IBM Maximo Asset Management
Report Logging

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Overview

Within the Maximo ® Version 7 suite of products, BIRT, Business Intelligence and Reporting, is the embedded reporting tool. As the embedded reporting tool, BIRT enables the deepest level of embedded reporting functionality among all the other reporting options that are available, like Cognos Reporting and the External Report Integration.   For more details on the various report options, see the 'V7 Report Upgrade Planning Guide' referenced at the end of this document.

The embedded reporting functionality includes hundreds of out of the box reports, one click direct print and many other performance and security features that deeply embed the BIRT reporting product among the various Maximo applications.

As the embedded reporting tool, logging information is available to report administrators and developers. This information is critical to assist them in any troubleshooting or debugging that they might have to do.

This document explains the report logging features available to report developers and administrators. It starts by reviewing the features available to report developers within the BIRT report designer, and then reviews the features available to report developers and administrators from within the Maximo applications.

Logging within the Report Design Tool

You can log information about the report that you are developing within the BIRT Report Design Tool. This logging is used only when you preview a report within the Report Design Tool.

To do this, access the Report initialize method, and add the following two lines of code:

```
mxReportScriptContext.setDefaultLogLevel("DEBUG");
mxReportScriptContext.setDefaultLogFile("c:/temp/myreport.log");
```
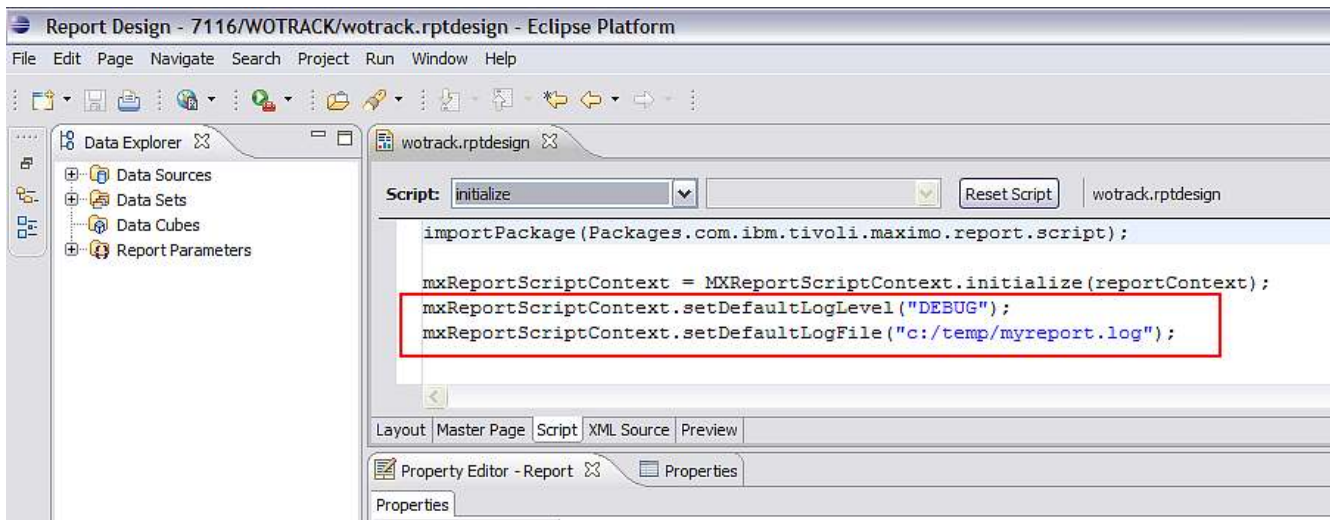

Five different log levels are supported, which are DEBUG, INFO, WARN, ERROR, FATAL. These levels are described in more detail below. Since this logging is primarily used for debugging report design issues, it is recommended that you use the DEBUG level.

Replace the file path location shown here as "c:/temp/myreport.log" with the file path for your individual environment.

Note: This logging is not used when executing a report from the Maximo applications. Once your report runs, you do not need to remove this logging.

