Performance Data Investigator for IBM i

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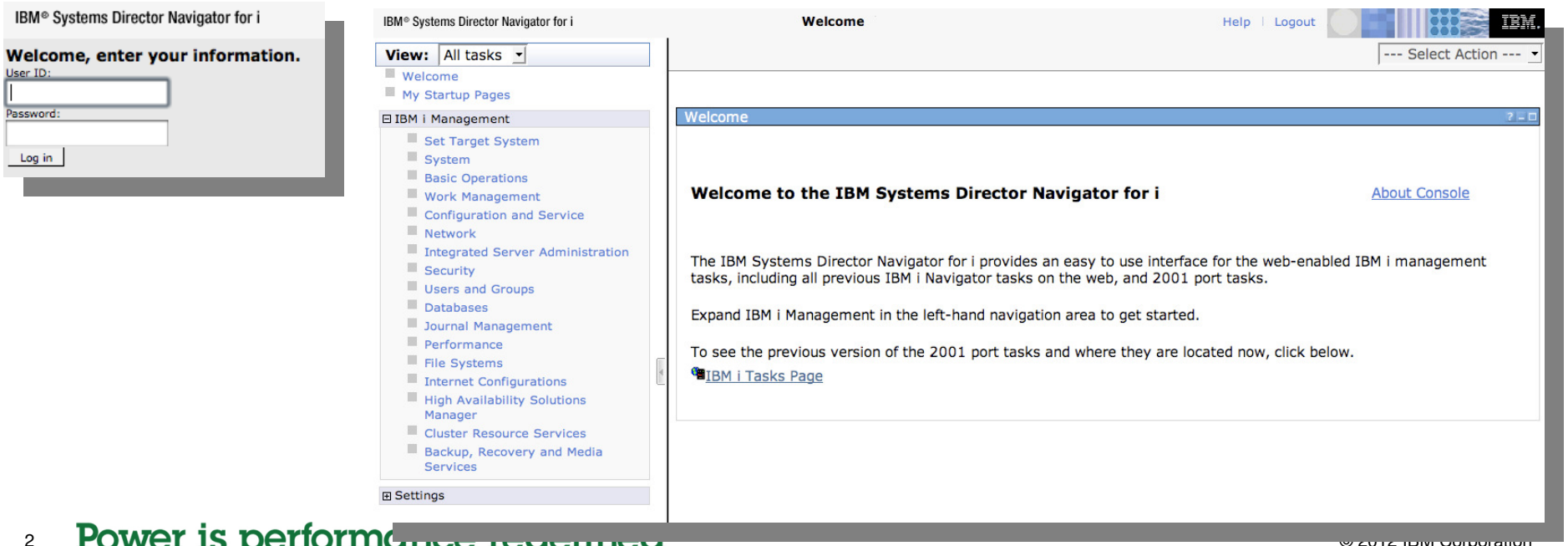
Deliver services faster, with higher quality
and superior economics

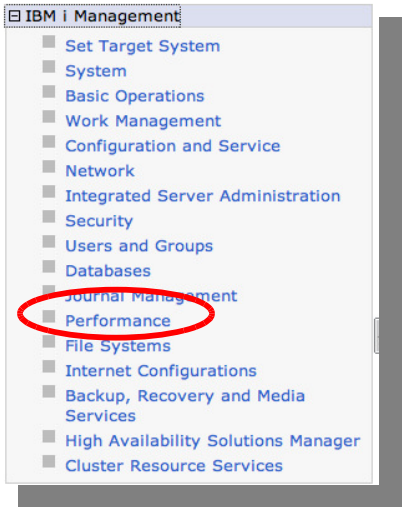
IBM Systems Director Navigator for i

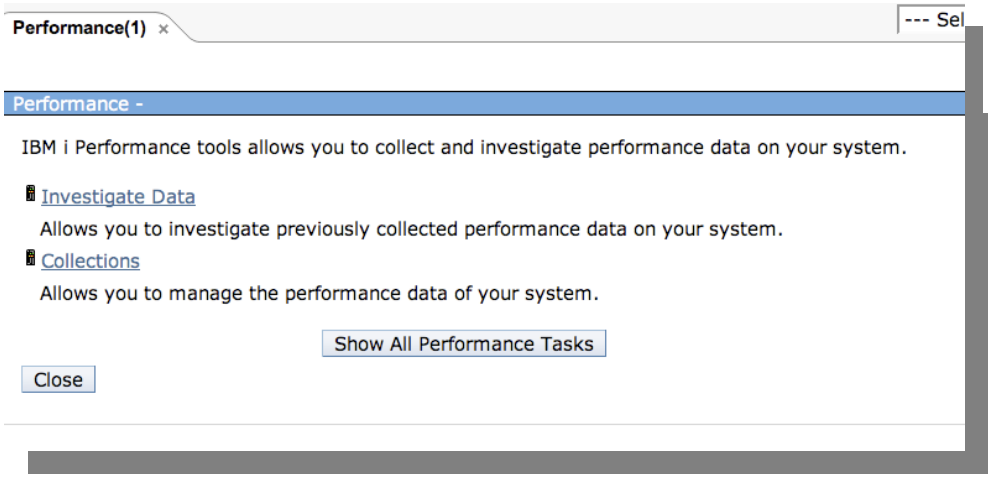
- **IBM Systems Director Navigator for i is the Web console for managing IBM i**
  - Much of the function that exists in System i Navigator, but with a browser user interface
  - Simply point your browser to http://systemname:2001

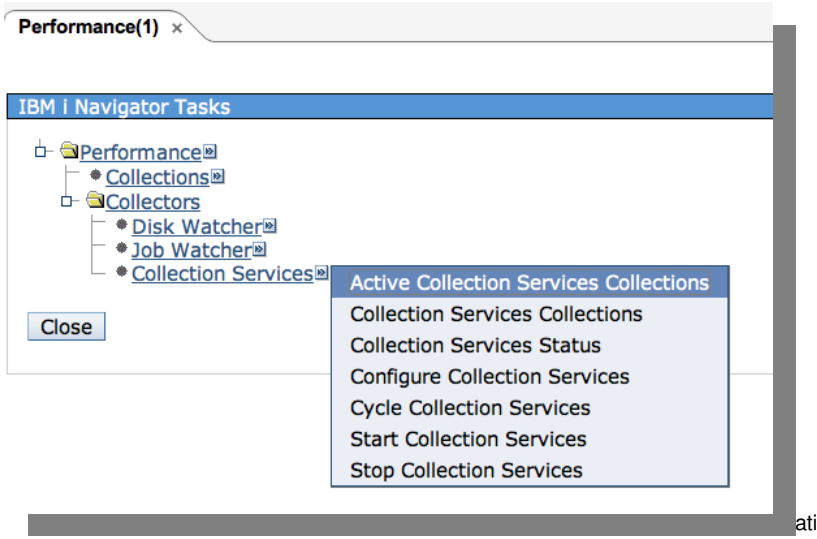


Performance Tasks

- "Performance" is a major function within this Web console
  - Investigate Data
  - Collections
  - All Performance Tasks
    - Active Jobs
    - Disk Status
    - System Status
    - Define, start, stop and manage performance data collectors







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Updates to the Performance Data Investigator

- **Visit the IBM i Performance Tools Technology Updates Wiki on developerWorks for more information about Performance Data Investigator's latest enhancements and a list of the latest PTFs**

https://www.ibm.com/developerworks/mydeveloperworks/wikis/home?lang=en#/wiki/IBM%20i%20Technology%20Updates/page/Performance%20Data%20Investigator

- **IBM Systems Director Navigator for i typically releases updates every 6 months via Service Pack**

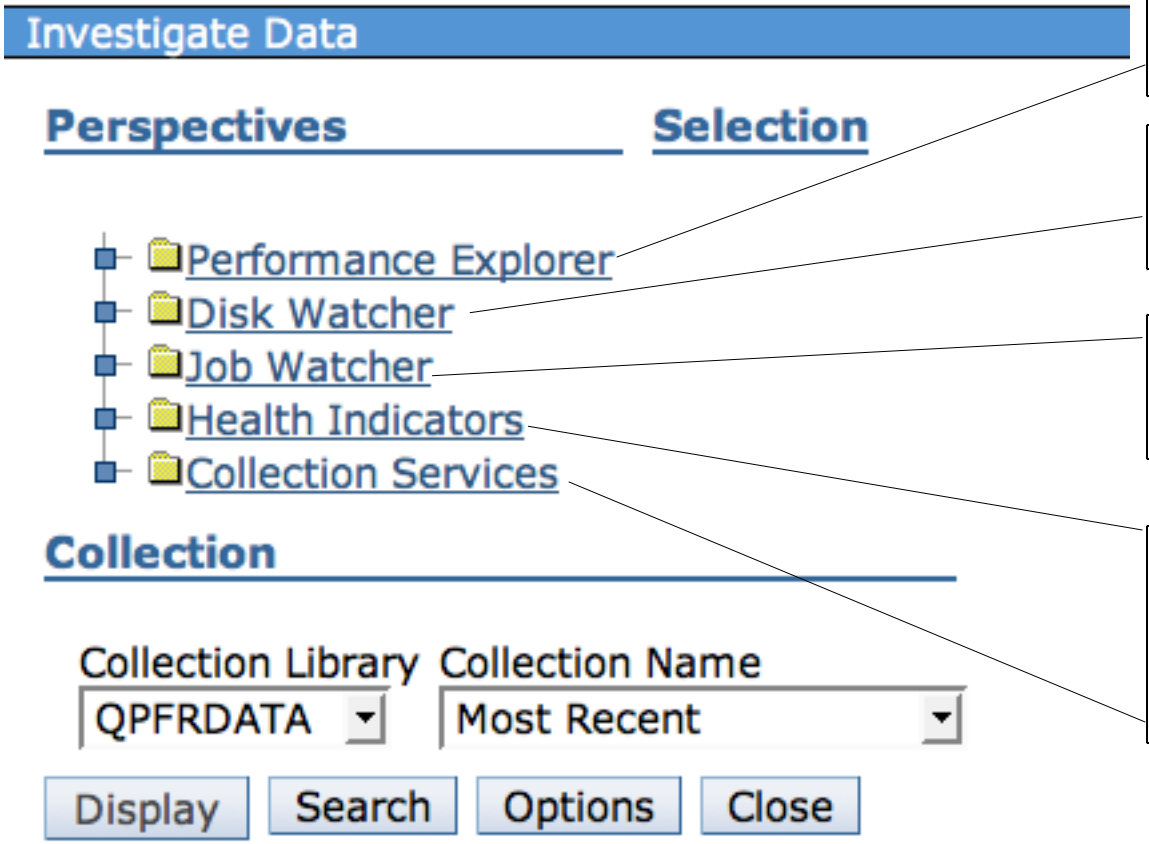
Prerequisites – Performance Tools Licensed Program Product

- IBM i for Collection Services, Health Indicators
  - Included with base OS

- Performance Tools Licensed Program Product
  - 5761PT1 for 6.1
  - 5770PT1 for 7.1

    - **Performance Tools - Manager Feature (Option 1)**
      - Disk Watcher, Performance Explorer
    - Performance Tools - Agent Feature
    - **Performance Tools - Job Watcher (Option 3)**

Prerequisites – Performance Tools Licensed Program Product



IBM Performance Tools – Manager feature

IBM Performance Tools – Manager feature

IBM Performance Tools – Job Watcher feature

IBM i 6.1 or later – Included with the base operating system

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Prerequisites – Authorizing Users to PDI

- Users need to be authorized to use the investigate data and collection manager performance tasks

- Include users on the QPMCCDATA authorization list

```
                          Edit Authorization List

Object . . . . . :   QPMCCDATA       Owner  . . . . . :   QSYS
  Library  . . . . . :     QSYS          Primary group  . . . :   *NONE

Type changes to current authorities, press Enter.

             Object    List
User        Authority  Mgt
*PUBLIC     *EXCLUDE
QSYS        *ALL        X
PDI01       *USE
PDI02       *USE
PDI03       *USE
PDI04       *USE
PDI05       *USE
PDI06       *USE
PDI07       *USE
PDI08       *USE
PDI09       *USE
                                                                    More...
```


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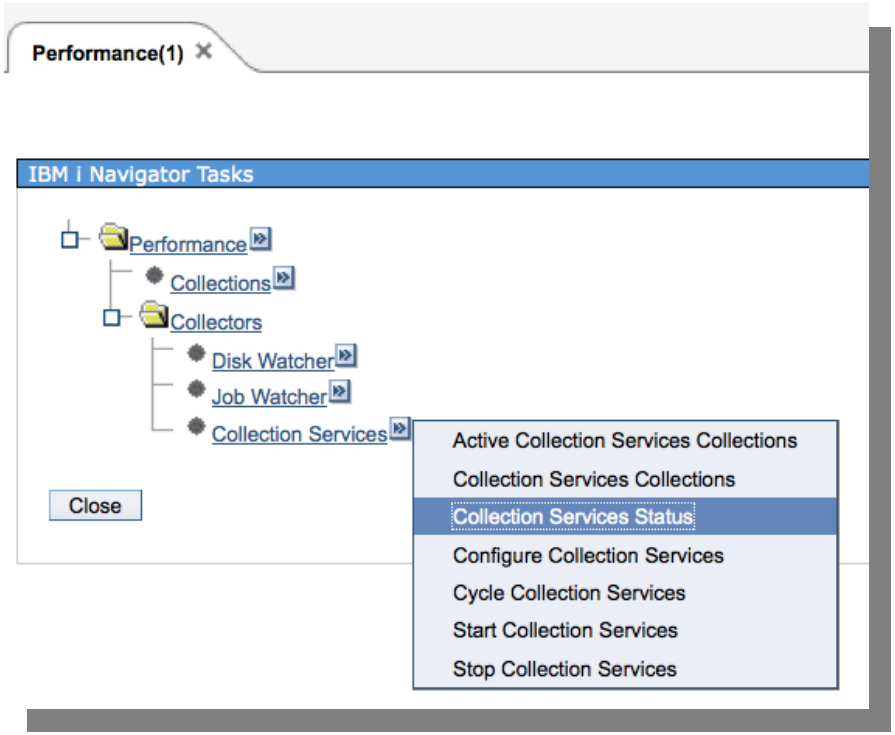
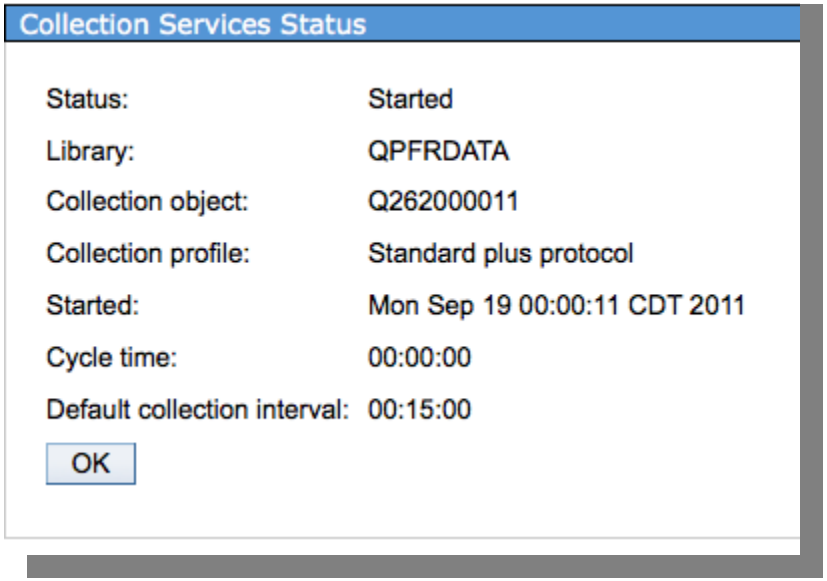
Prerequisites – Collection Services must be Active

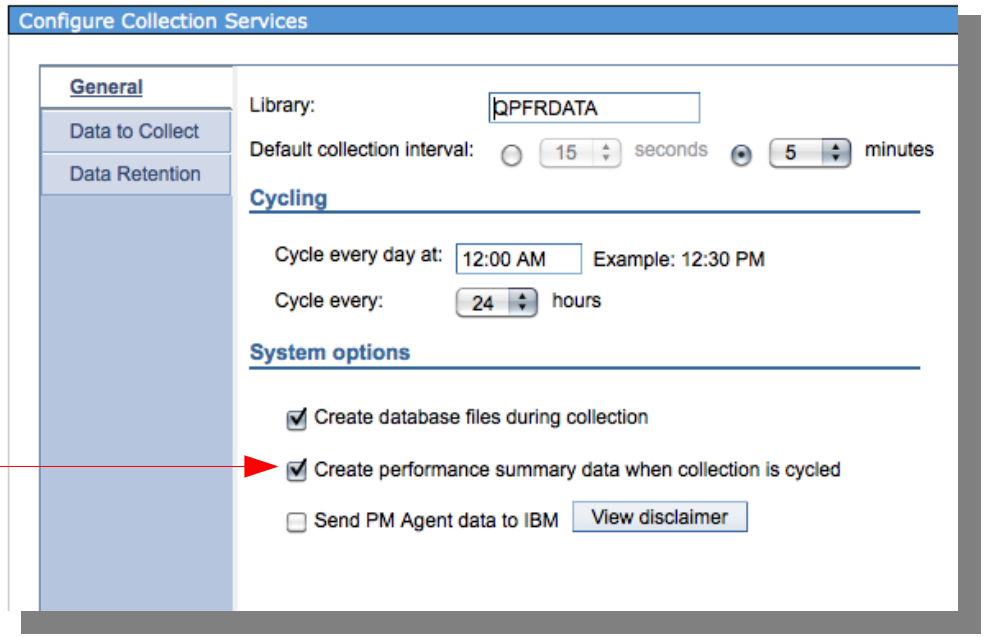
- Make sure Collection Services is active
  - Started by default with 6.1 and later





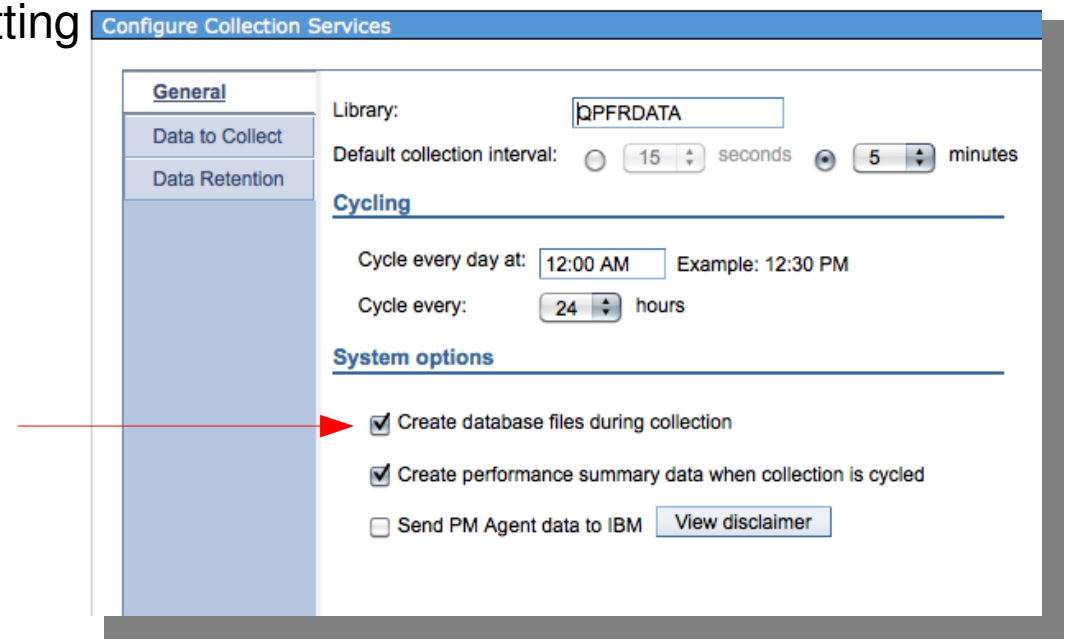
Prerequisites - Performance Summary Data

- Performance summary data will help the performance of PDI
  - Underlying queries will run faster with performance summary data
  - Graphical interface
    - Check the “Create performance summary data...” option within Configure Collection Services
  - Command interface:
    - Change the “Create Performance Summary” option for the Performance Collection
      - CFGPFRCOL command
        - » CRTPFRSUM(*YES)
    - Or use the Create Performance Summary command
      - CRTPFRSUM



Prerequisites – Create Database Files During Collection

- PDI requires data in the Collection Services DB2 files
  - Beginning with 6.1, the default is to create the database files during performance data collection
  - If you have turned this off, you will not be able to view performance data with PDI until the data is created in the files
  - Recommended to leave this setting at the default
  - Command interface:
    - CFGPFRCOL, CRTDBF(*YES)



Tips for Best Performance (of your Performance tasks)

- Good system tuning practices are essential
  - CPU
  - Memory
  - Disk

	Single User	Multiple Users
CPU	.5 processors uncapped	2 processors uncapped
Memory	2 GB in *BASE	6-8 GB in *BASE
Disk Arms	3	6

- IBM Systems Director Navigator tasks run primarily in the ADMIN2 job in the QHTTPSVR subsystem
- Ensure no bad DNS entries on the system
- PDI makes extensive use of SQL to gather data for charts and tables

Terminology

Collection Services is the mechanism used to gather performance data with little or no observable impact on the system performance. It allows you to control what data is collected and how that data is used.

Collection services data was generally analyzed by the Performance Tools LPP and Management Central Monitors in prior releases.

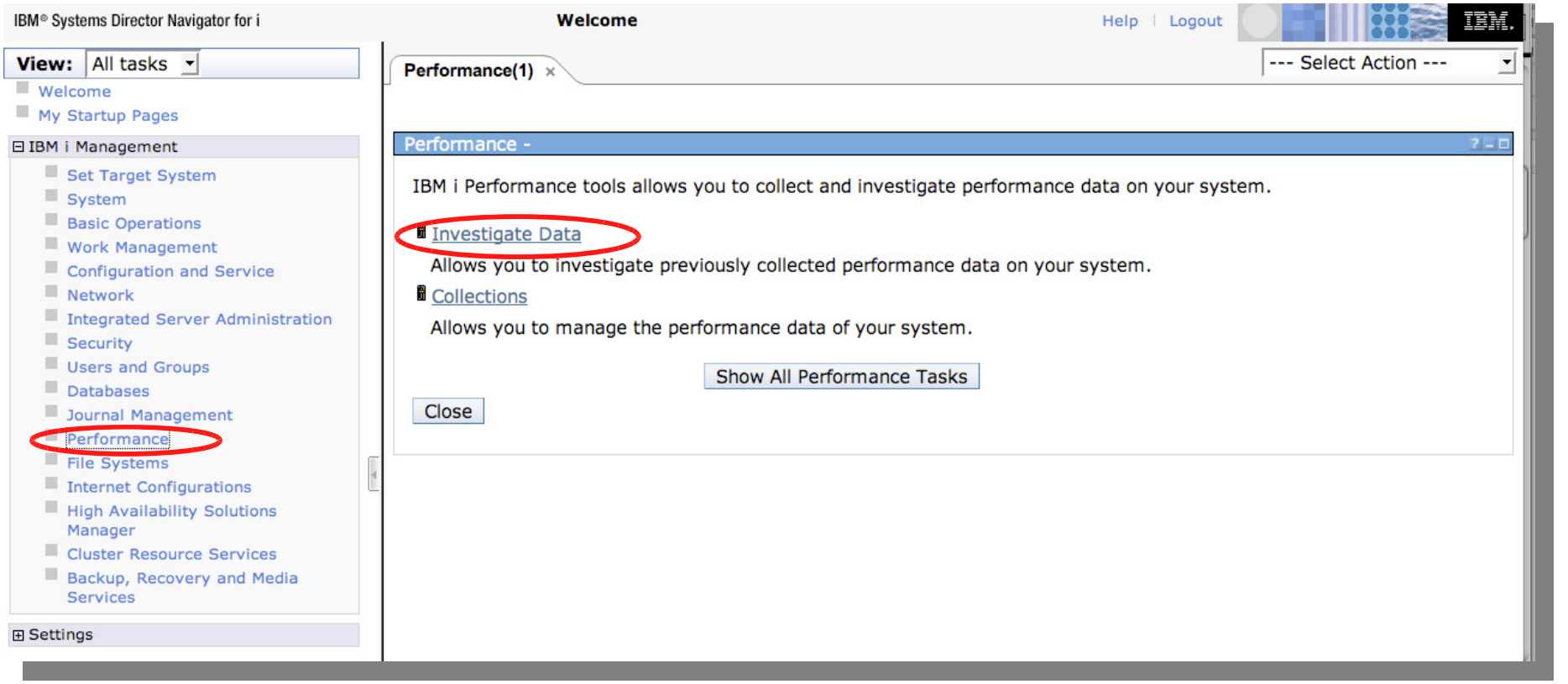
Collection Services data is available for performance analysis through the Web user interface and is the data used for initial analysis.

Standard Data is data from Collection Services which is normally collected on a 24 x 7 basis.

Wait Accounting is the technology used to collect wait time statistics.

Wait points throughout the system are identified and categorized into groups, or 'buckets'. These wait statistics can then be analyzed to determine what a thread was doing when it was running as well as when it was not running.

IBM Systems Director Navigator for i
Performance, Investigate Data



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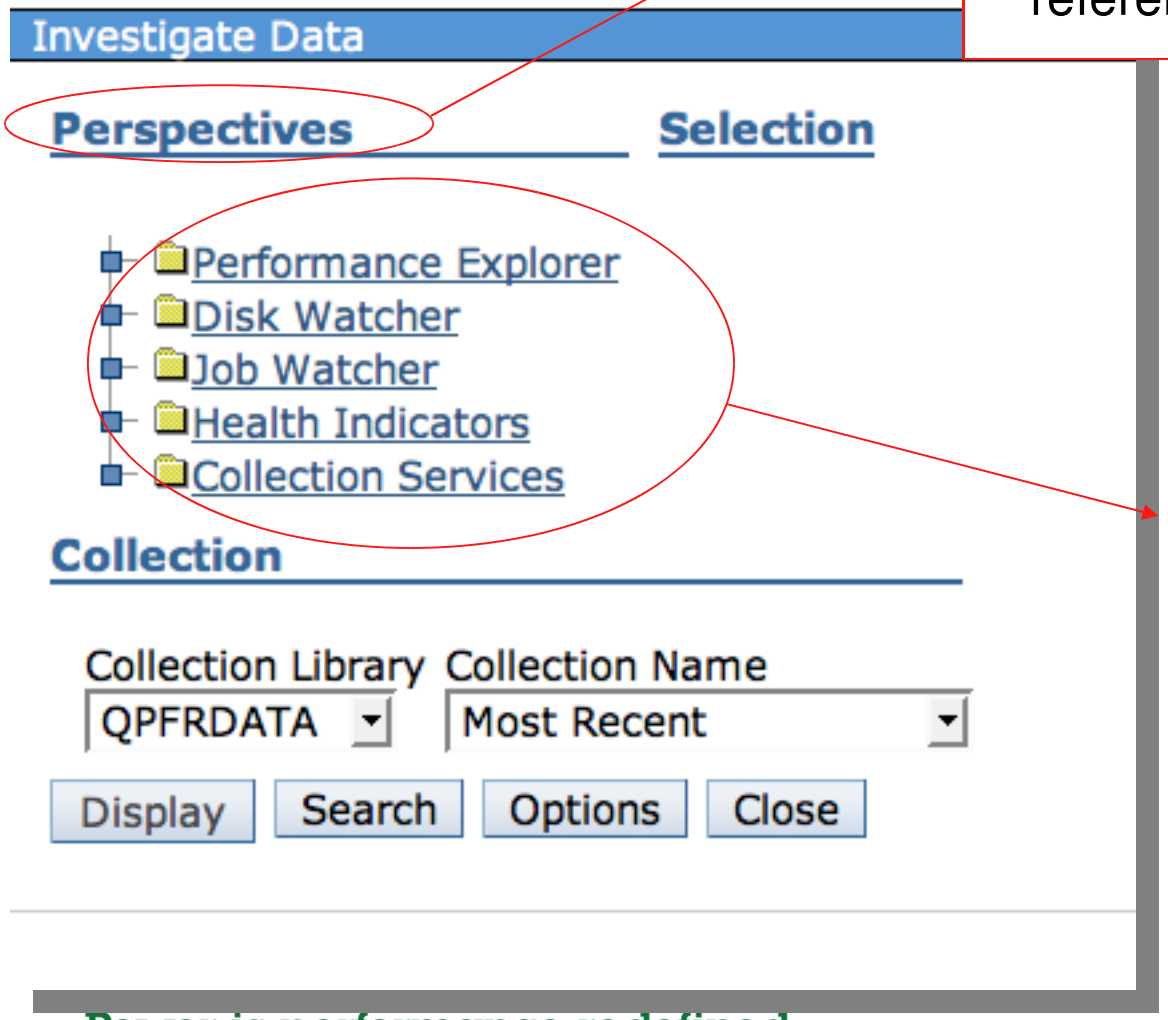
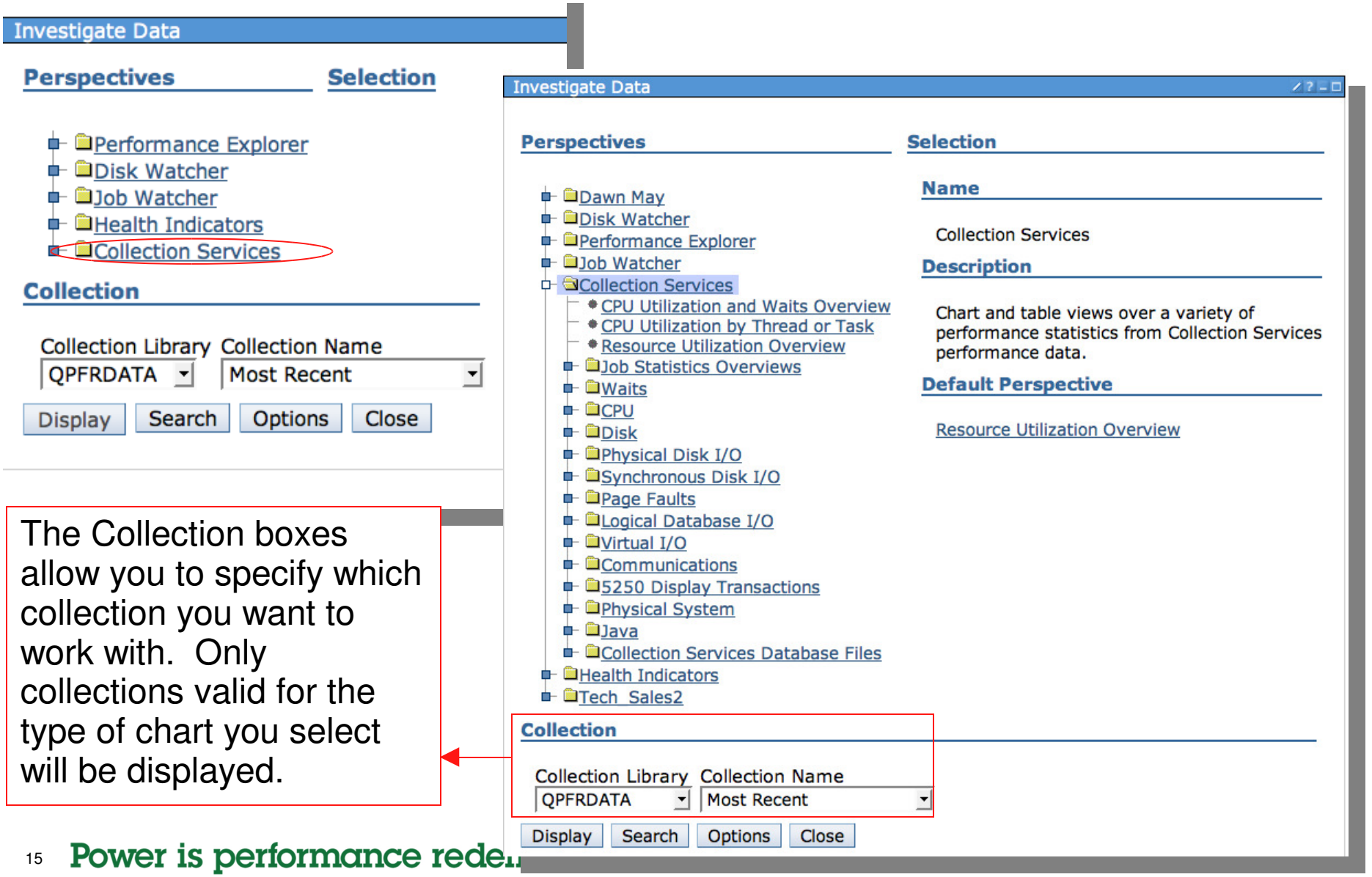
Investigate Data

Perspectives are a logical grouping of similar or related views that benefit from being rendered side-by-side for reference or context.



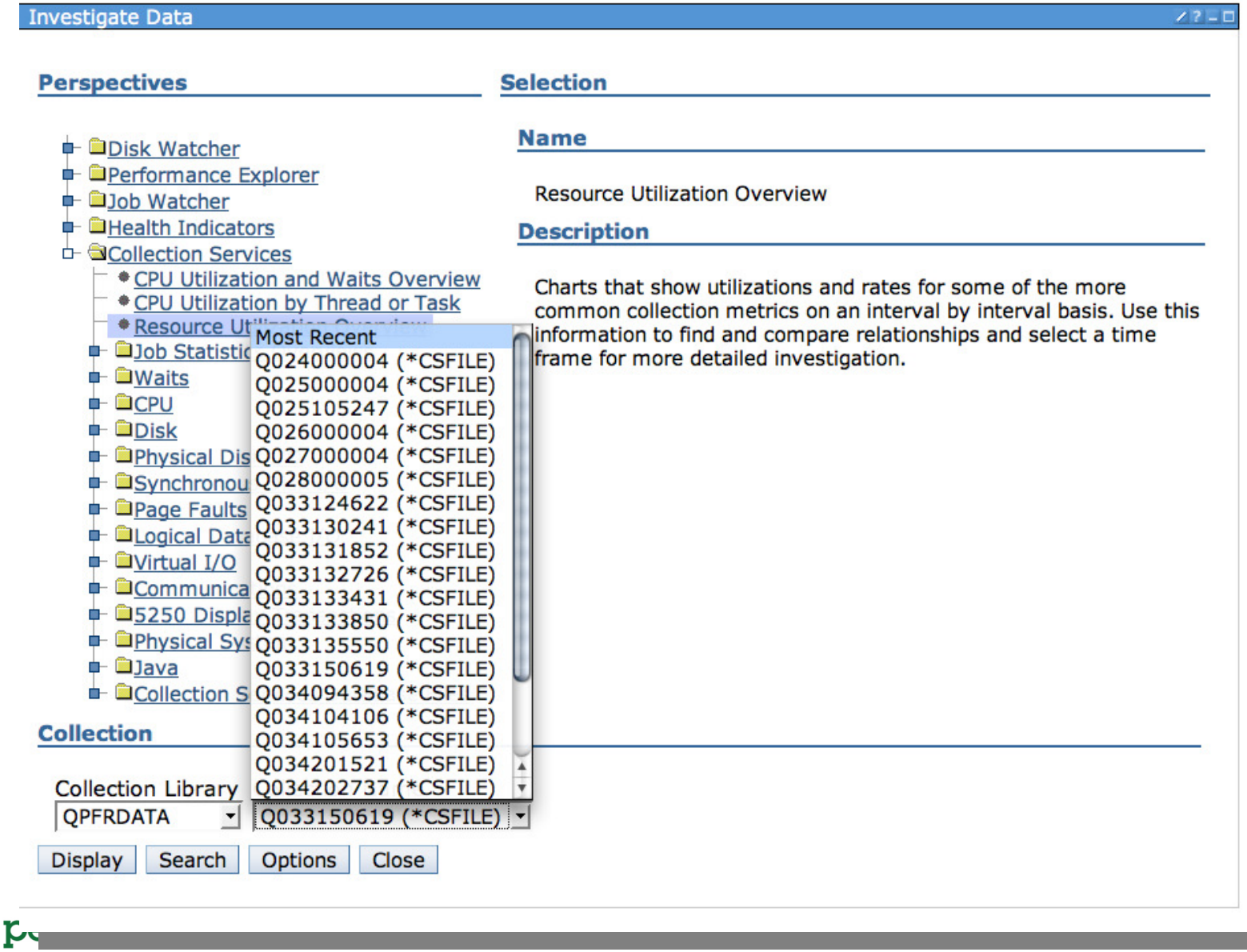
Content Package is a set of perspectives that share a commonality (major theme).

Investigate Data – Select Collection



The Collection boxes allow you to specify which collection you want to work with. Only collections valid for the type of chart you select will be displayed.

