



# Preparation

## ONTAP 9

NetApp  
February 20, 2023

# Table of Contents

- Preparation ..... 1
  - Assess physical storage requirements. .... 1
  - Assess networking requirements ..... 1
  - Decide where to provision new SMB storage capacity ..... 2
  - Worksheet for gathering SMB configuration information ..... 3

# Preparation

## Assess physical storage requirements

Before provisioning SMB storage for clients, you must ensure that there is sufficient space in an existing aggregate for the new volume. If there is not, you can add disks to an existing aggregate or create a new aggregate of the desired type.

### Steps

1. Display available space in existing aggregates: `storage aggregate show`

If there is an aggregate with sufficient space, record its name in the worksheet.

```
cluster::> storage aggregate show
```

| Aggregate | Size    | Available | Used% | State  | #Vols | Nodes | RAID Status        |
|-----------|---------|-----------|-------|--------|-------|-------|--------------------|
| aggr_0    | 239.0GB | 11.13GB   | 95%   | online | 1     | node1 | raid_dp,<br>normal |
| aggr_1    | 239.0GB | 11.13GB   | 95%   | online | 1     | node1 | raid_dp,<br>normal |
| aggr_2    | 239.0GB | 11.13GB   | 95%   | online | 1     | node2 | raid_dp,<br>normal |
| aggr_3    | 239.0GB | 11.13GB   | 95%   | online | 1     | node2 | raid_dp,<br>normal |
| aggr_4    | 239.0GB | 238.9GB   | 95%   | online | 5     | node3 | raid_dp,<br>normal |
| aggr_5    | 239.0GB | 239.0GB   | 95%   | online | 4     | node4 | raid_dp,<br>normal |

6 entries were displayed.

2. If there are no aggregates with sufficient space, add disks to an existing aggregate by using the `storage aggregate add-disks` command, or create a new aggregate by using the `storage aggregate create` command.

## Assess networking requirements

Before providing SMB storage to clients, you must verify that networking is correctly configured to meet the SMB provisioning requirements.

### Before you begin

The following cluster networking objects must be configured:

- Physical and logical ports
- Broadcast domains
- Subnets (if required)

- IPspaces (as required, in addition to the default IPspace)
- Failover groups (as required, in addition to the default failover group for each broadcast domain)
- External firewalls

## Steps

1. Display the available physical and virtual ports: `network port show`
  - When possible, you should use the port with the highest speed for the data network.
  - All components in the data network must have the same MTU setting for best performance.
2. If you are planning to use a subnet name to allocate the IP address and network mask value for a LIF, verify that the subnet exists and has sufficient addresses available: `network subnet show`

Subnets contain a pool of IP addresses that belong to the same layer 3 subnet. Subnets are created by using the `network subnet create` command.

3. Display available IPspaces: `network ipspace show`

You can use the default IPspace or a custom IPspace.

4. If you want to use IPv6 addresses, verify that IPv6 is enabled on the cluster: `network options ipv6 show`

If required, you can enable IPv6 by using the `network options ipv6 modify` command.

## Decide where to provision new SMB storage capacity

Before you create a new SMB volume or qtree, you must decide whether to place it in a new or existing SVM, and how much configuration the SVM requires. This decision determines your workflow.

### Choices

- If you want to provision a volume or qtree on a new SVM, or on an existing SVM that has SMB enabled but not configured, complete the steps in both “Configuring SMB access to an SVM” and “Adding storage capacity to an SMB-enabled SVM”.

[Configuring SMB access to an SVM](#)

[Configuring SMB client access to shared storage](#)

You might choose to create a new SVM if one of the following is true:

- You are enabling SMB on a cluster for the first time.
- You have existing SVMs in a cluster in which you do not want to enable SMB support.
- You have one or more SMB-enabled SVMs in a cluster, and you want one of the following connections:
  - To a different Active Directory forest or workgroup.
  - To an SMB server in an isolated namespace (multi-tenancy scenario). You should also choose this option to provision storage on an existing SVM that has SMB enabled but not configured. This might be the case if you created the SVM for SAN access or if no protocols were enabled when the SVM was created.

After enabling SMB on the SVM, proceed to provision a volume or qtree.

- If you want to provision a volume or qtree on an existing SVM that is fully configured for SMB access, complete the steps in “Adding storage capacity to an SMB-enabled SVM”.

[Configuring SMB client access to shared storage](#)

## Worksheet for gathering SMB configuration information

The SMB configuration worksheet enables you to collect the required information to set up SMB access for clients.

You should complete one or both sections of the worksheet, depending on the decision you made about where to provision storage:

- If you are configuring SMB access to an SVM, you should complete both sections.

