MAXIMO REPORTING

Delivering on Maximo's Promise…

Presented by Stephen Hume, MaxTECH Chair

Agenda

1. **Background - Reporting**
2. **BIRT Set up and Administration**
3. **Modifying a BIRT Report**
4. **Creating a New Report**
5. **Types of BIRT Reports**
6. **Drilldown Reports**
7. **Result Sets and Report Object Structures**
8. **QBRs, KPIs and Data Extracts**
9. **Creating a Report without BIRT**

Stephen Hume

Stephen has been working with IBM Maximo for over ten years in a variety of industries (Oil and Gas, Utilities). He has taught Maximo courses to end users for both Technical and Functional audiences and chairs the MaxTECH User Group.

Background – Reporting

The purpose of this MaxTECH presentation is to provide some insight into the 8th Mystery of Maximo – **Reporting**. Often overlooked or ignored (sometimes on purpose), reporting out of Maximo is the key to deriving business value from the system.

A report is commonly referred to as a document containing information organized in a narrative, graphic, or tabular form, prepared on ad hoc, periodic, recurring, regular, or as required basis.

Reports may refer to specific periods, events, occurrences, or subjects, and may be communicated or presented in oral or written form.

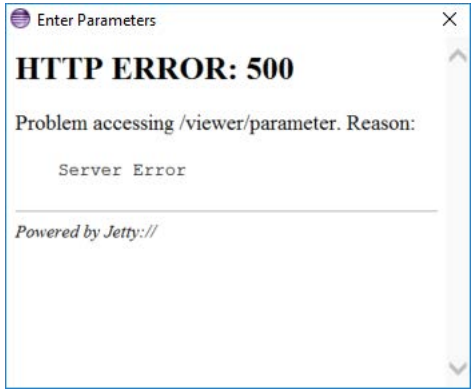
There are some key truths about reporting that need to be understood by all users and management:

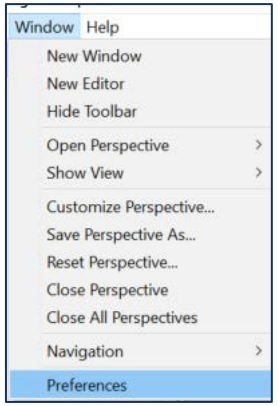
1. As soon as a report is printed it is out of date. In a transactional system such as Maximo transactions continue even after a report has been executed.
2. Reports should not be manipulated after they have run. The data in the reports is the "truth" from the system and should not be "massaged", "edited", "revised" by any users. This could have serious safety or financial implications.

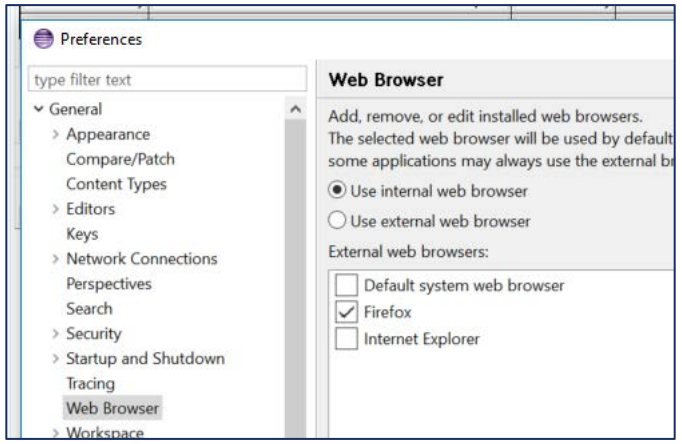
BIRT Setup and Administration

Once you have set up BIRT, pointed it to the correct Maximo Database and are ready to get working on your first report, it will be necessary to configure Eclipse so that a feature called “Report Preview” will function properly.

There is an issue with the latest version of Eclipse in that the preview function will not work with IE 11 or Microsoft Edge. You may see an HTTP 500 error, or a blank parameters screen if you
try to preview a report.







TIP **If you cannot have Firefox installed because of IT “Rules” then the best option is to test the report by running it straight to PDF.**

BIRT Setup and Administration

When configuring mxreportdatasources it is suggested that you configure it for all of your Maximo Databases, and then comment out the lines that are not being used at the time. That way you can comment and uncomment lines depending on which test data you need to use for your reports at the time.

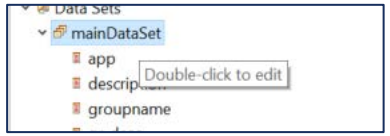
If you do not configure the mxreportdatasources file, eclipse will still work, but you will not be able to test your reports within BIRT.


```
maximoDataSource.driver=oracle.jdbc.driver.OracleDriver
maximoDataSource.username=maximo
maximoDataSource.schemaowner=maximo

# sb01
#maximoDataSource.url=jdbc:oracle:thin:@db-maxsb01:1521:maxsb01
#maximoDataSource.password=maximo

# sb02
maximoDataSource.url=jdbc:oracle:thin:@db-maxsb02:1521:maxsb02
maximoDataSource.password=maximo

# dv
#maximoDataSource.url=jdbc:oracle:thin:@db-maxdv01:1521:MAXdv01
#maximoDataSource.password=r2d2cu4max

# PP
#maximoDataSource.url=jdbc:oracle:thin:@db-maxpp01:1521:MAXpp01
#maximoDataSource.password=maxcr4ck

# py
#maximoDataSource.url=jdbc:oracle:thin:@db-maxpy01.cnrl.com:1521:maxpy01
#maximoDataSource.password=maxcr4ck
```

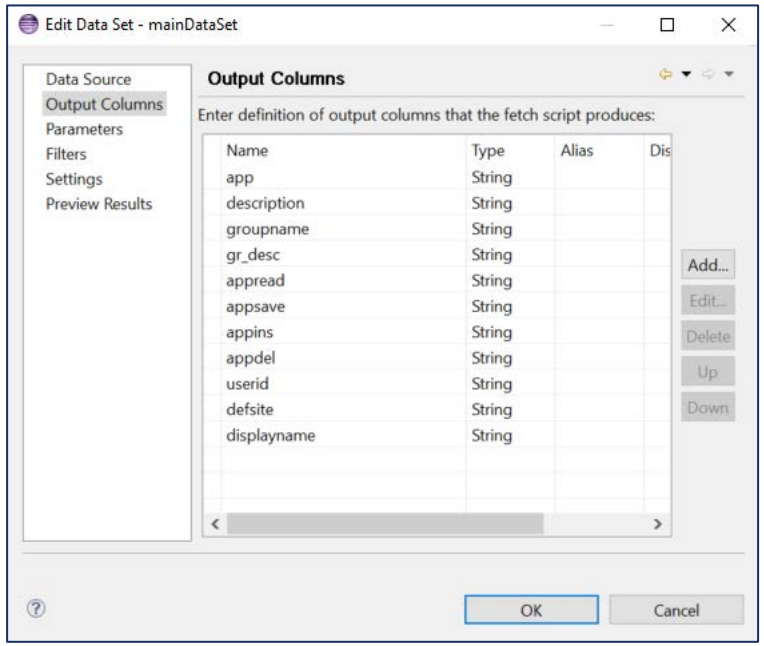
TIP When updating mxreportdatasources you need to close Eclipse and re-open it for any changes to take effect.

Modifying a BIRT Report

In this example I will be modifying a report to add the person's supervisor's name and the person's status.

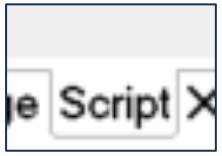


In report designer, expand the list of data sets and double click the mainDataSet



Then Click on the Output Columns, here you are going to click Add and then Add two new columns.

supervisor (String)
And
status (string)



While the dataset is clicked on, then you can click on the Script tab, this is where you will modify the SQL to get the new data for supervisor name and person's status.

Modifying a BIRT Report

```
// Add query to sqlText variable.
sqlText = "SELECT "
+ "  maxapps.app, "
+ "  maxapps.description, "
+ "  maxgroup.groupname, "
+ "  maxgroup.description gr_desc, mgm.userid, mgm.defsite, mgm.displayname "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='READ'), 1, 'READ') appread, "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='SAVE'),1, 'SAVE') appsave, "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='INSERT'),1,'INSERT') appins, "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='DELETE'),1,'DELETE') appdel "
+ "FROM maxapps, maxgroup "
+ "left join "
+ "(SELECT groupuser.groupname, maxuser.userid, maxuser.loginid, maxuser.defsite, maxuser.status, person.displayname "
+ "FROM maximo.groupuser  "
+ "JOIN maximo.maxuser ON maxuser.userid=groupuser.userid "
+ "join maximo.person on person.personid = maxuser.personid "
+ "where maxuser.status = 'ACTIVE') mgm  "
+ " on mgm.groupname = maxgroup.groupname "
+ "where ((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='READ') = 1 "
+ "or    (SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='SAVE') = 1 "
+ "or    (SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='INSERT') = 1 "
+ "or    (SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='DELETE') = 1) " +sqlopt
+ " ORDER BY mgm.userid, maxgroup.groupname, maxapps.app "
;
```

```
sqlText = "SELECT "
+ "  maxapps.app, "
+ "  maxapps.description, "
+ "  maxgroup.groupname, "
+ "  maxgroup.description gr_desc, mgm.userid, mgm.defsite, mgm.displayname, mgm.supervisor, mgm.pestatus as status, "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='READ'), 1, 'READ') appread, "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='SAVE'),1, 'SAVE') appsave, "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='INSERT'),1,'INSERT') appins, "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='DELETE'),1,'DELETE') appdel "
+ "FROM maxapps, maxgroup "
+ "left join "
+ "(SELECT groupuser.groupname, maxuser.userid, maxuser.loginid, maxuser.defsite, maxuser.status, person.displayname, pe2.displayname as supervisor, person.status as pestatus "
+ "FROM maximo.groupuser  "
+ "JOIN maximo.maxuser ON maxuser.userid=groupuser.userid "
+ "join maximo.person on person.personid = maxuser.personid "
+ "join maximo.person pe2 on pe2.personid = person.supervisor "
+ "where maxuser.status = 'ACTIVE') mgm  "
+ " on mgm.groupname = maxgroup.groupname "
+ "where ((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='READ') = 1 "
+ "or    (SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='SAVE') = 1 "
+ "or    (SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='INSERT') = 1 "
+ "or    (SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='DELETE') = 1) " +sqlopt
+ " ORDER BY mgm.userid, maxgroup.groupname, maxapps.app "
```

