



IBM Maximo Asset Management V7 Report Planning Guide

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Table of Contents

Overview.....	3
Reviewing Data Analysis Options	4
Custom Reports.....	4
What Data Analysis Options are available?	5
QBE. Query by Example or Application List Download.....	6
KPI. Key Performance Indicators	7
RS. Result Sets.....	8
QBR. Query Based Reporting or V7 Ad Hoc Reporting	9
OR. Operational Report.....	11
SR - Strategic Report.....	12
Understanding Report Options	13
V7 Report Options Functionality Comparison	15
BIRT - Version 7 Releases	16
Cognos 8.4 Reporting - Version 7 Releases	21
Business Objects/Crystal Reports - Version 7 Releases	25
External Report Integration - Version 7 Releases.....	27
Open Database Platform - Version 7 Releases.....	29
Developing Custom Reports.....	30
Embedded Reporting Tool	31
Customizing Out of the Box Reports	32
Use Ad Hoc Reporting as a base for Custom Report Development.....	36
Cognos Report Integration.....	40
Query Studio	40
Report Studio	43
Business Objects/Crystal Reports Integration.....	46
External Report Integration	46
Reference Documents	47
Trademarks.....	54

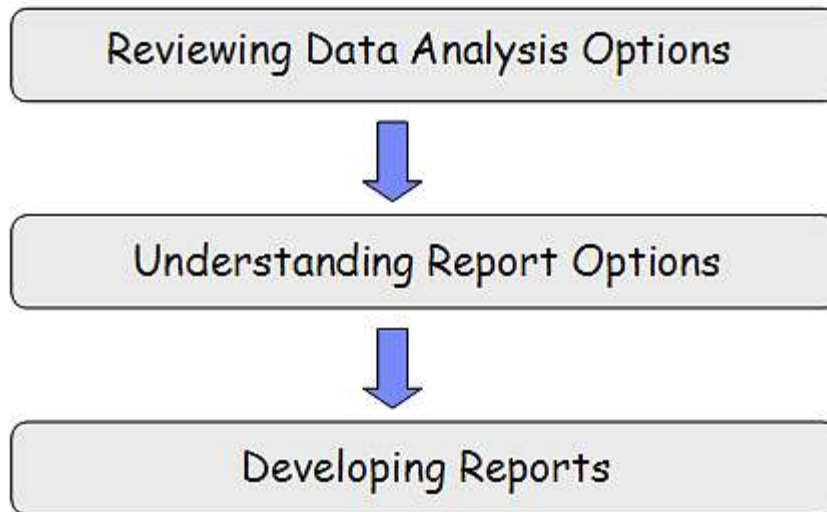
Overview

IBM Maximo® includes an Open Reporting Architecture, which enables you a number of different reporting options to choose from. This guide is intended to review each of those options as you make your report decisions in Version 7.

To guide you through this process, this document will be composed of three main sections including:

Reviewing Data Analysis Options
Understanding Report Options
Developing Reports

Each of these sections is intended to give you features to consider, along with detailed information and decision points to evaluate, as you determine your report plan for Version 7.



The document concludes by including reference materials on where you can access further information.

Reviewing Data Analysis Options

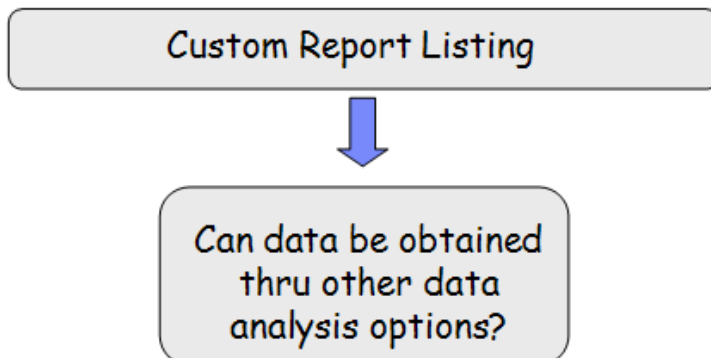
As you begin evaluating your report requirements for Version 7, there are a number of items you should consider. You may want to review your custom report requirements, along with the latest available features that can be utilized to access and display data to your users.

This first section details these various data analysis options, so you can determine what combination of formats your data needs should best be delivered in.

Custom Reports

You may have a list of custom reports that your users have requested for Version 7, or that they want to have upgraded from prior releases. Each of these individual reports must be designed, developed, tested, administered and maintained. Additionally, design specifications and test plans may be required, and the report design code must be properly maintained. This can be a significant investment in terms of resources and time.

Because there may be a significant investment in report creation, you may want to evaluate reducing the number of custom reports you create. You may find that with the data analysis features of Version 7, users may no longer need custom reports, as the data can be analyzed through other mechanisms.



What Data Analysis Options are available?

This section details the latest data analysis features available in Version 7. These features enable different forms of data analysis, which can quickly and dynamically display data in any applications. Additionally, they can be considerably less time consuming to enable than creating individual custom reports, and therefore should be carefully considered.

There are different functionality formats in which you can analyze the powerful data that is generated within V7. These include

QBE - Query By Example. Using your application's filter and/or query, you can immediately download your results for additional analysis in Microsoft Excel.

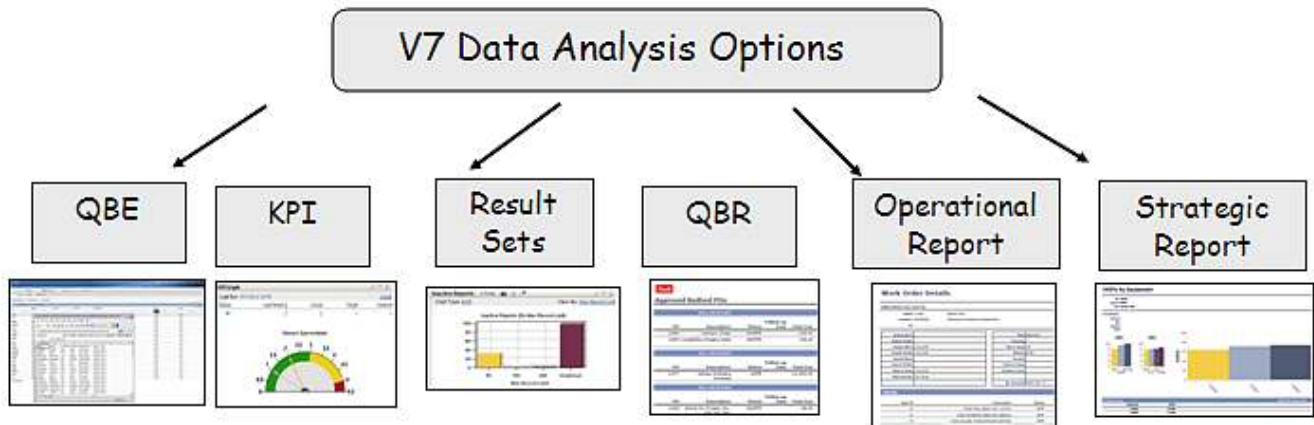
KPI - Key Performance Indicators. Visual indicators displaying status against predefined targets.

RS - Result Sets. Using an application's query, enable a set of fields or graphic for display on the Start Center.

QBR - Query Based Reporting. Version 7's version of Ad hoc reporting where users create their own reports on the fly from within the various applications.

OR - Operational Report. Often referred to as transactional reporting, these are the day to day detail reports users require to complete their business tasks.

SR - Strategic Report. Enable viewing of data in varying perspectives thru the use of complex graphs, in depth calculations or scenarios.



Depending on the individual business case and user, you may want to use one or a combination of these features instead of creating a custom report.

For example, one of your users may need to know the Number of Work Orders Overdue each day. This information is critical as this user needs to know if the number is above the targeted value. Instead of creating a custom report for this individual user, you could quickly create a KPI. The KPI would visually display the value on the user's Start Center, and your user would know if action was required or not.

An overview of each of these options is detailed below.

QBE. Query by Example or Application List Download

Available from all Application List pages, this functionality enables the user to immediately download the results to Microsoft® Excel for additional analysis. This is a quick and simple way for all users to analyze key application data quickly and seamlessly.



	A	B	C	D	E	F	G
1	Asset	Description	Location	Parent	Rotating Item	Linear	Site
2	1948	Hard Drive	HWSTOCK		HD4532	N	BEDFORD
3	7505	Standard Laptop Computer	HWSTOCK		D600	N	BEDFORD
4	7506	Standard Laptop Computer	HWSTOCK		D600	N	BEDFORD
5	7507	Standard Laptop Computer	HWSTOCK		D600	N	BEDFORD
6	7508	Standard Laptop Computer	HWSTOCK		D600	N	BEDFORD
7	A8002	Standard Desktop Computer	HWSTOCK		D700	N	BEDFORD
8	A8011	Standard Desktop Computer	HWSTOCK		D700	N	BEDFORD
9	A8010	Standard Desktop Computer	HWSTOCK		D700	N	BEDFORD
10	7500	Standard Laptop Computer	HWSTOCK		D600	N	BEDFORD
11	7400	Standard Laptop Computer	HWSTOCK		D600	N	BEDFORD
12	7300	Standard Laptop Computer	HWSTOCK		D600	N	BEDFORD

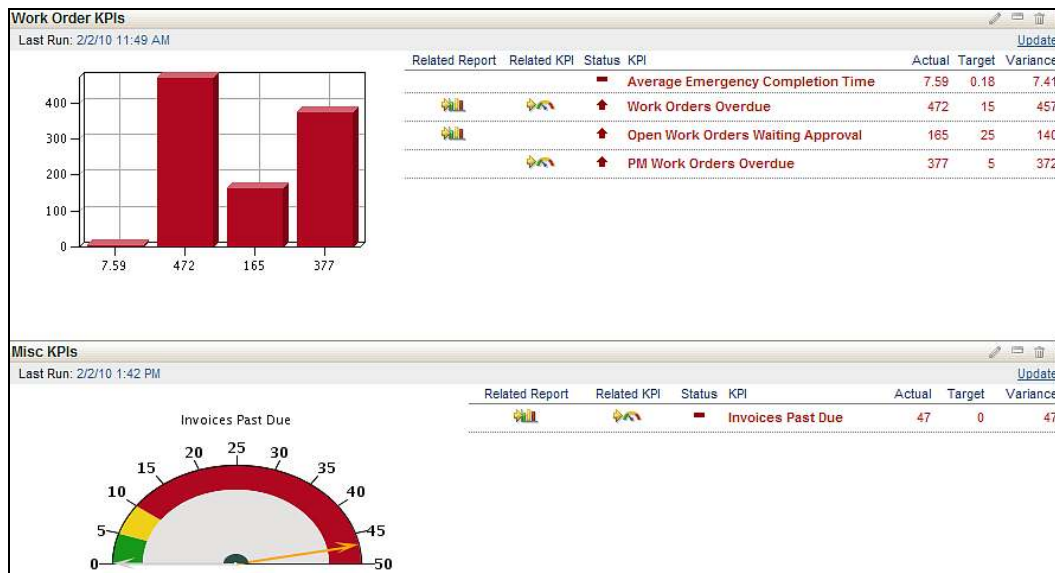
KPI. Key Performance Indicators

KPIs are metrics which are used to highlight performance against a set goal. KPIs are available in list and graphic format. They are used to quickly highlight status in red/yellow/green colors. Additionally, KPIs are able to link to other KPIs or related reports for additional data analysis.

KPIs are created within the KPI Manager, and do not utilize the embedded report engine to execute. The user simply creates a sql statement within the KPI Manager. This is combined with the configurable Target, Caution and Alert Values to generate the KPI results.

When you need to quickly obtain a status on items like Number of Work Orders Outstanding, Ticket Response Time or Open Service Requests, KPIs can be a much more efficient and dynamic process than reports to display that data to your users.

Examples of KPIs include: Average Emergency Response Time, Total Resolved Process Requests, SLA Compliance, Average P1 Incident Response Time, Current Login Users.



RS. Result Sets.

By using the Result Set portlet from the Start Center, you can select a predefined application query - and then determine the content to display on your start center page.

Query Name	Description
WORKVIEW	Work View (Sorted by Priority)
BLOCKEDUSER	Users with the Status 'BLOCKED'
MY S.S. SR'S	Self Service Service Requests for Logged in User
LIMITREPORTS	Reports with Limit Records Enabled
PRWAPPR	Purchase Requisitions Awaiting Approval
POWAPPR	POs Awaiting Approval

You can select the content to display with the field values, or in graphic format as shown below. Once available within the portlet on the Start Center, you can immediately view it, or be taken directly to the application where you can then act on it.

Application	Description	Last Run Date	Max Record Limit
ASSET	Maintenance Cost Rollup Update		
ASSET	Asset Purchase Order Details		50
ASSET	Managed Software Detail		
ASSET	Overall Equipment Effectiveness By Asset		
ASSETCAT	Classification Hierarchy		50
ASSETCAT	Classification Details		200
BUYER	MR Details		50
CHANGE	Change List		
COLLECTION	Collection List		

Max Record Limit	Value	Percent (%)
50	31	23.66
150	1	0.76

QBR. Query Based Reporting or V7 Ad Hoc Reporting

Ad Hoc reporting enables business users to create their own, individual reports on the fly without the need for technical skills or database knowledge. Ad Hoc reports are excellent for meeting an individual's needs for one-off, or project/business specific reports. Additionally, because the user creates his individual report, external resources for designing, developing, testing, administering and maintaining are not required. This can lead to significant cost and resource savings.

Within V7, ad hoc reporting is known as QBR, or Query Based Reporting. The terms QBR and ad hoc reporting are used interchangeably within V7.

QBR reports are created within the V7 various applications, by presenting a tabbed window that the user navigates thru to build his report. Within this window, the user selects the fields he wants in his own report, along with defining sorting, grouping and filtering.

QBR Reports can be created for very simple summary reports containing only attributes of the main table of the application, or more complex reports. The complex, detail reports can incorporate fields from multiple related tables, and can also utilize multiple one-to-many relationships.

QBRs can be enabled to utilize multiple related tables in an application via Report Object Structures. Report Object Structures are created in Maximo's Object Structure Application, and contain a hierarchy of related tables from which the user can select fields. The related tables are joined together via maxrelationships. Additionally, the Report Object Structures can be customized to exclude fields from QBR Reporting. This can be extremely useful in hiding extra or integration fields that can crowd field selection for your user.

Behind the scenes, the user's input for his QBR reports are sent via an API to create an individual Report Design File. If the user decides to save his QBR Report, the design file is saved within the database. Once saved to the report repository in the database, the Ad Hoc report can be accessed just like standard enterprise reports. The embedded reporting functionality of scheduling, emailing and viewing by others is enabled. Additionally, each time the Ad Hoc report is executed, entries are made to the REPORTUSAGELOG table, so you can see who is executing the report, how long it takes to execute, and if it is being scheduled or executed immediately.

Additionally, Ad Hoc reports can be used as the starting point for an Enterprise Report. Developers can export ad hoc reports from the database, and open them in the report designer. This gives them an excellent base starting point for their report development - as then they may only have to extend the sql statement or add a graph or chart - rather than building a report from a blank template.

Examples of ad hoc reports include: Buffalo PO's grouped by Status and Vendor, User Listing by Site, Overdue WO's grouped by Supervisor and Finish Date

Example of Summary Ad Hoc Report displayed in Adobe ® PDF

Site: BEDFORD		Company: SWKING		Follow-up					
PO	Description	Status	Date	Total Cost	Line	Item	Line Cost		
1077	Adobe Software Contract	APPR		12,300.00	1	ACROBAT_8	12,300.00		
Site: BEDFORD		Company: OFFRUS		Follow-up					
PO	Description	Status	Date	Total Cost	Line	Item	Line Cost		
1024		APPR		5.00	1	584-L0	5.00		
1026		APPR		2.50	1	231177	0.00		
1026		APPR		2.50	2	231177	0.00		
1026		APPR		2.50	3	230-00	2.50		
1027		APPR		11.70	1	0-0514	11.70		
Site: BEDFORD		Company: KENNEDY		Follow-up					
PO	Description	Status	Date	Total Cost	Line	Item	Line Cost		
1021		APPR		0.00	1	560-00	0.00		
1022		APPR		6.19	2	0-0031	2.50		
1022		APPR		6.19	1	900810	3.69		
1023		APPR		0.00	1	584-L0	0.00		
Site: BEDFORD		Company: JK		Follow-up					
PO	Description	Status	Date	Total Cost	Line	Item	Line Cost		
1013	Window and Installation for office building	WAPPR		499.20	1	1002	0.00		
1013	Window and Installation for office building	WAPPR		499.20	2		480.00		
1029	Window and Installation for Office Building	APPR		499.20	1	1002	0.00		
1029	Window and Installation for Office Building	APPR		499.20	2		480.00		
Site: BEDFORD		Company: IR		Follow-up					
PO	Description	Status	Date	Total Cost	Line	Item	Line Cost		
1009	100 gpm Pump	APPR		6,784.00	1	PUMP100	6,400.00		

