IBM® Tivoli® Software

Maximo Asset Management – Version 7 Releases

Maximo Secondary Database Configuration for Reporting

Document Version 4

Pam Denny Maximo Report Designer/Architect



© Copyright International Business Machines Corporation 2013.

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Revision History

Date	Version	Revised By	Comments
December 2013	4	PD	Updated diagrams, formatting and noted that if you configure a reporting database for ALL reports – this includes QBR reports
January 2010	3	PD	Format Updates
October 2009	2	PD	Updates include (1) Information on how to configure all reports to execute from external, reporting database
September 2009	1	PD	Updates include (1) Additional information for BIRT 232 used in V7115 (2) Updated example and screenshots (3) Added note that application server must be shut down after configuring new data source (4) Additional logging information

Document Overview

To respond to today's dynamic Business Environment critical business information needs to be immediately available. This business information can come in a variety of formats, and often includes Enterprise and Ad Hoc reports.

To configure your environment to respond to these dynamic needs, you may want your reports execute from a separate, reporting database. This separate, external database may be a snap-shot of your production, transactional database, and is sometimes referred to as an external, replicated or reporting database.

Using reporting databases can reduce the load on your production, transactional database and lead to performance improvements. These performance improvements can be especially noticeable for complex reports.

This document will detail two methods that this can be configured. The first method will detail how all reports can be configured to execute against a reporting database, and the second method will detail how a portion of the reports can execute against the reporting database

*Note: This document only applies to Maximo QBR (Ad Hoc) and BIRT Enterprise reports.

Configuring ALL reports

Configuring ALL Reports to execute from separate, Reporting Database

You may want all of their reports to execute from a separate, reporting database as a performance enabler. Within Maximo's Report Administration application, you can configure this type of configuration.

*NOTE: If you configure the environment detailed below – where a separate reporting database is configured for ALL reports – this means that all Maximo QBR Ad Hoc reports and BIRT enterprise reports - will execute against this secondary database. This includes both the process of creating QBR reports, and also executing them once they are saved.

The example below details this. In this scenario, the Production Database that the Maximo applications utilize is Database A. Database B has been set up as the external, reporting Database that ALL Maximo reports will execute against.



By default, reporting uses the database values defined in Maximo's System Property Application. These values include the database URL, driver, username, password, and optional schema name. In reporting, this value is known in reporting as the 'maximoDataSource'. Therefore, the default value of maximoDataSource needs to be updated to the new, reporting datasource.



Configuration Steps

To enable this configuration, follow the steps below:

1. Log in as an administrator. Go to the Report Administration application.

2. From the Action Menu, select 'Configure Data Sources'. Create a new entry with the Data Source Name of 'maximoDataSource'. Make sure to use the exact text and case used for the Data Source Name of 'maximoDataSource'.

Define the URL/Driver, Database Username, Password, and Database Driver with the values from the reporting database (Database B). Test the connection and save.

🖳 Configure Data So	urces					×
This functionality app	lies to BIRT Reports only. Use this	action to regi	ster external databases which re	eports can execut	te against.	
Data Source 🕨 Fi	lter > 🎊 🚍 🛧 🐳 🔶 1 - 1 of 1	÷			Download ?	۲
Data Source Nar	ne	Descriptio	n		Test Connection	
 maximoDataSou 	rce	maximoDa	ataSource		Test Connection	Ì
			Details			
Data Source Name	maximoDataSource		Database User Name*	maximo		
Description	maximoDataSource		Database User Password*	•••••		
Database URL*	jdbc:db2://qa14:50000/DB2123		Database Schema Owner	maximo		
Database Driver*	com.ibm.db2.jcc.DB2Driver]			
					New Row	
					OK Cancel	

- 3. Stop and restart the application server.
- 4. Finally, execute reports to confirm that it uses the data from the secondary data source.

5. You can perform a quick test to confirm this configuration change by following an example similar to what is described below.

1. Utilizing a database sql tool, change a simple value in the reporting database. This example modifies a value from the Purchase Order Table

update po set ponum = 'test1005' where ponum = '1005'.

2. Then, from the Purchase Order application, search for ponum 1005. Notice that PO # from the transactional database A shows its original value of 1005.

3. Next, execute a corresponding report using this field. In this case, the Purchase Order List report is executed. When it runs, it should pull its data from the reporting database where its ponum is test1005.