Modified SQL Script

Modifying a BIRT Report

Script: fetch | mainDataSet

```
if (!maximoDataSet.fetch())
    return (false);

// Add a line for each output column
// The specific get method should match the data type of the output column.

row["app"] = maximoDataSet.getString("app");
row["description"] = maximoDataSet.getString("description");
row["groupname"] = maximoDataSet.getString("groupname");
row["gr_desc"] = maximoDataSet.getString("gr_desc");
row["appread"] = maximoDataSet.getString("appread");
row["appsave"] = maximoDataSet.getString("appsave");
row["appins"] = maximoDataSet.getString("appins");
row["appdel"] = maximoDataSet.getString("appdel");
row["userid"] = maximoDataSet.getString("userid");
row["defsite"] = maximoDataSet.getString("defsite");
row["displayname"] = maximoDataSet.getString("displayname");


return (true);
```

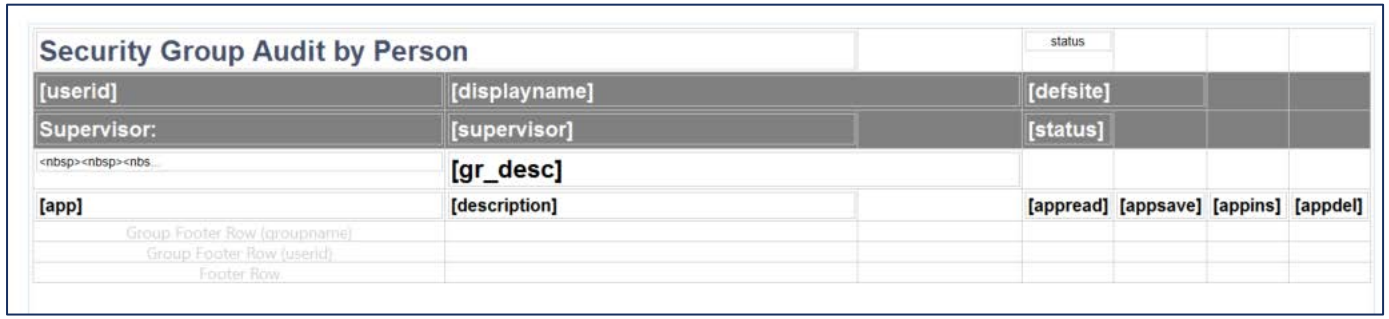
Added supervisor and status to the fetch.

Script: fetch | mainDataSet

```
if (!maximoDataSet.fetch())
    return (false);

// Add a line for each output column
// The specific get method should match the data type of the output column.

row["app"] = maximoDataSet.getString("app");
row["description"] = maximoDataSet.getString("description");
row["groupname"] = maximoDataSet.getString("groupname");
row["gr_desc"] = maximoDataSet.getString("gr_desc");
row["appread"] = maximoDataSet.getString("appread");
row["appsave"] = maximoDataSet.getString("appsave");
row["appins"] = maximoDataSet.getString("appins");
row["appdel"] = maximoDataSet.getString("appdel");
row["userid"] = maximoDataSet.getString("userid");
row["defsite"] = maximoDataSet.getString("defsite");
row["displayname"] = maximoDataSet.getString("displayname");
row["supervisor"] = maximoDataSet.getString("supervisor");
row["status"] = maximoDataSet.getString("status");

return (true);
```

Modifying a BIRT Report

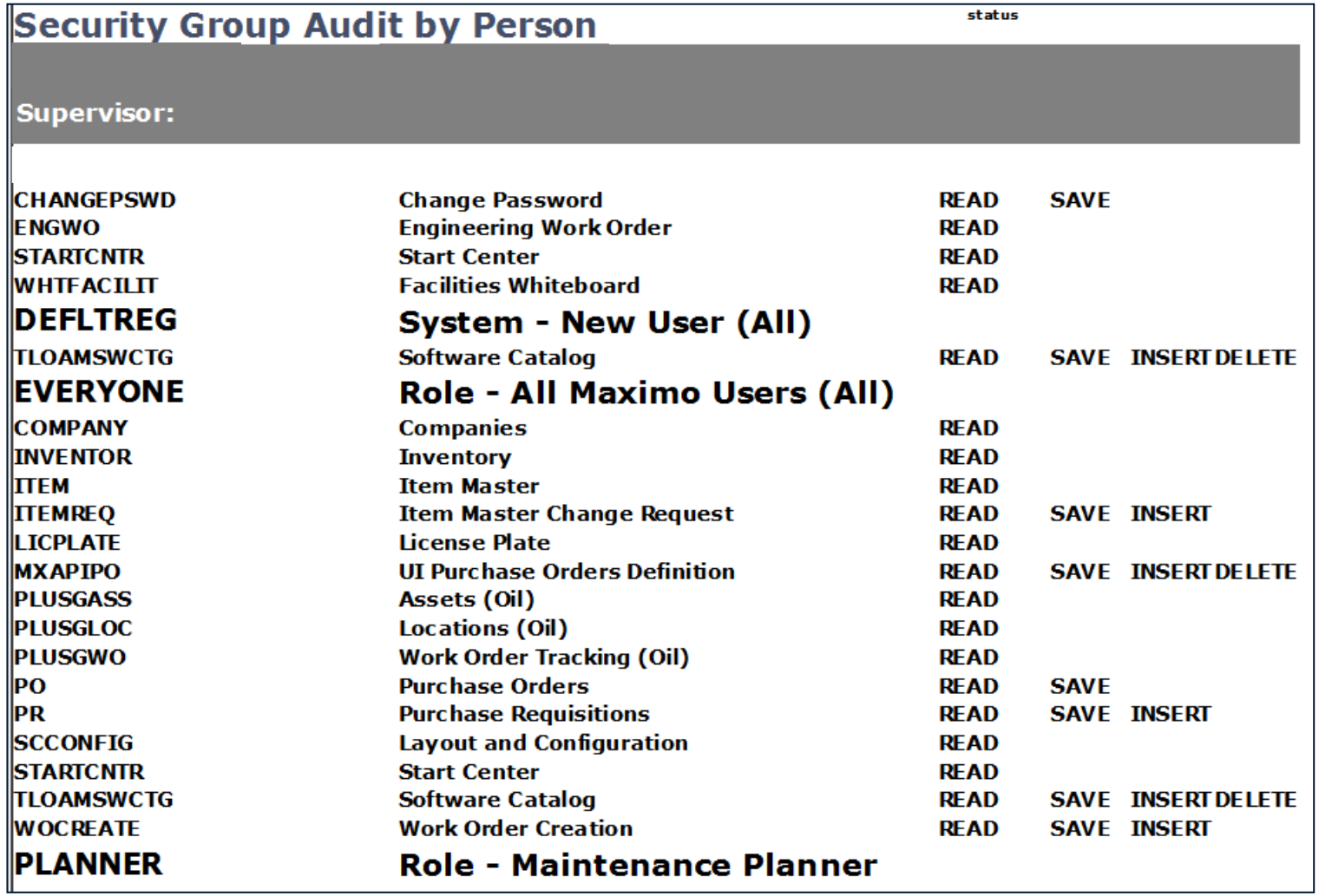
- Click on the layout. Click the row where userid appears, right click on the table row and select, add row, below.
- In the new row drag the supervisor and status fields. Add a Label for the Supervisor.
- Then click on the userid field, right click, copy format.
- On the New supervisor label, supervisorname and status fields right click and paste format.



The modified report is now ready to be tested.

- Use preview report if it is working,
- Run it as a PDF if you are connected to the Maximo Database.
- Or save the report and import into Maximo to test.

Modifying a BIRT Report



Security Group Audit by Person status

Supervisor:

CHANGEPSWD	Change Password	READ	SAVE	
ENGWO	Engineering Work Order	READ		
STARTCNTR	Start Center	READ		
WHTFACILIT	Facilities Whiteboard	READ		
DEFLTREG	**System - New User (All)**			
TLOAMSWCTG	Software Catalog	READ	SAVE	INSERT DELETE
EVERYONE	**Role - All Maximo Users (All)**			
COMPANY	Companies	READ		
INVENTOR	Inventory	READ		
ITEM	Item Master	READ		
ITEMREQ	Item Master Change Request	READ	SAVE	INSERT
LICPLATE	License Plate	READ		
MXAPIPO	UI Purchase Orders Definition	READ	SAVE	INSERT DELETE
PLUSGASS	Assets (Oil)	READ		
PLUSGLOC	Locations (Oil)	READ		
PLUSGWO	Work Order Tracking (Oil)	READ		
PO	Purchase Orders	READ	SAVE	
PR	Purchase Requisitions	READ	SAVE	INSERT
SCCONFIG	Layout and Configuration	READ		
STARTCNTR	Start Center	READ		
TLOAMSWCTG	Software Catalog	READ	SAVE	INSERT DELETE
WOCREATE	Work Order Creation	READ	SAVE	INSERT
PLANNER	**Role - Maintenance Planner**			

Modifying a BIRT Report – Adding a Parameter

Quite often the business may request a change to a report to allow them to “filter” the data based on a new set of filters or parameters. Examples of this would be to show data in a specific date range, or select specific types of work orders for the report, or work orders for a specific Asset.

