



IBM **Spectrum Storage**



IBM **Spectrum Protect**

IBM Spectrum Protect 8.1.3

HUTUG 2H 2017
Lurdy rendezvényközpont

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IBM

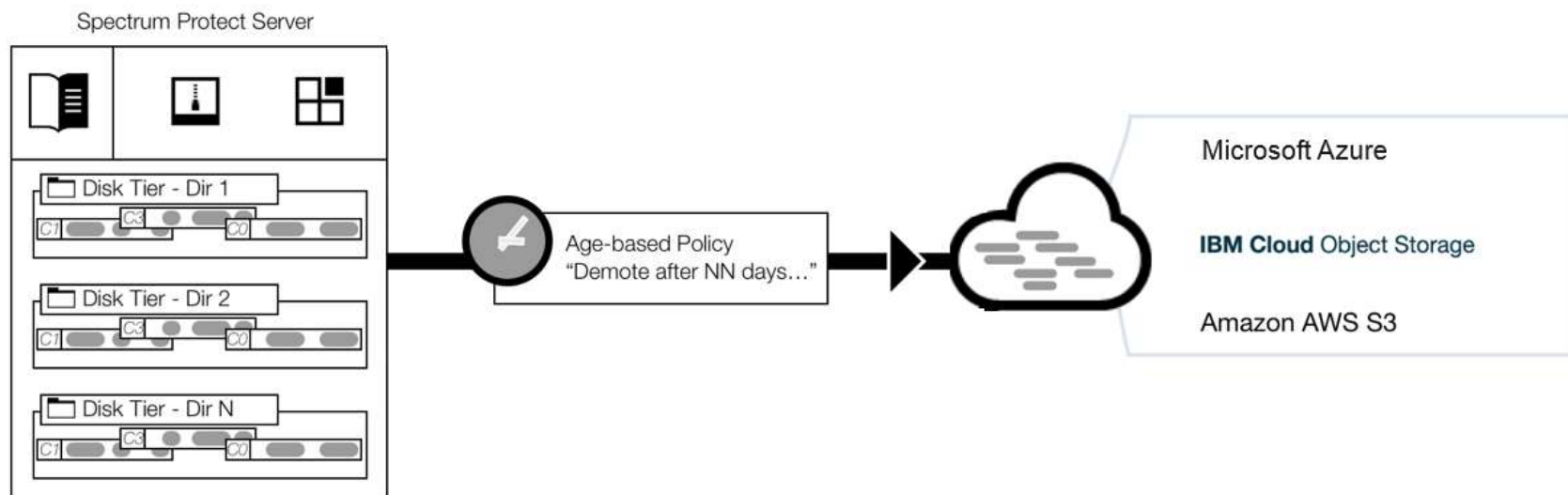
8.1.3 IBM Spectrum Protect Overview



8.1.3 announce: 9/26/17 eGA: 9/29/17

SERVER and OC 8.1.3
Tiering to the Cloud
OC client update deployment
IBM Cloud Object Storage 3.8.3
TLS1.2 for Storage Agent

Server – Tiering to Cloud



Exert greater control over where data is stored to better balance the performance & cost benefits of different tiers of storage

- Client Data **stored to disk** for fast ingest, directory container based pool
- Pool level tier delay sets how long to retain on disk
- Data **tiered to cloud** after “retain on disk” elapses
 - Operational vs Long Term data
 - Compliance – needs different retention period and is a good fit for long term storage
- Restore of data from where ever possible: disk, cloud or both

IBM

YouTube: https://youtu.be/epgl6AT_MuQ

OC – Tiering to Cloud Setting Up For Tiering

Storage Tying Rules

+ Create Rule Details

Rule name	Source	Target	Server	Action Details	Scheduled	Active
TIERTOS3	DIRPOOL2	S3POOL	SERVER1	Tier after 15 days	Daily at 1:24:02 PM for 2 hours	✓

OC / Storage / Tiering Rules

Create Rule

Rules specify when data is moved to a cloud-container from one or more directory-container pools.