Additionally, to log custom information, you can use the mxReportScriptContext variable to get a script logger, which can then be used throughout your report. You can add this to the report initialize method also as shown here.

```
scriptLogger = mxReportScriptContext.getReportScriptLogger();
if (scriptLogger.isDebugEnabled())
{
        scriptLogger.debug("***My Debug Message ****");
}
```
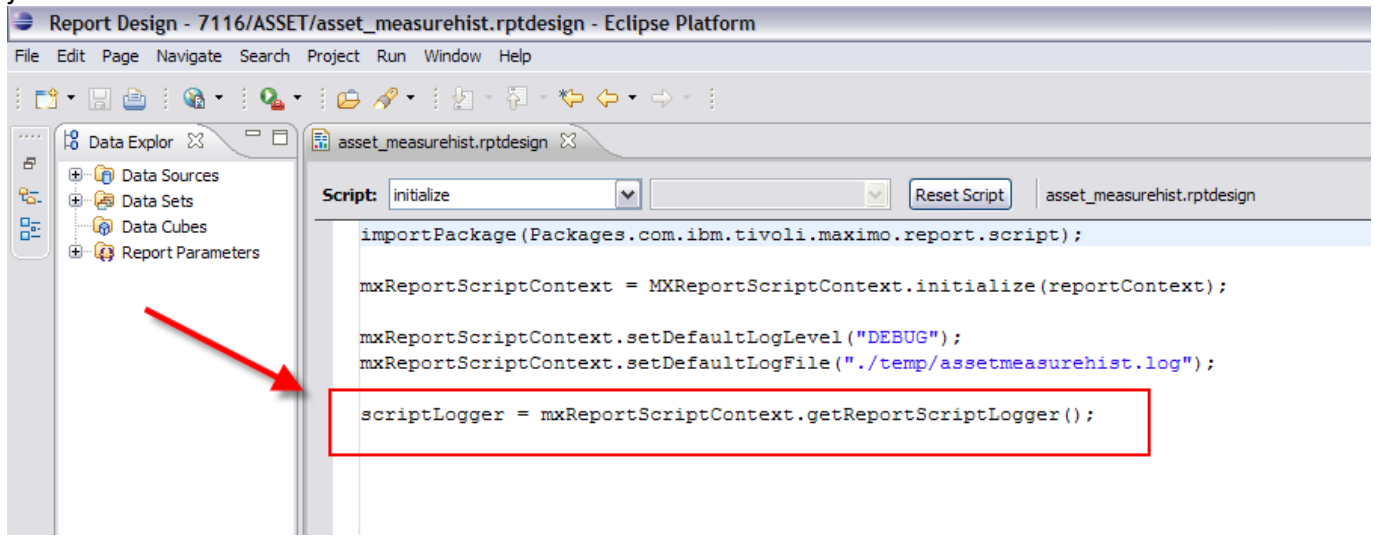

Unlike the default logging, these logging messages are written to the Maximo log files when the report is run from within Maximo.   In this case, the default log level specified in the report is ignored. Instead, the maximo.report.birt log level from Maximo is used.

You can use any of the following methods below from ReportLogger to log information.
```
        boolean isDebugEnabled();
        boolean isErrorEnabled();
        boolean isFatalEnabled();
        boolean isInfoEnabled();
        boolean isWarnEnabled();

        void debug(Object message);
        void info(Object message);
        void warn(Object message);
        void error(Object message);
        void fatal(Object message);
```

