

 #SHAREorg



# A Storage Admin's Guide to Restful Nights and Productive Days: OMEGAMON XE for Storage

Vickie Dault  
vdault@us.ibm.com  
IBM Corporation

Tuesday, August 7, 2012  
Session 12008





# NOTICES AND DISCLAIMERS

Copyright © 2011 by International Business Machines Corporation.

No part of this document may be reproduced or transmitted in any form without written permission from IBM Corporation.

Product information and data has been reviewed for accuracy as of the date of initial publication. Product information and data is subject to change without notice. This document could include technical inaccuracies or typographical errors. IBM may make improvements and/or changes in the product(s) and/or programs(s) described herein at any time without notice.

References in this document to IBM products, programs, or services does not imply that IBM intends to make such such products, programs or services available in all countries in which IBM operates or does business. Consult your local IBM representative or IBM Business Partner for information about the product and services available in your area.

Any reference to an IBM Program Product in this document is not intended to state or imply that only that program product may be used. Any functionally equivalent program, that does not infringe IBM's intellectually property rights, may be used instead. It is the user's responsibility to evaluate and verify the operation of any non-IBM product, program or service.

The information provided in this document is distributed "AS IS" without any warranty, either express or implied. IBM EXPRESSLY DISCLAIMS any warranties of merchantability, fitness for a particular purpose OR NONINFRINGEMENT. IBM shall have no responsibility to update this information. IBM products are warranted according to the terms and conditions of the agreements (e.g., IBM Customer Agreement, Statement of Limited Warranty, International Program License Agreement, etc.) under which they are provided. IBM is not responsible for the performance or interoperability of any non-IBM products discussed herein.

The performance data contained herein was obtained in a controlled, isolated environment. Actual results that may be obtained in other operating environments may vary significantly. While IBM has reviewed each item for accuracy in a specific situation, there is no guarantee that the same or similar results will be obtained elsewhere.

The responsibility for use of this information or the implementation of any of these techniques is a customer responsibility and depends on the customer's or user's ability to evaluate and integrate them into their operating environment. Customers or users attempting to adapt these techniques to their own environments do so at their own risk. IN NO EVENT SHALL IBM BE LIABLE FOR ANY DAMAGE ARISING FROM THE USE OF THIS INFORMATION, INCLUDING BUT NOT LIMITED TO, LOSS OF DATA, BUSINESS INTERRUPTION, LOSS OF PROFIT OR LOSS OF OPPORTUNITY.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not necessarily tested those products in connection with this publication and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents or copyrights. Inquiries regarding patent or copyright licenses should be made, in writing, to:

IBM Director of Licensing  
IBM Corporation  
North Castle Drive  
Armonk, NY 10504-1785  
USA

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# Trademarks

The following terms are trademarks of International Business Machines Corporation in the United States, other countries, or both:

- DFSMS
- DFSMSdfp
- DFSMSdss
- DFSMSHsm
- DFSMSRmm
- DFSORT
- IBM
- RACF
- TotalStorage
- z/OS
- OMEGAMON

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

# Agenda

The following terms are trademarks of International Business Machines Corporation in the United States, other countries, or both:

## Features

- Base product through IF0003
- Latest Features IF0004
  - Storage Toolkit SITUATION Take Action

## Monitoring

- Application Monitoring
- Cache CU
- User DASD Groups
- Historical collection and Trending

## Performance

- DASD Device Monitoring
- Dataset I/O

# Release History

- OMEGAMON is currently at the Version 4.2.0 with 4 Interim Features adding functionality
- An OMEGAMON II for SMS 3270 Address Space still exists.

V4.2.0 GA

4Q 2008

IF1

July 2009

IF2

December 2009

IF3

August 2010

IF4

November 2011

V5.10

Soon 201x

# OMEGAMON XE for Storage

## Release History



Interim Features are installed with a PTF  
*They are cumulative*

Distributed Interim Fixes may be required

Platform maintenance table

<http://www-01.ibm.com/support/docview.wss?rs=203&uid=swg27008514>

# OMEGAMON XE for Storage

## Base product or Interim Feature ?



How to determine which Interim Feature version you're at

Navigator Item: Enterprise

Workspace: Managed System Status

Attributes: Product S3      Version 04.20.*IF* *Interim Feature Number*

Managed System Status					
	Status	Name	Product	Version	Managing System
	ONLINE	IRAM: CXEGDSST: MVSA: STORAGE	S3	04.20.02	DEMO: MVSA: CIFS
	*ONLINE	CXEGDSST: MVSA: STORAGE	S3	04.20.02	IRAM: CXEGDSST: MVSA: STORAGE

# OMEGAMON XE for Storage

## Version 420 Features



# Features

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)





# OMEGAMON XE for Storage

## Version 420 Features



- **BASE Product**
- Storage Toolkit enhancements IDCAMS
- New BATCH JCL capabilities
- New COMMAND capabilities
- DFSMSrmm support
- EAV support
- Tivoli Common Reporting TCR Support
- Dynamic workspace links to sTEP children
- Currency new z/OS features
- Security enhanced for userid of TEP user

# OMEGAMON XE for Storage

## Version 420 Features

- **BASE Product**
- Storage Toolkit improvements
  - DFHSM
  - DFDSS
  - IDCAMS
  - RMM subcommands
- **IF0001**
- Edit BATCH JCL Enhancement
- Space Statistic Metrics
- Solid State Device Support
- More attributes in TDW

# OMEGAMON XE for Storage

## Version 420 Features

- **IF0002**

- Dynamic DASD Volume Groups
- Dynamic Dataset Groups
- Improved Tivoli Data Warehouse Support
- Hitachi DASD Support

- **IF0003** *Never presented*

- Used Space Statistics Metrics
- TotalStorage Array Problem Detection
- Multivolume Dataset Attributes
- Group level Storage Toolkit commands
- Online Application monitoring definition
- DFSMSHsm Common recall Queue

# OMEGAMON XE for Storage

## Version 420 Features

- IF0004
- Storage Toolkit Take Action
- Hitachi DASD Support
- Oracle STK Tape Support

# OMEGAMON XE for Storage

## Version 420 Features



### Currency

- BASE Product
- DS8000 Support
- TS7700 Support
- EAV Support
- IF0001
- Solid State Device Support

# OMEGAMON XE for Storage

## Version 420 Features

### Currency

- No additional hardware currency support needed in
- IF0002
- IF0003
- IF0004

# OMEGAMON XE for Storage

## Version 420 Features



### BASE Product More Storage Toolkit commands

The screenshot displays the Tivoli Enterprise Portal interface. The 'Volume Space Allocation' window shows a 3D pie chart with a legend: yellow for 'Free Space Megabytes' and blue for 'Allocated Space MegaBytes'. The total capacity is 2707 megabytes. A context menu is open over the chart, listing actions such as 'Take Action...', 'Link To...', 'Launch...', 'Link Anchor...', 'Export...', 'Dataset Actions...', 'Create Command...', 'Create Batch Job...', 'Submit Command or Job...', 'Split vertically', 'Split horizontally', 'Remove', 'Print Preview...', 'Print...', 'Find...', and 'Properties...'. The 'Dataset Actions...' sub-menu is expanded, showing options like Backup, Migrate, Move & Copy, Recall, Recover, Release Space, Compress, Print, Allocate, Rename, Alter, Delete, Listcat, Repro, Verify, Catalog, Uncatalog, and Define Cluster.

The 'Dataset Space Summary Report' window shows a table with the following data:

Dataset Name			
SYS1.VTOC.VBLD005			
SYS1.VTOCIX.VBLD005			
DSBLD.L358170X.CLINKOB			
SYS1.VVDS.VBLD005			
DSBLD.L356064X.AJPN			
DSBLD.DS360CRC.DATV	2	1	
DSBLD.CTV400.CSRC	1	0	
DSBLD.L356330X.ZIPS	599	0	
DSBLD.L355209X.KPD.A	1	1	

The interface also shows a 'Dataset Type' table with columns for Dataset Type, Logical Record Length, and Block Size. The status bar at the bottom indicates 'Hub Time: Wed, 11/05/2008 02:29 PM', 'Server Available', and 'Dataset Space Summary - omstgbyt1.raleigh.ibm.com - SYSADMIN'.

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



### BASE Product BATCH JCL

Dataset Space Summary - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: http://9.82.38.49:1920//cnp/...

Tivoli Enterprise Portal

Dataset Space Summary Report

Dataset Name
CICSTS.V3R1.CICSTIV2.DFHAUXT
CICSTS.V3R1.CICSTIV2.DFHDMPB
CICSTS.V3R1.CICSTIV2.DFHEJOS.DAT
CICSTS.V3R1.CICSTIV2.DFHEJOS.INDE
CICSTS.V3R1.CICSTOR1.DFHHTML
CICSTS.V3R1.CNTL.CICSAOR6.DFHTEI
CICSTS.V3R1.CPSM.SEYULOAD
CICSTS.V3R1.CPSM.SEYUPLIB
CICSTS.V3R1.CPSMCMAS.DFHAUXT
CICSTS.V3R1.CPSMCMAS.DFHGCD.DA
CICSTS.V3R1.CPSMCMAS.DFHGCD.INI
CICSTS.V3R1.CPSMCMAS.DFHHTML
CICSTS.V3R1.REXX.SCICBOOK
CICSVR.V4R1.CUSTOMER.D
CICSVR.V4R1.CUSTOMER.I
CICSVR.V4R1.SDWWJRNL
CMOD.V7R1M1.INSTALL
CMOD.V7R1M1.SAPKSAM2
COMMON.SA390.NDC.ACF.BKP
DATAHUB.V1R2M0.SEMGMSAM
DATAREF.V1R1M0.DVRINTAB
DAULT.HCD.MSGLOG

Hub Time: Fri, 12/05/2

Applet CMWApplet started

### Create Batch Job

Options | General | Schedule | JCL

Mainframe fully qualified dataset containing the batch JCL:

'DAULT.MVS.JCL(IDCAMS)' Edit JCL

Substitution variables and their run-time replacement values

Variable	Attribute or String
ITMVAR1	Dataset Name

Files whose contents should be copied for later viewing

Step name	Fully Qualified Dataset or DD name
-----------	------------------------------------

Fully Qualified Datasets needed by the job that also contain substitution variables

Show Data

OK Cancel Help

Logical Record Length	Block Size
4096	4096
4092	4096
8185	8192
1017	1024
80	27920
4089	4096
0	32760
80	27920
4096	4096
4089	8192
1529	1536
80	27920
4096	24576
80	512
2041	2048
5996	6000
80	8800
80	27920
80	6160
80	8800
100	6100
133	1330

Log out IBM

ry - 9.82.38.49 - Vickie Dault

Internet

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)





# OMEGAMON XE for Storage

## Version 420 Features



BASE Product BATCH JCL

A screenshot of a Windows-style edit window titled "Edit - 'DDS1438.MVS.CNTL(IDCAMS)'". The window contains the following JCL code:

```
//DDS1438 JOB (ACCT), 'PROGRAMMER-NAME', CLASS=A, MSGCLASS=X, REGION=0M  
//*  
//PRINT EXEC PGM=IDCAMS, REGION=4M  
//SYSPRINT DD SYSOUT=*  
//SYSIN DD *  
PRINT IDS(%DSN%) CHAR
```

The status bar at the bottom of the window shows "REP" on the left, "LINE 6" and "COL 23" in the center, and three buttons: "OK", "Cancel", and "Help" on the right.

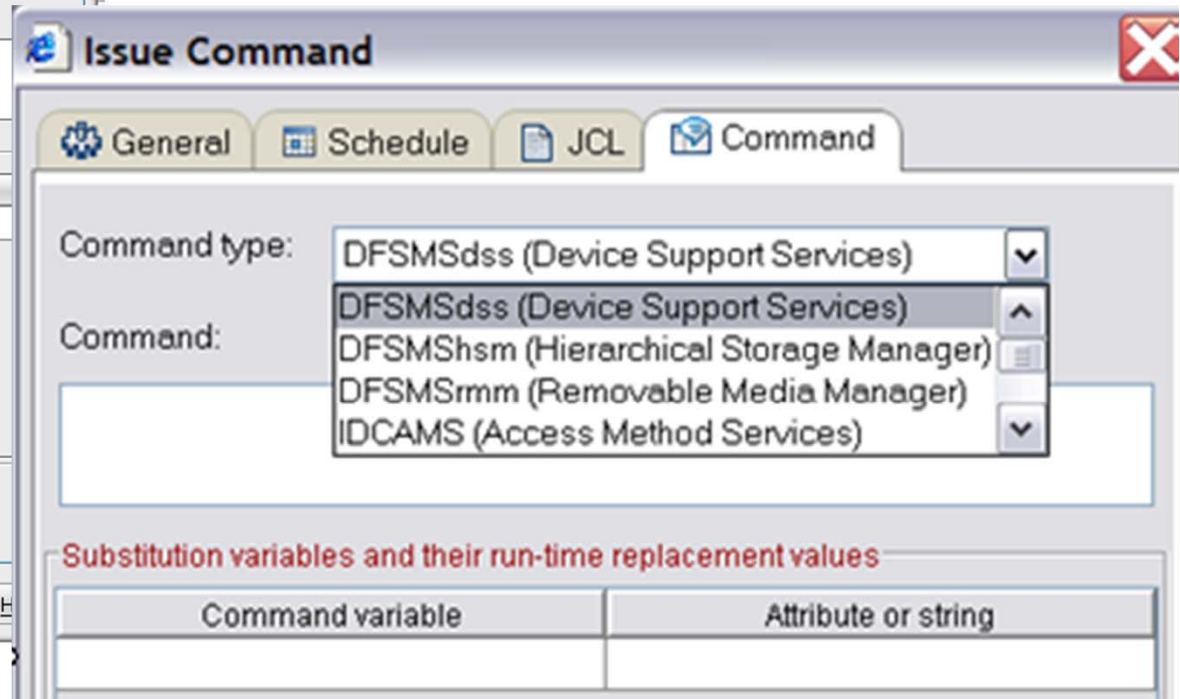
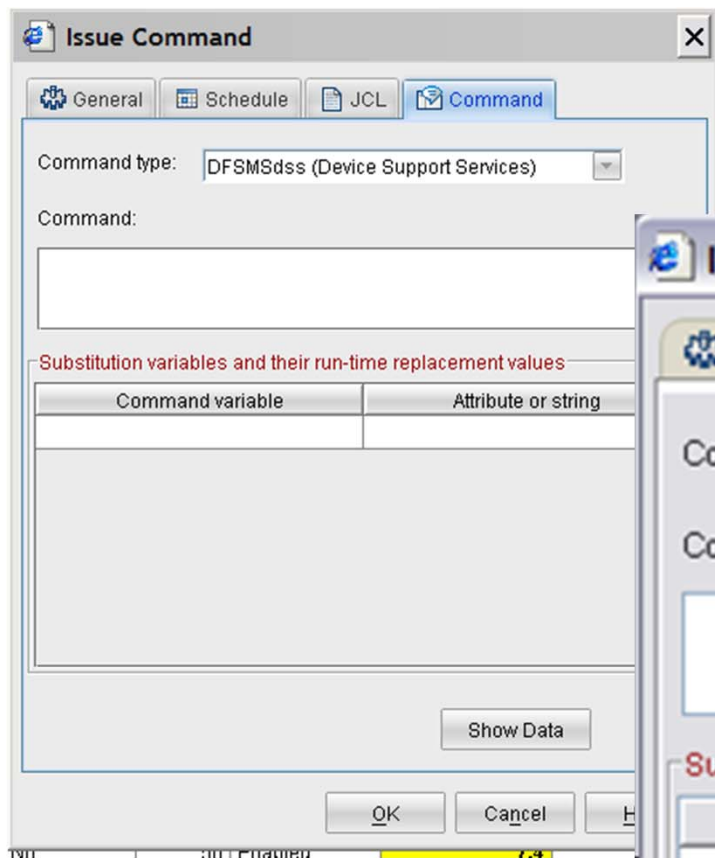
Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 Features



BASE Product ISSUE A COMMAND



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



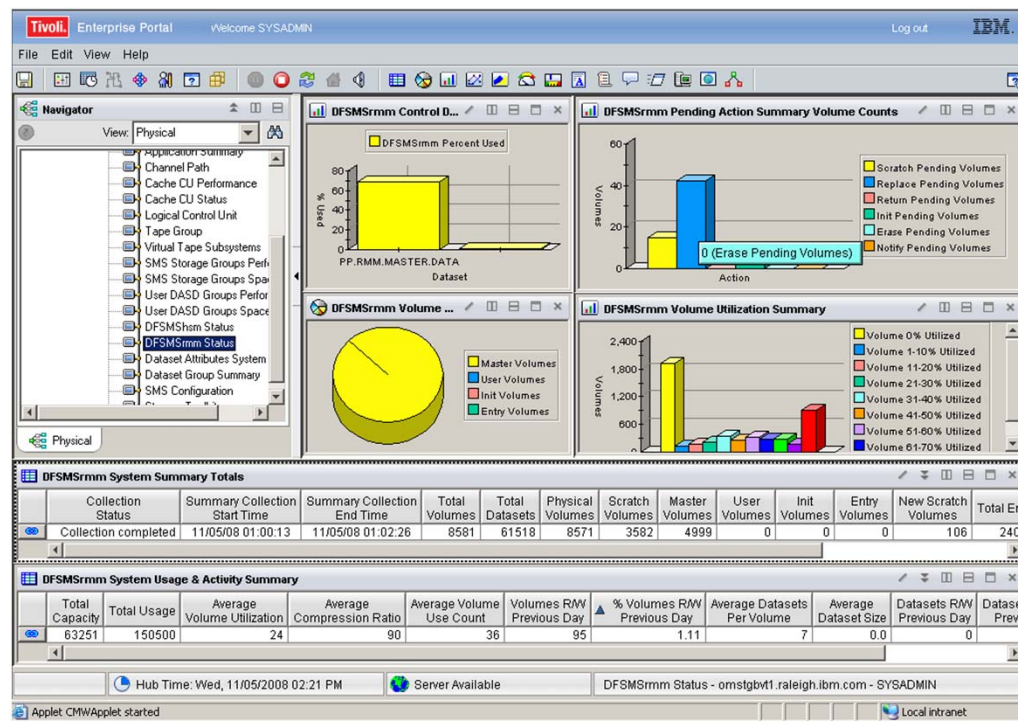
# OMEGAMON XE for Storage

## Version 420 Features



### BASE Product DFSMSrmm Support

RMM CDS Information: CDS and Journal utilization  
 Volume Information: Status, Percentages, Utilization, Pending  
 Datasets by Job, Accounting, program Owners  
 VRS Definitions



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)





# OMEGAMON XE for Storage

## Version 420 Features

### BASE Product Tivoli Common Reporting

Support is provided with V420 for Tivoli Common Reporting TCR

Storage HSM Migrate and Recall Function Requests  
Storage System Volume and Dataset DASD Usage  
Storage Dataset Group DASD Usage

TCR requires the appropriate attribute Groups to be configured in the historical collection and written to the Tivoli Data Warehouse at sufficient intervals for reporting to be provided.

[http://publib.boulder.ibm.com/infocenter/tivhelp/v3r1/topic/com.ibm.tivoli.tcr\\_cog.doc/tcr\\_welcome.html](http://publib.boulder.ibm.com/infocenter/tivhelp/v3r1/topic/com.ibm.tivoli.tcr_cog.doc/tcr_welcome.html)

# OMEGAMON XE for Storage

## Version 420 Features



BASE Product Dynamic Workspace Linking Between products

OMEGAMON XE for Storage on z/OS

IBM Tivoli Advanced Audit for DFSMSHsm

IBM Tivoli Advanced Reporting for DFSMSHsm

IBM Tivoli Advanced Catalog Management

IBM Tivoli Advanced Allocation Management

IBM Tivoli Tape Optimizer

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

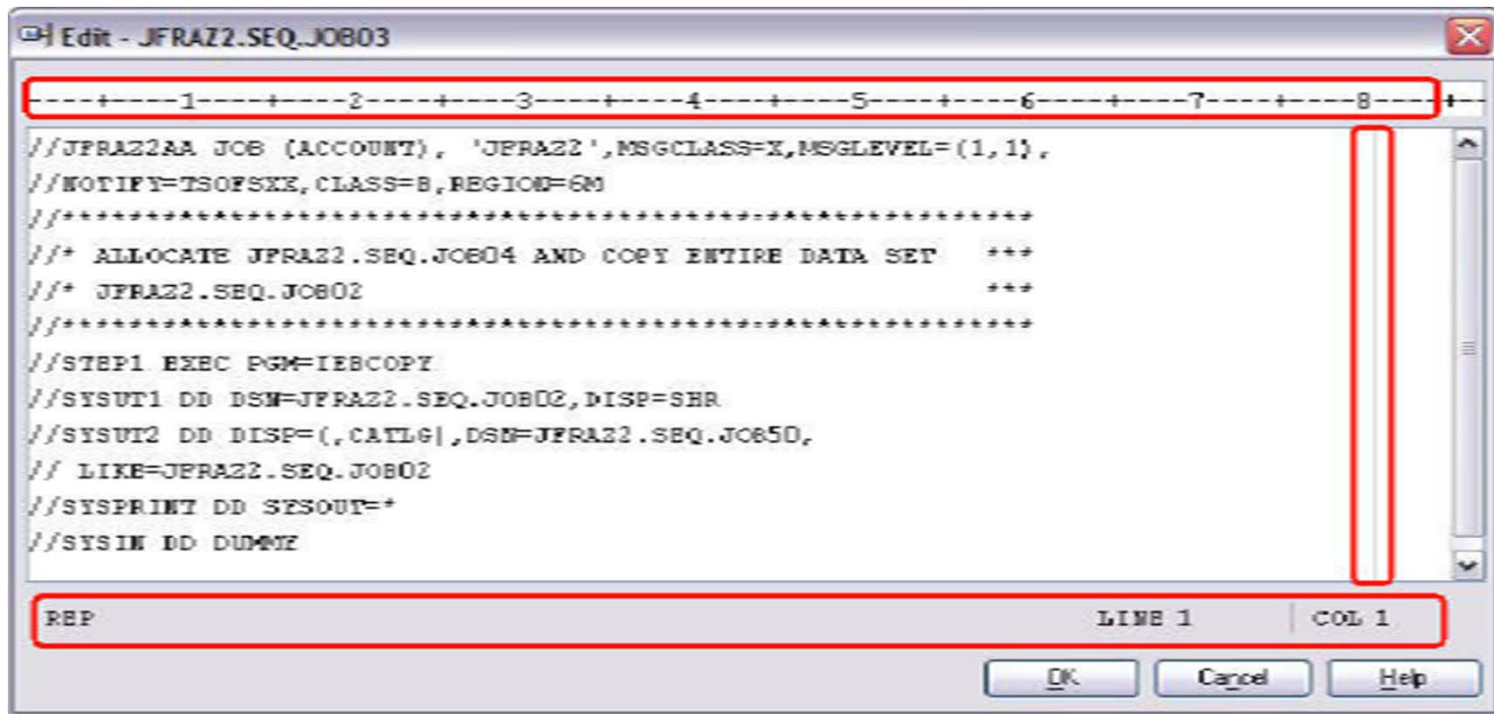


# OMEGAMON XE for Storage

## Version 420 Features



### IF1 EDIT BATCH JCL Enhancements



FB 80 requirement   Ruler line #   Insert   Col indicator

# OMEGAMON XE for Storage

## Version 420 Features



IF1 Space Statistic Metrics

TRACKS  
CYLINDERS  
MEGABYTES  
GIGABYTES

% UTILIZED  
% FREE

# OMEGAMON XE for Storage

## Version 420 Features



### IF1 Solid State Device Support

The screenshot displays the OMEGAMON XE for Storage software interface. The 'Volume Performance Report' table is visible, showing performance metrics for volumes WAS001 and WAS002. A red box highlights the 'Solid State Device' status, which is set to 'No' for both volumes.

