



IBM Maximo Asset Management Designing Maximo Reports



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Overview

Reports come in a variety of configurations including graphs, detail and analysis reports. Depending on the Maximo® based products that you are licensed for, you may receive over 150 of these out of the box reports.

However, you may need to create custom reports to meet your individual business requirements. Because of these individual requirements, this document presents items to consider when designing a V7 Report.

A few of the items that will be reviewed include:

What Data Analysis Tool will best meet the needs of my requirement?

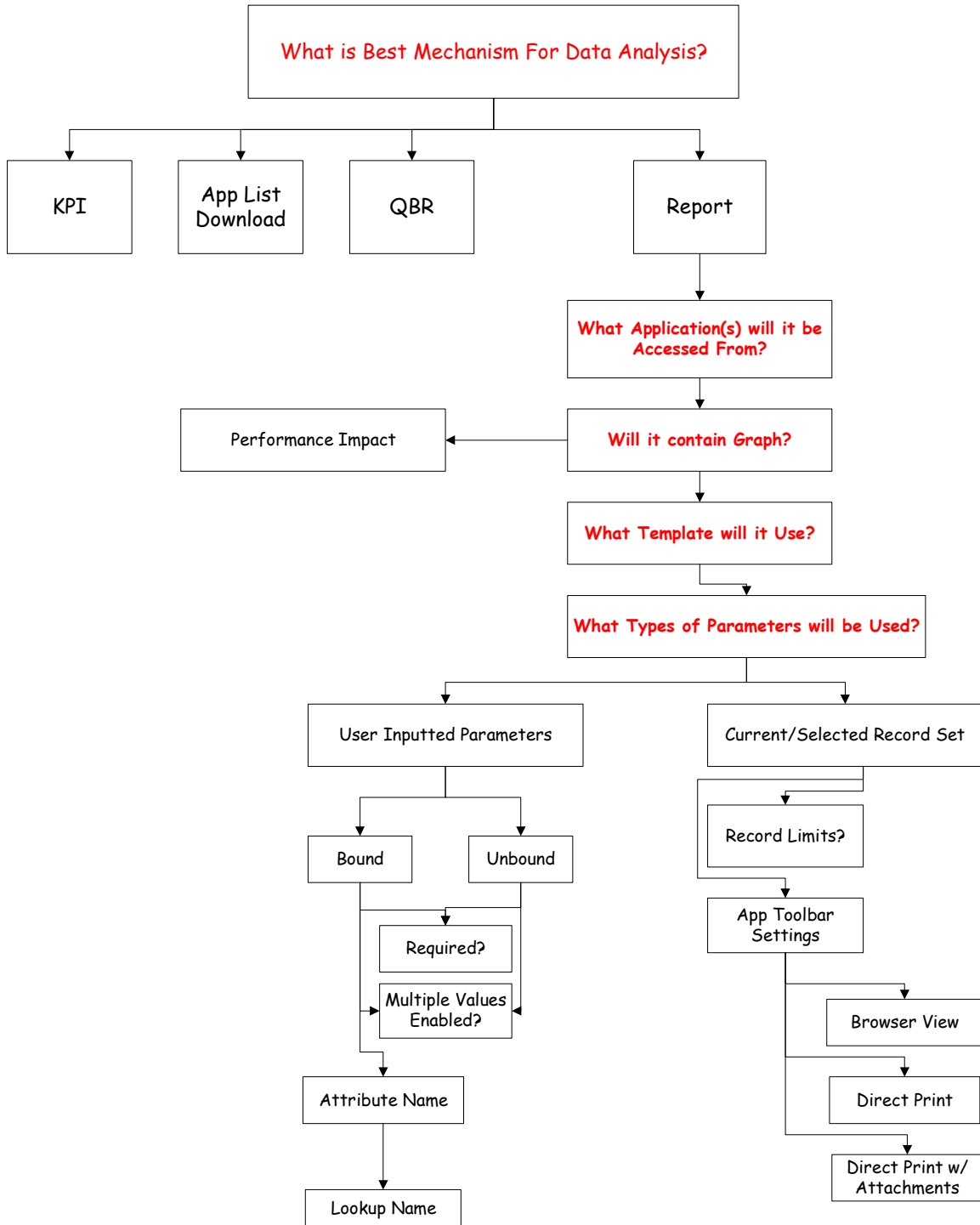
What types of Report Parameters will best filter the data for my report?

What report template should the report design utilize?

Should application toolbar access be enabled?

Note: This document only reviews embedded reporting capability. The information on the Ad Hoc and Enterprise reports are specifically for BIRT Reporting. While other report options exist in Maximo through report Integrations, they are outside the scope of this document.

The flowchart below steps you through some of the items you may want to consider when designing reports. The areas highlighted in red are discussed in more detail below.



What is Best Mechanism For Data Analysis?

Within the many Maximo applications, there are a variety of mechanisms available to analyze the powerful data that is generated. These mechanisms present the data in a variety of formats, so the user can quickly get the information he needs to make the best business decisions possible. Additionally, they can be considerably less time consuming to enable than creating individual custom reports, and therefore should be carefully considered.

There different data analysis functional components 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.

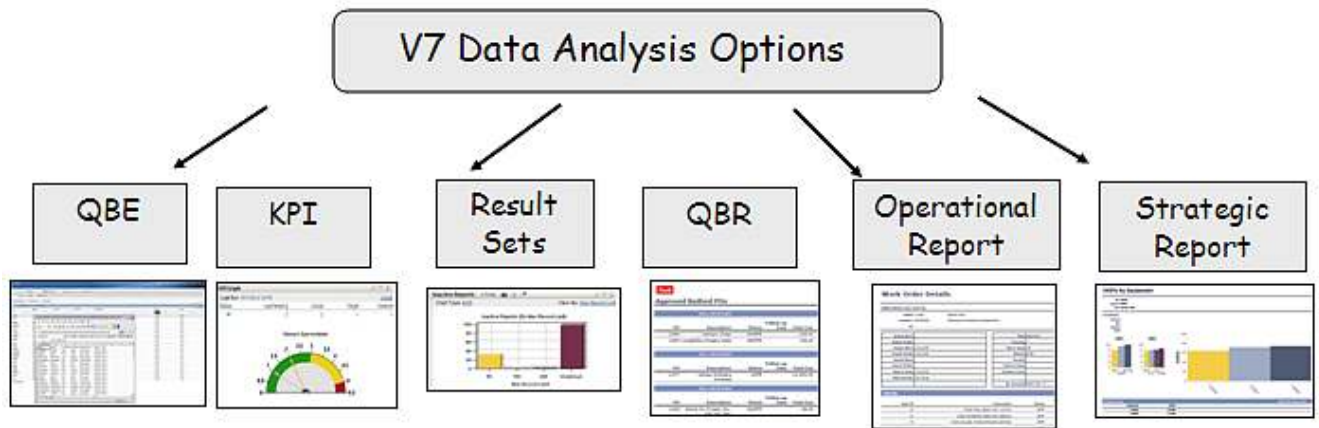
KPI - Key Performance Indicators. Visual indicators displaying status against predefined targets.

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.

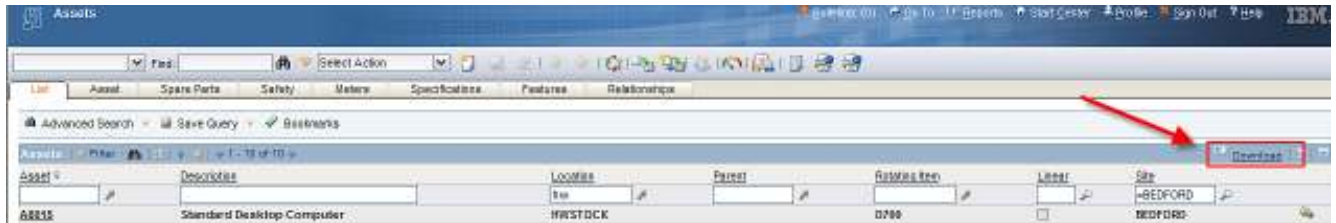


Depending on the individual business case and user, you may want to use one or a combination of these features instead of creating a custom report.

