

BEST PRACTICE GUIDE USING THE PANZURA GFS TO ACCELERATE AUTODESK VAULT

This document provides recommended configurations for running Autodesk® Vault Professional Server with the Panzura® Global File System (GFS).

Created in conjunction with Cadable



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Purpose

This document provides recommended configurations for running Autodesk[®] Vault Professional Server with the Panzura[®] Global File System (GFS).

Background

Autodesk Vault Server is a CAD data management software that helps designers and engineers organize their design data, manage documentation, and track revisions and other development processes.

One feature found in the Professional Edition is "File Store Replication", the process used by Vault to copy CAD data across sites but as with all data replication solutions, it is affected by latency. Panzura adds value by solving the latency problem and eliminating challenges with replication.

Panzura provides global file locking, fast file synchronization, cloud reliability and military grade security; Autodesk Vault users gain the performance benefits of a global file system without compromising their current workflow.

A general diagram of the solution is presented in Figure 1. Panzura provides general File System functionality, eliminating the need for expensive NAS arrays and simplifying the integration between sites.



Figure 1: Two Site Diagram

Pre-requisites

You should have working knowledge of Microsoft Windows Server[®], Autodesk Vault and Panzura GFS administration and terminology. This guide details on how to configure Panzura and Autodesk Vault to work together. Be sure to have proper licenses to deploy this solution.

This document covers the following software versions:

- Panzura GFS version 6.0 or better (in any combination of Physical, Virtual or AMI controllers)
- Autodesk Vault Professional Server 2016
- Microsoft Windows Server 2012 R2 with SQL Server Standard



Deployment

The variables below in quotes can be replaced with names that adhere to your corporate naming schema.

Phase 1: Install and configure the Microsoft Windows Server and the Panzura GFS

- 1. Install and deploy a Microsoft Windows Server at each location as per the diagram above.
 - a. "Site A" Hostname: VAULT Services: SQL Server 2014 STD, IIS, DFS, Vault Professional Server 2016
 - b. "Site B" Hostname: VFS-01 Services: IIS, Vault File Server 2016
- 2. Install the <u>Master Controller</u> at "*Site A*" with hostname "*panzura-cbl3*" as usually done for any master controller, follow the instructions on the *Panzura Storage Controller Installation Guide* for instructions.
 - a. No need to create a specific File System at this stage, a CIFS/SMB share will be configured during the Autodesk Vault configuration process.
 - b. Export the CloudFS Configuration to facilitate the configuration of Subordinate controllers

Export CloudFS	Configuration	
Multiple Panzura controllers can controller. All other controller a CloudFS configuration file. Whe deployment process for the sub	n be used to form a geographically global Clo re subordinates. To simplify the creation of t n deploying the subordinate controllers, this ordinates within the CloudFS.	oudFS. Within a CloudFS, there must be a single master the CloudFS using this controller as the master, export t configuration will be imported. This greatly simplifies t
CloudFS Configuration File:	Export File	

Figure 2: Export the CloudFS Configuration

- 3. Install the <u>Subordinate Controller</u> at "Site B" with hostname "panzura-cbl4" as usually done for any subordinate controller, follow the instructions on the Panzura Storage Controller Installation Guide for instructions.
 - a. Use the CloudFS configuration file as noted in the Installation Guide.
- 4. With GFS configured and online, you can configure HA capabilities if needed, follow the *Panzura Storage Controller HA Best Practices* for instructions.



Phase 2: Configure your Autodesk Vault File Store location

- 1. Create a SMB Share for your Autodesk Vault Servers
 - a. Login to the Master Panzura CloudFS UI to create Vault's share and enable ABE
 - Click on the Configuration tab -> CIFS -> Add a CIFS Share: "ADMS" (If you are using Panzura 6.1 or above the tab will be SMB instead of CIFS)
 - Share Name: adms
 - Share path: /cloudfs/panzura-cbl3/adms

Dashboard	Configuration	Maintenance		
Basic Settin	gs (CIFS Settings		
System		•		
Network	C	IFS Shares		
Time		+ Add a CIFS Share	Delete Selected	
Encryption & (Certs	hare Name:	adms	
CloudFS	s	hare Path:	/cloudfs/panzura-cbl3/adms	
Active Directo	ry		Add	
Dynamic Sites				
CIFS		Name		Path
Snapshot		No table entry fo	und	
License Mana;	ger	Save		