Volume	er nd	IOSQ Delay	Pend Time	Connect Time	Disconnect Time	Response Time	MSR Connect Time Percent	I/O Count	Device MPL	DCBs Open	Reserved Percent	Average HyperPAV Alias Count	Average Command Response Delay	Current PAV Exposures	PAV Exposure Changed	Med Equ
WAS001	1.0	0.0	0.2	0.0	0.0	0.3	0.0	12	0	0	0.0	n/a	0.1	0	No	
WAS002	1.0	0.0	0.1	0.0	0.0	0.2	0.0	12	0	0	0.0	n/a	0.1	0	No	

Solid State Device  
No  
No

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



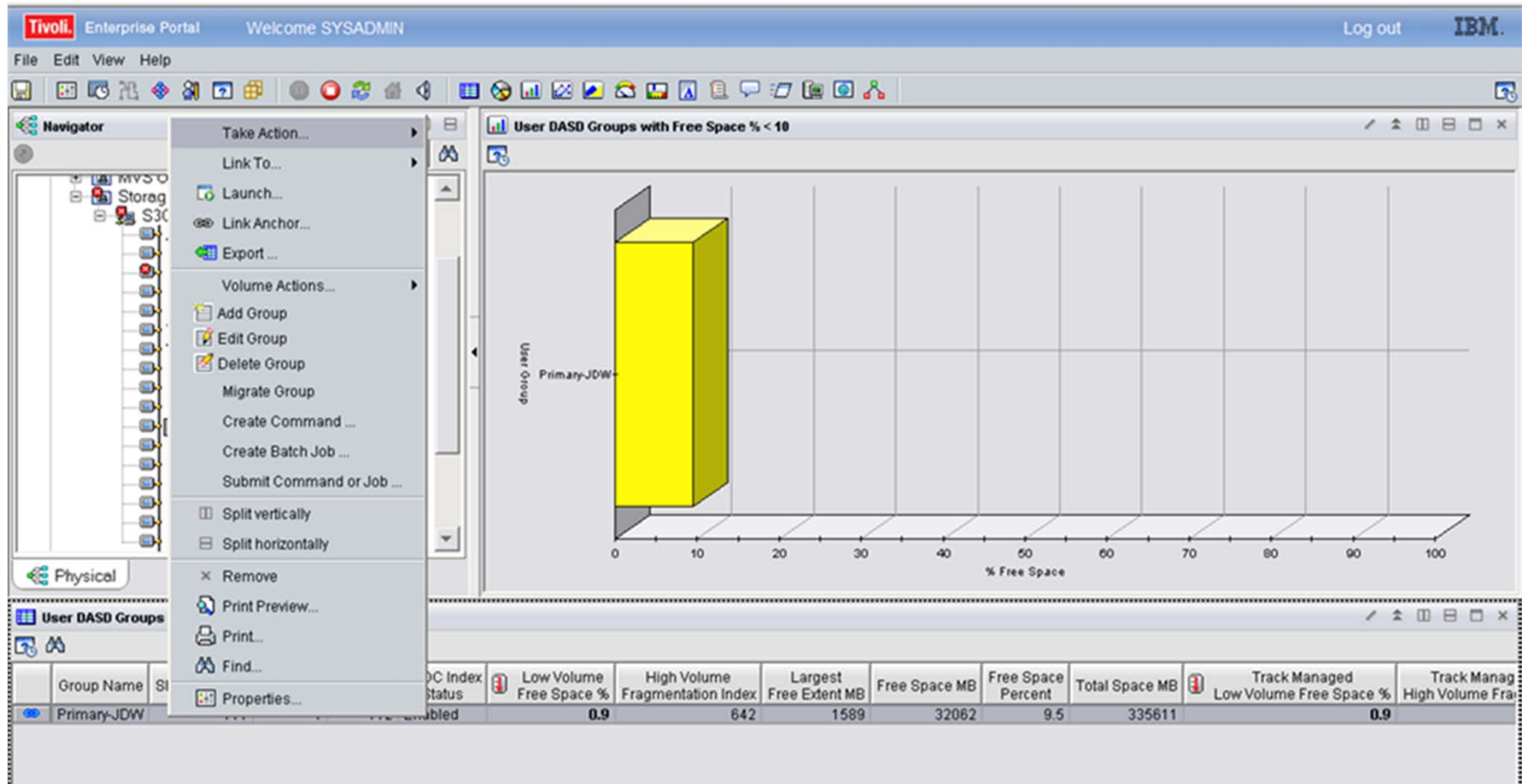


# OMEGAMON XE for Storage

## Version 420 Features



### IF2 Dynamic DASD Volume Groups



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



### IF2 Dynamic DASD Volume Groups

Name: DEMO  
Description:   
 Persist

√ PERSIST  
keeps definition across TEMS  
restarts  
Unchecked discards definition

OK Cancel Help

Define the DASD devices to include in a user DASD group

Volser or Pattern	
DMT	

First Device	Last Device (Optional)

SMS Storage Group	

OK Cancel Help

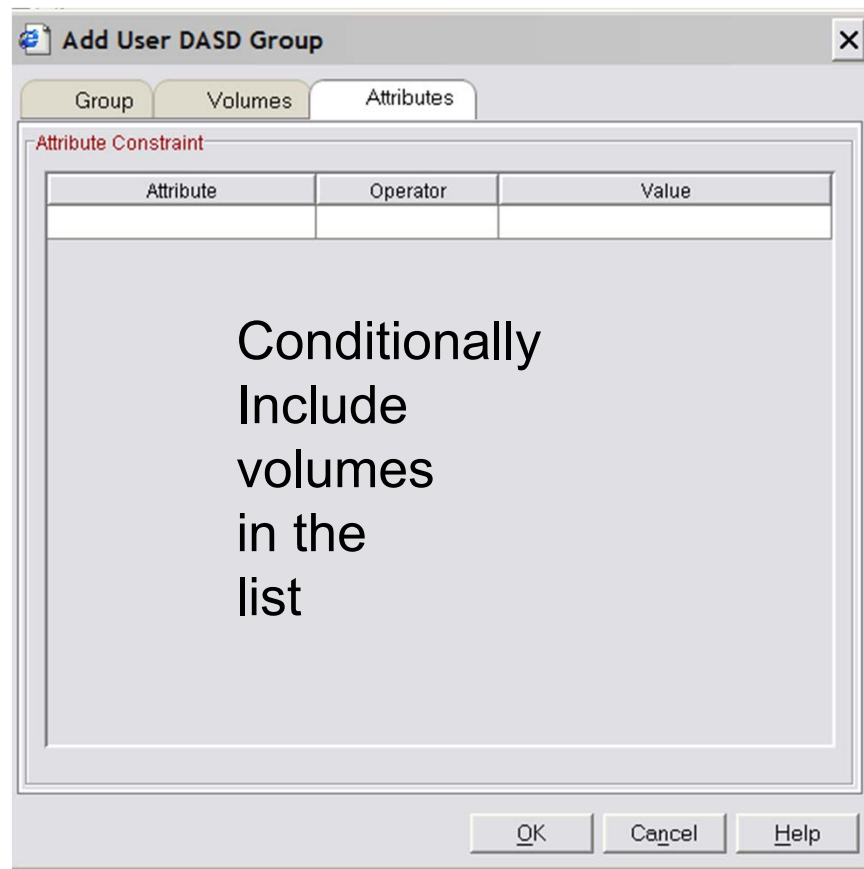
Persistent or temporary User DASD Groups return the same Information

# OMEGAMON XE for Storage

## Version 420 Features



IF2 Dynamic DASD Volume Groups



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 Features



IF2 Dataset Attributes Group Summary      [Background information](#)

## Dataset Attributes Database

Collected once every 24 hours by a schedule datasets found on all [scanned volumes](#).

## Dataset Group Summary

Collected as indicated in the “Collection Interval” using a dataset mask and starting with the datasets [catalog entries](#).

The Collection interval might be the RMF interval, every 6 hours or On Demand (ie when navigating to the workspace)

# OMEGAMON XE for Storage

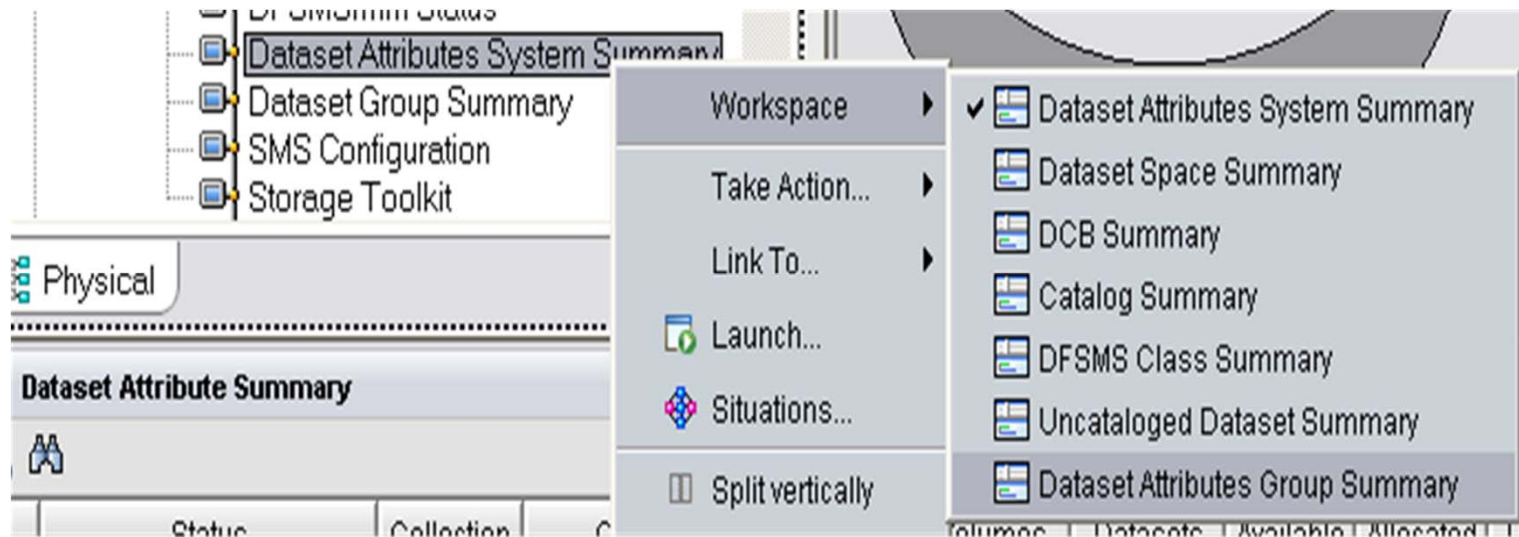
## Version 420 Features

IF2 Dataset Attributes Group Summary [Background information](#)

### Dataset Attributes Group Summary

Right click the Dataset attributes system Summary

Navigator item and select the [Dataset Attributes Group Summary](#)



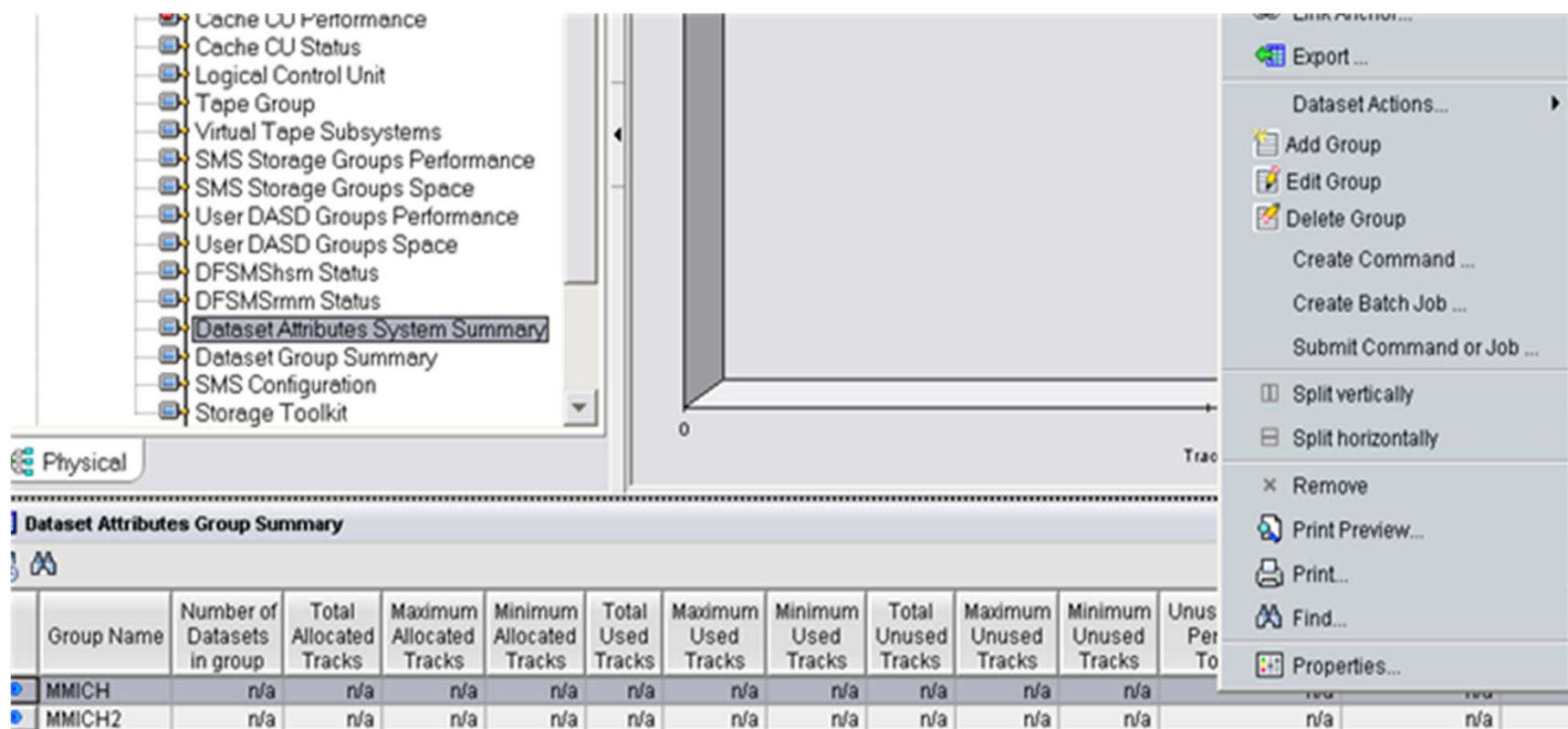
# OMEGAMON XE for Storage

## Version 420 Features

IF2 Dataset Attributes Group Summary

Background information

## Dynamic Dataset Groups



The screenshot shows the OMEGAMON XE for Storage interface. On the left, a tree view shows the 'Dataset Attributes System Summary' item selected. The main window displays the 'Dataset Attributes Group Summary' table. A context menu is open over the table, showing options like 'Export...', 'Dataset Actions...', 'Add Group', 'Edit Group', 'Delete Group', 'Create Command...', 'Create Batch Job...', 'Submit Command or Job...', 'Split vertically', 'Split horizontally', 'Remove', 'Print Preview...', 'Print...', 'Find...', and 'Properties...'.

Group Name	Number of Datasets in group	Total Allocated Tracks	Maximum Allocated Tracks	Minimum Allocated Tracks	Total Used Tracks	Maximum Used Tracks	Minimum Used Tracks	Total Unused Tracks	Maximum Unused Tracks	Minimum Unused Tracks	Unus Per To
MMICH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MMICH2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

# OMEGAMON XE for Storage

## Version 420 Features



IF2 Dataset Attributes Group Summary and Dynamic Dataset Groups

**Add User Dataset Group**

Group Properties

Dataset Name: VDAULT\*

Catalog Name: CATALOG.VUSER

Associated Name:

SMS

Data Class	Storage Class	Management Class
		PNOMIG

Storage Group:

Owner:

Volser: TTSO\*

Attribute Constraint

Attribute	Operator	Value
-----------	----------	-------

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 Features

IF2 Dynamic Dataset Groups



Results returned in a new row

Group Name	Number of Datasets in group	Total Allocated Tracks	Maximum Allocated Tracks	Minimum Allocated Tracks	Total Used Tracks	Maximum Used Tracks	Minimum Used Tracks	Total Unused Tracks	Maximum Unused Tracks	Minimum Unused Tracks	Unused Tracks as Percentage of Total Tracks	Used Tracks as Percentage of Total Tracks	Maximum Days Since Referenced	Oldest Creation Date	Description
------------	-----------------------------	------------------------	--------------------------	--------------------------	-------------------	---------------------	---------------------	---------------------	-----------------------	-----------------------	---	---	-------------------------------	----------------------	-------------

Storage toolkit actions available

link to details

Situation monitoring



# OMEGAMON XE for Storage

## Version 420 Features



### IF2 Hitachi DASD Support

	Subsystem ID	Control Unit Type	Active Volumes	Deactivated Volumes	Cache Status	Cache MB Configured	Cache MB Available	NVS Status	NVS KB Configured	NVS KB Pinned	Storage Facility Series
	C000	2107	256	0	Active	13920.0	11127.9	Active	524288	0	DS8000
	C100	2107	68	0	Active	13920.0	11127.9	Active	524288	0	DS8000
	C200	2107	34	0	Active	13920.0	11127.9	Active	524288	0	DS8000
	C300	2107	24	0	Active	13920.0	11127.9	Active	524288	0	DS8000
	D000	2107	192	0	Active	1314.9	963.0	Active	131072	0	DS6000
	E000	2107	196	0	Active	1314.9	963.0	Active	131072	0	DS6000
	F000	2107	196	0	Active	1314.9	963.0	Active	131072	0	DS6000

- Cache CU Volume Cache Performance
- Cache CU Volume Performance
- Cache CU Status Trend
- TotalStorage Configuration
- TotalStorage CU Volumes
- Link Wizard...
- Link Anchor...

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



# Interim Feature 3

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features

### IF3 Used Space Statistics metrics

- Allows the user to see reports based upon metrics and units that they are comfortable with
  - Allows the user to view storage group and user dasd group used space metrics in cylinders, tracks, megabytes and gigabytes
- The cylinders, tracks, megabytes and gigabyte fields are **filtered out by default**, the user will need to change the filtering information if they prefer to see these fields

SMS Storage Groups Space  
SMS Storage Groups Space Trend  
User DASD Groups Space  
User DASD Groups Space Trend

# OMEGAMON XE for Storage

## Version 420 Features



IF3 Used Space Statistics metrics

Filtering

Properties - SMS Storage Groups Space

Preview

SMS Storage Groups Space Summary

Group Name	Storage Group Status	Storage Group Type	Non-Enabled Volumes	Total Volumes	VTOC Index Status	Low Volume Free Space %	High Volume Fragmentation Index	Largest Free Extent MB	Free Space
PRIVATE NON-SMS VOLUMES	Not Connect...	n/a	No	623	Enabled	0.0	743	8114	6
SGBB01	Enabled	Pool	No	2	Enabled	47.5	60	1988	
SGBLD	Enabled	Pool	No	5	Enabled	15.4	545	60	

Query Filters Thresholds Style

Filters

Stamp	Used Space MB	Used Space GB	Used Space Cylinders	Used Space Tracks	Track Managed Used Space MB	Track Managed Used Space GB	Track Managed Used Space Cylinders	Track Managed Used Space Tracks	F
1									
2									
3									
4									

Data Snapshot

Stamp	Used Space MB	Used Space GB	Used Space Cylinders	Used Space Tracks	Track Managed Used Space MB	Track Managed Used Space GB	Track Managed Used Space Cylinders	Track Managed Used Space Tracks	F
	2167198	2116.4	2679055	40185825	2167198	2116.4	2679055	40185825	
	1794	1.8	2214	33208	1794	1.8	2214	33208	
	11404	11.1	14539	216960	11404	11.1	14539	216960	
	2263	2.2	2792	41875	2263	2.2	2792	41875	
	7322	7.2	9061	135803	7322	7.2	9061	135803	
	33079	32.3	41394	620608	33079	32.3	41394	620608	
	71848	70.2	88657	1329841	71848	70.2	88657	1329841	

OK Cancel Apply Test Help

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



IF3 Used Space Statistics metrics      Additional Attributes

Used Space Cylinders

Used Space Tracks

Used Space GB

Used Space MB

Track Managed Used Space Cylinders

Track Managed Used Space Tracks

Track Managed Used Space GB

Track Managed Used Space MB

# OMEGAMON XE for Storage

## Version 420 Features



### IF3 TotalStorage Array Problem Detection

- Allows users to know when a raid rank is not performing due to a problem with an array so that they may take corrective action
- Allows users to be alerted via situations when an array has been identified as being in any of the following conditions:

Raid Degraded.                      One or more array members need rebuilding

DDM Throttling.                      A Near-line DDM in the array is throttling performance due to temperature or workload.