Selecting a Collection



Resource Utilization Overview - Percentages

Resource Utilization Overview

Perspective Edit View History

Collection

Name(s): CS228229ND
Library: COMMON2
Type: Collection Services File Based Collection

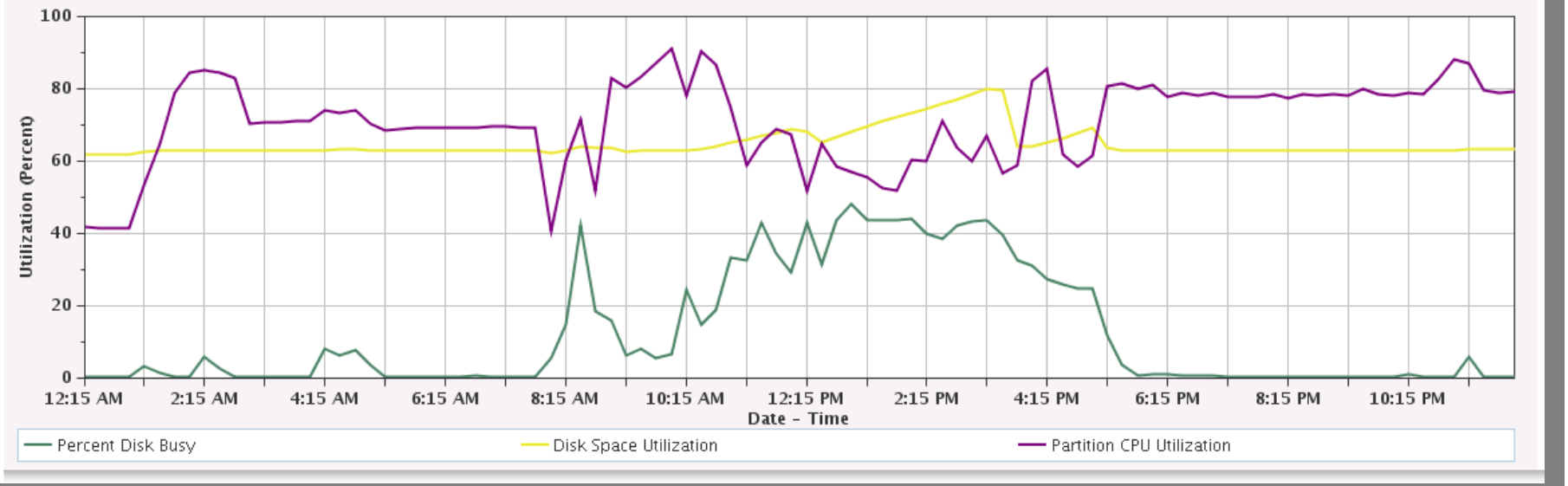
Time

Start: Feb 28, 20
End: Feb 29, 20

Resource Utilization Percentages

--- Select Action ---

Resource Utilization Percentages

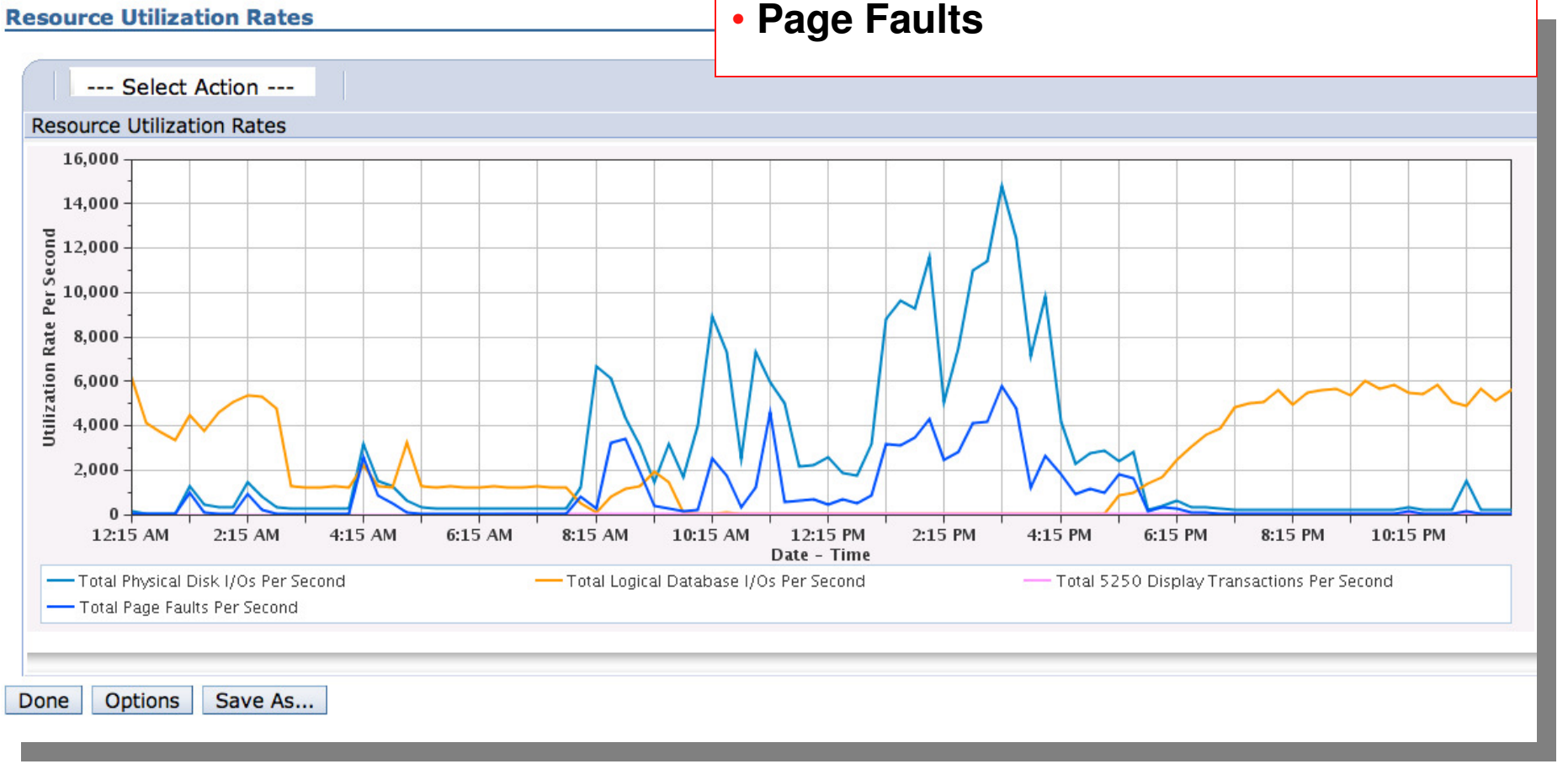


Nice summary for general overall health:

- **CPU Utilization**
- **Disk Utilization**
- **Disk Busy**

Resource Utilization Overview - Rates

Nice summary for general overall health:
- **5250 Transactions**
- **I/Os per Second**
- **Page Faults**



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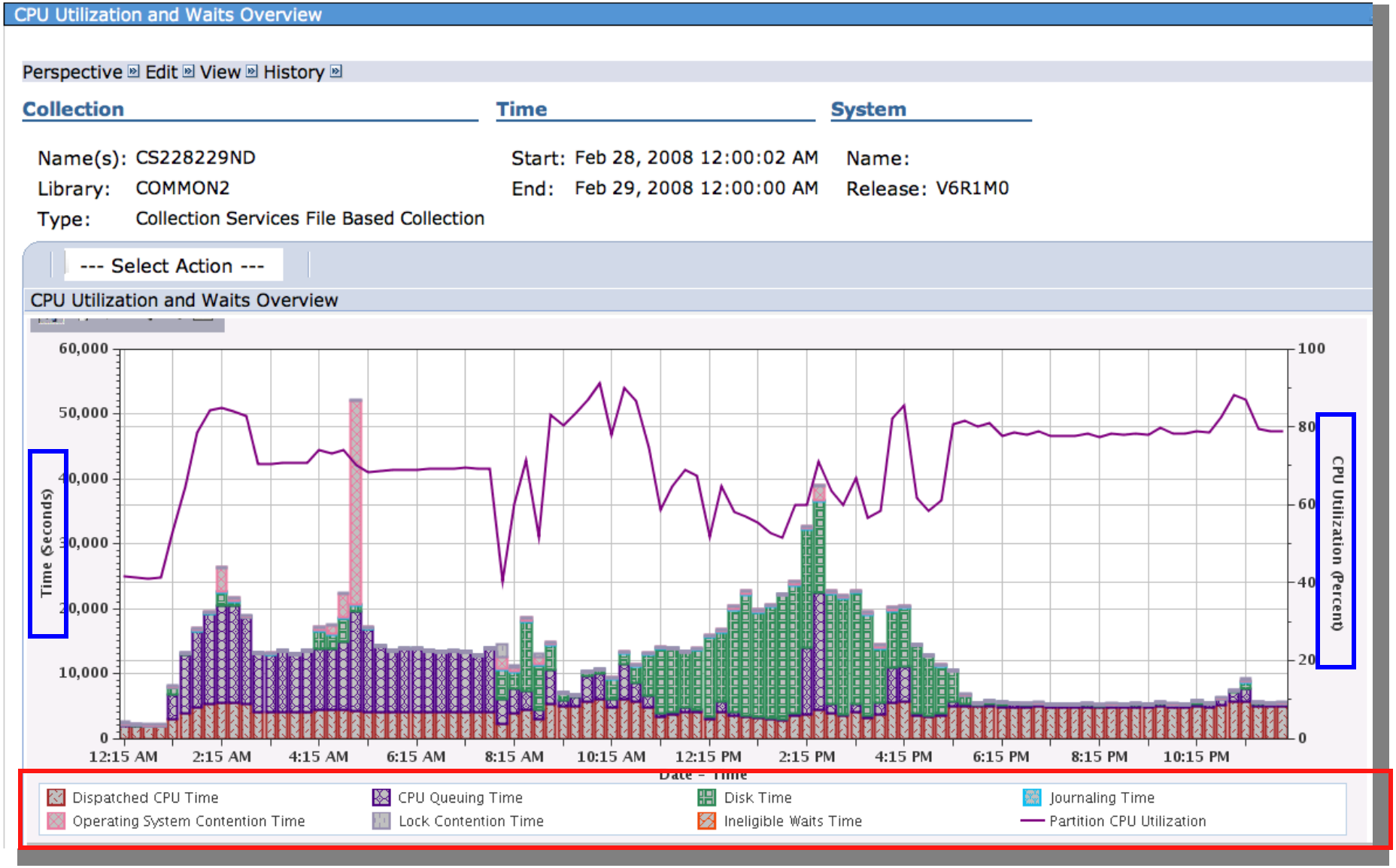
CPU Utilization and Waits Overview



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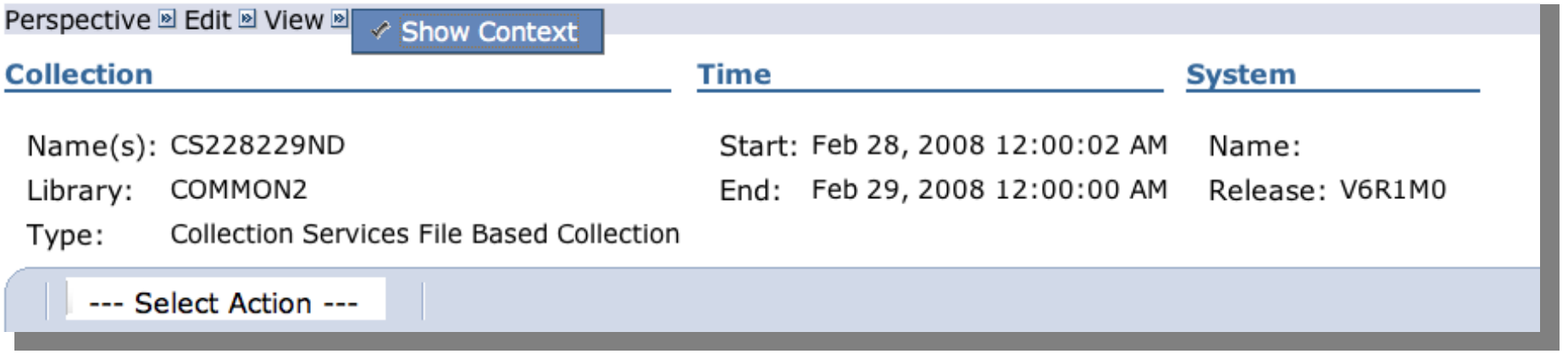
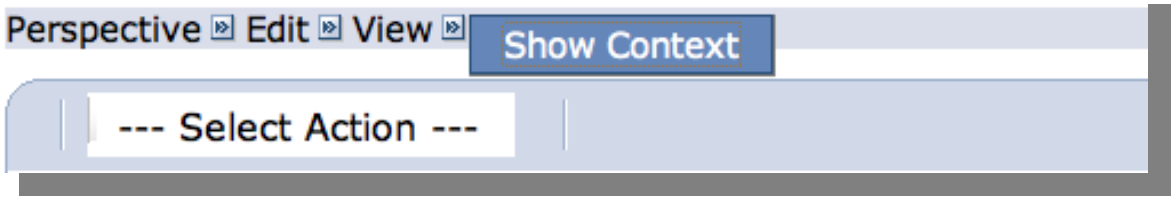
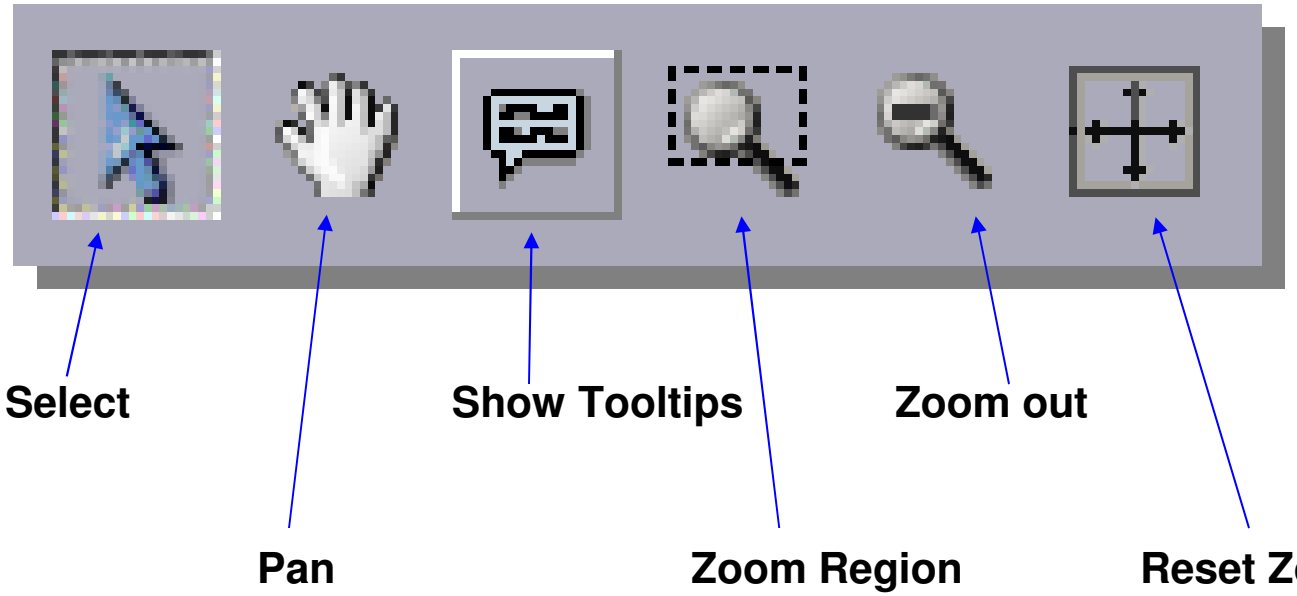
View Collection Information Details

Toggle on/off the detailed information regarding the collection
- Collection name, library and type
- Start and end time
- Name of the system the data was collected on
- The release level of the collection

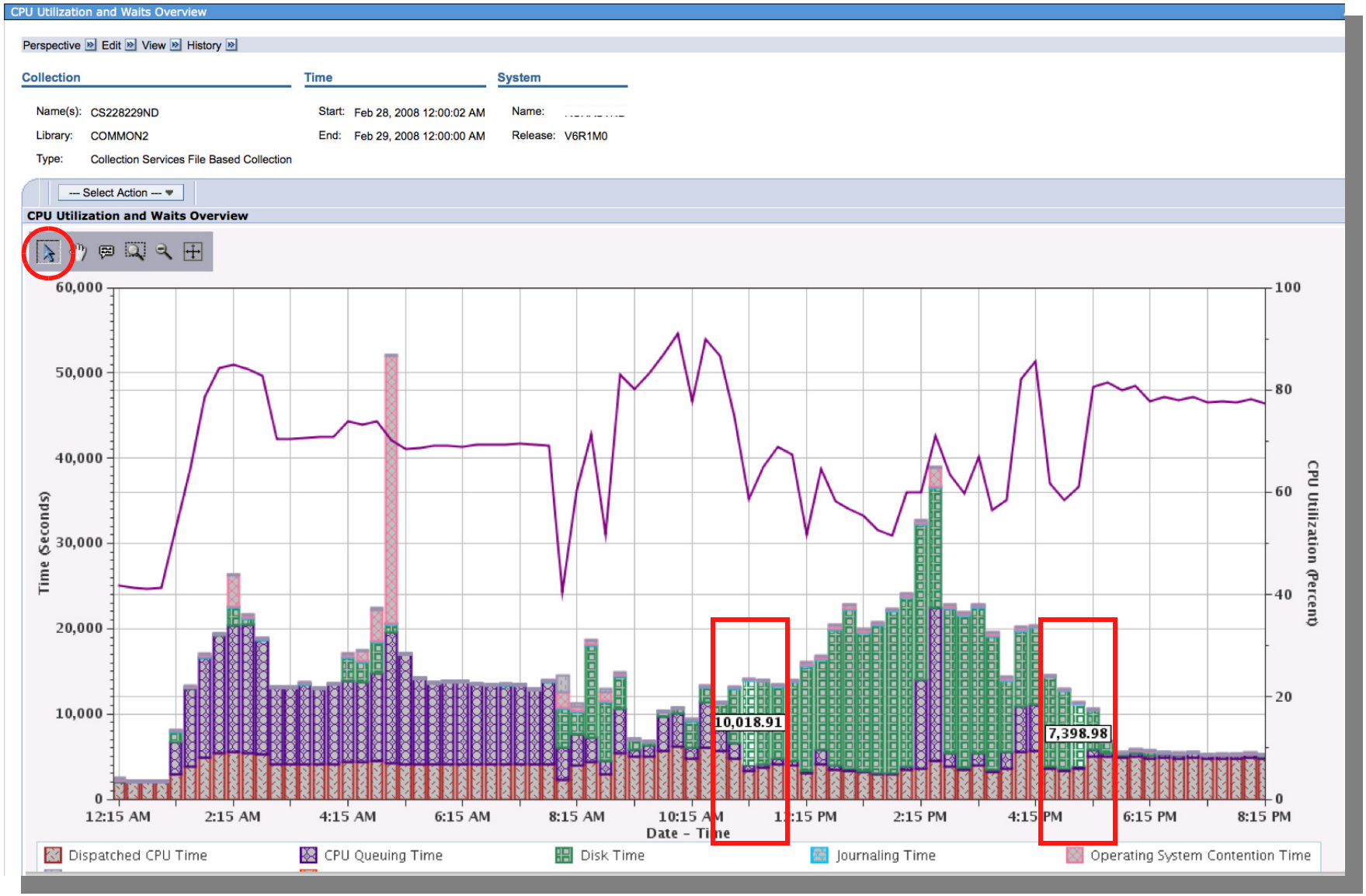




Tool Legend



Selection



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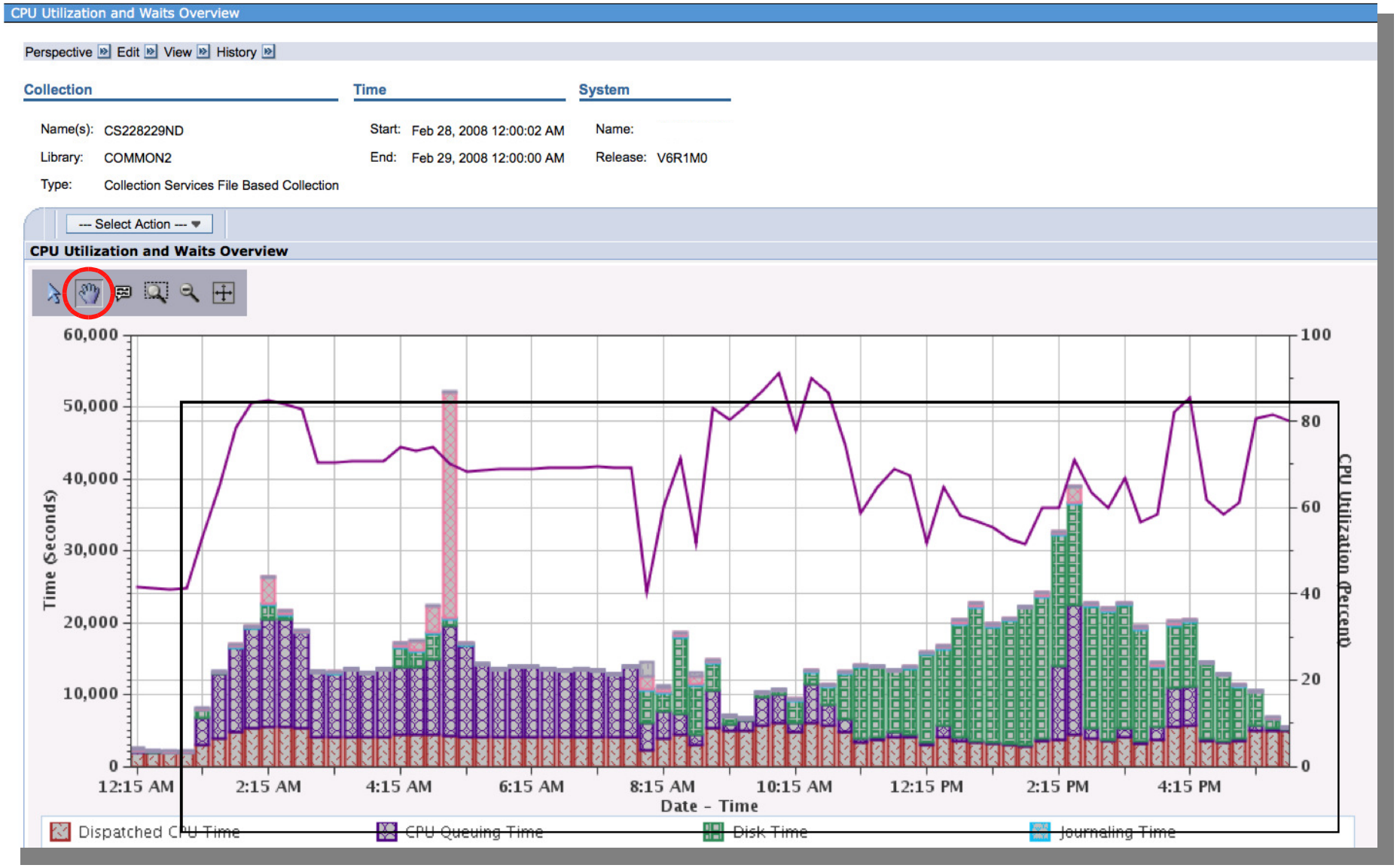
Pan



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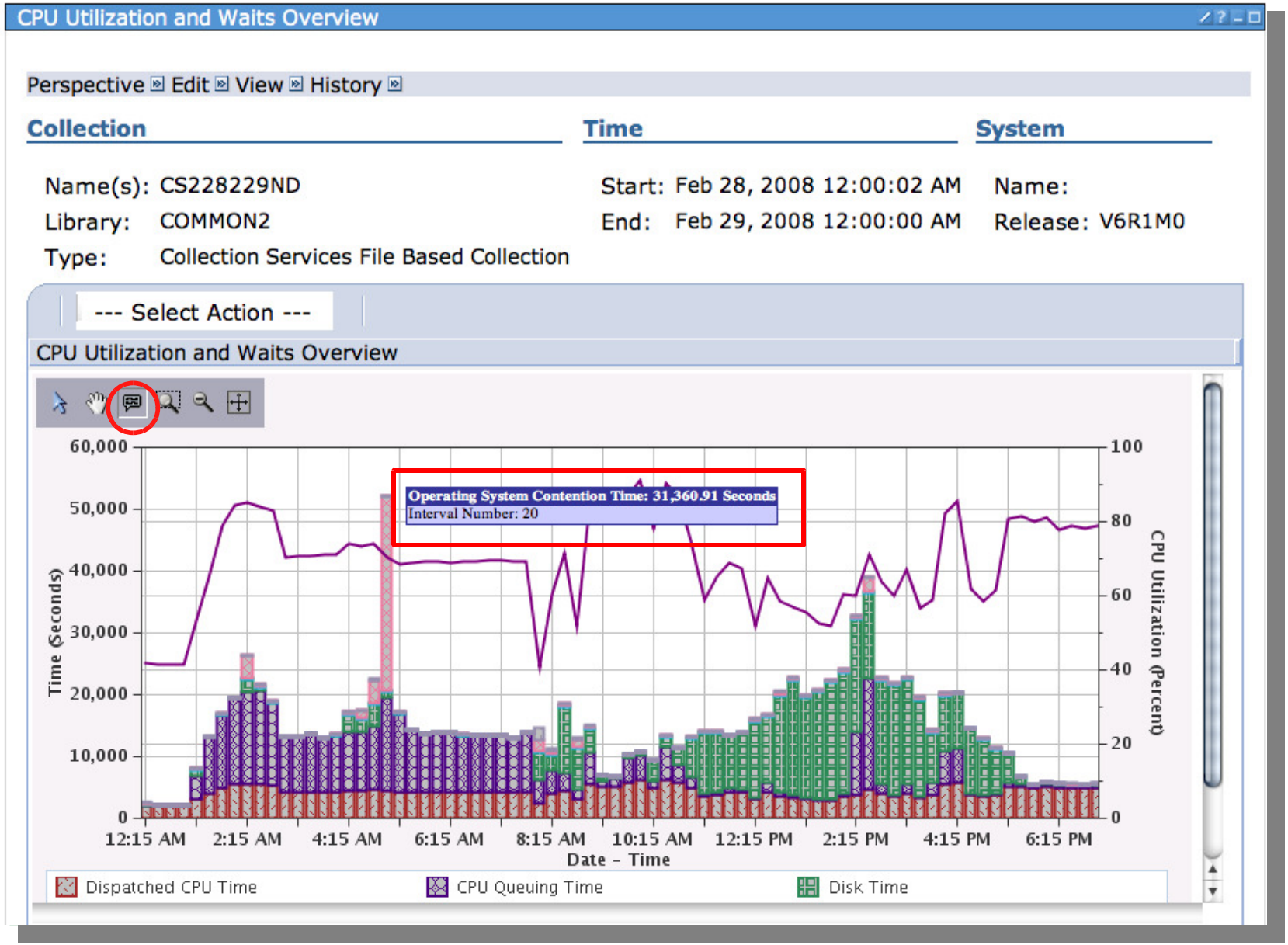
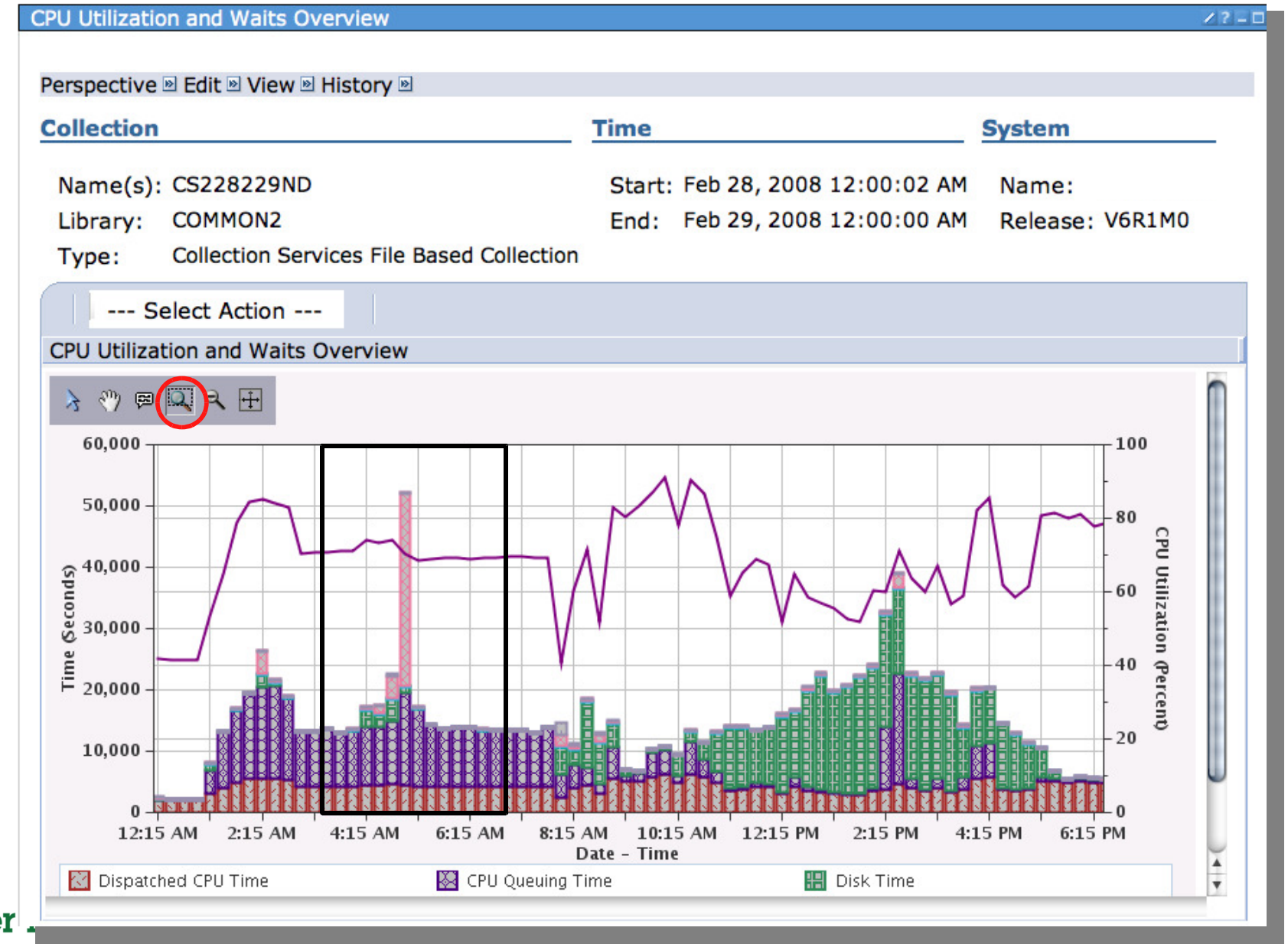
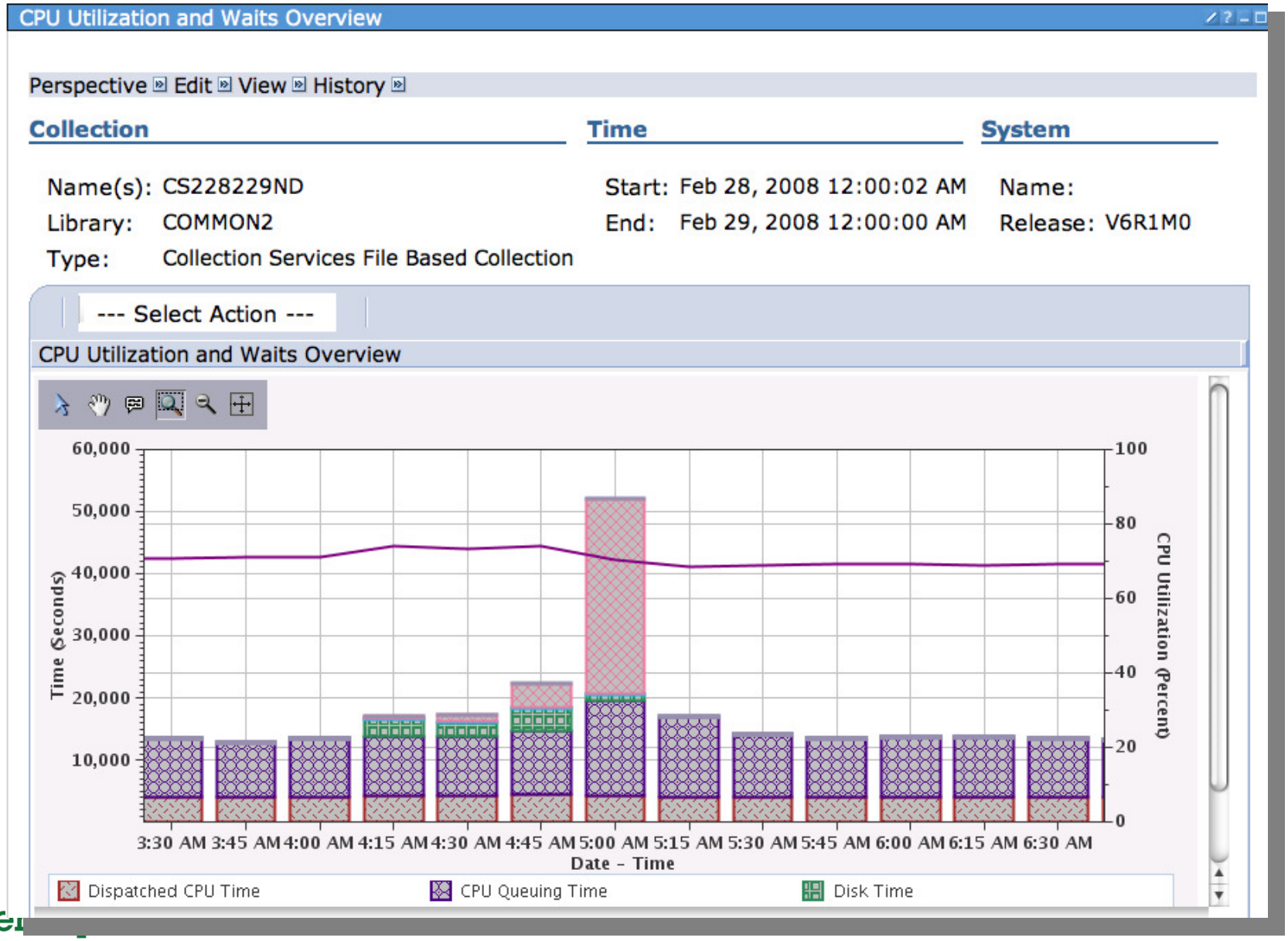
Tool Tips


CPU Utilization and Waits Overview
Perspective Edit View History
Collection
Time
System
Name(s): CS228229ND
Library: COMMON2
Type: Collection Services File Based Collection
Start: Feb 28, 2008 12:00:02 AM
End: Feb 29, 2008 12:00:00 AM
Name:
Release: V6R1M0
--- Select Action ---
CPU Utilization and Waits Overview
Operating System Contention Time: 31,360.91 Seconds
Interval Number: 20
Time (Seconds)
CPU Utilization (Percent)
Date - Time
12:15 AM
2:15 AM
4:15 AM
6:15 AM
8:15 AM
10:15 AM
12:15 PM
2:15 PM
4:15 PM
6:15 PM
Dispatched CPU Time
CPU Queuing Time
Disk Time

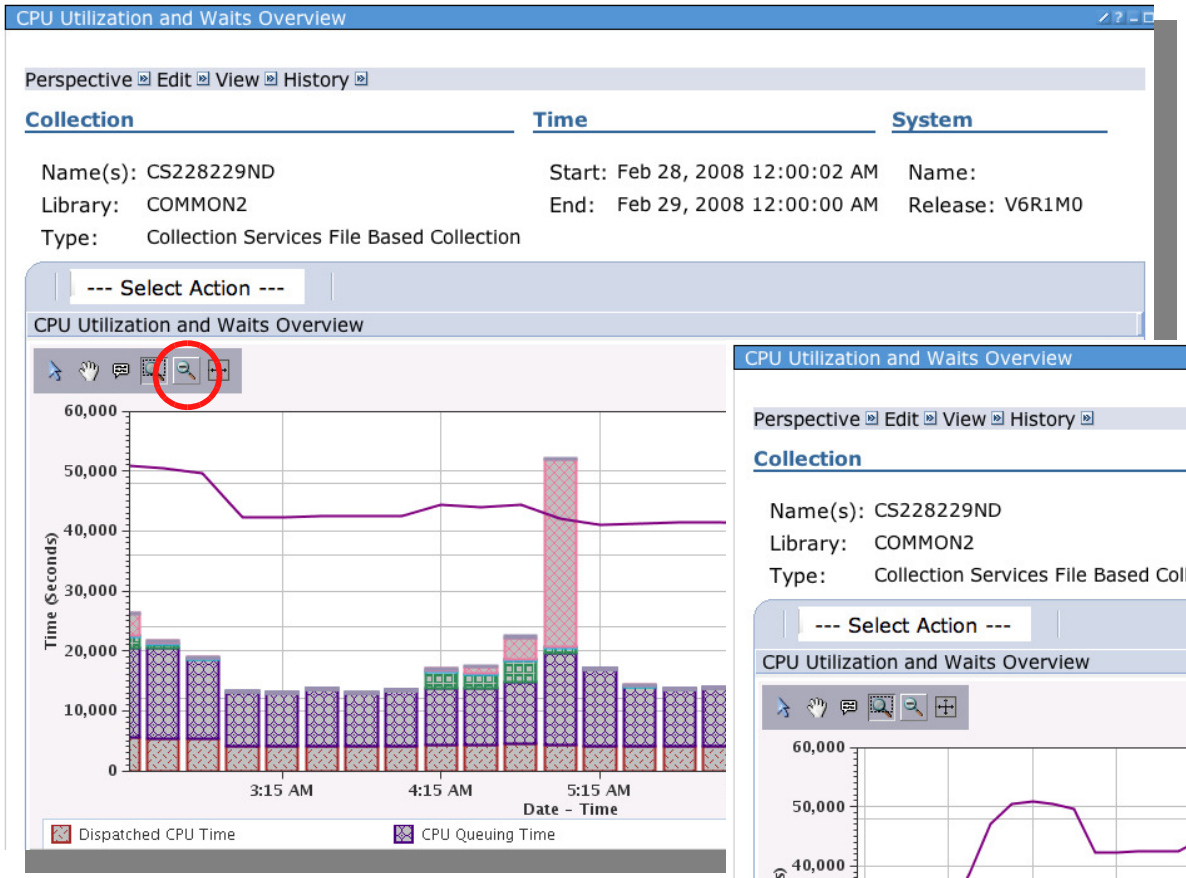
Zoom


CPU Utilization and Waits Overview
Perspective
Edit
View
History
Collection
Time
System
Name(s): CS228229ND
Library: COMMON2
Type: Collection Services File Based Collection
Start: Feb 28, 2008 12:00:02 AM
End: Feb 29, 2008 12:00:00 AM
Name:
Release: V6R1M0
--- Select Action ---
CPU Utilization and Waits Overview
60,000
50,000
40,000
30,000
20,000
10,000
0
Time (Seconds)
100
80
60
40
20
0
CPU Utilization (Percent)
12:15 AM
2:15 AM
4:15 AM
6:15 AM
8:15 AM
10:15 AM
12:15 PM
2:15 PM
4:15 PM
6:15 PM
Date - Time
Dispatched CPU Time
CPU Queuing Time
Disk Time