Figure 3: Share name: adms , Share path: /cloudfs/panzura-cbl3/adms

- Click on the Configuration tab -> Advanced -> CIFS
- If you are using Panzura 6.1 or above the menu option is <u>SMB</u> instead of <u>CIFS</u>
- Enable Access-based Enumeration (ABE)

Dashboard	Configura	tion	Maintenance		
Basic Settin	igs	с	IFS Settings		
Advanced S	Settings				
System		Ge	eneral Settings		
KMIP		SM	IB signing:	Off	•
Encryption &	Certs	Acc	cess-based umeration:	Enable Disable	
Active Directo	ory				
CIFS		Hic	de CloudFS Share:	U Yes 🖲 No	
Snapshot Mar	nager		Save		

Figure 4: Enable Access-based Enumeration (ABE)



- 2. Repeat step 1, but on the <u>Subordinate controller</u>
 - a. Login to the Subordinate Panzura CloudFS UI to create Vault's share and enable ABE, be sure to use the appropriate controller hostname "panzura-cbl4"
 - Click on the Configuration tab -> CIFS -> Add a CIFS Share: "ADMS"
 - If you are using Panzura 6.1 or above the menu option is <u>SMB</u> instead of <u>CIFS</u>
 - Share Name: adms
 - Share path: /cloudfs/panzura-cbl4/adms
 - Click on the Configuration tab -> Advanced -> CIFS
 - If you are using Panzura 6.1 or above the menu option is <u>SMB</u> instead of <u>CIFS</u>
 - Enable Access-based Enumeration (ABE)
- 3. Open the Active Directory Console
 - a. Create an Active Directory user account for the Vault Servers to use as the Impersonation Account. Use a descriptive name like; "AutodeskRemote"
- 4. Create a DFS Namespace on the first Microsoft Windows Server called "vault"

~		DFS Management
췀 File Action View Window	Help	
	6	New Namespace Wizard
 DFS Management Namespaces Replication 	Namespace Se	erver
	Steps: Namespace Server	Enter the name of the server that will host the namespace. The will be known as the namespace server.
	Namespace Name and Settings Namespace Type Review Settings and Create Namespace Confirmation	Server: vault

Figure 5: Name the Microsoft Windows Server "valut"



- a. Open the DFS Management console to create the Namespace structure
 - Create a Namespace, use a short name like "DFS"
 - Create a Shared Folder underneath the "DFS" Namespace. Use a short name like "ADMS"



Figure 6: Create a Namespace, use a short name like: "DFS"

b. Select "Stand-alone namespace" and verify that the newly created namespace "<u>\\vault\dfs</u>" is on the "Preview of Standalone Namespace" box





- c. Right click on the Namespace name <u>\\VAULT\dfs</u> and click on Properties.
 - Enable "access-based enumeration" and save

6	
🐴 File	Action View Window Help
<	· 🖄 📰 🗟 📕
Charles DFS	Management Namespaces
D 🏭	Namespaces
	Replication 🕌 \\VAULT\dfs
	\\VAULT\dfs Properties
	General Referrals Advanced
	Access-based enumeration hides folders in this namespace that users do not have permission to view.
	Enable access-based enumeration for this namespace

d. Right click on the Namespace name "<u>\\VAULT\dfs</u>" and create a New Folder "adms"

<u>*</u>		
🐴 File Action View	v Window Help	
🗢 🔿 🙍 💽		
🐴 DFS Management	\\VAULT\dfs (Stand-alone namespace)	
⊿ Namespaces ↓VAULT\dfs	Namespace Namespace Servers Delegati	
N Replication	New Folder	
	Delegate Management Permissions	
	Remove Namespace from Display	
	View +	
New Window from Here		
	Delete	
	Refresh	



- e. Right click on the new folder "adms" and select Properties
 - Click on the "Clients fail back to preferred targets" and click "OK"



