

# Washington Systems Center - Storage

## IBM Storage Monitoring & Management Options for the IBM FlashSystem 9200

Dominic Pruitt

IBM Global Markets – Systems Sales

Washington Systems Center

[dompruitt@us.ibm.com](mailto:dompruitt@us.ibm.com)



## Storage Monitoring vs Storage Management

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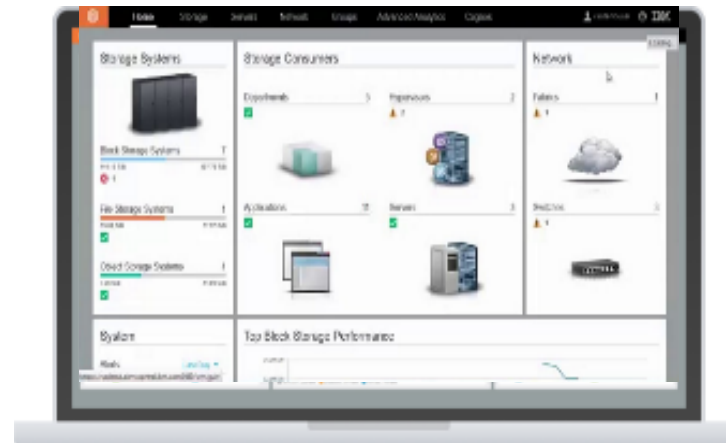
- Storage Monitoring
  - Views of storage metadata collected from data collectors
    - IBM Storage Insights
    - IBM Storage Insights Pro
    - IBM Storage Insights for Spectrum Control
    - *IBM Storage Insights Device Support Portal (the IBM internal support view)*
- Storage Monitoring and Management
  - Views of storage metadata collected from data collectors and can take administrative action on storage
  - IBM Spectrum Control Standard Edition
  - IBM Spectrum Control Advanced Edition

## Software as a Service vs On Premise

- Software as a Service (SaaS)
  - IBM Storage Insights
  - IBM Storage Insights Pro
  - IBM Storage Insights for Spectrum Control



- On Premise
  - IBM Spectrum Control Standard Edition
  - IBM Spectrum Control Advanced Edition



# IBM Storage Monitoring – SaaS – Storage Insights (free)

IBM Knowledge Center

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## Supported devices

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Find out which storage systems that you can monitor in IBM® Storage Insights Pro and IBM Storage Insights.

In IBM Storage Insights, you can monitor IBM block storage only. In IBM Storage Insights Pro, you can monitor IBM block storage, and the following additional storage:

*Table 1. Storage systems that can be monitored in IBM Storage Insights and IBM Storage Insights Pro*

Storage System	IBM Storage Insights	IBM Storage Insights Pro
Click a storage system to view its supported versions.		
<a href="#">DS8000®</a>	✓	✓
<a href="#">Dell EMC Unity</a>		✓
<a href="#">Dell EMC VMAX</a>		✓
<a href="#">Dell EMC VNX, VNXe</a>		✓
FlashSystem 5000	✓	✓
FlashSystem 5100	✓	✓
FlashSystem 7200	✓	✓
<a href="#">FlashSystem 9100</a>	✓	✓
FlashSystem 9200	✓	✓

Rate this content

# IBM Storage Insights

## IBM Storage Monitoring – SaaS – Storage Insights (free)

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- IBM Storage Insights (free / entitled)
  - Free of charge to customers who own IBM block storage systems
  - It is an IBM Cloud storage service that monitors IBM block storage
  - It provides single-pane views of IBM block storage systems
    - Operations dashboard
    - Notifications dashboard
  - Diagnostic event information
  - Key capacity and performance information (limited view of all metadata collected)
  - Streamlined support experience
    - Quickly assess the health of your storage environment
    - Get help with resolving issues
  - Advisor page provides recommendations on the remedial steps
    - Manage risks
    - Resolve storage issues
  - Storage Data Collector(s) need to be deployed on premise

# IBM Storage Monitoring – SaaS – Storage Insights (free)

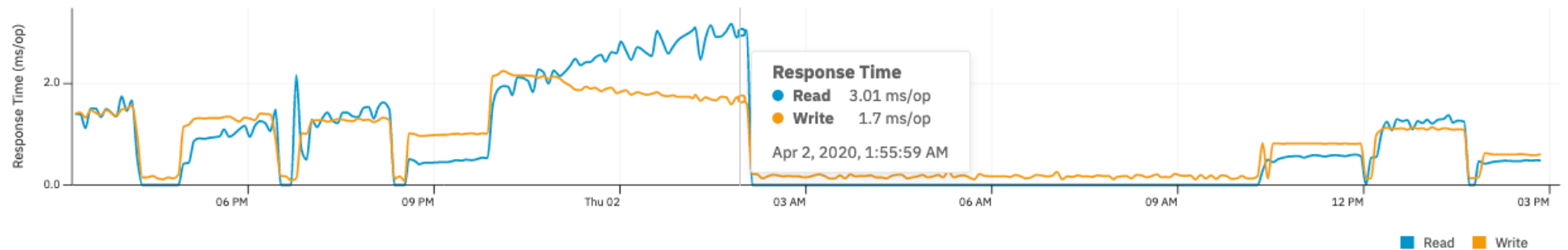
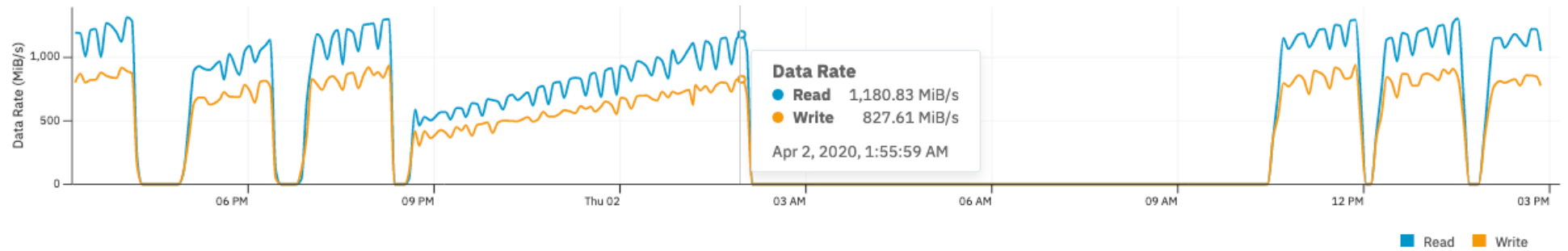
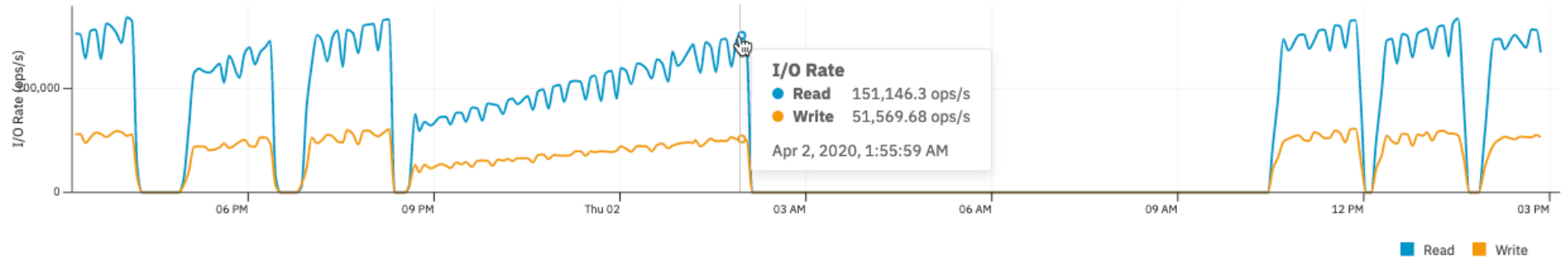
The screenshot displays the IBM Storage Insights dashboard for a specific FlashSystem. The interface includes a navigation menu on the left with options like 'Dashboards', 'Insights', 'Resources', 'Reports', 'Configuration', and 'Unlock the full potential of IBM Storage Insights Pro'. The main content area is titled 'FlashSystem-9150-AF8-204204008DA-5' and features a 'Get Support' button circled in red. Below the title, there are tabs for 'Overview', 'Notifications', 'Tickets', 'Properties', and 'Inventory'. The 'Component Health' section is divided into three categories: Hardware Components (Normal), Logical Components (16 Error), and Connectivity Components (1 Error). A summary grid shows: Volumes (16 Error, 99), Pools (Normal, 9), Managed Disks (Normal, 14), and RAID Arrays (Normal, 5). The 'Capacity' section shows 6.91% used capacity (228,873.68 / 245,849.75 GiB Available) and 33.57% written volume capacity (68,732.85 / 103,467.00 GiB Available). It also lists capacity savings of 88,512.89 GiB, broken down by Drive Compression (19,780.04 GiB), Pool Compression (0.00 GiB), Deduplication (0.00 GiB), and Thin-Provisioning (68,732.85 GiB). The 'Performance' section at the bottom shows a graph with a y-axis labeled 'IOPS' and a value of 2,000.



## IBM Storage Monitoring – SaaS – Storage Insights (free)

- FlashSystem-840-AE1-131062...
- FlashSystem-900-AE2-900-13...
- FlashSystem-9110-AF7-20420...
- FlashSystem-9110-AF7-20420...
- FlashSystem-9110-AF7-20422...
- FlashSystem-9150-AF8-20420...
- FlashSystem-9150-AF8-20420...
- FlashSystem-9150-AF8-20420...
- FlashSystem-9150-AF8-20420...
- FlashSystem-9150-AF8-20420...
- FlashSystem-A9000-415-1322...
- FlashSystem-A9000-415-1322...

### Performance





# IBM Storage Monitoring – SaaS – Storage Insights (free)

The screenshot shows the IBM Storage Insights interface for a FlashSystem-9150-AF8-204204008DA-5. A modal window titled "Get Support for FlashSystem-9150-AF8-204204008DA-5" is open, asking "What do you need help with?". It offers two options: "Create Ticket" (Report a problem to IBM) and "Update Ticket" (Add log package to existing ticket). A "Did you know?" box states that log packages are automatically generated and sent to IBM, with a link to learn more about monitoring resources with a data collector. The background shows system details like "FlashSystem 9100 - 9846" and "8.3.1.1 (build 150.23.2002261453000)", along with a "Component Health" section showing "Hardware" as "Normal" and "Volumes" with "20 Errors". A "Capacity" section shows "6.97%" usage.

The screenshot shows the same IBM Storage Insights interface, but the modal window is now titled "Create Ticket for FlashSystem-9150-AF8-204204008DA-5" and is in the "Collecting information for ticket" phase. It displays a server icon and a list of information being added to the ticket: Customer number: 4603954, Storage system: FlashSystem-9150-A..., Type: FlashSystem 9100 - ..., Serial number: 00000204204008DA, and Version: 8.3.1.1 (build 150.23...). Each item has a green checkmark. A progress bar at the bottom shows the first step completed. "Back" and "Next" buttons are visible at the bottom right.