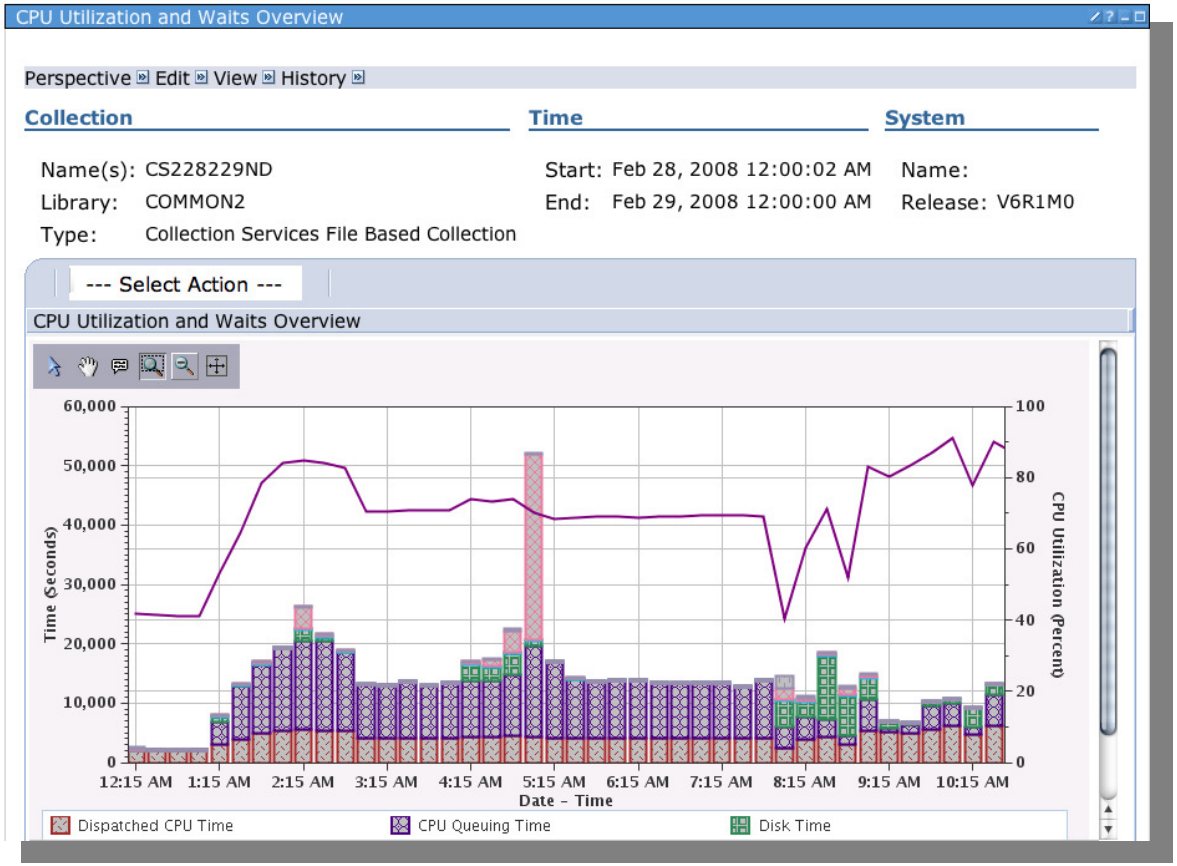
Zoom Results



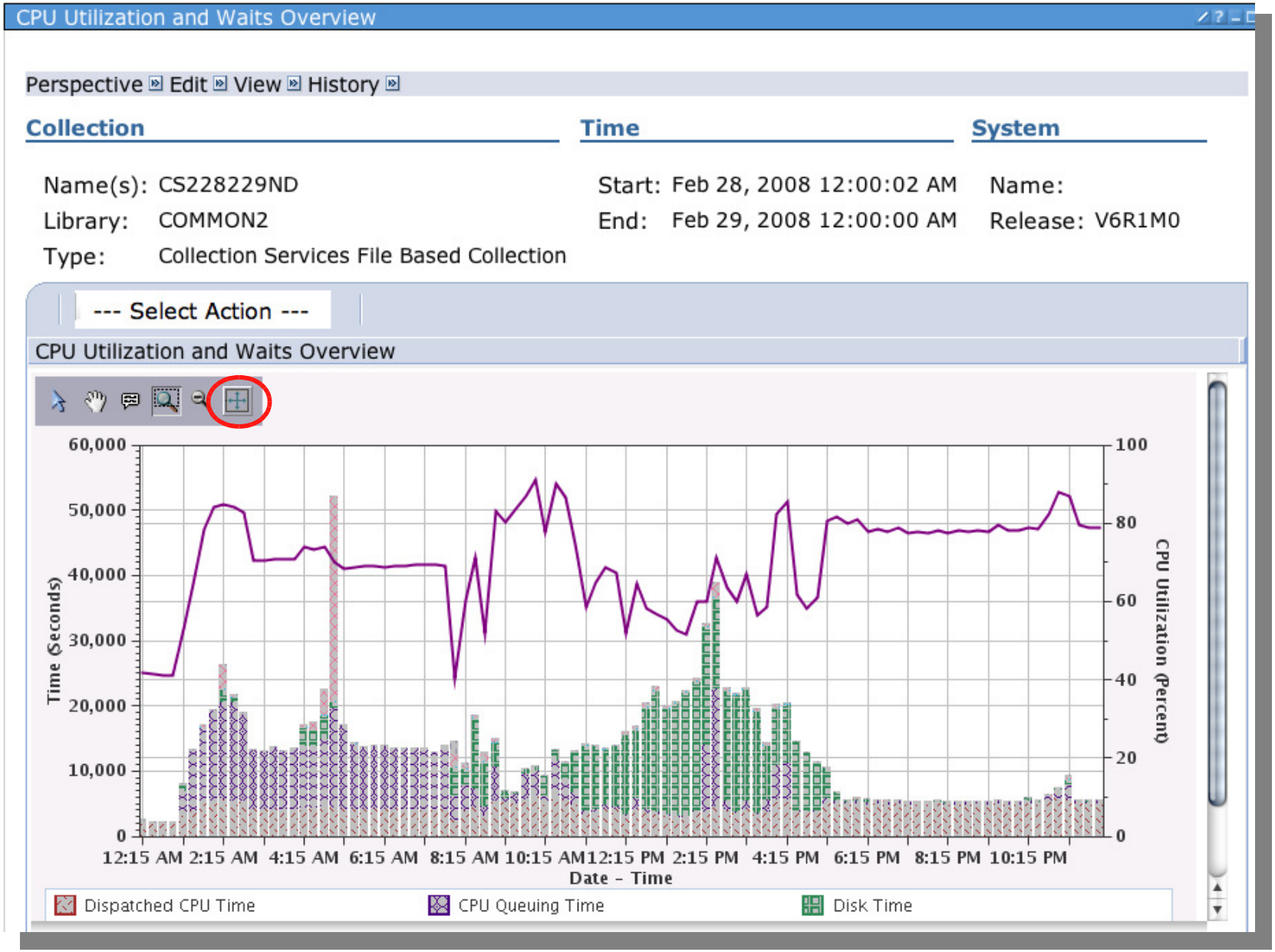
Zoom Out



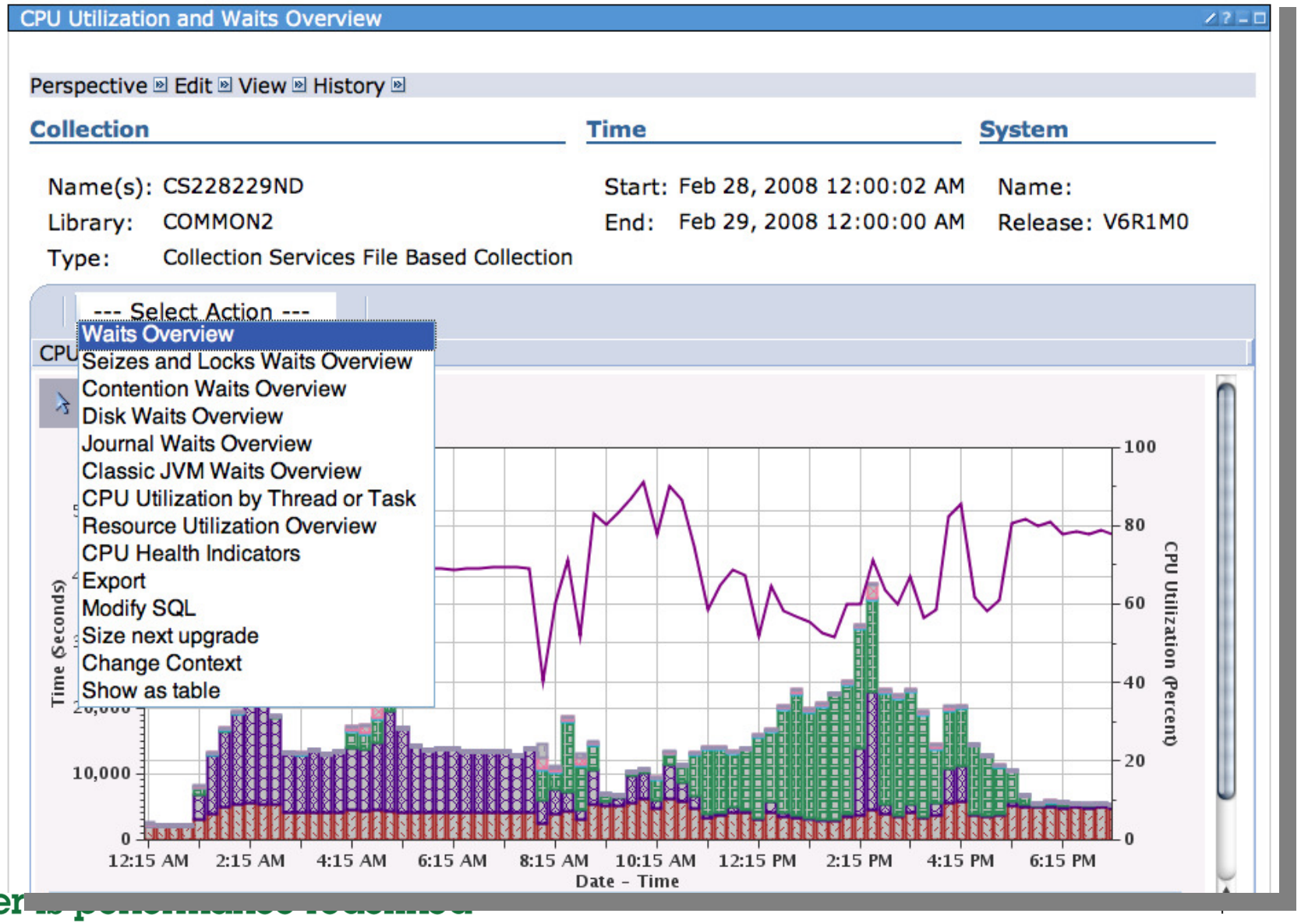
Zoom out expands the graph each time it is clicked



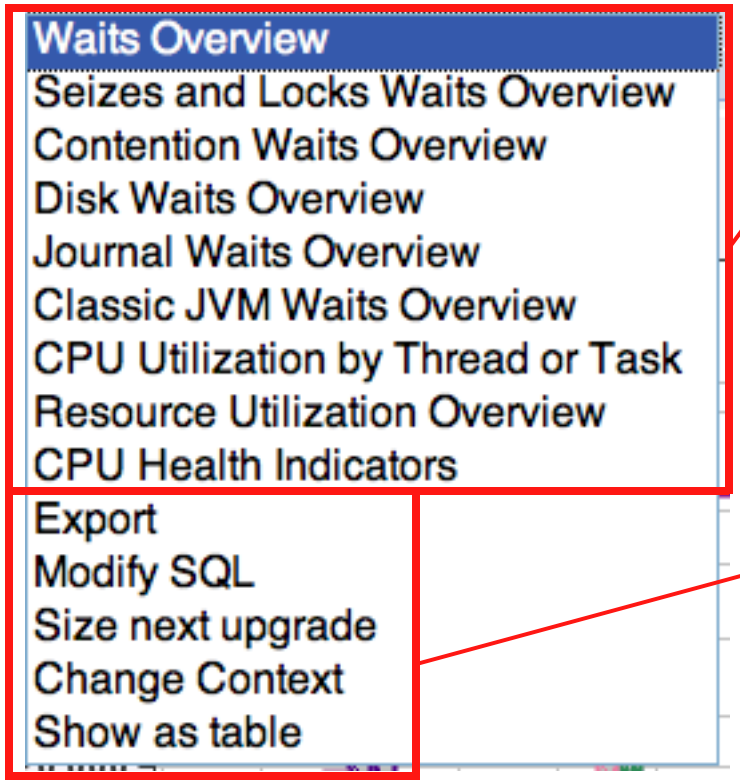
Full Zoom-out



Drill-down


CPU Utilization and Waits Overview
Perspective
Edit
View
History
Collection
Time
System
Name(s): CS228229ND
Library: COMMON2
Type: Collection Services File Based Collection
Start: Feb 28, 2008 12:00:02 AM
End: Feb 29, 2008 12:00:00 AM
Name:
Release: V6R1M0
--- Select Action ---
Waits Overview
Seizes and Locks Waits Overview
Contention Waits Overview
Disk Waits Overview
Journal Waits Overview
Classic JVM Waits Overview
CPU Utilization by Thread or Task
Resource Utilization Overview
CPU Health Indicators
Export
Modify SQL
Size next upgrade
Change Context
Show as table
Time (Seconds)
CPU Utilization (Percent)
10,000
0
100
80
60
40
20
0
12:15 AM
2:15 AM
4:15 AM
6:15 AM
8:15 AM
10:15 AM
12:15 PM
2:15 PM
4:15 PM
6:15 PM
Date - Time

Example of Drill-Down Options



Graph options for next step in analysis

Other options to work with data or refine graphs

Show as Table

CPU Utilization and Waits Overview

Perspective Edit View History

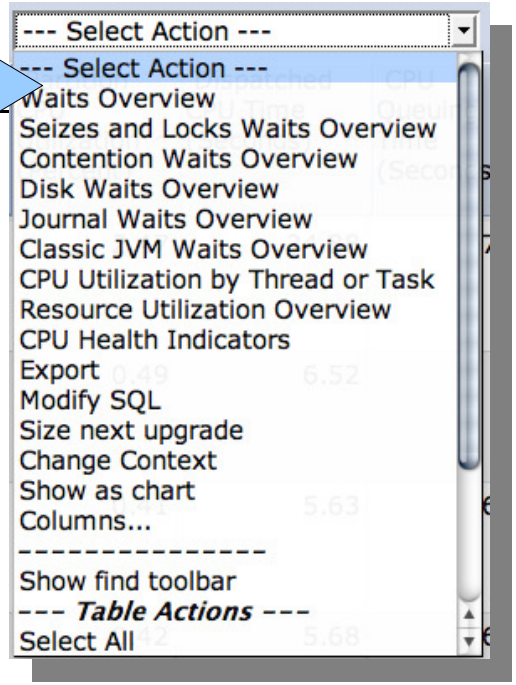
--- Select Action ---

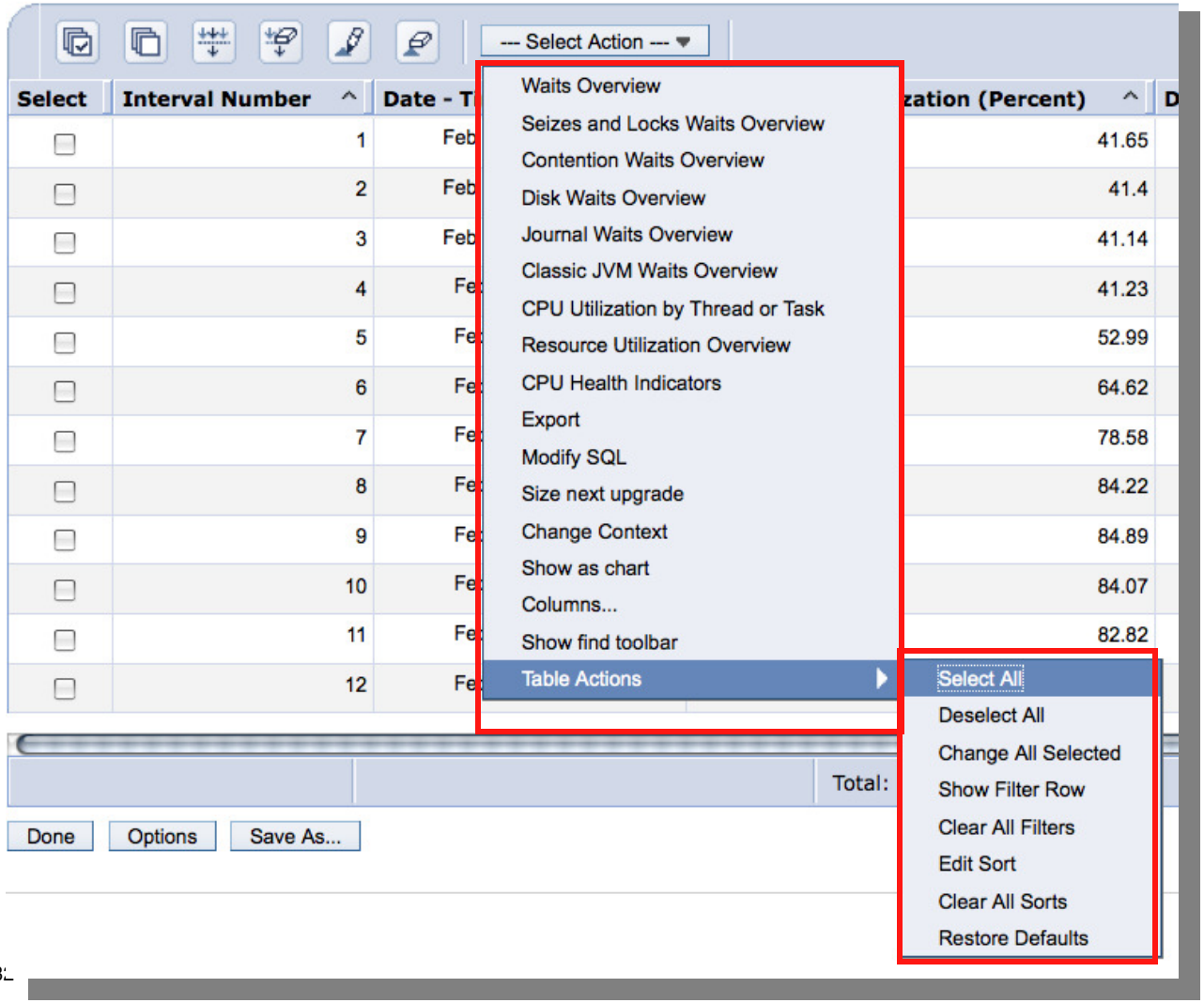
Select	Interval Number	Date - Time	Partition CPU Utilization (Percent)	Dispatched CPU Time (Seconds)	CPU Queuing Time (Seconds)	Disk Time (Seconds)	Journaling Time (Seconds)	Operating System Contention Time (Seconds)
	1	Feb 28, 2008 12:15:00 AM	41.65	2125.7	12.25	64.4	35.71	22.6
	2	Feb 28, 2008 12:30:00 AM	41.4	2110.42	12.16	10.72	34.68	3.62
	3	Feb 28, 2008 12:45:00 AM	41.14	2096.73	12.38	5.32	35.3	3.5
	4	Feb 28, 2008 1:00:00 AM	41.23	2104.27	11.71	5.67	35.35	3.29
	5	Feb 28, 2008 1:15:00 AM	52.99	2959.23	3759.2	1180.33	47.49	141.01
	6	Feb 28, 2008 1:30:00 AM	64.62	3847.86	9061.6	217.47	32.11	113.34
	7	Feb 28, 2008 1:45:00 AM	78.58	4853.43	11796.74	41.63	41.27	308.02
	8	Feb 28, 2008 2:00:00 AM	84.22	5367.69	13984.72	23.12	52.58	35.85
	9	Feb 28, 2008 2:15:00 AM	84.89	5469.88	14931.39	2163.59	69.93	3686.04
	10	Feb 28, 2008 2:30:00 AM	84.07	5406.56	15063.64	697.16	72.47	399.18
	11	Feb 28, 2008 2:45:00 AM	82.82	5272.46	13472.69	57.49	48.64	46.06
	12	Feb 28, 2008 3:00:00 AM	70.36	4141.47	9068.85	20.63	1.19	22.3

Total: 96 Filtered: 96

Table Drill-down Options
Nested Table Actions – New in 7.1

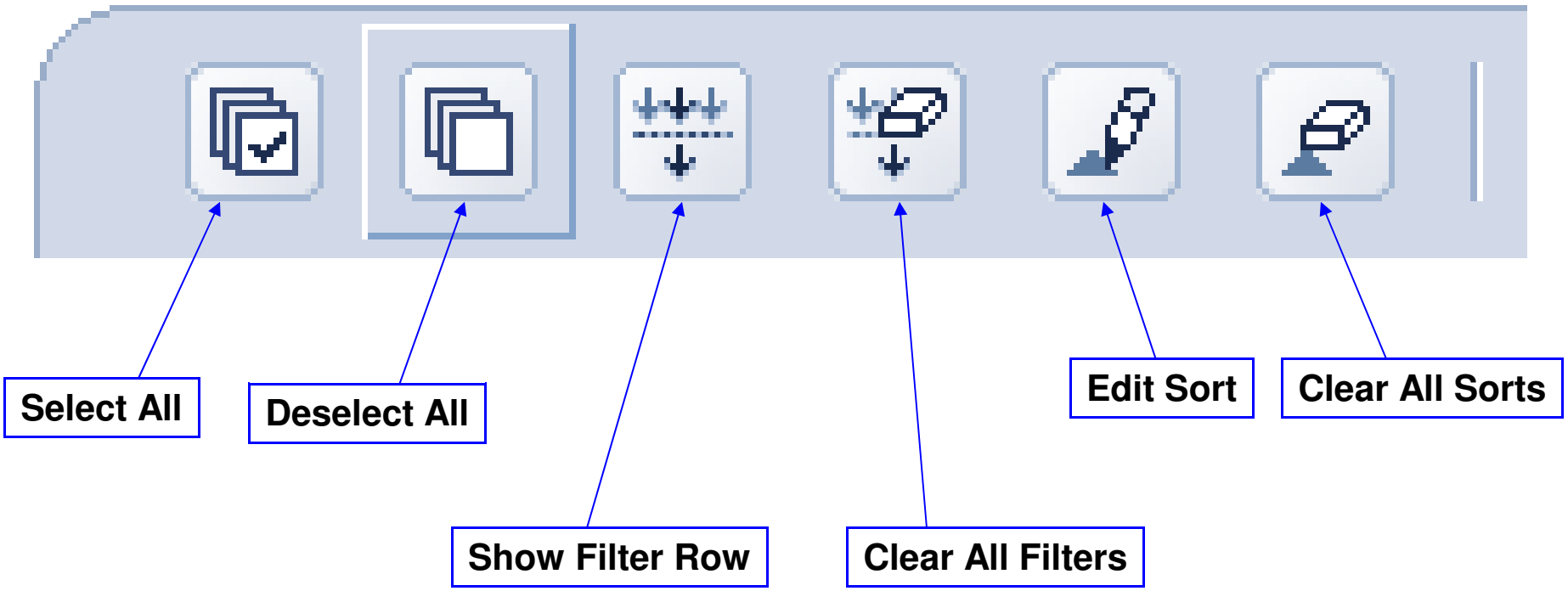
Original 6.1 Table drill-down



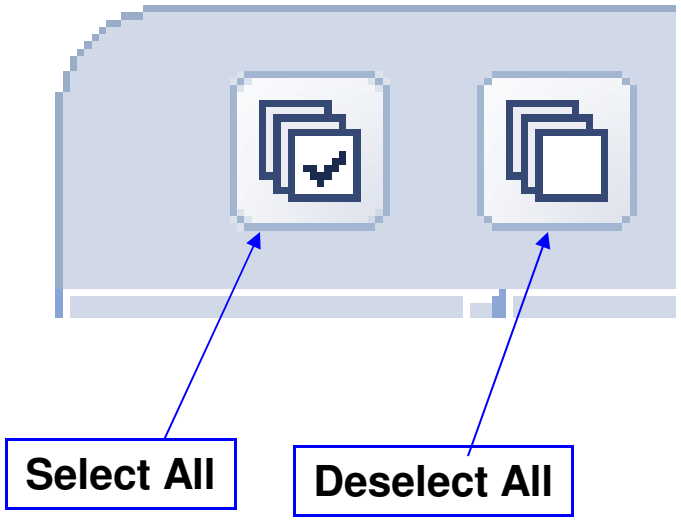


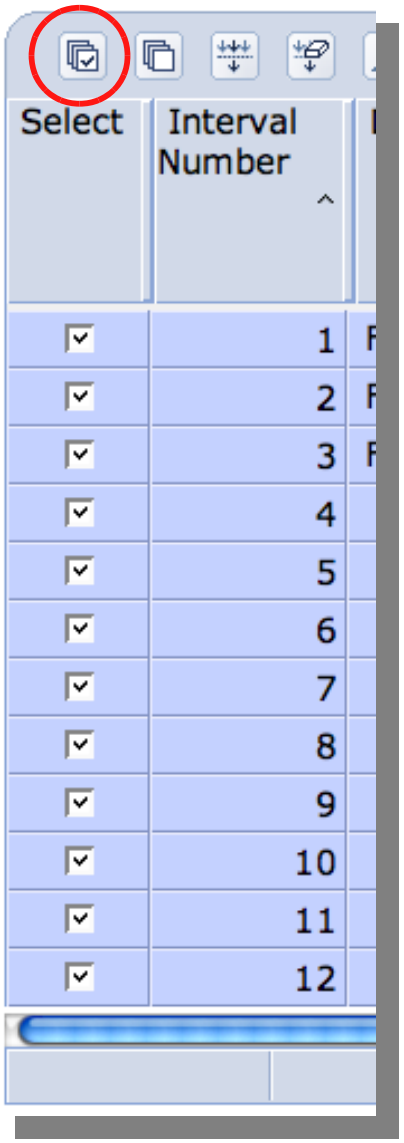
With the latest PTFs for 6.1, actions are now nested

Table Features



Select / Deselect





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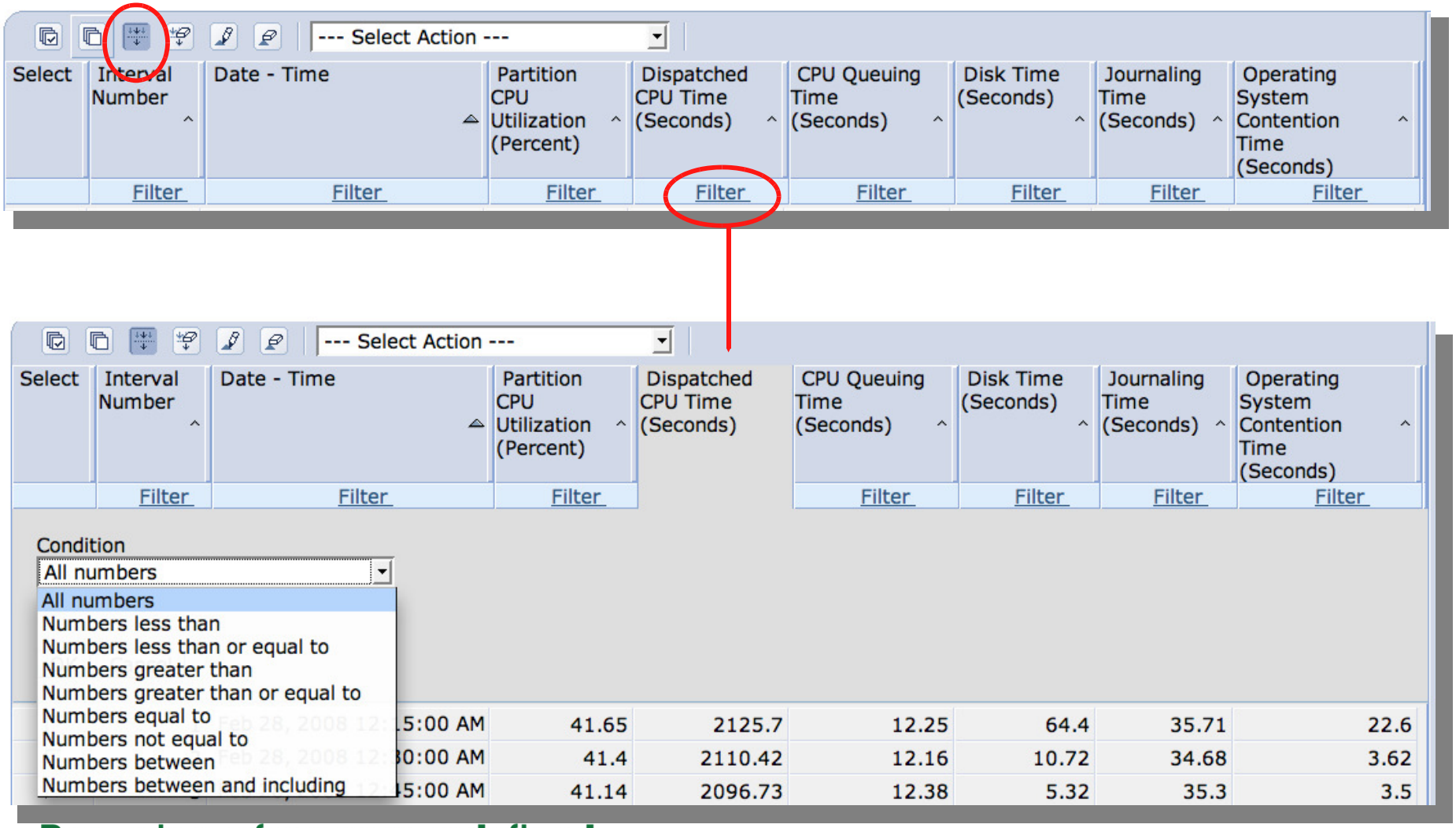
Filtering

Show Filter Row



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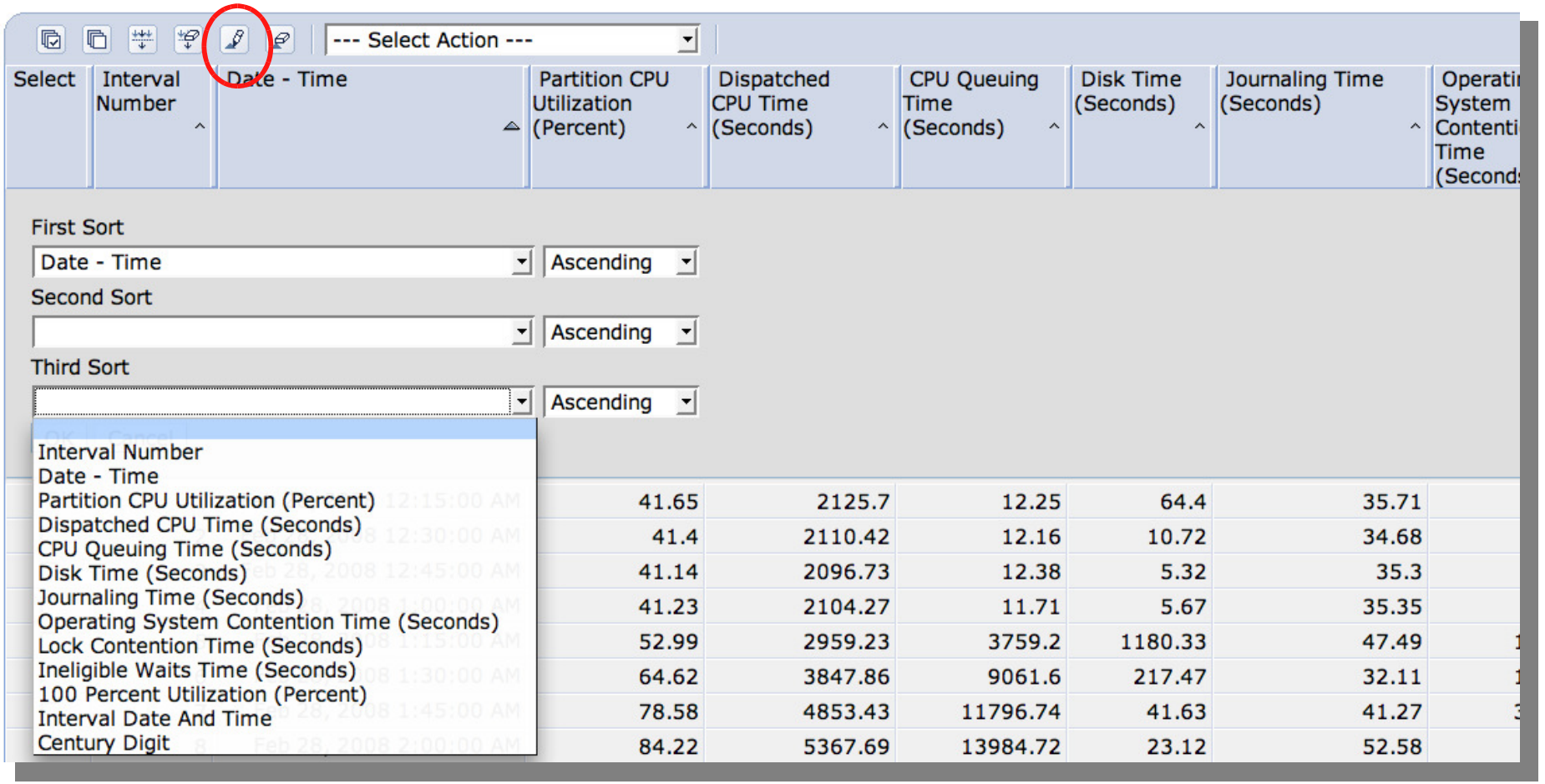
Sorting



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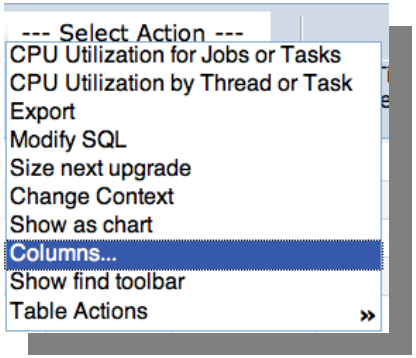
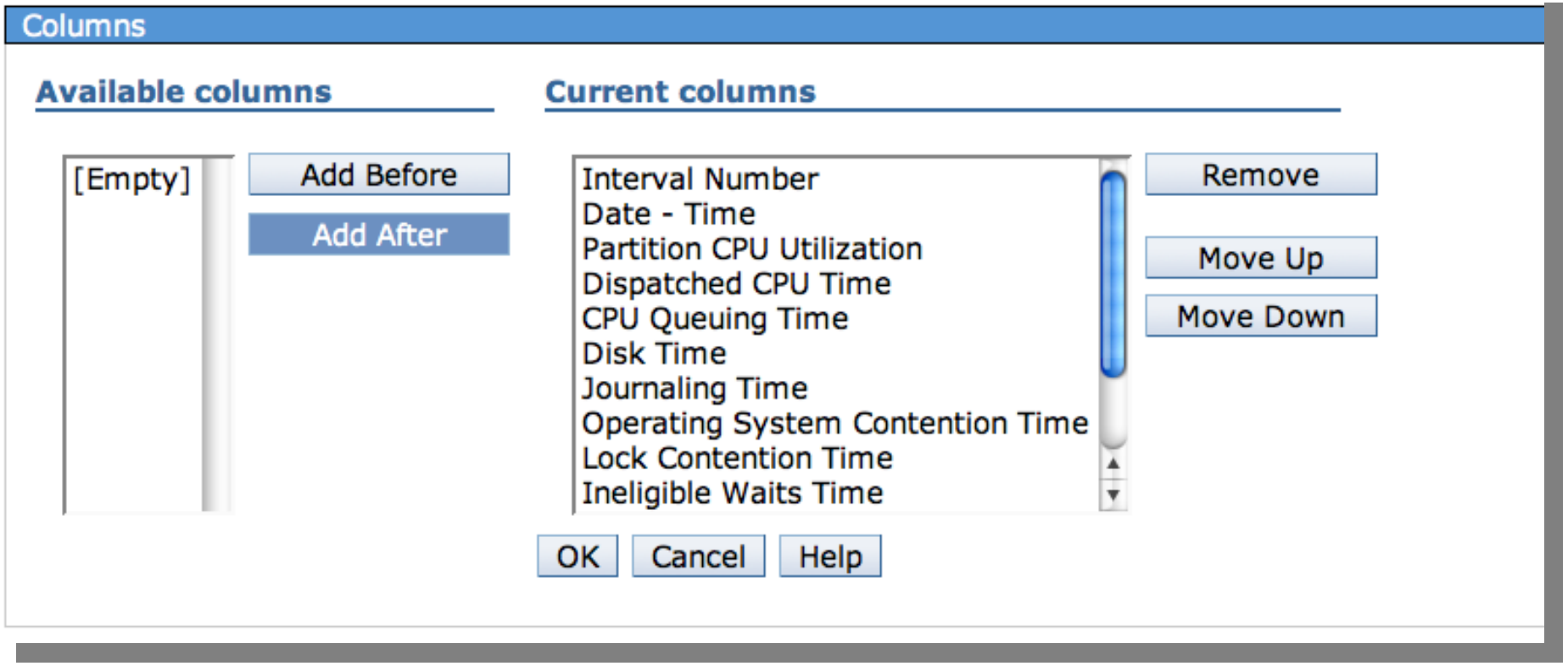
Columns …





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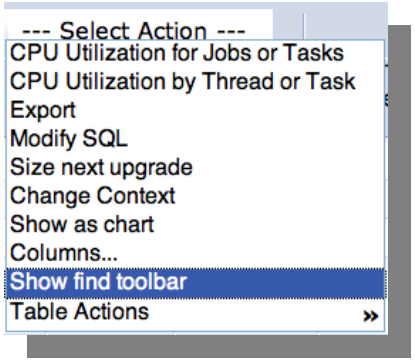
Show find toolbar



Type: Collection Services File Based Collection

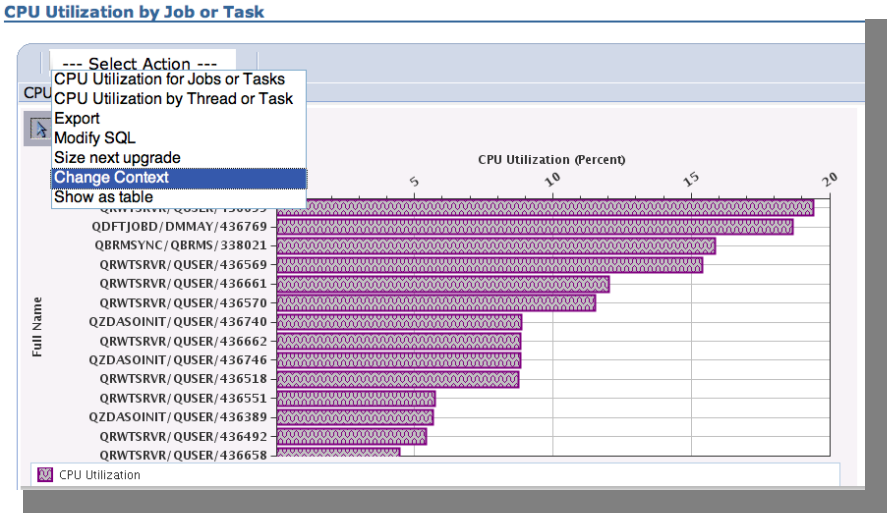
Search for: | Condition: Contains | Column: All columns | Direction: Down