[Configuring SMB access to an SVM](#)

[Configuring SMB client access to shared storage](#)

- If you are adding storage capacity to an SMB-enabled SVM, you should complete only the second section.

[Configuring SMB client access to shared storage](#)

The command man pages contain details about the parameters.

### Configuring SMB access to an SVM

#### Parameters for creating an SVM

You supply these values with the `vserver create` command if you are creating a new SVM.

| Field                    | Description  | Your value |
|--------------------------|--|------------|
| <code>-vserver</code>    | A name you supply for the new SVM that is either a fully qualified domain name (FQDN) or follows another convention that enforces unique SVM names across a cluster. |            |
| <code>-aggregate</code>  | The name of an aggregate in the cluster with sufficient space for new SMB storage capacity.  |            |
| <code>-rootvolume</code> | A unique name you supply for the SVM root volume.  |            |

| Field                                   | Description   | Your value           |
|---|---|----------------------|
| <code>-rootvolume-security-style</code> | Use the NTFS security style for the SVM.                                | <code>ntfs</code>    |
| <code>-language</code>                  | Use the default language setting in this workflow.                      | <code>C.UTF-8</code> |
| <code>ipspace</code>                    | Optional: IPspaces are distinct IP address spaces in which SVMs reside. |                      |

### Parameters for creating a LIF

You supply these values with the `network interface create` command when you are creating LIFs.

| Field                       | Description   | Your value        |
|-----------------------------|---|-------------------|
| <code>-lif</code>           | A name you supply for the new LIF.  |                   |
| <code>-role</code>          | Use the data LIF role in this workflow.   | <code>data</code> |
| <code>-data-protocol</code> | Use only the SMB protocol in this workflow.   | <code>cifs</code> |
| <code>-home-node</code>     | The node to which the LIF returns when the <code>network interface revert</code> command is run on the LIF.                             |                   |
| <code>-home-port</code>     | The port or interface group to which the LIF returns when the <code>network interface revert</code> command is run on the LIF.          |                   |
| <code>-address</code>       | The IPv4 or IPv6 address on the cluster that will be used for data access by the new LIF.   |                   |
| <code>-netmask</code>       | The network mask and gateway for the LIF.   |                   |
| <code>-subnet</code>        | A pool of IP addresses. Used instead of <code>-address</code> and <code>-netmask</code> to assign addresses and netmasks automatically. |                   |

| Field                         | Description  | Your value        |
|-------------------------------|--|-------------------|
| <code>-firewall-policy</code> | Use the default data firewall policy in this workflow.   | <code>data</code> |
| <code>-auto-revert</code>     | Optional: Specifies whether a data LIF is automatically reverted to its home node on startup or under other circumstances. The default setting is <code>false</code> . |                   |

### Parameters for DNS host name resolution

You supply these values with the `vserver services name-service dns create` command when you are configuring DNS.

| Field                      | Description  | Your value |
|----------------------------|--|------------|
| <code>-domains</code>      | Up to five DNS domain names.                       |            |
| <code>-name-servers</code> | Up to three IP addresses for each DNS name server. |            |

## Setting up an SMB server in an Active Directory domain

### Parameters for time service configuration

You supply these values with the `cluster time-service ntp server create` command when you are configuring time services.

| Field                | Description  | Your value |
|----------------------|--|------------|
| <code>-server</code> | The host name or IP address of the NTP server for the Active Directory domain. |            |

### Parameters for creating an SMB server in an Active Directory domain

You supply these values with the `vserver cifs create` command when you create a new SMB server and specify domain information.

| Field                     | Description  | Your value |
|---------------------------|--|------------|
| <code>-vserver</code>     | The name of the SVM on which to create the SMB server. |            |
| <code>-cifs-server</code> | The name of the SMB server (up to 15 characters).      |            |

| Field                         | Description   | Your value |
|-------------------------------|---|------------|
| <code>-domain</code>          | The fully qualified domain name (FQDN) of the Active Directory domain to associate with the SMB server.   |            |
| <code>-ou</code>              | Optional: The organizational unit within the Active Directory domain to associate with the SMB server. By default, this parameter is set to CN=Computers. |            |
| <code>-netbios-aliases</code> | Optional: A list of NetBIOS aliases, which are alternate names to the SMB server name.  |            |
| <code>-comment</code>         | Optional: A text comment for the server. Windows clients can see this SMB server description when browsing servers on the network.                        |            |

## Setting up an SMB server in a workgroup

### Parameters for creating an SMB server in a workgroup

You supply these values with the `vserver cifs create` command when you create a new SMB server and specify supported SMB versions.