# IBM Storage Monitoring – SaaS – Storage Insights (free)

FlashSystem-9150-AF8-204204008DA-5 Get Support

FlashSystem 9100 - 9846  
8.3.1.1 (build 150.23.2002261453000)

### Create Ticket for FlashSystem-9150-AF8-204204008DA-5

Add a note or attachment

This is a test ticket for this storage system, please delete. 11

Hint: Include what happened and the error code, if any.

This is a test ticket for this storage system, please delete. 2939

Hint: Include the time the problem or error occurred, the affected resources, and details of any maintenance or other activities that occurred before the problem.

Attach Image or File: Browse OR Drag file here

Back Next

FlashSystem-9150-AF8-204204008DA-5 Get Support

FlashSystem 9100 - 9846  
8.3.1.1 (build 150.23.2002261453000)

### Create Ticket for FlashSystem-9150-AF8-204204008DA-5

Select a severity level

Least critical 4 3 2 1 Most critical

Minimal business impact - inquiry or non-technical request

Back Next

# IBM Storage Monitoring – SaaS – Storage Insights (free)

FlashSystem-9150-AF8-204204008DA-5 Get Support

FlashSystem 9100 - 9846  
8.3.1.1 (build 150.23.2002261453000)

### Create Ticket for FlashSystem-9150-AF8-204204008DA-5

Select problem type

- Software / I don't know
- Hardware

Overview

Component Health

- Hardware Normal

Volumes 20 Errors

Capacity

Capacity **6.97 %**  
228,719.03 / 245,8

View capacity by ✓ ✓ ✓ ✓ ○

Back Next

FlashSystem-9150-AF8-204204008DA-5 Get Support

FlashSystem 9100 - 9846  
8.3.1.1 (build 150.23.2002261453000)

### Create Ticket for FlashSystem-9150-AF8-204204008DA-5

Review the ticket

Problem summary: This is a test ticket for this storage system, please delete.  
Description: This is a test ticket for this storage system, please delete.  
Severity level: **4** Minimal business impact - inquiry or non-technical request  
Type of problem: Software

Contact name:   
Contact email:   
Contact phone:   
Customer number:    
Storage system: FlashSystem-9150-AF8-204204008DA-5  
Type: FlashSystem 9100 - 9846  
Serial number: 00000204204008DA  
Version: 8.3.1.1 (build 150.23.2002261453000)  
Log package:

Overview

Component Health

- Hardware Normal

Volumes 20 Errors

Capacity

Capacity **6.97 %**  
228,719.03 / 245,8

View capacity by ✓ ✓ ✓ ✓ ✓

Back Create Ticket

# IBM Storage Monitoring – SaaS – Storage Insights (free)

FlashSystem-9150-AF8-204204008DA-5 Get Support

FlashSystem 9100 - 9846  
8.3.1.1 (build 150.23.2002261453000)

Overview

Component Health

Hardware Normal

Volumes 20 Errors


Capacity 6.97 %

228,719.03 / 245,819.95 TB

View capacity by 58.6 %

Create Ticket for FlashSystem-9150-AF8-204204008DA-5

Done



A log package is being created to add to the ticket  
Estimated time to add log package to ticket: **20 minutes**

You can close this window to continue your work.

Close

dompruitt@us.ibm.com

1 Tasks Running	Start Time
Creating ticket for FlashSystem-9150-AF8-204204008DA-5. Uploading log package for ticket 27896,082,000.	Apr 2, 2020, 14:53

FlashSystem-9150-AF8-204204008DA-5 Get Support

FlashSystem 9100 - 9846  
8.3.1.1 (build 150.23.2002261453000)

Overview Notifications **Tickets 1** Properties Inventory

Ticket updates are displayed here within 24 hours.

Open Tickets (1)

- 4** This is a test ticket for this storage system, please delete.  
27896,082,000 *Opened on Apr 2, 2020*

Closed Tickets (25)

- 4** Test HW ticket, please delete  
44774,082,000 *Closed on Mar 3, 2020*

This is a test ticket for this storage system, please delete.

Severity **4** Ticket 27896,082,000

APAR: -

Add Log Package to Ticket

## IBM Storage Monitoring – SaaS – Storage Insights (free)

### Permissions for IBM Support ✕

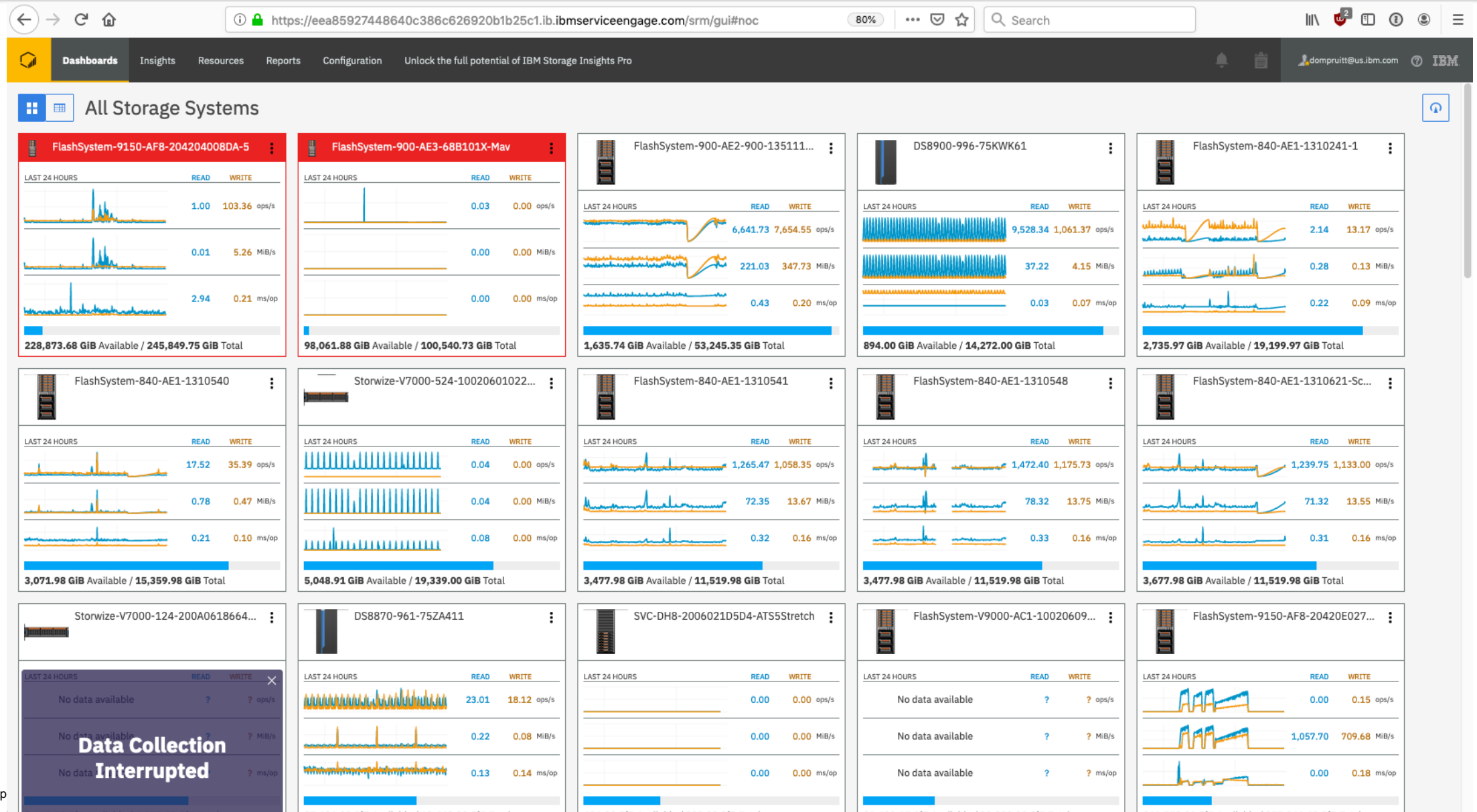
You can allow IBM support to collect and upload packages from your storage systems without requiring permission from your organization. If you give this permission, it can help IBM Support resolve your support tickets faster.

I give permission to IBM Support to collect and upload log packages from the selected storage systems.

<input type="checkbox"/>	Name	
<input checked="" type="checkbox"/>	FlashSystem-900-AE3-68B101...	
<input checked="" type="checkbox"/>	FlashSystem-9110-AF7-20420...	
<input checked="" type="checkbox"/>	FlashSystem-9110-AF7-20420...	
<input checked="" type="checkbox"/>	FlashSystem-9110-AF7-20422...	
<input checked="" type="checkbox"/>	FlashSystem-9150-AF8-20420...	
<input checked="" type="checkbox"/>	FlashSystem-9150-AF8-20420...	
<input checked="" type="checkbox"/>	FlashSystem-9150-AF8-20420...	
<input checked="" type="checkbox"/>	FlashSystem-9150-AF8-20420...	
<input checked="" type="checkbox"/>	FlashSystem-9150-AF8-20420...	
<input checked="" type="checkbox"/>	FlashSystem-9150-AF8-20420...	

Showing **52** items | Selected **50** items

## IBM Storage Monitoring – SaaS – Storage Insights (free)





## IBM Storage Monitoring – SaaS – Storage Insights (free)

Browser address bar: <https://eea85927448640c386c626920b1b25c11.ibm.serviceengage.com/srm/gui#noc>

Navigation: Dashboards | Insights | Resources | Reports | Configuration | Unlock the full potential of IBM Storage Insights Pro

