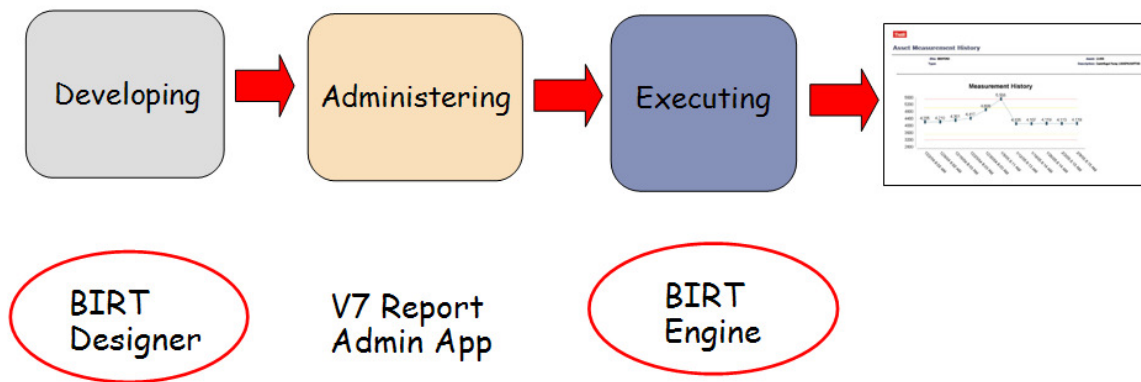


BIRT 232 Upgrade Overview

In the Base Services 7.1.1.5 Release, the embedding reporting tool, BIRT, has been upgraded to Version 2.3.2, which is based on Eclipse 3.4.2. In earlier releases of V7, BIRT 2.1.2 was used.

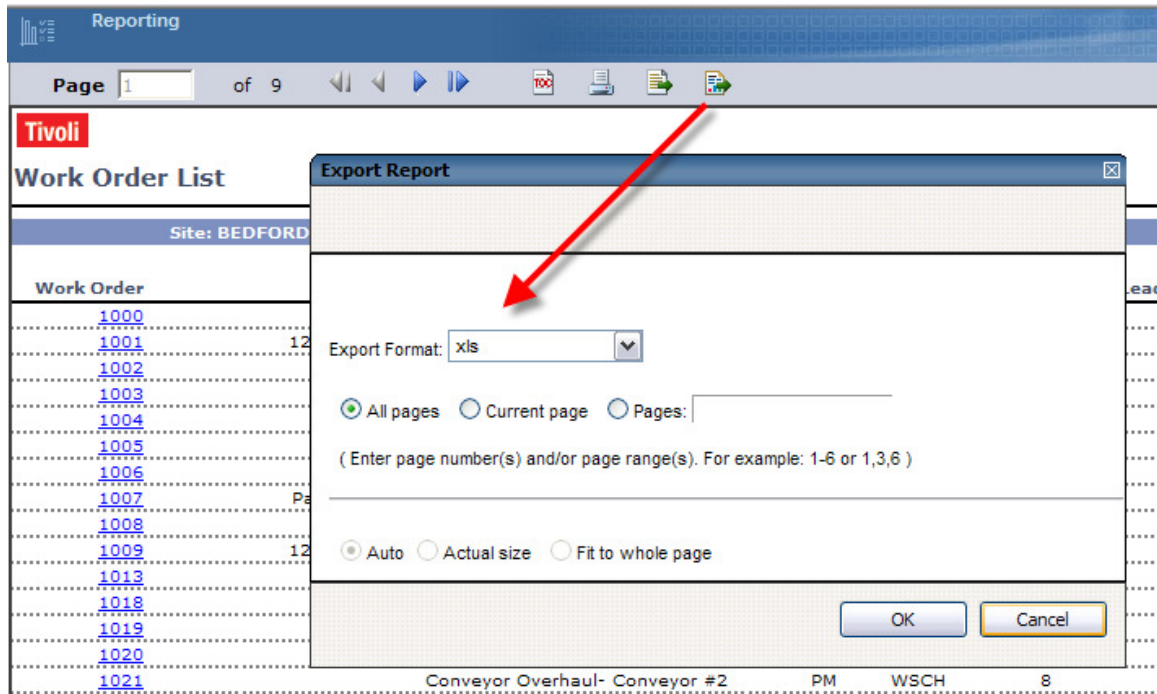
Upgrading to BIRT 232 enables multiple feature enhancements in both the BIRT Designer and BIRT Engine. The BIRT Designer is used by Report Developers to create and customize reports. The BIRT Engine is embedded within the V7 Release to enable report execution.



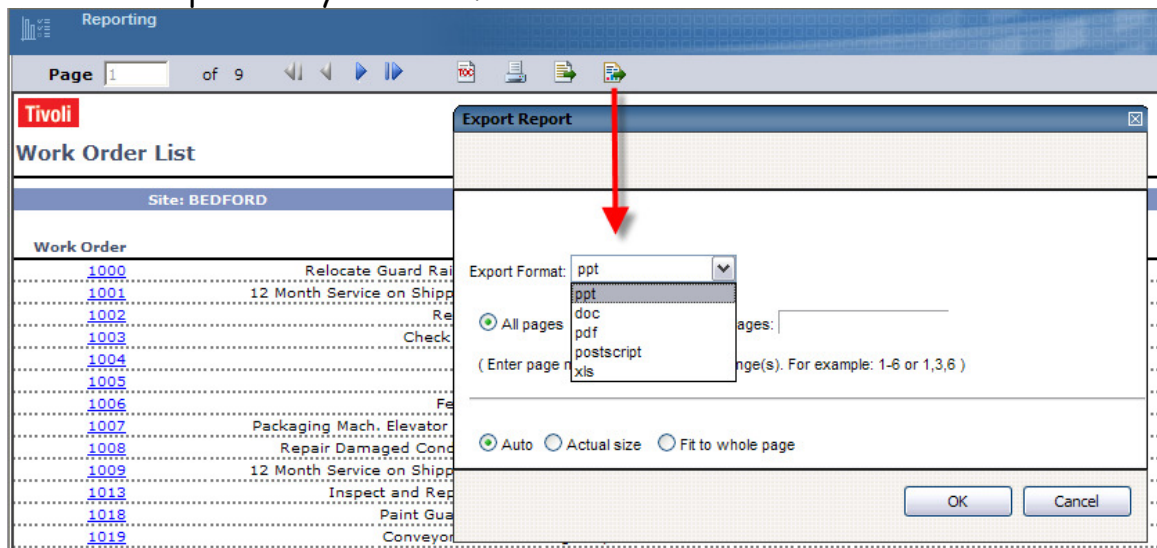
This document will detail the new features enabled in BIRT 232, and also discuss upgrade considerations for clients who have created custom reports.

BIRT Engine 2.3.2 - Enhanced Features

1. One of the most frequently requested report enhancements is the ability to download a report's data directly to excel. This feature is now available in BIRT 232 via the Export Report Option available in the report browser's toolbar.



Additionally, other file export formats are available including .doc, ppt, and postscript so users can select the file format that best meets their individual report analysis needs.

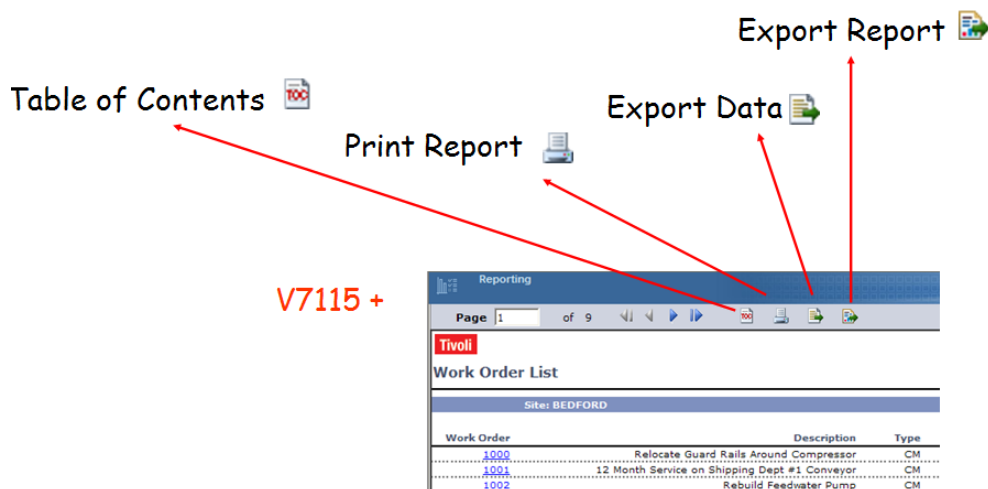


2. Bidirectional Text (BiDi) Support

BiDi support is enabled in the Base Services 7.1.1.5 Release for reporting thru the updated BIRT 2.3 version. Using the new customizable content direction, languages like English or Spanish can be written/read left to right (LTR) while Arabic or Hebrew languages can be written/read right to left (RTL).