Server
SERVER1

Target pool
S3POOL

Source pools
☒ DIRPOOL
☐ DIRPOOL2

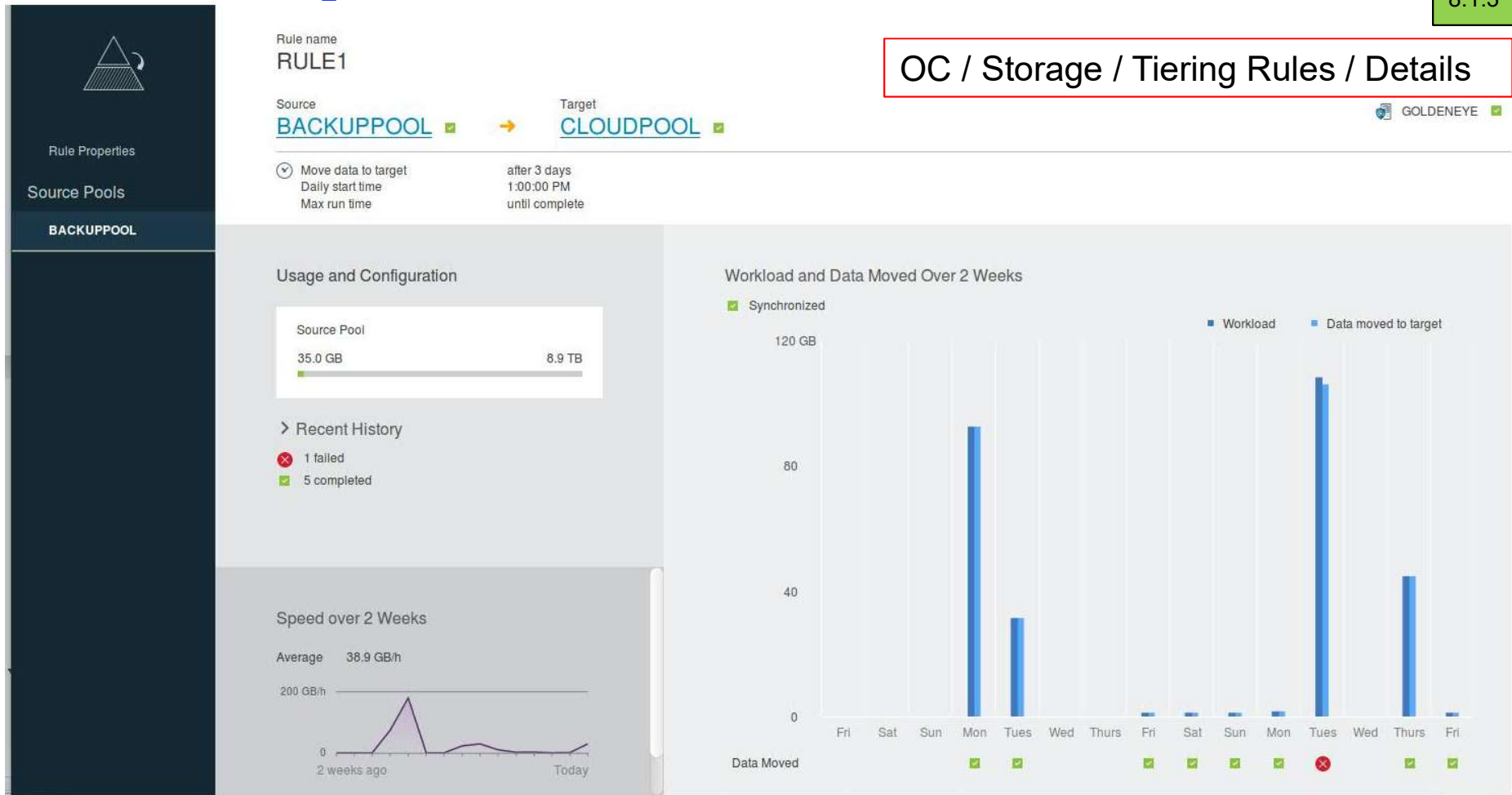
Rule name
TIERTOAMAZON

Move data to target pool after 15 days
Daily start time 9:00 PM
Max run time ☒ No limit 4 hours 0 minutes

Cancel Create

OC – Tiering to Cloud Amount of Tiered Data

OC / Storage / Tiering Rules / Details



Server – Tiering to Cloud Grouped Together Objects

8.1.3

- Cloud tiering treats groups as one object, for clients & data types that group objects together
 - Such as: Windows System State, data protection modules, etc
- Tier to cloud decision, is dependent on the eligibility of the oldest object in the group
 - Oldest object is typically the FULL backup

For Instance:

- Oracle backup using Spectrum Protect for Databases
- Doing weekly fulls + daily differentials
- TIERDELAY=4 days

Day 1 - Full backup	No tier action
Day 2 - Differential	No tier action
Day 3 - Differential	No tier action
Day 4 - Differential	Full + 3 Diffs (day 2, day 3, day 4) tiered to the cloud
Day 5 - Differential	Diff (day 5) tiered to the cloud
Day 6 - Differential	Diff (day 6) tiered to the cloud
Day 7 - Full backup	No tier action



