



**Commvault® IntelliSnap®
Technology FlashArray Integration
for VMware vSphere®**

October, 2015

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Executive Summary

Enterprises today increasingly turn to array-based snapshots to augment or replace legacy data protection solutions that have been overwhelmed by exponential data growth. Management and automation are an integral part of being able effectively leverage this technology. Efficient and integrated use of array-based snapshots are key requirements to protecting virtualized applications.

Pure Storage FlashArray snapshots are an intrinsic part of the way the Purity Operating Environment reduces complexity and maintains efficiency. FlashArray snapshots delivers superior space efficiency, high scalability, and simplicity of management. FlashArray snapshots are always thin provisioned with no dedicated space allocated upon creation. As new or changed data is written to the source volume, new capacity is assigned to the newly-written or overwritten blocks while unchanged blocks are shared between snapshots and volumes. Additionally, the Purity Operating Environment data structures allow snapshots to preserve the granular data reduction efficiencies of volumes through global deduplication and compression, thus volume snapshots require minimal physical capacity on flash drives. Since FlashArray snapshots are entirely metadata constructs, they can be created from a volume in a matter of milliseconds regardless to the size or written capacity of the source volume.

Commvault adds orchestration and functional value on top of the Pure Storage FlashArray snapshot technology with the IntelliSnap technology snapshot management feature set. IntelliSnap technology streamlines and simplifies snapshot management by centralizing snapshot management across one or many storage arrays; automating object, application and database recovery; and linking snapshots to backup processes. The tight coupling of managed snapshots along side of data protection and recovery operations enables Commvault software to provide a complete view into data across applications, devices, operating systems and locations, cutting administrative overhead and improving access, availability and IT efficiency.

Goals and Objectives

This paper provides an overview of the IntelliSnap technology's technical capabilities in a VMware vSphere environment. Initial configuration of the FlashArray object in Commvault and a walkthrough of various recovery option use cases and their workflows.

In-depth instructions on the configuration, setup and use of the Commvault IntelliSnap technology and Simpana software is beyond the scope of this paper. For additional details, please refer to [Commvault documentation](#).

Audience

This paper is written for VMware, storage or backup administrators interested in Commvault IntelliSnap technology integration with the Pure Storage FlashArray snapshot technology. Familiarity with VMware vSphere and Commvault is recommended.

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Pure Storage Overview

Who knew that moving to all-flash storage could help reduce the cost of IT? FlashArray//m makes server and workload investments more productive, while also lowering storage spend. With FlashArray//m, organizations can dramatically reduce the complexity of storage to make IT more agile and efficient, accelerating your journey to the cloud.



FlashArray//m's performance can also make your business smarter by unleashing the power of real-time analytics, driving customer loyalty, and creating new, innovative customer experiences that simply weren't possible with disk. All by Transforming Your Storage with FlashArray//m.

FlashArray//m enables you to transform your data center, cloud, or entire business with an affordable all-flash array capable of consolidating and accelerating all your key applications.

Mini Size—Reduce power, space and complexity by 90%

- 3U base chassis with 15-120+ TBs usable
- ~1kW of power
- 6 cables

Mighty Performance—Transform your datacenter, cloud, or entire business

- Up to 300,000 32K IOPS
- Up to 9 GB/s bandwidth
- <1ms average latency

Modular Scale—Scale FlashArray//m inside and outside of the chassis for generations

- Expandable to ~½ PB usable via expansion shelves
- Upgrade controllers and drives to expand performance and/or capacity

Meaningful Simplicity—Appliance-like deployment with worry-free operations

- Plug-and-go deployment that takes minutes, not days
- Non-disruptive upgrades and hot-swap everything
- Less parts = more reliability

The FlashArray//m expands upon the FlashArray's modular, stateless architecture, designed to enable expandability and upgradability for generations. The FlashArray//m leverages a chassis-based design with customizable modules, enabling both capacity and performance to be independently improved over time with advances in compute and flash, to meet your business' needs today and tomorrow.

The Pure Storage FlashArray is ideal for:

Accelerating Databases and Applications Speed transactions by 10x with consistent low latency, enable online data analytics across wide datasets, and mix production, analytics, dev/test, and backup workloads without fear.

Virtualizing and Consolidating Workloads Easily accommodate the most IO-hungry Tier 1 workloads, increase consolidation rates (thereby reducing servers), simplify VI administration, and accelerate common administrative tasks.

Delivering the Ultimate Virtual Desktop Experience Support demanding users with better performance than physical desktops, scale without disruption from pilot to >1000's of users, and experience all-flash performance for under \$100/desktop.

Protecting and Recovering Vital Data Assets Provide an always-on protection for business-critical data, maintain performance even under failure conditions, and recover instantly with FlashRecover.

Pure Storage FlashArray sets the benchmark for all-flash enterprise storage arrays. It delivers:

Consistent Performance FlashArray delivers consistent <1ms average latency. Performance is optimized for the real-world applications workloads that are dominated by I/O sizes of 32K or larger vs. 4K/8K hero performance benchmarks. Full performance is maintained even under failures/updates.

Less Cost than Disk Inline de-duplication and compression deliver 5 – 10x space savings across a broad set of I/O workloads including Databases, Virtual Machines and Virtual Desktop Infrastructure.

Mission-Critical Resiliency FlashArray delivers >99.999% proven availability, as measured across the Pure Storage installed base and does so with non-disruptive everything without performance impact.

Disaster Recovery Built-In FlashArray offers native, fully-integrated, data reduction-optimized backup and disaster recovery at no additional cost. Setup disaster recovery with policy-based automation within minutes. And, recover instantly from local, space-efficient snapshots or remote replicas.

Simplicity Built-In FlashArray offers game-changing management simplicity that makes storage installation, configuration, provisioning and migration a snap. No more managing performance, RAID, tiers or caching. Achieve optimal application performance without any tuning at any layer. Manage the FlashArray the way you like it: Web-based GUI, CLI, VMware vCenter, Rest API, or OpenStack.

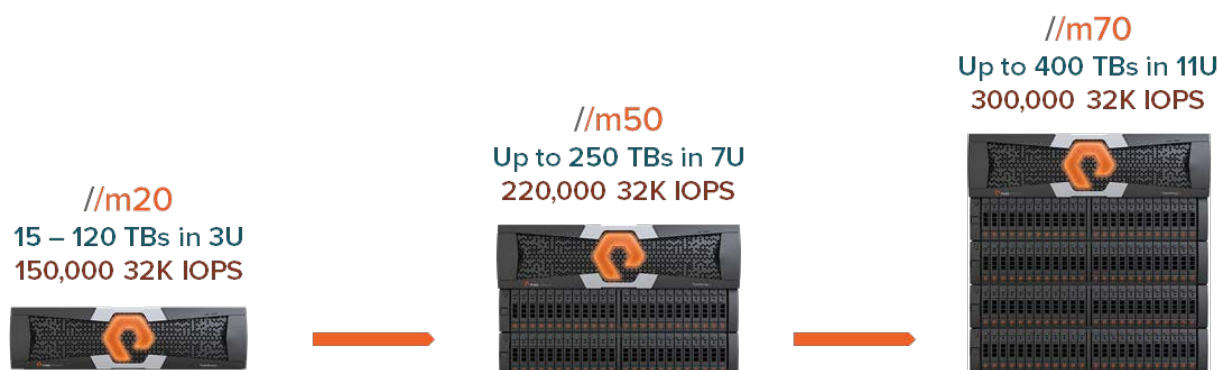


Table 1. Pure Storage FlashArray//m Series.

FlashArray//m Specifications

	//m20	//m50	//m70
Capacity	- Up to 120+ TBs effective capacity* 5 – 40TBs raw capacity (base chassis)	- Up to 250+ TBs effective capacity* 30 – 88TBs raw capacity (w/shelves)	- Up to 400+ TBs effective capacity* 44 – 136TBs raw capacity (w/shelves)
Performance	- Up to 150,000 32K IOPS** <1ms average latency - Up to 5 GB/s bandwidth	- Up to 220,000 32K IOPS** <1ms average latency - Up to 7 GB/s bandwidth	- Up to 300,000 32K IOPS** <1ms average latency - Up to 9 GB/s bandwidth
Connectivity	8 Gb/s Fibre Channel 10 Gb/s Ethernet iSCSI - Management and Replication ports	16 Gb/s Fibre Channel 10 Gb/s Ethernet iSCSI - Management and Replication ports	16 Gb/s Fibre Channel 10 Gb/s Ethernet iSCSI - Management and Replication ports
Physical	3U 742 Watts (nominal draw) 110 lbs. (49.9 kg) fully loaded 5.12" x 18.94" x 29.72" FlashArray//m chassis	3U – 7U 1007 - 1447 Watts (nominal draw) 110 lbs. (49.9 kg) fully loaded + 44 lbs. per expansion shelf 5.12" x 18.94" x 29.72" FlashArray//m chassis	5U – 11U 1439 – 2099 Watts (nominal draw) 110 lbs. (49.9 kg) fully loaded + 44 lbs. per expansion shelf 5.12" x 18.94" x 29.72" FlashArray//m chassis

* Effective capacity assumes HA, RAID, and metadata overhead, GB-to-GiB conversion, and includes the benefit of data reduction with always-on inline deduplication, compression, and pattern removal. Average data reduction is calculated at 5-to-1, below the global average of the FlashArray user base.

** Why does Pure Storage quote 32K, not 4K IOPS? The industry commonly markets 4K IOPS, but real-world environments are dominated by IO sizes of 32K or larger. FlashArray//m adapts automatically to 512B-32KB IO for superior performance, scalability, and data reduction.

Purity Operating Environment

Purity implements advanced data reduction, storage management and flash management features, and all features of Purity are included in the base cost of the FlashArray//m.

Storage Software Built for Flash—The FlashCare technology virtualizes the entire pool of flash within the FlashArray, and allows Purity to both extend the life and ensure the maximum performance of consumer-grade MLC flash.

Granular and Adaptive—Purity Core is based upon a 512-byte variable block size metadata layer. This fine-grain metadata enables all of Purity's data and flash management services to operate at the highest efficiency.

Best Data Reduction Available—FlashReduce implements five forms of inline and post-process data reduction to offer the most complete data reduction in the industry. Data reduction operates at a 512-byte aligned variable block size, to enable effective reduction across a wide range of mixed workloads without tuning.

Highly Available and Resilient—FlashProtect implements high availability, dual-parity RAID-3D, non-disruptive upgrades, and encryption, all of which are designed to deliver full performance to the FlashArray during any failure or maintenance event.

Backup and Disaster Recovery Built In—FlashRecover combines space-saving snapshots, replication, and protection policies into an end-to-end data protection and recovery solution that protects data against loss locally and globally. All FlashProtect services are fully-integrated in the FlashArray and leverage the native data reduction capabilities.



Pure1 Manage—By combining local web-based management with cloud-based monitoring, Pure1 Manage allows you to manage your FlashArray wherever you are – with just a web browser.

Pure1 Connect—A rich set of APIs, plugin-is, application connectors, and automation toolkits enable you to connect FlashArray//m to all your data center and cloud monitoring, management, and orchestration tools.

Pure1 Support—FlashArray//m is constantly cloud- connected, enabling Pure Storage to deliver the most proactive support experience possible. Highly trained staff combined with big data analytics help resolve problems before they start.

Pure1 Collaborate—Extend your development and support experience online, leveraging the Pure1 Collaborate community to get peer-based support, and to share tips, tricks, and scripts.

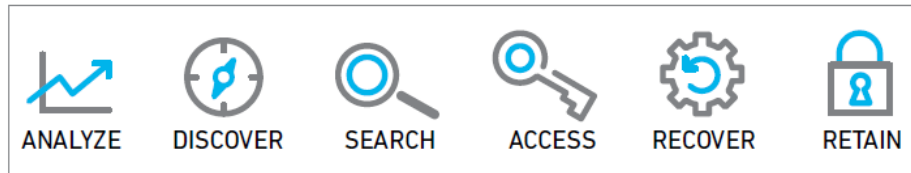
Experience Evergreen Storage



Tired of the 3-5 year array replacement merry-go-round? The move to FlashArray//m can be your last data migration. Purchase and deploy storage once and once only – then expand capacity and performance incrementally in conjunction with your business needs and without downtime. Pure Storage’s vision for Evergreen Storage is delivered by a combination of the FlashArray’s stateless, modular architecture and the ForeverFlash business model, enabling you to extend the lifecycle of storage from 3-5 years to a decade or more.

Commvault IntelliSnap Technology Overview

Commvault IntelliSnap technology integrates with native storage array snapshot engines to provide consistent point-in-time recovery copies for large data sets and enterprise applications. IntelliSnap technology quiesces applications or file systems, triggers the storage array-based snapshot, and returns the system to a fully operational state within minutes. By incorporating and linking snapshots with backup and archive operations, software makes more online and offline copies available for recovery while reducing data protection's impact on production systems. IntelliSnap technology harnesses the power of array-based snapshots to accelerate backup and recovery.



IntelliSnap technology integrates with array-specific APIs in order to execute snapshot management functions. These functions include configure, create, retire, mount, mine, dismount, monitor, retain, revert and restore — and are managed and executed in the same way regardless of hardware platform. Thus, IntelliSnap technology can consolidate and standardize snapshot management and snapshot-based recovery across nearly all leading storage platforms.

IntelliSnap technology enables a modernized approach to data protection by merging storage system hardware snapshots directly into the data protection process. IntelliSnap technology integrates tightly with both host applications and with the system software specific to each hardware array. As the central orchestration point between the two, the IntelliSnap feature drives snapshot creation, indexes the contents and can then push application-consistent and deduplicated backup, archive or DR copies to secondary storage, tape or cloud. IntelliSnap technology normalizes snapshot operations so they look the same and operate the same way regardless of application or storage platform. For longer-term retention copies, Commvault software offloads deduplication, backup and encryption to a separate (proxy) host to minimize impact to production systems. By automatically integrating application intelligence with hardware snapshots, Commvault software is able to reach through the application and file systems into the storage array, discover volume/disk configurations for the snapshot operations, and coordinate these operations with proper application awareness and log management, minimizing administrative configuration and eliminating any scripting requirements.

