



# **NVMe storage**

## **ONTAP 9**

NetApp

February 25, 2022

This PDF was generated from [https://docs.netapp.com/us-en/ontap/concept\\_nvme\\_provision\\_overview.html](https://docs.netapp.com/us-en/ontap/concept_nvme_provision_overview.html) on February 25, 2022. Always check docs.netapp.com for the latest.

# Table of Contents

- NVMe storage ..... 1
  - Provision NVMe storage ..... 1
  - Provision NVMe storage for SUSE Linux..... 1
  - Resizing a namespace..... 2

# NVMe storage

## Provision NVMe storage

You can use the non-volatile memory express (NVMe) protocol to provide storage in a SAN environment. The NVMe protocol is optimized for performance with solid state storage.

For NVMe, storage targets are called namespaces. An NVMe namespace is a quantity of non-volatile storage that can be formatted into logical blocks and presented to a host as a standard block device. You create namespaces and subsystems, and then map the namespaces to the subsystems, similar to the way LUNs are provisioned and mapped to igroups for FC and iSCSI.

NVMe targets are connected to the network through a standard FC infrastructure using FC switches or a standard TCP infrastructure using Ethernet switches and host-side adapters.

The following NVMe protocols are supported:

Protocol	Beginning with ...	Allowed by...
TCP	ONTAP 9.10.1	Default
FCP	ONTAP 9.4	Default

### Related information

- [Provision NVMe storage for SUSE Linux with System Manager](#)
- [Configure an SVM for NVMe with the CLI](#)

## Provision NVMe storage for SUSE Linux

Create namespaces to provide storage for a SUSE Linux server using the NVMe protocol. Namespaces appear to Linux as SCSI disk devices.

This procedure creates new namespaces on an existing storage VM. Your storage VM must be configured for NVME, and your FC or TCP transport should already be set up.



Beginning with ONTAP 9.8, when you provision storage, QoS is enabled by default. You can disable QoS or choose a custom QoS policy during the provisioning process or at a later time.

### Steps

1. In System Manager, click **Storage > NVMe Namespaces** and then click **Add**.

If you need to create a new subsystem, click **More Options**.

- a. If you are running ONTAP 9.8 or later and you want to disable QoS or choose a custom QoS policy,

click **More Options** and then, under **Storage and Optimization** select **Performance Service Level**.

1. Zone your FC switches by WWPN. Use one zone per initiator and include all target ports in each zone.
2. On your Linux server, discover the new namespaces.
3. Initialize the namespace and format it with a file system.
4. Verify the Linux server can write and read data on the namespace.

## Resizing a namespace

Beginning with ONTAP 9.10.1, you can use the ONTAP CLI to increase or decrease the size of a NVMe namespace. You can use System Manager to increase the size of a NVMe namespace.

### Increase the size of a namespace

Using System Manager	Using the CLI
<ol style="list-style-type: none"><li>1. Click <b>Storage &gt; NVMe Namespaces</b>.</li><li>2. Hoover over the namespace you want to increase, click , and then click <b>Edit</b>.</li><li>3. Under <b>CAPACITY</b>, change the size of the namespace.</li></ol>	<ol style="list-style-type: none"><li>1. Enter the following command: <code>vserver nvme namespace modify -vserver <i>SVM_name</i> -path <i>path</i> -size <i>new_size_of_namespace</i></code></li></ol>

### Decrease the size of a namespace

You must use the ONTAP CLI to decrease the size of a NVMe namespace.

1. Change the privilege setting to advanced:

```
set -privilege advanced
```

2. Decrease the size of the namespace:

```
vserver nvme namespace modify -vserver SVM_name -path namespace_path -size new_size_of_namespace
```

## Copyright Information

Copyright © 2022 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.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

## 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.