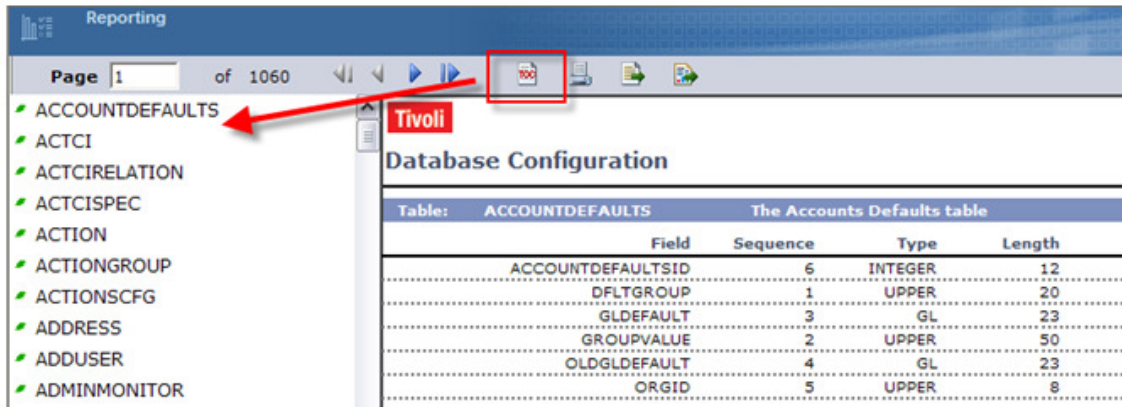
3 Expanded Toolbar Capabilities

The Report Browser Toolbar has been expanded upon to include 4 Unique Icons and Actions to meet the expanding needs of the Report User.

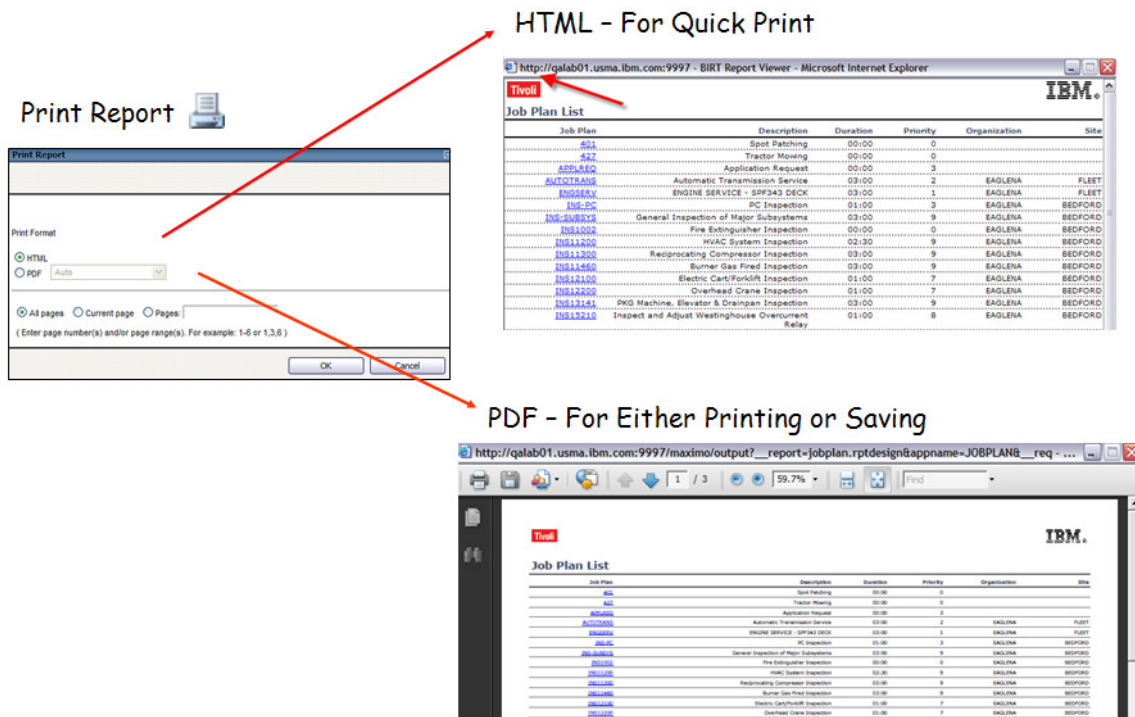


Each of these actions is described in detail below.

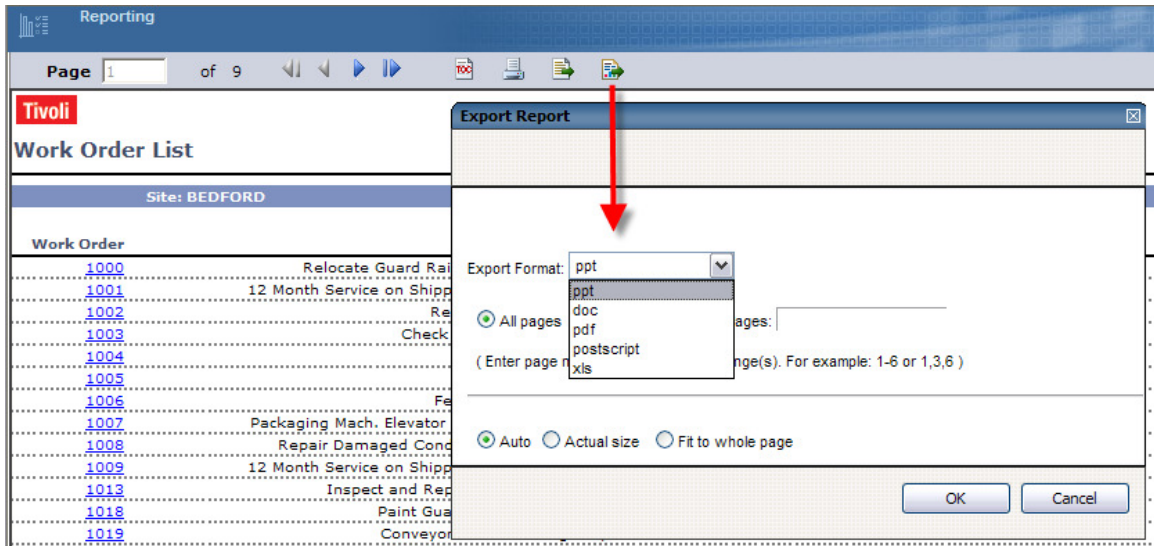
A. Table of Contents: Used to navigate thru a lengthy report's content quickly within the Report Browser.



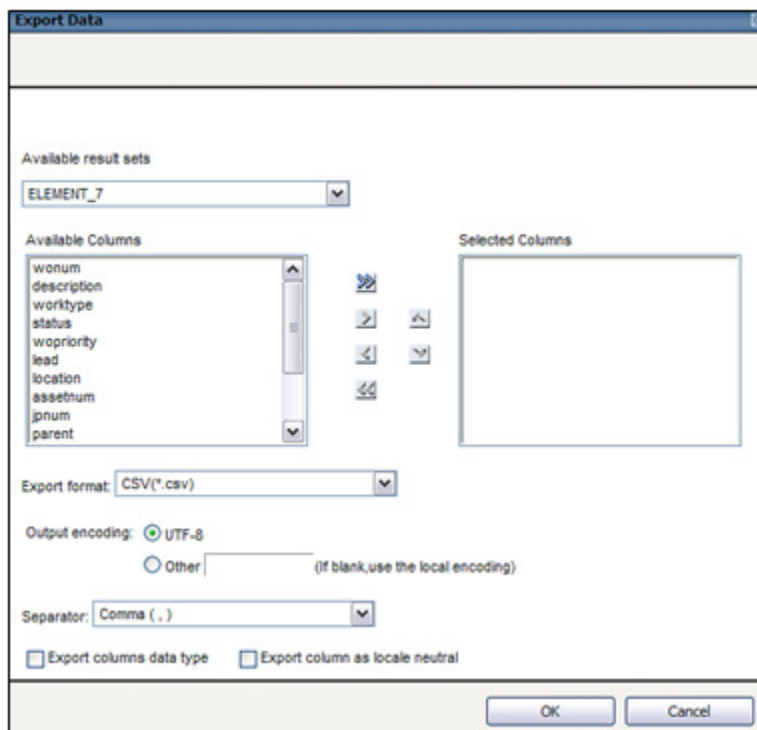
B. Print Report: Enables a 'quick' print of a report in HTML, or enables a report to be converted to pdf format for printing or saving.