| Field                     | Description  | Your value |
|---------------------------|--|------------|
| <code>-vserver</code>     | The name of the SVM on which to create the SMB server.   |            |
| <code>-cifs-server</code> | The name of the SMB server (up to 15 characters).  |            |
| <code>-workgroup</code>   | The name of the workgroup (up to 15 characters).   |            |
| <code>-comment</code>     | Optional: A text comment for the server. Windows clients can see this SMB server description when browsing servers on the network. |            |

### Parameters for creating local users

You supply these values when you create local users by using the `vserver cifs users-and-groups local-user create` command. They are required for SMB servers in workgroups and optional in AD domains.



| Field                             | Description   | Your value |
|-----------------------------------|---|------------|
| <code>-vserver</code>             | The name of the SVM on which to create the local user.  |            |
| <code>-user-name</code>           | The name of the local user (up to 20 characters).   |            |
| <code>-full-name</code>           | Optional: The user's full name. If the full name contains a space, enclose the full name within double quotation marks.                             |            |
| <code>-description</code>         | Optional: A description for the local user. If the description contains a space, enclose the parameter in quotation marks.                          |            |
| <code>-is-account-disabled</code> | Optional: Specifies whether the user account is enabled or disabled. If this parameter is not specified, the default is to enable the user account. |            |

### Parameters for creating local groups

You supply these values when you create local groups by using the `vserver cifs users-and-groups local-group create` command. They are optional for SMB servers in AD domains and workgroups.

| Field                     | Description   | Your value |
|---------------------------|---|------------|
| <code>-vserver</code>     | The name of the SVM on which to create the local group.   |            |
| <code>-group-name</code>  | The name of the local group (up to 256 characters).   |            |
| <code>-description</code> | Optional: A description for the local group. If the description contains a space, enclose the parameter in quotation marks. |            |

## Adding storage capacity to an SMB-enabled SVM

### Parameters for creating a volume

You supply these values with the `volume create` command if you are creating a volume instead of a qtrees.

| Field           | Description   | Your value |
|-----------------|---|------------|
| -vserver        | The name of a new or existing SVM that will host the new volume.                      |            |
| -volume         | A unique descriptive name you supply for the new volume.                              |            |
| -aggregate      | The name of an aggregate in the cluster with sufficient space for the new SMB volume. |            |
| -size           | An integer you supply for the size of the new volume.                                 |            |
| -security-style | Use the NTFS security style for this workflow.  | ntfs       |
| -junction-path  | Location under root (/) where the new volume is to be mounted.                        |            |

### Parameters for creating a qtree

You supply these values with the `volume qtree create` command if you are creating a qtree instead of a volume.

| Field       | Description   | Your value |
|-------------|---|------------|
| -vserver    | The name of the SVM on which the volume containing the qtree resides.   |            |
| -volume     | The name of the volume that will contain the new qtree.   |            |
| -qtree      | A unique descriptive name you supply for the new qtree, 64 characters or less.  |            |
| -qtree-path | The qtree path argument in the format<br>/vol/volume_name/qtree_name\> can be specified instead of specifying volume and qtree as separate arguments. |            |

### Parameters for creating SMB shares

You supply these values with the `vserver cifs share create` command.

| Field                          | Description  | Your value |
|--------------------------------|--|------------|
| <code>-vserver</code>          | The name of the SVM on which to create the SMB share.  |            |
| <code>-share-name</code>       | The name of the SMB share that you want to create (up to 256 characters).  |            |
| <code>-path</code>             | The name of the path to the SMB share (up to 256 characters). This path must exist in a volume before creating the share.  |            |
| <code>-share-properties</code> | Optional: A list of share properties. The default settings are <code>oplocks</code> , <code>browsable</code> , <code>changenotify</code> , and <code>show-previous-versions</code> . |            |
| <code>-comment</code>          | Optional: A text comment for the server (up to 256 characters). Windows clients can see this SMB share description when browsing on the network.                                     |            |

### Parameters for creating SMB share access control lists (ACLs)

You supply these values with the `vserver cifs share access-control create` command.

| Field                         | Description   | Your value   |
|-------------------------------|---|--|
| <code>-vserver</code>         | The name of the SVM on which to create the SMB ACL.   |  |
| <code>-share</code>           | The name of the SMB share on which to create.   |  |
| <code>-user-group-type</code> | The type of the user or group to add to the share's ACL. The default type is <code>windows</code>   | <code>windows</code>   |
| <code>-user-or-group</code>   | The user or group to add to the share's ACL. If you specify the user name, you must include the user's domain using the "domain\username" format. |  |
| <code>-permission</code>      | Specifies the permissions for the user or group.  | [ <code>No_access</code>   <code>Read</code>   <code>Change</code>   <code>Full_Control</code> ] |

## Copyright information

Copyright © 2023 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

## Trademark information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.