Report Designer best practices for debugging

1. Preview reports by using the Web Viewer - View Report Section within the BIRT report designer. This displays the closest representation to report execution from within the various Maximo applications.
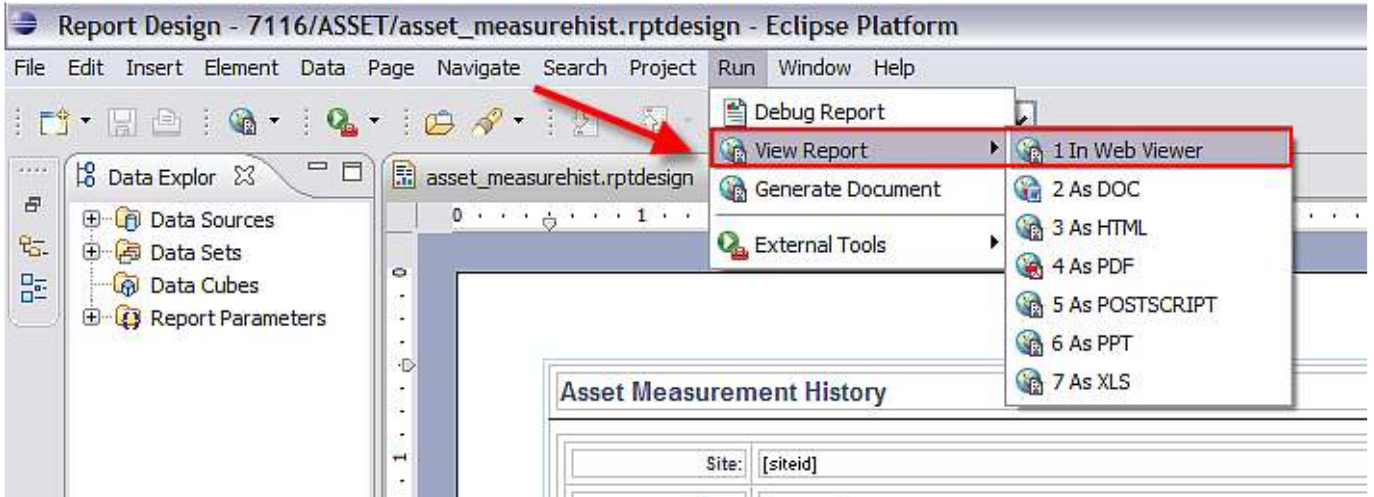
2. Within the BIRT 2.3.2 Report Designer, a 'Debug Report' Options is available. Do not use this functionality because it does not properly display information with the Maximo implementation of reports due to the report script library.
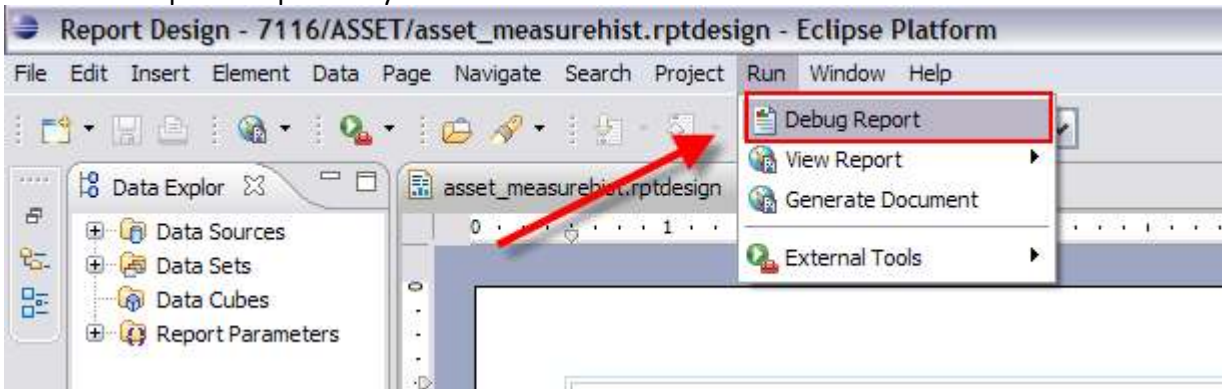
Logging within the Maximo Applications and Report Viewer

You can enable report logging within Maximo. Three different types are available including:

1. Report BIRT Logger (log4j.logger.maximo.report)
This logger provides information across a broad spectrum of reporting functionality, such as the BIRT integration, report queue activity, and report script library actions including SQL transactions.
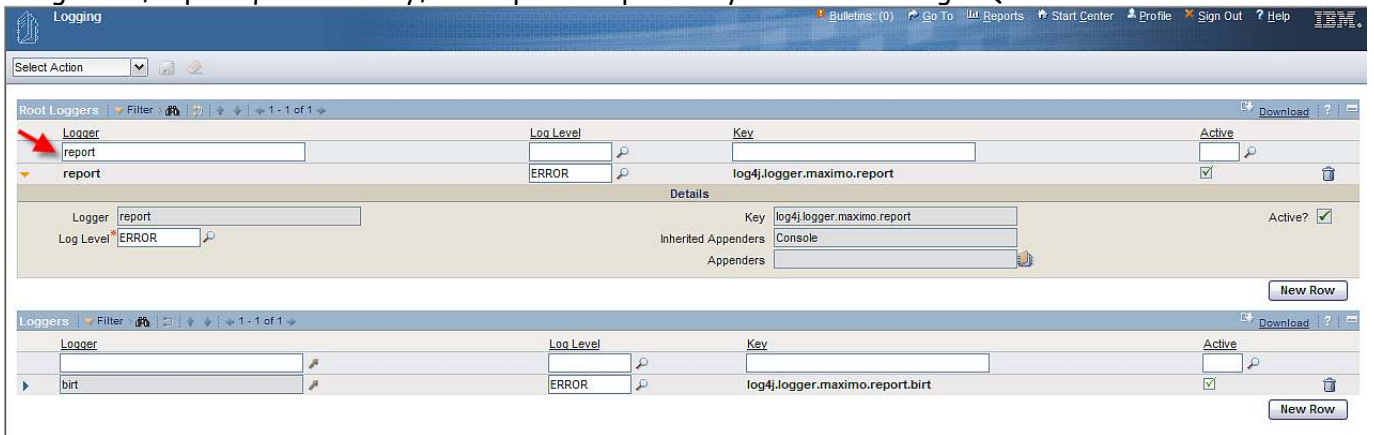
2. Service Report Logger (log4j.maximo.service.BIRTREPORT)
This logger provides information on importing and exporting reports.
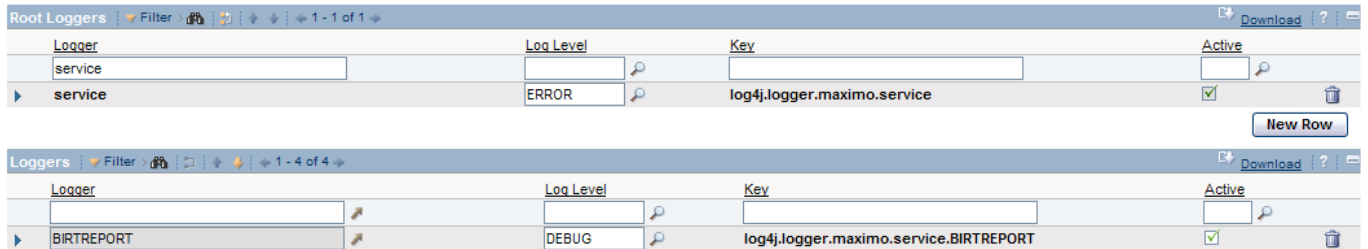
3. Report Service Application Logger

You can create an application logger for the Report application. Setting this logger to DEBUG level provides information on printing attached documents.

To enable logging from within Maximo, follow the steps below. This example shows you how the maximo.report.birt logger is enabled.

1. Sign in to Maximo as an administrator. Access the Logging application. You can navigate to the Logging application from the Go To Menu by selecting System Configuration - Platform Configuration - Logging.

