



▶ Commvault and Vormetric SQL Server Protection

PREPARED BY ESP

AUSTIN SMITH, TIER II
ENTERPRISE SUPPORT TEAM
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Version History

Version number	Revision date	Contributor's name	Revision description
1.0	1/16/17	Austin B. Smith	Document Template
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2.1	August 20, 2017	Commvault Documentation	Document Template

Process Overview (List)

Backup Phase (SQL IntelliSnap)

- Either ADHOC or via a Commvault Schedule Policy a SNAP Backup occurs on the SQL Server.
- The SNAP will VSS Quiesce the SQL Database on the target server(s).
- Once the Databases are quiesced a hardware snap occurs on the targeted array
- Upon completion of the hardware snap the VSS software snap is released.
- At this time the SQL IntelliSnap is complete.



Key Points

Aside from Quiescing the SQL Application, the Hardware Snap is a frozen picture of data exactly as it lives on the source server, and storage LUN, at time of snap. Any in place encryption remains as the hardware LUN is a direct one to one copy. Depending on the array, most likely the LUN will be “frozen” and writes redirected to a designated snapshot volume pool on the array. Growth of the snapshot depends entirely on LUN change rate of hosted data.

Backup Copy Phase (Movement to Media)

- The Backup Copy can either be scheduled to run at completion of the Snap or scheduled independently.
- The Backup Copy mounts the Snapped LUN from the Array to the MediaAgent Proxy. Snaps can also be manually mounted to the MediaAgent Proxy or Source Server if the snapshot is still available on the array.
- Data is then streamed directly from the mounted LUN on the MediaAgent Proxy to the Commvault Disk Library as designated in the Storage Policy Primary Copy.
- The backup copy portion is now complete. Based on the Snapshot Copy retention snapshots will either be held for the designated period of time or will be removed from the array. With the backup copy now complete the source has met part 1 of 2 required to age data. (Part 2 is the configured retention (spool copy (no retention) or # of snaps or # of days)).

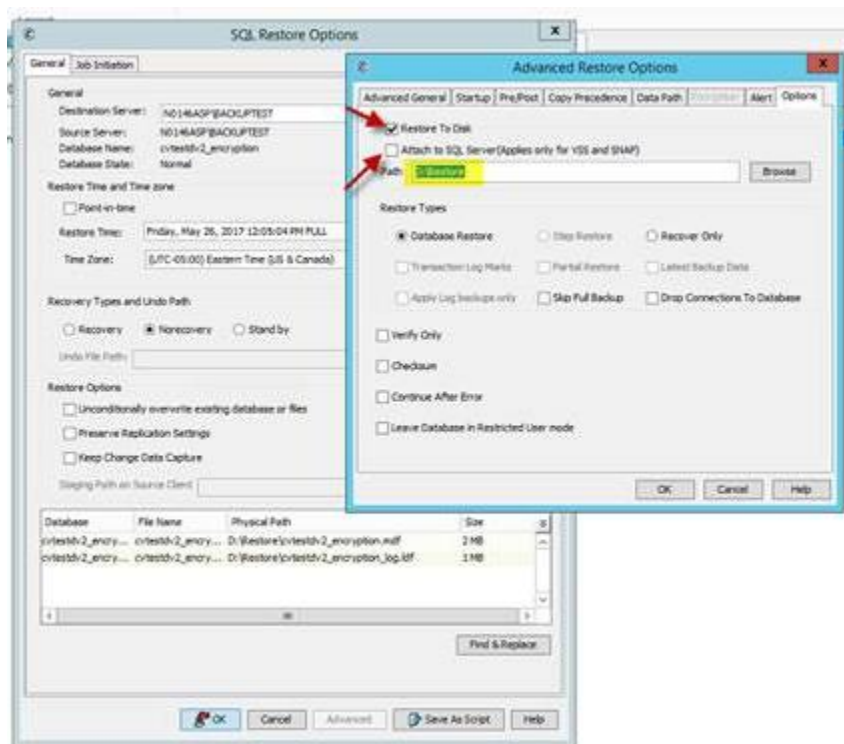


Key Points

The data that is streamed from the array mounted LUN does not invoke SQL to transfer data. The backup copy is a file based protection method. Data Files/Folders are block transferred to storage.

Recovery Phase (Restore)

- Perform a browse and recovery from either the individual SQL Server or via the Storage Policy > View Jobs Section. You can also view jobs from the individual SQL Server and choose browse and restore on individual jobs.
- In the browse options leave default or set appropriate times and click "View Content" at the bottom.
- In the restore tab choose the database(s) and click "Recover All Selected..." at the bottom.
- The SQL Restore Options window will open. Here you must choose the following:
 - Destination Server in the dropdown will be the Server with MSSQL Installed that will be the landing zone for restored files. (This is currently MA01)
 - After selecting the proper destination server click Advanced Options and select the "Restore to Disk" but do not select the "Attach to SQL Server" checkbox.



- Choose a path or browse to select a path where the MDF and LDF will be restored to.



Important

ENSURE that Vormetric does not have DataGuard configured for the path where you are restoring the MDF and LDF to. This should always be the case if restoring to the landing zone server (MA01).