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.

Query by Example, QBE 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

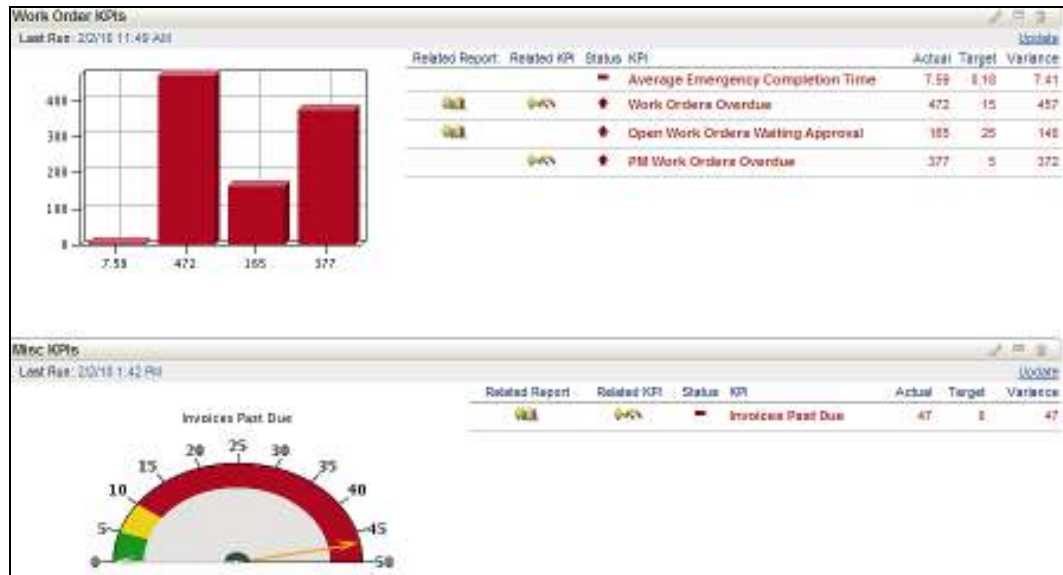
KPIs, Key Performance Indicators

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.

Result Set Setup

Portlet: Display Name:

Available Queries | Column Display | Display Options | Chart Options

Current Query:

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

Inactive Reports (By Priority)

Priority	Value	Percent (%)
2	10	13.74
3	1	0.76
Undefined	112	85.5

Inactive Reports (By Max Record Limit)

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

QBR (Query Based Reporting) or Ad Hoc Reporting

Ad Hoc reporting is also known as QBR (Query Based Reporting). It 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 Maximo, ad hoc reporting is known as QBR, or Query Based Reporting. QBR reports are created within the 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.

Additional QBR features have been added in the Maximo 75 and 75 releases to enabling editing of saved QBR reports, adding field calculations and expressions along with numerous performance enablers.

QBRs can be enabled to utilize multiple related tables in an application via Report Object Structures. Report Object Structures are created in the 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.

The Maximo 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

Bob's PO Report Grouped by Site and Company

Company 00000		Follow-up		Total Cost		Line		Item		Line Cost	
PO	Description	Status	Date								
1071	Admin Software Support	APPR		12,300.00		1	ADSW01L8				12,300.00

Company 00001		Follow-up		Total Cost		Line		Item		Line Cost	
PO	Description	Status	Date								
1024		APPR		5.00		1	184-12				5.00
1026		APPR		2.00		3	131177				2.00
1028		APPR		2.00		3	131177				2.00
1028		APPR		2.00		3	131-08				2.00
1001		APPR		11.30		1	0-0214				11.30

Company 00002		Follow-up		Total Cost		Line		Item		Line Cost	
PO	Description	Status	Date								
1021		APPR		5.00		3	000-08				5.00
1023		APPR		5.70		3	0-0036				5.70
1021		APPR		5.70		1	000-10				5.70
1021		APPR		5.00		3	184-12				5.00

Company 00003		Follow-up		Total Cost		Line		Item		Line Cost	
PO	Description	Status	Date								
1023	Window and Installation for office building	APPR		490.30		1	3002				490.30
1023	Window and Installation for office building	APPR		490.30		3					490.30
1029	Window and Installation for Office Building	APPR		490.30		1	3002				490.30
1029	Window and Installation for Office Building	APPR		490.30		3					490.30

Company 00004		Follow-up		Total Cost		Line		Item		Line Cost	
PO	Description	Status	Date								
1009	100 gph Pump	APPR		5,100.00		1	000-100				5,100.00

January 7, 2009 8:06:46 AM EST 6 / 8

Example of Detail Ad Hoc Report displayed in Report Browser

Asset Specification and Work Order Details

Asset	Description	Location	Parent	Rating	Item	Linear	Site	Asset Tag	Type	Failure Class	Date	Inventory Cost
11450	Centrifugal Pump 1000PM/0PTHD	0M450	11400	RUMF100		N	000POFO	0423		RUMPS	07/26/95	9.00

Asset	ASSETSPECID	End Base Measure	End Floorset	Start Base Measure	Start Unit of Measure	Start Measure	Mandatory?
11450	100						N
11450	100						N
11450	100						N
11450	201						N
11450	202						N
11450	202						N
11450	204						N

Work Order	Work Type	Status	Status Date	Target Start	Target Finish	Scheduled Start	Scheduled Finish
91091	EN	APPR	10/12/01 2:45:42 PM	10/12/01 3:45:42 PM	10/12/01 10:57:42 PM	10/12/01 3:45:42 PM	10/12/01 10:57:42 PM
2155	EN	CLOSE	10/22/98 2:45:25 PM	10/22/98 3:45:25 PM	10/24/98 3:45:25 PM	10/22/98 3:45:26 PM	10/22/98 3:45:26 PM
88113	EN	CLOSE	4/29/98 2:45:49 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	EN	CLOSE	6/2/99 2:45:47 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
90063	EN	CLOSE	6/23/00 2:45:29 PM	6/23/00 3:45:29 PM	6/23/00 3:45:29 PM	6/23/00 3:45:29 PM	6/23/00 3:45:29 PM
91064	EN	CLOSE	7/17/01 2:45:28 PM	7/17/01 3:45:28 PM	7/18/01 3:45:28 PM	7/17/01 3:45:28 PM	7/18/01 3:45:28 PM
87001	EN	CLOSE	11/20/98 2:45:09 PM	11/19/98 3:45:09 PM	11/22/98 3:21:45 AM	11/19/98 3:45:09 PM	11/22/98 3:21:45 AM
91003	EN	CLOSE	6/9/01 2:45:41 PM	6/9/01 3:45:41 PM	6/9/01 3:45:41 PM	6/9/01 3:45:41 PM	6/9/01 3:45:41 PM
88003	EN	CLOSE	6/7/98 2:45:44 PM	6/7/98 3:45:44 PM	6/7/98 3:45:44 PM	6/7/98 3:45:44 PM	6/7/98 3:45:44 PM
89009	EN	CLOSE	10/21/99 2:45:44 PM	10/22/99 3:45:44 PM	10/22/99 3:45:44 PM	10/22/99 3:45:44 PM	10/22/99 3:45:44 PM
91071	EN	CLOSE	7/24/01 2:45:42 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
3432	EN	CLOSE	12/2/99 6:47:28 PM	11/22/99 2:04:46 AM	11/24/99 8:23:24 PM	11/22/99 2:04:46 AM	11/22/99 8:23:24 PM
7492	CP	CLOSE	6/9/96 10:13:00 PM				
4294	EN	CLOSE	10/2/99 2:45:26 PM	10/2/99 3:45:26 PM	10/2/99 3:45:26 PM	10/2/99 3:45:27 PM	10/4/99 3:45:27 PM
90121	EN	CLOSE	1/2/01 2:45:40 PM	1/2/01 3:45:40 PM	1/4/01 3:45:40 PM	1/2/01 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 – 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