C. Export Report: Enables entire content of report to be exported to a variety of file formats for additional analysis or saving for future reference. File formats include ppt, doc, pdf, postscript and xls.



D. Export Data: Enables specific portions of report to be exported to csv for additional data analysis.



BIRT Upgrade Considerations - Customized Reports

This section only applies to any customers who may have created or customized any BIRT Reports in Base Services 7.1.1.1 thru 7.1.1.4 using BIRT 2.1.2. If you have not created or customized any BIRT Reports in Base Services 7.1.1.1 thru 7.1.1.4 - you do not need to take any action.

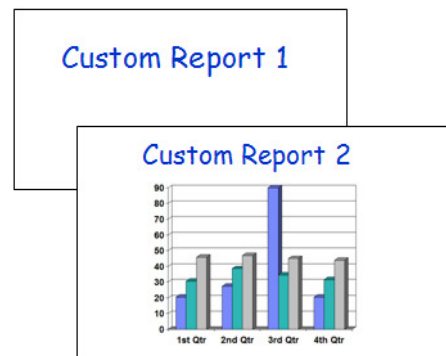
Our clients span a very large industry base and each has individual reporting needs. Therefore, reporting tools and report design file source is delivered to you so you can either create and/or customize reports to meet your individual business needs.

Due to changes made within the BIRT Designer 232, modifications may be required to report source files. The delivered out-of-the box report design files have been updated for these changes. However, if you have created any custom reports in BIRT 212, you may have to make some modifications to your design files. The section below details what the potential report upgrade impacts are, and how to modify your custom design files for BIRT 232.

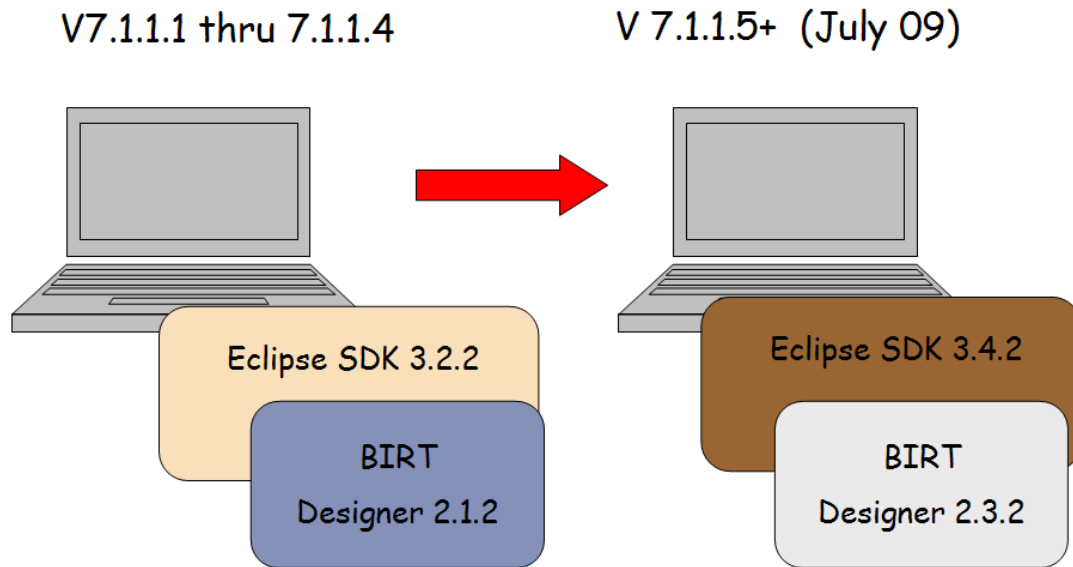
Delivered Reports Updated for
BIRT 232



*Client Custom Reports
May Need to be Updated*



Significant changes were made in the BIRT Designer from Version 212 to Version 232. These changes include a new Charting Package and tighter formatting business rules. Therefore, your custom BIRT 212 reports may need to be slightly modified to execute in Version 232.



Therefore, before beginning this report upgrade, please evaluate and follow both the Prerequisite and Upgrade Steps detailed below carefully. These steps include:

Prerequisite Steps:

- A. Making a backup copy of all your report source files
- B. Importing the report design files

Upgrade Steps:

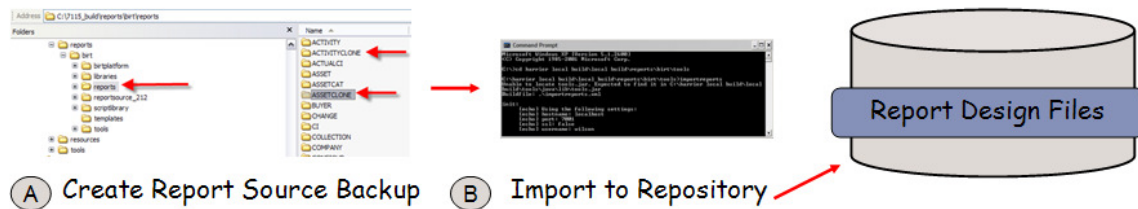
1. Understanding the potential BIRT 232 Report Design File Changes
2. Evaluating how best to identify potential changes to your custom report design files

Note: You can retain both versions of Eclipse and the BIRT Designer on your client machine.

Prerequisite Steps

This section describes the Prerequisite Steps to the Report Upgrade. These steps will enable you to create your custom report directory where you can then evaluate the BIRT Upgrade. The prerequisite steps are:

- A. Making a backup copy of all your report source files
- B. Importing the report design files



A. Making a backup copy of all your report source files

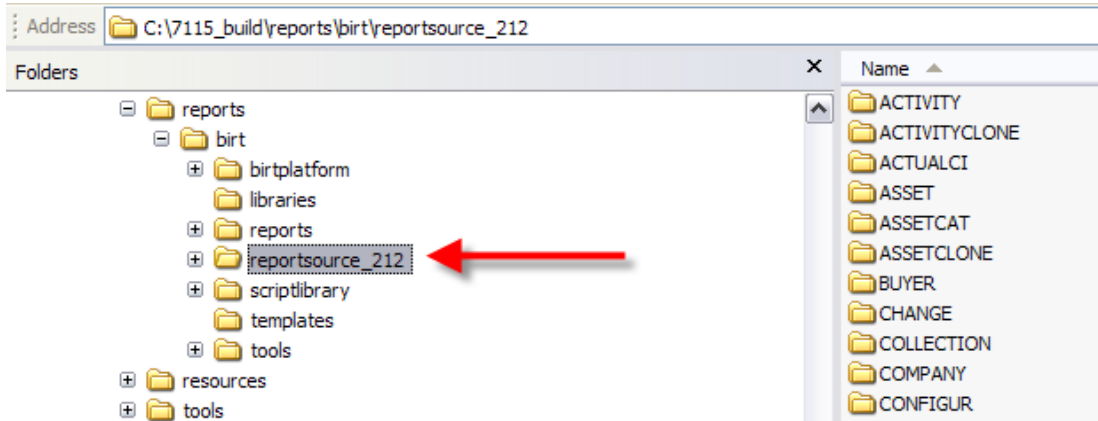
BIRT Reporting is upward compatible. This means that if a report is created in BIRT Designer 212, it will execute in a higher version of BIRT - which in our case is BIRT 232.

However, like many software products, BIRT Reporting is not backward compatible. This means that if you open a report source file in BIRT Designer 232 and save it, you will then be unable to open that same report source file in BIRT Designer 212.