OC – Client Deployment

Seamless, secure updates of Spectrum Protect Backup/Archive Client

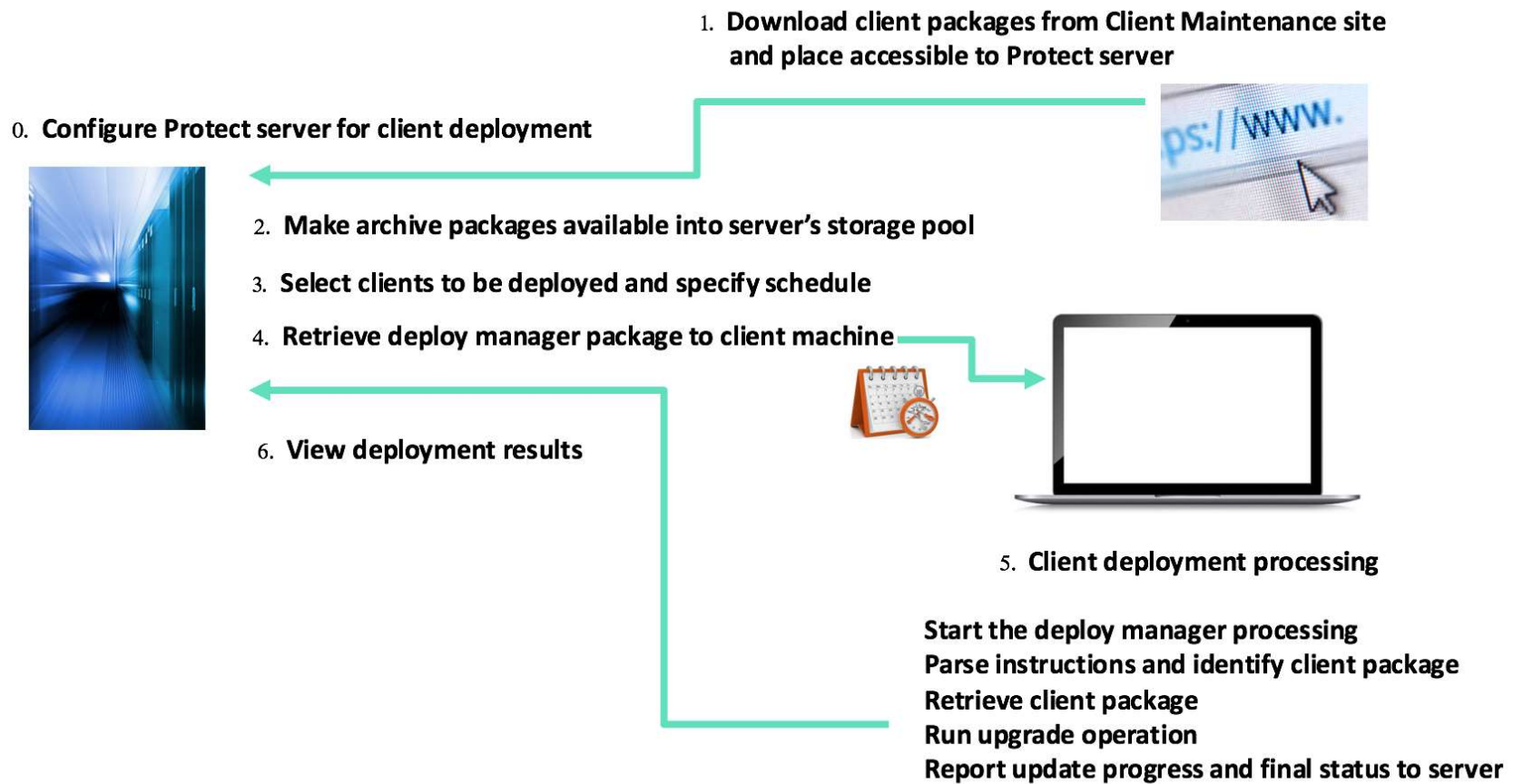
8.1.2 offers automatic updates via Command Line