1888: Electric Cart Fare-Up

Asset: 12300 Electric Cart
Location: SHIPPING Shipping and Receiving Department
(3)

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 Zines

Task ID: Description:

10 Check tires, lights, horn, horn

20 Check windshield wipers and waxes

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: IS				
Date	Qty	Condition Code	Asset	Rot Asset	Issue To	WO #
10/20/01 2:29:27 PM	-1		13170		LDU	30058
8/7/01 2:29:27 PM	-1		13170		LDU	30067
6/7/01 2:29:27 PM	-1		13170		LDU	30037
3/18/01 2:29:28 PM	-1		13170		LDU	30048
12/20/99 2:29:28 PM	-1		13170		LDU	30025

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-4-9	A-435
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	Type:
Status: OPERATING	Priority: 2
Maintain Hierarchy? N	Serial Number: 377-5A
Parent: 11400	Location: BR430
Parent Description: Motor - 50,000 (b/h)/ Gas Feed/ Water Tube	Location Desc: Condensate Return Pump-Centrifugal/100GPM/60FTHD

Purchase Details						
Vendor	Manufacturer	Install Date	Warranty Exp Date	Purchase Price	Replace Cost	Total
SR	SR	4/7/95	1/29/11	18500.00	23000.00	1122

Downtime			
Asset Up?	Total Downtime	Changed By	Changed Date
1	40.3	WHSN	2/9/05 8:01:37 AM

Sub Assembly			
Asset	Asset Description	Location	Location Description
23972	Motor- 10hp/1750rpm/TFFC/254T Frame44Bv/3ph/60hz	BR431	Motor- 10hp/1750rpm/TFFC/254T Frame44Bv/3ph/60hz

SR: Strategic Report.

Strategic Reports are the second type of report. 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



What Application will it be accessed from?

If you have reviewed the data analysis options above, and have determined that your business requirements call for either an operational report or a strategic report, continue reviewing the sections below for best practices in designing the custom report.

Reports are associated with applications. Therefore, early in the Design Phase, you must decide which application the report will be accessed from. This is critical for a number of reasons, including insuring that parameters can be passed correctly to a report.

Notes on Application Access

1. There must be a relationship between the application and the report – or the report will not execute. For example: A Purchase Order report will not execute successfully from the Calendar application.
2. You may want to enable a single report to access from multiple applications. You can do this if the applications share the same main table or database view.

To implement this in your custom environment, do not make copies of the design files in each application. Instead store the report in the primary application report folder, and register it to the other applications by including it in the reports.xml for each application.

A. More details on the exact reports.xml settings for reports registered in multiple applications can be found in the Maximo Report Development Guides.

B. Examples of delivered reports with this functionality include:

Work Order List, registered to Applications Work Order Tracking, Quick Reporting, Change, Release and Activities

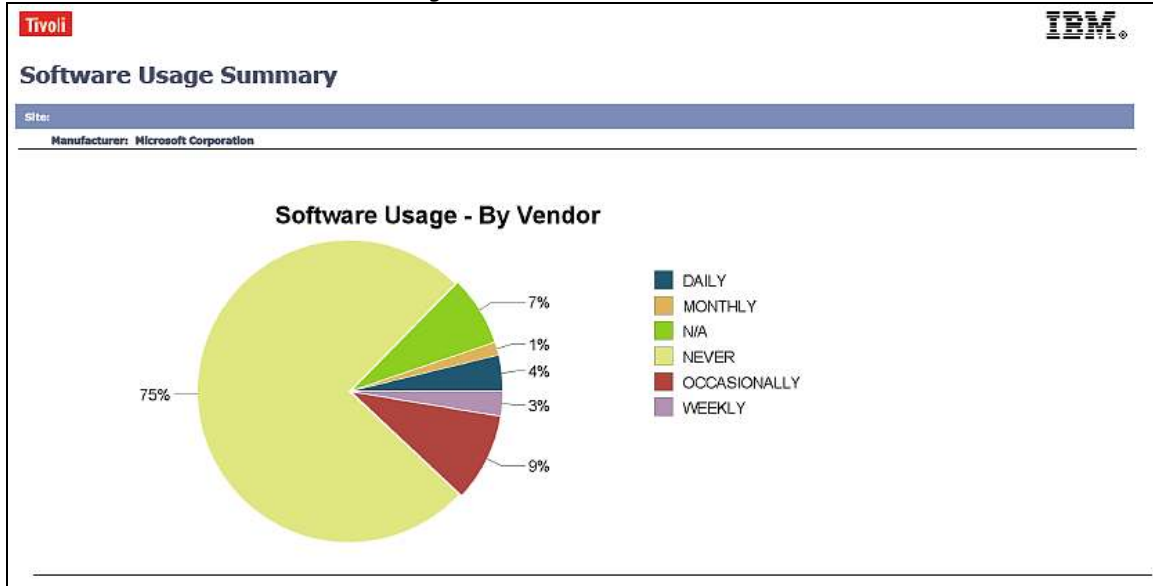
Ticket List, registered to Applications Service Request, Incident, Problem (Ticket is a database view)

Will It Contain Graph?

Reports can have a variety of graphs including pie, bar, and line charts. Examples of reports with graphs include:

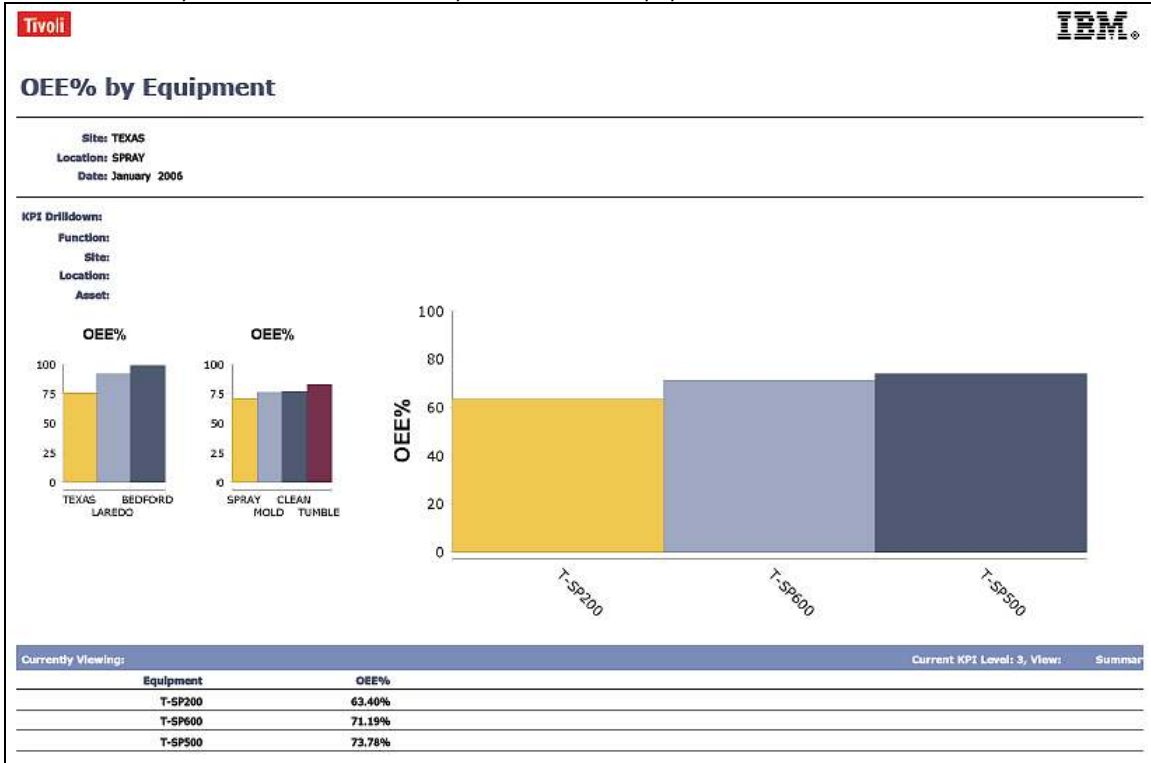
Pie

Details of Asset Failures, Software Usage



Bar

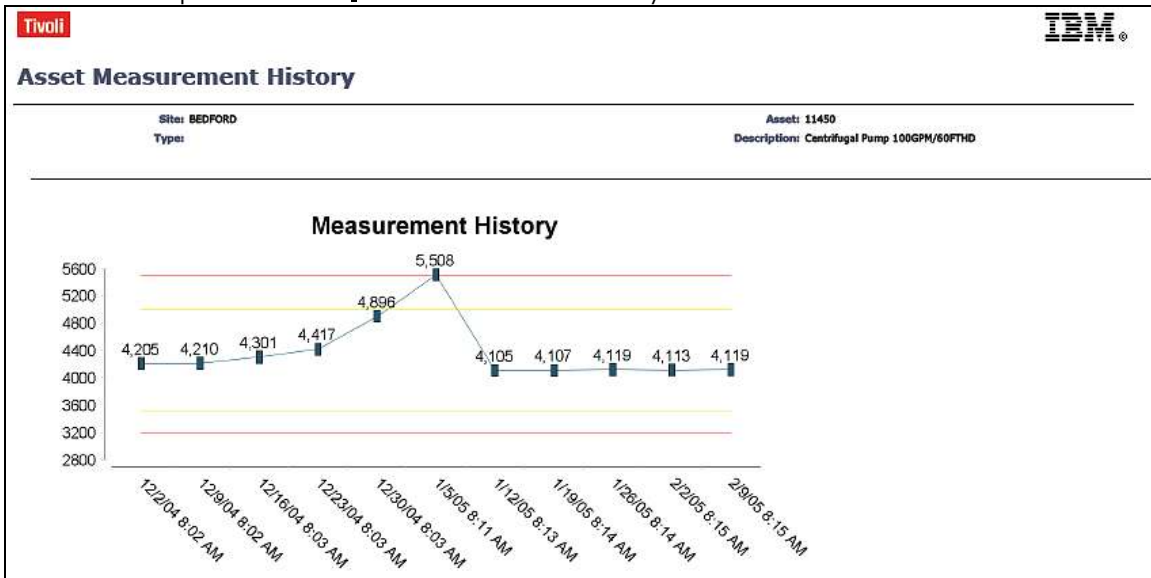
Asset Availability, Vendor Performance by Item, Overall Equipment Effectiveness – Site, Location, Asset



Line

Drilldown into Asset Failures, Service Desk Self Service Solution

Additionally, control limits can be displayed on a line chart to highlight data results within specified limits. An example of this is the Asset Measurement History shown below.



Additional Notes on Graphs:

A. The Maximo report booklet details all the reports delivered in the base Maximo Services release. Within the booklet, is an .xls file which lists each report, and other important information on the application it is registered to, if it has any parameters, along with information on its graphs, sorting, grouping and what templates it is used.

If you are creating a custom report, you may want to review the report booklet to quickly find out-of-the-box (OOB) reports which have similar functionality. For example, if you wanted to review the code of a report that contains a pie chart, search within the booklet to quickly find a listing of reports with pie charts.

	Name	Description	LD?	Report File Name	Maximo App's	Graph	Enabled?	Parameters
4								Configurable BV, BP, DPA, Limits
12	8	Asset Purchase Order Details			Asset			BP, Seq=2, Record Limit = 20, Current/Sel Records
13	9	Assets by Subassembly Item			Asset		No	Item*
14	10	Summary of Asset Failures by Location	Yes	asset_failrptdesign	Asset	Line of # Failures, Bar of MTBF	No	Location*, Start Date*, Date*
15	11	Details of Asset Failures by Location		detailasset_failrptdesign	Asset	Pie Chart of # Failures by Problem Code	No	Site*, Location*, Asset*, Status, End Date*, Asset Type, Status, Has moved?, Problem Code, Location*, A Site, Start Date*
		Presents historical view of downtime hours for selected				Line Chart		

Additionally, some of the OOB contain Long Descriptions (LD) which give additional information as to the context. These are identified with a 'Yes' in the LD column of the booklet. To view these additional details, reference the 'Additional Report Desc' worksheet, where the long description details of the report can be viewed.

B. The rendering of a graph within a design file impacts report performance. If a report needs to be available for immediate display via a toolbar icon, you may want to consider the performance impact of a graph. The Report Performance document includes additional details on functionality performance impact.

*Note on References: Details on locating any documents referenced in here are located at the end of this document.

What Template Will it Use?

A number of report design templates are delivered with Maximo - with the exact number varying based on your Maximo version.

If you are creating your own custom reports, you *must* use one of these templates to insure that the reports integrate and execute properly within the applications.

A sampling of the Maximo templates are listed below:



Template Name	Description	Report Examples
Tivoli Maximo List Report Template	For simple listing report with traditional row, column format.	Labor List, Asset Move History
Tivoli Maximo Grouped Report Template	Same as listing report but contains sections for grouping results ex. group by site or status	Item Availability, Asset List, Work Order List
Tivoli Maximo Subreport Template	Used for complex reports, including detail reports Service Level Exception	PO Status Details, Asset Details, Work Order Details, SLA Details
Tivoli Maximo Graphic List Report Template	Simple listing report, which includes a graphic for either bar, line or pie chart before the report's details.	Line: Drilldown into Asset Failures Pie: Detail of Asset Failures, Software Usage Summary Bar: Vendor Performance by Item
Tivoli Maximo Graphic Grouped Report Template	Grouped report with graphic for either bar, line or pie chart before the report's details.	Bar: Service Target Compliance Summary
Tivoli Maximo Graphic Subreport Template	Complex report with graphic for either bar, line or pie chart before the report's details.	

Each Template Contains

- A. Tivoli Logo in Top Left
- B. IBM Logo in Top Right
- C. Date and Time Report was executed in Lower Left
- D. Current Page/Total Pages in Lower Right Hand
- E. All Templates are delivered in landscape
- F. All report designs are based on 10" of usable space width-wise (This is based on template margins of 0.5" on the left and 0.5" on the right).

Examples of reports using the templates are shown below.