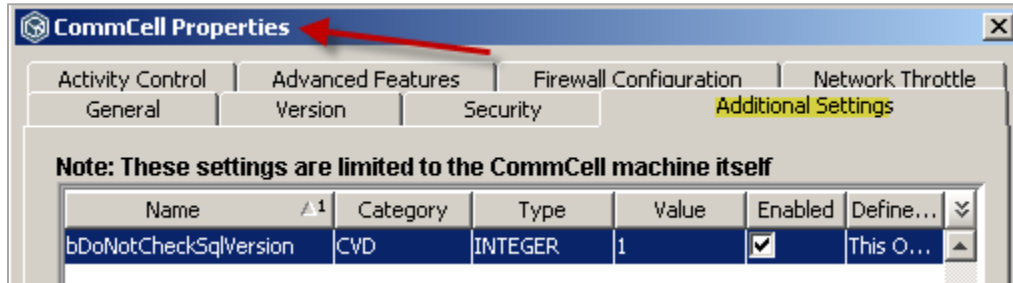
- Next on the Source SQL Server you must detach the Production Database. Additionally, the services for SQL Server, SQL Browser, and McAfee A/V were stopped to assist Vormetric in removing protection from the DataGuard defined path. This can be done before or after changing the DataGuard configured paths in the Vormetric Dashboard.
 - The VMD service may need to be restarted on the SQL Server to cause a sync between the client and the Vormetric policy server. The DataGuard client will update status on the SQL Server and the protected path should no longer be listed as protected.
- Once the current location of the Production MDF and LDF files are no longer encrypted by DataGuard and the database is detached in SQL it's a good idea to now rename the current MDF and LDF files to something else. Appending "_original" as an example. This will allow the restored files residing on MA01 to be copied to the proper location on the Source SQL Server and not overwrite the existing files.
- With the restore files now in place. In the Vormetric Dashboard turn DataGuard protection back on for the folder where the MDF and LDF files reside.
 - Additionally you may need to restart VMD services on the SQL Server once more to force a policy change sync.
- With the restored files now under DataGuard protection you can attach the SQL Database.
 - Keep in mind you may need to start any SQL Services previously stopped in order to change the Vormetric policy.



Key Points

SQL Server must be installed in order for the landing zone server to show up in Commvault as an available destination server to restore to. This requirement is being addressed in a future service pack by Commvault to not require the need for SQL Server. Since this is currently a requirement Commvault also performs a version check for what version of SQL Server is installed. In order to ignore this version check and allow universal restores of any version the following registry key must be applied as an additional setting on the CommServe entity in the Commvault GUI.

- Registry key = "bDoNotCheckSqlVersion"
- Category = CVD
- Type = Integer (this is a DWORD)
- Value set to "1" (Disables the SQL Server Version check)



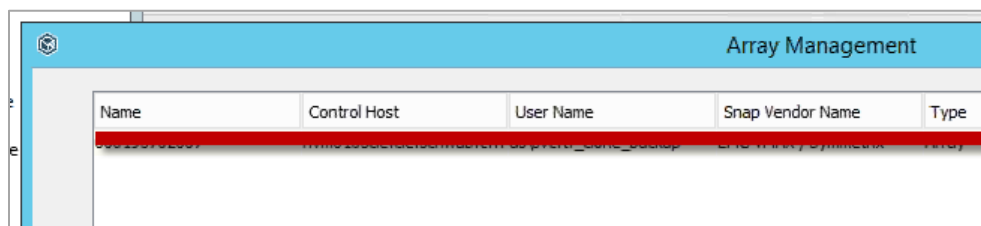
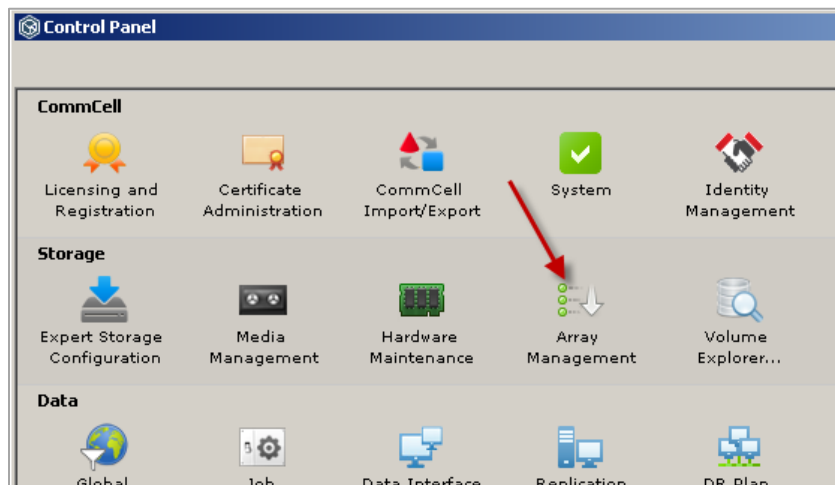
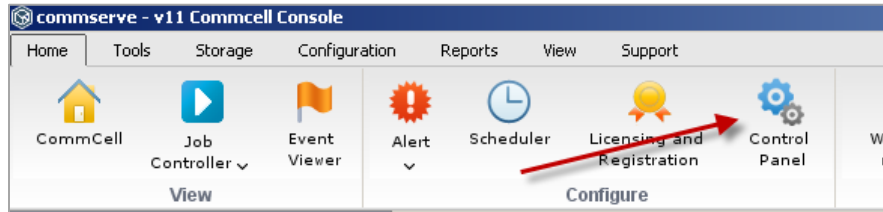
Key Points 2

SQL is not invoked during restore. Thus, the SQL Version of Source or the SQL Version of Destination does not matter. The need for MSSQL to be installed was only to populate the landing zone server in the destination list. The requirement for MSSQL to be installed is to be removed in a future service pack by Commvault. The restore is a flat file restore when Restore to Disk is selected.