RPM Exception.                      A DDM with an slower RPM than the normal array DDMs is a member of the array as a result of a sparing action.

# OMEGAMON XE for Storage

## Version 420 Features

IF3 TotalStorage Array Problem Detection      Changed Workspaces

- TotalStorage Configuration
- TotalStorage Ranks
- TotalStorage Array Configuration
- TotalStorage Extent Pool Trend
- TotalStorage Ranks Trend
- TotalStorage Rank History

### Situations for Direct Situation Analysis

- \* KS3\_TDS\_Rank\_Array\_Prob\_Crit
- \* KS3\_TDS\_ExtPool\_Array\_Prob\_Crit
- \* KS3\_TDS\_Array\_Prob\_Crit

# OMEGAMON XE for Storage

## Version 420 Features



### IF3 TotalStorage Configuration

TotalStorage Configuration - KRATZ - SYSADMIN \*ADMIN MODE\*

File Edit View Help

Navigator View: Physical

- S3CMS34D:SP12:STORAGE
  - Application Summary
  - Channel Path
  - Cache CU Performance
  - Cache CU Status
  - Logical Control Unit
  - Tape Group
  - Virtual Tape Subsystems
  - SMS Storage Groups Performance
  - SMS Storage Groups Space
  - User DASD Groups Performance
  - User DASD Groups Space
  - DFSMSshm Status
  - DFSMSrmm Status

Physical

**TotalStorage Configuration**

Total Cache	Available Cache	Configured NVS	Pinned NVS	Logical Volumes	Logical Subsystems	Total Extent Pools	Total Ranks	Total Arrays	Total SSD Arrays	Number of arrays with problems
30048.0	25861.9	1024.0	0.0	483	6	10	42	42	0	0

Storage Facility ID: IBM00210792275000000024841

**TotalStorage SSIDs**

Subsystem IDs	
4032	4034 4038 4085 4087 4088

Storage Facility ID: IBM00210792275000000024841

**Average Read Response Time**

Storage Facility ID: IBM00210792275000000024841

**Average Write Response Time**

Storage Facility ID: IBM00210792275000000024841

**TotalStorage Extent Pools**

Extent Pool ID	Pool Type	Number of arrays with problems	Real Pool Capacity	Virtual Pool Capacity	Real Extents	Virtual Extents	Allocated Extents	Pool Utilization	Real Extents Converted	Virt Extents Converted	Dyn Reloc Src Extents	Dyn Reloc Tgt Extents	Avg Read Resp Time	Max Read Resp Time	Total Read Operations	Avg Read Op Rate	Max Op
0	CKD	0	16842	0	18890	0	18871	99.9	0	0	0	0	18	25	533	8.8	
1	CKD	0	18421	0	20661	0	20615	99.8	0	0	0	0	10	32	2464	40.9	

Storage Facility ID: IBM00210792275000000024841

Hub Time: Thu, 04/15/2010 12:46 PM Server Available TotalStorage Configuration - KRATZ - SYSADMIN \*ADMIN MODE\*

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

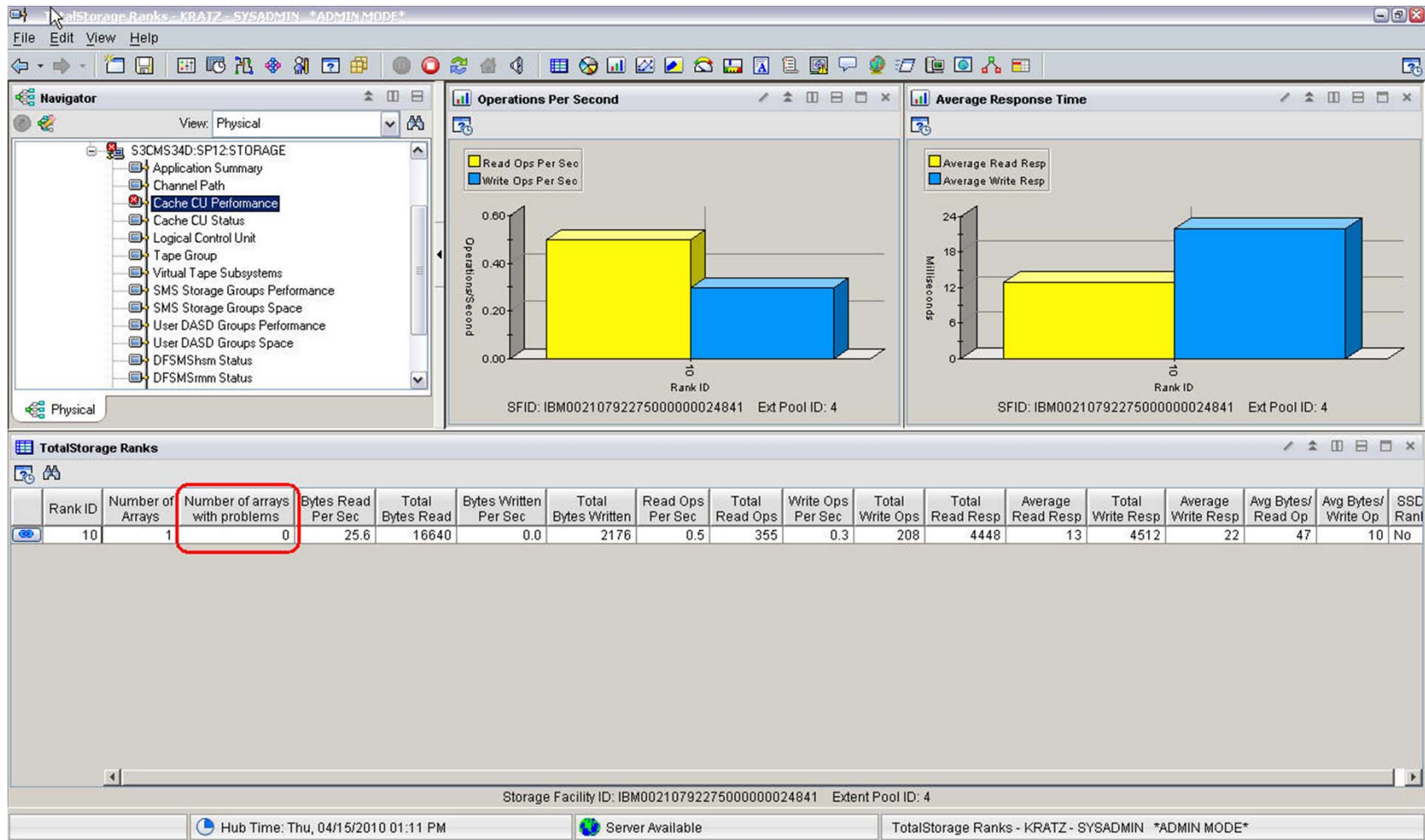


# OMEGAMON XE for Storage

## Version 420 Features



### IF3 TotalStorage Ranks



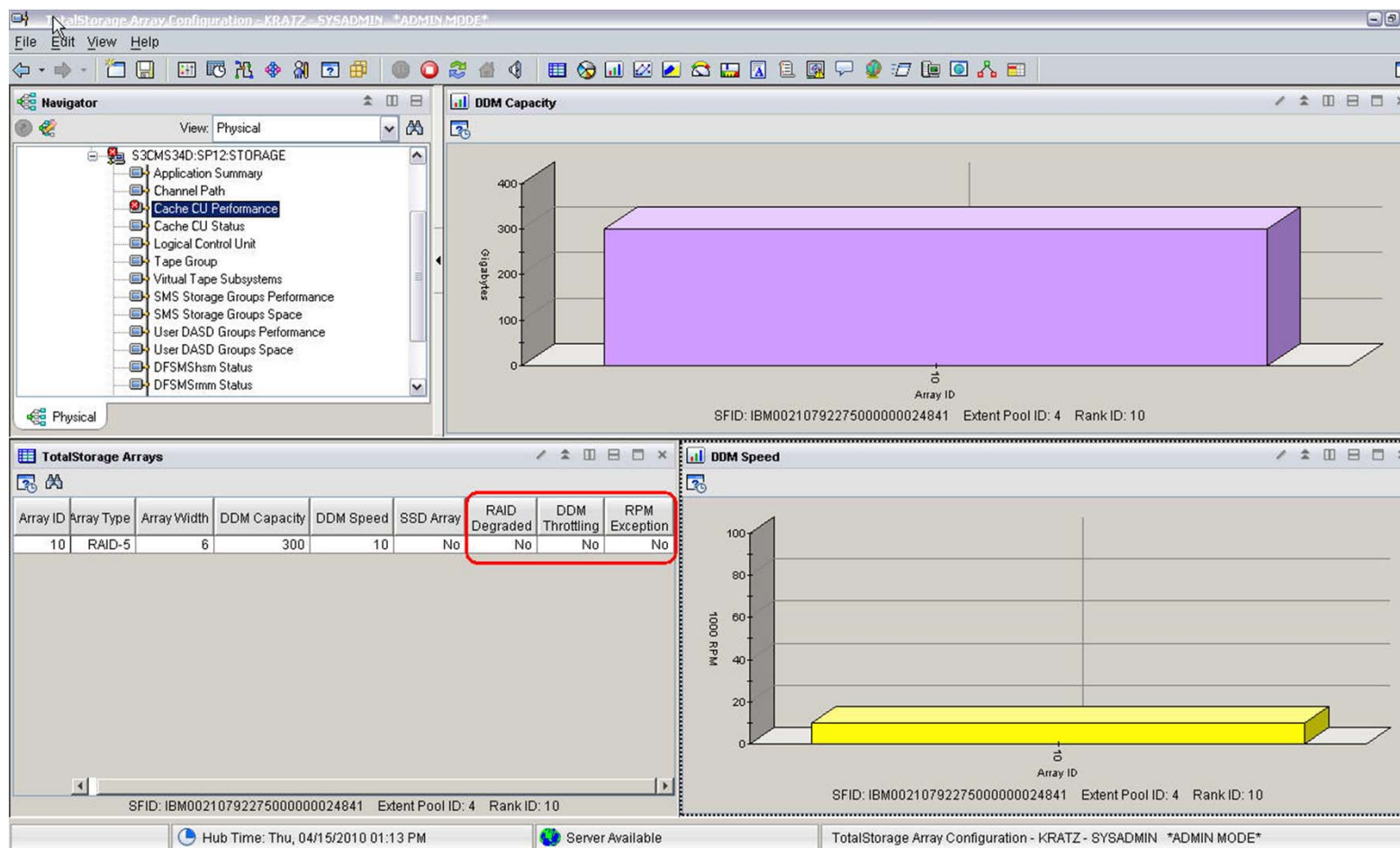
Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features

### IF3 TotalStorage Array Configuration



# OMEGAMON XE for Storage

## Version 420 Features



### IF3 TotalStorage Problem Detection New Situations

- KS3\_TDS\_Array\_Degraded\_Crit
- KS3\_TDS\_Array\_Throttled\_Crit
- KS3\_TDS\_Array\_RPM\_Crit
- KS3\_TDS\_Rank\_Array\_Prob\_Crit
  - Direct situation analysis link to TotalStorage Array Configuration
- KS3\_TDS\_ExtPool\_Array\_Prob\_Crit
  - Direct situation analysis link to TotalStorage Ranks
- KS3\_TDS\_Array\_Prob\_Crit
  - Direct situation analysis link to TotalStorage Configuration

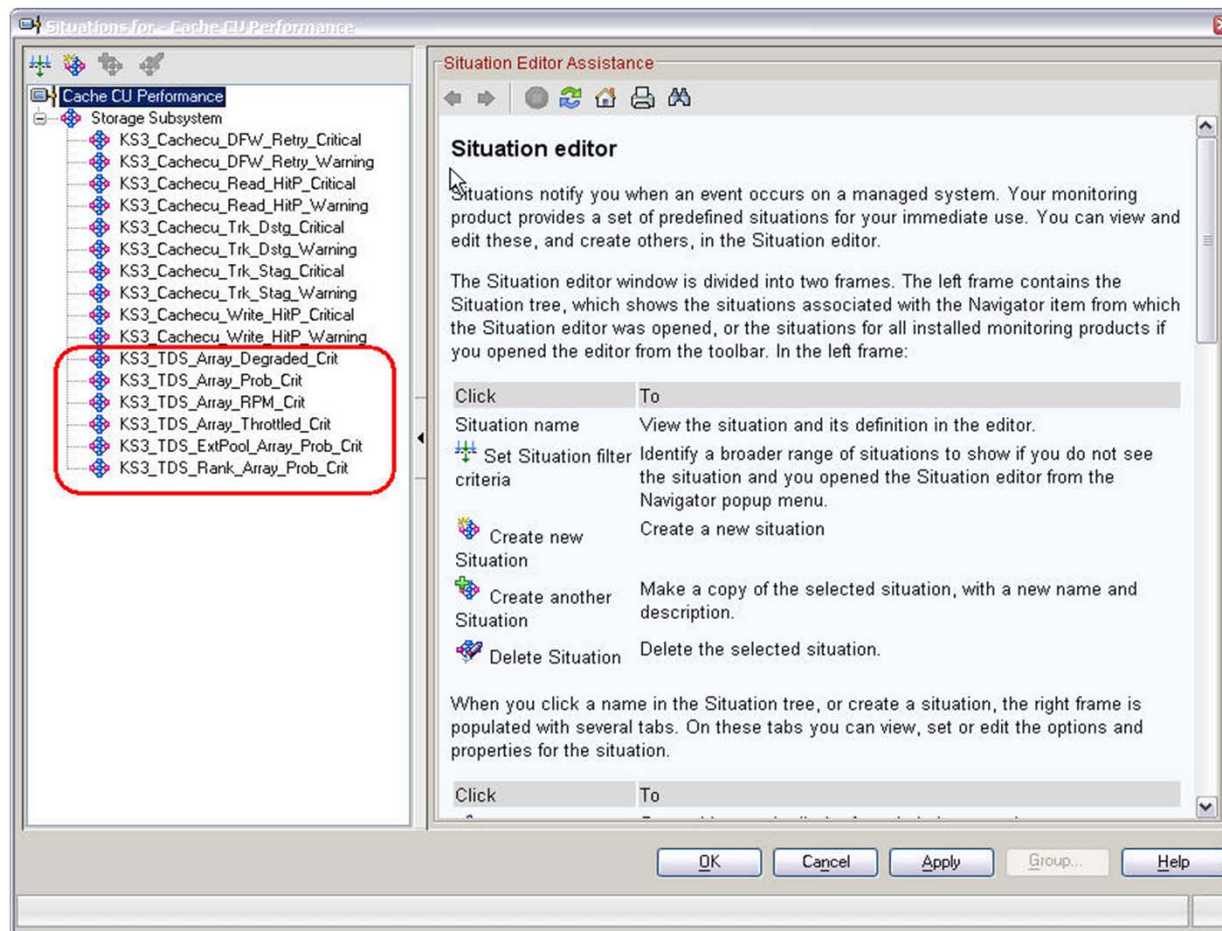
# OMEGAMON XE for Storage

## Version 420 Features



IF3 TotalStorage Problem Detection

New Situations



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 Features



### IF3 MultiVolume Dataset Support

- Allow users to see multivolume datasets as a single entity rather than as multiple entities over multiple volumes so that they can properly assess the allocation of multivolume datasets
- Allows users to see accurate metrics that properly reflect multivolume datasets so that they can see the largest datasets on their system, not the largest on a single volume

# OMEGAMON XE for Storage

## Version 420 Features



IF3 MultiVolume Dataset Support    Changed Workspaces and Attributes

- \* Multivolume Dataset Attribute Details
- Dataset Attributes System Summary
- Dataset Space Summary
- Largest Datasets in DSORG
- Largest Inefficient Blocksize Datasets
- Newborn Dataset Summary – Datasets 0 or 1 Day Old
- Mature Dataset Summary – Largest Datasets Unreferenced > 366 Days
- Largest Never Referenced Datasets
- Datasets in Catalog
- Largest Datasets in SMS Class
- Dataset Attributes Group Details

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



IF3 MultiVolume Dataset Support    Dataset Attribute Dataset Collection

**Dataset Attributes Data Collection**

**Data Collection Settings**

Start data collection at (hh:mm) 08:50  am  pm

Every

Mon  Tue  Wed  Thur  Fri  Sat  Sun

Stop data collection at (hh:mm)  am  pm

Collect catalog data

Number of data rows to collect for 'top N' reports: 20

**Exclusions**

Volumes:

Storage Groups:

**Data Collection Status**

Collection is waiting

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

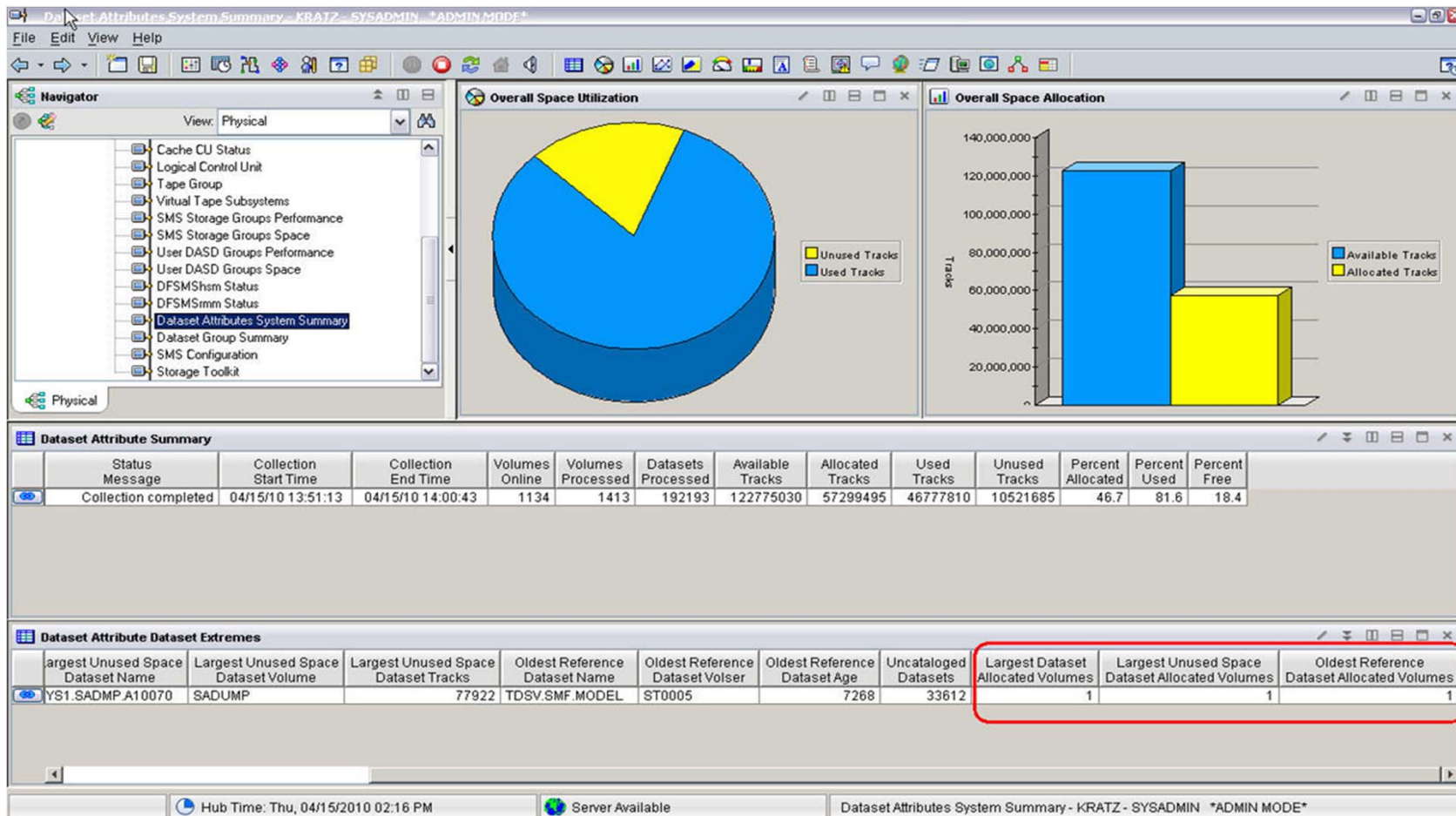


# OMEGAMON XE for Storage

## Version 420 Features



IF3 MultiVolume Dataset Support Dataset Attribute System Summary



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



IF3 MultiVolume Dataset Support Dataset Attribute Dataset Details

**Dataset SMS Constructs**

SMS Managed	SMS Data Class	SMS Storage Class	SMS Management Class	SMS Storage Group
Yes	DCSUPPT	SCSUPPT	MCSUPPT	SGSUPPT

**Dataset Basic Attributes**

Allocated Tracks	Used Tracks	Unused Tracks	Percent Used	Percent Free	Primary Tracks	Extents	Volume Count	Secondary Allocation Units	Secondary Allocation Quantity	Secondary Allocation Record Units	Secondary Allocation Record Value	LRECL	BLKSIZE	RECFM	DSORG	Unmovable	PI
98205	98205	0	100.0	0.0	750	131	12	Cylinder	50		0	32756	32760	VB	Sequential	No	

**VSAM Cluster Attributes**

Associated Entry Name	VSAM Dataset Organization	CA Splits	CI Splits	High Allocated RBA	High Used RBA	Share Option	Key Length	CI Size	Average LRECL	Maximum Record Size	Maximum Buffer Size	Speed	Recovery	Reuse	Unique	Spanned	Erase	Page Space	Swap Space	% Free CIs per CA	
				0	0																0

**Dataset Attributes By Volume**

vouser	Device Type	Extents	Allocated Tracks	Used Tracks	Unused Tracks	Percent Used	Percent Free	Volume Sequence	High Allocated RBA	High Used RBA	Using Cylinder Managed Space	Extended Address Space Eligible
SUPPTC	3390	16	12000	12000	0	100.0	0.0	1	0	0	No	No
SUPPTI	3390	3	2205	2205	0	100.0	0.0	9	0	0	No	No
SUPPTJ	3390	16	12000	12000	0	100.0	0.0	5	0	0	No	No