The Commvault snapshot menu enables granular retention options, such as hourly snapshots retained for a day or daily snapshots retained for a week. The snapshot menu is also enabled with an option to retain a set number of snapshots, which can help eliminate the days/cycles conversation with storage and application administrators. These indexing and retention changes help align storage snapshot retention with standard data protection operations, and are available for all applications and storage platforms. Smart use of IntelliSnap technology to manage native snapshots should ensure the creation of more recovery points for fast recovery without adding complexity.

Simpana Software Overview

The Simpana software platform is an enterprise level, integrated data and information management solution, built from the ground up on a single platform and unified code base. All functions share the same back-end technologies to deliver the unparalleled advantages and benefits of a truly holistic approach to protecting, managing, and accessing data. The Simpana software platform contains modules to protect and archive, analyze, replicate, and search your data, which all share a common set of back-end services and advanced capabilities, seamlessly interacting with one another. The Simpana software platform addresses all aspects of data management in the enterprise, while providing infinite scalability and unprecedented control of data and information.

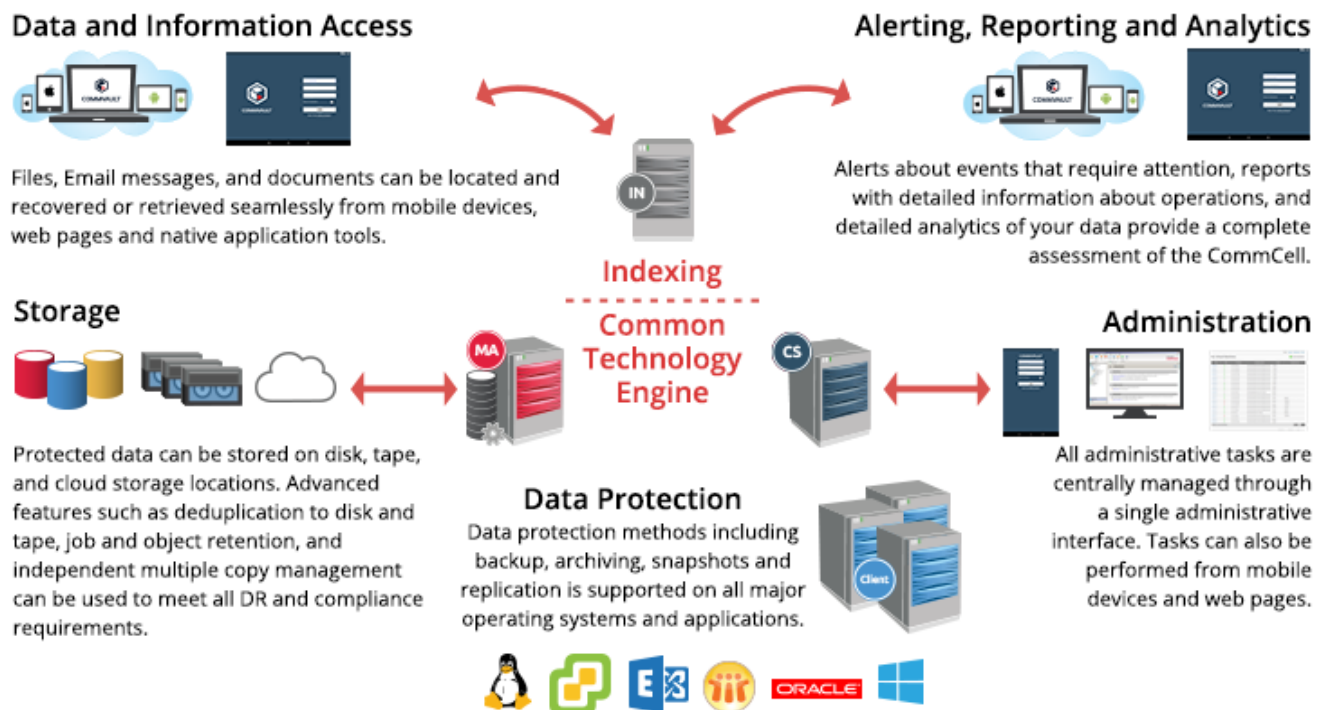


Figure 1. Commvault Simpana

Commvault IntelliSnap Technology and VMware vSphere

IntelliSnap technology offers multiple different recovery capabilities in virtualized environments, including full volume revert, as well as full VM and file-level recovery. In addition, Commvault software includes an automated restore option that allows select critical VMs to be automatically recovered to an alternate location. This option can be used for DR or to provide a sandboxed environment outside production systems. Commvault software can also enable registered VM owners to view snapshot and backup details and recover files from their own VMs. This empowers end-users and shifts the burden of recovery from administrators.

Key benefits in virtualized environments are:

- Granular indexing within snapshots, enabling wildcard search and restore of files within VMs within a snapshot

- Auto-discovery of new VMs and datastores, and automatic protection under existing protection policies
- Leveraging snapshots to create retention copies to off-production and/or off-site media, and maintaining application understanding for application-consistent recovery back to the original source from any copy
- Automation of all snapshot management functions to eliminate snapshot-based scripts
 - Protection policies and workflows created in the Commvault GUI for virtualized databases can be captured as scripts that DBAs can run for themselves, preserving DBA independence while still consolidating protection operations under the Commvault umbrella
- Reduced administrative overhead by enabling VM owners and end-users to perform their own file and VM recoveries and test/dev snapshot management

System Requirements

The following requirements exist in order to use Commvault IntelliSnap technology integration with the Pure Storage FlashArray:

- FlashArray 400 series or FlashArray//m
- Purity v4.1.1 (or higher)
- REST API: v1.4 (found in Purity v4.x and higher)
- Array Licensing: Pure Storage arrays require no additional licensing for IntelliSnap software functionality.
- Protocol Support: Fibre Channel or iSCSI
- Commvault Simpana version 10 service pack 12 or later

FlashArray Configuration for IntelliSnap Technology

The Pure Storage FlashArray includes everything required to perform IntelliSnap software operations — there is no special licensing, configuration or management appliance needed. A minimal amount of configuration is required inside of Commvault to add and authorize a FlashArray. The following section describes how to register and configure a FlashArray object into the IntelliSnap software.

Please note that this is a one-time per-array configuration that will enable the use of the Pure Storage FlashArray within the Commvault environment.

1. Determine the proper user account to authorize the FlashArray. The user account must have “storage admin” privileges or higher. To add a FlashArray object into the IntelliSnap software, you must know the username and the API token. If an API token for the user account does not exist, it must be created. The token can be created by logging into the FlashArray GUI with the target account and then navigating to the System tab then Users > Me. Hover to the right of the username with your mouse and click on the gear icon and choose “Create API Token”.

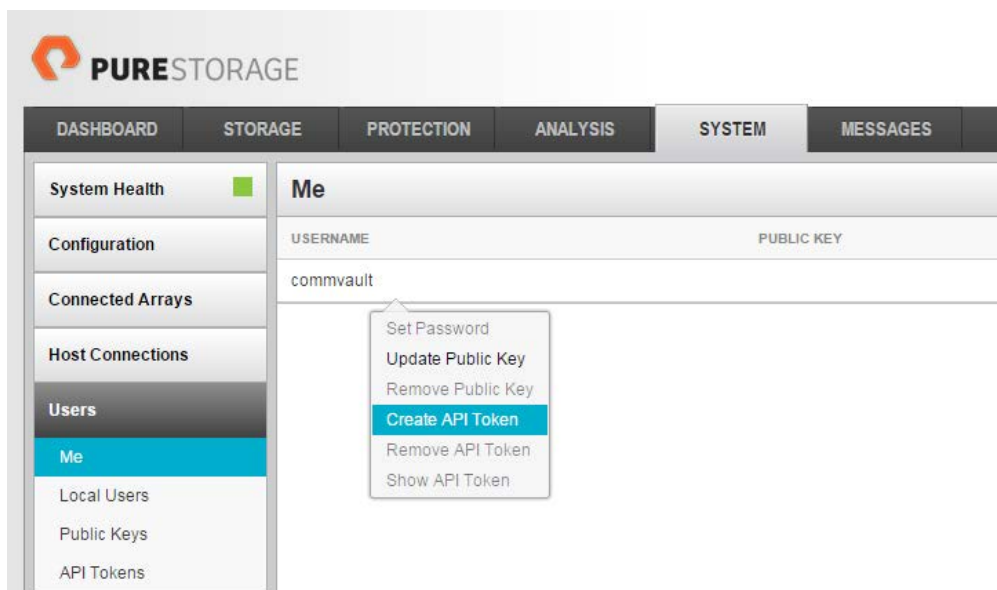


Figure 2. Creating a FlashArray API token

2. Now copy the token to your clipboard.

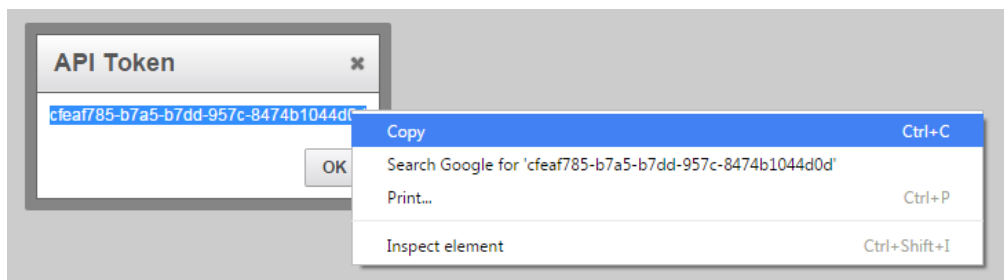


Figure 3. Copy API token

3. Login to the Commvault Simpana software.

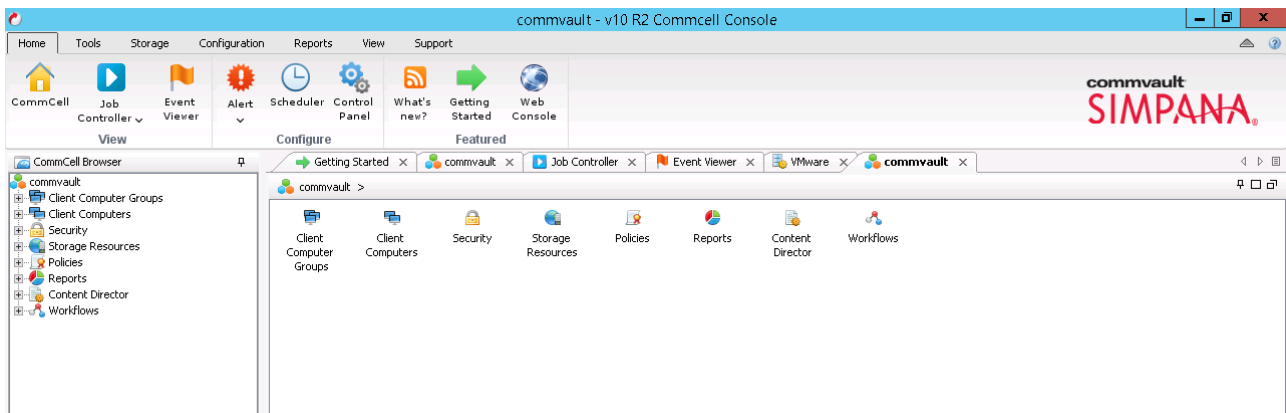


Figure 4. Navigate Commvault Simpana interface

4. In the “Storage” tab, select the Array Management button in the top panel.

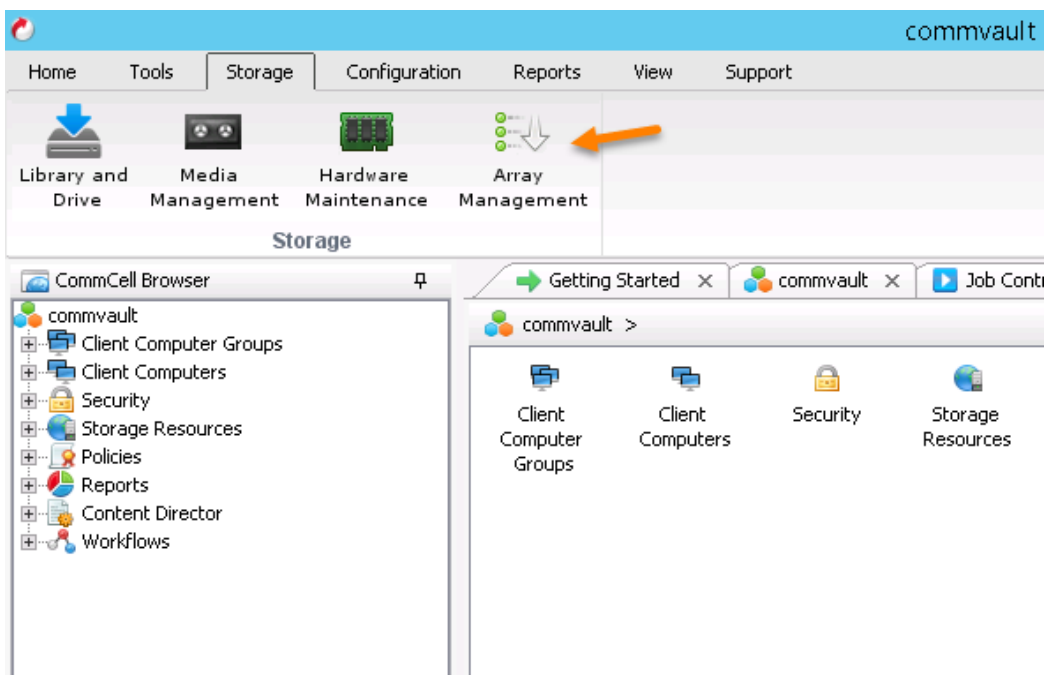


Figure 5. Locate array management in Simpana

- Click the “Add” button to add a new FlashArray.