Process Overview (Graphical)

Configure an Array

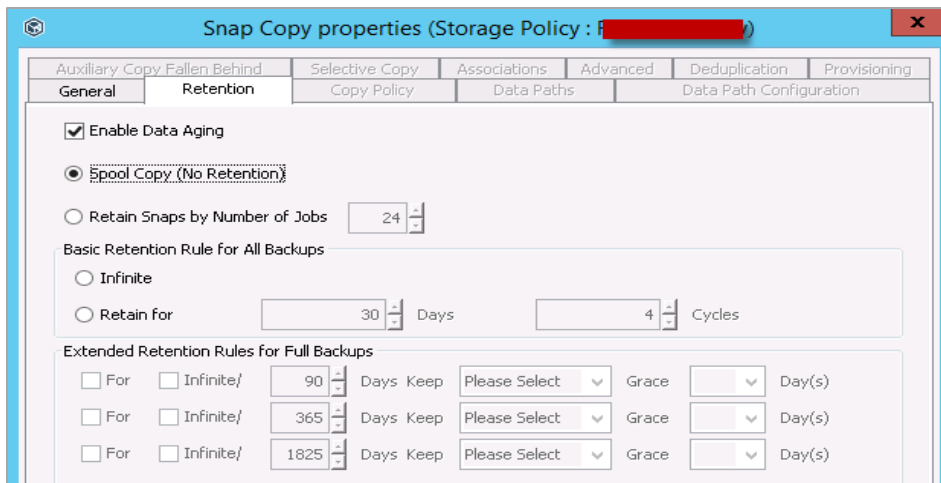
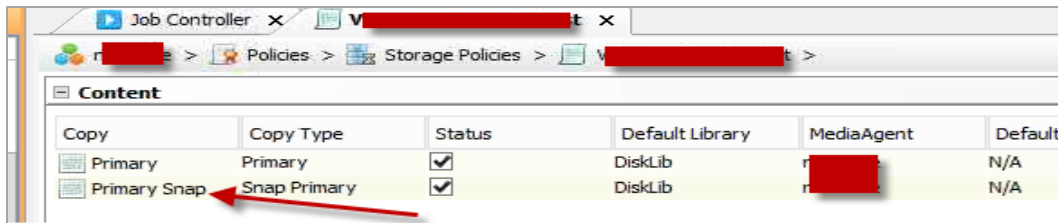
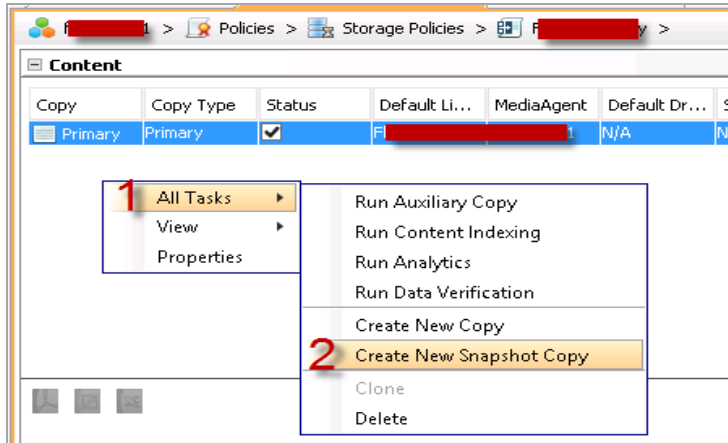
First, ensure the IntelliSnap Array is setup in Commvault. This is the array where the source SQL Server Data resides which we will be protecting.



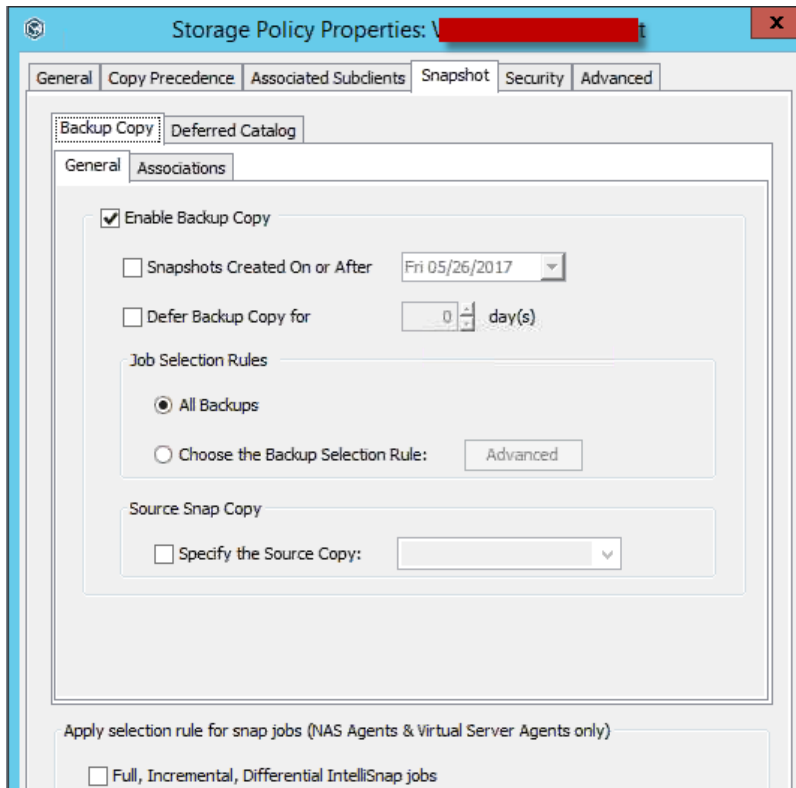
With the array configured, we will be able to leverage IntelliSnap on Configured Clients and Storage Policies.