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

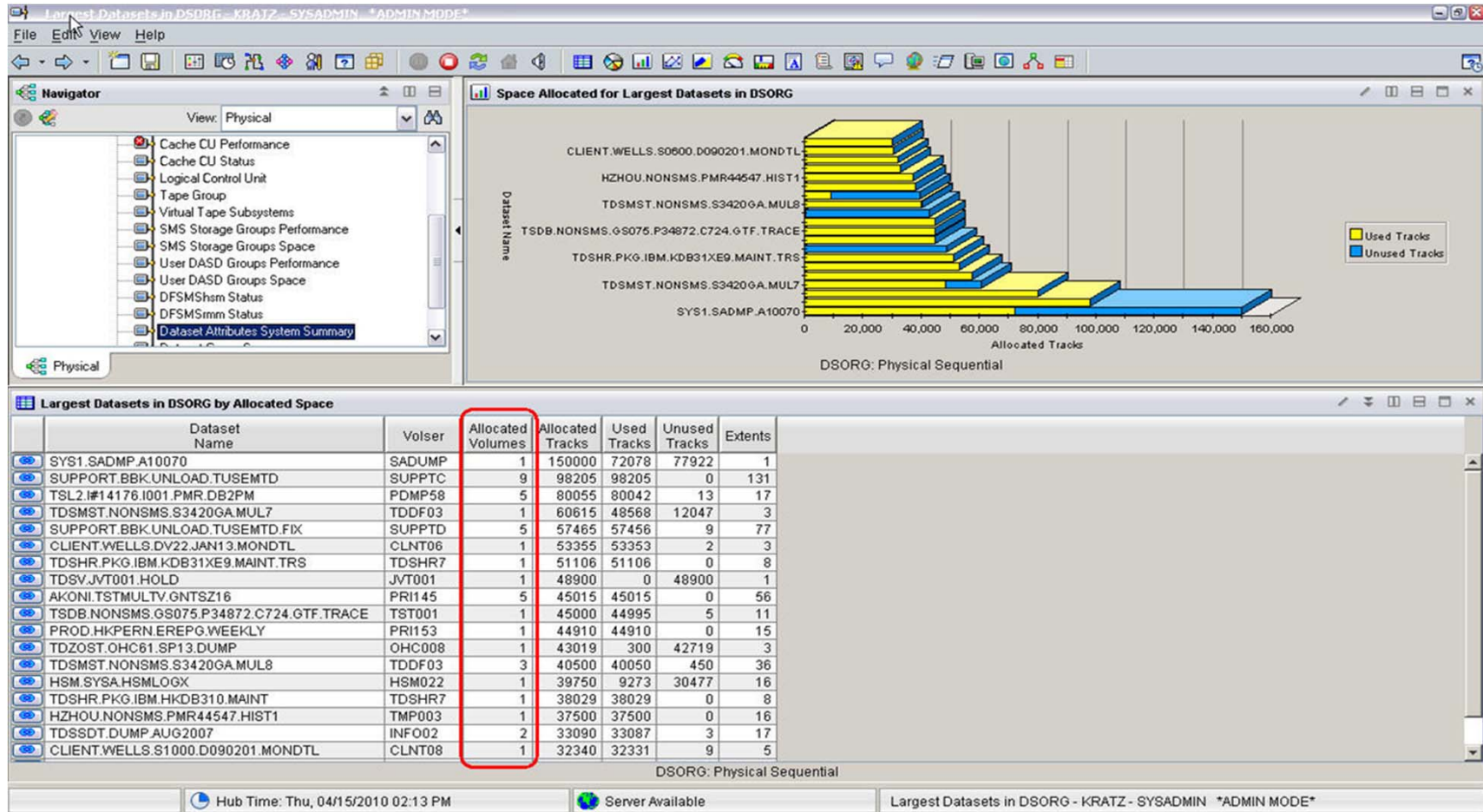


# OMEGAMON XE for Storage

## Version 420 Features



IF3 MultiVolume Dataset Support Dataset Attribute Largest DS DSORG



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



### IF3 MultiVolume Dataset Support Dataset space Summary

Dataset Space Summary - KRATZ - SYSADMIN \*ADMIN MODE\*

File Edit View Help

Navigator View: Physical

- Cache CU Status
- Logical Control Unit
- Tape Group
- Virtual Tape Subsystems
- SMS Storage Groups Performance
- SMS Storage Groups Space
- User DASS Groups Performance
- User DASS Groups Space
- DFSMSshm Status
- DFSMSsmm Status
- Dataset Attributes System Summary**
- Dataset Group Summary
- SMS Configuration
- Storage Toolkit

Physical

#### Top Datasets by Allocated Space

Dataset Name	Volser	Allocated Volumes	Allocated Tracks	Used Tracks	Unused Tracks	Extents	DSORG
TVSM.DBV.D001.DATA	TSM004	1	426825	426825	0	1	Extended Sequential
TVSM.DBV.D003.DATA	TSM004	1	426825	426825	0	1	Extended Sequential
TVSM.STG.S002.DATA	TSM007	1	426825	426825	0	1	Extended Sequential
TVSM.DBV.D002.DATA	TSM005	1	426825	426825	0	1	Extended Sequential
TVSM.STG.S010.DATA	TSM005	1	426825	426825	0	1	Extended Sequential
TVSM.STG.S003.DATA	TSM003	1	426825	426825	0	1	Extended Sequential
TVSM.STG.S004.DATA	TSM003	1	426825	426825	0	1	Extended Sequential
TVSM.STG.S001.DATA	TSM006	1	426825	426825	0	1	Extended Sequential
TVSM.STG.S008.DATA	TSM004	1	426675	426675	0	1	Extended Sequential
TVSM.STG.S015.DATA	TSM004	1	426675	426675	0	1	Extended Sequential
TVSM.STG.S006.DATA	TSM007	1	426675	426675	0	1	Extended Sequential
TVSM.STG.S009.DATA	TSM007	1	426675	426675	0	1	Extended Sequential
TVSM.STG.S013.DATA	TSM005	1	426675	426675	0	1	Extended Sequential
TVSM.STG.S016.DATA	TSM005	1	426675	426675	0	1	Extended Sequential
TVSM.STG.S007.DATA	TSM003	1	426675	426675	0	1	Extended Sequential
TVSM.STG.S014.DATA	TSM003	1	426675	426675	0	1	Extended Sequential

#### Top Datasets by Extents

Dataset Name	Volser	Allocated Volumes	Extents	Allocated Tracks	Used Tracks
SUPPORT.BBK.UNLOAD.TUSEMTD	SUPPTC	9	131	98205	1
PP.MQM.MQRG.PSID01.DATA	PPSMPA	1	123	5580	1
PP.NETVIEW.NDLL1.AAUVSPL.DATA	PPSMPA	1	123	2280	1
DB2C71.DSNDBD.DSNDD07.DSN4K01.I0001.A001	DB2S09	1	123	10050	1
PP.NETVIEW.ND221.AAUVSPL.DATA	PPSMPE	1	123	2280	1

#### Top Datasets by CA Splits

Dataset Name	Volser	Allocated Volumes	CA Splits	CI Splits	Associated DSN
HSM.SMALLDS.VHSM051.DATA	HSM051	1	3848	13310	HSM.SMALLDS.VHSM051
HSM.SMALLDS.VHSM050.DATA	HSM050	1	3720	12748	HSM.SMALLDS.VHSM050
HSM.OCDS.OLD.DATA	HSMOCD	1	2124	2344	HSM.OCDS.OLD
HSM.BCDS.DATA	HSMBCD	1	2064	60689	HSM.BCDS
HSM.MCDS.DATA	HSMMC1	1	1857	90485	HSM.MCDS

#### Top Datasets by Unused Space

Dataset Name	Volser	Allocated Volumes	Unused Tracks	Allocated Tracks	Used Tracks	Extents
SYS1.SADMP.A10070	SADUMP	1	77922	150000	72078	1
BBOMNT.V6ROM1.MAINT.SMPPTS	PP0C7M	1	52525	65535	13010	1
TDSV.JVT002.HOLD	JVT002	1	49948	49950	2	1
SYS1.SP23.J3SPACE	SPLJE3	1	49500	49500	0	1
TDSV.JVT001.HOLD	JVT001	1	48900	48900	0	1
NSOSA.SV.TEST	CAN001	1	47998	48000	2	3

#### Top Datasets by CI Splits

Dataset Name	Volser	Allocated Volumes	CI Splits	CA Splits	Associated DSN
HSM.MCDS.DATA	HSMMC1	1	90485	1857	HSM.MCDS
TDCICST.TOC.TDOCS37.DFHGCD.DATA	PRI113	1	71256	0	TDCICST.TOC.TDOCS37
ICFCAT.VTS0004	TS0004	1	62835	254	ICFCAT.VTS0004
HSM.BCDS.DATA	HSMBCD	1	60689	2064	HSM.BCDS
TDSV.VDR.V.VDHAHUB.RKDSCATC.DATA	ST0001	1	58115	65	TDSV.VDR.V.VDHAHUB.F
ICFCAT.VTS0001	TS0001	1	53518	163	ICFCAT.VTS0001

Hub Time: Thu, 04/15/2010 02:18 PM Server Available Dataset Space Summary - KRATZ - SYSADMIN \*ADMIN MODE\*

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



IF3 MultiVolume Dataset Support Dataset Attribute Dataset Collection

The screenshot displays the 'Multivolume Dataset Attribute Details' window for dataset DSN: SUPPORT.BBK.UNLOAD.TUSEMTD. The interface includes a Navigator pane on the left, two bar charts at the top right, and three data tables below.

**Total Space Utilization:** A bar chart showing Allocated Tracks (yellow), Used Tracks (blue), and Unused Tracks (red) for the dataset. The Y-axis represents Tracks, ranging from 0 to 100,000.

**Space Utilization By Volume:** A bar chart showing Used Tracks (yellow) and Unused Tracks (blue) for various volumes (SUPPTC, SUPPTI, SUPPTJ, SUPPTL, SUPPTM, SUPPTN, SUPPTO, SUPPTP, SUPPTQ). The Y-axis represents Tracks, ranging from 0 to 12,000.

**Dataset SMS Constructs:**

SMS Managed	SMS Data Class	SMS Storage Class	SMS Management Class	SMS Storage Group
Yes	DCSUPPT	SCSUPPT	MCSUPPT	SGSUPPT

**Dataset Basic Attributes:**

Allocated Tracks	Used Tracks	Unused Tracks	Percent Used	Percent Free	Primary Tracks	Extents	Volume Count	Secondary Allocation Units	Secondary Allocation Quantity	Secondary Allocation Record Units	Secondary Allocation Record Value	LRECL	BLKSIZE	RECFM	DSORG	Unmovable	PI
98205	98205	0	100.0	0.0	750	131	12	Cylinder	50		0	32756	32760	VB	Sequential	No	

**VSAM Cluster Attributes:**

Associated Entry Name	VSAM Dataset Organization	CA Splits	CI Splits	High Allocated RBA	High Used RBA	Share Option	Key Length	CI Size	Average LRECL	Maximum Record Size	Maximum Buffer Size	Speed	Recovery	Reuse	Unique	Spanned	Erase	Page Space	Swap Space	% Free CIs per CA	
				0	0																0

**Dataset Attributes By Volume:**

Volume	Device Type	Extents	Allocated Tracks	Used Tracks	Unused Tracks	Percent Used	Percent Free	Volume Sequence	High Allocated RBA	High Used RBA	Using Cylinder Managed Space	Extended Address Space Eligible
SUPPTC	3390	16	12000	12000	0	100.0	0.0	1	0	0	No	No
SUPPTI	3390	3	2205	2205	0	100.0	0.0	9	0	0	No	No
SUPPTJ	3390	16	12000	12000	0	100.0	0.0	5	0	0	No	No

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features

### IF3 Group Level Storage Toolkit Commands

- Allow users to issue storage toolkit commands at the Storage Group, **User DASD group** and **User Dataset Group** levels for the volumes/datasets the group contain
  - SMS Storage Groups Performance
  - SMS Storage Groups Space
  - User DASD Groups Performance
  - User DASD Groups Space
  - Dataset Group Summary
  - Dataset Attributes Group Summary

# OMEGAMON XE for Storage

## Version 420 Features



### IF3 Group Level Storage Toolkit Commands Volume

The screenshot displays the OMEGAMON XE for Storage interface. On the left, a tree view shows the navigation structure under 'Enterprise' > 'z/OS Systems' > 'SP12' > 'Storage Subsystem' > 'S3CMS34D:SP12:STORAGE'. The 'SMS Storage Groups Performance' item is selected. A context menu is open over this item, with 'Volume Actions...' selected, which has opened a sub-menu containing: Backup, Convert, Migrate, Release Space, Compress, and Defrag. The main window shows a 3D bar chart titled 'High Volume Response Time > 25' with a yellow bar representing the response time. Below the chart is a table titled 'SMS Storage Group Performance Report'.

Group Name	Storage Group Type	Response Time	High Busy Percent	Device MPL	Low Read Hit Percent	Low Write Hit Percent	High DFW Retry Percent
PRIVATE NON-SMS VOLUMES	n/a	35.8	16.9	31	3.5	100.0	0.0
SGBB01	Pool	0.2	0.0	0	n/a	n/a	n/a
SGBLD	Pool	0.2	0.0	0	n/a	n/a	n/a
SGBOOK	Pool	0.2	0.0	0	n/a	n/a	n/a
SGCIMS	Pool	0.2	0.0	0	n/a	n/a	n/a

At the bottom of the interface, the status bar shows: Hub Time: Thu, 04/15/2010 07:01 PM, Server Available, and SMS Storage Groups Performance - KRATZ - SYSADMIN \*ADMIN MODE\*.

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

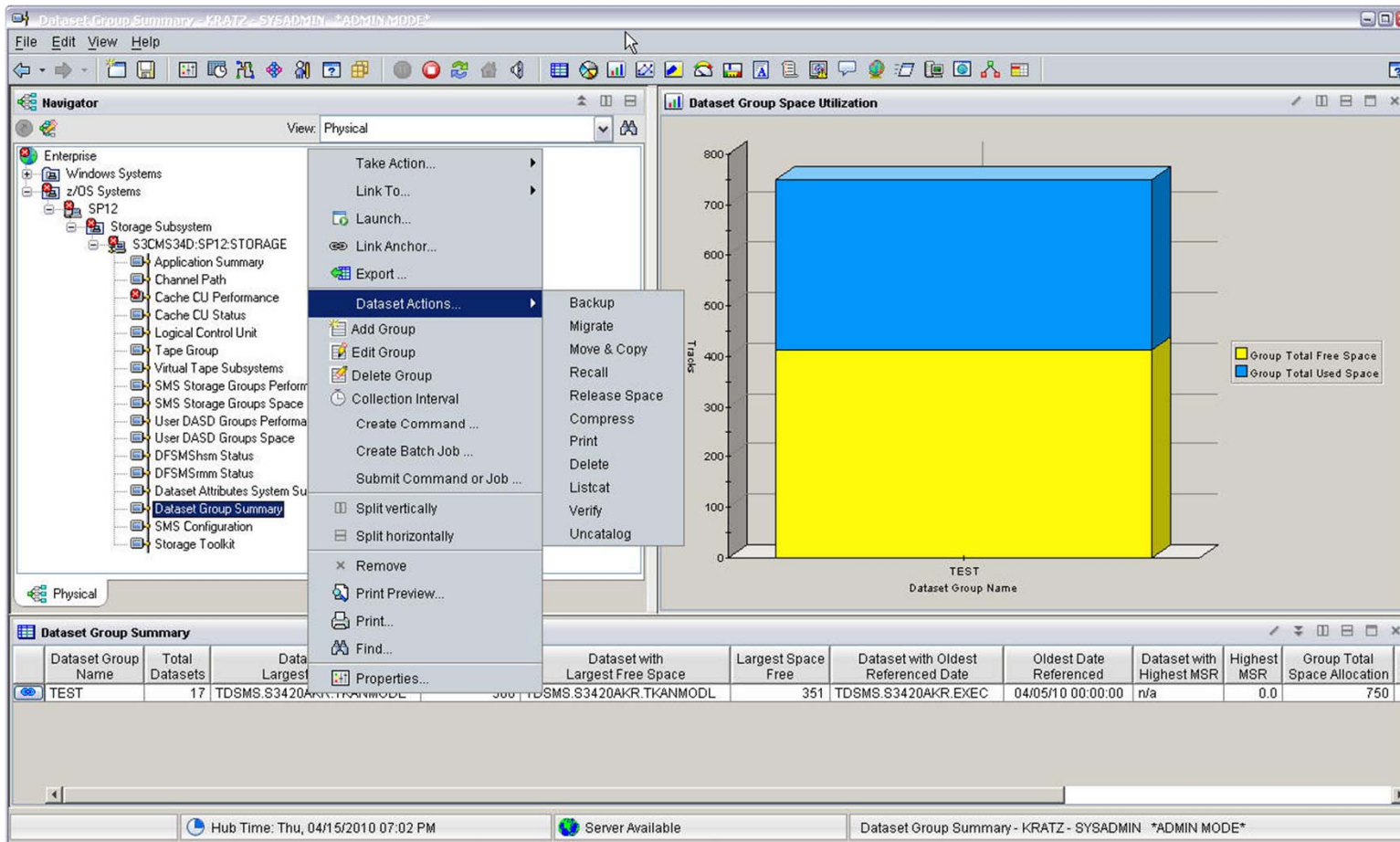


# OMEGAMON XE for Storage

## Version 420 Features



IF3 Group Level Storage Toolkit Commands Datasets



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features

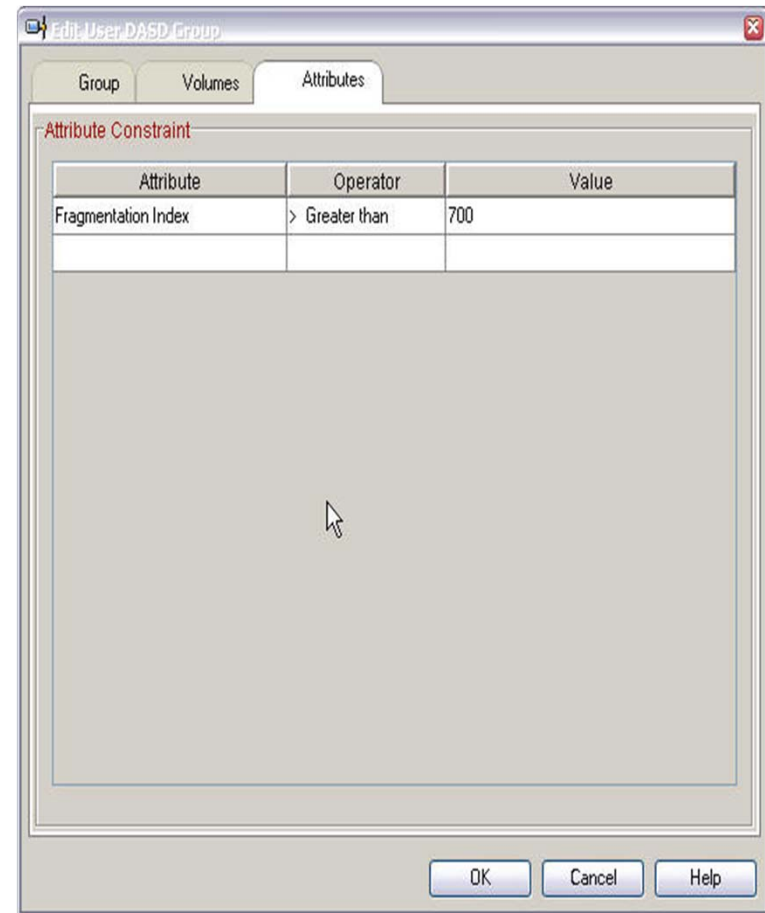


### IF3 Group Level Storage Toolkit Commands Example

Problem to be solved:

User wants to run a daily defrag at 1:00 am on all volumes where the fragmentation index is greater than 700

- 1) Go to the User DASD Space workspace
- 2) Create a group with the attributes shown on the right