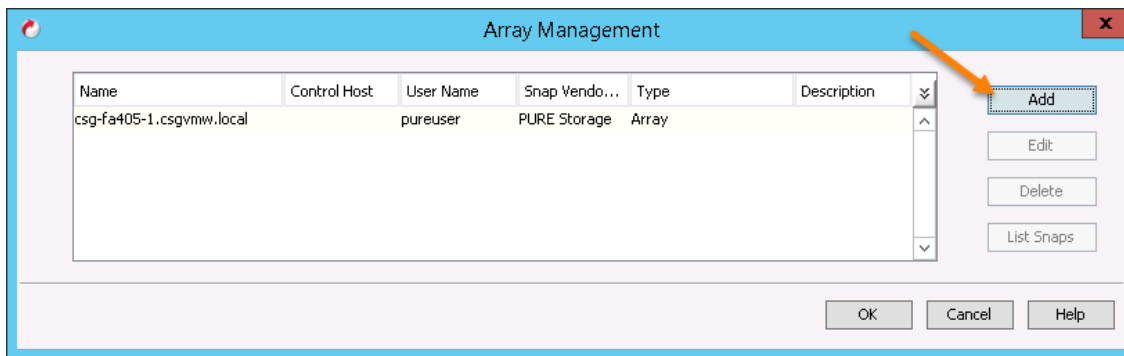


Figure 6. Add FlashArray to Simpana

- In the “Snap Vendor” drop-down, choose “PURE Storage”¹.

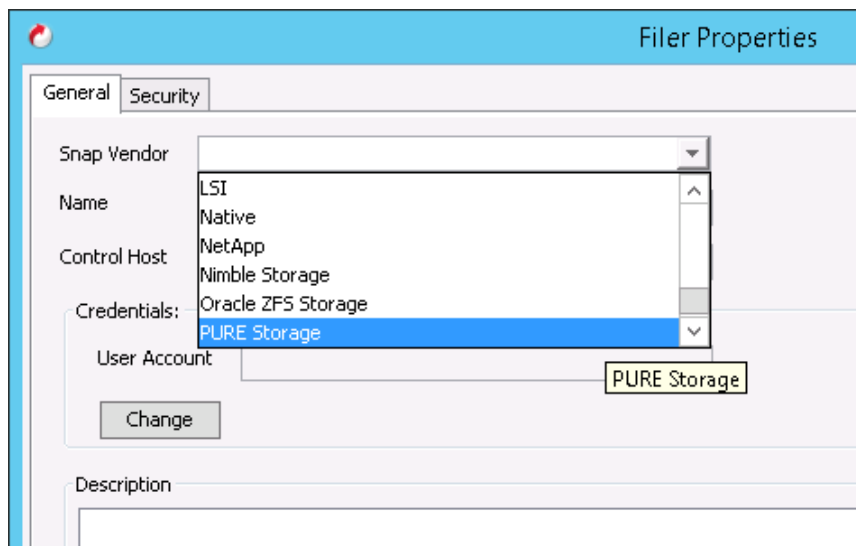


Figure 7. Select Pure Storage as the snapshot provider

- In the “Name” field, enter in the IP or FQDN of the FlashArray. This must be resolvable by the Commvault server. Then click “Change” under the “Credential” section. Enter in the username into the “user name” field and the token into the “password” field that appears. DO NOT use the username’s actual password—the password will not work for this. The security token does

¹ If Pure Storage is not an option, the Simpana software is not at the correct release level. It must be version 10 SP 12 or later. Version 10 SP 11 with a special patch also provides Pure Storage functionality.

not expire, but can be deleted, so if IntelliSnap technology functionality fails ensure that the token is still present.

The screenshot shows the 'Array Properties' dialog box with the following fields and values:

- Snap Vendor:** PURE Storage (dropdown menu)
- Name:** csg-fa420-1.csgvmw.local
- Control Host:** (empty text box)
- Credentials:**
 - User Account:** commvault
 - Change:** (button)
- Description:** FlashArray 420

Figure 8. Configuring a FlashArray in Simpana

The screenshot shows the 'Enter User Name and Password' dialog box with the following fields and values:

- User Name:** commvault
- Password:** (masked with dots)
- Confirm Password:** (masked with dots)
- Buttons:** OK, Cancel, Help

Figure 9. Add API user to Simpana FlashArray configuration

8. Optionally, enter in a description for the FlashArray to provide more detail on the specific array. Now click on the “Snap Configuration” tab. This tab provides the user with advanced settings for the behavior of IntelliSnap technology and FlashArray interaction. Pure Storage and Commvault recommend **leaving all of these settings at the default.**

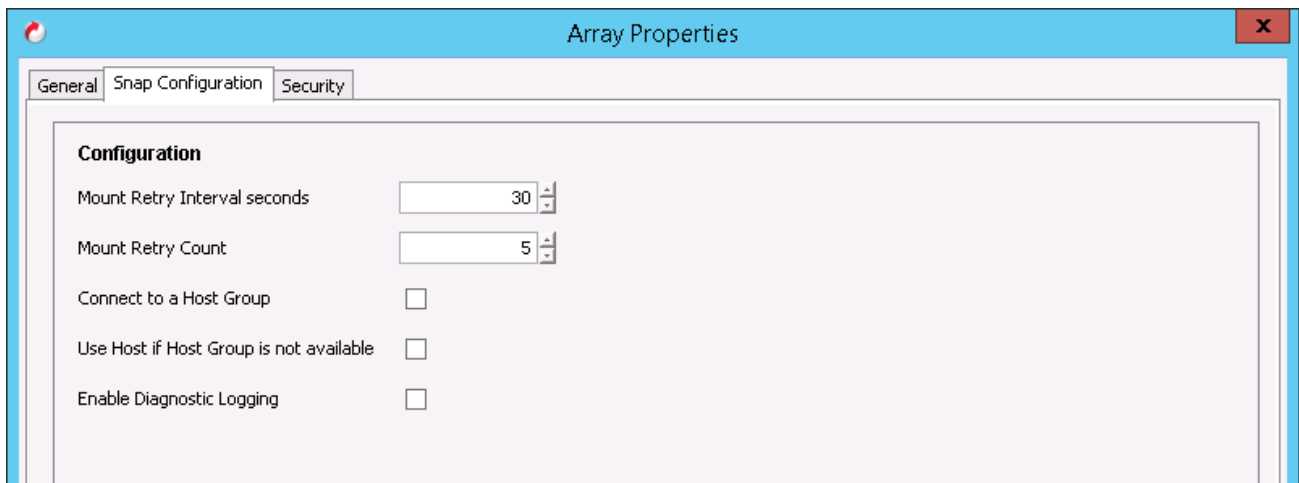


Figure 10. FlashArray and Commvault behavior advanced settings

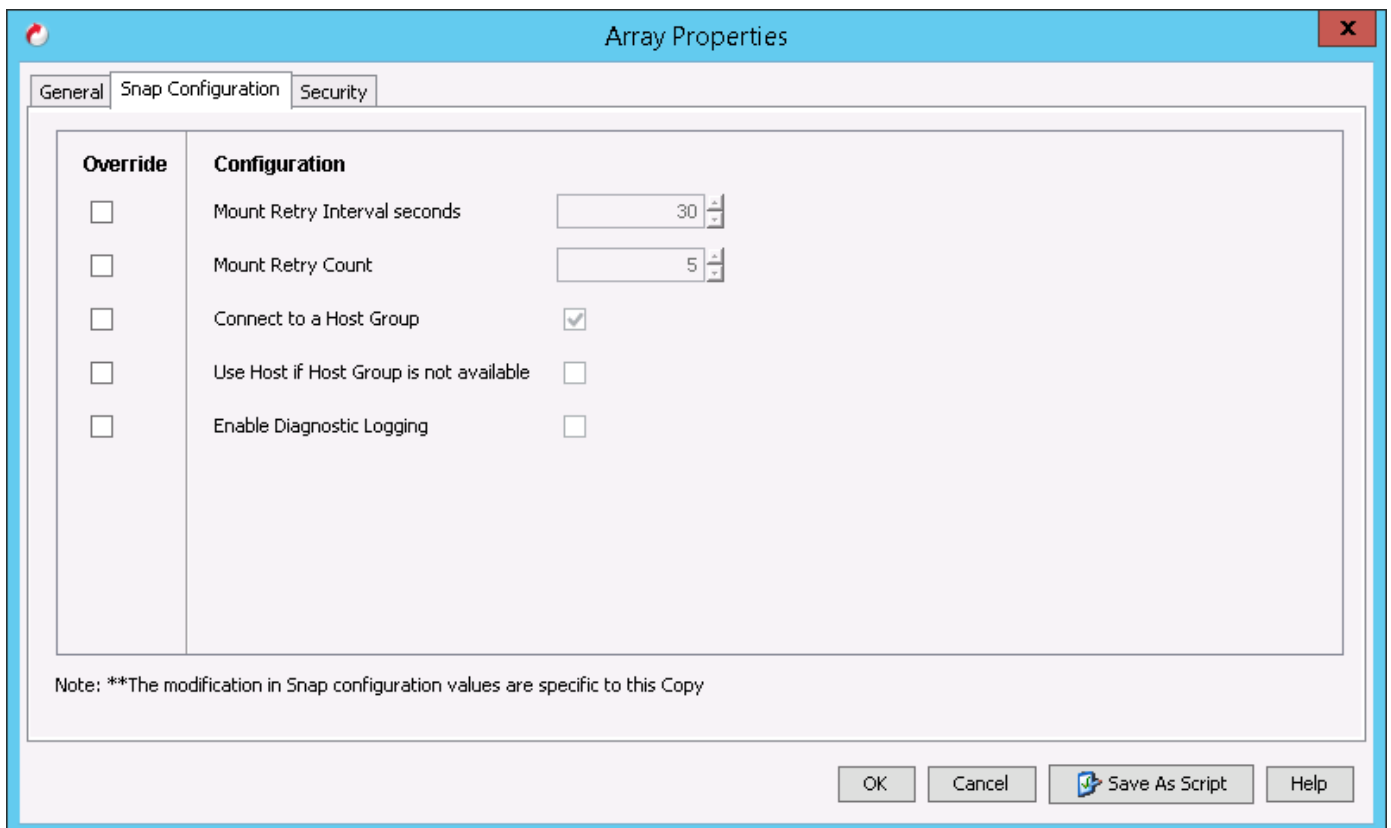
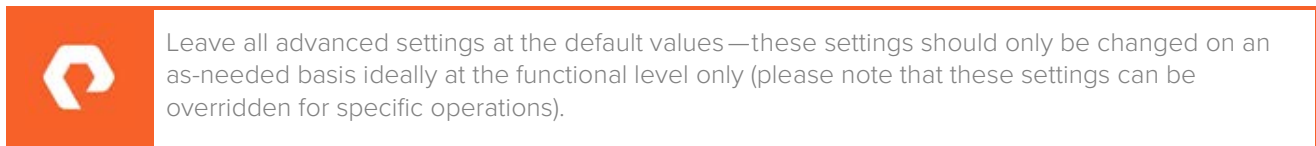


Figure 11. Advanced setting overrides for Commvault FlashArrays

Commvault and VMware vSphere IntelliSnap Technology Functions

Commvault Simpana software in combination with the IntelliSnap technology and Pure Storage FlashArray integration offer an extensive feature set with rich controls and behaviors. The following section will outline main features of IntelliSnap technology integration with the Pure Storage FlashArray. For detailed information concerning setup and use of the Commvault IntelliSnap software please refer to Commvault documentation.

The following functions are the main operations directly involved with IntelliSnap technology for VMware vSphere:

1. Taking a VM-consistent array-based snapshot
2. Mounting a VMFS snapshot copy
3. Recovering a virtual machine
4. Recovering a virtual machine virtual disk or a file on a virtual disk

The subsequent use cases are not meant to be an exhaustive list of features but instead is meant to demonstrate common backup and recovery workflows for Commvault IntelliSnap technology and VMware vSphere environments.

Use Case 1: Taking a VM-consistent array-based snapshot

1. For this example, a virtual machine named “File Server” is residing on a VMFS volume named “CommVaultDS”. Using the Pure Storage Web Client Plugin it can be seen that the VMFS is on a volume named “CommVaultDS” on a FlashArray named csg-fa405-1.

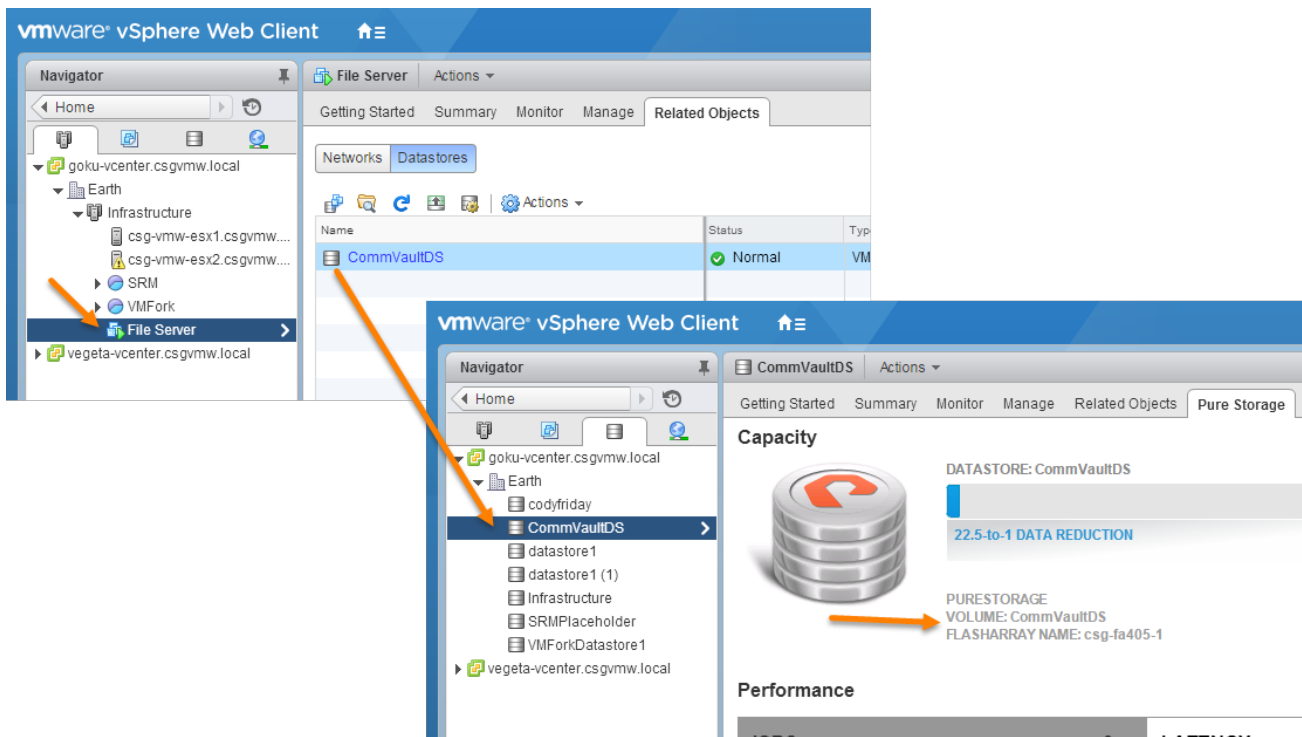


Figure 12. Identifying FlashArray volumes in vSphere

2. In the Commvault Simpana software, it can also be noted that the “File Server” virtual machine is configured for protection in a subclient named “VMware”.

