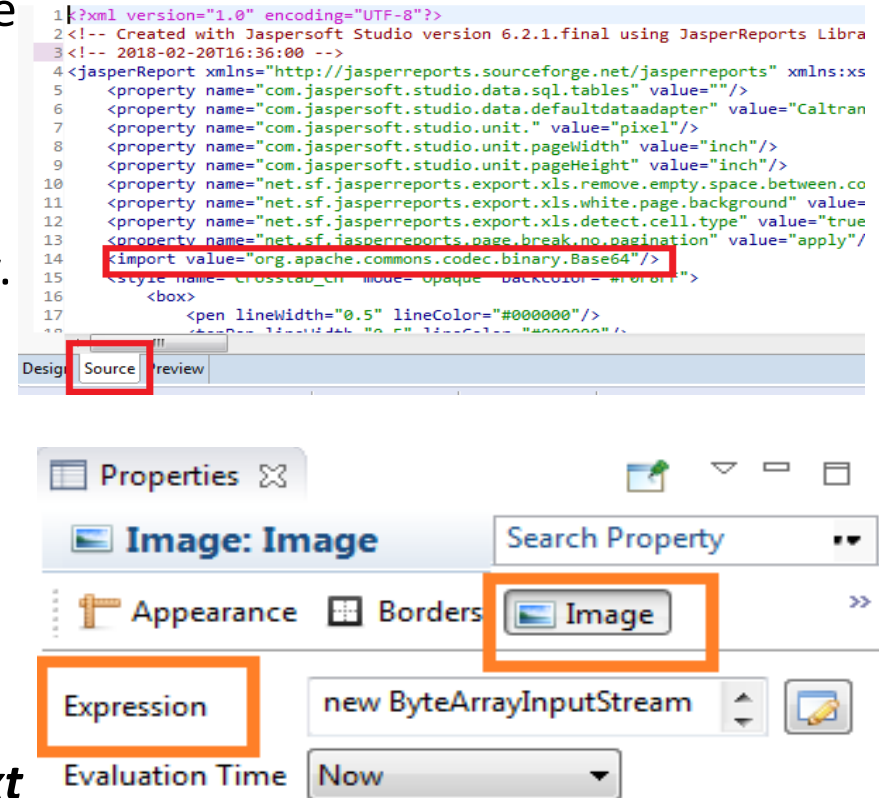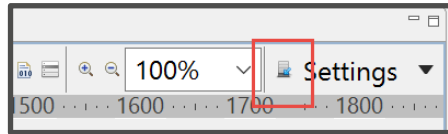
Part III:
Advanced Concepts

✓ Deploying a Report

Deploy the Report to a Jaspersoft Server

- Deploying a report to a Jaspersoft server is a very seamless and easy process.

  1. Navigate to the Repository of the Jaspersoft server you want to deploy the report to.
  2. Next click the Publish Report icon in the top right of the report next to Settings.

  3. Navigate to the folder you want to create the report.
  4. Make sure you have the checkbox "Create Report Unit" checked.
  5. Name the report Unit what you would name the report.

     Note: The ID is what will be the name of the file when exported out. Please name appropriately.

  6. In the Data Source selection, select the data source from repository.
  7. Click Finish.

- Exercise: Deploy a report to the environment.

Part III: Conclusion – Live Demo

Part IV: Agenda

Advanced Concepts

- Out of the Box Input Control
- Creating your own Input Control
- Creating a graph

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Part IV: Advanced Concepts

✓Add a parameter and input control

✓Create a Graph

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Parameters and Input Controls

- Input Controls are the way Jaspersoft sends parameters between the system and the report. They are external from the report.

- Parameters are variables on a report that allow the user to filter the reports data. These are setup on the report itself.