2. Under the top logging section, filter on report. The report logger appears.
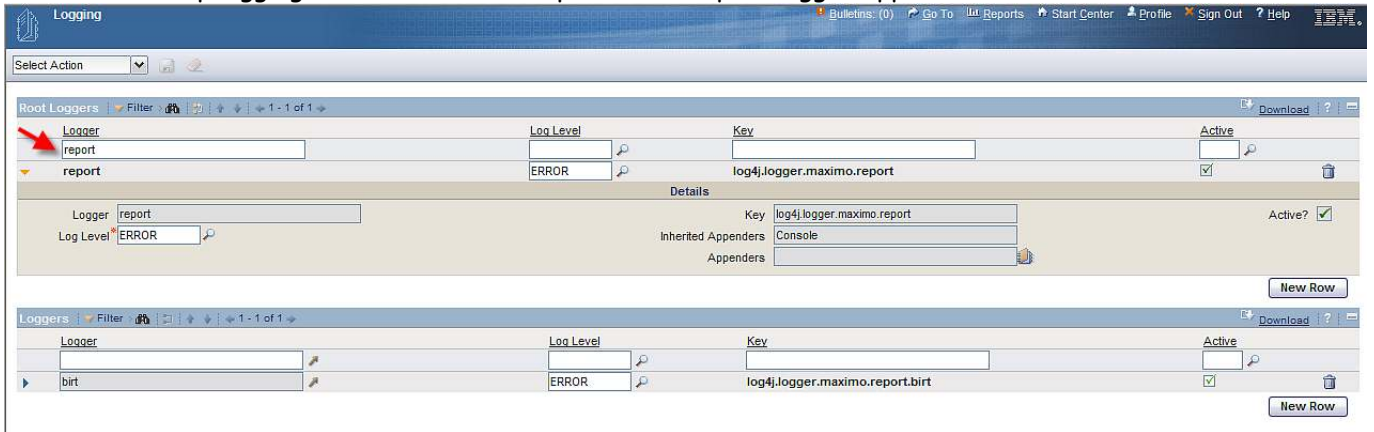
3. Enable Report logger by setting it to its lowest Level - DEBUG - at both the root and logger level.
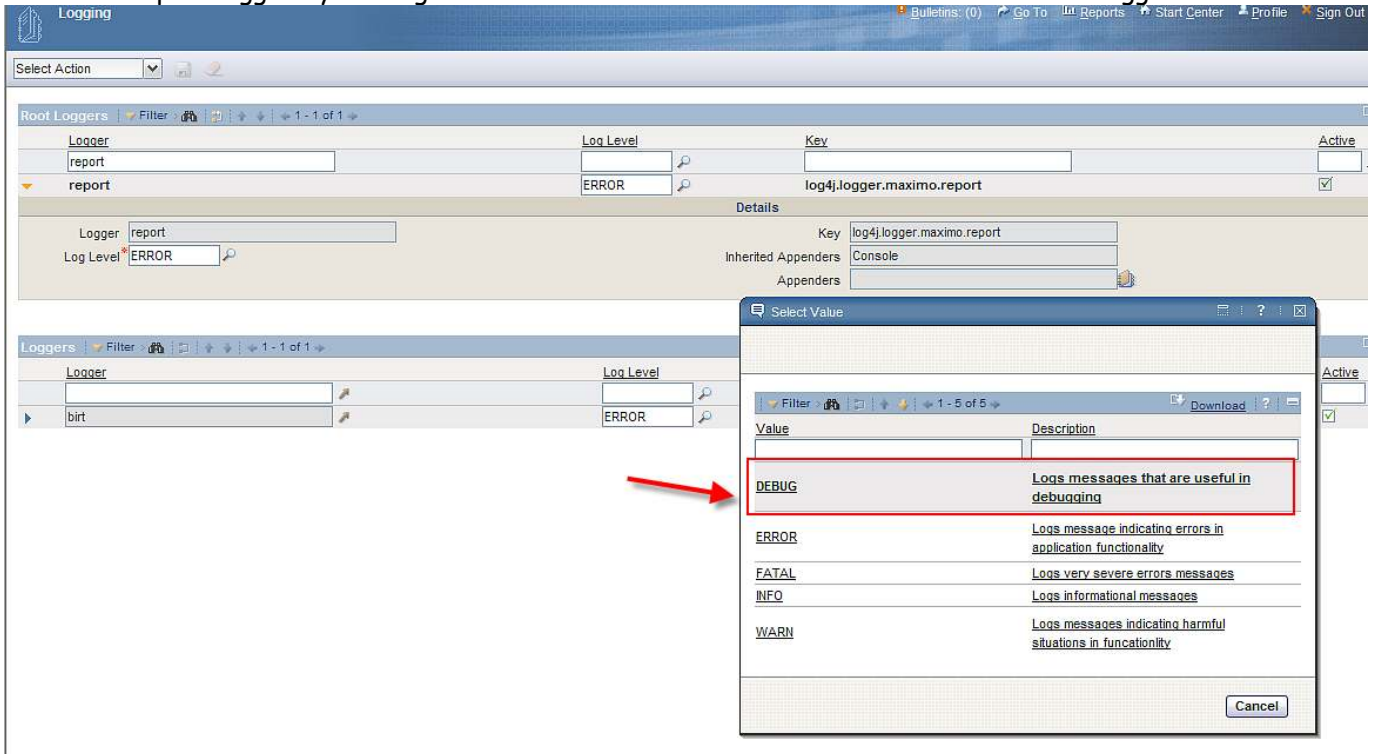
4. Save.
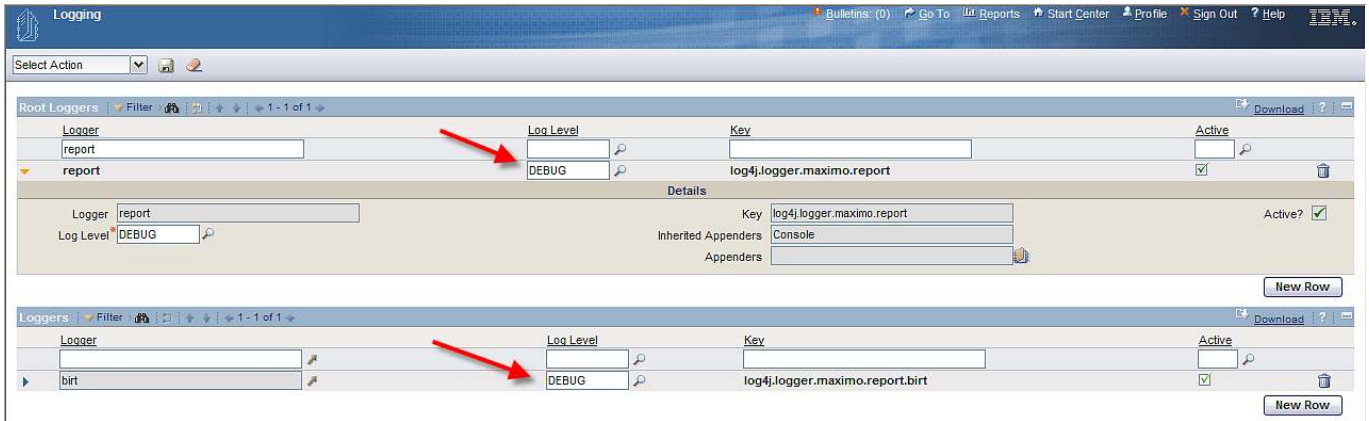
5. Next, from the Logging application's action menu, select Apply Settings.   After selecting this, report logging is enabled and available from the console.