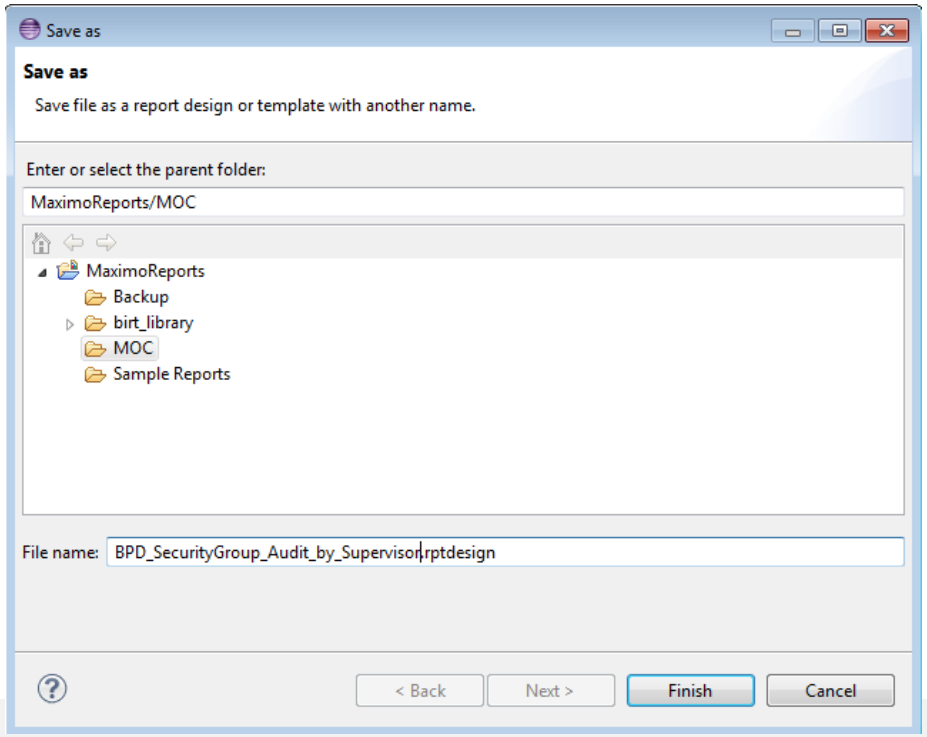
In the example to follow, we will add the Supervisor ID as a parameter on the security audit report which will allow users to run the report and see all people with a specific supervisor.

This will be accomplished by doing the following steps.

1. Create a copy of the report called BPD_Security_Audit_by_Supervisor.rptdesign
2. Add a new report parameter named “supervisor”
3. Add the logic to the script to filter by supervisor if the user has entered one
4. Test the report with a supervisor entered
5. Import the new report into Maximo

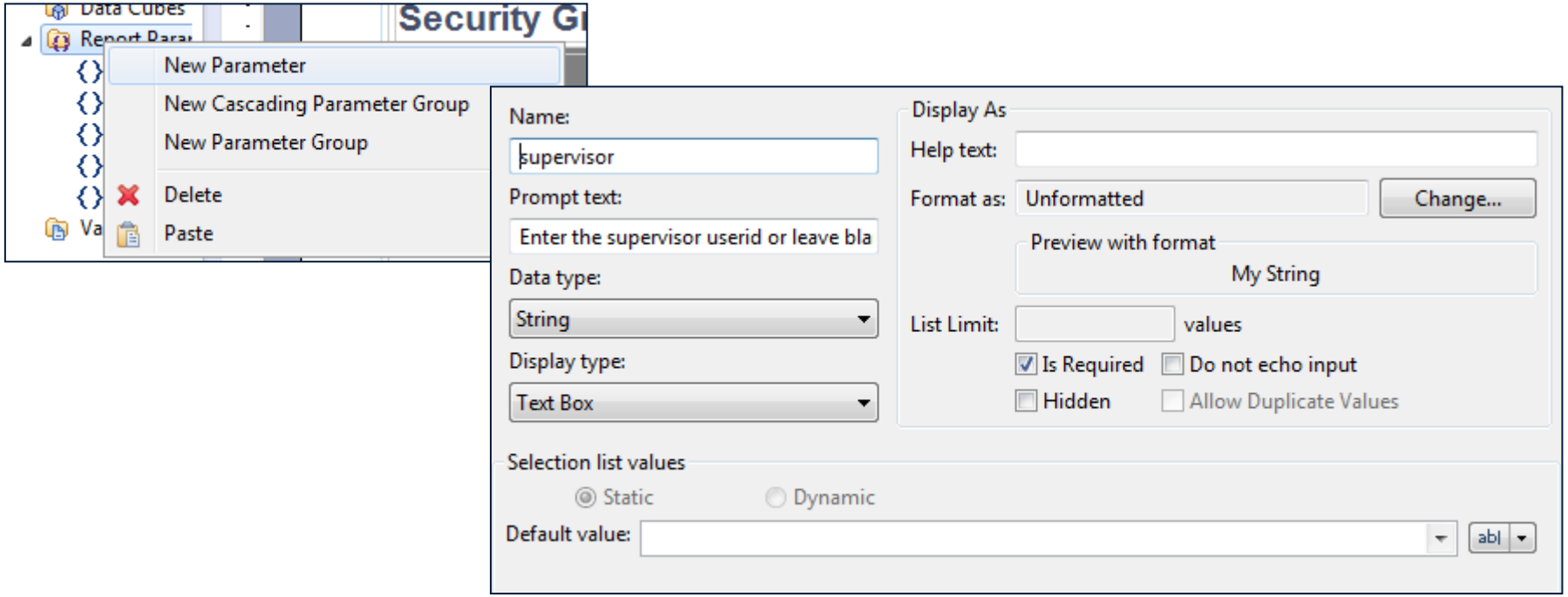
Modifying a BIRT Report – adding a Parameter

Create a copy of the report called BPD_Security_Audit_by_Supervisor.rptdesign



Modifying a BIRT Report – Adding a Parameter

Add a new report parameter named “supervisor”:



Modifying a BIRT Report – Adding a Parameter

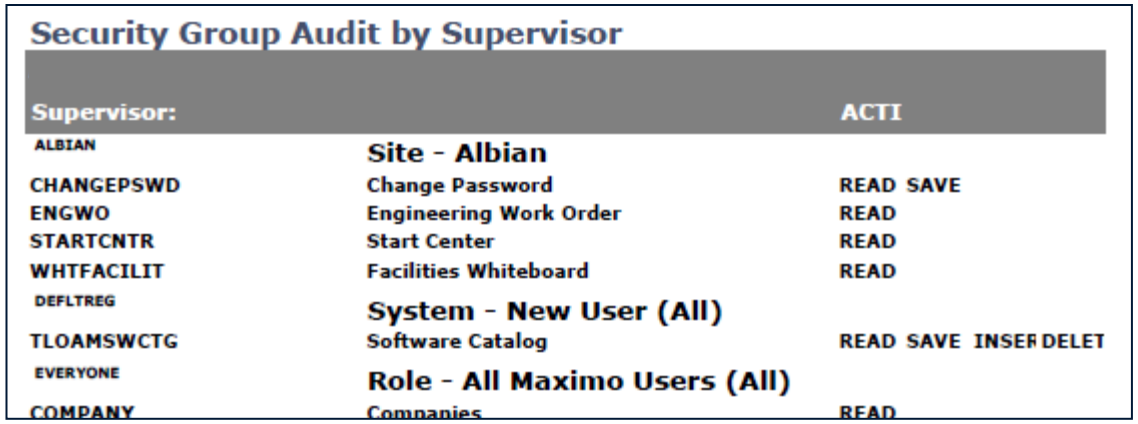
Add the logic to the script to filter by supervisor if the user has entered one:

```
if(params["supervisor"].value)
    sqlopt += " and mgm.superid like '" + params["supervisor"].toUpperCase() + "' ";

//  sqlopt += " and mgm.superid = 'OLIVERT' "

// Add query to sqlText variable.
sqlText = "SELECT "
+ "  maxapps.app, "
+ "  maxapps.description, "
+ "  maxgroup.groupname, "
+ "  maxgroup.description gr_desc, mgm.userid, mgm.defsite, mgm.displayname, mgm.supervisor, mgm.pestatus as status, "
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='READ'), 1, 'READ') appread,
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='SAVE'),1, 'SAVE') appsave,
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='INSERT'),1,'INSERT') appins
+ "  decode((SELECT COUNT(*) FROM applicationauth WHERE groupname=maxgroup.groupname AND app=maxapps.app AND optionname='DELETE'),1,'DELETE') appdel
+ "FROM maxapps, maxgroup "
+ "left join "
+ "(SELECT groupuser.groupname, maxuser.userid, maxuser.loginid, maxuser.defsite, maxuser.status, person.displayname, pe2.personid as superid, pe2.d
+ "FROM maximo.groupuser  "
+ "JOIN maximo.maxuser ON maxuser.userid=groupuser.userid "
```

Note: the commented-out line of sqlopt is for testing the report.