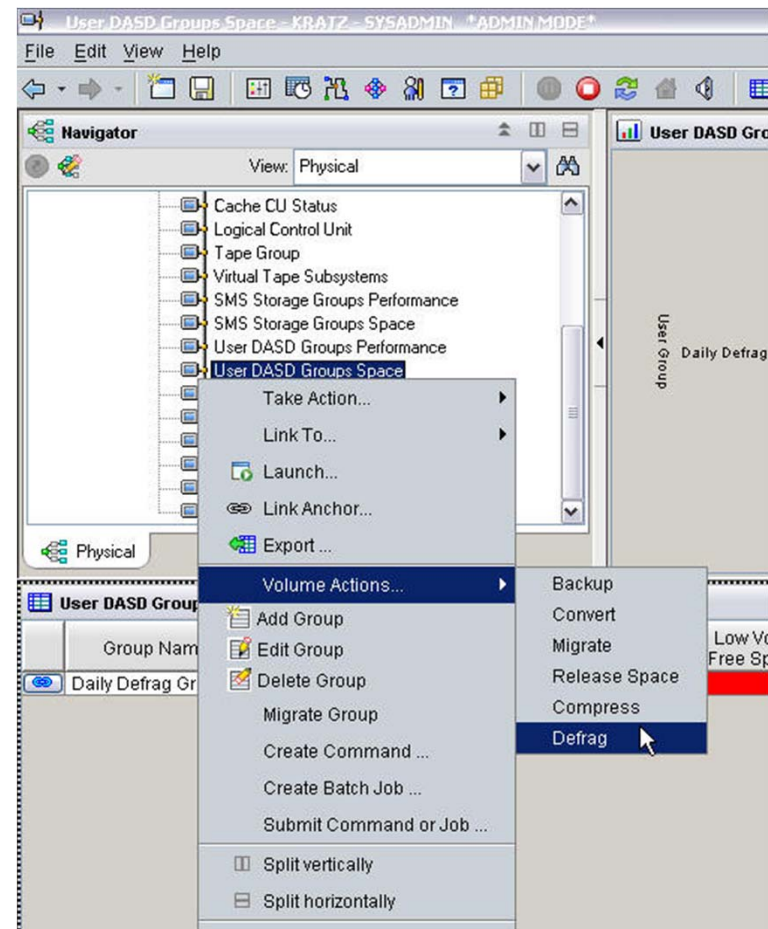
# OMEGAMON XE for Storage

## Version 420 Features



### IF3 Group Level Storage Toolkit Commands Example

- 3) Right click on row
- 4) Select Volume Actions -> Defrag



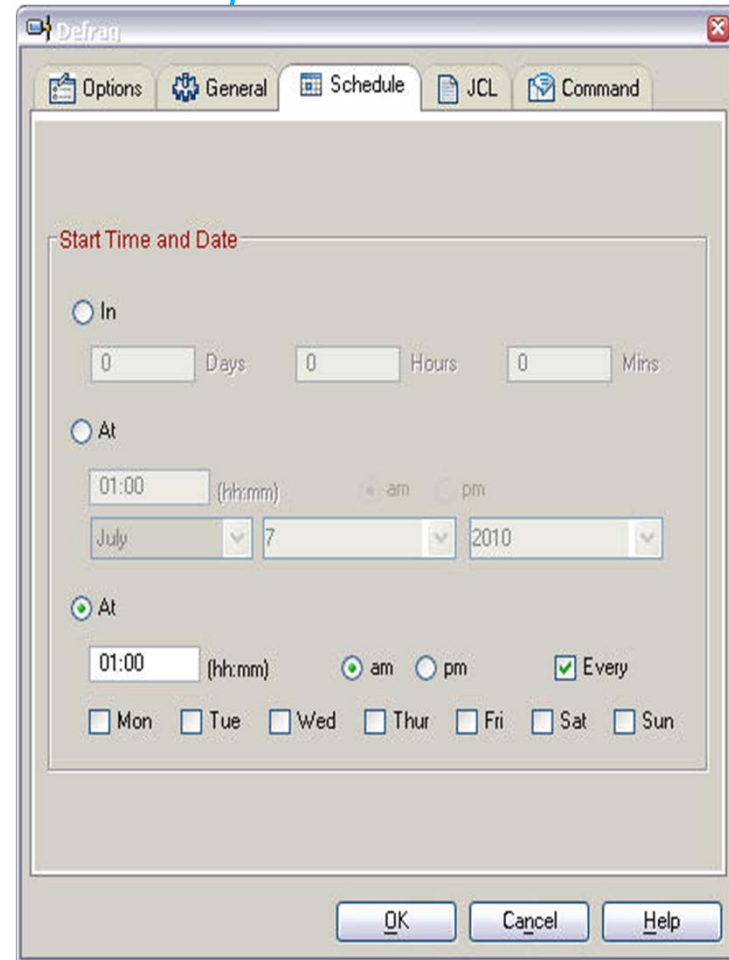
# OMEGAMON XE for Storage

## Version 420 Features



### IF3 Group Level Storage Toolkit Commands Example

- 5) Schedule the command to run at 1:00 am each morning
- 6) When the commands runs at 1:00, the group will be evaluated at that time to see which volumes match the fragmentation index  $> 700$  and run the defrag command against those volumes



# OMEGAMON XE for Storage

## Version 420 Features



### IF3 TEP Application Monitoring definitions

The screenshot displays the OMEGAMON XE for Storage interface. A context menu is open over the 'Application Summary' table, with 'Manage Application Definition' highlighted. Two charts are visible: 'Applications with Dataset MSR > 40' and 'Applications with Volume MSR > 25'. The 'Application Summary' table shows the following data:

Application	AS H	Dataset with High MSR	Volume with High MSR Dataset	Volume Count	High Volume MSR	Volume with High MSR			
S3CMS34D	0X0104	104	153	9.7	TDSMST.S3420SMD.S3420U34.RKDSOBJ.DATA	PRI138	69	1.6	PRI174

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

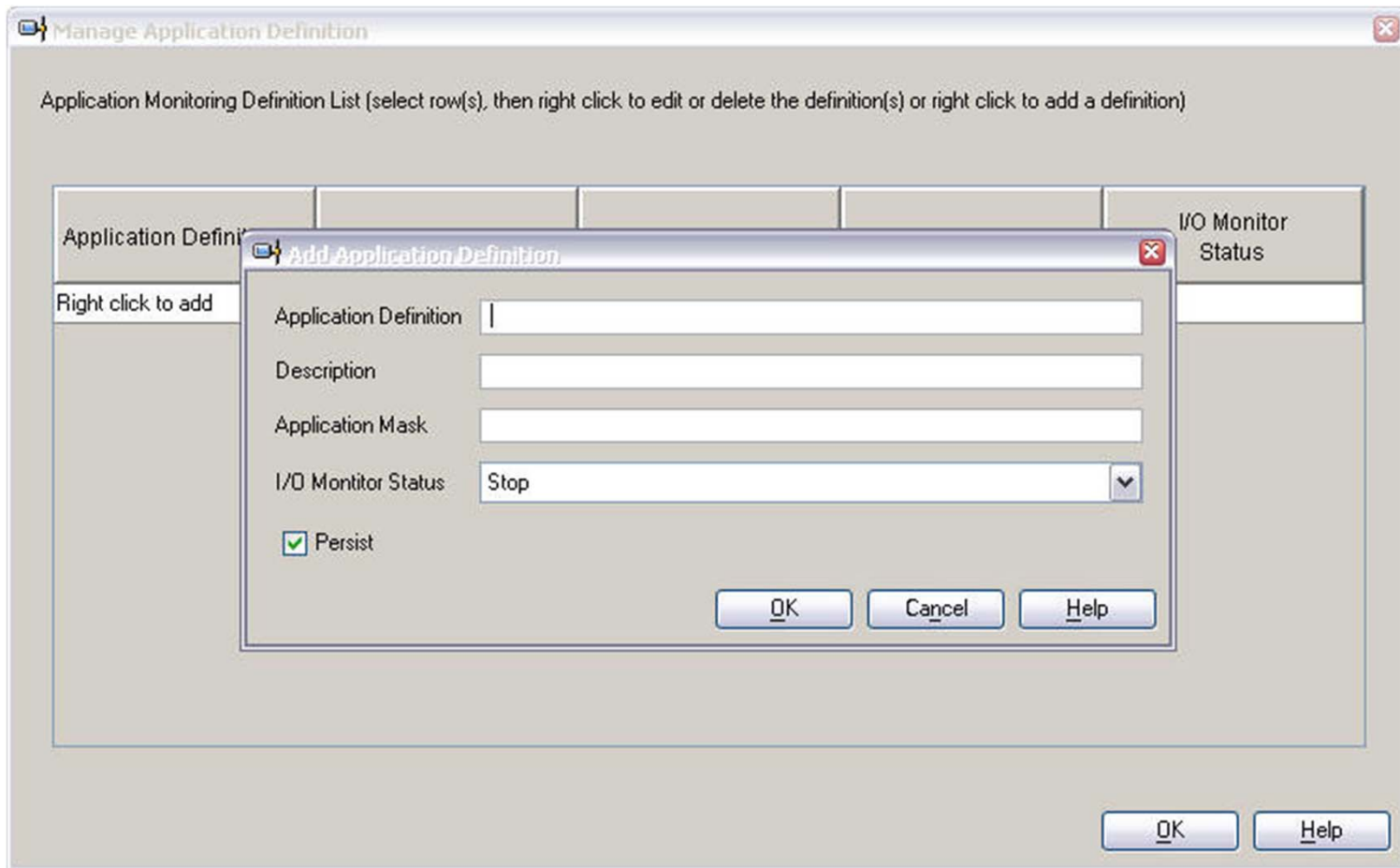


# OMEGAMON XE for Storage

## Version 420 Features



IF3 TEP Application Monitoring definitions [Add Application](#)



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

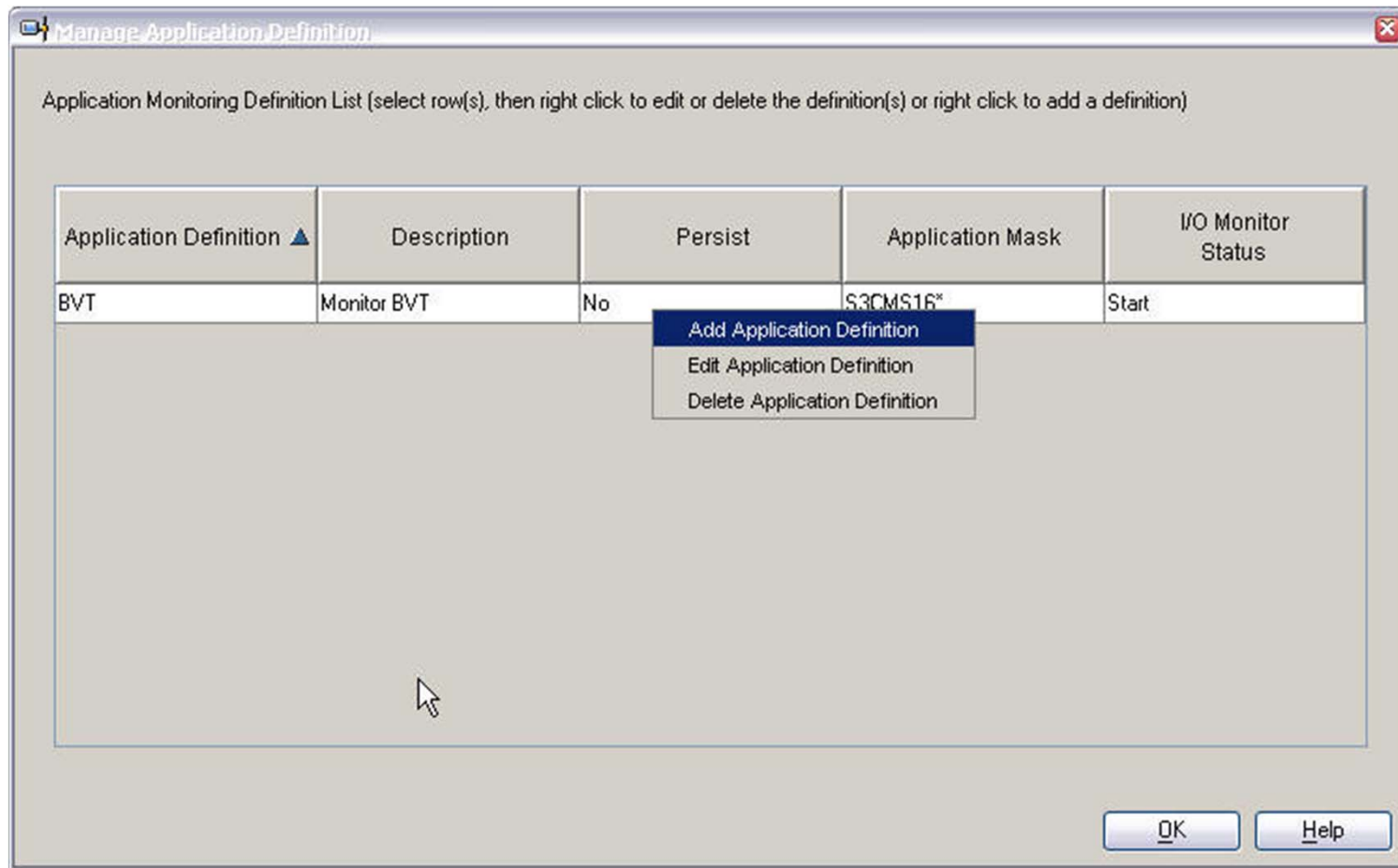


# OMEGAMON XE for Storage

## Version 420 Features



IF3 TEP Application Monitoring definitions [Modify](#) [Edit](#) [Delete](#) [Application](#)



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



### IF3 DFSMShsm Common Recall Queue

- Allow users to monitor the DFSMShsm common recall queue.
- Allow users to view the recall activity within an HSMplex from any OM XE Storage attached to the HSMplex so the user can quickly identify the general health and detailed activity of the function for better management capability.
- Allow users to see summarization information about the requests on the common recall queue to quickly assess health.
- Allow users to see configuration information about the DFSMShsm common queue to quickly identify if there is a problem or could be a potential problem.
- Allow users to monitor the status of individual requests on the queue and attached DFSMShsm address spaces servicing these requests, so that they can see which DFSMShsm is processing the request for better management and problem analysis capability.
- Allow users to see configuration information about the DFSMShsm common queue on a single new workspace so that they can easily understand the health of the common queue.
- Allow users to see common recall queue activity information in a single view so that they can follow the workflow.

# OMEGAMON XE for Storage

## Version 420 Features



### IF3 DFSMShsm Common Recall Queue

- Allow users to monitor the DFSMShsm common recall queue.
- Allow users to view the recall activity within an HSMplex from any OM XE Storage attached to the HSMplex so the user can quickly identify the general health and detailed activity of the function for better management capability.
- Allow users to see summarization information about the requests on the common recall queue to quickly assess health.
- Allow users to see configuration information about the DFSMShsm common queue to quickly identify if there is a problem or could be a potential problem.
- Allow users to monitor the status of individual requests on the queue and attached DFSMShsm address spaces servicing these requests, so that they can see which DFSMShsm is processing the request for better management and problem analysis capability.
- Allow users to see configuration information about the DFSMShsm common queue on a single new workspace so that they can easily understand the health of the common queue.
- Allow users to see common recall queue activity information in a single view so that they can follow the workflow.

# OMEGAMON XE for Storage

## Version 420 Features

### IF3 DFSMSHsm Common Recall Queue

- DFSMSHsm Status
- DFSMSHsm Host Details
- \* HSMplex CRQplex Details
- \* CRQplex Details
- \* CRQplex Requests

#### Situation workspaces for Direct Situation Analysis

- \* KS3\_HSM\_CRQ\_Host\_Critical
- \* KS3\_HSM\_CRQ\_Host\_Held\_Critical
- \* KS3\_HSM\_CRQ\_Host\_Recall\_Crit
- \* KS3\_HSM\_CRQ\_Host\_Place\_Crit
- \* KS3\_HSM\_CRQ\_Host\_Select\_Crit
- \* KS3\_HSM\_CRQ\_Host\_Disconn\_Crit
- \* KS3\_HSM\_CRQ\_Entry\_Full\_Warning
- \* KS3\_HSM\_CRQ\_Element\_Full\_Warn



# OMEGAMON XE for Storage

## Version 420 Features



IF3 DFSMShsm Common Recall Queue DFHSM Status

The screenshot displays the DFSMShsm Status interface with the following panels:

- DFSMSHsm Functions Summary:**

Function	Function Status	Dataset Requests	Volume Requests	Active Requests	Waiting Requests
Migration	Not Held	0	0	0	0
Recall	Not Held	0	0	0	0
Backup	Not Held	0	0	0	0
Recovery	Not Held	0	0	0	0
Dump	Not Held	0	0	0	0
Delete	Not Held	0	0	0	0
- DFSMSHsm Control Data Set Report:**

DDNAME	Percent Available Space Data Component	Percent Free Space Data Component	Size (KB) Data Component	Number of Data Components
MIGCAT	61.8	11.5	2391840	
BAKCAT	45.9	17.4	4162320	
OFFCAT	73.3	46.8	2390400	
JOURNAL	n/a	62.1	568341	
- DFSMSHsm Status Report:**

Called Replic Covers	Avg Dump Queue Time	Avg Dump Alloc Time	Avg Dump Process Time	Avg Dump Elapsed Time	User Requested Dumps	System Requested Dumps	Total Fast Replic Backups	Total Volume Dump Copies	User Requested Dump Copies	System Requested Dump Copies	Total Data Set Restores	Total Aggregate Backups	Total Fast Replic Recovers	HSMplex Name
0	0	0	0	0	0	0	0	0	0	0	0	0	0	ARCPLEX0
- DFSMSHsm Function Status:**

HSM Host Name	Automatic Backup Status	Automatic Dump Status	Automatic Migration Status	Audit Activity	Audit Status	BCDS Backup Status	Journal CDS Backup Status	List Activity	Migration CDS Backup Status	Offline CDS Backup Status	Recycle Activity	Report Activity	Tape Recovery Status	Tape Replace Status	HSMplex Name
\$DFHSM12	Not Held	Not Held	Not Held	Inactive	Not Held	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Not Held	Not Held	ARCPLEX0