Notice in the screenshot below this is correct. The PO # from the transactional database in the application is 1005. The PO # from the reporting database displayed in the report is test1005.



Configuring SUBSET of reports

Configuring a subset of the reports to execute from a separate, reporting database

Unlike the first scenario where all reports are configured to execute from a separate reporting database, you may instead only want a subset of your reports to execute from a separate, reporting database. This may be done for their very complex reports, like Maintenance Asset Cost Rollup, or for reports that are not as reliant on high volumes of transactional data.

To detail how to do this, an example using an Asset List report will be detailed. The Asset List will execute against the production, transactional database. A separate report, called External Asset List, will execute against an External Database.



These two reports will then be executed in an environment where multiple data sources are configured.



Prerequisites: This document assumes that either BIRT Designer is installed and configured on a client machine. Additionally, the Report Source is available to the developer making the configuration changes.

Below are the steps to configure a report to the external, reporting database:1. Determine the external data source information. In this example, it is called 'external'.

2. Update the mxreportdatasources.properties file with the external database information. This file is used in BIRT Designer to connect to the data sources. Depending on the version of BIRT you are using the file location may vary slightly. The location of the BIRT 232 file is shown as an example below.

For BIRT 232 <eclipse>\plugins\org.eclipse.birt.report.viewer_2.3.2.r232_20090212\birt\WEB-INF\classes

3. Update the file for any external database that will be used. The first entry (maximoDataSource) is the default, which is the production database used in the Maximo environment. These updates made for the external database are shown below in red.

maximoDataSource.url=jdbc:db2://localhost:50001/UDBPD maximoDataSource.driver= com.ibm.db2.jcc.DB2Driver maximoDataSource.username=maximo maximoDataSource.password=maximo maximoDataSource.schemaowner=maximo

external.url=jdbc:db2://qadb04.usma.ibm.com:50000/db29winb external.driver=com.ibm.db2.jcc.DB2Driver external.username=maximo external.password=maximo external.schemaowner=maximo



3. If you do not already have the database drivers for the replicated database loaded, copy them via the steps below.

Copy From:

The jdbc driver files are located in <Maximo>\applications\maximo\lib

Copy To:

Depending on the database, copy the Oracle, Sql Server or DB2 JDBC Drivers to the following folder:

Depending on the version of BIRT you are using the file location may vary slightly. The location of the BIRT 232 file is shown as an example below. C:\birt_232\eclipse\plugins\org.eclipse.birt.report.viewer_2.3.2.r232_20090212\birt\WEB-INF\lib

4. Note: This next step is optional. It is *only* being done here to give a quick, visual indication to shown in a non-production environment that the report displays data from the external database. Therefore, a unique asset record is created in the Production, transactional database (maximoDataSource) via backend sql scripts.

update asset set assetnum = 'E13180' where assetnum = '13180'



5. Open up the Asset List report in the Designer tool. Rename it to asset_external.rptdesign and save.

Report Design - 7115/ASSET/asset_external.rpti	design - Eclipse Platfo	rm:				
File Edit Desert Generit Deta Fage Navigate Search	Project Run Window H	eb				
🗇 Palette 🚺 Date Explorer 🖾 🏥 Ressarte Explorer	" II annt	external.rptdesign 21				
	1 · · · · · · · · · · · · · · · · · · ·	Asset List				
			THEOREM	LINAMORE		Past
		Torontom]daraipites]	Second of	(ineer)	(perest)
	2.44.2					

Under Data Explorer, expand the Data Sources view. The maximoDataSource is displayed by default.

This is the data source that will be changed to a database external to the Maximo Production database. It is going to reconnect to the external database, called external.

6. To update the data source, highlight maximoDataSource, then open up the XML Source view of the report.



7. Starting at the top of the XML File, search for the value maximoDatasource using CTRL F. You should see the line below.

```
<script-data-source name="maximoDataSource" id="64"
extends="MaximoSystemLibrary.maximoDataSource"/>
```

Update the text with the new DataSource Name, and remove the reference to the MaximoDataSource. The updated text displays below.

```
<script-data-source name="external" id="64" />
```

8. Continue to search on maximoDataSource, and you should next find <property name="dataSource">maximoDataSource</property>

Update the text to

```
<property name="dataSource">external</property></property>
```