January 7, 2009 6:35:48 AM EST

1 / 5

Example of Detail Ad Hoc Report displayed in Report Browser

Reporting												
Page 1 of 7												
Tivoli software												IBM
Asset Specification and Work Order Details												
Asset Details												
Asset	Description	Location	Parent	Rotating Item	Linear	Site	Asset Tag	Type	Failure Class	Installation Date	Inventory Cost	
11450	Centrifugal Pump 100GPM/50FTHD	BR450	11400	PUMP100	N	BEDFORD	6423		PUMPS	5/26/96	9.50	
Specifications												
Asset	ASSETSPECID	End Base Measure	End Measure	Start Base Measure	Start Unit of Measure	Start Measure	Mandatory?					
11450	198						N					
11450	199						N					
11450	200						N					
11450	201						N					
11450	202						N					
11450	203						N					
11450	204						N					
Work Orders												
Work Order	Work Type	Status	Status Date	Target Start	Target Finish	Scheduled Start	Scheduled Finish					
91091	EM	APPR	10/12/01 3:45:43 PM	10/12/01 3:45:43 PM	10/13/01 10:57:43 PM	10/12/01 3:45:43 PM	10/13/01 10:57:43 PM					
21135	EM	CLOSE	10/23/98 3:45:35 PM	10/23/98 3:45:35 PM	10/24/98 3:45:35 PM	10/23/98 3:45:35 PM	10/23/98 3:45:35 PM					
88111	EM	CLOSE	4/23/99 3:45:49 PM	4/23/99 3:45:49 PM	4/23/99 3:45:49 PM	4/23/99 3:45:49 PM	4/23/99 3:45:49 PM					
89061	EM	CLOSE	6/23/00 3:45:47 PM	6/23/00 3:45:47 PM	6/24/00 10:57:47 PM	6/23/00 3:45:47 PM	6/24/00 10:57:47 PM					
89061	EM	CLOSE	6/23/00 3:45:38 PM	6/23/00 3:45:38 PM	7/13/01 3:45:38 PM	6/23/00 3:45:38 PM	7/13/01 3:45:38 PM					
87091	EM	CLOSE	11/30/98 8:48:09 PM	11/19/98 6:45:02 PM	11/23/98 1:21:45 AM	11/19/98 6:45:02 PM	11/23/98 1:21:45 AM					
91051	EM	CLOSE	6/8/01 3:45:41 PM	6/8/01 3:45:41 PM	6/8/01 3:45:41 PM	6/8/01 3:45:41 PM	6/8/01 3:45:41 PM					
88051	EM	CLOSE	8/7/98 3:45:46 PM	8/7/98 3:45:46 PM	8/7/98 3:45:46 PM	8/7/98 3:45:46 PM	8/7/98 3:45:46 PM					
89081	EM	CLOSE	10/21/99 3:45:44 PM	10/23/99 3:45:44 PM	10/23/99 3:45:44 PM	10/23/99 3:45:44 PM	10/23/99 3:45:44 PM					
91071	EM	CLOSE	7/24/01 3:45:42 PM	7/24/01 3:45:42 PM	7/24/01 3:45:42 PM	7/24/01 3:45:42 PM	7/24/01 3:45:42 PM					
2433	EM	CLOSE	12/2/99 8:47:58 PM	11/23/99 2:04:46 AM	11/24/99 8:33:34 PM	11/23/99 2:04:46 AM	11/23/99 8:33:34 PM					
7492	CP	CLOSE	8/9/99 1:01:00 PM									
4394	EM	CLOSE	10/9/99 3:45:36 PM	10/9/99 3:45:36 PM	10/9/99 3:45:36 PM	10/9/99 3:45:36 PM	10/9/99 3:45:36 PM					
90121	EM	CLOSE	1/3/01 3:45:40 PM	1/3/01 3:45:40 PM	1/4/01 3:45:40 PM	1/3/01 3:45:40 PM	1/4/01 3:45:40 PM					

OR. Operational Report.

Reports are best suited to business needs when data is required to be formatted, graphical, stored for record keeping or when the analysis of the data is complex. Additionally, reports are best suited for multiple user access, and are often enabled for quick or one click access.

Reports contain defined sql, sorting, grouping and fields resulting in formatted data set. They can also include graphing, hyperlinking, record limits, and application toolbar access. Reports can be scheduled, emailed and enabled for security access.

Each individual report must be designed, developed, tested and maintained, therefore, it is critical that its requirements be understood initially to reduce any potential rework or redesign phases.

There are two main types of reports in V7 - Operational Reports and Strategic Reports. Operational Reports are often referred to as transactional reporting. These reports are primarily composed of the day to day detail reports users require for their daily business tasks.

Examples: Work Order Details, Asset Details, Work Order Pick, Inventory Transaction Reports

Work Order Details

1005: Electric Cart Tune-Up

Asset: 12300 Electric Cart
Location: SHOPPING Shipping and Receiving Department
CB

Sched Start:	
Sched Finish:	
Target Start:	12/31/99
Target Finish:	12/31/99
Actual Start:	
Actual Finish:	
Report Date:	12/31/99
Reported By:	Joe Jones

Task ID: Description:

20 Check tires, lights, horn, horn

20 Check windshield wipers and steel

Issues and Returns Transactions

Storeroom: CENTRAL
Site: BEDFORD
Start Date: 1/1/90
End Date: 1/1/02

Item: 11403	Description: Seal, Mechanical, Self Aligning- 1 In ID	Transaction Type: 10				
Date	Qty	Condition Code	Asset	Rot Asset	Issue To	WO #
10/20/01	2:29:27 PH	-1	13170			30058
8/7/01	2:29:27 PH	-1	13170		LDU	30067
6/7/01	2:29:27 PH	-1	13170		LDU	30037
3/18/01	2:29:28 PH	-1	13170		LDU	30048
12/20/00	2:29:28 PH	-1	13170		LDU	30029

Work Order Pick

WO: 1002 Rebuild Feedwater Pump

Site: BEDFORD Storeroom: CENTRAL

Item: 11453 Seal, Mechanical, Self Aligning- 1 In ID
Qty: 1

Bin	Lot
A-4-0	A-431
C-5-3	A-431

Item: 117084 Shaft- 1 Inch Dia
Qty: 1

Bin	Lot
C-6-2	

Asset Details

11430: Centrifugal Pump 100GPM/60FT HD

Site:	BEDFORD
Status:	OPERATING
Maintain Hierarchy:	N
Parent:	11400
Parent Description:	Motor- 50,000 (b/m) Gas Fired/ Water Tube

Type:	
Priority:	2
Serial Number:	377-5A
Location:	BF430
Location Desc:	Condensate Return Pump Centrifugal/100GPM/60FTHD

Purchase Details

Vendor	Manufacturer	Install Date	Warranty Exp Date	Purchase Price	Replace Cost	Total
DR	DR	4/7/95	1/29/11	18500.00	23000.00	1125

Downtime

Asset Up?	Total Downtime	Changed By	Changed Date
1	40.5	WT:SON	2/9/05 8:01:37 AM

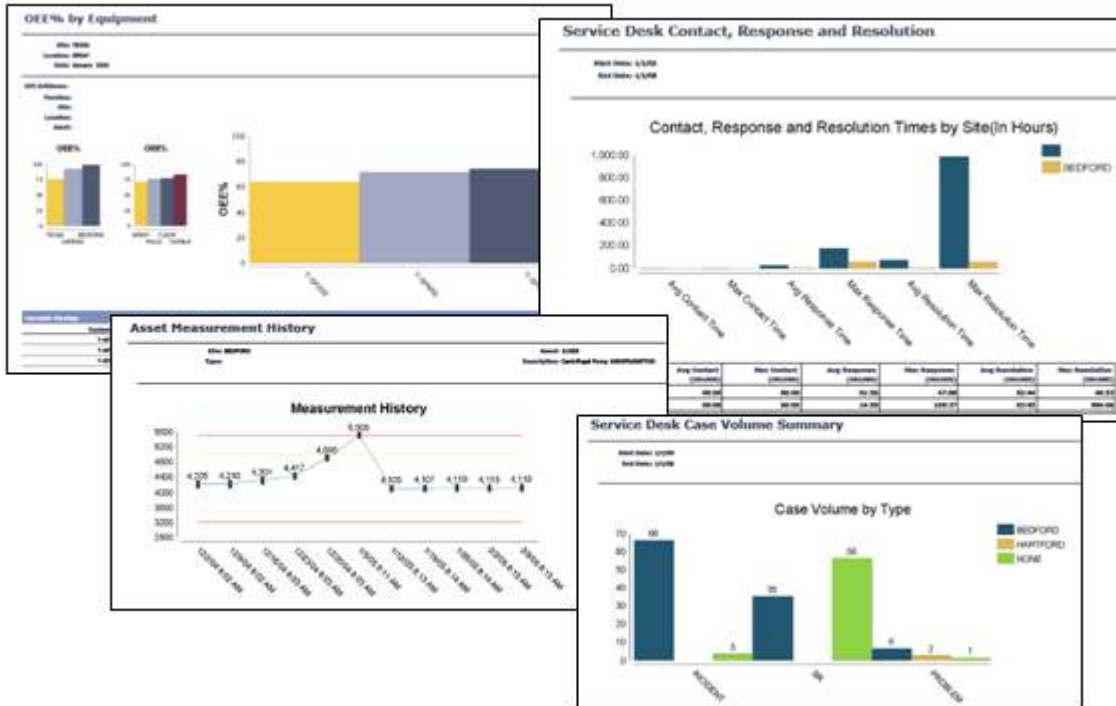
Sub Assemblies

Asset	Asset Description	Location	Location Description
23972	Motor- 10hp/1750rpm/TEFC/254T Frame/440v/3ph/60hz	BF431	Motor- 10hp/1750rpm/TEFC/254T Frame/440v/3ph/60hz

SR - Strategic Report.

Strategic Reports are the second type of report enabled in V7. These types of reports enable viewing of data in varying perspectives thru the use of complex graphs, in depth calculations or scenarios.

Examples: Overall Equipment Effectiveness, Asset Measurement History, Maintenance Cost Rollup



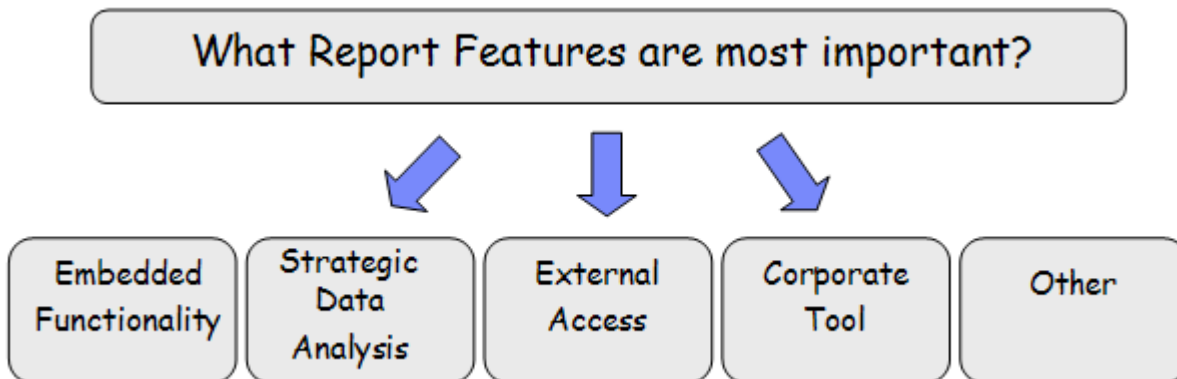
Understanding Report Options

Each client has unique business requirements which impact their reporting needs. These needs may be set by their industries, or by their corporate standards. Regardless of the reason, the V7 reporting architecture is very flexible in its ability to integrate with a wide range of these reporting systems.

This section reviews the report options available to you in the Version 7 Releases. These options include the embedded reporting tool, along with report integrations. While the embedded reporting tool will enable you the deepest level of report system level functionality, integrated reporting options enable you the greatest flexibility in using your reporting tool of choice.

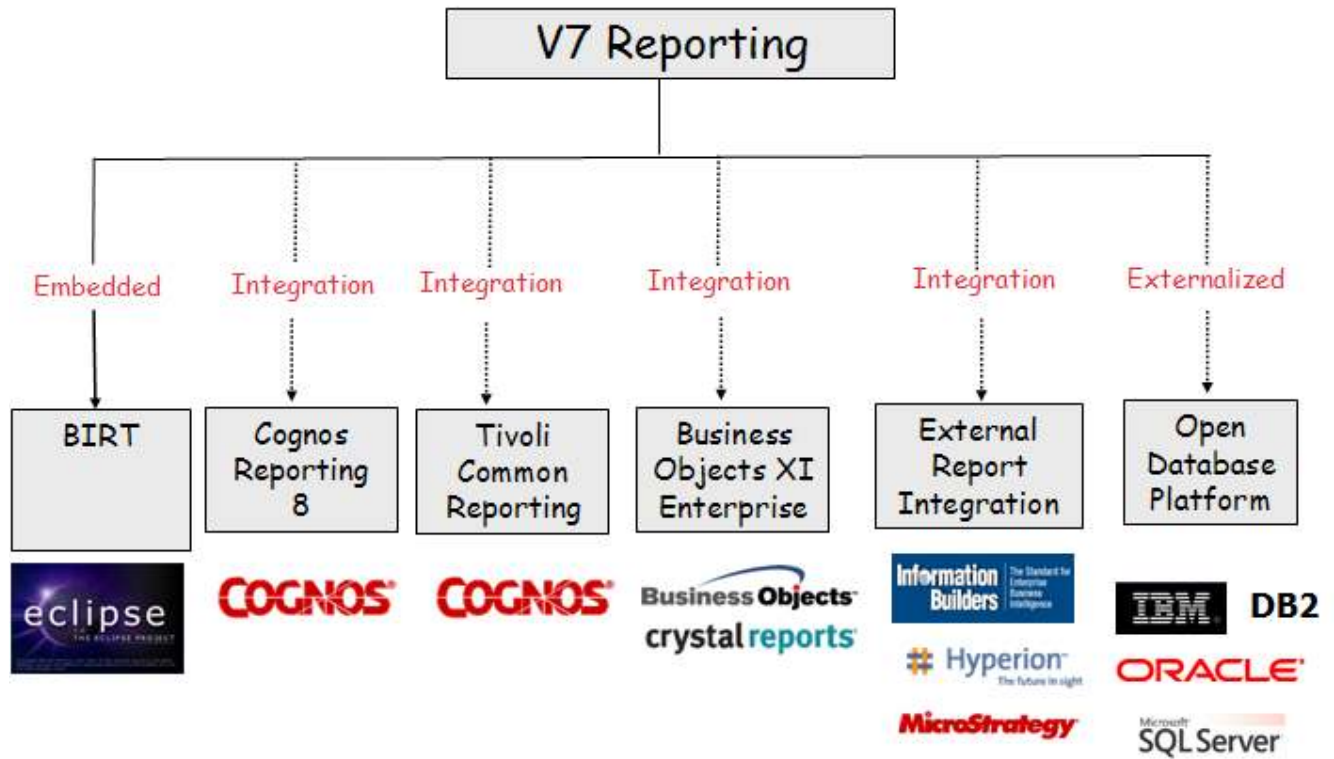
Additionally, you can choose to use any combination of these reporting tools. You may want to use the embedded reporting tool for the large number of reports delivered out of the box and its deeply embedded application functionality, and also an integrated reporting tool for your custom report needs.

This section will provide data for you to answer the next set of questions, including 'What Reporting Features are most important to my environment?'



Version 7 Releases

The report options have been significantly enhanced in Version 7 and include a wide range of reporting tools. These tools include the embedded reporting tool, BIRT, along with IBM Cognos® Reporting. The integration to the powerful Cognos Reporting Products enables a silent log in to the Cognos Server, along with the dynamic creation of a metadata layer for reduced report development efforts.

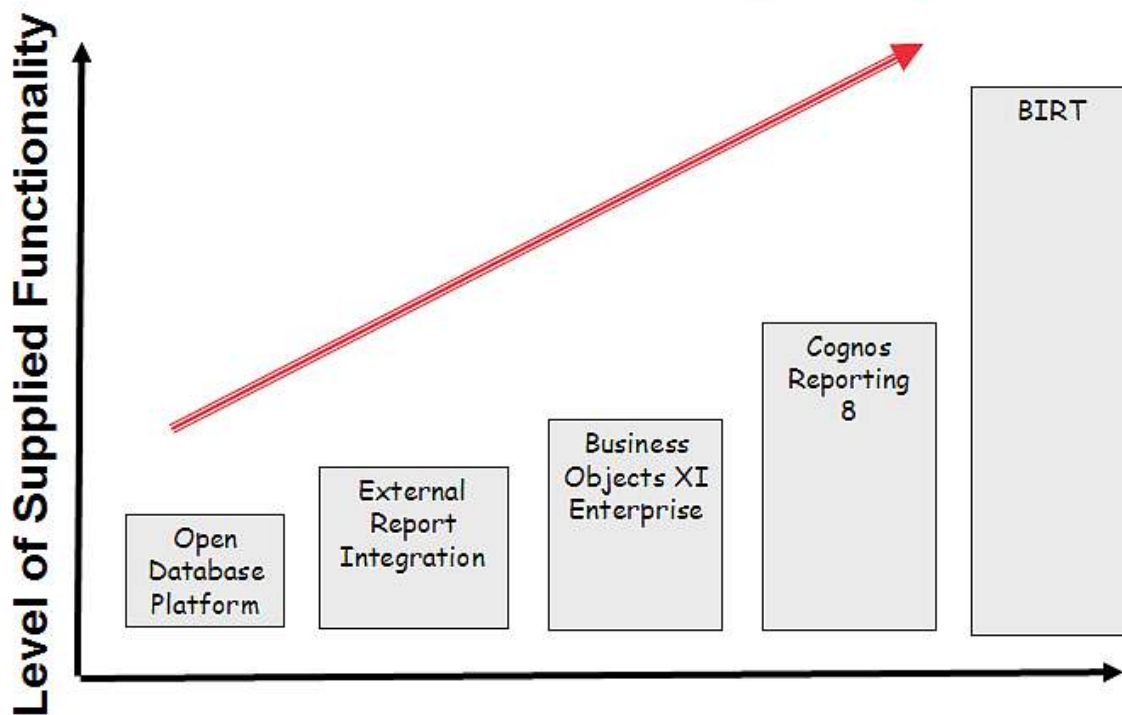


V7 Report Options Functionality Comparison

The numerous report options in Version 7 provide you with a variety of reporting tools to choose from. Each of these tools contains its own inherent functionality, which is then supplemented when utilized within the V7 Product Suite.