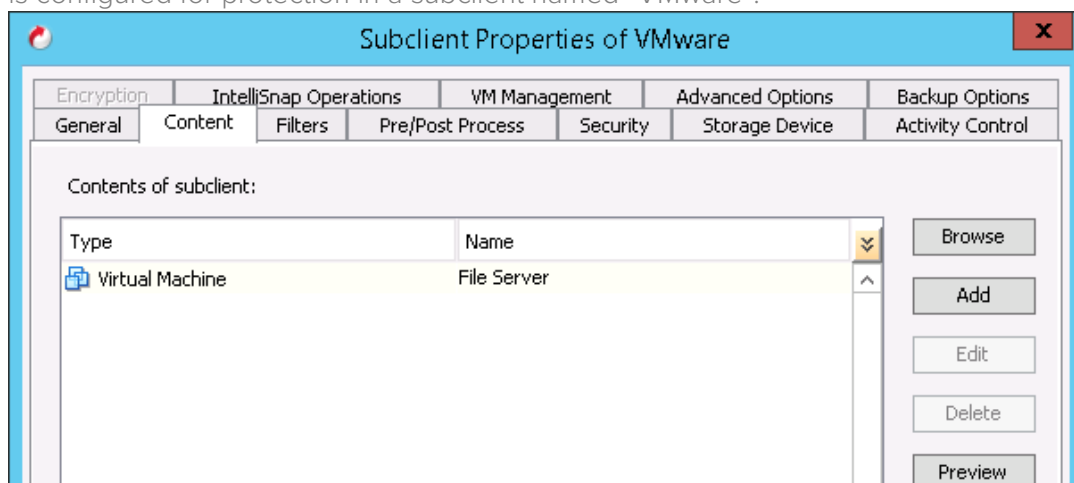


Figure 13. Verifying virtual machine protection in Simpana

3. The subclient has been enabled for IntelliSnap technology operations using the snap engine called “PURE Storage Snap” and an ESXi host has been selected for recovery/mounting operations. Mounting behavior, when necessary, can be overridden by clicking the “Manage Array” button.

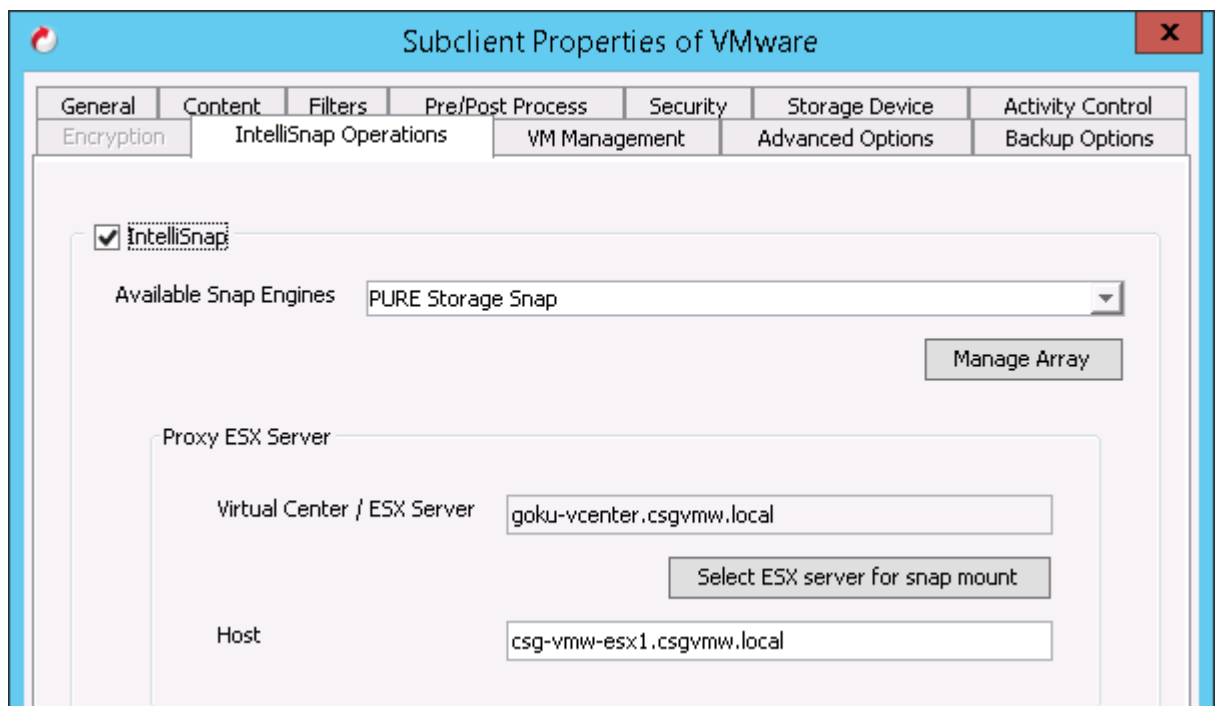


Figure 14. Enabling IntelliSnap technology protection

4. To create a snap, right-click the subclient and choose “Backup” in the menu. Choose a backup type and when you would you like the snap to be created (now or at a scheduled point in the future). Note that the backup type (full, incremental, etc.) does not effect or change how the snapshot is created on the FlashArray—it is always the same operation regardless. The difference is in how Commvault indexes information for the VMs being snapped.

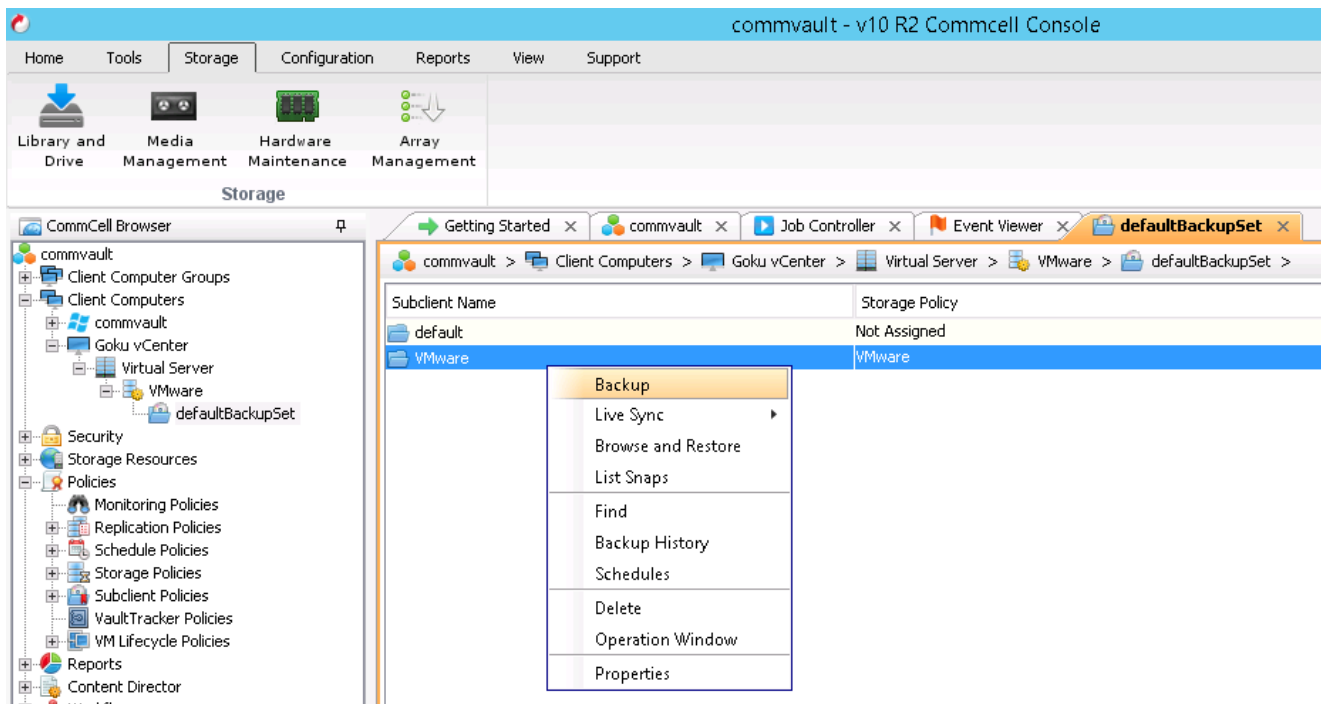


Figure 15. Taking a backup of a subclient

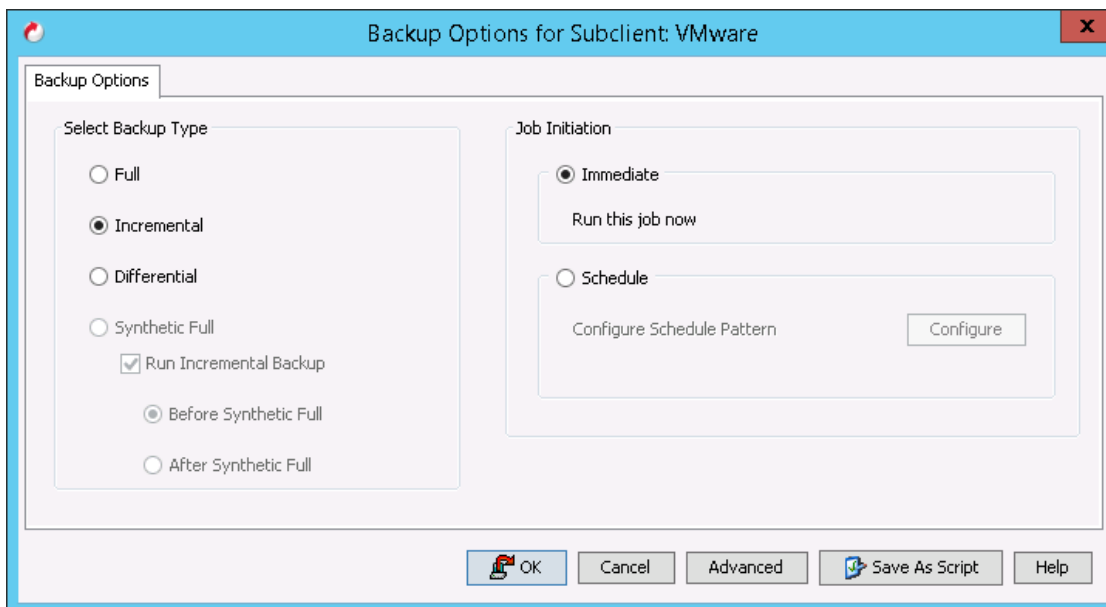


Figure 16. Choosing the backup type of a Commvault subclient

5. Click on the “Job Controller” tab to follow the progress. The snapshot will be created on the FlashArray for the CommVaultDS VMFS datastore volume.

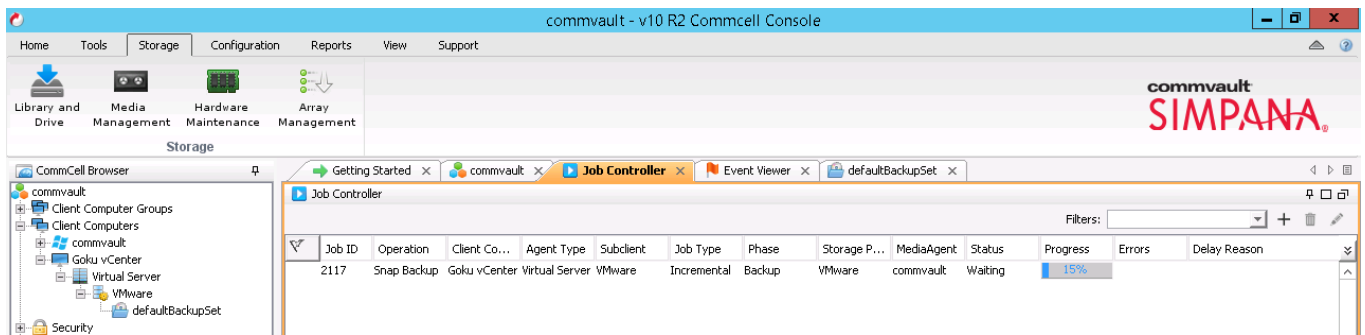


Figure 17. Watching the operation progress in Simpana

6. In the vSphere Web Client, it can be seen that the “File Server” VM has been quiesced via the VMware-snapshot functionality. A VMware snapshot has been created and removed for that virtual machine, and the “Quiesce Guest OS File System” option has been used—this is default behavior that can be overridden if desired. Furthermore, Commvault will edit a custom value on the VM indicating the last backup time.