- f. If the wizard does not request a "New Folder Target", right click on the new folder name "adms" and add a New Folder Target
 - Use the path to the Panzura Share you created in Phase 1: "\\panzura-cbl3\adms" and click "OK"

· 🐴	DFS Management	
🐴 File Action View Window	v Help	
🗢 🔿 🞽 📰 🛿 🗊		
CFS Management	adms	Actions
⊿ Lamespaces ⊿ Lamespaces ⊿ Lamespaces	New Folder Target	×
Replication ■	Folder: adms	er Targ Folder.
	Namespace path: \\VAULT\dfs\adms	der Folder
	Path to folder target: \\panzura-cbl3\adms Example: \\Server\Shared Folder\Folder	Browse dow fr
	OK	Cancel
		Properties



g. The wizard will require input for "Replication"

Click on "No"				
6			DFS Manage	ment
File Action View Window	w Help			
DFS Management A Iso Namespaces A Iso NVAULT\dfs Iso adms A Adms Adms Adms A Adms Adms	adms Folder Targets Reg 1 entries	plication		
Replication	Type Referr	al Status	Site	Path
	🙅 Enable	d	Default-First-Site-Name	\\panzura-cbl3\adms
			Replication	x
		A replication gro synchronized. Do you want to o	up can be used to keep these fo create a replication group?	older targets
			Yes	No

h. Right click on the "adms" folder and select "New Folder Target" to add the share from the Subordinate controller "panzura-cbl4" to the Folder Target list.

<u>6</u>	DFS Management	
😤 File Action View Window	Help	
DFS Management	adms New Folder Target	Actions
 A matching adms ▶ N Replication 	Folder: adms Namespace path: \\VAULT\dfs\adms Path to folder target: \\panzura-cbl4\adms Example: \\Server\Shared Folder\Folder OK	er T Fold Fol Browse dov Cancel

i. After these steps, the Folder Properties should appear as shown below, showing the "adms" folder with two targets

<u>^</u>		DFS Management	
🐴 File Action View Window	v Help		
🗢 🄿 🙍 🖬 👔			
🚰 DFS Management	adms		
▲ № Namespaces ▲ № \\VAULT\dfs ♣ adms	Folder Targets Replication		
Replication	Type Referral St Site	Path	1
	🙅 Enabled Default-First-Site-Name	\\panzura-cbl3\adms	
	🚰 Enabled Default-First-Site-Name	\\panzura-cbl4\adms	



- j. On each site verify that DFS points to the appropriate controller
 - Open the DFS Management console and right click on the "adms" folder and select Properties, click the DFS tab.

🐴 File Action View W	ndow Help		
🗢 🏟 🖄 📰 🚺 🗊			
🐴 DFS Management	adms		
A 🏭 Namespaces	Folder Targets Destination		
⊿ 🤮 \\VAULT\dfs	Replication		
adms	2 entries		
Replication	Type Referral Status	Site	Path
	😴 Enabled	Default-First-Sit	\\panzu
	😤 Enabled	Default-First-Sit	\\panzu
	adms (\\vault\d General Security Previous Ve V:\ Referral list: Path \\panzura-cbl3\adms \\panzura-cbl4\adms	dfs) (V:) Propert rsions DFS Cus Active Stat Yes No	tomiz

- The server on Site A, VAULT points to the Panzura controller on Site A: panzura-cbl3
- The server on Site B, VFS-01 points to the Panzura controller on Site B: panzura-cbl4

Hostname :	VAULT			
🦋 adms (\\vault\dfs) (V	:) Properties	x		
General Security Previous Versions	DFS Customize			
V:\				
Referral list:				
Path Active	Status			
🕄 \\panzura-cbl3\adms Yes				
💫 \\panzura-cbl4\adms No				
	↔			

Hostname	e : VF	s-01
🥜 adms (\\vault\d	dfs) (V:) Pro	perties
General Security Previous Ve	rsions DFS	Customize
V:\		
Referral list:		
Path	Active	Status
💫 \\panzura-cbl3\adms	No	
💫 \\panzura-cbl4\adms	Yes	



5. Configure the Panzura CC to bypass FileStoreInfo.fsg¹

a. Login to the Master Controller CloudFS UI and click on the Maintenance tab -> Diagnostics and in the Diagnostics Tools section, select: cifs-add-gcfg

Note: If you are using Panzura 6.1 or above the option is smb-add-gcfg

• In the "Enter Parameters" box, type:

pz-replock local files = /Thumbs.db/.DS_Store/^.smbdelete/.fsg/

- Click "RUN"
- Repeat this routine on every Panzura Cloud Controller that has an Autodesk Vault Server connected to it.