Create a Snapshot Copy For The Storage Policy

On Storage Policies with Clients that will perform IntelliSnap backups, we must enable the Storage Policy for IntelliSnap. This is done by creating a Snapshot Copy Policy.



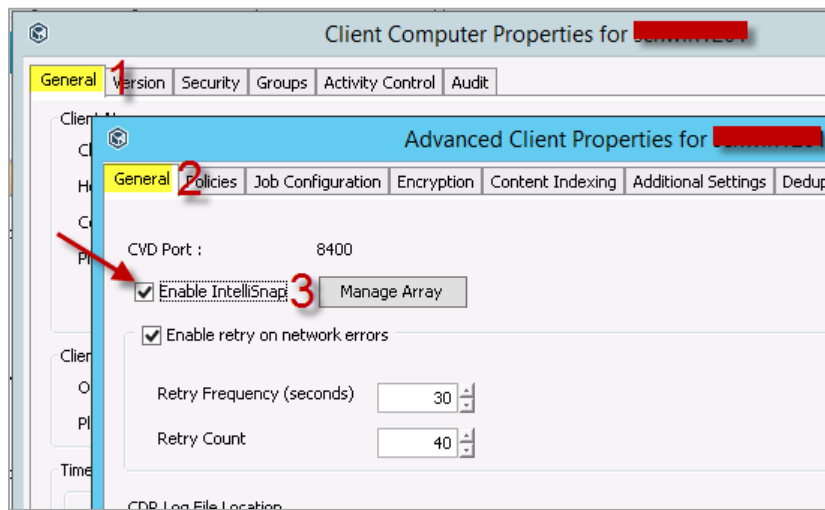
Set your retentions accordingly.



Also ensure that "Enable Backup Copy" is check on the Primary Snap Copy.

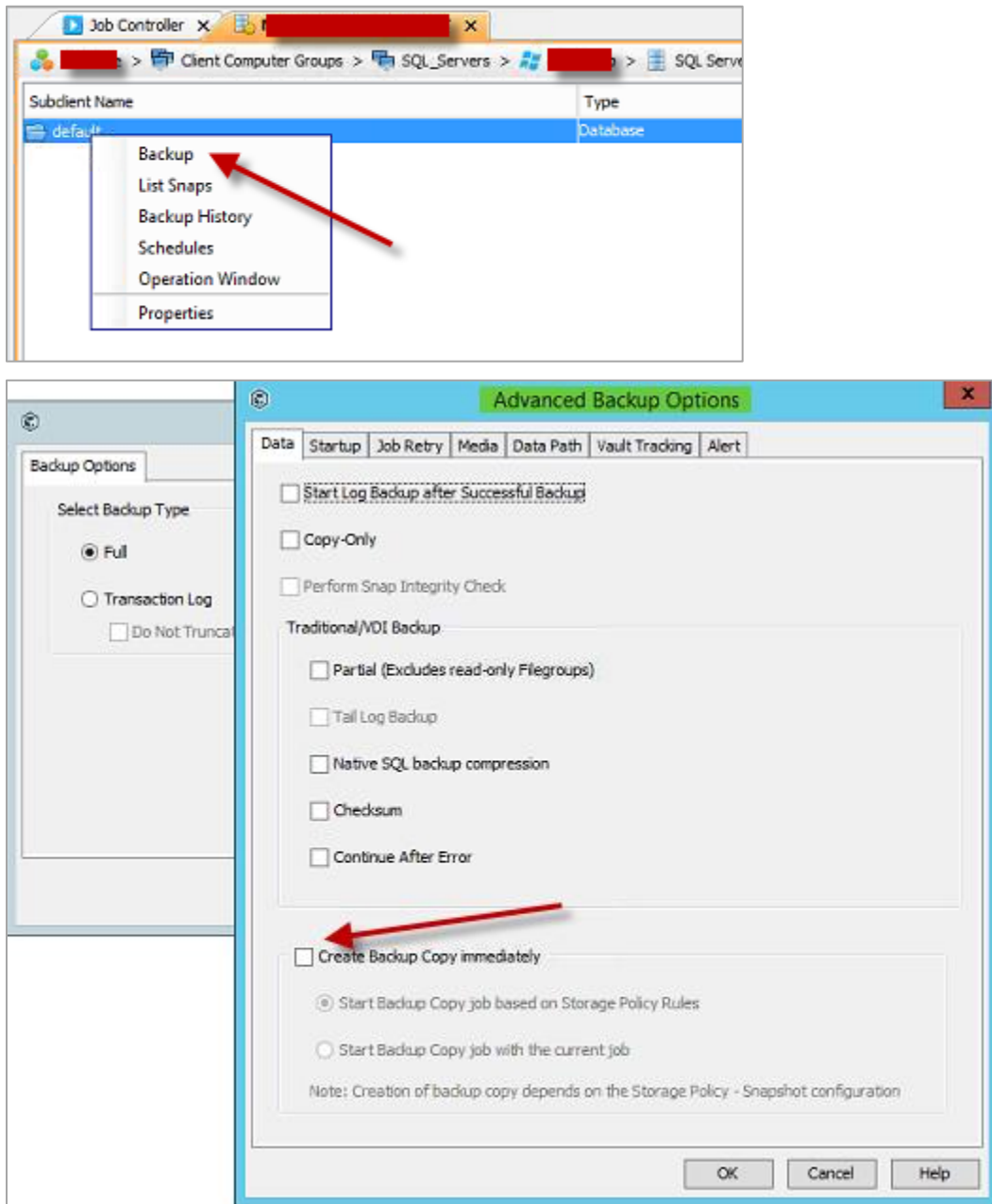
Enable IntelliSnap on Client Computers

On SQL Servers that require backups where Vormetric is configured, you need to enable the client for IntelliSnap. Find the client in the GUI > Right Click > Properties > Advanced > General Tab > Click Enable IntelliSnap.