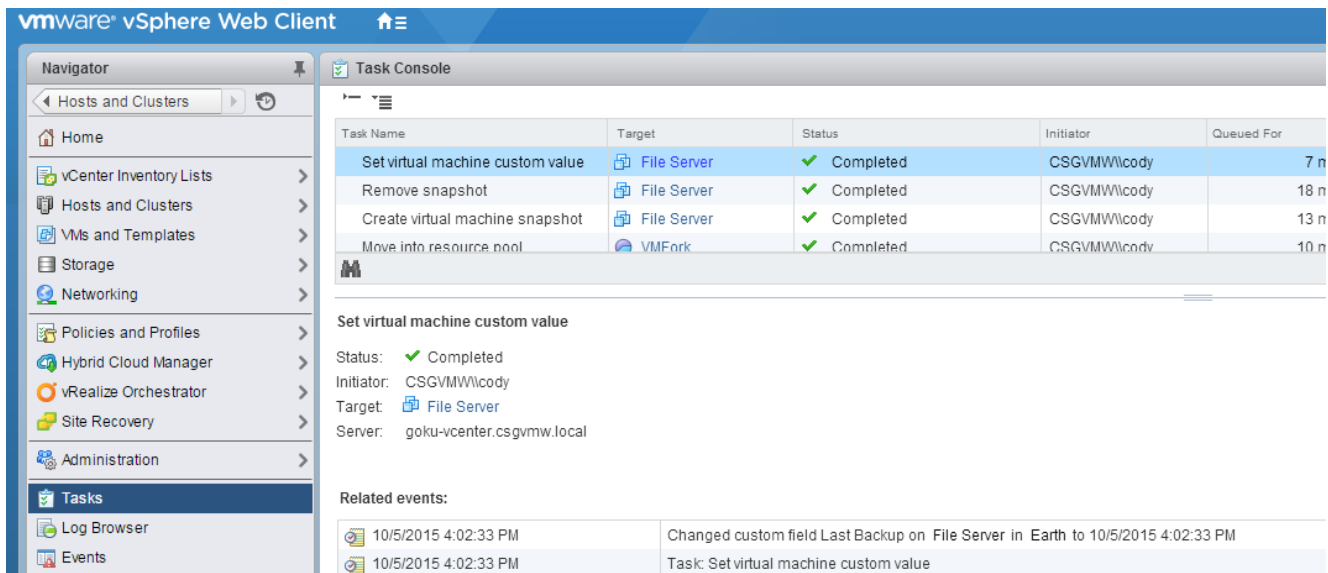


Figure 18. vSphere operations for snapshot mounting

7. When the operation is complete, the snapshot will appear in the FlashArray GUI for the respective volume. The snapshot name will consist of the following items:
 - o Primary Name of the Volume
 - o CommCell ID # (SP-x)
 - o Job ID (xxxx)
 - o Epoch Time (xxxxxxxxxx)

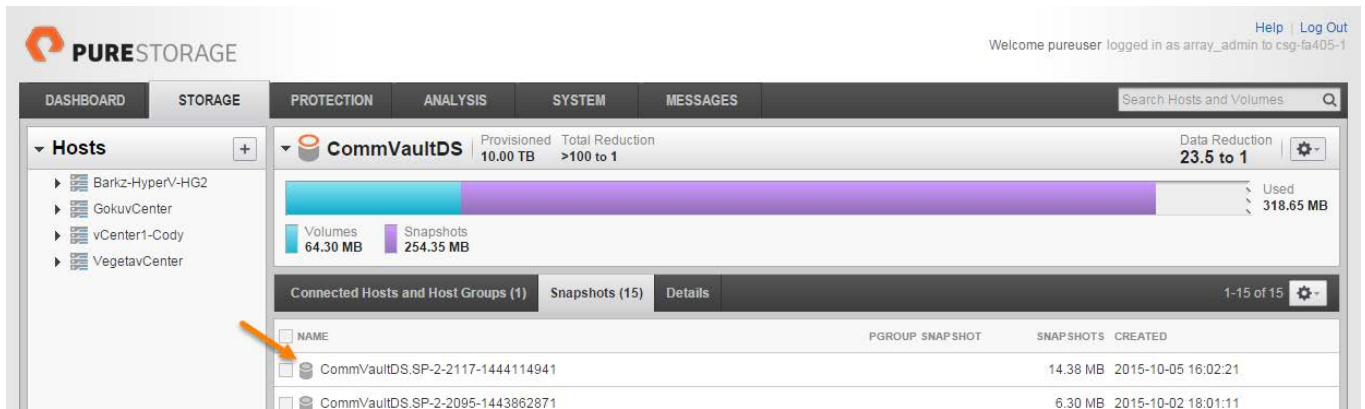


Figure 19. Snapshot suffix on the Pure Storage FlashArray

Use Case 2: Mounting a VMFS Snapshot

1. To list available snaps, right-click the subclient and choose “List Snaps”. The snaps will then be listed in a new window. They can be seen from the volume view or the disk view. The disk view is shown below and includes the Pure Storage-specific information.

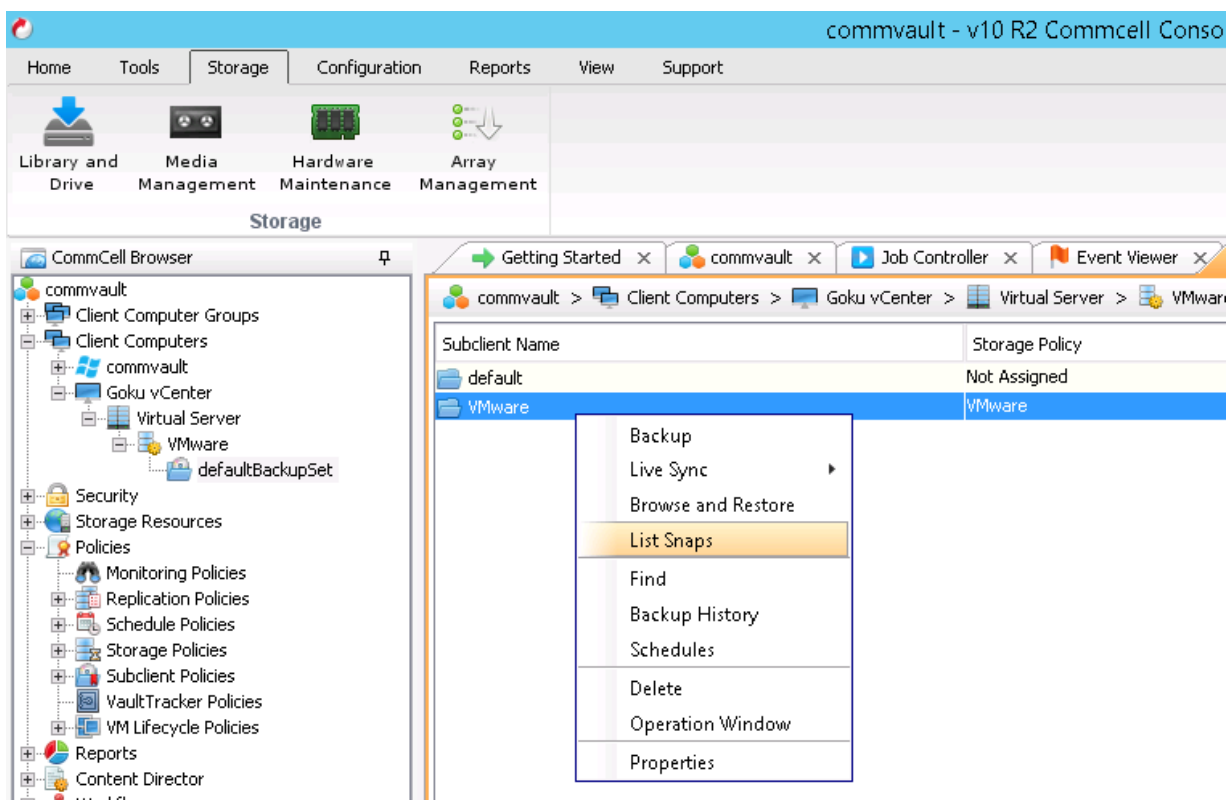


Figure 20. Listing available snapshots

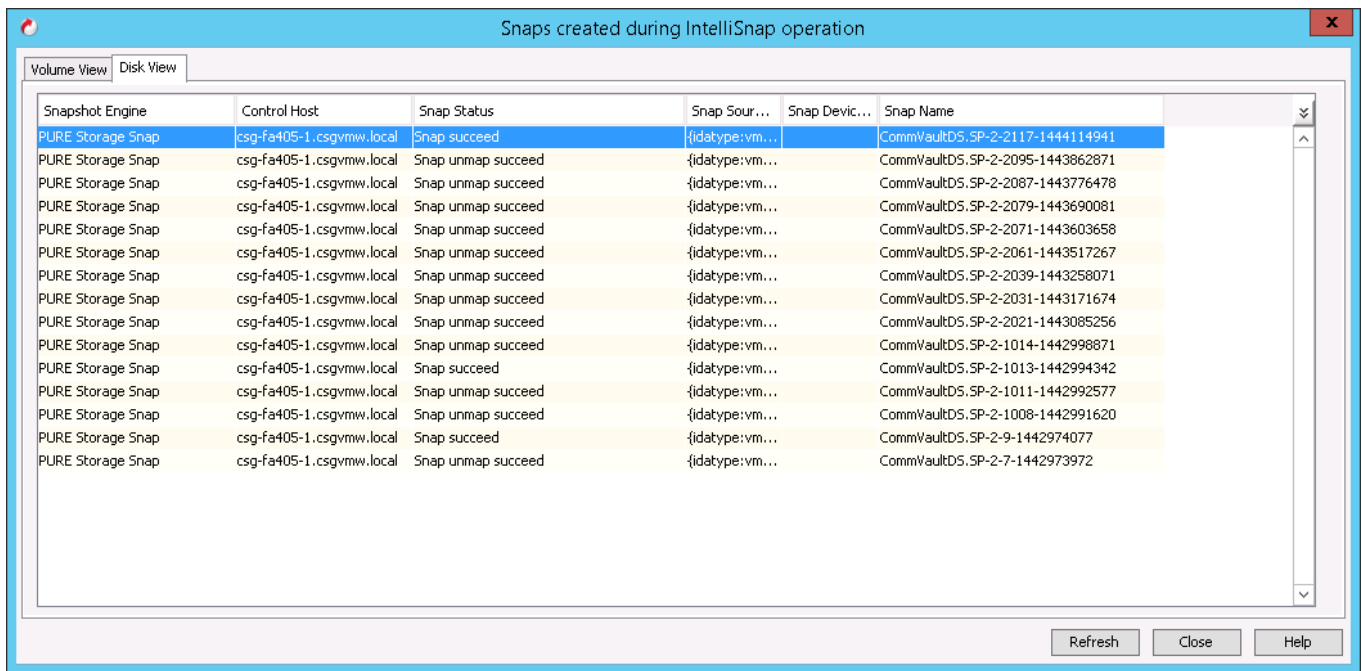


Figure 21. Seeing array information of available snapshots

- To mount one of these snapshots, choose the "Volume View" tab and then right-click on the snapshot that you would like to mount. Choose "Mount".

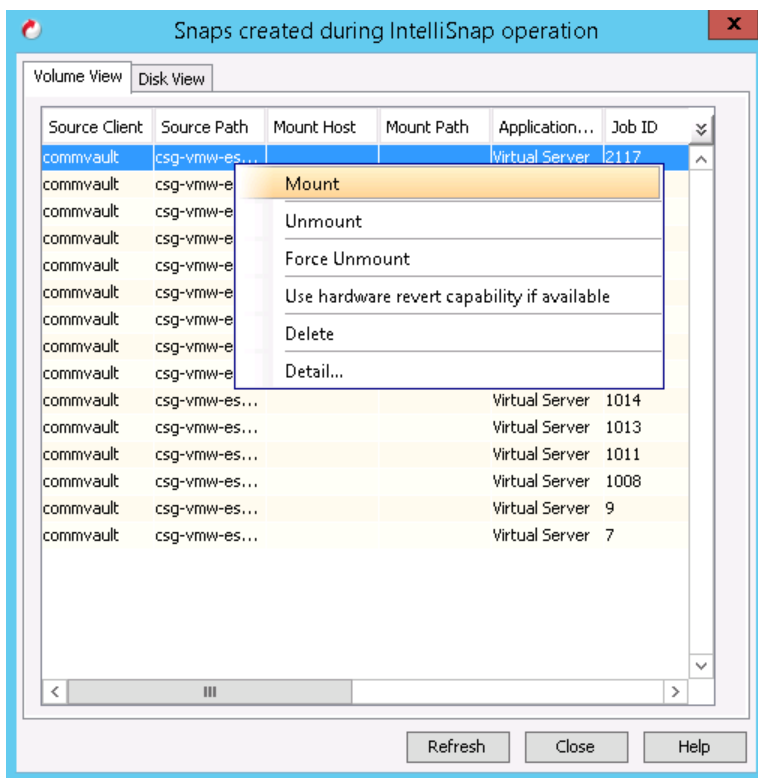


Figure 22. Initiating a snapshot mount operation

3. A window will appear confirming the host that it will be mounted to. Click “OK” to initiate the operation.

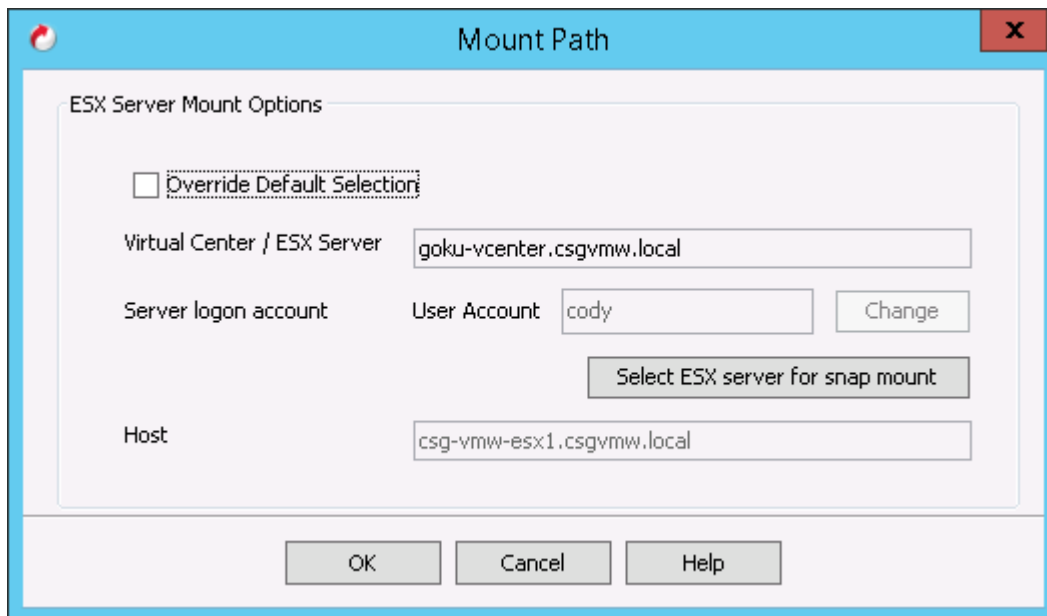


Figure 23. Mount options for snapshots

4. The Simpana software will wait for the operation to complete and return success with a dialog box:

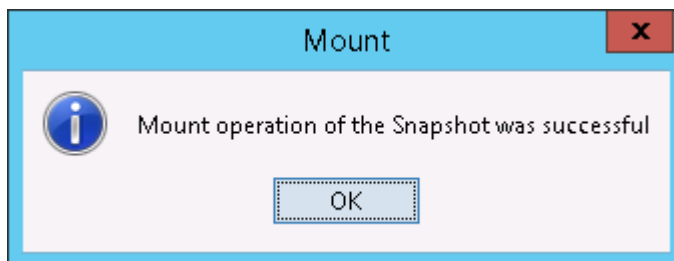


Figure 24. Mount successful dialog

5. The following operations will occur on the FlashArray and in vCenter:
 - o Commvault will create a new volume and the snapshot metadata will be copied to the volume. The volume will be named “CV_XXXXXX” with the x’s representing a unique identifier.
 - o The new volume will be connected to the proper host on the FlashArray.
 - o The ESXi server’s HBAs will be rescanned and the VMFS datastore will be resignatured and mounted.