- Replaces existing client push mechanism that was in the Admin Center

8.1.3 integrates automatic updates into Operation Center

- Download and view client updates
- Select a maintenance level to be distributed to a list of existing clients
- Review distribution status
- Re-deploy clients that were unsuccessful to upgrade
- Cancel update schedules
- Backup - Archive client updates
 - Upgrades clients **FROM** $\geq 6.4.3$ **TO** 8.1.2
 - Backup/Archive clients with scheduler / CAD running
 - 8.1.3 release supports platforms & OS versions as supported by Spectrum Protect 8.1
 - 7.1.8 release supports platforms & OS versions as supported by Spectrum Protect 7.1
 - Requires minimum free disk on clients
 - Password access must be set to generate
 - NOT greenfield install, cluster node deployment, Spectrum Protect for ..., HSM, SA, downgrade or configuration/modification

OC – Client Deployment



OC – Client Deployment Settings

0 – Admin configures Spectrum Protect Hub server for automatic client updates

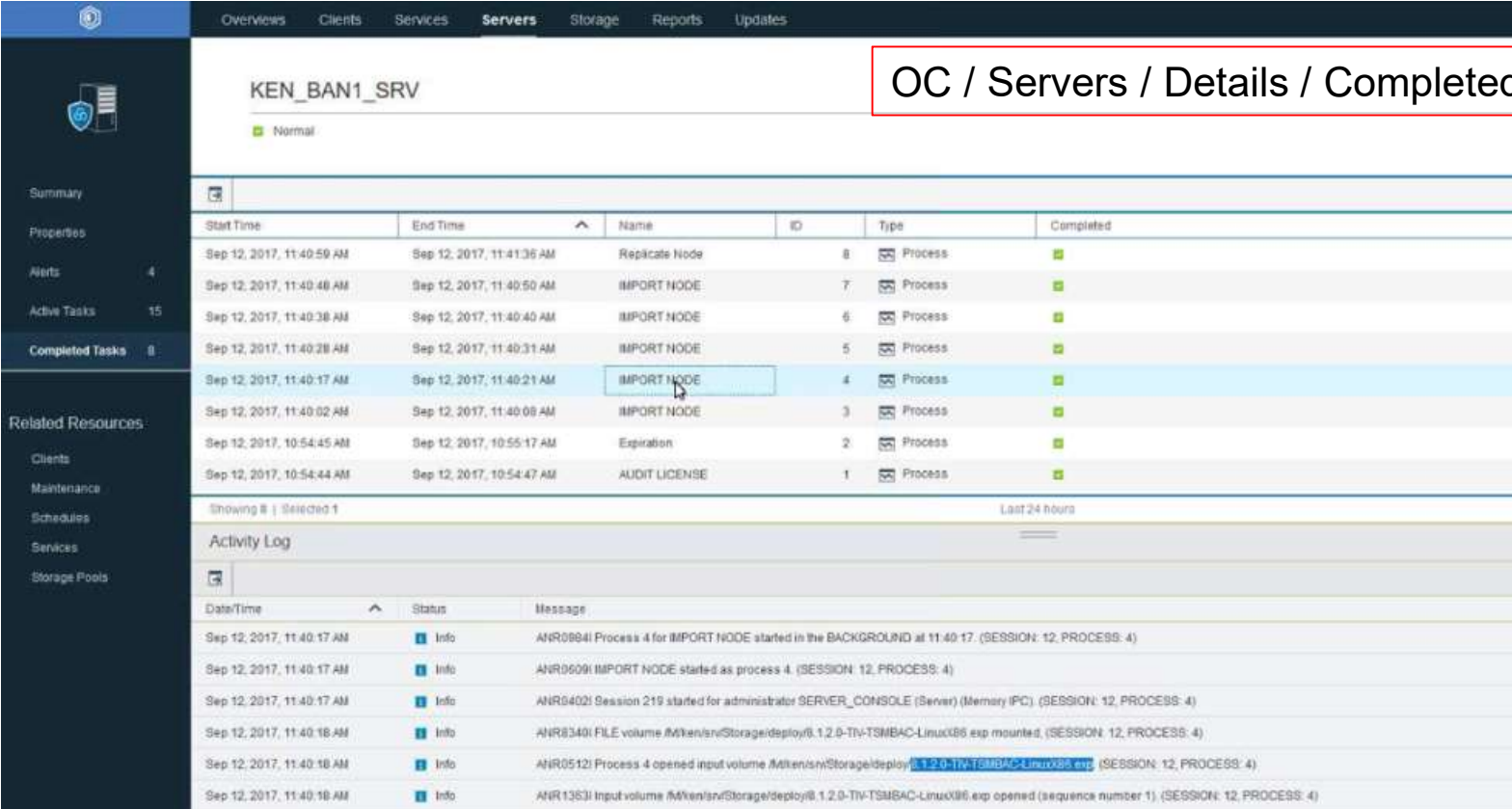
The screenshot displays the 'Updates' settings page in the IBM Spectrum Protect Hub server interface. The top navigation bar includes 'Overviews', 'Clients', 'Services', 'Servers', 'Storage', 'Reports', and 'Updates'. The 'Settings' section has tabs for 'General', 'Shared Links', and 'Updates'. A yellow warning icon with an exclamation mark is present, accompanied by the text: 'Additional configuration is typically required to prepare for scheduling client updates. [Learn more](#)'. Below this, a note states: 'Specify where to store client update packages on the hub server and how many packages to retain. Update packages are downloaded automatically as updates are released. [Learn more](#)'. The 'Enable client updates' section shows a green toggle switch that is currently turned on. The 'Directory for update packages' field contains the path '/TSMcode/ClientDeploy/DEPLOY/rest_demo/importdir/'. The 'Select how many update packages to retain for each available product version' section has four radio button options: 'Keep the most recent only', 'Keep the two most recent updates', 'Keep the three most recent updates', and 'Keep the four most recent updates'. The last option is selected.