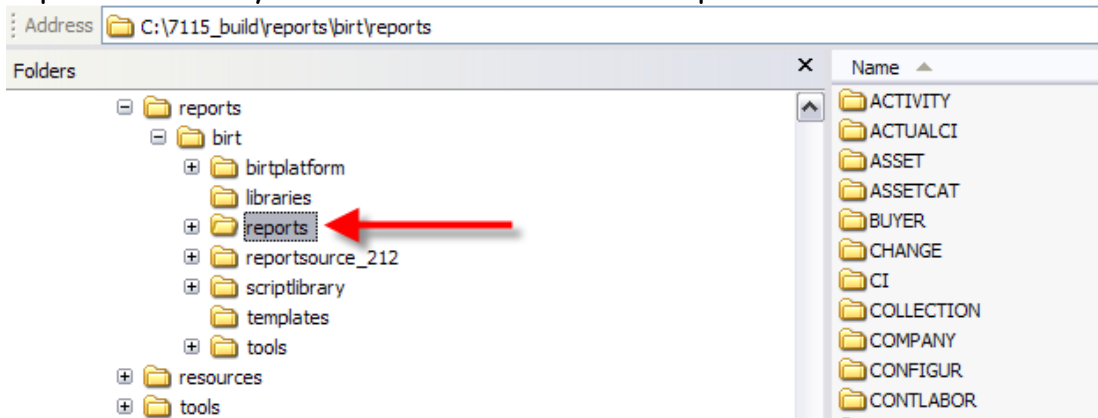
Therefore, before beginning the V7115/BIRT 232 report upgrade, make a backup copy of your report source in BIRT 212. This will enable you to refer back to your original BIRT 212 source in BIRT Designer 212 if needed. To do this, before performing the upgrade -

- A. Navigate to the location of your existing V7 Source <V7>reports\birt\reports

B. Make a copy of the reports subdirectory and rename it to include 212 for future reference

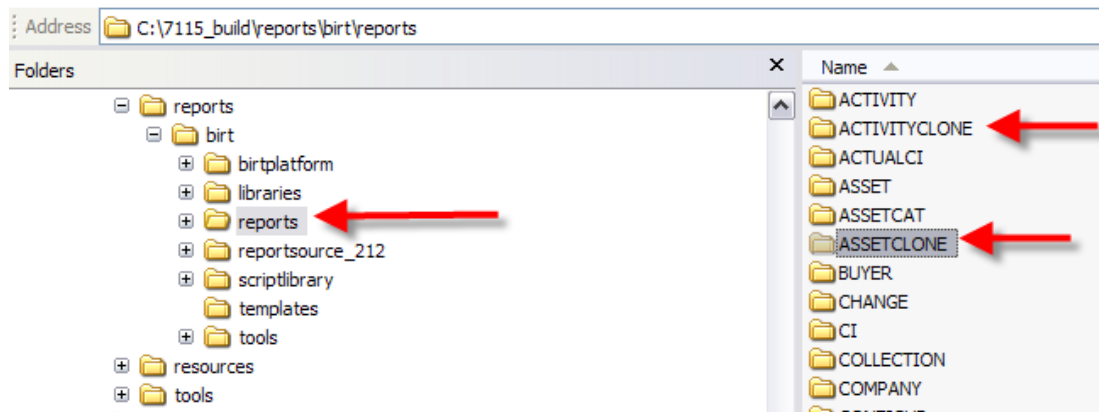


C. Next, perform the 7115 fixpack update. The fixpack will update the reports directory with the 'Out of the box' Report Source for BIRT 232.



D. Next, add your custom reports to the base V7115 reports directory. Locate any custom report folders or custom individual reports that you have created in the reportsource_212 directory. Copy them to the reports directory.

The example below shows 2 new report folders that were created - ASSETCLONE and ACTIVITYCLONE



E. Evaluate any out-of-the box (OOB) reports you have customized. If you want to use your customized report, copy it to the reports directory.

Note: If you do this and the same file name as the OOB Report is used, your customization will overwrite any updates made to the OOB Report for the BIRT 232 Release.

At the completion of these steps, the V7115 reports folder (<V7>reports\birt\reports) will have both the delivered 7115 reports (updated for BIRT 232) along with your custom reports and report folders created in BIRT 212.

B. Importing the Report Design Files

1. Next, import the updated report source file into the report repository, which is the V7 Database.

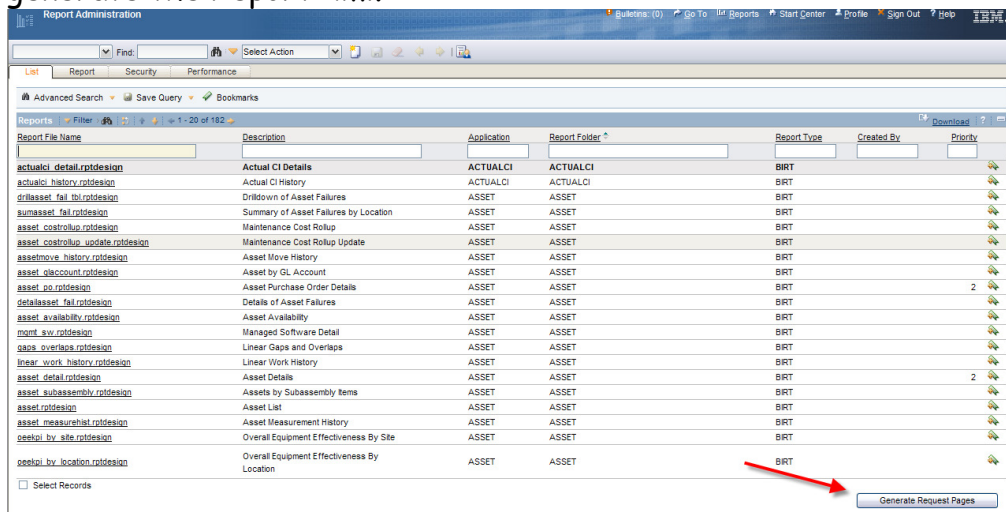
Browse to the location <V7>\reports\birt\tools.

Locate the reporttools.properties file, and update it for your applicable settings.

2. On the server, open a command prompt window and change to the folder <V7>\reports\birt\tools. Run the importreports.cmd command.

This utility will import all reports, libraries and resource files in the single Import File Action. Additional variations of this command are available if needed.

3. Then, log into the Maximo Based Environment as an Administrator. Go to the Report Administration Application, and click 'Generate Request Pages' to generate the Report xml.



The OOB Report Source, and any custom or new reports you have included are now imported and available in the V7115 Environment. This environment embeds the BIRT 232 Report Engine.

Upgrade Steps

This section describes the steps which can be utilized to evaluate potential report upgrade changes on your custom reports. These two steps are

1. Understanding the potential BIRT 232 Report Design File Changes
2. Evaluating how best to identify potential changes to your custom report design files

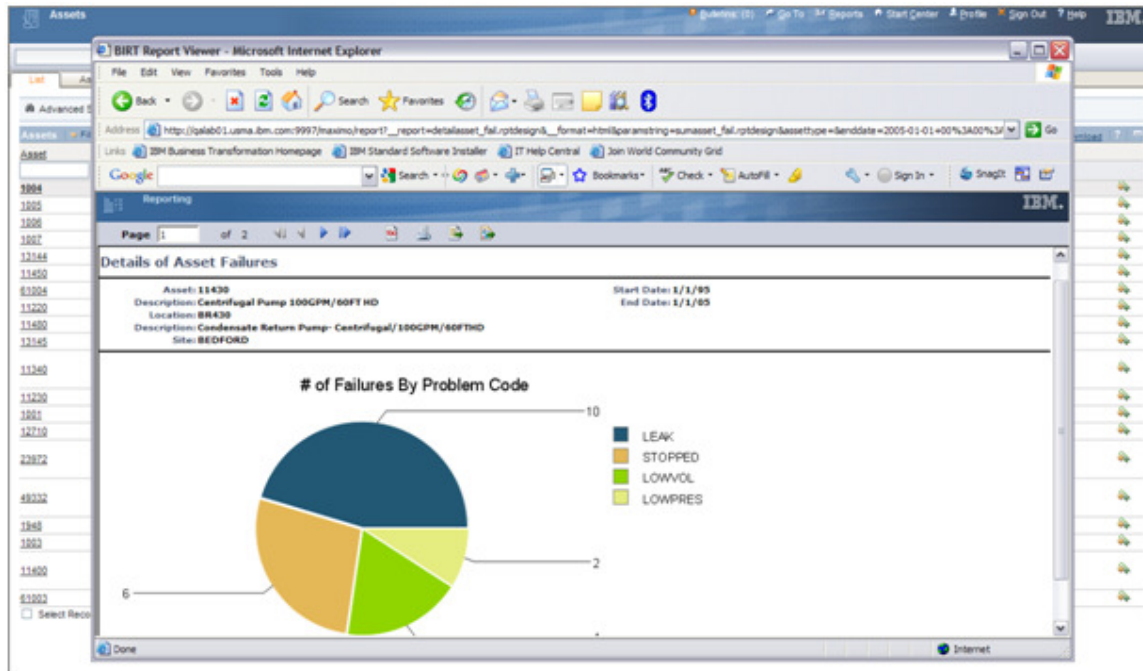
Understanding the potential BIRT 232 Report Design File Changes

After the report source has been imported, there are a variety of ways you can evaluate your custom reports to see if there is any upgrade impact in V7115 with BIRT 232. The options available are:

1. Execute Individual custom reports
2. Review Areas of Potential Changes
3. Utilize Upgrade Report Utility

1. Execute Individual custom reports

If you have a small number of custom reports, you may simply want to execute them from the V7115 environment to insure they display properly. When doing this, be sure to run the reports from within the Application they are registered to - not by performing the Preview Action from Report Admin.



2. Review Areas of Potential Changes

Another option to evaluate potential report upgrade changes is to review the 8 identified changes at the end of this document. This option can be used if you have a small number of custom reports, plus you are very familiar with how they were developed. If you outsourced the development of your reports and are not familiar with their development, this option would not be the best option for you.