Tivoli Maximo List Report Template

						
						
Asset Move History						
Asset: 11430						
Description: Centrifugal Pump 100GPM/60FT HD						
Current Site: BEDFORD						
From Site:						
From Location:						
To Site:						
To Location:						
Leased Asset?: N						
Date Moved	From Site	From Location	From Parent	To Site	To Location	To Parent
5/24/94	BEDFORD	CENTRAL		BEDFORD	BR430	11400
2/19/94	BEDFORD	JOHNS		BEDFORD	CENTRAL	
2/12/94	BEDFORD	REPAIR		BEDFORD	JOHNS	
2/5/94	BEDFORD	BR450	11400	BEDFORD	REPAIR	
5/30/92	BEDFORD			BEDFORD	BR450	11400
Number of Records: 5						
February 8, 2008 12:31:24 PM EST						
1 / 1						

Tivoli Maximo Grouped Report Template (This example groups by Item #)

Item #300-0000		Description: Gypsum Board					
Site	Condition Code	Lot	Exp Date	Current Balance	Issue Unit	Standard Cost	Average Cost
06FORD				12	SCK	1.00	1.00
Item #300-0000		Description: Gypsum Board					
Site	Condition Code	Lot	Exp Date	Current Balance	Issue Unit	Standard Cost	Average Cost
06FORD				12	SCK	1.00	1.00
Item #300-0000		Description: Gypsum Board					
Site	Condition Code	Lot	Exp Date	Current Balance	Issue Unit	Standard Cost	Average Cost
06FORD				12	SCK	0.89	0.89
Item #300-0000		Description: Gypsum Board					
Site	Condition Code	Lot	Exp Date	Current Balance	Issue Unit	Standard Cost	Average Cost
06FORD				6	SCK	1.21	1.21
Item #300-0000		Description: Gypsum Board					
Site	Condition Code	Lot	Exp Date	Current Balance	Issue Unit	Standard Cost	Average Cost
06FORD				6	SCK	1.21	1.21
Item #300-0000		Description: Gypsum Board					
Site	Condition Code	Lot	Exp Date	Current Balance	Issue Unit	Standard Cost	Average Cost
06FORD				6	SCK	1.21	1.21

Tivoli Maximo Subreport Template

(Subreport has multiple categories or sections with different columns/data information)

Performance		# of Times SLA Applied within Time Frame		# of Times Commitments Met		# of Times Commitments were Violated		% of Compliance		% of Violations	
		3		3		6		33.33%		66.67%	

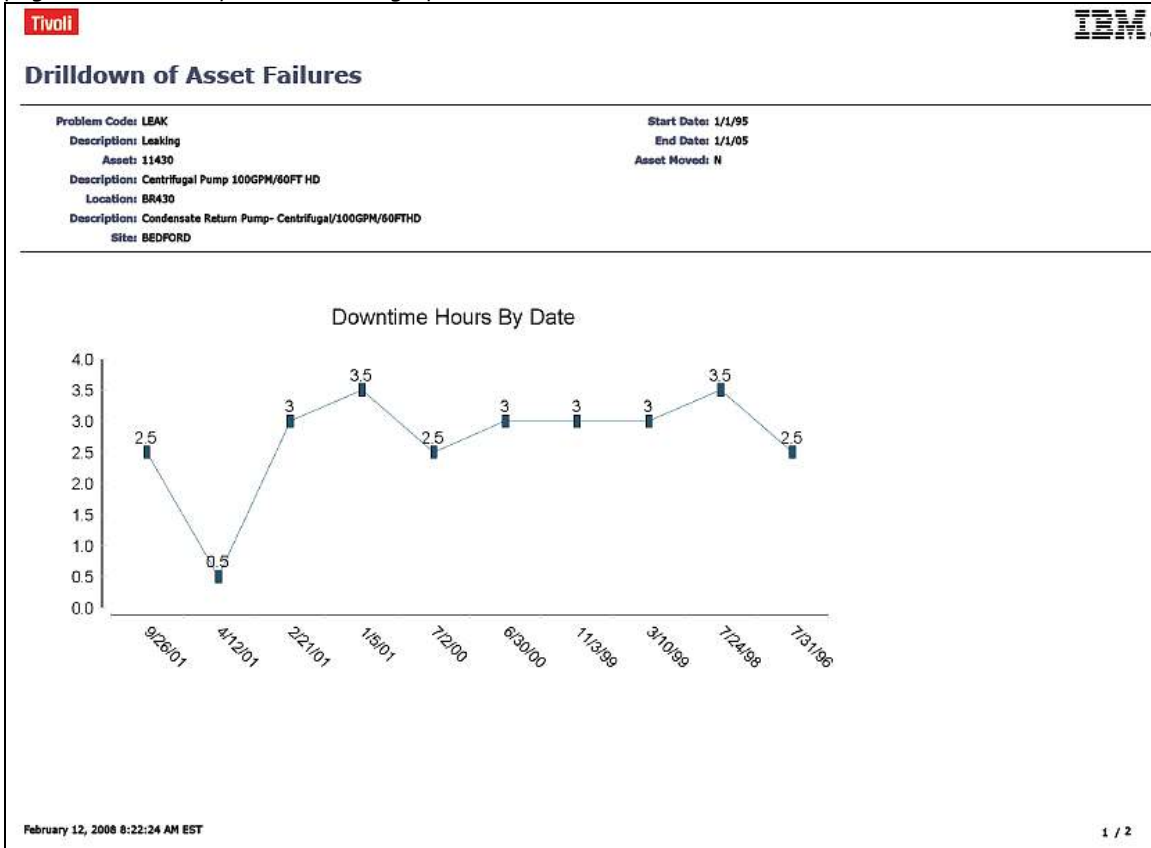
ID	Description	Type	Status	Classification	Contact Violation	Response Violation	Resolution Violation
1049	Failure when connecting to Moon Server	INCIDENT	RESOLVED	End User Issue \ Network \ Connection	N	Y	Y
1050	Error when trying to login to the network	INCIDENT	RESOLVED	End User Issue \ Network \ Connection	N	Y	Y
1051	Error message: Can't login to the network	INCIDENT	RESOLVED	End User Issue \ Network \ Connection	N	Y	Y

ID	Description	Status	Classification	Target Response	Actual Response	Comtmt Delta
1049	Failure when connecting to Moon Server	RESOLVED	End User Issue \ Network \ Connection	10/6/04 12:55:58 PM	10/6/04 2:45:00 PM	1:49
1050	Error when trying to login to the network	RESOLVED	End User Issue \ Network \ Connection	10/6/04 12:57:10 PM	10/6/04 4:30:00 PM	3:33
1051	Error message: Can't login to the network	RESOLVED	End User Issue \ Network \ Connection	10/6/04 12:59:12 PM	10/6/04 2:20:00 PM	1:22

ID	Description	Status	Classification	Target Resolution	Actual Resolution	Comtmt Delta
1049	Failure when connecting to Moon Server	RESOLVED	End User Issue \ Network \ Connection	10/6/04 2:25:58 PM	10/6/04 6:55:00 PM	4:29
1050	Error when trying to login to the network	RESOLVED	End User Issue \ Network \ Connection	10/6/04 2:27:10 PM	10/6/04 8:45:00 PM	6:18
1051	Error message: Can't login to the network	RESOLVED	End User Issue \ Network \ Connection	10/6/04 2:28:12 PM	10/6/04 3:15:00 PM	0:47

September 13, 2007 1:44:35 PM EDT 1 / 2

Tivoli Maximo Graphic List Report Template (Displays graph first, and then details in listing format. A page break is usually inserted after graphic and before details.)



And then if user needs more details, he can go to the next page.