The amount of functionality that is added to insure a seamless integration varies by reporting tool. For example, minimal functionality is added for the Open Database Platform where you create reports directly against the V7 database. This contrasts significantly with the embedded reporting tool of BIRT, which contains a silent install, hundreds of out of the box reports, and deep embedded capability like direct printing and ad hoc reporting.

'Out of the Box' Functionality Comparison



After reviewing the options and the functionality they provide below, you may determine that you want to utilize multiple report options. For example, you may choose to use BIRT for its embedded capabilities of Direct Print and ad hoc reporting, and then create your custom reports with either your corporate reporting tool, like Cognos or Crystal.

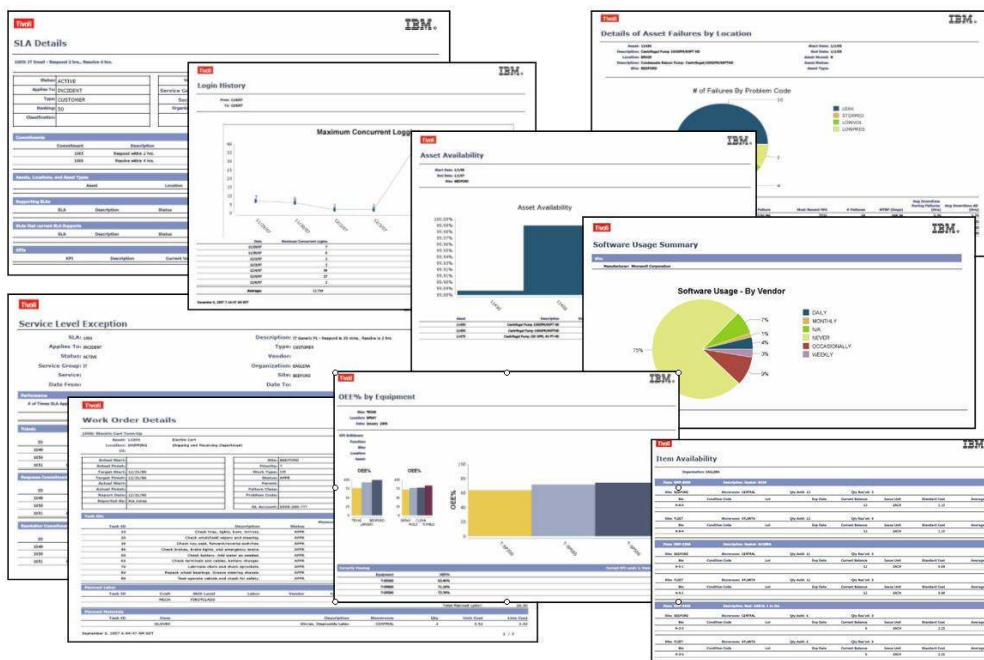
BIRT - Version 7 Releases

BIRT, Business Intelligence and Reporting, is the embedded reporting tool in the Version 7 Releases. As the embedded reporting tool, it enables the deepest levels of integrations throughout the various Maximo applications.

Delivered Reports

Depending on the specific products you are licensed for, over 150 Out of the box reports are delivered out of the box. These reports span the variety of Applications, and include Analysis, Detail, Hierarchical, and Drill down Reports. Reports can update the database, hyperlink to one another to enable more detailed analysis, and refresh data dynamically. These reports are designed to quickly and clearly convey information to the end user, and approximately 20% include graphs, including pie, bar and line charts along with daily and monthly calendar views and control limits.

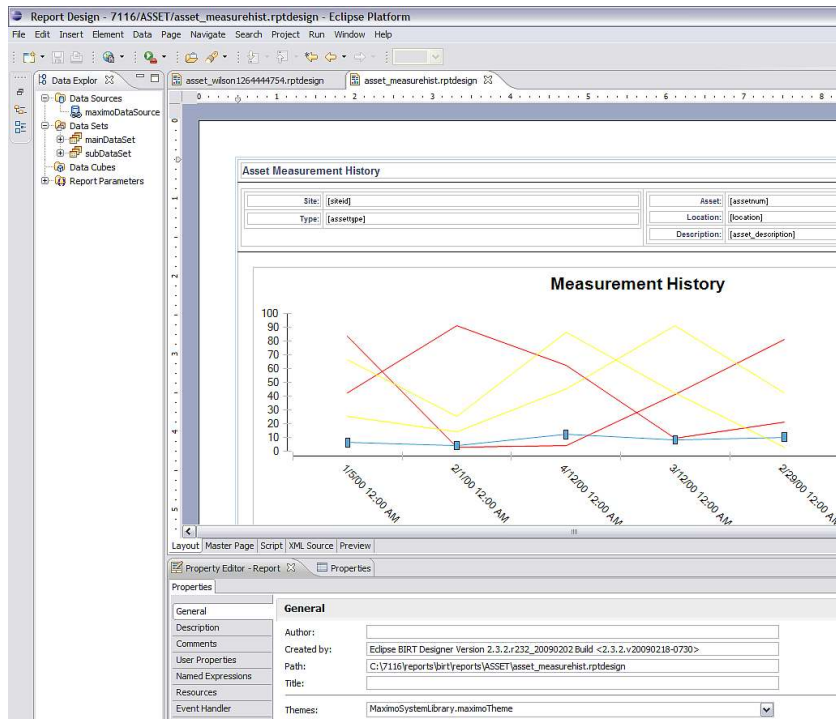
The out of the box reports provide you a starting point for your custom report needs. You can quickly customize these reports to meet your individual business needs, and also utilize the delivered business logic to create any new reports you need.



Developing Reports

Developers can use the Eclipse Based BIRT Designer Tool to create or customize Maximo Based Reports. Utilizing the popular Eclipse Platform reduces learning curves and minimizes unique development platforms.

Six Report Templates are included, which enable developers to quickly create Maximo reports. Also, Libraries and Style sheets are used to simplify development, and insure a consistent look and feel among all reports. Report designs are saved as XML Files, which are easily imported into the Database, and accessed at run time to display the user's requested information.

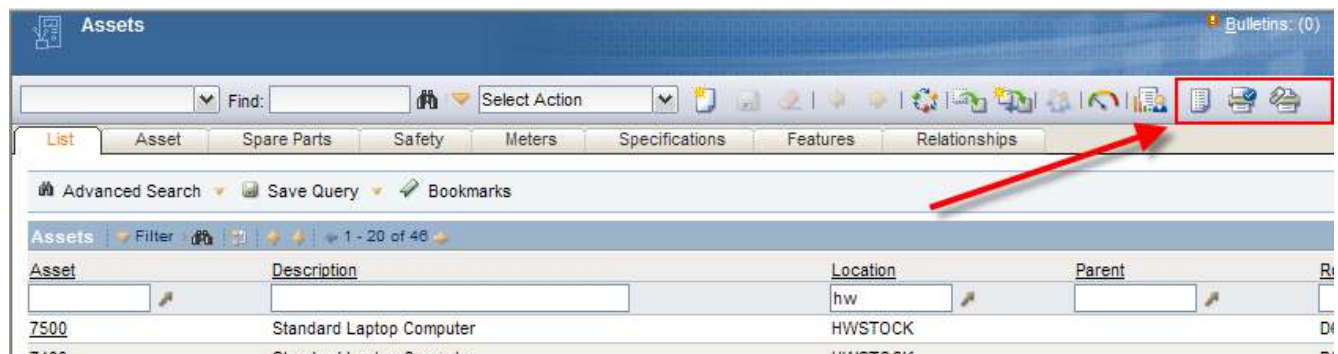


Executing Reports

From within the various applications, users can execute reports immediately for display in the report browser. From the report browser, reports can be searched through for particular data sets, converted to PDF for printed, or downloaded to other file formats including xls, pdf and ppt for additional analysis.

To enable users to quickly retrieve their filtered data in a report, Maximo reports can be configured to execute against either the application's current query, or against user inputted parameters. User inputted parameter options include single or multi values, required or non-required and report lookups.

End users can access a variety of 'one click' actions for reports within an application. These include Browser View, which opens the report immediately in the Report Browser, or Direct Print, which prints the report directly to the user's default printer. Direct Print with Attachments is also enabled, which prints both the report and any print-able attachments directly to the user's default printer.



Ad Hoc Reports

Within the embedded reporting tool, Ad Hoc Reporting functionality has been enabled via the Maximo Framework. This functionality is called Query Based Reporting, and enables users to quickly create their own custom reports from any application. This greatly reduces the number of reports that need to be designed, created, tested, administered and maintained, leading to large time and cost savings.

Within the applications, users can access the ad hoc reporting familiar in a familiar environment. They can then select what type of report they want to create, which fields they want to display, and whether to group and sort the results. Additionally, they can define unique report parameters, and also determine if they want the report to execute against the application's record set.

Users can then choose to save and share the reports with others, or determine that it is needed for a one time usage only. If a user saves his report, it can be scheduled and automatically emailed to him or a number of users just like standard enterprise reports, or the user can download the report's contents to other file formats like Microsoft Excel for additional analysis.

The example below shows the types of ad hoc reports that can be created

The screenshot displays the 'Reporting' tool interface. At the top, it shows 'Page 1 of 7' and navigation icons. Below the header, there is a section for 'Tivoli software' and 'IBM'. The main content is divided into two sections: 'Asset Specification and Work Order Details' and 'Specifications'.

Asset Specification and Work Order Details

Asset	Description	Location	Parent	Rotating Item	Linear	Site	Asset Tag	Type	Failure Class	Installation Date	Inventory Cost
11450	Centrifugal Pump 100GPM/60FTHD	BR450	11400	PUMP100	N	BEDFORD	6423		PUMPS	5/26/96	9.50

Specifications

Asset	ASSETSPECID	End Base Measure	End Measure	Start Base Measure	Start Unit of Measure	Start Measure	Mandatory?
11450	198						N
11450	199						N
11450	200						N
11450	201						N
11450	202						N
11450	203						N
11450	204						N

Work Orders

Work Order	Work Type	Status	Status Date	Target Start	Target Finish	Scheduled Start	Scheduled Finish
91091	EM	APPR	10/12/01 3:45:43 PM	10/12/01 3:45:43 PM	10/13/01 10:57:43 PM	10/12/01 3:45:43 PM	10/13/01 10:57:43 PM
2155	EM	CLOSE	10/23/98 3:45:35 PM	10/23/98 3:45:35 PM	10/24/98 3:45:35 PM	10/23/98 3:45:36 PM	10/23/98 3:45:36 PM
88111	EM	CLOSE	4/29/98 3:45:49 PM	4/29/98 3:45:49 PM	4/29/98 3:45:49 PM	4/29/98 3:45:49 PM	4/29/98 3:45:49 PM
89041	EM	CLOSE	6/2/99 3:45:47 PM	6/2/99 3:45:47 PM	6/4/99 10:57:47 PM	6/2/99 3:45:47 PM	6/4/99 10:57:47 PM
80061	EM	CLOSE	6/23/00 3:45:39 PM	6/23/00 3:45:39 PM	6/24/00 3:45:39 PM	6/23/00 3:45:39 PM	6/23/00 3:45:39 PM
91061	EM	CLOSE	7/17/01 3:45:38 PM	7/17/01 3:45:38 PM	7/19/01 3:45:38 PM	7/17/01 3:45:38 PM	7/19/01 3:45:38 PM
87091	EM	CLOSE	11/30/98 8:48:09 PM	11/19/98 6:45:02 PM	11/23/98 1:21:45 AM	11/19/98 6:45:02 PM	11/25/98 1:21:45 AM
91051	EM	CLOSE	6/8/01 3:45:41 PM	6/8/01 3:45:41 PM	6/8/01 3:45:41 PM	6/8/01 3:45:41 PM	6/8/01 3:45:41 PM
88051	EM	CLOSE	8/7/98 3:45:46 PM	8/7/98 3:45:46 PM	8/7/98 3:45:46 PM	8/7/98 3:45:46 PM	8/7/98 3:45:46 PM
89011	EM	CLOSE	10/21/99 3:45:44 PM	10/23/99 3:45:44 PM	10/23/99 3:45:44 PM	10/23/99 3:45:44 PM	10/23/99 3:45:44 PM
91071	EM	CLOSE	7/24/01 3:45:42 PM	7/24/01 3:45:42 PM	7/24/01 3:45:42 PM	7/24/01 3:45:42 PM	7/24/01 3:45:42 PM
2433	EM	CLOSE	12/2/99 8:47:58 PM	11/23/99 2:04:46 AM	11/24/99 8:33:34 PM	11/23/99 2:04:46 AM	11/25/99 8:33:34 PM
7492	CP	CLOSE	6/9/96 1:01:00 PM				
4394	EM	CLOSE	10/3/99 3:45:36 PM	10/3/99 3:45:36 PM	10/3/99 3:45:36 PM	10/3/99 3:45:37 PM	10/4/99 3:45:37 PM
90121	EM	CLOSE	1/3/01 3:45:40 PM	1/3/01 3:45:40 PM	1/4/01 3:45:40 PM	1/3/01 3:45:40 PM	1/4/01 3:45:40 PM

Installation

The embedded reporting tool is silently installed during the Maximo installation process. No separate install or integration process is required to activate the embedded report engine. This significantly reduces your setup time, and enables a quick deployment for development environments.

Report Administration

The Report Administration application enables administrators to configure and manage reports. Based on standard Maximo functionality and user interface, the report administration features include importing and exporting of report designs to the database repository, and defining and viewing report security. Within this application, you can also configure reports to enable application tool bar access, priorities, record limits and parameters. The ability to register and view multiple data sources is also available.

Security

Report Security - which users can have access to which reports - is enabled in the Report Administration application. Security can be granted at the individual report level, the application level or can be granted access to all reports. Multiple views are available so you can quickly see which reports each security group has access to. Additionally, with the embedded reporting tool, no synchronization of security groups with external reporting systems is required.

Report Performance

A variety of mechanisms have been enabled for you to optimize report performance. Because reporting enables a number of different processes, report performance is categorized into five separate components, including Configuration, Designing, Developing, Administering and Running. Each of these five functional areas is described in detail in the Report Performance Guide, with the most frequently requested information on Configuration and Administration described at a top level here.

Configuration

The embedded reporting tool can be configured to be a separate, dedicated server called BROS (BIRT Report Only Server.) Additionally, the report server can be clustered, and since report scheduling is done via a cron task, the report server can be optionally located on a cron cluster.

Administering




Administration of reports is very critical to their performance success. Specific items that administrators can enable include: Record Limits to prevent end users from inadvertently executing reports against large record sets, and specifying Schedule Only functionality. Schedule only functionality can be implemented on complex, batch reports to define the exact days and times of the week when the report can be executed. Additionally, administrators can use tools like the Performance Tab and Viewing Report Processing to monitor report performance.

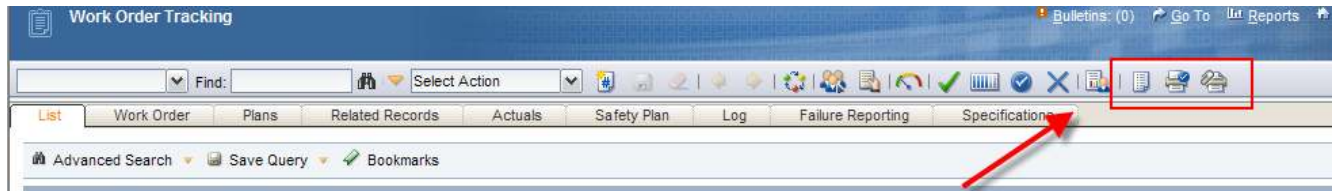
The screenshot displays the 'Report Administration' application interface. At the top, there is a navigation bar with 'Bullitins: (0)', 'Go To', 'Reports', 'Start Center', 'Profile', and 'Sign Out'. Below this is a search bar and a 'Select Action' dropdown. The main content area has tabs for 'List', 'Report', 'Security', and 'Performance'. The 'Performance' tab is active, showing details for a report with 'Report File Name' 'asset_measurement_history.rptdesign' and 'Application' 'ASSET'. The 'Historical Values' section includes 'Last Run Date' (2/8/10 9:38 AM), 'Last Run By' (WILSON), and 'Last Run Duration (HH:MM:SS)' (0:00:04). A red arrow points to the duration field. The 'Settings' section at the bottom has checkboxes for 'Limit Records?', 'Max Record Limit', 'Priority', and 'Schedule Only?'.

Report Logging


Additionally, report logging is available to monitor the usage and execution of the embedded reports. This valuable information can be used to answer the questions "Which Report takes the longest to execute?" "Are users scheduling reports" and "Which reports are executed most frequently?"


Application Toolbar Settings


Heavily used reports are often required to be accessed within the applications via a minimum number of mouse clicks. In certain scenarios, they are also required to be directly printed to the user's default printer. This functionality can be enabled through the use of application toolbar settings. Three different variations of this functionality are available including Browser View , Direct Print  or Direct Print with Attachments .



Application toolbar settings are enabled only for the embedded reporting tool, which are application reports. Application reports are also known as launch in context and dynamically pass the user's application query and/or filter to the report engine at run time.

Browser View  enables a report to automatically display in the separate report browser via one click from the toolbar. Once the report opens, the user can choose any actions from the reporting toolbar, including printing, searching and downloading.

Direct Print  enables a report to automatically print to the user's default printer via one click action on the icon. The report browser does not open - only a temporary window displays during the printing process which closes when the print operation is complete.

Direct Print with Attachments  enables a report to automatically print to the user's default printer via the icon in the toolbar, along with any printable attachments it may have. The report browser does not open. A temporary window displays during the printing process which closes when the print operation is complete, and a window asking the user to confirm if he wants to print the attached documents displays.

Cognos 8.4 Reporting - Version 7 Releases

Cognos Features

beginning with the 7.1.1.6 Release, a Cognos Reporting Integration is enabled. This integration extends the current suite of reporting tools that Maximo enables into a deeper level of Strategic Reporting. The integration utilizes the Cognos Reporting Products of Developers Studio, Query Studio, Cognos Connection and Framework Manager Products.