User: dompruit@us.ibm.com

### All Storage Systems

Actions: Export (CSV, PDF, HTML), Select All, Deselect All, Add Storage System

Name	Condition	Used Capacity (%)	Available Capacity (GiB)	Capacity (GiB)	Provisioned Capacity (%)	Recent Growth (GiB)	Total Capacity Savings (%)
FlashSystem-V...	Normal	14 %	9,145.00	10,649.00	288.85	1.00	97.13 % (29,256.00 GiB)
SVC-DH8-200616006F8-Sandbox	Normal	14 %	35,984.58	41,996.00	124.32	-33.85	88.49 % (46,199.58 GiB)
FlashSystem-V9000-AC1-10020609530-VSCShow	Normal	28 %	36,785.18	29,920.00	107.05	56.98	75.08 % (23,518.18 GiB)
DS8900-996-75KWK61	Normal	94 %	894.00	14,272.00	93.34	-2.00	0.00 % (0.00 GiB)
Storwize-V7000-524-10020601022-Petro	Normal	74 %	5,048.91	19,339.00	78.95	0.00	6.54 % (977.91 GiB)
Storwize-V7000-524-1002340014E-G2-3	Normal	13 %	35,170.79	40,404.00	64.63	-0.50	81.96 % (20,878.79 GiB)
Storwize-V7000-124-200A0618664-Flex3B	Normal	64 %	2,640.98	7,253.00	63.59	Unavailable	
Storwize-V7000-524-1002080014C-VS1	Normal	20 %	29,267.94	36,815.00	60.61	192.50	67.69 % (14,766.70 GiB)
FlashSystem-9150-AF8-20420E02796-6	Normal	27 %	261,585.84	357,246.42	57.33	95,660.58	53.29 % (217,411.53 GiB)
FlashSystem-A9000-415-1322136	Normal	10 %	35,522.02	52,849.83	46.61	0.00	91.47 % (55,615.06 GiB)
DS8870-961-75ZA411	Normal	44 %	27,626.00	49,442.00	45.43	24.00	2.88 % (647.00 GiB)
SVC-DH8-2006021D5D4-ATS5Stretch	Normal	30 %	696.00	999.00	42.54	0.00	28.95 % (122.00 GiB)
FlashSystem-9150-AF8-204204008DA-5	Error	7 %	228,162.24	245,849.75	42.03	931.01	82.88 % (105,696.79 GiB)
Storwize-V7000-724-2042060269E-G3-3	Normal	18 %	46,541.67	56,485.69	40.79	-1,273.11	56.84 % (14,431.50 GiB)
Storwize-V7000F-AF6-10020609530-VS2	Normal	17 %	26,443.73	31,928.00	37.47	264.13	55.19 % (6,480.73 GiB)
XIV-214-1340004	Normal	10 %	23,382.47	26,106.95	37.11	0.00	76.27 % (7,389.46 GiB)
DS8800-981-13FCM01	Normal	25 %	17,731.00	23,498.00	30.71	1,193.00	23.88 % (1,723.31 GiB)
XIV-114-1310115	Normal	12 %	47,261.76	53,992.83	27.53	16.03	58.99 % (8,769.08 GiB)
FlashSystem-A9000R-415-1320926-Site C	Normal	8 %	186,755.31	52,753.56	26.74	0.00	94.62 % (78,437.77 GiB)
SVC-DH8-2006020A07A-SHOWSVC	Normal	6 %	144.00	154.00	23.41	-4,458.66	87.25 % (26.05 GiB)
FlashSystem-A9000-415-1322101-Site B	Normal	5 %	190,028.34	26,280.52	19.09	0.00	97.60 % (56,208.30 GiB)
DS8800-951-75TN211	Normal		13,674.00	16,384.00	16.54	Unavailable	
SVC-SV2-20420603B48	Normal	6 %	5,783.91	6,132.00	16.31	348.09	71.35 % (651.91 GiB)

Showing 54 items | Selected 0 items

# IBM Storage Monitoring – SaaS – Storage Insights (free)

← → × 🏠 <https://eea85927448640c386c626920b1b25c1.ibm.serviceengage.com/srm/gui#reports>

**Reports**

- Capacity Reports**  
Customize a capacity based report.
  - Block Storage Systems >
  - File Storage Systems 🔒
  - Object Storage Systems 🔒
  - Pools** >
  - Volumes 🔒
  - Managed Disks 🔒
  - Servers 🔒
  - Applications 🔒
  - Departments 🔒
  - NAS File Systems 🔒
  - Filesets 🔒
  - Network Shared Disks 🔒
- Inventory Reports**  
Customize an inventory report.
  - Block Storage Systems >
  - File Storage Systems 🔒
  - Object Storage Systems 🔒
  - Spectrum Scale Nodes 🔒
  - Spectrum Virtualize Nodes 🔒
  - Enclosures 🔒
  - Managed Disks 🔒
  - Modules 🔒
  - Servers 🔒
  - Storage System FC Ports 🔒
  - Storage System IP Ports 🔒
  - Controllers 🔒
- Summary Reports**  
Customize a summary report.
  - Chargeback** 🔒  
Chargeback reports show the amount and cost of the storage that is consumed by all of your applications, departments, or servers.  
[Learn more](#)
  - Storage Consumer** 🔒  
Consumer reports show the amount and cost of the storage that is consumed by a single application, department, or server.  
[Learn more](#)

# IBM Storage Monitoring – SaaS – Storage Insights (free)

Navigation bar with: Home, Dashboards, Insights, Resources, **Reports**, Configuration, Unlock the full potential of IBM Storage Insights Pro. User: dompruitt@us.ibm.com

## Reports

<a href="#">Create Report</a>   Actions ▾		Name	Used Capacity (%)	Available Capacity (GiB)	Capacity (GiB)	Recent Fill Rate (%)
Capacity Report		FlashSystem-900-AE2-90...	97 %	1,635.74	53,245.35	0.00
DP Block Storage Capacity Report <a href="#">Edit</a> Recipients: dompruitt@us.ibm.com Delivery: Every day at 06:00		DS8900-996-75KWK61	94 %	894.00	14,272.00	0.00
		FlashSystem-840-AE1-13...	86 %	2,735.97	19,199.97	0.00
		FlashSystem-840-AE1-13...	80 %	3,071.98	15,359.98	0.00
		Storwize-V7000-524-100...	74 %	5,048.91	19,339.00	0.00
		FlashSystem-840-AE1-13...	70 %	3,477.98	11,519.98	0.00
		FlashSystem-840-AE1-13...	70 %	3,477.98	11,519.98	0.00
		FlashSystem-840-AE1-13...	68 %	3,677.98	11,519.98	0.00
		Storwize-V7000-124-200...	64 %	2,640.98	7,253.00	Unavailable
DP Pool Capacity Report <a href="#">Edit</a> Recipients: dompruitt@us.ibm.com Delivery: Every day at 06:00		DS8870-961-75ZA411	44 %	27,626.00	49,442.00	0.05
		SVC-DH8-2006021D5D4-...	30 %	696.00	999.00	0.00
		FlashSystem-V9000-AC1-...	28 %	36,796.16	29,920.00	0.26
Inventory Report		FlashSystem-9150-AF8-2...	27 %	261,578.21	357,246.42	26.78
DP Block Storage Inventory Report <a href="#">Edit</a> Recipients: dompruitt@us.ibm.com Delivery: Every day at 06:00		DS8800-981-13FCM01	25 %	17,731.00	23,498.00	5.07
		Storwize-V7000-524-100...	20 %	29,289.24	36,815.00	0.52
		Storwize-V7000-724-204...	18 %	46,541.77	56,485.69	0.00
		FlashSystem-840-AE1-13...	17 %	32,015.94	38,399.94	0.00
		Storwize-V7000F-AF6-10...	17 %	26,453.06	31,928.00	0.83
		FlashSystem-V9000-AC2-...	14 %	9,145.00	10,649.00	0.01
		SVC-DH8-200616006F8-...	14 %	35,957.03	41,996.00	0.04
		Storwize-V7000-524-100...	13 %	35,170.99	40,404.00	0.01
		XIV-114-1310115	12 %	47,261.76	53,992.83	0.00
		FlashSystem-A9000-415-...	10 %	35,522.02	52,849.83	0.00
		XIV-214-1340004	10 %	23,382.47	26,106.95	0.00
		FlashSystem-A9000R-41...	8 %	186,755.31	52,753.56	0.00

# IBM Storage Monitoring – SaaS – Storage Insights (free)

Reply Forward | ... | Inbox

**WSC DP Block Storage Capacity** 6:08 AM  
 IBM Storage Insights to me [Show more](#)

DP Block Storage Capacity Report\_1585828742131.HTML DP Block Storage Capacity Report\_1585828742131.PDF [Show less](#)

DP Block Storage Capacity Report\_1585828742131.CSV

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## IBM Storage Insights

Name	Used Capacity (%)	Available Capacity (GiB)	Capacity (GiB)	Recent Fill Rate (%)	Recent Growth (GiB)
FlashSystem-900-AE2-900-1351114-1	97%	1,635.74	53,245.35	0.00	0.00
DS8900-996-75KWK61	94%	894.00	14,272.00	0.00	0.00
FlashSystem-840-AE1-1310241-1	86%	2,735.97	19,199.97	0.00	0.00
FlashSystem-840-AE1-1310540	80%	3,071.98	15,359.98	0.00	0.00
Storwize-V7000-524-10020601022-Petro	74%	5,048.91	19,339.00	0.00	0.00
FlashSystem-840-AE1-1310541	70%	3,477.98	11,519.98	0.00	0.00
FlashSystem-840-AE1-1310548	70%	3,477.98	11,519.98	0.00	0.00
FlashSystem-840-AE1-1310621-Scale1	68%	3,677.98	11,519.98	0.00	0.00
Storwize-V7000-124-200A0618664-Flex3B	64%	2,640.98	7,253.00	Unavailable	Unavailable
DS8870-961-75ZA411	44%	27,626.00	49,442.00	0.05	24.00
SVC-DH8-2006021D5D4-ATS5Stretch	30%	696.00	999.00	0.00	0.00
FlashSystem-V9000-AC1-10020609530-VSCShow	28%	36,796.16	29,920.00	0.26	78.81

# IBM Storage Insights Pro

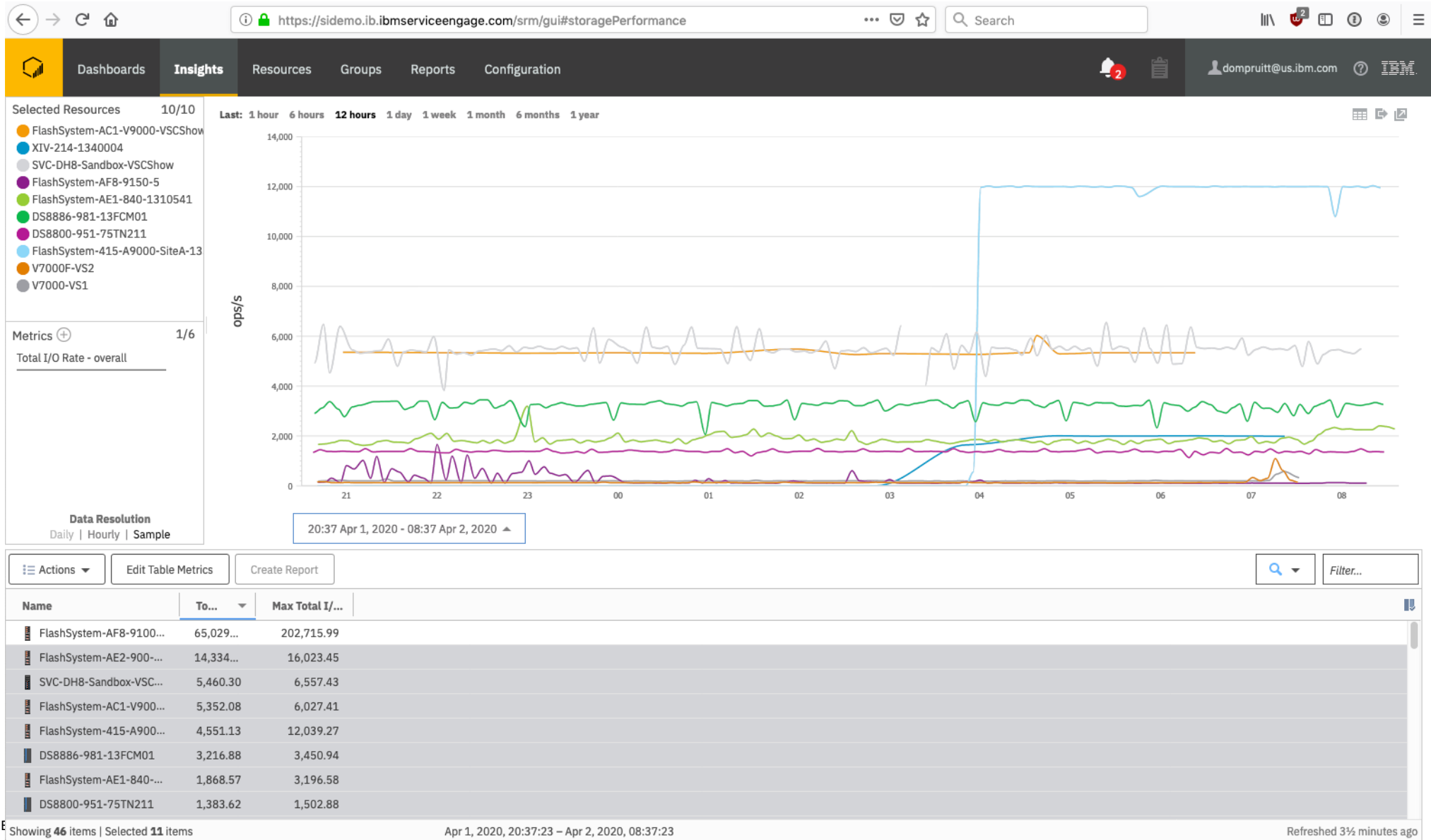
## IBM Storage Monitoring – SaaS – Storage Insights Pro