9. Go back to the Layout view and the warning below will display. Click Yes to save the changes.

War	ning	\mathbf{X}
į	XML Report Design source has been changed. Do you want to save the changes?	
	Yes No Cancel	

10. Expand the Data Sources under Data Explorer, and external now displays as the Data Source.
 Report Design - 7115/ASSET/asset_external.rptdesign - Eclipse Platform

File Edit Insert Element Data Page Navigate Search Proj	ject Run Windo	w Help				
1 📑 • 🖾 🗠 1 🞕 • 1 🕵 • 1 😆 🛷 • 1 🖢 - 🖇	- 🍫 🗇 - :	\$ - 1	~			
😵 Palette 😫 Data Explorer 🖾 🏛 Resource Explor	asset_exterr	nal.rptdesign 🖾				
 □ @ Data Sources □ @ external ⊕ @ Data Sets ⊕ Data Cubes ⊕ @ Report Parameters 		Asset List	2 · · · 2 · · · · · · ·	. 3	• • 4 •	
	[<u></u> 1	Asset	Description	Location	Bin	Parent
		[assetnum]	[description]	[location]	[binnum]	[parent]
	~					

11. Preview the report in the design tool to make sure it is NOT picking up the asset number of E13180 used in the Transactional Database. It should be picking up the Asset Number of 13180 used in the External Database. Save the report.

BIRT Report Viewer BIRT Report Viewer Showing page 2 of 13	
B B B Showing page 2 of 13 13144 Carton Escapement Assembly #1	
Showing page 2 of 13 13144 Carton Escapement BPM3100 13140 Assembly #1 Assembly #1 BPM3100 13140	
13144 Carton Escapement BPM3100 13140 Assembly #1	
13145 Indexing Drive Assembly BPM3100 13140	
13150 Top Breaker System BPM3100	
13160 Filler And Lifter System BPM3100	
13170 Top Sealer System BPM3100	
13180 Lubrication System 🚤 BPM3100	
1866 Windows XP Operating System	
1867 Microsoft Office XP Pro	
1869 Microsoft Office XP Pro	
1870 Windows XP Operating System	

12. Next, sign in as an administrator in your Maximo instance that is configured to use the Transactional Database as highlighted in the red box below.



13. From the Transactional instance, access the Report Administration application. Click on 'Configure Data Sources' from the Action Menu. Enter the values to connect to the external data source. Click 'Test Connection' to make sure the Data Source is configured properly. When complete, click OK.

Report Ada	niustration					(1. No. (1)) (2)
	M Fee	dh 😤 Salas	Addini 😹 🗍	12 2 - A 2 10 1		
Report	t Securey	Performance				
Advanced Sea	nch 🗧 🕌 Save Quer	y = 🖉 Bookmarka				
- it - the	PL	*				
sant Cite. Marce		Destr	loties .		Scalarian Inter	Heant Falter
	Tartfgart Deta Ge	works-				
	Construction and and and and and and and and and an					
Select Record	This functionality app	des to BRT Reports on	by Use this action to regis	ter external databases which	reports dan exe	ecute apairst
		te i i i i i	NYCENT-			Contrast 1777
	Data Source He		Description	1		Teal Connection
	- lexternal		external	weeking the	1	Test Connection
	Tata Cause Dama"	automati-		Delabora Una Nacio	* Inservices	1
	Description	external		Detabase User Password		
	Database URL	incole Vallet use	A BIR CON SECONDON	Database Schere Owner	-	
	Delabers Driver	cemilion stil2 (cc. DB2D	river			/
			C Roman Disease		-	Iare Row
					-	
						OK Cancel
			BEDGAAT3331- Success	N/V connected to The data as	INTER.	(Lanc) (Lance)
			201321506-667.00		5729	
					0	et.a

14. In the Report Administration application, open up the existing asset list report (asset.rptdesign).

- a. Duplicate it.
- b. Update its report file name to asset_external.rptdesign.
- c. Additionally, rename it so you can quickly identify it when accessed from the application.