Drilldown of Asset Failures

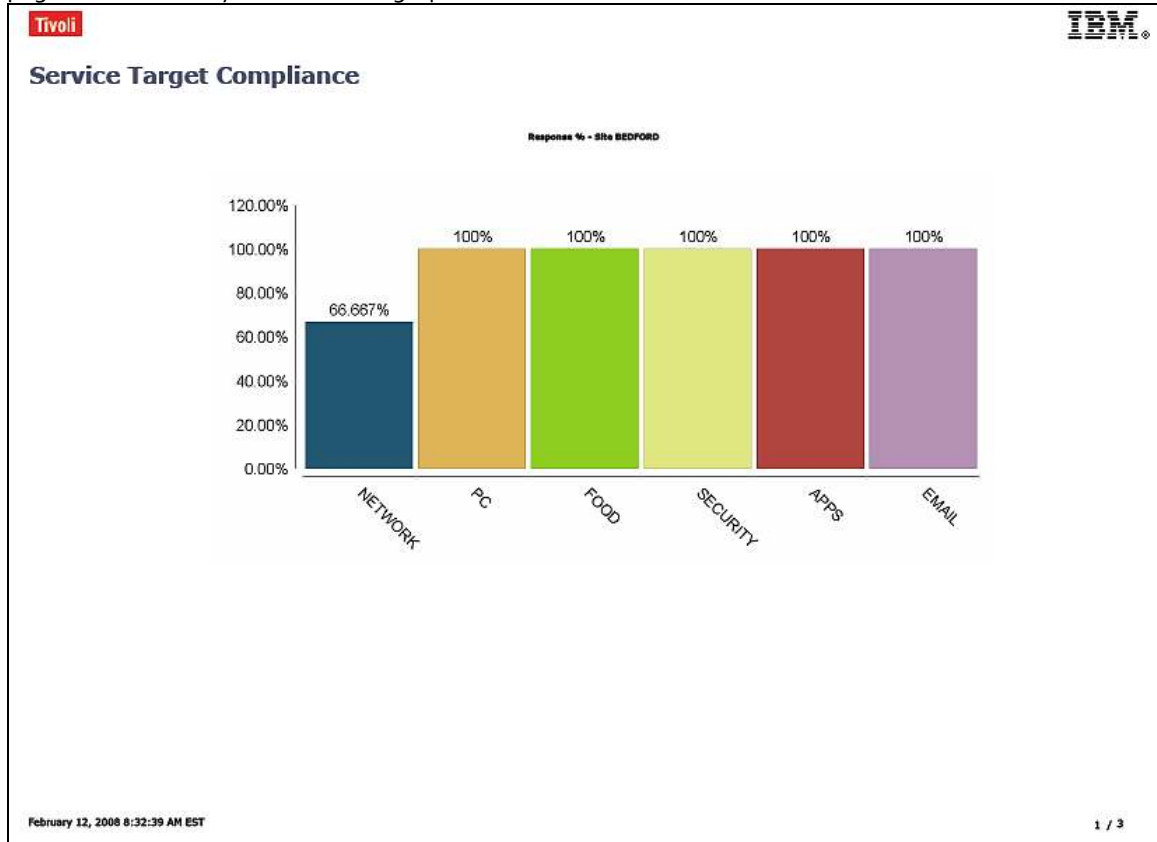
Problem Code: LEAK
 Description: Leaking
 Asset: 11430
 Description: Centrifugal Pump 100GPM/60FT HD
 Location: BR430
 Description: Condensate Return Pump- Centrifuga/100GPM/60FTHD
 Site: BEDFORD

Start Date: 1/1/95
 End Date: 1/1/05
 Asset Novod: N

Fail Date	Wkt	Status	Description	Novod	Description	Downtime During Failure (Hrs)
8/16/01	8:10:00 PM	1485	SEAL	SEAL Leaking	REPLACE	2.50
4/11/01	8:37:00 PM	1888	SEAL	SEAL Leaking	ADJUST	8.00
2/11/01	8:06:00 PM	1277	SEAL	SEAL Leaking	REPLACE	3.00
1/1/01	9:18:00 PM	2639	SEAL	SEAL Leaking	REPLACE	3.50
3/1/00	9:07:00 PM	3039	SEAL	SEAL Leaking	REPLACE	2.50
6/26/99	9:30:00 PM	5259	SEAL	SEAL Leaking	REPLACE	3.00
11/9/99	8:44:00 PM	4261	SEAL	SEAL Leaking	REPLACE	3.00
3/16/99	9:47:00 PM	6727	SEAL	SEAL Leaking	REPLACE	3.00
7/24/98	8:40:00 PM	1880	SEAL	SEAL Leaking	REPLACE	8.00
7/31/96	10:00:00 PM	7721	SEAL	SEAL Leaking	REPLACE	2.50
Total Downtime During Failures (Hrs):						27.00

Tivoli Maximo Graphic Grouped Report Template

(Displays graph first, and then details in grouped format. The example below shows grouping by Site. A page break is usually inserted after graphic and before details.)



Tivoli Maximo Graphic Subreport Template

At this time, no Out of the box reports use the Graphic, Subreport Template.

Notes on Report Templates

A. Each of the out of the box reports do not fit exactly into the delivered Maximo templates. For example, two of the Assignment Manager reports use Daily and Monthly calendar formats which are unique to the report's requirements. However, creating templates for each unique report would be time consuming and inefficient.

In this case, the Maximo List Template was chosen to start the report design, and then the design file was extended to meet the individual needs of the specific report.

B. Finally, it is critical to note that you must start with a Maximo template to insure that the reports integrate and execute properly within the applications.

You may be able to create a report from the Report design tool not using one of the templates - and register it to a Maximo application. However, the non-template created report will eventually fail, and cause other reports to fail also.

What Types of Parameters will it Use?

Reports can execute against three different sets of parameter types. These types are:

1. Parameterized Reports
2. Application Reports
3. Both Parameterized and Application Reports

The out of the box reports are enabled for Options 1 and 2. No out of the box reports are configured for option 3. However, you can quickly enable it meets your individual business needs.

Each of these parameter options are reviewed below. Then, some important characteristics to consider when determining which parameter type you will design in will be discussed.

Parameterized Reports – Type 1

Reports that have user inputted parameters require the user to enter values on the report's request page. These inputted parameter values could be anything from a Start Date, End Date, status or Item Numbers. Depending on the parameter value, it could be required or not required, and could also include a single or multi-select lookup.

The Security Group Access report is an example of a parameterized report. The report has four parameters – Security Group, Independent, Password Duration and User Members. When the end user executes this report, the report collects the inputted values for these four parameters and uses those as filters to run against ALL records in the Database. This report will always execute against ALL records – even if the end user has a selected record set in his query.

Request Page

Fill in the fields in the Parameters section below and click Submit to run the report. If no parameters are displayed, the report will execute against the current/selected record set. Optionally, fill out the Schedule and Email Sections to schedule report run times and receive the scheduled report via email.

Parameters

Security Group

Independent?