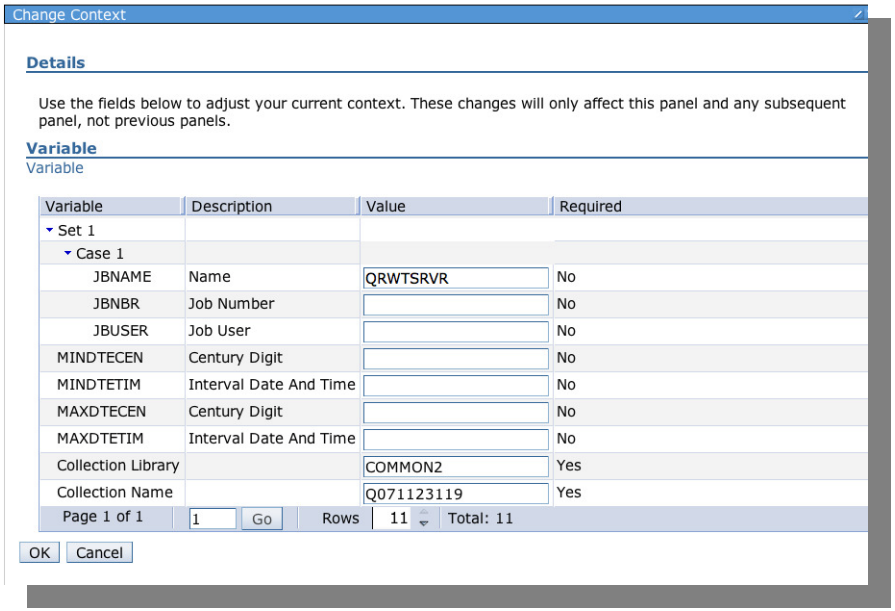
Find | Match case

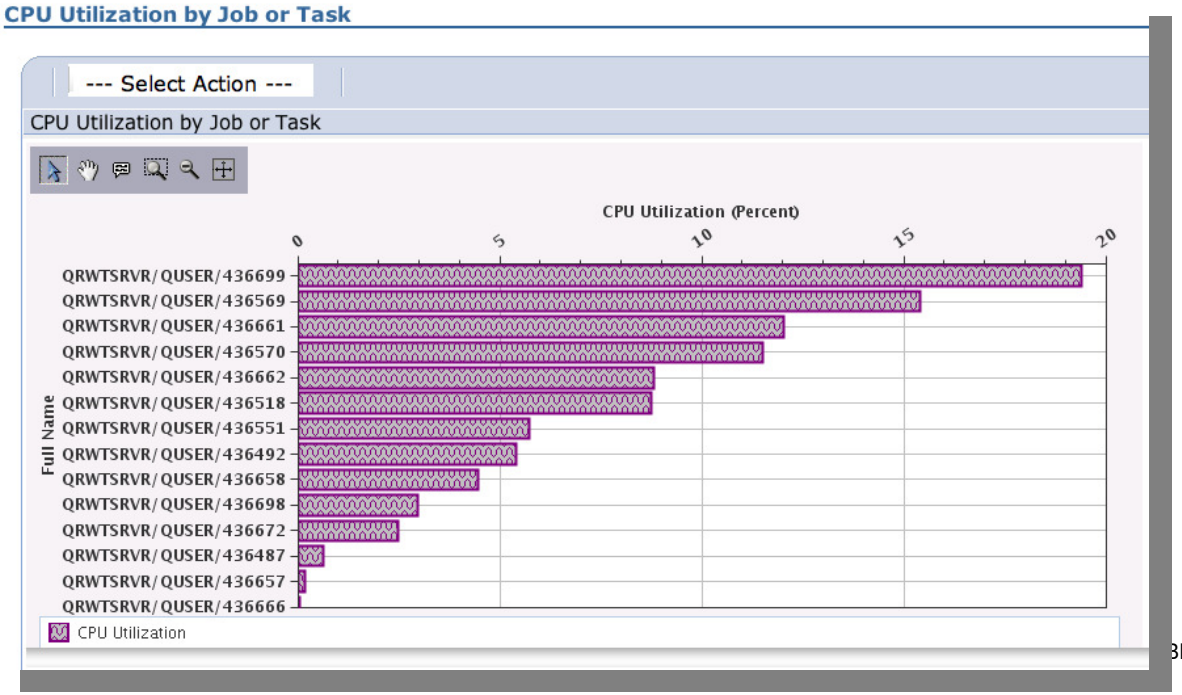
--- Select Action ---

Select	Interval Number	Date - Time	Partition CPU Utilization (Percent)	Dispatched CPU Time (Seconds)	CPU Queuing Time (Seconds)	Disk Time (Seconds)	Journaling Time (Seconds)	Operating System Contention Time (Seconds)
☐	92	Feb 28, 2008 11:00:00 PM	88.04	5670.59	1588.24	78.92	61.31	13.06
☐	36	Feb 28, 2008 9:00:00 AM	82.9	5350.25	5274.46	3814.89	16.5	372.2
☐	6	Feb 28, 2008 1:30:00 AM	64.62	3847.86	9061.6	217.47	32.11	113.34
☐	75	Feb 28, 2008 6:45:00 PM	77.92	4801.75	398.55	178.88	64.01	6.28

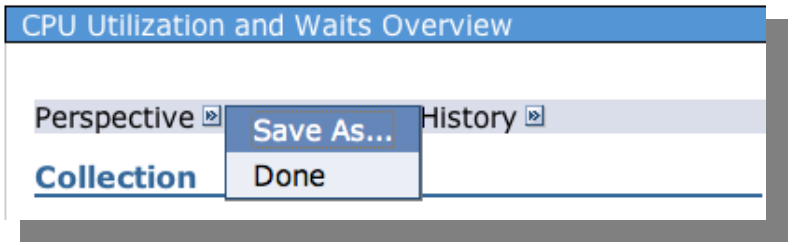
Change Context



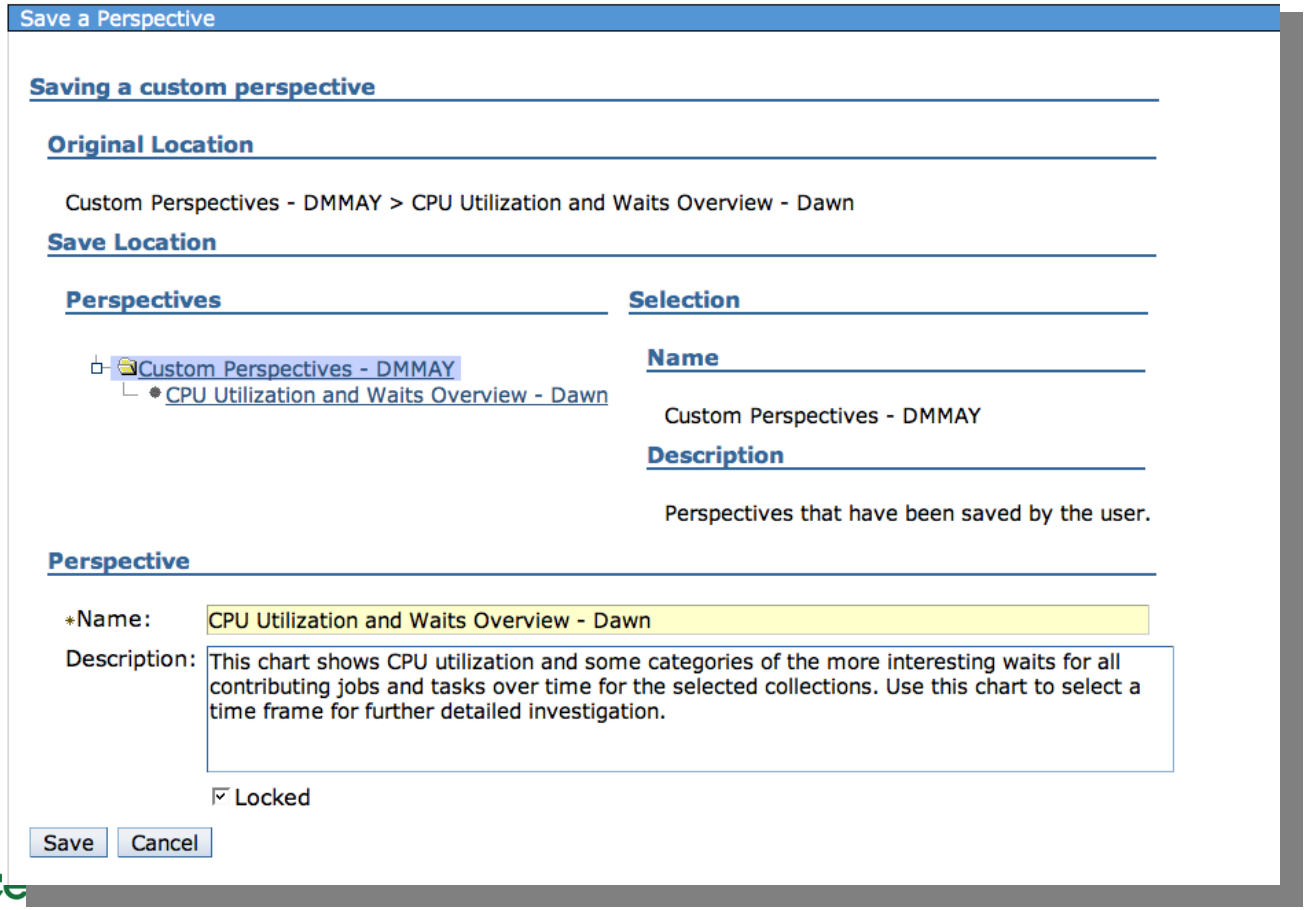




Perspective → Save As



When a table or chart is modified, you can save that table or chart for your own custom perspective using "Save As..."

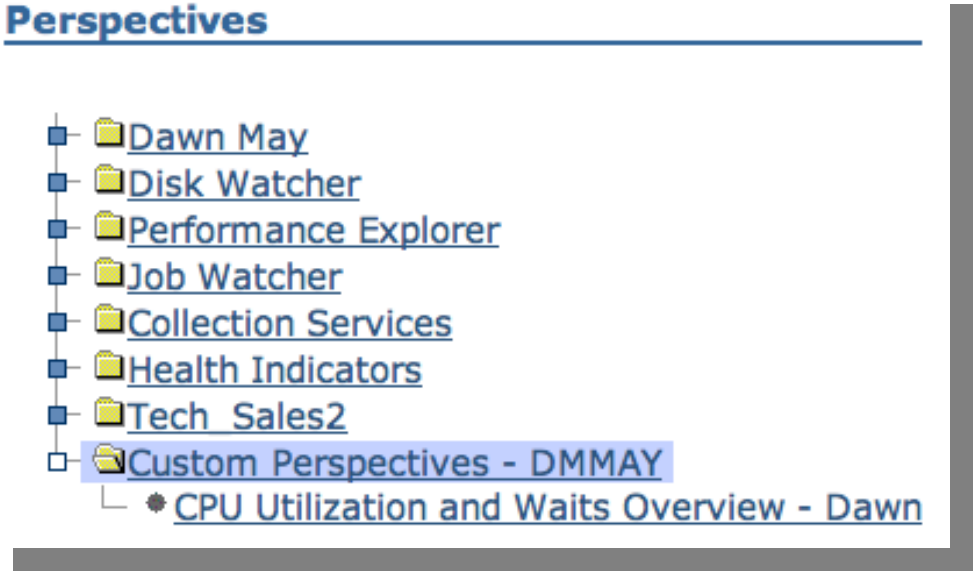


Perspective → Save As

Save Complete
This perspective was saved successfully.

URL to saved perspective:
https://isz1lp13:2005/ibm/action/launch?pageID=com.ibm.i5OS.webnav.navigationElement.WebnavBasePortlet&system=localhost&WnLocale=en_US&W

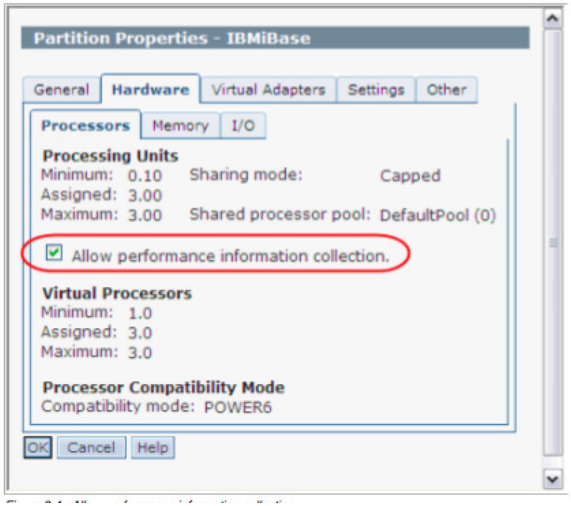
Close Message



Physical System Charts

Collection Services has the ability to collect certain high-level cross-partition processor performance metrics for all logical partitions on the same single physical server regardless of operating system. This is available on Power 6 and above servers, with a minimum firmware level xx340_061. When this data is available, it can be viewed via several perspectives found under "Physical System".

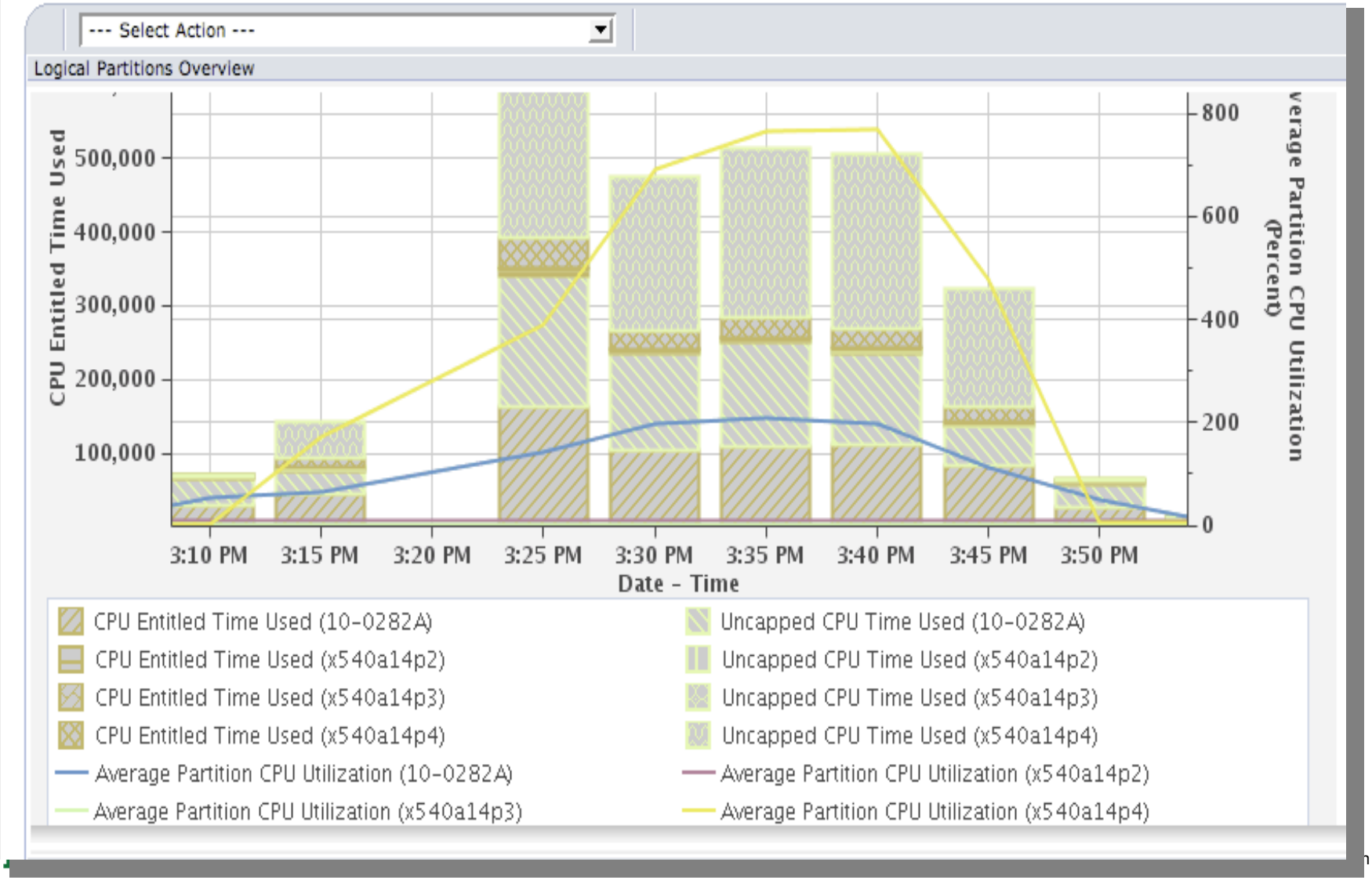
HMC option to enable performance collection must be turned on for the IBM i partition to collect the data



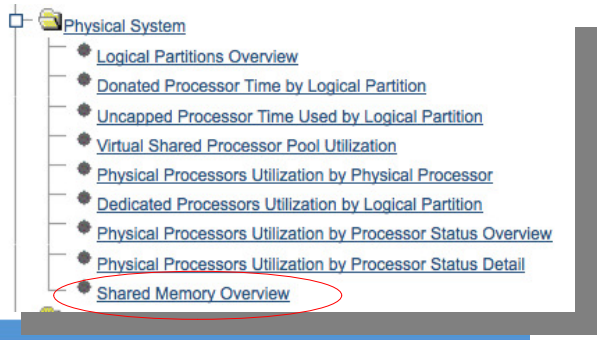
http://ibmsystemsmag.blogs.com/i_can/2009/10/i-can-display-cpu-utilization-for-all-partitions.html

Logical Partitions Overview

Requires Power 6 and IBM i 6.1 or later



Shared Memory Overview



Shared Memory Overview

Perspective | Edit | View | History

Collection

Name(s): AMS1
Library: AMSC
Type: Collection Services File Based Collection

Time

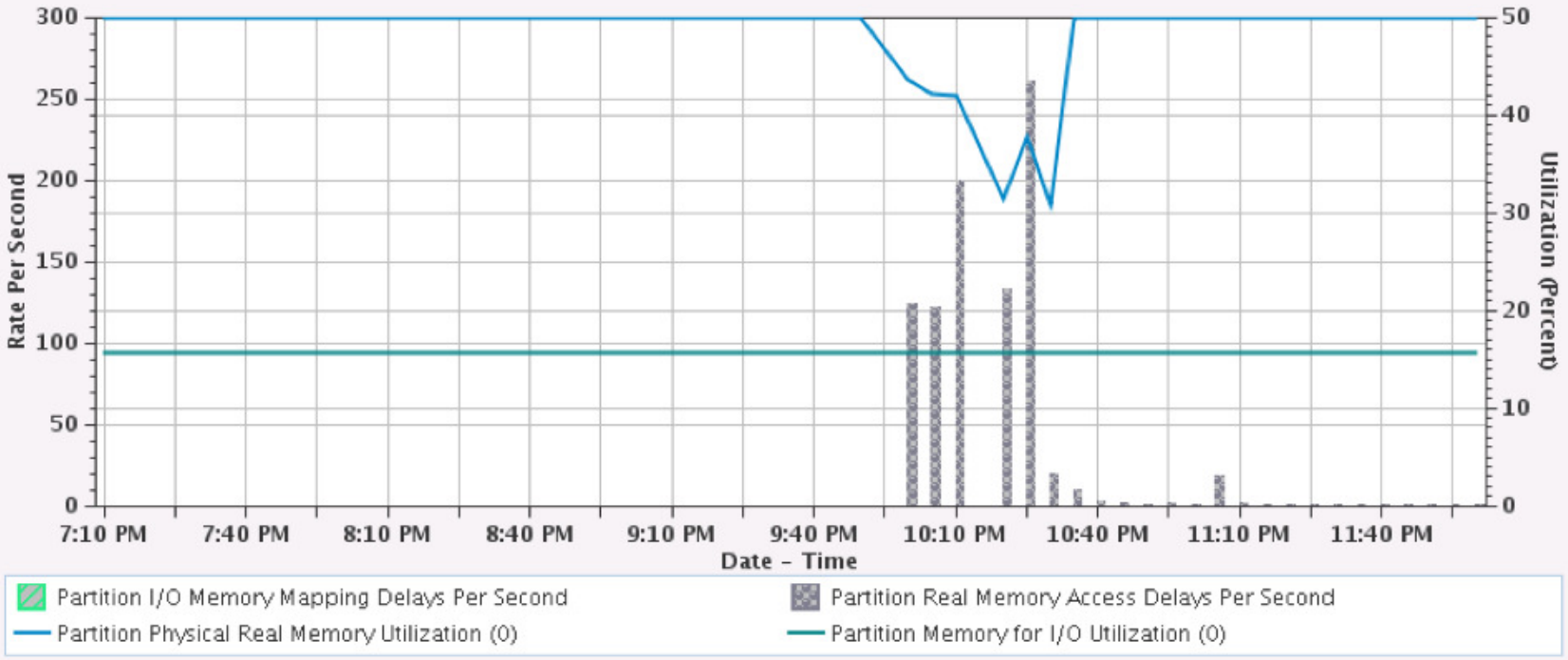
Start: Aug 11, 2008 7:06:22 PM
End: Aug 12, 2008 12:00:05 AM

System

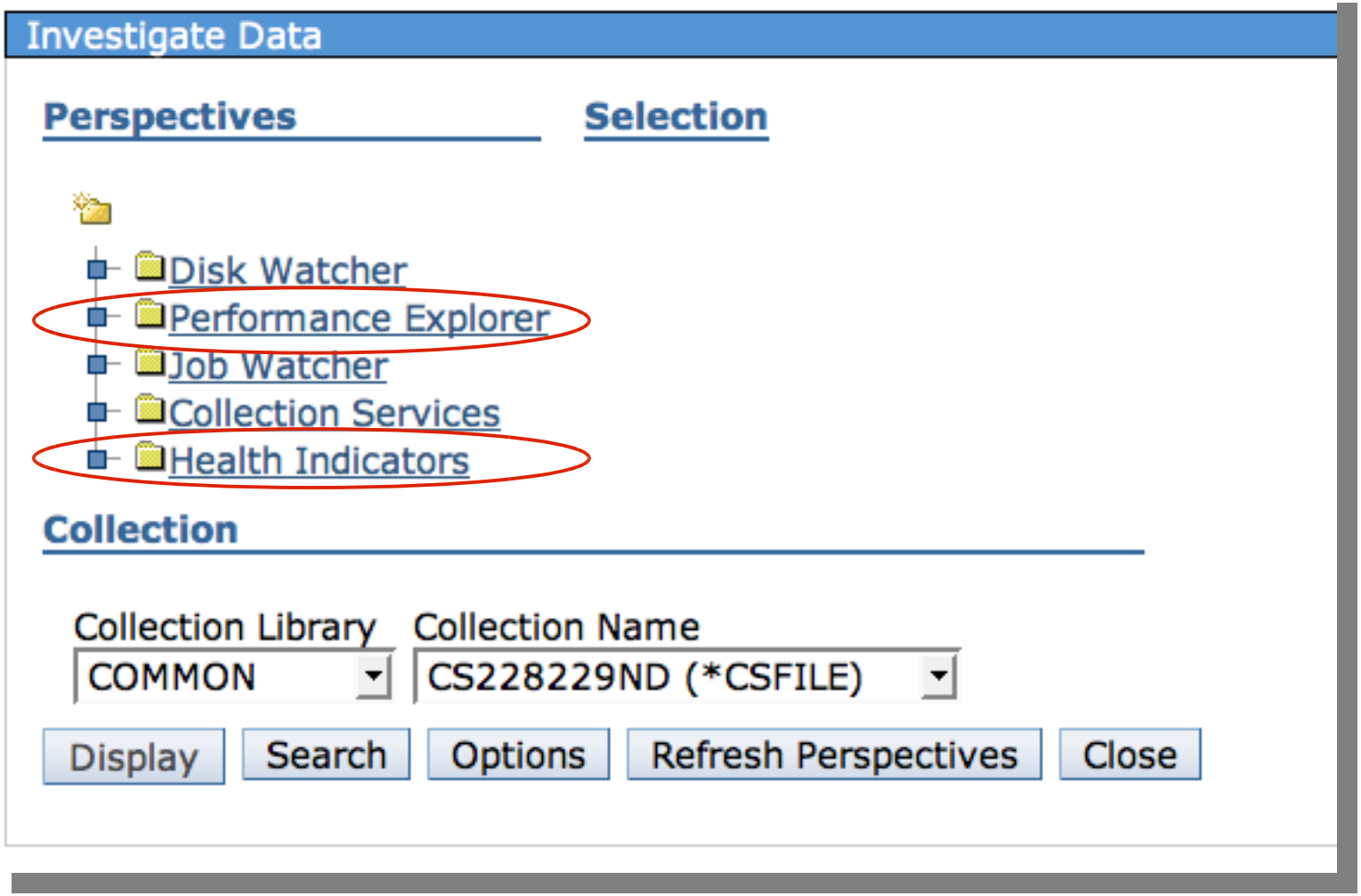
Name: A
Release: V6R1M0

--- Select Action ---

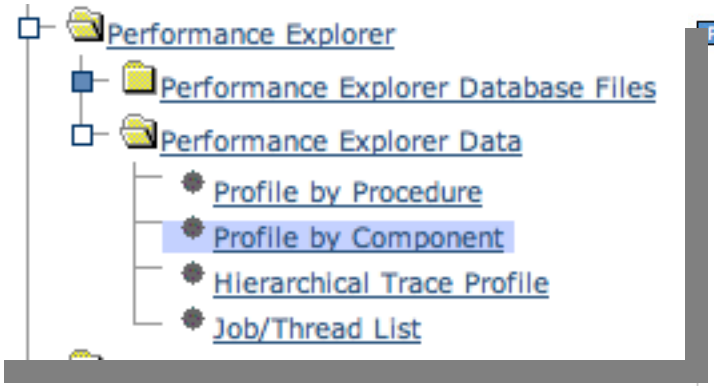
Shared Memory Overview

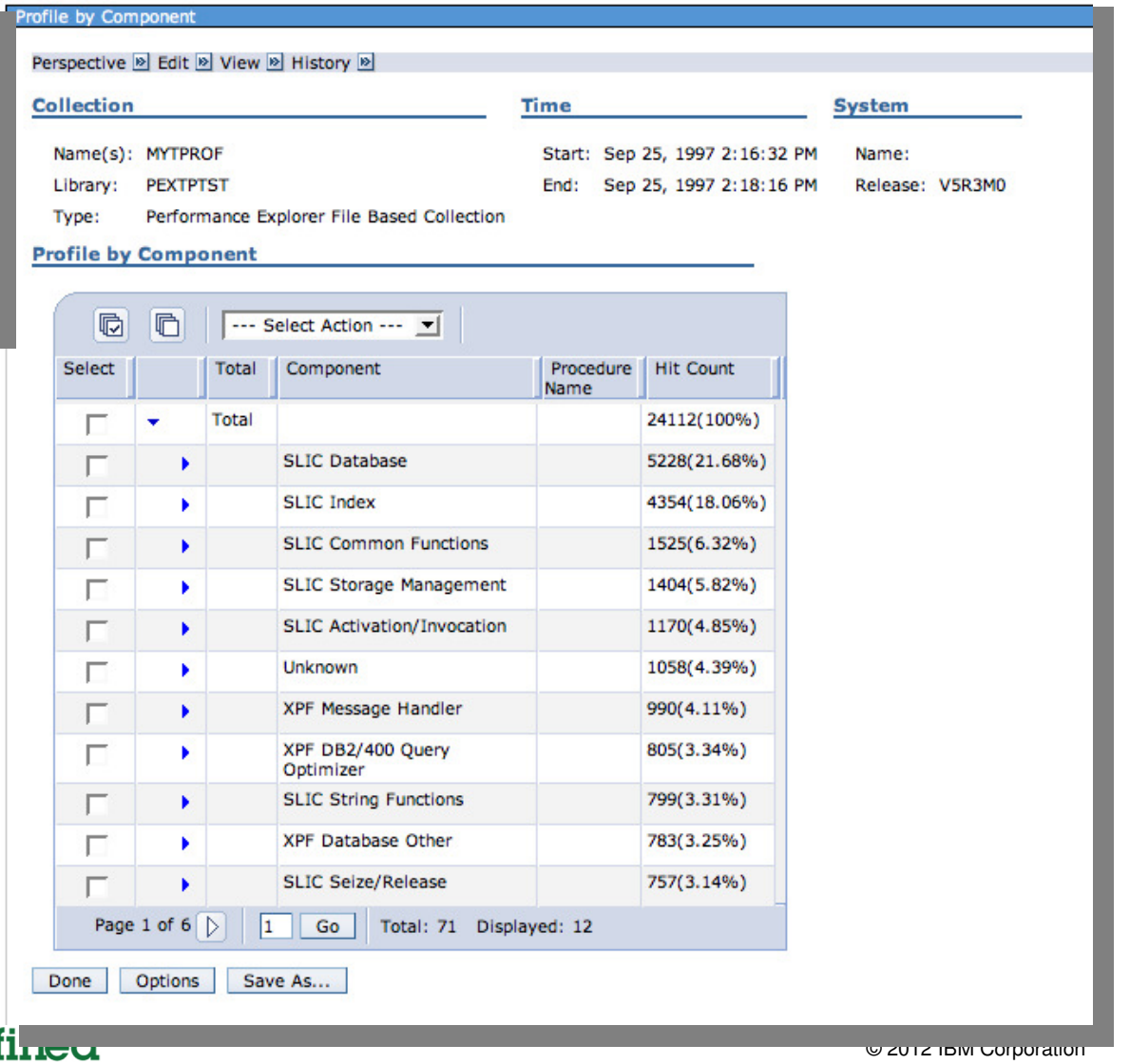


Additional Content Packages



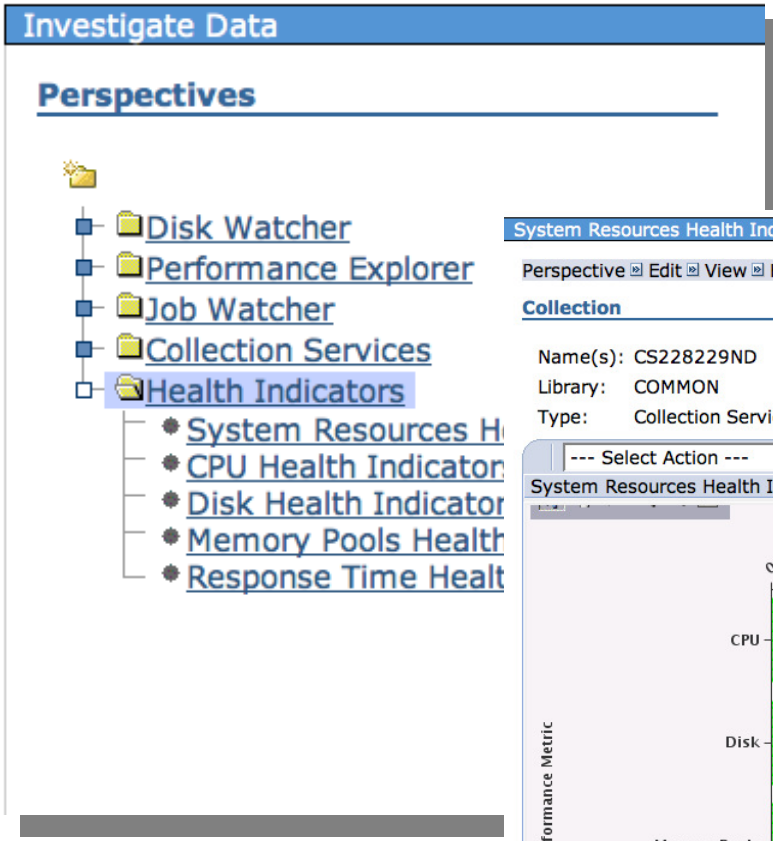
Performance Explorer



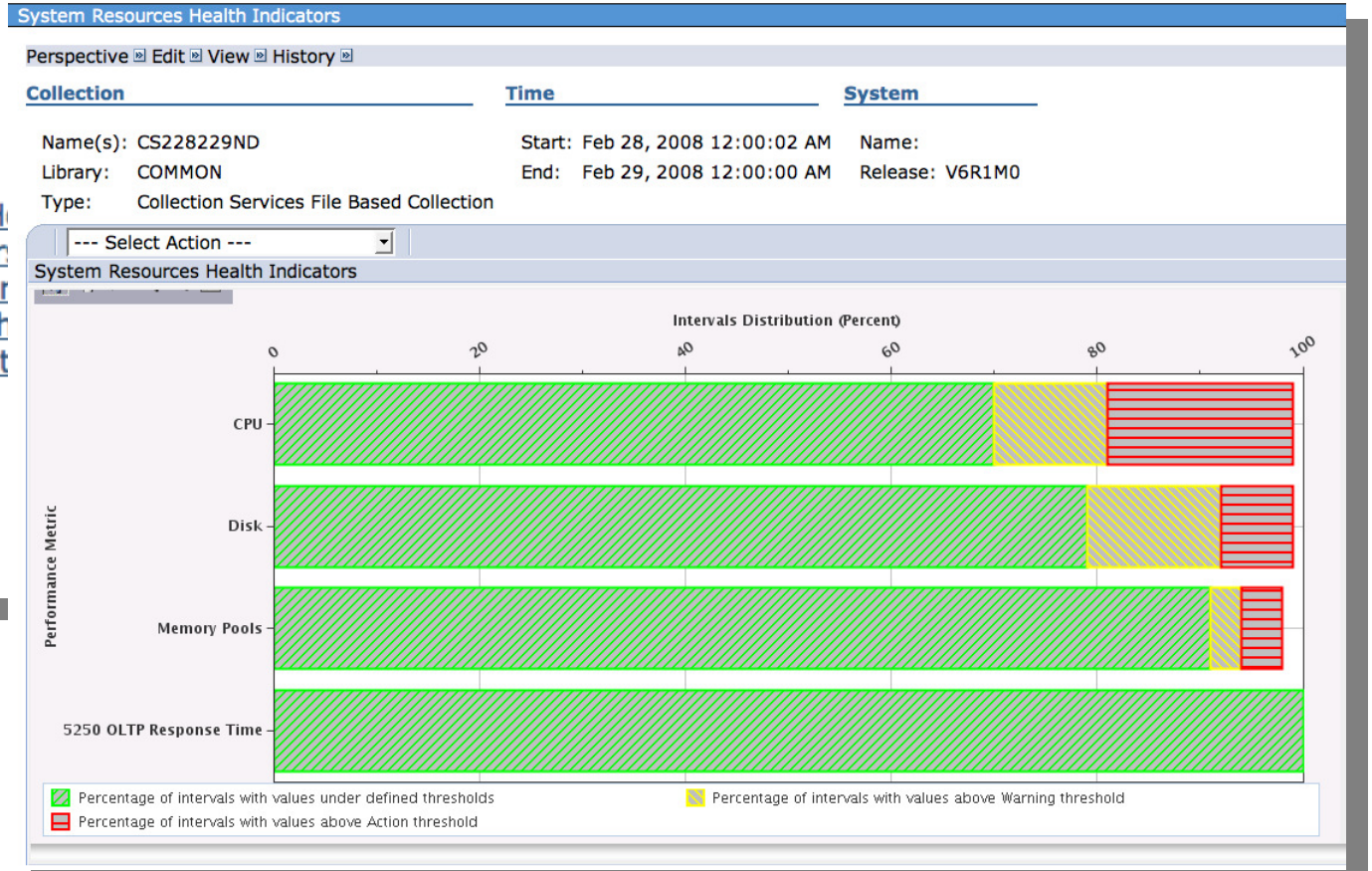


The Profile Perspectives provide function similar to what Performance Data Trace Visualizer offers

Health Indicators



System Resource Health Indicators



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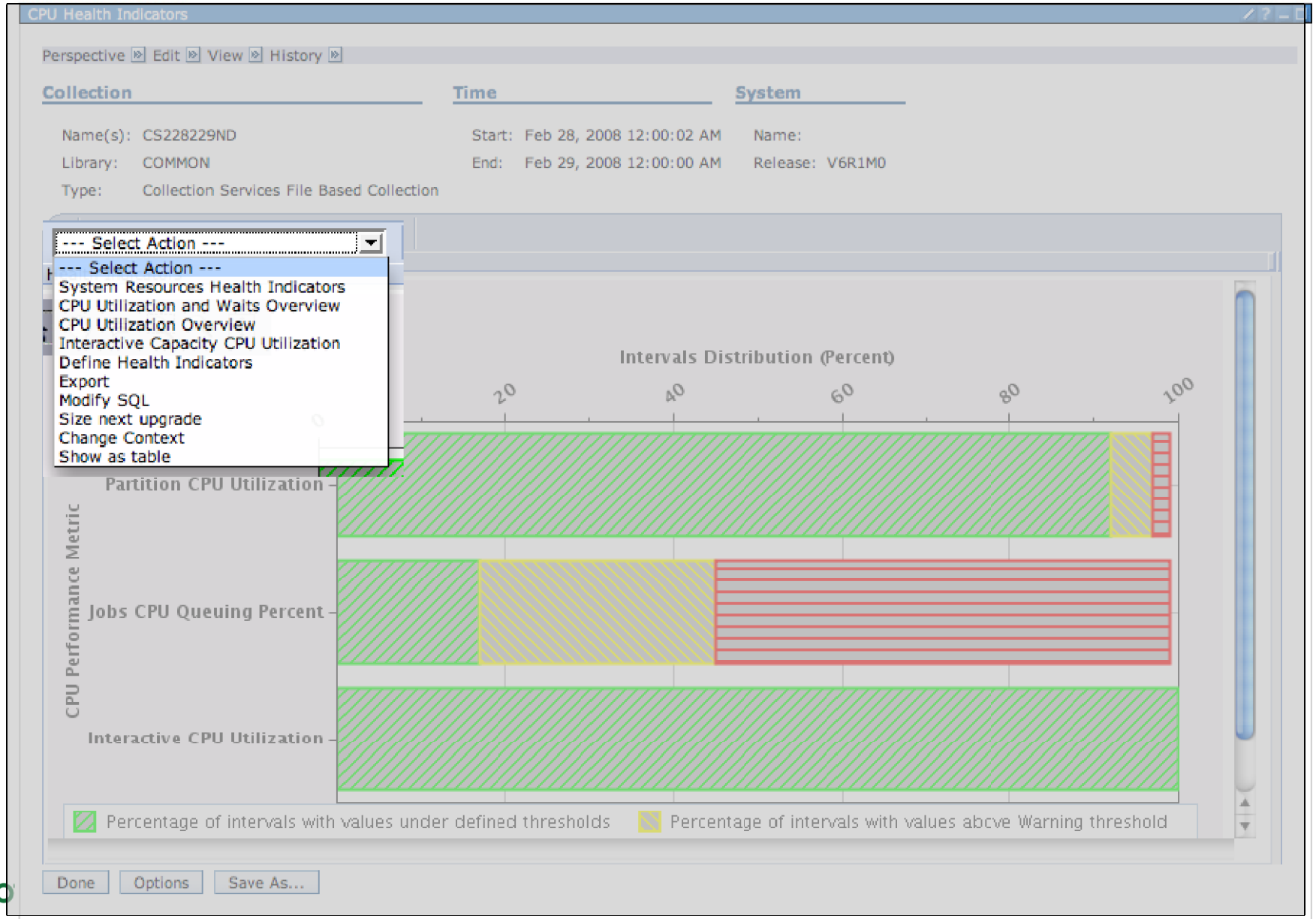
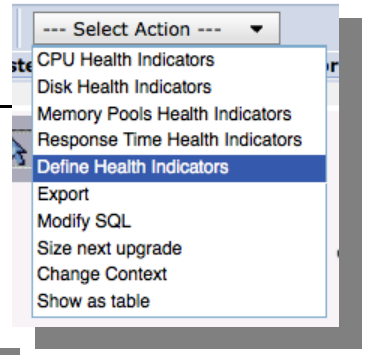
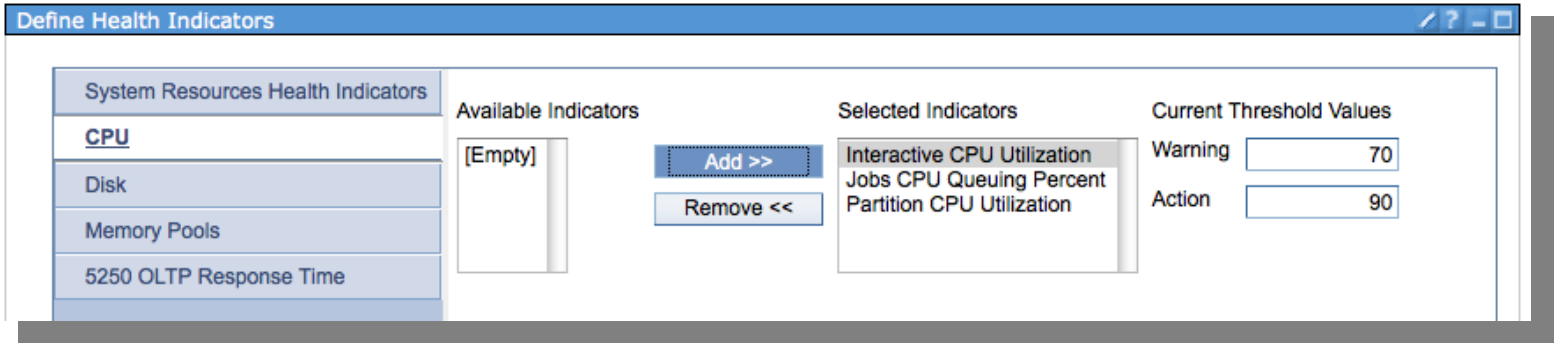
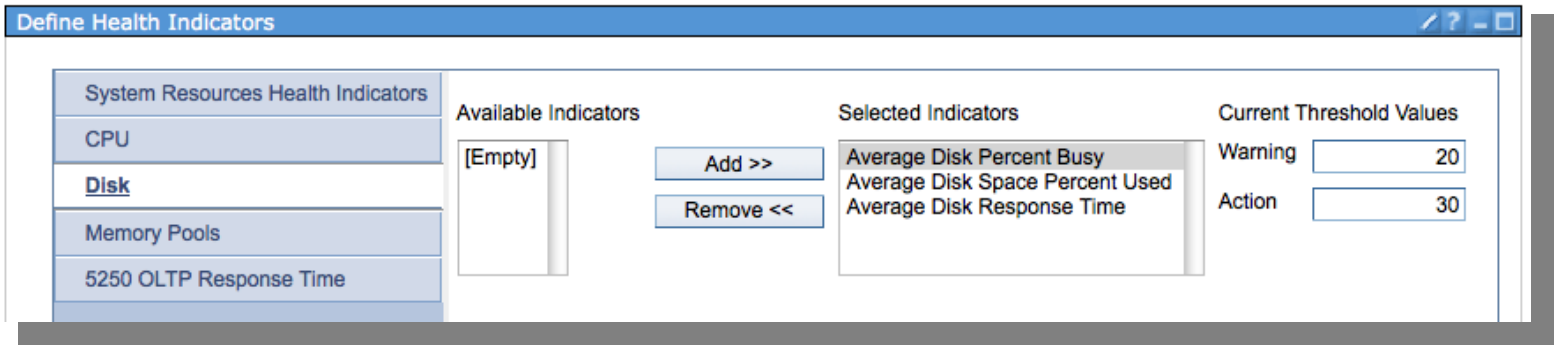
CPU Health Indicators