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- IBM Storage Insights Pro (includes all functions of Storage Insights free)
  - A subscription-based offering
  - Expands the IBM Storage Insights offering to include the monitoring of
    - IBM File storage products
    - IBM Object storage products
    - IBM Software-defined storage (SDS) systems
    - Monitoring of non-IBM block and file storage systems
  - Alerts dashboard so you can view and manage alerts in one place
  - Configurable alerts
  - Predictive analytics to
    - Reduce costs
    - Plan capacity
    - Detect and investigate performance issues
  - Recommendations for reclaiming unused storage, recommendations for optimizing the placement of tiered data, capacity planning analytics, and performance troubleshooting tools.



# IBM Storage Monitoring – SaaS – Storage Insights Pro



# IBM Storage Monitoring – SaaS – Storage Insights Pro

Navigation bar with browser address bar: <https://sidemo.ibm.serviceengage.com/srm/gui#storageSystems?tab=3>

Menu items: Dashboards, Insights, **Resources**, Groups, Reports, Configuration

User: dompruitt@us.ibm.com



## Block Storage Systems

- 68 Normal
- 1 Warning
- 3 Error

Storage Systems Alerts Performance **Capacity**

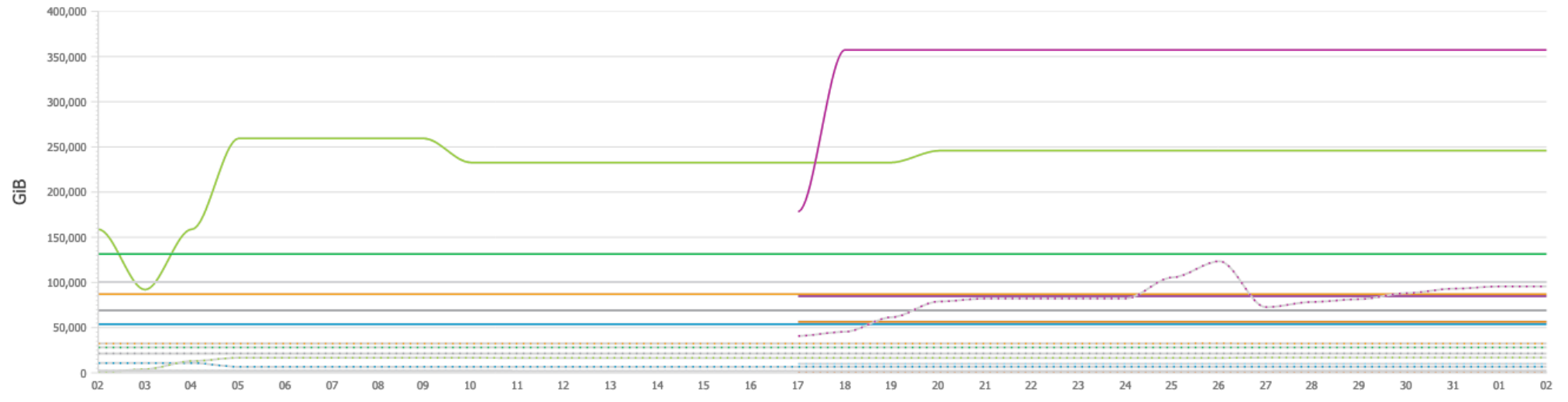
Selected Resources 10/10

- FlashSystem-AF8-9100-Class-6
- XIV-114-7825410
- XIV-114-1310115
- XIV-114-1310060
- FlashSystem-AF8-9150-5
- FlashSystem-AE3-900-Mav
- tsmcluster Netapp FAS
- V7000G3-3
- V7000G3-4
- FlashSystem-AF8-9150-Class-11

Metrics 2/6

- Used Capacity (GiB)
- Capacity (GiB)

Last: 1 week 1 month 6 months 1 year



Mar 2, 2020 - Apr 2, 2020

# IBM Storage Monitoring – SaaS – Storage Insights Pro

**Capacity** 26.78 % Used  
261,578.30 / 357,246.42 GiB Available  
[View capacity by pool](#)

**Volume Capacity** 99.69 % Written  
638.77 / 204,816.00 GiB Available  
[View capacity by volume](#)

**Capacity Savings**  
Total Savings: **109,147.88 GiB**  
108,509.10 GiB Drive Compression  
0.00 GiB Pool Compression  
0.00 GiB Deduplication  
638.77 GiB Thin-Provisioning

**Capacity** (Last 30 days)  
TiB vs Time. Legend: Availa...pacity, Used Capacity, Provis...pacity.

**Overall System Activity** (Last 24 hours)  
Cache Hits (%). Legend: Read Hits, Write...Delay, Overa...ntage.

**Most Active Nodes** (Last 24 hours)  
CPU Utilization (%). Legend: node3, node4, node1, node2.

**Most Active Volumes** (Last 24 hours)  
Response Time (ms/op). Legend: epic\_prd21\_1, epic\_prd17\_1, epic\_prd13\_1, epic\_prd23\_1, epic\_prd19\_1, epic\_prd15\_1.

# IBM Storage Monitoring – SaaS – Storage Insights Pro

Navigation bar with search, user profile (dompruit@us.ibm.com), and menu items: Dashboards, Insights, Resources, Groups, Reports, Configuration.



FlashSystem...0-Class-6  
IBM FlashSystem 9100 - 9846

Actions

General

- Overview
- Tickets
- Notifications
- Advisor
- Performance**
- Properties
- Alerts (204)
- Alert Definitions
- Copy Data

Internal Resources

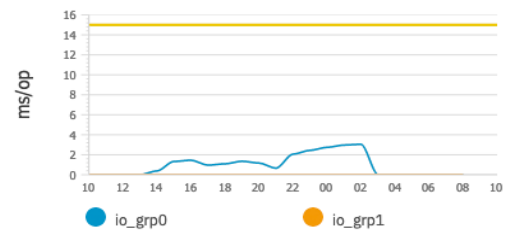
- Volumes (48)
- Pools (2)
- Managed Disks (2)
- RAID Arrays (2)
- Drives (48)
- I/O Groups (2)
- Nodes (4)
- Enclosures (2)
- FC Ports (40)
- IP Ports (16)
- Host Connections (2)

Related Resources

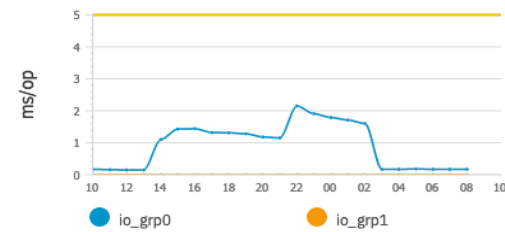
- Servers (1)

## Key Performance Indicators Last 24 hours

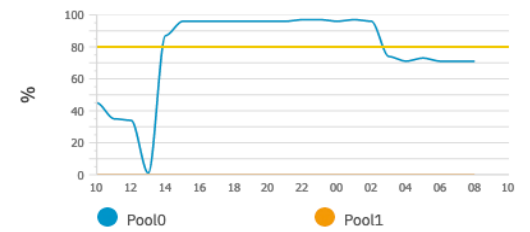
Read Response Time by I/O Group



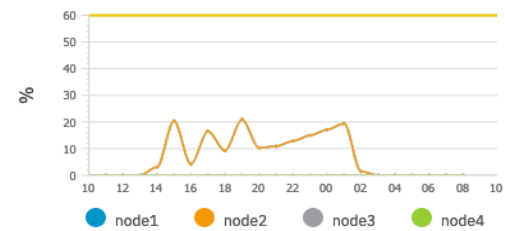
Write Response Time by I/O Group



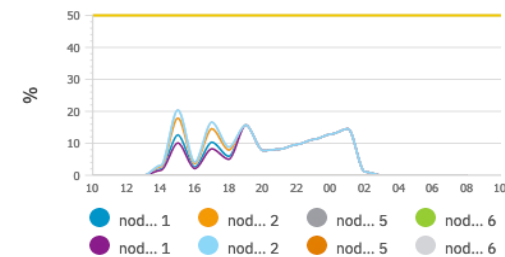
Max Cache Fullness by Pool



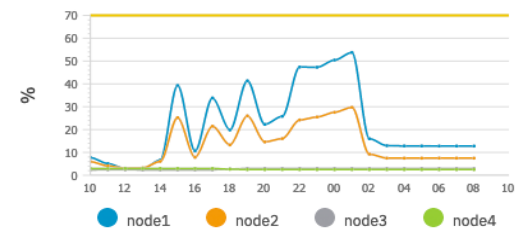
Node Utilization Percentage by Node



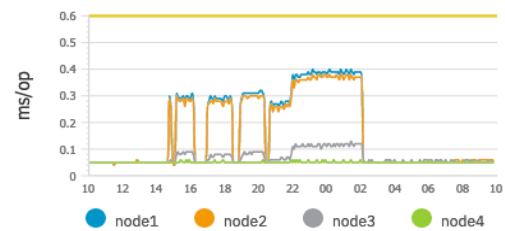
Overall Port Bandwidth Percentage by Port