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

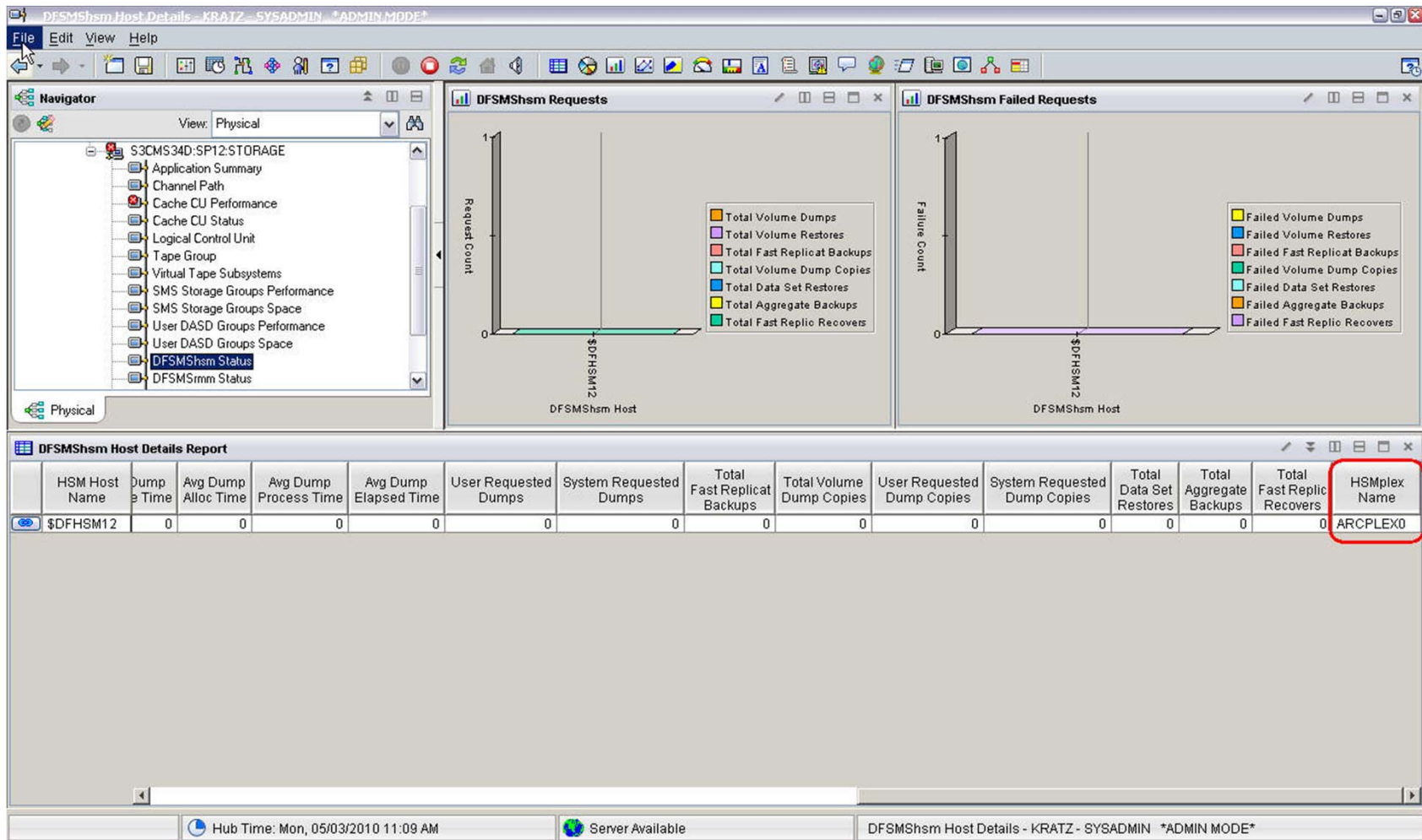


# OMEGAMON XE for Storage

## Version 420 Features



IF3 DFSMSShsm Common Recall Queue    DFHSM Host Details



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

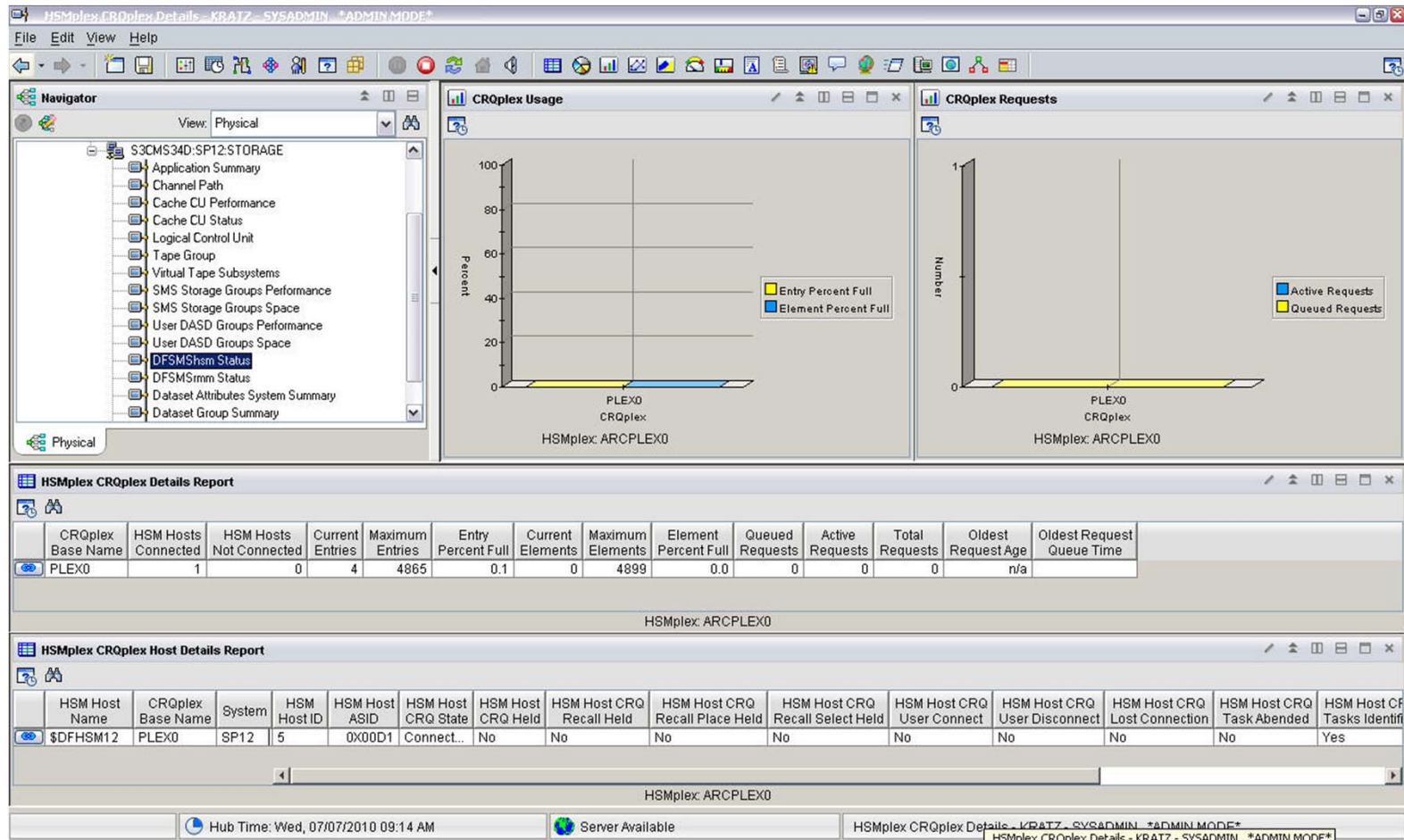


# OMEGAMON XE for Storage

## Version 420 Features



IF3 DFSMSHsm Common Recall Queue HSMplex CRQPLEX Details



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

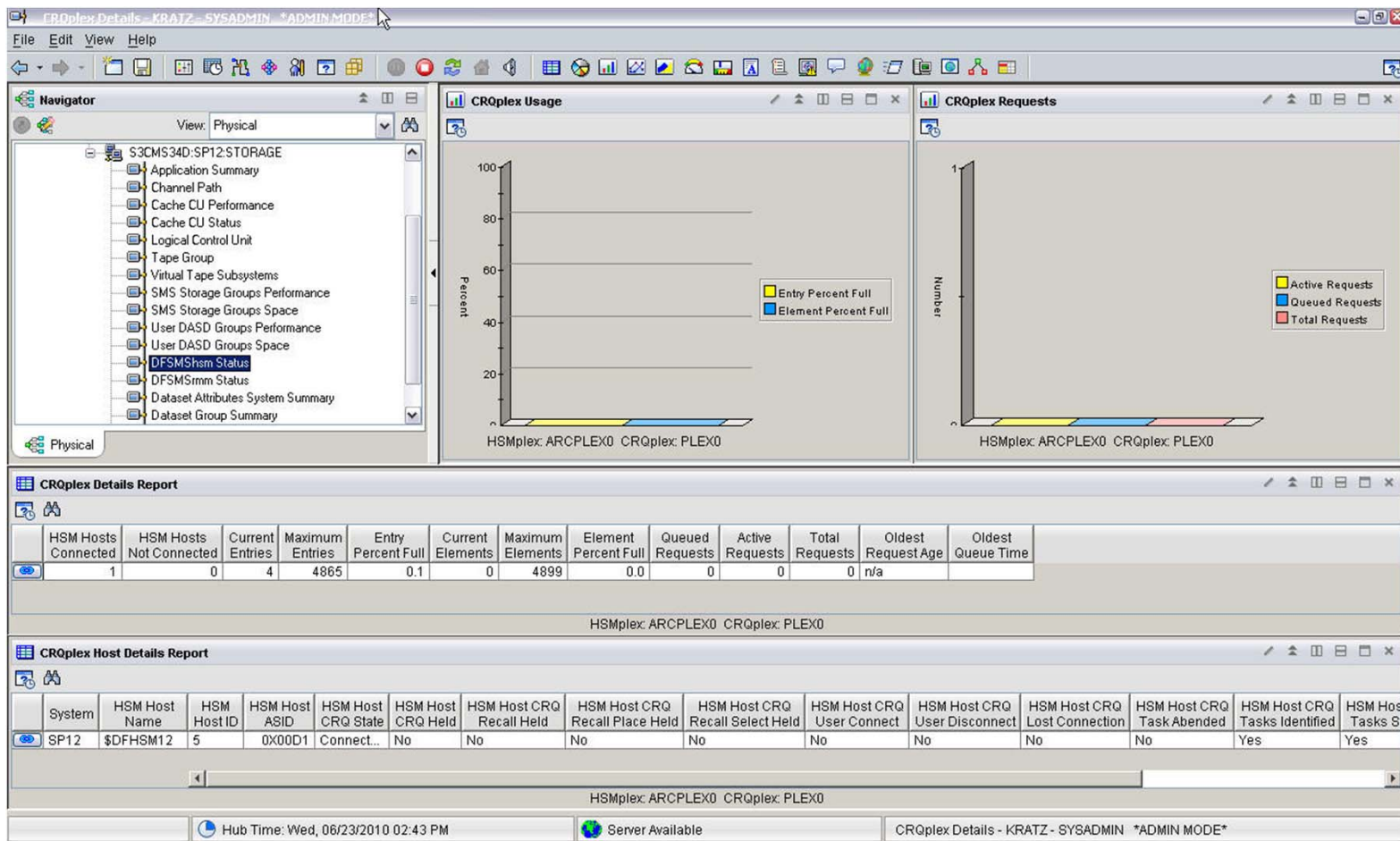


# OMEGAMON XE for Storage

## Version 420 Features



IF3 DFSMSHsm Common Recall Queue CRQplex Requests



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

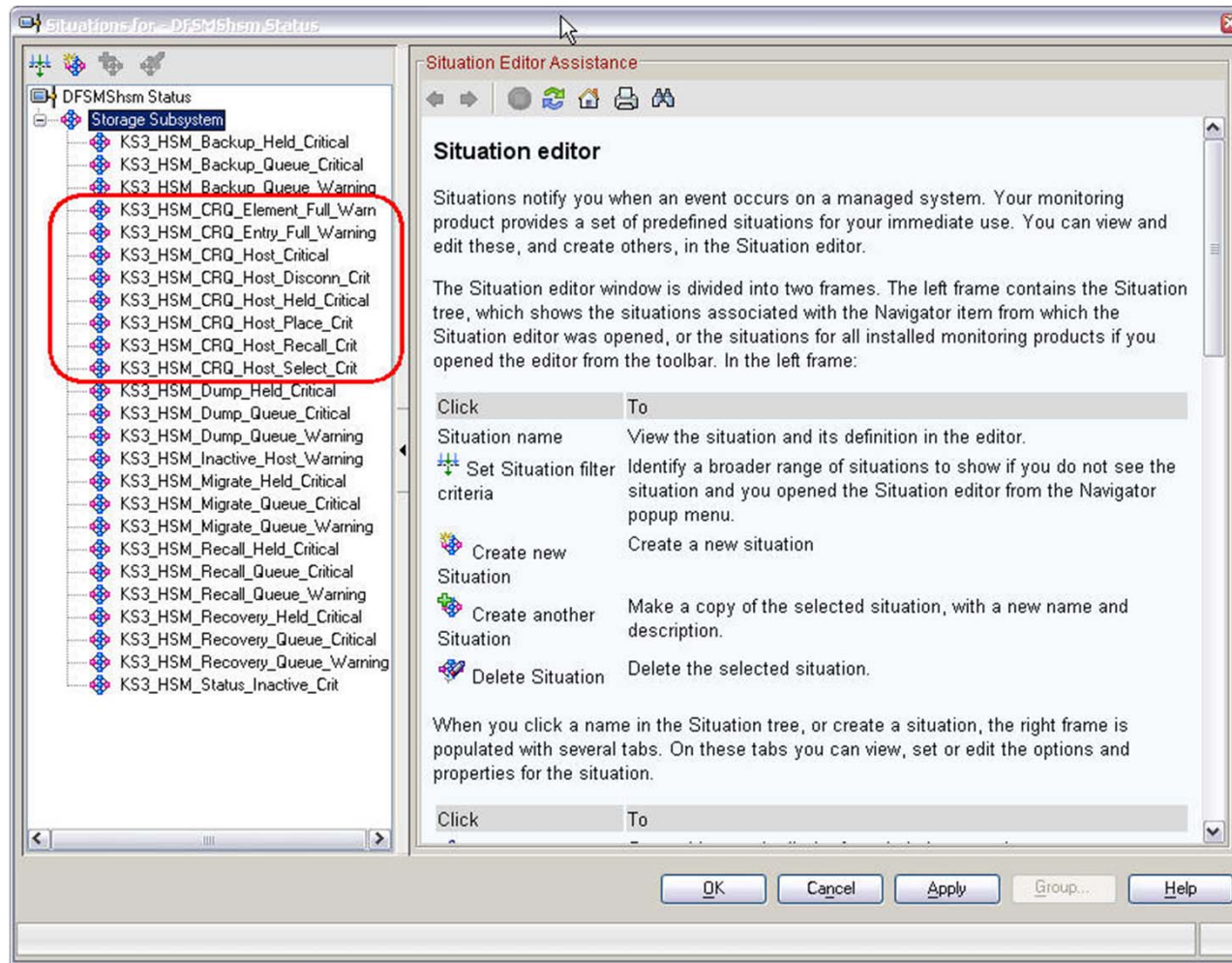


# OMEGAMON XE for Storage

## Version 420 Features



### IF3 DFSMShsm Common Recall Queue problem Detection



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



# Interim Feature 4

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



IF4 Storage Toolkit Take Action in Situation Definitions

**Situation Take Action** extended beyond  
SYSTEM COMMANDS and UNIVERSAL MESSAGES

### STORAGE TOOLKIT

Allows for the Volume, Dataset, BATCH JOB and Command  
when a Situation becomes TRUE

# OMEGAMON XE for Storage

## Version 420 Features



### IF4 Storage Toolkit Take Action in Situation Definitions

Formula Distribution Expert Advice **Action** Until

**Action Selection**

System Command  Universal Message  Storage Action

**Storage Action**

Request Type: Dataset Migrate  
Request Title: BCBS TSTSM DSN Migrate  
Request Location: TIVDSST:ASYS:STORAGE

Clear Storage Toolkit... ?

**If the condition is true for more than one monitored item:**

Only take action on first item  
 Take action on each item

**Where should the Action be executed (performed):**

Execute the Action at the Managed System (Agent)  
 Execute the Action at the Managing System (TEMS)

**If the condition stays true over multiple intervals:**

Don't take action twice in a row (wait until situation goes false then true again)  
 Take action in each interval

OK Cancel Apply Group... Help

BCBS\_TSTSM\_DSN

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)





# OMEGAMON XE for Storage

## Version 420 Features



### IF4 Storage Toolkit Take Action in Situation Definitions

Associate Storage Toolkit Command

Request Creation Type

Create New       Create From Existing

New Request Information

Select a Storage Toolkit command to associate with the situation

Command
Create Command
Create Batch Job
Submit Command or Job
Volume Backup
Volume Migrate
Volume Release Space
Volume Compress
Volume Defrag

Select a Node where the command will be created

Node
TIVDSST:ASYS:STORAGE
TIVDSST:DEVA:STORAGE

OK      Cancel      Help

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



### IF4 Storage Toolkit Take Action in Situation Definitions

Mainframe fully qualified dataset containing the batch JCL:

'SYS3.SAMPLEOM.JCLLIB(EMAIL)'

Substitution variables and their run-time replacement values

Variable	Attribute or String
%POOL%	Group Name
%FRPCT%	Free Space Percent
%UTIL%	Free Space Percent

Files whose contents should be copied for later viewing

Step name	Fully Qualified Dataset or DD name

Fully Qualified Datasets needed by the job that also contain substitution variables

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



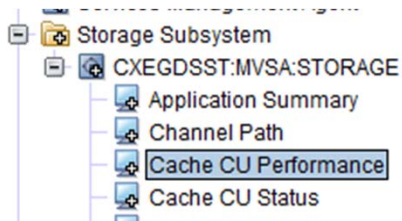
# OMEGAMON XE for Storage

## Version 420 Features



IF4 Hitachi Data Systems Devices

- Monitoring for Hitachi Data Systems type 2107 devices



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 Features



### IF4 ORACLE (SUN/STK) VSM support

Support for STK tape devices: STK tape devices, real and virtual, had been contained as part of the generic tape groups identified by tape device model. This enhancement results in STK VTSs and LSMs being identified by a row in the Tape Group Workspace. STK tape devices are displayed as being in the STK group rather than in the generic tape groups.

# OMEGAMON XE for Storage

## Version 420 Features



# Tivoli Data Warehouse Enhancements

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



More Data in the Tivoli Data Warehouse support

- BASE Product
- No New Attributes
- IF0001
- Channel Path
- Cache Control unit
- Logical control unit
- Volume Group Summary

# OMEGAMON XE for Storage

## Version 420 Features



IF1 More Attribute Groups in the Tivoli Data Warehouse TDW

Channel Path  
Cache control Unit  
Logical control Unit  
Volume Group Summary

By moving historical trending into the Tivoli Data Warehouse Summarization and Pruning are now available

Be careful to match history collection to RMF interval

# OMEGAMON XE for Storage

## Version 420 Features



More Data in the Tivoli Data Warehouse support

- IF0002

Logical Volume Cache Attributes  
Logical Volume Space Attributes  
Logical Volume Performance Attributes

- IF0003

Cache Devices  
User DASD Groups  
SMS Storage Groups  
Dataset Attribute Groups



# OMEGAMON XE for Storage

## Version 420 Features



More Data in the Tivoli Data Warehouse support

- IF0004

No new attributes in TDW

Performance Improvements

Enhanced dataset group historical collection: This enhancement provides storage administrators with the ability to control the collection of detail historical data for the data sets in a data set group at the [data set group level](#) to reduce resource utilization. The improvement provides a way for you to switch the detail historical data collection on/off for certain data set groups

# OMEGAMON XE for Storage

## Version 420 Features



# Monitoring

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Monitoring



### Application Monitoring Performance and Space

	Application	ASID Hex	I/O Second	Dataset Count	High Dataset MSR	Dataset with High MSR	Volume with High MSR Dataset	Volume Count	High Volume MSR	Volume with High MSR
🔗	CDCONN	0X001F	0	20	0.3	CONDIR.V5R1.TCX.DATA	DMPU05	10	3.3	DMPP47
🔗	DFRMM	0X0024	1	4	0.0			2	1.6	DMPRES
🔗	DFHSM	0X0078	10	9	0.0			5	4.7	DMPP01
🔗	DB1SMSTR	0X0083	16	17	0.3	DSNSCAT.DB1S.BSDS02.DATA	DMPD04	14	2.9	DMPP08
🔗	DB1SIRLM	0X0086	0	1	0.0			1	4.2	DMPP24
🔗	DB1SDBM1	0X008F	41	4	0.6	DSNSCAT.DSNDBD.DB2PM.ONLINE.I0001.A001	DMPD18	4	2.9	DMPP08
🔗	DB1SDIST	0X0092	0	3	0.0			3	2.9	DMPP08
🔗	CICSAOR2	0X0099	0	69	0.0			37	5.4	DMPP46
🔗	CICSAOR1	0X009A	3	96	0.0			44	5.4	DMPP35
🔗	CICSAOR6	0X009E	1	90	0.0			44	5.6	DMPU04
🔗	DB1RMSTR	0X012C	1	12	0.5	DB1RLCAT.LOGCOPY2.DS03.DATA	DMPR02	3	2.9	DMPP08
🔗	DB1RDBM1	0X0137	0	2	0.3	DB1RDCAT.DSNDBD.DSNDB06.SYSRTSTS.I0001.A001	DMPR01	2	2.9	DMPP08
🔗	NETVIEW	0X0144	2357	93	18.4	TIVIM.V7R1.SEYLSPL	DMPP08	36	8.5	DMPP32
🔗	DB1SADMT	0X0158	0	2	0.3	DSNSCAT.TASKLIST.DATA	DMPD15	2	2.9	DMPP08
🔗	CXEGRA	0X017D	25	23	1.0	TIVACM.V2R2.COPY.SCKMLOAD	DMPU35	20	6.1	DMPP18
🔗	CXEGRH	0X017E	0	20	0.0			17	8.5	DMPP32
🔗	CXEGRHX	0X017F	2	6	0.5	SYS1.VTOC.VDMPU22	DMPU22	5	4.2	DMPP24
🔗	CXEGRG	0X0180	0	20	0.0			16	8.5	DMPP32
🔗	CXEGRGX	0X0181	0	2	0.0			2	0.7	DMPU14
🔗	CXEGRN	0X0182	0	20	0.4	SYS1.HASPACE	DMPSP3	15	8.5	DMPP32
🔗	CXEGRNX	0X0183	0	2	0.0			2	0.7	DMPU35
🔗	CXEGRV	0X0184	0	20	0.0			17	8.5	DMPP32
🔗	CICSTIV3	0X018B	0	44	0.0			28	5.4	DMPP46
🔗	DB1RDIST	0X01AD	0	3	0.0			3	2.9	DMPP08
🔗	DB1RIRLM	0X01B3	0	1	0.0			1	4.2	DMPP24
🔗	DB1RADMT	0X01BD	0	2	0.3	DB1RDCAT.TASKLIST.DATA	DMPR01	2	2.9	DMPP08

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Monitoring



Application Monitoring Performance and Space

Application	ASID	VC	Dataset	Link	Dataset	Dataset with	Volume with High MSR Dataset	Volume Count	High Volume MSR	Volume with High MSR
CDCONN							DMPU05	10	3.3	DMPP47
DFRMM								2	1.6	DMPRES
DFHSM								5	4.7	DMPP01
DB1SMST							DMPD04	14	2.9	DMPP08
DB1SIRLM								1	4.2	DMPP24
DB1SDBM						NE.I0001.A001	DMPD18	4	2.9	DMPP08
DB1SDIST								3	2.9	DMPP08
CICSAOR								37	5.4	DMPP46
CICSAOR								44	5.4	DMPP35
CICSAOR								44	5.6	DMPU04
DB1RMST						TA	DMPR02	3	2.9	DMPP08
DB1RDBM						BYSRSTSTS.I0001.A001	DMPR01	2	2.9	DMPP08
NETVIEW							DMPP08	36	8.5	DMPP32
DB1SADM							DMPD15	2	2.9	DMPP08
CXEGRA							DMPU35	20	6.1	DMPP18
CXEGRH								17	8.5	DMPP32
CXEGRH							DMPU22	5	4.2	DMPP24
CXEGRG								16	8.5	DMPP32
CXEGRG								2	0.7	DMPU14
CXEGRN							DMPSP3	15	8.5	DMPP32
CXEGRN								2	0.7	DMPU35
CXEGRV								17	8.5	DMPP32
CICSTIV3								28	5.4	DMPP46
DB1RDIST								3	2.9	DMPP08
DB1RIRLM	0X01B3	0	1	0.0				1	4.2	DMPP24
DB1RADMT	0X01BD	0	2	0.3	DB1RDCAT.TASKLIST.DATA		DMPR01	2	2.9	DMPP08

- Application Dataset Performance
- Application Volume Performance
- Application Volume Cache
- Application Dataset Space Usage
- Application Volume Space Usage
- Address Space CPU Usage Details
- Address Space CPU Usage Enclaves
- Address Space Bottleneck Details
- Address Space Impact Analysis
- Address Space Storage for Job
- Owned Enclaves
- Link Wizard...
- Link Anchor...