- o The VMFS will be renamed to have a suffix of the original datastore's name and a suffix of “_GX_BACKUP_xxxx_x_xxxx”.

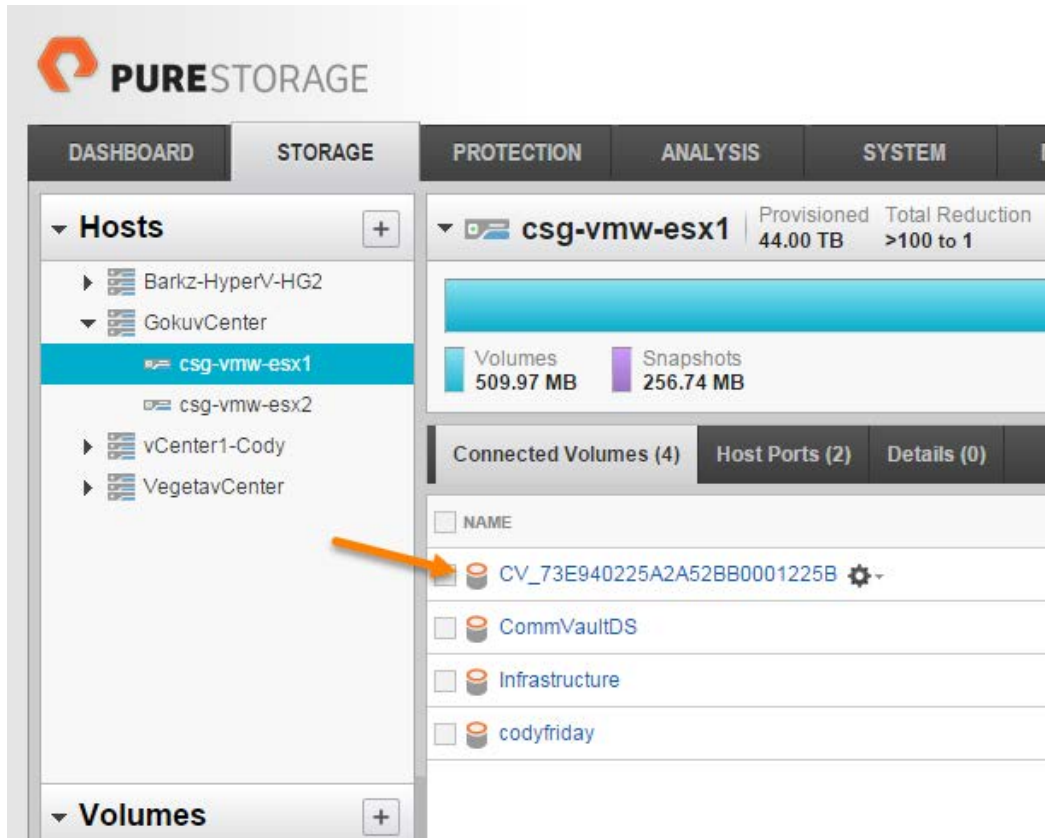


Figure 25. Mounted volume information in the FlashArray GUI

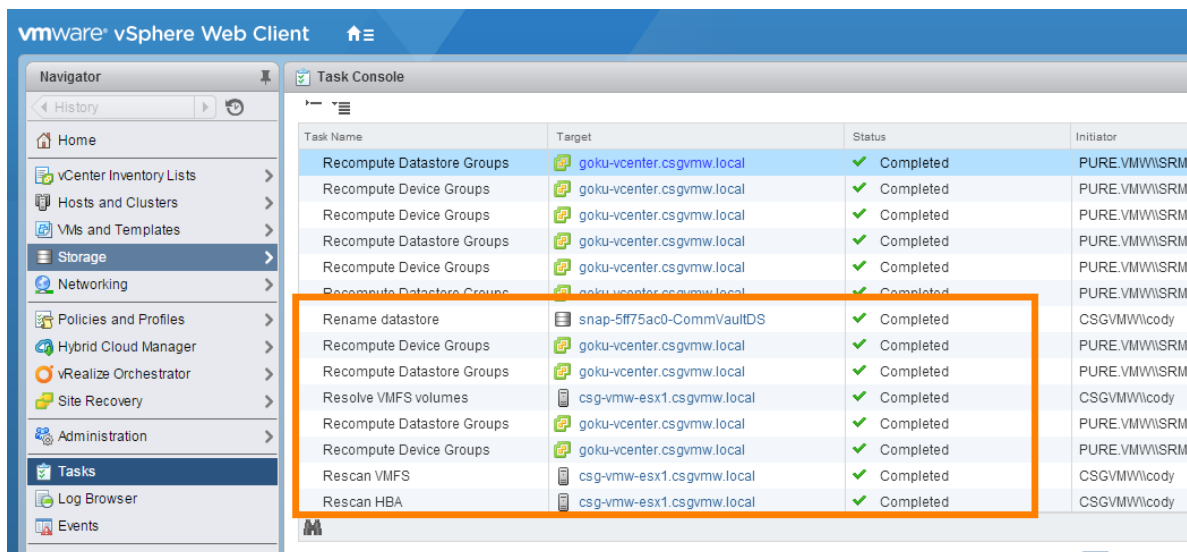


Figure 26. vSphere operations for mounting a snapshot

Use Case 3: Recovering a virtual machine

This section will outline recovering a full virtual machine after it was deleted or corrupted. In this specific scenario, the protected VM “File Server” has accidentally been deleted and needs to be recovered.

1. To recover a virtual machine, identify the correct subclient, right-click it and choose “Browse and Restore”.

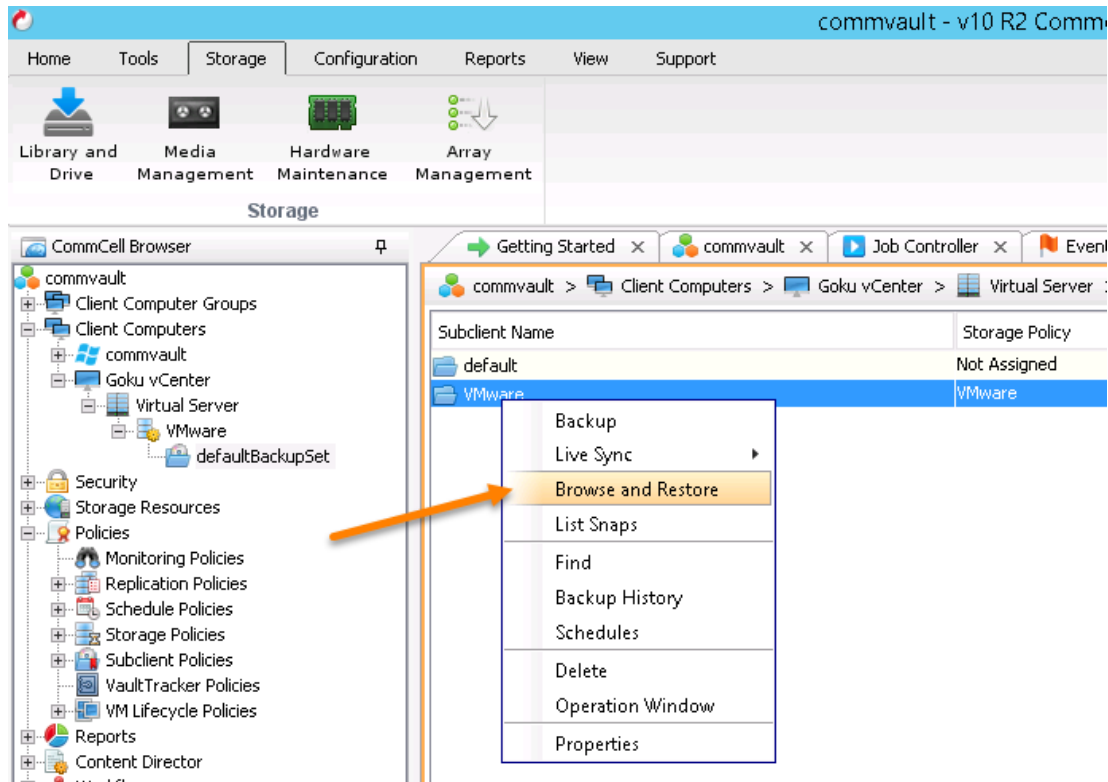


Figure 29. Virtual machine restore

2. Choose the “Full Virtual Machine” option.

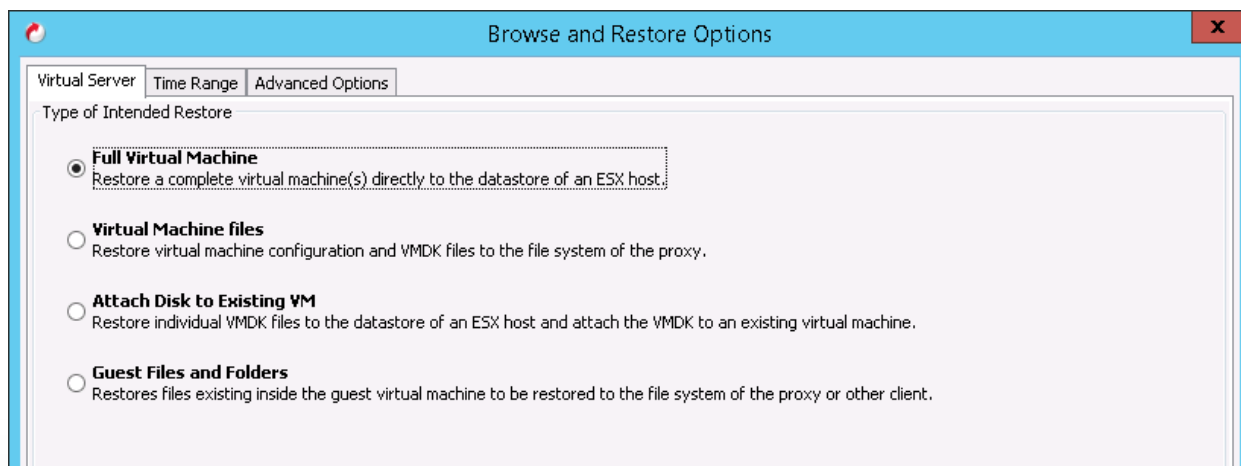


Figure 30. Restore choice

- By default, Commvault will recover from the latest snapshot, if you click on the “Time Range” tab you can select an older time frame. Commvault will then use the last snapshot it finds in the selected time range.

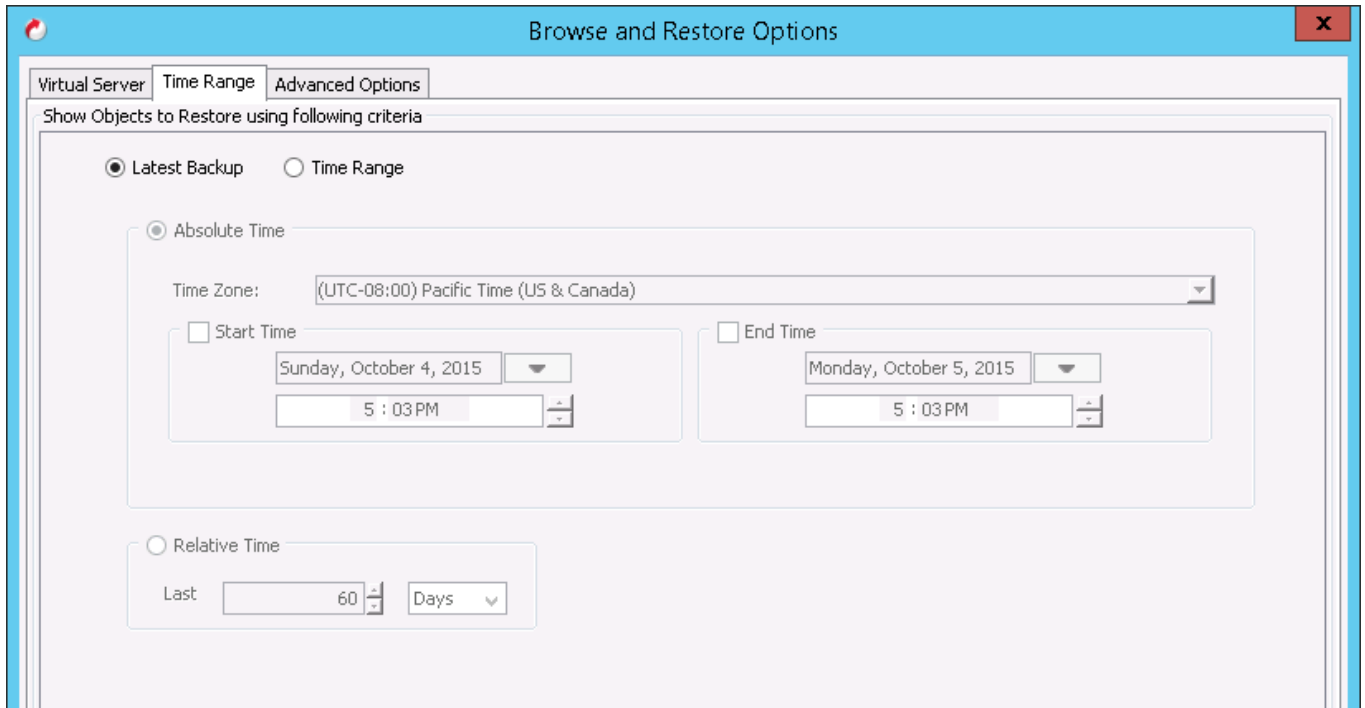


Figure 31. Restore point selection

- Click “View Content” when the recovery type and time frame has been selected. Select the virtual machine to be recovered and choose “Recover All Selected”.