Silent Integration

The Cognos integration enables clients to further analyze the powerful Version 7 dataset. By enabling detailed drilldown analysis capabilities, users will have powerful flexibility and capability in analyzing data.

Users can see and access Cognos reports from within the various applications. Based on the user's report inputs, the Cognos reports are displayed in a separate browser session within the Cognos Portal. This is enabled through a silent log-in to the Cognos Server, where the user is authenticated.

The image shows two overlapping screenshots. The top screenshot is from the 'Work Order Tracking' application, displaying a list of work orders on the left and a 'Reports' dialog box on the right. A red arrow points to the 'Reports' dialog, which lists several report options. One option, 'Cognos Work Order Listing by Status', is highlighted with a red box. A second red arrow points from this box to the bottom screenshot. The bottom screenshot shows a browser window titled 'wotrack - Cognos Viewer - Microsoft Internet Explorer'. The browser displays a Cognos report titled 'Number of Work Orders by Status'. The report is a bar chart showing the number of work orders for various status codes. The Y-axis is labeled 'Number of WOs' and ranges from 0 to 320. The X-axis lists status codes: CLOSE - TENG, APRR - BEPORD, CLOSE - LAREDD, CLOSE - BEPORD, WANPR - BEPORD, APRR - TENG, APRR - LAREDD, WOPH - BEPORD, INPRE - TENG, INPRE - BEPORD, COMF - BEPORD, WIMOL - BEPORD, WANPR - LAREDD, WANPR - MCLAN, INPRE - LAREDD.

Status	Number of WOs (Approximate)
CLOSE - TENG	280
APRR - BEPORD	240
CLOSE - LAREDD	200
CLOSE - BEPORD	180
WANPR - BEPORD	150
APRR - TENG	120
APRR - LAREDD	80
WOPH - BEPORD	40
INPRE - TENG	20
INPRE - BEPORD	10
COMF - BEPORD	5
WIMOL - BEPORD	5
WANPR - LAREDD	5
WANPR - MCLAN	5
INPRE - LAREDD	5

Version 7 Cognos Metadata

The integration also enables the automatic creation of a metadata layer. The metadata layer is used by developers to create Enterprise or Ad Hoc Reports. It consists of pre-joined tables, so developers can quickly and consistently develop reports versus the traditional method of creating complex sql statements for each individual report.

To enable the metadata layer in the Cognos Integration, Cognos packages are based off of the Version 7 applications, like Assets, Work Order or Job Plans. These packages will be created from within the V7 Object Structure application by using specific Report Object Structures. Report Object Structures are collections of related tables, joined together via maxrelationships, and having defined cardinality and join properties. The Report Object Structures are then published to the Cognos Content Store thru Framework API's.

By utilizing the Object Structure application, the report integration setup time is significantly reduced. Clients will not have to expend significant time and effort in manually create individual Cognos Packages within the Cognos Framework tool by spending hours of time searching for correct object relationships.

Additionally, a client's attribute customizations are seamlessly incorporated. This is a key design point as many clients extend the database, and their unique attribute customizations are dynamically incorporated in the Report Object Structures.

The image shows a screenshot of the Cognos Object Structure application. The main window displays a tree view of object structures, with 'PM' selected. A 'Select Fields' dialog box is open, showing a list of tables including #ASSET, #ASSETSPEC, #WORKORDER, #ASSETMASTER, #ASSETSTATUS, #ASSETUSERLIST, #COMPANIES, #CONTRACTMASTER, #INVENTORY, #ITEM, #ASSETPLAN, #LOCATIONS, #PM, and #SPAREPART. A red arrow points from the 'PM' object in the tree to the '#PM' table in the 'Select Fields' dialog. Below the dialog, a 'Query Studio' window is open, showing a table titled 'Asset PM Analysis' with columns: ASSETID, DESCRIPTION, LOCATION, RETIREDATE, PHASE, and METADATA. The table contains data for various assets, including desktop computers, printers, and tractors.

Report Object Structures are basis of enabling Cognos Metadata layer

Metadata used by Developers to create reports

ASSETID	DESCRIPTION	LOCATION	RETIREDATE	PHASE	METADATA
48111	Standard Desktop Computer	INDT000			
48114	Tractor Tractor, Murray Model, 500L, P22000	PRC2			INDT000
11004	2007 Great Dane 400 Tractor	CAL7000			
11010	2007 Great Dane 400 Tractor	CAL2407			
10009	HVAC System-30 Ton Cool-Cool 45000 Btu Heat Cap	WR200	Jun 21, 2009 12:00:00 AM	IC 12000	Jun 20, 2009 12:00:00 AM
5009	Pre-Engineer	NOR1004	Nov 20, 2001 12:00:00 AM		
5006	Pre-Engineer	OPF402	Nov 20, 2001 12:00:00 AM		
10240	Water Starter-300 AMP/10-110V-50/60HZ	WR200	May 21, 2004 12:00:00 AM		
5001	Pre-Engineer	NOR1000	Nov 20, 2001 12:00:00 AM		
11000	2007 Great Dane 400 Tractor	CAL7000			
11001	2007 Great Dane 400 Tractor	CAL2407			
11002	2007 Great Dane 400 Tractor	CAL2407	Dec 4, 2009 12:00:00 AM		
61001	Pringler PR 6000	PL7000			
41001	Standard Desktop Computer	OPF100	Jul 14, 2004 12:00:00 AM		
11000	Lubrication System	OPF1000	Aug 27, 2009 12:00:00 AM		
40007	VALVE 112 TRACTOR	CAL7000			
5001002	Tractor Mounted Implement Pumper	OLP10		OPF1002	Oct 14, 2009 12:00:00 AM
1010	Windows XP Operating System	INDT000			
1010	Windows XP Operating System	INDT000			
1010	Windows XP Operating System	INDT000			
1010	MS SQL	OPF100			

Delivered Reports

To enable you in testing the Cognos Integration, two reports are available. These reports include both parameterized and launch in context reports, so you can review the source on how each should be prepared. You can then determine which type of reports best meet your individual needs.

Developing Reports

The powerful Cognos Reporting Products enable two different tools to create custom reports. Query Studio is used to create Ad Hoc reports, and Report Studio is used to create standard, enterprise reports. Both of these tools are very powerful in that they are browser based, but more importantly, they utilize the metadata layer. This reduces report development time because developers no longer have to create sql statements for their reports.

Integration Enablement

The Cognos Integration can be enabled thru a client's license of the Cognos 8.4 Reporting Products, or thru the Tivoli ® Common Reporting (TCR) 1.3 Enablement.

The TCR Enablement process provides licensing for the Cognos Reporting Products for use with any Tivoli Product. Utilizing this feature can enable you to create Tivoli Cross Products report which you can access from the Cognos Portal.

Cognos Reporting Feature Considerations

The list below includes some items you may want to consider when evaluating the Cognos Reporting Integration. A full list of these items can be found in the Cognos Integration Guide referenced at the end of this document.

1. The Integration is specific to the Cognos Reporting 8.4 Release. It does not utilize the Cognos Analytics Products of Transformer, Analysis Studio, Event Studio and Metric Studio.
2. Localization of reports. The ability to localize reports - including their labels, titles and individual data - is not enabled for the initial integration. This includes the ability to localize the metadata layer.
3. The embedded reporting functionality which deeply engulfs reporting in the various applications is not reproduced in this integration offering. A listing of some of the embedded functionality not included is:
 - A. Full Product Suite of Out of the box Reports
 - B. Scheduling, emailing, or canceling a Cognos Report within the V7 applications.
NOTE: This functionality can be enabled within the Cognos Reporting Products.
 - C. One Click Direct Print: Enabling a Cognos Report print directly to a user's default printer via a 1 Click Action from an Application's toolbar in V7.
 - D. Direct Print with Attachments: Enabling the Cognos Report print directly to a user's default printer along with any printable attachments it may have (ex. xls, doc, pdf, jpeg) within the Maximo Applications.
 - E. Application Changes, including Direct Print on Status Change and direct database updates from an executed report within the V7 Applications.
4. Additionally, because this is a separate integration, full platform support is not enabled. For a detailed listing of platform differences, reference the Cognos Documents at the end of this guide.

Business Objects/Crystal Reports - Version 7 Releases

Business Objects/Crystal Reports Features:

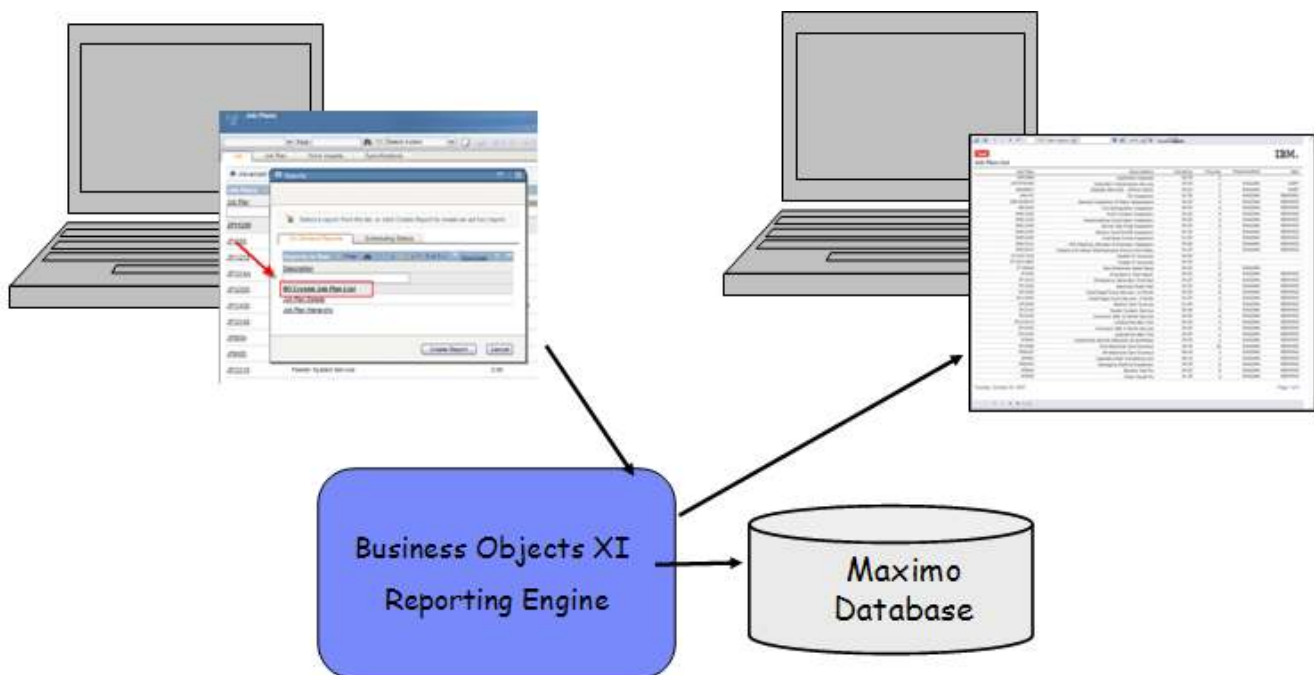
A Report Integration is available to the Business Objects XI ® Product Suite. The integration enables users to see and execute the Business Objects reports from the various applications.

This integration enables users to execute two types of reports. Users can execute parameterized reports, where they specifically enter values for parameters, like Start Date and End Date. Additionally, they can execute application reports, which is also known as 'Launch in Context'. Launch in Context enables the passing of the applications query and/or filter directly to the report server. This minimizes the number of keystrokes and potential typing errors by the user. Additionally, it reduces the number of custom reports that may need to be developed because undefined report parameters significantly increase a single report's flexibility.

The Report Administration Application is used to register and define security access to the Business Objects reports. Within this application, the administrator will register these reports, associate them to an application, and define which security groups should have access to them from the various applications.

Additionally, three Business Objects reports are delivered out of the box for you to be used to validate the integration, and also to understand how custom reports need to be developed for this integration.

Below is a top level diagram of this integration:



Business Objects/Crystal Reports Considerations:

IBM does not provide you with any Business Objects or Crystal licenses and does not support any specific Business Objects or Crystal issues. You must purchase and maintain your Crystal license separately with Business Objects.

IBM developed this integration by using a Processor based license. Therefore, all BO reports that you run through this integration execute against a single, name user account. Optional Crystal Licenses are available, including Named User Licenses. If you encounter any integration licensing conflicts, you must resolve the issue separately with Business Objects.

The integration requires BusinessObjects Enterprise XI Release 2, Service Pack 2 Release (BOXI Release 2). This is a different version than the Version 6 releases, which integrated to the BusinessObjects Crystal Reports XI SP1 Release (BOXI Release 1).

To enable this integration, the Business Objects Enterprise Server, including the (a) Central Management Console and (b) Web Component Adapter are required. Additionally, Crystal Reports XI is also required for report design.

Additionally, because the Business Objects/Crystal Reports is through report integration, the integration does not enable the full suite of embedded reporting functionality. Examples of functionality not included are application toolbar access, including licensing, Direct Print with Attachments, and Emailing and Scheduling from within the Maximo applications.

For more details on the Business Objects/Crystal Reports Option, including how to enable it, examples of how to develop Crystal Reports for use in the Maximo Framework, and what integration functionality is enabled, reference the documents at the end of this guide.

External Report Integration - Version 7 Releases

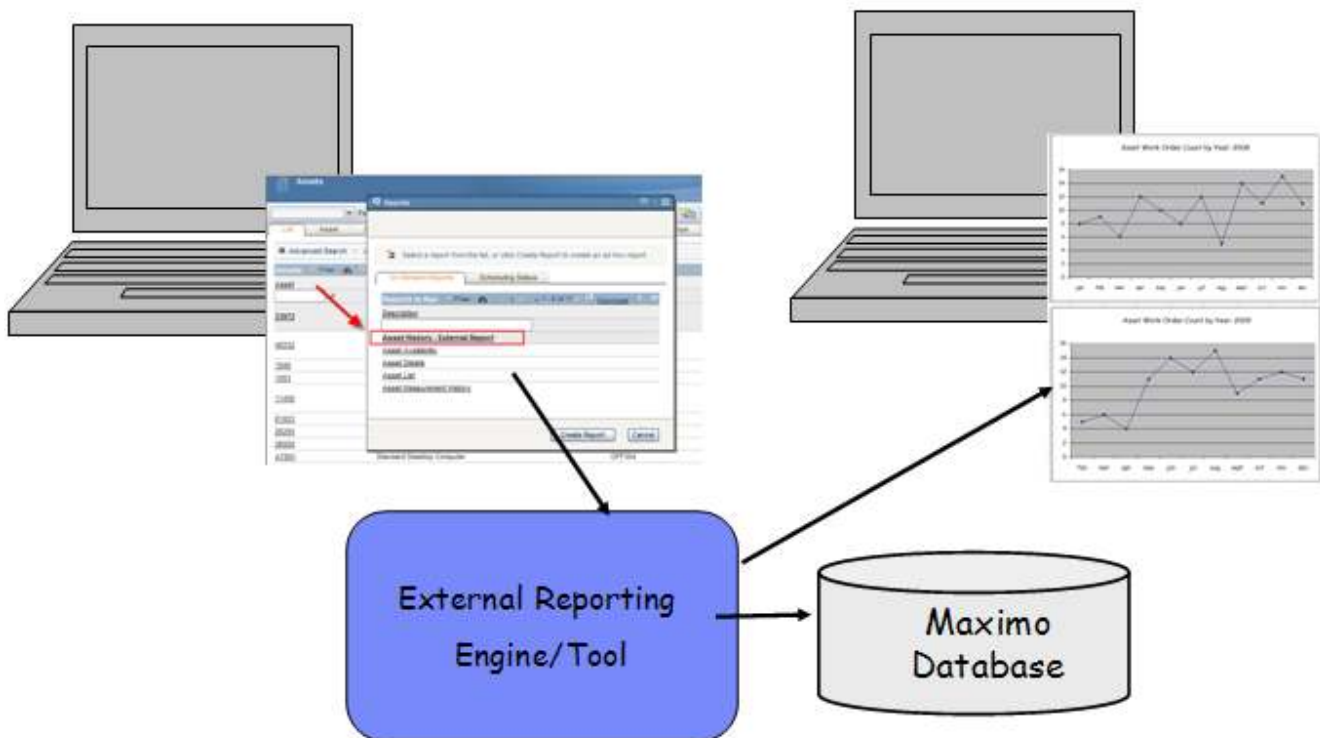
External Report Integration Features

The External Report Integration, or ERI, is available to integrate the Maximo Framework with external Reporting Systems. These external reporting systems could include a variety of reporting tools, including Hyperion, Information Builders, SAS, Oracle BI, or many others.

This functionality is very similar to the BusinessObjects Crystal Reports XI Integration - except it is more flexible in that it is report system and report version independent. You determine what reporting tool and version best meets your unique reporting needs.

This integration enables users to execute two types of reports. Users can execute parameterized reports, where they specifically enter values for parameters, like Start Date and End Date. Additionally, they can execute application reports or Launch in Context reports. Launch in Context reports pass the application's query and/or filter directly to the report server, thereby minimizing the number of keystrokes and potential typing errors by the user.

The Report Administration application is used to register and define security access to the external reports. External reports are identified as report type 'custom'. Within Report Administration, the administrator registers the external, custom reports, associates them to an application, and defines which security groups should have access to them from the various applications.



External Report Considerations:

IBM does not provide you with any report licenses or support in working with external reporting tools. You must purchase and maintain your licenses for any of these tools separately.

Additionally, because this is an open integration which is not enabled to a specific reporting tool or release, no out of the box reports are provided.

Additionally, this integration does not enable the full suite of embedded reporting functionality. Examples of embedded functionality not included are application toolbar access, including licensing, Direct Print with Attachments, and Emailing and Scheduling from within the Maximo applications.