Modifying a BIRT Report – Adding a Parameter

Next, test the report with a supervisor entered:

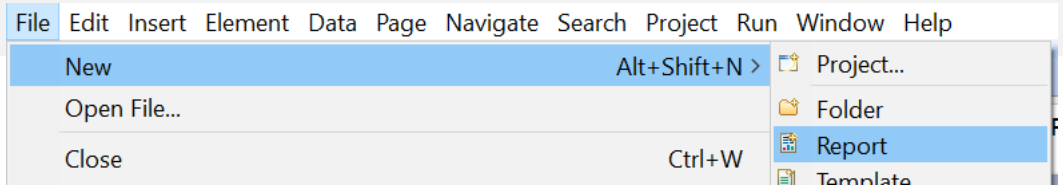


Security Group Audit by Supervisor

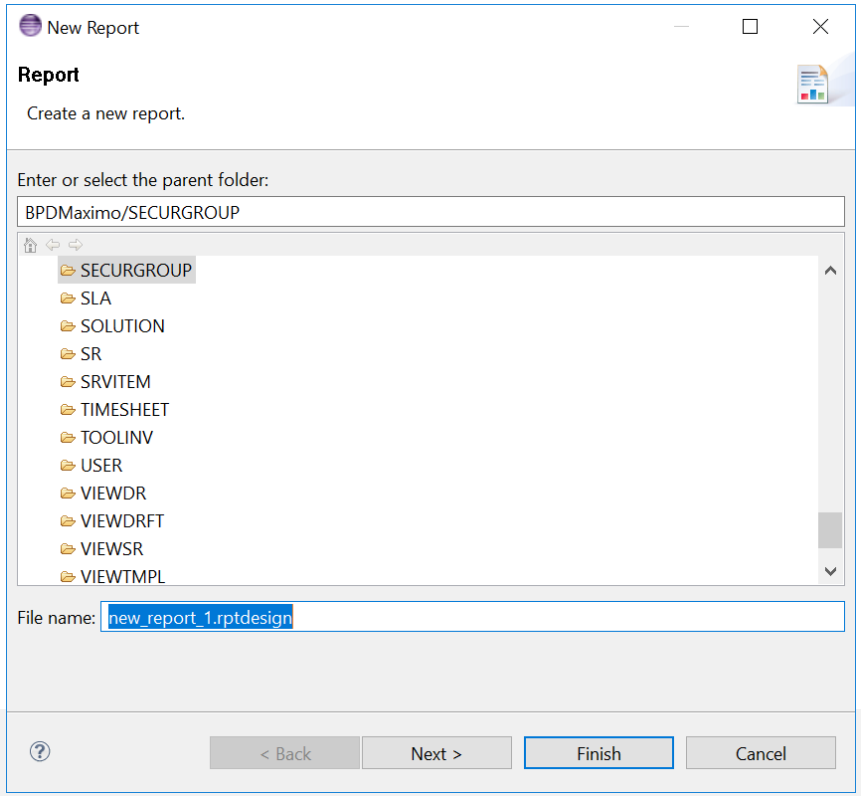
Supervisor:		ACTI
ALBIAN	**Site - Albian**	
CHANGEPSWD	Change Password	READ SAVE
ENGWO	Engineering Work Order	READ
STARTCNTR	Start Center	READ
WHTFACILIT	Facilities Whiteboard	READ
DEFLTREG	**System - New User (All)**	
TLOAMSWCTG	Software Catalog	READ SAVE INSER DELET
EVERYONE	**Role - All Maximo Users (All)**	
COMPANY	Companies	READ

Then import the report into Maximo and test it.

Creating a New Report



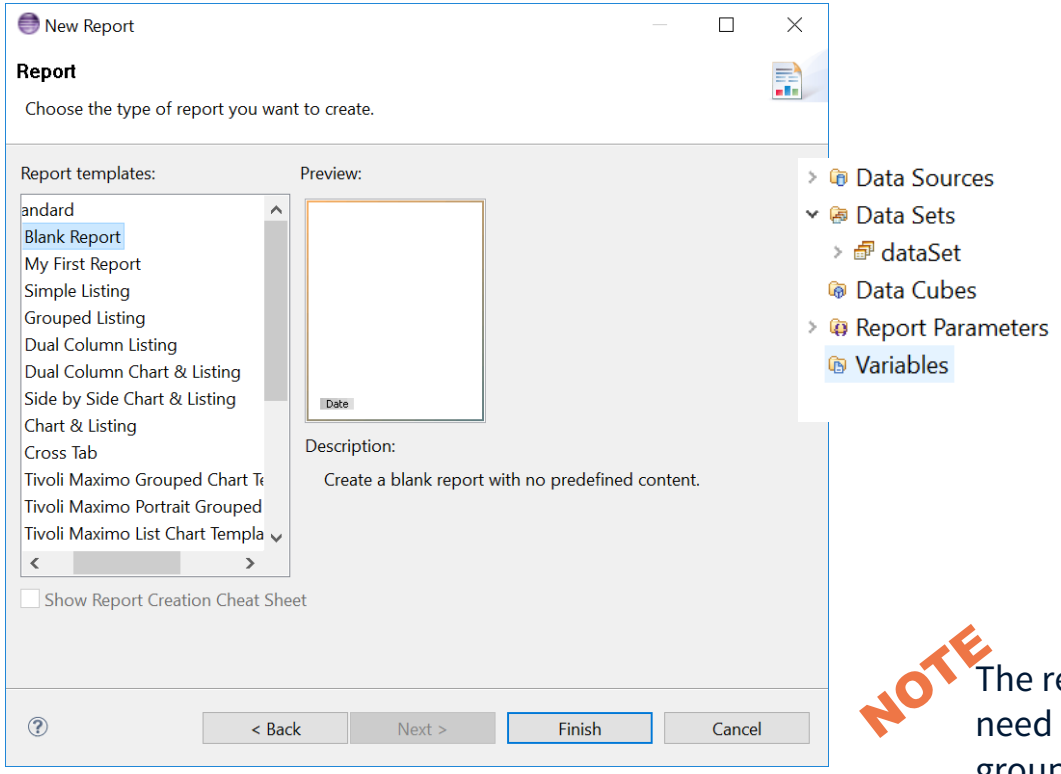
Click on File – New - Report



Then select which application the report is for and give your new report a name.

When you create the report name avoid special characters and spaces.

Creating a New Report



The wizard continues allowing you to select which type of report you want to create.

NOTE: There are a number of Maximo Standard Layouts to chose from.

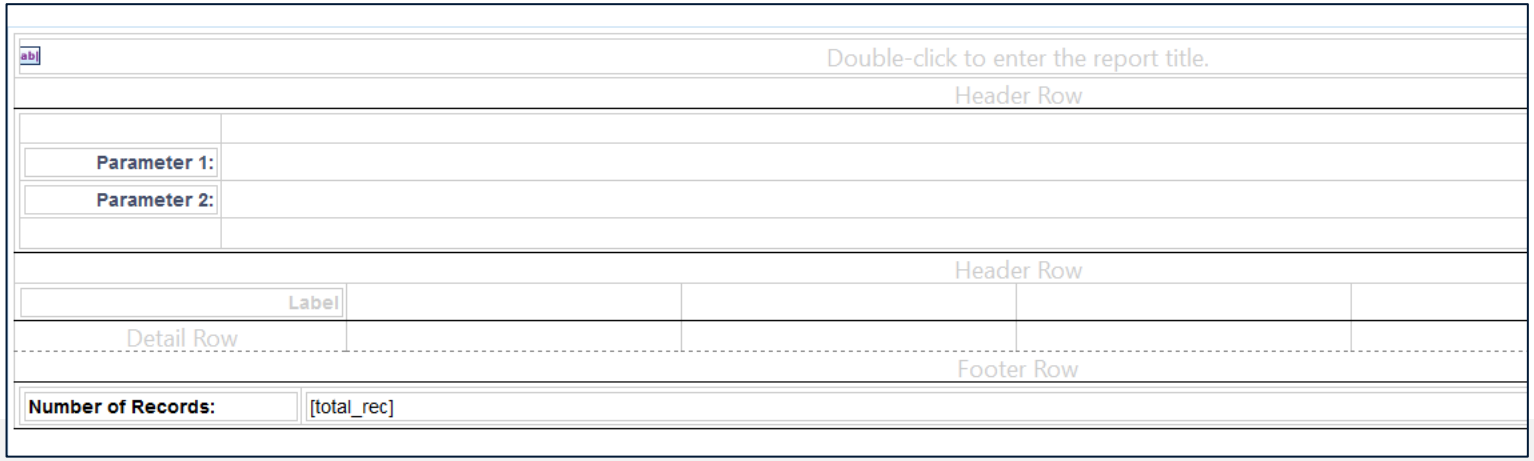
NOTE

The report is then created with a default single dataset. You will need to define the output columns, open and fetch script, groupings, etc.

Creating a New Report

Continue to work with the new report, building out the layout.

Once you are ready to “test” the report, save your changes, then run the preview, or run directly to PDF, or import the new report file into Maximo using the Report Administration Application.



Types of BIRT Reports

There are several different types of BIRT Reports that can be created.

- Simple Listing Reports
- Grouped Listings
- Dual Column Listing
- Charts
- Charts and Data Combined
- Crosstab reports
- Reports with Sub-Reports

When you are creating new reports, the report templates will provide a preview of each type before you create the report file.

NOTE

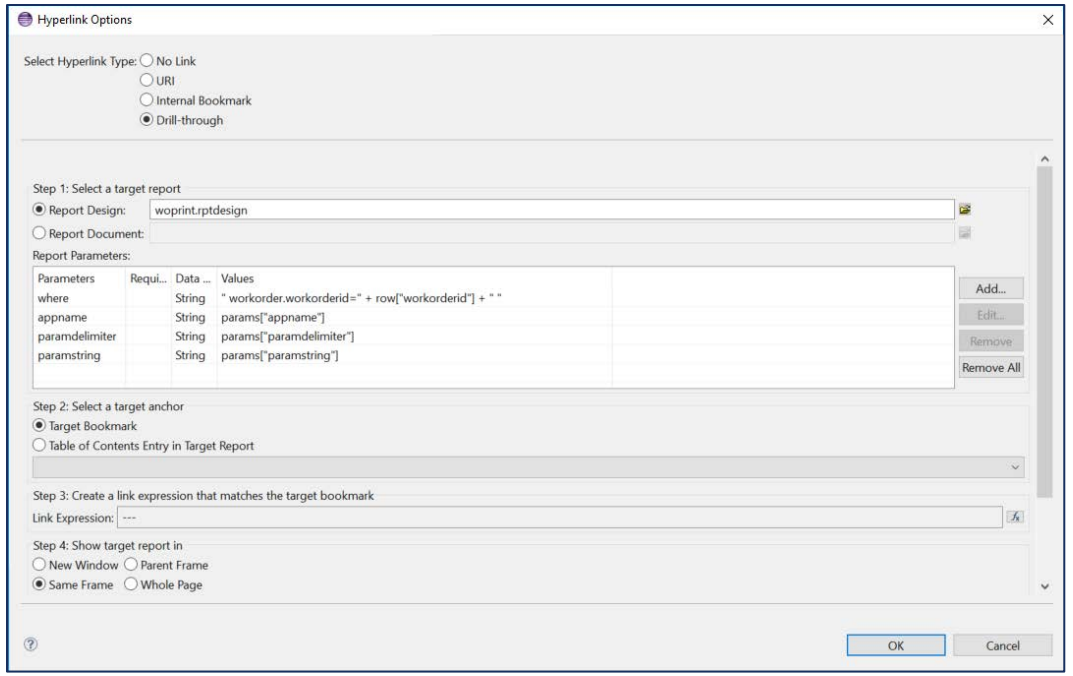
While Eclipse does provide the ability to create new reports using this wizard, it is quite often just as easy to take an existing Maximo Report, make a new copy of the report with a new name and modify to suit your requirements.