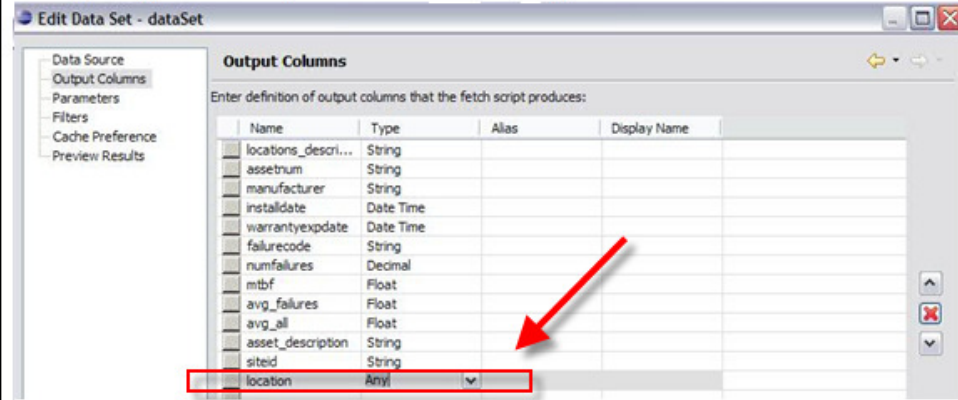
To use this option, evaluate the 8 potential changes which are identified beginning on page 20 of this document. As you evaluate them, identify any of your custom reports that may be impacted, and then make the applicable updates if necessary.

An example is shown below with the Any Data Type Example.

4. Any Data Type

Issue:
Errors seen when reports executed which containing fields using 'Any' Data Type. 'Any' was available in BIRT 212, however, it is no longer available in BIRT 232.

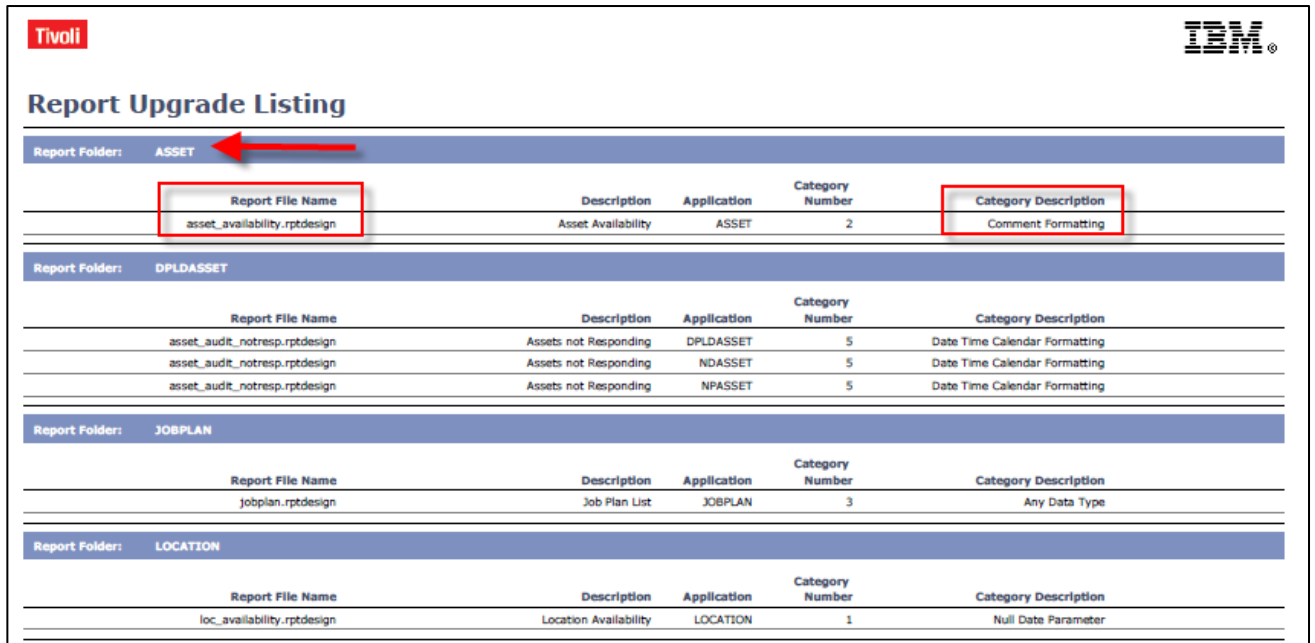
Resolution:
Change Type from Any to a defined data type.



Name	Type	Alias	Display Name
locations_descri...	String		
assetnum	String		
manufacturer	String		
installdate	Date Time		
warrantyexpdate	Date Time		
failurecode	String		
numfailures	Decimal		
mtbf	Float		
avg_failures	Float		
avg_all	Float		
asset_description	String		
siteid	String		
location	Any		

3. Utilize Upgrade Report Utility

Another option you have is to utilize the Upgrade Report Utility. To help you identify which of your custom reports may need to be updated, a new report has been developed. This report will analyze your custom code, and identify potential report upgrade issues.



Report Upgrade Listing				
Report Folder: ASSET				
Report File Name	Description	Application	Category Number	Category Description
asset_availability.rptdesign	Asset Availability	ASSET	2	Comment Formatting
Report Folder: DPLDASSET				
Report File Name	Description	Application	Category Number	Category Description
asset_audit_notresp.rptdesign	Assets not Responding	DPLDASSET	5	Date Time Calendar Formatting
asset_audit_notresp.rptdesign	Assets not Responding	NDASSET	5	Date Time Calendar Formatting
asset_audit_notresp.rptdesign	Assets not Responding	NPASSET	5	Date Time Calendar Formatting
Report Folder: JOBPLAN				
Report File Name	Description	Application	Category Number	Category Description
jobplan.rptdesign	Job Plan List	JOBPLAN	3	Any Data Type
Report Folder: LOCATION				
Report File Name	Description	Application	Category Number	Category Description
loc_availability.rptdesign	Location Availability	LOCATION	1	Null Date Parameter

Of the 8 potential upgrade areas which have been found, 5 can be found by using this report. The 5 areas that can be identified in the report are:

1. Null Date Parameter
2. Comment Formatting
3. Any Data Type
4. Null Comparison
5. Date Time Calendar Formatting

The other 3 areas - Report Graphics, Chart Multiplier and Expression Builder Null Values - are not identified in the report as each must be evaluated individually to determine if there is an issue or not. More details on each of these 8 areas are identified beginning on page 20.

To utilize the Upgrade Report, follow the steps below.

A. Register: To use the Upgrade Report, first create a new report entry in the Report Administration Application. Register the report using the entries shown below:

Report File Name: report_upgrade.rptdesign
Description: Report Upgrade Listing
Application: Report
Report Folder: Report

No Parameters or Settings Required.

The screenshot displays the 'Report Administration' application window. The 'Report' tab is active, showing a form for registering a new report. The form fields are as follows:

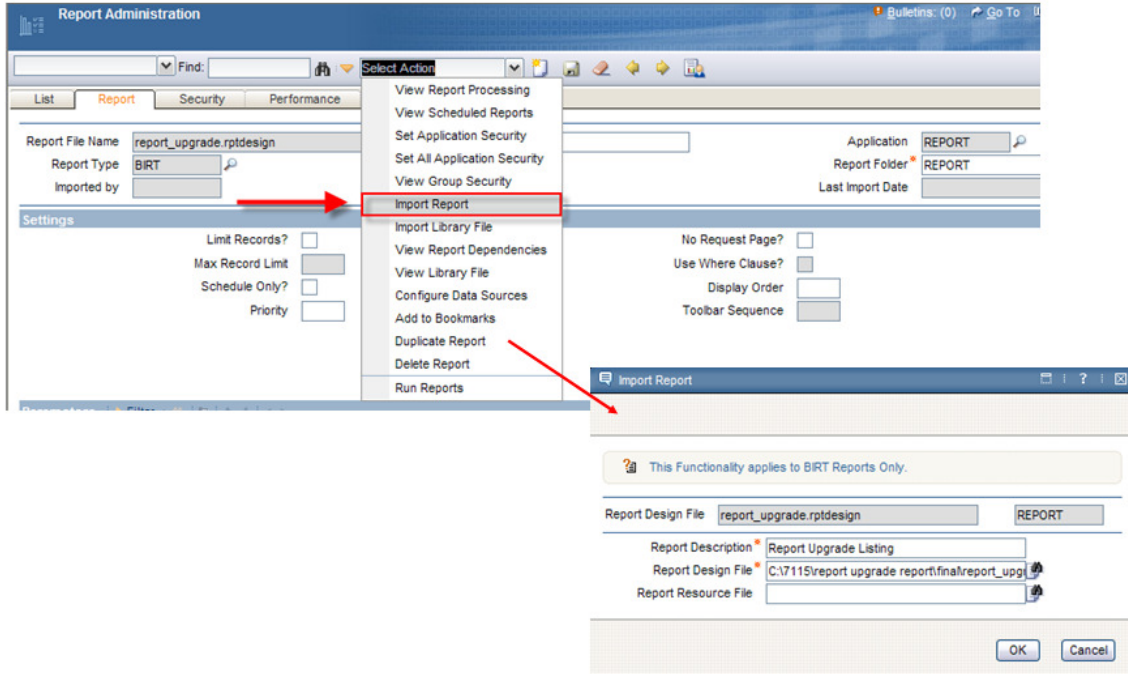
Report File Name	report_upgrade.rptdesign	Description	Report Upgrade Listing
Report Type	BIRT	Application	REPORT
Imported by		Report Folder	REPORT
		Last Import Date	