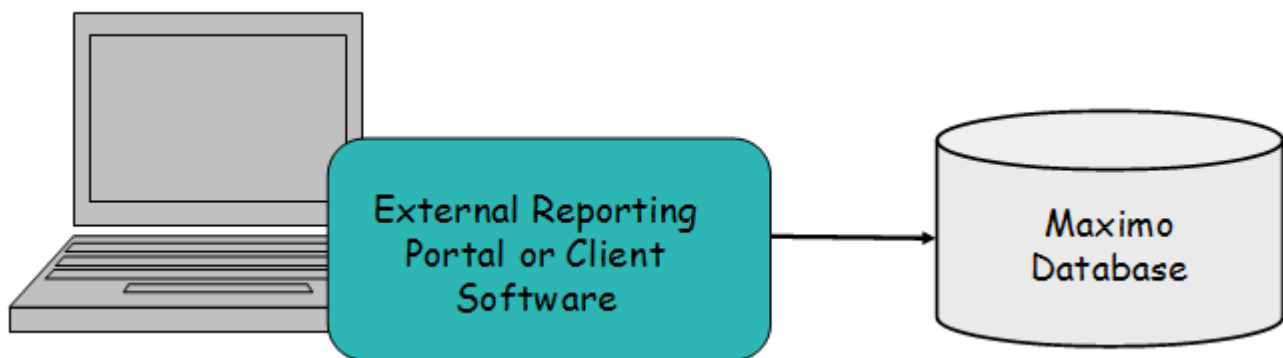
For more details on the External Report Option, including how to enable it and its corresponding integration functionality, reference the documents at the end of this guide.

Open Database Platform - Version 7 Releases

Open Database Platform Features:

Maximo is based on an Open Database Platform. You can extend this architecture to configure your reporting tool of choice directly to the Maximo Database. This enables you to directly connect to the database - without going thru the Maximo Framework - to streamline this report integration.

This flexible architecture enables you to utilize any reporting tool or version - as you simply configure your reporting tool directly to the database. Once this is configured, you can create powerful reports directly against the vast amounts of data available.



Open Database Platform Considerations:

With the Open Database Platform, you do not utilize the Maximo Framework to execute reports. Report execution is done directly from the user's machine to the reporting software. With this simplified process, the user can execute any number of reports directly against the Maximo Database.

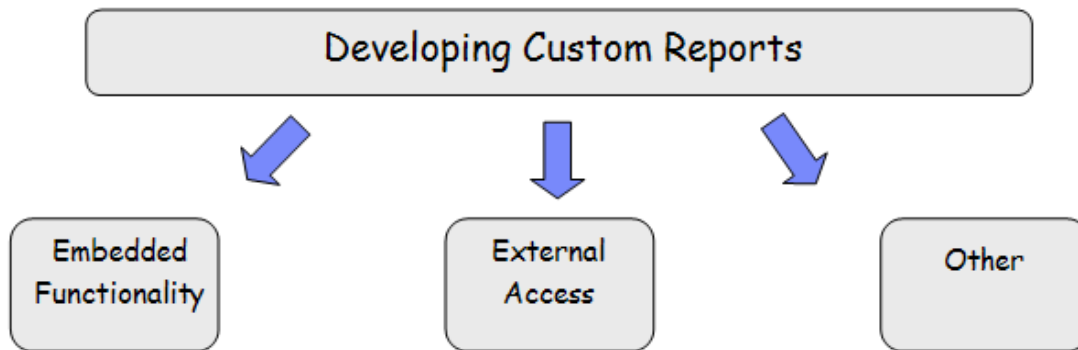
However, with this approach, Maximo users will not have visibility to these reports from within the various applications, and can not execute these reports via a Launch in Context. Additionally, any of the other embedded reporting functionality - like emailing, scheduling, security and toolbar access - is not available because reports are executed external to the Maximo Framework.

Finally, because this report integration is not enabled within the framework, IBM does not enable licenses or support for the variety of broad range of integrations that you could enable.

Developing Custom Reports

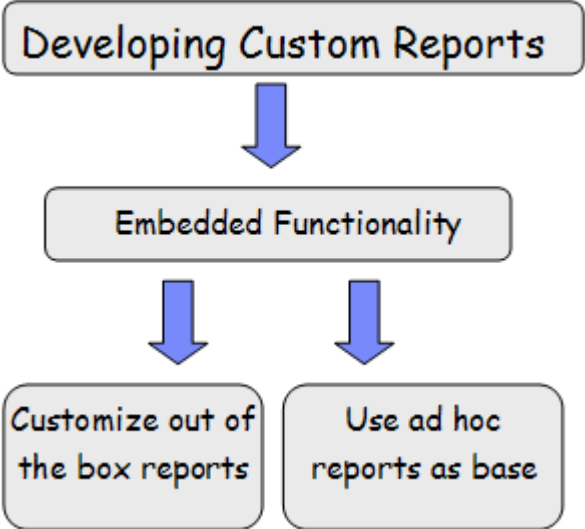
In the previous sections, information on design features to consider and the various report options were detailed. This last section is intended to bring the output of those sections into an actionable plan that you can undertake for your custom report requirements.

This actionable plan can be used by both clients upgrading to Version 7 from prior Maximo versions, or those creating new custom reports in Version 7.



Embedded Reporting Tool

If you choose to utilize the embedded reporting tool of BIRT in V7, there are a number of options you can pursue to develop your custom reports. These options include customizing the out of the box reports provided, or using the embedded ad hoc reporting functionality as a starting point for your custom report.



Customizing Out of the Box Reports

Depending on the specific products you are licensed for, over 150 Out of the box reports are delivered out of the box. These reports span the variety of Applications, and include Analysis, Detail, Hierarchical, and Drill down Reports. Reports can update the database, hyperlink to one another to enable more detailed analysis, and refresh data dynamically. These reports are designed to quickly and clearly convey information to the end user, and approximately 20% include graphs, including pie, bar and line charts along with daily and monthly calendar views and control limits.

The out of the box reports provide you a starting point for your custom report needs. You can quickly customize these reports to meet your individual business needs, and also utilize the delivered business logic to create any new reports you need.

To understand the types of reports that are available, and the code that they utilize, access the Report Booklet. Available as a download from IBM's Support website, the report booklet contains valuable information on each report.

The booklet is set up with three distinct pages.

V7 Reports / Additional V7 Report Desc / Revisions /

The first page 'V7 Reports' lists details of each individual out of the box report. These details include:

Name: Name of the Report. If you click on the name of the report, it will hyperlink to a pdf copy of the report.

Description: Description of what the report does

LD?: Long Description. If yes, additional report details can be found in the 'Additional V7 Report Desc' worksheet.

Report File Name: Report source design file name.

Maximo Application(s): Application or Applications that the report can be accessed from.

Graph: If the report includes a graph, the type of graph utilized and what it displays.

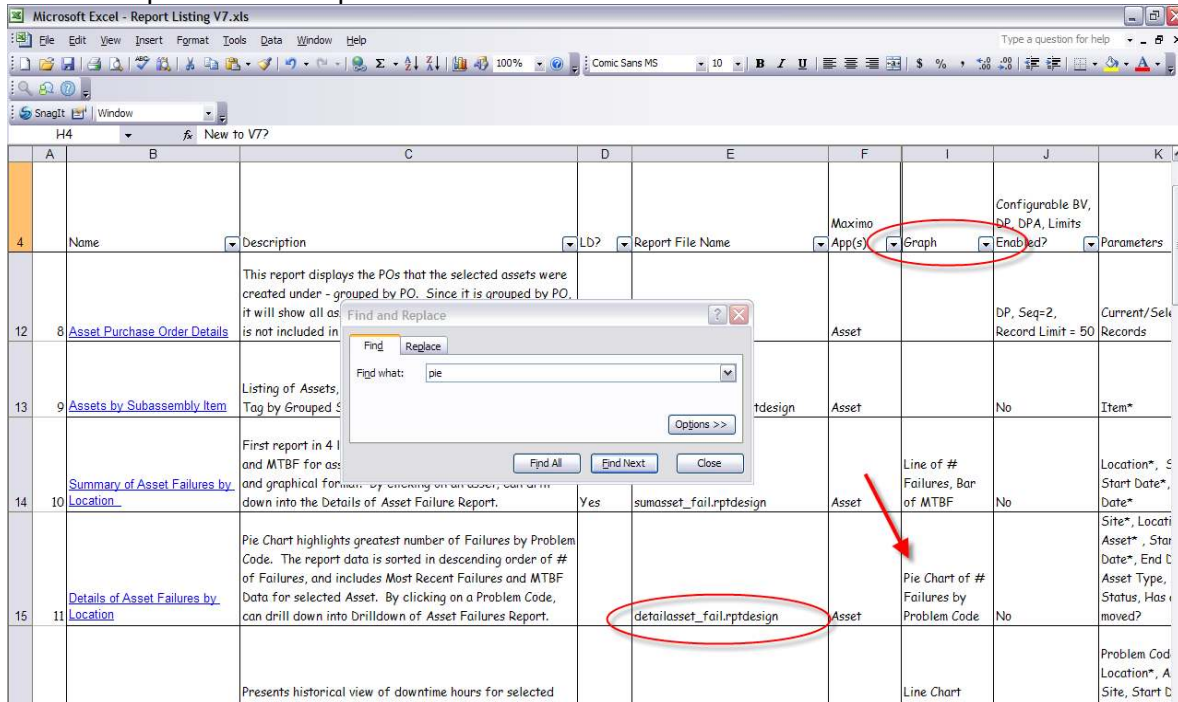
Configurable BV, DP, DPA, Limits Enabled: Details if Application Toolbar Access Settings are enabled out of the box. These include Browser View, Direct Print and Direct Print with Attachments.

Parameters: Details if parameters are specified for the report, like Start Date or End Date, and if they are required or non-required parameters. If parameters are not specified, the report executes against the current/selected record set, in what is known as Launch in Context.

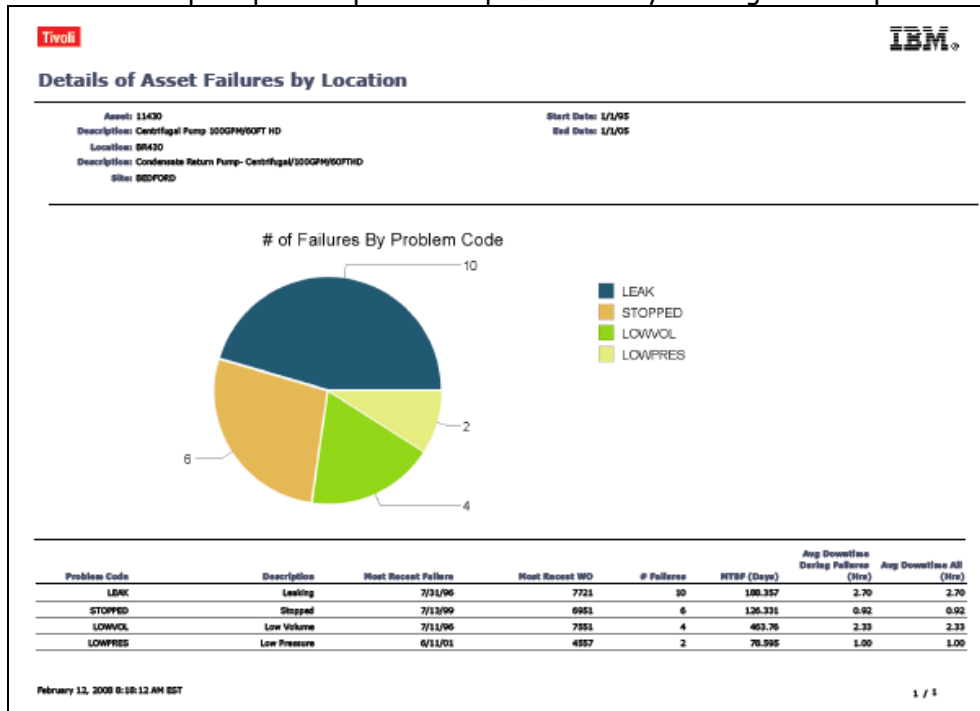
Suggested Demo Data: If you want to execute these reports from a maxdemo environment, the suggested demo data column lists maxdemo data that can be used for report execution.

Template: Details which template is used, and if grouping or sorting is used

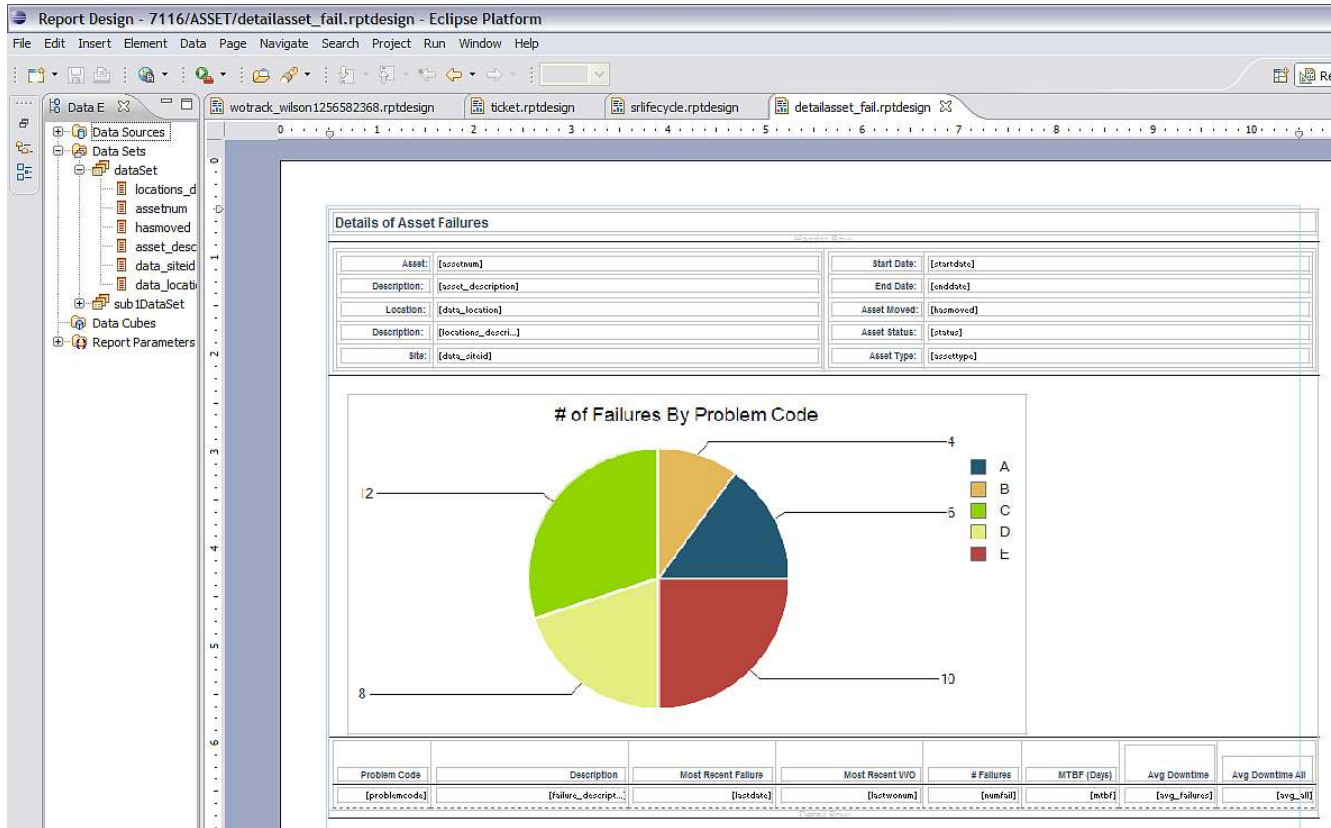
To best utilize this information, you may want to search for information you need on your custom report from this page. For example, if you need to create a custom report with a pie graph, you may want to look at an out of the box report which has a pie graph. As shown below, the Details of Asset Failures by Location report includes a pie chart.



You can then open up the report in its pdf format by clicking on its report name



If this could be a good fit to either modify for your custom report - or that its code could be used within your unique custom report, you can then open up its source file in the Report Design Tool. Report Source is located in <V7>\reports\birt\reports



Additionally, if a report has a 'Yes' in the LD? column of the spreadsheet, it indicates that additional information is available for the report. This is shown with the same report - Details of Asset Failures.

	A	B	C	D	E
4	Name	Description		LD?	Report File Name
15	11	Details of Asset Failures by Location	Pie Chart highlights greatest number of Failures by Problem Code. The report data is sorted in descending order of # of Failures, and includes Most Recent Failures and MTBF Data for selected Asset. By clicking on a Problem Code, can drill down into Drilldown of Asset Failures Report.	Yes. Date/Time Lookup	detailasset_fail.rptdesign

The additional information is available in the second worksheet 'Additional V7 Report Desc'.

\ V7 Reports \ **Additional V7 Report Desc** \ Revisions \

Once on this page, you could also search to find additional information that may be included in the out of the box reports. This example details how a bound date parameter can be used.

#	Report Name	Additional Help Text Description
11	Details of Asset Failures	This report includes parameter examples using date/time lookups. The majority of the V7 OOB reports containing date parameters are date only as the parameters are unbound (attribute value null) However, date parameters can be date/time values if the field can be bound (attribute value is populated). This report is an example having a date/time parameter values as its parameter is bound as shown in the screen shot below More information on parameters, including bound and unbound, can be found in the V7 Report Feature Guide.