OC / Updates / Clients (first time)
OC / Settings / Updates









OC – Client Deployment Import & Replicate Packages IBM Spectrum Protect

8.1.3

1 & 2 – Hub server automatically download updates and import into Hub Server



OC / Servers / Details / Completed Tasks

Start Time	End Time	Name	ID	Type	Completed
Sep 12, 2017, 11:40:59 AM	Sep 12, 2017, 11:41:36 AM	Replicate Node	8	Process	
Sep 12, 2017, 11:40:48 AM	Sep 12, 2017, 11:40:50 AM	IMPORT NODE	7	Process	
Sep 12, 2017, 11:40:38 AM	Sep 12, 2017, 11:40:40 AM	IMPORT NODE	6	Process	
Sep 12, 2017, 11:40:28 AM	Sep 12, 2017, 11:40:31 AM	IMPORT NODE	5	Process	
Sep 12, 2017, 11:40:17 AM	Sep 12, 2017, 11:40:21 AM	IMPORT NODE	4	Process	
Sep 12, 2017, 11:40:02 AM	Sep 12, 2017, 11:40:06 AM	IMPORT NODE	3	Process	
Sep 12, 2017, 10:54:45 AM	Sep 12, 2017, 10:55:17 AM	Expiration	2	Process	
Sep 12, 2017, 10:54:44 AM	Sep 12, 2017, 10:54:47 AM	AUDIT LICENSE	1	Process	

Showing 8 | Selected 1 Last 24 hours

Activity Log

Date/Time	Status	Message
Sep 12, 2017, 11:40:17 AM	Info	AHR0604I Process 4 for IMPORT NODE started in the BACKGROUND at 11:40:17. (SESSION: 12, PROCESS: 4)
Sep 12, 2017, 11:40:17 AM	Info	AHR0609I IMPORT NODE started as process 4. (SESSION: 12, PROCESS: 4)
Sep 12, 2017, 11:40:17 AM	Info	AHR0402I Session 219 started for administrator SERVER_CONSOLE (Server) (Memory IPC). (SESSION: 12, PROCESS: 4)
Sep 12, 2017, 11:40:18 AM	Info	AHR0340I FILE volume /Mken/srvStorage/deploy/6.1.2.0-TIV-TSMBAC-LinuxX86.exp mounted. (SESSION: 12, PROCESS: 4)
Sep 12, 2017, 11:40:18 AM	Info	AHR0512I Process 4 opened input volume /Mken/srvStorage/deploy/6.1.2.0-TIV-TSMBAC-LinuxX86.exp. (SESSION: 12, PROCESS: 4)
Sep 12, 2017, 11:40:18 AM	Info	AHR1363I Input volume /Mken/srvStorage/deploy/6.1.2.0-TIV-TSMBAC-LinuxX86.exp opened (sequence number 1). (SESSION: 12, PROCESS: 4)

OC – Client Deployment Available Updates

3a – Admin selects clients to be updated and sets schedule

Backup-Archive Client Updates

Version 8.1

Installed	3693
Releases	1
Scheduled	1

Current Release

V8.1.2

Released Aug 14, 2017

Version 7.1

Installed	841
Releases	1
Scheduled	0

Current Release

V7.1.8

Released Aug 14, 2017

Version 6.4.3 and earlier

Installed	127
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These updates cannot be scheduled through the Operations Center.
[Learn more](#)

V8.1.2

Released Aug 14, 2017

Candidates	3101
Installed	1453
Scheduled	1

[Schedule Update](#)

OC / Updates / Clients

OC – Client Deployment Available Updates

- MOCK UP of additional update packages being available

The screenshot displays the 'Backup-Archive Client Updates' section of the IBM Spectrum Protect Operations Center. The interface includes a navigation bar with tabs for Overview, Clients, Services, Servers, Storage, Reports, and Updates. The 'Updates' tab is active, showing a list of available updates for clients.