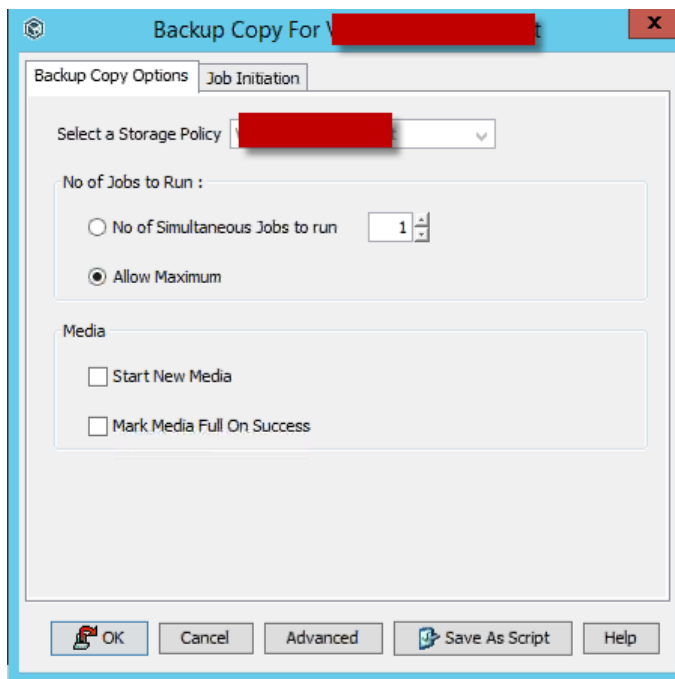
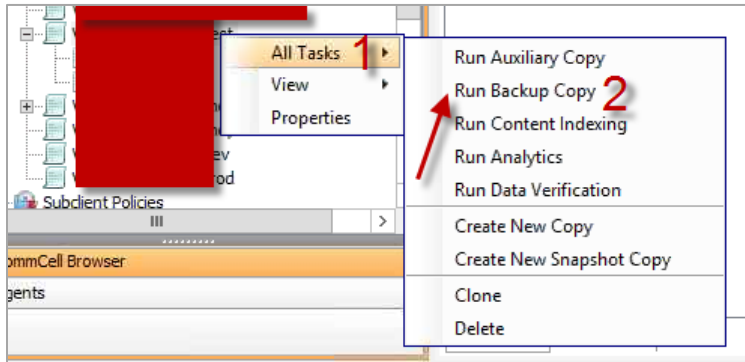


Perform IntelliSnap Backup and Backup Copy

With IntelliSnap enabled on the client we can now perform an IntelliSnap backup.



In the "Advanced" section you can check the box to create backup copy immediately. This means when the Snap Backup completes it will automatically start the job to mount the LUN to the Proxy MA and perform the backup of data from LUN to Commvault Designated Storage. This setting can also be set in the advance properties of a schedule policy. If you do not check this option you must run or schedule a backup copy job individually.



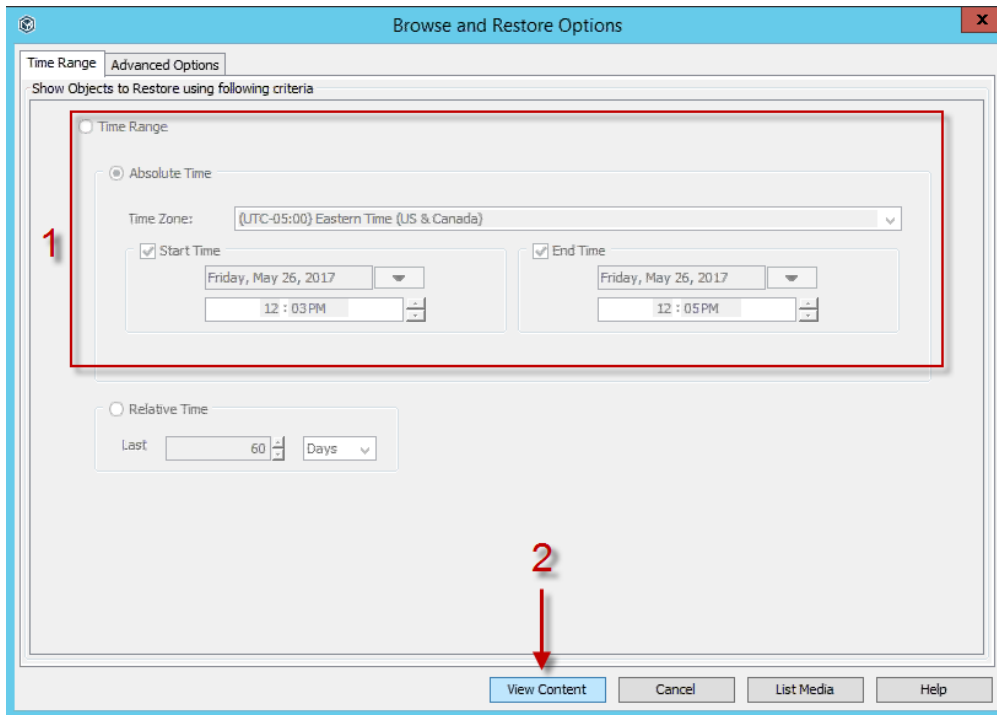
Restoring Data

After completion of the Backup Copy the backup process is complete. Let's look at the restore process. To initiate a restore you can perform a Browse & Recovery from multiple areas of the product. To name a few:

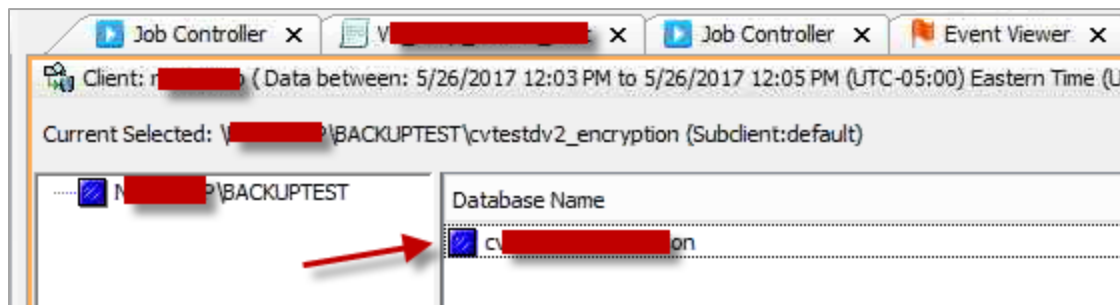
- Client
- BackupSet
- Instance
- Subclient
- History from all the above

- Storage Policy View Jobs
- Etc.

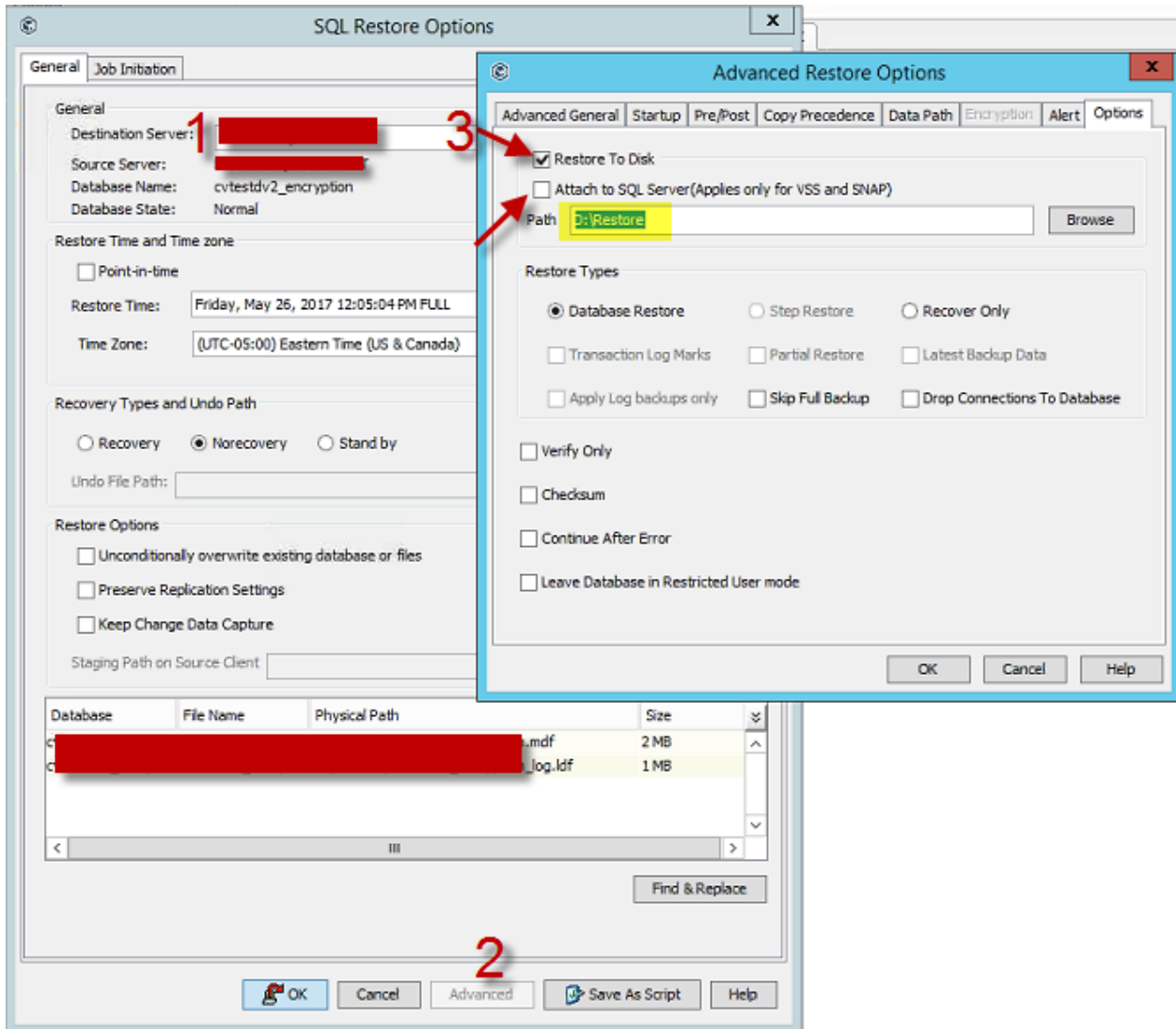
Regardless of avenue taken the operation is the same as well as the options to be selected.