(Or you could import the report thru the import utilities if you modify the reports.xml file located in <Maximo>\reports\birt\reports\ASSET)

B.C. Precision Research and an		AND CALIFORNIA CONTRACTOR AND ADDRESS AND
international and a second sec		
Stand Tarline Add Control (1976) Second Stand (1996) Teacher Stand	Accelerate Acceleration of Acc	
Line Universite 7.	bis cent Unit 7 2 (Hack Hell) Disc Hell Adaministic 1 Trained Headmine	Brown for Landon (1997) Star Hel Landon (1997) Cont Ret of Hermite Landon (1997) Cont Ret of Hermite Landon (1997)
There has a second	Indentif ¹ Bark Min In over 6 dame	Bushi (

15. From the action menu, import the design file. (Or you could also import the External Asset List Report via the import utilities.) Grant security to the report, generate its request page and save.

16. Next, shut down and restart the server so the new data source can be recognized.

17. Sign back in. Go to the Asset application. Filter on record 13180. Notice that only record E13180 exists in the transactional database/instance.

												- Weine Bellin	CON CREESEN	ar we broke in a	2211
		red	曲	Select Action		Q (2)		1-5-75	COMPANY S	00	18 v I				
101	Asset	Spara Parta	Sately	Yistara.	Specifications	10				110000					
li Advano	ed Search	🖬 Save Query	900	unaria.											
180	1	Operation	20_		1		LECK	80		arent	1	Rotalina te	9	Site -BEDFORD	
12100	10000	Lubricat	tion System				BPM	1998						BEDFORD	

18. Run the original 'Asset List' report which is configured to execute against the original transactional database. Asset Number E13180 correctly displays.



Assets		a a construction of the second se	<u>B</u> ulletins: (0)
\	Find: Se	lect Action 🛛 🝸 🚽 🖉 I 🔅 🔅 🖓 🦄 🖏 🖏 🥼 🕼 📳	. 9
List Asset	Spare Parts Safety	Meters Specifications	
Advanced Search	Save Query 👻 🖉 Bookmark		
	a care adding	Reports	3
ssets 💗 Filter 🕅			
sset	Description		_
2480	Lubrigation Custom	2. Calcular second from the Est or effek Crocks Depend to enable an at her second	
		On Demand Reports Scheduling Status Reports to Run Filter Description External Asset List Linear Gaps and Overlaps Linear Work History	
		Linear work History	
		Maintenance Cost Rollup Update	
		Create Report Cancel	

19. Next, select the External Asset List Report to execute.

20. When the External Asset List report executes, it displays the data from the external data source – Asset Number 13180. This is correct.

Tivoli, software											IBM.
Asset List	annosh										0.0993740404
Acost	Bescription	Locafiae	Rin.	Parent	Type	Status	Priority	Batatiog Item	Lipeas Accel?	lastal fate	
				100227-0014	10000000	NOT READY	1.4	and the second second	N.	8/37/88	

Finally, note that you can see what data source the report connects to through the application's console or log files.

To do this, in the Logging Application, set the birt logger to its lowest level: DEBUG. *Make sure to set the birt logger – not the report logger. The report logger applies to any report type, and will not give you the birt report information needed.

Crue Crue Crue	Bat	ERROR	140	5au		Aska	
010 070	rlaskrigt	ERROR	1917				
crus crus rep	rtoskingr Historia	ERROR			1	2	
rep	thereinste		P	log4, legger maximo pror	ntaskogr	. E	
rep	cannot be a second s	ERROR	- P	log4j beger meximo eqle	orontaaking-	图 :	1
	ort	ERROR	140	log4j.logger.maximo.	report	()	
	arity	ERROR	A.	log4), logger maximo, eeo:	arty	E	
90		ERROR	- p	log4j lugger maximo.sgi		8	
			Detai	la contraction of the second			
i.	gger report			Key logit lagger max	streat report		asver 1
Logi	Level EPROR		Worked	Appenders Consoli			
				Appenders	1		
							New Ro
-	The do = a a =1-Tatle					10.0	-tuer 1
1.00	H.	LOGIER		50%		Active	
-	1	1.000	P.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		P.	

Additionally, update the maxlogger thru a sql querying tool using the script below: update maxlogger set loglevel='DEBUG' where logkey like 'log4j.logger.maximo.report%'

Then, when the report is executed, you can view the connection to the secondary, external datasource. The example below shows this from a Websphere log file.