You can repeat this process for the other two report loggers, Service Report Logger or Report Service Application Logger.

Notes:

1. You might need to restart the application server for the logging to take affect. This might be required when moving to a lower (more verbose) logging level, for example ERROR to DEBUG.

2. If you experience problems in capturing the logging, utilize the additional sql statement below to enable the logging capabilities.
>   update maxlogger set loglevel='DEBUG' where logkey like 'log4j.logger.maximo.report%';

>   After you submit the script, you have to stop and restart the application server for the script to take affect.

3. BIRT engine messages are not logged in these logging files. However, individual errors with your report file are displayed to you within the BIRT viewer when running the report from within a Maximo application.

Log Levels
The five different log levels that are available include the following:

Value	Level	Usage
FATAL	Highest	Logs very severe errors messages. This level is not used in report-specific logging.
ERROR		Logs message indicating errors in application functionality
WARN		Logs messages indicating harmful situations in functionality. This level is not commonly used.
INFO		Logs informational messages. For example, this level will log report SQL,
DEBUG	Lowest	Logs messages that are useful in debugging. For example, this level will log all parameters passed to the report engine.

A logging request is *enabled* if its level is higher than or equal to the level of its logger. Otherwise, the request is *disabled*. The levels are in the following order from highest to lowest FATAL, ERROR, WARN, INFO, DEBUG. This means that if a logger is enabled for INFO level, it will log FATAL, ERROR, WARN level messages but not DEBUG level messages.

