



Technical FAQ

FlexGroup and FlexVol Volumes

SMB and Windows File Services Feature Comparison FAQ

John Lantz, NetApp
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Abstract

This technical FAQ covers common questions about the difference between NetApp® ONTAP® FlexGroup volumes and NetApp FlexVol® volumes in Windows environments that use the SMB protocol.

Version History

Version	Date	Document Version History
Version 1.0	January 2017	Initial release.

TABLE OF CONTENTS

Version History	2
1 Overview.....	4
1.1 FlexGroup Volumes and FlexVol Volumes.....	4
1.2 Questions Not Covered in This FAQ	4
2 SMB Feature Support	4
2.1 SMB 1	5
What happens if I try to establish an SMB 1 session in a FlexGroup volume?	5
2.2 Continuously Available Shares	5
What happens if I try to use CA shares in a FlexGroup volume?	5
3 Windows File Services Feature Support.....	6
3.1 Native ONTAP Auditing	7
What happens if I try to use native ONTAP auditing in a FlexGroup volume?	7
3.2 Remote Volume Shadow Copy Service (VSS).....	7
What happens if I try to use VSS on shares in a FlexGroup volume?	7
3.3 Offloaded Data Transfers (ODX).....	7
What happens if I try to use ODX in a FlexGroup volume?	7
3.4 Change Notification and Watches.....	8
What happens to clients that rely on change notifications and watches to work as expected?	8
3.5 Storage-Level Access Guard (SLAG)	8
What happens if I try to use SLAG in a FlexGroup volume?	8
3.6 FPolicy	8
What happens if I try to use FPolicy in a FlexGroup volume?	8
3.7 Antivirus	8
What happens if I try to use antivirus in a FlexGroup volume?	8
References.....	8

LIST OF TABLES

Table 1) SMB Feature Support.....	4
Table 1) WFS feature support.	6

1 Overview

The NetApp FlexGroup NAS feature was released in NetApp ONTAP 9.1. FlexGroup volumes are intended to improve the overall NAS experience in ONTAP with a solution that blends near-infinite capacity and seamless scalability with predictable high performance for concurrent workloads.

FlexGroup volumes enable storage administrators to use their entire cluster for NAS workloads without needing to worry about file or volume layout. They can simply create a FlexGroup volume and start writing data.

Common questions about FlexGroup volumes are covered in the [NetApp FlexGroup Technical FAQ](#).

1.1 FlexGroup Volumes and FlexVol Volumes

Both FlexGroup volumes and FlexVol volumes can be used for a wide range of high-capacity metadata-intensive workloads in NAS environments. In addition to the differences in SMB and Windows File Services (WFS) support that are detailed in this FAQ, the main differences between the two are the substantially higher capacity and performance of FlexGroup volumes.

High-capacity (>100TB in a single namespace) or high-file-count (>2 billion files) workloads are optimal for FlexGroup volumes. FlexGroup volumes add concurrency to workloads and present multiple volume affinities to a single storage container without clients or storage administrators having to manage anything.

FlexVol volumes, the forerunner to FlexGroup volumes, have lower storage capacities (with maximums of ~100TB) and typically, lower levels of default performance. (Experienced storage administrators must manually configure FlexVol volumes to get FlexGroup-like performance results.)

1.2 Questions Not Covered in This FAQ

Most frequently asked questions that are associated with FlexGroup volumes can be found in the [NetApp FlexGroup Technical FAQ](#).

If you have a question that relates specifically to FlexGroup and FlexVol support of SMB and Windows File Services, please let us know by e-mailing us at flexgroups-info@netapp.com.

2 SMB Feature Support

Table 1) SMB feature support.