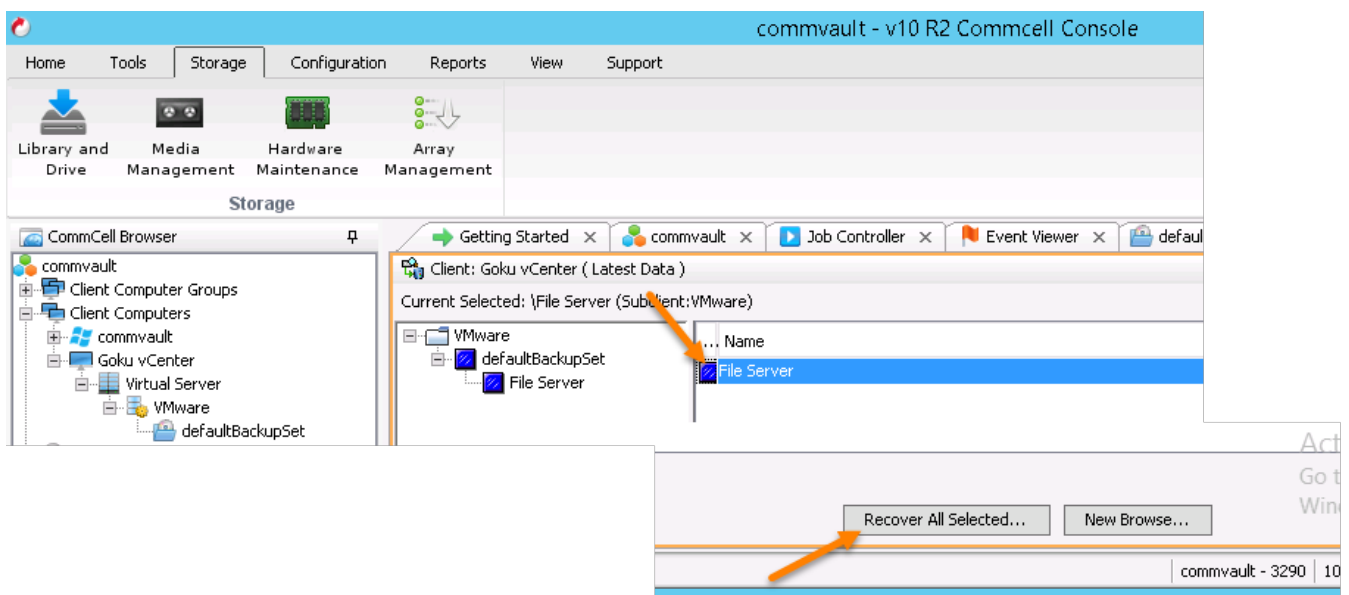


Figure 32. Recover virtual machine confirmation

5. The window that pops up allows the user to configure how the VM will be recovered—will it be put back to the original datastore (default), what host, virtual disk type, when/if it should be powered-on etc. Choose your options and click “OK” to initiate the restore. The default behavior will be to restore in-place. At a high level the steps will be as follows (note that most of these steps are configurable):
- o Finds the last valid snapshot, copies it to a new volume and connects the volume to the host
 - o Rescans the ESXi server and mounts and resignatures the datastore
 - o Registers the virtual machine and then moves it to the original datastore

Restore Options for All Selected Items

General Job Initiation

vCenter Client: Goku vCenter Destination client: commvault

vCenter Instance Details

vCenter: goku-vcenter.csgvmw.local

User: cody

☒ Restore in place

VM and Disk	Change VM display name to	ESX Server	Datastore	vCenter Options
File Server	File Server	csg-vmw-esx1.csgvmw.local	CommVaultDS	Configure
- File Server.vmdk			CommVaultDS	

Virtual Machine Configuration

☐ Power ON Virtual Machine after restore

☐ Unconditionally overwrite VM with the same name

Disk Provisioning: Original

Transport Mode: Auto

☐ Restore Virtual Machine using Live Recovery (vMotion)

Redirect Writes to Datastore:

Delay migration: 0 hr(s)

*** Early Release Feature**

OK Cancel Advanced Save As Script Help

Figure 33. Restore location

Use Case 4: Recover a file/folder on a virtual disk

This last use case will walk through recovering a directory in a Windows 2012 R2 NTFS volume to the original virtual machine.

1. To recover a virtual machine directory, identify the correct subclient, right-click it and choose “Browse and Restore”.

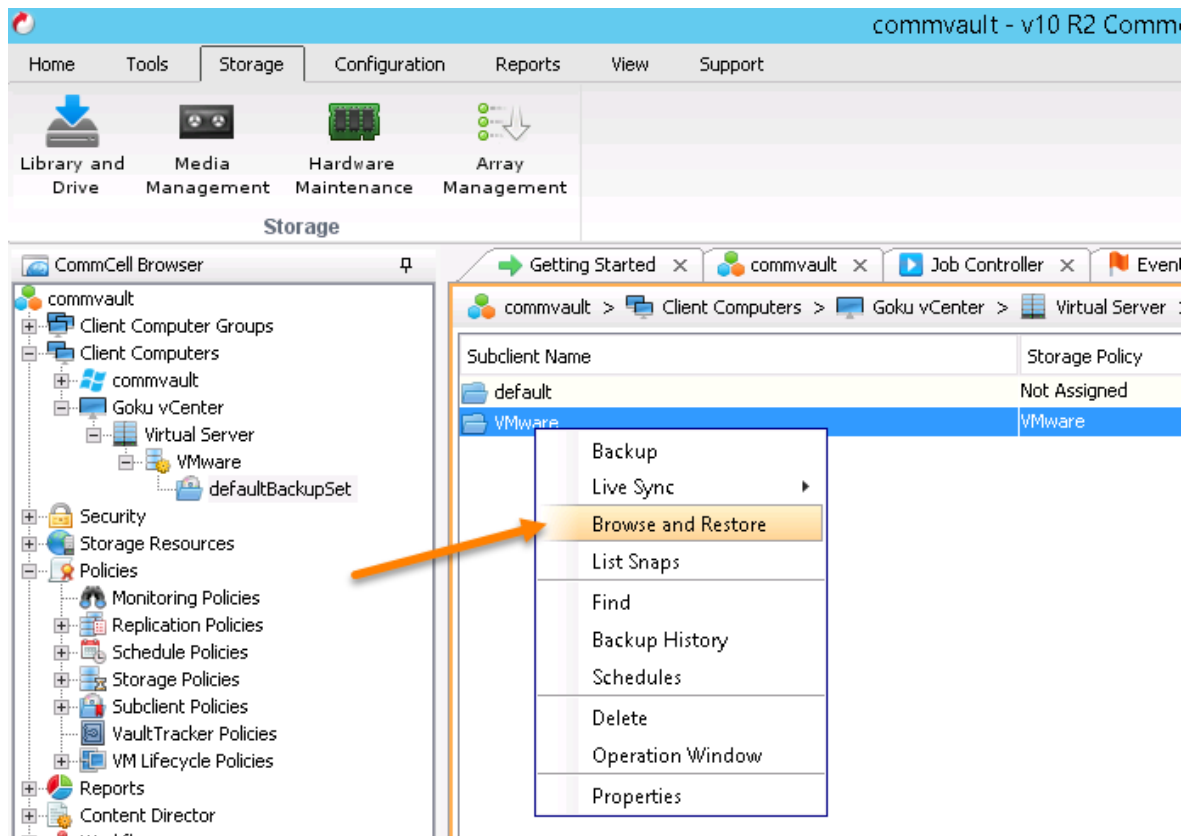


Figure 34. File restore option

2. Choose “Files and Folders” to recover a directory.

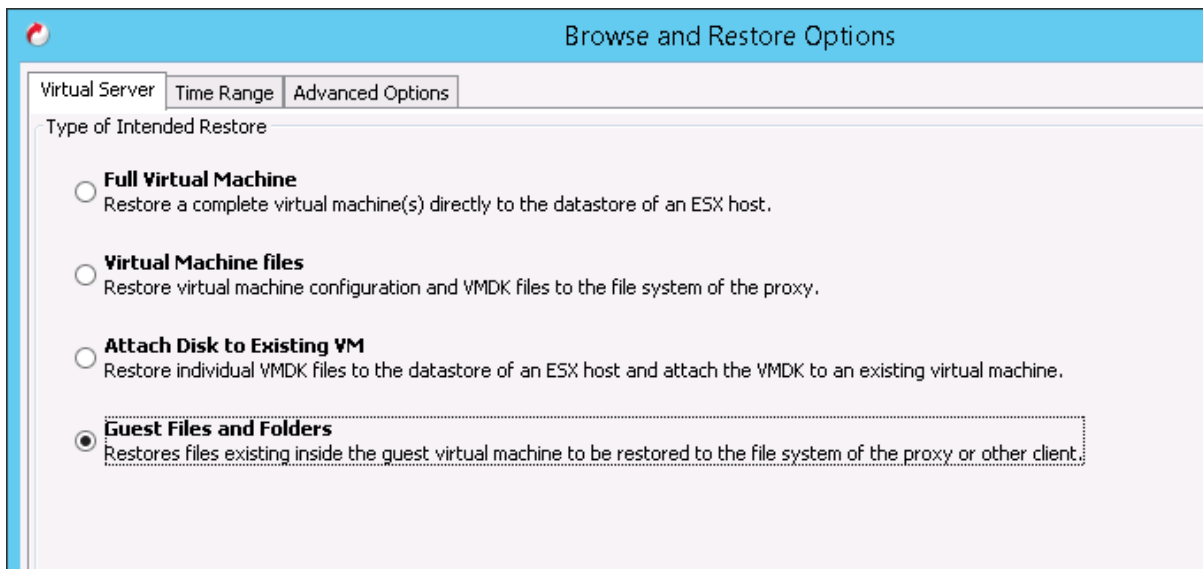


Figure 35. File restore choice

3. By default, Commvault will recover from the latest snapshot, if you click on the “Time Range” tab you can select an older time frame. Commvault will use the last snapshot it finds in the selected time range.

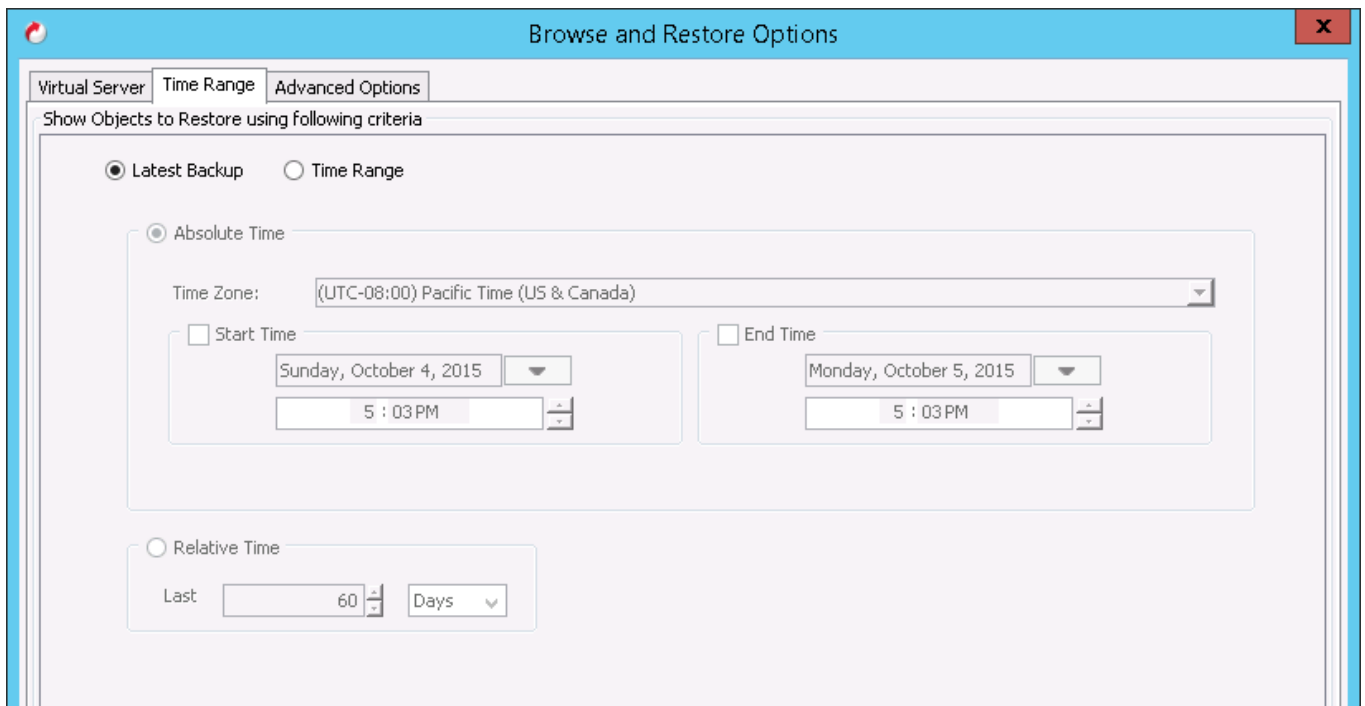


Figure 36. Recovery point selection

- Click “View Content” when the recovery type and time frame has been selected. The virtual machine will appear and the filesystem will be displayed. Note that this can take several minutes if the “Enable Granular Recovery” option was not selected in earlier configuration. Choose the folder that you would like to recover and click “Recover All Selected”.