Drill Down Reports – To Another Report

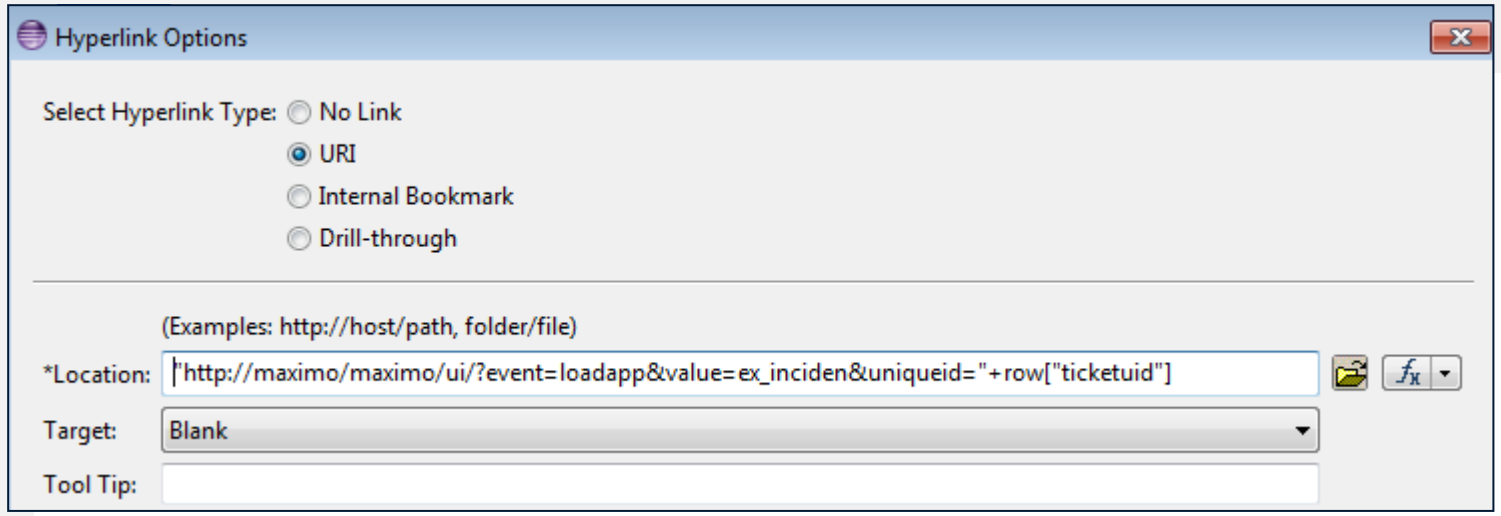
Many out of the box Maximo reports provide “drill down” to a detail report from a list report.

One of the issues is though that they way the drill down is configured it is not possible to return easily to the list report from the detail report.

One easy solution is to click the “new window” option so that when the drill down is activated the detail report will run in a new browser window.



Drill Down Reports – To Maximo



It is possible to configure a drill down hyperlink in Eclipse to open a Maximo Session to a specific application and a specific record in that application.

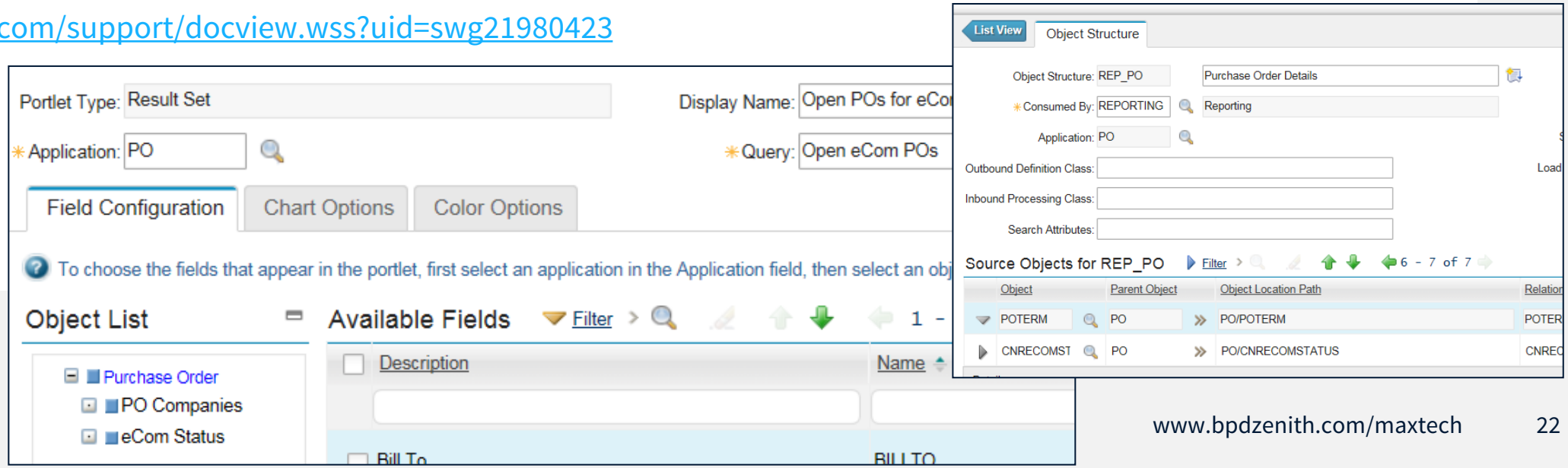
The “Location” of the URI hyperlink would need to be the valid url for whichever Maximo application server you wish the drill down to open.

In the above example, the drill down on ticket ID will open the ex_inciden application on the maximo/maximo application server.

Result Sets and Report Object Structures

BIRT Reports are not the only means of providing Maximo Data to the end users. Strategic use of Start Center Result sets can often preclude the need for a printed report.

The relevant data is presented to the users in real time, when they log into Maximo and access the specific start center. With Maximo version 7.6 it was possible to display data from related tables in a result set using Report Object Structures. Here is a link which describes in detail the steps for setting this up: http://www-01.ibm.com/support/docview.wss?uid=swg21980423



QBRs, KPIs and Data Extracts

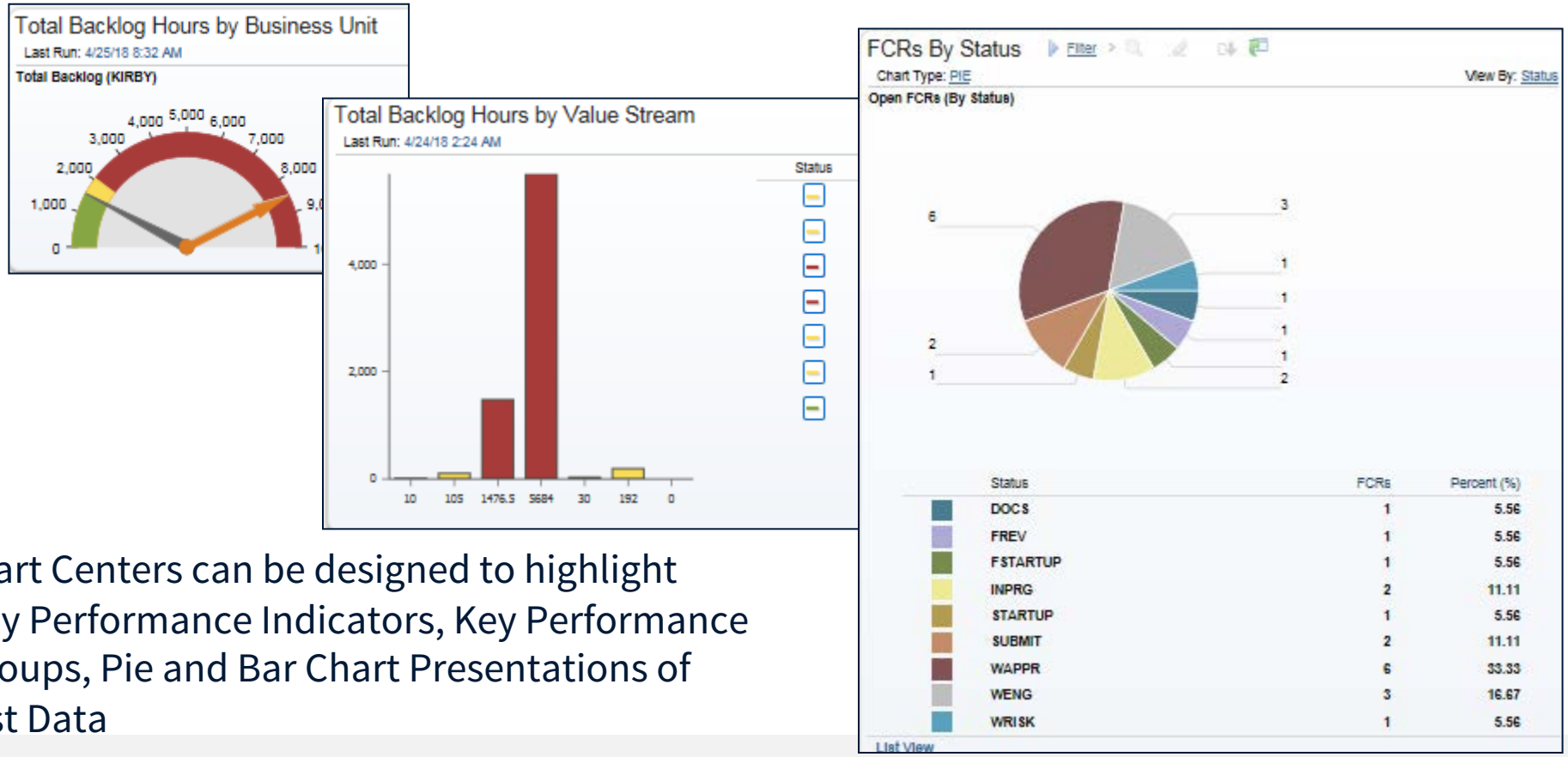
Link to information about QBRs (Query Based Reporting) in Maximo (ad hoc reporting)

https://www-01.ibm.com/support/docview.wss?uid=swg21696691

Note: it is possible to extract a report created via QBR and make further modifications to it in Eclipse.