- There are a lot of out of the box input controls created already. Use these as much as possible.
    - Common: Holds the actual Input Control objects
    - List of Values: Static Values
    - Queries: The queries being used in the Input Controls to populate the options
    - Report Specific: Input Controls used for specific actions in reports.
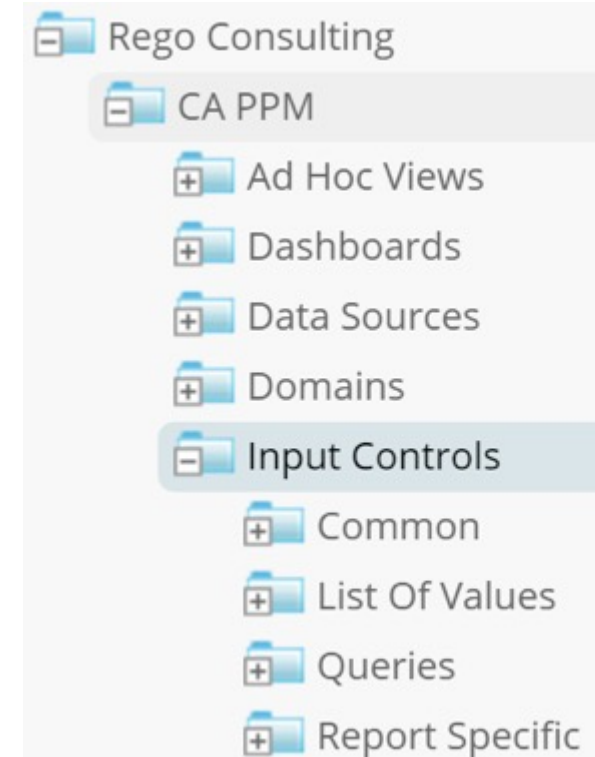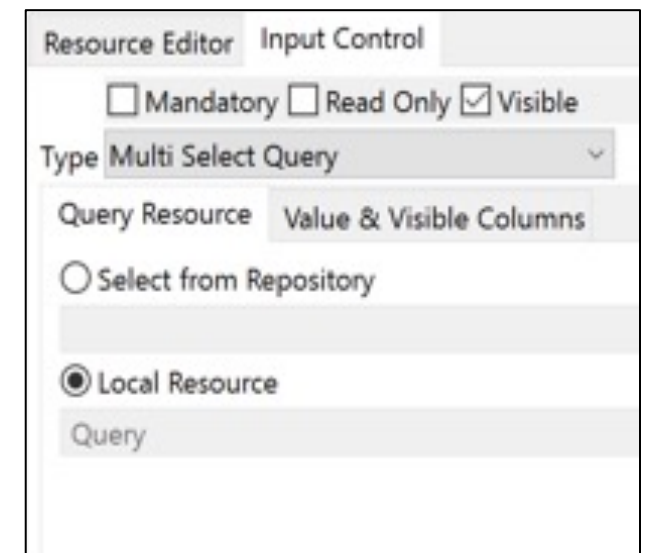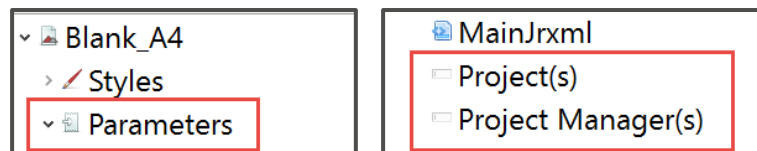
How to Add an Input Control

- The following steps should be followed to add an input control to a report.

1. Create a parameter in the report. Write down the ID that you give the parameter.
   Note: If the input control is from the out of the box selections, make the parameter ID and name the same as the input control's ID.

2. Modify the query to accept the parameter either using the filter expression tab or directly in the SQL.

WHERE (**$X{IN, null**, c_inv_mgr} **OR $X{IN**, main_q.manager_id_key, c_inv_mgr})
AND (**$X{IN, null**, param_project_phase} **OR $X{IN**, main_q.lkp_project_phase, param_project_phase})
AND (**$X{IN, null**, c_work_status} **OR $X{IN**, main_q.obj_work_status, c_work_status})

3. Add / create the input control in the Report Unit.

- Blank_A4
  - Styles
  - Parameters

- MainJrxml
  - Project(s)
  - Project Manager(s)

Resource Editor Input Control
☐ Mandatory ☐ Read Only ☑ Visible
Type Multi Select Query   ∨
Query Resource   Value & Visible Columns
○ Select from Repository

◉ Local Resource
Query

Exercise: Add an out of the box input control for Project Manager.