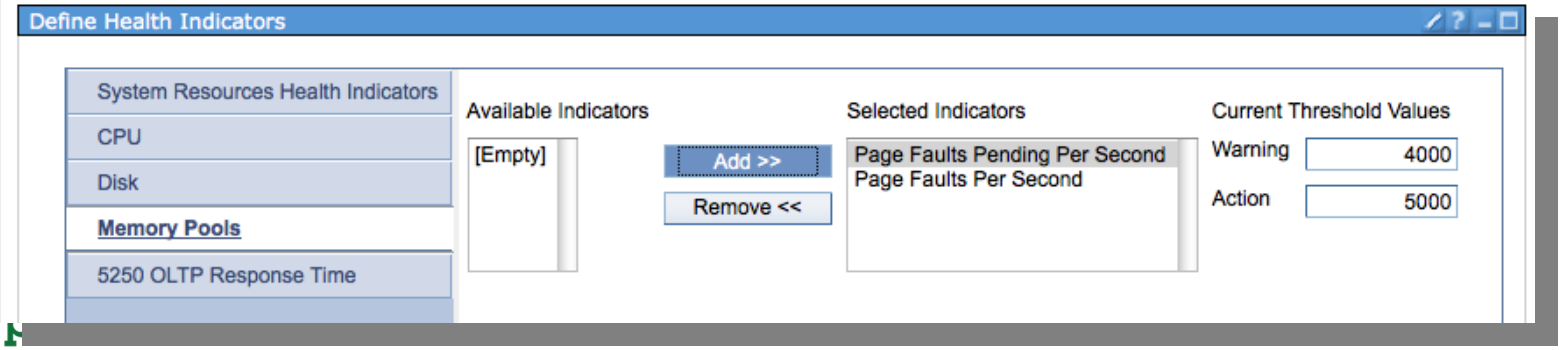


Define Health Indicators

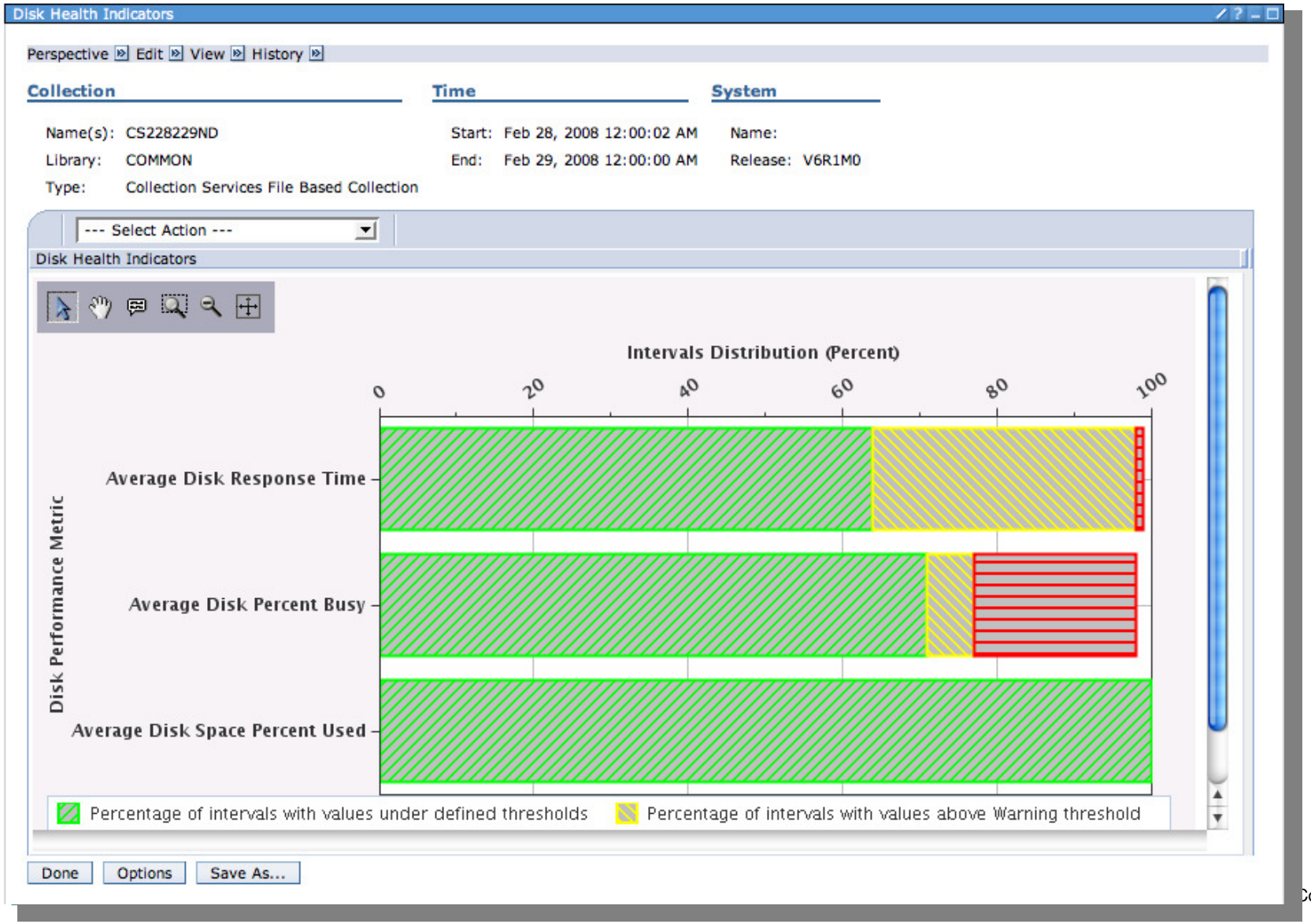




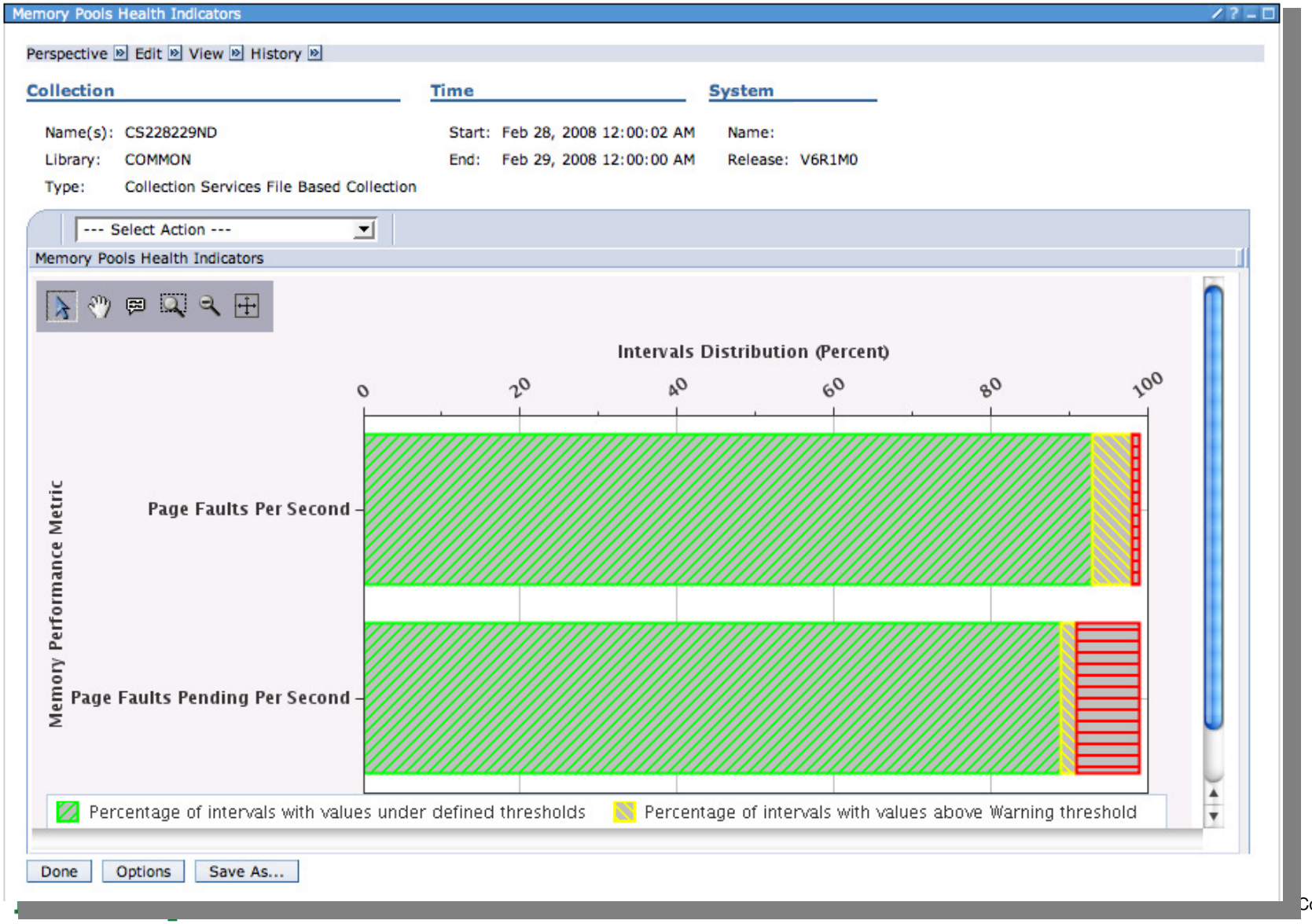




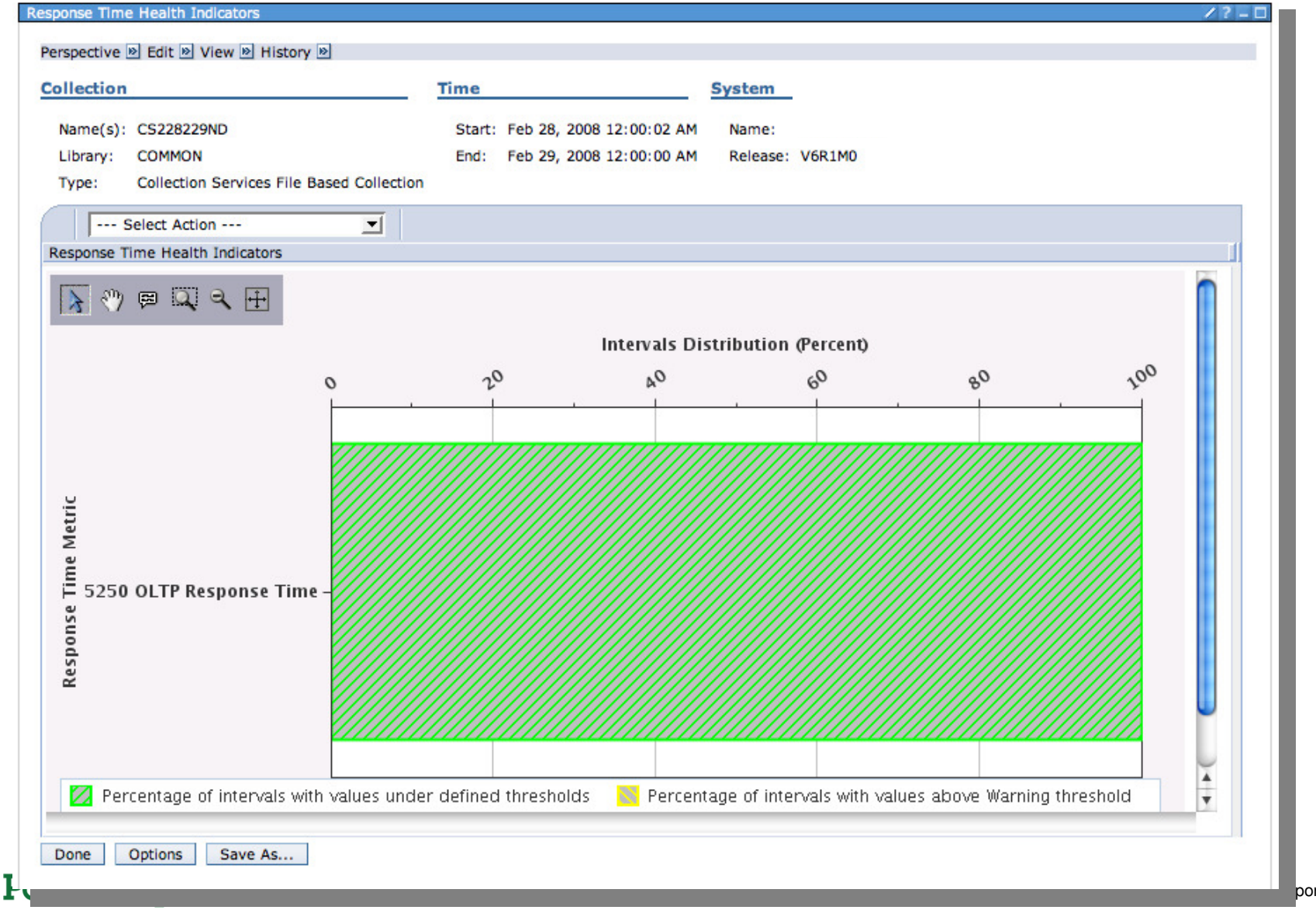
Disk Health Indicators

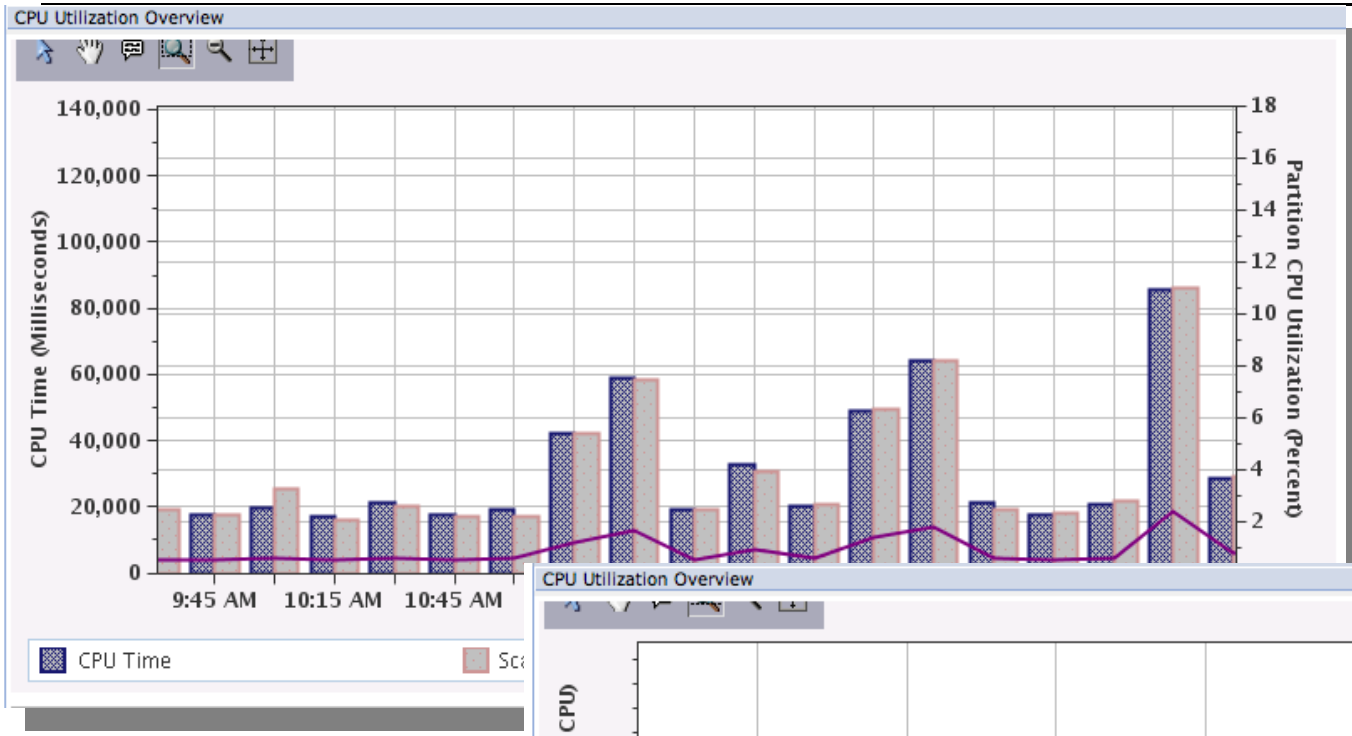


Memory Pool Health Indicators

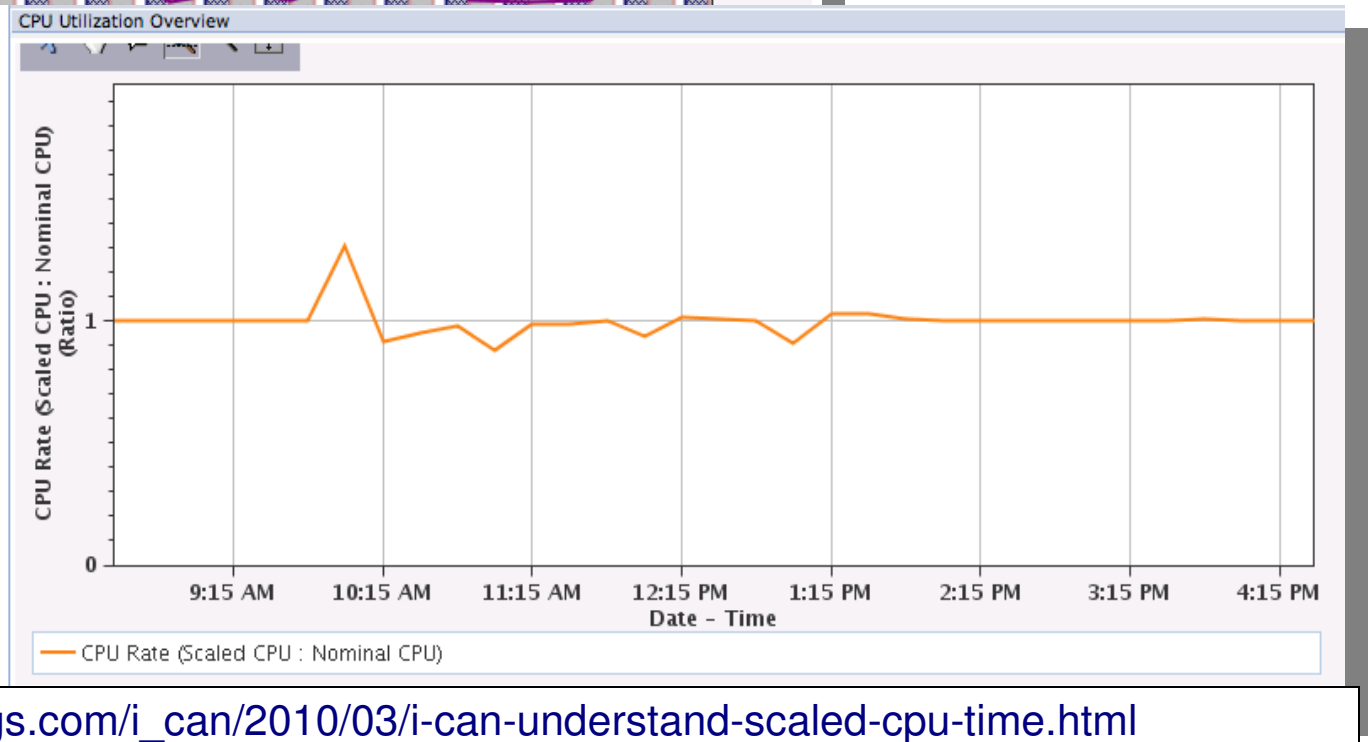


Response Time Health Indicators



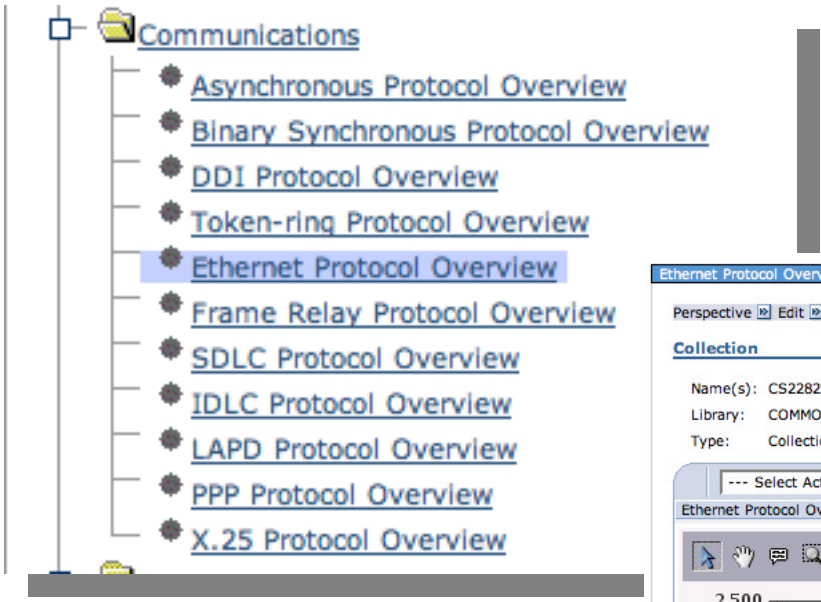


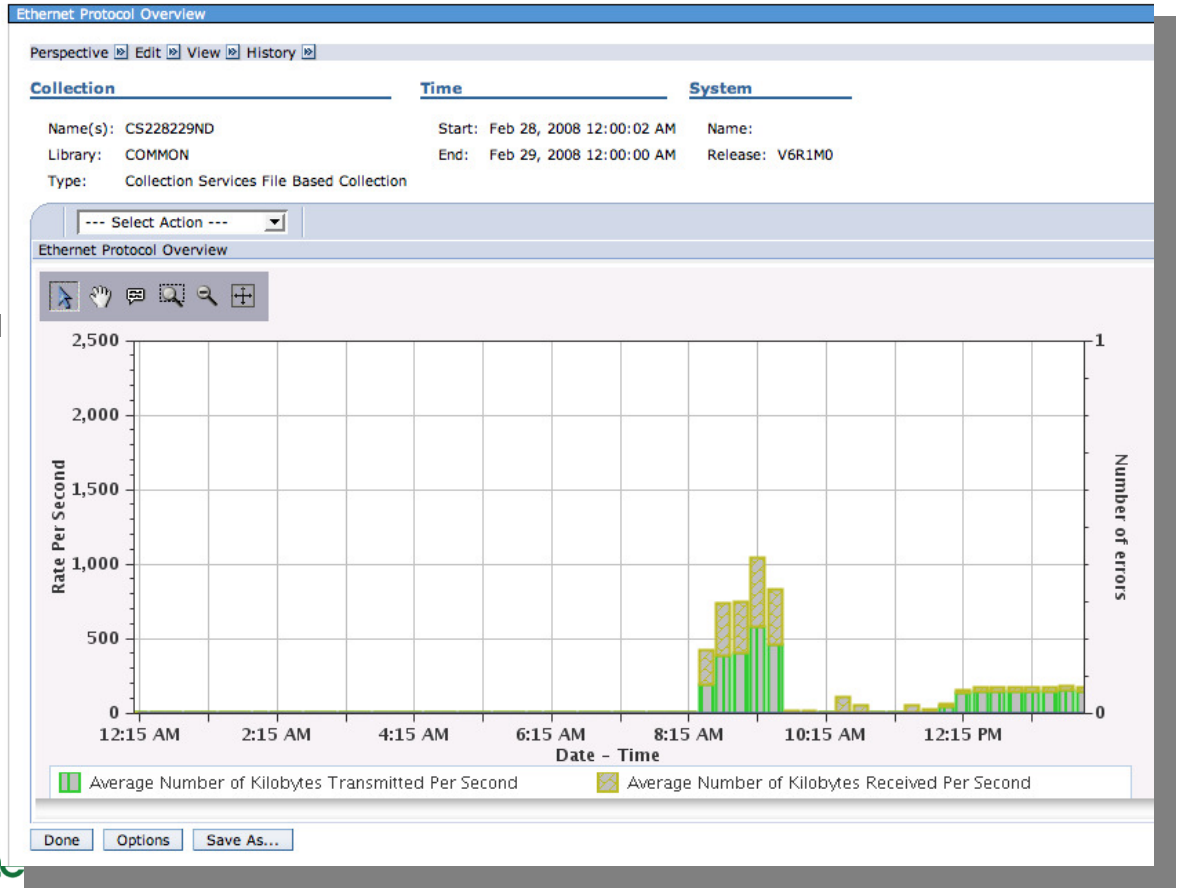
Scaled CPU



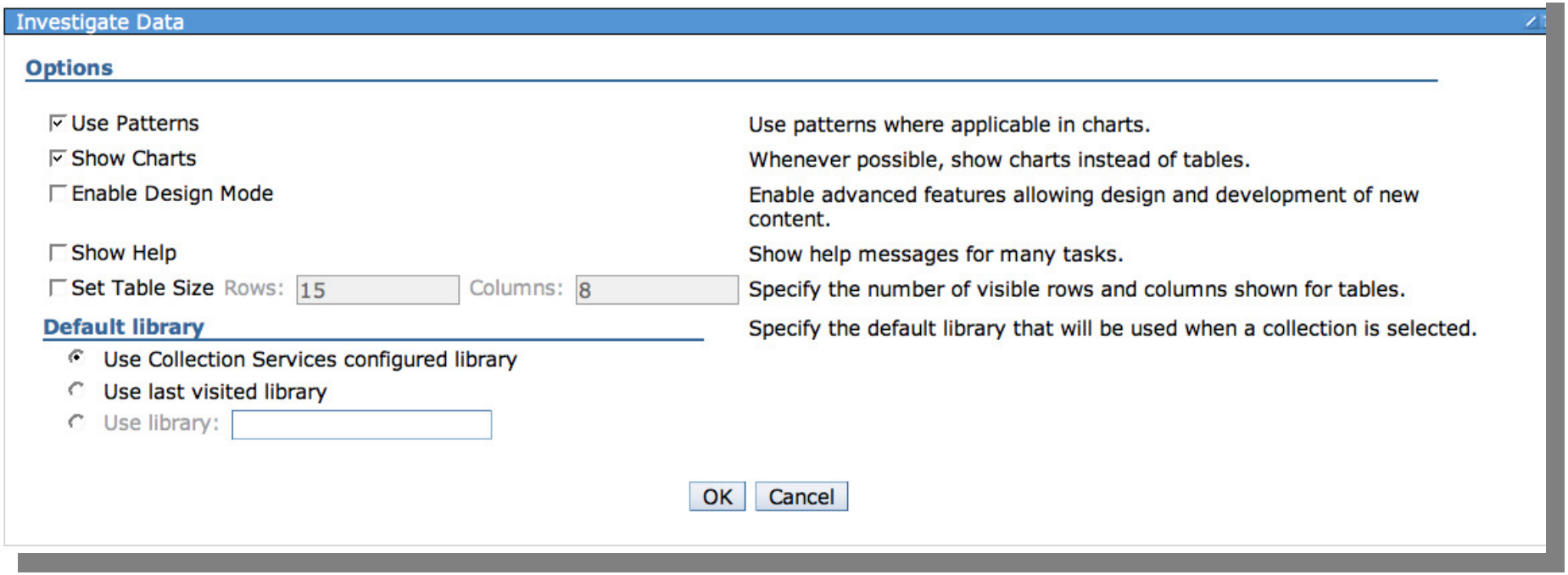
http://ibmsystemsmag.blogs.com/i_can/2010/03/i-can-understand-scaled-cpu-time.html

Communications Perspectives



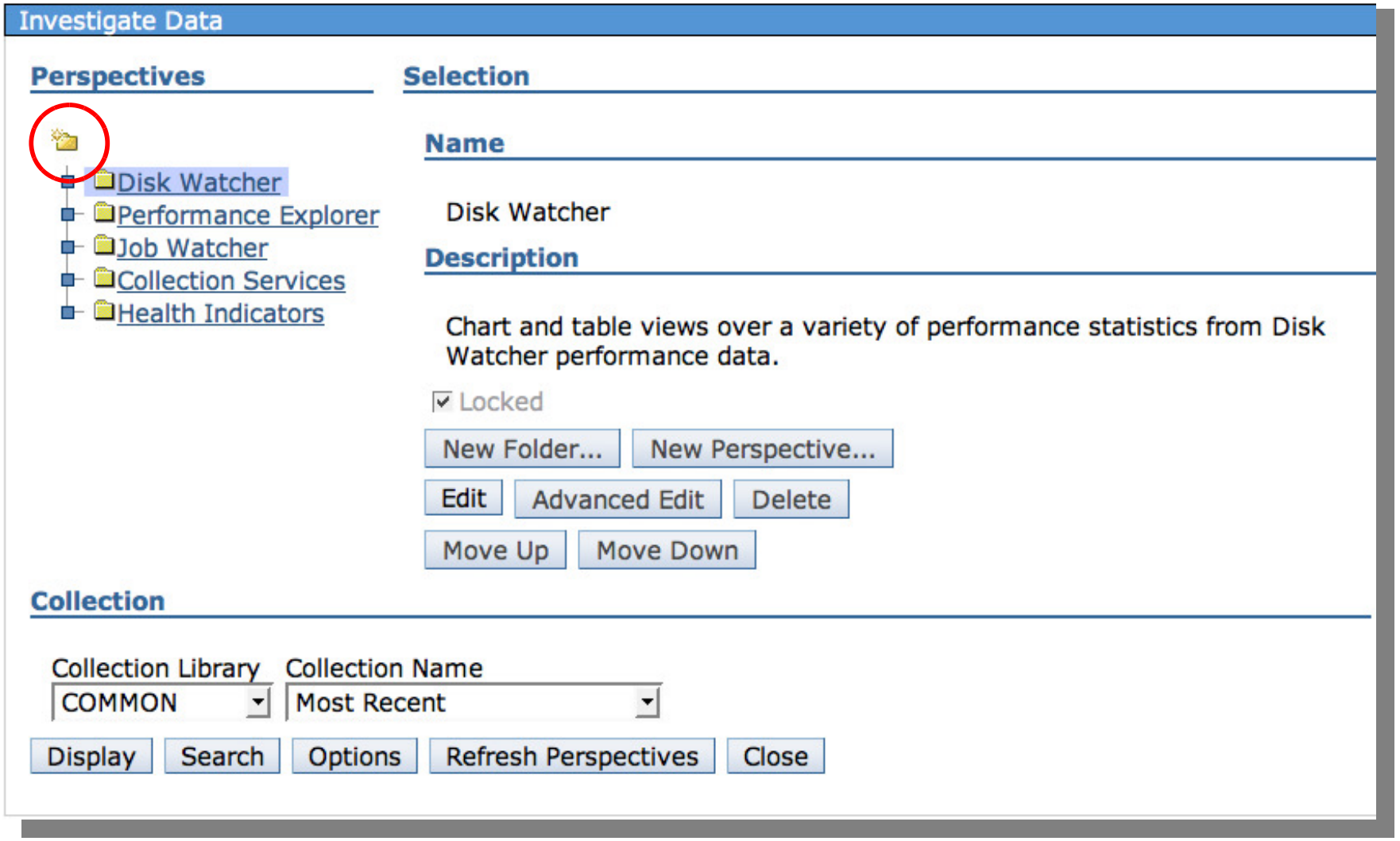


Options



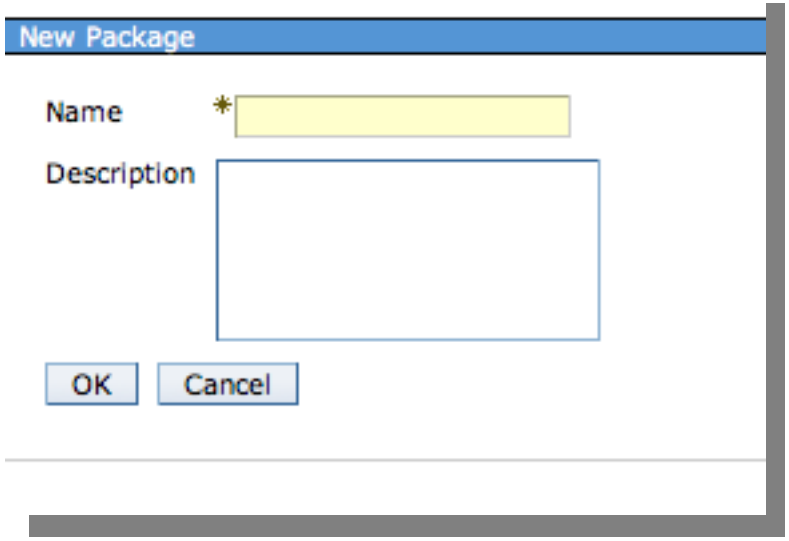
Design Mode

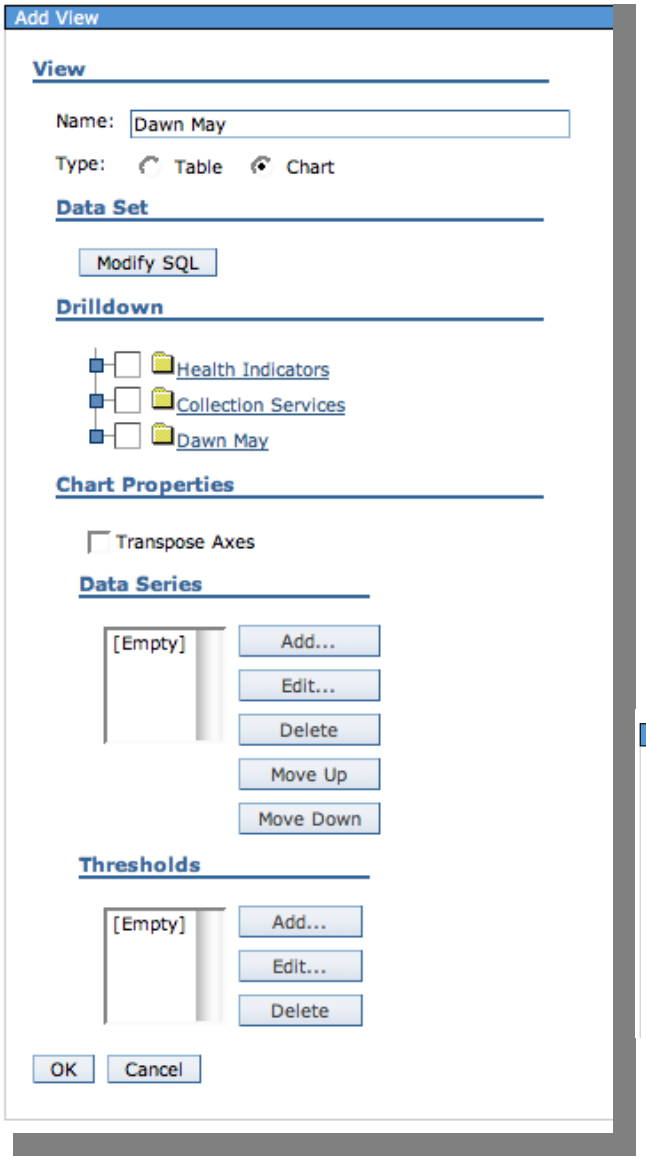
Once you “Enable Design Mode” additional options become available to create and edit your own charts and tables.



http://ibmsystemsmag.blogs.com/i_can/2011/08/customizing-a-perspective-in-pdi.html

Creating Custom Content Packages





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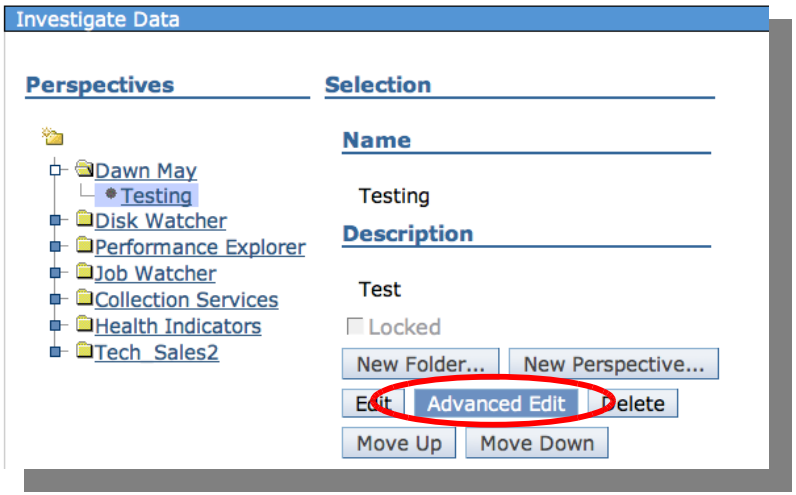
Advanced Edit – Edit the markup language directly