Feature	NetApp FlexGroup Volumes	NetApp FlexVol Volumes
SMB 1	No	Yes
Durable handles	Yes	Yes
SMB signing	Yes	Yes
Lease oplocks	Yes	Yes
Large maximum transmission unit (MTU)	Yes	Yes
Continuously available shares	No	Yes
Scale-out	No	Yes
Witness	No	Yes

Feature	NetApp FlexGroup Volumes	NetApp FlexVol Volumes
Transparent failover	No	Yes
Persistent handles	No	Yes
SMB encryption	Yes	Yes
Cluster Client Failover v2	No	Yes
Preauthentication integrity	Yes	Yes

2.1 SMB 1

What happens if I try to establish an SMB 1 session in a FlexGroup volume?

Answer: Clients cannot access shares by using SMB 1. Attempts to do so fail with an “Access Denied” message.

Note: SMB 1 support will be disabled by default in a future version of NetApp ONTAP software. NetApp is following Microsoft’s lead in this regard because Microsoft has announced that it is deprecating SMB 1 and will be disabling it, by default, in a future version of Windows Server.

Customers should migrate to a more recent version of SMB as soon as possible.

Consider using `statistics show -object smb1` to audit your shares for SMB 1 traffic to determine whether any of your clients are still using SMB 1.

2.2 Continuously Available Shares

Continuously available (CA) is a share property that allows file shares to be accessible during otherwise disruptive scenarios such as controller upgrades or failures. CA shares allow this accessibility through the use of SMB 3 features, including scale-out, persistent handles, witness, and transparent failover.

NetApp supports CA shares only for Microsoft Hyper-V over SMB and SQL Server over SMB use cases. These use cases (databases that grow over time or virtualized workloads that require cloning and copy offload) run counter to the metadata-intensive workloads that are optimal for FlexGroup volumes. In fact, NetApp does not recommend metadata-intensive workloads for CA shares, FlexGroup volumes or not.

What happens if I try to use CA shares in a FlexGroup volume?

Answer: Clients cannot access CA shares on a FlexGroup volume.

Creating, adding, or modifying a CA share to use a path under a FlexGroup volume fails with the following message:

```
Error: command failed: The property "continuously-available" is not supported for a CIFS share defined within a FlexGroup.
```

3 Windows File Services Feature Support

Table 2) Windows File Services feature support.

Feature	NetApp FlexGroup Volumes	NetApp FlexVol Volumes
Active Directory authentication	Yes	Yes
Workgroup mode authentication	Yes	Yes
Multidomain name mapping	Yes	Yes
Dynamic DNS (DDNS)	Yes	Yes
NetBIOS alias	Yes	Yes
Local users and groups	Yes	Yes
Group policy	Yes	Yes
Roaming user profiles	Yes	Yes
Share access control lists (ACLs)	Yes	Yes
Dynamic Access Control (DAC)	Yes	Yes
Home directories	Yes	Yes
Work folders	Yes	Yes
Folder redirection	Yes	Yes
Distributed File System (DFS) namespaces	Yes	Yes
Microsoft previous versions	Yes	Yes
Microsoft Management Console (MMC) support	Yes	Yes
Native NetApp ONTAP auditing	No	Yes
Offline files	Yes	Yes
BranchCache	Yes	Yes
Remote Volume Shadow Copy Service (VSS)	No	Yes
Automatic node referrals	Yes	Yes
Offloaded data transfers (ODX)	No	Yes
NTFS junctions	Yes	Yes
NFS symlinks	Yes	Yes
NFS widelinks	Yes	Yes
Change notification/watches	No	Yes
LDAP over Transport Layer Security (TLS)	Yes	Yes
LDAP signing and sealing	Yes	Yes

Feature	NetApp FlexGroup Volumes	NetApp FlexVol Volumes
Null user IP qualification	Yes	Yes
Access-based enumeration (ABE)	Yes	Yes
Storage-Level Access Guard (SLAG)	No	Yes
NetApp FPolicy® file screening policy	No	Yes
Antivirus	No	Yes

3.1 Native ONTAP Auditing

What happens if I try to use native ONTAP auditing in a FlexGroup volume?