Dashboard	Configuration	Maintenance	
Maintenance		Diagnostics	
Diagnostics		-	
CIFS Dashboard		Packet Capture Tools	
CIFS Users		pkt-capture	▼ gb1 ▼ Start Stop
CloudFS		Diagnostics Tools	
Cloud Metrics	· · · · ·	Command Type:	Enter Parameters:
Master Snaps	hot	cifs-add-gcfg	pz-replock local files = /Thumbs.db/.DS_Store/^.smbdelete/.fsg/ Run
Image Upgrade		Diagnostics Output	
Reboot			

This step is required to stop the synchronization of the "FileStoreInfo.fsg" file between controllers. Each Vault Server must own its working file to maintain a healthy system. If the Panzura controllers modify this file, Vault will interpret the remote update as a corruption of the file and will stop working properly.

Phase 3: Configure Autodesk Vault File Server (AVFS) Connectivity

- 1. Establish connectivity from AVFS to ADMS
 - a. Start AVFS Console

X	Autodesk	Vault File Server Console 2016	_ □
File Tools Actions Help			Search Help
	×	Log In	X
 Management Console Logs File Store Logs 	User Name: Password:	Administrator	
		Windows Authentication	
		OK Cancel	Help

1. FileStoreInfo.fsg is a static file that is unique to each instance of Autodesk Vault. This file does not need to be kept in sync across Panzura Controllers, unless Autodesk Vault is re-installed on the master ADMS. Maintaining this file independent from the GFS allows each Vault Server to use a single directory as its File Store.



b. Tools -> Administration -> Basic

• Enter the hostname or IP address of the master vault along with Administrator level credentials

×	Autodesk V	/ault File Serv	er Console 201	6	_ □	x
File Tools Actions Help				Search Help) [
VFS-01 Vaults Vault Management		i	Autodesk V On VFS-01	Vault File Se	rver	
	M		Settir	ngs		
	Settings Basic	Server configura	tion settings		Settin	gs
2	erver Configurati	on	x		Settin	as
ADMS: http://	vault.cadable.com/			Clos	e	Help
Oser Name: Admir	istrator					
Password:						
🗌 Wir	dows Authentication					
	ОК	Cancel	Help		Administrat	or intervention

- c. Tools -> Administration -> Advanced
- d. Set your Impersonation Active Directory username and password
- e. Set the initial File Store location to reside on a local drive of the AVFS

🗙 Advance	ed Settings		x
Impersonation			
User Name:	ad.cadable.co	m\administrator	
Password:			
Connection			
Connection Timeout: 1000 Seconds			
Log File Configuration			
Limit the number of log files bef be between 6 and 99.	ore they are recy	cled. Value must	
Maximum number of consol	e logs:	6	
Maximum number of server logs: 6			
	[Reset Defaults	
ОК	Cancel	Help	



- 2. Move the AVFS File Store to the DFS Share
 - a. In the AVFS console from the left navigation pane:
 - Click on desired Vault

¥	Autodesk Vault File Serve	r Console 2016
File Tools Actions Help Move File Store		
VFS-0 Vault Enabled Va Refresh F5 Vault Management	Vault On VFS-01	
 ☐ Console Logs ☐ Today - 12/19/2015 ☐ File Store Logs 	Created Date	8/18/2015
 Today - 12/19/2015 Archive - 12/18/2015 Archive - 12/17/2015 	Created By	Administrator
	File Store	C:\vaultserver\filestore
	Number of files in store	3187 / 3194