Edit PML

Performance Markup Language (PML) Text:

```
<?xml version="1.0" encoding="UTF-8"?>
<perspective description="Test" id="perspective_ID_504772_ccp"
   label="Testing" locked="false">
   <view class="com.ibm.as400.pt.viewer.views.ChartView"
      id="view_ID_504773_ccp" label="Custom Chart">
      <chartProperties transposeAxes="false">
         <dataSeries chartType="line" renderMode="clustered">
            <domain>
               <field value="INTNUM"/>
            </domain>
            <range>
               <field backgroundColor="RANDOM" color="RANDOM"
                  pattern="RANDOM" value="JBLWT"/>
            </range>
         </dataSeries>
      </chartProperties>
      <dataSet>
         <from>
            <value>
               <collection file="QAPMJOBOS"/>
            </value>
         </from>
         <select>
            <field value="INTNUM"/>
            <field value="DTETIM"/>
            <field value="INTSEC"/>
            <field value="DTECEN"/>
            <field value="JBNAME"/>
            <field value="JBUSER"/>
            <field value="JBNBR"/>
```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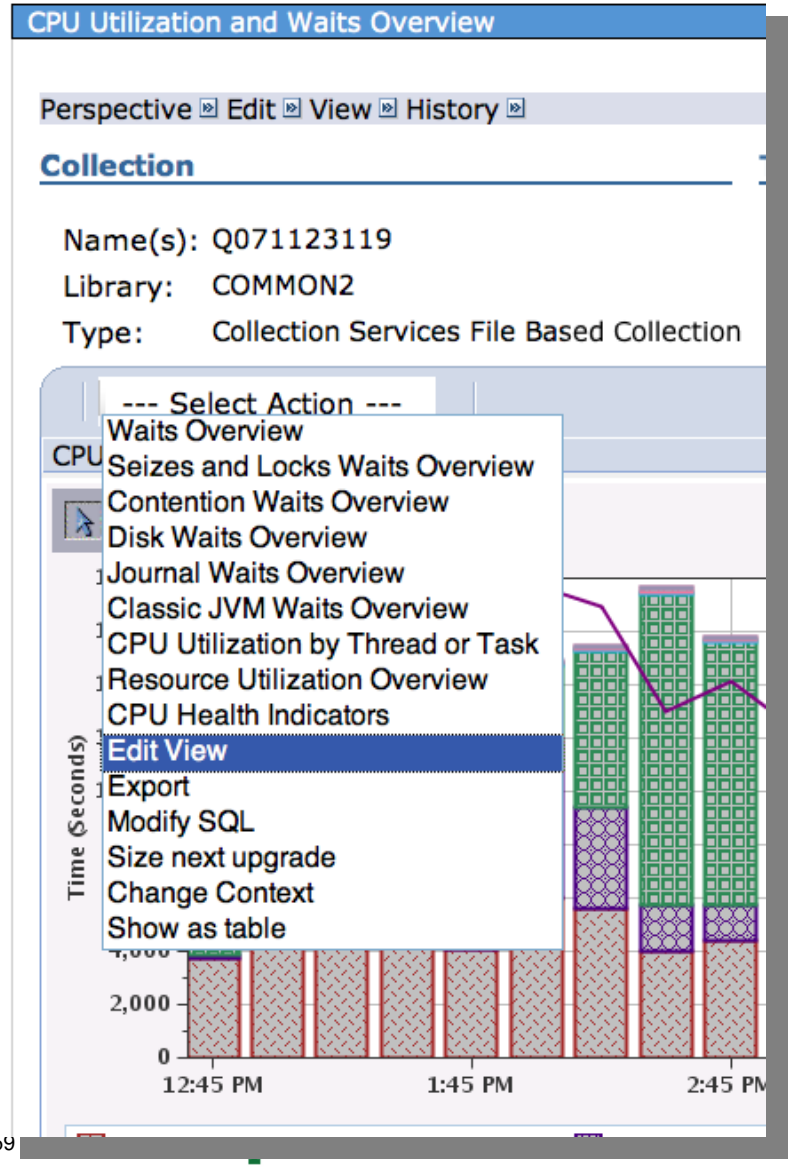
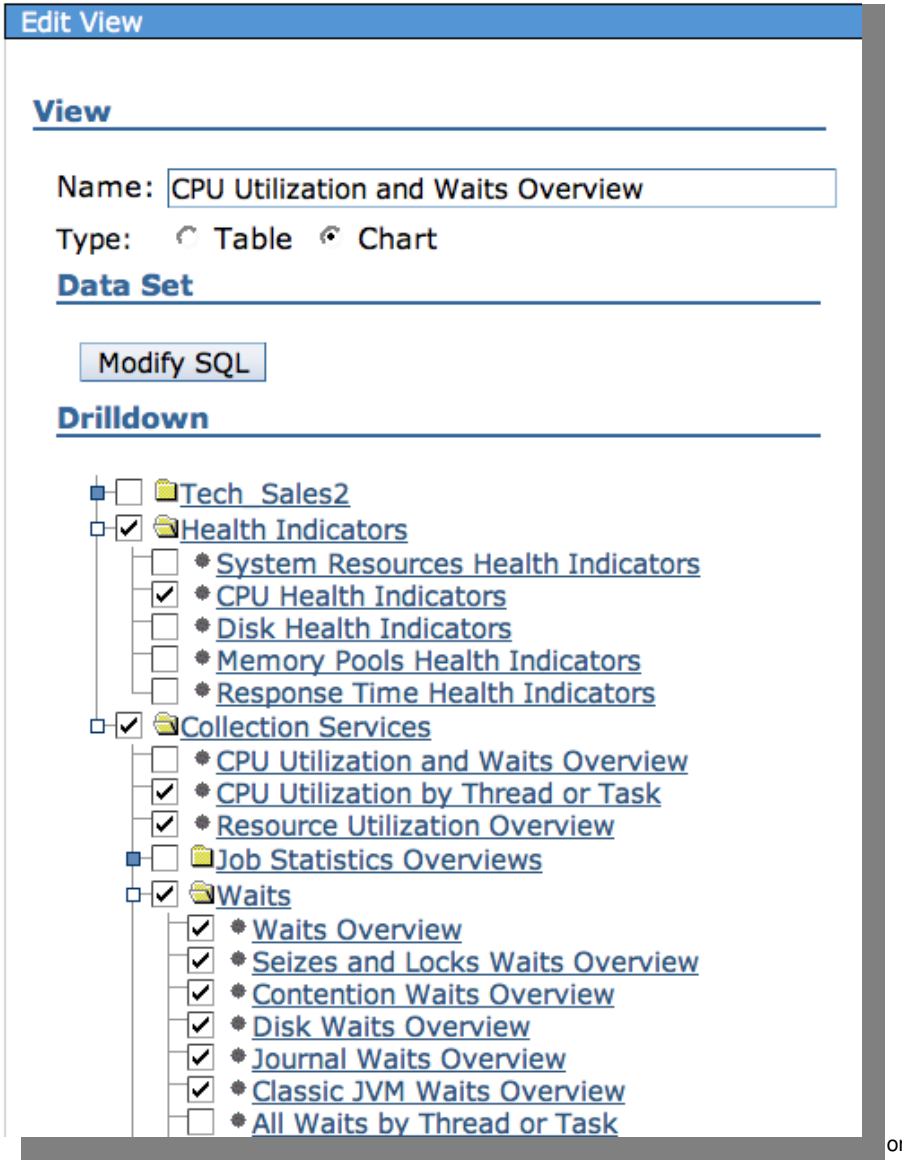
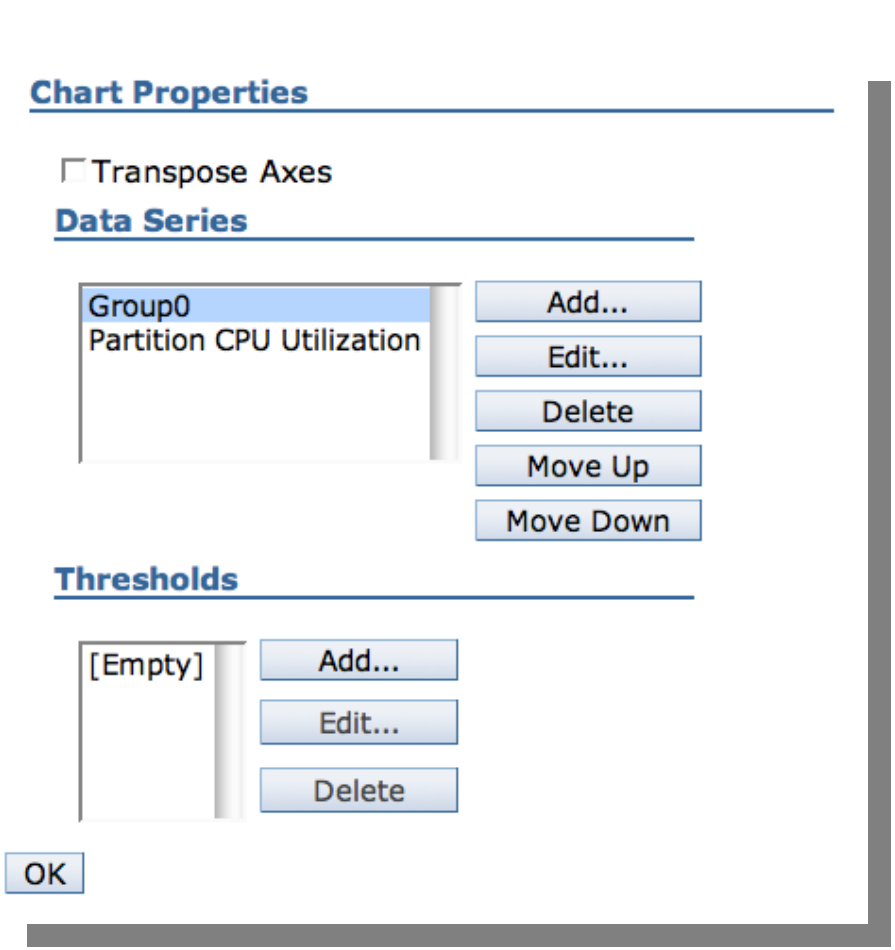
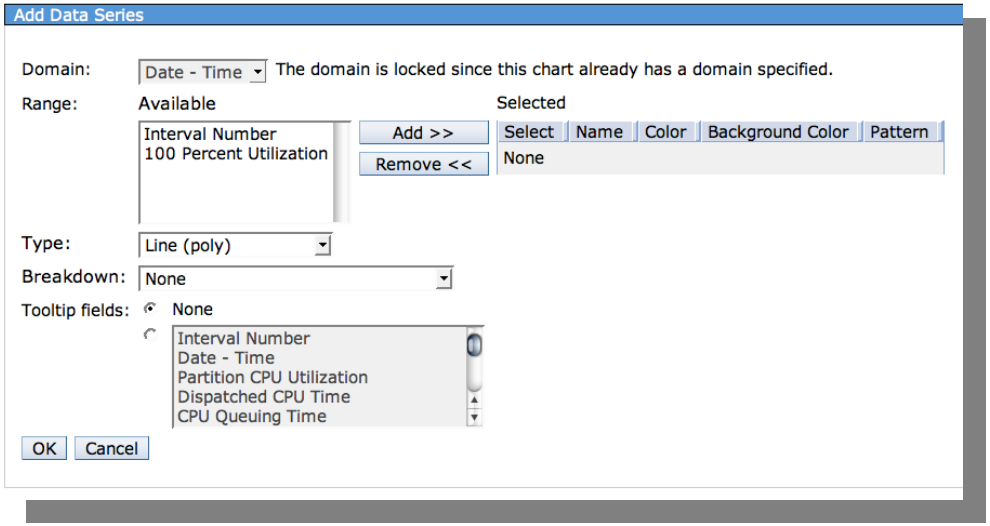
Design Mode – Edit View

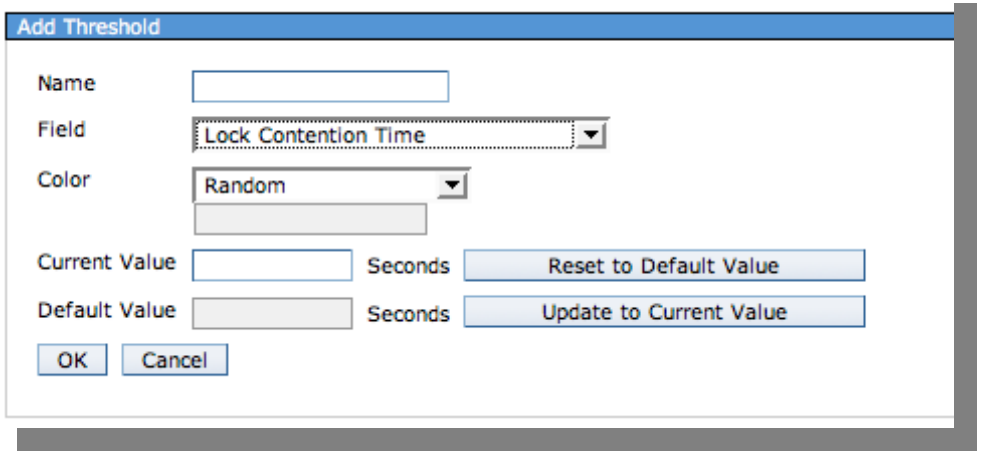




Design Mode – Edit View







Power is performance redefined

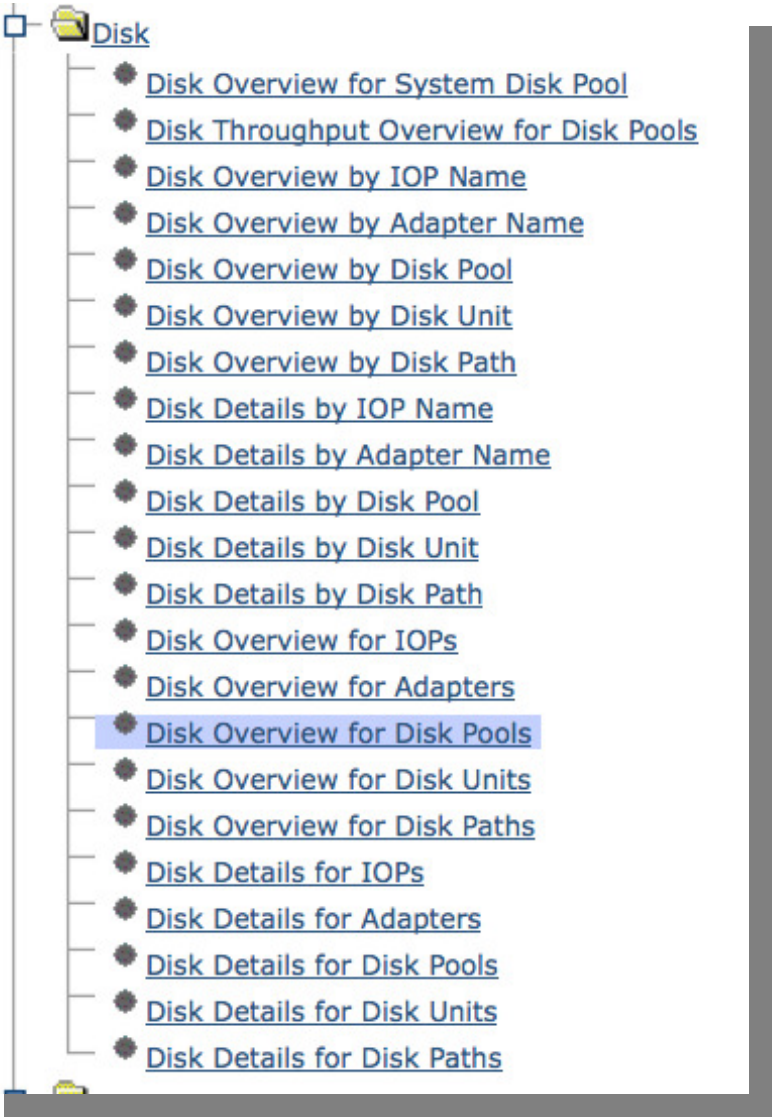
Design Mode - Add Data Series

- The Add Data Series option allows you to add additional data to your graphs for customization

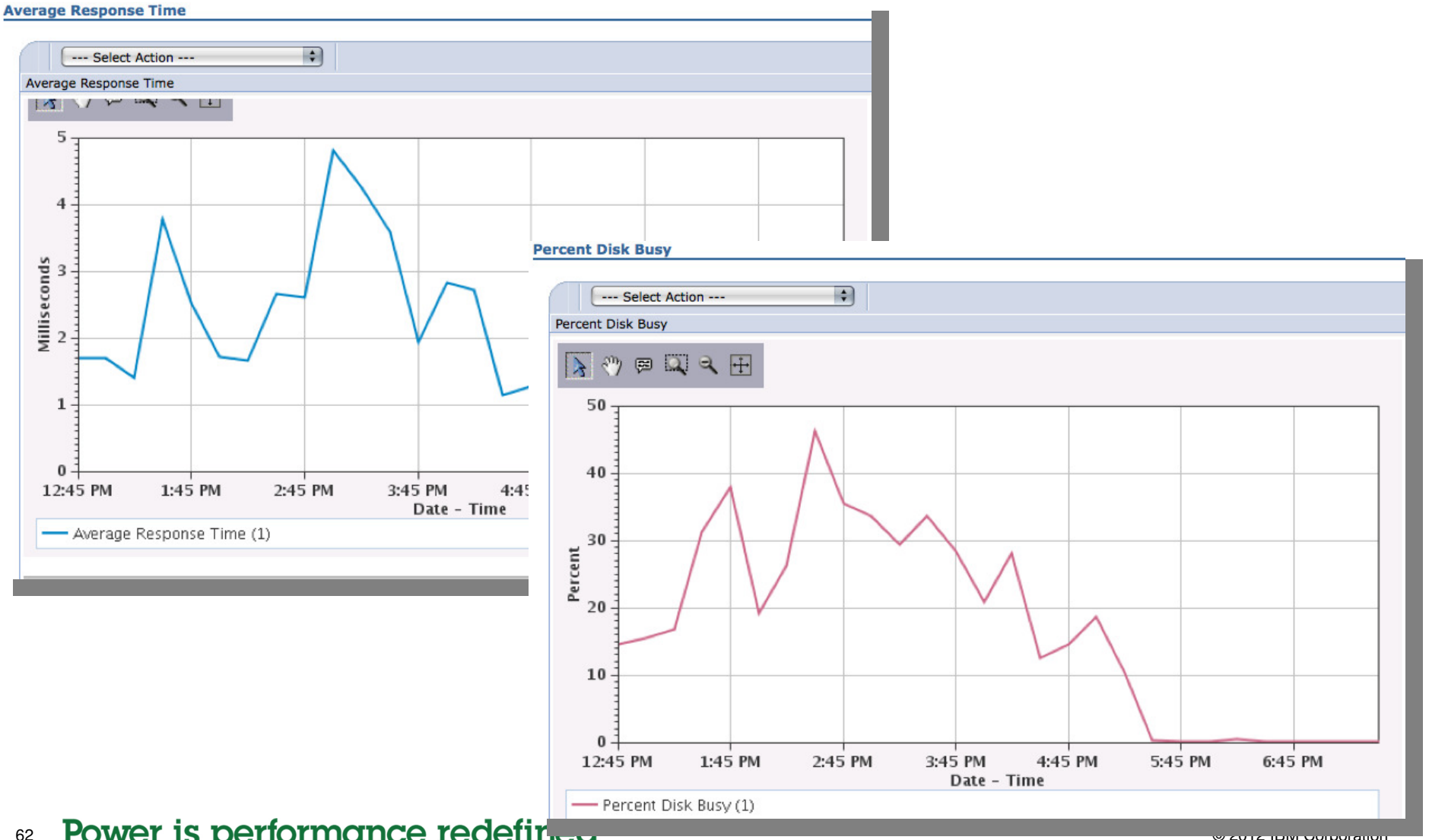
- Example: Use Design Mode for Edit View actions
  - Start with ...

    Disk → Disk Overview for Disk Pools

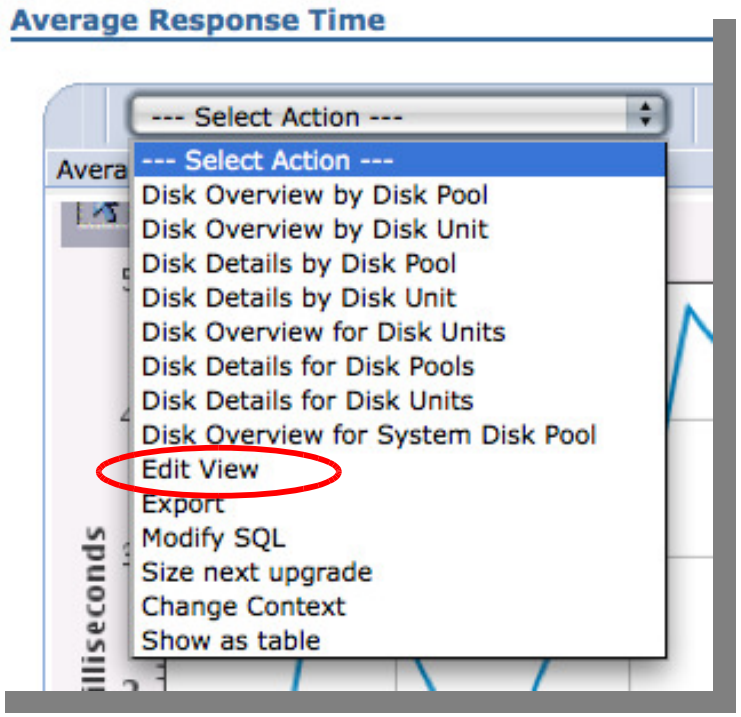
- We can combine the Average Response Time and Percent Disk Busy metrics to be on one chart



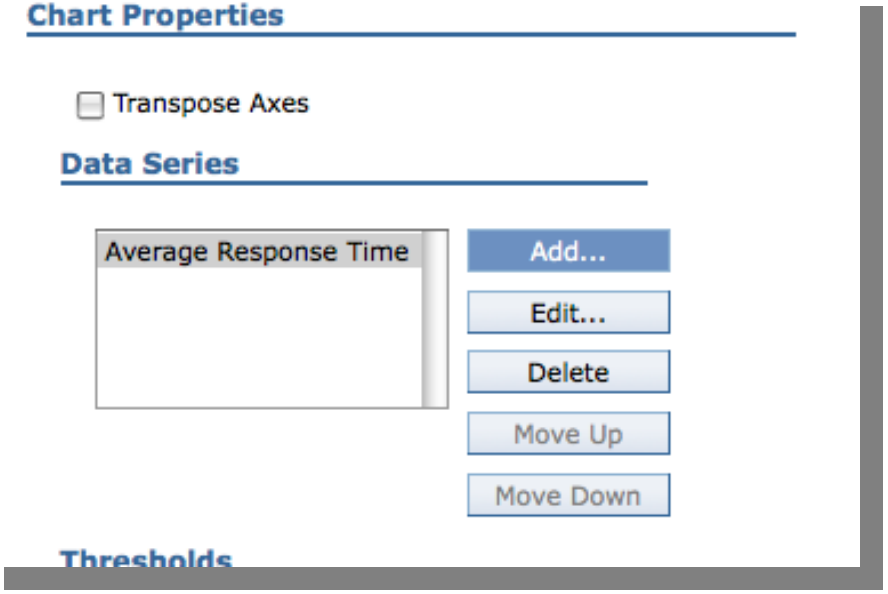
Disk Overview for Disk Pools gives us two charts we want this in one...



Select Edit View from the Average Response Time chart's action drop-down

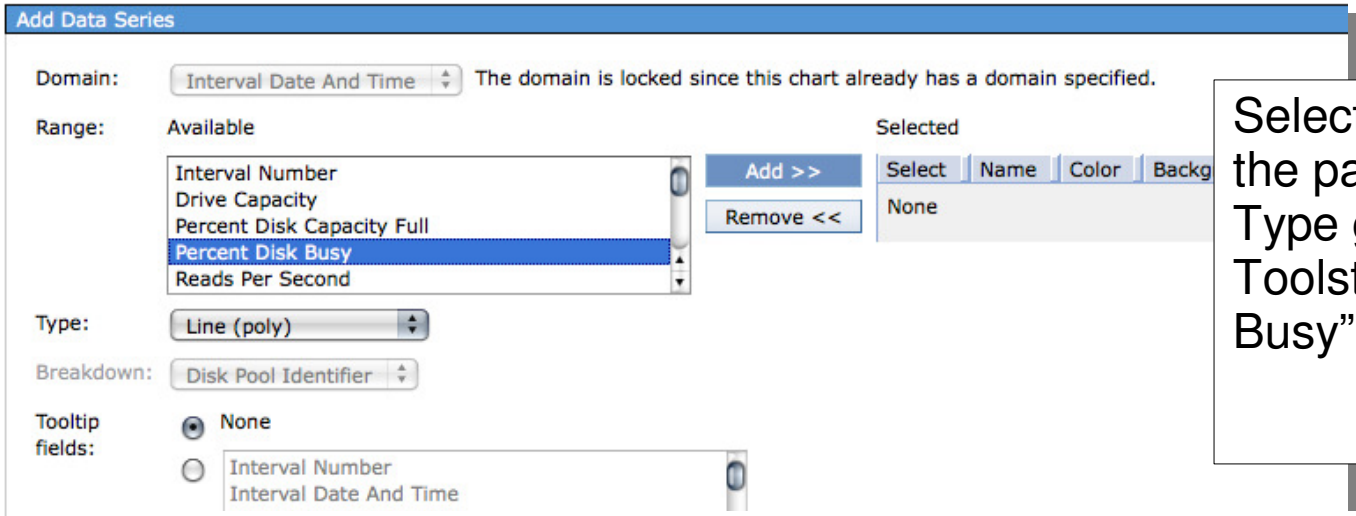


Scroll down and find the “Data Series” Box and take “Add...”

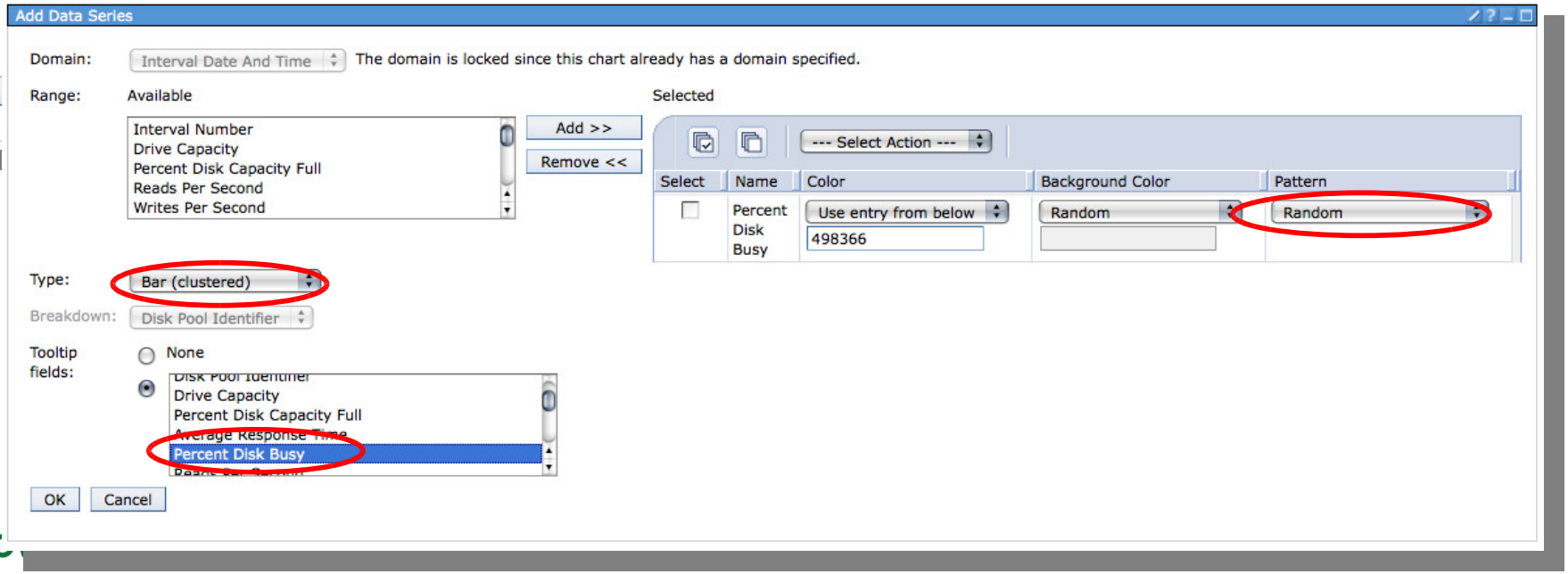


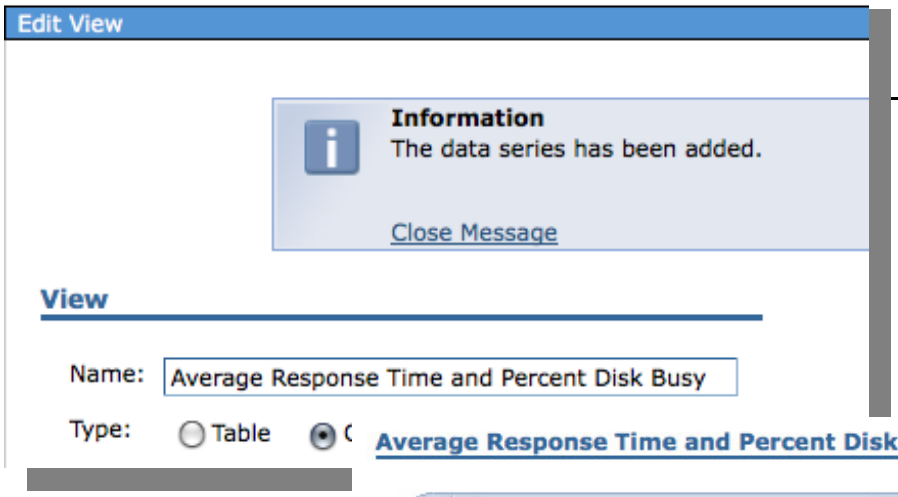
Power is performance redefined

Select the new Range "Percent Disk Busy" then click on "Add"



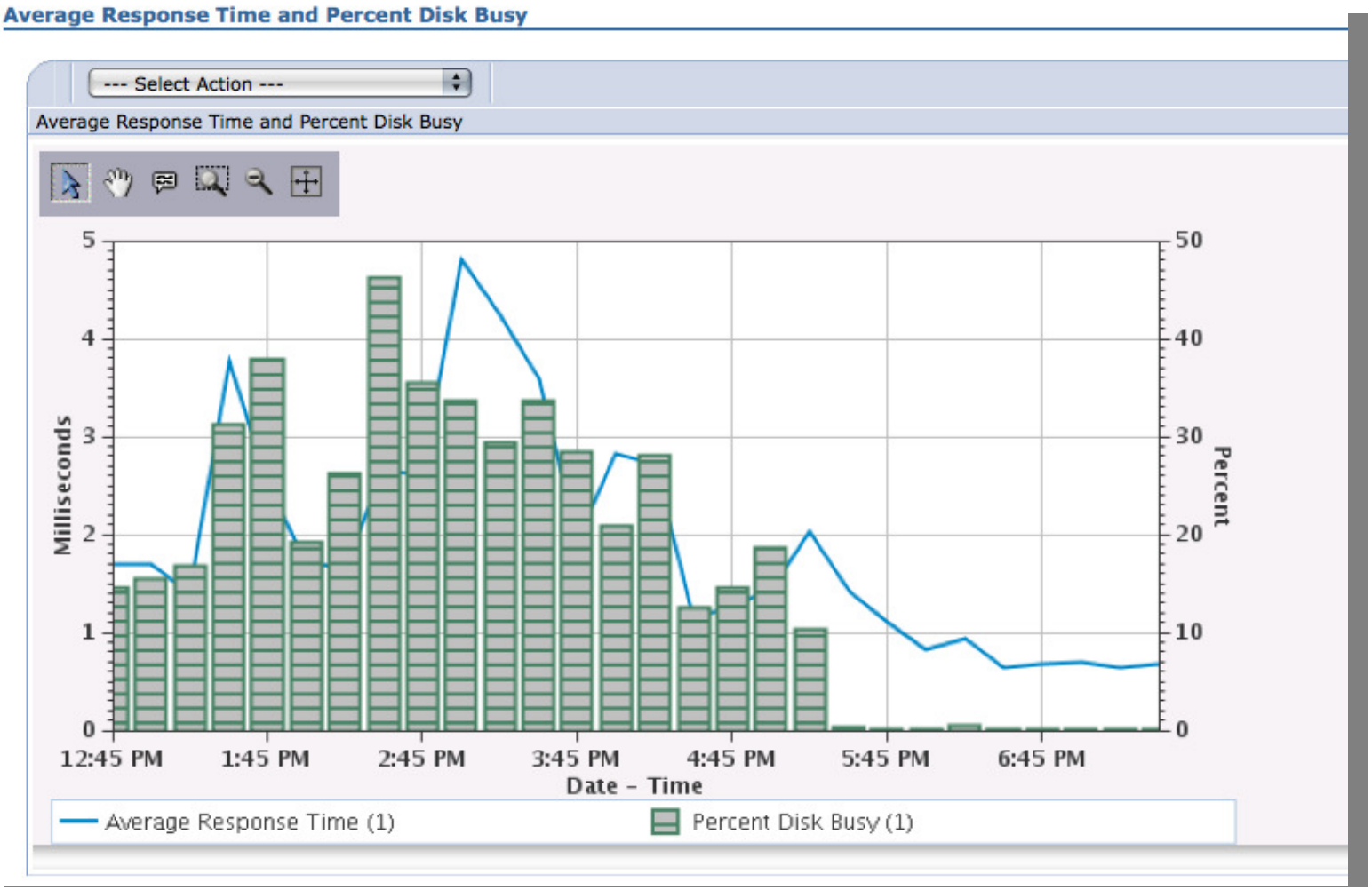
Select Random for the pattern, use a bar Type graph, and turn on Toolstips for "Percent Disk Busy"