Below the form is a 'Settings' section with various checkboxes and input fields:

- Limit Records?
- Max Record Limit
- Schedule Only?
- Priority
- No Request Page?
- Use Where Clause?
- Display Order
- Toolbar Sequence
- Browser View?
- Browser View Location* NONE
- Direct Print?
- Direct Print Location* NONE
- Direct Print with Attachments?
- Direct Print with Attachments Location* NONE

At the bottom, there is a 'Parameters' section with a table that currently shows no rows. A 'New Row' button is located at the bottom right of the parameters table.

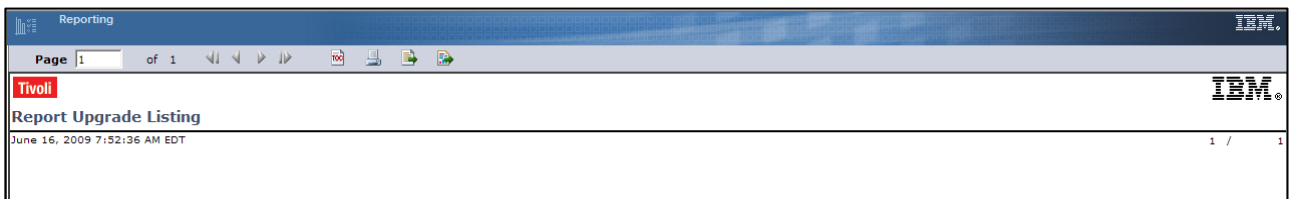
B. Import: Next, import the Report Upgrade Report into the Repository, or the V7 Database. Do this by accessing the Import Report Action from Report Administration.



C. Execute. Next, Execute the Report Upgrade Report from within the Report Administration Application.

When the report is executed, it may not display any results. If no results display, it means that the 5 identified potential report upgrade issues were not found in your custom reports.

However, if your custom reports contain graphics, please be sure to run the graphic reports individually to insure no problems display.



If the report does return results, it has found potential issues with your custom reports. In these cases, be sure to evaluate the identified reports, in addition to any other custom reports that may contain graphics.

Tivoli **IBM**

Report Upgrade Listing

Report Folder: **ASSET**

Report File Name	Description	Application	Category Number	Category Description
asset_availability.rptdesign	Asset Availability	ASSET	2	Comment Formatting

Report Folder: **DPLDASSET**

Report File Name	Description	Application	Category Number	Category Description
asset_audit_notresp.rptdesign	Assets not Responding	DPLDASSET	5	Date Time Calendar Formatting
asset_audit_notresp.rptdesign	Assets not Responding	NDASSET	5	Date Time Calendar Formatting
asset_audit_notresp.rptdesign	Assets not Responding	NPASSET	5	Date Time Calendar Formatting

Report Folder: **JOBPLAN**

Report File Name	Description	Application	Category Number	Category Description
jobplan.rptdesign	Job Plan List	JOBPLAN	3	Any Data Type

Report Folder: **LOCATION**

Report File Name	Description	Application	Category Number	Category Description
loc_availability.rptdesign	Location Availability	LOCATION	1	Null Date Parameter

The highlighted example above indicates that the Asset Availability Report has an issue with the formatting of its Comments. This report is stored within the ASSET Report folder.

In this case, the developer should open this report in BIRT Designer 232, correct the issue, save and then re-import the existing design file.

After insuring the report displays correctly, the Report Upgrade Listing can then be executed again, and the Asset Availability Report should no longer display.

This last section describes the changes you may have to make to your custom design files in 232 in order for them to execute properly in the updated BIRT 232 Product.

Note: Information on Installing and Configuring BIRT Designer 2.3.2 is contained in 'birt_designer_232_config.pdf' file.

1. Null Date Parameter

Issue

If your report contains a date time parameter value, an exception error may occur which includes text like....

A BIRT Error occurred: Error evaluating Javascript expression. Script engine error: TypeError: Cannot convert null to an object.

This error occurs because BIRT handles blank values and null differently, like null and empty string. BIRT 2.3.2 will throw an exception if a DATETIME parameter has blank value - but it will allow null for the DATETIME parameter.

Resolution

In order to avoid these exceptions with 232, code has been added to Base Services 7115. The code will check if a parameter is a datetime parameter. Datetime parameters are identified where REPORTLOOKUP.LOOKUPNAME = 'datelookup'

If the parameter is a datetime (and user does not enter a value in Request Page), null values will be passed. This will occur if the parameter is optional or required, and bound or unbound.

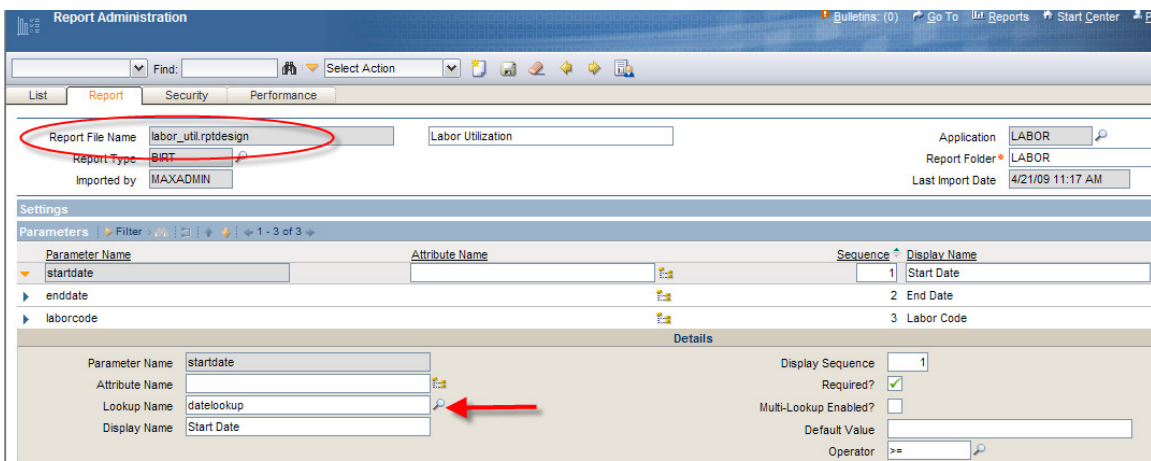
However, to enable this code to function correctly, *any DATETIME parameters you have in your custom reports MUST use the datelookup*. This value is set for the specific report within its reports.xml file, and available thru the UI in the Report Administration Application. This is shown below for the Labor Utilization Report within the Labor Application.

Reports.xml example file located in <7115>\report\birt\reports\LABOR

```
<report name="labor_util.rptdesign">
  <attribute name="filename">labor_util.rptdesign</attribute>
  <attribute name="description">Labor Utilization</attribute>
  <attribute name="norequestpage">0</attribute>
  <attribute name="detail">0</attribute>
  <attribute name="reportfolder">LABOR</attribute>

  <parameters>
    <parameter name="startdate">
      <attribute name="attributename"></attribute>
      <attribute name="lookupname">datelookup</attribute>
      <attribute name="sequence">1</attribute>
      <attribute name="labeloverride">Start Date</attribute>
      <attribute name="defaultvalue"></attribute>
      <attribute name="required">1</attribute>
      <attribute name="hidden">0</attribute>
      <attribute name="operator">&gt;=</attribute>
      <attribute name="multilookup">0</attribute>
    </parameter>
    <parameter name="enddate">
      <attribute name="attributename"></attribute>
      <attribute name="lookupname">datelookup</attribute>
      <attribute name="sequence">2</attribute>
      <attribute name="labeloverride">End Date</attribute>
      <attribute name="defaultvalue"></attribute>
      <attribute name="required">1</attribute>
      <attribute name="hidden">0</attribute>
      <attribute name="operator">&lt;=</attribute>
      <attribute name="multilookup">0</attribute>
    </parameter>
  </parameters>
</report>
```

And the Labor Utilization's corresponding entry in the Report Admin App.