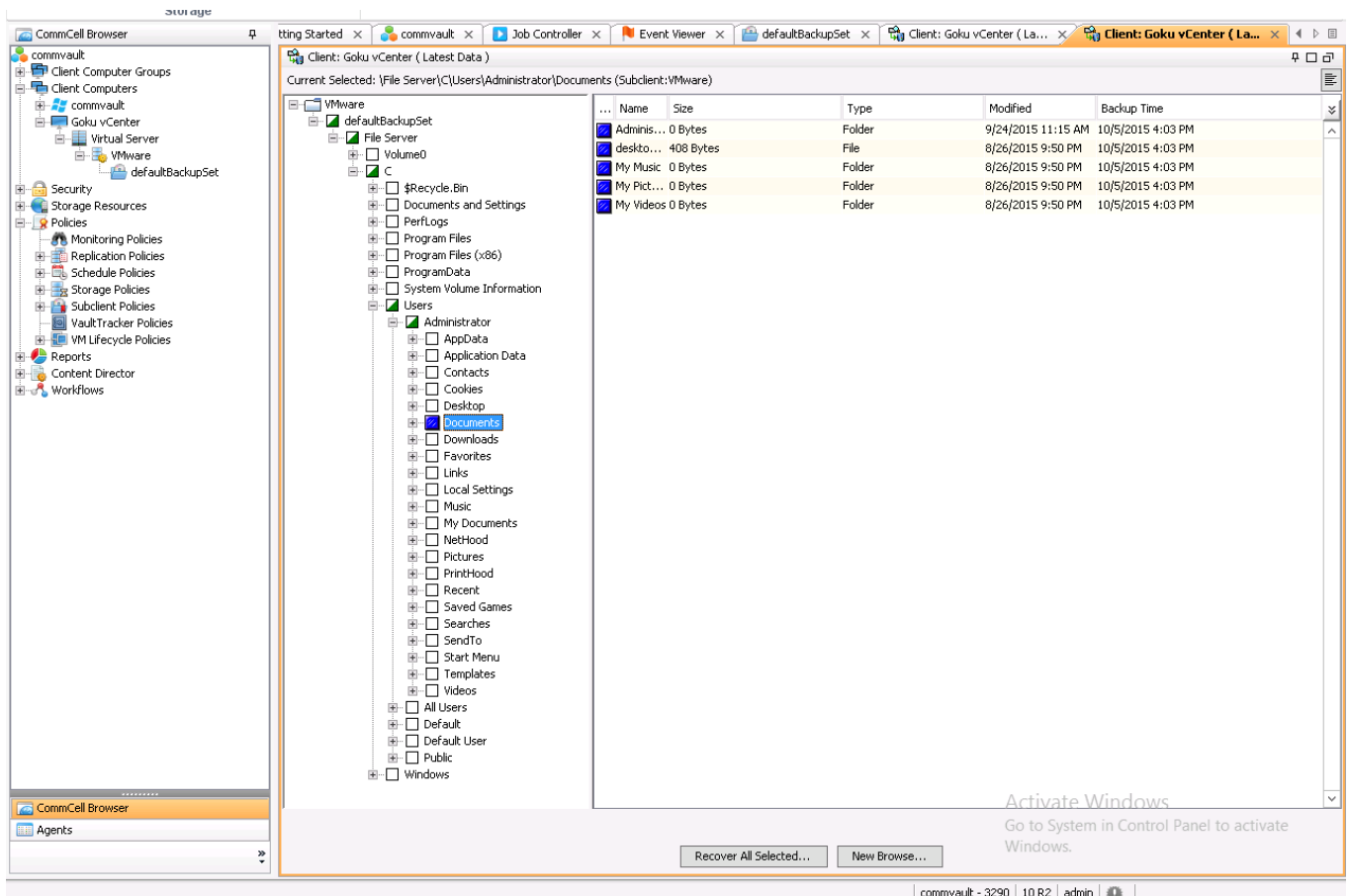


Figure 37. Directory recovery choice

- The next screen allows you to choose where the files should be recovered to. You can recover them to the original virtual machine, another virtual machine or another machine with the same OS type. In this example, they will be recovered to a sub-folder on the original virtual machine so that they can be copied/moved by the VM owner.

Restore Options for All Selected Items

General Job Initiation

☒ Restore ACLs

☐ Unconditional Overwrite

Restore Destination

Proxy Client: commvault

☒ Restore To Virtual Machine

vCenter: goku-vcenter.csgvmw.local Change

Virtual Machine: File Server ...

User Name: administrator

Password:

Confirm Password:

Specify Destination Path

Browse

Preserve Source Paths

☒ Preserve 1 level from end of the source path

☐ Remove 0 level from beginning of the source path

OK Cancel Advanced Save As Script Help

Figure 38. Directory recovery location

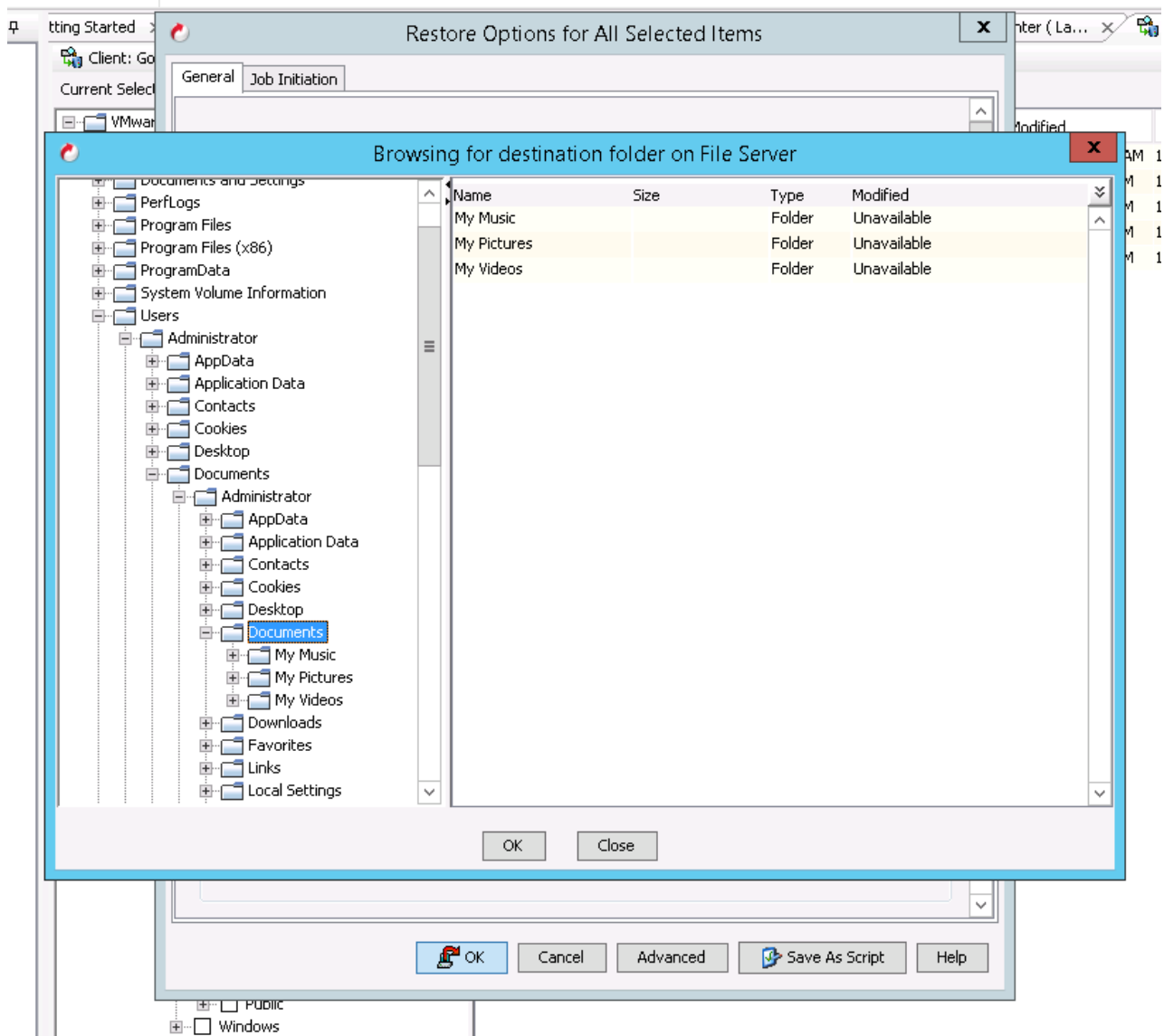


Figure 39. Directory choice

6. After the restore process has completed, the original virtual machine now has that entire directory copied to the specified location.

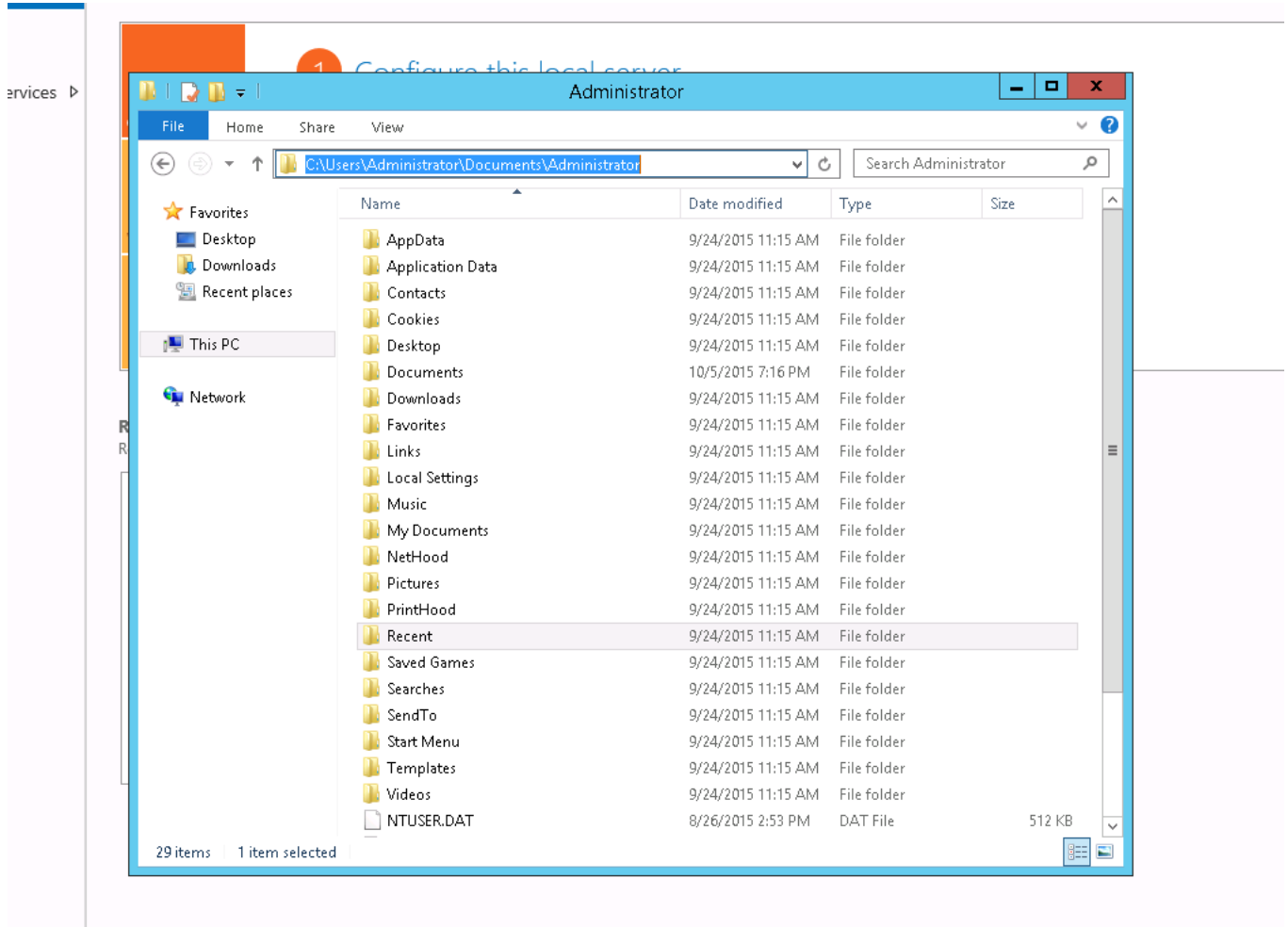


Figure 40. Directory recovery

Summary

The combination of the Commvault IntelliSnap platform and the Pure Storage FlashArray snapshot technology makes for a powerful and flexible backup mechanism for any VMware vSphere environment. The deployment process of development/test environments and virtual machine/file backup and recovery is simplified and fully-integrated in Commvault providing a complete enterprise-class backup solution.

References

http://documentation.commvault.com/commvault/v10/article?p=new_features/service_pack_12.htm

http://documentation.commvault.com/commvault/v10/article?p=features/snap_backup/pure/overview.htm

<https://community.purestorage.com/>

About the Author



Cody Hosterman is a VMware-focused Solutions Architect at Pure Storage since 2014. His primary responsibility is overseeing, testing, documenting, and demonstrating VMware-based integration with the Pure Storage FlashArray platform. Cody has been working in vendor enterprise storage/VMware integration roles since 2008.

Cody graduated from the Pennsylvania State University with a bachelors degree in Information Sciences & Technology in 2008. Special areas of focus include core ESXi, vRealize, Site Recovery Manager and PowerCLI. Cody has been named a VMware vExpert from 2013 through 2015.

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