- select "Move File Store"
- Enter: \\server_name\dfs_share_name

X	Autodesk Vault File Server Console 201	6
File Tools Actions Help		
VFS-01 Vaults Vault Management	Vault On VFS-01	
 □ Console Logs □ Today - 12/19/2015 □ File Store Logs 	Created Date 8/18/2015	i
archive - 12/19/2015	Created By Administ	rator
	Move File Store	x
Current File Store Location: New File Store Location:	C:\vaultserver\filestore	
	OK Cancel Help	



Phase 4: Point the master ADMS server to the DFS Share

- 1. Shut down the Autodesk Data Management Job Dispatch service on the AVFS and clear the DFS Share so that the main server can move its File Store into it
 - a. Disable Autodesk Data Management Job Dispatch service on AVFS
 - Open Services Console, run, services.msc at the command prompt
 - Right click "Autodesk Data Management Job Dispatch" and click on "Stop"

Q	Serv	vices			_	x
File Action View	Help					
(+ =) 🗊 🗐 🕼) 🕞 🚺 🖬 🕨 💷 🕪					
🌼 Services (Local)	Name 🔺	Description Sta	tatus	Startup Type	Log On As	^
	🔍 App Readiness	Gets apps re		Manual	Local Syste	
	Application Experience	Processes a		Manual (Trig	Local Syste	≡
	Application Host Helper Service	Provides ad Ru	unning	Automatic	Local Syste	
	Application Identity	Determines		Manual (Trig	Local Service	
	Application Information	Facilitates t Ru	unning	Manual (Trig	Local Syste	
	Application Layer Gateway Service	Provides su		Manual	Local Service	
	Application Management	Processes in		Manual	Local Syste	
	AppX Deployment Service (AppXSVC)	Provides inf		Manual	Local Syste	
	CASP NET State Service	Provideo out		Manual	Network S	
	🔹 Autodesk Data Management Job Dispatch 📃	Dispatches I Ru	unning	Automatic	Local Syste	
	AWS Lite Guest Agent	Start	g	Automatic	Local Syste	
	Background Intelligent Transfer Service	Stop	9	Manual	Local Syste	
	Background Tasks Infrastructure Service	Pause	9	Automatic	Local Syste	
	🔍 Base Filtering Engine	Recurre	g	Automatic	Local Service	
	🔍 Certificate Propagation	Resume	g	Manual	Local Syste	
	CloudFormation cfn-hup	Kestart		Manual	Local Syste	
	🔍 CNG Key Isolation	All Tasks		Manual (Trig	Local Syste	
	🔍 COM+ Event System	Refresh	g	Automatic	Local Service	
	COM+ System Application	-		Manual	Local Syste	
	🔍 Computer Browser	Properties		Disabled	Local Syste	
	🔍 Credential Manager	Help		Manual	Local Syste	
	🔍 Cryptographic Services	Provides thr Ru	unning	Automatic	Network S	
	COM Server Process Launcher	The DCOM Ru	unning	Automatic	Local Syste	
	Standard Standard	· · · ·	-			×
	Extended Standard					
Stop service Autodesk [Data Management Job Dispatch on Local Computer					



- b. Delete the files on "DFS" Share that "AVFS" created, the system will use the files from the master vault
 - Using the Windows File Explorer go to the "ADMS" drive, right click on the "Vault" and select Delete.



We delete the VFS File Store on the "DFS" share "ADMS" so that the main Vault Server can move its File Store in the "DFS" share location. The Vault system will not move the File Store into a directory that already has a File Store in it because the directory structure of the main Vault Server and the VFS-01 is identical.

Another reason to do it in this order –*VFS-01 first, Vault second-*, is because the VFS starts with a partial copy of the data and completes itself upon next sync and as files are needed for that site. The main Vault Server is the complete copy of the Vault, so we would want to move it to the "DFS" share last. If multiple "DFS" servers are involved, do all of them one by one, shutting down the previous server as you move to the next one, then the main Vault server last, then start them all up.