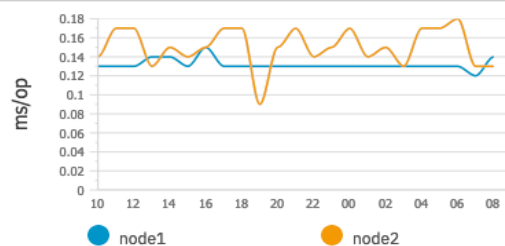
System CPU Utilization by Node



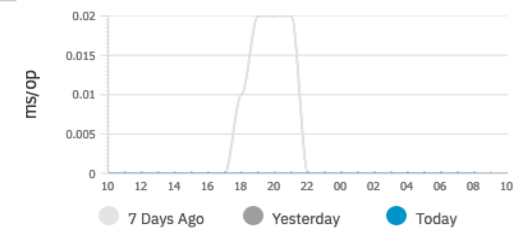
Port to Local Node Send Response Time by Node



Port to Remote Node Send Response Time by Node



rt Send Delay Time > node1, FC Port 5



# IBM Storage Monitoring – SaaS – Storage Insights Pro

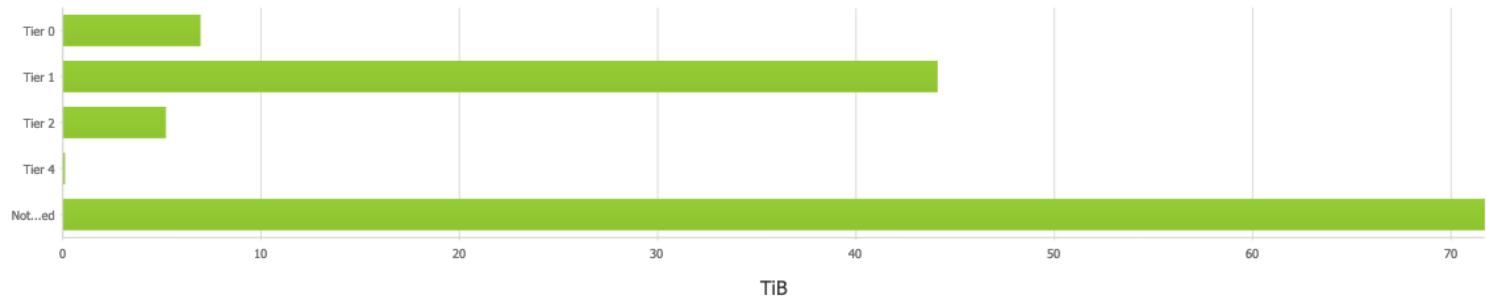
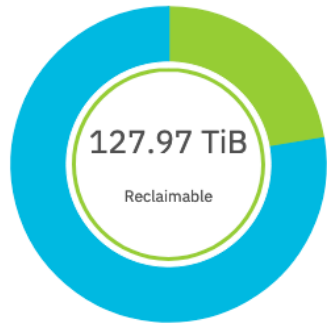
Browser: <https://sidemo.ibm.com/serviceengage.com/srm/gui/#reclamation?tab=0> Search [ ]

Navigation: Dashboards **Insights** Resources Groups Reports Configuration

User: dompruitt@us.ibm.com Loading...

## Reclamation

View By: Reclaimable Capacity



### Recommendations

### Excluded

Name	Tier	Time of Last IO	Pool	Storage System	Capacity (...)	Thin Provisioned	Used Capacity (GiB)	Unused Capacity (GiB)
DEMOV7K-Target0		3 days	V7KG3-3-Enterprise	SVC-DH8-DemoSVC	2.00	Yes	2.01	0.00
rfc4122.fefa0859-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.17	3.83
rfc4122.38058d2b-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.17	3.83
rfc4122.4c9247f7-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.15	3.85
rfc4122.c50b2eb9-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.15	3.85
rfc4122.f4a2028f-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.15	3.85
rfc4122.a159c6c1-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.15	3.85
rfc4122.05f11165-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.17	3.83
rfc4122.bb3b1eb5-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.15	3.85
rfc4122.a2f1d019-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.15	3.85
rfc4122.1f72d667-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.15	3.85
rfc4122.af8549d6-...		2 weeks	mdiskgrp0	V7000F-VS2	4.00	Yes	0.15	3.85

Showing 1 - 500 of 25459 items | Selected 0 items on page

Refreshed a few moments ago

Page 1 of 51

# IBM Storage Monitoring – SaaS – Storage Insights Pro

Browser address bar: <https://sidemo.ibm.ibm-serviceengage.com/srm/gui#pools?tab=0>

Navigation: Dashboards Insights **Resources** Groups Reports Configuration

User: dompruitt@us.ibm.com



## Pools

Pools Capacity

Name	Storage System	Status	Tier	Used Capacity (%)	Recent Fill Rate (%)	Capacity (...)	Shortfall (%)	Provisioned Capacit...
VSC-GM-C...	SVC-DH8-San...	Online		58 %	0.00	8,600.00	87 %	375.58
vsc-Prote...	FlashSystem-A...	Online	Tier 3	45 %	0.00	4,271.00	83 %	359.63
vsc-wscsh...	FlashSystem-A...	Online	Tier 2	8 %	0.00	2,048.00	72 %	336.52
mdiskgrp0	FlashSystem-A...	Online		14 %	0.01	10,649.00	63 %	288.85
Enterprise...	Storwize-24C...	Online	Tier 2	41 %	0.00	3,346.00	77 %	277.4
SE_PO	DS8700-941-...	Normal	Tier 1	6 %	Unavailable	1,582.00	64 %	262.64
Gen-Use_...	DS8700-941-...	Normal	Tier 1	5 %	Unavailable	1,582.00	62 %	255.5
VSC-GM-C...	SVC-DH8-San...	Online		26 %	0.12	4,300.00	55 %	233.35
GF_Oxford4	XIV-114-1310...	Normal		24 %	0.00	609.00		184.21
SE_pool0	XIV-114-7825...	Normal	Tier 1	60 %	Unavailable	9,455.56		176.01
SE_pool1	XIV-114-7825...	Normal	Tier 1	26 %	Unavailable	9,327.35		155.09
Site2Pool0	SVC-CG8-svc2a	Online	Tier 1	100 %	0.00	200.00	99 %	147.58
CG_Mgmt	XIV-214-1340...	Normal	Tier 1	61 %	0.00	945.56		142.37
WSC_CDM...	V7000-VS1	Online		40 %	0.04	5,367.00	25 %	120.47
Pool0	FlashSystem-A...	Online		54 %	30.65	178,623...	0 %	114.66

Showing 757 items | Selected 0 items

Refreshed a few moments ago



# IBM Storage Monitoring – SaaS – Storage Insights Pro

The screenshot shows the IBM Storage Insights Pro Configuration page. The browser address bar displays the URL: `https://5021653292.ib.ibm-serviceengage.com/srm/gui/alertPolicy`. The navigation menu includes: Dashboards, Insights, Resources, Groups, Reports, and Configuration (which is the active tab). The main heading is "All Policies". Below this, there are two tabs: "Alert Policies" (selected) and "Resources by Policy". There are two buttons: "Actions" (with a dropdown arrow) and "Create Policy".

Name	Resource Type	Resources	Alert Definitions	Email Addresses
Default DS8000 policy	DS8000	6	25	
Default FlashSystem 840 or 900 policy	FlashSystem 840 or 900	2	18	
Default FlashSystem A9000 or A9000R policy	FlashSystem A9000 or A90...	6	16	
Default FlashSystem Family policy	FlashSystem Family	2	24	
Default FlashSystem V840 or V9000 policy	FlashSystem V840 or V9000	8	25	
Default FlashSystem V840 or V9000 policy Copy	FlashSystem V840 or V9000	1	23	
Default SAN Volume Controller policy	SAN Volume Controller	12	24	
Default SAN Volume Controller policy chris	SAN Volume Controller	0	22	
Default Spectrum Scale policy	Spectrum Scale	3	5	
Default Storwize policy	Storwize	12	24	
Default Storwize policy Copy chris	Storwize	0	22	
Default XIV policy	XIV System	3	15	
Demo SVC	SAN Volume Controller	0	0	

# IBM Storage Monitoring – SaaS – Storage Insights Pro

← → ↻ 🏠 <https://5021653292.ibm.serviceengage.com/srm/gui/alertPolicyDetail?policyId=320&topl> 🔍 Search

**Dashboards** Insights Resources Groups Reports Configuration 🔔 📄 👤 dompruitt@us.ibm.com ? IBM

🔙 [Back to All Policies](#)

## Default FlashSystem Family policy

**Alert Definitions (24)** Resources (2)

☰ Actions 🔍 Filter...

Condition	Category	Subcategory	Severity	Notification Frequency	Email
Max Write Cache Fullness >= 99.0 %	Pool	Performance	🔴 Critical	Send Once	None
Peak Back-end Write Response Time >= 10000.0 ms	Node	Performance	🟡 Warning	Send Once	None
Peak Back-end Write Response Time >= 30000.0 ms	Node	Performance	🔴 Critical	Send Once	None
Port Receive Bandwidth Percentage >= 75.0 %	FC Port	Performance	🟡 Warning	Send Once	None
Port Receive Bandwidth Percentage >= 85.0 %	FC Port	Performance	🔴 Critical	Send Once	None
Port Send Bandwidth Percentage >= 75.0 %	FC Port	Performance	🟡 Warning	Send Once	None
Port Send Bandwidth Percentage >= 85.0 %	FC Port	Performance	🔴 Critical	Send Once	None
Storage System Deleted Pool	Pool	General	🟡 Informational	Send for Every Violation	None
Storage System Deleted Volume	Volume	General	🟡 Informational	Send for Every Violation	None
Storage System Drive Status Error	Drive	General	🟡 Warning	Send Once	None
Storage System Node Status Error	Node	General	🟡 Warning	Send Once	None
Storage System Performance Monitor Status Error	Storage System	General	🔴 Critical	Send Once	None
Storage System Pool Status Error	Pool	General	🟡 Warning	Send Once	None
Storage System Probe Status Error	Storage System	General	🔴 Critical	Send Once	None
Storage System Removed Drive	Drive	General	🟡 Informational	Send for Every Violation	None
Storage System Removed Node	Node	General	🟡 Informational	Send for Every Violation	None
Storage System Removed Port	IP Port	General	🟡 Informational	Send for Every Violation	None
Storage System Removed Port	FC Port	General	🟡 Informational	Send for Every Violation	None
Storage System Status Error	Storage System	General	🟡 Warning	Send Once	None

Showing 24 items | Selected 0 items Refreshed a few moments ago

### Policy Notifications

Email Addresses ⓘ No policy addresses

[Edit Policy Notifications](#)