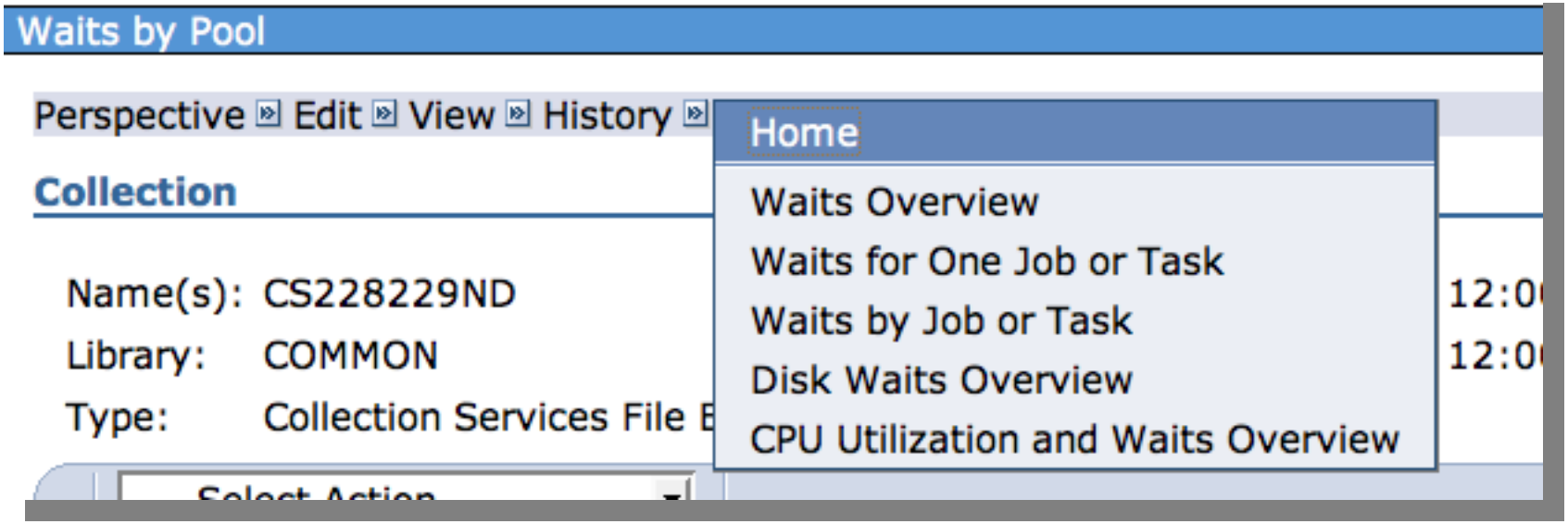


Modify the View title and click Ok

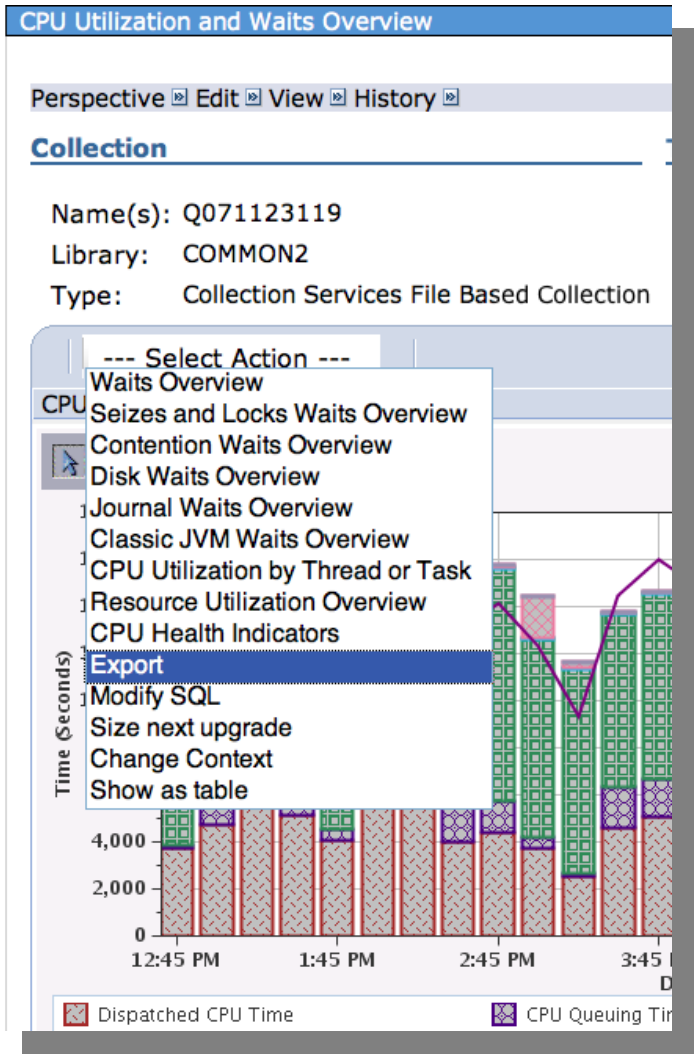
You now have the customized chart

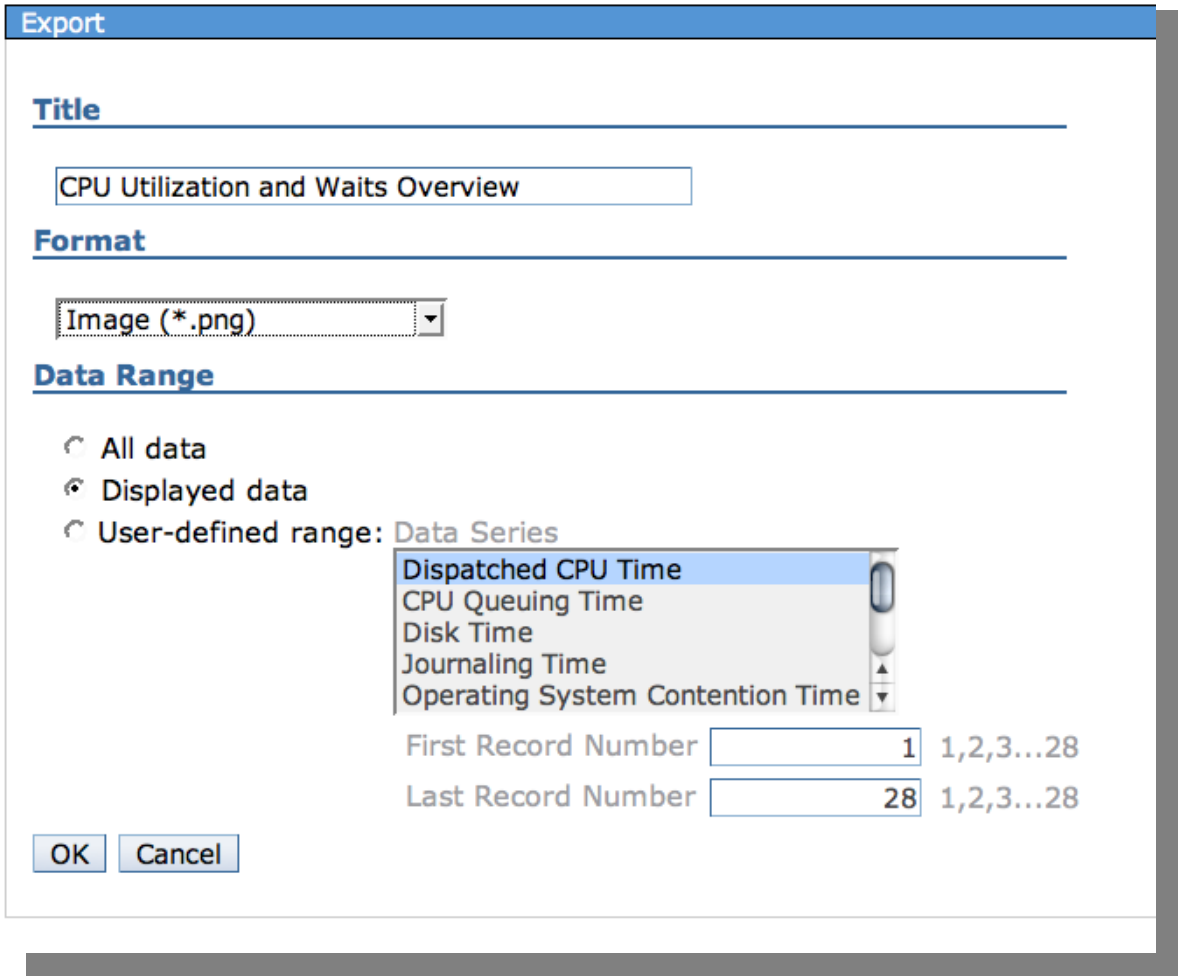


History – Navigation history and other easily-accessible options



Export - *.png, *.jpeg, *.csv, *.txt





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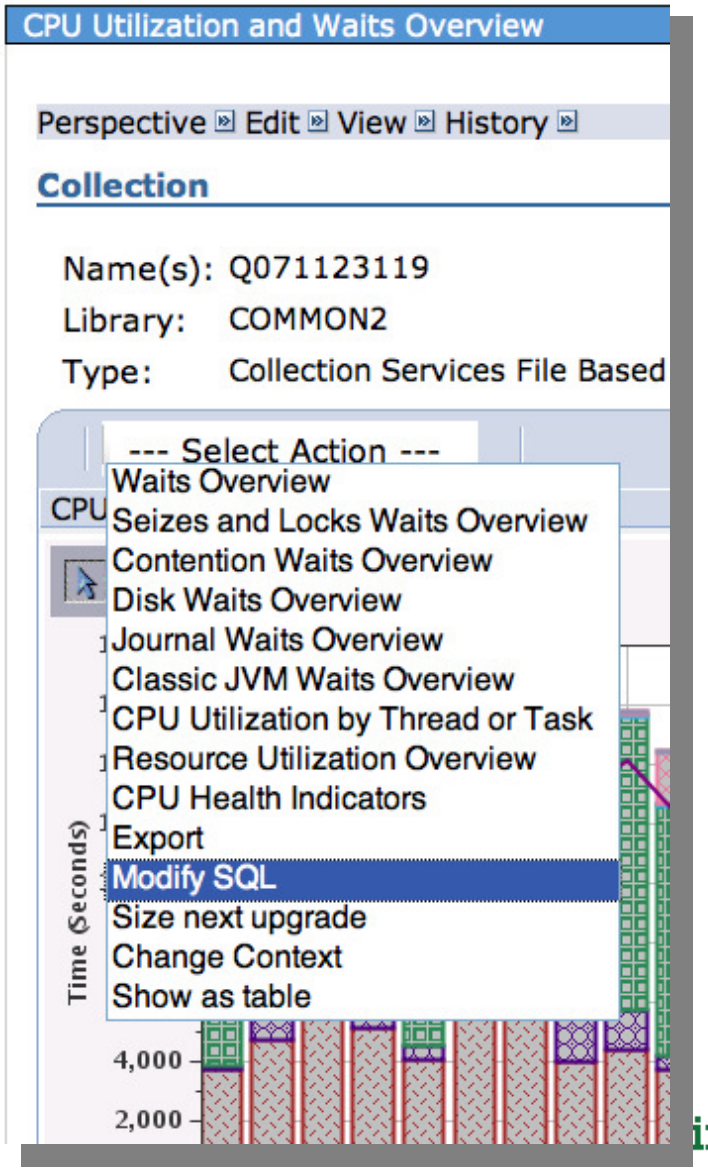
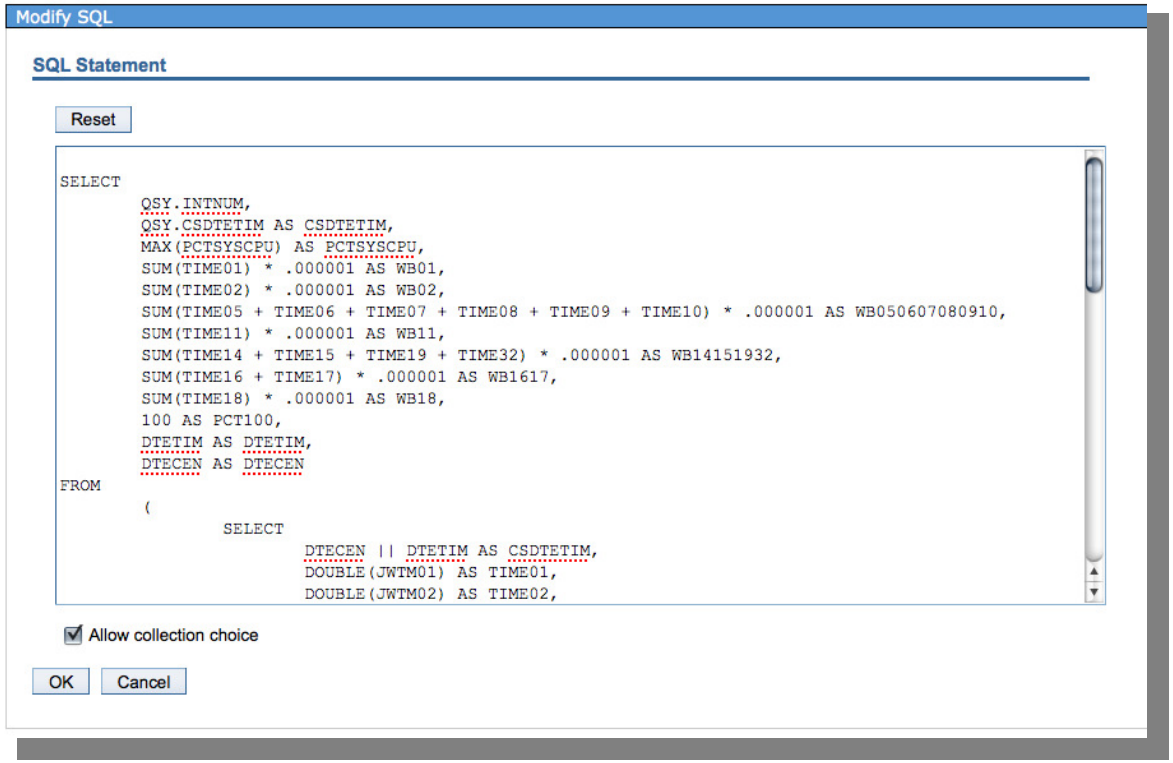
Modify SQL – customize the queries



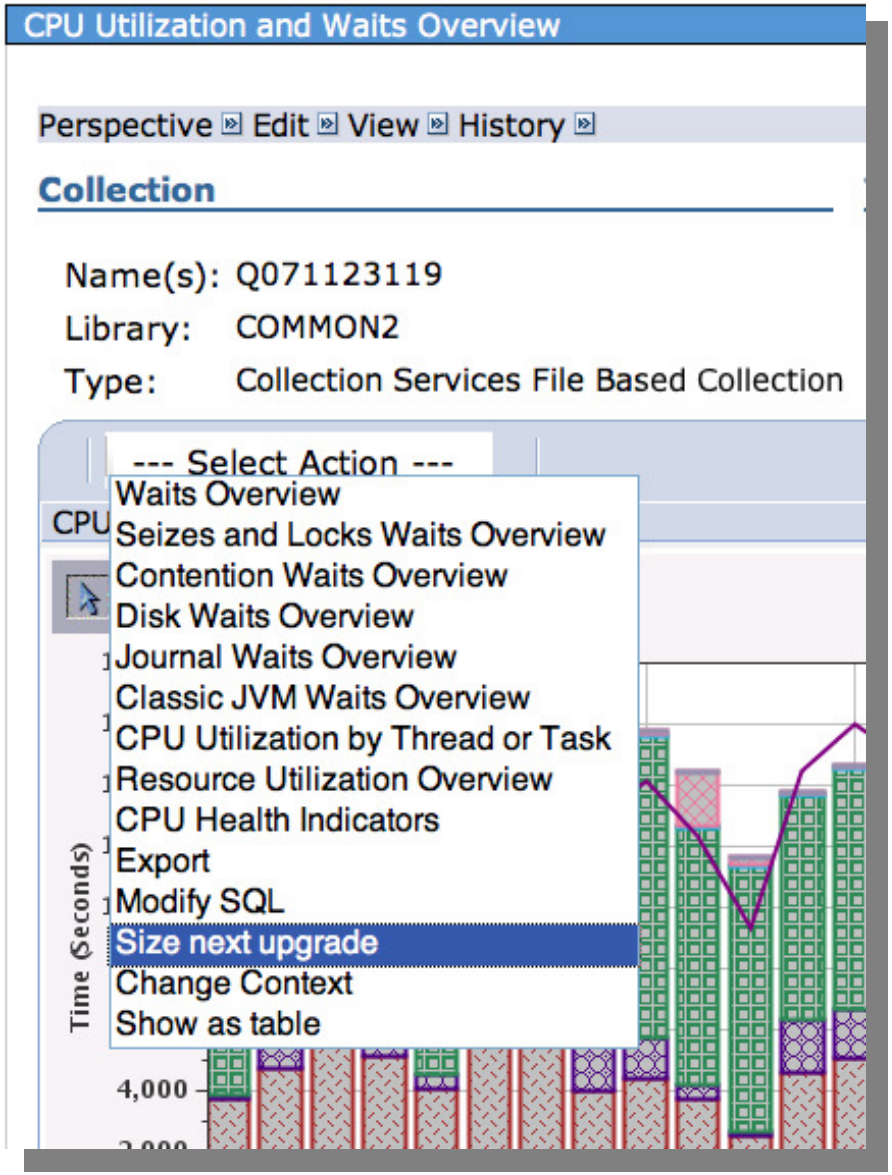


Size Next Upgrade

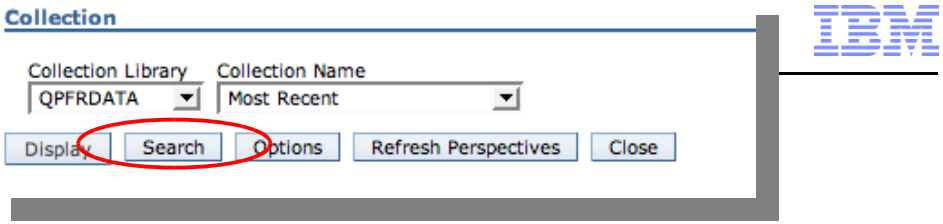
Send data directly to the IBM Workload Estimator

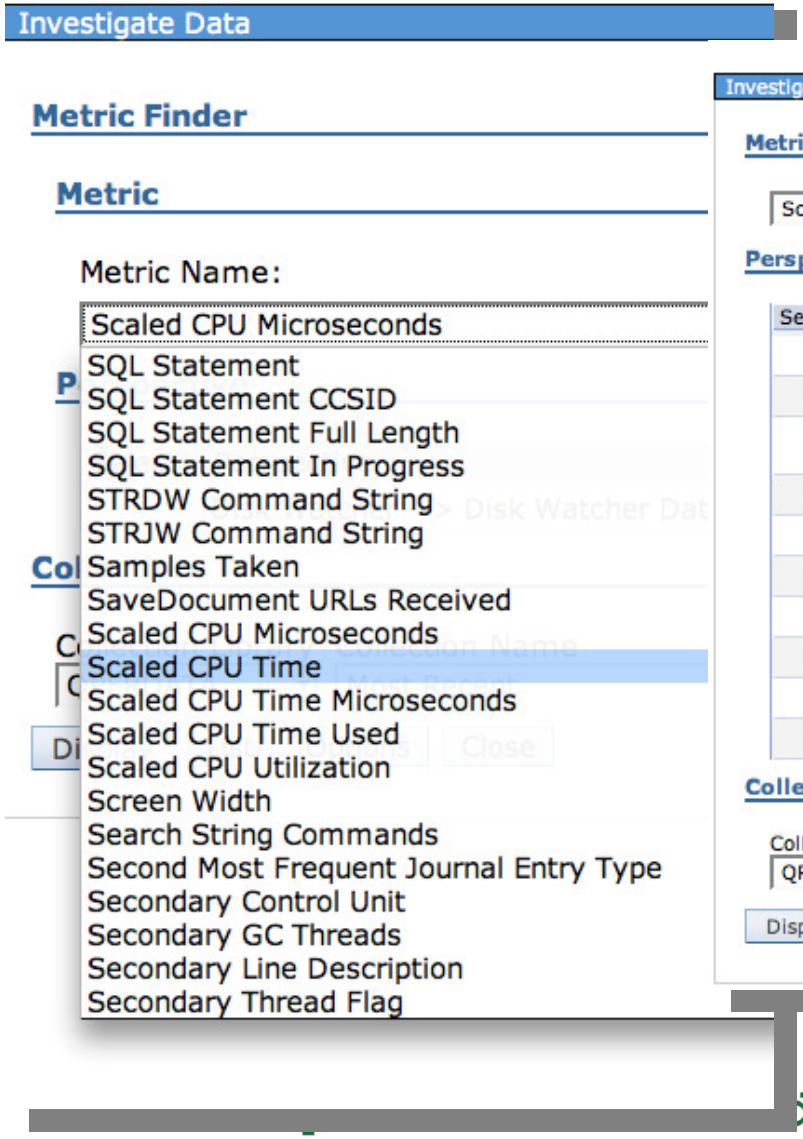
Takes the measured data from Collection Services and inputs it to the IBM Workload Estimator (WLE)

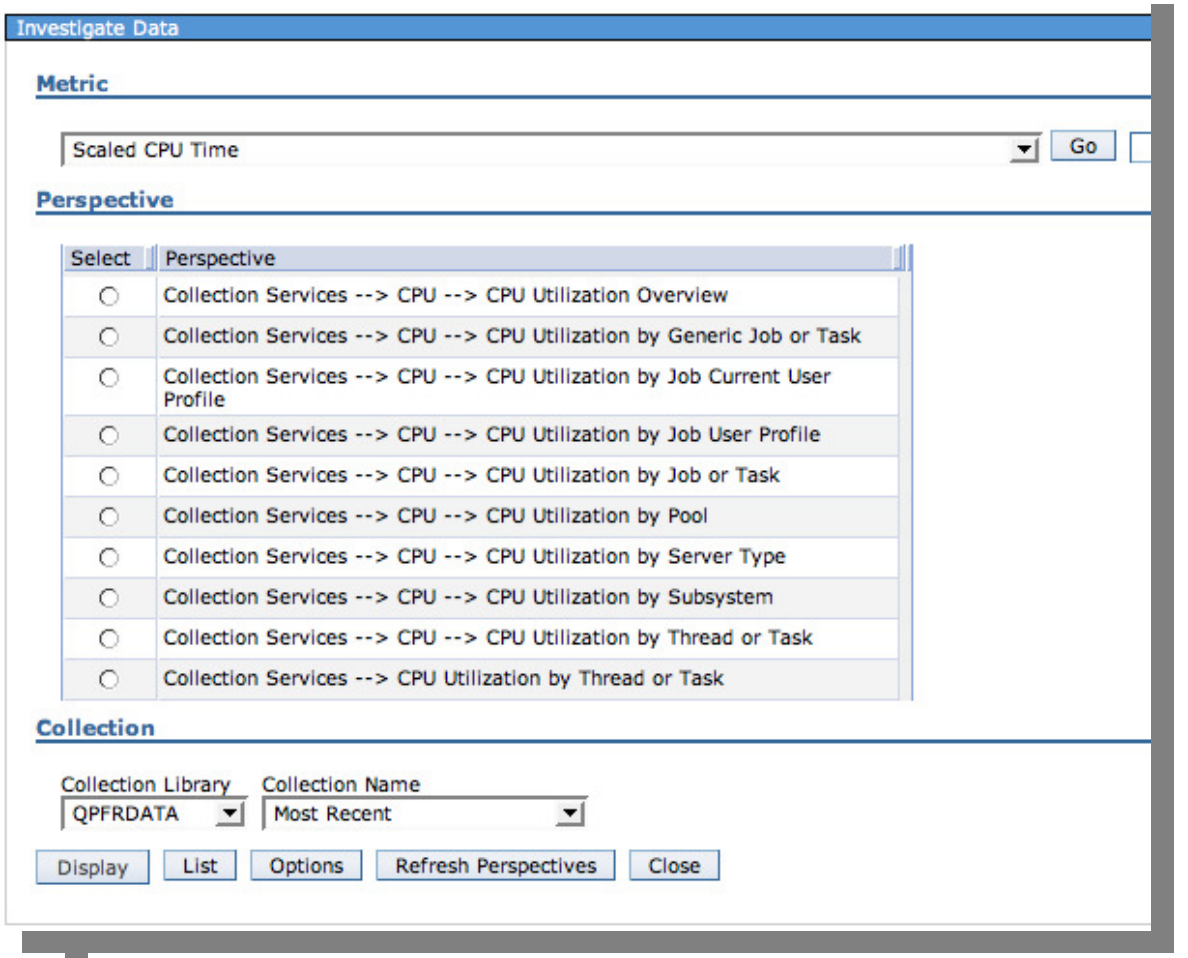
Intended for a one-time sizing activity



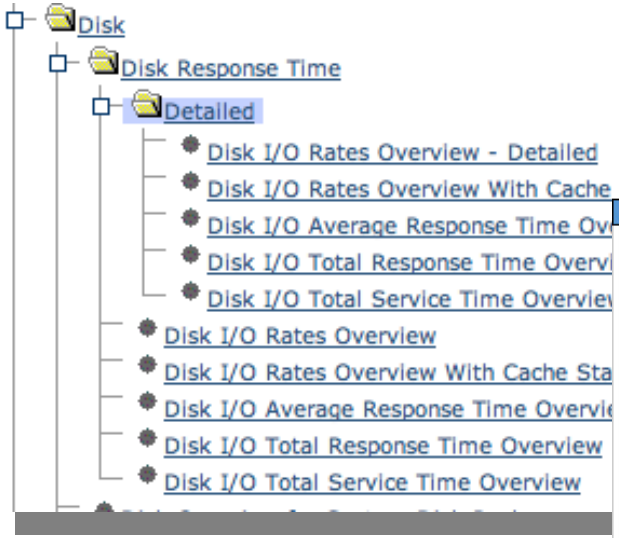
Metric Finder

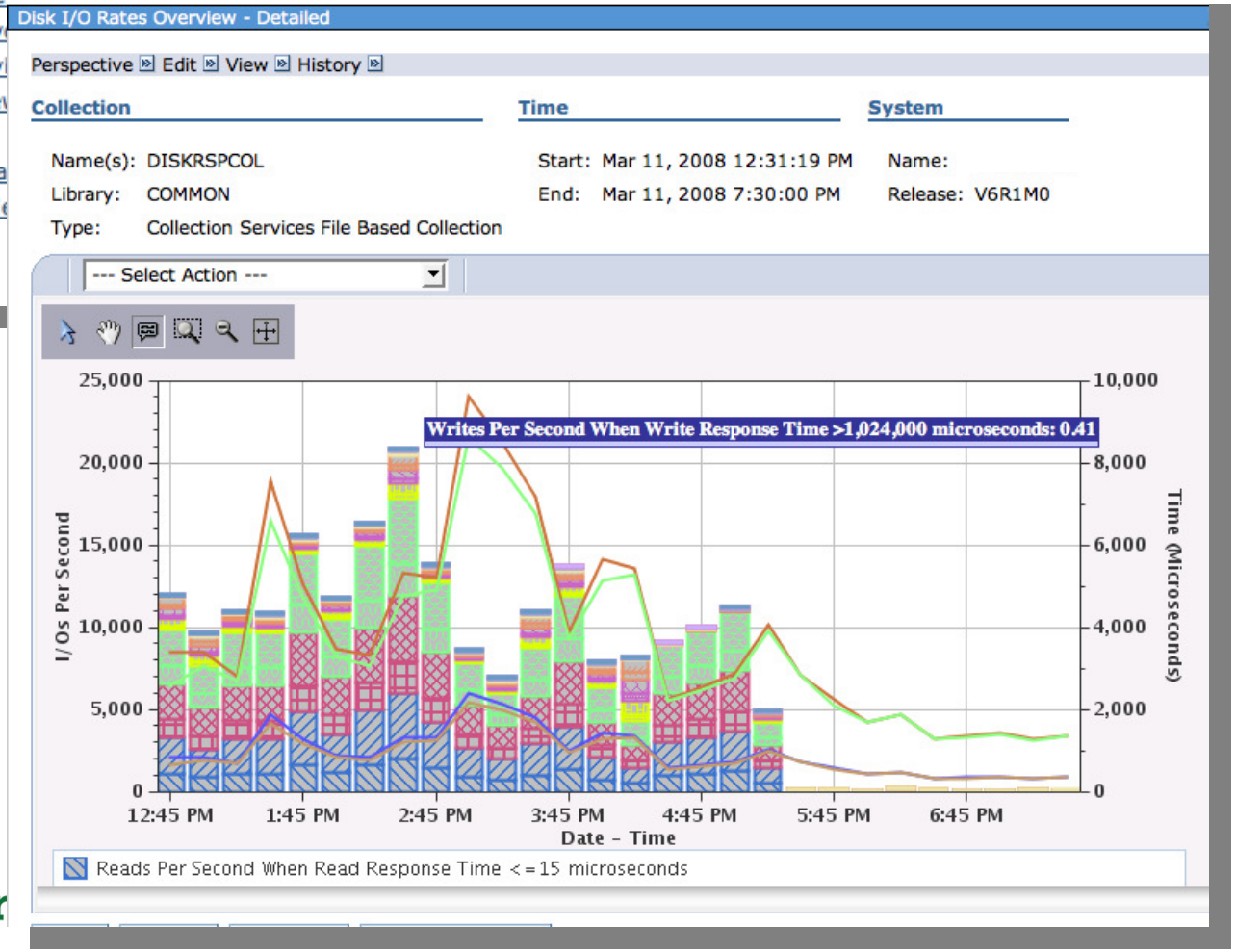






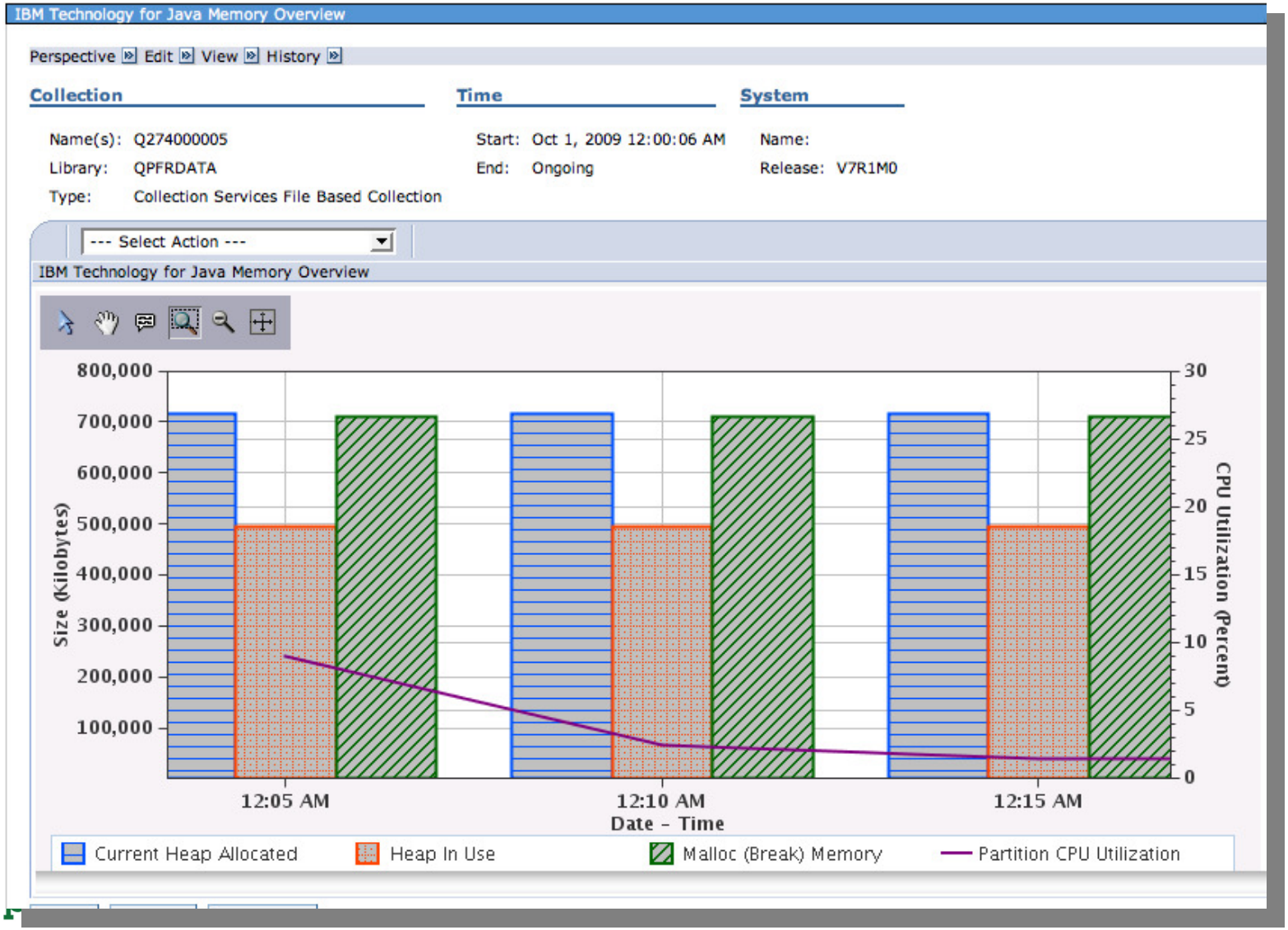
Disk Response Time Charts – New in 7.1





Power is performance r

Java Perspectives – New in 7.1



Display Collection Services DB Files .... QAPMCONF – New in 7.1

- Collection Services Database Files
  - QAPMARMTRT
  - QAPMBUSINT
  - QAPMCONF
  - QAPMDISK
  - QAPMDISKRB
  - QAPMDOMINO
  - QAPMDPS
  - QAPMETH
  - QAPMHDWR
  - QAPMHTTPB
  - QAPMHTTPD
  - QAPMIOPD
  - QAPMISUM
  - QAPMJOBMI
  - QAPMJOBOS
  - QAPMJOBSR
  - QAPMJOBWT
  - QAPMJOBWTD
  - QAPMJOBWTG
  - QAPMJSUM
  - QAPMJVM
  - QAPMLPARH
  - QAPMMIOP
  - QAPMPOOLB
  - QAPMPOOLT
  - QAPMPPP
  - QAPMSHRMP
  - QAPMSYSCPU
  - QAPMSYSPRC
  - QAPMSYSTEM
  - QAPMTAPE
  - QAPMTCP
  - QAPMTCPIFC
  - QAPMUSRTNS

IBM® Systems Director Navigator for i

Performance(1) | Investigate...

Collection

Name(s): CS228229ND
Library: COMMON
Type: Collection Services File Based Collection

Time

Start: Feb 28, 2008 12:00:02 AM
End: Feb 29, 2008 12:00:00 AM

System

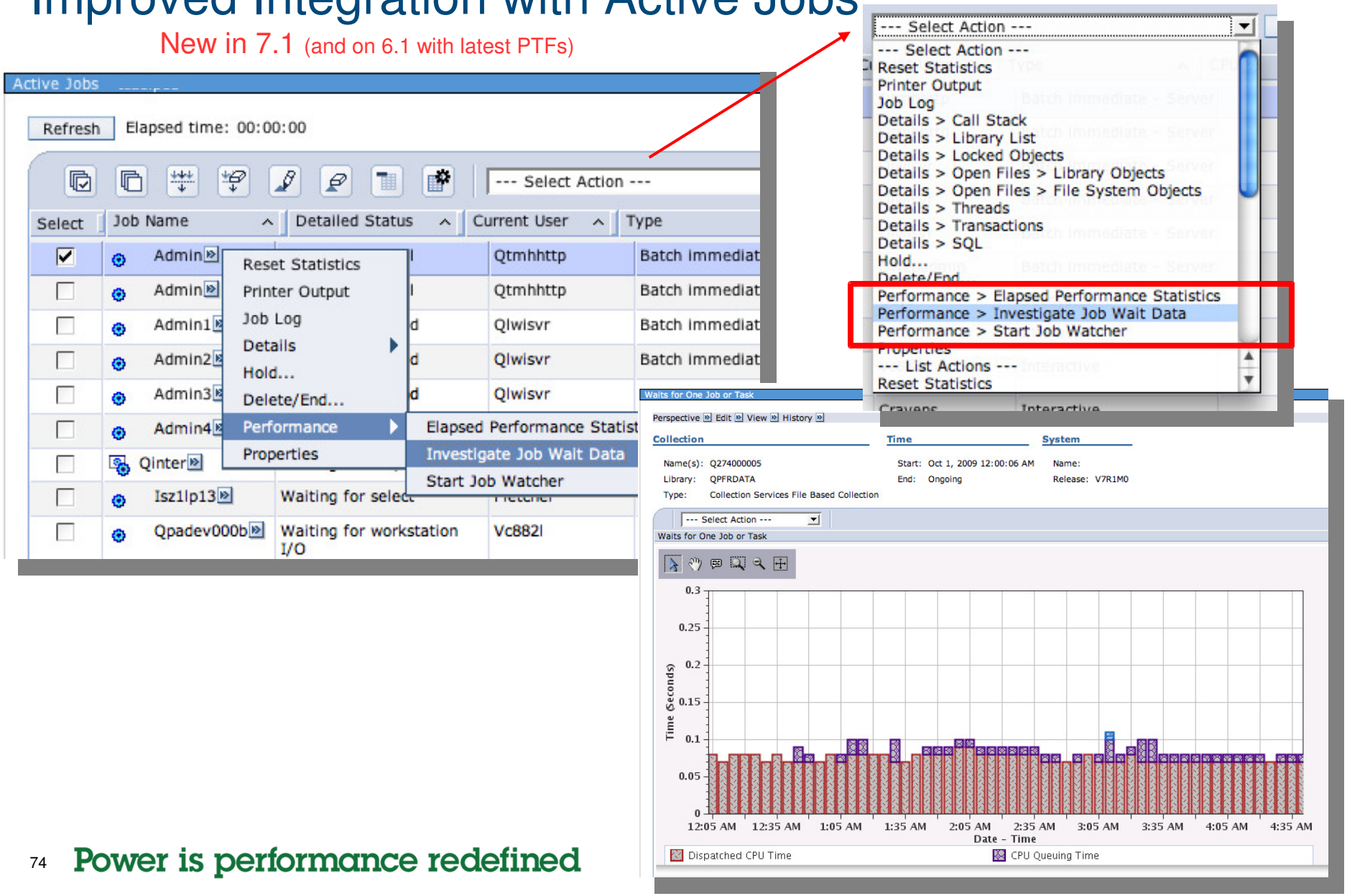
Name: RCHASTND
Release: V6R1M0

QAPMCONF Panel View

Library Name:	COMMON	Processor Firmware Time:	-
Member Name:	CS228229ND	Task Threshold Value (ms):	0
Start Time:	Feb 28, 2008 12:00:02 AM	Secondary Thread Thresh (ms):	0
Model Number:	MMA	Disk Response Time Boundary 1 (us):	0
System Type:	9406	Disk Response Time Boundary 2 (us):	0
Partition Memory (KB):	30670848	Disk Response Time Boundary 3 (us):	0
Comm Data Collected:	Y	Disk Response Time Boundary 4 (us):	0
Machine Serial Number:	10-2C7B0	Disk Response Time Boundary 5 (us):	0
Response Time Boundary 1 (ms):	1000	Disk Response Time Boundary 6 (us):	0
Response Time Boundary 2 (ms):	2000	Disk Response Time Boundary 7 (us):	0
Response Time Boundary 3 (ms):	4000	Disk Response Time Boundary 8 (us):	0
Response Time Boundary 4 (ms):	8000	Disk Response Time Boundary 9 (us):	0
System ASP Capacity (KB):	2,067,333,120	Disk Response Time Boundary 10 (us):	0
Checksum Protection On:	N	Hypervisor Memory (MB):	6,656
Virtual Processors:	4	SMT Hardware Threads:	0
Installed Processors:	16	Time Interval (minutes):	15
Remote Response Boundary 1 (ms):	-	Interactive Limit (%):	100.00
		Time Interval (seconds):	900
Remote Response Boundary 2 (ms):	-	Interactive Threshold (%):	100.00
Remote Response Boundary 3 (ms):	-	Processor Multi-tasking Capability:	-
		Output File System:	RCHASTND
System ASP Capacity (KB):	2,067,333,120	Partition Count:	9
Perm 16MB Addr Remaining:	274,852,741,632	Processor Folding Support:	-
Temp 16MB Addr Remaining	274,362,038,016	Partition ID:	1,077,952,576
Disk Resp Time Boundary 1 (ms):	1	Primary Partition ID:	1,077,952,576
Disk Resp Time Boundary 2 (ms):	16	Processor Units:	4.00
Disk Resp Time Boundary 3 (ms):	64	System Version:	6
Disk Resp Time Boundary 4 (ms):	256	System Release:	1.0
Disk Resp Time Boundary 5 (ms):	1,024	System Name:	RCHASTND
Collection Data:	Consistent with *SYS	Performance Monitor Select Job:	-
Collect Internal Data:	N	Shared Processor Pool:	No
*CSMGTCOL Collection Library:	QMPGDATA	Partition Sharing Capped:	Capped

Improved Integration with Active Jobs

New in 7.1 (and on 6.1 with latest PTFs)



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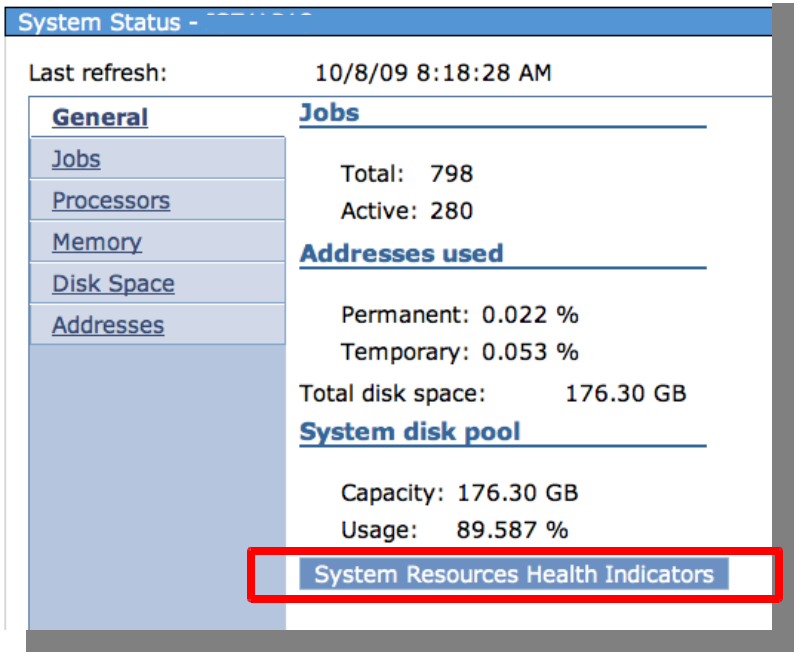
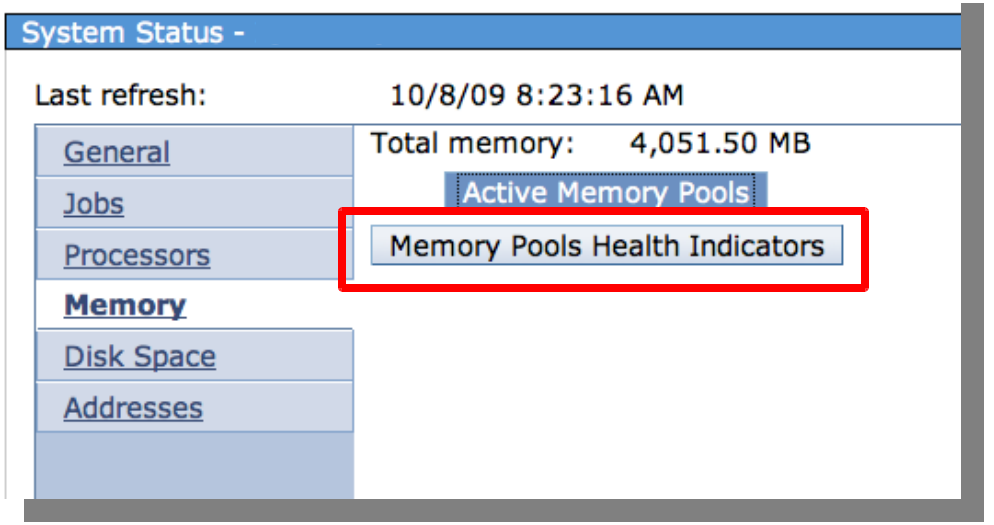
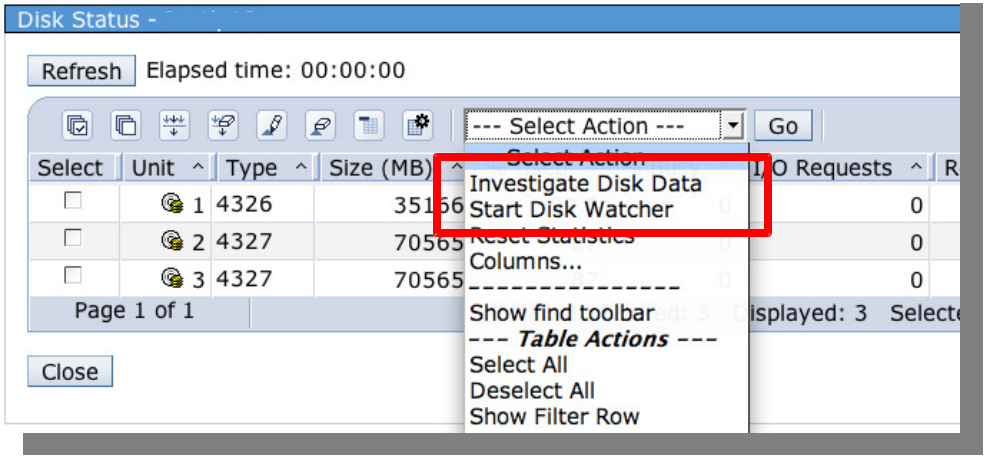
Improved Integration with System and Disk Status – New in 7.1







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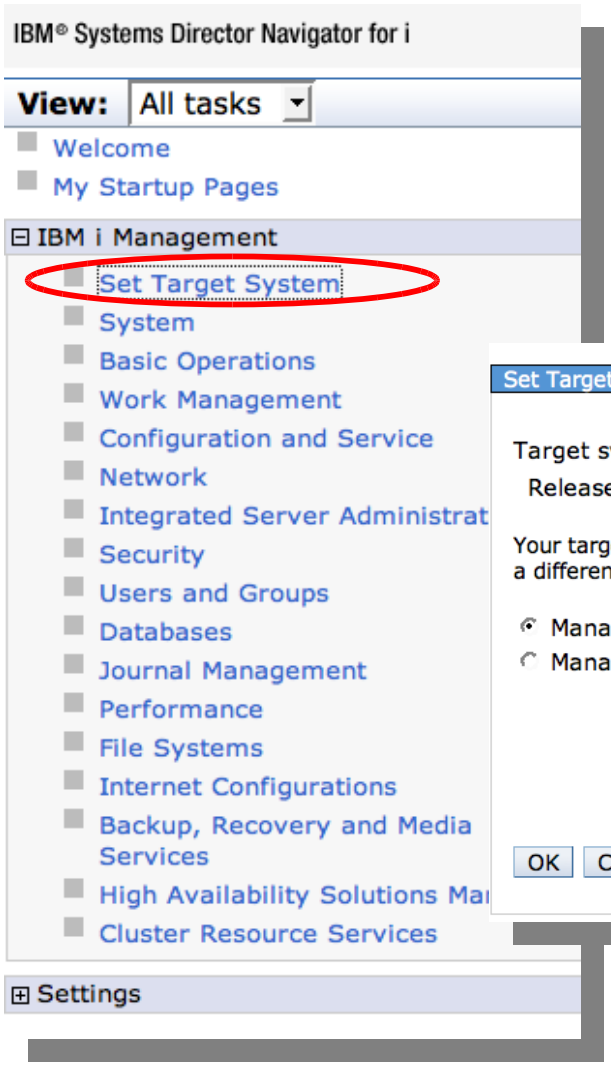
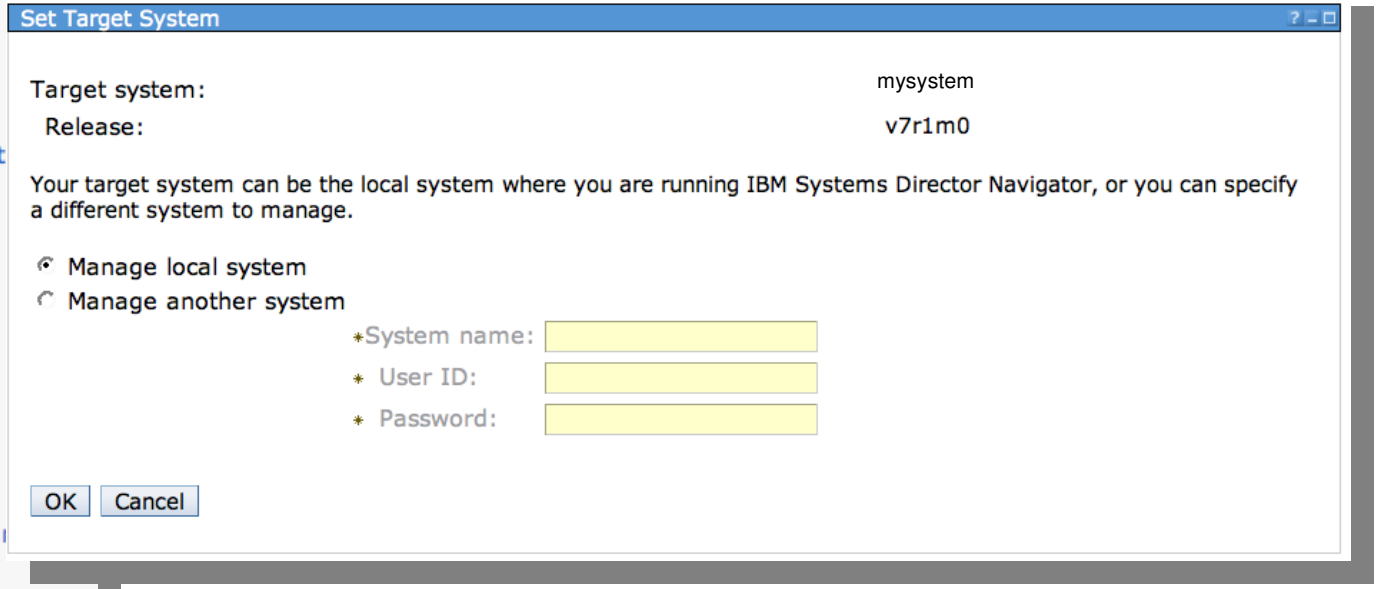
Set Target System – New in 7.1 (and on 6.1 with latest PTFs)



You can now connect to one partition, but manage a different partition.