Password Lasts this Number of Days

User Members

Schedule

Immediate

At this Time

Recurring

Email

To

Subject

Comments

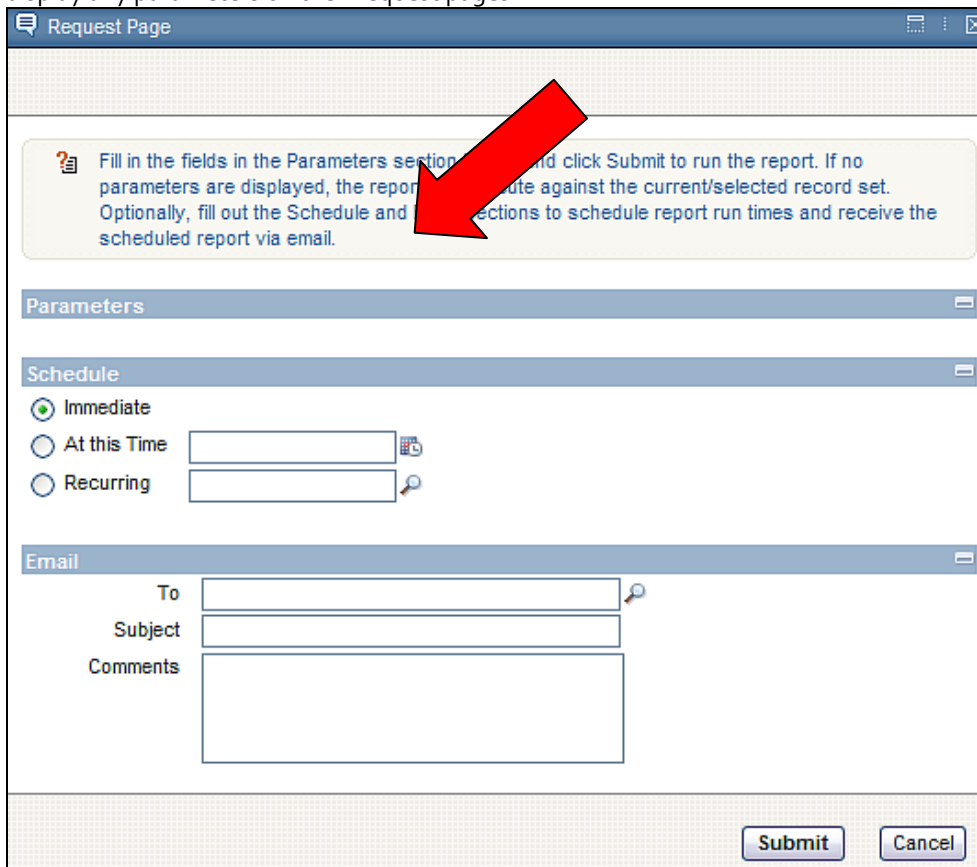
Note: Some parameters may have lookups, while others do not. Depending on whether a parameter is bound or unbound, and if the report is accessed from multiple applications, determines whether or not it can have a lookup. More information on parameters and their business rules are available in the Maximo Report Feature Guide.

Application Reports – Type 2

For reports where no parameters are specified, the report executes against the current/selected record set passed from the application to the report server. These are often referred to as Launch in Context reports, or executing against the Where Clause.

Your users can utilize a broad range of filters, queries and even the advanced where clause to derive their specific application query. Because of this, the application reports enable the most flexibility of unlimited, behind the scenes report parameters.

This Service Level Agreement List report is an example of an application report. If you access this report from the SLA application, its parameter section on its request page is blank. Application reports do not display any parameters on their request pages.



Request Page

Fill in the fields in the Parameters section and click Submit to run the report. If no parameters are displayed, the report will execute against the current/selected record set. Optionally, fill out the Schedule and Email sections to schedule report run times and receive the scheduled report via email.

Parameters

Schedule

Immediate

At this Time

Recurring

Email

To

Subject

Comments

Submit Cancel

The application query/filter is passed from the application to the report server. For example, within the SLA application, if you had applied the filter shown below of 'APPLIES TO = INCIDENT', this filter passes to the where clause to the report. The report will then only display those records from this passed query.

The top screenshot shows the 'Service Level Agreements' application interface. A search filter 'APPLIES TO = INCIDENT' is highlighted in a red circle. A red arrow points from this filter to the bottom screenshot, which shows the 'SLA List' report output. The report table includes columns for SLA, Description, Status, Applies To, Type, Vendor, Service Group, Service, Start Date, and End Date. The 'Applies To' column in the report contains the value 'INCIDENT' for all listed records.

SLA	Description	Status	Applies To	Type	Vendor	Service Group	Service	Start Date	End Date
1012	Laptop - Respond in 12 hours, Resolve in 48 hours	ACTIVE	INCIDENT	CUSTOMER				8/9/04	8/15/06
1001	IT Generic P1 - Respond in 30 mins., Resolve in 2 hrs.	ACTIVE	INCIDENT	CUSTOMER		IT		1/1/04	12/31/04
1002	IT Generic P2 - Respond 4 hrs., Resolve 8 hrs.	ACTIVE	INCIDENT	CUSTOMER		IT		8/9/04	8/12/06
1003	IT Email - Respond 2 hrs., Resolve 4 hrs.	ACTIVE	INCIDENT	CUSTOMER		IT	EMAIL	8/9/04	8/12/06
1004	IT Email VIP - Respond 30 min., Resolve 1 hr.	ACTIVE	INCIDENT	CUSTOMER		IT	EMAIL	8/9/04	8/12/06
1005	Elevator - Respond 1 hr., Resolve 2 hrs.	ACTIVE	INCIDENT	CUSTOMER				8/9/04	8/12/06
1006	Facilities Gen. - Respond 24 hrs., Resolve 72 hrs.	ACTIVE	INCIDENT	CUSTOMER		FACILITY		8/9/04	8/12/06

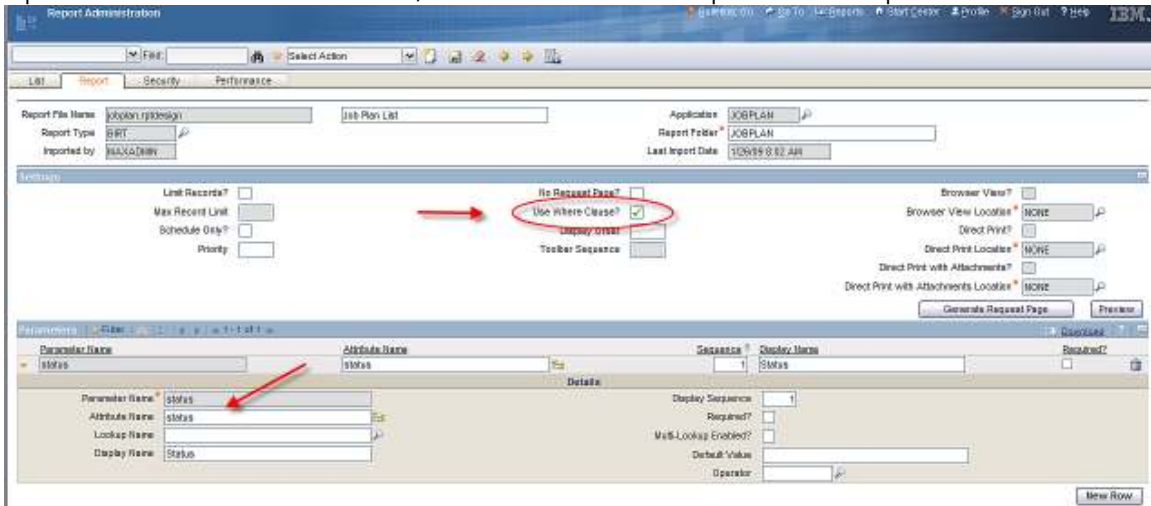
Application reports can also be enabled for application toolbar access like Browser View, Direct Print and Direct Print with Attachments. This functionality is discussed later in this document.

Additionally, you may want to prevent your users from accidentally running reports against all or very large database record sets due to performance reasons. You can do this by setting the Record Limit Flag in the Report Administration application (or in the reports.xml file) and define the maximum number of records the report can run against. Many of the out of the box reports using current/selected parameters have this maximum number of records value set to 50. However, it can quickly be modified to meet your individual business needs.