The following example below shows you how information is logged for the Report Usage report under a log level of DEBUG. Because DEBUG is the lowest level, both INFO and DEBUG messages are included. Had there been messages from the other log levels, they would have been included too.

INFO DataSet [dataSet] open called.
INFO DataSource [maximoDataSource] getConnection called
INFO DataSource MXReportScriptContext =
com.ibm.tivoli.maximo.report.script.MXReportScriptContext@2bac2bac
DEBUG *Requested Data Source: maximoDataSource
DEBUG *Checking for Data Source: maximoDataSource
DEBUG loaded Data Source: maximoDataSource
DEBUG Designtime DataSource [maximoDataSource] = maximoDataSource
DEBUG Designtime DataSource [maximoDataSource] [driver] = com.inet.tds.TdsDriver
DEBUG Designtime DataSource [maximoDataSource] [url] =
jdbc:inetdae7a:myserver:1433?database=maxiom&language=us_english&nowarnings=true
DEBUG Designtime DataSource [maximoDataSource] [username] = MAXIMO
DEBUG Designtime DataSource [maximoDataSource] [schemaowner] = dbo
INFO Designtime DataSource [maximoDataSource] connection = com.inet.tds.aj@530a530a
INFO DataSet [dataSet]: select reportusagelog.appname, reportusagelog.reportname, report.description, reportusagelog.startdate, reportusagelog.enddate, reportusagelog.runtime, reportusagelog.userid, reportusagelog.immediatejob, reportusagelog.success from reportusagelog left outer join report on reportusagelog.appname = report.appname and reportusagelog.reportname = report.reportname where istransient=0 and 1=1 order by report.description, reportusagelog.reportname, reportusagelog.startdate desc, reportusagelog.enddate desc
INFO DataSet [dataSet]: select propvalue from maxpropvalue where servername = 'COMMON' and propname = ?

INFO DataSet [dataSet] Bind index [1] = setting.NO_EN

INFO DataSet [dataSet]: select propvalue from maxpropvalue where servername = 'COMMON' and propname = ?

INFO DataSet [dataSet] Bind index [1] = setting.YES_EN

INFO DataSet [dataSet] close called.

INFO DataSet [dataSetTransient] open called.

INFO DataSet [dataSetTransient]: select reportusagelog.appname, reportusagelog.reportname, reportusagelog.startdate, reportusagelog.enddate, reportusagelog.runtime, reportusagelog.userid, reportusagelog.immediatejob, reportusagelog.success from reportusagelog left outer join report on reportusagelog.appname = report.appname and reportusagelog.reportname = report.reportname where reportusagelog.istransient=1 and 1=1 order by reportusagelog.startdate desc, reportusagelog.enddate desc

INFO DataSet [dataSetTransient]: select propvalue from maxpropvalue where servername = 'COMMON' and propname = ?

INFO DataSet [dataSetTransient] Bind index [1] = setting.NO_EN

INFO DataSet [dataSetTransient]: select propvalue from maxpropvalue where servername = 'COMMON' and propname = ?

INFO DataSet [dataSetTransient] Bind index [1] = setting.YES_EN

INFO DataSet [dataSetTransient] close called.

INFO DataSource [maximoDataSource] connection = com.inet.tds.aj@530a530a - CLOSED

Reference Materials

Report Upgrade Planning Guide
Reference #1421371
This guide details the Open Reporting Architecture, and the report options available to you. These options include BIRT, Cognos, Business Objects/Crystal Reports, along with the External Report Integration and Open Database Platform Option. Included in the review are the features and items you might want to take into consideration when evaluating your reporting options.

Report Feature Guide
Reference # 1305020
This guide details how the embedded reporting tool is used within the Maximo application, including a review of the file structure, installation and database structure. The document also reviews security, scheduling and various Report Administration application features including record limits, parameters and importing.

Report Booklet
Reference # 1305005
The report booklet details the out of the box reports, including their report descriptions, file names, parameter, application toolbar settings and other unique report design information.

Maximo External Wiki Site
https://www.ibm.com/developerworks/wikis/display/maximo/Home

This public wiki site contains the latest information on reporting, including common client customization requests, frequently asked questions and links to variety of reference materials.

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