Allows you to manage 5.4 and 6.1 partitions.



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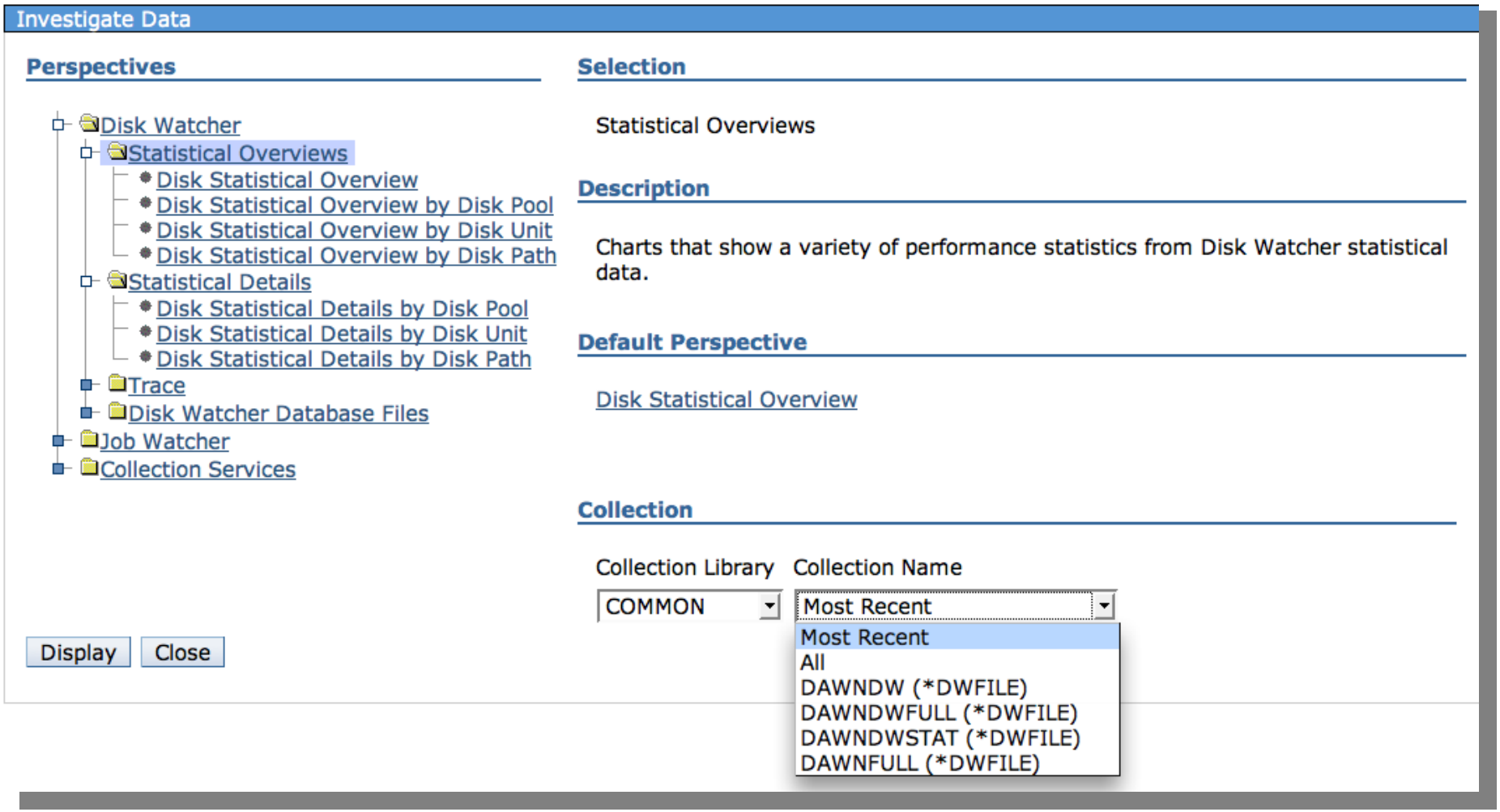
Considerations for Viewing V5R3 or 5.4 Collection Services data

- **Collection Services data from V5R3 or 5.4 releases can be viewed with the Performance Data Investigator**
  - Note: Not all graphs and charts are available due to changes in data content and format
  - Preferred approach is to save the Management Collection object to a save file
    - `SAVOBJ OBJ(MYMGTCOL) LIB(MYLIB) DEV(*SAVF) SAVF(MYLIB/MYSAVF)`
    - FTP the save file to the 6.1 or 7.1 partition
    - Use the Restore Performance Collection command to restore the *CSMGTCOL collection type
    - Use the Create Performance Data command to get the data into database files
  - Alternatively,
    - Use SAVOBJ to save the collected collection services database files into a save file
    - `SAVOBJ OBJ(QAPM*) LIB(MYLIB) DEV(*SAVF) OBJTYPE(*FILE) SAVF(MYLIB/MYSAVF) FILEMBR((*ALL (MYDATA)))`
    - FTP the save file to the 6.1 or 7.1 partition
    - Restore Collection capability on Performance Tasks GUI

      or

    - Use the Restore Performance Collection (RSTPFRCOL) command to restore the data on the 6.1 or 7.1 partition. The type of the collection will be *CSFILE
    - Use the “Convert Performance Collection” capability to convert the V5 database files to the 6.1 or 7.1 format

Disk Watcher



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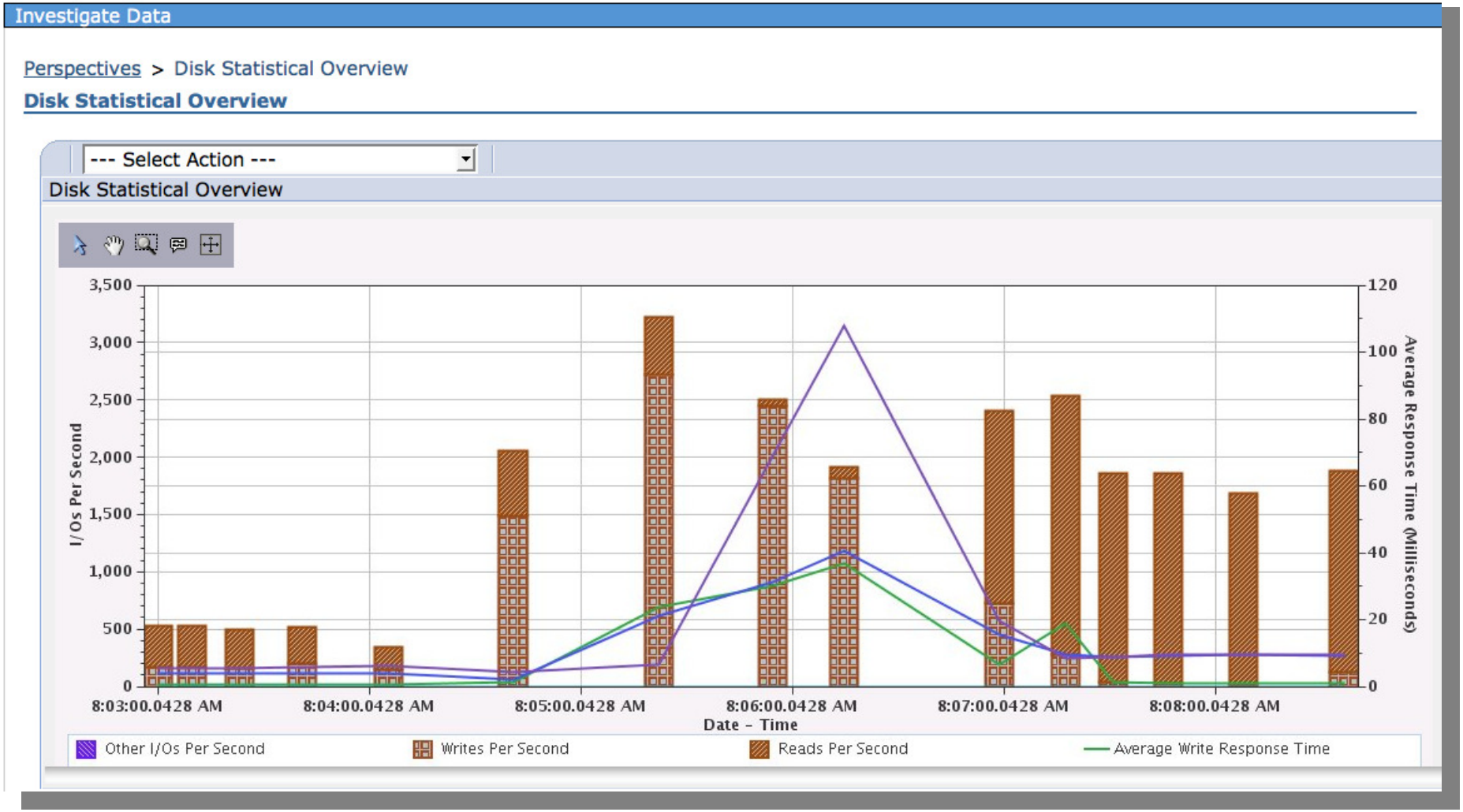
Disk Watcher – Statistical Overviews



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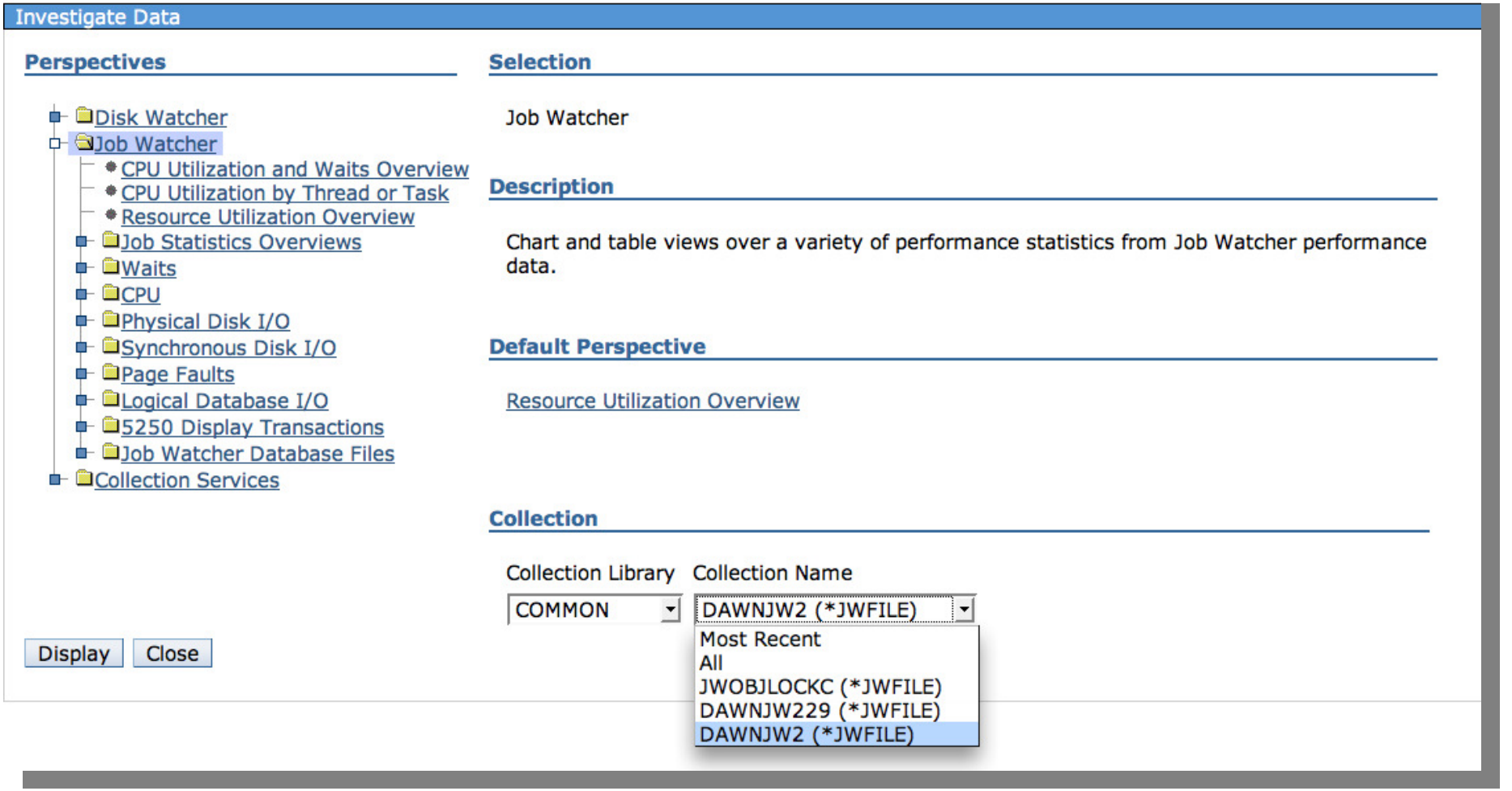
Job Watcher



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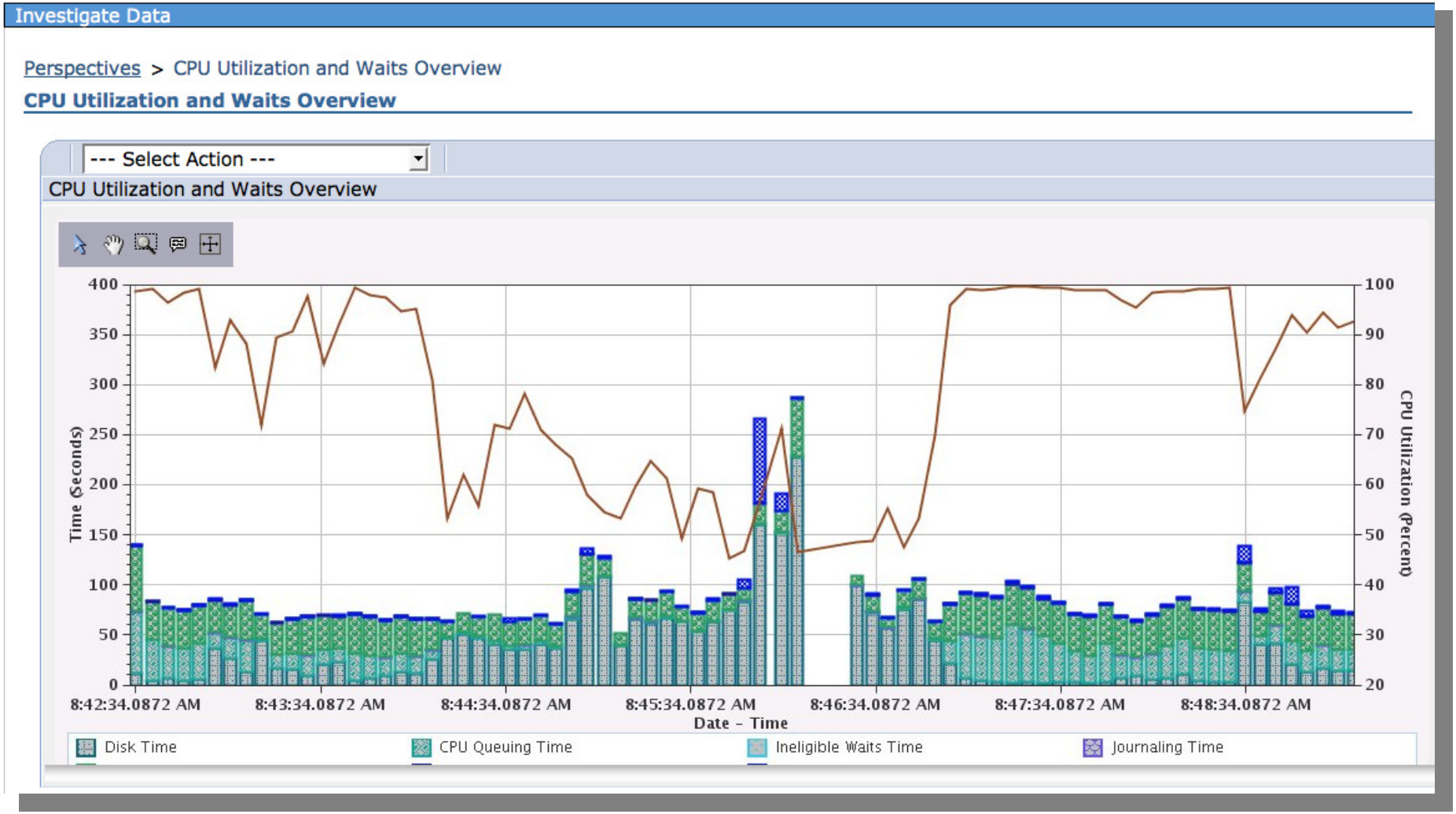
Job Watcher - CPU Utilization and Waits Overview



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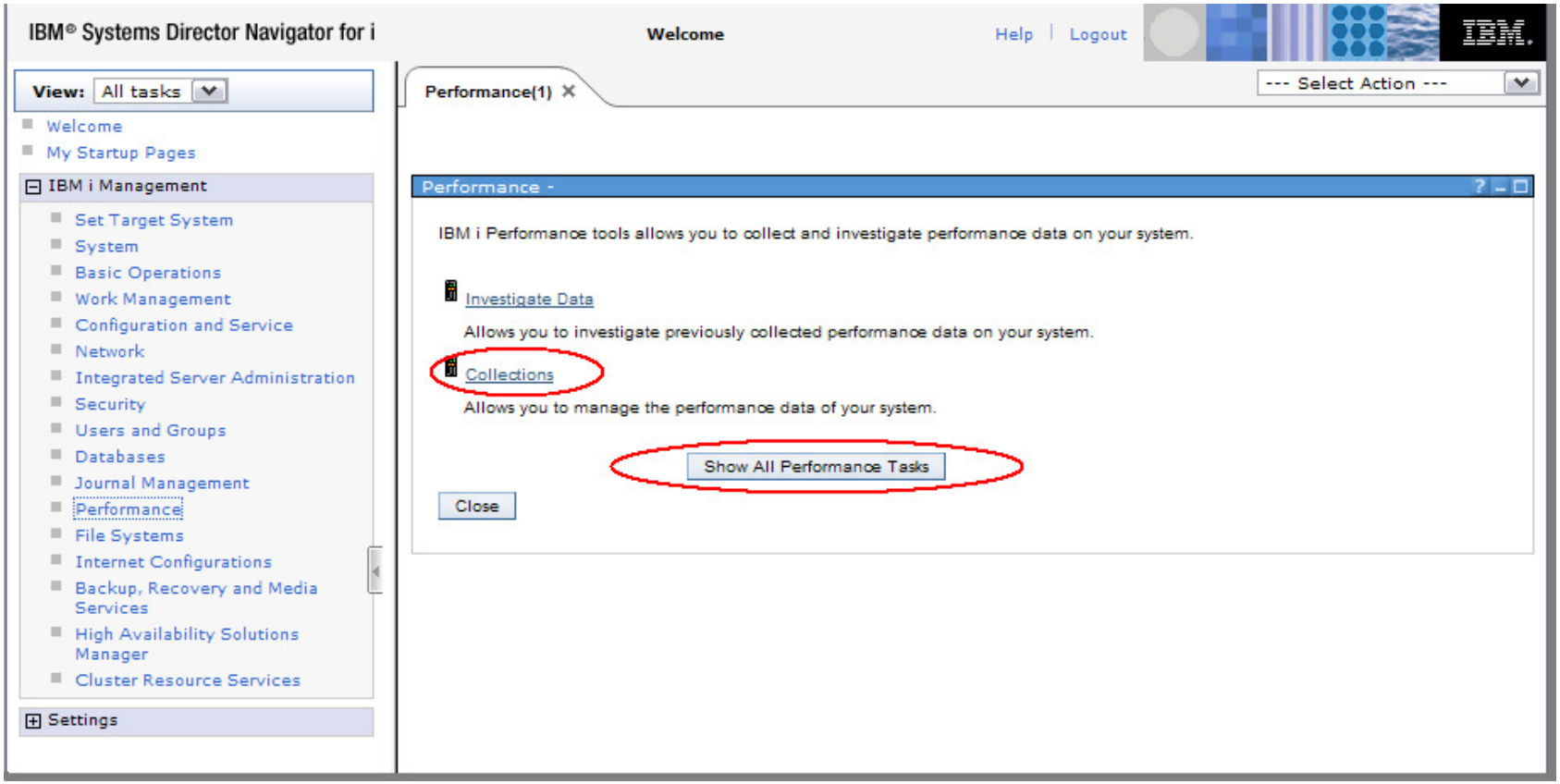
Collections and All Performance Tasks



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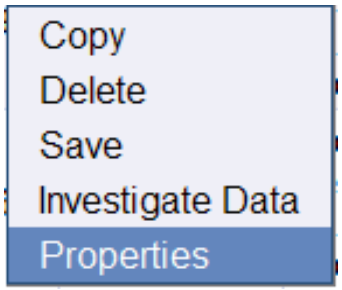
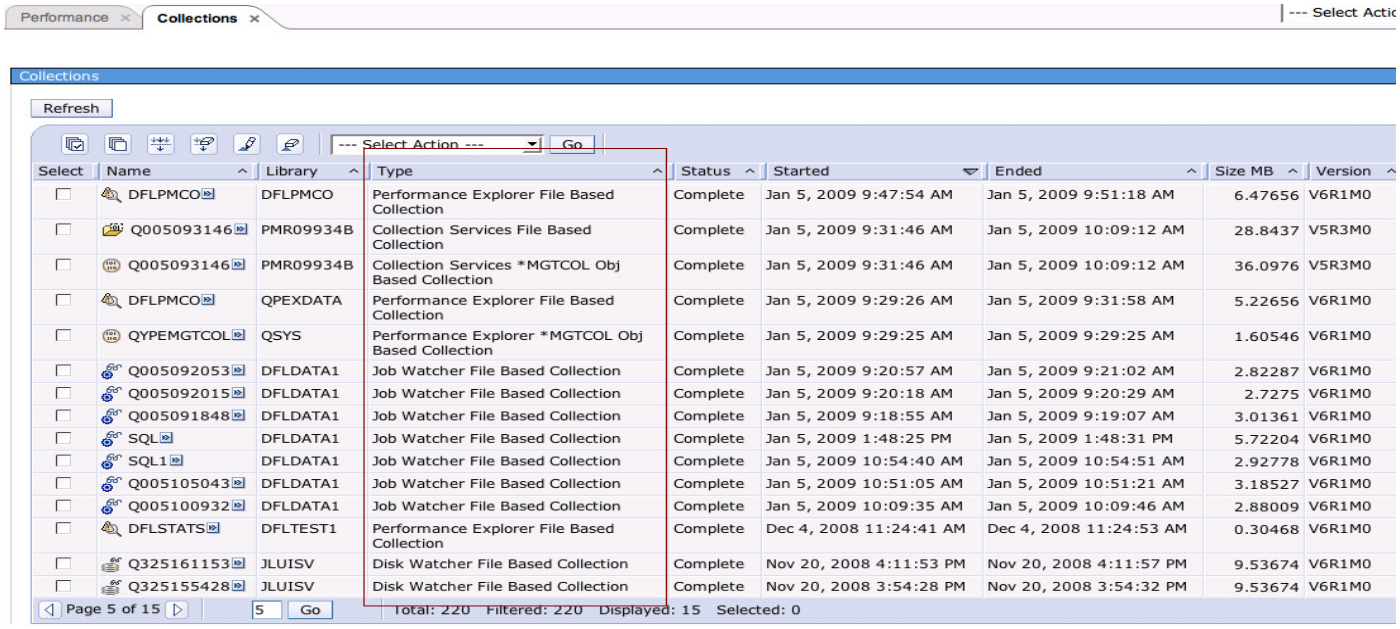
Collections

- **Provides a central place to manage and work with all of the performance data that is on the system.**
- **Contains performance data collections from:**
  - Collection Services
  - Job Watcher
  - Disk Watcher
  - Performance Explorer

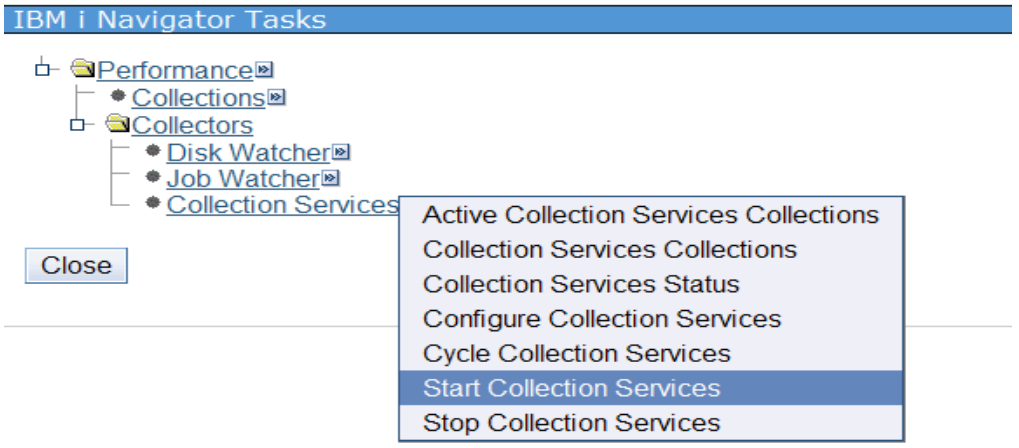
Actions available on a collection typically include:



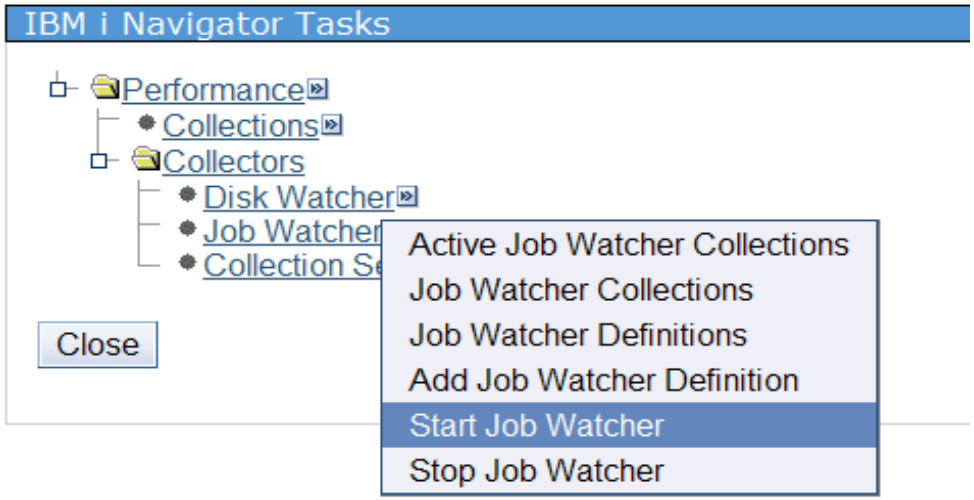


All Performance Tasks

- **Includes ability to Start, Stop, and Configure Collectors**
- **Collection Services:**



- **Disk Watcher / Job Watcher – Wizards to Add a definition and to Start:**



developerWorks and PDI

- developerWorks - http://www.ibm.com/developerworks/ibmi/
  - IBM i Technology Updates Wiki – Performance Tools
    https://www.ibm.com/developerworks/ibmi/techupdates/perftools
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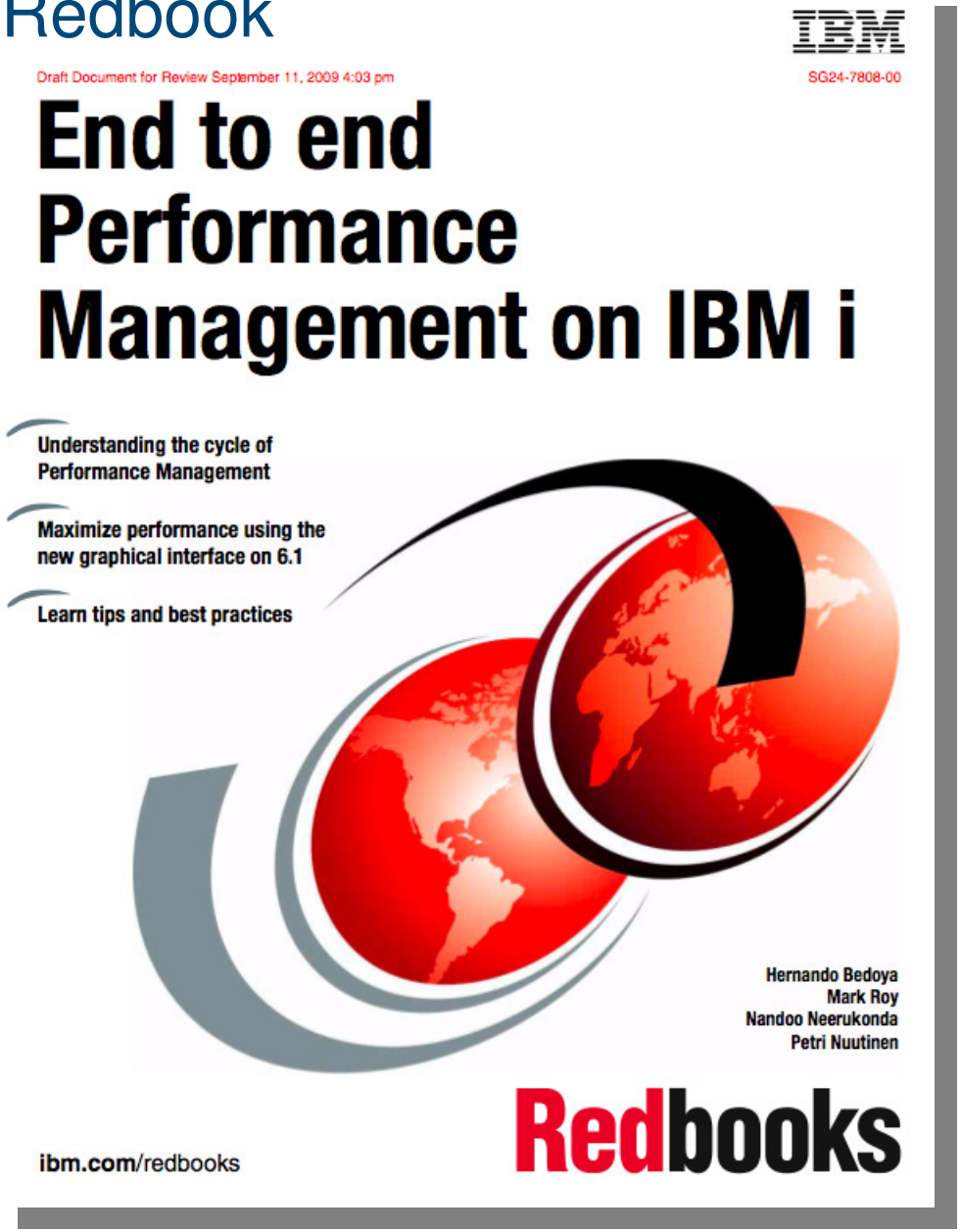
  - IBM i Performance Tools and Performance Data Investigator Forum
    http://www.ibm.com/developerworks/forums/forum.jspa?forumID=2751&cat=493

Performance Management Redbook

Focuses on 6.1 tools
with Oct 2009 enhancements

Redbook number:
SG24-7808

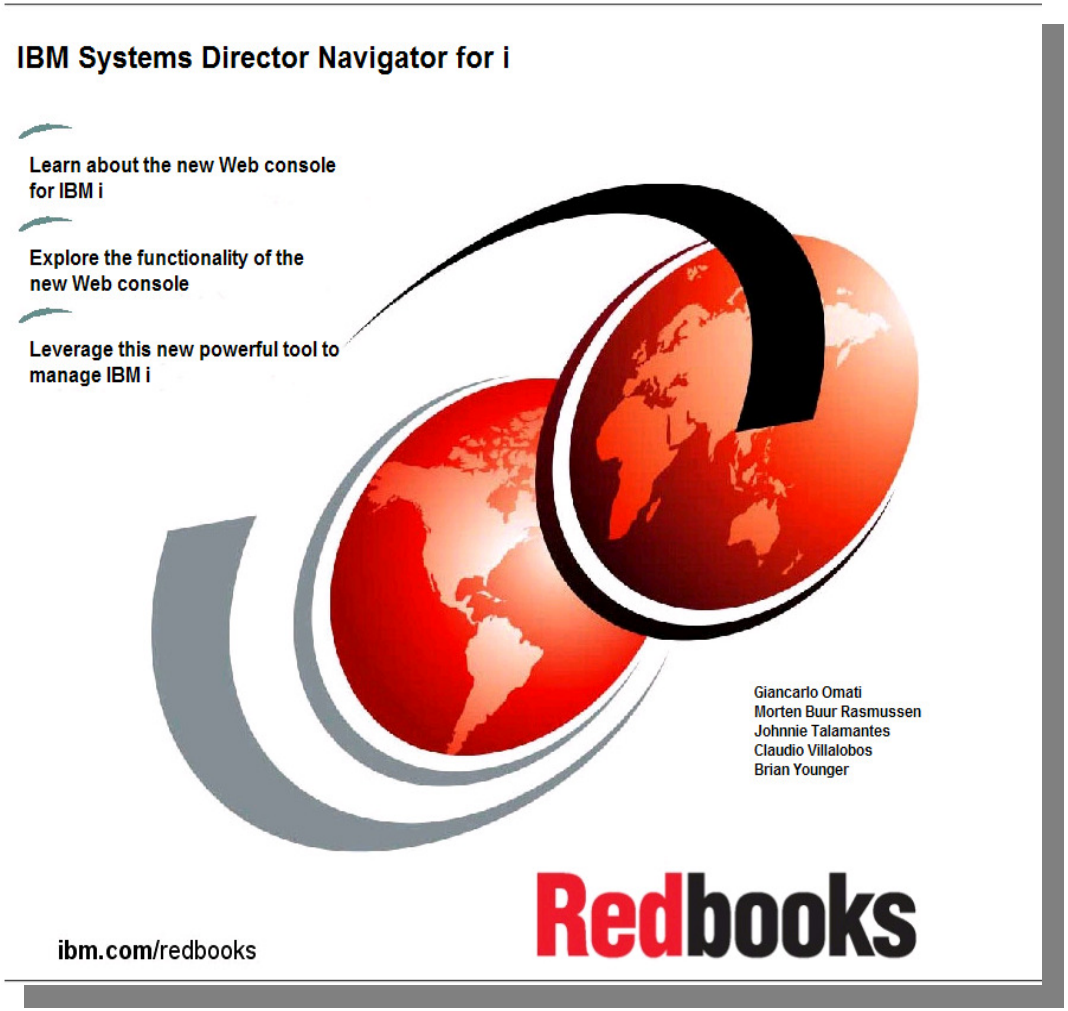


IBM Systems Director Navigator for i Redbook

Released December 2009

Chapter 9 focuses on Performance tasks

Redbook number: SG24-7789-00



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Revised September 26, 2006

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