



# **Check protocol settings on the storage system**

**ONTAP 9**

NetApp  
May 31, 2023

# Table of Contents

- Check protocol settings on the storage system ..... 1
  - Check the NFS TCP maximum transfer size ..... 1
  - Check the iSCSI TCP read/write size ..... 1
  - Check the CIFS multiplex settings ..... 2
  - Check the FC adapter port speed ..... 2

# Check protocol settings on the storage system

## Check the NFS TCP maximum transfer size

For NFS, you can check whether the TCP maximum transfer size for reads and writes might be causing a performance issue. If you think the size is slowing performance, you can increase it.

### What you'll need

- You must have cluster administrator privileges to perform this task.
- You must use advanced privilege level commands for this task.

### Steps

1. Change to the advanced privilege level:

```
set -privilege advanced
```

2. Check the TCP maximum transfer size:

```
vserver nfs show -vserver vserver_name -instance
```

3. If the TCP maximum transfer size is too small, increase the size:

```
vserver nfs modify -vserver vserver_name -tcp-max-xfer-size integer
```

4. Return to the administrative privilege level:

```
set -privilege admin
```

### Example

The following example changes the TCP maximum transfer size of SVM1 to 1048576:

```
cluster1::*> vserver nfs modify -vserver SVM1 -tcp-max-xfer-size 1048576
```

## Check the iSCSI TCP read/write size

For iSCSI, you can check the TCP read/write size to determine if the size setting is creating a performance issue. If the size is the source of an issue, you can correct it.

### What you'll need

Advanced privilege level commands are required for this task.

### Steps

1. Change to advanced privilege level:

```
set -privilege advanced
```

2. Check the TCP window size setting:

```
vserver iscsi show -vserver,er vserver_name -instance
```

3. Modify the TCP window size setting:

```
vserver iscsi modify -vserver vserver_name -tcp-window-size integer
```

4. Return to administrative privilege:

```
set -privilege admin
```

### Example

The following example changes the TCP window size of SVM1 to 131,400 bytes:

```
cluster1::*> vserver iscsi modify -vserver vs1 -tcp-window-size 131400
```

## Check the CIFS multiplex settings

If slow CIFS network performance causes a performance issue, you can modify the multiplex settings to improve and correct it.

### Steps

1. Check the CIFS multiplex setting:

```
vserver cifs options show -vserver -vserver_name -instance
```

2. Modify the CIFS multiplex setting:

```
vserver cifs options modify -vserver -vserver_name -max-mpx integer
```

### Example

The following example changes the maximum multiplex count on SVM1 to 255:

```
cluster1:::> vserver cifs options modify -vserver SVM1 -max-mpx 255
```

## Check the FC adapter port speed

The adapter target port speed should match the speed of the device to which it connects, to optimize performance. If the port is set to autonegotiation, it can take longer to reconnect after a takeover and giveback or other interruption.

### What you'll need

All LIFs that use this adapter as their home port must be offline.

### Steps

1. Take the adapter offline:

```
network fcp adapter modify -node nodename -adapter adapter -state down
```

2. Check the maximum speed of the port adapter:

```
fcp adapter show -instance
```

3. Change the port speed, if necessary:

```
network fcp adapter modify -node nodename -adapter adapter -speed  
{1|2|4|8|10|16|auto}
```

4. Bring the adapter online:

```
network fcp adapter modify -node nodename -adapter adapter -state up
```

5. Bring all the LIFs on the adapter online:

```
network interface modify -vserver * -lif * { -home-node node1 -home-port e0c }  
-status-admin up
```

### Example

The following example changes the port speed of adapter 0d on node1 to 2 Gbps:

```
cluster1::> network fcp adapter modify -node node1 -adapter 0d -speed 2
```

## 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.