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Monitoring



Application Monitoring    Detail Space for Application Selected

Dataset Space Report									
	Dataset Name	Volume	Tracks Allocated	Tracks Used	Tracks Used Percent	Number of Extents	Dataset Type	Logical Record Length	Block Size
	CANDLET.XEGA.DEMOMVS.RKANMOD	DMPP39	9675	4779	49.3	9	Partitioned	0	32760
	CANDLET.XEGA.DEMOMVS.RKANMODP	DMPP42	825	0	0.0	4	PDS Extended	0	32760
	TIVACM.V2R2.COPY.SCKMLOAD	DMPU35	225	212	94.2	1	Partitioned	0	32760
	TIVARD.V2R3.SARHLOAD	DMPP24	175	0	0.0	1	PDS Extended	0	32760
	TIVAAD.V2R3.COPY.SAKDLOAD	DMPU14	105	105	100.0	4	Partitioned	0	6144
	TIVABR.V2R2.SBKMLoad	DMPP04	521	0	0.0	3	PDS Extended	0	32760
	CANDLET.XEGA.DEMOMVS.RKANDATV	DMPP46	6469	4157	64.2	16	Partitioned	6160	24656
	CANDLET.XEGA.DEMOMVS.RKANPARU	DMPP18	345	94	27.2	1	Partitioned	80	8880
	CANDLET.XEGA.DEMOMVS.RKANPAR	DMPP46	102	100	98.0	6	Partitioned	80	8880
	TIVABR.V2R2.SBKMPARM	DMPP50	23	21	91.3	6	Partitioned	80	27920
	TIVABR.V2R2.ACDIDB.INDEX	DMPP27	1	0	10.0	1	VSAM	4601	4608
	TIVABR.V2R2.ACDIDB.DATA	DMPP27	135	3	2.4	1	VSAM	4096	4608
	TIVABR.V2R2.IDS.INDEX	DMPP31	364	364	99.9	91	VSAM	8185	8192
	TIVABR.V2R2.IDS.DATA	DMPP31	32535	27469	84.4	47	VSAM	32752	4096
	TIVACM.V2R2.COPY.SCKMPARM	DMPU51	30	22	73.3	2	Partitioned	80	27920
	TIVARD.V2R3.SARHPLNS	DMPU32	5	4	80.0	1	Partitioned	80	27920
	TIVARD.V2R3.SARHCMDS	DMPU49	10	6	60.0	2	Partitioned	80	27920
	TIVARD.V2R3.SARHMSGs	DMPP43	8	8	100.0	1	Partitioned	80	27920
	TIVARD.V2R3.SARHPARM	DMPP28	4	3	75.0	2	Partitioned	80	27920
	TIVAAD.V2R3.COPY.PLANS	DMPU45	53	0	0.0	1	PDS Extended	80	27920
	TIVAAD.V2R3.COPY.SAKDCNTL	DMPU28	45	33	73.3	1	Partitioned	80	27920

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Monitoring



Application Monitoring Volume Space for Application Selected

Volume Space Report													
	Volume	Device Address	Device Type	Total Capacity Megabytes	Free Space Megabytes	Percent Free Space	Fragmentation Index	Largest Free Extent MB	SMS Conversion Status	SMS Status	Storage Group Name	VTOC Index Status	Solid State Device
	DMPP39	156C	3390	8120	2076	25.5	317	463	Converted	Enabled	PRIMARY	Enabled	No
	DMPP42	11C5	3390	8120	3520	43.3	286	692	Converted	Enabled	PRIMARY	Enabled	No
	DMPU35	153E	3390	8120	270	3.3	753	8	Converted	Enabled	USRGROUP	Enabled	No
	DMPP24	15B8	3390	8120	2620	32.2	117	2084	Converted	Enabled	PRIMARY	Enabled	No
	DMPU14	158F	3390	8120	326	4.0	629	11	Converted	Enabled	USRGROUP	Enabled	No
	DMPP04	1568	3390	8120	6256	77.0	77	5402	Converted	Enabled	PRIMARY	Enabled	No
	DMPP46	1530	3390	8120	3024	37.2	54	2750	Converted	Enabled	PRIMARY	Enabled	No
	DMPP18	1599	3390	8120	1132	13.9	261	542	Converted	Enabled	PRIMARY	Enabled	No
	DMPP50	1534	3390	8120	4999	61.5	97	3917	Converted	Enabled	PRIMARY	Enabled	No
	DMPP27	159E	3390	8120	4483	55.2	74	3952	Converted	Enabled	PRIMARY	Enabled	No
	DMPP31	1574	3390	8120	2697	33.2	101	2253	Converted	Enabled	PRIMARY	Enabled	No
	DMPU51	153A	3390	8120	360	4.4	595	18	Converted	Enabled	USRGROUP	Enabled	No
	DMPU32	154A	3390	8120	344	4.2	623	31	Converted	Enabled	USRGROUP	Enabled	No
	DMPU49	11C1	3390	8120	163	2.0	732	24	Converted	Enabled	USRGROUP	Enabled	No
	DMPP43	11C6	3390	8120	4909	60.4	221	1878	Converted	Enabled	PRIMARY	Enabled	No
	DMPP28	159F	3390	8120	5208	64.1	145	3209	Converted	Enabled	PRIMARY	Enabled	No
	DMPU45	11D1	3390	8120	325	4.0	685	11	Converted	Enabled	USRGROUP	Enabled	No
	DMPU28	1537	3390	8120	362	4.4	799	3	Converted	Enabled	USRGROUP	Enabled	No
	DMPU23	1545	3390	8120	348	4.2	768	6	Converted	Enabled	USRGROUP	Enabled	No
	DMPU47	11BF	3390	8120	314	3.8	694	9	Converted	Enabled	USRGROUP	Enabled	No

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Monitoring



Application Monitoring Volume Performance for Application Selected

Volume Performance Report																			
	Volume	Device Address	Busy Percent	I/O Per Second	IOSQ Delay	Pend Time	Connect Time	Disconnect Time	Response Time	MSR Connect Time Percent	I/O Count	Device MPL	DCBs Open	Reserved Percent	Average HyperPAV Alias Count	Average Command Response Delay	Current PAV Exposures	PAV Exposure Changed	Maximum PAV Exposures
	DMPP39	156C	0.7	1.6	0.0	0.1	4.5	0.0	4.6	97.8	2562	7	84	0.0	n/a	0.0	0	No	0
	DMPP42	11C5	0.0	0.4	0.0	0.1	0.3	0.0	0.4	75.0	601	0	60	0.0	n/a	0.0	0	No	0
	DMPU35	153E	0.0	0.1	0.0	0.1	0.5	0.0	0.6	83.3	149	0	1	0.0	n/a	0.0	0	No	0
	DMPP24	15B8	0.4	1.2	0.0	0.1	3.2	0.0	3.4	94.1	1606	4	49	0.0	n/a	0.0	0	No	0
	DMPU14	158F	0.0	0.1	0.0	0.1	0.5	0.0	0.6	83.3	138	0	2	0.0	n/a	0.0	0	No	0
	DMPP04	1568	0.1	4.8	0.0	0.1	0.2	0.0	0.4	50.0	5969	2	28	0.0	n/a	0.0	0	No	0
	DMPP46	1530	0.3	0.4	0.0	0.1	6.9	0.0	7.0	98.6	643	3	103	0.0	n/a	0.0	0	No	0
	DMPP18	1599	0.1	0.2	0.0	0.1	6.8	0.0	7.0	97.1	297	1	48	0.0	n/a	0.0	0	No	0
	DMPP50	1534	0.0	0.0	0.0	0.5	0.3	0.0	0.9	33.3	70	0	64	0.0	n/a	0.4	0	No	0
	DMPP27	159E	0.0	1.9	0.0	0.1	0.2	0.0	0.3	66.7	2438	1	10	0.0	n/a	0.0	0	No	0
	DMPP31	1574	0.1	4.6	0.0	0.1	0.2	0.0	0.4	50.0	9627	2	86	0.0	n/a	0.0	0	No	0
	DMPU51	153A	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	44	0	0	0.0	n/a	0.0	0	No	0
	DMPU32	154A	0.0	0.0	0.0	0.1	0.1	0.0	0.2	50.0	69	0	2	0.0	n/a	0.0	0	No	0
	DMPU49	11C1	0.0	0.0	0.0	0.1	0.1	0.0	0.2	50.0	75	0	10	0.0	n/a	0.0	0	No	0
	DMPP43	11C6	0.0	1.0	0.0	0.1	0.3	0.0	0.4	75.0	1901	0	29	0.0	n/a	0.0	0	No	0
	DMPP28	159F	1.9	117.2	0.0	0.1	0.1	0.0	0.3	33.4	144430	35	42	0.0	n/a	0.0	0	No	0
	DMPU45	11D1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	75	0	2	0.0	n/a	0.0	0	No	0
	DMPU28	1537	0.0	0.0	0.0	0.1	0.1	0.0	0.2	50.0	23	0	0	0.0	n/a	0.0	0	No	0
	DMPU23	1545	0.0	0.0	0.0	0.1	0.1	0.0	0.2	50.0	47	0	0	0.0	n/a	0.0	0	No	0
	DMPU47	11BF	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	53	0	2	0.0	n/a	0.0	0	No	0

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Monitoring



### Application Monitoring **DEFINING** the App to Monitor

	Application	ASID Hex	I/O Second	Dataset Count	High Dataset MSR	Dataset with High MSR	Volume with High MSR Dataset	Volume Count	High Volume MSR	Volume with High MSR
	CDCONN					.TCX.DATA	DMPU05	10	3.3	DMPP47
	DFRMM							2	1.6	DMPRES
	DFHSM							5	4.7	DMPP01
	DB1SMSTR					1S.BSDS02.DATA	DMPD04	14	2.9	DMPP08
	DB1SIRLM							1	4.2	DMPP24
	DB1SDBM1					SNDBD.DB2PM.ONLINE.I0001.A001	DMPD18	4	2.9	DMPP08
	DB1SDIST							3	2.9	DMPP08
	CICSAOR2							37	5.4	DMPP46
	CICSAOR1							44	5.4	DMPP35
	CICSAOR6							44	5.6	DMPU04
	DB1RMSTR					OGCOPY2.DS03.DATA	DMPR02	3	2.9	DMPP08
	DB1RDBM1					SNDBD.DSNDB06.SYSRTSTS.I0001.A001	DMPR01	2	2.9	DMPP08
	NETVIEW					YLSPL	DMPP08	36	8.5	DMPP32
	DB1SADMT					SKLIST.DATA	DMPD15	2	2.9	DMPP08
	CXEGRA					COPY.SCKMLOAD	DMPU35	20	6.1	DMPP18
	CXEGRH							17	8.5	DMPP32
	CXEGRHX						DMPU22	5	4.2	DMPP24
	CXEGRG							16	8.5	DMPP32
	CXEGRGX							2	0.7	DMPU14
	CXEGRN					HE	DMPSP3	15	8.5	DMPP32
	CXEGRNX							2	0.7	DMPU35
	CXEGRV							17	8.5	DMPP32
	CICSTIV3							28	5.4	DMPP46
	DB1RDIST	0X01AD	0	3	0.0			3	2.9	DMPP08
	DB1RIRLM	0X01B3	0	1	0.0			1	4.2	DMPP24
	DB1RADMT	0X01BD	0	2	0.3	DB1RDCAT.TASKLIST.DATA	DMPR01	2	2.9	DMPP08

- Take Action...
- Link To...
- Launch...
- Model Situation...
- Link Anchor...
- Export ...
- Manage Application Definition**
- Create Command ...
- Create Batch Job ...
- Submit Command or Job ...
- Print Preview...
- Print...
- Find...
- Properties...



# OMEGAMON XE for Storage

## Version 420 Monitoring



Application Monitoring **New definitions**

Manage Application Definition

Application Monitoring Definition List (select row(s), then right click to edit or delete the definition(s) or right click to add a definition)

Application Definition ▲	Description	Persist	Application Mask	I/O Monitor Status
Connect:Direct	connect direct databas...	Yes	CDCONN	Start
DB2 Subsystem DB1	DMs DB2 Application	Yes	DB1*	Stop
IBM SMS	SMS Components	Yes	DF*	Start
ROCKET	OMEGAMON TEP CHIL...	Yes	CXEGR*	Start

OK Help

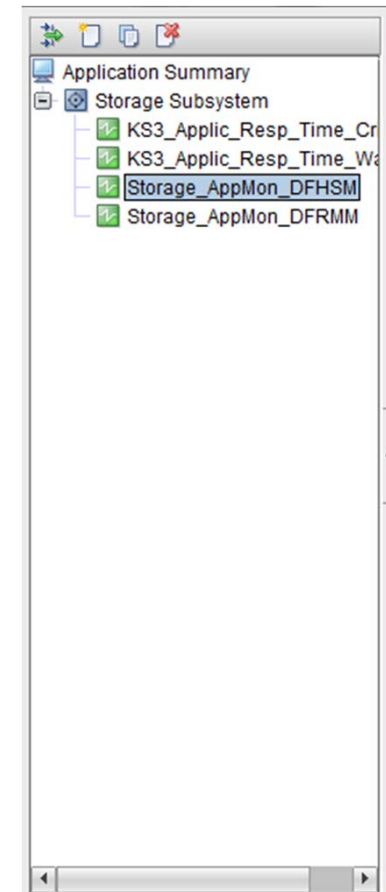
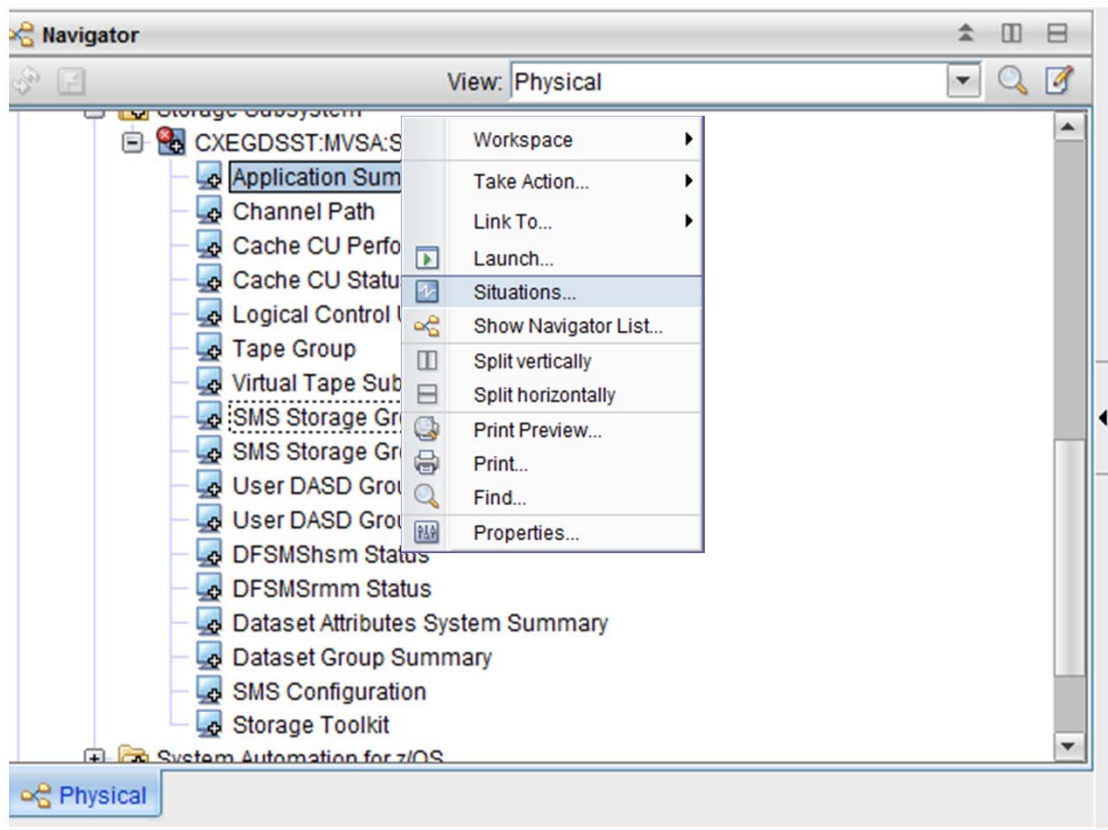
Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 Monitoring



Application Monitoring    Old definitions



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 Monitoring



Application Monitoring Old definitions

**Situations for - Application Summary**

Application Summary  
Storage Subsystem  
KS3\_Applic\_Resp\_Time\_Cr  
KS3\_Applic\_Resp\_Time\_W  
Storage\_AppMon\_DFHSM  
Storage\_AppMon\_DFRMM

**Name**  
Storage\_AppMon\_DFHSM

**Description**  
Monitor I/O and Space for DFHSM

**Formula**

	Application	I/O Monitor Status	Monitor Status
1	== DFHSM	== 'Y'	== 'Y'
2			
3			

**Formula editor**

Situation Formula Capacity  18% Add conditions... Advanced...

**Sampling interval**  
0 / 0 : 30 : 0  
ddd hh mm ss

**Sound**  
 Enable critical.wav  
Play Edit...

**State**  
Critical  
 Run at startup

OK Cancel Apply Group... Help

Storage\_AppMon\_DFHSM

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 Monitoring



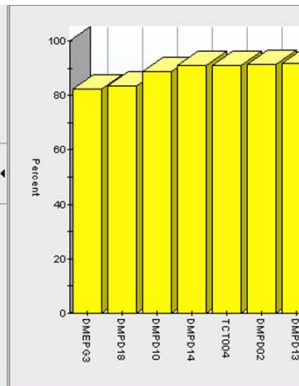
### Cache CU

- Cache metrics shown for the z/OS image and by SSID
  - Lowest volume read hit percent
  - Lowest volume write hit percent
  - Lowest volume DFW hit percent
  - Highest volume destaging rate
  - Highest volume staging rate

# OMEGAMON XE for Storage

## Version 420 Monitoring

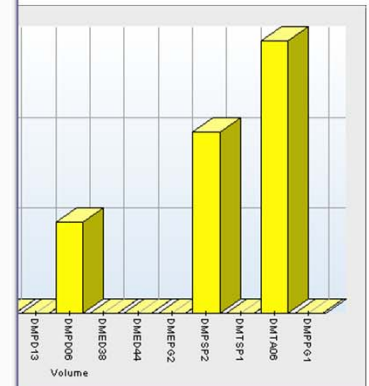
### Cache CU Performance



Volumes With Lowest Read Hit Percent

Volume	Device Address	Subsystem ID	Read Hit Percent	Write Hit Percent	Read I/O Percent	DFW Status	DFW Hit Percent	DFW Retry Percent	Bypass Cache Percent	Inhibit Cache Percent	CFW Read Percent	CFW Write Percent
DMEPG3	15BB	C500	82.5	100.0	51.3	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMPD18	15C8	C500	83.3	100.0	87.8	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMPD10	1308	C300	88.7	100.0	64.8	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMPD14	130C	C300	90.8	100.0	80.3	Active	100.0	0.0	0.0	0.0	n/a	n/a
TCT004	10D3	C000	90.9	100.0	44.5	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMPD02	1300	C300	91.3	100.0	69.0	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMPD13	130B	C300	91.7	100.0	17.0	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMPD06	1304	C300	92.9	100.0	79.0	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMED38	1712	C700	93.1	100.0	43.9	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMED44	1718	C700	93.5	100.0	29.8	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMEPG2	166A	C600	93.5	100.0	54.8	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMPSP2	1218	C200	94.1	100.0	50.0	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMTSP1	1503	C500	95.0	100.0	17.1	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMTA06	1525	C500	95.5	100.0	89.2	Active	100.0	0.0	0.0	0.0	n/a	n/a
DMPPG1	1219	C200	96.1	100.0	13.8	Active	100.0	0.0	0.0	0.0	n/a	n/a

- Cache CU Raid Rank
- Symmetrix Configuration
- Symmetrix Disk Director Summary
- Symmetrix Devices
- Cache CU Historic Raid Rank
- Cache CU Raid Rank Trend
- TotalStorage CU Volumes
- TotalStorage Extent Pool Volumes
- Cache CU Volume Destaging
- Cache CU Volume Staging
- Cache CU Volume DFW Retry
- Cache CU Volume Read Hit Percent
- Cache CU Volume Write Hit Percent
- Cache CU Volume Inactive Status
- ✓ Lowest Volume Read Hit Percent
- Lowest Volume Write Hit Percent
- Lowest Volume DFW Hit Percent
- Highest Volume Destaging Rate
- Highest Volume Staging Rate
- Lowest Volume CU Read Hit Percent
- Lowest Volume CU Write Hit Percent
- Lowest Volume CU DFW Hit Percent
- Highest Volume CU Destaging Rate
- Highest Volume CU Staging Rate
- Cache CU Volume Performance
- Cache CU Performance Trend
- Volume Cache Trend
- Volume Cache History
- TotalStorage Ranks
- TotalStorage Array Configuration
- TotalStorage Extent Pool Trend
- TotalStorage Ranks Trend
- TotalStorage Volume Trend
- TotalStorage Rank History
- TotalStorage Volume History
- TotalStorage Configuration
- Cache CU Destaging Trend
- Volume Destaging Trend
- Volume Destaging History
- Cache CU Staging Trend
- Volume Staging Trend
- Volume Staging History
- Cache CU DFW Retry Trend
- Cache CU Volume DFW Retry History
- Cache CU Read Hit Percent Trend
- Cache CU Volume Read Hit Percent History
- Cache CU Write Hit Percent Trend
- Cache CU Volume Write Hit Percent History
- User DASD Group Volume Historical Cache
- More...