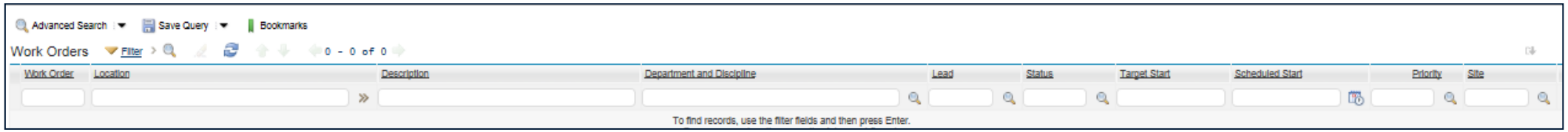
This feature allows end users to create their own reports in Maximo, and with recent releases they are able to edit reports they have created and saved, as well as adding summary fields to their reports.

QBRs, KPIs and Data Extracts



Start Centers can be designed to highlight Key Performance Indicators, Key Performance Groups, Pie and Bar Chart Presentations of List Data

QBRs, KPIs and Data Extracts



The list tabs in any application can be designed to provide users with data they may want to download out of Maximo. On the list tab there is the ability to download the listed records into an excel workbook.

There is also a feature in Maximo 7.5 and greater that would allow users to export and import data directly from specific applications.

Creating a “Report” without BIRT

The solution to this requirement came from Bruno Portaluri’s blog: http://maximodev.blogspot.ca/2013/10/object-quick-summary.html

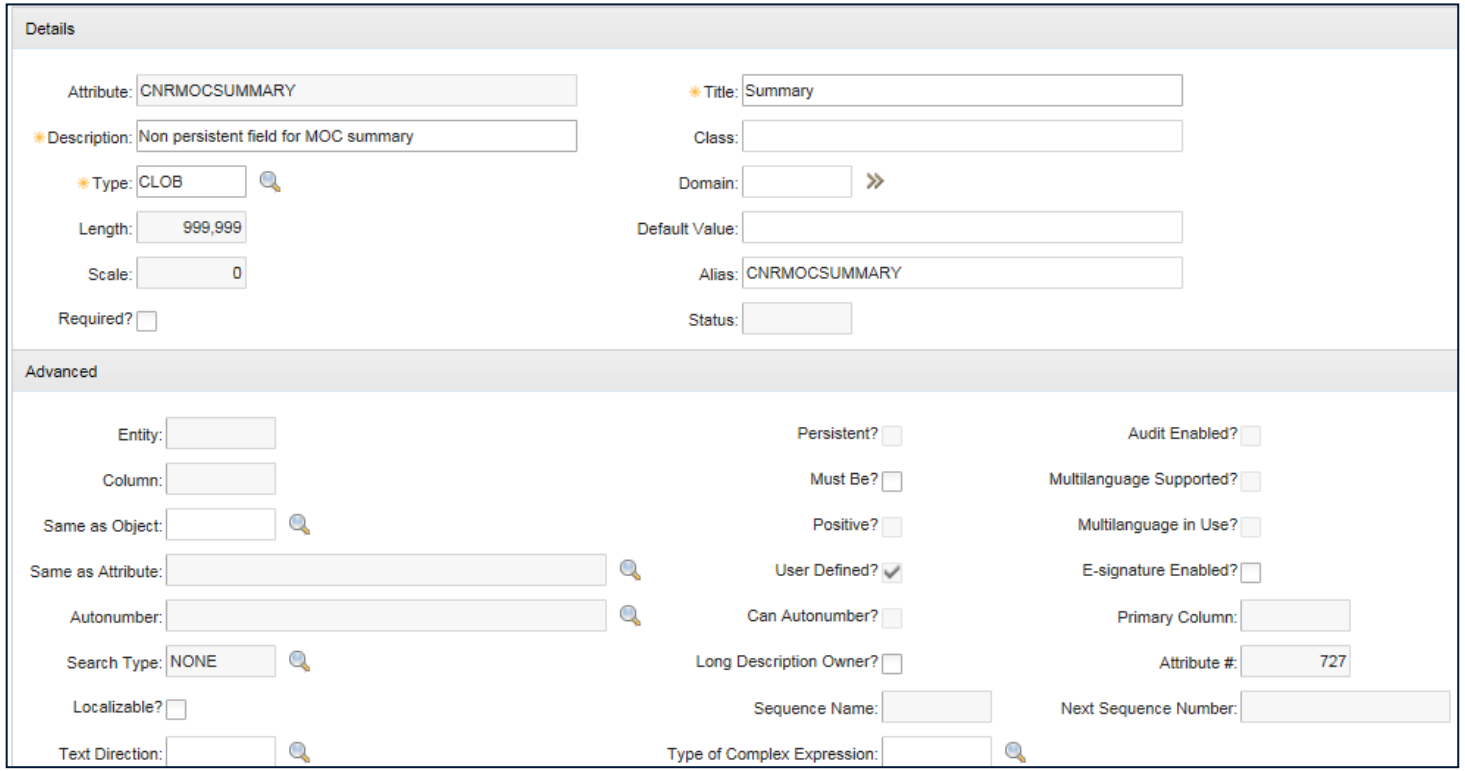
Some of the key differences that we implemented.

1. The summary object needed to be generated by an automation script with an action launch point. If it was created with a script that had an object launch point, there were serious performance issues in the MOC or Incident Applications.
2. We utilized HTML tables and formatting to gain a consistent output in the summary area. This allowed data to be nicely lined up.

Following are the steps taken to implement the solution.

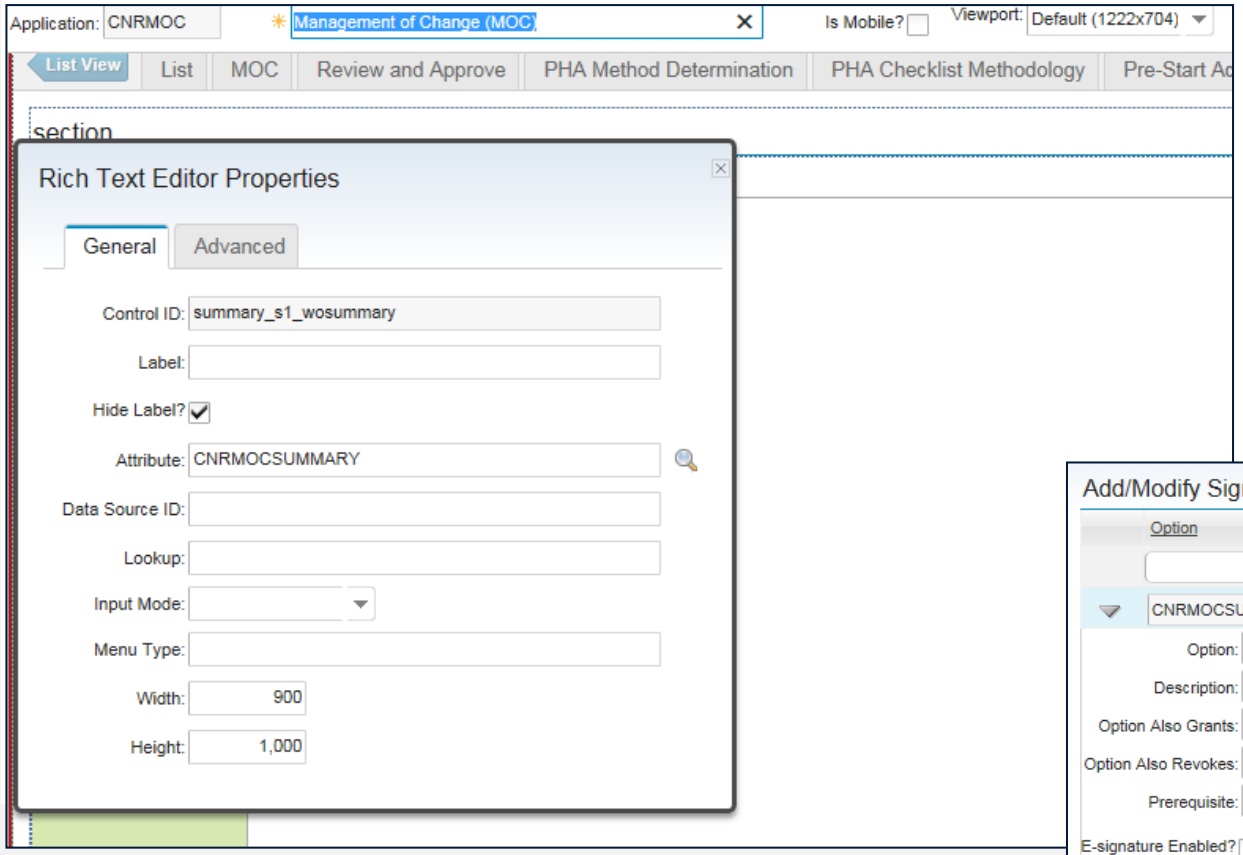
1. Database Configuration – add a non-persistent CLOB attribute to the Work Order or Ticket Table.
2. Add a new tab to the MOC or Incident Applications which display the attribute in a large textbox.
3. Create the automation script to build the summary output and associate it with an Action launch point.
4. Add the button to the MOC or Incident Application to trigger the action.
5. Add permission to the Security Group to run the signature option associated with the Action.