Backup-Archive Client Updates

Version 8.1

Installed	3693
Releases	2
Scheduled	1

Current Release

V8.1.9

Released Aug 14, 2017

Version 7.1

Installed	841
Releases	1
Scheduled	0

Current Release

V7.1.8

Released Aug 14, 2017

Version 6.4.3 and earlier

Installed	127
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These updates cannot be scheduled through the Operations Center. [Learn more](#)

V8.1.2

Released Aug 14, 2017

Candidates	3101
Installed	1453
Scheduled	1

Schedule Update

V8.1.99

Released Jan 26, 2099

Candidates	3693
Installed	0
Scheduled	1

Schedule Update




OC / Updates / Clients

OC – Client Deployment Scheduling

3b – Admin selects clients to be updated and sets schedule

Schedule V8.1.2 Update

Select Clients



Clients

Select one or more clients to update. [Learn more](#)




Name	Version	Platform	Last Schedule Sta
1000-GUI11-0	8.1.0	LINUX X86-64	
1000-GUI11-1	8.1.0	LINUX X86-64	
1000-GUI11-10	8.1.0	LINUX X86-64	
1000-GUI11-100	8.1.0	LINUX X86-64	
1000-GUI11-101	8.1.0	LINUX X86-64	
1000-GUI11-102	8.1.0	LINUX X86-64	
1000-GUI11-103	8.1.0	LINUX X86-64	
1000-GUI11-104	8.1.0	LINUX X86-64	
1000-GUI11-105	8.1.0	LINUX X86-64	

Showing 3,101 | Selected 4

Next

Schedule V8.1.2 Update

Schedule Settings



Clients

Schedule

Select a date and time that do not conflict with scheduled backups. Updates cannot be installed while a backup is running. [Learn more](#)

Schedule date

9/22/2017

Schedule time

12:00 AM

12:15 AM

12:30 AM

12:45 AM

1:00 AM

1:15 AM

1:30 AM

1:45 AM

2:00 AM

2:15 AM

2:30 AM

Back


Next

Cancel

OC / Updates / Clients / Schedule Update

OC – Client Deployment Scheduled Updates

4,5,6 Clients automatically retrieve update packages, run update and send results



Overviews

Clients

Services

Servers

Storage


Reports


Updates

Clients


Scheduled

▼ Scheduled Updates




 Failed


299

 Succeeded


195

 Needs Reboot



0







 Scheduled

1

 Cancel Update

Reschedule

Name	Server	Version	Target	Status	Estimated Start	Platform
ANDREI1	TSMGUI11	7.1.6.2	8.1.2.0	 Scheduled	Sep 21, 2017, 6:42:00 AM	WINNT
ANDREI0	TSMGUI11	8.1.2.0	8.1.2.0	 Running	Sep 21, 2017, 7:35:00 AM	LINUX X86-64
ANDR810LNX	TSMGUI11	8.1.2.0	8.1.2.0	 Succeeded	Sep 8, 2017, 4:10:00 AM	LINUX X86-64
TA-SCALE1-186	TSMGUI11	8.1.2.0	8.1.2.0	 Succeeded	Sep 11, 2017, 5:00:00 AM	LINUX X86-64
ANDR-1809-MULTIDEP-92	TSMGUI11	7.1.6.2	7.1.8.0	 Failed - Installation	Sep 18, 2017, 5:30:00 AM	LINUX X86-64
D-RRRSscale2-TSMGUI11-22	TSMGUI11	8.1.0.0	8.1.2.0	 Failed - Missed	Sep 11, 2017, 10:45:00 AM	LINUX X86-64