- c. Move main ADMS File Store to DFS Share
 - Run ADMS Console on master ADMS
 - In the left navigation pane, right-click on the desired Vault and select "Move File Store"
 - \\server name\dfs share name

×		Autodesk Data Management Serve
File Tools Actions	Help	
🗉 🗟 VAULT		Vault
🖃 🛅 Vaults		Vuun
🛛 🕅 Vault		On VAULT
Libraries	Detach	
	Delete	
🗄 🎯 Workgro	Marco Database	Created Date
🕀 🕥 File Store		
	Move File Store	
	D	Created By
	rungerniesin	created by
	Purge Items	

- 2. Start Autodesk Data Management Job Dispatch on VFS
 - a. Open Services Console, run, services.msc from the command prompt
 - Right click on "Autodesk Data Management Job Dispatch" and click Start

Q.	Se	ervices	
File Action View	v Help		
le 🔿 📑	Q 📑 🛛 🖬 🕨 🖬 🗤		
🔍 Services (Local)	Name	Description	Status
	🔍 App Readiness	Gets apps re	
	Application Experience	Processes a	
	Application Host Helper Service	Provides ad	Runnin
	Application Identity	Determines	
	Application Information	Facilitates t	Runnin
	Application Layer Gateway Service	Provides su	
	Application Management	Processes in	
	AppX Deployment Service (AppXSVC)	Provides inf	
	ASP.NET State Service	Provides su	
	🔍 Autodesk Data Management Job Dis latch 💡	Disnatches I	
	🔍 AWS Lite Guest Agent	Start	n
	🗟 Background Intelligent Transfer Service	Stop	
	🗟 Background Tasks Infrastructure Service	Pause	n
	🔅 Base Filtering Engine	Resume	n
	🔅 Certificate Propagation	Restart	n
	🔍 CloudFormation cfn-hup	Restart	
	🔍 CNG Key Isolation	All Tasks	•
	🔍 COM+ Event System	Refresh	n
	🔍 COM+ System Application	Properties	
	🗟 Computer Browser	Properties	
	🔍 Credential Manager	Help	
	Cryptographic Services	Provides thr	Runnin



3. Fine tuning

- a. Start ADMS Console on master ADMS
 - Right-click on Workgroup objects that point to DFS Share
 - Set replication schedule to 1 hour intervals

*	Autodesk Data Management Server Console 2016	
File Tools Actions Help		Search
 □ VAULT □ Vaults □ Vault □ Libraries □ Management □ Console Logs □ Server Logs □ File Store Logs 	VFS-01 Vault Vault Status Site Replication Type Vault Enabled Frequency	Locatio \\vault\
Email Logs Workgroups Workgroups VAULT\AUTODESKVAULT VAULT VAULT VAULT VAULT VAULT VAULT VAULT Vault Vault Voult Voult	Scheduled Replication Image: Constraint of the second s	

You have now configured Autodesk Vault to take advantage of Panzura's performance for cross-site collaboration! The image below illustrates the end user view of the Vault using the GFS on the host Vault. It will appear the same on VFS-01 or anyother configured host.

				_		nos chasie :	VAGET
M	Autodesk Data Management Server Console 2016				Drive Te	ols V:\	_ D X
File Tools Actions Help		Search Help	ء ج 12	iew	Mana	je walt/dfs) (/s) v (* Saa	v 🔞
VAULT Vaults Vault Vaul	Vault On VAULT		^			Vault 12/19/2015 2:49 AM	
	Created Date	8/18/2015				adms (\\vault\dfs) (V:) Pro General Securty Previous Versions DFS	Customize
	Created By	Administrator				V:\ Referral lat	
	File Store Database Size	\\vault\dfs\adms\Vault			=	Path Active	Status
		252 MB	=			Roman No No	
	File Store Size	701.25 MB					
	Number of Files in Store	3194					



Additional Considerations

The use of the Panzura GFS as the file system infrastructure for Autodesk Vault reduces the wait between project creation/modification and files accessibility on a secondary site from hours to seconds.

When a user from a remote site tries to access a file within the "1 hour" replication window as configured in the step 3 from the last phase, the user will see a message from the server: "Do you want the local server to get a copy of the file?" click on "Yes".

Clicking "yes" for your server to get a local copy will not actually trigger a re-copy of the file. Panzura will accelerate copying the file via the GFS and the Vault Server will mark the file as downloaded almost instantly.



695 Campbell Technology Parkway #225 Campbell, CA 95008 +1 (408) 578-8888

For more information: info@panzura.com For sales: sales@panzura.com