The screenshot shows two overlapping windows. The 'Report Administration' window displays the 'Details of Asset Failures' report configuration. A table lists parameters with their attributes:

Parameter Name	Attribute Name	Sequence	Display Name
siteid	SITEID	1	Site
location	LOCATIONID	2	Location
asset	ALLWV.ASSETNUM	3	Asset
startdate	ALLWV.FALDDATE	4	Start Date
enddate	ALLWV.FALDDATE	5	End Date

The 'Details' section for the 'startdate' parameter is expanded, showing:

- Parameter Name: startdate
- Attribute Name: ALLWV.FALDDATE
- Lookup Name: GetLookup
- Display Name: Start Date
- Display Sequence: 4
- Required:
- Sub-Lookup Enabled:
- Default Value: [empty]
- Operator: [empty]

The 'Request Page' window shows the 'Parameters' section with input fields for Site, Location, Asset, Start Date, End Date, Asset Type, Asset Status, and Asset Moved?. A calendar widget is visible for the Start Date field, showing the month of May 2009. A red arrow points to the 'Start Date' field in both windows.

Use Ad Hoc Reporting as a base for Custom Report Development

When Ad Hoc Report is created and saved, its resulting design file (.rptdesign) that was created on the fly is saved to the database. This enables the report to be accessed in the future for immediate run access or scheduling and emailing.

Additionally, once the report is saved in the database, it can be extended within the Report Designer tool. By simply exporting the report and opening it in the design tool, you can quickly build upon the report design by adding calculations, graphs or additional features.

This can become a huge time saving feature for your custom report development because ad hoc reports can be created with complex sql from multiple tables, filters and application queries. Instead of having the developer create all this information - you can let the Maximo framework perform this work, and then build upon the ad hoc report in the designer.

To show how this can be accomplished, an example below is given. First, the Ad Hoc report is created and saved. In this case, the report is created in the Asset Application, and called 'Asset Specifications and Work Order Details.'

Tivoli software										IBM
Asset Specification and Work Order Details										
Asset Details										
Asset	Description	Location	Parent	Rotating Item	Site	Asset Tag	Type	Calendar		
11430	Centrifugal Pump 100GPM/60FT HD	BR430	11400	PUMP100	BEDFORD	6491		COMPANV1		
Specifications										
Asset	ASSETSPECID	Unit of Base Measure	End Base Measure	End Measure	Start Base Measure	Start Measure				
11430	230									
11430	231									
11430	227									
11430	226									
11430	228									
11430	229									
11430	232									
Work Orders										
Work Order	Work Type	Status	Status Date		Scheduled Start	Scheduled Finish	Target Start	Target Finish		
7721	CP	CLOSE	7/31/96	10:06:00 PM						
1695	EM	CLOSE	8/5/98	1:43:24 AM	7/26/98	7:00:12 AM	7/29/98	1:29:00 AM	7/26/98	7:00:12 AM
3838	EM	CLOSE	1/17/01	2:20:24 AM	1/7/01	7:37:12 AM	1/10/01	2:06:00 AM	1/7/01	7:37:12 AM
6727	EM	CLOSE	3/22/99	2:51:24 AM	3/12/99	8:08:12 AM	3/15/99	2:37:00 AM	3/12/99	8:08:12 AM
1638	EM	CLOSE	4/24/01	1:40:24 AM	4/14/01	6:57:12 AM	4/17/01	1:26:00 AM	4/14/01	6:57:12 AM
1488	EM	CLOSE	10/8/01	1:37:24 AM	9/28/01	6:54:12 AM	10/1/01	1:23:00 AM	9/28/01	6:54:12 AM
1277	EM	CLOSE	3/5/01	1:08:24 AM	2/23/01	6:25:12 AM	2/26/01	12:54:00 AM	2/23/01	6:25:12 AM

Then, the report is exported for its repository in the database to a local file system. This is done via a command utility. The command utility uses a property file to enable this. Therefore, you must configure the reporttools.properties file. It is located at: <V7>\reports\birt\tools

```
# HostName or IP address of the machine that has MAXIMO application running in an App
Server
maximo.report.birt.hostname=localhost

# HTTP port of the application server (the port used to access maximo from browser)
maximo.report.birt.port=9080

# Indicates whether the SSL communication is enabled or not
maximo.report.birt.ssl=false

# User that has access to perform the operation
maximo.report.birt.username=wilson

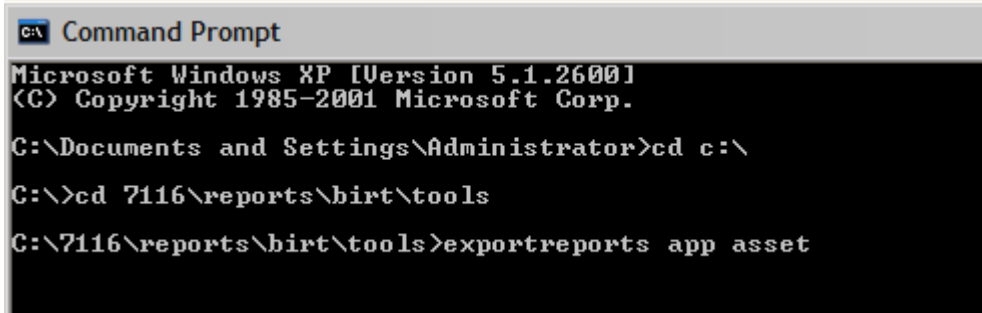
# Password of the user that has access to perform the operation
```

```
maximo.report.birt.password=wilson
```

```
# Output folder used for the export operation  
maximo.report.birt.outputfolder=c:/7116/reports/birt/export/asset
```

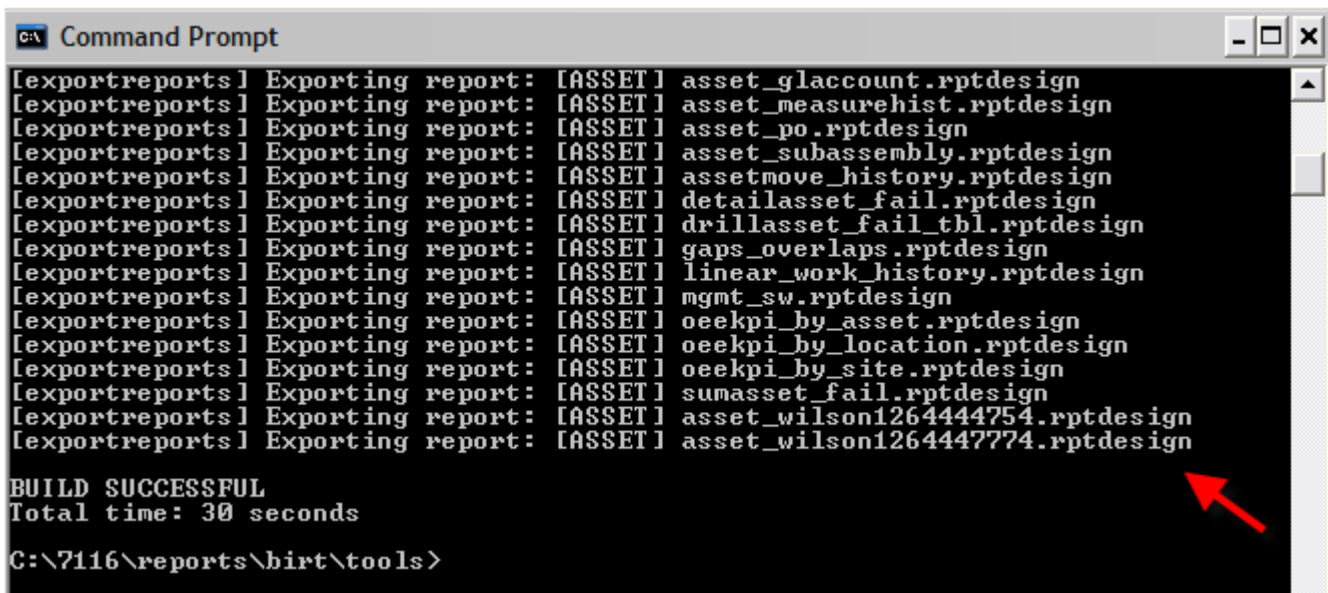
The output folder highlighted in red details the location of where the exported Ad Hoc Report will be placed.

To export an Ad Hoc Report, open a command window. Navigate down to the exportcommands path...
<V7>reports\birt\tools



```
Microsoft Windows [Version 5.1.2600]  
(C) Copyright 1985-2001 Microsoft Corp.  
  
C:\Documents and Settings\Administrator>cd c:\  
  
C:\>cd 7116\reports\birt\tools  
  
C:\7116\reports\birt\tools>exportreports app asset
```

Then, export all of the reports from the asset application by:
exportreports app asset

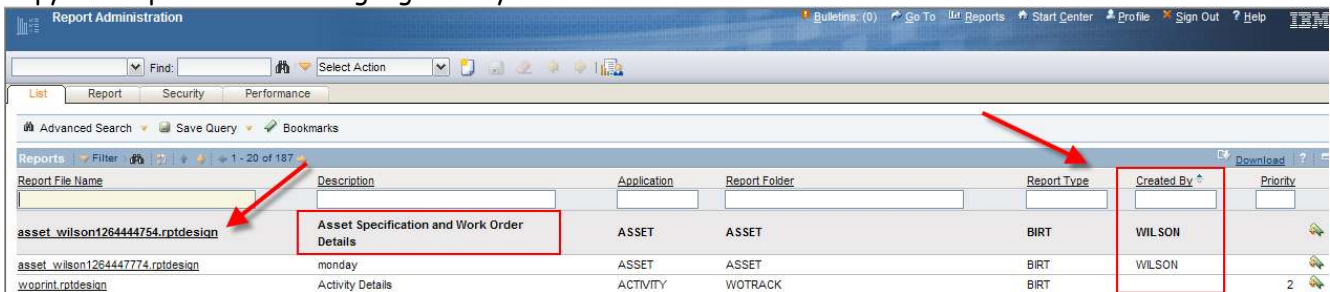


```
[exportreports] Exporting report: [ASSET] asset_glaccount.rptdesign  
[exportreports] Exporting report: [ASSET] asset_measurehist.rptdesign  
[exportreports] Exporting report: [ASSET] asset_po.rptdesign  
[exportreports] Exporting report: [ASSET] asset_subassembly.rptdesign  
[exportreports] Exporting report: [ASSET] assetmove_history.rptdesign  
[exportreports] Exporting report: [ASSET] detailasset_fail.rptdesign  
[exportreports] Exporting report: [ASSET] drillasset_fail_tbl.rptdesign  
[exportreports] Exporting report: [ASSET] gaps_overlaps.rptdesign  
[exportreports] Exporting report: [ASSET] linear_work_history.rptdesign  
[exportreports] Exporting report: [ASSET] mgmt_sw.rptdesign  
[exportreports] Exporting report: [ASSET] oekpi_by_asset.rptdesign  
[exportreports] Exporting report: [ASSET] oekpi_by_location.rptdesign  
[exportreports] Exporting report: [ASSET] oekpi_by_site.rptdesign  
[exportreports] Exporting report: [ASSET] sumasset_fail.rptdesign  
[exportreports] Exporting report: [ASSET] asset_wilson1264444754.rptdesign  
[exportreports] Exporting report: [ASSET] asset_wilson1264447774.rptdesign  
  
BUILD SUCCESSFUL  
Total time: 30 seconds  
  
C:\7116\reports\birt\tools>
```

*Note: You can also export only a single report by using the command:
exportreport report <application> <reportfilename>

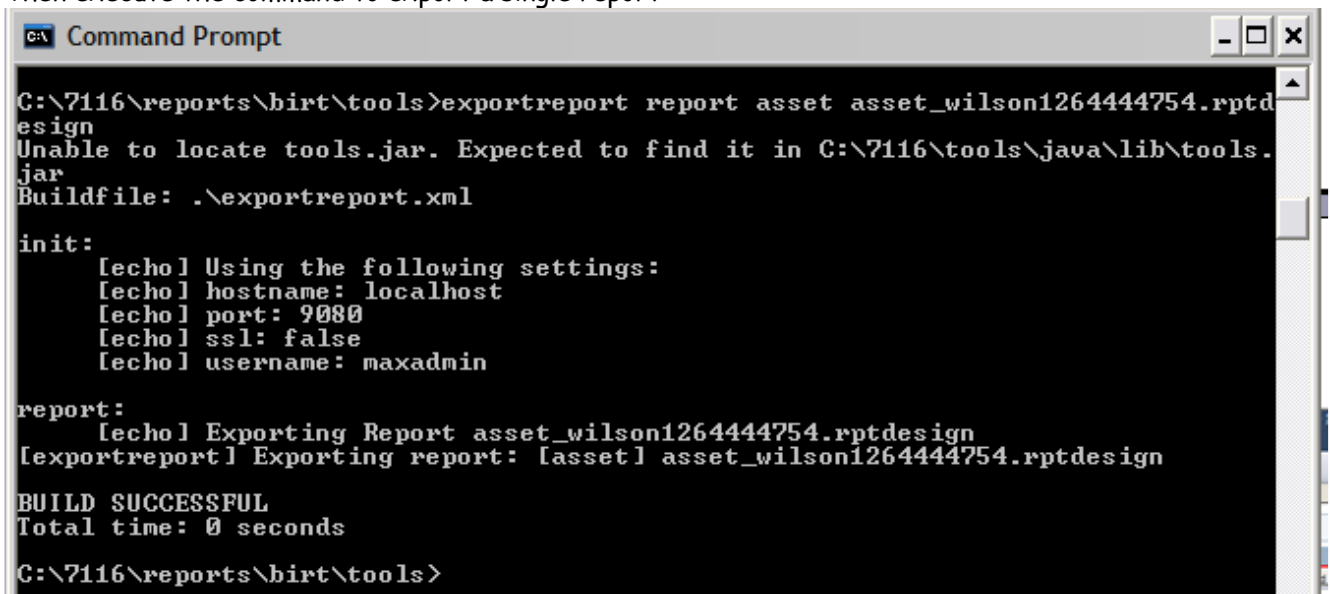
However, all command files work with file names - not the report descriptions that users assign during Ad Hoc Report Creation. So to use this command, you first must know the exact name of the QBR report. To find this name, access Report Admin, and filter on Created By. Ad Hoc reports are identified where the Created By field is not null.

Copy the report file name highlighted by the arrow on the left



Report File Name	Description	Application	Report Folder	Report Type	Created By	Priority
asset_wilson1264444754.rptdesign	Asset Specification and Work Order Details	ASSET	ASSET	BIRT	WILSON	
asset_wilson1264447774.rptdesign	monday	ASSET	ASSET	BIRT	WILSON	
worport.rptdesign	Activity Details	ACTIVITY	WOTRACK	BIRT		2

Then execute the command to export a single report



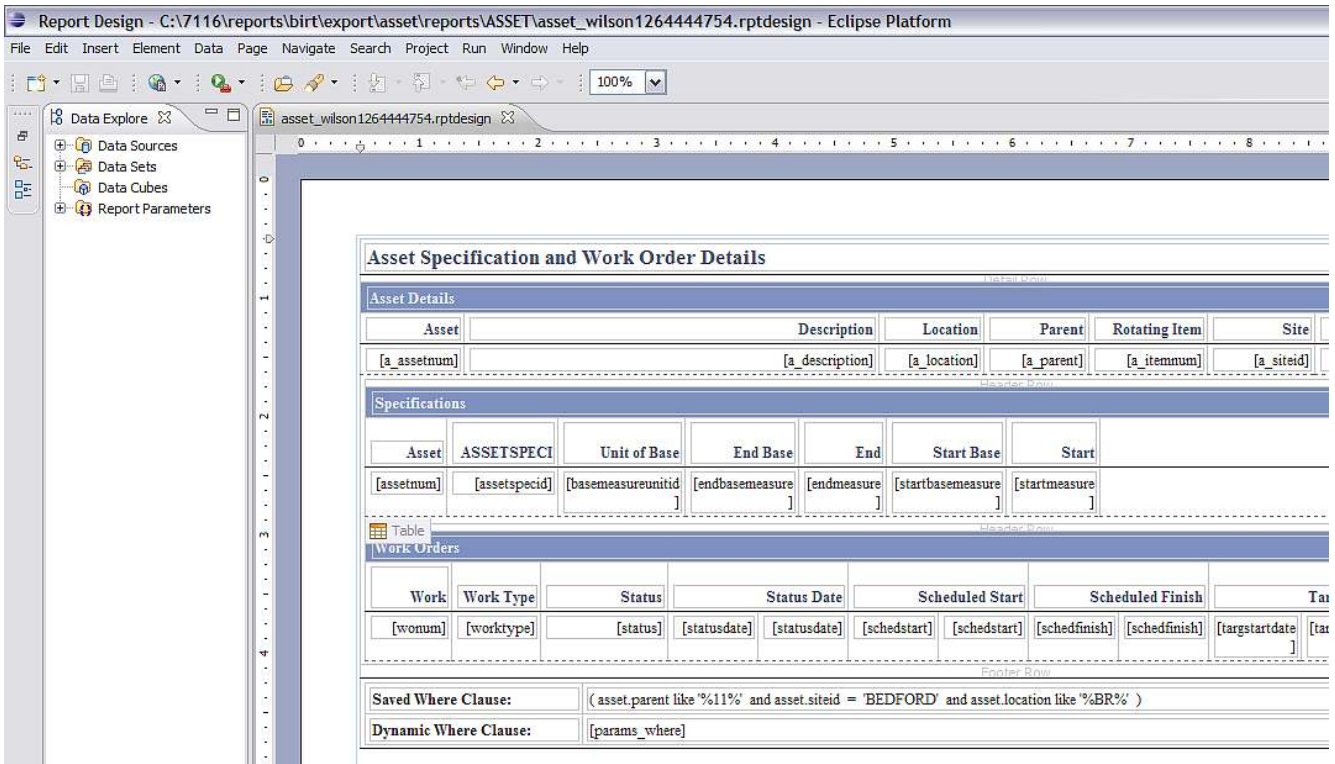
```
C:\> Command Prompt
C:\> C:\7116\reports\birt\tools>exportreport report asset asset_wilson1264444754.rptdesign
Unable to locate tools.jar. Expected to find it in C:\7116\tools\java\lib\tools.jar
Buildfile: .\exportreport.xml

init:
[echo] Using the following settings:
[echo] hostname: localhost
[echo] port: 9080
[echo] ssl: false
[echo] username: maxadmin

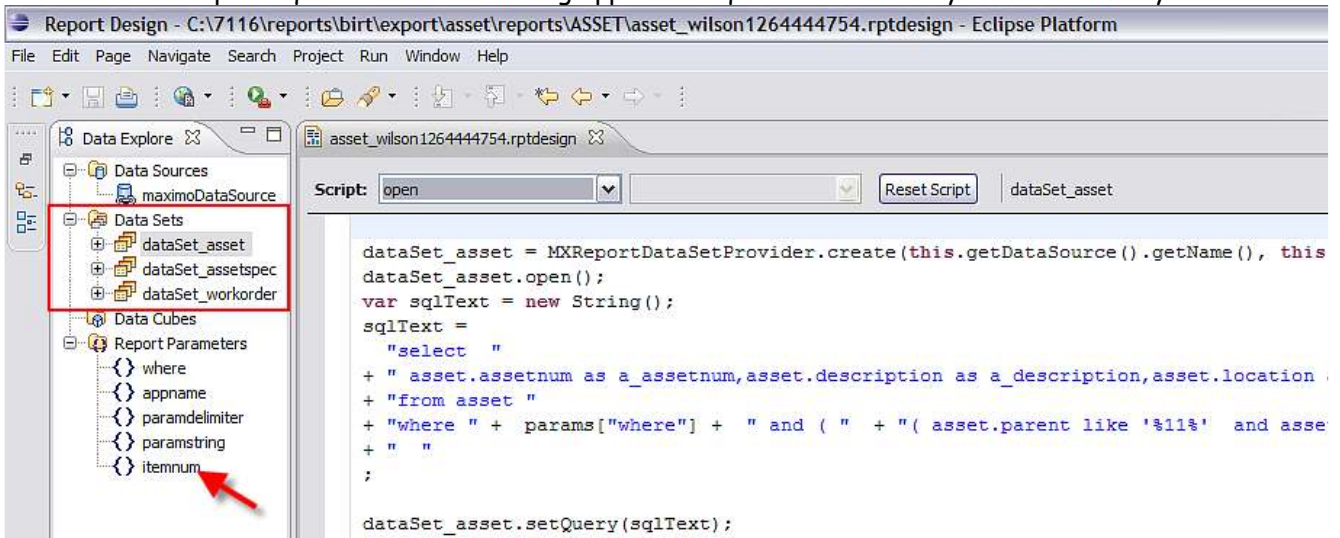
report:
[echo] Exporting Report asset_wilson1264444754.rptdesign
[exportreport] Exporting report: [asset] asset_wilson1264444754.rptdesign

BUILD SUCCESSFUL
Total time: 0 seconds
C:\7116\reports\birt\tools>
```