2. Comment Formatting

Issue:

Developers often add comments to their report design files to explain logic or define changes they have made. Prior releases enabled single forward slashes to be used to identify comments. However, now in BIRT 232, only double forward slashes can be used.

Therefore, if a report design contains comments enclosed in /* and */, it may now fail with a java.lang.StackOverflowError message.

Resolution:

Either remove the comment, or use // on each line to indicate comments entries

```
mxReportScriptContext = MXReportScriptContext.initialize(reportContext);  
// Calculate the portion of the downtime that is not included in the user-entered date range  
// so it can be excluded from the total downtime.  
function calc_downtime_excess(asset, wonum, fix_date, user_start_date, downtime, datasrcName, assetSite)  
{  
    var fail_date;
```

Examples:

Out of the box reports that were updated for this issue in 7.1.1.5 include:
asset_availability.rptdesign (Asset), package_definition.rptdesign
(Deployment Manager), person_details.rptdesign (Person),
service_target_compliance.rptdesign (SLA)

3. Any Data Type

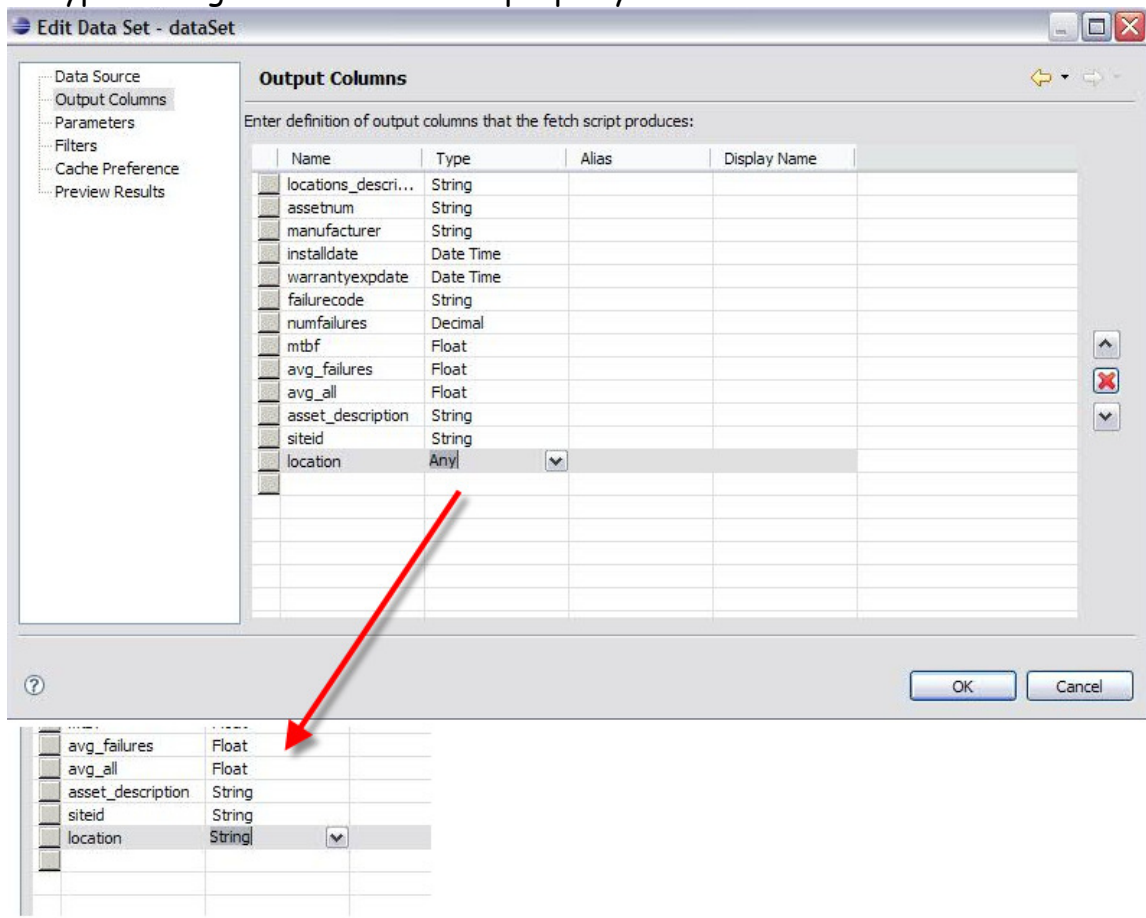
Issue:

The 'Any' Data Type was available in BIRT 212, however, it is no longer available in BIRT 232. Therefore, errors may be seen when reports are executed containing fields using 'Any' Data Type.

Resolution:

Change Type from Any to a defined data type.

The screen shots below show an 'Any' type originally specified and updated to type 'String' so it can execute properly in 232.



Examples:

Out of the box reports that were updated for this issue in 7.1.1.5 include: jobplan.rptdesign (JOBPLAN), listtabl.rptdesign (CONFIGUR), reportusage.rptdesign (REPORT)

4. Null Comparison

Issue

When executed from the browser, either no data is seen in a report, or unexpected data is displayed. This is caused by a null failure comparison.

Resolution:

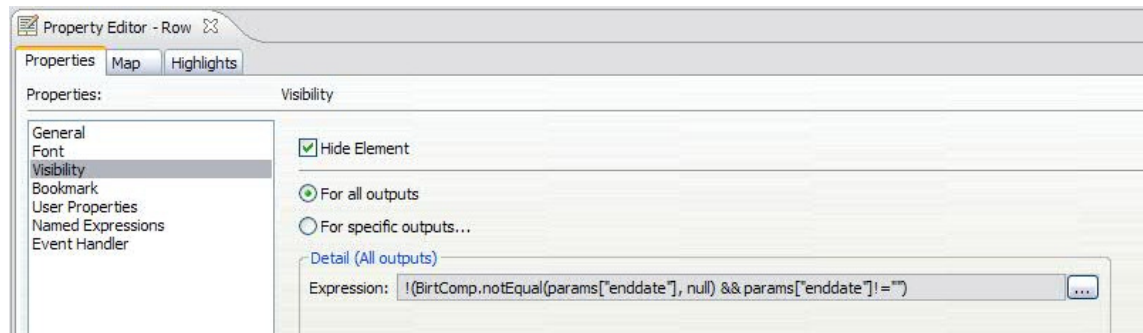
Update null comparison expressions.

Change from expressions using
java object standard == or != null

To

BirtComp.equalTo(<value>,null), BirtComp.notEqual(<value>,null)

An example of an updated expression is shown below using the Summary of Asset Failures located in the Asset Subfolder.



5. Date Time Calendar Formatting

Issue:

If DateTimeSpan Method used to perform data calculations, you may receive incorrect date values in report. This was seen when the data calculations involved addition or subtraction.

Resolution:

Use GregorianCalendar Method

Examples:

Out of the box reports that were updated for this issue in 7.1.1.5 include:
asset_audit_notresp.rptdesign (DPLDASSET)

6. Report Graphics

Issue:

Due to the new graphics packages introduced in BIRT 23, we found that approximately 50% of the graphic reports created in BIRT 212 had to have their graphics modified for them to display properly in BIRT 232. These changes including swapping axis or changing the way columns were mapped. Additionally, the changes were found to impact all report graphic types - whether bar, pie, line or column.

Resolution:

Due to the unique nature of each report design's graphic, this has to be handled on a report-by-report basis. The level of changes required was found to vary significantly.