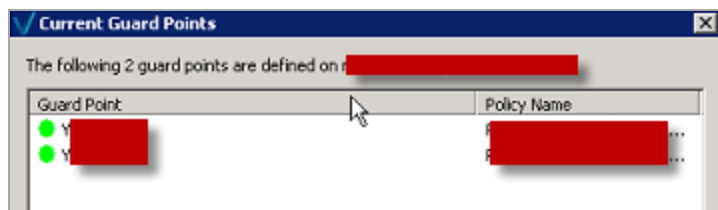
Select the proper date range (if required) or leave default and click "View Content"



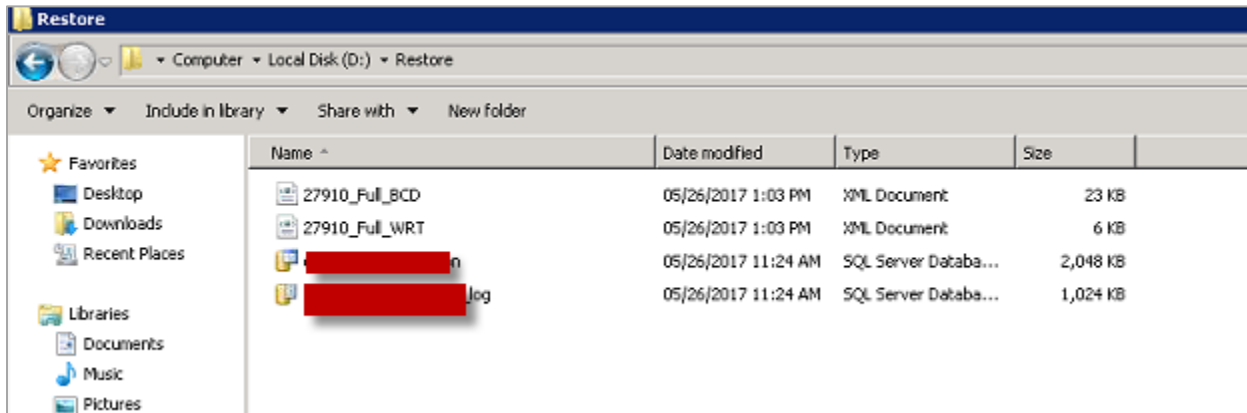
Select the servers, or expand them, in the left pane if multiple servers or instances were protected and then select the necessary databases for recovery.



Select the proper destination server. Then click "Advanced" and check the box for "Restore to Disk". Ensure that "Attach to SQL Server" is not checked. You can manually type the path or click browse to select the path for restore. Ensure this location is not under a Vometrics DataGuard Policy.

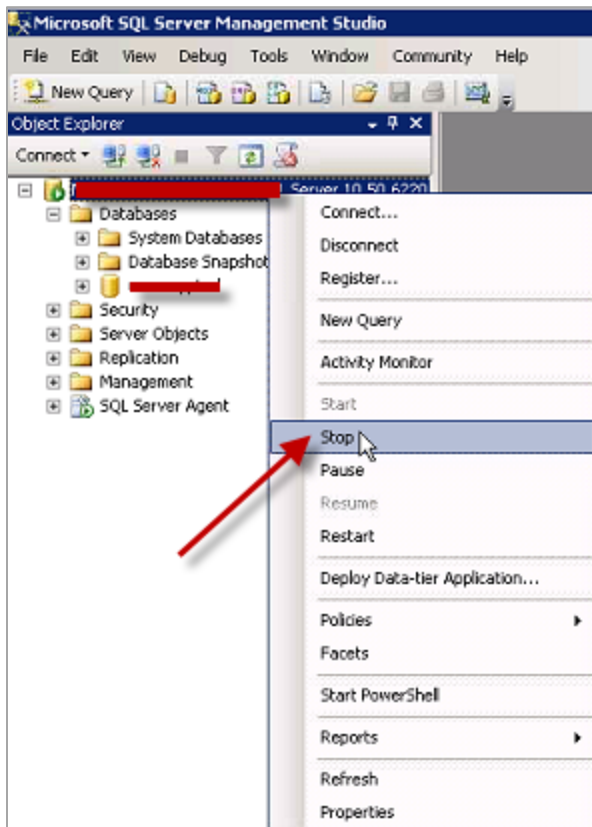


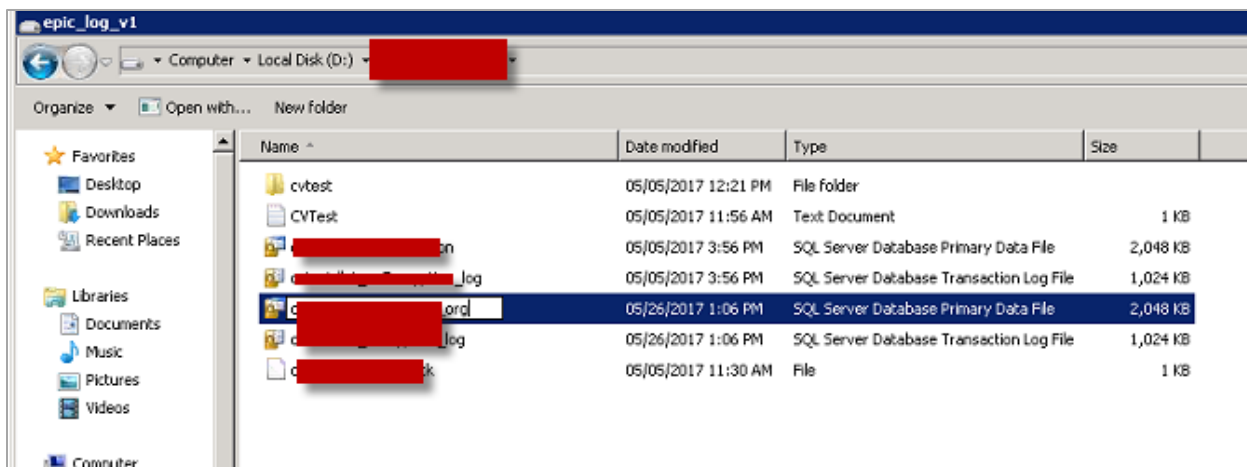
This process will restore the SQL Database as flat files (MDF and LDF) to your landing zone server or directly to the SQL Server if you desire.