# IBM Storage Monitoring – SaaS – Storage Insights Pro

← → ↻ 🏠 <https://5021653292.ibm.serviceengage.com/srm/gui#reports>

**Reports**

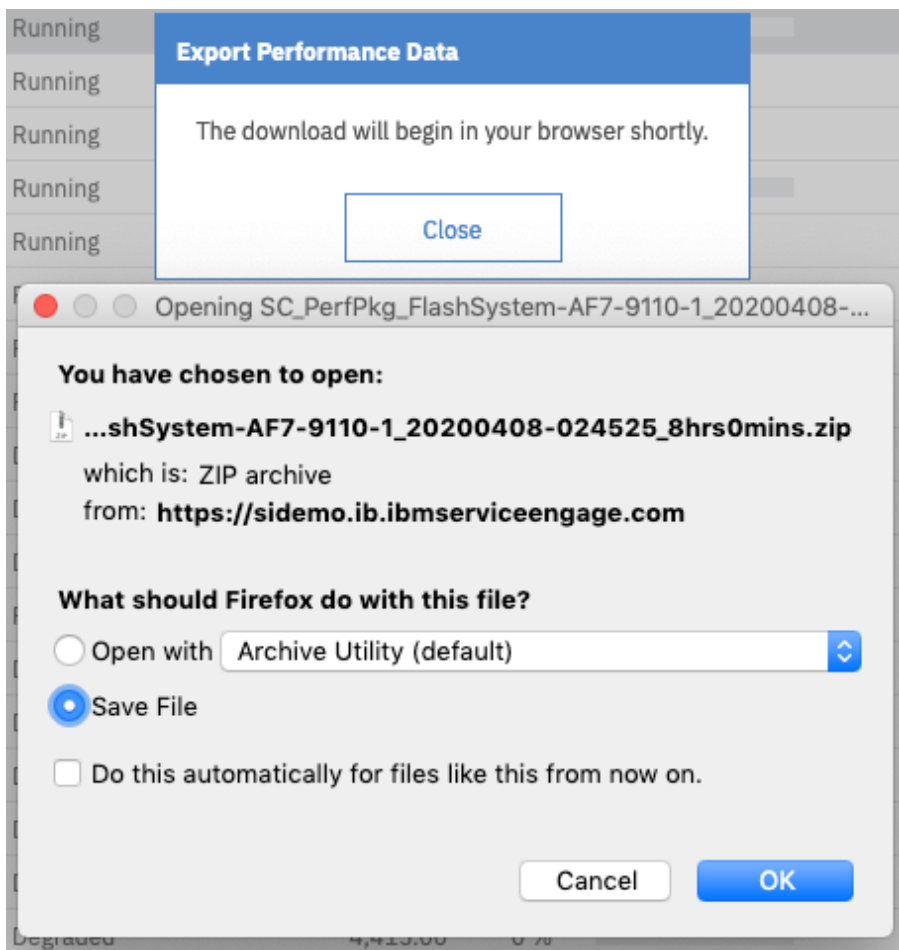
- Capacity Reports**  
Customize a capacity based report.
  - Block Storage Systems >
  - File Storage Systems >
  - Object Storage Systems >
  - Pools >
  - Volumes >
  - Managed Disks >
  - Servers >
  - Applications >
  - Departments >
  - NAS File Systems >
  - Filesets >
  - Network Shared Disks >
- Inventory Reports**  
Customize an inventory report.
  - Block Storage Systems >
  - File Storage Systems >
  - Object Storage Systems >
  - Spectrum Scale Nodes >
  - Spectrum Virtualize Nodes >
  - Enclosures >
  - Managed Disks >
  - Modules >
  - Servers >
  - Storage System FC Ports >
  - Storage System IP Ports >
  - Controllers >
- Summary Reports**  
Customize a summary report.
  - Chargeback** >  
Chargeback reports show the amount and cost of the storage that is consumed by all of your applications, departments, or servers.  
[Learn more](#)
  - Storage Consumer** >  
Consumer reports show the amount and cost of the storage that is consumed by a single application, department, or server.  
[Learn more](#)

# IBM Storage Monitoring – SaaS – Storage Insights Pro

The screenshot shows the IBM Storage Insights Pro web interface. The main heading is "Block Storage Systems" with a summary of 68 Normal, 1 Warning, and 3 Error systems. Below this, there are tabs for "Storage Systems", "Alerts", "Performance", and "Capacity". A modal dialog titled "Export Performance Data" is open, prompting the user to select a time range for export. The modal includes a checkbox for "Advanced export" and "Cancel" and "Create" buttons. In the background, a table lists various storage systems with their status and performance metrics.

Name	Status	Alert	State	Capacity	Usage
FlashSystem-AE3-900-Mav					
FlashSystem-AF7-9110-1					
FlashSystem-AF7-9110-Class-2					
FlashSystem-AF7-9110-Class-3					
FlashSystem-AF8-9100-Class-6					
FlashSystem-AF8-9110-Class-8					
FlashSystem-AF8-9150-4					
FlashSystem-AF8-9150-5	Normal	Error	Degraded	245,849.75	7 %
FlashSystem-AF8-9150-Class-11	Normal		Running	84,839.18	0 %
FlashSystem-AF8-9150-Class-12	Normal		Degraded	0.00	

## IBM Storage Monitoring – SaaS – Storage Insights Pro



Name	Size
▼ SC_PerfPkg_FlashSystem-AF7-9110-1_20200408-024525_8hrs0mins	
metric_reference.txt	
log.txt	
PerfReport_FlashSystem-AF7-9110-1_Disks_20200408-024525_8hrs0mins.csv	
PerfReport_FlashSystem-AF7-9110-1_Nodes_20200408-024525_8hrs0mins.csv	
PerfReport_FlashSystem-AF7-9110-1_Volumes_20200408-024525_8hrs0mins.csv	
PerfReport_FlashSystem-AF7-9110-1_ManagedDisks_20200408-024525_8hrs0mins.csv	
PerfReport_FlashSystem-AF7-9110-1_Pools_20200408-024525_8hrs0mins.csv	
PerfReport_FlashSystem-AF7-9110-1_IOGroups_20200408-024525_8hrs0mins.csv	
PerfReport_FlashSystem-AF7-9110-1_HostConnections_20200408-024525_8hrs0mins.csv	
PerfReport_FlashSystem-AF7-9110-1_StoragePorts_20200408-024525_8hrs0mins.csv	
PerfReport_FlashSystem-AF7-9110-1_StorageSystem_20200408-024525_8hrs0mins.csv	
SC_PerfPkg_FlashSystem-AF7-9110-1_20200408-024525_8hrs0mins.zip	



# IBM Storage Monitoring – SaaS – Storage Insights Pro

AutoSave OFF PerfReport\_FlashSystem-AF7-9110-1\_Volumes\_20200408-024525\_8hrs0mins

Home Insert Draw Page Layout Formulas Data Review View

Calibri (Body) 12

General

Conditional Formatting Format as Table Cell Styles

Insert Delete Format

Sort & Filter Find & Select

Ideas Sensitivity

F17

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	Storage System	Volume	Time	Interval (s)	ID	Host	Pool	I/O Group	Node	Capacity (GiB)	Encryption	Thin Provisioned	Compressed	VDisk Copies	Flash Copy Relationship	Remote Copy Relation
1	FlashSystem-AF7-9110-1	MM-Targe1	4/8/20 2:49	300	24		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
2	FlashSystem-AF7-9110-1	MM-Targe2	4/8/20 2:49	300	25		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
3	FlashSystem-AF7-9110-1	MM-Targe3	4/8/20 2:49	300	26		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
4	FlashSystem-AF7-9110-1	MM-Targe4	4/8/20 2:49	300	27		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
5	FlashSystem-AF7-9110-1	MM-Targe5	4/8/20 2:49	300	28		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
6	FlashSystem-AF7-9110-1	MM-Targe6	4/8/20 2:49	300	29		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
7	FlashSystem-AF7-9110-1	MM-Targe7	4/8/20 2:49	300	30		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
8	FlashSystem-AF7-9110-1	MM-Targe8	4/8/20 2:49	300	31		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
9	FlashSystem-AF7-9110-1	MM-Targe9	4/8/20 2:49	300	32		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
10	FlashSystem-AF7-9110-1	MM-Targe10	4/8/20 2:49	300	33		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
11	FlashSystem-AF7-9110-1	vdisk0	4/8/20 2:49	300	34		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
12	FlashSystem-AF7-9110-1	vdisk1	4/8/20 2:49	300	35		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
13	FlashSystem-AF7-9110-1	vdisk2	4/8/20 2:49	300	36		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
14	FlashSystem-AF7-9110-1	vdisk3	4/8/20 2:49	300	37		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
15	FlashSystem-AF7-9110-1	vdisk4	4/8/20 2:49	300	38		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
16	FlashSystem-AF7-9110-1	vdisk5	4/8/20 2:49	300	39		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
17	FlashSystem-AF7-9110-1	vdisk6	4/8/20 2:49	300	40		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
18	FlashSystem-AF7-9110-1	vdisk7	4/8/20 2:49	300	41		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
19	FlashSystem-AF7-9110-1	vdisk8	4/8/20 2:49	300	42		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
20	FlashSystem-AF7-9110-1	vdisk9	4/8/20 2:49	300	43		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
21	FlashSystem-AF7-9110-1	JB_WSYS_RHEL0_0	4/8/20 2:49	300	44	JB-WSYS-zLinux_RHEL0	FCM2-Pool	io_grp0	node1	100	YES	NO	NO	1	NO_RELATIONSHIP	NO_RELATIONSHIP
22	FlashSystem-AF7-9110-1	JB_WSYS_RHEL0_1	4/8/20 2:49	300	45	JB-WSYS-zLinux_RHEL0	FCM2-Pool	io_grp0	node1	100	YES	NO	NO	1	NO_RELATIONSHIP	NO_RELATIONSHIP
23	FlashSystem-AF7-9110-1	MM-Targe1	4/8/20 2:54	300	24		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
24	FlashSystem-AF7-9110-1	MM-Targe2	4/8/20 2:54	300	25		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
25	FlashSystem-AF7-9110-1	MM-Targe3	4/8/20 2:54	300	26		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
26	FlashSystem-AF7-9110-1	MM-Targe4	4/8/20 2:54	300	27		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
27	FlashSystem-AF7-9110-1	MM-Targe5	4/8/20 2:54	300	28		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
28	FlashSystem-AF7-9110-1	MM-Targe6	4/8/20 2:54	300	29		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
29	FlashSystem-AF7-9110-1	MM-Targe7	4/8/20 2:54	300	30		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
30	FlashSystem-AF7-9110-1	MM-Targe8	4/8/20 2:54	300	31		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
31	FlashSystem-AF7-9110-1	MM-Targe9	4/8/20 2:54	300	32		FCM2-Pool	io_grp0	node1	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
32	FlashSystem-AF7-9110-1	MM-Targe10	4/8/20 2:54	300	33		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
33	FlashSystem-AF7-9110-1	vdisk0	4/8/20 2:54	300	34		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET
34	FlashSystem-AF7-9110-1	vdisk1	4/8/20 2:54	300	35		FCM2-Pool	io_grp0	node2	50	YES	YES	YES	1	SOURCE_AND_TARGET	TARGET

PerfReport\_FlashSystem-AF7-9110

Ready 110%

# IBM Storage Insights for Spectrum Control



## IBM Storage Monitoring – SaaS – Storage Insights for Spectrum Control

---

- IBM Storage Insights for Spectrum Control (functionally equivalent to Storage Insights Pro)
  - An offering based on Spectrum Control licensing
  - Expands the IBM Storage Insights offering to include the monitoring
    - IBM File storage products
    - IBM Object storage products
    - IBM Software-defined storage (SDS) systems
    - Monitoring of non-IBM block and file storage systems
  - Alerts dashboard so you can view and manage alerts in one place
  - Configurable alerts
  - Predictive analytics to
    - Reduce costs
    - Plan capacity
    - Detect and investigate performance issues
  - Recommendations for reclaiming unused storage, recommendations for optimizing the placement of tiered data, capacity planning analytics, and performance troubleshooting tools.