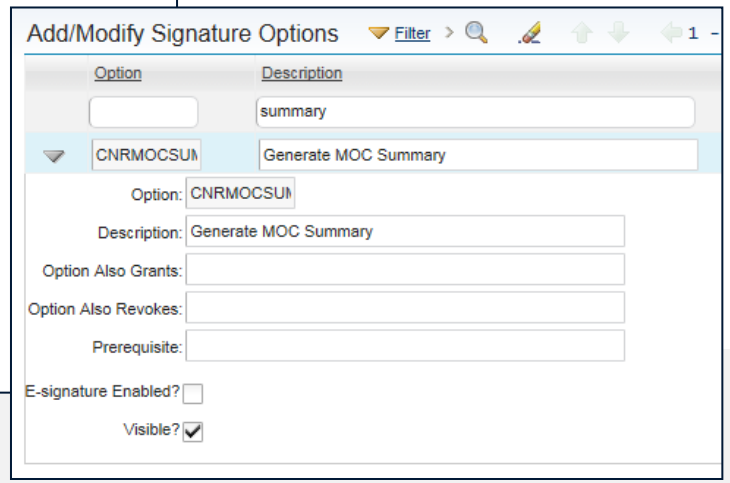
Creating a “Report” without BIRT



Database Configuration – add a non-persistent attribute to the Work Order or Ticket Table.

Creating a “Report” without BIRT

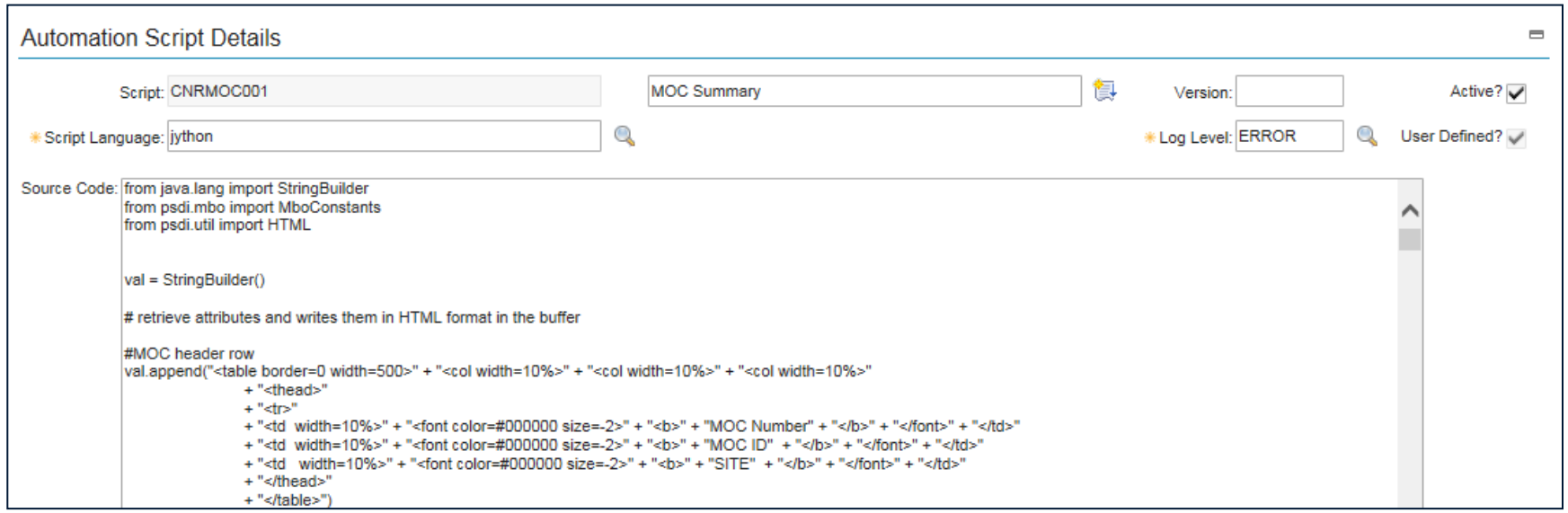




Add a new tab to the MOC or Incident Applications which display the attribute in a large textbox. (Rich Text Editor Field)

Creating a “Report” without BIRT

Create the automation script to build the summary output and associate it with an Action launch point.

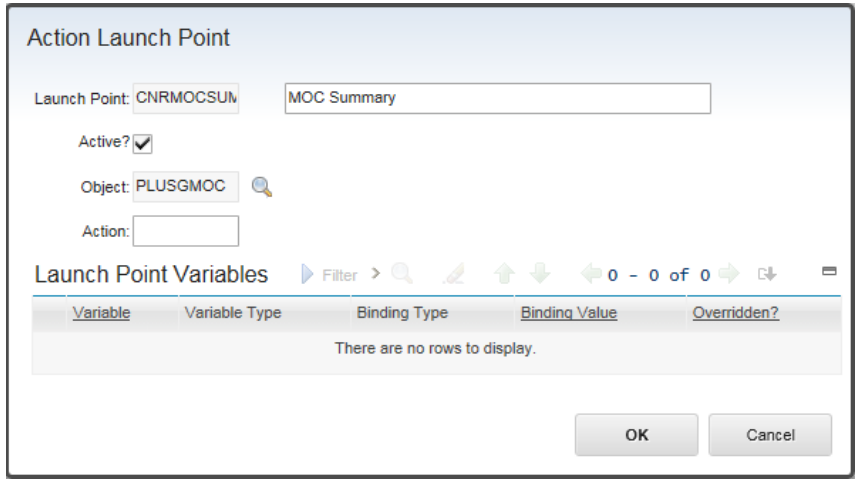


Step 1 Create new Automation Script (no launch point)
Step 2 Create Script with Action Launch point and use the first script created

Creating a “Report” without BIRT

Create the automation script to build the summary output and associate it with an Action launch point. The embedded text file is the script that has been used to create the MOC Summary.

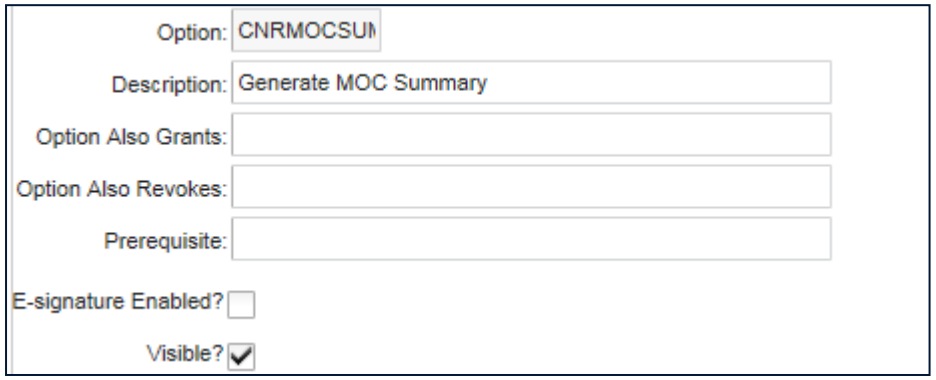
MOC Summary Script.txt



Once the script is created, then create the Action Launch Point.

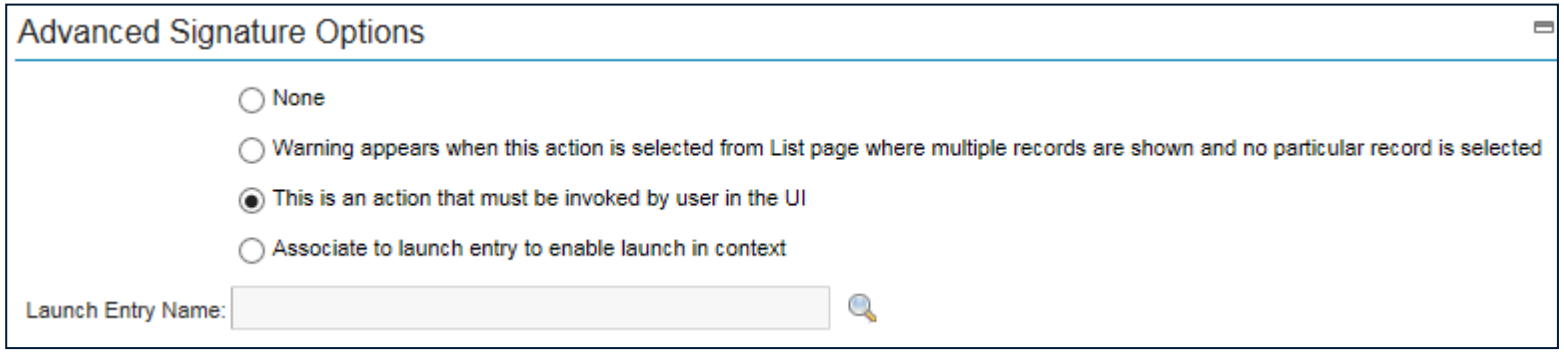
NOTE: This must be the same name as the signature option used in the MOC Application.