Bring Restored Database Files Online In SQL

If not restoring to a new Database you need to bring the current database offline.





With the database detached you can rename the SQL files on disk so your copied files do not overwrite the current source files.

With the files renamed Vormetric DataGuard must be disabled on the folder prior to copying the restored MDF and LDF files. This change to policy is made in the Vormetric Dashboard. Monitor the agent on the client to ensure the policy change is updated. The VMD (Vormetric Client Service) may need to be restarted to refresh the policy change.

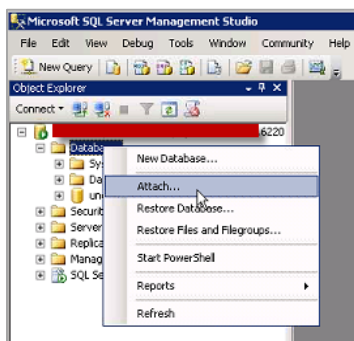
Veritas Storage Foundation Messaging S...	Veritas Sto...	Started	Automatic	Local System
Veritas VxBridge Service	Veritas VxB...		Manual	Local System
Virtual Disk	Provides m...	Started	Manual	Local System
vmd	Vormetric S...	Started	Automatic	Local System
Volume Shadow Copy	Manages a...		Manual	Local System
Windows Audio	Manages a...		Manual	Local Service

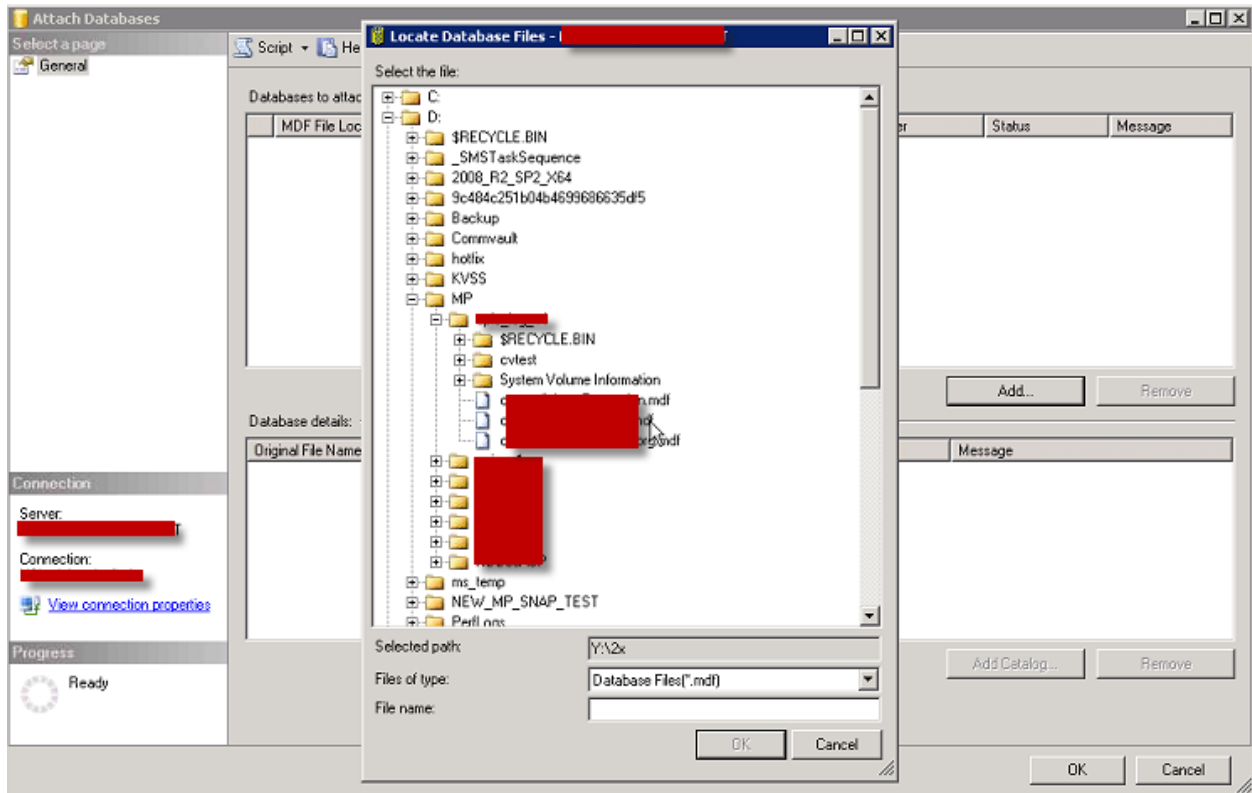


Note

Sometimes the policy may not update if files in the folders are still be accessed. Services like SQL Server or SQL Browser may have to be stopped. You may also have to stop Antivirus software as well. This is not required, but has been known to conflict with policy changes on certain servers.

With the restored files now in place you can turn Vormetric DataGuard back on via the Vormetric Dashboard for the client and folder location. Again, the VMD service may need to be restarted to sync policy changes. With the files in place bring the databases online in SQL Server.





With the files restored and database now attached in SQL Server the restore of the protected database is complete.

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