## IBM Storage Monitoring – SaaS – Storage Insights for Spectrum Control

**FlashSystem-9150-AFB-204204008DA-5**  
FlashSystem V100 - 9846  
6.3.1.1 (build 150.23.2002261453000)

**Component Health**

- Hardware Components: Normal
- Logical Components: 16 Error
- Connectivity Components: 1 Error

**Capacity**

- Capacity: 6.91 % used
- Volume Capacity: 33.57 % written
- Total Savings: 88,512.89 GiB

**Performance**

Graphs showing IOPS and throughput over time.

### Reclamation

127.97 TiB Reclaimable

Bar chart showing reclaimable capacity across tiers (Tier 0, Tier 1, Tier 2, Tier 4, Hot, All).

**Recommendations**

Name	Tier	Time of Last ID	Pool	Storage System	Capacity	Thin Provisioned	Used Capacity (GiB)	Unused Capacity (GiB)
DEM0V76-Target0	3 days		V75G3-3-Enterprise	SVC-DHB-DemoSVC	2.00	Yes	2.01	0.00
ric4122.fef0859...	2 weeks		mdiskgrp0	V7000F-V52	4.00	Yes	0.17	3.83
ric4122.36f0859...	2 weeks		mdiskgrp0	V7000F-V52	4.00	Yes	0.17	3.83
ric4122.4c92477...	2 weeks		mdiskgrp0	V7000F-V52	4.00	Yes	0.15	3.85
ric4122.c5b2a9...	2 weeks		mdiskgrp0	V7000F-V52	4.00	Yes	0.15	3.85

### All Storage Systems

Grid of performance charts for various storage systems, including FlashSystem and Storwize models. Each chart shows IOPS and throughput over the last 24 hours.

- FlashSystem-9150-AFB-204204008DA-5
- FlashSystem-900-AE3-68B102X-Har
- FlashSystem-900-AE2-900-135111...
- DS8800-996-79KW61
- FlashSystem-840-AE1-1310241-L
- FlashSystem-840-AE1-1310540
- Storwize-V7000-524-100260102...
- FlashSystem-840-AE1-1310541
- FlashSystem-840-AE1-1310541
- FlashSystem-840-AE1-1310541
- FlashSystem-840-AE1-1310541
- Storwize-V7000-124-200A061866...
- DS8800-961-752A411
- SVC-DHB-200621D504-ATSSShresh...
- FlashSystem-9000-AC1-1002069...
- FlashSystem-9150-AFB-204204008...

### Storage Performance

Line graph showing IOPS over time for selected resources. Includes a table with columns: Name, To, Max Total I/O.

Name	To	Max Total I/O
FlashSystem-AFB-9100...	65,029...	202,715.99
FlashSystem-AE2-900...	14,334...	16,023.45
SVC-DHB-Sandbox-V5C...	5,460.30	6,557.43
FlashSystem-AC1-V900...	5,352.08	6,027.41
FlashSystem-415-A900...	4,551.13	12,039.27
DS8886-981-13FCM01	3,216.88	3,450.94
FlashSystem-AE1-840...	1,868.57	3,196.58
DS8800-951-757N211	1,383.62	1,502.88

### Reports

- Capacity Reports**: Customize a capacity based report. Includes links for Block Storage Systems, File Storage Systems, Object Storage Systems, Pools, Volumes, Managed Disks, Servers, Applications, Departments, NAS File Systems, Filesets, Network Shared Disks.
- Inventory Reports**: Customize an inventory report. Includes links for Block Storage Systems, File Storage Systems, Object Storage Systems, Spectrum Scale Nodes, Spectrum Virtualize Nodes, Enclosures, Managed Disks, Modules, Servers, Storage System FC Ports, Storage System IP Ports, Controllers.
- Summary Reports**: Customize a summary report. Includes links for Chargeback (Consumer reports show the amount and cost of the storage that is consumed by all of your applications, departments, or servers. Learn more) and Storage Consumer (Consumer reports show the amount and cost of the storage that is consumed by a single application, department, or server. Learn more).

# IBM Storage Insights Device Support Portal

## IBM Storage Monitoring – SaaS – Storage Insights Device Support Portal

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- IBM Storage Insights Device Support Portal (**the IBM Internal Support View**)
  - IBM internal support website
  - Allows IBM Support to view collected metadata from customers (read only)
  - Views of Block, File, Object and Server Resources
  - Views of Call Home, Alerts, and Advisor Notifications
  - Views of Applications, Department, and General Groups
  - Views of Data Collectors and Alert Policies



# IBM Storage Monitoring – SaaS – Storage Insights Device Support Portal

**IBM Storage Insights Device Support Portal**dompruitt@us.ibm.com

## Account Search

Please enter the PMR number, device serial, customer number, or customer name fragment to search for.

- IBM WSC Z ( [redacted] ) - Type: SI (free)** 
  - ▶ Customer Numbers
  - ▶ Devices
  - ▶ PMRs
- IBM Storage Support ( [redacted] ) - Type: Beta Customer** 
  - ▶ Customer Numbers
  - ▶ Devices
  - ▶ PMRs

# IBM Storage Monitoring – SaaS – Storage Insights Device Support Portal

Browser address bar: <https://005861044c584d5d8ccca05bb6d220f0.ib.ibm.serviceengage.com/srm/gui#storage:>

Navigation: Resources | Notifications | Groups | Configuration

User: dompruitt@us.ibm.com



## IBM WSC Z - Block Storage Systems

- ✔ 5 Normal
- ⚠ 0 Warning
- ✘ 1 Error

Storage Systems | Alerts | Performance | Capacity

Name	Type	Serial Number	Firmware	Condition	Events	Probe Stat...	Performan...	Capacity (GiB)	Used Capacity (%)	Recent Fill Rate (%)
SK9F	DS88...	75XM621	7.6.31.42...	✔ Normal		✘ Failed	⚠ Runn...	115,255.00	77 %	0.00
SJ94	DS88...	75WM321	7.6.31.42...	✘ Error		✘ Failed	⚠ Runn...	63,826.00	50 %	0.00
SK9W	DS88...	75BNN81	7.7.51.27...	✔ Normal		✔ Succ...	⚠ Runn...	134,076.00	52 %	1.18
WSCV9000-1	Flash...	0000020320804F28	8.2.1.8 (b...	✔ Normal		✘ Failed	⚠ Runn...	53,245.00	56 %	0.00
ATSV9000-1	Flash...	0000020320A0664E	8.2.1.8 (b...	✔ Normal		✔ Succ...	⚠ Runn...	0.00		0.00
WSCV7000-1	Stor...	00000200A123077C	7.8.1.11 (...)	✔ Normal		✔ Succ...	⚠ Runn...	55,574.00	56 %	0.00

# IBM Storage Monitoring – SaaS – Storage Insights Device Support Portal

Browser address bar: <https://005861044c584d5d8ccca05bb6d220f0.lb.ibm.serviceengage.com/srm/gui#storage>

Navigation: Resources | Notifications | Groups | Configuration

User: dompruit@us.ibm.com

## IBM WSC Z - Block Storage Systems

5 Normal | 0 Warning | 1 Error

Storage Systems | Alerts | Performance | **Capacity**

Selected Resources: 5/6

- WSCV9000-1
- WSCV7000-1
- SJ94
- SK9W
- SK9F

Metrics: 2/6

- Used Capacity (GiB)
- Capacity (GiB)

Last: 1 week | 1 month | 6 months | 1 year

Mar 2, 2020 - Apr 2, 2020

Name	Raw Capacity (GB)	Capacity (GiB)	Used Capacity (%)	Recent Fill Rate (%)	Total Capacity Savings (%)	Used Capacity (GiB)	Available Capacity (GiB)
SK9F	164,832.00	115,255.00	77 %	0.00		88,776.00	26,479.00
WSCV7000-1	76,776.98	55,574.00	56 %	0.00	11.76 % (3,437.85 GiB)	31,379.15	24,194.85
WSCV9000-1	68,606.11	53,245.00	56 %	0.00	6.45 % (2,047.00 GiB)	29,698.00	38,907.11
SK9W	243,600.00	134,076.00	52 %	1.18		69,845.00	64,231.00
SJ94	93,600.00	63,826.00	50 %	0.00		32,080.00	31,746.00

Showing 6 items | Selected 5 items

Mar 2, 2020, 09:06:27 – Apr 2, 2020, 09:06:27

Refreshed 1½ minutes ago



# IBM Spectrum Control Standard Edition

## IBM Storage Management – On Premise – Spectrum Control Standard Edition

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- IBM Spectrum Control Standard Edition
  - Installed inside your datacenter
  - Provides a set tools for managing storage capacity, availability, alerts, events, performance, and resources
  - Reduces the complexity of managing a storage environment by centralizing, simplifying, and optimizing storage tasks that are associated with storage systems, storage networks, performance troubleshooting, and capacity management
  - Helps detect potential problems on your storage resources
  - Simplifies the management of storage infrastructures
  - Manages, administers, and provisions SAN-attached storage
  - Monitors and tracks performance of SAN-attached resources
  - Monitors, manages, and controls (through zones) SAN fabric components
  - Manages the capacity utilization and availability of file systems
  - Web GUI Reporting

# IBM Storage Management – On Premise – Spectrum Control Standard Edition

Browser address bar: <https://odcvm19258.odcclass.ibm.com:9569/srm/gui#volumes?tab=0>

Navigation menu: Home, **Storage**, Servers, Network, Groups, Advanced Analytics, Reports, Settings

User: student0



## Volumes

- ✔ 1158 Normal
- ⚠ 0 Warning
- ✖ 16 Error

Volumes ▬ Capacity

Actions
Refresh
Create Report
View Performance
View Capacity
Filter...

Name	Pool	Storage System	Status	Capacity (...)	Used Capacity (%)	Used Capacity (GiB)	Written Capacity
8KE000	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE001	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE002	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE003	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE004	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE005	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE006	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE007	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE008	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE009	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE00A	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE00B	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE00C	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	
8KE00D	CKD_0	DS8900-01	Normal	7.93	Fully Allocated	7.93	

Showing 1 - 500 of 1174 items | Selected 0 items on page Refreshed 2½ minutes ago | Page 1 of 3

# IBM Storage Management – On Premise – Spectrum Control Standard Edition

**Switches**

- 49 Normal
- 0 Warning
- 0 Error
- 1 Unknown

Switches Alerts Performance

Actions Add Switch Create Report View Performance Filter...