Creating a “Report” without BIRT

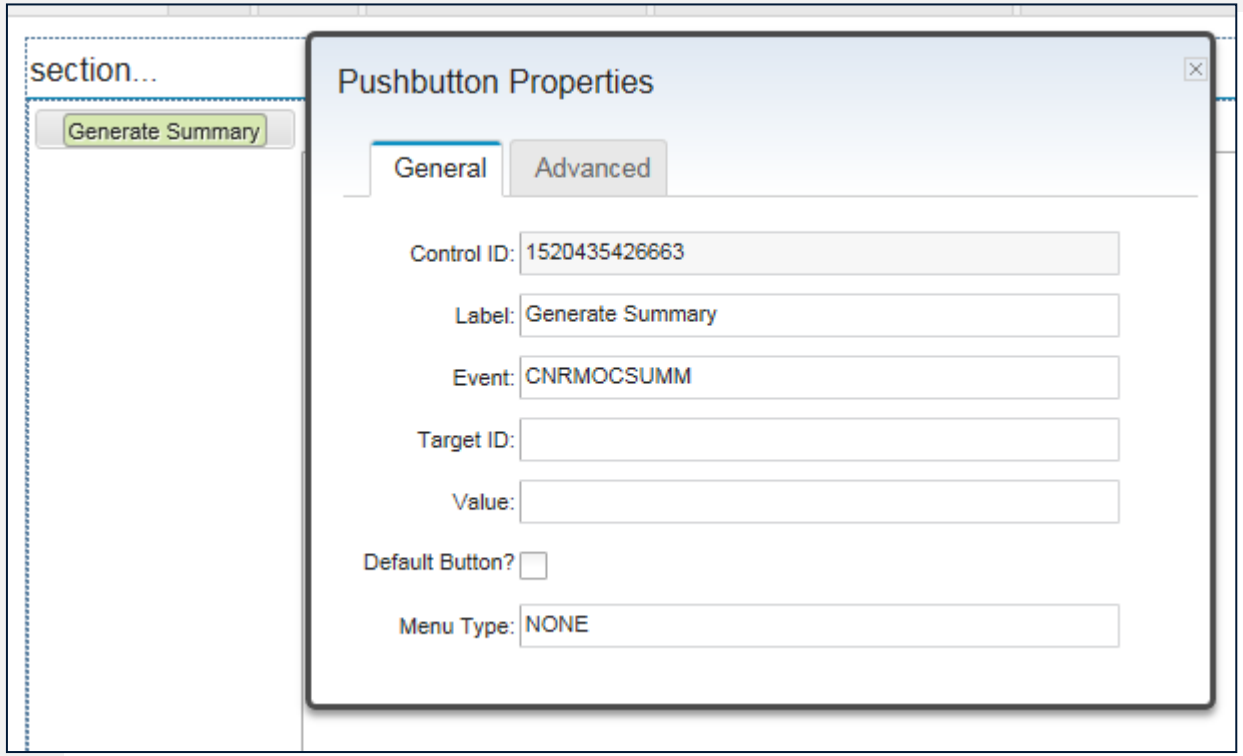


Add the button to the MOC or Incident Application to trigger the action.

Create a new signature option in the MOC application with the same name

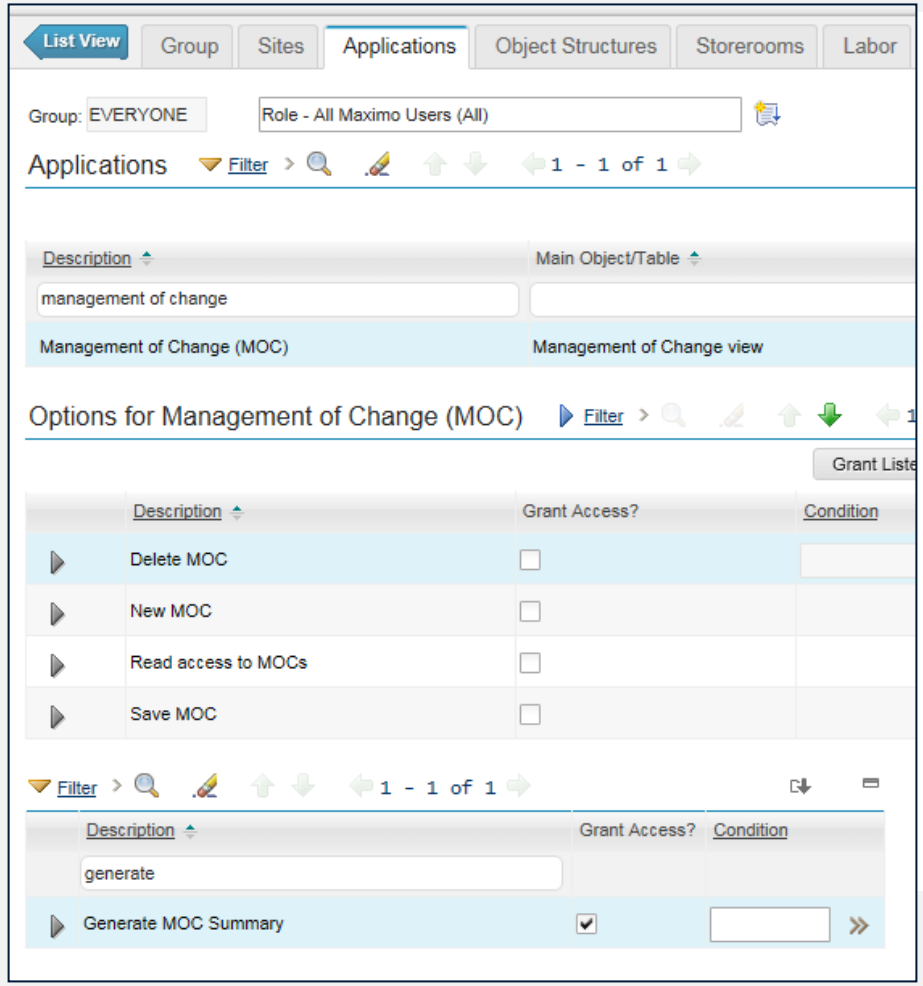


Creating a “Report” without BIRT



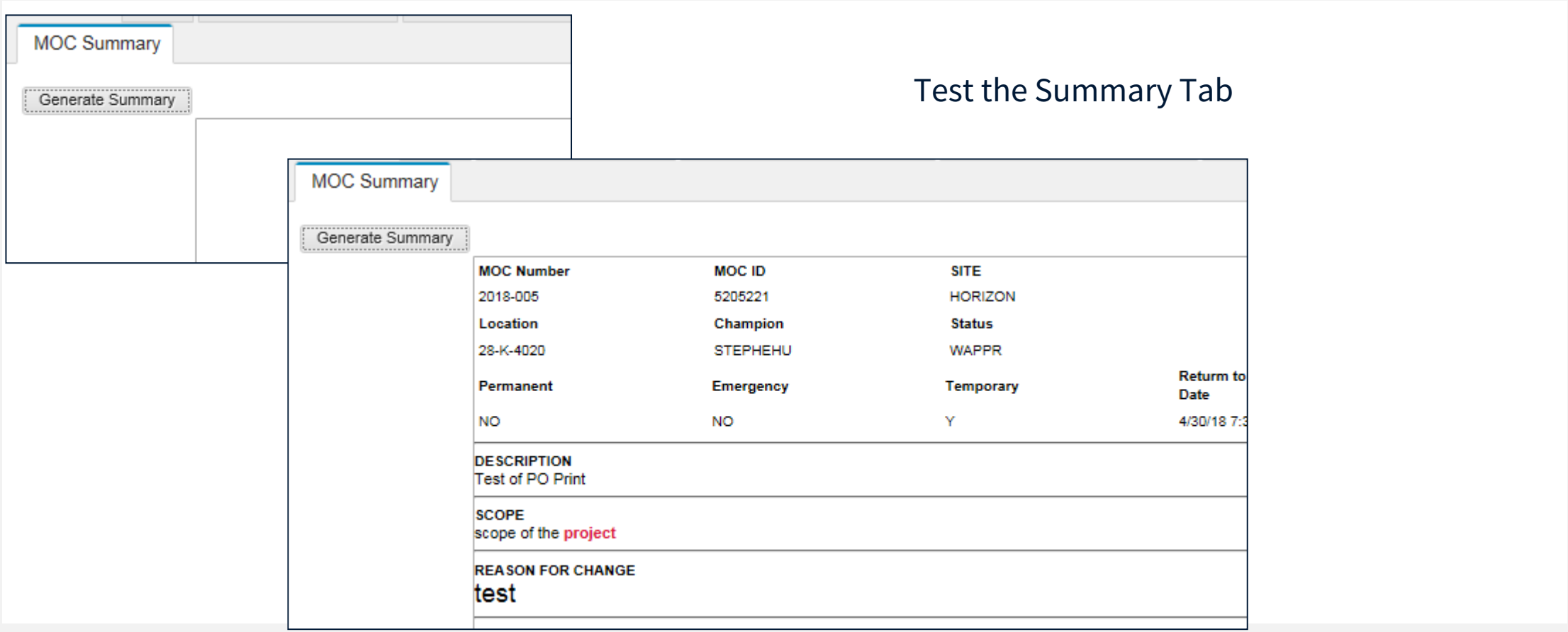
Add the button to the MOC or Incident Application to trigger the action.

Creating a “Report” without BIRT



Add permission to the Security Group to run the signature option associated with the Action.

Creating a “Report” without BIRT



Test the Summary Tab

Review of Learnings

You have learned the following skills through this training class:

1. How to set up and configure Eclipse
2. How to customize an existing report – add new attributes
3. How to customize an existing report – add new parameters
4. How to create a new report
5. How to define object structures for resultsets
6. How to create an HTML report using scripting, application design and actions
7. How to configure start centers with KPIs, KPI Groups, Bar Charts and Pie Charts
8. How to configure Maximo to allow data exports

Reference Materials and Links

Maximo BIRT Development Guide

https://www-01.ibm.com/support/docview.wss?uid=swg21678503

Eclipse Forum – Installing BIRT for Maximo

https://www.eclipse.org/forums/index.php/t/168259/

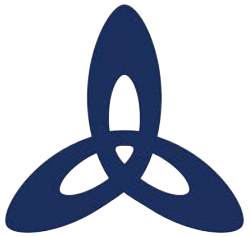
Scripting report execution in version 7.5 and above

https://www.ibm.com/developerworks/community/blogs/a9ba1efe-b731-4317-9724-a181d6155e3a/entry/scripting_report_execution_in_7_511?lang=en

THANK YOU!

Success! You should have learned how to create different reports in Maximo.

MAXTECH



Ask us a technical question:

maxtech@bpdzenith.com

www.bpdzenith.com/maxtech

MaxTECH is the first ever dedicated Maximo Technical User Group aimed at Maximo Administrators, Developers and Technical Support staff.

It is a great place for users to ask and answer technical questions, learn from each other, collaborate and help improve Maximo in your organization.

MaxTECH was founded in 2017 by BPD Zenith and is chaired by Maximo Consultant Stephen Hume. We host several events every year (Calgary, St. Louis, MaximoWorld, Houston, MUWG, Northern California MUG, Maximo UK & Ireland User Group) including digital events.

MaxTEACH is a free online user group designed to go in depth into a Maximo topic.