Examples:

Out of the box reports that were updated for this issue in 7.1.1.5 include: loc_availability.rptdesign (Location), sw_usage.rptdesign (DPLDASSET), asset_availability.rptdesign (Asset)

7. Chart Multiplier

Issue:

Chart Values display improperly as 0 and 1% instead of proper values of 45 % (example) and 100%

Resolution:

Multiply graphic values by 100% as highlighted in text below

```
<FormatSpecifier xsi:type="attribute:NumberFormatSpecifier">  
  <Prefix></Prefix>  
  <Suffix>%</Suffix>  
  <Multiplier>100.0</Multiplier>  
  <FractionDigits>0</FractionDigits>
```

Examples:

Out of the box reports that were updated for this issue in 7.1.1.5 include:
asset_availability.rptdesign (Asset)

8. Expression Builder Null Values

Issue:

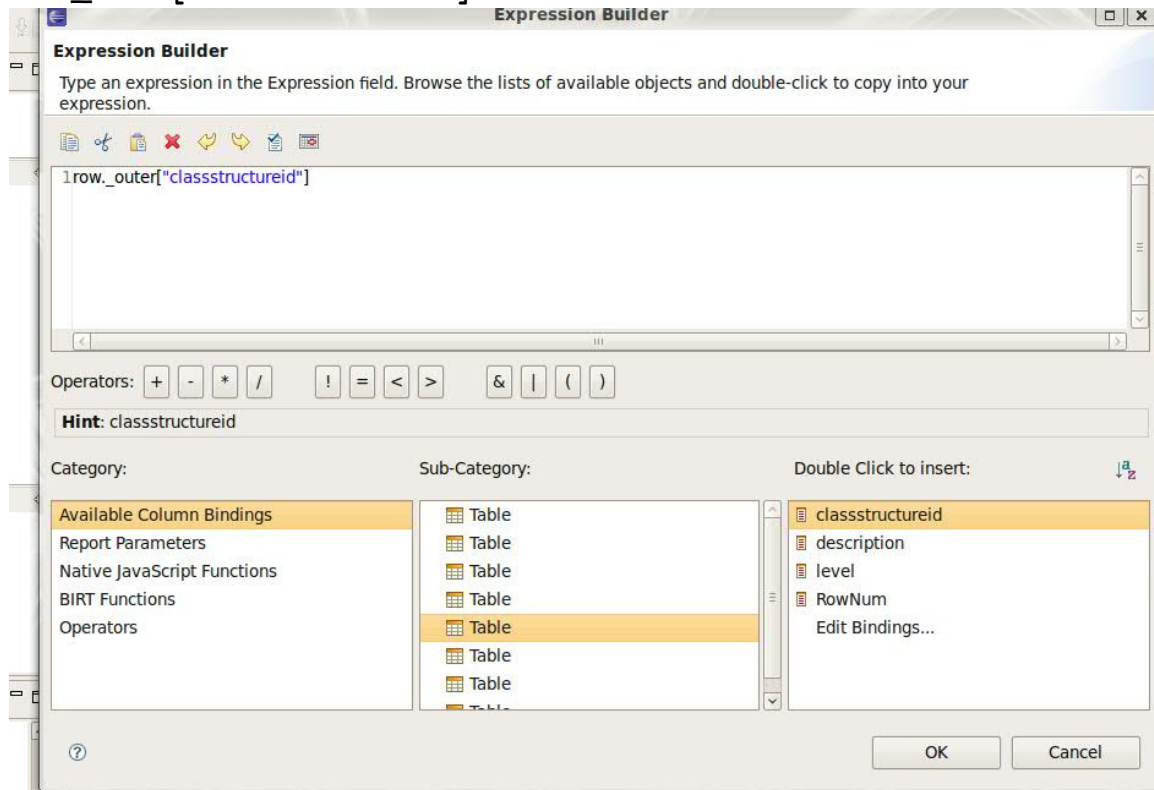
When reports execute thru multiple tables - often seen in hierarchy reports like Job Plan Hierarchy or Work Order Hierarchy - null values are returned.

Resolution:

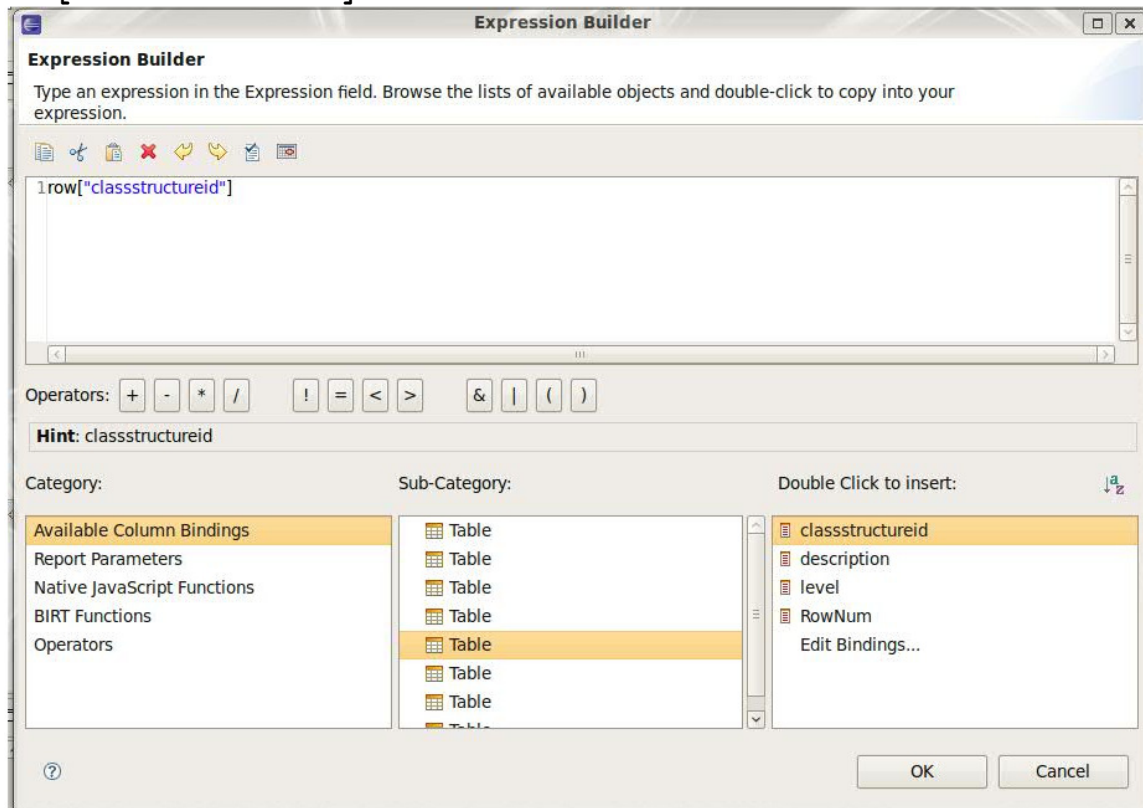
Update syntax used in Expression Builder

From:

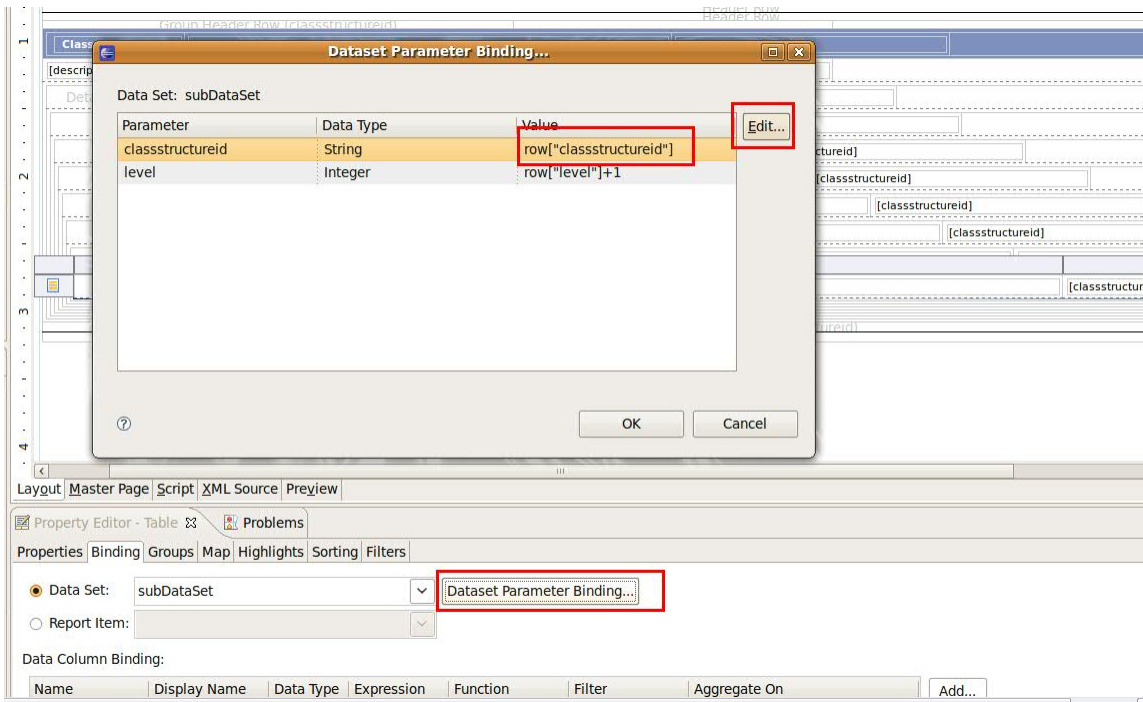
`row_outher["classtructureid"]`



To:
row["classtructureid"]



****Update must be done on column binding data set parameters to outside**



Revision History:

9/09 - Added Note on page 8: You can retain both versions of Eclipse and the BIRT Designer on your client machine.