Name	Cond...	Probe Status	Performance ...	Fabric	Principal Switch of Fabric	Ports	Connected Ports	Links
B6510_1...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 128	19	15	9
B6510_1...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 15	25	24	7
B6510_1...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 16	25	24	7
B6510_1_8	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 8	2	2	2
B6510_2...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 128	21	9	9
B6510_2...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 15	24	22	7
B6510_2...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 16	24	22	7
B6510_2_8	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 8	2	2	2
B6510_3...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 128	47	39	9
B6510_3...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 15	10	10	7
B6510_3...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 16	10	10	7
B6510_3_8	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 8	4	4	4
B6510_4...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 128	25	21	9
B6510_4...	Normal	Successful	Running	100050EB1A0...	DCX 8510-4 16	37	33	7

Showing 50 items | Selected 0 items Refreshed a few moments ago

# IBM Storage Management – On Premise – Spectrum Control Standard Edition

**Fabrics**

- 14 Normal
- 0 Warning
- 0 Error
- 2 Unknown

Actions: Add Fabric, Create Report

Name	Cond...	Probe Status	Principal Switch of Fabric	Switches	Switch Ports	Connected Switch Ports	NPV Switches
100050EB1A0D27...	Normal	Successful	DCX 8510-4 15	8	155	146	
100050EB1A0D27...	Normal	Successful	DCX 8510-4 16	8	155	146	
100050EB1A0F67...	Normal	Successful	DCX 8510-4 128	12	416	264	
100050EB1A0F67...	Normal	Successful	DCX 8510-4 8	10	48	48	
1000889471380FC3	Normal	Successful	SAN512B-1-9	1	5	5	
1000889471383B...	Normal	Successful	SAN512B-2-9	1	5	5	
1000C4F57C67D9...	Normal	Successful	B8510-4-2-128	1	256	8	
1000C4F57C67D9...	Normal	Successful	switch 4	1	0	0	
1000C4F57C67D9...	Normal	Successful	switch 7	1	0	0	
1000C4F57C67D9...	Normal	Successful	switch 8	1	0	0	
SAN512B-1-10:00:...	Normal	Successful	SAN512B-1-51	1	507	168	
SAN512B-1-10:00:...	Normal	Successful	SAN512B-1-8	1	0	0	
SAN512B-2-10:00:...	Normal	Successful	SAN512B-2-52	1	507	178	

Showing 16 items | Selected 0 items

Refreshed a few moments ago

# IBM Storage Management – On Premise – Spectrum Control Standard Edition

The screenshot shows the IBM Storage Management GUI. The browser address bar displays `https://odcvm19258.odcclass.ibm.com:9569/srm/gui#historyRetention`. The navigation menu includes Home, Storage, Servers, Network, Groups, Advanced Analytics, Reports, and Settings. The main content area is titled "History Retention" and features a clock icon, "Cancel", "Restore Defaults", and "Save" buttons. The settings are organized into three sections: Capacity History, Performance Data, and Other.

Section	Setting	Value	Unit
Capacity History	Daily:	12	weeks
	Weekly:	24	weeks
	Monthly:	24	months
Performance Data	Sample:	2	weeks
	Hourly:	4	weeks
	Daily:	52	weeks
Other	Data for missing resources:	2	weeks
	Alert logs:	4	weeks
	Job logs:	5	runs

# IBM Spectrum Control Advanced Edition



## IBM Storage Management – On Premise – Spectrum Control Advanced Edition

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- IBM Spectrum Control Advanced Edition
  - Installed inside your datacenter
  - All functions of Spectrum Control Standard
  - Additional Web GUI Reports
  - Storage transformation (thick volume to thin or compressed)
  - Tiering automation (movement of volumes to optimize performance)
  - Storage Pool Balancing
  - Storage Reclamation
  - Rollup reporting

# IBM Storage Management – On Premise – Spectrum Control Advanced Edition

The screenshot shows the IBM Storage Management web interface. The browser address bar displays `https://odcvm19258.odcclass.ibm.com:9569/srm/gui#provisioning?tab=...`. The navigation menu includes Home, Storage, Servers, Network, Groups, **Advanced Analytics**, Reports, and Settings. The user is logged in as 'student0'. The main content area is titled 'Provision to Servers' with the instruction: 'Select a server and issue a "Provision Storage" action. This action is available in all tables of servers and hypervisors.' A modal dialog box titled 'Provision Storage' is open, containing the following elements:

- Define Volumes**: Specify the characteristics of the volumes to create.
- Information icon and ID: `BPCUI0158I`
- Text: 'Volumes are assigned to the hypervisors that host virtual machines. Volumes are not assigned directly to virtual machines.'
- Form fields:
  - Name**:
  - Capacity**:  **GiB** (dropdown)
  - Service Class**: [View](#)
  - Capacity Pool**: [View](#)
- Add More** button and a quantity spinner set to `1`.
- Ticket**:
- Footer buttons: **Cancel**, **Back**, and **Next**.

Below the dialog, a table is partially visible with columns for server name, agent, OS, and storage details.

Server Name	Agent	OS	Storage
INST183DEV	Agen...	N/A	Windows Unknown 15.00

# IBM Storage Management – On Premise – Spectrum Control Advanced Edition

The screenshot shows the IBM Storage Management GUI. The browser address bar displays `https://odcvm19258.odcclass.ibm.com:9569/srm/gui#optimization?tab=analyzeTiers`. The navigation menu includes Home, Storage, Servers, Network, Groups, **Advanced Analytics**, Reports, and Settings. The left sidebar contains 'Learn the Concepts', 'Assign Storage to Tiers', 'Optimize Volumes' (selected), and 'Optimize Pools'. The main content area is titled 'Optimize Volumes' and includes a table of storage volumes.

The 'Optimize Volumes' dialog box is open, titled 'Analyze Tiers'. It contains the following text: 'Determining the Placement of Optimized Volumes' and 'Choose a set of storage pools for volumes that require optimization. Volumes are moved to the storage pool that best meets the workload requirements of the volumes.' There are three radio button options:

- Select the storage pools from a list:
- Select a capacity pool from a list:
- Select target pools in the current capacity pools.

An information icon (i) is present next to the third option, with the following text: 'To select target pools in the current capacity pools, all of the source volumes must belong to pools that were added to capacity pools.' The dialog box also features 'Cancel', 'Back', and 'Next' buttons. An illustration of storage pools is shown on the right side of the dialog.

Name	Target	Capacity Pool	Status	Capacity	Usage
epic_fctarget0_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget1_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget10_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget11_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget12_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget13_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget14_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget15_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget2_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget3_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget4_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget5_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %
epic_fctarget6_A	EpicTarget1	FS9100-05	Offline	2,000.00	18 %

# IBM Storage Management – On Premise – Spectrum Control Advanced Edition

**Balance Pools**

The migration of the primary volume in a mirrored volume relationship to another pool might be required to balance a pool. When you migrate the primary volume, the primary volume is removed, and a copy of the secondary volume is created in the destination pool.

Volume	Primary Volume Pool	Secondary Volume Pool
MavBeta_000000000000...	EpicSource	MigrationPool_8192

Exclude volumes in mirrored volume relationships  
 Include volumes in mirrored volume relationships

Buttons: Cancel, Back, Next

# IBM Storage Management – On Premise – Spectrum Control Advanced Edition

The screenshot shows the IBM Storage Management GUI. The browser address bar displays `https://192.168.55.81:9569/srm/gui#rollupServerConnections`. The navigation menu includes Home, Storage, Servers, Network, Groups, Advanced Analytics, Reports, and Settings. The main content area is titled "Rollup Server Connections" and includes a tree icon and the instruction "Specify the servers you want to collect information from:" with an "Add Server" button.

**Local Server**

- vscdemo
- Block storage systems: 45
- Servers: 235
- Switches: 52
- Hypervisors: 12

**Connected Server** Actions ▾

- vscrollup.wsc.ibm.com Hourly collection
- Block storage systems: 15 Next collection: Apr 2, 2020, 11:01:00
- Servers: 121 Last collection: ❌ Failed Apr 2, 2020, 10:00:00
- Switches: 0
- Hypervisors: 9

This screenshot shows a modal or dropdown menu with the following options:

- Home
- Storage
- Enter Rollup Mode 🌳
- Exit Rollup Mode
- Go to [vscrollup.wsc.ibm.com](https://vscrollup.wsc.ibm.com) 🔗

## Useful Links ...

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- IBM Storage Insights Public Demo (IBMid required) – <http://ibm.biz/insightsdemo>
- IBM Storage Insights Security Guide
  - Everything about the storage data collector and metadata collected
  - [https://www.ibm.com/support/knowledgecenter/SSQRB8/com.ibm.spectrum.si.doc/IBM\\_Storage\\_Insights\\_Security\\_Guide.pdf](https://www.ibm.com/support/knowledgecenter/SSQRB8/com.ibm.spectrum.si.doc/IBM_Storage_Insights_Security_Guide.pdf)
- IBM Storage Insights Supported Devices
  - [https://www.ibm.com/support/knowledgecenter/SSQRB8/com.ibm.spectrum.si.doc/prd\\_supported\\_storage\\_resources.html](https://www.ibm.com/support/knowledgecenter/SSQRB8/com.ibm.spectrum.si.doc/prd_supported_storage_resources.html)
- IBM Storage Insights Knowledge Center
  - [https://www.ibm.com/support/knowledgecenter/SSQRB8/com.ibm.spectrum.si.doc/tpch\\_saas\\_welcome.html](https://www.ibm.com/support/knowledgecenter/SSQRB8/com.ibm.spectrum.si.doc/tpch_saas_welcome.html)
- IBM Spectrum Control Knowledge Center
  - [https://www.ibm.com/support/knowledgecenter/SS5R93\\_5.3.6/com.ibm.spectrum.sc.doc/tpc\\_kc\\_homepage.html](https://www.ibm.com/support/knowledgecenter/SS5R93_5.3.6/com.ibm.spectrum.sc.doc/tpc_kc_homepage.html)
- IBM Storage Insights / Spectrum Control Demonstration Test Drive (IBM Client Demonstration Center)
  - [https://www.ibm.com/systems/clientcenterdemonstrations/faces/\\_rivid.jsp?\\_rap=!viewDemo&\\_rvip=/dcSearchDemonstrations.jsp&demold=3467&conversationContext=1](https://www.ibm.com/systems/clientcenterdemonstrations/faces/_rivid.jsp?_rap=!viewDemo&_rvip=/dcSearchDemonstrations.jsp&demold=3467&conversationContext=1)
- Dominic Pruitt's work blog and work twitter account (where I put useful stuff)
  - <https://StorageMVP.com>      @StorageMVP

***Thank you. Questions?***