Exercise: Adding a custom input control to filter for Is Active and Investment.

Charts Part 1

- HTML 5 Graphs in Jaspersoft are an element similar to a text field but more complex.

- A user can use the master report's query as a data source to populate a graph or utilize creating a new dataset as well.

- The data from the graph can be set to change based on section, page, or even a full report.

To create an HTML 5 Graph, please follow the steps below.

1. Navigate to the Palette.

2. Drag an HTML 5 graph element from the section Components Pro on to the report.

3. Select the type of graph when a dialogue pops up.
   Note: This type can be changed at will at anytime.

Charts Part 2

Part 2 of charts will be going to the Chart Properties and navigating to the data set of the chart.

1. Right click on the Chart and select Edit Chart Properties. Chart Properties tab will appear.

2. The Chart properties allows the user to edit various visual properties of the chart.

3. Click on the tab Data Configuration.

4. Chart Data allows the user to configure the data and parameters being sent into the chart.

<u>Reset Type</u>: Determines when the chart should refresh it's data.

<u>Increment Type</u>: Determines what level the chart data is being used at. Most commonly use none.

<u>Sub Dataset</u>: Determines the data set the chart is using. This can use the main report data set or a sub data set.

Note: We will create sub data sets in the advanced Jaspersoft class.

Charts Part 3 Category Levels

Part 3 of charts will be going over how to populate a Category

1. On the Data Configuration tab, click the sub tab named Data.

2. The Categories Levels are the X Axis. You can modify Level 1 or create your own.

3. Click the Add button if you want to create a category or click on the category you want to edit and click the Edit button.

4. In the Name field apply a value for the category.

   Note: Name is just the representation in studio, no affect on the report.

5. In the Label Expression field, apply the field that will represent the category name.

6. Depending on the Expression Field's data type, edit the Value Class to represent the field type.

7. The Order field orders the categories. This can be set to None if you are already ordering them within the query.
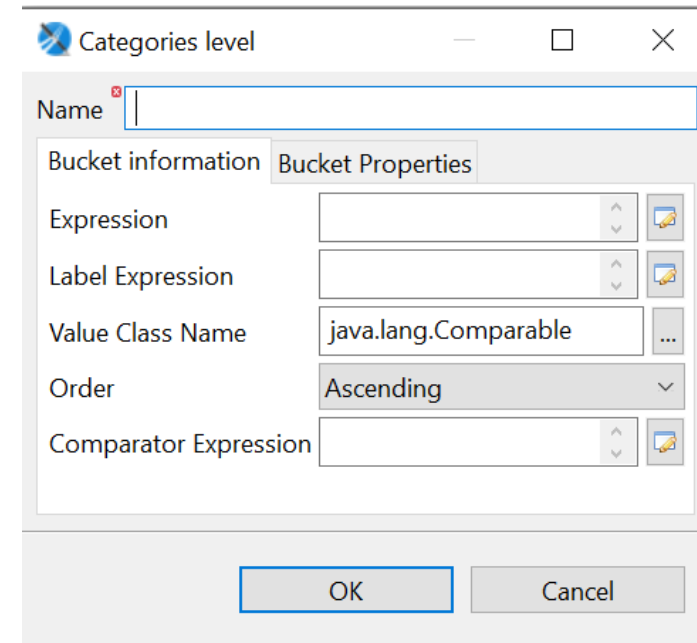
Charts Part 4 Measures

Part 4 of charts will be going over how to populate a measure in the chart.

1. On the Data Configuration tab, click the sub tab named Data.

2. The Measures are the Y Axis. You can modify Measure1 or create your own.

3. Click the Add button to make your own or click on the measure you want to edit and click the Edit Button.

4. In the Name field apply a value for the category.

    Note: Name is just the representation in studio, no affect on the report.

5. In the Label Expression field, apply either a field that will represent the label of the value, or input a String value of the label. Ex: "Average Posted Timesheet."

6. In the Calculation field, select the calculation to be applied on the Valued field.

7. Note: If the data set has already done the calculation, select None. In the Value Expression, select the field from the data set to be used as the value for the measure.

8. In the Value Class name, select the data type that the field selected in the Value Expression uses.

Questions

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