Cache Tracks Sequential	DASD to Cache Non Promotes per Second	DASD to Cache Non Promotes	DASD to Cache Tracks per Sec Sequential	D
7	0.0	0	0.0	
11	0.0	0	0.0	
46	0.0	0	0.0	
14	0.0	0	0.0	
10	0.0	0	0.0	
54	0.0	0	0.0	
33	0.0	0	0.0	
79	0.0	0	0.0	
10	0.0	0	0.0	
0	0.0	0	0.0	
3	0.0	0	0.0	
213	0.0	0	0.0	
17	0.0	0	0.0	
184	0.0	0	0.2	
2	0.0	0	0.0	

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)





# OMEGAMON XE for Storage

## Version 420 Monitoring

### DASD Device Monitoring

Device Performance Details - dem17Inx.demcentral.ibm.com - Vickie Dault \*ADMIN MODE\*

Volume Status

Volume: KFWITM217E Request error: SQL1\_OpenRequest failed

Busy Percent	I/O Per Second	I/O Delay	Pend Time	Connect Time	Disconnect Time	Response Time	MSR Connect Time	Connect Percent	I/O Count	Device MPL	DCBs Open	Reserved Percent	Average HyperPAV Alias Count	Average Command Response Delay
0.0	0.0	0.0	0.1	0.1	0.0	0.2	50.0	50	0	0	0.0	n/a	0.0	
0.0	0.0	0.0	0.1	0.1	0.0	0.2	50.0	46	0	0	0.0	n/a	0.0	
0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	46	0	0	0.0	n/a	0.0	

Subsystem ID	Cache Status	Read Hit Percent	Write Hit Percent	Read I/O Percent	DFW Status	DFW Hit Percent	DFW Retry Percent	Bypass Cache Percent	Inhibit Cache Percent	CFW Read Percent	CFW Write Percent	I/O Count
C000	Active	100.0	100.0	72.1	Active	100.0	0.0	0.0	0.0	n/a	n/a	136
C000	Active	100.0	100.0	99.0	Active	100.0	0.0	0.0	0.0	n/a	n/a	100

ASID	Application	Data Set Name	DD Name	Open Count

Hub Time: Tue, 08/07/2012 01:56 PM Server Available

- SMS Storage Group Volume Performance
- Dataset Performance Summary
- Dataset Performance Detail
- SMS Storage Group Volume Cache
- Physical Volume Group Performance
- Physical Volume Group Cache
- Dataset Details
- Device Performance Details
- Cross System Volume Performance
- Dataset Performance Summary Trend
- Dataset Historic Performance Summary
- Dataset Performance Historical Detail
- Dataset Performance Detail Trend
- Dataset Performance Event
- Highest Volume Response Time
- Highest Volume MPL
- Highest Volume I/O Rate
- Highest Volume Busy Percent
- Lowest Volume Connect Percent
- Highest Volume Group Response Time
- Highest Volume Group I/O Rate
- Highest Volume Group MPL
- Highest Volume Group Busy Percent
- Lowest Volume Group Connect Percent
- SMS Storage Groups Performance
- Volume Performance Trend
- Cross System Group Summary
- SMS Storage Group Performance Trend
- Group Volume Historical Performance
- Highest Volume User DASD Group Response Time
- Highest Volume User DASD Group MPL
- Highest Volume User DASD Group I/O Rate
- Highest Volume User DASD Group Busy Percent
- Lowest Volume User DASD Group Connect Percent
- User DASD Group Volume Historical Performance
- Channel Path Volume Historical Performance
- Louis Perf small
- Louis SMS Group Perf

Page: 1 of 17

Page: 1 of 17

Page: 1 of 17

ADMIN MODE\*

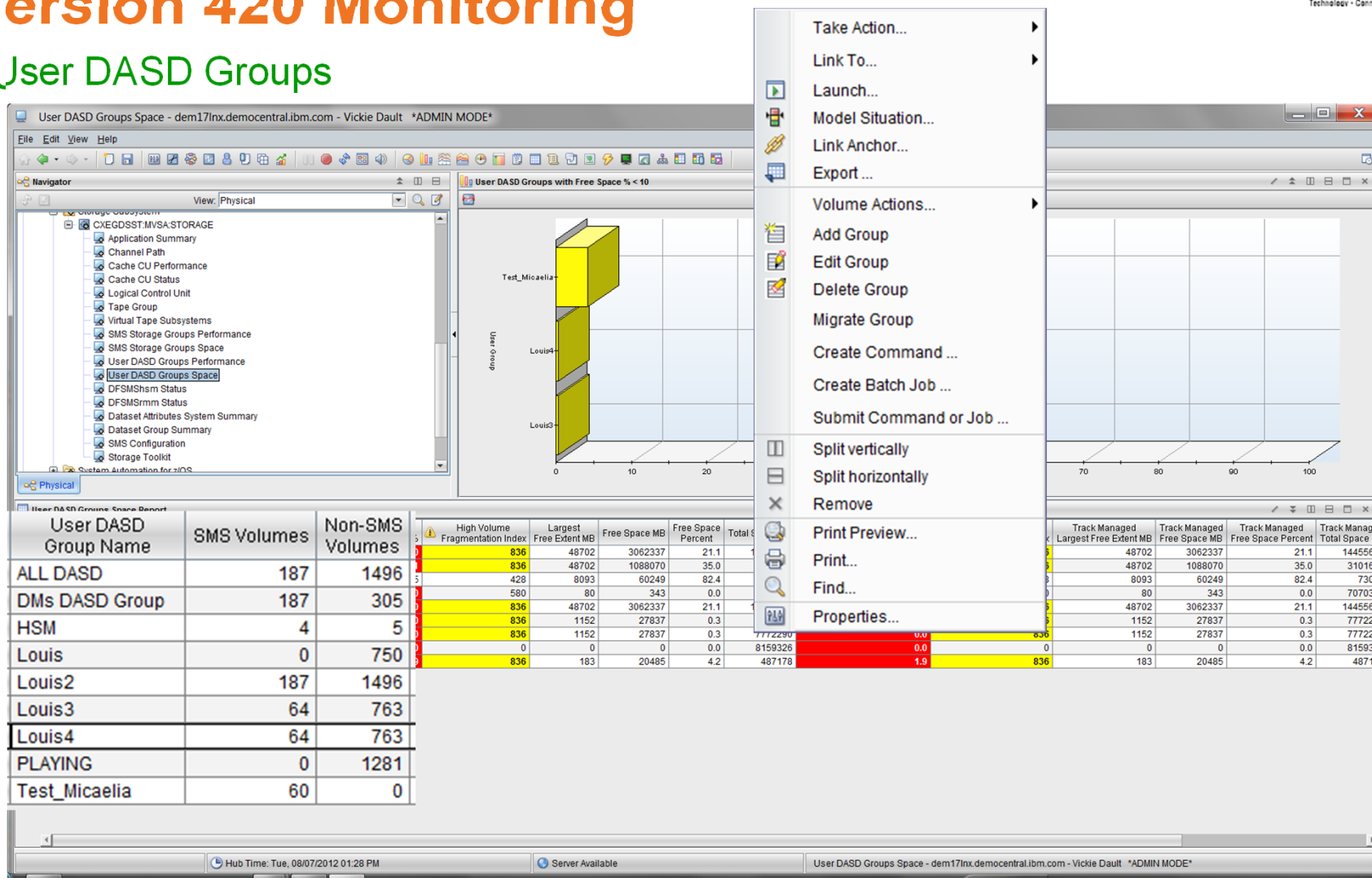
Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Monitoring

### User DASD Groups



User DASD Group Name	SMS Volumes	Non-SMS Volumes	High Volume Fragmentation Index	Largest Free Extent MB	Free Space MB	Free Space Percent	Total Space MB	Track Managed Largest Free Extent MB	Track Managed Free Space MB	Track Managed Free Space Percent	Track Managed Total Space MB
ALL DASD	187	1496	836	48702	3062337	21.1	1445564	48702	3062337	21.1	1445564
DMs DASD Group	187	305	836	48702	1088070	35.0	310169	48702	1088070	35.0	310169
HSM	4	5	836	8093	60249	82.4	7307	8093	60249	82.4	7307
Louis	0	750	836	80	343	0.0	707039	80	343	0.0	707039
Louis2	187	1496	836	48702	3062337	21.1	1445564	48702	3062337	21.1	1445564
Louis3	64	763	836	1152	27837	0.3	777229	1152	27837	0.3	777229
Louis4	64	763	836	1152	27837	0.3	777229	1152	27837	0.3	777229
PLAYING	0	1281	836	0	0	0.0	8159326	0	0	0.0	8159326
Test_Micaelia	60	0	836	183	20485	4.2	487178	183	20485	4.2	487178

# OMEGAMON XE for Storage Version 420 Monitoring



Historical Collection Required for Trending



History Collection Configuration

Monitored Applications

- Advanced Audit for DFSMSHsm
- Advanced Backup and Recovery
- Advanced Reporting for DFSMSHsm
- CCC Logs
- IBM Tivoli Advanced Allocation Management
- IBM Tivoli Advanced Catalog Management
- Linux
- NetView for z/OS Enterprise Management Ag
- OMEGAMON XE for CICS on z/OS
- OMEGAMON XE for CICS TG on z/OS
- OMEGAMON XE for DB2 PE and PM on z/OS
- OMEGAMON XE for IMS on z/OS
- OMEGAMON XE for Mainframe Networks
- OMEGAMON XE for Storage on z/OS**
- OMEGAMON XE on z/OS
- OMEGAMON XE on z/VM and Linux
- OMEGAMON z/OS Management Console v4.
- Tivoli Decision Support for z/OS
- Tivoli Enterprise Monitoring Server
- Tivoli Storage Manager
- Tivoli Storage Productivity Center
- UAGENT
- Warehouse Proxy
- Warehouse Summarization and Pruning Age
- WebSphere Message Broker
- WebSphere MQ
- Windows OS

Select Attribute Group(s)

Group	Prune Detailed	Summarize Hourly	Prune Hourly	Summarize Daily	Prur Dail
<input checked="" type="checkbox"/> S3 DASD Group Vol Space	90 Days	On		On	
<input type="checkbox"/> S3 DASD Volume Performance					
<input checked="" type="checkbox"/> S3 DASD Volume Space	90 Days	On		On	
<input type="checkbox"/> S3 DSN Attr Group Detail					
<input type="checkbox"/> S3 DSN Attr Group Summary					
<input type="checkbox"/> S3 Dataset Attributes Blocksize Summary					
<input type="checkbox"/> S3 Dataset Attributes CA Split Summary					
<input type="checkbox"/> S3 Dataset Attributes CI Split Summary					
<input type="checkbox"/> S3 Dataset Attributes Catalog Summary					
<input type="checkbox"/> S3 Dataset Attributes Creation Date Summary					
<input type="checkbox"/> S3 Dataset Attributes DSORG Detail					
<input type="checkbox"/> S3 Dataset Attributes DSORG Summary					

Configuration Controls

Summarization

- Yearly
- Quarterly
- Monthly
- Weekly
- Daily
- Hourly

Pruning

- Yearly keep  Years
- Quarterly keep  Years
- Monthly keep  Months
- Weekly keep  Months
- Daily keep  Days
- Hourly keep  Days
- Detailed data keep  Days

Clear all

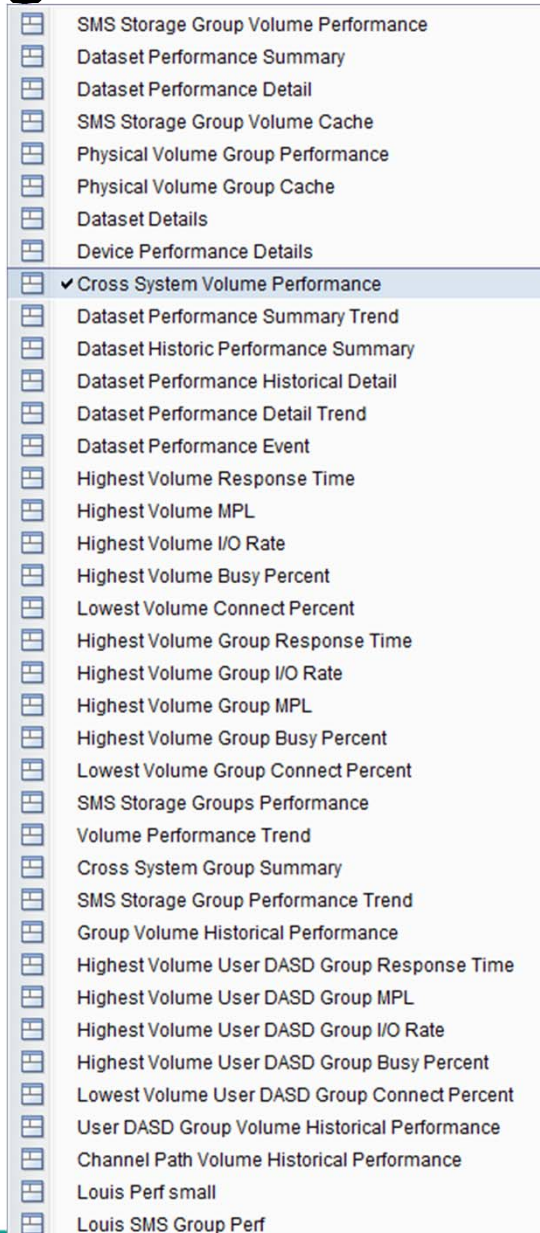
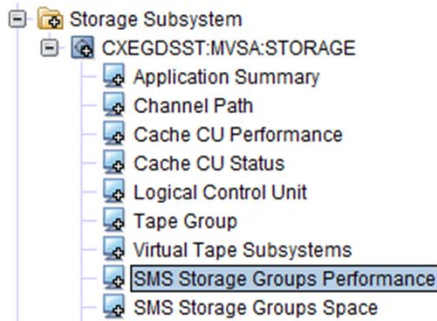
Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Monitoring

### Cross system Contention



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

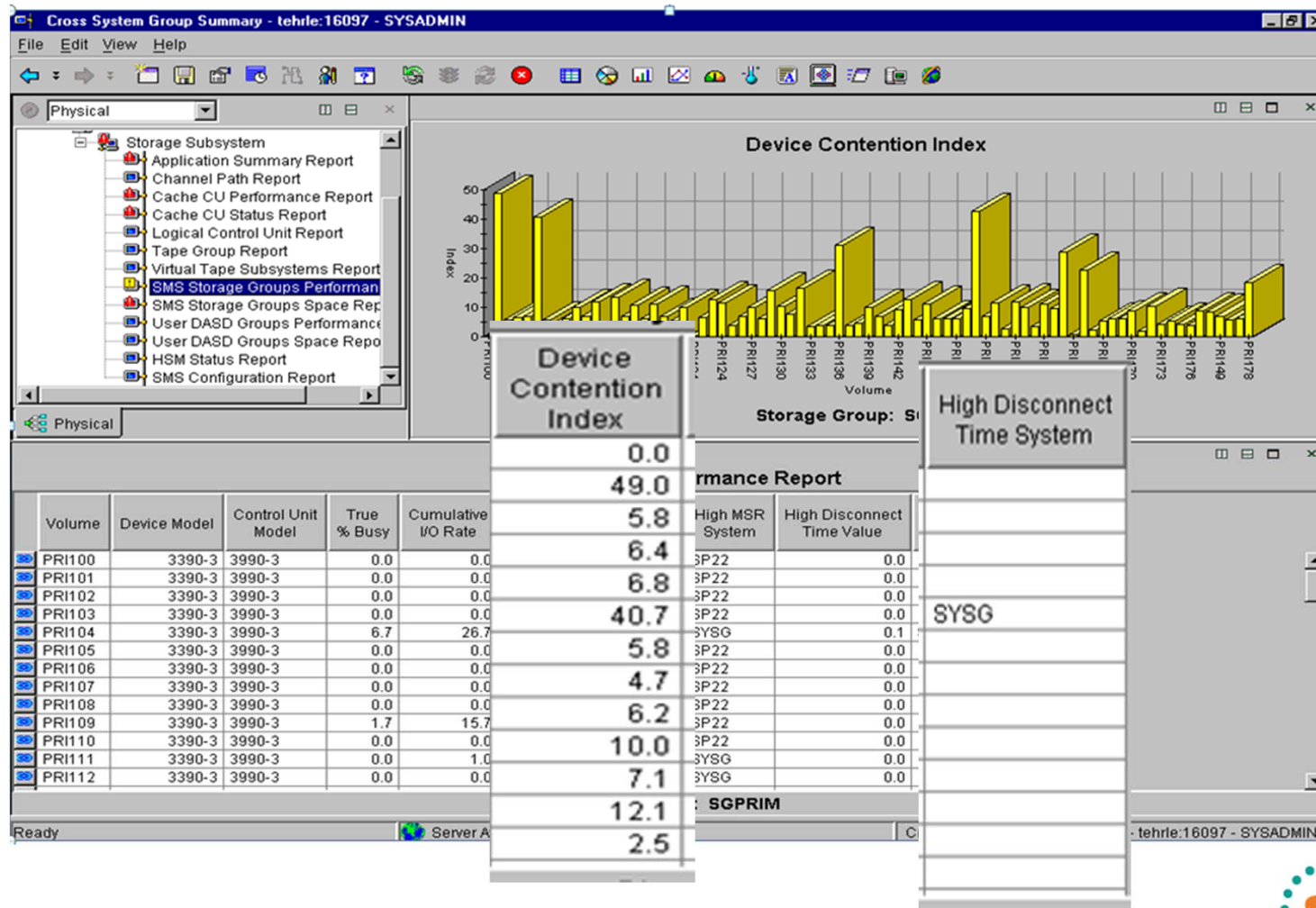


# OMEGAMON XE for Storage

## Version 420 Monitoring



### Cross system Contention



Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 Features



# Configuration for Performance

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 PERFORMANCE Considerations



### Collections Default Values

Cache Statistics	collect every 5 minutes
DASD Response time	once a minute
DASD Space/fragmentation index	a multiple of response time
Tape Monitoring	every 5 minutes
Application Volume datasets	every 5 minutes

# OMEGAMON XE for Storage

## Version 420 PERFORMANCE Considerations



Collections Defaults in ICAT

```
----- DATA COLLECTION OPTIONS / RTE: -----
COMMAND ==>

Monitor sampling intervals:
Cache statistics:          300  (0-999 seconds)
Cache reset interval:     RMF  (0-999 minutes or RMF)
DASD response time:       60   (0-999 seconds)
DASD space/fragmentation: RMF  (0-99 response time intervals,
                                or RMF=once per RMF interval)

Tape monitoring interval: 300  (0-99999 seconds or OFF)
Application vols/datasets: 300  (0-999 seconds)

SMF recording:
SMF record number:        0    (128-255; 0=No SMF recording)
SMF recording interval:   OFF  (0-999 min, RMF, SMF, or OFF)
Minimum I/O count threshold: 25  (1-999, or OFF)

Historical data collection:
DASD collection enabled?  Y    (Y, N)
Dataset collection enabled? Y    (Y, N)
Application collection enabled? Y _ (Y, N)

Virtual tape server:
Collect virtual tape data? Y    (Y, N)
VTS data for historical reporting? Y (Y, N)

Enter=Next F1=Help F3=Back
```

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)



# OMEGAMON XE for Storage

## Version 420 PERFORMANCE Considerations



Collections      Example - reduced collection intervals

```
----- DATA COLLECTION OPTIONS / RTE -----
COMMAND ==> _

Monitor sampling intervals:
  Cache statistics:          300  (0-999 seconds)
  Cache reset interval:    RMF  (0-999 minutes or RMF)
  DASD response time:      900  (0-999 seconds)
  DASD space/fragmentation: 2    (0-99 response time intervals,
                                     or RMF=once per RMF interval)
  Tape monitoring interval: 3600 (0-99999 seconds or OFF)
  Application vols/datasets: 300  (0-999 seconds)
SMF recording:
  SMF record number:       0    (128-255; 0=No SMF recording)
  SMF recording interval:  OFF  (0-999 min, RMF, SMF, or OFF)
  Minimum I/O count threshold: OFF (1-999, or OFF)
Historical data collection:
  DASD collection enabled?  Y    (Y, N)
  Dataset collection enabled? Y    (Y, N)
  Application collection enabled? Y (Y, N)
Virtual tape server:
  Collect virtual tape data? Y    (Y, N)
  VTS data for historical reporting? Y (Y, N)
Enter=Next F1=Help F3=Back
```

Response time – 900  
DASD space/frag - 2  
Tape monitoring - 3600

15 minutes  
30 minutes  
1 hour

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)

# OMEGAMON XE for Storage

## Version 420 PERFORMANCE Considerations



Collections DISK to EXCLUDE

```
----- EXCLUDE DASD DEVICES FROM MONITORING / RTE: -----
COMMAND ==>                                     SCRULL ==> PAGE

Describe the DASD devices to exclude from space and fragmentation
monitoring. Enter a volser or pattern, a device address, or a device
address range.

                Actions:  D Delete entry

                Volser or   1st(only) - Last
                Pattern     Device   Device
                -----
Enter=Next  F1=Help  F3=Back
```

Exclude as much as possible  
SYSRES, PAGxxx SPOOLx SPAREv etc  
In a Shared DASD environment ONLY collect in one RTE

# OMEGAMON XE for Storage

## Version 420 PERFORMANCE Considerations



Collections I/O Performance

```
----- DASD DEVICE MONITORING / RTE: -----
COMMAND ==>                                SCROLL ==> PAGE

Please specify the following DASD collection options:

    Enable SMS storage class name collection? _Y_ (Y, N)
    MSR exception trip count:                _1_ (1-99)

Describe the DASD devices to monitor for dataset level I/O. Enter a
volser or pattern, a device address, or a device address range.

                Actions: D Delete entry

    Volser or 1st(only) - Last   Monitor   Sample
    Pattern   Device   Device   Status   Cnt/MSR
-----
Enter=Next  F1=Help  F3=Back          ON_   1_
```

Default ICAT values

MSR Exception trip count is 2

Monitor Status ON

Sample 1

Complete your sessions evaluation online at [SHARE.org/AnaheimEval](http://SHARE.org/AnaheimEval)





# OMEGAMON XE for Storage

## Version 420 PERFORMANCE Considerations



### Collections

```
----- DASD DEVICE MONITORING / RTE:                -- Row 1 from 1
COMMAND ==>                                         SCROLL ==> PAGE

Please specify the following DASD collection options:

      Enable SMS storage class name collection? Y_ (Y, N)
      MSR exception trip count:                1_ (1-99)

Describe the DASD devices to monitor for dataset level I/O. Enter a
volser or pattern, a device address, or a device address range.

                Actions: D Delete entry

      Volser or 1st(only) - Last  Monitor  Sample
      Pattern   Device   Device  Status   Cnt/MSR
-----
      _         0000     FFFF     MSR      51
      _         0000     FFFF     MSR      51

Enter=Next  F1=Help  F3=Back
```

# OMEGAMON XE for Storage

## Version 420 PERFORMANCE Considerations



### Collections

```
----- DASD DEVICE MONITORING / RTE: -- Row 1 from 1
COMMAND ==> SCROLL ==> PAGE

Please specify the following DASD collection options:

      Enable SMS storage class name collection? Y (Y, N)
      MSR exception trip count: 25 (1-99)

Describe the DASD devices to monitor for dataset level 1. Enter a
volser or pattern, a device address, or a device address range.

      Actions: D Delete entry

      Volser or 1st (only) - Last Monitor Sample
      Pattern Device Device Status Cnt/MSR
-----
      0000 FFFF MSR 51
      MSR 51

Enter=Next F1=Help F3=Back
```

MSR Exception trip count is 2 or higher determines overhead  
Monitor Status MSR  
Sample Cnt/MSR MSR default is 51

# OMEGAMON XE for Storage

## Version 420 PERFORMANCE Considerations



### Collections

```
----- DASD DEVICE MONITORING / RTE ----- Row 1 from 1
COMMAND ==>                                SCROLL ==> PAGE

Please specify the following DASD collection options:

      Enable SMS storage class name collection? Y (Y, N)
      MSR exception trip count:                25 (1-99)

Describe the DASD devices to monitor for dataset level I/O. Enter a
volser or pattern, a device address, or a device address range.

      Actions: D Delete entry

      Volser or 1st(only) - Last Monitor Sample
      Pattern Device Device Status Cnt/MSR
-----
      0000 FFFF MSR 51
      MSR 51
Enter=Next F1=Help F3=Back
```

Monitor every I/O but until an I/O MSR exceeds 51 milliseconds 2 times in this sampling interval the I/O is not recorded as a problem.

Until millisecond response time exceeds Sample Cnt/MSR MSR exception trip count times in the sampling interval don't record Response time problem

# Summary

- OMEGAMON XE for Storage Agent can monitor events that occur sporadically
- You can be notified for your BEFORE the problem impacts your storage environment and now drive a response automatically.
- Dynamic Linking between OMEGAMON Agents directs your attention to get directly to the source of the problem.
- Storage toolkit invocation with Situations allows for the automated correction or at least notification when problems are detected that warrants your immediate response
- Configuring OMEGAMON XE for Storage properly in your environment can gain the most benefit for the least overhead.