OC / Updates / Scheduled

Server – IBM Cloud Object Storage 3.8.3 or higher



8.1.3

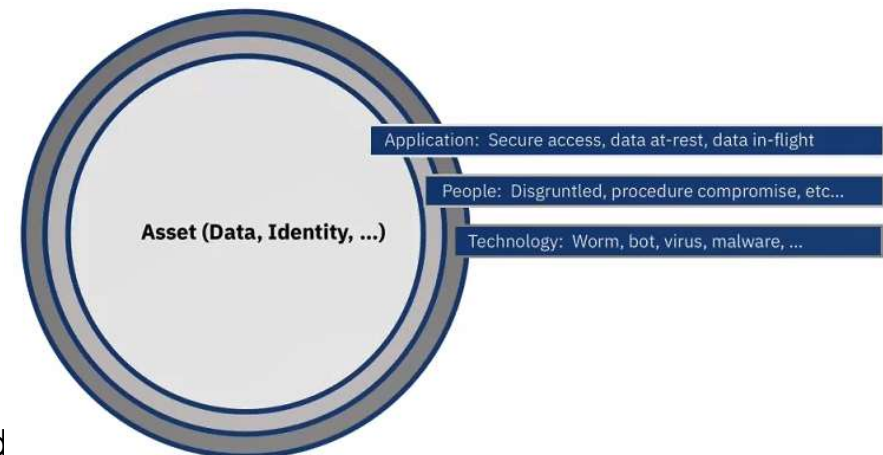
IBM Cloud Object Storage needs to be at **3.8.3+** for Spectrum Protect 8.1.3+

- If run 8.1.3 against an older IBM Cloud Object Storage code level
 - May see intermittent errors on requests to the IBM Cloud Object Storage:
 - Activity Log:
 - ANR3715E A request to the cloud service provider for the write object operation on the CLEVER storage pool failed with the following HTTP status: UNAUTHORIZED.
 - FFDC Log:
 - [06-19-2017 11:06:23.535][FFDC_GENERAL_SERVER_ERROR]: (sdcloud.c:4622)
com.tivoli.dsm.cloud.api.ProviderS3 handleException
com.amazonaws.services.s3.model.AmazonS3Exception Access Denied (Service: Amazon S3;
Status Code: 403; Error Code: AccessDenied; Request ID: e4211969-314e-4321-8b2d-
5eaa134baf5e) HTTP Status Code: 403
- Due to a compatibility issue with older IBM Cloud Object Storage and the newer Amazon SDK
- Solution: Update the IBM Cloud Object Storage to 3.8.3 or higher
 - IBM COS public cloud is already at 3.9+

Server, OC, Client – Security Enhancements

Spectrum Protect strives to be secure-by-design

- Government, Enterprise, IT landscape... continually changing
 - EU GDPR
 - US Federal Government (OnRamp, NIST,)
 - Regulatory (HIPPA....)
- Spectrum Protect maintains “assets” needing protection against various levels of threats
 - Increased computed power making attacks easier
 - Sharing of tools and exploits (dark web, ...)
 - More savvy attackers
 - Attacks from many vectors



Spectrum Protect 8.1.2

- Changes how local “credentials” are stored and managed
- Product wide adoption & exploitation of TLS 1.2 to secure point-to-point communication

Spectrum Protect 8.1.3

- Support for additional types of sessions
- Support for exchange based on possession of required certificate
- Works for most server-server sessions and storage agent-server sessions

Server, OC, Client – Security Enhancements

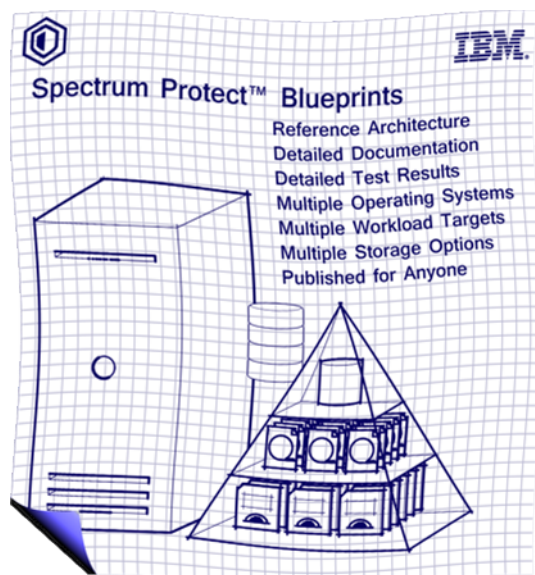
- **Upgrading servers or storage agents, using self-signed certs, may require setting default cert**
 - gsk8capicmd_64 -cert -setdefault -db cert.kdb -stashed -label "TSM Server SelfSigned SHA Key"
- **Server-Server sessions**
 - **8.1.2** Server to server process sessions, such as replication and protect stgpool, automatically acquire certificates
 - Must exchange certificates ahead of time & both servers must be in Transitional state to complete the exchange
 - **8.1.3/7.1.8** sessions can dynamically acquire certificates regardless of strict/transitional mode
- **Server to Server sessions that use administrator or node credentials to authenticate**
 - **8.1.2** requires the certs to already be exchanged, or to manually exchange the cert
 - Virtual Volume sessions
 - Command routing sessions, which do not initiate a server-server session (including PING SERVER cmd)
 - Export Server to Server
 - **8.1.3/7.1.8** Certificates are obtained if not already possessed, target servers do not obtain requester's certificate
 - Virtual Volume sessions acquire certificate of target server
 - Command routing sessions, which do not initiate a server-server session, (including PING SERVER cmd)
 - Export Server to Server acquires certificate of target server
- **Storage agent certificates between Server & Storage Agents**
 - **8.1.2** must be manually configured
 - **8.1.3/7.1.8** Storage Agents automatically exchange server certificates with their Data Base Server
 - Acquisition of Data Base Server is noted in storage agent option file dsmsta.opt
 - Via new STASESSIONSECURITY option
 - Updated dynamically following certificate acquisition
 - Manual configuration is necessary for Library Client or Library Manager servers which storage agents contact
 - Unless they are the same servers as their Data Base Server