Once you have exported the ad hoc report, open up the Report Designer tool. From the menu, click File - Open File and navigate to the directory where you exported your reports. Select the Ad Hoc Report's .rptdesign file, and it displays in the designer.



You can immediately see that you have an excellent beginning to extend this report further for any other customizations you may need. Multiple data sets (subreports) can be already populated, parameters included and complex sql statements including application queries can already be formed for you.



This can become an excellent starting point for your report developer.

Cognos Report Integration

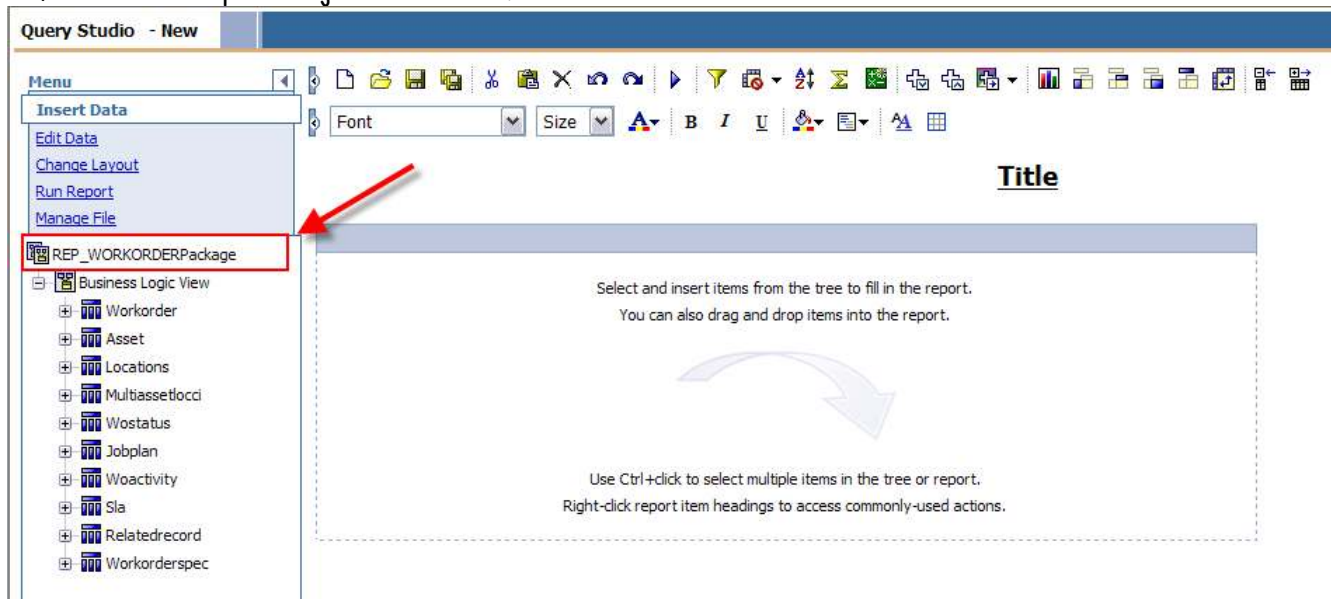
If you choose to utilize Cognos Reporting to create your custom reports in Maximo 7, you can utilize either the powerful Cognos Query Studio or Cognos Report Studio. Cognos Query Studio enables you to create Ad Hoc Reports, whereas Cognos Report Studio enables you to create standard Enterprise Reports. Both tools are web based, and enable report creation via a visual, dynamic interface.

Query Studio

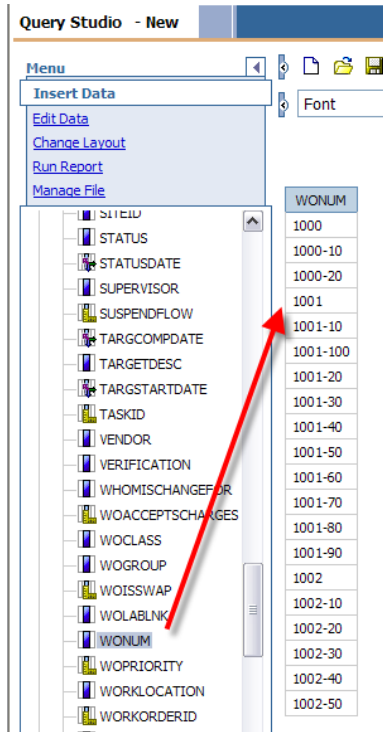
Using Cognos Query Studio tool, your business users can quickly create Ad Hoc Reports with little or no training. Your users will simply open up any one of the Cognos Packages to begin report creation. These Cognos Packages were formed from the Application's Report Object Structure in the Maximo Framework.

When you create reports in either Query Studio or Report Studio, the business user does not have to have database knowledge, or experience in writing sql statements. The metadata layer enabled with the Cognos packages contains the sql - so your users can quickly and consistently develop report content.

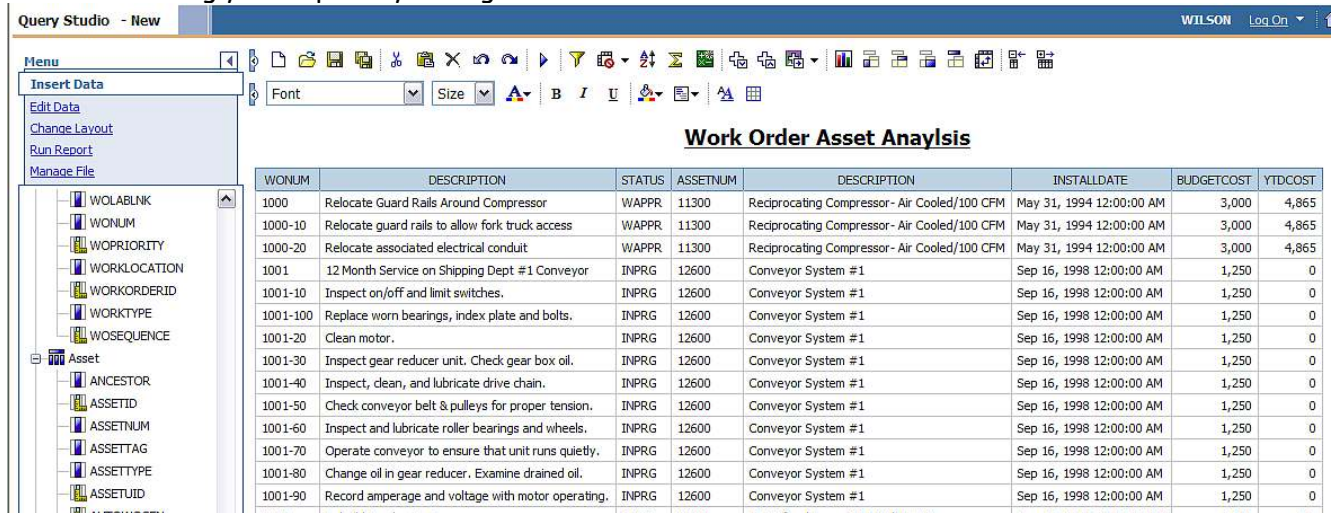
The example below shows how a user could create a Work Order Ad Hoc Report. You first start with the Cognos Work Order Package that was dynamically created from the Work Order Report Object Structure in Maximo. When you expand the package, it shows all the objects (database tables) which you can select fields from. You can select fields from the parent object of Work order, or any related tables like Asset, Locations, or SLA. Each of these tables is related to the parent via the maxrelationships defined in the Report Object Structure.



To add a field to the Ad Hoc report, simply drag and drop the field in the report authoring section.



Continue building your report by adding other fields from the main table or related tables.



Additionally, you can apply filters, add calculations, sort, group along with numerous other features including graphing and pivot tables to create your own powerful, custom Ad Hoc Report.

The screenshot shows the Cognos Query Studio interface. On the left is a tree view of data sources including WOLABLNK, WONUM, WOPRIORITY, WORKLOCATION, WORKORDERID, WORKTYPE, WOSEQUENCE, and Asset. The main area displays a report table with columns WONUM, DESCRIPTION, and STATUS. A red box highlights the STATUS column header. Below the table is a filter section titled "Filter (Pick values from a list)" with the text "Reduce the amount of data in the report. With the Prompt option selected, the". Under "Filter on:", STATUS is selected. Under "Condition:", a dropdown menu is set to "Show only the following" and a list of status values is shown: APPR, CLOSE, COMP, INPRG, WAPPR, WMATL, and WSCH. A red arrow points to the "Show only the following" dropdown, and another red arrow points to the "STATUS" column header in the table above.

WONUM	DESCRIPTION	STATUS
1000	Relocate Guard Rails Around Compressor	WAPPR
1000-10	Relocate guard rails to allow fork truck access	WAPPR
1000-20	Relocate associated electrical conduit	WAPPR
1001	12 Month Service on Shipping Dept #1 Conveyor	INPRG
1001-10	Inspect on/off and limit switches.	INPRG
1001-100	Replace worn bearings, index plate and bolts.	INPRG

Filter (Pick values from a list)

Reduce the amount of data in the report. With the Prompt option selected, the

Filter on:
STATUS

Condition:
Show only the following

- APPR
- CLOSE
- COMP
- INPRG
- WAPPR
- WMATL
- WSCH

With minimal training, the business user can quickly create an Ad Hoc report within Cognos Query Studio to meet his individual business or project needs. Once complete, it can be saved for future access, and also shared with others.

Report Studio

With Cognos Report Studio, your developers can create professional enterprise reports in an advanced reporting environment.

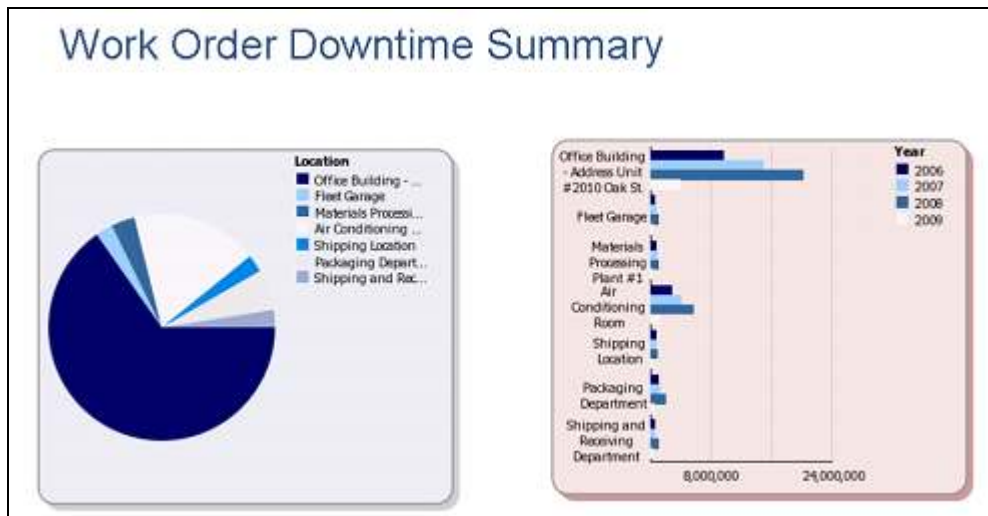
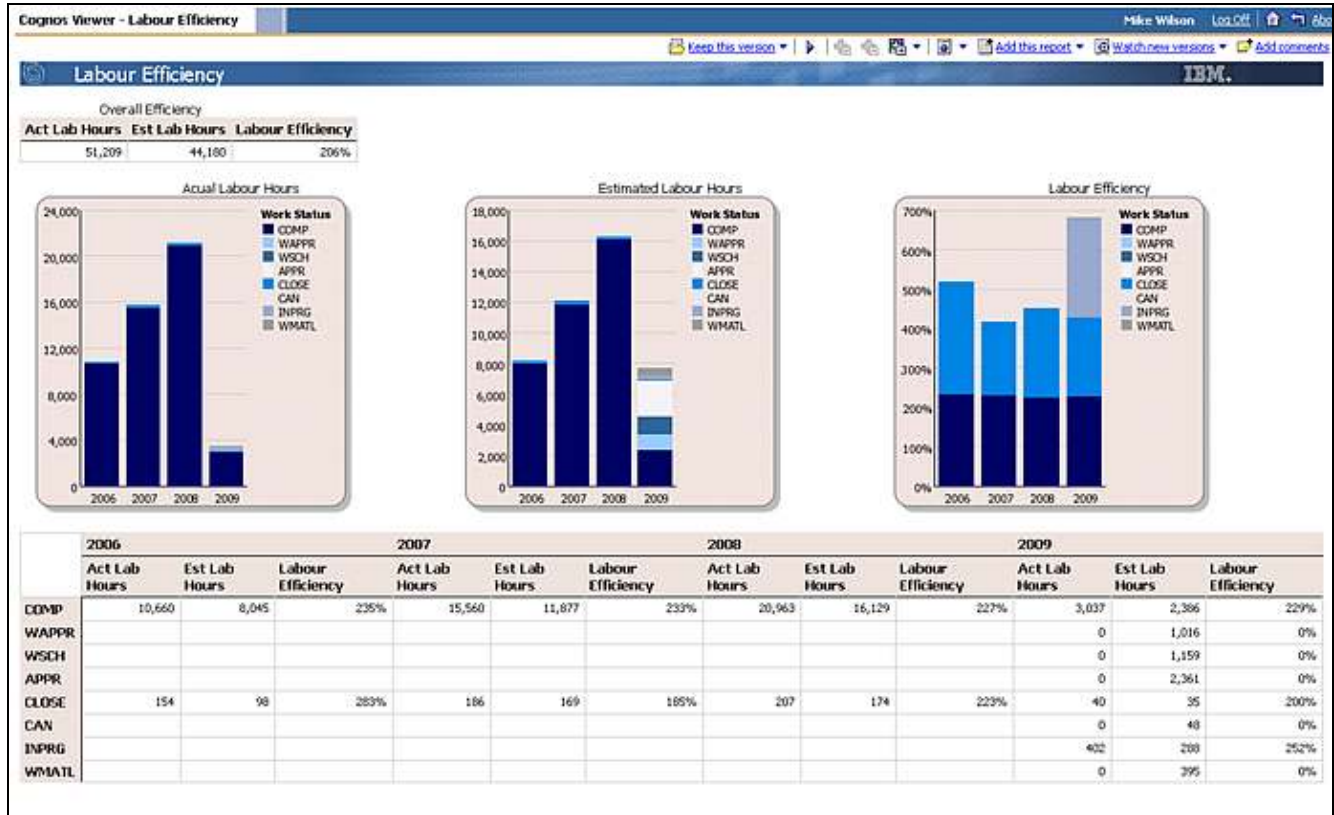
A few of the benefits developers will see when developing reports within the Cognos Reporting Product Suite include*

- Reports can be created in a wide variety of formats and objects, including graphs, charts, crosstabs, lists and other dynamic non-BI components like images and logos.
- The report development tools deliver a zero-footprint, browser based interface for all reporting functionality. This eliminates the need for IT to install and manage client desktop software.
- Casual or novice users can author and modify their own reports with minimal training or IT involvement. The flexibility of the task based interface reduces the time required to author and modify a report.
- Report developers can create reports containing any number of report objects— charts, cross tabs, and lists, as well as non-BI components such as images, logos, and live embedded applications that can be linked to the information.
- Reports can be built with multiple data queries. Each query can draw data from any data source or a combination of sources and be linked together in context or left as independent.
- Users can arrange report objects by dragging and dropping them into the report authoring window. Report layout automatically adapts and rearranges as report objects are added or removed.
- When used with dimensional data, query and reporting capabilities provide automatic recognition of hierarchies and automatic drill-up and -down for both text reports and charts, without the need for authoring by the user. Queries on dimensionally modeled relational data can be enabled for drilling-up and down on each dimensional hierarchy.