Answer: FlexGroup volumes do not support native ONTAP auditing (for example, `vserver audit`).

Enabling auditing in a storage virtual machine (SVM; Vserver in the CLI) that contains FlexGroup volumes results in the following message:

```
Warning: Audit events will not be logged for the following FlexGroups
because audit logging is not supported for FlexGroups: <Name>, <Name2>,
<etc.>.

Do you want to continue? {y|n}: y
```

Likewise, creating a FlexGroup volume in an SVM that already has auditing enabled results in the following message:

```
Warning: The specified Vserver "<Name>" has auditing enabled. Audit events
will not be logged for this FlexGroup because audit logging is not supported
for FlexGroups.

Do you want to continue? {y|n}: y
```

3.2 Remote Volume Shadow Copy Service (VSS)

What happens if I try to use VSS on shares in a FlexGroup volume?

Answer: FlexGroup volumes do not support remote VSS (for example, `-shadowcopy-enabled true`). Shares in a FlexGroup volume on an SVM that has remote VSS enabled are not included in VSS backup copies.

Note: VSS is primarily used in Hyper-V over SMB use cases, and Hyper-V over SMB is not supported by FlexGroup volumes.

3.3 Offloaded Data Transfers (ODX)

What happens if I try to use ODX in a FlexGroup volume?

Answer: FlexGroup volumes do not support ODX (for example, `-copy-offload-enabled true`). Clients that attempt to use ODX on shares in a FlexGroup volume fall back seamlessly to traditional client-side copies.

3.4 Change Notification and Watches

What happens to clients that rely on change notifications and watches to work as expected?

Answer: Changes to file names, directory names, attributes, file size, time of last write, and so on, that exist in a FlexGroup volume are currently invisible to clients that monitor or watch shares for changes.

Clients that need to monitor changes to shares in FlexGroup volumes must use alternative methods.

3.5 Storage-Level Access Guard (SLAG)

What happens if I try to use SLAG in a FlexGroup volume?

Answer: FlexGroup volumes do not support SLAG (for example, `-access-control slag`).

Enabling SLAG on a path that is in a FlexGroup volume results in the following message:

```
Error: command failed: SLAG is not supported for FlexGroups.
```

3.6 FPolicy

What happens if I try to use FPolicy in a FlexGroup volume?

Answer: FlexGroup volumes do not support FPolicy (for example, `vserver fpolicy`).

Enabling FPolicy in an SVM (Vserver) that contains FlexGroup volumes results in the following message:

```
Warning: FPolicy notifications will not be sent for the following FlexGroups  
because FPolicy is not supported for FlexGroups: <Name>,<Name2>,<etc.>.  
Do you want to continue? {y|n}: y
```

Likewise, creating a FlexGroup volume in an SVM that already has FPolicy enabled results in the following message:

```
Warning: The specified Vserver "<Name>" has FPolicy enabled. FPolicy events  
will not be sent for this FlexGroup because FPolicy is not supported for  
FlexGroups.  
Do you want to continue? {y|n}: y
```

3.7 Antivirus

What happens if I try to use antivirus in a FlexGroup volume?

Answer: Although FlexGroup volumes do not officially support antivirus, the lack of support is primarily a factor of ONTAP testing and release cycles. Although official qualification and support will not be provided until a future release, preliminary testing indicates that antivirus works as expected in FlexGroup volumes.

Note: This information is NetApp Confidential and is not public.

References

The following references were used in this FAQ:

- TR-4557: NetApp FlexGroup
<http://www.netapp.com/us/media/tr-4557.pdf>

- TR-4543: SMB Protocol Best Practices
<http://www.netapp.com/us/products/management-software/oncommand/unified-manager.aspx>
- NetApp FlexGroup Technical FAQ
<https://fieldportal.netapp.com/content/453533?assetComponentId=454197>

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