Both Application and Parameterized Reports – Type 3

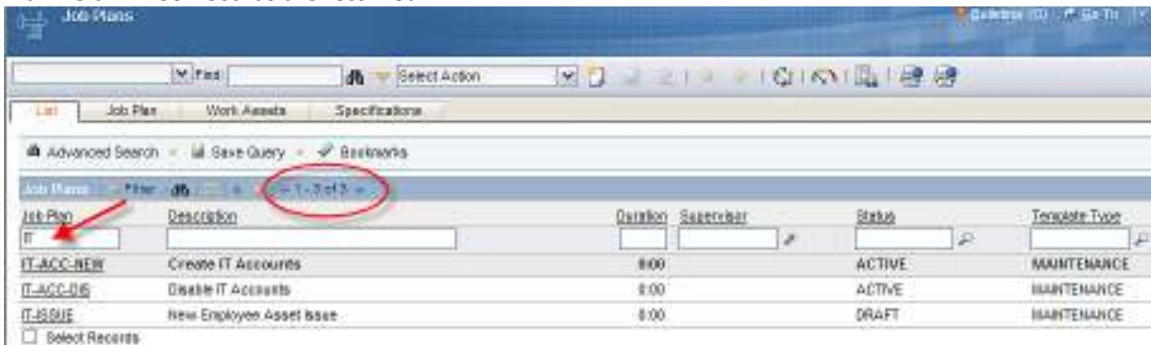
This type of report enables an application report to execute along with user defined parameters. In this case, the report has parameters defined in the Report Administration application, and the Use Where Clause Field would be enabled. Both of these requirements must be met to enable the report to execute against both the where clause and parameter set.

The example below shows that a parameter, Status, has been added to the Job Plan List report. Additionally, the Use Where Clause flag is enabled. The report will execute against both the User Inputted Value of Status + the current/selected record set that is passed to the report.



To see how this report executes from the Job Plan Application, follow the steps below:

A. Access the Job Plan Application and form a selected record set by inputting a filter of 'IT' in the Job Plan field. Three Records are returned.



B. Click run reports from the Action Menu, and select the Job Plan List Report. When its request page appears, enter a value of ACTIVE in the Status parameter field.

Request Page

Fill in the fields in the Parameters section below and click Submit. When parameters are displayed, the report will execute against the selected record set. Optionally, fill out the Schedule and Email Sections to schedule a report or a scheduled report via email.

Parameters

Status

Schedule

Immediate

At this Time

Recurring

Email

To

Subject

Comments

C. Click Submit. The Report displays in the Report Browser. Notice that the report executed against both types of Parameters: The Selected Record Set of three records, and the User Inputted Parameter of ACTIVE. The result in the report only displays 2 records. (Selected record set of 'Job Plan = IT' and report parameter filter of 'STATUS = ACTIVE' .)

Reporting

Page 1 of 1

ITroll **IBM**

Job Plan List

Job Plan	Description	Duration	Priority	Organization	Site
IT-ACC-018	Disable IT Accounts	00:00	1		
IT-ACC-NEW	Create IT Accounts	00:00	5		

Number of Records: 2

February 9, 2009 3:52:39 PM EST




Information on Report Toolbar Settings

Heavily used reports are often required to be accessed via a minimum number of mouse clicks, and in certain scenarios, directly printed to the user's default printer. This functionality can be designed by enabling the application toolbar settings of Browser View, Direct Print or Direct Print with Attachments.

1. Parameterized Reports
2. Application Reports
3. Both Parameterized and Application Reports

Report toolbar settings can be enabled for any Application report. Report toolbar settings *cannot* be enabled for Parameterized reports.

A brief overview of this functionality is included in the table below. Additional details on each of these options are contained in the 'Report Toolbar Access Direct Print and Related Information' Guide.

	BV	DP	DPA
Stands for	Browser View	Direct Print	Direct Print with Attachments
Definition	A report that is accessible from an icon in the Application's Toolbar. The report immediately opens in the Report Browser.	A report that is accessible from an icon in the Application's Toolbar. The report is converted to Adobe and prints automatically to the user's default printer set in his browser	A report that can be direct printed via an icon from the Application's toolbar AND is enabled for printing of any Attached Documents that may be associated with its records.
Enabled for	BIRT Application Reports	BIRT Application Reports	BIRT Application Reports
Icon			
Icon File Name	nav_icon_overview.gif	nav_icon_PrintToDefault.gif	nav_icon_PrintWithAttachments.gif
Fields that must be enabled	Browser View? BV Location Toolbar Sequence	Direct Print? DP Location Toolbar Sequence Limit Flag Max Record Limit	Direct Print with Attachments? DPA Location Toolbar Sequence Limit Flag Max Record Limit

What Parameter type is best for your custom report?

There is no one rule that can always be applied to determine the best parameter type for your unique custom report. However, there are a number of items to consider when selecting which of the three parameter types you may want to use.

The two most commonly used parameter types are application and parameterized. As you can see from the chart below, a report using the application parameters will give you much more flexibility than a parameterized report. This flexibility includes all the items highlighted in the chart below.

Simply put, to minimize the number of future parameter changes you may have to make to a report, and to enable the most flexibility while minimizing user interaction – design your reports to utilize the application query.

	Application Report	Parameterized Report
Delivered Report Example	Asset Details	Details of Asset Failures
Number of Parameters in Example	0	8
Are mouse clicks minimized?	Yes	
Is data re-entry minimized?	Yes	
Does report enable Multiple, Dynamic Query Variations?	Yes	
Does report enable record limits?	Yes	
Can Browser View be enabled?	Yes	
Can Direct Print be enabled?	Yes	
Can Direct Print with Attachments be enabled?	Yes	
What parameter type enables best access outside of the application it is registered to? (For example – from the Start Center		Yes

Miscellaneous Notes on Designing Reports:

1. Including graphs in a report impacts performance. Therefore, if reports are to be immediately accessible via BV, DP or DPA – you may want to consider including a graph in those specific reports.
2. Hyperlinks are an excellent mechanism to encourage/enable the drilldown process for the user to obtain additional details. Hyperlinks are specified within the individual's report design file.
3. It is highly recommended that you develop report mockups when creating any new reports. This can be done in by taking an existing report and mocking it up, or by drawing up a new one in any software tool. This enables both the designer and developer to visualize the report layout.
4. Due to Localization Issues, all dates should be specified as either
Short Date: 2/11/11
Short Date + Medium Time: 2/12/11 6:00:09 AM
5. No more than 12 fields should be included in a grouped section – otherwise the report becomes very difficult to read. An example of a report containing a large # of fields (18) is Receipts and Transfers Transactions located in the Inventory App. When a large number of fields are displayed, the column values begin to blend into each other and are difficult to read.

NOTE: One way to potentially resolve a problem where you need to display a large number of fields is thru hidden fields. Hidden fields do not display on the report when it is displayed in the browser, however, the user can select to see this hidden fields when downloading the report results to .csv.

6. Finally, the more fields that are included in a report, the denser the report becomes. The density of a report impacts its performance, and may be another item to consider if your report is required for immediate viewing.

Additional References

The following lists additional references available at the time this guide was prepared.

1. Maximo Report Wiki Pages

Contains pages of information on BI, Ad Hoc reporting, BIRT, cognos and more

<https://www.ibm.com/developerworks/community/wikis/home?lang=en#/wiki/IBM%20Maximo%20Asset%20Management/page/Reporting>

2. Maximo Report Documentation

This page contains links to all the reference materials noted in this document and more!

<https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/IBM%20Maximo%20Asset%20Management/page/Reporting%20Documentation>

Revision History

Revision 4 - April 2015

Updated Links

Revision 3 May 2011

Updates include (1) Reference Materials (2) Parameters (3) Data Analysis Details and Graphs and (4) Miscellaneous

Revision 2 January 2010.

Updates include (1) Formatting and (2) Reference Material Updates

Revision 1 February 2009

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