Additionally, like Query Studio, because Developers Studio utilizes the Cognos packages or metadata layer, developers no longer are required to write sql. This enables them to very quickly create powerful enterprise reports without having to develop and debug complex sql statements. The metadata layer prejoins the database tables together for them - so they can quickly and consistently add fields to their reports without requiring indepth knowledge of table relationships and joins.

*Reference: 'Reporting with IBM Cognos 8 Business Intelligence'. February 2009, File wp_reporting_dashboard.pdf

A few examples of the types of custom reports you can create within the Cognos Reporting Tools include:



For a demo of more detailed, interactive capabilities of Report Studio, access the link below, and access the Reporting demo on the right.

<http://www-01.ibm.com/software/data/cognos/products/cognos-8-business-intelligence/reporting.html>

The screenshot shows the IBM Cognos 8 Business Intelligence Reporting page. The main content area features a section titled "Easy Answers: IBM Cognos 8 Reporting Demo" with a video thumbnail and a "View now" button. A red arrow points from this section to the "Cognos 8 BI - Capabilities - Reporting resources" section in the right-hand sidebar, which contains a link to the "IBM Cognos 8 BI Reporting Demo Online Demo".

Easy Answers: IBM Cognos 8 Reporting Demo
See real-world reporting scenarios for casual business users and professional report authors.
[View now](#)

Reporting gives you access to a complete list of self-serve report types, is adaptable to any data source and operates from a single metadata layer for a variety of benefits such as multilingual reporting.

With the reporting capability, you can personalize the style and quality of BI delivered to your key stakeholders, and you expand the community of BI users.

New features in version 8.4

- Increased visual appeal includes new background designs and colors. Users can add gradient colors behind charts.
- New chart types: Marimekko, Stepline, Sparkline, Sparkbar and Spark Win/Loss.

Cognos 8 BI - Capabilities - Reporting resources

- [IBM Cognos 8 BI Reporting Demo Online Demo](#)
See real-world reporting scenarios for casual business users and professional report authors.

Business Objects/Crystal Reports Integration

For details on creating custom reports for your Business Objects Environment, reference the documents at the end of this guide.

External Report Integration

For details on integrating to a Custom Report System via the External Report Integration, reference External Reporting tool's documentation.

Reference Documents

The following lists additional references available at the time this guide was prepared. The best way to locate these documents is to perform a search on IBM's Support Site on the report title highlighted below, or on its support reference number directly next to the title.

IBM's support site can be found at this url:

http://www-947.ibm.com/support/entry/portal/Overview/Software/Tivoli/Maximo_Asset_Management

Additionally, the wiki site below is available with additional details, including common client customization requests.

<https://www.ibm.com/developerworks/wikis/display/maximo/Home>

Title	Reference Number	Description
V7 Report Feature Guide	1305020	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.
V7 Report Booklet	1305005	Contains listings, file names, descriptions, details on parameters, formatting (grouping, sorting) and a pdf copy of each of the OOB (Out of the Box) Delivered Reports.
V7 QBR Ad Hoc Reporting	1417417 (7.1.1.6+) 136800 (Pre 7.1.1.6)	Details how users can Create and Execute Ad Hoc Reports, and the Administrative setup work involved in enabling Ad Hoc Reports, including security features and creating Report Object Structures.
Designing V7 Reports	1305009	Clients often require custom reports to communicate their individual business needs. This reviews the data analysis options available, including KPIs, Application List Downloads, QBR and Reports. Details report templates available, parameter options and a variety of items to consider when designing reports
V7 Report Planning Guide	1421371	Reviews each of the data analysis options available in V7, including a detailed review of each report option.
V7 Report Performance	1305031	Details various administration and configuration recommendations to optimize report performance. This includes BIRT Report Only Server (BROS) Configurations, along with Clustering.
Enabling secondary Database Configuration for BIRT reports	1304936	Describes additional ways of configuring your database for reporting, including enabling (1) All reports to execute against a reporting database or (2) A portion of the reports to execute against the reporting database.

Report Developer's Guides		
Report Development Configuration and Download	1390372 (7.1.1.5+) 1315837 (Pre 7.1.1.5)	Contains the designer download link, along with additional details on installing and configuring it.
Report Development Guide	1447958	Intended for the Report Developer, contains detailed information and examples on developing reports within Design Tool, database access, parameters, common development techniques like hyperlinks and date formats and various debug features and utilities.
Customizing out of the box BIRT reports	1438532	Details how to customize out of the box BIRT reports by deleting and adding new fields. The Work Order Details report is used as an example to step you through this process
Report Logging	1423974	Explains the report logging features available to report developers and administrators. Includes features available to report developers within the BIRT report designer, and then reviews the features available to report developers and administrators from within the V7 applications.
V7 Report Update Utility	1433106	Details report update utilities which can be used to automate the process of applying updates to report designs, rather than manually editing each report.
V7 Report Toolbar Access Direct Print and Related Information	1370440	Describes functionality that can be configured with BIRT Reports to enable their quick display, including Browser View, Direct Print and Direct Print with Attachments. Details report requirements, property files and troubleshooting techniques.
Enabling barcodes in BIRT Reports	1304925	Details how to implement bar code fonts for use within BIRT reports.
Changing logos in BIRT reports	1304923	Discusses how you can change the logos displayed within the V7 reports to your unique company logos.
Adding username to a V7 BIRT report	1403958	Provides instructions on adding the username who executed report to the report's header section
V7 BIRT Page Information	1317577	This document reviews the components impacting report page sizes and orientation used in the V7 BIRT Reports. It also details how you can customize them to meet your individual business needs.
Misc Guides		
Upgrading to BIRT 232 in V7	1390274	Discusses the enhancements enabled in BIRT 2.3.2, along with report considerations when upgrading your custom reports from BIRT 2.1.2 to 2.3.2.
System Administration Guide		Reference this guide for additional information on Localization, using the TDT and XLIFF files, along with Advanced Server Configuration details in the System Configuration Chapter.

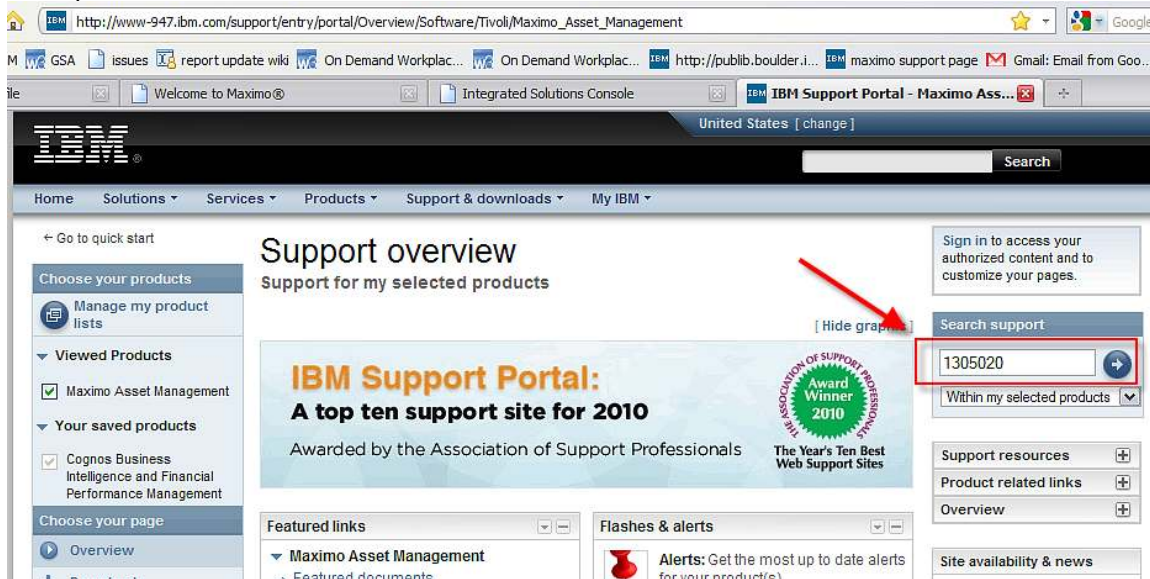
Report Integration Guides		
Maximo Cognos Integration Installation Guide	1421365	Provides steps for enabling the report integration, including enabling the creation of the meta data layer.
Maximo Cognos Integration Guide	1421312	Details on how the report integration works between the two systems, including publishing report object structures as Cognos packages, security group synchronization and report file creation.
Business Objects/Crystal Report Integration Guide	1303812	Contains information on the Business Objects Enterprise XI ®Release 2, Service Pack 2 Release reporting integration. Details its (1) Licensing Requirements (2) Integration and (3) Development of reports.
ERI (External Report Integration) Guide	1304916	The ERI enables clients to integrate essentially any reporting tool with V7. This integration is similar to the Business Objects/Crystal Integration, except it is report system and report version independent. This document includes the ERI (1) Requirements (2) Installation (3) Administration and (4) FAQs.

Screenshots of how to access guides on IBM's support site:

1. Access IBM's support site at the URL below:

http://www-947.ibm.com/support/entry/portal/Overview/Software/Tivoli/Maximo_Asset_Management

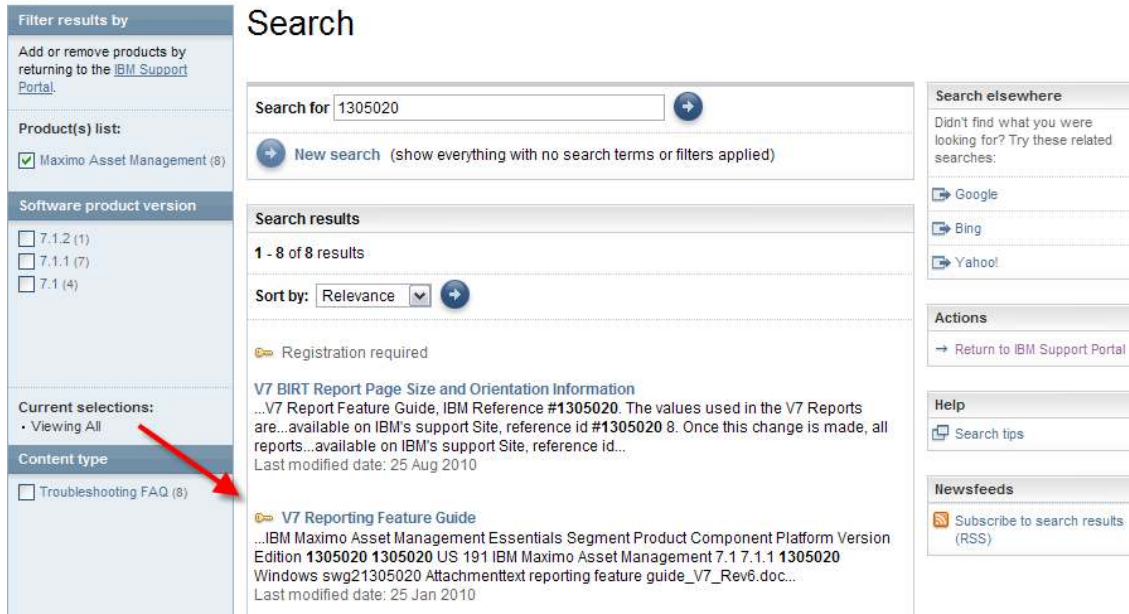
2. Input the reference number or the document title from the charts below



The screenshot shows the IBM Support Portal interface. The search bar on the right side of the page contains the reference number '1305020', which is highlighted with a red box and a red arrow. The main content area features a banner for 'IBM Support Portal: A top ten support site for 2010' and a list of featured links including 'Maximo Asset Management'.

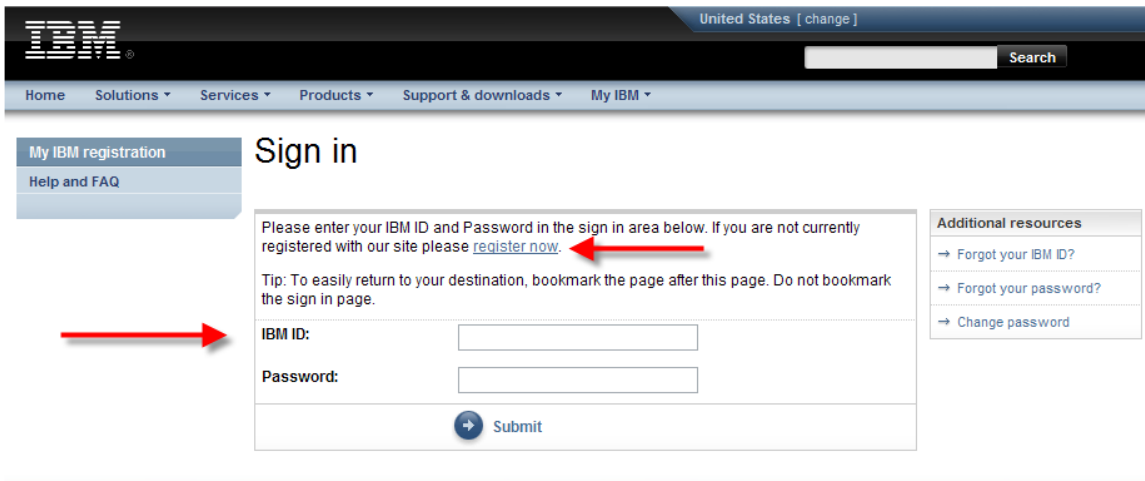
3. This leads to the page below. Find the specific guide from the list and click on it.

*Note: Many of the report documents have a key in front of them. This indicates that you must first sign in to IBM support before downloading.

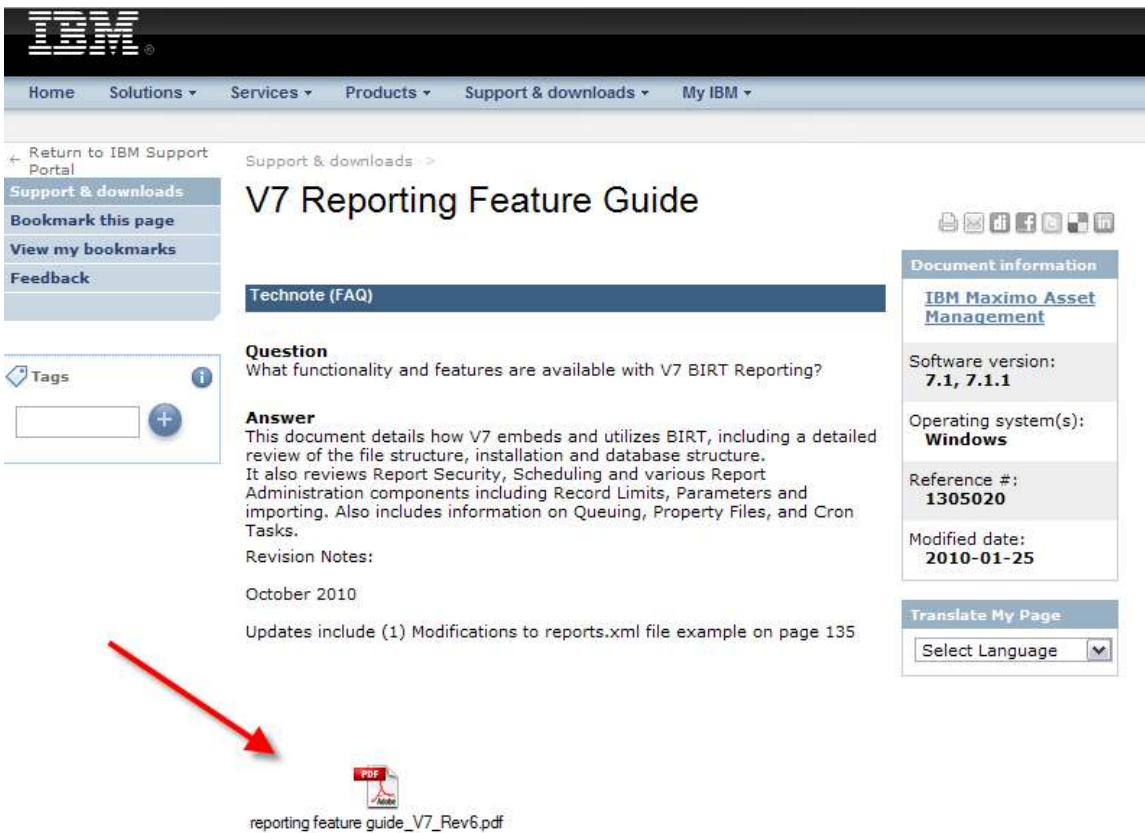


The screenshot shows the search results page. The search bar contains the reference number '1305020'. The search results list includes 'V7 BIRT Report Page Size and Orientation Information' and 'V7 Reporting Feature Guide'. A red arrow points to the 'V7 Reporting Feature Guide' result.

4. After clicking on the name, it brings you to the IBM support log in page. Sign in with your username and password. If you do not have an IBM support username and password, click on the 'register now' link highlighted by the top arrow.



5. After you have signed in, you will be brought to the page where the document can be downloaded.



Revision History

April 2011

Updates include (1) Updated charts and references under V7 Data Analysis Section.

February 2011

Updates include (1) Updates to reference materials (2) Updated charts (3) Miscellaneous updates with latest Version 7 information

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