🕞 SystemOut.log - Notepad 📃 🗖	×
File Edit Format View Help	
2 21 Sep 2009 12:35:55:187 [DEBUG] Added active report thread: [WebContainer : 0], Is this a ScheduledJob? = false, reportJobI	1
0 21 Sep 2009 12:35:57:750 [DEBUG] Report Queue Manager about to execute queued Jobs	
0 21 Sep 2009 12:35:57:750 [DEBUG] Report Queue Manager is idle	
0 21 Sep 2009 12:35:58:453 [INFO] DataSet [dataSet] open called.	
0 21 Sep 2009 12:35:58:453 [INFO] DataSource [external] getConnection called	
0 21 Sep 2009 12:35:58:453 [INFO] DataSource MXReportScriptContext = com.ibm.tivoli.maximo.report.script.MXReportScriptConte.	
0 21 Sep 2009 12:35:58:734 [INFO] Runtime DataSource [external] connection = com.ibm.db2.jcc.t4.b@f520f52	
2 21 Sep 2009 12:35:58:921 [INFO] DataSet [dataSet]: select assetid, siteid, assetnum, description, location, binnum, parent, assett	
0 21 Sep 2009 12:35:59:000 [INFO] DataSet [dataSet]: select propulue from maxpropulue where servername = 'COMMON' and pr	
0 21 Sep 2009 12:35:59:000 [INFO] DataSet [dataSet] Bind index [1] = setting.NO_EN	
0 21 Sep 2009 12:35:59:562 [INFO] DataSet [dataSet]: select propulue from maxpropulue where servername = 'COMMON' and pr	
0 21 Sep 2009 12:35:59:562 [INFO] DataSet [dataSet] Bind index [1] = setting.YES_EN	
0 21 Sep 2009 12:35:59:656 [INFO] DataSet [dataSet] close called.	

The following lists additional references available at the time this guide was prepared. To locate these documents, access this IBM Maximo Wiki Page:

https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/IBM%2oMaximo %2oAsset%2oManagement/page/Reporting%2oDocumentation

or its shortened url of http://t.co/3qgidEXj6L

This page contains the latest listing of report reference materials, including description, revision levels and hyperlinks to the documentation

Document Name	Description	Version	Reference	eRevision	Postian	BLog* Posting
				ſ	Doto	
/75 Alepártillöpitlet	Contains listings, lise names, descriptions, details in parameters, formatting (provping, sorting) and a pdf copy of each of the OOB (Out of the Box) Delivered Reports	7.5	1497942		428/2011	Evitored Reports
v71 ApportSocial	Contains listings, file names, decorptions, details on parameters, formating (grouping, sorting) and a pdf copy of each of the OOB (Out of the Box) Delivered Reports.	7.1	1305005	4	12/28/2009	1
v7 Detvered Report Companion	Comparison of the delivered reports from the Maximo 5x, 7.1 and 7.5 releases	7,1,7,5	1555745		10/3/2011	Vithat's in and Cut
775 Wegurt Feakur Gurte	Ostals how the embedded report engine is utilized, including a review of the the structure, installation and database structure. Includes information on Security, Scheduling, Administration, Queuing, and Property Files.	7.5	1498433	a	0/20/20/12	
(71 Réport Feature Guide	Details how the embedded report engine is utilized, including a review of the file structure, installation and database structure. Includes information on Security, Scheduling, Administration, Queuing, and Property Files	7.1.8	1305029	10	3/15/2012	
VTE GBR Ad Hoc Reporting	Details how users can Create and Execute Ad Hoc Reports, and the Administrative setup work involved, including how to create Report Object Structures.	7.5	1499285	8	1/4/2013	
V71+ CBR Ad Hoc Reporting	etails how users can Create and Execute AdHoc Reports, and the Administrative setup work involved, including how to create Report Object Diructures.	7.1.1.8-	1417417	7	1/14/2013	



© Copyright IBM Corporation 2013 IBM United States of America Produced in the United States of America US Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing IBM Corporation North Castle Drive Armonk, NY 10504-1785 U.S.A.

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PAPER "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes may be made periodically to the information herein; these changes may be incorporated in subsequent versions of the paper. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this paper at any time without notice.

Any references in this document to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing IBM Corporation 4205 South Miami Boulevard Research Triangle Park, NC 27709 U.S.A.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol ([®] or [™]), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at http://www.ibm.com/legal/copytrade.shtml.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

Linear Tape-Open, LTO, the LTO Logo, Ultrium, and the Ultrium logo are trademarks of HP, IBM Corp. and Quantum in the U.S. and other countries.

Other company, product, or service names may be trademarks or service marks of others.