Spectrum Protect Blueprints



IBM Spectrum Protect – *Simplify*

Spectrum Protect Blueprints



Faster server deployments than ever before! Up in running in a few hours!



What's new in v3.2 of the Blueprints:

The IBM Spectrum Protect blueprint configuration script, hardware and software requirements, and documentation are updated.

Hardware upgrades for IBM Elastic Storage™ Server configurations

Instructions are provided for configuring a large system that uses IBM Elastic Storage Server model GL6S with IBM Spectrum Scale™ Version 4.2.3 or later.

Hardware upgrades for small and medium Storwize® configurations

For small and medium configurations, Storwize V3700 systems are now replaced with Storwize V5010. By using Storwize V5010 hardware, you can switch to distributed arrays for the IBM Spectrum Protect database and storage pools. Serial-attached SCSI (SAS) 10k rpm drives are eliminated.

Introduction of Supermicro SuperServer technology

For small, medium, and large Storwize systems, a Supermicro SuperServer reference is provided in addition to a Lenovo server reference.

Microsoft Windows Server 2016 operating system

You can install IBM Spectrum Protect V8.1.1 or later on the Microsoft Windows Server 2016 Standard Edition operating system. Then, you can use the blueprint configuration script to set up your storage environment.

<https://www.ibm.com/developerworks/community/wikis/home/wiki/Tivoli%20Storage%20Manager/page/IBM%20Spectrum%20Protect%20Blueprints>

Licensing – Cloud Object Storage Tier

Market Need

- ✓ Clients are **bridging to the cloud** to expand/shift their data center
- ✓ Clients want to **consume cloud via a utility model** - “pay for what you use”
- ✓ Clients want a way to leverage cloud **efficiently** and **predictably**

IBM Goals

- ✓ Establish Spectrum Protect as best of breed when utilizing cloud infrastructure

New Offering

- ✓ **IBM Spectrum Protect Suite - Cloud Object Storage Tier**
- ✓ Similar to IBM Spectrum Protect Suite - “ProtecTIER® Option” or “Archive Option”
- ✓ **Price per TB is lower** for data stored in IBM Cloud Object Storage
- ✓ Applies to IBM Spectrum Protect Suite (Back end) only
- ✓ Applies to:
 - ✓ On-premises IBM COS
 - ✓ Public IBM COS



Licensing – Adding new Cloud Option

**New lower pricing when IBM Cloud Object Storage is chosen for backup and archive data.
Can be used either on-premise or in public-based IBM Cloud Object Storage.**

<u>PID</u>	<u>Document Name</u>
5725-X05	IBM Spectrum Protect Suite 8.1.3
5725-X05 Archive Option	IBM Spectrum Protect Suite - Archive Option 8.1.3
5725-X05 ProtecTIER Option	IBM Spectrum Protect Suite - ProtecTIER Option 8.1.3
5725-X05 IBM Cloud Object Storage Option	IBM Spectrum Protect Suite - IBM Cloud Object Storage Option 8.1.3

New Program Unique Terms (PUTs):

Licensee must obtain sufficient entitlements for the total amount of managed data stored in IBM cloud Object Storage repositories that are available to the Program's primary storage pool, excluding the capacity for disaster recovery sites used for replication only.

